Documentary records of coastal storms in Scotland 1500-1991 A.D. Volume 2
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APPENDIX 5 SCOTTISH COASTAL FLOODS

Part 1 Description Of Database

FLOOD NUMBER:
DATE OF EVENT:
Date given in Gregorian format unless otherwise stated.

CAUSE OF EVENT:
A) TIDAL CONDITIONS:

Table 3.14 Classification of Paleo-Tidal Regimes Associated with Individual Events.

Type 1- Very Severe, very exceptional tides and water level heights with a return interval of 50 years or more.
Type 2 - Severe, exceptional tides and water level heights with a return interval of between 25 and 49 years.
Type 3 - Moderate exceptional tides and water levels with a return interval of between 10 and 24 years.
Type 4 - Normal high or spring tides and water levels with a return interval of less than 10 years.
Type 5 - No mention of tides or storm surges in the descriptions of the events.

B) WIND CONDITIONS:

C) DURATION OF STORM:

Table 3.13 Classification of Storm Duration

Type 1 - Storm, where gale force winds (Beaufort force 7 or more) are recorded for less than 5 hours.
Type 2 - Storm, where gale force winds (Beaufort force 7 or more) are recorded between 5 and less than 10 hours.
Type 3 - Storm, where gale force winds (Beaufort force 7 or more) are recorded for 10 hours or more.

D) ESTUARINE CONDITIONS:
This category is for information on the fluvial inputs which can contribute to estuarine flooding.

E) LAMB'S (1972) CIRCULATION PATTERN:
F) LAMB'S (1950) 'SPELLS' 
G) ANY OTHER FACTORS:

H) CLASSIFICATION OF CAUSE OF EVENT:

Table 3.11 Classification of Coastal Flooding Sub-Types.

Type 1 - Open coast and estuarine flooding and erosion caused by marine sources.
Type 2 - Estuarine flooding and erosion caused predominantly by marine sources but with some fluvial contribution.
Type 3 - Estuarine flooding and erosion caused by both marine and fluvial sources.
Type 4 - Estuarine flooding and erosion caused predominantly by fluvial sources but with some marine contribution.
Type 5 - Open coast or estuarine flooding and erosion caused partially by anthropogenic interference.

**IMPACT OF EVENT**
A) EXTENT OF EVENT :
B) DAMAGE CAUSED :

### 3.5.1 Classification of Coastal Impacts.
1) Loss of life, injuries.
2) Marine - harbours, ships and boats, lighthouses and lightships.
3) Infrastructure - towns and villages, roads and streets, bridges, railway lines and stations, structures for the transmission of water, gas, electricity, cables, pipes, lines of communication and transport.
4) Commercial - retailing, service and industrial buildings and stock, mineral extraction.
5) Rural - loss of agricultural land, farm buildings, livestock and crops, forestry.
6) Public/Heritage - public buildings, parks, sports facilities and grounds, historic buildings and archaeological sites, military barracks and grounds, religious buildings and graveyards.
7) Homes/Gardens - houses, gardens, garden walls.
8) Geomorphological/Hydrological - coastal and estuarine defence works, sand bars, sand spits and other similar coastal features, river flooding associated with storms.
9) Other - reclaimed land.
10) General Statements.
11) No Impact Specified.

C) IMPACT AT OTHER SITES :
D) LOCATIONS AFFECTED OUTSIDE SCOTLAND AND SOURCES :
E) SIZE OF EVENT :

**Table 3.8 Classification of Coastal Flood Magnitude.**

Local - These are events which caused flooding or erosion at a maximum of 3 specific locations.

Intermediate - Events which affected between 4 and 6 specific locations and/or up to a maximum of 2 counties and/or 1 main estuary; the latter two being accepted when multiple locations are implied but not specified.

Large - Events which affect at least 7 specific locations and/or a minimum of 3 counties and/or at least 2 main estuaries. This category also includes events where the description only refers to a specific coastline, (for example the eastern coastline of Scotland) and when the description gives no more detail than just identifying Scotland as having been affected. The latter two reasons are only accepted in this category when multiple locations are implied but not specified.

**AUTHENTICITY OF EVENT**
A) SOURCES OF INFORMATION :
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT:

Table 3.4 Classification of Events Based on Estimated Reliability of Information Sources and Dating.

Class 1 - Events considered as completely reliable because the original data source is contemporary or near contemporary with the event it records. The use of the term 'contemporary' means that the observer was present at the time of the occurrence at the place and time of the event. In certain cases where there are two or more independent records of an event having occurred, these events are also considered as reliable.

Class 2 - This category includes events considered as reliable although there may be minor problems of verification e.g. an original source that may differ slightly from the date of the event.

Class 3 - These are events included in the chronologies on the basis of likely reliability. This category includes many of the pre-1700 A.D. events where there is a strong dependence on work undertaken by previous researchers that is very difficult to verify.

C) ASSESSMENT OF QUALITY OF DATA:

COMMENTS

If a category from above is not included in any of event descriptions this indicates that there is no recorded data for this section.
Part 2 Database

FLOOD NUMBER : CF.1

DATE OF EVENT : 738 A.D.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1, 2 Glasgow... tidal flood...flooded by the sea.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1, 2 Glasgow flooded by the sea.

B) DAMAGE CAUSED :
1) 1, 2 Glasgow..."more than 400 families were drowned"

E) SIZE OF EVENT : Local

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1Book...C.E.P. Brooks and J. Glasspoole (1928) "British Floods And Droughts", Ernest Benn Ltd, London, 197pp, p95.
No original reference given.
2 Book...E.J. Lowe (1870) "Natural Phenomena And Chronology Of The Seasons" Bell And Daldy, London. Original Reference...Fordun, no date given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 3.

C) ASSESSMENT OF QUALITY OF DATA :
1 Very short description of event, part of chapter on great coastal floods of the past, presumably based on other earlier historical compilations, no specific earlier references given to any of the events.
2 Short description of the event in one of the early meteorology chronologies.

COMMENTS
Very difficult to judge authenticity of this event.
FLOOD NUMBER: CF.2

DATE OF EVENT: 1 1100
2 1100 (date given is 1097, this is most likely to be incorrect).

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Dyke and Moy...coastal inundation.
2 Moray...coastal inundation.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Dyke and Moy...coastline.
2 Moray...coastline.

B) DAMAGE CAUSED:
5) 1 Dyke and Moy...flooding of agricultural land.
2 Moray...flooding of agricultural land.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1, 2 England Kent the inundation and destruction of Earl Godwins land and the creation of the Godwin Sands as a result.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Original References given as Trusler using Blair's Chronology, no dates. Buchanan's "Life Of Malcolm Canmore" no date, Boethius, no date. John of Fordun "Scotichronicon" B. vii. ch. 50. no date.
Original References given as Boethius, no date. Buchanan, no date.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 3.

C) ASSESSMENT OF QUALITY OF DATA:
1 Scattered medieval references to various aspects of the event giving only limited information on the cause and impact of the event.
2 Short description of event based on poorly referenced medieval sources.

COMMENTS
Very difficult to judge the reliability of this event.
FLOOD NUMBER: CF.3

DATE OF EVENT: 1 1210
2 1210 (about the time of the feast of St Michael).

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Perth... inundation.
2 Perth... "by a spring tide from the sea"

C) ESTUARINE CONDITIONS:
2 Perth... "The water of Tay, with the water of Almond, being swelled by the increasing rain"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Perth... peculiarly destructive flood.
2 Perth... "passed through a large part of that town"

B) DAMAGE CAUSED:
1) 1 Perth... "overwhelming casualty... the King lost a son, who, with his nurse and fourteen of his domestics, and many of the inhabitants perished"
2) 1 Perth... "a great part of the town was swept away"
3) 1 Perth... "the large bridge of St John, with an ancient chapel, were overthrown"
6) 1 Perth... "the Palace or Castle in which the Royal Family resided was swept away"
7) 2 Perth... "some houses... were overthrown"
8) 2 Perth... "a mound or rampart gave way"

E) SIZE OF EVENT: Local

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book... D. Peacock (1849) "Perth: Its Annals And Archives", Thomas Richardson, Perth, p5-9, 36 and 465. No original reference specified but the author those state that the information comes from manuscript sources contemporary with the event.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event
2 Detailed description of event concentrating on discussion of sources of information.
FLOOD NUMBER : CF. 4

DATE OF EVENT : 1266 A.D.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Tay... tidal inundation.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Tay... coastline flooded.

B) DAMAGE CAUSED :
5) Tay... flooding of agricultural land and orchards.
7) Tay... flooding of houses.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES :
England Tweed... Tidal inundation of houses, agricultural lands and orchards

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Original references given as John of Fordun "Scotichronicon" B. x. ch. 22. as quoted in Lord Haile's Annals, no dates.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 3.

C) ASSESSMENT OF QUALITY OF DATA :
One medieval reference to some aspects of the event giving only limited information on the cause and impact of the event.

COMMENDS
Very difficult to judge the reliability of this event.
FLOOD NUMBER: CF.5

DATE OF EVENT:
1 1304 February.
2 1304.
3 1302 approx.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
3 Solway...sea flood.

B) WIND CONDITIONS:
1 England Skinburness...storm.

C) DURATION OF STORM:
Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT:
Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
3 Solway...sea flood.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England Skinburness inundation by the sea leading to the port silting up and destruction of town and a road.

E) SIZE OF EVENT:
Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS:
Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Short description of event.
3 Very short description of event.
FLOOD NUMBER: CF.6

DATE OF EVENT: 1 1413 August 10 Pre-changeover date hence discrepancy. 2 1413 August 19

CAUSE OF EVENT
A) TIDAL CONDITIONS:
2 Forvie..."The date is within 20 years of the long-term maximum of the tidal force, and calculation of the tides in the area indicate extreme tides in that month, particularly low tides within 10 cm of the astronomical extreme, within 4 days of the reported date of the storm...one suspects an error of this amount either in the calculation or reporting of the event...the tidal calculations indicate other notable low and high tides in other months of that year but none so extreme as this one"

B) WIND CONDITIONS:
1 Aberdeenshire..."severe storm"
2 Forvie..."Southerly storm"

C) STORM DURATION: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Aberdeenshire...coast flooded.

B) DAMAGE CAUSED:
10) Aberdeenshire..."brought sudden destruction"

C) IMPACT AT OTHER SITES:
8) Forvie...town destroyed and buried by blown sand.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
2 Article...H.H. Lamb (1980) "Climatic Fluctuations In Historical Times And Their Connection With Transgressions Of The Sea, Storm Floods And Other Coastal Changes" in A. Verhulst and M.K.E. Gottschalk (eds) "Trangressies En Occupatiegeschiedenis In De Kustgebieden Van Nederland En Belgie", Belgie Centrom Voor Landelijke Greschiedenis, p251-281.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very brief description of the event.
2 Description of event concentrates on the tidal aspect with little information on the impact of the event.
FLOOD NUMBER: CF.7

DATE OF EVENT: 1425.

CAUSE OF EVENT
B) WIND CONDITIONS:
Solway Firth..."storm"

C) STORM DURATION: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Solway Firth...Kirkbean up the back of the Merse and Morcambe Bay near Silloth.

B) DAMAGE CAUSED:
8) Solway Firth...creation of Morcambe Bay near Silloth and the deposition of large shingle banks on the Kirkbean coast up the back of the Merse.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
No original reference given, but the author is the retired curator of the Dumfries Museum and has a personal interest in various aspects of coastal change in the local area.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Very brief description of the event.
FLOOD NUMBER : CF.8

DATE OF EVENT : 1553 January 15 and 18-25 most likely dates either 15th or 23rd.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Scotland...tidal surges.

B) WIND CONDITIONS :
Scotland...great wind storms...storm floods. Lamb's Interpretation : "The weather sequences suggest that the January 1553 events each began with mild southwesterly winds, ended by a sharp cold front bringing a strong gale from about NW in the southern, and from N in the northern, North Sea".

C) STORM DURATION : Type 1.

G) ANY OTHER FACTORS :
Scotland...accompanied by hail snow and thunder.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Scotland...coasts...widespread sea flooding.

B) DAMAGE CAUSED :
8) Scotland...widespread sea flooding.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES :
England...coasts affected, sources as below.
Germany...coasts affected, sources as below.
Netherlands...dyke breaches and coastal floods.

E) SIZE OF EVENT : Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

Gottschalk bases her work on an examination on the original historical documents and as a result her work can be considered very reliable and accurate.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2.

D) ASSESSMENT OF QUALITY OF DATA :
Description of event which concentrates on the cause with very little on the locations affected and the damage caused.
FLOOD NUMBER: CF.9

DATE OF EVENT: 1606 March 29-30.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Scotland..."It blew...and caused the sea and many rivers so to overflow their wonted limits and bounds"

B) WIND CONDITIONS:
Scotland..."The equinoctial gale of this year is described by a contemporary chronicler as of extreme violence...The wind was so extraordinary tempestuous and violent"

C) STORM DURATION: Type 1.

G) ANY OTHER FACTORS:
Scotland...caused many rivers to overflow their wonted limits and bounds.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Scotland...coastline flooded.

B) DAMAGE CAUSED:
1) Scotland...many people...were drowned and perished.
2) Scotland..."caused great shipwreck"
3) Scotland..."ruined whole villages"
5) Scotland..."It blew trees by the roots...and chattels were drowned and perished"

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
England...same detail and source as below.
France...same detail and source as below.
The Netherlands...same detail and source as below.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...R. Chambers (1885) "Domestic Annals Of Scotland: From The Reformation To The Rebellion Of 1745", Abridged Edition, W. and R. Chambers, Edinburgh, p182. Reference Used...J. Balfour (1824) 'Annals Of Scotland, 1057-1603' 4 Volumes, Edinburgh. Strong indication from the text that Balfour used "a contemporary chronicler" i.e. contemporary to the event, as his original reference.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event and its impacts, and the countries affected, locations affected presumably given in country form.
FLOOD NUMBER : CF.10

DATE OF EVENT : 1613.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Findhorn...The largest tide and overflowing of the sea between this date and 1653.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Findhorn...some sea flooding.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Letter...Sinclair Ross pers comm. letter dated 1990 September 17.
Original Reference...The Diary Of Brodie Of Brodie no date but possibly contemporary with the event.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 2.

C) ASSESSMENT OF QUALITY OF DATA :
Very short description of event mentioned in reference to a later event.
FLOOD NUMBER: CF.11

DATE OF EVENT: 1616 September 16.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Leith..."there arose such a swelling in the sea...that the like was not seen before for a hundred years... this extraordinary tide".
Dunbar..."the like flowing"
Musselburgh..."the like flowing and other parts of the sea-coast"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Leith...harbour damaged and houses and cellars flooded.
Dunbar...swelling of the sea.
Musselburgh and other parts of the sea-coast...swelling of the sea.

B) DAMAGE CAUSED:
2) Leith...carried off timber and lasts of herring from a place beside the bulwark called the Timber Hoff.
7) Leith...flooded many low-lying houses and cellars, and filled them with water.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...R. Chambers (1885) "Domestic Annals Of Scotland: From The Reformation To The Rebellion Of 1745", Abridged Edition, W. and R. Chambers, Edinburgh, p205. Reference Used...D. Calderwood (1842) "History Of The Kirk Of Scotland", 8 Volumes, Wodrow Society. No further reference given or an indication that the material comes from an earlier chronicler.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
FLOOD NUMBER: CF.12


CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Dundee...high tides.

B) WIND CONDITIONS:
1 Dundee...driven by an easterly gale.
2 Perth..."a great tempestous wind at the east blew all this time"

C) STORM DURATION: Type 2.

D) ESTUARINE CONDITIONS:
1 Dundee...flooding in the Tay primarily rainfall.

G) ANY OTHER FACTORS:
2 Perth...extensive river flooding of the town due to exceptionally heavy rainfall for thee days"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 4.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Dundee...extensive flooding in city.

B) IMPACT OF EVENT:
7) 1 Dundee...extensive flooding in city.

C) IMPACT AT OTHER SITES:
3) 2 Perth..."bridge washed away"
8) 2 Perth...extensive river flooding of the town causing much damage.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
2 Book...D. Peacock (1849) "Perth : Its Annals And Archives" Thomas Richardson, Perth.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event.
2 detailed description of event.
FLOOD NUMBER: CF.13

DATE OF EVENT: 1625 March.

CAUSE OF EVENT
B) WIND CONDITIONS:
1 Culross... "a violent gale and storm"
2 Culross... "a great storm"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Culross... the great pit of Culross, almost certainly the one with the shaft running under the sea... was destroyed.
2 Culross... "The Culross Moat... was destroyed"

B) DAMAGE CAUSED:
4) 1 Culross... the great pit... was destroyed... and drowned the coal.
2 Culross... Moat... was destroyed... and the remains of the structure can still be seen in a heap of stones on the mud.
8) 1 Culross... washed away the stone bulwark.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

D) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event, however detail and description of area affected different in structure and style to the earlier record so unlikely to be a direct copy.
2. Short description of the event.
FLOOD NUMBER: CF.14

DATE OF EVENT: 1627 October 10

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Carlaverock and Ruthwell..."a high tide"

B) WIND CONDITIONS:
Carlaverock and Ruthwell..."assisted by the storm...a tempest of extraordinary violence"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Carlaverock (Blackshaw) and Ruthwell..."an inundation over a large tract of land...it went at least half a mile beyond the ordinary course"

B) DAMAGE CAUSED:
1) Ruthwell...17 saltmakers on Ruthwell sands perished.
5) Carlaverock and Ruthwell..."many cattle and other bestial were swept away with its rapidity"
7) Carlaverock and Ruthwell...a number of houses including the house of Old Cockpool were thrown down or flooded.
8) Carlaverock and Ruthwell...a number of bulwarks were thrown down.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
England which destroyed a vast quantity of mercantile shipping, including many collier vessels carrying their commodities to the Thames. Source as below.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Detailed description of the event and its impacts.
FLOOD NUMBER: CF.15

DATE OF EVENT: 1633 February 7 probably pre-changeover date.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Leith..."The ordinary ebb and flow of the tide interrupted for twenty-four hours"
East Coast..."other places...The ordinary ebb and flow of the tide interrupted for twenty-four hours"

B) WIND CONDITIONS:
Leith..."There began a great storm...with horrible high winds"

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
Leith...accompanied by snow.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Leith...tidal disturbance, did cause flooding.
East Coast...other places...tidal disturbance, did not cause any damage.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Journal Article...R.C. Mossman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p93. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Brief description of the event concentrating on its cause.
FLOOD NUMBER: CF.16

DATE OF EVENT: 1637 December 26.

CAUSE OF EVENT
B) WIND CONDITIONS
Aberdeen..."the mouth of the river Dee...the late inundations and storms"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF THE EVENT:
Aberdeen..."the mouth of the river Dee"

B) DAMAGE CAUSED:
B) Aberdeen...formation of a temporary bar across the Dee.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...R. Chambers (1885) "Domestic Annals Of Scotland : From The Reformation To The Rebellion Of 1745"
Reference Used...J. Spalding (1850) "Memorials Of The Troubles In Scotland And England, A.D. 1624-A.D. 1645, 2 Volumes, Aberdeen, Spalding Club. Chambers notes that his text is slightly altered from Spalding's, no further reference given or indicated.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA.
Description of event and its cause.
FLOOD NUMBER: CF.17

DATE OF EVENT: 1642.

CAUSE OF EVENT:
A) TIDAL CONDITIONS:
Newburgh and Ellon... "the tide rose so high"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
Newburgh and Ellon tidal inundation.

B) DAMAGE CAUSED:
7) Newburgh and Ellon... damage done to some houses... fires in some houses put out by the tide.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event.
FLOOD NUMBER: CF.18

DATE OF EVENT: 1 1653 December 19 Pre-changeover date hence discrepancy.  
2 1653 December 27.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Findhorn..."The largest tide and overflowing of the sea for 40 years"
2 Inverness..."tide overflowed"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Findhorn...some flooding.
2 Inverness...some flooding.

B) DAMAGE CAUSED:
7) 1 Findhorn...some homes destroyed.

E) SIZE OF EVENT: Local..

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Letter...Sinclair Ross pers comm 1990 September 17. Original Reference...The Diary Of Brodie Of Brodie no date but contemporary with the event.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very short description of event.
2 Very short description of event.
FLOOD NUMBER: CF.19

DATE OF EVENT: 1655 February.

CAUSE OF EVENT
B) WIND CONDITIONS:
1. Firth Of Forth and Eastern Scotland... "severe and protracted storms"
2. Firth Of Forth... "severe and protracted storms."

C) DURATION OF STORM: Type 2.

G) ANY OTHER FACTORS:
1. Firth Of Forth and Eastern Scotland... event followed by a long frost.
2. Firth Of Forth... "followed by a frost which continued till April."

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT
1. Firth Of Forth and Eastern Scotland... coasts flooded.
2. Firth Of Forth... flooded.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
2. Journal Article... R.C. Mossman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p94. Original Reference... Although the author does not assign an original reference to the event, he does give a list of some of the original references used including early newspapers at the start of the appendix and specifically states that this is where the events come from.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Short description of event.
2. Short description of event.
FLOOD NUMBER: CF.20

DATE OF EVENT: 1, 2, 1655 December 20.
3 1655.

CAUSE OF EVENT:
A) TIDAL CONDITIONS:
1 East coast of Scotland..."As for the sea, it did flow far above...its banks"

B) WIND CONDITIONS:
1 East coast of Scotland..."and all that night ther blew a great wynde". Lamb's Interpretation "From the distribution of damage it is reasonable to suppose that the storm wind blew from an easterly direction"
2 Firth Of Forth..."Great gale from N.E."
3 Crail...present harbour battered by an exceedingly severe gale.

C) DURATION OF STORM: Type 3.

G) ANY OTHER FACTORS:
1 East coast of Scotland..."it did snow, but at night ther fell extraordinar mutch snow"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
1 East coast of Scotland, Fife and Lothians, Firth of Forth..."As for the sea, it did flow far above...its banks"
1 Fyfe and Louthian..."also several salt pans wronged (flooded by the sea)"
2 Firth Of Forth.

B) DAMAGE CAUSED:
2) 1 Dysart...18 small barkes and other vessels...perished, lying in harbours.
1 Crail...30 small barkes and other vessels...perished, lying in harbours, pier dung downe.
1 St Andraes...pier was dung downe.
1 Eastor...pier dung downe.
1 Wemys...pier dung downe.
1 Leith...pier dung downe.
2 Firth Of Forth...many ships lost.
3 Crail...present harbour damaged.
4) 1 Leven...part of the stone granary was broken down.
1 Fyfe and Louthian..."also several salt pans wronged (flooded by the sea)"
5) 1 East coast of Scotland...many trees blown over by the violence of this storm.
7) 1 East coast of Scotland...some of the smaller houses were blown down.
10) 2 Firth Of Forth..."much damage on land"

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
2 Journal Article...R.C. Mossman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p94. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used including early newspapers at the start of the appendix and specifically states that this is where the events come from.
3 Book...R. and F. Morris (1983) "Scottish Harbours" The Alethea Press, Everton, Sandy, 229p, p127. Original reference not specified, although the use of quotation marks indicates an earlier source was used, presumably from the list of references given at the back of the book.
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Detailed description of the event especially the locations affected and the damage caused.
2. Very short description of event.
3. Brief mention of event.

COMMENTS
This event is more likely to have occurred on December 20th because of the similarity of description particularly the emphasis on the event having occurred due to one storm and not a sequence of them as in the February event.

FLOOD NUMBER: CF.21


CAUSE OF EVENT
A) TIDAL CONDITIONS:
East coast of Scotland...high sea.

B) WIND CONDITIONS:
East coast of Scotland...great tempest of wind. Lamb's Interpretation: "It is hard to judge the wind directions involved in this incident; possibly a gale from between NE and SE with temperatures no higher than +1 to 5 degrees centigrade is likely, if general water levels in the North Sea had been raised by N'ly and NW'lywinds in latitudes between Iceland and Scotland.

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
East coast of Scotland...rain...followed a long period of snow lying on the ground.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
East coast of Scotland..."There came a sea flood and people were drowned on the coasts of the Forth"

B) DAMAGE CAUSED:
1) Firth of Forth..."people were drowned"

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event.
FLOOD NUMBER: CF.22

DATE OF EVENT: circa 1661

CAUSE OF EVENT

B) WIND CONDITIONS:
St. Andrews... "a storm"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
St. Andrews... sea flood... the first stone piers... were washed away by a storm

B) DAMAGE CAUSED:
2) St. Andrews... "the first stone piers were built after the Reformation and were washed away by a storm and rebuilt in 1662"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 3.

C) ASSESSMENT OF QUALITY OF DATA:
Very short description of event, no detail on cause and dating of event very difficult.
FLOOD NUMBER: CF.23

DATE OF EVENT: 1662 December 12-14.

CAUSE OF EVENT
B) WIND CONDITIONS:
Eastern Scotland..."A great storm"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Eastern Scotland, Firth of Forth, Dysart...sea flood.

B) DAMAGE CAUSED:
2) Dysart, Fife...partly built new harbour destroyed and dispersed the heavy building materials. A large ship was blown out into the Firth and destroyed.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event, not enough detail on the cause of the event and the locations affected and the resulting damage.
FLOOD NUMBER: CF.24

DATE OF EVENT: 1665 December 5.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Eastern Scotland... "major storm surge and inundation" 

C) DURATION OF STORM: Type 1.

B) WIND CONDITIONS:
Eastern Scotland... "major storm" 

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Eastern Scotland... coastline flooded.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
Belgium Flanders... major storm surge and inundation, source as below.
Netherlands... major storm surge and inundation, source as below.
Norway... major storm surge and inundation, source as below.
England Yarmouth, Sandwich, Dover and Deal... major storm surge and inundation, source as below.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book... M.K.E. Gottschalk (1977) "Stormvloeden En Riveroverstromingen In Nederland - Deel 3: De Periode 1600-1700", Van Gorcum, Assen/ Amsterdam. Gottschalk bases her work on an examination on the original historical documents and as a result her work can be considered very reliable and accurate.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event.
FLOOD NUMBER: CF25

DATE OF EVENT: 1669 October 23.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
East coast of Scotland...Lamb's Interpretation..."The sea flood seems to have been up to a metre or two above normal high tide level".

B) WIND CONDITIONS:
East coast of Scotland..."A great storm of wind", Lamb's Interpretation...This was probably an easterly or northeasterly gale, which raised water levels in the Firths of Forth and Tay.

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
East coast of Scotland..."A great storm of wind, rain and thunder arose".

H) CLASSIFICATION OF CAUSE OF EVENT: Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Firth of Tay...some of the islands...were submerged by the sea.
Dundee...harbour area flooded.
St. Andrews...harbour area flooded.
Crail...harbour area flooded.
Enster...harbour area flooded.
Pittenwyme...harbour area flooded.
Ferry...harbour area flooded.
Wemyss...harbour area flooded.

B) DAMAGE CAUSED:
2) Dundee harbour..."vessels were broken and clattered...where they sustained, as some affirm, above ten thousand marks worth of losse"
St Andrews, Crail, Enster, Pittenwyme and Ferry harbours..."vessels were broken and clattered"
Wemyss harbour..."where a vessel of Kirkcaldie brake loose out of the harbour and spitted herself on the rocks"
5) Firth of Tay..."some of the islands used for grazing cattle were submerged by the sea and all the beasts were drowned".
East coast of Scotland..."trees were uprooted in many places"

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...H. Lamb (1991) "Historic Storms Of The North Sea, British Isles And Northwest Europe.
No original reference given but presumably from the diary of John Lamont of Newton.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of event, no definite original source of information.
FLOOD NUMBER : CF.26

DATE OF EVENT : 1670.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Anstruther..."abnormally high tides flooded the harbour"
3, 4 Anstruther..."inundation of the sea"

H) CLASSIFICATION OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1, 3, 4 Anstruther...flooded the harbour, choked it up with silt.
2 Anstruther..."what harbour they had...was swept away"

B) DAMAGE CAUSED :
2) 1 Anstruther..."flooded the harbour, choked it up with silt, destroyed part of the walls".
2 Anstruther..."what harbour they had piers and all, was swept away"
3, 4 Anstruther..."which destroyed or choked up the harbour"
7) 1, 3, 4 Anstruther... "rendered many houses unsafe"
8) 3, 4 Anstruther..."washed away the bulwarks"

C) IMPACTS AT OTHER SITES :
3, 4 Some other locations affected by this event but they are not specified an any of the references as the 1st Statistical Account of the parish states "Anstruther shared the fate of its neighbours, about the year 1670 by an inundation of the sea"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
2 H. Farnie (1861) "The Fife Coast From Queensferry To Fifeness", J.C. Orr, Cupar-Fife, p175. No original reference given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of event but with cause of event given.
2 Short description of event, more detail on damage.
3 Short description of event with detail on cause and impact of event.
4 Short description of event with detail on cause and impact of event.
FLOOD NUMBER: CF27

DATE OF EVENT: 1688.

CAUSE OF EVENT
B) WIND CONDITIONS:
Aberdeenshire..."severe storm ...of nine days duration"

C) DURATION OF STORM: Type 3.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Aberdeenshire...coast.

B) DAMAGE CAUSED:
10) Aberdeenshire..."brought sudden destruction"

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Very brief description of the event.
**FLOOD NUMBER**: CF.28

**DATE OF EVENT**: 1689

**CAUSE OF EVENT**

**B) WIND CONDITIONS**: Crail..."storm"

**G) ANY OTHER FACTORS**: Crail...pier weakened by previous storms and lack of upkeep.

**C) DURATION OF STORM**: Type 1.

**G) CLASSIFICATION OF CAUSE OF EVENT**: Type 5.

**IMPACT OF EVENT**

**A) EXTENT OF EVENT**: Crail...flood in the harbour area.

**B) DAMAGE CAUSED**: 2) Crail..."the pier was broken down and overturned"

**E) SIZE OF EVENT**: Local.

**AUTHENTICITY OF EVENT**

**A) SOURCES OF INFORMATION**

Book...R. and F. Morris (1983) *Scottish Harbours* The Alethea Press, Everton, Sandy, 229pp, p127-128. Original reference not specified, although the use of quotation marks indicates an earlier source was used, presumably from the list of references given at the back of the book.

**B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS**: Class 1.

**C) ASSESSMENT OF QUALITY OF DATA**: Brief mention of event.
FLOOD NUMBER: CF29

DATE OF EVENT: 1 1690s (date very unclear...some years later than the 1670 event.
2 1770s (date very unclear...about a century later than the 1670 event...this is most likely incorrect)
3, 4 1690s "end of last century", Statistical Account written in 1790s)

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Anstruther...abnormally high tides...when a similar invasion of the sea occurred.
2 Anstruther..."nearly a third of the burgh was washed down by the advancing Firth"
3, 4 Anstruther..."inundation by the sea.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Anstruther..."similar invasion of the sea occurred...the whole of what had been the street fronting the harbour was washed away"
2 Anstruther..."nearly a third of the burgh was washed down by the advancing Firth.
3, 4 Anstruther..."when about a third of the town seems to have been destroyed"

B) DAMAGE CAUSED:
6) 2 Anstruther..."and the rock on which the Town house was built, is now buffeted over head and ears by every spring tide"
7) 1 Anstruther..."The whole of what had been the street fronting the harbour was washed away"
2 Anstruther..."In this submersion, the Fore St, or shore, was destroyed.
3, 4 Anstruther..."A long street, called the fore street, was totally destroyed; scarce a vestige of it now remains"
8) 1 Anstruther..."The whole of what had been the street fronting the harbour was washed away"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
No original reference given.
2 H. Farnie (1861) "The Fife Coast From Queensferry To Fifeness", J.C. Orr, Cupar - Fife, p175.
No original reference given.
Original Reference is 3 above.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event, cause of event not clearly stated, dating of event is very difficult.
2 Short description of event, cause and date of event difficult to identify.
3 Short description of event concentrating on the damage caused.
4 Short description of event concentrating on the damage caused.
FLOOD NUMBER: CF.30

DATE OF EVENT: 1697 Winter.

CAUSE OF EVENT
B) WIND CONDITIONS:
Saltcoats..."storms"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Saltcoats...the harbour area flooded.

B) DAMAGE CAUSED:
2) Saltcoats...the Winter storms, for several years, demolishing part of what had been done the previous Summer...to the harbour under construction.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...Sir John Sinclair (1791-1799) "The Statistical Account Of Scotland" Volume 6, Account Of The Parish Of Stevenston by Rev. James Wodrow, p587. No original reference given but the accounts of each parish are based on local knowledge and usually done by the local vicar and as such are likely to be reasonably accurate for.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Very brief description of event, needs alot more detail on the dating and cause of event and the damage caused.
FLOOD NUMBER: CF.31

DATE OF EVENT: 1698 Winter.

CAUSE OF EVENT

B) WIND CONDITIONS:
Saltcoats..."storms"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1) Saltcoats...the harbour area flooded.
2) Saltcoats...the Winter storms, for several years, demolishing part of what had been done the previous Summer...to the harbour under construction.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
Book...Sir John Sinclair (1791-1799) "The Statistical Account Of Scotland" Volume 6, Account Of The Parish Of Stevenston by Rev. James Wodrow, p587. No original reference given but the accounts of each parish are based on local knowledge and usually done by the local vicar and as such are likely to be reasonably accurate for.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Very brief description of event, needs alot more detail on the dating and cause of event and the damage caused.

453
FLOOD NUMBER: CF.32

DATE OF EVENT: 1699 Winter.

CAUSE OF EVENT
B) WIND CONDITIONS:
Saltcoats..."storms"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Saltcoats...the harbour area flooded.

B) DAMAGE CAUSED:
2) Saltcoats...the Winter storms, for several years, demolishing part of what had been done the previous Summer...to the harbour under construction.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...Sir John Sinclair (1791-1799) "The Statistical Account Of Scotland" Volume 6, Account Of The Parish Of Stevenston by Rev. James Wodrow, p587. No original reference given but the accounts of each parish are based on local knowledge and usually done by the local vicar and as such are likely to be reasonably accurate for.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Very brief description of event, needs alot more detail on the dating and cause of event and the damage caused.
FLOOD NUMBER : CF. 33

DATE OF EVENT : 1 1702 October 22.
2 3 1701.
4 1702 October 11 pre-changeover date hence discrepancy.

CAUSE OF EVENT
A) TIDAL CONDITIONS
2 Findhorn..."inundated by the sea"
3 Findhorn...inundated by the sea aided by a breach in the Old Bar.

B) WIND CONDITIONS :
1 Northern Scotland, Moray Firth..."A storm apparently from about WSW, but the wind perhaps again shifting later to NW...battering of the outer coast at some stage by a heavy northwesterly or northerly sea"
4 Findhorn...storm.

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1, 2 Findhorn..."In this storm the old town (the second village)...at the mouth of the river, was destroyed by the sea.
4 Findhorn...a breach was made in the old bar and the river formed its present mouth.

B) DAMAGE CAUSED
7) 1, 2 Findhorn...the old town was destroyed by the sea.
8) 1 Culbin...further severe drifting of loose sand causing the river Findhorn to change course to the east, to reach its present mouth.
3 Findhorn...Old Bar in bay breached.
4 Findhorn...a breach was made in the old bar and the river formed its present mouth.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
No original reference specified but a list of references is given at the back of the book.
3 Letter...Sinclair Ross pers comm. letter dated 1990 September 17.
No original reference given but based on the unpublished research of the author.
4 Book...J.A. Steers (1973) "The Coastline Of Scotland" Cambridge University Press, pp314, p222. Original Reference...Avery's Survey of the area carried out in 1730.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2.

D) ASSESSMENT OF QUALITY OF DATA :
1 Short description of event, lacks contemporary reference.
2 Short description of event, lacks contemporary reference.
3 Short description of event based on authors own research.

COMMENTS.
Major difficulty with year of event as the three sources seem sure that theirs is correct.

455
FLOOD NUMBER : CF.34

DATE OF EVENT : 1706 January.

CAUSE OF EVENT
B) WIND CONDITIONS :
Arbroath..."storm"

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Arbroath...harbour area flooded.

B) DAMAGE CAUSED :
2) Arbroath..."storm destroyed most of wooden harbour"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
No original reference given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of event.
FLOOD NUMBER : CF.35

DATE OF EVENT : 1720.

CAUSE OF EVENT
B) WIND CONDITIONS :
Crimond...Loch of Strathbeg, a disastrous storm...a furious east wind.

C) DURATION OF STORM : Type 1.

G) ANY OTHER FACTORS :
Crimond...Loch of Strathbeg, aided by the removal by the wind of a hill of sand between the Castlehill of Rattray and the sea.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Crimond...Loch of Strathbeg, "People born about 1700 can well remember the overflowing (creation by flooding) of the western part of the Loch"

B) DAMAGE CAUSED :
2) Crimond...Loch of Strathbeg, 1 small ship trapped in Loch when entrance was sealed by sand.
8) Crimond...Loch of Strathbeg, destruction of sand hill, blown into entrance from Loch to the sea.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Detailed discussion on the events affecting this area put together from a number of historical sources.
FLOOD NUMBER : CF.36

DATE OF EVENT : 1721 January 3.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Scotland..."exceptionally high tides"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Scotland...coastline flooded.

E) SIZE OF EVENT : Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Original Reference...Newspaper...The Caledonian Mercury 1721, .

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Very brief mention of event with no information on the specific locations affected and the damage caused.

458
FLOOD NUMBER: CF.38

DATE OF EVENT: 1760.

CAUSE OF EVENT:
A) TIDAL CONDITIONS:
1 Cockburnspath..."At the Cove...a heavy sea"

B) WIND CONDITIONS:
Cockburnspath..."At the Cove...a heavy sea from the north-east"
Montrose..."storm"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
1 Cockburnspath..."At the Cove...harbour flooding"
2 Montrose...at the Montrose basin flooding.

B) DAMAGE CAUSED:
2 1 Cockburnspath...a pier under construction was entirely destroyed.
2 2 Montrose..."A dyke at the Montrose basin destroyed by a storm in the same year as it was built. Dyke called Drainers or Donners Dyke"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
1 Book...Society For The Sons And Daughters Of The Clergy (1835) "New Statistical Account Of Scotland: Volume 2 Berwickshire" Account Of The Parish Of Cockburnspath, 1834, p312-313. No original reference given.
2 Book...E.S. Valentine (1915) "Forfarshire" Cambridge University Press.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Short description of event.
FLOOD NUMBER: CF.39

DATE OF EVENT: 1763 - 1764.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Stevenston... "The tide... encroached farther than ever before on land"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Stevenston... "encroached farther than ever before on land... one coal pit flooded"

B) DAMAGE CAUSED:
4) Stevenston... one coal pit flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
FLOOD NUMBER : CF.40

DATE OF EVENT : 1765 November 4.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
St Andrews..."which raise tremendous waves in the bay"

B) WIND CONDITIONS :
St Andrews..."an unexpected blast of north-east wind"

CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
St Andrews...the bay and East Sands flooded.

B) DAMAGE CAUSED :
1) St Andrews...11 fishermen drowned and 1 boy injured.
2) St Andrews...3 boats destroyed and 2 badly damaged, most of the fishing lines were also lost.

SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...Society For The Sons And Daughters Of The Clergy (1845) *New Statistical Account Of Scotland: Volume 9. - Fifeshire* Account Of The Parish Of St Andrews, 1838, p714-715. No original reference specified but account of event is definitely extracted from a contemporary description of the event.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Detailed description of event which concentrates on the loss of the fishermen.
FLOOD NUMBER: CF.41

DATE OF EVENT: 1 1783 Winter.
2 1783.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Peterhead..."demolished in one tide"
2 Reay...coastal inundation.

B) WIND CONDITIONS:
1 Peterhead..."storm"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Peterhead...A jetty, or small quay, erected at right angles to the south pier.
2 Reay..."A great flood...near Cnoc Stanger"

B) DAMAGE CAUSED:
2) 1 Peterhead...A jetty or small quay erected at right angles to the south pier was demolished and all the material from it thrown into the channel, so much so that the depth of water decreased by 6 feet.
8) 2 Reay..."A great flood...exposed a number of remains of houses and buildings near Cnoc Stanger"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book...J.T. Findlay (1933) "A History Of Peterhead From Prehistoric Times To A.D. 1896" Revised Edition, P Scrogie Ltd, Peterhead, 339p, p216. No original reference given but the author clearly shows that he is quoting from a previous work. A list of principal references is given at the end of the book.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event concentrating on the damage to the harbour.
2 Short description of event.
FLOOD NUMBER : CF.42

DATE OF EVENT : 1784 January 2.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
   Aberdeen... High sea.

B) WIND CONDITIONS :
   Aberdeen... "a violent storm of wind at South East"

C) DURATION OF STORM : Type 1.

G) ANY OTHER FACTORS :
   Aberdeen... snow on ground blown into drifts some up to 18 feet in height... also a great deal of lightning.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
   Aberdeen... "the sea came out 40 yards further than the oldest man ever remembers"

B) IMPACT OF EVENT
   B) Aberdeen... "at the Cove and several other little harbours near this great pieces of the rocks was rent off and thrown into their harbours"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
   Letter... D. Slep pers comm. letter dated 1991 October 5, researcher at The National Museum of Scotland.
   Original Reference... The Diary Of Janet Burnet Of Kenmay And Disblair in Aberdeenshire, 1780's, unpublished diary in the possession of The National Museum Of Scotland.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
   Short description of event concentrating on the damage to the harbour.
FLOOD NUMBER: CF.43

DATE OF EVENT: 1 1792 December.
2 1792.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1, 2 Miltonhaven...a sea flood.

B) WIND CONDITIONS:
1 Miltonhaven...notably stormy period. Lamb's interpretation "it has been possible to derive the maps of the monthly mean pressure distribution in each of those months (December...which Lamb hints at as being the month of occurrence of the 1792 Miltonhaven event). They all show patterns conducive to prevalent NW'ly to N'ly winds over the North Sea, particularly the northern part.

G) ANY OTHER FACTORS:
1 Germany (Cuxhaven and Hamburg)...And between 16/11 1792 and 3-4/3 1793 there were four very high flood tides, reaching over 2.5 m above mean high water level, and four more that reached between 1.5 and 2.5 m above the normally expected high tide...No such frequency of storm floods occurred again until 1973 and then with not quite the same severity, Petersen and Rohde (1977).
1, 2 Miltonhaven...The disaster was prepared by the unwise quarrying for lime, for agriculture on the nearby Lauriston Castle estate, from the projecting ledge of rock, which ran across the bay and had formed a natural protection for the village.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Miltonhaven...a sea flood...three houses were carried away.
2 Miltonhaven..."some houses inundated"

B) DAMAGE CAUSED:
7) 1 Miltonhaven...three houses were carried away.
2 Miltonhaven...Some houses inundated.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 This notably stormy period (1791 to 1795) also affected the British Isles and coasts of other neighbouring countries as far as Sweden. Source...Lamb (1991).
See also Lamb (1991) p97 for a general discussion on the stormy month of December 1792.
Germany. Source...Petersen and Rohde (1977).

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 The description of the event and particularly its causes come from a number of different sources, it is not possible to identify the actual date of the event but it is very likely to have occurred in December.
2 Short description of event.
FLOOD NUMBER : CF.44

DATE OF EVENT : 1793 January.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Peterhead..."in one tide"

B) WIND CONDITIONS :
Peterhead..."storm"

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Class 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Peterhead...the south quay in the harbour flooded.

B) DAMAGE CAUSED :
2) Peterhead..."upwards of 300 tons of the pavement and cribs were thrown into the harbour; and as the breach was once made, the whole of the quay very narrowly escaped demolition...The cost of repairing the damage was £691 10s"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...J.T. Findlay (1933) "A History Of Peterhead From Prehistoric Times To A.D. 1896" Revised Edition, P Scrogie Ltd, Peterhead, 339pp, p216. No original reference given but the author clearly shows that he is quoting from a previous work. A list of principal references is given at the end of the book.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of event concentrating on the damage to the harbour.
FLOOD NUMBER: CF.45

DATE OF EVENT: 1 1795 May probably between 6-12.
2 1795.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
2 Miltonhaven..."an inrush of the sea at high tide".

B) WIND CONDITIONS:
1 Miltonhaven..."an easterly gale" Lamb's Interpretation "It has been possible to derive the maps of the monthly mean pressure distribution in each of these months (May...which Lamb hints at as being the month of occurrence of the 1795 Miltonhaven event) . They all show patterns conducive to prevalent NW'ly and N'ly wids over the North Sea, particularly the northern part".
2 Miltonhaven..."during a storm when an easterly gale was blowing".

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
1, 2 Miltonhaven...The disaster was prepared by the unwise quarrying for lime, for agriculture on the nearby Lauriston Castle estate, from the projecting ledge of rock, which ran across the the bay and had formed a natural protection for the village.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Miltonhaven..."nearly all that remained of the village and harbour wall were carried away in one night".
2 Miltonhaven..."carried away the whole village one night and penetrated 150 yards inland where it has maintained its ground ever since".

B) DAMAGE CAUSED:
2) 1, 2 Miltonhaven..."nearly all that remained...and harbour wall were carried away in one night"
7) 1, 2 Miltonhaven..."nearly all that remained of the village...were carried away in one night"
6) 1, 2 Miltonhaven...erosion of the village.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 This notably stormy period (1791-1795) also affected the British isles and coasts of other neighbouring countries as far as Sweden. Source...Lamb (1991).

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event, based on a number of sources.
2 Short description of event.
FLOOD NUMBER: CF.46

DATE OF EVENT: 1795 November 18.

CAUSE OF EVENT:
B) WIND CONDITIONS:
2 Firth Of Forth..."Severe N.E. gale"

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
2 Firth Of Forth...severe rainstorm caused Water of Leith to flood which did considerable damage. In the afternoon snow began to fall.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT
2. Firth of Forth flooded.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
Journal Article...R.C. Mossman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p96. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event concentrating on its cause.
FLOOD NUMBER: CF.47

DATE OF EVENT: 1 1796 January. 2 1796.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Stevenston..."the tide encroached farther on the land...during a high tide".

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1, 2 Stevenston...flooded the highway from Seabank (Auchenharvie) gate to Saltcoats.

B) DAMAGE CAUSED:
3) 1, 2 Stevenston...road flooded between the Seabank (Auchenharvie Estate) gate and Saltcoats.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Short description of event.
FLOOD NUMBER : CF. 48

DATE OF EVENT : 1 1799 February 9.
  2 1799.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
  2 Banff..."high tides"

B) WIND CONDITIONS :
  1 Scotland..."the most remarkable storm of wind...that is remembered in this country"
  2 Banff..."northerly winds"

C) DURATION OF STORM : Type 1.

D) ESTUARINE CONDITIONS :
  2 Banff..."the river...has overflowed"

G) ANY OTHER FACTORS :
  1 Scotland..."and snow"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
  1 Scotland flooding.
  2 Banff..."the low part of the town...up to five or six feet of water in some of the streets"

B) DAMAGE CAUSED :
  7) 2 Banff..."overflowed the low part of the town"
  10) 2 Banff..."occasioned much mischief and inconvenience"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
  1 Short description of the event concentrating on its cause.
  2 Short description of the event concentrating on its cause.
FLOOD NUMBER: CF.49

DATE OF EVENT:
1 1803.
2 1803 January 8-10.
3 1803 Winter.

CAUSE OF EVENT
B) WIND CONDITIONS:
1 Methill..."a strong gale"
2 East Coast..."a severe gale blew"
3 Peterhead..."the most disastrous...storm"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Methill..."east pier"
2 East Coast.

B) DAMAGE CAUSED:
2) 1 Methill..."the east pier...was knocked to ruins"...repaired in 1838 at a cost of £1,800.
2 East Coast..."doing much damage to shipping"

C) IMPACT AT OTHER SITES:
10) North-East..."fearful storm played great havoc over the entire north-east of Scotland"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book...H. Famie (1861) "The Fife Coast From Queensferry To Fifeness", J.C. Orr, Cupar-Fife, p113.
2 Journal Article...R.C. Mossman 1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p97. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.
3 Book...J.T. Findlay (1933) "A History Of Peterhead From Prehistoric Times To A.D. 1896", Revised Edition, P. Scrogie Ltd, Peterhead, 339p, p218. No original reference given, but a list of references used is given at the end of the book.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Very short description of event.
3 Very brief mention of the event not detailing the general havoc caused.
FLOOD NUMBER : CF.50

DATE OF EVENT : 1808 November 17-20.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Leith... "The tides... were of an uncommon height. Tides equally great are on record, but four successive tides of such height and impetus no one recollects to have recalled".

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT
Leith... tidal flooding

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Journal Article.. R.C. Mossman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p97. Original Reference... Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event concentrating on its cause.

FLOOD NUMBER : CF.51

DATE OF EVENT : 1811 October 31.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Leith... "Exceptional high tide"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Leith tidal flooding.

B) DAMAGE CAUSED :
10) Leith... "much damage caused"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Very short description of the event.
FLOOD NUMBER : CF.52

DATE OF EVENT : 1811 November 1-2.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
North Sea... "the waters... rose to a very unusual height"
Firth Of Forth... "The rise exceeded 20 feet"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
North Sea, Firth Of Forth flooding.

E) SIZE OF EVENT : Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Journal Article... R.C. Mossman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p99. Original Reference... Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Very short description of the event.

FLOOD NUMBER : CF.53

DATE OF EVENT : 1812 October 21.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Leith... "Very high tide"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Leith... "streets inundated"

B) DAMAGE CAUSED :
3) Leith... "streets inundated"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Very short description of the event.
FLOOD NUMBER: CF.54


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Leith..."With very high tide"

B) WIND CONDITIONS:
Leith..."Severe E.N.E. gale.

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Leith...harbour are flooded

B) DAMAGE CAUSED:
2) Leith..."Solid masonry on the pier broken down by the huge waves"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Journal Article...R.C. Mossman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, p57-108. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Very short description of the event.
FLOOD NUMBER : CF.55


CAUSE OF EVENT
B) WIND CONDITIONS :
Peterhead..."a violent storm"

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Peterhead...harbour area flooded

B) DAMAGE CAUSED :
2) Peterhead...pier or breakwater between Greenhill and the South Harbour was overthrown and extensively damaged to the amount of £3400.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...J.T. Findlay (1933) "A History Of Peterhead From Prehistoric Times To A.D. 1896", Revised Edition, P. Scrogie Ltd, Peterhead, 339p, p218. No original reference given, but a list of references used is given at the end of the book.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Very short mention of event, concentrating on the effect on the harbour.
FLOOD NUMBER : CF.56

DATE OF EVENT : 1 1820 January 22.
               2 1820.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
  2 Campelltown...coastal inundation.

B) WIND CONDITIONS :
  1 Edinburgh..."Heavy gale"
  2 Campelltown..."calm"

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
  1 Edinburgh flooded.
  2 Campelltown...many streets and houses flooded.

B) DAMAGE CAUSED :
  3) 2 Campelltown...many streets flooded.
  4) 1 Edinburgh..."A caravan weighing about six tons and containing several wild animals blown over at Wombell's menagerie on the Mound"
  7) 2 Campelltown...many houses flooded.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
  1 Journal Article...R.C. Mossman 1896-1897 *The Meteorological Of Edinburgh, Part 2* in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p101. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.
  2 Newspaper...Inverness Advertiser 1869 February 2, "Campelltown - The High Tide" Original Reference...Description of event based on the recollections of the older inhabitants of the town.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
  1 Very short description of the event.
  2 Short description of event forms part of the description of a later event.
FLOOD NUMBER:

DATE OF EVENT: 1 1822 September 11. 2, 3 1822.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
3 Arbroath..."a high tide"

B) WIND CONDITIONS:
1 Firth Of Forth..."Severe S.W. gale"
2 Macduff..."a storm"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
2 Macduff..."harbour" area flooded
3 Arbroath..."swept away part of the battery and the greater portion of ballast hill and new stone harbour"

B) DAMAGE CAUSED:
2 Macduff..."An outer harbour...wrecked by the storm"
3 Arbroath..."swept away parts of new stone harbour.
6) 3 Arbroath..."extensive damage done to battery and ballast hill.
8) 3 Arbroath..."swept away part of the battery and the greater portion of ballast hill"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Journal Article...R.C. Mossman 1896-1897 *The Meteorological Of Edinburgh, Part 2* in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p101. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very short description of the event.
2 Very short description of the event.
3 Very short description of the event.
FLOOD NUMBER: CF 58

DATE OF EVENT: 1 1827 October 22-23.
2 1827.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Leith..."with very high sea"

B) WIND CONDITIONS:
1 Leith..."Severe gale"
2 Wick..."a storm"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Leith...harbour area flooded
2 Wick...harbour area flooded

B) DAMAGE CAUSED:
2) 1 Leith..."doing damage to the harbour"
2 Wick...much of the enlarged harbour under construction since 1824 was washed away.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Journal Article...R. C. Mossman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p102. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very short description of the event.
2 Very short description of the event.
FLOOD NUMBER: CF.59

DATE OF EVENT: 13 October 1829.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
   2 Leith..."a very high tide"
   3 Banff..."high tides"

B) WIND CONDITIONS:
   2 Miltonhaven..."another storm"
   2 East Coast..."a severe gale from the N.E."
   3 Banff..."northerly winds"

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
   3 Banff..."the river...has overflowed"

G) ANY OTHER FACTORS:
   1 Miltonhaven..."The disaster was prepared by the unwise quarrying for lime, for agriculture on the Lauriston Castle estate, from the projecting ledge of rock, which ran across the bay and had formed a natural protection for the village"
   2 At Edinburgh 2.5 inches of rain fell.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
   1 Miltonhaven..."the destruction was finally completed"
   2 Leith...Harbour.
   3 Banff..."the low part of the town...up to five or six feet of water in some of the streets"

B) DAMAGE CAUSED:
   3 Banff..."three horses of the mail-coach were drowned, in attempting to pass through the Market-square"
   7) 1 Miltonhaven..."the destruction of the village was finally completed.
   3 Banff..."overflowed the low part of the town"
   10) 3 Banff..."occasioned much mischief and inconvenience"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
   Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.
1 Lamb (1991) date of event is likely to have been either 3-4 August, 14 October or 25 November, p124-127 with charts.
2 Mossman (1898) date of Miltonhaven event could also have been 25 November.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event but from a number of contemporary sources to the event.
2 Very short description of event.
3 Short description of the event concentrating on its cause.

FLOOD NUMBER: CF.60

DATE OF EVENT: 1830.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Cockburnspath..."heavy seas"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Cockburnspath...harbour flooded.

B) DAMAGE CAUSED:
2) Cockburnspath...At the Cove...a pier under construction was completely destroyed.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event.
FLOOD NUMBER : CF. 61

DATE OF EVENT : 1 1832 October 8. 
2 1832.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
2 Banff..."high tides"

B) WIND CONDITIONS :
1 Edinburgh..."with strong N. E. wind"
2 Banff..."northerly winds"

D) ESTUARINE CONDITIONS :
2 Banff..."the river...has overflowed"

G) ANY OTHER FACTORS :
1 Edinburgh..."Heavy rain 2.2 inches"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Edinburgh.
2 Banff..."the low part of the town flooded"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Journal Article...R.C. Moosman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p103. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix from which the information is likely to have come from.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Very short description of the event.
2 Very short description of the event.
FLOOD NUMBER: CF.62

DATE OF EVENT: 1834 October 4.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Leith..."The water in Leith Dock rose to within a foot of the edge of the quay, and presented the novel spectacle of vessels lying to appearance almost out of the water"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Leith...Dock...parts of Baltic Street flooded.

B) DAMAGE CAUSED:
7) Leith..."Some houses in Baltic Street flooded"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Journal Article...R.C. Mossman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p103. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Very short description of the event.
FLOOD NUMBER: CF.63

DATE OF EVENT: 1 1835 January 19.
2 1835.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
2 Banff..."high tides"

B) WIND CONDITIONS:
1 East Coast..."Storm from N.E."
2 Banff..."northerly winds"

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
2 Banff..."the river...has overflowed"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
2 Banff..."the low part of the town...up to five or six feet of water in some of the streets"

B) DAMAGE CAUSED:
3) 2 Banff..."overflowed the low part of the town"
10) 2 Banff..."occasioned much mischief and inconvenience"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Journal Article...R.C. Mossman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p103. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.
2 Book...Society For The Sons And Daughters Of The Clergy (1845) "New Statistical Account Of Scotland: Volume 13 - Banffshire, Elginshire and Nairnshire" Account Of The Parish Of Banff, 1836, p4-5.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very short description of the event.
2 Very short description of the event.
FLOOD NUMBER : CF.64

DATE OF EVENT : 1836 February 1.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Barrahead, Lewis..."the sea rose upon the shores of the lighthouse island to an unexemplified height"

B) WIND CONDITIONS :
Barrahead, Lewis..."the wind is in western directions"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Barrahead, Lewis..."the lighthouse island shores"

B) DAMAGE CAUSED :
Barrahead, Lewis...and with surprising force lifted, or partially moved, a great mass of granite...which measured on an average 12 feet in length, 8 feet in breadth and 8 feet in thickness which at the rate of 13 cubic feet to the ton, is equal to no less than 59 ton"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Inverness Journal 1836 April 1, "Barrahead Lighthouse"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of event based on eyewitness account of the lightkeeper.
FLOOD NUMBER: CF.65

DATE OF EVENT: 1837.

CAUSE OF EVENT:
A) TIDAL CONDITIONS:
Newton-Upon-Ayr..."have been overflowed by the sea, and are now within high-water mark"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
Newton-Upon-Ayr..."several acres of land behind the pier in this parish, on which a row of houses stood within the last ten or twelve years, have been overflowed by the sea"

B) DAMAGE CAUSED:
5) Newton-Upon-Ayr...several acres of land behind the pier flooded.
7) Newton-Upon-Ayr...a row of houses abandoned.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
Book...Society For The Sons And Daughters Of The Clergy (1845) "New Statistical Account Of Scotland: Volume 5 - Ayrshire And Buteshire" Account Of The Parish Of Newton - Upon - Ayr, 1837, p89.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Very short description of event concentrating on its effect.
FLOOD NUMBER : CF.66

DATE OF EVENT : 1 1839 October 12
              2, 3 1839.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
   1 Kirkcudbright..."Immediately after high water, the tide, as usual, began to ebb, when all at once it veered round, and flowed so fast as at a two hour flood for the space of nearly an hour...event of this nature not remembered to have happened before"

B) WIND CONDITIONS :
   2 Portsoy..."a storm"
   3 Troon..."a storm"

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
   1 Kirkcudbright...harbour flooded.
   2 Portsoy...harbour flooded.

B) DAMAGE CAUSED :
   2) 2 Portsoy...harbour built in 1825 partially destroyed.

C) IMPACT AT OTHER SITES :
   2) 3 Troon..."a storm drove ships from their moorings and totally wrecked several"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
   1 Newspaper...Dumfries Times 1839 October 30, "Kirkcudbright, 12th Oct"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
   1 Short description of event.
   2 Short description of event.
   3 Short description of event.
FLOOD NUMBER : CF.67

DATE OF EVENT : 1 1846 November 20.
2 1846.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
2 Campelltown..."A very high tide was experienced"

B) WIND CONDITIONS :
1 Edinburgh..."Stormy S.E. gale"

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Edinburgh.
2 Campelltown...coastline flooded.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Journal Article...R.C. Mossman 1896-1897 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p104. Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.
2 Newspaper...Inverness Advertiser 1869 February 5, "The Late Storm And Floods" Original Reference...memories of inhabitants of the town.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Very short description of the event.
2 Brief mention of event with no information on its impact, as part of a description of a later event.
FLOOD NUMBER : CF.88

DATE OF EVENT : 1847 October 7.

CAUSE OF EVENT:
A) TIDAL CONDITIONS:
Perth...This state of matters was aided by a rising spring-tide.

B) WIND CONDITIONS:
Perth...with a gusty disagreeable east wind..."The following night was tempestuous - the wind howled, and the pelting of the pitiless storm was indeed frightful.

C) DURATION OF STORM : Type 1.

D) ESTUARINE CONDITIONS:
Perth...Firth of Tay..."Gradually the Tay began to swell" as a result of many days very heavy rain.

H) CLASSIFICATION OF CAUSE OF EVENT : TYPE 4.

IMPACT OF EVENT:
A) EXTENT OF EVENT
Perth..."from Friarton on the extreme left, to the river Almond on the right, a stretch of nearly four miles - the country presented one vast lake, with farm-houses, cottages and hamlets, as well as the city of Perth itself in the midst of it. The farm of North Muirton, and lower portion of South Muirton, together with Easthaugh, etc were all submerged to a considerable depth* Perth..."The George Inn stable-yard...the North Port, Castle Gable and Curfew Row...the North and South Inch including Shore St...Rose Terrace...the whole space from Charlotte St. along Athole Place, and Athole Crescent to the Theatre in Athole St...from the North Port the waters rose upon Charlotte Place...Blackfriars House was completely surrounded...the streets in the southern district of the town were in the same situation : Marshall Place and King's Place...Princes St. and the Edinburgh Road...Victoria St and South William St...Nelson St also, and the greater part of Scott St, James St, and King St...Canal St including the Star Hotel...Farther west still, County Place, part of Newrow, Hospital St. with the Hospital itself, were in a depth of several feet... were all flooded*"

B) DAMAGE CAUSED:
3) Perth...some roads flooded.
4) Perth...Many commercial and retailing properties flooded.
5) Perth...A large tract of agriculture land was flooded and a vast number of livestock of all types were washed away, alot of damage to crops in the field and the harvest and hay ricks.
7) Perth...Many homes were flooded.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Very detailed description of event.
FLOOD NUMBER: CF.69

DATE OF EVENT: 1 1849 January 10.
2 1849.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Peterhead...very heavy seas were rolling onshore...flood tide...the sea, which was rolling very heavily at the back of the North Harbour...at half tide 2 tremendous waves dashed over the breach, the last one being upwards of 14 to 15 feet high in the North Harbour.
2 Buckie..."destroyed by the waves"
3 Alloa..."Exceptionally high tide"

B) WIND CONDITIONS:
1 Peterhead..."one of those severe easterly gales...the gale commenced blowing east by south"
2 Buckie...storm.

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
1 Peterhead..."heavy rain"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Peterhead...on east side of North Harbour new herring-curing yards flooded and washed away...at half tide, 2 tremendous waves spread over the quay at the North Harbour to a great depth.
2 Buckie..."harbour"
3 Alloa..."harbour"

B) DAMAGE CAUSED:
1) 1 Peterhead...2 of the crew of a vessel were drowned when it was wrecked on the rocks beside the baths...15 people drowned on the quay in the North Harbour when 2 tremendous waves washed them into the harbour, only 1 body was not recovered.
2) 1 Peterhead..."five vessels have been totally wrecked...186 yards of east side enclosing wall of North harbour thrown down...much of this material was thrown around the harbour or onto the roadway and quay...new herring-curing yards washed away.
2 Buckie..."A wooden harbour built in 1843...lasted only six years.
3) Peterhead...threw down about 186 yards of the enclosing wall on the east side of the North Harbour and washed away new herring-curing yards.

C) IMPACT AT OTHER SITES:
1) 1 Slains...all crew perished from a vessel driven ashore.
1 Boddam...all crew perished from a brig wrecked on the shore.
2) 1 Slains...1 vessel driven ashore.
1 Boddam...1 brig wrecked on shore.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
3 Newspaper... Alloa Journal 1869 February 15 "High Tide"
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Detailed description of event written by a witness the day after the event took place.
2 Short description of event.
3 Brief mention of event as part of a discussion of a later event.

FLOOD NUMBER : CF.70


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Inverness..."the tide rose very high in the afternoon, greater than the day before"

B) WIND CONDITIONS :
Inverness..."gale"

C) DURATION OF STORM : Type 1.

D) ESTUARINE CONDITIONS :
Inverness...Flood caused by a long period of heavy rain and a thaw of snow.

G) ANY OTHER FACTORS :
Extensive river flooding in Inverness-shire and Caledonian valley area.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 4.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Inverness..."Portland Place flooded"

B) DAMAGE CAUSED :
3) Inverness..."Portland Place flooded"

C) IMPACT AT OTHER SITES
3) Inverness-shire...some bridges washed away.
5) Inverness-shire...large tracts of agricultural land flooded.
Caledonian valley...large tracts of agricultural land flooded.
7) Inverness-shire...some houses washed away.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...D. Nairne (1895) "Memorable Floods In The Highlands During The Nineteenth Century, With Some Accounts Of The Great Frost Of 1895" Northern Counties Printing And Publishing Company Ltd, Inverness.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Detailed description of event including eye-witness accounts of the event.
FLOOD NUMBER: CF.71

DATE OF EVENT: 1850 January 29.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Inverness..."high tide...the tide has risen so high"

B) WIND CONDITIONS:
Inverness..."high wind"

D) ESTUARINE CONDITIONS:
Inverness...the water in the river rose to an unusual height due to the above factors only.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Inverness..."Bank Street, and Douglas Row, and the greater part of the east bank of the river, are flooded to a depth of, in some places, about twenty-two inches...On the west side of the river the water has not made so great an encroachment, having found its way into one or two of the lowest lying houses"

B) DAMAGE CAUSED:
7) Inverness..."Some of the houses in Bank Street and Douglas Row are already nine to ten inches deep in water...the water...having found its way into one or two of the lowest lying houses"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Inverness Advertiser 1850 January 29 "The High Tide Come At Last"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of event concentrates on its cause.
FLOOD NUMBER : CF.72

DATE OF EVENT : 1850 October 7.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Aird Districts..."The tide of yesterday was unusually high"

B) WIND CONDITIONS :
Aird Districts..."and owing to the high wind"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1

IMPACT OF EVENT
A) EXTENT OF EVENT :
Aird Districts..."overflowing a number of low carse lands"

B) DAMAGE CAUSED :
3) Aird Districts..."undermining, and throwing down a considerable piece of the stone parapet of the road at Phopachy"
4) Aird Districts..."For about a mile the shore was strewn with prop-wood, which had been laid down at the same place for shipment"
5) Aird Districts...some carse lands flooded.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Inverness Advertiser 1850 October 8. "High Tides"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of event.
FLOOD NUMBER: CF. 73

DATE OF EVENT: 1850 November 4.

CAUSE OF EVENT:
A) TIDAL CONDITIONS:
   Inverness... "The co-incidence of a spring tide"

D) ESTUARINE CONDITIONS:
   Inverness... "The recent heavy rains have so swollen the river... during the day the rain
   continued to descend at intervals, and the river to increase in volume"

G) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
   Inverness... the roadway at Bank Street and the Ladies Walk were partially covered yesterday
   in several places... the roadway between Douglas Row and Bank Street was completely submerged

B) DAMAGE CAUSED:
   3) Inverness... roadway at Bank Street and between Douglas Row and Bank Street and Ladies
   Walk were flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) Newspaper... Inverness Advertiser 1850 November 5, "The River"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   Short description of event.
FLOOD NUMBER : CF.74

DATE OF EVENT : 1850 November 5.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Inverness..."when the tide was at its highest"

D) ESTUARINE CONDITIONS :
Inverness..."The recent heavy rains have so swollen the river...During the day the rain continued to descend at intervals, and the river to increase in volume...The current received no perceptible check from the tide, but sped on with such a fearful velocity"

G) CLASSIFICATION OF CAUSE OF EVENT : Type 4.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Inverness..."the roadway from the steps opposite Bank Lane down to Douglas Row was almost completely covered"

B) DAMAGE CAUSED :
3) Inverness...roadway from Bank Lane down to Douglas Row was flooded.
7) Inverness...one house on Douglas Row flooded to a depth of four to five inches"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) Newspaper...Inverness Advertiser 1850 November 5, "The River"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of event.
FLOOD NUMBER: CF.75

DATE OF EVENT: 1851.

CAUSE OF EVENT
B) WIND CONDITIONS:
Fraserburgh..."some severe storms were experienced"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Fraserburgh...North Pier area flooded.

B) DAMAGE CAUSED:
2) Fraserburgh...part of new North Pier broken down.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
J. Cranna was the harbour treasurer at Fraserburgh over a considerable period and so was likely to have access to the documents relating to the construction of the new North Pier, so the information he presents is likely to be totally reliable although no contemporary references are given for the event.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Very brief mention of this event, but forms part of a much longer discussion on the building of the new North Pier.
FLOOD NUMBER: CF.76

DATE OF EVENT: 1852 January 8.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Stranraer..."the tide was observed to be advancing to an unusual height"
Kirkcolm..."at Cairnside...the tide rose sixteen yards higher than it has been seen for nearly 20 years"
Whitehaven..."there was a tremendous sea"

B) WIND CONDITIONS:
Stranraer..."great storm...the wind, which hitherto had been from the south-west, suddenly veered round to the north-west"
Ballantrae..."the extreme violence of the storm"
Ayr..."the gale was very heavy"
Whithaven..."gale"
Newton - Stewart..."the wind rose to a perfect hurricane."

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
Stranraer...on Friday 9th, Saturday 10th, Sunday 11th the tides were again very high.
Wigtown...snow.
Newton - Stewart...the rain fell in torrents the whole day and the creek was unusually swollen...frost and snow during the night"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Stranraer..."Clayton street...almost every house was enveloped in the surge and foam...Many of the houses behind Fisher Street, next to the shore, were flooded...the houses in North Strand Street and Harbour Street were likewise flooded...gasworks flooded...breaches in Cairnryan Road"

B) DAMAGE CAUSED:
2) Stranraer...more than 20 ships and fishing boats damaged or sunk in the harbour.
3) Stranraer...at Clayton street the roadway was washed away...breaches in Cairnryan Road, wall at Ballgreen badly damaged.
4) Stranraer...the shed on the Quay lost its roof...box used as counting house also washed away...gasworks flooded.
5) Stranraer...some trees blown down and stacks of grain scattered.
7) Stranraer...Clayton street...two houses washed away, many others badly damaged and most flooded...behind Fisher Street...one house levelled, many houses flooded...North Strand Street and Harbour Street many houses flooded...some houses lost chimney cans and pains of glass.
8) Stranraer..."the battery for a considerable distance was washed away...breaches were made in the Cairnryan Road.

C) IMPACT AT OTHER SITES:
2) Ballantrae...3 ships damaged in harbour.
6) Newton - Stewart...one window blown in at the United Presbyterian Church.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Wigtownshire Free Press 1852 January 15, "Severe Storm At Stranraer"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Detailed description of event concentrating on the effects in Stranraer.
FLOOD NUMBER: CF.77

DATE OF EVENT: 1852 January 9-10.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Fraserburgh..."the waves came rolling in mountains, and when they struck the pier the effect was tremendous"
2 Stranraer...on friday 9th the tide was very high.

B) WIND CONDITIONS:
1 Fraserburgh..."one of the severest storms ever experienced in Fraserburgh"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Fraserburgh...new North Pier under construction damaged and the portion covering the old north channel was washed down completely. The breach made in the structure was a serious one.
2 Stranraer...harbour.

B) DAMAGE CAUSED:
2) 1 Fraserburgh...whole of the upper section of the new North Pier under construction was more or less damaged, but the portion covering the old north channel was washed down completely, and all the material thrown into the harbour. The breach made in the structure was a very serious one.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book...J. Cranna (1914) "Fraserburgh: Past And Present", Rosemount Press, Aberdeen, 502p, p327-328. Cranna quotes a person still living at the time of writing the book who witnessed the event. J. Cranna was the harbour treasurer at Fraserburgh over a considerable period and was likely to have access to the documents relating to the construction of the new North Pier, so the information he presents is likely to be totally reliable.
2 Newspaper...Wigtownshire Free Press 1852 January 15, "Great Storm At Stranraer"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Brief mention of this event, but forms part of a longer discussion on the building of the new North Pier.
2 Briefly mentioned, as part of a long description of a previous event.
FLOOD NUMBER: CF. 78

DATE OF EVENT: 1852 September 29.

CAUSE OF EVENT
B) WIND CONDITIONS:
Lossiemouth... "the wind blew fiercely from the north-east" "On the coast the storm blew 'great guns lashing the Firth into mountainous waves, which broke against the harbour of Lossiemouth with a force that betokened alike the strength of its walls and the fury of the waves" 

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
The sloop Dolphin of Kirkwall left Dundee on the 28th, wind E.N.E. moderate. Soon after leaving, the wind increased to a heavy gale. Morning of 29th the sea was running high from the east. By midday in the Moray Firth the wind veered round to the north. Caused extensive river flooding on the Lossie, Blackburn and Findhorn.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF FLOODING:
Lossiemouth harbour - flooding caused by mountainous waves in the Firth which broke against the harbour.

B) DAMAGE CAUSED AT EVENT SITES:
1) Lossiemouth... 1 Sailor lost.
2) Lossiemouth... the sloop 'Dolphin' of Kirkwall lost with a cargo of cod-fish for Dundee.

E) SIZE OF EVENT: Local

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper... Courant (Elgin) 1852 October 1. "Great Storm, Shipwreck And Loss Of Life - Overflow Of The Lossie"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Detailed description of the event.
FLOOD NUMBER: CF. 79

DATE OF EVENT : 1852 December 27.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
Stranraer... "the tide rose ...to a greater height than it has been known to do since the year 1814"
Ballantrae... "the tide rose to a great height...higher...than at any period ion the last 50 years"
Cairnryan... "the tide was up on the street"
Portpatrick... "the tide rose so high"
Drummore... "the tide rose to a great height"
Stairhaven... "there was one of the highest tides in the recollection any person here"
Portwilliam... "the tide also rose to an unusual height"
Borgue and Kirkcudbright... "the spring tide was flowing with alarming rapidity"
Greenock... "the highest tide that has occurred in this locality for many years"

B) WIND CONDITIONS:
Stranraer... "the storm has been very violent...The wind being in the south-west"
Ballantrae... "the wind came from the south-west in awful fury"
Portpatrick... "a heavy gale of wind...In the early part of the morning we had the wind from the S.E. and as the day came on it veered round by S.W. about 11o'clock it checked up to W.N.W"
Drummore... "the gale was very violent"
Glenluce... "a storm of wind"
Stairhaven... "a tremendous gale, first from the south, and veering round to the west"
Portwilliam... "a perfect hurricane"
Borgue and Kirkcudbright... "violent gale of wind from the south"
Greenock... "The strong south-west wind"

C) DURATION OF STORM : Type 2.

D) ESTUARINE CONDITIONS:
Greenock... "the swollen state of the river"

G) ANY OTHER FACTORS:
Stranraer... "accompanied by heavy rain"
Kirkcudbright... "the rain was falling in torrents"
Greenock... "recent rains"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
Stranraer... North-West Castle, its grounds and outhouses flooded...the Shore road was completely under water...Harbour St flooded...North Strand St flooded...Clayhole partially flooded...from Quayhead up to the Well flooded to a depth of two feet...Fisher St flooded, most gardens in the area flooded.
Ballantrae... harbour.
Cairnryan... "The tide was up on the street...the stackyard at Claddyhouse was flooded to a depth of one foot"
Innermessan... stackyard flooded.
Portpatrick... the street along the shore flooded.
Stairhaven... part of new quay swept away and breaches made in other parts of it.
St Helene's Island... "almost carried away"
Portwilliam... harbour.
Kirkcudbright... "a considerable part of the road near Nunmill, opposite to St Mary's Isle...was flooded"
Greenock... west quay flooded to a depth of three feet...steamboat quay flooded...low street and other areas around it flooded, some to a depth of three feet.
B) DAMAGE CAUSED:
2) Ballantrae... "a few fishermens huts swept away"
Cairnryan... damage to some fishing boats.
Portpatrick... "the old harbour has sustained much damage"
Stairhaven... part of new quay swept away and breaches made in other parts of it... £20-£30 damage.
Portwilliam... harbour sustained some damage.
3) Stranraer... Shore road covered in shingle... considerable damage to the ledging of the bridge at the foot of North Strand Street.
Cairnryan... road partially washed away.
4) Greenock... bonded warehouses on the west quay flooded, some damage done to the stock... Queen's warehouse flooded. Several small stores flooded and damage done to their contents.
5) Stranraer District... "a great number of trees were torn up from the roots"
Innermessan... stackyard flooded damage to grain, potatoes and carrots in storage.
6) Stranraer... part of garden wall of the North-West Castle broken down.
7) Stranraer... many houses on Shore St flooded to a depth of several feet... houses on North Strand St flooded to a considerable depth... several houses at Clayhole flooded... a house at the Well flooded to a depth of 1.5 feet.
Portpatrick... some houses on the street along the shore flooded.
Portwilliam... houses damaged by the storm.
Greenock... some houses on low street and surrounding area flooded causing some damage.
8) Cairnryan... "the stone battery here is greatly damaged; the bank and a good part of the road is washed away... at Claddyhouse half the dyke is levelled"
St Helene's Island... almost carried away

C) IMPACTS AT OTHER SITES:
1) Kirkmaiden... 3 dead in shipwreck.
2) Portlogan... 3 ships damaged in the harbour
Kirkmaiden... 1 ship wrecked of the coast.
Glenluce... a stranded vessel completely wrecked.
Moathill... 5 vessels stranded.
Barassie bay near Troon... 1 vessel shipwrecked.
7) Glenluce... several houses lost their chimney stacks.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
England London, Plymouth and Preston suffered damage due to the storm. Source as below.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper... Wigtownshire Free Press 1852 December 30 "Violent Storm And High Tide"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Very detailed description of the event, its causes and effects.
FLOOD NUMBER: CF 80

DATE OF EVENT: 1852 December 28-29.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Stairhaven...further high tides.

B) WIND CONDITIONS:
Stairhaven...further gales.

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Stairhaven...a further five or six feet have been washed off the quay.

B) DAMAGE CAUSED:
2) Stairhaven..."in consequence of the want of the parapet, about five or six feet have been
washed off the top of the quay, and the rubbish being washed into the harbour, it will not be
accessible to the steamer for some time"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Wigtownshire Free Press 1852 December 30, "Violent Storm And High Tide"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event which forms part of a long description of a previous event.
FLOOD NUMBER: CF.81

DATE OF EVENT: 1854 November 2 (date of newspaper, event probably in October)

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Newton - Stewart..."when the tide was up"

B) WIND CONDITIONS:
Newton - Stewart..."heavy storm of wind"

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
Newton - Stewart..."the Cree was in full flood"

G) ANY OTHER FACTORS:
Newton - Stewart..."one of the heaviest and long - continued falls of rain...which continued all night"

H) CLASSIFICATION OF CAUSE OF FLOOD: Type 4.

IMPACT OF EVENT
A) EXTENT OF EVENT
Newton - Stewart..."from the south end of the town all the fields on the margin of the river were laid under water...the Inks of Cree being all submerged...The road along what is called the 'Lough of Cree' was nearly the whole day under water"

B) DAMAGE CAUSED:
3) Newton - Stewart...the road along what is known as the 'Lough of Cree' was flooded.
5) Newton - Stewart...some agricultural land flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Wigtonshire Free Press 1854 November 2 "Storm And Flood"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of event.
FLOOD NUMBER : CF.02

DATE OF EVENT : 1855 June 21

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Stranraer..."harbour...but this morning's tide proved too heavy"

G) ANY OTHER FACTORS :
Stranraer initial wooden wall built for protection from the sea, so that the foundation of a new breastwork in the harbour can be put down.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Stranraer...harbour flooded.

B) DAMAGE CAUSED :
2) Stranraer...several yards of planking from a wooden wall built to protect the construction of a new breastwork in the harbour were washed away.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Wigtownshire Free Press 1855 June 21, "Stranraer Harbour Works"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Very short description of event.
FLOOD NUMBER: CF.83

DATE OF EVENT:
1 1856
2 1856 February 6.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
2 Dumbarton... "the tide rose over five feet above the edge of the quay"

B) WIND CONDITIONS:
1 Anstruther... "a sudden gale"

C) DURATION OF STORM: Type 1.

CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Anstruther... harbour affected by sudden gale.
2 Dumbarton... "the tide rose over five feet above the edge of the quay and the greater part of the High Street was under water for several hours"

B) DAMAGE CAUSED:
2) 1 Anstruther... "a sudden gale destroyed or injured 42 boats riding at anchor in Anstruther harbour"
2) Dumbarton... flooding of the quay.
4) 2 Dumbarton... flooding of the greater part of the High Street.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book... H. Farnie (1861) "The Fife Coast From Queensferry To Fifeness", J.C. Orr, Cupar - Fife, p157.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

D) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Short description of event.
FLOOD NUMBER: CF.84

DATE OF EVENT: 1858 October 9 (date of newspaper).

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Dumfries..."the tide from the south"

B) WIND CONDITIONS:
Dumfries..."the wind blew with tremendous fury"

D) ESTUARINE CONDITIONS:
Dumfries..."The Nith was greatly swelled during the night...and the spate combined"

G) ANY OTHER FACTORS:
Dumfries..."the rain fell in torrents"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Dumfries..."the whole of the Dock being submerged for several hours, until the retreat of the tidal waters"

B) DAMAGE CAUSED:
2) Dumfries...1 brig driven ashore and badly damaged.
3) Dumfries...some damage to works at new railway bridge under construction.
7) Dumfries...some houses lost windows, slates and chimney pots.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Dumfries And Galloway Standard 1858 October 9 "Storm And Flood"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event.
FLOOD NUMBER: CF.85

DATE OF EVENT: 1861 September 27 (date of newspaper).

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Alloa...high tide.

B) WIND CONDITIONS:
2 Arbroath...Wind at 9 am: 24TH 25TH 26TH 27TH 28TH
Direction NW NW Calm Calm S
Force (mph) 1 1 6

E) LAMB'S CIRCULATION PATTERN: 24TH 25TH 26TH 27TH 28TH
C C W S SW

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Alloa...minor flooding

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Stirling Journal 1861 September 27.
2 Observations...Meteorological Office 1861 Monthly Climatic Summaries, Station No. 1393 Arbroath.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very short description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.86

DATE OF EVENT: 1863 January 22.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Inverness..."in consequence of the periodical spring tide"

B) WIND CONDITIONS:
2 Arbroath...Wind at 9 am: 20TH 21ST 22ND 23RD
   Direction: SW NW W SW
   Force (mph): 10 2 6 2

D) ESTUARINE CONDITIONS:
1 Inverness..."the river rose to an extraordinary height in consequence of...and the flood of water caused by recent rains"
2 Arbroath...Rainfall: 20TH 21ST 22ND 23RD
   Rain (mm): 0 4.2 1.1 5.6

E) LAMB'S CIRCULATION PATTERN: 21ST 22ND 23RD
   WW cw

G) ANY OTHER FACTORS:
2 Arbroath...Comments:
   20TH Snow showers and stormy.
   21ST Stormy.
   22ND Morning heavy rain.
   23RD Stormy, showers of rain.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Inverness..."The roadway on the east side of the river by Douglas Row was for some time almost impassable...on the west side...the low-lying and dirty backstreets were completely inundated, Duff Street and Wells Street...the result of water oozing out of the drains"

B) DAMAGE CAUSED:
3) 1 Inverness...roadway at Douglas Row and Dudd and Wells Streets flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Newspaper...Inverness Advertiser 1863 January 23, "Flood Of The Ness"
2 Observations...Meteorological Office 1861 Monthly Climatic Summaries, Station No. 1393 Arbroath.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.87

DATE OF EVENT : 1 1863 January 23.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Inverness..."the tide rose to an extraordinary height"

B) WIND CONDITIONS :
2 Arbroath...Wind at 9 am : 21ST 22ND 23RD 24TH
Direction NW W SW W
Force (mph) 2 6 2 6

D) ESTUARINE CONDITIONS :
2 Arbroath...Rainfall : 21ST 22ND 23RD 24TH
Rain (mm) 4.2 1.1 5.6 0

E) LAMB'S CIRCULATION PATTERN : 21ST 22ND 23RD 24TH

W W CW W

G) ANY OTHER FACTORS :
2 Arbroath...Comments :
21ST Stormy.
22ND Morning heavy rain.
23RD Stormy, showers of rain.
24TH Stormy, evening aurora.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Inverness...The overflowing of the river's banks...On the east side of the river the roadway by Douglas Row was flooded...water swept over the long embanking between Kessock and the canal.

B) DAMAGE CAUSED :
2 1 Inverness..."some of the substantial stone steps lately erected at the river side have been loosened in their position by indentations in the bank at either side"
7 1 Inverness..."the flooding of many ground cellars of houses in the vicinity"
8 1 Inverness..."The long embanking between Kessock and the canal has been much destroyed, particularly towards the Kessock end.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Inverness Advertiser 1863 January 27, "The Flood Of The Ness"
2 Observations...Meteorological Office 1863 Monthly Climatic Summaries, Station No. 1393 Arbroath.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of event.
2 Instrumental data and a weather diary.

COMMENTS
Same description indicated by newspaper for the events of the 23rd and 24th.
FLOOD NUMBER : CF.88

DATE OF EVENT : 1863 January 24.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
   1 Inverness..."the tide rose to an extraordinary height"

B) WIND CONDITIONS :
   2 Arbroath...Wind at 9 am : 22ND  23RD  24TH  25TH
   Direction    W   SW   W   SW
   Force (mph)   6    2    5    2

D) ESTUARINE CONDITIONS :
   1 Inverness..."The overflowing of the river's banks"
   2 Arbroath...Rainfall : 22ND  23RD  24TH  25TH
   Rain (mm)   1.1  5.6  0    0.9

E) LAMB'S CIRCULATION PATTERN : 23RD  24TH  25TH
     CW   W   (W)

G) ANY OTHER FACTORS :
   2 Arbroath..Comments :
   22ND    Morning heavy rain.
   23RD    Stormy, showers of rain.
   24TH    Stormy.
   25TH    Stormy.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
   1 Inverness..."The overflowing of the river's banks...On the east side of the river the roadway
by Douglas Row was flooded...water swept over the long embanking between Kessock and the canal.

B) DAMAGE CAUSED :
   2 1 Inverness..."some of the substantial stone steps lately erected at the river side have been
loosened in their position by indentations in the bank at either side"
   7 1 Inverness..."the flooding of many ground cellars of houses in the vicinity"
   8 1 Inverness..."The long embanking between Kessock and the canal has been much destroyed,
particularly towards the Kessock end.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
   1 Newspaper...Inverness Advertiser 1863 January 27, "The Flood Of The Ness"
   2 Observations...Meteorological Office 1861 Monthly Climatic Summaries, Station No. 1393 Arbroath.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
   1 Short description of event.
   2 Instrumental data and a weather diary.

COMMENTS
Same description indicated by newspaper for the events of the 23rd and 24th.
FLOOD NUMBER: CF.89

DATE OF EVENT: 1, 2 1863 January 27.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Portwilliam..."the violence of the wind increased the height of the tide to such an extent"
2 Inverness..."the water rose to a higher level than it had reached since January 1849"

B) WIND CONDITIONS:
1 Portwilliam..."heavy gale...It had increased to a perfect hurricane and blowing from the N.W."
2 Inverness..."high wind"

3 Arbroath...Wind at 9 am: 25TH SW 26TH SW 27TH W 28TH Calm
Force (mph) 2 16 10

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
1 Inverness..."The river...still in extraordinary volume, and tearing its way down to the sea with surprising noise and velocity...the rain still continues"

3 Arbroath...Rainfall: 25TH 26TH 27TH 28TH
Rain (mm) 0.9 0 0 3.1

E) LAMB'S CIRCULATION PATTERN: 25TH SW 26TH CW 27TH AW 28TH A

G) ANY OTHER FACTORS:
1 Belief among local fishermen that great harm had been done to the harbour at Portwilliam by the removal of part of a battery on the N.W. of the harbour several years ago.

3 Arbroath...Comments:
25TH Stormy.
26TH Stormy.
27TH Stormy.

H) CLASSIFICATION OF CAUSE OF EVENT: Class 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Portwilliam..."pier flooded...harbour area"
2 Inverness..."The houses in Ness Bank were for the most part flooded...and the roadway all along was a foot deep in water...On the other side of the river made its way over a part of the embankment at the Little Green, and sweeping into the houses ran down Tanner's Lane, where it formed immense pools. For some hundred yards along Huntly Street the roadway was under water...The islands were of course covered, and parts of the connecting bridges even were submerged"

3 Arbroath...25TH Stormy.
26TH Stormy.
27TH Stormy.

B) DAMAGE CAUSED:
2) 1 Portwilliam...20 feet of wall between harbour and road converted into debris.
3) 2 Inverness...roadways flooded at Ness Bank a foot deep, Tanner's Lane and Huntly Street...bridges connecting islands also partly flooded.
7) 2 Inverness...houses and cellars flooded in Ness Bank, Little Green and Tanner's Lane.
8) 1 Portwilliam..."a portion of the wooden barricade which broke the sea from the S.W. was also swept away; and on the North side...a garden wall with a considerable portion of garden was swept away"
10) 2 Inverness...islands also flooded.

E) SIZE OF EVENT: Local.
AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Wigtownshire Free Press 1863 January 29, "The Storm"
2 Newspaper...Inverness Advertiser 1863 January 30, "The Floods In The Ness"
3 Observations...Meteorological Office 1863 Monthly Climatic Summaries, Station No. 1393 Arbroath.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description gives detail on cause and effect of event.
2 Description gives detail on cause and effect of event.
3 Instrumental data and a weather diary.
FLOOD NUMBER: CF.90

DATE OF EVENT: 1 1864 October 20.

CAUSE OF EVENT
B) WIND CONDITIONS:
1 Wick..."the winds and waters had committed the most serious devastation...the storm that raged" *1

2 Arbroath...Wind at 9 am: 17TH 18TH 19TH 20TH 21ST
Direction SW SW Calm W NW
Force (mph) 2 2 2 2

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 17TH 18TH 19TH 20TH 21ST
W CW C C C

G) ANY OTHER FACTORS:
2 Arbroath...Comments:
17TH Stormy.
18TH Showers.
19TH Heavy Rain.
20TH Stormy.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF FLOOD:
1 Wick harbour - extensive damage to new harbour works, almost six months work destroyed.

B) DAMAGE CAUSED:
2) 1 Wick...Six months work on new harbour destroyed, 360 feet of 500 completely washed away including all the building material. Damage estimated at £3000.

C) IMPACT AT OTHER SITES:
1 Edinburgh gale for two days. Gale very severe in Firth of Forth. Five vessels driven from their anchors below Granton Pier. One man was lost belonging to a Danish schooner. Vessels were driven ashore on various parts of the coast and in St. Andrews Bay, a foreign ship was wrecked, and all hands perished.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Courant (Elgin) 1864 October 28. "Damage To Wick New Harbour Works", "Storm In The South"
2 Observations...Meteorological Office 1864 Monthly Climatic Summaries, Station No. 1393 Arbroath.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of the event especially the damage.
2 Instrumental data and a weather diary.
DATE OF EVENT : 1865 October 6

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Nith..."There was a very large tide...which reached its height soon after meriden ; after the ebb had fairly set in the tidal flux was renewed and the very rare phenomenon was witnessed of a tide flowing twice within a single hour"

E) LAMB'S CIRCULATION PATTERN : 5TH 6TH 7TH

ASE A ASE

H) CLASSIFICATION OF CAUSE OF EVENT : Class 1.

IMPACT OF EVENT
A) EXTENT OF EVENT
Nith...localised flooding.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Dumfries And Galloway Standard 1865 October 7, "Tidal Phenomenon"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Very brief description of event.
FLOOD NUMBER: CF.92

DATE OF EVENT: 1868 January 31 - February 1.

CAUSE OF EVENT:
A) TIDAL CONDITIONS:
1 Inverness..."extraordinary spring tide"

B) WIND CONDITIONS:
1 Inverness..."westerly gale"
2 Dundee...Wind at 9 am and 9 pm: JAN 30TH 31ST FEB 1ST 2ND
Direction W SW W SW W W W
Force (mph) 10 10 6 6 2 1 4 1

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
1 Inverness...the overflow on the Ness was caused by the height of the river water
2 Dundee...Rainfall for 24h prior to 9 am: JAN 30TH 31ST FEB 1ST 2ND
Rain (mm) 0 20.3 6.3 1.3

E) LAMB'S CIRCULATION PATTERN: JAN 30TH 31ST FEB 1ST 2ND
AW W CW W

G) ANY OTHER FACTORS:
1 Extensive river flooding from Strathglass to Speyside.
2 Dundee...Comments:
30TH Blowing a violent gale of wind from 11.30 am to 3 pm.
31ST Blowing a gale with snow from 1 to 9 pm.
1ST Gale during the night up to 12.30 pm.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 4.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
1 Inverness..."town flooded"

B) DAMAGE CAUSED:
10) 1 Inverness..."extensive flooding and damage"

E) SIZE OF EVENT: Local

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
1 Book...D. Naime (1895) "Memorable Floods in The Highlands During The Nineteenth Century,
With Some Accounts Of The Great Frost Of 1895" Northern Counties Printing And Publishing
Company Ltd, Inverness.
2 Observations...Meteorological Office 1868 Monthly Climatic Summaries, Station No. 1868
Dundee.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of event including eye-witness accounts of the event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.93

DATE OF EVENT: 1, 2 1868 February 8.

CAUSE OF EVENT:

A) TIDAL CONDITIONS:
1. Inverness..."extraordinary high tide...a high spring tide"
2. Nairn..."the tide rose remarkably high"
3. Dundee...exceptional high tide...highest tide recorded up to and beyond 1920.

B) WIND CONDITIONS:
1. Inverness..."continual wind...strong westerly gales blowing in the Atlantic"
2. Dundee...Wind at 9 am and 9 pm: 5TH 6TH 7TH 8TH 9TH
   Direction: SW SW W SW W NW NW SE SW
   Force (mph): 22 22 16 10 1 4 1 6

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
1. Inverness..."continual rain...the immediate cause of the overflow on the Ness was occasioned by the height of the river water"
2. Dundee...Rainfall at 9 am for previous 24h: 5TH 6TH 7TH 8TH 9TH
   Rain (mm): 2.6 0 1.3 0 1.3

E) LAMB'S CIRCULATION PATTERN: 5TH 6TH 7TH 8TH 9TH
   AW AW W NW A

G) ANY OTHER FACTORS:
3. Dundee...Comments:
   5TH Violent gale all day.
   6TH Fine.
   7TH with high wind.
   8TH Cold.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT:

A) EXTENT OF EVENT:
1. Inverness...the water rapidly overran the top of the banks and poured on to the roadway at Douglas Row, Huntly St etc... The Merkinch was the first district inundated by the water. Halfway up Nelson St, Brown St and Madras St the low houses were all flooded...in some places about two feet deep...the Capel Inch was entirely covered with water and presented the appearance of a large loch...At Anderson's Street the water over-topped the high wharf, speedily spread over the roadway, and rushed into the houses. Proceeding along Gilbert St, several of the houses were seen to have several inches of water in their ground floor...Upper Kessock St roadway flooded...the water extended over fifty yards along Well's St...in Duff Street the water was several feet deep and many houses were flooded...Huntly Street houses flooded...from the bottom of Fraser St to Maggot Green, the roadway was impassable for about half-an-hour...The Maggot was entirely flooded, scarcely a house escaped...Douglas Row houses flooded to depth of 2 feet...the water made its way on to the road at Waterloo Place which became impassable...Giebe Street was also impassable, and all the houses on the ground floor were flooded.
2. Nairn..."it was flowing over the roadway at the harbour"
3. Dundee..."harbour"

B) DAMAGE CAUSED:
2. Dundee...part of harbour flooded.
3. Inverness...roadway at Upper Kessock St and Well's St flooded, and from the bottom of Fraser St to Maggot Green, also Waterloo Place.
   1 Nairn...roadway at harbour flooded.
7) Inverness... houses flooded on Nelson St, Brown St, Madras St, Anderson's St, Gilbert St, Duff St, Huntly St, Douglas Row, the Maggot, Glebe St and some of their contents badly damaged or destroyed.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION :
1 Newspaper... Inverness Advertiser 1868 February 11, "Extraordinary High Tide"
2 Newspaper... Dundee Advertiser 1920 January 9.
3 Observations... Meteorological Office 1864 Monthly Climatic Summaries, Station No. 1393 Arbroath.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Detailed description of all aspects of the event.
2 Brief mention of event as part of a description of a later event.
3 Instrumental data and a weather diary.
FLOOD NUMBER: CF.94

DATE OF EVENT: 1868 October 29 (date of newspaper, Saturday event)

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Stranraer..."when the tide was full...the tide rose to an unusual height"

B) WIND CONDITIONS:
1 Stranraer..."gale of unusual severity...the wind had been blowing somewhat strongly from the south...up till 3 o'clock when it shifted to W.N.W. and increased in force"

2 Dumfries...Wind at 9 am and 9 pm:

<table>
<thead>
<tr>
<th>Direction</th>
<th>27TH</th>
<th>28TH</th>
<th>29TH</th>
<th>30TH</th>
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<tr>
<td>Force (mph)</td>
<td>NW</td>
<td>W</td>
<td>SW</td>
<td>SW</td>
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<tr>
<td>1</td>
<td>2</td>
<td>1</td>
<td>16</td>
<td>16</td>
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</tbody>
</table>

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN:

<table>
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<tr>
<th>27TH</th>
<th>28TH</th>
<th>29TH</th>
<th>30TH</th>
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<tbody>
<tr>
<td>AW</td>
<td>AW</td>
<td>W</td>
<td>W</td>
</tr>
</tbody>
</table>

G) ANY OTHER FACTORS:

2 Dumfries...Comments:
27TH Morning clear and cold. Heavy showers during the day.
28TH Morning misty. Day wet and storms.
29TH Morning stormy. Rainy squalls all day.
30TH Morning wet. Windy. Showers all day.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Stranraer...the sea flowing over the breast wall for 30 or 40 yards flooding the road at the foot of North Strand Street and along the shore past Bellevilla...wharfs and old pier damaged..

B) DAMAGE CAUSED:
2) 1 Stranraer...3 ships stranded and several fishing boats destroyed in the harbour...wharf walls in harbour breached and considerable damage done to the old pier.
B) 1 Stranraer..."Breaches were made in the old and new wharf walls"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Newspaper...Wigtownshire Free Press 1868 October 29, "The Gale Of Saturday"
2 Observations...Meteorological Office 1868 Monthly Climatic Summaries, Station No. 1868 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.95

DATE OF EVENT: 1869 January 29 AM.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
   1 Fort William..."The tide rose to an extraordinary height"

B) WIND CONDITIONS:
   2 Dundee...Wind at 9 am and 9pm: 27TH 28TH 29TH 30TH
   Direction W S SW SE SE SW SW SW
   Force (mph) 2 2 1 2 1 10 16 10

E) LAMB'S CIRCULATION PATTERN: 27TH 28TH 29TH 30TH
   AW CSW W W

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
   1 Fort William..."Part of our back streets got a thorough washing"

B) DAMAGE CAUSED:
   3) 1 Fort William...some back streets partially flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
   1 Newspaper...Inverness Advertiser 1869 February 2, "High Tide At Fort William"
   2 Observations...Meteorological Office 1869 Monthly Climatic Summaries, Station No. 1869 Dundee.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   1 Detailed description of event.
   2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.96

DATE OF EVENT: 1, 2 1869 January 29 PM.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Fort William..."The tide rose to an extraordinary height"
1 Inverness..."a high tide"
2 Caithness..."the tides rose higher round the whole Caithness coast than they have done for many years back"

B) WIND CONDITIONS:
1 Inverness..."Heavy gales from the west"
2 Badenoch..."a strong gale"
2 Glenelg..."it blew a hurricane here"

3 Dundee...Wind at 9 am and 9pm:

<table>
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<tr>
<th>Direction</th>
<th>27TH</th>
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<th>29TH</th>
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<tr>
<td>Force (mph)</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
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</table>

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 27TH 28TH 29TH 30TH

AW CSW WW

G) ANY OTHER FACTORS:
1 Inverness..."accompanied by much rain"

3 Dundee...Rainfall for 24h preceding 9 am:

<table>
<thead>
<tr>
<th>Rain (mm)</th>
<th>27TH</th>
<th>28TH</th>
<th>29TH</th>
<th>30TH</th>
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<tr>
<td></td>
<td>5.1</td>
<td>7.6</td>
<td>0</td>
<td>8.9</td>
</tr>
</tbody>
</table>

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Fort William..."Part of our back streets got a thorough washing"
1 Inverness..."the water encroached at some parts on to the roadway"

B) DAMAGE CAUSED:
3) Fort William...some back streets partially flooded.
1 Inverness...one roadway flooded.

C) IMPACT AT OTHER SITES:
5) 2 Badenoch...some trees were overthrown.
7) 2 Badenoch..."a number of houses were unroofed"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Newspaper...Inverness Advertiser 1869 February 2, "High Tides" *High Tide At Fort William"
2 Newspaper...Inverness Advertiser 1869 February 5, "The Late Storm And Floods"
Observations...Meteorological Office 1869 Monthly Climatic Summaries, Station No. 1393 Arbroath.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of all aspects of the event.
2 Brief mention of event, as part of a description of a later event.
3 Instrumental data and a weather diary.
FLOOD NUMBER: CF.97

DATE OF EVENT: 1, 2 1869 January 30.

CAUSE OF EVENT:

A) TIDAL CONDITIONS:
1. Fort William..."The tide came up still higher"
2. Inverness..."a high spring tide"
3. Campelltown..."The high tide...by the tide overflowing"
4. Campelltown..."no one expected that the tide would rise to such a height as it did"
5. Ardersier...coastal inundation.
6. Avoch and Fortrose..."the tides were very high and the sea was rough"
7. Glenelg..."the tide rose to a height that no one now living remembers to have seen"
8. Brora, Sutherlandshire..."the tides of the latter end of last week flowed to a very unusual height"
9. Oban..."was visited by an extremely high tide"
10. Caithness..."the tides rose higher round the whole Caithness coast than they have done for many years back"
11. Avoch and Fortrose..."the tide rose to a height unequalled within the memory of the oldest inhabitant"
12. Auchtercaim Bridge...high tide.

B) WIND CONDITIONS:
1. Campelltown..."the very high wind blowing from the west"
2. Oban..."and violent storm of wind"
3. Gairloch..."A pretty strong gale of south-west wind blew during the whole of the preceding night"

<table>
<thead>
<tr>
<th>3 Dundee...Wind at 9 am and 9pm: 28TH</th>
<th>29TH</th>
<th>30TH</th>
<th>31ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction</td>
<td>SW</td>
<td>SE</td>
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<tr>
<td>Force (mph)</td>
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<td>1</td>
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<td>16</td>
<td>10</td>
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<table>
<thead>
<tr>
<th>3 Edinburgh...Wind at 9 am and 9pm: 28TH</th>
<th>29TH</th>
<th>30TH</th>
<th>31ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction</td>
<td>S</td>
<td>E</td>
<td>S</td>
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<td>Force (mph)</td>
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<tr>
<th>3 Dumfries...Wind at 9 am and 9pm: 28TH</th>
<th>29TH</th>
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<th>31ST</th>
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<tbody>
<tr>
<td>Direction</td>
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<tr>
<td>Force (mph)</td>
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</table>

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: 28TH 29TH 30TH 31ST

CSW W W CSW

G) ANY OTHER FACTORS:
1. Campelltown..."heavy fall of rain"
2. Oban..."thunder and lightning"

<table>
<thead>
<tr>
<th>3 Dumfries...Rainfall for 24h preceding 9 am: 28TH</th>
<th>29TH</th>
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<tr>
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<td>7.4</td>
<td>14.2</td>
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</tr>
<tr>
<td></td>
<td>9.4</td>
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</table>

3 Dundee...Comments:
30TH Fine with high winds.

3 Dumfries...Comments:
29TH Morning windy. Heavy showers all day.
30TH 9 am gale from SW.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.
IMPACT OF EVENT

A) EXTENT OF EVENT:
1) Fort William...low-lying lands and quay flooded.
2) Inverness...flooding many houses in the lower quarters of the town by the water flowing over the river banks...the roadway on both sides of the river at several points were impassable. At Douglas Row the water reached to within a few feet of the houses at the broadest part, and towards the end of Glebe St, it entirely covered the road...a large portion of Waterloo Place was under water...at the Maggot some houses were flooded...At the bottom of Gilbert St...a foot of water. At Celt St the water made its way about sixty yards inland, in fact, along the whole extent of the street and flooded the houses.
3) Campbelltown...overflowing the streets and inundating many of the houses...water up to three feet deep the Parliamentary Road has been much cut up, and the whole of Stewart St...has been greatly damaged by the inroads of the waves.
4) Avoch and Fortrose...1 fishing boat almost totally destroyed and several others damaged and some damage done to their fishing gear.
5) Glenelg...boats smashed
6) Gairloch...At Sand three or four boats thought save were floated and dashed to pieces...At Melvaig, oars and spars usually laid up for safety under the sides of herring boats, were broken or otherwise damaged.
7) Oban...Two shops and a house on the North Pier and houses at the South Pier and between the bridges, were flooded - in some instances to the depth of nearly two feet...Stevenson terrace (partially built) was flooded to a depth of about three feet.
8) Thurso...several houses near the river were so greatly flooded.
9) Scrabster...at the harbour the pier was completely inundated.
10) Dunnet...houses were surrounded by the sea, at places where the rocks are fully 30 feet in height.
11) Gairloch...roads have been damaged, fences knocked down.
12) Oban...Considerable damage has been done to the roads within and beyond the town which were exposed to the waves...Alexander Road permanent way ploughed up...The promenade in front of Columbia Terrace...has now the appearance of a natural sea beach...The Gallanach Road, on both sides of the ferry slip, for nearly 100 yards, has been considerably injured.
13) Charleston...the road leading to Messrs Hogarth's salmon station here was, in some parts, entirely swept off...some forty yards of the strath road is one mass of shingle.
14) Fort William...twenty sacks of barley washed off the quay.
15) Campbelltown...flood caused considerable damage and inconvenience to the merchants.
16) Oban...Two shops were flooded on the North Pier.
17) Scrabster...on the pier a quantity of goods in the Aberdeen company's store was damaged.
18) Charleston...bake-house flooded to a depth of four feet and steamboat store flooded to a depth of two feet.
19) Strath...the salt cellar belonging to Mr Macpherson...had its contents all washed out.

B) DAMAGE CAUSED:
2) 1 Fort William...some damage done to boats in harbour of which one boat was cut in two...and quay flooded.
3) 2 Avoch and Fortrose...1 fishing boat almost totally destroyed and several others damaged and some damage done to their fishing gear.
4) 2 Glenelg...boats smashed
5) 2 Gairloch...At Sand three or four boats thought save were floated and dashed to pieces...At Melvaig, oars and spars usually laid up for safety under the sides of herring boats, were broken or otherwise damaged.
6) 3 Inverness...the roadway on both sides of the river at several points were impassable, Douglas Row, Glebe St, Waterloo Place, Gilbert St, Celt St roadways flooded.
7) 1 Campbelltown...parliamentary road and Stewart St flooded.
8) 2 Glenelg...roads have been damaged, fences knocked down.
9) 2 Oban...Considerable damage has been done to the roads within and beyond the town which were exposed to the waves...Alexander Road permanent way ploughed up...The promenade in front of Columbia Terrace...has now the appearance of a natural sea beach...The Gallanach Road, on both sides of the ferry slip, for nearly 100 yards, has been considerably injured.
10) 3 Gairloch...The road leading to Messrs Hogarth's salmon station here was, in some parts, entirely swept off...some forty yards of the strath road is one mass of shingle.
11) 4 Fort William...twenty sacks of barley washed off the quay.
12) 1 Campbelltown...flood caused considerable damage and inconvenience to the merchants.
13) 2 Oban...Two shops were flooded on the North Pier.
14) 2 Scrabster...on the pier a quantity of goods in the Aberdeen company's store was damaged.
15) 2 Charleston...bake-house flooded to a depth of four feet and steamboat store flooded to a depth of two feet.
16) 2 Strath...the salt cellar belonging to Mr Macpherson...had its contents all washed out.
17) 5 Inverness...flooded many houses in the lower quarters of the town, at the Maggot some houses were flooded also Celt St.
18) 1 Campbelltown...many houses flooded and much damage caused.
2 Ardersier... "The houses in that part of the village called 'Stuart town'... were completely flooded"
2 Avoch and Fortrose... "along the beach, the water entering into many houses"
2 Glenelg... "some houses close to the shore, in which the water was several feet deep... In one instance... the houses was filled with shingle to the height of three feet... several houses were knocked down"
2 Oban... "a house on the North pier and houses at the South Pier and between the bridges, were flooded - in some instances to the depth of nearly two feet... Stevenson terrace (partially built) was flooded to a depth of about three feet. The damage however has not been very great"
2 Thurso... "several houses near the river were so greatly flooded that the furniture was floating around the rooms"
8) 1 Fort William... sand was carried up over the low-lying lands by the strength of the waves.
1 Campelltown... "this part of the village, where the shore is more abrupt, is threatened with complete destruction... the earth is torn up to within a foot or two of the walls, and as the water is here gaining year by year, it cannot be long before the whole street is swept away"
2 Brora, Sutherlandshire... "considerable erosion of sand banks along the shore especially at Port Cheanraidh where old salt pans were laid bare from under the sand.
2 Oban... "a portion of the sea-wall at Alexander Road has been thrown down... a dry sea-wall has been thrown in on part of the Gallanach Road near the ferry slip.
2 Gairloch... "the road leading to Messrs Hogarth's salmon station here was, in some parts, entirely swept off!"
10) 1 Fort William... low-lying lands flooded.

C) IMPACT AT OTHER SITES:
3) 1 Findhorn... "some thirty yards or so of the permanent way having been partially washed away"
5) 2 Badenoch... flooding of agricultural land at Kingussie, Belleville and Abernethy.
8) 2 Badenoch... extensive river flooding of the meadows in the neighbourhood of Kingussie, and also the low ground of Belleville... also the meadows at Abernethy.
2 Wick... "the river overflowed its banks to a great extent.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper... Inverness Advertiser 1869 February 2, "High Tides" "High Tide At Fort William"
"Campelltown - The High Tide"
2 Newspaper... Inverness Advertiser 1869 February 5, "The Late Storm And Floods"
3 Observations... Meteorological Office 1869 Monthly Climatic Summaries, Station Nos. 1361 Dundee, 1646 Edinburgh, 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of event.
2 Detailed description of event.
3 Instrumental data and a weather diary.
FLOOD NUMBER: CF.98

DATE OF EVENT: 1 January 31 1869

CAUSE OF EVENT:
A) TIDAL CONDITIONS:
   1 Inverness... "the tide was again almost as high"

B) WIND CONDITIONS:
   2 Dundee... Wind at 9 am and 9 pm:
   
<table>
<thead>
<tr>
<th>JAN 29TH</th>
<th>30TH</th>
<th>31ST</th>
<th>FEB 1ST</th>
</tr>
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<td>Direction</td>
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</tr>
<tr>
<td>Force (mph)</td>
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<td>16</td>
<td>2</td>
</tr>
</tbody>
</table>

E) LAMB'S CIRCULATION PATTERN:
   JAN 29TH 30TH 31ST FEB 1ST
   W W CSW C

G) ANY OTHER FACTORS:
   2 Dundee... Comments:
   30TH Fine with high winds.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
   1 Inverness... "the water encroached on to the roadway on both banks of the river and flooded streets such as Douglas Row, Glebe St and Waterloo Place"

B) DAMAGE CAUSED:
   3) 1 Inverness... roadways flooded on both banks of the river and on Douglas Row, Glebe St and Waterloo Place.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
   1 Newspaper... Inverness Advertiser 1869 February 2, "High Tides"
   2 Observations... Meteorological Office 1869 Monthly Climatic Summaries, Station No. 1361 Dundee.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   1 Short description of event.
   2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.99

DATE OF EVENT: 1869 February 1.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Inverness..."the tide came up in increased volume"

B) WIND CONDITIONS:
1 Inverness..."aided by a strong easterly wind"
2 Dundee...Wind at 9 am and 9pm: 30TH 31ST FEB 1ST
Direction SW SW SW SW W NE
Force (mph) 16 10 16 16 2 22

E) LAMB'S CIRCULATION PATTERN: JAN 30TH 31ST FEB 1ST
W CSW C

G) ANY OTHER FACTORS:
2 Dundee...Comments:
30TH Fine with high winds.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Inverness..."the river having risen about a foot, over the length of Douglas Row...it also washed over the roadway at at Huntly St making its way on to Duff St and Well's St. The Capel Inch was also submerged...in several of the houses attained a depth of from two to three feet. In the Merkinch many of the houses were flooded
1 Burghead...harbour.

B) DAMAGE CAUSED:
2) 1 Burghead..."the harbour works...sustained some damage"
3) 1 Inverness...roadways flooded on Douglas Row, Huntly St, Duff St and Well's St and the Capel Inch.
7) 1 Inverness...houses flooded at the Capel Inch and the Merkinch.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Inverness Advertiser 1869 February 2. "High Tides"
2 Observations...Meteorological Office 1869 Monthly Climatic Summaries, Station No. 1361 Dundee.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event gives some detail on the cause and impact.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.100

DATE OF EVENT: 1869 February 13.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Alloa... "the tide rose higher here than it has been known to do since 1849".

B) WIND CONDITIONS:
2 Edinburgh (Bla)... Wind at 9 am and 9 pm: 11TH 12TH 13TH 14TH
Direction: W W W W
Force (mph): 6 6 4 2

E) LAMB'S CIRCULATION PATTERN: 11TH 12TH 13TH 14TH
W CW NW W

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Alloa... The Mar Inn was inundated to a depth of eighteen inches, as also were the lower flats of the houses at Kellie Bank... The river overflowed its banks on both sides and the quay was flooded.

B) DAMAGE CAUSED:
4) 1 Alloa... Inn flooded... a large number of barrels lying on the quay were washed away.
5) 1 Alloa... a number of hens kept in an outhouse at the back of Kellie Bank were drowned.
7) 1 Alloa... a number of flats were flooded at Kellie bank.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper... Alloa Journal 1869 February 15, "High Tide"
2 Observations... Meteorological Office 1869 Monthly Climatic Summaries, Station No. 1646
Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Brief description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.101

DATE OF EVENT: 1869 February 28.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Inverness..."high tide"
1 Beauly..."the highest tide that has been seen for many a day"

B) WIND CONDITIONS:
1 Dingwall..."high westerly winds"
2 Dundee...Wind at 9 am and 9 pm: FEB 26TH 27TH 28TH MAR 1ST
   Direction: SW S SW SW SW NW E
   Force (mph): 22 2 22 16 6 2 2 6

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: FEB 26TH 27TH 28TH MAR 1ST
   AN NW NW CNW

G) ANY OTHER FACTORS:
2 Dundee...Comments:
26TH Gale during the night up to 3 pm.
27TH Strong gale all night from 11 pm to 7 am. Gale to 3 pm.
28TH Gale during the night at 8 am.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Inverness..."Several of the lower parts of the town were partially flooded for a short time, and the water entered a number of houses on the west side of the river. The roadway at Douglas Row was also impassable"
1 Beauly..."It broke the bank in several places, and deluged part of Temigh and Easter Lovat farms"

B) DAMAGE CAUSED:
3) 1 Inverness..."several of the lower parts of the town were partially flooded...Douglas Row was impassable"
1 Beauly..."some of the roads were impassable and the railway service disrupted because of the snow.
5) 1 Beauly..."deluged part of Temigh and Easter Lovat farms...a good quantity of turnips were lost on Easter Lovat by the receding tide washing them away"
7) 1 Inverness..."the water entered a number of houses on the west side of the river"
8) 1 Beauly..."It broke the bank in several places"

C) IMPACT AT OTHER SITES:
4) 1 Dingwall..."a large wooden workshop in Tullock Street, which was thrown considerably off the perpendicular"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Newspaper...Inverness Advertiser 1869 March 2, "High Tides - Flooding Of The Ness"
2 Observations...Meteorological Office 1869 Monthly Climatic Summaries, Station No. 1869 Dundee.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of all aspects of the event.
2 Instrumental data and a weather diary.
FLOOD NUMBER : CF.102

DATE OF EVENT : 1 1869 June 15.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 East Coast..."A tremendous sea was raised"

B) WIND CONDITIONS :
1 East Coast..."Severe gale from N.E. At 11 am, the wind, which was S.S.E. of a sudden chopped round to the N.E. and without warning blew a violent gale"
2 Dundee...Wind at 9 am and 9 pm : 13TH 14TH 15TH 16TH
   Direction E N W E NE N W N
   Force (mph) 2 16 2 2 22 22 16 2
2 Edinburgh (Bla)...Wind at 9 am and 9 pm : 13TH 14TH 15TH 16TH
   Direction S N N S NE N NW W
   Force (mph) 2 2 2 1 6 1 10 2

C) DURATION OF STORM : Type 2.

E) LAMB'S CIRCULATION PATTERN : 13TH 14TH 15TH 16TH
   C CN C AN

G) ANY OTHER FACTORS :
2 Dundee...Comments :
15TH Rain during night up to 6 pm. Gale during night. Strong gale from 6 am.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 East Coast...some places flooded.

B) DAMAGE CAUSED :
1) 1 East Coast...serious loss of life due to shipwrecks
2) 1 East Coast..."many shipwrecks occurring"

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
   Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.
2 Observations...Meteorological Office 1869 Monthly Climatic Summaries, Station Nos.1869 Dundee, 1646 Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Very short description of the event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF. 103
DATE OF EVENT: 1871.

CAUSE OF EVENT
B) WIND CONDITIONS:
Wick... "gale"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Wick... localised harbour flooded.

B) DAMAGE CAUSED:
2) Wick... damage done to eastern breakwater in harbour.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
No original reference given but a list of references given at the back of the book.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event lacking exact date.

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FLOOD NUMBER: CF. 104
DATE OF EVENT: 1872

CAUSE OF EVENT
B) WIND CONDITIONS:
Wick... "gale"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Wick... localised harbour flooding.

B) DAMAGE CAUSED:
2) Wick... damage done to eastern breakwater in harbour.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
No original reference given but a list of references given at the back of the book.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event lacking exact date.
FLOOD NUMBER: CF.105.

DATE OF EVENT: 1873

CAUSE OF EVENT

B) WIND CONDITIONS:
Wick..."gale"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
Wick...localised harbour flooding.

B) DAMAGE CAUSED:
2) Wick...damage done to eastern breakwater in harbour.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
No original reference given but a list of references given at the back of the book.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event.
FLOOD NUMBER: CF.106

DATE OF EVENT: 1876.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
   Alloa...exceptional high tide.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
   Alloa...harbour flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
   Newspaper...Alloa Journal...1883 October 20, "High Tide"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   Very short description of the event which forms part of the description of a later event lacking exact date.
FLOOD NUMBER: CF.107

DATE OF EVENT: 1 1877 January 1-2.

CAUSE OF EVENT:
A) TIDAL CONDITIONS: 1 Edinburgh..."with high tide"

B) WIND CONDITIONS: 1 Edinburgh..."Severe N.E. gale"

2 Edinburgh (Bla)...Wind at 9 am and 9 pm: 1876 DEC 30TH 31ST 1877 JAN 1ST 2ND

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<td>6</td>
<td>1</td>
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</table>

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 1876 DEC 30TH 31ST 1877 JAN 1ST 2ND

| | C | C | CW | AS |

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT: 1 Edinburgh...Portobello and Joppa flooded

B) IMPACT OF EVENT: 8) 1 Edinburgh..."Nearly the whole of the sea-wall between Portobello and Joppa washed away"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:

Original Reference...Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.

2 Observations...Meteorological Office 1876 Monthly Climatic Summaries, Station No. 1646 Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very short description of the event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.108

DATE OF EVENT: 1 1877 January 30.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Caithness and Orkney coasts..."combined with high tide"

B) WIND CONDITIONS:
1 Caithness and Orkney coasts..."a fierce gale raged"

2 St Kilda...Wind at 9 am: JAN 29TH 30TH 31ST
Direction NW NW NW

2 Elgin...Wind at 9 am and 9 pm: JAN 29TH 30TH 31ST
Direction SW W NW NW SW SE
Force (mph) 6 3 3 3 2 3

2 Dundee...Wind at 9 am and 9 pm: JAN 29TH 30TH 31ST
Direction SW SW NW NW W SE
Force (mph) 10 22 28 6 1 1

C) DURATION OF STORM: Type 2.

E) LAMB'S CIRCULATION PATTERN: JAN 29TH 30TH 31ST FEB 1ST 2ND 3RD
W CNW W W W W

G) ANY OTHER FACTORS:
2 Elgin...Comments:
29TH with fierce gusts of wind.
30TH wind with gusts.

2 Dundee...Comments:
30TH Gale at night, strong gale to 9.30 pm

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Caithness and Orkney coasts...flooding

B) DAMAGE CAUSED:
2) 1 Caithness and Orkney coasts...considerable damage done to shipping.
4) 1 Caithness and Orkney coasts...considerable damage done to...other property.

C) IMPACTS AT OTHER SITES:
5) 1 Stirling...river flooding, the Forth and Teith were in high flood and overflowed their banks in many places.
5) 1 Alloa...trees blown down.
7) 1 Alloa...gale damage, roofs of houses partially de-slated.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Stirling Journal and Advertiser 1877 February 2, "The Storm"
2 Observations...Meteorological Office 1877 Monthly Climatic Summaries, Station Nos. 0508
St Kilda, Elgin, 1361 Dundee.
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF INFORMATION:
1 Detailed description of event but reference to storm surge in an area not near where the newspaper is published.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.109

DATE OF EVENT: 1, 2 January 1877.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Clyde..."high tide"
1 Stranraer..."the tide rose to an unprecedented height"
2 Stranraer..."the sea rose to a great height"

B) WIND CONDITIONS:
1 Scotland...the storm had abated early on Tuesday.
1 Crieff...a strong gale blew from the north-west.
2 Stranraer..."The stormy weather which prevailed...was experienced with particular severity at Stranraer and vicinity"

3 Dumfries...Wind at 9 am and 9 pm: JAN 30TH 31ST FEB 1ST
Direction NW NW W SE SW SW
Force (mph) 22 10 1 1 6 2

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
1 Clyde."great body of water coming down the river which overflowed its banks at several places"

3 Dumfries...Rainfall for 24h preceding 9 am: JAN 30TH 31ST FEB 1ST
Rain (mm) 10.4 0 8.4

E) LAMB'S CIRCULATION PATTERN JAN 30TH 31ST FEB 1ST
CNW W W

G) ANY OTHER FACTORS:
3 Dumfries...Comments:
30TH Gales towards evening. Heavy rains.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Clyde...considerable interruption was caused to the ferry traffic between Govan and Partick.
1 Stranraer...the packets were unable to leave the harbour.
2 Stranraer..."flooding that part of the town which lies along the coast...also Caimryan Road for a considerable distance"

B) DAMAGE CAUSED:
2) 1 Clyde...disruption to ferries.
1 Stranraer...disruption to shipping.
2 Stranraer..."ships to Glasgow and Lame could not sail"
3) 2 Stranraer..."Much damage was done to Caimryan Road, almost half the road being washed away...part of town along coast flooded"
4) 1 Stranraer..."the roof was blown off a large store on the breast work"
7) 2 Stranraer...damage to roofs of some houses.
8) 2 Stranraer...almost half of the Caimryan Road washed away.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
2 England and Wales."a severe gale from the north-west...causing much destruction and loss of life" from source 2 below.

E) SIZE OF EVENT: Local.
AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1. Newspaper...Stirling Journal And Advertiser 1877 February 2, "The Storm"
2. Newspaper...Dumfries And Galloway Standard 1877 February 3, "Storm At Stranraer"
3. Observations...Meteorological Office 1877 Monthly Climatic Summaries, Station No. 1646 Edinburgh.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF INFORMATION:
1. Short description of event as part of a longer description of the more local effects of the storm.
2. Short description of event.
3. Instrumental data and a weather diary.
FLOOD NUMBER: CF.110

DATE OF EVENT: 1, 2, 3 1879 December 28.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
2 Dundee... "high seas"

B) WIND CONDITIONS:
1 Firth Of Tay... "heavy gale"
2 Dundee... "storm and howling gale... particularly strong gusts of wind"
3 Dundee... "a storm from the westwards... frequent squalls... Tayport lighthouse lantern shaken by the wind", a thing that had not happened since 1859"
3 Glasgow... average wind speed 71 m.p.h. with squalls up to 96 m.p.h... one squall had wind speeds of 100 m.p.h.
3 Aberdeen... squalls of 96 m.p.h. recorded.

4 Dundee... Wind at 9am and 9 pm: 26TH 27TH 28TH 29TH
   Direction | W | W
   Force (mph) | 1 | 1 | 22 | 28 | 2 | 2

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 26TH 27TH 28TH 29TH

G) ANY OTHER FACTORS:
   Dundee... Comments:
   26TH Strong gale from 5 am.
   27TH Gale at night.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Firth Of Tay.
2 Dundee... Tay estuary flooded.
3 Dundee... Tay estuary.

B) DAMAGE CAUSED:
1) 2, 3 Dundee... 75 people died when train plunged off Tay bridge when part of it collapsed during a storm.
2) 3 Dundee... "Tayport lighthouse lantern shaken by the wind", a thing that had not happened since 1859
3) 1, 2, 3 Firth Of Tay... parts of Tay Bridge blown down... 1 train crashed from bridge killing 75 people, design of bridge and the rules of operation of the trains on it a major factor in causing the bridge to collapse.
7) 3 Dundee... many houses lost chimney pots.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Journal Article... R.C. Mossman 1897-1898 "The Meteorological Of Edinburgh, Part 2" in Transactions Of The Royal Society Of Edinburgh, Vol. 39, Part 1, pages 67-108, p106. Original Reference... Although the author does not assign an original reference to the event, he does give a list of some of the original references used, including newspapers at the start of the appendix.
2 Book... J. Perkins (1975) "The Tay Bridge Disaster" City Of Dundee District Council Publications. Original Reference... various documentary records of the event at the time of occurrence.
4 Observations... Meteorological Office 1879 Monthly Climatic Summaries, Station No. 1879 Dundee.
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very short description of the event.
2 Detailed description of the event.
3 Detailed description of the event.
4 Instrumental data and a weather diary.
FLOOD NUMBER: CF.111

DATE OF EVENT:
1 1880 February 26.
2 1880.

CAUSE OF EVENT
B) WIND CONDITIONS:
1 Macduff...A very severe gale...assumed the characteristics of a hurricane. "The wind gradually veered to the north, when the sea rose to a tremendous height and dashed inshore with great violence"

3 Culloden...Wind at 9 am and 9 pm: 24TH WSW, 25TH WSW, 26TH WSW, 27TH NW, 28TH NW, 29TH WSW, 30TH SW

Force (mph) 10 10 10 10 10 10 10

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 24TH A, 25TH AW, 26TH NW, 27TH AW

G) ANY OTHER FACTORS:
1 Accompanied by snow and hail, mingled with rain.
1 Gale experienced at Forres, Burghead, Hopeman...gale blowing from north-west, Aviemore, Abernethy, Banff.

3 Culloden...Comments:
25th Boisterous
26th Boisterous day, stormy showers.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF FLOODING:
1 Macduff..."The wind gradually veered to the north, when the sea rose to a tremendous height, and dashed inshore with great violence. The waves leapt furiously over the harbour walls and up the breakwater to the shore, and partly swept the roadway"

2 Wick..."harbour"

B) DAMAGE CAUSED:
2) 1 minor damage was done to the harbour of MacDuff.
2 Wick...damage done to harbour.

C) IMPACTS AT OTHER SITES:
1 Hopeman...boat sunk value of £200.
1 Burghead...schooner on rocks, eventually got off but badly damaged.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Courant (Elgin) 1880 February 27. "Severe Gale In The North"
No original reference given but a list of references given at the back of the book.
3 Observations...Meteorological Office 1880 Monthly Climatic Summaries, Station No. 1879 Dundee.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

D) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of the event done on a location by location basis.
2 Short description of event.
3 Instrumental data and a weather diary.
FLOOD NUMBER: CF. 112

DATE OF EVENT: 1, 2 1881 November 24 (date of newspaper)

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Banff... "The tides on Tuesday night and Wednesday were exceptionally high. The water in the harbour measured 24 feet, which is about 3 feet more than ordinary spring tides"
2 Portgordon... "the water rose to the level of the houses and in some found its way into the interior"
2 Eyemouth... "boats and pieces of boats being tossed high up on shore by the abnormal waves".

B) WIND CONDITIONS:
1 Banff... gale which blew with such violence on Wednesday morning.
2 Eyemouth... terrible storm that swept the whole country.

3 Gordon Castle... Wind at 9 am and pm:

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<td>Direction</td>
<td>SW</td>
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C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN:

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G) ANY OTHER FACTORS:
3 Gordon Castle... Comments:
22ND squally and stormy, gale.
23RD squally
24TH High wind, squally fair cold

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF FLOODING:
1 Portgordon... "the water rose to the level of the houses, and in some found its way into the interior"
1 Banff... no actual flooding but evidence of a large storm surge.
2 Eyemouth... no actual flooding but evidence of a large surge.

B) DAMAGE CAUSED:
1) Eyemouth... "well over a hundred of the town's men and youths perished at sea"
2) Eyemouth... many fishing boats destroyed or damaged.
6) Banff... "One of the turrets of the Established Church was blown down, and in falling, smashed the roofs of church, manse, and kitchen adjoining"
7) Portgordon... Some houses flooded.
1 Banff... "Some houses were partially unroofed; sign boards and chimneys blown down and several wooden erections levelled"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Newspaper... Banffshire Advertiser 1881 November 24. "Banff", "High Tides"
3 Observations... Meteorological Office 1881 Monthly Climatic Summaries, Station No. 1095 Castle Gordon.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event at the two locations.
2 Short description of the event.
3 Instrumental data and a weather diary.
DATE OF EVENT: 1 1882 February 22.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
  1 Buckie... during high water at the Cluny Harbour.

B) WIND CONDITIONS:
  2 Gordon Castle... Wind at 9 am and pm: 20TH SW SW NW W W SW W
  Direction 21ST SW NW W 22ND SW WW SW WW
  23RD

E) LAMB'S CIRCULATION PATTERN: 20TH 21ST 22ND 23RD
  AW ANW A A

G) ANY OTHER FACTORS:
  2 Gordon Castle... Comments:
  20TH Wind moderate
  22ND high winds.

H) CLASSIFICATION OF CAUSE OF FLOOD: Type 1.

IMPACT OF EVENT
A) EXTENT OF FLOODING:
  1 Buckie... at the back of the north-east pier, the sea wrought around the end of the parapet,
  and carried a quantity of gravel over the pier and into the basin.
  1 Nether Buckie...a dwelling house was flooded by the sea, and a quantity of gravel washed into it.
  1 Portessie...several houses were also flooded.
  1 Port Tannachy...the road was literally covered with shingle.

B) DAMAGE CAUSED:
  2) 1 Buckie...several boats were damaged at the Cluny harbour. A quantity of gravel was carried over
  the pier and into the basin.
  3) 1 Port Tannachy...the road was literally covered with shingle.
  7) 1 Nether Buckie...1 house flooded.
  1 Portessie...several houses flooded.
  8) 1 Buckie...The beach embankment along the north side of the fishcuring premises and the
  sawmills wood yard were carried off. At the fishcuring premises in Low street a concrete wall
  erected to protect the back ground from the sea was made a complete wreck.

C) IMPACT AT OTHER SITES:
  1 Portgordon...some damage was done at the harbour.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
  1 Newspaper...Banffshire Advertiser 1882 February 23. "Buckie", "High Tide"
  2 Observations...Meteorological Office 1882 Monthly Climatic Summaries, Station No. 1095 Gordon Castle.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
  1 Short description of event at each location, little on cause of event.
  2 Instrumental data and a weather diary.
FLOOD NUMBER: CF. 114

DATE OF EVENT: 1882 March 19-21

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Dumfries... "Very high tides have been running this week"

B) WIND CONDITIONS:
2 Dumfries... Wind at 9 am and 9 pm: 17TH 18TH 19TH 20TH 21ST 22ND
Direction: SW SW S SW SW S SW NW NW N NE N
Force (mph): 22 4 10 10 22 6 10 4 10 1

C) DURATION OF STORM: Type 1.

D) LAMB'S CIRCULATION PATTERN:
17TH 18TH 19TH 20TH 21ST 22ND
A SW CW W NW AN

G) ANY OTHER FACTORS:
2 Dumfries... Comments:
19TH Morning wet windy, evening stormy.
22ND Morning very cold and windy.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Dumfries... "All the lower portion of the Dock Park was covered on Sabbath, Monday, and yesterday"

B) DAMAGE CAUSED:
6) 1 Dumfries... lower portion of Dock Park flooded all three days.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper... Dumfries And Galloway Standard 1882 March 22 "High Tides"
2 Observations... Meteorological Office 1882 Monthly Climatic Summaries, Station No. 1879 Dundee.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very short description of the event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.115

DATE OF EVENT: 1 1883 October 20 (date of newspaper, Thursday event).

CAUSE OF EVENT

A) TIDAL CONDITIONS:
   1 Alloa..."the tide...rose higher than it has done for the last seven years past"

B) WIND CONDITIONS:
   1 Alloa..."The wind was blowing strong from the south-west"

   2 Edinburgh (Bla)...Wind at 9 am and pm: 17TH 18TH 19TH 20TH
      Direction: NW W W W
      Force (mph): 5 6 6 8 8 7 5 5

C) DURATION OF STORM: Type 1.

D) LAMB'S CIRCULATION PATTERN: 17TH 18TH 19TH 20TH
   W W W W

G) ANY OTHER FACTORS:
   2 Edinburgh (Bla)...Comments:
      18TH Squally stormy, 1.20 to 2 pm hail.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
   1 Alloa..."the tide rose above the quay, and lashed above the shorehead for a considerable distance."
   1 Tullibody Island, the water so overwhelmed it that the cattle had to be removed to the
      mainland by boat"

B) DAMAGE CAUSED:
   5) 1 Alloa...removal of cattle from their grazing on Tullibody Island

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
   1 Newspaper...Alloa Journal 1883 October 20, "High Tide"
   2 Observations...Meteorological Office 1883 Monthly Climatic Summaries, Station No. 1646
      Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES OF INFORMATION AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   1 Very short description of event.
   2 Instrumental data and a weather diary.

541
FLOOD NUMBER: CF.116

DATE OF EVENT: 1890 January 25 (date of newspaper, Thursday event).

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Alloa..."the tide rose abnormally high...This tide which rose four and a half feet above the usual stream tides, is the highest that has been witnessed at Alloa harbour for the last seventeen years"

B) WIND CONDITIONS:
1 Alloa...There was little or no wind blowing.

2 Edinburgh (Bla)...Wind at 9 am and pm: 22ND 23RD 24TH 25TH

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<th>Calm</th>
<th>SE</th>
<th>W</th>
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<tr>
<td>Force (mph)</td>
<td>2</td>
<td>22</td>
<td>22</td>
<td>Gale</td>
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C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: 22ND 23RD 24TH 25TH

| CW | C | W | W |

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Alloa..."the tide was gradually overflowing the pierhead...Mar Hotel kitchen flooded to a depth of 6 inches...The shipbuilding and woodyards were also flooded to the extent of about 60 yards"

B) DAMAGE CAUSED:
4) 1 Alloa...kitchen of Mar Hotel flooded...shipbuilding and woodyards also flooded and a considerable deposit of mud was left behind.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Alloa Journal 1890 January 25, "An Abnormally High Tide"
2 Observations...Meteorological Office 1890 Monthly Climatic Summaries, Station No. 1646 Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.117

DATE OF EVENT: 1, 2 1891 October 17.

CAUSE OF EVENT:
A) TIDAL CONDITIONS:
1 Isle Of Whithorn: "fortunately the tides had not reached their full height"

B) WIND CONDITIONS:
1 Isle Of Whithorn: "the storm...was felt in all its fury"
3 Dumfries: Wind at 9 am and pm: 17TH 18TH
Direction: SW SW SW SE
Force (mph): 2 2 2 8

C) DURATION OF STORM: Type 1.

E) LAMBS CIRCULATION PATTERN: 15TH 16TH 17TH 18TH
Direction: SW C W W

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
1 Isle Of Whithorn: sea wall breached in several places in front of Pnyagil Row...the public road from the bridge downward was flooded to a depth of several feet.

B) DAMAGE CAUSED:
3) 1 Isle Of Whithorn: public road from bridge flooded and blocked for a number of hours.
8) 1 Isle Of Whithorn: sea wall breached in several places in front of Pnyagil Row.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
1 Newspaper...Wigtownshire Free Press 1891 October 22 "Isle Of Whithorn - The Late Storms"
2 Newspaper...Dumfries And Galloway Standard 1896 October 10, "Destructive gale And Floods"
3 Observations...Meteorological Office 1891 Monthly Climatic Summaries, Station No. 1891 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event which forms part of a description of two events.
2 Provides correct date of the event but not any detail on the event.
3 Instrumental data and a weather diary.
FLOOD NUMBER: CF.118

DATE OF EVENT: 1, 2 1891 October 19.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Drummore..."the tide was exceedingly high...some say it was the highest... for fifty years"
1 Isle Of Whithorn..."the tide rose to an unprecedented height"

B) WIND CONDITIONS:
1 Drummore..."wind blowing a gale from the south"
1 Isle Of Whithorn..."although the gale had considerably abated"

| 3 Dumfries...Wind at 9 am and pm: 17TH 18TH 19TH 20TH |
| Direction: SW SW SW SE SW W SE E |
| Force (mph): 2 2 2 8 4 2 4 4 |

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 17TH 18TH 19TH 20TH

|WWWS|

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Drummore...a foot of water on the new quay.
1 Grennan...road from Curghie washed away.
1 Isle Of Whithorn...lower end of town extensive flooding.
2 Dumfries...great flood...the greatest which had occurred in the district in living memory.

B) DAMAGE CAUSED:
2) 1 Isle Of Whithorn...the beacon on the Screen rocks has been swept away.
3) 1 Grennan...road from Curghie badly damaged and covered in with tons of shingle and seaweed.
4) 1 Isle Of Whithorn...several warehouses and a cold store sustained damage the latter being washed away.
5) 2 Dumfries..."a good deal of loss of livestock"
   2 Troqueer...at Flatts Of Cargen 100 sheep drowned.
6) 1 Isle Of Whithorn...some damage to local church.
7) 1 Isle Of Whithorn...lower end of town many houses flooded and damaged.
8) 1 Grennan...road from Curghie partly washed away...sea wall recently erected also washed away.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Newspaper...Wigtownshire Free Press 1891 October 22, "Kirkmaiden - The Storm", "Isle Of Whithorn - The Late Storms"
2 Newspaper...Dumfries And Galloway Standard 1896 October 10, "Destructive Gale And Floods"
3 Observations...Meteorological Office 1891 Monthly Climatic Summaries, Station No. 1891 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

D) ASSESSMENT OF QUALITY OF DATA:
1 Description of the event giving both its cause and effects forms part of description of two events.
2 Brief mention of event as part of a very long discussion of a later event.
3 Instrumental data and a weather diary.
FLOOD NUMBER : CF.119

DATE OF EVENT : 1892 (post August 27).

CAUSE OF EVENT
B) WIND CONDITIONS :
Thurso..."a severe storm"

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Thurso...localised harbour flooding.

B) DAMAGE CAUSED :
2) Thurso...much of what had been constructed of new harbour and breakwater were damaged.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF WORK :
Short description of event as part of a longer history of the harbour, no exact date given.
FLOOD NUMBER: CF.120

DATE OF EVENT: 1894 February 11-12.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 West Coast..."the waters had greatly subsided before nightfall"
1 Portpatrick..."and a heavy sea on"

B) WIND CONDITIONS:
1 West Coast..."the storm"
1 Stranraer..."a south-west wind...a hurricane of tremendous force"
1 Caerlarygan..."the severity of the gale"
1 Portpatrick..."The storm...proved terrific in its violence"
1 Drummore..."fierce gale...The wind was from the west and west-north-west.
1 Newton - Stewart..."a most severe storm of wind"
1 Whithorn..."violent gale"

2 Dumfries...Wind at 9 am and 9 pm: 9TH 10TH 11TH 12TH 13TH
Direction          SW  W  W  SW  S  SW  W  SW  W  NW
Force (mph)        2   4   6  2   6  10  2   2  4   1

2 Fort William...Wind at 9 am and 9 pm: 9TH 10TH 11TH 12TH 13TH
Direction          WSW  SW  W  Calm  Calm  SW  WNW  S  Calm
Force (mph)        2   6   6           2   2   1

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 9TH 10TH 11TH 12TH 13TH
WW  CW  NW  ANW

G) ANY OTHER FACTORS:
1 West Coast..."comparatively little rain fell"
1 Stranraer..."accompanied by a downpour of sleet and rain"
1 Newton - Stewart..."a most severe storm...and rain"

2 Dumfries...Comments:
10TH  Squally during the night
11TH  heavy flood...wind hardened to a gale with constant driving rain.
12TH  Very stormy during the night

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 West Coast..."considerable amount of flooding"
1 Stranraer..."sea wall at Port Rodie damaged"
1 Portpatrick..."harbour area.

B) DAMAGE CAUSED:
1) 1 Portpatrick...1 sailor died as a result of the wreck off the coast.
2) 1 West Coast..."In the Solway three ships were driven ashore, and in the Clyde, several vessels suffered more or less injury. At Ayr a steamer broke from its moorings, and seriously damaged four or five other vessels"
1 Portpatrick...1 vessel smashed to pieces in the harbour and 1 vessel wrecked off coast.
1 Stranraer..."damage to telegraph lines occurred blocking communication.
4) 1 Stranraer...1 shop on North Strand Street had its plate glass window blown in.
5) 1 West Coast..."a further destruction was caused to many plantations.
1 Portpatrick...some farms had outhouses unroofed and stockyards levelled.
7) 1 West Coast...considerable damage done to many house properties.
1 Stranraer...some houses lost slates.
1 Portpatrick... many houses suffered damage, had windows broken and lost slates.
2) 1 Stranraer... sea wall at Port Rodie damaged.

C) IMPACTS AT OTHER SITES:
2) 1 Caimryan... 1 vessel driven ashore but not wrecked.
4) 1 Newton - Stewart... £50 worth of damage at brick yard when a brick stack was blown down. At Penninghame a wooden shed blown down.
5) 1 Drummore... Some stack-yards suffered damage.
1 Newton - Stewart... Stock-yards at several farms were damaged as were farm houses and other buildings.
1 Whithorn... 2 hay sheds unroofed at Bishopton and Rispain.
6) 1 Drummore... some grave-stones at Kirkmaiden Cemetery blown down.
7) 1 Drummore... some house lost slates and chimney cans.
1 Newton - Stewart... several houses stripped of slates, lead, glass and chimney cans and other damage. A house being built had a wall blown down and other damage. Some farm houses also damaged.
1 Whithorn... several houses lost slates, chimney cans and windows.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper... Dumfries Advertiser And Wigtownshire Free Press 1894 February 15 "Disastrous Storm"
2 Observations... Meteorological Office 1894 Monthly Climatic Summaries, Station Nos. 6641 Dumfries, 0564 Fort William.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event concentrates on the damage to shipping.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.121

DATE OF EVENT: 1, 2, 1894 December 22.
3 1894 December 21-22.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
  3 Stranraer..."The tide rose rapidly to a height possibly unprecedented in a century"
  3 Portpatrick..."accompanied by a high sea"
  3 Girvan..."The sea was fearfully high in the firth...There was a very high tide"

B) WIND CONDITIONS:
  1 Stranraer..."memorable gale"
  3 West Coast..."a gale of extraordinary violence...It commenced from a westerly direction, but afterwards veered round to the north-west"
  3 Stranraer..."the storm raged with frightful severity...from the north-west"
  3 Kirkcolm...a gale of appalling violence...the wind veering round from south-west to west and north-west.
  3 Kirkmaiden...the most disastrous gale ever experienced...hurricane from west.
  3 Portpatrick..."the storm"
  3 Glenluce..."storm"
  3 Newton - Stewart..."gale from west...increased to a hurricane.
  3 Wigtown..."A violent storm of wind...The wind seems to have been from the west or west by south"
  3 Whithorn..."the storm"
  3 Isle of Whithorn...hurricane from north-west.
  3 Portwilliam..."gale"
  3 Kirkcowan..."A storm of great severity...The gale blew from west-north-west"
  3 Garlieston..."A most disastrous hurricane of wind"
  3 Girvan..."One of the heaviest and locally most disastrous gales...The wind was from the north-north-west"
  3 Gatehouse..."a violent and damaging storm"
  3 Creetown..."the storm"
  3 Castle - Douglas..."gale from west.
  3 Kirkcudbright..."A terrific gale"
  4 Dumfries...Wind at 9 am and pm : 19TH SW 20TH SW 21ST W 22ND SW 23RD NW

C) DURATION OF STORM: Type 1.

D) LAMB'S CIRCULATION PATTERN:

G) ANY OTHER FACTORS:
  3 Kirkcolm..."torrents of rain"
  3 Newton - Stewart..."heavy showers of rain.
  3 Wigtown..."A violent storm of...rain"
  3 Castle - Douglas..."rain.
  4 Dumfries...Comments:
  19TH + afternoon stormy and wet.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
  1 Stranraer..."the foreshore roads in the Burgh of Stranraer and its vicinity"
  3 Stranraer...roadway at the West Pier flooded...The sea ran along some of the front roads like a mill race and was nearly waist deep...the field opposite the East Pier transformed into a small lake...the low flats of the houses on Agnew Crescent flooded...the sea made a breach over the
road opposite Seabank and Sheuchan Mill...Waukmill House had its garden and 1 field flooded by the sea...part of gasworks flooded.

3 Kirkcolm...road flooded.

3 Portpatrick..."flooded some of the houses on the lower level near the harbour"

3 Girvan..."the waves swept over the pier and breakwater with great fury.

3 West coast...some places flooded.

B) DAMAGE CAUSED :

1) 3 West Coast...the loss of life is enormous.

3 Stranraer...4 dead due to wreck of 2 fishing boats at sea.

3 Lochryan...1 sailor drowned.

3 Kirkcolm...2 sailors drowned when vessel wrecked.

3 Portpatrick...2 lives lost when a steamer was stranded near Corsewall.

3 Girvan...4 died when their caravan was blown over by the gale and caught fire at the back of the harbour.

2) 2 Stranraer..."a number of vessels were driven ashore between Corsewall and Portlogan"

3 Stranraer...many vessels smashed to bits in the harbour...1 vessel stranded, 3 vessels wrecked...1 fishing smack and a number of small boats wrecked also...some damage done to railway pier, part of its surface was washed away, also where it joins the railway where it breached the sidewalk and covered the carriage way wth shingle and broke most of the lamps on the pier...at Clayhole Bay all the boats on the bank were either washed away or destroyed...3 yachts destroyed and 4 seriously damaged at Seabank...Some parts ofthe Broadstone road have disappeared.

3 West Coast...the loss of shipping has been enormous.

3 Wigtownshire...numerous wrecks on the coast.

3 Kirkcolm...All boats except one were washed away and lost.

3 Lochryan...some vessels stranded in the storm.

3 Kirkcolm...1 vessel wrecked at South Cairn...the beacon at Laggan Rock or Ebbstone north of Dally bay was washed away.

3 Portpatrick...the south pier behind the lighthouse building was blocked with stones and boulders and a quantity of debris...On the northside a considerable quantity of stones and debris was carried over into the inner harbour...1 vessel was wrecked and another driven ashore and suffered some damage... 1 steamer was stranded near Corsewall with 2 lives lost.

3 Girvan...3 vessels driven from their moorings...five or six fishing boats have been wrecked and a similar number badly damaged.

3) 1 Stranraer..."which so extensively damaged the foreshore roads"

3 Stranraer..."the Caimryan Road from Belleville Road in Stranraer almost to Balyett no longer exists. Great stretches of it have been completely washed away...east of Bowling Green Road the road is very badly damaged...the road at Sheuchan Mill blocked by fallen trees...railway workshop roofs lost alot of slates.

3 Kirkcolm...the Kirkcolm road is seriously breaches in places.

3 West Coast..."the telegraph system is completely broken down"

3 Portpatrick...roadway adjoining breastwork torn up...many roads around Dunskey House were blocked due to fallen trees.

3 Girvan...roadway along shore from Woodlands Bay has been considerably cut up...many telegraph wires were blown down.

4) 3 Stranraer...many sheds on breastwork either demolished or badly damaged also a small show ground had most of its rides smashed...at Clayhole Bay 1 shed demolished and 3 badly damaged...the creamery hoardings around the enclosure was swept away as well as some pig sheds and pigs...the 65ft chimney stack at the gasworks was demolished in the storm...extensive damage done at the Tileworks.

4) 3 Girvan..."a number of plate glass shop windows have been blown in"

5) 3 West Coast...the damage to growing wood is enormous.

3 Stranraer...1 field flooded and part of its boundary wall demolished...trees blown down on the road opposite Sheuchan Mill...some trees in the grounds of Broadstone House have fallen and the garden is partially wrecked...Low Auchneel Farm lost 70 poultry...the garden and 1 turnip field at Waukmill House were flooded with the loss of some of the crop...garden wall at North-West Castle demolished.

3 Caimryan...at Lochryan House the deerpar wall has been demolished and numerous trees and evergreen shrubs have been uprooted...at Lochinch many of the trees and much of the ornamental garden has been demolished in the storm...500 crows found dead in the lake also.

3 Kirkcolm...the damage to farmhouses and stackyards is great...stacks of grain and straw by the score have been overturned and scattered.

3 Portpatrick...many stackyards were levelled and oathouses unroofed...many trees were blown down on
Dunskey plantations.

6) Stranraer...new town hall lost an ornamental corner turret...church under construction in Sun St lost its roof...many stone monuments felled and other damage was done at the cemetary.

3 Lochryan...at Lochinchar part of old castle demolished.

3 Portpatrick..."In the quarry the Gun Harbour...was turned upside down, and a considerable outlay will be entailed before the ground resumes its wonted appearance"

3 Girvan...two ornamental windows in the South Parish Church have been blown in, and a memorial window damaged. In the Roman Catholic Church Of The Sacred Heart...a large strip of the roof has been torn off...About 20 of the gravestones in the Doune Cemetary have been blown down as well as some damage being done to the breastwork.

7) West Coast...the damage to house property has been enormous...hundreds of people have lost their all in the destruction...

3 Stranraer...some houses lost walls, slates, chimney pots, hoardings, pailings and some doors were torn from their hinges...from Clayhole Bay westwards the back garden walls of many houses were either breached or levelled...most houses on Sheuchan Street suffered damage 1 lost its roof...Broadstone house and the gardeners house flooded the later to a depth of several feet...Lewis Street badly affected.

3 Caimryan...many houses lost slates.

3 Kirkcolm...many houses lost slates and windows and other damage.

3 Portpatrick...many houses lost numerous slates off their roofs.

3 Girvan...many houses lost slates, chimney can, chimney tops and windows.

8) Stranraer...the damage to the sea walls skirting the Loch is enormous...the unsubstantial clay and stone frontage from the slaughter house to the East Pier has simply dissolved and left scarcely a trace behind...Beyond the railway the road is seriously breached and the substantial sea wall running eastwards from Bowling Green Road has been undermined in various places and in one or two parts completely demolished...sea wall under construction east of Ladies Walk was completely destroyed...From Port Rodie westwards large portions of the sea wall up to Adair's sawmill were broken down...damage done to the breastwork between the sawmill and the East Pier...The retaining wall running along Agnew Crescent has been partially thrown down and footwalk has been torn up...the foreshore opposite Mr Kyle's new dwelling was greatly torn up and the new wall and railings were blown down...erosion of part of Broadstone Road and sea wall and garden wall...

3 Kirkcolm...the Kirkcolm road is seriously breached in places.

3 Girvan...the breastwork at the Doune Cemetery has been damaged, and the road along the shore from Woodlands Bay has been considerably cut up.

C) IMPACT AT OTHER SITES:

1) Lochwinnoch...4 dead and 11 injured due to mill collapse.

3 Ayr...3 dead and several injured due to tenement collapse.

3 Finnart...4 sailors drowned and 7 injured when vessel wrecked.

3 Kirkmaiden...off Logan Head 1 shipwreck with 25 casualties.

2) Finnart...1 vessel wrecked.

3 Kirkmaiden...3 vessels were damaged in the harbour one of these vessels knocked 15 feet of part of the wall on top of the harbour, 1 vessel was driven ashore, 1 yacht was wrecked and many vessels lost their gear...off Logan Head 1 vessel was wrecked with many casualties.

2) Isle of Whithorn...1 beached boat blown hundreds of yards inland and slightly damaged...lifeboat slightly damaged in attempted rescue.

3 Portwilliam...vessel driven ashore 10 miles south of the harbour.

3 Creetown...1 vessel blown ashore and considerably damaged.

3 Kirkcudbright...4 vessels and a number of fishing boats were wrecked and two others collided.

3 South - West Coast...major damage and disruption done to the telegraphic and telephone communications system...major disruption to the train service partially as a result of fallen trees on some lines.

3 Glenluce...telegraphic communications were disrupted for some time.

3 Newton - Stewart...some roads blocked by falling trees...some gas street lamps damaged.

3 Garlieston...some roads blocked by fallen trees.

3 Creetown..."the public road near Ravenshall was completely blocked with fallen trees"

3 Castle - Douglas..."Most of the roads leading into the town were blocked by fallen trees"

3 Kirkcudbright...the roads were completely blocked by fallen trees...the railway station had its roof completely stripped of slates and the boundary paling was completely knocked down.

4) Lochwinnoch...1 mill collapsed.

3 Newton - Stewart...many sheds, some used by a builder, have all been completely unroofed...the brick stacks of the two wollen mills at Kirkcowan have been blown down.

3 Whithorn..."considerable damage done to the distillery"

3 Whithorn...some shop windows were smashed and 2 stores lost their entire corrugated roofs.
3 Kirkcowan... "Both woollen mills were badly wrecked, the stalks in both cases being blown away"
3 Kirkcudbright... "The tall chimney of the gasworks was thrown down... completely wrecking the works"
5) 3 Wigtownshire... in the high lying districts many stackyards blown away, much damage done to byres, stables and outhouses, many of which lost their roofs.
3 Kirkmaiden... many farms had stackyards blown over and lost grain and fodder... a farm at High Curghie lost 16 stacks of grain.
3 Glenluce... many stackyards overturned and many trees uprooted... one farm outhouse lost its entire corrugated roof.
3 Newton - Stewart... some trees have fallen in the town and many more outside of it... many stackyards destroyed and much damage to byres and other outhouses.
3 Wigtown... "Great numbers of trees are lying flat, and Baldoon wood has been greatly thinned"
3 Whithorn... "trees in great numbers being uprooted, and many stackyards levelled to the ground"
3 Isle of Whithorn... "much valuable grain, hay, straw etc, has been lost entirely, or badly damaged"
3 Garlieston... many trees have been felled in every direction.
3 Gatehouse... "The woods on the various estates have been much damaged"
3 Creetown... many trees uprooted and broken down.
3 Castle - Douglas... many trees uprooted in the town and district... many farms had their outbuildings unroofed.
3 Kirkcudbright... many trees have been blown over including 30 on a two mile stretch of road... the railway line was also blocked and telegraphic communications were disrupted... many granaries, hay and corn ricks, stables were upset and demolished.
6) 3 Kirkmaiden... "In the graveyard 16 headstones were blown down and smashed.
3 Newton - Stewart... Penninghame Church had a ton of freestone tom from its parapet and damage done to the weather vane. and lamps at the entrance way to the church damaged... Minnigaff, Penninghame, All Saints, and at the new cemetary some monuments had been thrown down and broken.
3 Wigtown... the court building lost its roof and most of the walls of its upper storey.
3 Whithorn... some damage to the steeple of the parish church and the weather vane on it.
3 Castle - Douglas... the Victoria Hall lost one of its gables and part of its roof... the United Presbyterian Church was also badly damaged.
7) 3 Ayr... 1 tenement collapsed.
3 Kirkmaiden... most houses lost slates or chimney pots or in some cases roofs especially the village of Drummore... a number of houses were partially destroyed.
3 Wigtownshire... in the high lying districts many farmhouses damaged, some were made uninhabitable.
3 Newton - Stewart... many houses lost slates, chimney cans, skylights, windows, garden walls and other walls and wooden railings on some streets and the lead off some roofs... a number of houses suffered severe damage including farmhouses
3 Wigtown... many houses lost slates, chimney cans, lead and other parts of their roofs.
3 Whithorn... many houses lost slates, chimney cans, window glass.
3 Isle of Whithorn... many houses suffered damage including farmhouses, some lost their entire roofs.
3 Kirkcowan... many houses lost slates, chimney cans, glass and large blocks of solid masonry.
3 Garleston... some houses lost slates and chimney cans.
3 Gatehouse... some houses lost their roofs, many others lost slates and fallen chimneys.
3 Creetown... some houses lost part of their roofs, many others lost slates, windows and chimney cans... many outhouses and other wooden erections were blown to pieces.
3 Kirkcudbright... some houses destroyed by fallen trees... and one house was damaged by a fallen chimney... many houses lost slates and chimney cans.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
3 England railway disaster at Crewe 13 people killed and over 50 seriously injured, many are not expected to recover... In several towns there was much destruction of property accompanied by loss of life... In Sheffield a great chimney stack fell killing 5... At Bradford 2 steam cars overturned killing 1 man... At Blackburn 5 were injured when a chimney stack fell on an infirmary... damage done to factories is so severe.
3 Ireland... The storm was also experienced with equal severity.

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper... Wigtownshire Free Press 1905 November 30, "Sea Encroachment At Stranraer"
2 Newspaper... Wigtownshire Free Press 1911 November 9, "The Storm"
3 Newspaper... Wigtownshire Free Press 1894 December 27, "The Great Storm"
4 Observations... Meteorological Office 1894 Monthly Climatic Summaries, Station Nos. 6641 Dumfries,
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event, event mentioned in comparison to a more recent event so the details are sketchy.
2 Very short description of event which forms part of a longer description of a later event.
3 Very detailed description of all aspects of the event and the locations affected and the damage done.
4 Instrumental data and a weather diary.

FLOOD NUMBER: CF.122

DATE OF EVENT: 7 October 1896.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Troqueer..."by the previous night's tide".

B) WIND CONDITIONS:
2 Dumfries: Wind at 9 am and pm: 5TH 6TH 7TH 8TH
Direction: W W W W SW SE NW SW
Force (mph): 10 2 16 6 2 16 28 16

E) LAMB'S CIRCULATION PATTERN: 5TH 6TH 7TH 8TH

G) ANY OTHER FACTORS:
2 Dumfries: Comments:
8TH Storm

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT
1 Troqueer...In Nethertown Farm a number of fields flooded due to breach of embankment.

B) DAMAGE CAUSED:
5) 1 Troqueer...In Nethertown Farm a number of fields flooded.
8) 1 Troqueer...a nine foot breach in the embankment at Nethertown Farm.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Dumfries And Galloway Standard 1896 October 10, "Destructive Gale And Floods"
2 Observations...Meteorological Office 1896 Monthly Climatic Summaries, Station No. 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very brief mention of event as part of a detailed description of a later event.
2 Instrumental data and a weather diary.
FLOOD NUMBER : CF.123

DATE OF EVENT : 1, 2 1896 8 (A.M event).

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Portpatrick..."the high tide which swept over the quay walls"
1 Drummore..."the sea rose to a great height"
1 Wigtown..."the tides being at their highest at present...one of the largest floods witnessed"
1 Garliestown..."a very high tide...the water rose to a greater height than the oldest inhabitant can recall"
1 Isle Of Whithorn..."the day tide...was of an abnormal height"
1 Solway..."a 21foot tide, and the force of the wind drove it to an even greater height"
1 Troqueer..."a very high tide."
1 Kingholm Quay..."the tide was the cause of a large degree of discomfort"
1 Glencaple district..."The tide all along the estuary of the Nith was of an unprecedented height"
1 Annan..."the tide was very high...an hour before high water the tide was 21 feet 4 inches."
1 Carsethorn..."a still higher tide."
1 Southerness..."the tide overflowed"  
2 Solway..."a very high tide."
2 Troqueer..."the tide was the cause of a large degree of discomfort"
2 Glencaple district..."the tide was the cause of a large degree of discomfort"
2 Annan..."the tide was very high...an hour before high water the tide was 21 feet 4 inches."
2 Carsethorn..."a still higher tide."
2 Southerness..."the tide overflowed"  
B) WIND CONDITIONS :
1 Portpatrick..."one of the worst storms in many years."
1 Drummore..."the gale was very severely felt"
1 Wigtown..."A storm of a rather a severe nature...wind blowing from the south-west"
1 Garliestown..."A storm of unusual severity"
2 Solway..."a south west gale of exceptional violence"
2 Glencaple district..."the gale"
2 Carsethorn..."a strong south-west gale."
2 Kirkcudbright..."the gale was felt in its full weight"
2 Auchencaim..."the storm"
2 Mid - Annansdale..."the full effect of the gale was received"  
2 Langholm..."a severe gale from the S.W."
2 Creetown..."a severe gale from the S.W."

3 Dumfries...Wind at 9 am and pm : 5TH 6TH 7TH 8TH Direction W W W W Force (mph) 10 2 16 6 2 16 28 16

C) ESTUARINE CONDITIONS :
2 Nith..."the Nith came down in heavy flood"
2 Annan...the North Burn overflowed its banks.

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 5TH 6TH 7TH 8TH 9TH
W W - C C

G) ANY OTHER FACTORS :
3 Dumfries : Comments :
8TH Storm
2 Solway..."accompanied by heavy rainfall"
2 Dumfries..."the rainfall for the forty-eight hours up to nine o'clock yesterday morning (friday)...registered 1.96 inches"  
2 Dalbeattie and Colvend..."Both the river Urr and the Dalbeattie Burn were in spate"  
2 Mid - Annansdale..."Consequent on the heavy rains...river flooding of hundreds of acres around the Annan...Corrie water also in spate"
2 Langholm..."2.16 inches of rain descended in 12 hours causing extensive river flooding...river..."
Lyne and Esk in flood.
2 Glenkens...the Ken came down in raging flood...also the Dee in flood.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1. 2 Portpatrick..."the high tide, which at noon swept over the quay walls in a solid mass, flooding shops and houses"
1 Drummore...the roadways at various points partially washed away.
1 Wigtown..."one of the largest witnessed here for a number of years...farmland flooded at Maidland and Crook.
1 Garliestown..."some of the low-lying houses were inundated...road to Egerness is damaged and covered to a depth of three feet with sand and large stones.
1 Isle Of Whithorn...many houses flooded and parts of the harbour were washed away...a part of the Low Isle also flooded.
2 Solway..."the fury of the gale combined with the heavy spate and a series of high tides produced floods of rarely exampled magnitude in the district...cottages at Brow Well flooded...farms at Ladyhall and Stanhope flooded
2 Dumfries...The Whitesands was covered to a great extent up to and including the Hoddam Castle Inn...The Dock Park was submerged from the Old Infirmary Loaning downwards...Dalminton meadows and many other fields above the town were standing deep in water...below the town much flooding due to numerous breaches in the embankments.
2 Troqueer...The fields between the Newabbye road and the river on Redbank were flooded...at Netheratown the tide rushed over a nine foot gap in the embankment flooding four fields...further breaches made later on...farm of Pleasance and Flatts Of Cargen extensively flooded,11 fields in total, between 200 and 300 acres. At three points between Pleasance and Islesteps the public road was flooded, up to three feet in places and the greatest distance being a hundred and thirty yards.
2 Kingholm Quay...the tide rushed over the embankment into the fields all around, covering the whole of the surrounding district with water...several breaches made in the embankment...many houses flooded...quay flooded to a depth of five feet...Kingholm park inundated.
2 Glencaple district...flooding of a few houses...cottages at Conheath flooded...many fields flooded in the district including at Sherrington and Hollsuds.
2 Annan...Rose and Butte Streets flooded...the holm above the bridge and Everholm were flooded...area around the Moat flooded...flooding in Port Street...fields at Hillend flooded...1 house and fields at Waterfoot flooded...in stackyard at Waterfoot farm there was five feet of water.
2 Carsethorn...The tide soon washed over several of the gardens on the opposite side of the road from the houses, and at high water several portions of the road along the village were covered by the sea. At North Carse farmhouse the sea covered the road for a considerable distance...the road opposite Victoria Terrace flooded also from the Victoria Lodge to Slate Row...road to Kirkbean was flooded at Pow Bridge.
2 Kirkbean...Mersehead farm and farmhouse flooded when embankment gave way...roads in the area also flooded as a result.
2 Southerness...a road and merses were flooded.
2 Dalbeattie and Colvend...a general flood especially at the ports.
2 Dalbeattie..."The quay and roadway were submerged"
2 Colvend...a house at Port-o'Warren was flooded and destroyed.
2 Kirkcudbright..."the lower part of the town was flooded...the noon tide over flowed the harbour and in the nearest warehouse there was 18 inches of water...The river embankment was completely covered, the water flowing into the adjacent fields...Tarff valley.
2 Auchencaim...the pier at Fish House Green, Balcary was enveloped with the raging waves and utterly destroyed.
2 Gatehouse...flooded the area from the drawbridge to the Boatgreen including the quay...fields around drawbridge flooded as was the roadway of the bridge...flooding of roadway at Skyeburn Bridge...flooding of vestry of the Free Church.
2 Creetown...flooding of houses in Mill Street and Silver Street...a number of public roads also flooded.

B) DAMAGE CAUSED:
1) 2 Annan...1 youth drowned when his small boat capsized.
2 Solway...1 sailor slightly injured when Solway lightship was stranded at Lochar.
2) 1 Isle Of Whithorn...1 fishing boat smashed to pieces in the harbour...the sea carried away a large portion of the back of the harbour.
Glencaple... all the fishermen's huts blown away... 1 schooner stranded on the shore.

Solway... lightship stranded at Lochar.

Colvend... at Kippford several small boats were carried out to sea.

Kirkcudbright... 2 vessels run aground in the storm.

Auchencairn... The pier at Fish House Green has been utterly destroyed... boathouse at Balcary was wrecked.

Creetown... A few of the fishermen's boats were sunk and net stakes though out of reach were washed away.

Portpatrick... *some small boats set adrift from their moorings in the harbour*

Drummore... the roadway known as Stair St was partially washed away... cost £150 to repair... the public road leading from Low Curghie to Tally Point and at Kilatay Bay were also badly damaged and in several places the road out away.

Garliestown... road to Egerness is damaged and covered in sand and large stones.

Isle Of Whithorn... the roadway leading to the Cairn was washed away.

Solway... many telephone wires down leading to much communication disruption.

Troqueer... public road flooded in three places between Pleasance and Islesteps.

Annan... part of the roadway enbankment at the Old Mill destroyed.

Carsethorn... several roads flooded especially the road at North Carse farmhouse... the road opposite Victoria Terrace flooded and the road from Victoria Lodge to Slate Row... road to Kirkbean was flooded at Pow Bridge... roadway between Slate Row and The Barracks was totally destroyed.

Kirkbean... roads in the area of Mersehead Farm flooded as a result of an embankment giving way.

Dalbeattie... roadway at quay flooded.

Colvend... road to Kippford suffered considerable damage.

Gatehouse... roads at the drawbridge and Skyreburn Bridge flooded.

Creetown... some of the roads were flooded and damage done to them.

Portpatrick... *some shops flooded.*

Isle Of Whithorn... offices, stores and stables received considerable damage... Some blocks of solid masonry weighing several tons were moved some feet*

Dumfries... Hoddam Castle Inn flooded... some damage to showmen's caravans and one tent blown away.

Kingholm Quay... 3 stores on the quay flooded one to a depth of five feet and damage to goods of about £100... damage to goods was also caused in the other two stores.

Glencaple... 1 small store blown away.

Annan... gasworks flooded interrupting supply for 12 hours... 1 office flooded to a depth of 16 inches and some warehouses in Port Street.

Carsethorn... 1 saw mill flooded... 1 stable and coach house damaged... 1 manure store and 1 other premises damaged.

Dalbeattie... lumber stored on the quay damaged and washed away.

Kirkcudbright... 1 warehouse flooded and much of its stock damaged... 3 large casks of paraffin and some lumber was washed off the dock and out to sea.

Gatehouse... several hundred tons of lumber washed off the quay... slaughterhouse at Boatgreen surrounded by water.

Creetown... a lot of loose timber thought out of reach of the water was washed away.

Wigtown... 2 farms flooded at Maidland and Crook.

Wigtown... a field... Low Isle was flooded, and a quantity of potatoes washed out of the drills*

Solway... farms flooded at Ladyhall and Stanhope.

Dumfries... Dalwinton meadows and many other fields above the town were flooded.

Troqueer... 4 fields flooded at Nethertown... 11 fields flooded at Pleasance and Flatts Of Cargen... at Pleasance hundreds of rabbits drowned and numbers of partridge also perished... winery at Carrgreen blown down.

Kingholm Quay... many fields flooded... 1 field of turnips badly damaged... 300 yards of iron railing felled.

Glencaple district... many fields flooded and large quantities of turnips and other farm produce have been washed away... fields flooded at Sherrington and Hollsuds.

Annan... fields flooded at Hillend and crops in them badly damaged... a field of wheat at Waterfoot farm swept away.

Carsethorn... North Carse farm... several buildings flooded.

Kirkbean... Mersehead farm and farmhouse flooded when embankment gave way... fencing destroyed, crops damaged and thousands of rabbits drowned.

Dalbeattie... nearer the town a large number of rats were destroyed*

Kirkcudbright... fields near the town flooded and at the Tarf valley where a considerable proportion of hay was carried away... a few ash trees have been snapped down.

Gatehouse... fields around drawbridge flooded.

Kingholm Quay... park flooded.
2 Annan...at the Moat an ornamental summer house was washed away.
2 Gatehouse...vestry of Free Church flooded...haystack at Boatgreen surrounded by water.
7) 1,2 Portpatrick...some houses flooded.
1 Garliestown...some low-lying houses flooded.
1 Isle Of Whithorn...many low lying houses flooded.
2 Solway...cottages flooded at Brow Well.
2 Kingholm...many houses flooded to a depth of between two and three feet causing some interior damage.
2 Glencaple...a few houses flooded...nearly all the cottages at Conheath were flooded.
2 Annan...many houses on Rose and Butte Streets flooded...also houses in Port Street and 1 house at Waterfoot flooded.
2 Carsethorn...some houses flooded and the gardens of several other houses flooded.
2 Colvend...1 house at Port-o'-Warren flooded and destroyed.
2 Creetown...houses in Mill Street and Silver Street flooded.
8) 1 Portpatrick..."harbour...on the north and south sides large portions of the protecting banks have been washed away"
1, 2 Drummore...some coastal roads eroded in places...the pitched battery being broken in several places...one road impassable to vehicular traffic.
1 Isle Of Whithorn...the protecting sea walls at the back of nearly all the properties were demolished...the protecting sea wall at the back of the harbour was washed away.
2 Solway..."The river embankments at a great many points proved insufficient to combat the force of the water and extensive flooding, causing widespread disaster was the result"
2 Dumfries...below the town many breaches made in the embankments.
2 Troqueer..."the bank for the protection of Broomlands and Priestlands fields were washed away...breaches made imm embankment at Nethertown...breaches in bank at Flatts Of Cargen.
2 Kingholm Quay...one breach of 30 yards and several smaller ones...damage to bank on Dumfries side.
2 Glencaple district...several breaches in the bank opposite Netherwood loaning...banking at Sherrington and Holisuds breached in several places.
8) 2 Annan...the embankment between the bridge and Milnfield gave way...the wall surrounding the Moat burst...embankment at Hillend broken through...embankment at Waterfoot farm swept away.
2 Carsethorn...damage done to coastal fences and embankments in town...embankment between State Row and The Barracks breached in several places...Many yards of a sea wall recently built below the town also broke down, which caused the fall of a long stretch of stone dyke forming the fence of an adjoining field...Along the shore as far as Arbigland an enormous amount of damage has been done to sea walls and dykes.
2 Kirkbean...embankment at Mersehead Farm collapsed...embankment collapse aided by the burrowing of rabbits.
2 Auchencaim...the sea wall at Balcary Tower has been almost completely washed away.
2 Creetown..."the banking in several places has been washed away.
C) IMPACT AT OTHER SITES :
2) 1 Portwilliam...some damage done to the harbour.
2 Portling...fisherman's hut damaged where the bedding was all washed away.
3) 2 Powfoot...road so badly damaged that it is unusable for wheeled traffic.
2 Mid - Annansdale...low-lying roads impassable in several places due to the river flooding.
2 Langholm...many roads flooded by the river...the river Lyne flooded the main line of the North British Railway for a quarter of a mile and part of the embankment was swept away.
4) 1 Portwilliam...2 properties suffered some damage.
2 Glenkens...roof of luncheon pavilion blown away at the New Galloway show field.
5) 2 Mid - Annansdale...many hundreds of acres of land flooded due to river flooding...much grain washed away or damaged.
2 Langholm...many fields flooded by the river.
2 Glenkens...at the Mains Of Kenmure some fields flooded...also along the Dee some fields partially flooded.
8) 2 Powfoot...portion of road washed away.
10) 2 Palnackie...considerable damage was done.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES :
2 England 10 lives lost in the Humber due to a collision in fog...reports of heavy damage come from English ports.
Tremendous seas were experienced at Blackpool. 2 children died when the back walls of four houses in Stone Street, Newcastle were blown to the ground.
2 Wales 5 lives lost at Holyhead when a vessel being towed snapped her hawser and foundered...other fishermen's lives have been lost from Tenby...and Ramsey in the Isle Of
Man... At Towyn nearly two miles of railway embankment running along the shore was washed away and several bridges were also demolished, the gasworks were submerged and the town plunged into darkness. In many other parts of North Wales the Cambrian Railway has suffered much damage, near Feyrd a sea wall in the course of construction was completely demolished.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper... Wigtownshire Free Press 1896 October 15, "Portpatrick"
2 Newspaper... Dumfries And Galloway Standard 1896 October 10, "Destructive Gale And Floods"
3 Observations... Meteorological Office 1896 Monthly Climatic Summaries, Station No. 6841 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Long description of the event describing in detail the cause and impact of the event.
2 Very long detailed description of all aspects of the event.
3 Instrumental data and a weather diary.
DATE OF EVENT: 1896 October 8 (P.M. event)

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Isle Of Whithorn...a repetition of the day tide but not as high.
2 Kingholm Quay..."The following tide at midnight was almost as high"
2 Carsethorn..."Fortunately there was less sea and the tide did not strike so high a level"

B) WIND CONDITIONS:
1 Isle Of Whithom..."although it still blew hard...shift in the wind"
3 Dumfries...Wind at 9 am and pm: 5TH W W W SW SE NW SW
6TH 10 2 16 6 2 16 28 16
7TH
8TH

C) DURATION OF STORM: Type 1.

D) LAMB'S CIRCULATION PATTERN: 5TH W 6TH W 7TH C 8TH C

E) ANY OTHER FACTORS:
3 Dumfries: Comments:
8TH Storm

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Isle Of Whithorn...nothing like as much water came in...Post Office had 4 to 5 feet of water around it.
2 Kingholm Quay...some houses again flooded.

B) DAMAGE CAUSED:
3) Carsethorn..."At the Slate Row a little more of the road was washed away"
4) 1 Isle Of Whithorn...the Post Office was closed as a result of the flood waters surrounding it.
2 Carsethorn...saw mill and 1 other premises suffered further damage.
7) 2 Kingholm Quay...some houses flooded.
8) 1 Isle Of Whithorn..."Several breaches were made in the sea wall skirting the street"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Wigtownshire Free Press 1896 October 15, "Isle Of Whithorn"
2 Newspaper...Dumfries And Galloway Standard 1896 October 10, "Disastrous Gale And Floods"
3 Observations...Meteorological Office 1896 Monthly Climatic Summaries, Station No. 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event forms part of a much longer discussion of a previous event.
2 Brief mention of event which forms part of a very long description of a later event.
3 Instrumental data and a weather diary.
FLOOD NUMBER: CF.125

DATE OF EVENT: 1897 November 28-29.

CAUSE OF EVENT:

A) TIDAL CONDITIONS:
1 Scotland, East Coast..."at several places the high tide and heavy sea"
1 England..."The tide was about seven feet above its usual level"
1 Stranraer..."an abnormally high tide was experienced"

B) WIND CONDITIONS:
1 Scotland..."A gale of great severity swept over the country...northerly"
1 England..."north-westerly to westerly gale"
1 Stranraer..."the gale was felt with great severity in Lochryan owing to its northerly direction.

C) DURATION OF STORM: Type 1.

D) IMPACT OF EVENT:
A) EXTENT OF EVENT:
1 Scotland, East Coast...some places.
1 Stranraer..."When at its height the breastwork and some of the shore roads were inundated...part of sea wall and Cairnryan Road collapsed due to the pounding of the sea.

B) DAMAGE CAUSED:
1) 1 Scotland, East Coast...South of Berwich some sailors drowned in shipwreck.
2) 1 Scotland, East Coast...several fishing boats damaged and wrecked...Peterhead 3 yawls blown out to sea. South of Berwick a shipwreck occurred.
1 Stranraer..."one or two fishing boats sustained some damage"
3) 1 Scotland, East Coast...some roads destroyed.
1 Stranraer...part of Cairnryan road collapsed and closed to traffic.
B) Scotland, East Coast..."destruction of roads near the sea margin"
1 Stranraer...40 yards of the sea wall and Cairnryan Road collapsed sinking at the deepest point to a depth of 5 feet, cost of repair is about £200.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England shipwrecks off Northumberland, Yorkshire and Cornish coasts. The damage done in the English Channel to vessels, coast towns and dock works was very extensive. Source as below.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT:

A) SOURCES OF INFORMATION:
1 Newspaper...Wigtownshire Free Press 1897 December 2, "Severe Storm"
2 Observations...Meteorological Office 1897 Monthly Climatic Summaries, Station Nos 1361 Dundee, 1646 Edinburgh (Blackford Hill), 6641 Dumfries.
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of event.
2 Instrumental data and a weather diary.

FLOOD NUMBER: CF.126

DATE OF EVENT: 1898 October

CAUSE OF EVENT
B) WIND CONDITIONS:
Newhaven..."in a storm one night"

C) DURATION OF STORM: Type 1.

F) LAMB'S SINGULARITIES: Possibly No 2. September 1 - October 6, 28 days long, character AC + W.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Newhaven...localised harbour flooding

B) DAMAGE CAUSED:
2) Newhaven...the Chain Pier was washed away.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Brief mention of event.
DATE OF EVENT: 1, 2 1899 February 11.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Solway... "The tides... were exceptionally high"
2 South Alloa... "high tides... On Sunday the height of the tide was 25 feet 9 inches. It is more than 26 years since the like happened before"

B) WIND CONDITIONS:
1 Solway... "The tides are the highest that have been known for many years in the absence of any up-channel winds"

D) ESTUARINE CONDITIONS:
1 Solway... "the Nith, which was in flood at the time"
2 South Alloa... "The storm of last week has caused the River Forth to become much swollen"

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Troqueer... "several breaches in the embankments... adjacent land flooded"
1 Nethertown... "made a gap in the bank at a farm... adjacent land flooded"
1 Kirkconnel... estate banks was pierced in three place... adjacent land flooded.
2 South Alloa... the water rushed over the banks of the river at a terrific rate... the hotel at the south side was completely surrounded by water... 1 street flooded and the lower parts of houses on it... Several of the fields on the Inch Farm were flooded and some houses on the north side also were flooded.

B) DAMAGE CAUSED:
4) 2 South Alloa... hotel cut off by water.
5) 1 Troqueer, Nethertown, Kirkconnel... agricultural land flooded.
2 South Alloa... several fields on the Inch Farm were flooded.
7) South Alloa... houses on both banks were flooded, some had part of their contents washed into the street.
8) 1 Troqueer, Nethertown, Kirkconnel... breaches made to embankments.

E) SIZE OF EVENT: Intermediate.
AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Dumfries And Galloway Standard 1899 February 15, "High Tides And Flooding"
2 Newspaper...Alloa Journal 1899 February 18, "High Tides - Serious Flooding At South Alloa"
3 Observations...Meteorological Office 1899 Monthly Climatic Summaries, Station Nos. 1646 Edinburgh (Blackford Hill), 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

D) ASSESSMENT OF QUALITY OF DATA:
1 Description of event forms part of a longer description of a sequence of two events.
2 Description of event gives detail on both the cause and the effect of the event.
3 Instrumental data and a weather diary.
FLOOD NUMBER: CF.128

DATE OF EVENT: 1, 2 1899 February 12.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Solway..."On Monday the tide was even higher"
2 Priestlands..."tide rose higher than the new bank constructed a few years ago"
2 Dundee...exceptional high tide.

B) WIND CONDITIONS:
1 Solway..."on account of the wind being stronger"

<table>
<thead>
<tr>
<th>Wind at 9 am and pm</th>
<th>10TH</th>
<th>11TH</th>
<th>12TH</th>
<th>13TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction</td>
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<tr>
<td>Force (mph)</td>
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<td></td>
</tr>
<tr>
<td>Solway</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>1</td>
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<tr>
<td>Priestlands</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Dundee</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

C) WIND CONDITIONS:
1 Solway..."on account of the wind being stronger"

<table>
<thead>
<tr>
<th>Wind at 9 am and pm</th>
<th>10TH</th>
<th>11TH</th>
<th>12TH</th>
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<tr>
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<tr>
<td>Force (mph)</td>
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</tr>
<tr>
<td>Solway</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>1</td>
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<tr>
<td>Priestlands</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Dundee</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

D) ESTUARINE CONDITIONS:
1 Solway..."the Nith, which was in flood at the time"

<table>
<thead>
<tr>
<th>Rain for 24h preceding 9 am</th>
<th>10TH</th>
<th>11TH</th>
<th>12TH</th>
<th>13TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainfall (mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solway</td>
<td>7.6</td>
<td>5.1</td>
<td>1.3</td>
<td>7.6</td>
</tr>
<tr>
<td>Priestlands</td>
<td>5.3</td>
<td>1.5</td>
<td>0.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Dundee</td>
<td>7.1</td>
<td>14</td>
<td>7.4</td>
<td>9.4</td>
</tr>
<tr>
<td>Dumfries</td>
<td>7.6</td>
<td>5.1</td>
<td>1.3</td>
<td>7.6</td>
</tr>
</tbody>
</table>

E) LAMB'S CIRCULATION PATTERN:
11TH 12TH 13TH

F) CLASSIFICATION OF CAUSE OF EVENT: Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Flatts Of Cargen...breach made...adjacent land flooded.
1 Priestlands..."tide rose higher than the new bank constructed a few years ago...submerging part of the land behind"
1 Broomlands..."and the flood also extended up to the gardens at Broomlands"
1 Troqueer..."a portion of the river-side footpath below Troqueer Mill was washed away"
1 Kingholm..."the water was standing to a depth of five feet on the quay and houses were surrounded"
1 Dumfries..."a considerable portion of the Dock has been converted into a miniature lake and embankment overflowed.
1 Nith..."the roadway at the foot of Nith Place was blocked"
1 East Coast Of Scotland, Grangemouth and other places flooded.
2 Dundee...harbour.

B) DAMAGE CAUSED:
2) 1 Dumfries and Kingholm...dock and quay flooded respectively.
3) 1 Nith..."the roadway at the foot of Nith Place was blocked"
5) 1 Flatts Of Cargen, Priestlands and Broomlands... agricultural land and gardens flooded respectively.
7) 1 Kingholm... houses flooded.
8) 1 Flatts Of Cargen, Troqueer... breach in embankment and path washed away respectively.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England Whitehaven and other places on the Cumberland coast flooded.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper... Dumfries And Galloway Standard 1899 February 15, "High Tides And Flooding"
2 Newspaper... Dundee Advertiser 1920 January 9.
3 Observations... Meteorological Office 1899 Monthly Climatic Summaries, Station Nos. 1361 Dundee, 1646 Edinburgh (Blackford Hill), 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

G) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of event including description of event of the previous day.
2 Brief mention of event as part of a description of a later event.
3 Instrumental data and a weather diary.
DATE OF EVENT: 1 1900 December 27 (date of newspaper, Thursday/Friday event).
2 1900.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Shetlands..."such a sea as was suddenly raised"
2 Carsethorn...high sea.

B) WIND CONDITIONS:
1 Scotland..."A gale of exceptional severity...At 8 o'clock at night the wind was blowing at an average velocity of 42 miles but by midnight it had reached 64 miles"
1 Shetlands..."fierce N.W. gale"
2 Carsethorn...S.W. gale.

3 Kirkwall...Wind at 9 am : 25TH 26TH 27TH 28TH
Direction S SW S E
Force (mph) 10 6 2 10

3 Dumfries...Wind at 9 am and pm : 25TH 26TH 27TH 28TH
Direction S SW SW W SE E NW NW
Force (mph) 6 6 4 2 2 2 2 10

3 Greenock...Wind at 9 am : 25TH 26TH 27TH 28TH
Direction SW W SE W
Force (mph) 16 10 6 4

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 24TH 25TH 26TH 27TH 28TH
SW SW SW SW C C

F) LAMB'S SINGULARITIES: No. 7. 3 Dec - 2 Jan 1900/1901, 31 days, W.

G) ANY OTHER FACTORS:
3 Dumfries...Comments:
25TH Squally during night and squally showers.

3 Greenock...Comments:
25TH Morning stormy. Forenoon and afternoon blew hard all day.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Shetlands...off Whalsay and Skerries.
1 Dumbarton...harbour.
2 Carsethorn...flooding of fields at the back of the village to a depth of 2.5 feet.

B) DAMAGE CAUSED:
1) 1 Shetlands...22 fishermen drowned.
2) 1 Shetlands...4 fishing boats lost.
1 Dumbarton..."pier wrecked"
5) 2 Carsethorn...flooding of agricultural land.

C) IMPACT AT OTHER SITES:
1) 1 Glasgow...2 dead due to chimney fall.
1 Coatbridge...2 dead, 3 injured due to wall collapse.
1 Motherwell...2 dead due to exposure.
1 Whitburn...1 dead due to exposure.
1 Grangemouth...3 dead when small boat upset.
2) 1 Firth Of Forth..."the damage to shipping was great and strandings were numerous...boats
damaged in harbours by being dashed against each other" 
4) 1 Ayr...a wooden building blown away. 
1 Coatbridge...one works damaged cost £5000. 
1 Millport...one works damaged cost £2000. 
5) 1 Scotland..."The destruction of growing wood was very extensive, and many old and
valuable trees were uprooted and levelled. 
7) 1 Glasgow...some chimneys blown down. 
1 Edinburgh...Portobello, chimney fell through roof of cottage. 

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England...Mersey...several shipping casualties. 
1 Ireland...Belfast...great damage done to house and property and a vessel went ashore in
Belfast Lough. Source as below. 

E) SIZE OF EVENT: Intermediate. 

AUTHENTICITY OF EVENT: 
A) SOURCES OF INFORMATION: 
1 Newspaper...Wigtownshire Free Press 1900 December 27, "Severe Storm" 
2 Letter...A.E. Truickell pers comm letter dated 1990 September 13. Mr Truickell is the former
curator of the Dumfries Museum and has a particular interest in the history of the Carsethorn area.
Original Reference...memory of older relatives. 
3 Observations...Meteorological Office 1900 Monthly Climatic Summaries, Station Nos. 0154
Kirkwall, 6641 Dumfries, Greenock. 

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1. 

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of the event concentrating on the damage caused. 
2 Letter from local curator/historian giving a brief description of the event. 
3 Instrumental data and a weather diary.
FLOOD NUMBER : CF.130

DATE OF EVENT : 1 1901 October 28.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Bridgeness Harbour..."an unusually high tide"

B) WIND CONDITIONS :
1 Bridgeness Harbour...a great storm...gales lasted for about a fortnight and on the 28th...the storm reached its height.

2 Edinburgh (Bla)...Wind at 9 am and pm : 26TH 27TH 28TH 29TH
Direction | SW | SSW | SSW | SW | SSW | SW | S | SE
Force (mph) | 1 | 10 | 16 | 16 | 13 | 10 | 8 | 8

C) DURATION OF STORM : Type 3.

E) LAMB'S CIRCULATION PATTERN : 26TH 27TH 28TH 29TH
A AW - ANE

G) ANY OTHER FACTORS :
Edinburgh (Bla)...Comments :
27TH Windy.
28TH Windy.
29TH Windy.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Bridgeness Harbour..."some 30 years of unreclaimed foreshore east of the harbour...the sea was finally shut out at the begining of 1901...the sea burst through the bank at a weak place and flooded the whole enclosure"

B) DAMAGE CAUSED :
9) 1 Bridgeness Harbour...30 acres of newly reclaimed land lost to the sea.

C) IMPACT AT OTHER SITES :
1) 1 Granton...20 lives lost when H. M. Revenue cutter "Active" was wrecked.
2) 1 Granton...H. M. Revenue cutter 'Active' was driven against Granton Pier and totally wrecked

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
2 Observations...Meteorological Office 1901 Monthly Climatic Summaries, Station No. 1646 Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF DATING OF EVENT AND SOURCES : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Description of event as part of a longer description of reclamation techniques including the affected site.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.131

DATE OF EVENT: 1 1902 September 3.
2 1902.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Solway... "a high tide... swept with destructive force along the sea-board of the Solway from Portpatrick to Gretna and up the estuaries of the rivers".
2 Glencaple... "the tide was mountains high... many feet above the height registered in the nautical almanacs.
3 Annan... "the tide... rose to within two feet of the top of the railway viaduct which connects Annan and the Cumberland coast... a height of 33 feet.
4 Dumfries... "the tide rose so high that the Caul was obliterated... between twelve and one o'clock a height of 8 feet 3 inches was registered on the New Bridge, and the river had fallen to 7 feet 3 inches at three o'clock... a foot of the height at the earlier hour was due to the presence of tidal waters".
5 Kingholm... "the tide was up fully an hour before its usual time"
6 Carlaverock... "the high tide"
7 Troqueer... "the rapidity with which the tide rose above the embankment.
8 Carsethorn... "high tide"

B) WIND CONDITIONS:
1 Scotland... "a terrific gale... The storm swept over... the whole of lowland Scotland, from the Solway to Clyde and 1 Forth... In the early morning the direction of the wind was from the south-east; but while the hurricane was at its strongest, between ten o'clock and one, it blew from the south-west"
2 Kingholm... "the gale driving in"
3 Dumfries... "the force of the wind"
4 Dumfries... "gale from S. W."

3 Dumfries... Wind at 9 am and pm: 1ST 2ND 3RD 4TH
Direction
SE S S SSE SW W SE
Force (mph) 2 2 4 2 16 6 6 4

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
1 Solway... "a high tide... swept with destructive force along the sea-board of the Solway from Portpatrick to Gretna and up the estuaries of the rivers... following the heavy rain of Tuesday and the preceding night, the storm on Wednesday" brought down the rivers in roaring flood, and the combined effects of the high sea and the fresh in tidal rivers had disastrous results.

3 Dumfries... Rain for 24h preceding 9 am: 1ST 2ND 3RD 4TH
Rainfall (mm) 1.8 19.3 10.2 0.8

E) LAMB'S CIRCULATION PATTERN: 1ST 2ND 3RD 4TH
SSCW

G) ANY OTHER FACTORS:
1 Scotland... "torrential rain"
3 Dumfries... Comments:
3RD Storm, squalls, heavy rain.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Dumfries... "The Dock Park was submerged, and on the Whitesands the overflowing waters swept around the Hoddam Castle corner"
2 Kingholm... "quay and house in the village surrounded by the flood up to several feet in depth. Laghail Quay on the opposite side of the Nith flooded."
1 Glencaple...road flooded...at the village the water covered the high wall in front of the houses flooding the gardens...the quay was also flooded...1 farm flooded.
1 Carlaverock...the very large farm of East Park was almost completely flooded when the two mile wall protecting it was overtopped and riddled with holes by the high tide by as much as 4 feet...farm at Hollands flooded...farm at Newfield flooded...farm at Nether Locharwoods flooded...farm at Stanhope flooded.
1 Troqueer...The farms on the Stewartry side of the river were flooded to an extent unprecedented within living memory...farm of Greenmerse on the Kirkconnel estate heavily inundated, the tide rose 3 feet above the embankment
1 Carsethorn..."houses facing beach were flooded*" 

B) DAMAGE CAUSED:
1) 1 Dumfries...2 people suffered minor injuries after being blown off their feet...1 man seriously injured when horses bolted due to the storm.
3) 1 Dumfries...many roads blocked by fallen trees....Telegraph and telephone were broken in many places, and communication has been seriously disrupted.
1 Glencaple..."bridge at north end of village damaged...the road between Glencaple and Kenneth Bank had its macadam surface stripped off.
4) 1 Kingholm...many stores on the quay flooded...in one damage was estimated at between £1200 and £1300...timber washed off Laghall Quay.
1 Glencaple...one wooden store carried away with all the goods in it...2 wooden refreshment houses on the edge of the village were washed away.
5) 1 Solway..."miles of crops submerged, and in some instances live stock drowned*"
1 Dumfries...many trees fell in the storm including at the Convent grounds...Nithbank orchard seven trees blown down...Dock Park 6 trees completely uprooted...most other trees in the park suffered severe damage...severe damage to crops all around the town six hay ricks blown over.
1 Glencaple...1 farm partially flooded.
1 Carlaverock...5 farms flooded...70 acres of grain destroyed and much green crop lands flooded at East Park...two dozen sheep drowned at Hollands...much crop damage done at Nether Locharwoods...£400 worth of damage done to a potato field at Stanhope.
1 Troqueer...many farms flooded on Stewartry side especially at Greenmerse farm on the Kirkconnel estate.
6) 1 Dumfries...the roof of the new block at the Convent lost many slates and roof lead.
1 Carlaverock...pavilion for use of visitors at Stanhope completely destroyed.
7) 1 Dumfries...many plate glass windows blown in, wall protecting entrance to house blown down.
1 Glencaple...some houses damaged by the flood...one had its hedge broken down.
2 Carsethorn..."houses facing beach were flooded*" 
8) 1 Solway..."banks being broken down in many places"
1 Dumfries..."numerous breaches were made in the river banks*"
1 Kingholm...opposite the lands of the Crichton Royal Institution the east bank was broken in two places, one gap extending 90 feet the other 20 feet.
1 Glencaple...embankment along farm broken in two places.
1 Carlaverock...a two mile protective wall was overtopped by four feet of water and as a result is riddled with holes at East Park farm...a sea bank at Nether Locharwoods broken down.

C) IMPACTS AT OTHER SITES :
3) 1 Moffat...road between Marchmount and Marchill blocked by a fallen tree.
1 Bankend...road blocked by 4 fallen trees also affected newabbey road, Dalbeattie road, the Castle-Douglas road, the Terriglas road.
1 Lochmaben...Lockeries-Dumfries train damaged when it ran into a tree that had fallen on the line.
4) 1 Troqueer and Nithsdale Mills...alot of glass blown in.
7) 1 Lochruttongate...a cottage badly damaged by a falling tree.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England the storm swept over the north of England.
1 Ireland the storm swept over the north of Ireland.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Dumfries And Galloway Standard 1902 September 2 "Wild Wednesday"*
2 Letter...A.E. Truckell pers comm letter dated 1990 September 13. Mr Truckell is the former curator of the Dumfries Museum and has a particular interest in the history of the Carsethorn
area. Original Reference...memory of older relatives.
3 Observations...Meteorological Office 1901 Monthly Climatic Summaries, Station No. 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very detailed description of the event giving information on all aspects of the event.
2 Letter from local curator/historian giving a brief description of the event.
3 Instrumental data and a weather diary.

FLOOD NUMBER: CF132

DATE OF EVENT: 1 1903 September 4 (date of newspaper)

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Alloa...exceptional high tide.

B) WIND CONDITIONS:
2 Edinburgh (Bla)...Wind at 9 am and pm: 2ND 3RD 4TH 5TH
   Direction   SW E SSW S SSE SSE S SW
   Force (mph) 5 6 6 6 1 1 8 2

E) LAMB'S CIRCULATION PATTERN: 1ST 2ND 3RD 4TH 5TH
   C C SW S W

H) CLASSIFICATION OF CAUSE OF FLOOD: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Alloa...minor flooding.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENTS
A) SOURCES OF INFORMATION:
1 Newspaper...Stirling Journal 1903 September 4.
2 Observations...Meteorological Office 1903 Monthly Climatic Summaries, Station No. 1646 Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very short description of the event.
2 Instrumental data and a weather diary.
FLOOD NUMBER : CF.133

DATE OF EVENT : 1904 November 10

CAUSE OF EVENT
A) TIDAL CONDITIONS : Buckie...a very high tide prevailed.

E) LAMB'S CIRCULATION PATTERN : 9TH 10TH 11TH

AS AW A

H) CLASSIFICATION OF CAUSE OF FLOOD : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT : Buckie..."sea made a further encroachment at the east end of Commercial Road"

B) DAMAGE CAUSED :
3) Buckie..."The waves washed away the land to the very edge of the road leaving a sheer fall of 8 or 10 feet on to the beach. A telephone pole was undermined and fell and has been erected in another spot"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENTS
A) SOURCES OF INFORMATION :
Newspaper...Banffshire Advertiser 1904 November 17 "Buckie - Encroachment Of The Sea"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
FLOOD NUMBER : CF.134

DATE OF EVENT : 1905 March 15.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Bay Of Luce...the tide was exceptionally high.
1 Portpatrick..."the sea were running mountains high in the Channel"

B) WIND CONDITIONS :
1 Portpatrick..."the south - west gale of yesterday"
1 Stranraer..."the wind was from a southerly direction, and blew all day with the force of a full gale"

2 Dumfries...Wind at 9 am and pm : 13TH 14TH 15TH 16TH
  Direction SW S SW SW S SW S SE
  Force (mph) 10 10 10 10 43 28 16 10

C) DURATION OF STORM : Type 3.

E) LAMB'S CIRCULATION PATTERN : 13TH 14TH 15TH 16TH
  CW W C SW

G) ANY OTHER FACTORS :
1 Stranraer..."accompanied by rain and sleet"

2 Dumfries...Comments :
  15TH Mostly clear sunny intervals. Gale at night.
  16TH Squalls during night, cloudy stormy

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Bay Of Luce..."It was over the road at Curghie, near Drummore".
1 Portpatrick..."the water was dashing over the breastwork"

C) IMPACTS AT OTHER SITES :
4) 1 Stranraer..."part of the roof of a manure shed on the Breastwork was lifted and carried over the railings and into the harbour"
6) 1 Stranraer...the large lamp at the front of the County Buildings was smashed; while the huge ventilator at the Academy was also displaced and had to be taken down.
7) 1 Stranraer...many houses lost slates and chimney cans.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Wigtownshire Free Press 1905 March 16, "Severe gale"
2 Observations...Meteorological Office 1905 Monthly Climatic Summaries, Station No. 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

D) ASSESSMENT OF QUALITY OF DATA :
1 Description of event with detail particularly on the cause of the event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.135

DATE OF EVENT: 1907.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Helensburg...exceptionally high tide, no tide higher up to the present day, higher than 5 meters.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Helensburg...flooding of waterfront.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
Newspaper...Helensburg Advertiser 1991 January 11 "Highest Tide Since 1907 Causes Havoc In District" Original Reference...Ferdie Thurgood, a local amateur scientist.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Brief mention of event as part of a detailed longer description of a later event.
FLOOD NUMBER : CF.136

DATE OF EVENT : 1, 2, 5 1908 February 21-22.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Stranraer..."high tide in Lochryan...heavy seas"
1 Portpatrick..."there was a heavy sea in the harbour"
1 Whithorn..."There was a heavy sea at the Isle and the tide rose level with the quay"
2 Largs..."invasive high tides"
5 Largs..."a high tide...that the high tidal waters were driven over the pier"
5 Ardrossan..."the tide was a high one"
5 Fairlie..."there was a heavy sea running and the tide was the highest we have had for some years"

B) WIND CONDITIONS :
1 Stranraer..."a south-west gale set in on Saturday morning. In the forenoon the wind suddenly backed to the north-west...and gradually increased in force till between noon and three o'clock it was blowing with the force of a hurricane"
1 Scotland..."the country...was swept by a fierce south-west gale which in places had the force of a tornado"
1 Portpatrick...a gale but not from S.W.
1 Glenluce..."a severe storm of wind...hurricane force...from the north-west"
1 Drummore..."a severe gale"
1 Wigton..."the wind blew with terrific force"
1 Portwilliam..."a severe gale"
1 Garlieston..."a hurricane of wind"
2 Largs..."the storm"
5 Largs..."the violence of last Saturday's storm...a strong wind from the south with a change in the direction of the wind to the west or north-west"
3 Methill..."storm"
5 Ardrossan..."a severe storm of wind"
5 Fairlie..."the storm"

4 Kilmarnock (Gle)...Wind at 9 am and pm : 19TH 20TH 21ST 22ND 23RD
Direction NW SW W W SW W SW SW SW SW
Force (mph) 6 10 10 6 10 16 10 10 10 10

C) DURATION OF STORM : Type 2.

E) LAMB'S CIRCULATION PATTERN : 19TH 20TH 21ST 22ND 23RD

NW W W W NW

G) ANY OTHER FACTORS :
1 Scotland..."In many places thunder and lightning accompanied the storm, and rain was general"
1 Glenluce..."with heavy showers of hail"
1 Drummore..."accompanied by blinding showers of hail and sleet"
1 Wigton..."accompanied by hail showers.
1 Portwilliam..."accompanied by heavy hail showers.
1 Garlieston..."accompanied by rain sleet and snow"
5 Ardrossan..."rain and hail"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Stranraer..."the waves were making a clean sweep over the Breastwork, the esplanade at Portrodie, the west pier, Agnew Crescent and the sea-wall in Caimryan Road...the sea was soon flowing into the low lying parts of market Street, Harbour Street and North Strand Street...being submerged to a depth of several feet...the embankment at the slaughter-house, the latter being flooded for a considerable
time...The gardens of householders on the shore side of Sheuchan Street were flooded...also Armstrong Close and Broadstone Road...the embankment from Seabank Road to the end of the Wigtownshire Creamery premises...an embankment at Low Largs was lifted away...a field and the Innermessan brae roadway at High Ballyett...sea wall and road beyond Burgh boundary.

1 Portpatrick...harbour.
1 Isle of Whithorn...harbour flooded.
2 Largs...flooding of seafront.
4 Largs...the high tidal waters were driven over the pier and promenade, and the whole of Bath Street and part of Main Street were two feet under water...in the low-lying districts...water was standing a foot deep in some of the shops
3 Methill..."harbour damaged"

B) DAMAGE CAUSED:
1) 1 Stranraer...1 cyclist injured.
5 Largs..."several people were blown down and injured"
2) 1 Stranraer...1 vessel damaged at the East Pier.
3 Methill..."harbour damaged"
3) 1 Stranraer...some roads and streets impassable owing to the flood waters and driving spray. Roadway outside burgh boundary will have to be resurfaced.
5 Largs...Bath Street and part of Main Street flooded and the low-lying districts of the town were flooded.
4) 5 Largs...shops flooded in low-lying districts of the town, up to a foot of water in them which caused considerable damage.
5) 1 Stranraer...1 field flooded at High Ballyett.
6) 1 Stranraer...most of the seats in Stair Park knocked over*
7) 1 Stranraer...some houses flooded, mant lost slated and chimney pots, several windows blown in.
8) 1 Stranraer...The embankment at the approach to the railway bridge at the foot of Stair Drive suffered severely, however, huge cavities being made in the earthwork above the stone pitching by the action of the waves...the embankment from Seabank Road to the end of the Wigtownshire Creamery premises...being partially washed away, Creamery shed had part of its foundation washed away...An embankment erected to protect a roadway to a house in Low Largs was lifted away...roadway at Innermessan brae extensive erosion taking place. Sea wall and road beyond the burgh boundary badly damaged.

C) IMPACTS AT OTHER SITES:
1) 1 Kilmarnock...1 man killed when wall blown down.
2) 1 Drummore...1 vessel slightly damaged.
1 Portwilliam...1 small fishing boat sunk.
1 Firth Of Clyde...much disruption to ferry services.
5 Ardrossan...considerable disruption to ferry services.
3) 1 Newton - Stewart...telegraph wires to the Whithorn district damaged.
1 Scotland...much disruption to telephonic communications.
5 Ardrossan...numerous telephone wires were blown down.
4) 5 Ardrossan..."The door of the broker's store at the Inches...was also burst open.
5) 1 Glenluce...slight damage to stacks and trees.
1 Newton - Stewart..."several trees uprooted"
1 Garlieston..."great numbers of trees have been blown down. Farm stackyards have also suffered"
7) 1 Glenluce...slight damage done to some roofs.
1 Wigtown...a good deal of damage was done to property.
1 Newton - Stewart..."Chimney cans and slated blown down"
1 Garlieston..."Houses have been stripped of slates and chimney cans"
5 Ardrossan..."the wooden barricade which tops the wall at the rear of Lauriston South Crescent was blown down and part of the wall with it...many houses lost chimney cans and slates"

D) LOCATION AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England Fatalities due to the storm at Manchester, Wisbech, Leeds, Liverpool, Sheerness (Kent) and Oldbury. At Grimsby a lightship was sunk. A mill at High Lane, four miles from Stockport had £20,000 worth of damage done.
1 Ireland part of train blown off tracks.

E) SIZE OF EVENT: Intermediate.
AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1. Newspaper...Galloway Advertiser And Wigtownshire Free Press 1908 February 27, "Disastrous Gale"
2. Letter...pers comm Judith Davenport letter dated 5th November 1991, Assistant Librarian, Ardrossan. Original Reference...photograph of event with caption
   No original reference specified but a list of references given at the back of the book.
5. Newspaper...The Ardrossan And Saltcoats Herald 1908 February 28 "The Storm", "Storm At Largs", "Fairlie", "Accidents"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Very detailed description of the event, especially on the flooding and the damage caused.
2. Very brief description of the event.
3. Short description of event.
4. Instrumental data and a weather diary.
5. Detailed description of the event.
FLOOD NUMBER : CF.137

DATE OF EVENT : 1 1910 October 20

CAUSE OF EVENT

B) WIND CONDITIONS :
1 Buckie... "on Thursday it blew with terrific force from the north-east" severe gale.
1 Portknockie... gale... wind from north.
1 Lerwick... a gale from the north-east.
1 Aberdeen... gale.

2 Inverness... Wind at 9 am and pm : 25TH 26TH 27TH 28TH
Direction Calm Calm W E E E E N
Force (mph) 2 2 6 2 6 2

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 24TH 25TH 26TH 27TH 28TH
E SE E E E

G) ANY OTHER FACTORS :
1 Buckie... accompanied by exceptional heavy rain.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT :
1 Buckie... The sea was particularly rough, and it dashed against the sea wall with great violence. "During the storm the works in connection with the extension at the Cluny Harbour were slightly damaged"

B) DAMAGE CAUSED :
2) 1 Buckie... "the works in connection with the extension at the Cluny Harbour were slightly damaged", a huge heavy crane grab was lost... and the railway laid on the North Pier was torn up in one place and undermined in another.
8) 1 Buckie... a part of the embankment in front of a sawmills on the quay was washed away and the rails left without support.

E) SIZE OF EVENT : Local

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION :
1 Newspaper... Banffshire Advertiser 1910 October 27 "Severe Gale In The Moray Firth", "Damage To Buckie Harbour Extension Works"
2 Observations... Meteorological Office 1910 Monthly Climatic Summaries, Station No. Inverness

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Detailed description of the event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.138

DATE OF EVENT: 1 1911 November 5
3 1911 November.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Glasgow...An exceptionally high tide raised the vessels high above the quay walls in the harbour.
1 Stranraer...the tide at mid-day rose to an abnormal height in the harbour*
1 Portpatrick..."at high water"
1 Luce Bay..."a heavy sea was running"
1 Ballantrae..."the tide swept over the land"
1 Girvan..."there was an exceptionally high tide"
3 Troon..."very high water."
3 Ayrshire..."the storm from the north-west."

B) WIND CONDITIONS:
1 Glasgow...a south-west hurricane...winds up to 60 m.p.h.
1 Stranraer...hurricane.
1 Portpatrick...gale of unusual severity from the west...veered round to north-west and moderated in severity.
1 Drummore...a gale of exceptional severity.
1 Glenluce...the storm continued...coming from the west in great gusts.
1 Kirkcudbright..."the gale continued."
1 Newton - Stewart..."one of the most violent storms experienced."
1 Wigtown..."the wind blew with the force of a gale from the north-west"
1 Whithorn..."not for many years has such a gale been experienced."
1 Ballantrae..."a fierce tempest raged."
3 Stevenston..."the storm."
3 Saltcoats...storm unequalled for thirty years previously...wind from north-west.

2 Colmonell...Wind at 9 am: 4TH 5TH 6TH 7TH 8TH 9TH
Direction W W W W W E
Force (mph) 59 75+ 59 28 28 10

2 Dumfries...Wind at 9 am and pm: 5TH 6TH 7TH 8TH 9TH
Direction SW SW SW NW SW SW S Calm
Force (mph) 51 43 16 2 22 2 2 10

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: 4TH 5TH 6TH 7TH 8TH 9TH
W W W W CW C

F) LAMB'S SINGULARITIES: No 38. 21 Oct - 18 Nov, 29 days, W + C.

G) ANY OTHER FACTORS:
1 Glasgow, Kirkcudbright, Wigtown...heavy rain.
1 Newton - Stewart...the Cree came down in heavy flood.

2 Dumfries...Comments:
5TH Gale all night. Gale all day, wet.
7TH Very wet and windy.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Glasgow..."vessels were raised high above the quay walls."
1 Wemyss Bay..."pier seriously damaged."
1 Stranraer... at Cairnryan village some flooding of houses...at the North-east corner of
Lochryan the sea made further inroads.
1 Portpatrick...houses in the front street were inundated...South Pier and Old Quay portions washed away.
1 Ballantrae..."the tide swept over the land...beach...flooding fields and reaching the houses at the Foreland and the Shellyknowe"
1 Girvan...portions of the sea banks on both sides of the harbour were washed away.
1 Troon...parts of the town flooded.

B) DAMAGE CAUSED:
1) 1 Glasgow...a few people injured but not seriously.
2) 1 Wemyss Bay...a large part of the pier has been seriously damaged.
1 Portpatrick..."blocks of limestone forming the south pier, were dislodged-also the Old Quay...had a considerable portion washed away"
3) 1 Stranraer...some telegraph wires and pales damaged or blown down...the roadways in the North and South Crescents were slightly damaged.
4) 1 Girvan...many shops had their windows blown in.
6) 1 Glasgow...many trees blown down in the city...damage to Exhibition especially Industrial Hall, Scenic Railway and Aviation Pavilion.
1 Stranraer...a pinnacle of one of the small spires of the Parish church was blown down...Stair Park soccer ground had most of its barricade round the ground blown down.
1 Portpatrick...a number of trees were blown down in the Dunskey area.
7) 1 Glasgow...numerous houses lost slates, chimney pots, plate glass windows, hoardings and parts of their roofs.
1 Stranraer...numerous houses lost slates, chimney pots, windows, pailing and lamps...at Cairnryan many houses damaged due to flooding.
1 Portpatrick...some house damaged due to flooding in North and South Crescents, some houses lost slates.
1 Girvan...many houses damaged, many slates lost and windows blown in.
8) 1 Portpatrick..."a considerable stretch of tarmac pavement in North Crescent was torn up" 1 Ballantrae...large portions of the beach were washed away. Big threat by erosion to several houses, a public road and water pipes and sewage drains in the area beside the river-mouth.
1 Girvan...a considerable portion of the sea banks on both sides of the harbour were washed away.

C) IMPACTS AT OTHER SITES:
1) 1 Rhins District...1 man injured.
1 Ailsa Craig...2 men injured, 1 seriously.
2) 1 Ardrossan...steamer damaged in storm
3) 1 Drummore...telegraphic communications damaged.
4) 1 Kirkcowan...the smithy had its roof blown off.
1 Newton - Stewart...several zinc sheds lost their roofs.
1 Ailsa Craig...the whole plant consisting of steam crusher, cranes and rails and wagons were swept into the sea and lost or rendered useless, damage is estimated at 2,000 pounds. Two storage receivers belonging to the lighthouse were also blown down.
5) 1 Culhmorn, Lochinch, Kildrochat...many stacks and trees blown over.
1 Drummore...several stacks were blown down and some damage to farm buildings.
1 Glenluce...stacks were blown down and trees were blown down at Balkail.
1 Kirkcowan...a great amount of damage done to stackyards and farm buildings, many trees blown down at Craighlaw and Carseriggon Woods.
5) 1 Whithorn...many stacks upset and some farm buildings damaged including at Catyans.
10) 3 Stevenston...severe damage done.
3 Saltcoats...extensive damage done.
5) 1 Newton - Stewart...many trees blown down.
7) 1 Bridge Of Aird...1 house had its ceiling collapse.
1 Glenluce...a few houses damaged in the countryside.
1 Kirkcowan...a great amount of damage done to houses, many lost slates.
1 Newton - Stewart...many houses lost slates and chimney pots, some windows blown in. Some damage to street lamps and signs.
1 Whithorn...many houses lost slates and many outhouses were damaged.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England Berwick and Liverpool...some deaths reported due to gale.

E) SIZE OF EVENT: Large.
AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1. Newspaper...Wigtownshire Free Press 1911 November 9, "The Storm"
2. Observations...Meteorological Office 1911 Monthly Climatic Summaries, Station Nos. 6505 Colmonell, 6641 Dumfries.
3. Newspaper...The Ardrossan And Saltcoats Herald November 29 "The Gale, Ayrshire's Experience, Flood And Havoc"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Very detailed description of event in terms of the cause of the event, the locations affected and the damage caused.
2. Instrumental data and a weather diary.
3. Brief mention of event as part of a detailed discussion of a later event.

FLOOD NUMBER: CF.139

DATE OF EVENT: 1 1911 November 24 (date of newspaper)

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1. Buckie..."all day the heavy seas dashed over the north breakwater"

B) WIND CONDITIONS:
1. Buckie..."the northerly gale which prevailed on Monday, raged with increased violence...on the following day"

2. Inverness...Wind at 9 am and pm: 22ND 23RD 24TH
   Direction: NE Calm Calm Calm

C) DURATION OF STORM: Type 3.

D) LAMB'S CIRCULATION PATTERN: 21ST 22ND 23RD 24TH
   N NE AE AE

E) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1. Buckie..."All day the heavy seas dashed over the north breakwater...at Commercial Road pedestrians were frequently drenched as they passed along the pavement"

B) DAMAGE CAUSED:
2. Buckie..."At the North Pier extension, fishermen who entered the harbour reported that the top pier of 14 ton concrete blocks, laid last week had been lifted from their places, and swept into the entrance channel, representing about 200 tons"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1. Newspaper...Courant 1911 November 24 "Moray Firth Gale", "Damage at Buckie Harbour"
2. Observations...Meteorological Office 1911 Monthly Climatic Summaries, Station No. Inverness.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Detailed description of event.
2. Instrumental data and a weather diary.

580
FLOOD NUMBER: CF.140

DATE OF EVENT: 1 1912 February 5-6.
2 1912 February.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Low Curghie..."by the high tide"

B) WIND CONDITIONS:
1 Low Curghie..."and gale"
2 Dundee..."South East gale"

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 4TH 5TH 6TH 7TH
   A   ASE   CS   S

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Low Curghie...roadway and seawall damaged.
2 Dundee..."promenade"

B) DAMAGE CAUSED:
3) 1 Low Curghie...damage to roadway.
   2 Dundee...damage to promenade.
8) Low Curghie...damage to seawall.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Wigtownshire Free Press 1912 March 7, "Tidal Damage At Low Curghie"
2 Book...E. S. Valentine (1915) "Forfarshire" Cambridge University Press, p40.

B) ESTIMATED RELIABILITY OF SOURCES AND DATIIONG OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF EVENT:
1 Short description of event as part of longer description of possible remedies and their costs.
2 Short description of event.
FLOOD NUMBER:

DATE OF EVENT: 1, 2 1912 November 26-27.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Buckie... "By yesterday morning it went round to the north, and blew with unabated force raising a heavy sea in the Firth, the waves dashing in volumes over Buckle Harbour"
2 Millport... "invasive high tide"
4 Ayrshire... a higher tide because of the south-west wind.
4 Ardrossan... high tide... heavy seas... spray up to a hundred feet high.
4 Fairlie... high tide.
4 Irvine... "at the harbour one of the highest tides on record was raised"
4 Largs... "the sea, which was breaking over the pier and esplanades"
4 Saltcoats... "the tide was perhaps the highest recorded in the district for many years... the water made its way to marks previously untouched"
4 Troon... "the sea rose higher and higher"
4 Skelmorlie... "Severe havoc was wrought by the... tide"
4 Wemyss Bay... "Severe havoc was wrought by the... tide"

B) WIND CONDITIONS:
1 Buckie... "The wind veered round to the west towards Tuesday evening... By yesterday morning it veered round to the north, and blew with unabated force"
2 Millport... "storm"
4 Ayrshire... hurricane of devastating force... from a south-westerly direction... wind of 73 miles an hour recorded.
4 Ardrossan... "high wind... gale"
4 Dalry... wind velocity very high.
4 Fairlie... "storm... gale"
4 Galston... "The storm"
4 Irvine... "the wind which has been blowing for some time increased enormously in force... the hurricane"
4 Kilbirnie... "the gale was one of the severest ever experienced in this locality."
4 Scotland... "The storm which raged furiously"
4 Largs... "the storm... the continuance of the gale which veered round to the west"
4 Saltcoats... "storm... unequalled for more than 30 years... gale from the south-west... 60 or 70 knot gale"
4 Stevenson... "a strong gale"
4 Troon... "violent gale from south-west"
4 West Kilbride... "storm"
4 Skelmorlie... "Severe havoc was wrought by the wind"
4 Wemyss Bay... "Severe havoc was wrought by the wind"

3 Inverness... Wind at 9 am and pm:

<table>
<thead>
<tr>
<th>Direction</th>
<th>24TH</th>
<th>25TH</th>
<th>26TH</th>
<th>27TH</th>
<th>28TH</th>
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<tbody>
<tr>
<td>Force (mph)</td>
<td>16</td>
<td>16</td>
<td>6</td>
<td>10</td>
<td>6</td>
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</tbody>
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3 Kilmarnock... Wind at 9 am:

<table>
<thead>
<tr>
<th>Direction</th>
<th>24TH</th>
<th>25TH</th>
<th>26TH</th>
<th>27TH</th>
<th>28TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Force (mph)</td>
<td>22</td>
<td>16</td>
<td>43</td>
<td>16</td>
<td>2</td>
</tr>
</tbody>
</table>

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN:

<table>
<thead>
<tr>
<th>24TH</th>
<th>25TH</th>
<th>26TH</th>
<th>27TH</th>
<th>28TH</th>
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<tbody>
<tr>
<td>W</td>
<td>W</td>
<td>CW</td>
<td>CN</td>
<td>C</td>
</tr>
</tbody>
</table>

F) LAMB'S SINGULARITIES: No. 43 1912/1913 November 23 - January 7, 46 days, Character W.

G) ANY OTHER FACTORS:
1 Moray Firth... a heavy gale blew up from the south on the 26th.
26TH Thunder at 12.40pm.

26TH Wind force 8 in am, force 9 1-2pm then force 8 to 5pm.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT :
1 Buckie...the wind went round to the north, and blew with unabated force raising a heavy sea in the Firth, the waves dashing in volumes over Buckie Harbour. "waves swept the divers boat off the quay at the new harbour extension...Part of the railway was also demolished and swept off the quay". Opposite the sawmills on Commercial Road the sea was very rough...a considerable part of the roadway was washed away

Ianstown...The huge seas smashed the wooden pier at the slip, half of it being carried away

2 Millport...extensive flooding of seawall and streets on it

4 Ardrossan...caused heavy seas to sweep over the South Beach Green...a section of the stone sea-wall in front of the New Parish Church was thrown down and the roadway flooded. The water found its way into some of the cellars on Arran Place...a breach was made in the wall behind the shipyard...the North Crescent was flooded for several hours...The depot of the Shipping federation was flooded out...park at Princes Street flooded...wall at Bath Villa partly washed away.

4 Fairlie... Bay Street and Allanton Park Terrace flooded where some houses were flooded...All along the shore footpaths and promenade were torn up...the main railway line north of the tunnel was flooded.

4 Irvine...The land between the Dynamite Wharf on the Garnock and the site of the new shipyard was extensively flooded...Harbour Street and footpath from the Smithy corner to the shipyard was flooded, the latter to a depth of 3 to 4 feet.

4 Largs...the sea made its way into Main Street and Bath Street and was up to three or four feet deep in places and extended up Main Street over 100 yards from the pier, Gallowgate Street also flooded. A part of the Alexandre Esplanade has been broken up, while the sea wall to the north, near Phon-a-mara has been completely wrecked; and the road in front of Auberry Crescent has been almost washed away.

4 Saltcoats...From Stanley Burn to the end of the East esplanade the sea front was unapproachable. The West esplanade was inundated...while the entrance at the minstrel stand was so flooded that the water even invaded the Melbourne Park. The houses in Winton Circus were turned into islands...the pathway and road at the Bathing Station have been utterly destroyed...and the Bathing Station flooded out...at the Braes...the roadway was encroached upon and the houses facing the sea in Windmill Street were flooded...All the banking which had been placed on the seaward section of that part of town was swept away and a huge gap made in the road...the wall at the back of the Braes was knocked down and some of the premises situated there were invaded by the tide...Dockhead Street was flooded to a depth of two feet in places...Most houses in Quay Street were flooded to a depth of three feet with much furniture and belongings destroyed...at the end of the East Shore a considerable gap was made in the slope...The sleeper fence which finishes off the earthwork was almost wrecked...some earth washed away from the railway line.

4 Stevenston...the old golfcourse was flooded, and the water even found its way beyond the railway lines...making the intervening space look like an inland sea...the kiosk and surrounding sand dunes were covered...The pier suffered very severely, and the major part of last year's deposit was swept away.

4 Troon...road at Port Ronald flooded...for hundreds of yards the esplanade wall was submerged...Portland Street and West Portland Street flooded...the Cross and the streets converging on it were flooded to a considerable depth...from Ayr Street down to the old Parish Church on the one side, and to the end of Rome's Buildings in Templehill on the other were also under water. Later on Church Street and Barassie Street were flooded...also flooded were Union Street, Bach Templehill, Welbeck Crescent, and the lane running behind Portland Street where the water was at the height of the garden walls...Post Office flooded to a depth of two feet...flooding of the Ballast Bank and the houses at Harbour Row.

4 West Kilbride...pier at Portencross split.

4 Wemyss Bay..."the sea-wall recently erected has been demolished...and the damage done to the timber of the pier was extensive"

B) DAMAGE CAUSED :
2) 1 Buckie...waves swept the divers boat off the quay at the new harbour extension and was lost. Part of the railway on the quay was also demolished, and swept into the sea.

Ianstown...a wooden pier at the slip was smashed and half of it carried away.

4 Ardrossan...The depot of the Shipping federation was flooded out...£200 worth of damage done to the harbour.
4 Fairlie...much damage was done to the pier.
4 Irvine...much flooding at the harbour.
4 Largs..."The waiting-room at the pier has been rendered useless, and the pier has been considerably damaged"
4 Saltcoats...two small vessels and one larger fishing boat destroyed in the harbour.
4 Stevenston..."The pier suffered very severely, and the major part of last year's deposit was swept away"
4 West Kilbride..."The pier suffered very severely, and the major part of last year's deposit was swept away"
4 Wemyss Bay..."and the damage done to the timber of the pier was extensive...the steamboat traffic had to be suspended"
3) Milport...extensive flooding of streets on seafront.
4 Ardrossan...pathway on South Beach Green badly damaged...£100 worth of damage done...roadway at New Parish Church and North Crescent flooded.
4 Fairlie...Bay Street and Allanton Park Terrace flooded...the main railway line north of the tunnel was flooded and the upline was damaged so as to stop traffic...Telephonic and telegraphic communication to Largs and West Kilbride were stopped for some time.
4 Irvine...Harbour Street and footpath from the Smithy corner to the shipyard was flooded, the latter to a depth of 3 to 4 feet.
4 Saltcoats...at the Braes...the roadway was encroached upon...Dockhead Street was flooded to a depth of two feet in places.
4 Stevenston...the water even found its way beyond the railway lines...making the intervening space look like an inland sea.
4 Troon...telegraphic communications disrupted for most of Tuesday...many streets flooded.
4 West Kilbride...road to Ardrossan damaged.
4) Irvine...the windmill pump was levelled to the ground and the chimney of a washing house was blown over and fell through the roof.
4 Largs...some shops flooded and their stock damaged In Main Street and Gallowgate Street, shop windows were blown in on Nelson Street.
4 Saltcoats...the wall at the back of the Braes was knocked down and some of the premises situated there were invaded by the tide...1 pub flooded to a depth of three feet on Quay Street.
4 Troon...many shops flooded at the Cross, damage done estimated at a £1,000...Post Office flooded to a depth of two feet...one window of the Co-operative Premises was smashed.
5) 4 Ardrossan...1 tree at the Holm Plantation blown down blocking the Sorbie Road...some poultry and tame rabbits were drowned.
6) 4 Ardrossan...some of the wooden seats on South Beach Green were torn from their fastenings and carried some distance away...the barricading round the Celtic football pitch was also laid flat...stone cross on the roof of St John's Free Church blown down...park at Princess Street damaged.
6) 4 Saltcoats...while the entrance at the minstrel stand was so flooded that the water even invaded the Melbourne Park...the railings surrounding the pond at the Bathing Station have been torn up...the Bathing station was flooded and much damage has been done to the inside of its buildings.
4 Stevenston...the old golf course was flooded...the kiosk was covered by water...many windows blown in at the school.
7) 4 Ardrossan...some house cellars on Arran Place flooded...One house on North Crescent had its front wall and ornamental railings demolished.
4 Fairlie...on Allanton Park Terrace some houses were flooded, damage was also done to the wall and railings in front.
4 Irvine..."considerable damage was done to the roofs of properties in various quarters of the town"
4 Largs...some houses flooded in Bath Street. Many houses lost slates, rhones and chimney cans.
4 Saltcoats...The houses in Winton Circus were turned into islands...where one garden fence was undermined and collapsed...the houses facing the sea in Windmill Street were flooded...Most houses in Quay Street were flooded to a depth of three feet with much furniture and belongings destroyed.
4 Stevenston...some houses lost slates and chimney cans.
4 Troon..."In Portland Terrace a window was blown in...many houses flooded around the Cross...many garden walls in the lane behind Portland Terrace were demolished or badly damaged by the force of the water.
4 West Kilbride...some houses lost slates and chimney pots.
8) 1 Buckie...Opposite the sawmills on Commercial Road a considerable part of the roadway was washed away.
4 Ardrossan...a section of the stone sea-wall in front of the New Parish Church was thrown down...a breach was made in the wall behind the shipyard...wall at Bath Villa partly washed away.
4 Fairlie...All along the shore footpaths and promenade were torn up.
4 Irvine...upriver at Waterside the Garnock river flooded the roadway and gardens near the footbridge and the greater part of the Low Green.
4 Largs...A part of the Alexandra Esplanade has been broken up, while the sea wall to the north, near Phon-a-mara has been completely wrecked...and the road in front of Auberry Crescent has
been almost washed away.

4 Saltcoats...the pathway and road at the Bathing Station have been utterly destroyed and the place where once it was is strewn with huge boulders...at the Braes...all the banking which had been placed on the seaward section of that part of town was swept away and a huge gap made in the road...the wall at the back of the Braes was knocked down...at the end of the East Shore a considerable gap was made in the slope...The sleeper fence which finishes off the earthwork was almost wrecked...some earth washed away from the railway line...The high tide effectively removed the sand which had drifted against the West Esplanade.

4 Stevenston...surrounding sand dunes were covered by water...The new pier...the major part of last year's deposit was swept away.

4 Troon..."At the south end of the Ballast Bank and along Titchfield Road, a lengthy portion of the roadway and the turf next to the sea were damaged...the esplanade road was cut up to some extent. Along the South Beach most of the bent was torn completely away"

4 Wemyss Bay..."the sea-wall recently erected has been demolished"

C) IMPACTS AT OTHER SITES:

1) 4 Portessie...1 fisherman drowned and 1 small boat lost.

1 Helmsdale...2 fishermen drowned.

4 Glasgow...personal injuries were more numerous.

4 West Coast...nineteen fatalities reported.

4 Kilbimie...some damage to the Dennyholm Mill.

5) 4 Dalry...the damage to land, fences and property is considerable.

5) 4 Kilbimie...in the country districts trees were uprooted and stacks of hay blown down.

4 Kilmarnock..."much havoc has been wrought to farmsteadings"

6) 4 Dalry...a wooden barricade at the Public School was blown down.

4 Galston...windows in school blown in.

4 Kilmarnock...the barricade at the western side of the Hurford Football Ground has been damaged, the cost of repair is £40.

7) 4 Galston...many houses lost slates and chimneys...many outhouses have lost their roofs.

4 Kilbimie...many chimney heads, pots, slates and lead were blown down.

4 Kilmarnock...some houses lost their chimney cans.

8) 4 Dalry..."river Gamock and its tributaries overflowed its banks in all directions, the valley for miles having the appearance of a lake"

4 Galston..."The local burns were high, but little damage has been caused by flooding.

4 Kilbimie...fields next to the Gamock were flooded.

4 Skelmorlie...the shore and road are torn up.

E) SIZE OF EVENT : Large.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION :

1 Newspaper...Banffshire Advertiser 1912 November 28, "Storm In The Moray Firth", "Buckie And Portessie Fishermen Drowned"

2 Letter...pers comm Judith Davenport, letter dated 25 November 1911 Assistant Librarian, Ardrossan. Original Reference...photograph of event and caption.

3 Observations...Meteorological Office 1912 Monthly Climatic Summaries, Station Nos. Inverness, 6557 Kilmarnock.

4 Newspaper...The Ardrossan And Saltcoats Herald November 29 "The Gale, Ayrshire's Experience, Flood And Havoc"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :

1 Detailed description of event.

2 Very brief description of the event.

3 Instrumental data and a weather diary.

4 Very detailed description of all aspects of the event.
FLOOD NUMBER : CF.142

DATE OF EVENT : 1 1912 December 24.

CAUSE OF EVENT:
A) TIDAL CONDITIONS :
1 Portpatrick..."and at high water at night ...the sea in the harbour was unusually heavy"

B) WIND CONDITIONS :
1 Glenluce..."there was a perfect hurricane from the south-west"
1 Portpatrick..."a gale of exceptional violence...from the S.S.W.
1 Newton - Stewart..."a fierce gale swept over the district"
1 Girvan..."a severe southerly gale raged"
1 Whithorn...following the fierce gale of Tuesday.

2 Kilmarnock...Wind at 9 am : 24TH 25TH 26TH
Direction S SW E
Force (mph) 10 6 10

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 23RD 24TH 25TH
SW WW

F) LAMB'S SINGULARITIES : NO. 43, 23 Nov - 7 Jan 1912/1913, 46 days, W.

G) ANY OTHER FACTORS :
1 Girvan...serious river flooding in the district...river Girvan in spate.

2 Kilmarnock...Comments :
24TH Wind force 8 at night.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT :
1 Portpatrick...harbour flooded.

B) DAMAGE CAUSED :
3) 1 Portpatrick...the roadways...in the Crescents suffered considerably.
7) 1 Portpatrick..."the houses in the Crescents suffered badly"

C) IMPACT AT OTHERS SITES :
3) 1 Girvan...a horse drawn van blown over and damaged.
5) 1 Newton - Stewart...a number of trees were uprooted.
1 Girvan...a large elm tree on the Ardmillan Policies was blown down.
6) 1 Girvan...a small part of St. Josephs convent on Ailsa St was blown down.
7) 1 Glenluce...some houses lost slates and other minor damage.
1 Newton - Stewart...many houses lost slates and chimney cans.
1 Girvan... a number of houses lost slates and had windows blown in.
8) 1 Girvan...the foreshore was badly cut up.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION :
1 Newspaper...Wigtownshire Free Press 1912 December 26, "Glenluce"
2 Observations...Meteorological Office 1912 Monthly Climatic Summaries, Station No. 6557 Kilmarnock.
ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

ASSESSMENT OF QUALITY OF DATA:
1 Description of event as it affects a number of locations.
2 Instrumental data and a weather diary.

FLOOD NUMBER: CF.143
DATE OF EVENT: 1913 February 7-8.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Stranraer..."there was an extremely high and strong tide in the harbour.
1 Girvan..."the night tide rose to a great height".

B) WIND CONDITIONS:
1 Stranraer..."gale, which blew with great severity from the west"
1 Girvan..."a severe south-easterly gale raged"
1 Whithorn..."gale"

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: 6TH 7TH 8TH 9TH
   W SW W W

G) ANY OTHER FACTORS:
1 Whithorn..."heavy rain followed"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Stranraer...harbour.
1 Girvan..."one of the pier was covered to a considerable depth...at Shallock Mill...the waves were washing up to the main public road"

B) DAMAGE CAUSED:
2) 1 Stranraer...3 boats sunk or damaged in the harbour and 1 at Portrodie.
8) 1 Girvan..."Along the foreshore the sea made considerable inroads and at Shallock Mill a recently made embankment was almost completely washed away"

C) IMPACTS AT OTHER SITES:
1 Glasgow...Scotstoun, 3 men died when river water flooded Elderslie Graving Dock.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England off Liverpool a ship sunk, 11 sailors drowned...1 man killed in Cheshire.
1 Ireland off Tory Island 3 drowned of a ship.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Wigtownshire Free Press 1913 February 13 "Disastrous Storm"
2 Observations...Meteorological Office 1913 Monthly Climatic Summaries, Station No. 6557 Kilmarnock.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.144

DATE OF EVENT: 1, 2 1915 September (late).

CAUSE OF EVENT
B) WIND CONDITIONS:
1 Nairn...“September gale”
2 Buckie...Sunday’s storm.

3 Nairn...Wind at 7 am and 6 pm: 28TH 29TH 30TH
Direction NNW NNW NNW NNE N N
Force (mph) 10 10 22 16 16 2

C) DURATION OF STORM: Type 1.

E) LAMB’S CIRCULATION PATTERN: 27TH 28TH 29TH 30TH

G) ANY OTHER FACTORS:
2 Spey and Nairn...After 2 days rain extensive river flooding.

3 Nairn...Comments:
29TH Squally with passing showers during the night.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Nairn...“The harbour, which has been causing much anxiety to the authorities owing to the serious effects from the flood of September last”
2 Buckie...An extensive area that was being reclaimed over the previous three years in the West Bay...half the entire area was washed away when the protecting embankment was broken into by the sea...from a quarter to a half mile of the railway on top of the embankment was engulfed.

B) DAMAGE CAUSED:
2 1 Nairn...damage to harbour, harbour flooded.
9 2 Buckie...loss of half reclaimed area in West Bay...many thousands of tons of material were carried seaward...embankment protecting reclaimed area was broken in upon and between a quarter and a half mile of the railway was engulfed and washed away.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Forres Gazette 1915 November 17, “Nairn Harbour Damaged”
2 Newspaper...Courant 1915 October 1, “Havoc At Buckie Harbour”
3 Observations...Meteorological Office 1915 Monthly Climatic Summaries, Station No. 1008 Nairn.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event forms part of a discussion of a more recent event, few details given on the event.
2 Detailed description of event.
3 Instrumental data and a weather diary.
FLOOD NUMBER : CF.145

DATE OF EVENT : 11915 November 15 (date of newspaper)

CAUSE OF EVENT
B) WIND CONDITIONS :
1 Nairn..."A terrible gale from the north-east"

2 Nairn...Wind at 6 am and 7 pm : 13TH 14TH 15TH
Direction N NW W NW NE NNE
Force (mph) 35 10 2 2 6 2

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 12TH 13TH 14TH 15TH
CE NN CN

G) ANY OTHER FACTORS :
1 Nairn...accompanied by heavy rain.

H) CLASSIFICATION OF CAUSE OF FLOOD : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Nairn..."Several stables close to the harbour have been flooded". the almost total destruction of the protection works at the foreshore.

B) DAMAGE CAUSED :
2) 1 Nairn..."the head of the west pier having sustained further damage"
5) 1 Nairn..."several stables close to the harbour were flooded"
8) 1 Nairn..."the almost total destruction of the protection works on the foreshore. The work recently carried out and older works have been washed away. A breach has been made in the bar.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Forres Gazette 1915 November 15, "Nairn Harbour Damaged"
2 Observations...Meteorological Office 1915 Monthly Climatic Summaries, Station No. 1008 Nairn.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Detailed description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.146

DATE OF EVENT: 1920 January 9

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Dundee...exceptional high tide...highest since 1868.

E) LAMB'S CIRCULATION PATTERN: 9TH 10TH 11TH
W C CW

F) LAMB'S SINGULARITIES: No. 66, Jan 7 - Feb 4, Duration 29 days, Character W.

H) CLASSIFICATION OF CAUSE OF FLOOD: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Dundee...harbour area flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Dundee Courier And Advertiser 1920 January 9.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event.
FLOOD NUMBER : CF.147

DATE OF EVENT : 1, 2 1921 November 1.

CAUSE OF EVENT

A) TIDAL CONDITIONS :
1 Scotland...storm surge.

B) WIND CONDITIONS :
3 Wick...Wind at 7 am and 6 pm : OCT 30TH 31ST NOV 1ST 2ND
Direction W SW SSW SW NW NW N N
Force (mph) 6 10 22 28 35 28 10 2
3 Aberdeen...Wind at 7 am and 6 pm : OCT 30TH 31ST NOV 1ST
Direction NW/W SW/S SSW SSW NW/W NW/W
Force (mph) 6 10 10 16 28 16

C) DURATION OF STORM : Type 3.

E) LAMB’S CIRCULATION PATTERN : OCT 30TH 31ST NOV 1ST
A AW N

G) ANY OTHER FACTORS :
3 Wick...Comments :
30TH Mainly overcast.
31ST Overcast, extreme SW at 6pm, passing showers from 1.30pm. Line squall 8pm.
1ST Heavy squalls.

H) CLASSIFICATION OF CAUSE OF FLOOD : Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT :
1 Scotland many places flooded.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES :
2 England East Coast down to Kent.

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION :
1 Book...C.E.P. Brooks And J. Glasspoole (1928) "British Floods And Droughts" Benn, London.
3 Observations...Meteorological Office 1921 Monthly Climatic Summaries, Station Nos. 0293
Wick, 12B0 Aberdeen.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of the event.
2 Short description of the event.
3 Instrumental data and a weather diary.
FLOOD NUMBER: CF.148

DATE OF EVENT: 1, 3 1921 December 17
2 1921 December.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Alloa...“Unprecedented high tides have been experienced...one of the largest tides that has been seen for a considerable number of years...The tide table was out of its reckoning and showed a considerable depth over that recorded”
2 Dundee...the highest tide from 1883 to 1983.
3 Aberdeen...highest tide recorded 10.4 feet O.D.

B) WIND CONDITIONS:
4 Dundee...Wind at 9 am and pm: 15TH 16TH 17TH 18TH
Direction
---- NW NW SW SW NW SW NW SW
--- 2 2 22 22 35 22 22 2

4 Edinburgh (Bla)...Wind at 9 am and 9 pm: 15TH 16TH 17TH 18TH
Direction
---- W Calm W WSW W W WSW Calm
--- 10 28 22 43 35 16

C) DURATION OF STORM: Type 3.

D) LAMB’S CIRCULATION PATTERN: 15TH 16TH 17TH 18TH

E) LAMB’S SINGULARITIES: No. 74, 5 Dec - 2 Jan 1921/22, Duration 29 days, Character W.

G) ANY OTHER FACTORS:
4 Dundee...Comments:
17TH High winds until 3pm then fresh.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Alloa...“The dock gates were awash and the water swept over the quays”
2 Dundee...flooded the Greenmarket...to a depth of three inches...Water penetrated shed at at Eastern Wharf and King William Dock...fishing boats were moored to lamp-posts in Fisher St, Broughty Ferry...Newport Pier was submerged”

B) DAMAGE CAUSED:
2) 1 Alloa...quays flooded.
2 Dundee...sheds at Eastern Wharf and King William Dock flooded damaging jute and cement...Newport Pier partially flooded.
3) 2 Dundee...the Greenmarket and Fisher St, Broughty Ferry flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Alloa Journal 1921 December 21, "High Tide At Alloa”
2 Newspaper...The Dundee Courier And Advertiser, 1983 February 5.
4 Observations...Meteorological Office 1921 Monthly Climatic Summaries, Station Nos. 1361 Dundee, 1646 Edinburgh (Bla).
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event concentrating on the tidal aspect of the event.
2 Description of the event.
3 Brief description of event as part of a detailed technical study of the surge.
4 Instrumental data and a weather diary.

FLOOD NUMBER: CF.149

DATE OF EVENT: 1921 December 18.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Alloa..."Owing to the high tides"

B) WIND CONDITIONS:
1 Alloa..."The storm"

2 Edinburgh (Bla)... Wind at 9 am and 9 pm: 22ND 23RD 24TH
Direction SW SW NW NW NW SW
Force (mph) 10 10 10 10 10 28

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 21ST 22ND 23RD 24TH
WWNW

F) LAMB’S SINGULARITIES: No. 74, 5 Dec - 2 Jan 1921/22, Duration 29 days, Character W.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Alloa...considerable flooding in the upper reaches...at the shorehead the quay was flooded up to 100 yards inland as far as the Mar Hotel...At Tullibody Island the Inch was almost completely submerged...minor flooding at the shipyards further down.

B) DAMAGE CAUSED:
4) 1 Alloa...at the shipyards a quantity of timber was washed off the quay, most of which was recovered.
5) 1 Alloa...35 sheep at the Inch on Tullibody Island were drowned.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Alloa Journal 1921 December 24, "The Storm"
2 Observations...Meteorological Office 1921 Monthly Climatic Summaries, Station No. 1646 Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event concentrates on the effects of the event.
2 Instrumental data and a weather diary.

593
FLOOD NUMBER: CF.150

DATE OF EVENT: 1 1923 February 7 (date of newspaper).

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Dumfries..."the incoming tide the level of the water rose to a height which has not been
equalled for some time"

B) WIND CONDITIONS:
1 Dumfries..."with a strong south wind behind"

2 Dumfries...Wind at 9 am and 9 pm: 5TH 6TH 7TH
Direction SSW SW SW SSE SE SE
Force (mph) 16 22 28 16 22 10

C) DURATION OF STORM: Type 1

D) ESTUARINE CONDITIONS:
1 Dumfries..."The Nith was in partial flood on Monday"

2 Dumfries...Rain for preceding 24h prior to 9 am: 5TH 6TH 7TH
Rainfall (mm) 2.3 0.4 17.1

E) LAMB'S CIRCULATION PATTERN: 4TH 5TH 6TH 7TH

   AW ASW S S

G) ANY OTHER FACTORS:
Dumfries...Comments:
6TH Rain strong breeze.

H) CLASSIFICATION OF CAUSE OF FLOOD: Type 3.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Dumfries..."the Caul was completely covered. The tarmac portion of the roadway, and from ten to
fifteen feet of the paved portion from the Hoddam Castle Hotel to the foot of Bank Street, was under
water...the track for the new water main on Whitesands were temporarily flooded out.

B) DAMAGE CAUSED
3) 1 Dumfries..."the roadway from the Hoddam Castle Hotel to the foot of Bank Street was
under water...The track for the new water mains at White sands were temporarily flooded out"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Newspaper...Dumfries And Galloway Standard 1923 February 7 "High Tide At Dumfries"
2 Observations...Meteorological Office 1923 Monthly Climatic Summaries, Station No. 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER : CF.151

DATE OF EVENT :  1 1924
  2 1924 December 27.
  3 1924 December 26-31.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
  1 Gretna..."when a similar wave"
  2 Dundee..."high tide"

B) WIND CONDITIONS :
  2 Dundee..."gale"
  3 Firth Of Clyde..."severe southwest gale"

<table>
<thead>
<tr>
<th>Location</th>
<th>Wind at 9 am</th>
<th>25TH</th>
<th>26TH</th>
<th>27TH</th>
<th>28TH</th>
<th>Wind at 5.30 pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dundee</td>
<td>SSW</td>
<td>22</td>
<td>6</td>
<td>35</td>
<td>6</td>
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<tr>
<td>Greenock</td>
<td>SW</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Firth Of Clyde</td>
<td>SW</td>
<td>16</td>
<td>16</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 25TH 26TH 27TH 28TH

<table>
<thead>
<tr>
<th>Direction</th>
<th>SW</th>
<th>C</th>
<th>W</th>
<th>W</th>
</tr>
</thead>
</table>

F) LAMB'S SINGULARITIES : No. 83, 1924 Nov 23 - 1925 Jan 5, Duration 45 days, Character W.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
  1 Gretna...when a similar wave inundated Rockcliff Marsh.
  2 Dundee...minor flooding in harbour as water washed over the quays.

B) DAMAGE CAUSED :
  2) 2 Dundee...minor flooding of harbour and quays.
  5) 1 Gretna...1200 sheep drowned at Rockcliff Marsh.

C) IMPACT AT OTHER SITES :
  2) 3 Firth Of Clyde..."loss of ship Marjorie Seed"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
  1 Newspaper...Glasgow Herald 1938 November 28, "1000 Sheep Perish In Solway"
  2 Newspaper...Dundee Courier And Advertiser 1924 December 29.
  4 Observations...Meteorological Office 1924 Monthly Climatic Summaries, Station Nos. 1361 Dundee, 6318 Greenock.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
  1 Very short description of event as part of a description of a more recent event, needs accurate date.
  2 Brief description of event.
  3 Short description of event (book concentrates on the diving potential of various Clyde shipwrecks).
  4 Instrumental data and a weather diary.
FLOOD NUMBER: CF.152

DATE OF EVENT: 1 1926 November 5

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Kirkcudbright..."there was an abnormally high tide"

B) WIND CONDITIONS:
1 Kirkcudbright..."Under the influence of a south-westerly gale"
2 Colmonell...Wind at 9 am: 3RD 4TH 5TH 6TH
   Direction E S Calm S
   Force (mph) 6 28 2

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: 3RD 4TH 5TH 6TH
   - W CW W

F) LAMB’S SINGULARITIES: No. 85, 1Nov - 26 Nov, Duration 26 days, Character W + C.

G) ANY OTHER FACTORS:
1 Dumfries and Galloway...Extensive river flooding in whole area.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Kirkcudbright..."The water was well over the breastwork at the harbour, and some of the
   low-lying ground was flooded.

C) IMPACTS AT OTHER SITES:
1 Lockerbie, Lochmaben, Moffat, New Galloway, Dumfries, Dalbeattie and Upper Nithsdale...all
   affected by river flooding due principally to snowmelt.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Dumfries And Galloway Standard 1926 November 6, "High Tide At Kirkcudbright"
2 Observations...Meteorological Office 1926 Monthly Climatic Summaries, Station No. 6505 Colmonell.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very short description of event added on to a very long article on the river flooding that occurred.
2 Instrumental data and a weather diary.
FLOOD NUMBER : CF.153

DATE OF EVENT : 1 1928 January 6

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Stranraer..."At high tide the waves swept over the breastwork and sea fronts"

B) WIND CONDITIONS :
1 Stranraer..."A severe westerly gale raged...yesterday"
1 Dumfries..."Starting about mid-night on Thursday, the storm continued intermittently for twelve hours"

2 Colmonell...Wind at 9 am : 4TH 5TH 6TH 7TH
Direction W NW NW W
Force (mph) 22 10 43 16

C) DURATION OF STORM : Type 3.

D) LAMB'S CIRCULATION PATTERN : 4TH 5TH 6TH 7TH

W  W  CW  W

E) LAMB'S SINGULARITIES: No. 90 4 Jan to Feb 18, Duration 46 days, Character W.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Stranraer..."the mountainous sea running...caused serious flooding...the waves swept over the breastwork and sea fronts...Strand St. and Harbour St. were flooded...North Strand flooded...rough seas were breaking over both piers"

B) DAMAGE CAUSED
3) 1 Stranraer...Strand St, Harbour St and North Strand seriously flooded"

C) IMPACT AT OTHER SITES :
4) 1 Dumfries...1 restaurant window blown in.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Dumfries And Galloway Standard 1928 January 7 "Wild Weather On Galloway Coast"
2 Observations...Meteorological Office 1928 Monthly Climatic Summaries, Station No. 6505 Colmonell.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER : CF.154

DATE OF EVENT : 1, 2 1930 August 14

CAUSE OF EVENT
A) TIDAL CONDITIONS :
   1 Firth Of Clyde..."High seas were running"
   1 Gourock Bay..."heavy seas"
   1 Lamlash..."high seas"

B) WIND CONDITIONS :
   1 Firth Of Clyde..."A north-westerly gale"
   1 Largs..."teeth of the wind."
   1 Wigtownshire...a severe storm of wind"

   2 Greenock...Wind at 9 am and 4.30 pm : 12TH 13TH 14TH 15TH
   Direction                    W   WSW  W   WNW  W   W  WNW  NW
   Force (mph)                  6   6   6   6   10  6   6   6

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 12TH 13TH 14TH 15TH
   CNW  W   CNW  NW

F) LAMB'S SINGULARITIES : No. 99, 20 Jun - 24 Aug, Duration 66 days, Character C + W + NW + N.

G) ANY OTHER FACTORS :
   1 Largs..."rainstorm"
   1 Wigtownshire...a severe storm of...rain.

   2 Greenock...Comments :
      14TH showery and high winds.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
   1 Firth Of Clyde some flooding.
   1 Gourock Bay.
   1 Lamlash...harbour flooded.

B) DAMAGE CAUSED :
   2) 1 Gourock Bay...1 yacht beached and slightly damaged, 1 yacht damaged, 1 rowing boat smashed, 2 motor boats wrecked and 1 yacht beached and badly damaged on Aston shore, 1 motor ferry boat sunk at Cloch Lighthouse.

C) IMPACT AT OTHER SITES :
   2) 1 Largs...2 ferries unable to call at the port because of the weather conditions.
   1 Wemyss Bay...1 ferry unable to call at the port because of the weather conditions.
   5) 1 Wigtownshire...some damage to Oats crop which was starting to be harvested.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES :
   1 England Oxford marquee blown down at flower show by the gale.

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
   1 Newspaper...Glasgow Herald 1930 August 15, "Clyde Coast Storm"
   2 Observations...Meteorological Office 1930 Monthly Climatic Summaries, Station No. 6318 Greenock.
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Description of event concentrates on the impacts.
2. Instrumental data and a weather diary.

FLOOD NUMBER: CF.155

DATE OF EVENT: 1 1930 August 30 (date of newspaper).

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1. Annan... "The Lammas tides in the Solway Firth have been exceptionally high, and along the Annan shore"

B) WIND CONDITIONS:
2. Colmonell... Wind at 9 am: 28TH 29TH 30TH
   Direction: NW NE E
   Force (mph): 6 2 2

E) LAMB'S CIRCULATION PATTERN: 27TH 28TH 29TH
   SW A E

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1. Annan... "and along the Annan shore, from Waterfoot to Dormock Brow many of the lower-lying fields were flooded at high water"

B) DAMAGE CAUSED:
5. Annan... many low-lying fields were flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1. Newspaper... Dumfries And Galloway Standard 1930 August 30 "High Tides At Annan"
2. Observations... Meteorological Office 1930 Monthly Climatic Summaries, Station No. 6505 Colmonell.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Short description of event, not clear how many of the tides caused flooding although it indicates it was more than one of them.
2. Instrumental data and a weather diary.
FLOOD NUMBER: CF.156

DATE OF EVENT: 1930 September 27 (date of newspaper)

CAUSE OF EVENT:
A) TIDAL CONDITIONS:
   Solway Firth..."unprecedented high tides have occurred...on Wednesday morning, the depth of water being 21 feet 6 inches" No indication where tide reading was taken from possibly Annan.

B) WIND CONDITIONS:
   Solway Firth..."the incoming tide was accompanied by a strong gale"

C) DURATION OF STORM: Type 1.

D) LAMB'S CIRCULATION PATTERN: 24TH 25TH 26TH 27TH
   CW CNW CN NE

G) ANY OTHER FACTORS
   Solway Firth...exceptional tides occurred also on Wednesday evening and Thursday morning but no indication is given of any further flooding or damage.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
   Solway Firth..."which covered almost the whole of the Summertime Merse and parks near Waterfoot and Hillend...At Annan Quay the waters overflowed the bank and flooded a portion of Welldale"

B) DAMAGE CAUSED:
2) Solway Firth...flooding of Annan Quay and Welldale
5) Solway Firth...agricultural and parkland flooded at Summertime Merse, Waterfoot and Hillend.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
   Newspaper...Dumfries And Galloway Standard 1930 September 27 "Record High Tides At Annan"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   Description of event with details of cause and impact of event.
FLOOD NUMBER: CF.157

DATE OF EVENT: 1 1933 January 3.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Highland...storm surge.

B) WIND CONDITIONS:
2 Stornoway...Wind at 7 am and 1 pm:

<table>
<thead>
<tr>
<th>Direction</th>
<th>1ST</th>
<th>2ND</th>
<th>3RD</th>
<th>4TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Force (mph)</td>
<td>22</td>
<td>16</td>
<td>43</td>
<td>51</td>
</tr>
</tbody>
</table>

2 Wick...Wind at 7 am and 1 pm:

<table>
<thead>
<tr>
<th>Direction</th>
<th>1ST</th>
<th>2ND</th>
<th>3RD</th>
<th>4TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Force (mph)</td>
<td>28</td>
<td>22</td>
<td>43</td>
<td>43</td>
</tr>
</tbody>
</table>

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN:

| S | SW |

F) LAMB'S SINGULARITIES:
No. 103, 1932 Dec 13 - 1933 Jan 8, Duration 27 days, Character S + W.

G) ANY OTHER FACTORS:
2 Stornoway...Comments:
1ST Wind at times force 8 1.30-215 am. Lightning pm.
2ND Wind S force 9 9.30 am to 4.30 pm. 10.05 pm lightning.

2 Wick...Comments:
1ST Gale to 3 am with moderate rain to 12.20 am. Cloudy then slight clouded sky. Aurora 7.30 pm. Three hours of gusts more than 39 mph.
2ND Variable sky early then cloudy. Gale commenced 2 am abated 10 pm. Twenty hours of gusts more than 39 mph.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Highland...coastline in places flooded.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England Humberside flooded.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Article...J.R. Rossiter (1959) "Research Methods Of Forecasting Storm Surges On The East And Coasts Of Great Britain" Quarterly Journal Of The Royal Meteorological Society, Volume 85, p262-277.
2 Observations...Meteorological Office 1933 Monthly Climatic Summaries, Station Nos. 0425 Stornoway, 0293 Wick.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Instrumental data and a weather diary.
FLOOD NUMBER : CF.158

DATE OF EVENT : 1 1933 October 11.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Highland storm surge.

B) WIND CONDITIONS :
2 Stornoway...Wind at 7 am and 1 pm : 9TH 10TH 11TH 12TH
Direction S S SW SW NW NW N WSW
Force (mph) 22 43 28 28 6 10 2 6

2 Wick...Wind at 7 am and 1 pm : 9TH 10TH 11TH 12TH
Direction SSW SE SSW SSW SW NW NW WNW
Force (mph) 2 28 22 22 10 15 10 10

E) LAMB'S CIRCULATION PATTERN : 9TH 10TH 11TH 12TH
W CW CW W

G) ANY OTHER FACTORS :
2 Stornoway...Comments :
10TH Squally midnight to 5 am, lightning, SW force 8 from 1.16-3 am, 3.22 and 5.30 am.

2 Wick...Comments :
9TH Gale, heavy incidence of rain 6.05-6.50pm, gale eased 7pm, extreme eased 7.30pm.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Highland coastline some places flooded.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES :
1 England Humberside.

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Article...J.R. Rossiter (1959) "Research Methods Of Forecasting Storm Surges On The East And Coasts Of Great Britain" Quarterly Journal Of The Royal Meteorological Society, Volume 85, p262-277.
2 Observations...Meteorological Office 1933 Monthly Climatic Summaries, Station Nos. 0425 Stornoway, 0293 Wick.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of the event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.159

DATE OF EVENT: 1 1936 January 10.
               2 1936.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Firth Of Clyde..."an exceptionally high tide"
1 Troon..."At high water huge waves broke over the Ballast Bank"
1 Lamlash..."A phenomenally high tide"
1 Rothesay..."high tide"
2 Ardrossan..."invasive high tides"

B) WIND CONDITIONS:
1 West Coast..."the full force of the gale"
1 Troon..."gale"
1 Lamlash..."and strong wind"
1 Portwilliam..."very strong wind"
1 Glasgow..."Despite periods when the wind reached gale force...by the storm"
1 Paisley..."The strongest gust of wind recorded reached a velocity of 71 miles per hour at the Coats Observatory"
1 Abbotsinch..."highest velocity recorded was 67 miles per hour at the meteorological Station.
1 Aberdeen..."gale"
1 Firth Of Forth..."gale"
2 Ardrossan..."storm"

3 Kilmarnock...Wind at 9 am and 9 pm: 8TH 9TH 10TH 11TH
   Direction E SE S S W W NW
   Force (mph) 2 2 10 2 2 2 6

C) DURATION OF STORM: Type 1.

E) LAMB’S CIRCULATION PATTERN: 8TH 9TH 10TH 11TH
   S C W -

F) ANY OTHER FACTORS:
1 Glasgow...the rainfall during the 24 hours up to 9 o’clock was 0.61 inches at Springburn Park.
1 Paisley...the rainfall was 0.88 inches for the same period.
1 Perth...Tay river flooding of North Inch golf club.
1 Canonsgate Bridge...Jed river flooding.
1 Teviot valley..."extensive flooding...main road between Jedburgh and Kelso had 4 feet of water on it.
1 River Tweed...also in flood, rose 8 feet and flooded St Boswells Golf Course.

G) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Firth Of Clyde..."flooding in several towns"
1 Troon...a number of houses flooded at Harbour Row...Portland St also had surface water....The Italian rock-gardens adjoining the swimming pool were again submerged.
1 Largs..."streets near the sea front were flooded...Lower part of Bath St had a foot of water....at Brodick the tide was over the road.
1 Rothesay..."where the water flowed over the esplanade and into a number of shops"
2 Ardrossan..."flooding of coastal area"

B) DAMAGE CAUSED:
2) 1 Largs... delay to 2 vessels caused by the gale.
3) 1 Lamlash...Brodick-Lamlash road blocked by falling trees causing delay to traffic... road at Brodick flooded causing delay...some trunk phone lines blown down.
4) 1 Rothesay... anumber of shops flooded with damage done to their stock.
5) 1 Lamlash...many trees felled onto the Brodick-Lamlash Road.
7) Troon...6 houses flooded at Harbour Row with water and silt and some damage was done to the belongings in these houses.
8) 1 Troon...the Ballast Bank...cutting a deep gully on the east side opposite Harbour Row...on the north shore a portion of the town's controlled refuse dump was washed away.

C) IMPACT AT OTHER SITES:
2) Portwilliam...1 vessel torn from its moorings in the harbour and damaged.
1 Aberdeen...1 steamer forced to turn back because of the gale.
10) 1 Glasgow...some minor damage done.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Glasgow Herald 1936 January 11, "Great Gale"
3 Observations...Meteorological Office 1936 Monthly Climatic Summaries, Station No. 6557 Kilmarnock.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

D) ASSESSMENT OF QUALITY OF DATA:
1 Description of event giving detail on cause and effect.
2 Letter from local librarian giving a very brief description of the event.
3 Instrumental data and a weather diary.
FLOOD NUMBER: CF.160

DATE OF EVENT: 1 1936 December 14.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Ayr..."a high tide...water nearly up to the quay level"

B) WIND CONDITIONS:
1 Ayr..."strong south-west wind"

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<thead>
<tr>
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<th>12TH</th>
<th>13TH</th>
<th>14TH</th>
<th>15TH</th>
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<tr>
<td>Direction</td>
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</tr>
<tr>
<td>Force (mph)</td>
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<tr>
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<td>SW</td>
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<td>SW</td>
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<tr>
<td></td>
<td>28</td>
<td>6</td>
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<td>SSE</td>
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D) ESTUARINE CONDITIONS:
1 Ayr..."a heavy flood in the river...the depth of water going over the upper weir at Nether Mills...was 3 feet 4 inches...the surface velocity of the current was on average 7 feet per second"

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<tr>
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<th>15TH</th>
</tr>
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<tr>
<td>Rainfall (mm)</td>
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<td>2.5</td>
<td>5.1</td>
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E) LAMB'S CIRCULATION PATTERN:

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<tr>
<td>WW</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
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</tbody>
</table>

G) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Ayr: small-scale flooding.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
2 Observations...Meteorological Office 1936 Monthly Climatic Summaries, Station No. 6557 Kilmarnock.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event based on personal observation of author of letter.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.161

DATE OF EVENT: 1937 January.

CAUSE OF EVENT
B) WIND CONDITIONS:
Lossiemouth...storm.

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT:

IMPACT OF EVENT
A) EXTENT OF EVENT:
Lossiemouth...harbour area flooded

B) DAMAGE CAUSED:
2) Lossiemouth..."the end of the north pier of the harbour was washed away"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Very short description of event.
FLOOD NUMBER: CF.162

DATE OF EVENT: 1 1938 November.
   2 1938 November 28 (date of newspaper, weekend event).

CAUSE OF EVENT
A) TIDAL CONDITIONS:
   1 Solway Firth..."a twenty-four-foot tide"
   2 Gretna..."the tide was abnormally fast and came up in a few minutes without the slightest
      warning...a high tide raced at 25 miles per hour...completely submerging the marsh in about 10 minutes"

B) WIND CONDITIONS:
   1 Solway Firth..."backed by a great south-westerly gale"
   2 Solway Firth..."storm"

   3 Dumfries...Wind at 9 am: 26TH 27TH 28TH
      Direction W SW SW
      Force (mph) 10 6 16

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
   2 Solway Firth...the Esk and Eden rivers were both flooded on either side of Rockcliff Marsh.

   3 Dumfries...Rain for 24h preceding 9 am: 26TH 27TH 28TH
      Rainfall (mm) 0 9.3 3.2

E) LAMB'S CIRCULATION PATTERN: 25TH 26TH 27TH 28TH
   cw cw ww

F) LAMB'S SINGULARITIES: No. 125, 17 Nov to 14 Dec, 28 days, character W + C.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
   1 Solway Firth...flooding.
   2 Solway Firth...Rockcliff Marsh flooded, half a mile from the Gretna-Eastriggs coast

B) DAMAGE CAUSED:
   5) 1 Solway Firth...about a 1000 sheep were drowned.
   2 Solway Firth...nearly 1000 sheep which were swept to their death On Rockcliff Marsh to the
      value of £1600.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
      Based on authors own observation.
   2 Newspaper...Glasgow Herald 1938 November 28, "1000 Sheep Perish In Solway"
   3 Observations...Meteorological Office 1938 Monthly Climatic Summaries, Station No. 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   1 Short description of event, need more exact location.
   2 Description of event giving the detail the event.
   3 Instrumental data and a weather diary.
FLOOD NUMBER: CF.163

DATE OF EVENT: 1 1942 December 9-10.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Solway Firth..."The highest tide seen...for over 40 years.

B) WIND CONDITIONS:
1 Solway Firth..."wind storm"

2 Dumfries...Wind at 9 am: 7TH 8TH 9TH 10TH 11TH

Direction SW WSW S E SE
Force (mph) 10 6 10 10 6

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
1 Annan...the river in spate combined to flood other houses above Annan Bridge.
2 Dumfries...Rain for 24h preceding 9 am: 7TH 8TH 9TH 10TH 11TH

Rainfall (mm) 1.6 7.2 9.5 31.2 2.0

E) LAMB'S CIRCULATION PATTERN: 7TH 8TH 9TH 10TH 11TH

WW SW SW CW

F) ANY OTHER FACTORS:

Dumfries...Comments:
9TH Rain during day and night, gale in night.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Solway Firth...Fields and roads at many points along the shore disappeared under floods...The inrush of water overran land between the river Sark and Esk, and penetrated up the Sark for almost a mile and marooned the Sark Tollbar, famous old Gretna marriage house...Sarkfoot farm flooded.

1 Annan...broke in flood over adjoining land...flooded 22 acres around the Annan - Dumfries road...and flooded houses in Port St in the town...the river Annan in spate combined to flood other houses above Annan Bridge...flooding at Waterfoot farm and Hillend farm on the other side of the river had 20 acres flooded.
1 Gretna...Ellisonbank Farm and Old Graftney Farm flooded.

B) DAMAGE CAUSED:

1) 1 Annan...1 person injured when cycled into eroded hole in roadway.
3) 1 Solway Firth...roads flooded along the shore.
3) Annan...roadway damaged between Annan Bridge and Milnfield.
5) 1 Annan...agricultural land flooded...20 cartloads of turnips washed away and land flooded at Waterfoot farm...land flooded at Hillend farm.
1 Solway Firth...fields flooded along the shore...many sheep lost...land flooded between Sark and Esk...Sarkfoot farm flooded and 40 tons of turnips washed away.
1 Gretna...40 sheep lost and land flooded at Ellisonbank Farm...land flooded at Old Graftney Farm.
6) 1 Gretna...the Sark Tollbar marooned.
7) 1 Annan...houses flooded in town.
8) 1 Annan..."burst in two places through a nine-foot embankment alongside the river Annan...breaches 4 feet wide...other damage was done to the embankment...and cut two large gaps in the roadway between Annan Bridge and Milnfield"

E) SIZE OF EVENT: Intermediate.
AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Newspaper...Glasgow Herald 1942 December 21, "River Bank Cut By Flood"
2 Observations...Meteorological Office 1942 Monthly Climatic Summaries, Station No. 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event gives detail on cause and effect.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.164

DATE OF EVENT: 1 1947 January 10 (date of newspaper).

CAUSE OF EVENT

A) TIDAL CONDITIONS:
   1 Kirkcaldy... "the waters of the Firth Of Forth broke over the sea wall... A heavy ground swell caused waves 30 feet high... the waves seemed to increase in height as high tide approached"
   1 Peterhead... "heavy seas"

B) WIND CONDITIONS:
   1 North, North-west and North-east Coasts... "south-easterly gales"
   1 Peterhead... gale.

   2 Edinburgh (Bla)... Wind at 9 am and 9 pm:
      8TH  9TH  10TH
      Direction: SE  E  SSE  SSW  SSW  SE
      Force (mph): 10  10  6  6  10  6

C) DURATION OF STORM: Type 1.

D) LAMB'S CIRCULATION PATTERN: 7TH  8TH  9TH  10TH
   
   S  S  W  W

G) ANY OTHER FACTORS:
   1 Loch Stoy... heavy snow falls.

   2 Edinburgh (Bla)... Comments:
      8TH Moderate SE wind
      9TH S wind changing to SW at 2 pm.
      10TH SSE and SE wind dry and cold.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
   1 Kirkcaldy... the waters broke over the sea wall and flooded the esplanade, the road on it and many houses and properties off it, the water was more than 2 feet deep in places... flood penetrated more than 200 yards inland.

B) DAMAGE CAUSED:
   3) 1 Kirkcaldy... road and esplanade flooded as were 7 cars on it.
   4) 1 Kirkcaldy... many premises just off the esplanade were flooded.
   7) 1 Kirkcaldy... many houses just off the esplanade were flooded.

C) IMPACT AT OTHER SITES:
   2) 1 Hebrides... ferry services cancelled... many islands cut off including Barra, South Uist, Coll and Tiree.
   1 West Coast... nine tenths of fishing fleet stormbound.
   3) 1 Tiree... a plane stormbound since Tuesday.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
   1 Newspaper... Glasgow Herald 1947 January 10, "Sea Floods Houses At Kirkcaldy"
   2 Observations... Meteorological Office 1947 Monthly Climatic Summaries, Station No. 1646 Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   1 Description of event gives detail on the cause and its impact
   2 Instrumental data and a weather diary.
FLOOD NUMBER : CF.165

DATE OF EVENT : 1 1947 April 21.

CAUSE OF EVENT

A) TIDAL CONDITIONS :
1 Annan..."Waves over six feet high...abnormally high spring tide"

B) WIND CONDITIONS :
1 Annan..."accompanied by a south-east gale"
1 Renfrew...at the airport the maximum wind velocity was 70 m.p.h.with an average of 40 m.p.h.

2 Dumfries...Wind at 9 am : 19TH 20TH 21ST 22ND
   Direction Calm SSE SSW WSW
   Force (mph) 22 10 22

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 19TH 20TH 21ST 22ND
   SW W W W

G) ANY OTHER FACTORS :
1 Perthshire...extensive river flooding on Tay, Lyon and Earn due to rain and melting snow causing extensive damage especially to agriculture.
1 Springburn Park...a quarter of an inch of rain yesterday which makes 1.09 inches in the last three days to 9 o'clock at night.

2 Dumfries...Comments :
   20TH with strong SSE wind
   21ST with fairly strong SSW wind.
   22ND with strong WSW winds.

G) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT :
1 Annan..."waves over six feet high yesterday swept through the lower part of Port Street...the loading station of a cement store on Port St was under 6 feet of water...serious flooding where the Annan joins the Solway...At Welldale extensive deep flooding...Over 20 square miles have been affected by flooding"

B) DAMAGE CAUSED :
4) 1 Annan...at Welldale, floodwaters surrounded shrimp factory, staff were lifting all material to a 6 feet high level...Port Street 2 properties flooded and much damage done to 50 tons of cement in one of them.

C) IMPACTS AT OTHER SITES :
1 Airdrie...2 people injured when a hoarding fell on them.
4 1 Airdrie...a 14 foot high hoarding blown down on Clark Street injuring two.
5 1 Tay...extensive flooding of agricultural land.
1 Earn...extensive flooding of agricultural lands including Pittentian Farm.
6) 1 Earn...Crieff's new recreation ground at Braidhaugh is waterlogged and work is held up on completing it.
7) 1 Glasgow...2 tenements suffered damage in the storm, 1 lost a chimney and developed a bulge, the other lost some masonry and also developed a bulge.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION :
1 Newspaper...Glasgow Herald 1947 April 22, "Abnormal Tide At Annan"  
2 Observations...Meteorological Office 1947 Monthly Climatic Summaries, Station No. 6641 Dumfries.
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event.
2 Instrumental data and a weather diary.
NUMBER OF EVENT : CF.166

DATE OF EVENT : 1 1947 April 22.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Annan..."abnormally high tides"

B) WIND CONDITIONS :
1 Scotland..."heavy wind storms"
1 Annan..."The wind did not reach gale strength"
1 Glasgow..."south-west winds...frequent squalls of wind"

2 Dumfries...Wind at 9 am : 20TH 21ST 22ND
Direction SSE SSW WSW
Force (mph) 22 10 22

C) DURATION OF STORM : Type 1.

E) LAMB’S CIRCULATION PATTERN : 20TH 21ST 22ND 23RD

W W W C

G) ANY OTHER FACTORS :
1 Scotland..."torrential rain"
1 Crieff...much river flooding due to the Earn bursting its banks...river rose 6 inches in the previous night.
1 Glasgow...frequent squalls...of rain.

2 Dumfries...Comments :
20TH with strong SSE wind
21ST with fairly strong SSW wind.
22ND with strong WSW winds.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT
1 Annan...continued tidal flooding...Welldale was under deep water.

B) DAMAGE CAUSED
10) 1 Annan...Welldale flooded.

C) IMPACT AT OTHER SITES :
5) 1 Crieff...much agricultural land flooded...Strageath Farm had 30 acres flooded, much sown corn lost...Dornock Farm had 1 field flooded.
8) 1 Crieff...at Dornock farm the river tore a gap in the bank.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Glasgow Herald 1947 April 23, "Stormy Weather Continues"
2 Observations...Meteorological Office 1947 Monthly Climatic Summaries, Station No. 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Description of event lacking in detail on flooding in Annan and the damage caused.
2 Instrumental data and a weather diary.
NUMBER OF EVENT: CF.167

DATE OF EVENT: 1 1947 April 23.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Solway Firth..."exceptionally high tide"

B) WIND CONDITIONS:
1 Lower Annandale..."gales"

2 Dumfries...Wind at 9 am : 21ST 22ND
Direction SSW WSW
Force (mph) 10 22

C) DURATION OF STORM: Type 1.

D) LAMB'S CIRCULATION PATTERN:
21ST 22ND 23RD 24TH
WWCW

E) ANY OTHER FACTORS:
2 Dumfries...Comments:
21ST with fairly strong SSW wind.
22ND with strong WSW winds.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT
1 Solway Firth...large tracts of land flooded...near the river Sark tide and flood water were
lapping around farm steadings half a mile from the shore.
1 Annan..."street alongside the harbour have again been flooded"

B) DAMAGE CAUSED:
3) 1 Annan..."street alongside the harbour have again been flooded"
5) 1 Solway Firth..."large tracts of farmland under water...also around river Sark"
7) 1 Annan..."some damage to the new housing scheme.
8) 1 Solway Firth...many river banks breached.

C) IMPACTS AT OTHER SITES:
5) 1 Lower Annandale..."Haysheds and other wooden buildings have been blown down or damaged.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION
1 Newspaper...Glasgow Herald 1947 April 24, "Solway Floods"
2 Observations...Meteorological Office 1947 Monthly Climatic Summaries, Station No. 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Instrumental data and a weather diary.
NUMBER OF EVENT: CF.168


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Scotland, East Coast...storm surge some places flooded.
Aberdeen...storm surge and flooding.
Dunbar...storm surge and flooding.

B) WIND CONDITIONS:
Scotland, East Coast..."storm"

C) DURATION OF STORM: Type 1.

D) LAMB'S CIRCULATION PATTERN: 7TH 8TH 9TH

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Scotland, East Coast...storm surge some places flooded.
Aberdeen...storm surge and flooding.
Dunbar...storm surge and flooding.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
England East Coast storm surge and flooding, source as below.
Belgium West Coast storm surge and flooding, source as below.
Netherlands West Coast storm surge and flooding, source as below.
Germany West Coast storm surge and flooding, source as below.
Denmark West Coast storm surge and flooding, source as below.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Article...G. Reynolds (1953) "Storm Surge Research" Weather Volume 8, p101-107.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of event concentrates on the surge aspect, no indication given of any coastal impacts.
Needs further research.
NUMBER OF EVENT : CF.169

DATE OF EVENT : 1 1949 December 5 (date of newspaper, Thursday event).

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 North-West Coast...heavy seas.
1 North Coast...heavy seas.

B) WIND CONDITIONS :
1 North-West Coast...gales.
1 North Coast...gales.

2 Wick...Wind at 3 am and 3 pm : 3RD 4TH 5TH
   Direction W W NW W WSW W
   Force (mph) 23 15 15 6 17 13

2 Stornoway...Wind at 3 am and 3 pm : 3RD 4TH 5TH
   Direction W W WNW W W W
   Force (mph) 26 25 14 17 12 7

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 3RD 4TH 5TH
   WW

G) ANY OTHER FACTORS :
2 Stornoway...Comments :
   3RD strong to gale WNW'ly decreasing slowly.
   4TH Fresh to strong W to NW
   5TH Fresh W to NW, becoming SW'ly by 1900 and decreasing.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 North-West Coast some flooding.
1 North Coast flooding.

B) DAMAGE CAUSED :
2) 1 North-West Coast...mailboat services delayed and many coastal ships forced to take shelter.
   1 Sule Sherry...unable to take lighthouse keepers off (40 miles north of Cape Wrath).
   1 Sound Of lona...lightship forced to take shelter after failing to reach Dhu Heartach lighthouse.

E) SIZE OF EVENT : Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
   1 Newspaper...Glasgow Herald 1949 December 5, "Lighthouse Crews Cut-Off"
   2 Observations...Meteorological Office 1949 Monthly Climatic Summaries, Station Nos. 0293 Wick,
      0425 Stornoway.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
   1 Description of event concentrates on its effects.
   2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.170

DATE OF EVENT: 1 1950 February 16.
2 1950.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Aberfoyle..."and the tidal waters of the river Forth...as the tide in the estuary receded the flood waters began to drain away.
2 Perth..."after high tide"
3 Helensburg...high tide.

B) WIND CONDITIONS:
1 Earn..."a strong west wind"
2 Glasgow...a gale which reached 56m.p.h.
3 Helensburg...Wind at 9 am: 14TH NW, 15TH NNW, 16TH NNE, 17TH NE.
Direction Calm SW SW SW
Force (mph) 2 22 2

3 Perth...Wind at 9 am and 3 pm: 14TH NNW, 15TH NNW, 16TH ESE, 17TH SSW.
Direction NNW NNW ESE SSW SSW SSW SSW
Force (mph) 6 10 26 32 25 16 10

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
1 Aberfoyle..."Forth estuary..."heavy rain and melting snow"
3 Helensburg...Rain for preceding 24h at 9am: 14TH 27.4, 15TH 16.5, 16TH 5.6, 17TH 6.3.

3 Perth...Rain for preceding 24h at 9am: 14TH 6.8, 15TH 8.7, 16TH 0.8, 17TH 6.6.

E) LAMB'S CIRCULATION PATTERN : 14TH W, 15TH W, 16TH W, 17TH SW.

G) ANY OTHER FACTORS:
1 Tay, Earn, Lyon, Isla, Garry, Tummel and Dochart...river flooding.
3 Perth...river continued to rise after high tide.

3 Helensburg...Comments:
14TH Dull and showers, rain in evening.
15TH Dull, rain in evening.
16TH Dull drizzling rain all day.
17TH Dull drizzling rain all day.

3 Perth...Comments:
16TH gale to 10 am, strong wind to after 10 pm.
17TH gale to 10 pm.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 4.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Perth...Commercial Street gradually invaded by flood waters.
2 Helensburg...seafront flooded.
B) DAMAGE CAUSED:
1 Perth...Commercial Street flooded.
4) 2 Helensburg...shops on seafront flooded.

C) IMPACT AT OTHER SITES:
3) 1 Crieff..."The south road from Crieff-Comrie was blocked"
1 Pitlochry..."The river Tummel overflowed onto the Perth-Pitlochry road.
1 Isla...two roads were blocked by the river and all traffic between Alyth and Maigle and Alyth and Cupar Angus was held up.
1 Glen Nevis...road flooded.
1 Invergloyd...Fort William-Inverness road flooded to a depth of one foot.
1 Tyndrum...10 miles north of this town the Glencoe road was heavily flooded.
1 Loch Tully...road subsiding due to the floods.
3) 1 Aberfoyle..."Several motor cars and lorries were marooned between Gartmore and Kinlochart and other roads flooded...The railway line was also under water at Aberfoyle Station and bus services had to be suspended"
4) 1 Glasgow...bank on Paisley Road had main window 12ft by 8ft blown in by gale.
5) 1 Crieff...extensive river flooding of thousands of acres of agricultural land within 10 miles of Crieff.
7) 1 Aberfoyle...many houses flooded...damage estimated at several hundred pounds.
8) 1 Aberfoyle...river overflowed and covered a widespread area to a depth of from three to four feet...road between Gartmore and Kinlochart flooded...Aberfoyle Station under water...some houses flooded in the town"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Glasgow Herald 1950 February 17, "Floods Isolate Aberfoyle"
2 Newspaper...Helensburg Advertiser 1991 January 11 "Highest Tide Since 1907 Causes Havoc In District"
Original Reference...memory of Ferdie Thurgood, a local amateur scientist.
3 Observations...Meteorological Office 1950 Monthly Climatic Summaries, Station Nos. 6214 Helensburg 1482 Perth.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event gives detail on the cause and the effects of the event.
2 Short description of event as part of a detailed longer description of a later event.
3 Instrumental data and a weather diary.

618
FLOOD NUMBER: CF.171


CAUSE OF EVENT:

A) TIDAL CONDITIONS:
1 Portessie to Portgordon...mountainous seas.
2 Flotta..."With a full moon the tide was exceptionally high...heavy seas"
3 Kirkwall..."spring tides...gigantic seas in the harbour"
4 Flotta..."the tide was exceptionally high"
5 Storness..."high seas"
6 North - East..."tremendous seas which were running"
7 Crovie..."high seas"
8 Aberdeenshire..."the highest tide of the month"
9 Banff..."The waters were piled up by the onshore winds and huge waves broke all along the sea front"
10 Leith..."tide height of 10.8 feet O.D.

B) WIND CONDITIONS:
1 Portessie to Portgordon...Saturday's storm.
2 Flotta..."wind of hurricane force"
3 Kirkwall...wind previous day was NNW. On day of event was northerly hurricane, wind up to 125 m.p.h. at Costa Head.
4 Firth..."a hurricane"
5 Kirkwall..."severe storm"
6 Storness..."The gale"
7 Stromness..."the severity of the storm"
8 North - East..."full force of the storm"
9 North Scotland..."gale"
10 West Scotland..."gale"
11 Clyde..."full fury of the gale"
12 Orkney..."full force of the storm"
13 North - East..."full force of the storm"
14 Deeside..."gale"
15 Forth..."the high wind"
16 Shetland...gale in excess of 100 m.p.h.
17 Crovie..."storm"
18 Banff..."a severe gale...Wind forces of from 90 to over 100 miles were recorded during the gale"
19 Banff District..."there was a great gale, increasing in strength to hurricane force"
20 Dyke And Moy Parish..."worst gale in living memory"
21 Drainie Parish..."phenomenally high tide"
22 Aberdeen..."storm surge of +2.1 feet above the predicted height, but did not coincide with high tide"
23 Buchan..."fierce uprising of the tide"
24 Cromarty..."abnormally high tides"
25 Leith..."tide height of 8.3 feet O.D.

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619
12 Edinburgh (Bla)...Wind at 9 am and 9 pm: JAN 29TH 30TH 31ST FEB 1ST
Direction WSW WSW SSW S WNW NNW WNW NNW
Force (mph) 10 16 10 22 22 28 22 10

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: JAN 29TH 30TH 31ST FEB 1ST 2ND

W W N AN ANE

G) ANY OTHER FACTORS:

2 Kirkwall...sleet and snow...during the storm the temperature dropped from 41 degrees F down to 33 degrees F.
2 Finstown..."dense banks of sleet"
2 Flotta..."accompanied by sleet"
2 Stromness..."a hail shower"
3 Deeside...snow with drifts up to 4ft deep.
3 Cairn o' Mount..."snowdrifts"

12 Wick...Comments:
30TH WSW wind backing SSW moderate to fresh.
31ST fresh to strong SW'ly becoming 4am NW-N gale, severe at times, frequent gusts to 60 knots (69mph), maximum gust of 70 knots (80mph).
1ST N'ly gale at first becoming moderate to light by evening.

12 Stonehaven...Comments:
31ST Hurricane am, snow rain and sleet am.

12 Edinburgh (Bla)...Comments:
31ST Cloudy and dull, some bright intervals, very high wind.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Portessie...many houses flooded to a depth of several feet at Craigienroan Place, Chapel St and Great Eastern Road...And coast road.
3 Portessie...road to Portgordon and land around it badly flooded.
1 Buckie Harbour...a garage and a small fish curing premises on Thomson's Slipway were swept away when the sea surged round the old lifeboat house.
1 Buckpool Harbour..."houses were undermined and collapsed at The Yardie and sheds were washed away. Westward along the shore at Main St and Great Western Road the story of sheds and fences gone was the same"*
1 Portgordon...many houses on Stewart St and Lennox Place were flooded to a depth of several feet.
1 St Margaret's Hope...The seawall was also damaged on the sea front.
2 Flotta...a sea wall built many years ago at Bothliego...was breached and flattened by the heavy seas.
2 Stronsay...Inhabitants of the village who have lived there all their lives...never remember the sea breaking over their houses with such force...salt water poured into the dwelling houses through doors windows and skylights.
2 Westray..."The sea wall from Chalmersquoy to the Mill burn is wrecked and the sea has eaten well into the roadway" 140 yards of the wall is either demolished or badly damaged."The seawall also badly damaged at another two points-Surrigarth and Swarthill".
2 Stromness..."About 20 yards of the retaining wall of the road below the putting green at Stromness Golf Course was ripped open and much of the road was washed away...Many of the heavy stones on the pier itself were shifted and much of their backing washed away"*
2 Finstown...the sea washed right into the road's edge near Sidney Cottage.
2 Kirkwall...Ayre Hotel flooded...the end houses of the Ayre Houses also flooded...a number of stores on Shore St and the petrol station were flooded...also flooded many houses and shops on Junction Road...to a depth of up to two feet...Labour Exchange flooded...Back Road flooded.
2, 3 Kirkwall...sea front extensively flooded and damaged by hurricane especially Ayre Road where the retaining wall was completely destroyed over a distance of 400 yards...Shore St which was also badly flooded and damaged...Junction Road flooded.
3 Banff...gasworks flooded to a depth of 7 ft...and a number of other buildings...on the seafront some buildings and a protecting wall were flattened by the waves and flooded many houses and shops.
3 Portgordon...flooding of buildings in Lennox Place and Stewart St.
3 Edinburgh, Portobello..."some flooding"* 
3 Musselburgh..."some flooding"*
3 Prestonpans..."some flooding"*
4, 5 Crovie...coastal flooding especially west end of village.
5, 9 Banff..."the lower area of the town was flooded"
5 Macduff..."sea wall at the west end of the town was destroyed...the slipway at the east end of town was badly damaged"
5 Gardenetown...some flooding of shops and houses.
7 Dranie Parish...Seatown partially flooded.
9 Scotland...total agricultural land flooded 150,000 acres minimum.
9 Buchan...severe flooding of many cottages.
9 Cromarty...flooding of road and three fields.
11 Pittulie..."the houses were an awful mess with seaweed"

B) DAMAGE CAUSED:
1) 2 Orkney..."there are many cases of people being bowled over by the tremendous wind and receiving minor injuries"*
2) 1 Buckle Harbour...many ships flooded and severely damaged...old wooden buildings and fences of the fishcuring yards crumpled like paper in the force of the gale. Fishcuring premises swept away on Thomson's Slipway.
1 Buckpool Harbour...damaged in several places.
1 Portgordon...the harbour wall collapsed and several small boats were flooded.
2 Orkney...many small boats sunk or washed away.
2 Kirkwall...all shipping suspended during hurricane...one oil tanker dashed against the West Pier causing a fifty foot hole...one old motor launch on the slipway was converted into matchwood...some small boats in the harbor were damaged...one steamer damaged at sea.
2 Flotta...two dingies were smashed to bits and two more damaged.
2 Stromness..."Many of the heavy stones on the pier itself were shifted and much of their backing washed away"*
5 Macduff..."The launching beach of the boat-building yard was filled with boulders...At the east end of the harbour the slipway was badly damaged"*
7 Dranie Parish...1 fishing boat was lost.
3) 2 Orkney...hundreds of phones out of action and a number of poles down...some power cuts and lines down.
2 North Isles...damage done to seafront roads.
2 Longhope...damage done to seafront roads.
2 St Margaret's Hope...damage done to seafront roads.
2 Stronsay...damage done to seafront roads...covered in seaweed and large stones...wireless aerials and telephone wires were early victims.
2 Finstown...telegraph and telephone and hydro lines blown down, as a result of the latter some houses were without electricity...road at Loan of Breckon blocked by fallen trees...bus and postal services were disrupted and local vans were unable to make their rounds.
2 Kirkwall...Ayre road, Shore St and Junction Road flooded and badly damaged......much damage to water gas and oil pipes on Shore St...eighty yards of the 12 inch water main supplying Kirkwall was moved out of position, cutting the main supply to the town...air and bus services suspended during hurricane...a pump set in stone on Shore Street was torn up...Back Road flooded...a door blown in at the Hydro-Electric Power Station in Peerie Sea...Kirkwall-Deerness road near Dingieshowe where 70 yards of pitching on the north side of the road was washed away...There has been damage to the Kirkwall-Carness road.
2, 3 Kirkwall...on Shore St 12 inch water main completely destroyed over 20 yards in length, seriously affecting the towns water supply.
2 Scotland..."power cuts in several parts of the mainland"*
3 Scotland...many post office lines down especially at Dundee, Aberdeen, Inverness and the far north, in all about 200 exchanges were isolated.
3 North - East...many roads and railway lines blocked due to fallen trees.
3 Portessie...road blocked due to shingle and huge boulders feet deep being piled.
3 Musselburgh...road to Levenhall, Musselburgh, Cuthill and Prestonpans undermined and traffic had to be diverted.
5 Banff..."gasworks was badly damaged"*
3) 5 Macduff..."The road from Deveron Bridge to Macduff was undermined in two places...the road to the
swimming pool was covered in shingle... power wires supplying electricity were blown down and there was no light... and telephones were out of action"  
9 Cromarty... "road flooded"

4) 1 Portessie... shop washed away and petrol station badly damaged.
1 Buckie Harbour... garage swept away on Thomson’s Slipway. At Baron St office and joinery were damaged.
2 Stromness... "the building of the West Mainland Mart Ltd... was reduced to matchwood"
3 North - East... much damage to property.
2 Kirkwall... Ayre Hotel flooded... several of the downstairs windows were also smashed... ground floor covered in silt, sand and seaweed... a number of stores on Shore Street were flooded and damage was done to the feeding stuffs in them... petrol station flooded... Kirkwall Hotel lost some tiles and the zinc on the ridges twisted... many shops flooded on Junction Road.
2 Finstown... a large shed lost its iron roof.
3 Banff... the gasworks was swept into the sea, as were a number of other buildings... on the seashore some buildings flattened and some shops flooded.
3 Stromness... auction mart completely destroyed.
5 Macduff... garages and buildings were damaged when sea-wall was destroyed.
5 Gardenstown... "a shop had its windows and doors smashed and the building flooded"
5 Crovie... "shed, garages at the west end... were also destroyed"
5) 2 Orkney... "many trees brought down - there were a hundred laid low at Berstane plantation, hens killed, hen-houses overturned... stacks blown down... some larger outhouses demolished.
2 Kirkwall... trees blown down at Kirk Green and St Magnus Churchyard.
2 Finstown... many trees blown down including at the Loan Of Breckon and Ferndale... also at Firth Manse and Binscarth plantation.
2 Flotta... "some stacks of fodder were blown over and a few hen houses suffered damage"
2 Stronsay... "many farms had out houses damaged, and stacks partially blown away. Hen houses... were early victims.
3 North - East... "blew down countless trees"
3 Scotland... numerous fallen trees.
5 Banff... "hundreds of trees were blown down"
9 Scotland... 6 million trees fell... total agricultural land flooded 150,000 acres minimum.
9 Cromarty... 3 fields flooded and damage done to the crops in them.
6) 1 Portessie to Strathblane... tennis courts wrecked.
2 Westray... "One of the two large windows of the U. F. Church blew in and all the glass smashed"
2 Kirkwall... Labour Exchange flooded.
7 Drainie Parish... all the bathing huts on Stotfield Sands were wrecked.
7) 1 Portessie... "many houses flooded at Craigenvoan Place, Chapel St and Great Eastern Road.
1 Buckpool... houses were undermined and collapsed at The Yardie, many sheds and fences washed away at Main St and the Great Western Road.
1, 3 Portgordon... many houses at Lennox Place and Stewart St were flooded... a number of these houses had to be evacuated.
2 Orkney... "houses unroofed... slates and chimney stacks off"
2 North Isles... damage done to some buildings.
2 St Margaret’s Hope... one family had to be evacuated... damage done to some buildings.
2 Longhope... damage done to some buildings.
2 Kirkwall... end house of the Ayre Houses also flooded... houses on Shore Street suffered many broken windows... many houses on Junction Road flooded... the leaning chimney of Tankerness House was blown down and damaged part of the roof.
2 Flotta... "a certain amount of damage was done, particularly to roofs of steadings"
2 Stronsay... "every house on the village front received much damage... including one farmhouse at Whitehall farm... many were flooded... along with their back gardens... Many rainwater tanks at the rear of the houses were ruined as salt water poured into them.
2 Westray... "Part of the roof has gone off Blinkbonny"
3 Banff... "some house on the seashore flooded and furniture washed out of them... some were left with a deposit of pebbles and sand.
3 Portessie... on road to Portgordon many sheds and garages washed away and dwelling houses undermined on the foreshore.
3 Portobello... "some older dwellings damaged.
4, 5 Crovie... "some houses in the west end of the village completely destroyed and others heavily damaged.
7, 9 Banff... "tower area of the village was flooded... and many houses lost slates and chimney cans"
5 Gardenstown... "two houses on the west side of the village were completely destroyed"
7 Drainie Parish... some houses in Seatown flooded.
9 Buchan... severe flooding of many cottages, some washed away or badly damaged.
9 Cromarty... some damage done to a house.
11 Pittulie... "the houses were an awful mess with seaweed"
8) 1 Portessie... coast road badly eroded, at the promontory 20 feet of ground eroded.
2 Kirkwall... "in little over three hours crumpled the sea-wall and washed away the roadway along the entire length of the Ayre Road, a distance of 420 yards, and also in Shore St, where water gas and oil pipes were laid bare. The seafront damage alone is estimated at over £25,000 Kirkwall-Deerness road near Dingieshowe where 70 yards of pitching on the north side of the road was washed away...There has been damage to the Kirkwall-Camerness...seawall"
2 Finstown... "the sea washed right into the road's edge near Sidney Cottage"
2 Westray... "the sea wall has been demolished over a distance of 70 yards near Chalmersquoy to the Mill burn and a further 70 yards is so badly damaged that it will have to be taken down and replaced. the seawall was also badly damaged at another two points - Surfgarth and Swartmill"
2 St Margaret's Hope... "The seawall was also badly damaged on the front"
2 Flotta... "a sea wall built many years ago at Bothliego...was breached and flattened by the heavy seas.
2 Stromness... "About 20 yards of the retaining wall of the road below the putting green at Stromness Golf Course was ripped open and much of the road was washed away...Many of the heavy stones on the pier itself were shifted and much of their backing washed away"
3 Portessie... "mountainous seas tore away slices of the land on the road to Portgordon...many houses on the foreshore undermined and sheds and garages and cars washed away.
3 Musselburgh... road to Levenhall, Musselburgh, Cuthill and Prestonpans undermined by the force of the waves.
3 Edinburgh, Portobello... masonry was dislodged from the breakwaters to Prestonpans...weak parts of the promenade were further loosened.
4, 5 Crovie... coastal path and the sea-wall was undermined and washed away in a number of places from the village to Crovie Burn.
5 Banff... "at several places the sea-wall gave way"
7 Drainie Parish... a large bed of gravel was deposited on the Stotfield Sands.
9 Scotland... 900 breaches have been made in about 500 to 600 miles of sea wall.
10) 11 Pittulie... "did not cause any serious damage"

C) IMPACT AT OTHER SITES:
1) 3 Islay... 2 of the lifeboat crew died in the search for a Fleetwood trawler missing the 15 crew are presumed drowned.
3 Elgin... 1 woman injured due to a fallen chimney.
3 Lerwick... 2 fishermen drowned when their vessel was wrecked.
5 Loch Broom... some fishing vessels from Gardenstown which sheltered in the Lock were driven ashore.
2) 3 Loch Broom... 27 drifters driven ashore many of them badly damaged, damage is expected to run to more than £100,000.
3 Ullapool... more than 5 vessels stranded.
3 Stornoway... 4 vessels lost all their gear worth £4000.
3 Lerwick... 1 fishing vessel wrecked.
3 Orkney... inter island steamer damaged.
3 Lewis... 1 vessel adrift shore on the west coast of the island.
3 Whitehills... "fish houses were left lying crazily along the street".
3 Lossiemouth... at Stotfield beach the lifeboat shed at the west end... was shattered by the wind.
3 Orphir, Orkneys... Telegraph lines and hydro electric lines and some of their poles have been damaged.
3 Macduff... no gas or electricity.
3 Forres... about amile beyond the town the road to Inverness was blocked by fallen trees.
3 Wick... railway line to Helmsdale blocked by fallen trees and telephone wires... some trains delayed.
3 Deeside... many roads blocked by fallen trees... especially the road at Crathes.
3 Aberdeen... power cuts brought tramcars to a standstill... north road at Pitcaple blocked.
3 Cairn o' Mount... road south blocked by snow.
4) 3 Macduff... shipbuilding yard was extensively damaged.
3 Elgin... Station Hotel lost its chimney, it fell through dining room roof.
3 Lossiemouth... at Stotfield beach 200 beach huts were blown down.
5 Seatown... "garages and sheds on reclaimed ground to the east of the village were damaged and in some cases destroyed".
5) 2 Firth, Orkneys... "Hen houses were blown over, corn stacks flattened"
2 Orphir, Orkneys... many hen houses damaged including one new one designes for 600 hens at Grassthowe which was entirely unroofed and had most of its walls demolished. Many stacks have been knocked over and the sheaves scattered.
3 Forres... fallen trees on road to Inverness.
3 Deeside... many fallen trees.
5 Banff District... "Many poultry houses were overturned and poultry killed, stacks of straw blown down"
6 Dyke And Moy Parish..."A tremendous number of trees were brought down...It is estimated that on Damaway estate alone approximately 200 acres were blown down...Damage was also done to the Forestry Commission's woods in the parish and to trees on the Brodie estate.

6) 5 Gamrie..."45 tombstones in the town were blown down"

7) 2 Firth, Orkneys..."houses stripped of slates, roof tiles and iron sheeting. Large coping stones were lifted from garden walls, debris being scattered in all directions"

2 Orphir, Orkneys..."Some roofs of dwelling houses have been badly shaken, and, in several places, holes can be observed in them"

5 Banff District...many farmsteads lost slates and some lost entire roofs.

8) 5 Seatown..."Below the main street to the west of the harbour the ground was undermined"

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:

England, Lincolnshire, East Anglia, Essex and Thames estuary, 300 casualties and Netherlands


Netherlands 500,000 acres flooded, 1783 lives lost, 35,000 livestock drowned, 47,300 buildings damaged of which 9,215 badly damaged or destroyed, total damage 250 million dollars. Anon (1953).


E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT:

A) SOURCES OF INFORMATION:

1 Newspaper...Banffshire Advertiser 1953 February 5, "Storm Left Fantastic Trail Of Devastation", "Many Homes And Businesses Wrecked"

2 Newspapers...The Orcadian 1953 February 5 (Numerous articles)

The Orkney Herald 1953 February 10 (Numerous articles)

The Orcadian 1953 February 12 (Numerous articles).

3 Newspaper...Glasgow Herald 1953 February 2, "Storm Blow To Scots Herring Fleet"

Glasgow Herald 1953 February 3, "North - East Damage"


8 Archives...Aberdeen City Archives, File No. TC 9/8/5, "Sea-Front Coast Protection 1961 - 1972"

9 Archives...Scottish Records Office, File AF 44 318 No. 116973/3/5.


11 Grampian Regional Council (1980) "Coast Protection-Grampian Region" 44pp

12 Observations...Meteorological Office 1953 Monthly Climatic Summaries, Station Nos. 0295 Wick, 1324 Stonehaven, 1646 Edinburgh (Bla).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF INFORMATION:

1 Detailed description of the event.

2 Extremely detailed descriptions of the events and the damage caused.

3 Extremely detailed descriptions of the events and the damage caused.

4 Short description of event concentrating on the damage caused.

5 Detailed description of event.

6 Very short description of the event concentrating on the damage caused.

7 Short description of the event concentrating on the damage caused.

8 Detailed local government file on coast protection with special reference to damage repair

9 Detailed national government file on various aspects of the storm of 1953.

10 Brief description of event as part of a detailed technical study of a later surge.

11 Brief description of event.

12 Instrumental data and a weather diary.
FLOOD NUMBER: CF.172

DATE OF EVENT: 1 January 30, 1956.

CAUSE OF EVENT:
A) TIDAL CONDITIONS:
1 East Coast..."high tides"
1 Kirkcaldy..."it was one of the highest tides for many years"
1 Wick..."heavy seas"

B) WIND CONDITIONS:
2 Wick... Wind at 3 am and 3 pm: 28TH 29TH 30TH 31ST
Direction: SSE S SSE SE ESE ESE SE SE
Force (mph): 22 22 28 10 22 28 28 28

1 Kirkcaldy... Wind at 9 am: 28TH 29TH 30TH 31ST
Direction: W S E ESE
Force (mph): 16 22 16 43

1 Stonehaven... Wind at 9 am and 9 pm: 28TH 29TH 30TH 31ST
Direction: Calm S Calm W Calm ESE ESE E
Force (mph): 6 6 6 22 10

C) DURATION OF STORM: Type 3.

D) LAMB'S CIRCULATION PATTERN:
28TH 29TH 30TH 31ST
SWCE

E) ANY OTHER FACTORS:
2 Wick... Comments:
28TH Wind S'ly to SSE strong or moderate or light.
29TH SSE-SE mainly moderate to fresh.
30TH Wind from east fresh to strong, gusts to gale force.
31ST SE-ESE strong becoming moderate.

F) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
1 East Coast..."flooded many parts"
1 Kirkcaldy..."esplanade flooded for over half a mile"
1 Stonehaven...flooding of engineering works to a depth of half a foot.
1 Newtonhill...part of the pier destroyed.

B) DAMAGE CAUSED:
2) 1 Stonehaven... water pouring through main breakwater at harbour...only received minor damage.
1 Newtonhill...part of the pier crumbled...and partially blocked the entrance of the small harbour.
3) Kirkcaldy...some cars marooned in the car park on the esplanade...some disruption to bus services.
4) Kirkcaldy..."shops, showrooms, garages and cellars were flooded"
1 Stonehaven...engineering works flooded.
10) East Coast..."flooded many parts"

C) IMPACT AT OTHER SITES:
2) 1 Aberdeen...harbour closed to shipping.
1 Wick..."harbour was closed to shipping for the second day in succession"

E) SIZE OF EVENT: Large.
A) SOURCES OF INFORMATION:
1 Newspaper...Glasgow Herald 1956 January 31, 'High Tides Hit East Coast'
2 Observations...Meteorological Office 1956 Monthly Climatic Summaries, Station Nos. 0293 Wick, 1324 Stonehaven, 1846 Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of all aspects of the event.
2 Instrumental observations and a weather diary.
FLOOD NUMBER: CF.173

DATE OF EVENT: 1957 February 16

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Crovie..."were pounded mercilessly by mountainous seas for hours"
1 Gardenstown..."huge waves...heavy seas"

B) WIND CONDITIONS:
Crovie..."the storm"

2 Rattray Head...Wind at 3 am and 3 pm: 16TH 17TH 18TH 19TH
Direction W W WSW WNW NNW NW W WSW
Force (mph) 9 13 5 5 24 9 13 19

C) DURATION OF STORM: Type 1.

D) LAMB'S CIRCULATION PATTERN: 15TH 16TH 17TH 18TH

G) ANY OTHER FACTORS:
2 Rattray Head...Comments:
16TH Wind WNW-WSW Force 4-2.
17TH Wind WSW-WNW Force 2-1.
18TH Wind SW-NW-W Force 2-7.
19TH Wind W-WSW Force 4-5.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Crovie...flooding of coast road below the village.
1 Gardenstown...chandlers premises on the seashore extensively flooded.

B) DAMAGE CAUSED:
1) 1 Gardenstown...1 person slightly injured.
3) 1 Crovie...coast road washed away.
4) 1 Gardenstown...ship's chandlers premises extensively flooded, stock to the value of between £4000 and £5000 was swept into the sea and destroyed.
7) 1 Crovie...foundation of many houses shaken beyond the limit of safety...30 families had to evacuate their homes...nearly half the houses made uninhabitable by the storm...prospect of eventually having to abandon the village.
8) 1 Crovie..."the road which runs around the foot of the cliff was swept away"
10) 1 Gardenstown...total damage estimated at £100,000.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Newspaper...Glasgow Herald 1957 February 18, "Huge Seas Wreck Village"
2 Observations...Meteorological Office 1957 Monthly Climatic Summaries, Station No. 1297 Rattray Head.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.174

DATE OF EVENT: 1, 2 1958 April 4

CAUSE OF EVENT
A) TIDAL CONDITIONS:
   1 Edinburgh, Portobello..."high seas"
   2 East Coast..."high spring tides...huge seas broke over breakwaters"
   2 Kirkcaldy..."Huge seas"
   2 Anstruther..."high tide"
   2 Pittenweem..."Ten-foot waves"

B) WIND CONDITIONS:
   1 Portobello..."high wind"
   2 East Coast..."gales"
   2 Kirkcaldy..."strong south-east wind"

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 3RD 4TH 5TH

G) ANY OTHER FACTORS:
   2 North of Scotland, Lothians and on the Borders...severe snowstorms.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
   1 Kirkcaldy...Friday's flooding - the worst in living memory...esplanade heavily flooded as were the streets adjoining it...some houses flooded to a depth of 3 feet as was the Burma Ballroom.
   2 Kirkcaldy...More than 40 families had to be evacuated from their homes...flooding occurring in the region of the Port Brae...flooding also on the corner of Charlotte Street and the esplanade and at the junction between Georgeburn Wynd and the esplanade, also Cowan Street and Hawthorn Terrace were flooded.
   1 Edinburgh, Portobello..."flooded the promenade and nearby houses"
   2 East Coast...Serious flooding was experienced in several other towns.
   2 Anstruther...Shore Street flooded to a depth of over a foot.
   2 Pittenweem...minor flooding.

B) DAMAGE CAUSED:
   2) East Coast...fishing fleets confined to port.
   3) 1 Edinburgh, Portobello...promenade had sand 12 inches deep...also large stones silt and torn-out railings...damage to promenade estimated at £50,000.
   2 Kirkcaldy..."Cars and other vehicles which had been left on the esplanade were half submerged and some were overturned by the waves...the heavy seas had demolished a brick wall surrounding the esplanade bus station...Power cables were damaged by the floods, and most of the esplanade was in darkness"
   4) 1 Kirkcaldy..."Business premises too suffered damage amounting to thousands of pounds. Showrooms and storerooms were swamped and plate glass windows were broken...most affected were the Electricity Board showrooms, a cafe due to be re-opened and the Burma Ballroom.
   1 Edinburgh, Portobello...some shop windows and doors smashed.
   7) 1 Kirkcaldy...many houses along the esplanade and adjoining side streets were flooded destroying furniture and floor coverings, damage runs to hundreds of pounds.
   1 Edinburgh, Portobello...some houses near promenade flooded...and gardens were ruined.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
   1 Newspaper...Glasgow Herald 1958 April 7, "Widespread Damage After Floods"
   2 Newspaper...Glasgow Herald 1958 April 5, "Flooding Of Scottish Coastal Towns"
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of event which concentrates on the damage caused.
2 Detailed description of event which gives information on all aspects of the event.

FLOOD NUMBER: CF.175

DATE OF EVENT: 1, 2, 1958 April 5.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Edinburgh, Portobello..."the tide flooded"

B) WIND CONDITIONS:
1 Edinburgh, Portobello..."the wind had died down"

E) LAMB'S CIRCULATION PATTERN: 4TH 5TH 6TH
   C CNE NE

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Edinburgh, Portobello..."flooded the promenade again"

B) DAMAGE CAUSED:
3) 1 Edinburgh, Portobello..."flooded the promenade again"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Glasgow Herald 1958 April 7, "Widespread Damage After Floods"
2 Newspaper...Glasgow Herald 1958 April 5, "Flooding Of Scottish Coastal Towns"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Brief description of event as part of a more detailed description of an earlier event, which concentrates on the damage caused.
2 Source just identifies date of event.
FLOOD NUMBER : CF. 176

DATE OF EVENT : 1, 2 1960 January 6.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Firth of Forth..."The miniature tidal wave which swept up the Forth last week"
1 Alloa..."At Alloa Docks the tidal waters rose about one foot six inches higher than any previously recorded tide...This tide was 26ft 10in or a good eighteen inches higher than anything previously recorded...nearly a hundred years"

B) WIND CONDITIONS :
3 Edinburgh (Bla)...Wind at 9 am : 4TH 5TH 6TH 7TH
Direction SW WSW WSW WSW
Force (mph) 13 13 12 8

C) LAMB'S CIRCULATION PATTERN : 4TH 5TH 6TH 7TH
CW A A A

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Firth Of Forth..."The floods had spread even further inland on the southern bank...where at one stage the waters, to a depth of several feet, spread inland about two hundred yards"
1 Grangemouth...parts flooded.
1 Bo'ness...parts flooded.
1 Alloa..."The waters broke over the dock gates and also rose above the edge of the quay-side...dock gates office flooded to a depth of about six inches...The floods rose rapidly on Alloa Inch...flooding of engineering workshop by about nine inches of water"
1 South Alloa..."the waters swirled into several houses and one shop.
1, 2 Stirling...agricultural land flooded at Cambus...more than 20 acres flooded.

B) DAMAGE CAUSED :
2) 1 Alloa..."Planks and piles from the wooden quays had been hurled onto the road and grass verge by the force of the water"
4) 1 South Alloa..."Alloa Co-operative shop flooded...office at dock gate flooded...dock gate at engineering workshop burst open and flooded workshop to a depth of nine inches"
5) 1 Alloa...agricultural land at Alloa Inch flooded on Tullibody Island.
1, 2 Stirling...agricultural land flooded at Cambus and one farmer had 21 ewes drowned...more than 20 acres flooded.
7) 1 Alloa..."several houses flooded"
8) 2 Stirling...breach in bank of Forth at Cambus.

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Alloa Journal 1960 January 8, "Flooding Havoc"
2 Newspaper...Alloa Journal 1961 January 6, "Flooding Fears"
3 Observations...Meteorological Office 1960 Monthly Climatic Summaries, Station No. 1646 Edinburgh.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Detailed description of all aspects of the event.
2 Description of attempts to get repairs done to the banks on the Forth, with some further information on the main event of 1960.
3 Instrumental data and a weather diary.
FLOOD NUMBER: CF.177

DATE OF EVENT: 1966 April 11.

CAUSE OF EVENT
B) WIND CONDITIONS:
1 Aberdeen...storm.

C) DURATION OF STORM:

E) LAMB'S CIRCULATION PATTERN: 9TH 10TH 11TH 12TH

C SE E E

G) ANY OTHER FACTORS:
Aberdeen...Comments:
10TH cold E wind all day.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Aberdeen...beach area flooded

B) DAMAGE CAUSED:
8) 1 Aberdeen...at the sea beach...washed away path and sea-wall.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Archives...Aberdeen City Archives, File No. TC 9/6/5, "Sea-Front Coast Protection 1961 - 1972"
2 Observations...Meteorological Office 1966 Monthly Climatic Summaries, Station No. 1280 Aberdeen.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed local government file on various aspects of coast protection with special reference to damage repair.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.178

DATE OF EVENT: 1 1967
2 1967 January.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Carsethorn...high seas.
2 Nigg Bay, Aberdeenshire...high seas.

B) WIND CONDITIONS:
1 Carsethorn...gale from S.W.
2 Nigg Bay, Aberdeenshire...storm.

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Carsethorn...fields at back of houses flooded to a depth of 2.5 feet also some houses flooded.
2 Nigg Bay, Aberdeenshire...Northside existing sea-wall breached causing some minor flooding.

B) DAMAGE CAUSED:
5) 1 Carsethorn...agricultural land flooded.
7) 1 Carsethorn...some houses flooded.
8) 2 Nigg Bay, Aberdeenshire..."sea-wall breached during storm"*

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Letter...A.E. Truckell pers comm 1990 September 13. Mr Truckell is the former curator of the Dumfries Museum and has a particular interest in the history of the Carsethorn area. Description of event based on personal observation.
2 Archives...Aberdeen City Archives, File No. TC 9/8/5, "Sea-Front Coast Protection 1961 - 1972"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Letter from local curator/historian giving a brief description of the event which he observed.
2 Detailed local government file on various aspects of coast protection with special reference to damage repair.
FLOOD NUMBER: CF.179


CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Scotland... "high seas"
1 North Sea... "heavy seas"
1 Kirkcaldy... "high seas... a high tide"

B) WIND CONDITIONS:
1 Scotland... "strong winds"
1 North Sea... "gales"
1 Greenock... "Gale-force north-east winds"

2 Inverness... Wind at 9 am : 16TH 17TH 18TH 19TH
   Direction: E E ENE ENE
   Force (mph): 19 24 19 13

2 Stonehaven... Wind at 9 am : 16TH 17TH 18TH 19TH
   Direction: E ENE ENE ESE
   Force (mph): 30 30 30 30

2 Edinburgh (Bla)... Wind at 9 am : 16TH 17TH 18TH 19TH
   Direction: EEEE
   Force (mph): 13 13 13 9

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: 16TH 17TH 18TH 19TH
   E E CSE -

G) ANY OTHER FACTORS:
2 Inverness... Comments:
17TH Cold cloudy, strong wind.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Kirkcaldy... "The Esplanade, which was under 2 feet of water... flooded a large area"

B) DAMAGE CAUSED:
2) 1 Kirkcaldy... 2 boats sunk in the harbour.
3) 1 Kirkcaldy... Esplanade flooded and closed to traffic as were all the car parks off it... country bus station closed and services interrupted.

C) IMPACT AT OTHER SITES:
1) 1 Moffat... 1 lorry driver hurt.
2) 1 Colintraive... 2 small boats blown from their moorings, 1 sunk and 1 blown ashore.
1 Kyle... ferry service suspended leaving 20 lorries vans and cars stranded.
1 North Sea... Staflo rig lost three of its four anchors during the storm and drifted almost 100 miles from its normal drilling position, 116 miles east of Aberdeen.
1 Greenock... launch of a bulk carrier postponed.
3) 1 Drumochter Pass... 60 vehicles stranded including 3 snowploughs... some sheep died in a lorry.
1 Moffat... 1 lorry crashed trapping driver for more than 2 hours.
1 Scotland... following roads blocked by snow along some part of their route... A71, A93, A93, A939, A941, B974, A97, A68, A6088.
6) 1 Dundee... game with Celtic called off.
1 Duns... high school closed.

633
E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Glasgow Herald 1969 March 19, "High Seas, Strong Winds And Snow To Continue"
2 Observations...Meteorological Office 1969 Monthly Climatic Summaries, Station Nos. 0588 Inverness, 1324 Stonehaven, 1646 Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of all aspects of the event.
2 Instrumental data and a weather diary.
DATE OF EVENT: 1, 2 September 28-29, 1969

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1. Whalsay (Shetlands): "accompanied by a spring tide gave the highest seas in living memory on the north side of the island."
2. Stornoway: tidal surge at high tide of 0.8 feet with a peak surge of 2.1 feet.
3. Ullapool: tidal surge at high tide and peak surge of 0.6 feet.
4. Wick: tidal surge at high tide of 1.8 feet with a peak surge of 2.4 feet.
5. Lerwick: tidal surge at high tide and peak surge of 0.9 feet.
6. Aberdeen: tidal surge at high tide of 2.5 feet with a peak surge of 2.8 feet.
7. Rosyth: tidal surge at high tide and peak surge of 1.7 feet.
8. Leith: tidal surge at high tide and peak surge of 1.5 feet.

B) WIND CONDITIONS:
1. Whalsay: storm from north-west. Lerwick Observatory had a top gust of 74 kt and RAF station on Saxa Vord Hill (935ft) had a top gust of 113 kt.
2. Hebrides: 28th, 6am... Southwesterly gales of 35 to 40 knots.
3. Wick: 28th, 6pm... Westerly winds of 48 knots.
4. East Coast of Scotland: 29th... severe Northwesterly gales continued until midday.
5. Lerwick: Gales recorded on the 28th, 29th and 30th.

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN:
26TH 27TH 28TH 29TH 30TH
W  AW  CW  A

G) ANY OTHER FACTORS:
1. Lerwick: Comments:
   26TH: Wind SW-W-NW gale-strong-light.
   27TH: Wind NW-W-SW-moderate-fresh-strong.
   28TH: Wind S moderate-fresh becoming gale veering SW strong-then W-NW severe gale late pm.
   29TH: Wind NW severe gale early am moderating to strong W'ly then moderate SW.
   30TH: Wind W fresh becoming NW strong gale.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1. Whalsay: "on the north side of the island, resulting in a sea-wall being swept away and tearing down a small house."

B) DAMAGE CAUSED:
2. Whalsay: some boats sunk.
5. Whalsay: many stone walls blown down.
7. Whalsay: 1 small house completely destroyed, which had been undamaged by the sea since it was built nearly a century ago.
8. Whalsay: a sea-wall was swept away.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1. England Hull: sea flooded parts of Hull to a depth of 3 feet. Source as 1 below.
2. England East Suffolk and North Norfolk, Great Yarmouth: minor coastal flooding. Source as 2 below.

E) SIZE OF EVENT: Local.
AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Detailed description of event based on writer's own observations plus instrumental meteorological data.
2. Detailed technical study of the cause and quantification of the surge, gives little information on the impact of the surge.
3. Instrumental data and a weather diary.
**FLOOD NUMBER:** CF.181

**DATE OF EVENT:** 1 1970 February 1.

**CAUSE OF EVENT**

A) **TIDAL CONDITIONS:**
1 Wick..."rough seas"

B) **WIND CONDITIONS:**
1 Wick..."winds gusting to 62 miles an hour"

<table>
<thead>
<tr>
<th>Date</th>
<th>Direction</th>
<th>Force (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAN 30TH</td>
<td>SE</td>
<td>15</td>
</tr>
<tr>
<td>31ST</td>
<td>SSE</td>
<td>14</td>
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<td>FEB 1ST</td>
<td>S</td>
<td>11</td>
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<td>2ND</td>
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<tr>
<td></td>
<td>W</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>SW</td>
<td>28</td>
</tr>
</tbody>
</table>

E) **LAMB'S CIRCULATION PATTERN:** JAN 30TH 31ST FEB 1ST 2ND

G) **ANY OTHER FACTORS:**
2 Wick... Comments:
30TH Wind SSE moderate.
31ST Wind SSE moderate becoming fresh to strong during the evening.
1ST Wind SSE strong occasionally fresh.
2ND Wind SSE fresh veering W'ly then backing SW strong with gusts to gale force.

H) **CLASSIFICATION OF CAUSE OF EVENT:** Type 1.

**IMPACT OF EVENT**

A) **EXTENT OF EVENT:**
1 Greenock...Broughan Street and Port Glasgow Road flooded to a depth of about 18 inches.
1 Inverkip...main coast road to Wemyss Bay flooded for a time.

B) **DAMAGE CAUSED:**
3) 1 Inverkip...main coast road to Wemyss Bay blocked to traffic for a time.
1 Greenock...Broughan Street and Port Glasgow Road flooded to a depth of about 18 inches.

C) **IMPACT AT OTHER SITES:**
2) 1 Wick..."harbour closed"

E) **SIZE OF EVENT:** Local.

**AUTHENTICITY OF EVENT**

A) **SOURCES OF INFORMATION:**
1 Newspaper...Glasgow Herald 1970 February 2, "Flooding On Coast Road, Harbour Closed"
2 Observations...Meteorological Office 1970 Monthly Climatic Summaries, Station No. 0293 Wick.

B) **ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT:** Class 1.

C) **ASSESSMENT OF QUALITY OF DATA:**
1 Short description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.182

DATE OF EVENT: 1 1972 February 2.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Isle Of Whithorn..."after huge seas"

B) WIND CONDITIONS:
1 Isle Of Whithorn..."driven by gale force winds"
1 Holm Island..."force 8 gale"
1 South West...gusts of up to 78 m.p.h.
1 North East and North...gale force winds.

<table>
<thead>
<tr>
<th></th>
<th>JAN 31ST</th>
<th>FEB 1ST</th>
<th>2ND</th>
<th>3RD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction</td>
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<td>WSW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Force (mph)</td>
<td>2</td>
<td>2</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Isle Of Whithorn...harbour area.

B) DAMAGE CAUSED:
2) 1 Isle Of Whithorn..."the pier at the village is already reduced to rubble...dislodged massive concrete blocks...damage to harbour estimated at £50,000"
8) 1 Isle Of Whithorn..."tore holes in the harbour wall"

C) IMPACT AT OTHER SITES
2) 1 West Coast...ferry services disrupted...1 Skye fishing boat ran aground on Holm Island.
3) 1 Central Scotland...following roads blocked by snow...A9, A939, A93, B974, A68.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Glasgow Herald 1972 February 3, "Heavy Seas Threaten Village"
2 Observations...Meteorological Office 1972 Monthly Climatic Summaries, Station No. 6611 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.183

DATE OF EVENT: 11972 February 15.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Isle Of Whithorn... "heavy seas"

B) WIND CONDITIONS:
2 Dumfries... Wind at 9 am: 13TH 14TH 15TH 16TH
   Direction: ENE Calm NNE SW
   Force (mph): 6 2 2

CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT
1 Isle Of Whithorn... The harbour area flooded.

B) DAMAGE CAUSED:
2) Isle Of Whithorn... The harbour and sea wall were slightly damaged by heavy seas.

SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) 1 Newspaper... Glasgow Herald 1972 February 16, "Emergency Wall Withstands Test"
2 Observations... Meteorological Office 1972 Monthly Climatic Summaries, Station No. 6611 Dumfries.

ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.194

DATE OF EVENT: 1 1973 September 29 (date of newspaper).

CAUSE OF EVENT
B) WIND CONDITIONS:
   1 Gourock..."gales"

   2 Greenock Port...Wind at 9 am: 27TH 28TH 29TH 30TH
   Direction     SW   W   NW   NW
   Force (mph)    6    15   15   2

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
   2 Greenock Port...Comments:
   27TH wind fresh strong.
   28TH Strong breeze continued with squalls until 3.30 pm and at frequent intervals from 5 pm until
   9 pm when wind abated.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
   1 Gourock...Western Ferries terminal slightly flooded.

B) DAMAGE CAUSED:
   2) 1 Gourock...ramp of Western Ferries terminal completely wrecked.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
   1 Newspaper...Glasgow Herald 1973 September 29, "The Wrecked Ramp At The Western Ferries Terminal...."
   2 Observations...Meteorological Office 1973 Monthly Climatic Summaries, Station No. 6391 Greenock Port.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   1 Information comes from a picture and its caption only.
   2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.185

DATE OF EVENT: 11 January 1974

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1. West Coast..."exceptionally high spring tide"

B) WIND CONDITIONS:
1. West Coast..."High winds...depression travelled north-west of Ireland"

<table>
<thead>
<tr>
<th>Location</th>
<th>Wind at 3 am and 3 pm:</th>
<th>Direction</th>
<th>Force (mph)</th>
</tr>
</thead>
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<tr>
<td>2 Stornoway</td>
<td>9TH 10TH 11TH 12TH</td>
<td>SW SW S SE S SW ESE SW</td>
<td>8 15 34 31 30 28 41</td>
</tr>
<tr>
<td>2 Prestwick</td>
<td>9TH 10TH 11TH 12TH</td>
<td>SSW SSW SE S SSW WSW SSE SW</td>
<td>9 9 15 23 18 23 39 25</td>
</tr>
</tbody>
</table>

Gales occurred on the 10th and 12th.

C) DURATION OF STORM: Type 3.

G) ANY OTHER FACTORS:
2 Stornoway...Comments:
9TH Wind S or SSW moderate.
10TH Wind SE'ly gradually becoming S'ly strong to gale.
11TH Wind S'ly strong to gale. Backing SSW'ly fresh to strong.
12TH Winds between S and W moderate to fresh.

2 Prestwick...Comments:
9TH Wind light to moderate W'ly changing to SSE.
10TH Wind SE rising to gale, Veering SW'ly moderate.
11TH Wind SSW-SW fresh to strong.
12TH Wind SSE strong to gale, becoming SW gale, becoming strong to light late in the day.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1. Renfrew..."The Clyde overflowed its banks...road leading to ferry was submerged under about two feet of water"
1. Lewis..."worst flooding for 14 years"
1. Stornoway..."some streets made impassable by water...several shops and houses in North and South Beach streets. Three car parks near the harbour were under a foot of water for some time"

B) DAMAGE CAUSED:
3) 1 Stornoway...3 car parks flooded to a depth of one foot.
1. Renfrew...road to ferry flooded...launch of bow section of tanker postponed.
4) 1 Stornoway...several shops flooded in North and South Beach streets.
7) 1 Stornoway...several houses flooded in North and South Beach streets.

C) IMPACT AT OTHER SITES:
2) 1 Ardrossan...pier is stormbound.
1. Wemyss...pier is stormbound.
1. Orkney...mailboat stormbound.
1. North Sea...oil rig under tow broke free for 12 hours.
1. Peterhead...in the harbour 1 vessel ran aground.
3) 1 Lewis...bus damaged by huge wave.

B) SIZE OF EVENT: Local.
AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Newspaper...Glasgow Herald 1974 January 12, "Gales And High Tides Swamp West Coast"
2 Observations...Meteorological Office 1974 Monthly Climatic Summaries, Station Nos. 0425 Stornoway, 6547 Prestwick.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of event which concentrates on the damage done at sea.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.186

DATE OF EVENT: 1 January 1975 30.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Stornoway... "a high tide"

B) WIND CONDITIONS:
2 Stornoway... Wind at 3 am and 3 pm:

<table>
<thead>
<tr>
<th>Date</th>
<th>Direction</th>
<th>Force (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>28TH</td>
<td>WSW</td>
<td>6</td>
</tr>
<tr>
<td>29TH</td>
<td>WSW</td>
<td>2</td>
</tr>
<tr>
<td>30TH</td>
<td>W</td>
<td>2</td>
</tr>
<tr>
<td>31TH</td>
<td>SSE</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>WSW</td>
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<td>28</td>
</tr>
<tr>
<td></td>
<td>SW</td>
<td>15</td>
</tr>
</tbody>
</table>

C) DURATION OF STORM: Type 1.

F) ANY OTHER FACTORS:
2 Stornoway... Comments:
28TH SW light backing gradually N to NW moderate-fresh.
29TH W light backing S moderate Then SE moderate-fresh.
30TH SE'ly fresh becoming SW'ly gale decreasing in evening.
31ST winds between S and W moderate to fresh.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT
1 Stornoway... flooding of inner harbour.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper... Glasgow Herald 1975 January 31 "The No Parking sign seems slightly out of place..."
2 Observations... Meteorological Office 1975 Monthly Climatic Summaries, Station No. 0425 Stornoway.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event only comes from a picture of the event and its caption.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.187

DATE OF EVENT: 1 January 1976.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Scotland...storm surge.

B) WIND CONDITIONS:

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<th>2ND</th>
<th>3RD</th>
<th>4TH</th>
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<tbody>
<tr>
<td>Inverness</td>
<td>SW</td>
<td>SW</td>
<td>NW</td>
<td>W</td>
</tr>
<tr>
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<td>10</td>
<td>6</td>
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</table>

<table>
<thead>
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<th>Location</th>
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<th>2ND</th>
<th>3RD</th>
<th>4TH</th>
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</thead>
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<tr>
<td>Stonehaven</td>
<td>SW</td>
<td>SW</td>
<td>NW</td>
<td>S</td>
</tr>
<tr>
<td>Force (mph)</td>
<td>28</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2 Edinburgh (Bla) Gales occurred on the 2nd and 3rd.

C) DURATION OF STORM: Type 3.

G) ANY OTHER FACTORS:
2 Stonehaven...Comments:
2ND Cloudy and overcast. Cloudy, wintry showers turning to rain, winds gusting 24-30 knots.
3RD Cloudy, very windy. Long sunny spells, light showers.

2 Edinburgh (Bla)...Comments:
2ND Gale force winds from 1 pm.
3RD Snow clearing from Pentland Hills - Gale continued until 8 am.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Scotland...East Coast some places flooded.
3 North Uist...Udal localised flooding.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England East Coast some localised flooding.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
2 Observations...Meteorological Office 1976 Monthly Climatic Summaries, Station Nos. 0588 Inverness, 1324 Stonehaven, 1646 Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Brief mention of event which forms part of a scientific study of surges from 1967 to 1982.
2 Instrumental data and a weather diary.
3 Brief description of event.
FLOOD NUMBER: CF.188

DATE OF EVENT: 1 1978.
2, 3, 4 1978 January 11-12.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Buckie...coastal inundation.
2 Scotland...storm surge.
3 Sandend, Sandy Bay..."high tides"

B) WIND CONDITIONS:
2 Scotland...storm.
2 Grampian Region...storm.
3 Portgordon...storm.
3 Cullen...storm.
4 Findhorn..."northerly gale"

<table>
<thead>
<tr>
<th></th>
<th>9TH</th>
<th>10TH</th>
<th>11TH</th>
<th>12TH</th>
</tr>
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<tbody>
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<tr>
<td>Force (mph)</td>
<td>3</td>
<td>21</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

5 Banff...Gale occurred on the 11th.

C) DURATION OF STORM: Type 3.

G) ANY OTHER FACTORS:
5 Lossiemouth...Comments:
9TH Wind mainly SW, SSE-S 4 to 5 am, light to moderate to 7 pm then moderate to fresh.
10TH Wind SW moderate/fresh becoming gentle/light then variable E-S light.
11TH Wind light SW to 3 am then NW-NE force 7-8 occasionally, force 4-5.
12TH Wind midnight to 8 am N-Nw fresh/strong, near gale 1 am, then gentle/ moderate backing
SW by 4 pm.

5 Banff...Comments:
11TH Frequent squally wintry showers. Wind becoming NNW force 9 by mid-day.
12TH Wind moderated and backed SW force 2 by evening. Snow showers in the evening after a
dry cloudy day.

H) CLASSIFICATION OF CAUSE OF EVENT: TYPE 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Buckie...many houses on Rannas Place flooded, some under several inches of water.
3 Grampian...coastline suffered substantial damage.
3 Cullen...Golf Club House and car park.
3 Sandend...Sandy Bay.
4 Findhorn..."The sea washed over the bank near the beach huts on an almost continuous front of 130
metres and flooded the car park area"
4 Shelly Head Bothy...west of this waves have washed inland up to 11 metres through the trees.
4 Buckle Loch...waves have washed over the bank along a 50 metre front and carried debris to within 5
metres of the road. Over some 200 metres west of this waves have also splashed over.

B) DAMAGE CAUSED:
3) 4 Findhorn...car park flooded.
5) 4 Findhorn...some coastal trees uprooted.
6) 3 Cullen..."as a result of the 1978 storm the timber wall at the Golf Club House and car park collapsed"
7) 1 Buckie...many houses flooded.
8) 3 Grampian...coastline suffered substantial damage...a few coastline defences failed.
3 Sandend, Sandy Bay...sand dunes eroded due to high tides.
4 Findhorn...in central parts of Burghead Bay agood 2metres was eroded while at Findhorn a minimum of 4
metres was measured with bights here and there of up to 12 metres...some groynes were smashed.

645
C) IMPACT AT OTHER SITES:

8) Portgordon: "Midway along the bay east of the town some protection work was provided a few years ago to safeguard the nearby public road. In the 1978 storms the adjoining section westwards suffered erosion and again threatened the public road and old icehouse which is being preserved."

3 Inverness: "a little to the east of Jone's Shipyard and harbour some defence works in the form of gabions had been provided...This left unprotected sections to the east and the west side and during the 1978 storms further erosion took place."

3 Rosehearty, Port Rae: "the lack of shelter was the main cause of the erosion of the reclaimed ground on which a caravan site has been built which took place in the 1978 storms...aided by the disintegration of an old pier which provided some protection."

3 Inverallochy, Shore Street: "considerable damage occurred to a sloping coastal wall in the 1978 storm."

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:

2 England East Coast: some minor flooding in places. Source as 2 below.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:

1 Newspaper: The Northern Scot 1983 February 5, "Storms Pound Coastal Belt."


5 Observations...Meteorological Office 1978 Monthly Climatic Summaries, Station Nos. 1079 Lossiemouth, 1189 Banff.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:

1 Very brief mention of event, need much more information.

2 Brief mention of the event which forms part of a scientific study of surges from 1967 to 1982.

3 Very detailed local government concentrating on erosion.

4 Detailed description of the event based on the direct observations of the author.

5 Instrumental data and a weather diary.
FLOOD NUMBER: CF.189


CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Kirkcaldy..."mountainous seas"

B) WIND CONDITIONS:
1 Kirkcaldy..."gales"

<table>
<thead>
<tr>
<th></th>
<th>26TH</th>
<th>27TH</th>
<th>28TH</th>
<th>30TH</th>
</tr>
</thead>
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<tr>
<td>Direction</td>
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</tr>
<tr>
<td>Force (mph)</td>
<td>9</td>
<td>17</td>
<td>32</td>
<td>23</td>
</tr>
</tbody>
</table>

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Kirkcaldy...harbour, a sea-wall was breached and flooded.

B) DAMAGE CAUSED:
2) 1 Kirkcaldy...part of the harbour closed.
6) 1 Kirkcaldy...sea-wall breached.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Glasgow Herald 1978 December 28, "Sea Wall Is Live"
2 Observations...Meteorological Office 1978 Monthly Climatic Summaries, Station Nos. 1646 Edinburgh (Blackford Hill).

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very short description of event.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.190

DATE OF EVENT: 1979 November early.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Carsethorn...“flood at neap tide”

B) WIND CONDITIONS:
Carsethorn...gale from S.W.

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
Carsethorn...associated with 5 feet rise in top of beach.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Carsethorn...flooding from beach.

B) DAMAGE CAUSED:
5) Carsethorn...agricultural land flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
2 Letter...A.E. Truckell pers comm 1990 September 13. Mr Truckell is the former curator of the Dumfries Museum and has a particular interest in the history of the Carsethorn area. Description of event based on personal observation.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Letter from local curator/historian giving a brief description of the event which he observed.
FLOOD NUMBER: CF.191


CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Burghhead Bay..."very high tides"
2 Findhorn...near the village..."very high tides"

B) WIND CONDITIONS:
1 Burghhead Bay..."fresh northwest winds"
2 Lossiemouth...Wind at 3 am and 3 pm:
   Direction: ESE E E NE NNE NNE WNW
   Force (mph): 22ND 23RD 24TH 25TH
     13 11 17 18 20 20 2

G) ANY OTHER FACTORS:
2 Lossiemouth...Comments:
22ND Wind ENE gentle.
23RD Wind E-ENE gentle/moderate occasionally fresh.
24TH Wind ENE-NNE moderate/fresh.
25TH Wind NNE-NNW fresh becoming gentle by 2 pm then calm or light, SE gentle 10 pm onwards.

H) CLASSIFICATION OF THE CAUSE OF THE EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Findhorn...near the village low-lying greens between shingle ridges were flooded when waves washed over the main coastal ridge.

B) DAMAGE CAUSED:
5) 1 Findhorn...flooding of some low-lying land.

C) IMPACTS AT OTHER SITES:
8) 1 Burghhead Bay..."effectively cleaned up the slumped material along the 'cliffs' and cut a fresh edge which would give an average loss of around 0.5 metres. In some parts the net erosion was nil, while in others small bights up to 2 metres were cut"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
2 Observations...Meteorological Office 1980 Monthly Climatic Summaries, Station No. 1079 Lossiemouth.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of the event based on the direct observations of the author.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.192

DATE OF EVENT: 1, 2, 3 1983 February 1.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Portgordon..."just off Stewart St...The water was well across the road separating our houses from the beach an hour and a half before high tide. The water was at its deepest just after high tide"
1 Buckie..."A watery scene at Craigenroan Place, Portessie as the waves roll in across Great Eastern Road at high tide"
2 Garmouth...flooding with incoming tide.
2 Lossiemouth...Thunderous seas...the high tide started coming shorewards at about midnight on Monday and by lunchtime the following day the force of the water had breached the harbour wall over a 50 foot section...basin with 21 feet of water at one point.
2 Findhorn..."when the waters broke through the weakened defences at high tide"
2, 3 Moray's coast...heavy seas...as high tides overtopped sea defences...storm surge.

B) WIND CONDITIONS:
1 Portgordon to Cullen..."the storms which raged throughout the day were the worst since the great gale of February 1st 1953"
1 Portgordon..."gale force winds"
1 Cullen..."gale"
2 Moray's coast...gale force winds.
2 Lossiemouth...the teeth of the gale.
2 Findhorn..."backed by gale force north-west winds"
3 Moray coast..."northerly gales"
4 Lossiemouth...Gale occurred on the 1st.

C) DURATION OF STORM: Type 2.

G) ANY OTHER FACTORS:
4 Lossiemouth...Comments :
30TH SW force 2-3 with W-NW force 3-5 11 am to 9 pm.
31ST SW-S force 4-3 to 7 am then SE force 2-4 with force 5-6 4 to 8pm.
1ST E force 2 at mid-night, W force 4-3 then NNW-NNE force 7-9 to 6 pm and NW-N force 6 +.
2ND NW-W force 3-6 with SW force 3 from 6 to 9 am.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT :
1 Portgordon..."The seafront area from West High Street along Lennox Place to Stewart St was submerged under a foot of water around midday"
1 Buckie, Portessie...Craigenroan Place and Great Eastern Road were flooded.
2 Buckie, Portessie...Rannas Place and Craigenroan Place flooded nearly 2ft deep.
2 Kingston..."as the incoming tide spilled onto the Garmouth Kingston road, making it impassable.
2 Lossiemouth... Shore street flooded after 50 feet of harbour wall was broken...the car park at the West beach was under 2ft of water...Part of the footbridge giving access to the east beach was also under water for a spell...the old railway site was also awash.
2, 3 Findhorn...flooded a large low-lying area to the north and north-east of the village...flooded the main beach road and and car park...many acres of the dune area are under water"
3 Buckie Loch..."The sea broke into Buckie Loch along a 100 metre front and flooded the basin with salt water. Tree stumps, whole trees and a wide variety of debris were driven across the road and up to 100 metres into the loch...At the eastern end of the loch trees up to 75 metres to 100 metres from the coast were again standing in salt water"

B) DAMAGE CAUSED:
2) 2 Lossiemouth...50 feet of the harbour wall was broken...1 boat destroyed and a number of others slightly damaged in the harbour...several plant pots and concrete slabs were uprooted on the esplanade.
3) 3 Buckie Loch...sand covered the road.
4) 1 Portgordon...some shops and a bar flooded.
2 Buckie, Portessie...post office flooded to a depth of several inches.
2 Lossiemouth...many businesses flooded on Shore St, old railway site flooded.
2 Findhorn...boathouse marooned.
5) 3 Buckie Loch...some land flooded and sand covered vegetation up to 50 metres from the road.
7) 1 Portgordon...many houses flooded.
1 Buckie, Portessie...many houses flooded.
2 Kingston...1 house flooded.
2 Findhorn...several houses marooned
8) 2 Findhorn..."waters broke through the weakened sea defences...the dunes have been devastated,
we have lost yards and yards of coastline"
3 Findhorn..."Again these sand filled hollows between the ridges eroded into spectacular bights and some
embayments up to 11 metres deep were cut, while to the east erosion fell gradually away to 1.5 metres
to nil"
3 Buckie Loch..."Along the edge of the loch some 4 to 6 metres of the coastal bank were washed away...
a 12 metre high dune was reduced to a small pile of sand"

C) IMPACTS AT OTHER SITES:
3) 2 Burghead and Hopeman...damage to villages was minimal.
8) 3 Shelly Head Bothy..."erosion was also spectacular with a projecting tree-clad dune being cleaned back
by some 8 metres"

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Banffshire Advertiser February 8, "Storms Batter Moray Coastal Communities"
2 Newspaper...The Northern Scot February 5, "Storms Pound Coastal Belt"
3 Article...S.M. Ross (1984) "Erosion At Culbin Sands And Burghead Bay In 1983" Moray Field Club Bulletin,
Number 11, Paper No.56, p21-23.
4 Observations...Meteorological Office 1983 Monthly Climatic Summaries, Station No. 1079 Lossiemouth.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: CLASS 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of the event.
2 Detailed description of the event at each site.
3 Detailed description of the event based on the direct observations of the author.
4 Instrumental data and a weather diary.
FLOOD NUMBER : CF.193

DATE OF EVENT : 1, 2 1985 January 22.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Portgordon and Portessie...heavy seas...at high tide

B) WIND CONDITIONS :
1 Portgordon and Portessie...a force 10 north-easterly gale,
3 Lossiemouth...Gale occurred on the 22nd.

C) DURATION OF STORM : Type 2.

G) ANY OTHER FACTORS :
3 Lossiemouth...Comments :
20TH SW/S force 1-2 or calm to % pm, SE force 2-3.
21ST E/NE force 2-6.
22ND NE/NW force 4-8 gale 8.05 am to 1 pm.
23RD NW/N force 5-7.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Portgordon...1 foot of water in Lennox Place.
1 Portessie...Great Eastern Road flooded.
2 Buckie Loch..."the sea again washed through the weak point at the road edge and the loch itself was completely flooded...a considerable amount of debris and trees was washed across the road.
3 Shelly Head Bothy..."the sea came through the gap bulldozed by the salmon fishers last year and flooded up to the door of the Bothy"

B) DAMAGE CAUSED :
3) 2 Buckie Loch...road covered in trees and debris.
5) 2 Buckie Loch...some land flooded.
2 Shelly Head Bothy...some land flooded.
7) 1 Portgordon...some houses affected by very minor flooding.

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCE OF INFORMATION :
1 Newspaper...Banffshire Advertiser January 29 "Heavy Seas Cause Onshore Problems"
3 Observations...Meteorological Office 1985 Monthly Climatic Summaries, Station No. 1079 Lossiemouth.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Description of event.
2 Detailed description of the event based on the direct observations of the author.
3 Instrumental data and a weather diary.
FLOOD NUMBER : CF.194

DATE OF EVENT : 1 1985 November 9.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
   1 Buckie Loch..."not too large tides"

B) WIND CONDITIONS :
   1 Buckie Loch..."One small gale"

C) DURATION OF STORM : Type 1.

G) ANY OTHER FACTORS :
   2 Lossiemouth...Comments :
      7TH   SW-W'ly wind force 4-5 At first, decreasing force 3 by 6 am backing light SE'ly 6 pm onwards.
      8TH   Light E-SE wind increasing force 3-4 6 am onwards.
      9TH   SSW-SW'ly force3-4 veering NW'N by 7 am increasing to force 7, force 6 8 pm onwards
            occasionally force 8.
      10TH  NW or NW wind force 6-7, occasionally force 8.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
   1 Buckie Loch..."Debris was washed some 60 metres inland through some of the breaks"

B) DAMAGE CAUSED :
   3) 1 Buckie Loch...road covered in trees and debris.
   5) 1 Buckie Loch...some land flooded.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCE OF INFORMATION :
   1 Newspaper...Banffshire Advertiser January 29 "Heavy Seas Cause Onshore Problems"
   2 Observations...Meteorological Office 1985 Monthly Climatic Summaries, Station No. 1079 Lossiemouth.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
   1 Detailed description of the event based on the direct observations of the author.
   2 Instrumental data and a weather diary.
FLOOD NUMBER : CF.195

DATE OF EVENT : 1 1989 February 11.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Stornoway..."a high spring tide...The predicted tide height for last Thursday was 5.25 meters but the actual height was 5.7 meters"

B) WIND CONDITIONS :
1 Stornoway..."gale force south-easterly winds"

C) DURATION OF STORM : Type 1.

G) ANY OTHER FACTORS :
2 Stornoway...Comments :
9TH SE force 5backing force 7. SW force 4 from 3.30 pm S force 5 by 9 pm.
10TH S force 4 backing SW force 3-4. S again by 7.50 pm force 3-4.
11TH S force 8 backing SW force 5-6.
12TH SW to W, mainly force 3-4 backing 5-6 in showers.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Stornoway...South Beach St carpark flooded as was the road between Holm and Melibost, also flooded was North beach St and Cromwell St.

B) DAMAGE CAUSED :
3) 1 Stornoway...South Beach St carpark flooded, North beach St and Cromwell St and the road between Holm and Melibost were also flooded.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCE OF INFORMATION :
1 Newspaper...Stornoway Gazette And West Coast Advertiser, 1989 February ?, "High Tides Cause Extensive Flooding In And Around Stornoway"
2 Observations...Meteorological Office 1983 Monthly Climatic Summaries, Station No. 0425 Stornoway.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of event with 5 photographs of various affected areas.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.196


CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Carsethorn...high sea.

B) WIND CONDITIONS:
1 Carsethorn...gale from S.W.

2 Dumfries...Wind at 9 am: 6TH 7TH 8TH 9TH
Direction  SW  SW  S  SW
Force (mph)  6   6  10  15

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
1 Carsethorn...associated with 5 feet rise in top of beach.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Carsethorn...flooding from beach.

B) DAMAGE CAUSED:
5) 1 Carsethorn...agricultural land flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Letter...A.E. Truckell pers comm 1990 September 13. Mr Truckell is the former curator of the Dumfries Museum and has a particular interest in the history of the Carsethorn area. Description of event based on personal observation.
2 Observations...Meteorological Office 1989 Monthly Climatic Summaries, Station No. 6641 Dumfries.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Letter from local curator/ historian giving a brief description of the event which he observed.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.197

DATE OF EVENT: 1 1990 February 2.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Stornoway..."high tides...4.85 metres...as the tide poured over sea walls"

B) WIND CONDITIONS:
1 Stornoway..."gale force winds...force 9 winds"

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
2 Stornoway...Comments:
31ST SE force 3-4 evening S force 5. Later SW force 4 decreasing to force 2.
1ST SSW 3 backing SW force 4-5 backing SSW force 5-7 backing S then SE force 4-6.
2ND SE to E force 5 to 3; W'ly force 5; SSW to W force 3-6.
3RD SW'ly force 5 to 3; S'ly force 7 at 11 pm.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Stornoway..."Parts of South Beach Street were knee deep in water...the Town Hall was flooded out and the Central Bus Station was cut off by waves...The Point road... was flooded when sea water breached the defences opposite the end of the airport runway...at the Braighe...the sea water poured through across the road to reach the end of the airport runway...and Cromwell St also flooded...Gazette building minor flooding"

B) DAMAGE CAUSED:
3) 1 Stornoway...South Beach Street, Cromwell St, Point Road and the Braighe flooded and covered in seaweed and debris...Central Bus Station cut off and services disrupted.
4) 1 Stornoway...the bookmaker's shop at the junction of South Beach and Cromwell St was flooded...Gazette building had its fuseboxes flooded, cutting off power.
6) 1 Stornoway..."the Town Hall was flooded out"
8) 1 Stornoway...at the Point road sea water breached the defences opposite the end of the airport runway...The shingle breakwater at the Braighe was virtually washed away as the sea poured through.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Stornoway Gazette And West Coast Advertiser 1990 February 3, "Gales Bring Town Centre To A Halt"
2 Observations...Meteorological Office 1990 Monthly Climatic Summaries, Station No. 0425 Stornoway.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of the event with 4 photographs.
2 Instrumental data and a weather diary.
FLOOD NUMBER: CF.198

2, 5 1991 January 5.
3 1990-1991 Winter (need to get exact date).

CAUSE OF EVENT

A) TIDAL CONDITIONS:
1 Ardrossan..."invasive high tide"
2 Helensburg...Highest tide since 1907...tide was 5 meters, 1.2 meters above its expected height.
3, 5 Millport, Great Cumbrae Island..."high tides"
5 Largs..."heaving sea"

B) WIND CONDITIONS:
1 Ardrossan..."storm"
2 Helensburg..."wind-savaged...very severe storms from the south west...gusts of up to 90 miles per hour"
3, 5 Millport, Great Cumbrae Island...a very bad storm, high winds.

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<thead>
<tr>
<th></th>
<th>3RD</th>
<th>4TH</th>
<th>5TH</th>
<th>6TH</th>
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<tr>
<td>Wind at 9 am</td>
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<tr>
<td>Direction</td>
<td>SSW</td>
<td>W</td>
<td></td>
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<tr>
<td>Force (mph)</td>
<td>22</td>
<td>28</td>
<td>60</td>
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Gale occurred on the 5th.

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<th>4TH</th>
<th>5TH</th>
<th>6TH</th>
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</thead>
<tbody>
<tr>
<td>Wind at 9 am</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Direction</td>
<td>SW</td>
<td>SW</td>
<td>WNW</td>
<td>WNW</td>
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<tr>
<td>Force (mph)</td>
<td>28</td>
<td>28</td>
<td>34</td>
<td>28</td>
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</tbody>
</table>

Gale occurred on the 5th.

C) DURATION OF STORM: Type 3.

G) ANY OTHER FACTORS:
2 Helensburg..."conditions may have been worsened by the overflowing of the Glennan Burn, which runs directly under West Clyde Street"

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<thead>
<tr>
<th></th>
<th>3RD</th>
<th>4TH</th>
<th>5TH</th>
<th>6TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainfall</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Rain (mm)</td>
<td>7.8</td>
<td>20</td>
<td>14.1</td>
<td>9.1</td>
</tr>
</tbody>
</table>

4 Helensburg...Comments:
3RD Very windy showers.
4TH Thunder. Lightning at 5.30 pm.
5TH Hellish storm all day and overnight. Structural damage. Dry.
6TH Windy. Snow in evening.

4 Helensburg...Comments:
4TH Dull and cold - outbreaks of rain. Heavy rain and strong winds.
5TH Strong winds - very cold. Stormy conditions.
6TH Strong wind - outbreaks of rain. Very cold.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 2.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Ardrossan..."coastal area"
2 Helensburg...completely submerged the waterfront...Clyde Street up to three feet of water...William Street and West Clyde Street, the Rhu also flooded.
3, 5 Millport, Great Cumbrae Island...extensive flooding of town, sea front completely flooded including the promenade which was badly damaged in a number of places, streets flooded included Glasgow Street, Newton Shore flooded, Clyde Street, Stuart Street. The Ritz cafe was under about a foot of water, other properties were also flooded out with up to 9 inches of water.
5 Largs...pier flooded.
5 Saltcoats...suffered from flooding.
5 Rothesay...flooded.
B) DAMAGE CAUSED:
2) Largs... pier flooded... sea front completely flooded.
5 Millport... promenade extensively flooded and badly damaged in a number of places, island pier was devastated, parts of it were washed away. The promenade in Kames Bay has also been badly hit.
3) 2 Helensburg... Clyde Street, West Clyde Street and William Street flooded... train services suspended... power failure for all areas west of Dumbarton due to power lines being cut.
3) 5 Millport... at Millburn Street part of the road collapsed.
4) 2 Helensburg... many shops on Clyde Street flooded.
5 Millport... shops flooded on Glasgow Street, Ritz cafe under a foot of water, a hairdressers also badly damaged.
7) 5 Millport... houses flooded on Glasgow Street, Newton Shore, the promenade and Clyde Street.
8) Ardrrossan... "when many sand dunes and shore-line constructions were damaged or washed away"
2 Helensburg... massive waves breached the seawall at Craigendoran.
5 Millport... A huge section of the sea-wall in Millburn Street was ripped away by the waves, parts of the island pier were also washed away, up to 50 metres of the promenade was also washed away. A coastal section of Crichton Street has also been badly damaged and retaining walls at properties in Miller Street have been washed away.
10) 4 Millport... "Structural damage"
5 Saltcoats... suffered from extensive damage.
5 Rothesay... suffered from extensive damage.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
2 Newspaper... Helensburg Advertiser 1991 January 11 "Highest Tide Since 1907 Causes Havoc In District"
3 Letter... pers comm lain D. Maclver 1991 October 8, Assistant Librarian : Reference And Local Studies.
4 Observations... Meteorological Office 1990 Monthly Climatic Summaries, Station Nos. 6186 Millport, 6214 Helensburg.
5 Newspaper... Largs And Millport Weekly News, 1991 January 11, "Millport Ripped Apart By Storm"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Letter from local librarian giving a very brief description of the event.
2 Detailed description of event.
3 Letter from local librarian giving a very brief description of the event.
4 Instrumental data and a weather diary.
5 Detailed description of all aspects of the event.
FLOOD NUMBER : CF.199


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Ardrossan...“invasive high tide”

B) WIND CONDITIONS :
Ardrossan...“storm”

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Ardrossan...“coastal roads flooded”

B) DAMAGE CAUSED :
3) Ardrossan...“coastal roads flooded”

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Description of event based on personal observation and video.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Letter from local librarian giving a very brief description of the event, lacking exact date.
### APPENDIX 6 DATES OF WEST COAST SHIPWRECKS CAUSED BY STORMS (after Moir and Crawford 1988 and 1994).

<table>
<thead>
<tr>
<th>Date Of Shipwreck</th>
<th>Name Of Vessel</th>
<th>Region Of Shipwreck</th>
</tr>
</thead>
<tbody>
<tr>
<td>1690 Oct</td>
<td>Dartmouth</td>
<td>Mull, Coll and Tiree</td>
</tr>
<tr>
<td>1770 Jan 23</td>
<td>Lady Margaret</td>
<td>Clyde Coast-North</td>
</tr>
<tr>
<td>1861 Sep 28</td>
<td>Henry Clay</td>
<td></td>
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<tr>
<td>1861 Nov 25</td>
<td>Challenge</td>
<td></td>
</tr>
<tr>
<td>1871 Jan 1</td>
<td>Catherine Morrison</td>
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<tr>
<td>1874 Oct 21</td>
<td>Chusan</td>
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<tr>
<td>1880 Nov</td>
<td>Elena Cordano</td>
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<tr>
<td>1880 Nov 25</td>
<td>Challenge</td>
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<td>1880 Dec 19</td>
<td>Derwent</td>
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<td>1883 Dec 11</td>
<td>Liverpool</td>
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<td>1883 Dec 21</td>
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<td>1883 Dec 22</td>
<td>Australia</td>
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<td>1890 Dec 24</td>
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<td>1893 Feb 12</td>
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<td>1894 Dec 21</td>
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<td>1894 Dec 22</td>
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<td>1897 Nov 11</td>
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<td>1894 Dec 29</td>
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<td>Name Of Vessel</td>
<td>Region Of Shipwreck</td>
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<td>-------------------------------</td>
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<tr>
<td>1902 Dec 17-18</td>
<td>Lady Isabella</td>
<td>Clyde Coast-North</td>
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<tr>
<td>1903 Feb 27</td>
<td>Argo</td>
<td>Kintyre</td>
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<td>1908 Dec 28</td>
<td>Bessie Arnold</td>
<td>Arran</td>
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<td>1908 Dec 29</td>
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<td>Kintyre</td>
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<td>1911 Nov 3</td>
<td>Ocean</td>
<td>Islay</td>
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<td>1928 Oct 20</td>
<td>Saint Brandon</td>
<td>Mull, Coll and Tiree</td>
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<td>1936 Oct 17</td>
<td>Shuna</td>
<td>Islay</td>
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<td>1936 Oct 26</td>
<td>Helena Faulbaums</td>
<td>Firth Of Lorne, Jura, SE Mull and Oban</td>
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<td>1948 Jan 11</td>
<td>Veni</td>
<td>Islay</td>
</tr>
<tr>
<td>1950 Sep 19</td>
<td>Bisco 9</td>
<td>Kintyre</td>
</tr>
<tr>
<td>1953 Apr 9</td>
<td>Angela</td>
<td>Mull, Coll and Tiree</td>
</tr>
<tr>
<td>1955 Jun 6</td>
<td>Tucson</td>
<td>Arran</td>
</tr>
<tr>
<td>1957 Feb 5</td>
<td>Robert Limbrick</td>
<td>Mull, Coll and Tiree</td>
</tr>
<tr>
<td>1968 Nov 11</td>
<td>Empireace</td>
<td>Kintyre</td>
</tr>
<tr>
<td>1973 Feb 5-6</td>
<td>Ballista</td>
<td>Mull, Coll and Tiree</td>
</tr>
<tr>
<td>1982 Feb 26</td>
<td>Craigantlet</td>
<td>Galloway Coast</td>
</tr>
<tr>
<td>1991 Dec</td>
<td>Kartli</td>
<td>Kintyre</td>
</tr>
</tbody>
</table>
APPENDIX 7 SCOTTISH COASTAL EROSION

Part 1 Description Of Database

NUMBER OF EVENT:
DATE OF EVENT:
Date given in Gregorian format unless otherwise stated.

CAUSE OF EVENT
A) TIDAL CONDITIONS:

Table 3.14 Classification of Paleo-Tidal Regimes Associated with Individual Events.

Type 1 - Very Severe, very exceptional tides and water level heights with a return interval of 50 years or more.
Type 2 - Severe, exceptional tides and water level heights with a return interval of between 25 and 49 years.
Type 3 - Moderate exceptional tides and water levels with a return interval of between 10 and 24 years.
Type 4 - Normal high or spring tides and water levels with a return interval of less than 10 years.
Type 5 - No mention of tides or storm surges in the descriptions of the events.

B) WIND CONDITIONS:
C) DURATION OF STORM:

Table 3.13 Classification of Storm Duration

Type 1 - Storm, where gale force winds (Beaufort force 7 or more) are recorded for less than 5 hours.
Type 2 - Storm, where gale force winds (Beaufort force 7 or more) are recorded between 5 and less than 10 hours.
Type 3 - Storm, where gale force winds (Beaufort force 7 or more) are recorded for 10 hours or more.

D) ESTUARINE CONDITIONS:
This category is for information on the fluvial inputs which can contribute to estuarine flooding.

E) LAMB'S CIRCULATION PATTERN:
Based on Lamb (1972) and provides a daily classification of the circulation pattern over Britain and Ireland from 1861-1972.

F) LAMB'S 'SPELLS'
Based on Lamb (1950) and provides a list of 'spells' over the period 1898-1948.

G) ANY OTHER FACTORS:
H) CLASSIFICATION OF CAUSE OF EVENT :

Table 3.11 Classification of Coastal Erosion Sub-Types.

Type 1 - Open coast and estuarine erosion caused by marine sources.
Type 2 - Estuarine erosion caused predominantly by marine sources but with some fluvial contribution.
Type 3 - Estuarine erosion caused by both marine and fluvial sources.
Type 4 - Estuarine flooding and erosion caused predominantly by fluvial sources but with some marine contribution.
Type 5 - Open coast or estuarine erosion caused partially by anthropogenic interference.

IMPACT OF EVENT
A) EXTENT OF EVENT :
B) DAMAGE CAUSED :
Only the code number with a half parentheses is used in the database. This is to distinguish it from the source number (e.g. 5) 2, this means that the type of impact is 'Rural' and the data comes from source number 2).

3.5.1 Classification of Coastal Impacts.
1) Loss of life, injuries.
2) Marine - harbours, ships and boats, lighthouses and lightships.
3) Infrastructure - towns and villages, roads and streets, bridges, railway lines and stations, structures for the transmission of water, gas, electricity, cables, pipes, lines of communication and transport.
4) Commercial - retailing, service and industrial buildings and stock, mineral extraction.
5) Rural - loss of agricultural land, farm buildings, livestock and crops, forestry.
6) Public/Heritage - public buildings, parks, sports facilities and grounds, historic buildings and archaeological sites, military barracks and grounds, religious buildings and graveyards.
7) Homes/Gardens - houses, gardens, garden walls.
8) Geomorphological/Hydrological - coastal and estuarine defence works, sand bars, sand spits and other similar coastal features, river flooding associated with storms.
9) Other - reclaimed land.
10) General Statements.
11) No Impact Specified.

C) IMPACT AT OTHER SITES :
D) LOCATIONS AFFECTED OUTSIDE SCOTLAND AND SOURCES :
E) SIZE OF EVENT:

Table 3.8 Classification of Coastal Erosion Magnitude.

**Local** - These are events which caused erosion at a maximum of 3 specific locations.

**Intermediate** - Events which affected between 4 and 6 specific locations and/or up to a maximum of 2 counties and/or 1 main estuary; the latter two being accepted when multiple locations are implied but not specified.

**Large** - Events which affect at least 7 specific locations and/or a minimum of 3 counties and/or at least 2 main estuaries. This category also includes events where the description only refers to a specific coastline, (for example the eastern coastline of Scotland) and when the description gives no more detail than just identifying Scotland as having been affected. The latter two reasons are only accepted in this category when multiple locations are implied but not specified.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:

Each source is given a number where there is more than one source of information for an event. This source number is then used at the start of all of the rest of the information for that particular event so that it is clear where each piece of information on any aspect of the event is from.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT:

Table 3.4 Classification of Events Based on Estimated Reliability of Information Sources and Dating.

**Class 1** - Events considered as completely reliable because the original data source is contemporary or near contemporary with the event it records. The use of the term 'contemporary' means that the observer was present at the time of the occurrence at the place and time of the event. In certain cases where there are two or more independent records of an event having occurred, these events are also considered as reliable.

**Class 2** - This category includes events considered as reliable although there may be minor problems of verification e.g. an original source that may differ slightly from the date of the event.

**Class 3** - These are events included in the chronologies on the basis of likely reliability. This category includes many of the pre-1700 A.D. events where there is a strong dependence on work undertaken by previous researchers that is very difficult to verify.

C) ASSESSMENT OF QUALITY OF DATA:

**COMMENTS**

If a category from above is not included in any of the event descriptions this indicates that there is no recorded data for this particular section.
Part 2 Database

NUMBER OF EVENT: CE.1

DATE OF EVENT:
1 1210
2 1210 (about the time of the feast of St Michael).

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Perth... inundation.
2 Perth... "by a spring tide from the sea"

D) ESTUARINE CONDITIONS:
2 Perth... "The water of Tay, with the water of Almond, being swelled by the increasing rain"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
2 Perth... "a mound or rampart gave way"

B) DAMAGE CAUSED:
1) 1 Perth... "overwhelming casualty... the King lost a son, who, with his nurse fourteen of his domestics, and many of the inhabitants perished"
3) 2 Perth... "the large bridge of St John, with an ancient chapel, were overthrown"
6) 1 Perth... "the Palace or Castle in which the Royal Family resided was swept away"
7) 1 Perth... "a great part of the town was swept away"
2 Perth... some houses... were overthrown
8) 1 Perth... peculiarly destructive flood.
2 Perth... "flood passed through a large part of that town"

E) SIZE OF EVENT: Local

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
No original reference specified but the author states that the information comes from manuscript sources contemporary with the event.
Original references are Fordun's Chronicle Lib13. Fol.288 early 1400s and Major's History of Scotland 1521.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event
2 Detailed description of event concentrating on a discussion of sources of information.
NUMBER OF EVENT: CE.2

DATE OF EVENT: 1 1304 February.  
2 1304.  
3 circa 1302.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
2 Skinburness...inundation by the sea.  
3 Solway...sea flood.

B) WIND CONDITIONS:
1 Skinburnes...storm.

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1

IMPACT OF EVENT
A) EXTENT OF EVENT:
2 Skinburness...erosion of road leading to town and the town itself.

B) DAMAGE CAUSED:
2) 1 Skinburness...destruction of port, also silted up.  
3) 2 Skinburness...road leading to town and town flooded and destroyed.  
8) 1 Skinburness..."destruction of that once great port...on a day"  
2 Skinburness..."But the sea made inroads...that the town and the road leading to it were carried away"  
3 Solway...sea flood.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Short description of event.
3 Very short description of event.
NUMBER OF EVENT: CE.3

DATE OF EVENT: 1425.

CAUSE OF EVENT
B) WIND CONDITIONS:
Solway Firth... "storm"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Solway Firth... creation of Morcambe Bay near Silloth and the deposition of large shingle banks on the Kirkbean coast up the back of the Merse.

B) DAMAGE CAUSED:
8) Solway Firth... Kirkbean up the back of the Merse and Morcambe Bay near Silloth.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Letter... A.E. Truckell pers comm. 1990 September 13. No original reference given, but the author is the retired curator of the Dumfries Museum and has an interest in aspects of coastal change in the local area.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Very brief description of the event.

NUMBER OF EVENT: CE.4

DATE OF EVENT: 1590-1694.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Nairn... a history of severe coastal erosion at the mouth of the river Nairn.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Nairn... a history of severe coastal erosion at the mouth of the river Nairn.

B) DAMAGE CAUSED:
8) Nairn... a history of severe coastal erosion at the mouth of the river Nairn.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CE. 5
DATE OF EVENT: 1600 - 1845

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Redkirk Point... "The tide... whirling violently around that headland have swept them entirely away"

D) ESTUARINE CONDITIONS:
Redkirk Point... "And river whirling violently around that headland have swept them entirely away"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Redkirk Point... the church and graveyard of Redpatrick or Redkirk have been entirely swept away.

B) DAMAGE CAUSED:
5) Redkirk Point... the church and graveyard of Redpatrick or Redkirk have been entirely swept away.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book... Society for The Sons And Daughters Of The Clergy (1845) "New Statistical Account Of Scotland Volume 4: Dumfries, Kirkcudbright And Wigton, p266.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CE. 6
DATE OF EVENT: 1600 - 1816.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Buddon Ness... "on account of the shifting and wasting of the shore"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Buddon Ness... The spot on which the outer lighthouse stood in the beginning of the seventeenth century was found in 1816 to be two ot three fathoms under water and quite three-quarters of a mile within flood mark... lighthouse moved about a mile and a quarter farther north.

B) DAMAGE CAUSED:
2) Buddon Ness... lighthouse moved about a mile and a quarter farther north to Barry because of erosion.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book... E.S. Valentine (1915) "Forfarshire" Cambridge, Cambridge University Press, p40.
No original reference given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event which forms part of a general discussion of coastal gains and losses.
NUMBER OF EVENT : CE.7

DATE OF EVENT : 1606 September 4.

CAUSE OF EVENT
A) TIDAL CONDITIONS : Dumbarton..."the surges and inundations of the sea"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT : Dumbarton..."the surges and inundations of the sea which is likely to destroy and take away their whole town"

B) DAMAGE CAUSED :
3) Dumbarton..."which is likely to destroy and take away their whole town...it would require at least thirty thousand Scots to make a proper bulwark"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT: CE.8

DATE OF EVENT: 1625 March.

CAUSE OF EVENT
B) WIND CONDITIONS:
1 Culross... "a violent gale and storm"
2 Culross... "a great storm"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Culross... washed away the stone bulwark.

B) DAMAGE CAUSED:
4) 1 Culross... the great pit... was destroyed... and drowned the coal.
2 Culross... Moat... was destroyed... and the remains of the structure can still be seen in a heap of stones on the mud.
8) 1 Culross... washed away the stone bulwark.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event, however detail and description of area affected different in structure and style to the earlier record so unlikely to be a direct copy.
2. Short description of the event.
NUMBER OF EVENT: CE.9

DATE OF EVENT: 1627 October 10

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Carlaverock and Ruthwell..."a high tide"

B) WIND CONDITIONS:
Carlaverock and Ruthwell..."assisted by the storm...a tempest of extraordinary violence"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Carlaverock and Ruthwell...a number of bulwarks were thrown down.

B) DAMAGE CAUSED:
1) Ruthwell...17 saltmakers on Ruthwell sands perished.
5) Carlaverock and Ruthwell..."many cattle and other bestial were swept away with its rapidity"
7) Carlaverock and Ruthwell...a number of houses including the house of Old Cockpool were thrown down or flooded.
8) Carlaverock (Blackshaw) and Ruthwell..."an inundation over a large tract of land...it went at least half a mile beyond the ordinary course"

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
England which destroyed a vast quantity of mercantile shipping, including many collier vessels carrying their commodity to the Thames. Source as below.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1?

C) ASSESSMENT OF QUALITY OF DATA:
Detailed description of the event and its impacts.
NUMBER OF EVENT: CE.10

DATE OF EVENT: -1662.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Nairn...the sea has partly washed away a good part of highly productive land.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Nairn...the sea has partly washed away a good part of highly productive land. There are visible
at the present day when the tide ebbs the ruins of a splendid and noble castle.

B) DAMAGE CAUSED:
5) Nairn...the sea has partly washed away a good part of highly productive land.
6) Nairn...There are visible at the present day when the tide ebbs the ruins of a splendid and
noble castle.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...W. MacFarlane (1907) "Macfarlane's Geographical Collections* Volume 2, Scottish History Society
Volume 52, Edinburgh University Press, p460. Original Reference...Diary...Sir Robert Gordon Of Stralock
(1662) "Description of Moray" In Sibbalds Topographical Notices.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CE11

DATE OF EVENT: 1670.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Anstruther..."abnormally high tides flooded the harbour"
3, 4 Anstruther..."inundation of the sea"

H) CLASSIFICATION OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
3, 4 Anstruther..."washed away the bulwarks"

B) DAMAGE CAUSED:
2) 1 Anstruther..."flooded the harbour, choked it up with silt, destroyed part of the walls".
2 Anstruther..."what harbour they had piers and all, was swept away"
3, 4 Anstruther..."which destroyed or choked up the harbour"
7) 1, 3, 4 Anstruther..."rendered many houses unsafe"
B) 1, 3, 4 Anstruther...flooded the harbour, choked it up with silt.
2 Anstruther..."what harbour they had...was swept away"

C) IMPACTS AT OTHER SITES:
3, 4 Some other locations affected by this event but they are not specified an any of the references as the Statistical Account of the parish states "Anstruther shared the fate of its neighbours, about the year 1670 by an inundation of the sea"

E) SIZE OF EVENT: Local

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
2 H. Famie (1861) "The Fife Coast From Queensferry To Fifeness", J.C. Orr, Cupar-Fife, p175. No original reference given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event but with cause of event given.
2 Short description of event, more detail on damage.
3 Short description of event with detail on cause and impact of event.
4 Short description of event with detail on cause and impact of event.
NUMBER OF EVENT: CE.12

DATE OF EVENT: 1 1690s (date very unclear... "some years later" than the 1670 event).
2 1770s (date very unclear... "about a century later" than the 1670 event... this is most likely incorrect)
3, 4 1690s (*end of last century*, Statistical Account written in 1790s)

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Anstruther... abnormally high tides... when a similar invasion of the sea occurred.
2 Anstruther... "nearly a third of the burgh was washed down by the advancing Frith".
3, 4 Anstruther... inundation by the sea.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Anstruther... "The whole of what had been the street fronting the harbour was washed away."

B) DAMAGE CAUSED:
6) 2 Anstruther... "and the rock on which the Town house was built, is now buffeted over head
and ears by every spring tide."
7) 1 Anstruther... "The whole of what had been the street fronting the harbour was washed away."
2 Anstruther... "In this submersion, the Fore St, or shore, was destroyed.
3, 4 Anstruther... "A long street, called the fore street, was totally destroyed; scarce a vestige of it
now remains."
8) 1 Anstruther... "similar invasion of the sea occurred... the whole of what had been the street
fronting the harbour was washed away."
2 Anstruther... "nearly a third of the burgh was washed down by the advancing Firth."
3, 4 Anstruther... "when about a third of the town seems to have been destroyed."

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
No original reference given.
2 H. Famie (1861) "The Fife Coast From Queensferry To Fifeness", J.C. Orr, Cupar - Fife, p175.
No original reference given.
3 Sir John Sinclair (1791-1799) "The Statistical Account Of Scotland: Volume 10 Fife" Account Of
The Parish Of Anstruther-Wester, 1790-1791, p38.
4 Society For The Sons And Daughters Of The Clergy (1845) "New Statistical Account Of Scotland:
Original Reference is 3 above.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event, cause of event not clearly stated, dating of event is very difficult.
2 Short description of event, cause and date of event difficult to identify.
3 Short description of event concentrating on the damage caused.
4 Short description of event concentrating on the damage caused.
NUMBER OF EVENT: CE.13


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Udal...eroded by the sea.

B) WIND CONDITIONS:
Udal...eroded by wind.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Udal...a prominent headland...conserved by surface sand cover, was peripherally eroded by sea and wind.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Article...I. Crawford (1974) "Scot (?), Norseman and Gael" Scottish Archaeological Forum, Volume 6, p1-16. Based on authors own research into the area.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1?.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CE.14

DATE OF EVENT: 1700-1900.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Arbroath..."encroachment of the sea"

G) ANY OTHER FACTORS:
Arbroath..."aided by the removal of beach material for construction"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Arbroath..."In the immediate neighbourhood of the town both east and west, the sea has encroached to a considerable extent within living memory...seaside lands mentioned a century or two ago, no longer exist.

B) DAMAGE CAUSED:
5) Arbroath...loss of agricultural land.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...Anon. (1900) "Arbroath Guide" Arbroath. No original reference specified.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT : CE.15

DATE OF EVENT : 1700 - 1798

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Duffus..."the water has increased considerably on the land"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Duffus..."The coast of this parish is generally flat. At the west end, the land is at present only 4 feet above the level of the water. At this quarter, during the course of this century, the water has increased considerably on the land"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...Sir John Sinclair (1799) "The Statistical Account Of Scotland Volume 16 : Banffshire, Moray and Nairnshire" p488.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.

NUMBER OF EVENT : CE16


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Findhorn Bay..."old bar...erosion"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Findhorn Bay..."The severing of the old bar in 1701 cut it off from the supply of shingle and its growth from that time onwards has been maintained by the erosion of its eastwards half"

B) DAMAGE CAUSED :
8) Findhorn Bay..."The severing of the old bar in 1701 cut it off from the supply of shingle and its growth from that time onwards has been maintained by the erosion of its eastwards half"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, Aberdeen, 196pp, p10. Based on the authors own observations of the site and numerous historical references.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Detailed description of the event.
NUMBER OF EVENT: CE.17

DATE OF EVENT: 1 1702 October 22.
   2, 3 1701.
   4 1702 October 11 (pre-changeover date hence discrepancy).

CAUSE OF EVENT
A) TIDAL CONDITIONS
2 Findhorn..."inundated by the sea"
3 Findhorn...inundated by the sea aided by a breach in the Old Bar.

B) WIND CONDITIONS:
1 Northern Scotland, Moray Firth..."A storm apparently from about WSW, but the wind perhaps
   again shifting later to NW...battering of the outer coast at some stage by a heavy northwesterly
   or northerly sea"
4 Findhorn...storm.

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
3 Findhorn...Old Bar in bay breached.
4 Findhorn...a breach was made in the old bar and the river formed its present mouth.

B) DAMAGE CAUSED
7) 1, 2 Findhorn...the old town was destroyed by the sea.
8) 1 Culbin...further severe drifting of loose sand causing the river Findhorn to change course
to the east, to reach its present mouth.
1, 2 Findhorn..."in this storm the old town (the second village)...at the mouth of the river, was
   destroyed by the sea.
4 Findhorn...a breach was made in the old bar and the river formed its present mouth.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book...H. Lamb (1991) "Historic Storms Of The North Sea, British Isles And Northwest
   and W.W. Fletcher) p1-13, Blackie, Glasgow.
   229pp, p178. No original reference specified but a list of references is given at the back of the book.
3 Letter...Sinclair Ross pers comm 1990 September 17. No original reference given but based
   on the unpublished research of the author.
4 Book...J.A. Steers (1973) "The Coastline Of Scotland" Cambridge University Press, 335pp,
p222. Original Reference...Avery's Survey of the area carried out in 1730.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event, lacks contemporary reference.
2 Short description of event, lacks contemporary reference.
3 Short description of event based on authors own research.
NUMBER OF EVENT: CE. 18

DATE OF EVENT: 1760.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Cockburnspath... "At the Cove... a heavy sea"
2 Montrose... storm surge

B) WIND CONDITIONS:
1 Cockburnspath... "At the Cove... a heavy sea from the north-east"
2 Montrose... "storm"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Cockburnspath... a pier under construction was entirely destroyed.
2 Montrose... "A dyke at the Montrose basin destroyed by a storm in the same year as it was built. Dyke called Drainers or Donners Dyke"

B) DAMAGE CAUSED:
2) 1 Cockburnspath... a pier under construction was entirely destroyed.
8) 2 Montrose... at the Montrose basin a dyke was destroyed.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book... Society For The Sons And Daughters Of The Clergy (1835) "New Statistical Account Of Scotland: Volume 2 Berwickshire" Account Of The Parish Of Cockburnspath, 1834, p312-313. No original reference given.
2 Book... E.S. Valentine (1915) "Forfarshire" Cambridge, Cambridge University Press, p40.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Short description of event.
NUMBER OF EVENT: CE.19

DATE OF EVENT: 1780's

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Tain..."The water has, of late years, made some small encroachments on the land below the town"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Tain..."The water has, of late years, made some small encroachments on the land below the town"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CE20

DATE OF EVENT: 1 1783 Winter.
2 1783.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Peterhead..."demolished in one tide"
2 Reay...coastal inundation.

B) WIND CONDITIONS:
Peterhead..."storm"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
2 Reay..."A great flood...exposed a number of remains of houses and buildings near Cnoc Stanger"

B) DAMAGE CAUSED:
2) 1 Peterhead...A jetty or small quay erected at right angles to the south pier was demolished and all
the material from it thrown into the channel, so much so that the depth of water decreased by 6 feet.
8) 1 Peterhead...A jetty, or small quay, erected at right angles to the south pier was
demolished by a storm surge.
2 Reay..."A great flood...near Cnoc Stanger"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book...J.T. Findlay (1933) "A History Of Peterhead From Prehistoric Times To A.D. 1896" Revised Edition,
P Scrogie Ltd, Peterhead, 339pp, p216. No original reference given but the author clearly shows that he
is quoting from a previous work. A list of principal references is given at the end of the book.
The County Of Caithness" Account Of The Parish Of Reay, p149. No original reference given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event concentrating on the damage to the harbour.
2 Short description of event.
NUMBER OF EVENT: CE.21

DATE OF EVENT: 1784 January 2.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Aberdeen...High sea.

B) WIND CONDITIONS:
Aberdeen..."a violent storm of wind at South East"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Aberdeen..."at the Cove and several other little harbours near this great pieces of the rocks was rent off and thrown into their harbours"

B) IMPACT OF EVENT
Aberdeen..."the sea came out 40 yards further than the oldest man ever remembers"
Aberdeen..."at the Cove and several other little harbours near this great pieces of the rocks was rent off and thrown into their harbours"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Letter...D. Slee pers comm 1991 October 5, researcher at The National Museum of Scotland.
Original Reference...The Diary Of Janet Burnet Of Kenmay And Disblair in Aberdeenshire, 1780's, unpublished diary in the possession of The National Museum Of Scotland.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event concentrating on the damage to the harbour.
NUMBER OF EVENT: CE.22

DATE OF EVENT: 1786-1816.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Arbroath..."erosion of the coast"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Arbroath..."the shore road to the west of Arbroath had twice to be shifted owing to erosion of the coast"

B) DAMAGE CAUSED:
3) Arbroath..."the shore road to the west of Arbroath had twice to be shifted owing to erosion of the coast"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...E.S. Valentine (1915) "Forfarshire" Cambridge, Cambridge University Press p40. No original reference given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event which forms part of a general discussion of coastal gains and losses.

NUMBER OF EVENT: CE.23

DATE OF EVENT: 1790-1837.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Tain..."a very perceptible yearly encroachment of the tide"
Sutherland...coast...a similar process of encroachment has been going on.

G) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Tain..."A low sandy plain, of about four or five miles in extent...the present coastline...has been gradually lessening in consequence of a very perceptible yearly encroachment of the tide, more or less rapid in various parts.
Sutherland...coast...a similar process of encroachment has been going on.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Detailed description of the event.

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NUMBER OF EVENT: CE.24

DATE OF EVENT: 1794-1844.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Cramond..."The advance of the tide in some parts of the shore is rather remarkable"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Cramond..."The advance of the tide in some parts of the shore is rather remarkable, particularly in the neighbourhood of Granton Pier. In building this pier the vestiges of an old sea-wall were discovered within low water mark; and not much more than half a century ago the margin of green turf extended a considerable way towards that boundary"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...Society For The Sons And Daughters Of The Clergy (1845) "New Statistical Account Of Scotland: Volume 1 Edinburgh-shire" Account Of The Parish Of Cramond, p595.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CE.25

DATE OF EVENT: 1 1795 (May 6-12).
2 1795.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
2 Miltonhaven..."an inrush of the sea at high tide"

B) WIND CONDITIONS:
1 Miltonhaven..."an easterly gale" Lamb's Interpretation "It has been possible to derive the maps of the monthly mean pressure distribution in each of these months (May...which Lamb hints at as being the month of occurrence of the 1795 Miltonhaven event). They all show patterns conducive to prevalent NW'y and N'ly wid's over the North Sea, particularly the northern part"
2 Miltonhaven..."during a storm when an easterly gale was blowing"

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
1, 2 Miltonhaven...The disaster was prepared by the unwise quarrying for lime, for agriculture on the nearby Lauriston Castle estate, from the projecting ledge of rock, which ran across the the bay and had formed a natural protection for the village.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Miltonhaven..."nearly all that remained of the village and harbour wall were carried away in one night".
2 Miltonhaven..."carried away the whole village one night and penetrated 150 yards inland where it has maintained its ground ever since"

B) DAMAGE CAUSED:
2) 1, 2 Miltonhaven..."nearly all that remained...and harbour wall were carried away in one night"
7) 1, 2 Miltonhaven..."nearly all that remained of the village...were carried away in one night"
8) 2 Miltonhaven..."carried away the whole village one night and penetrated 150 yards inland where it has maintained its ground ever since"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event, based on a number of sources.
2 Short description of event.
NUMBER OF EVENT: CE.26

DATE OF EVENT: 1800-1842.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Kingsbarn..."the sea has been making encroachments on the land"

G) ANY OTHER FACTORS:
Kingsbarn..."Some ascribe the changes to the immense amount of stone removed from the
shore, for building dikes and drains"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Kingsbarn..."for many years past the sea has been making encroachments on the land"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...Society For The Sons And Daughters Of The Clergy (1843) 'New Statistical Account Of

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CE.27

DATE OF EVENT: 1800-1816

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Arbroath..."while immediately to the south-west of the town the foreshore...was being encroached"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Arbroath..."while immediately to the south-west of the town the foreshore...was being encroached
on to the extent of about one yard per annum"

B) DAMAGE CAUSED:
8) Arbroath...Loss of foreshore.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...E.S. Valentine (1915) "Forfarshire" Cambridge, Cambridge University Press, p40.
No original reference given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event which forms part of a general discussion of coastal gains and losses.
NUMBER OF EVENT: CE. 28

DATE OF EVENT: 1802 Winter.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
   Stenness... carried by the waves.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
   Stenness... a tabular shaped mass 8ft 2in by 7in by 5ft 1in was dislodged from its bed, and
   removed a distance of from 80 to 90 feet.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
   Book... J.A. Steers (1973) "The Coastline Of Scotland" Cambridge University Press, p290. Original
   Reference... Book... S. Hibbert (1931) "A Description Of The Shetland Islands" 2nd Reprint, p266.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   Not very much description on the cause of the event.

NUMBER OF EVENT: CE. 29

DATE OF EVENT: 1818.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
   Stenness... carried away by the waves... some was pushed up the slope.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
   Stenness... A block was carried away by the waves in 1818, and found it was 17.5ft by 7ft by 2ft 8in.
   This mass was removed about 30 feet and broken into 13 or more pieces. A block
   measuring 9ft 2in by 6ft by 4ft was pushed up a slope for a distance of 150 feet.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
   Book... J.A. Steers (1973) "The Coastline Of Scotland" Cambridge University Press, p290. Original
   Reference... Book... S. Hibbert (1931) "A Description Of The Shetland Islands" 2nd Reprint, p266.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   Not very much description of the cause of the event.
NUMBER OF EVENT : CE.30

DATE OF EVENT : 1 1822 September 11.
2, 3 1822.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
3 Arbroath..."a high tide"

B) WIND CONDITIONS :
1 Firth Of Forth..."Severe S.W. gale"
2 Macduff..." a storm"

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
3 Arbroath..."swept away part of the battery and the greater portion of ballast hill"

B) DAMAGE CAUSED :
2) 1 Firth Of Forth..."much damage at sea"
2 Macduff..."an outer harbour...wrecked by the storm"
3 Arbroath..."swept away part of the new stone harbour.
6) 3 Arbroath...extensive damage done to battery and ballast hill.
8) 1 Firth Of Forth...affected by the storm.
2 Macduff..."outer harbour wrecked by the storm.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Journal Article...R.C. Mosman 1897-1898 "The Meteorological Of Edinburgh, Part 2" in
Original Reference...Although the author does not assign an original reference to the event, he
does give a list of some of the original references used, including newspapers at the start of
the appendix.
No original reference specified but a list of references given at the back of the book.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Very short description of the event.
2 Very short description of the event.
3 Very short description of the event.
NUMBER OF EVENT : CE.31
DATE OF EVENT : 1823

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Peterhead...encroaching of the sea.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Peterhead...encroaching of the sea on to the old Aberdeen Road.

B) DAMAGE CAUSED :
3) Peterhead...encroaching of the sea on to the old Aberdeen Road, Burgh Commissioners gave £5 for protection.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.

NUMBER OF EVENT : CE.32
DATE OF EVENT : 1830-1837.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
St Andrews..."in consequence of the encroachment of the watery element on this part of the coast"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
St Andrews..." A few years ago, there were several caves among the rocks overhanging the sea in the vicinity of the castle...But in consequence of the encroachment of the watery element on this part of the coast, they have now almost entirely disappeared"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CE.33

DATE OF EVENT : 1836 February 1.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
   Barrahead, Lewis... "the sea rose upon the shores of the lighthouse island to an unexemplified height"

B) WIND CONDITIONS :
   Barrahead, Lewis... "the wind is in western directions"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
   Barrahead, Lewis... and with surprising force lifted, or partially moved, a great mass of granite... which measured on an average 12 feet in length, 8 feet in breadth and 8 feet in thickness which at the rate of 13 cubic feet to the ton, is equal to no less than 59 ton

B) DAMAGE CAUSED :
   8) Barrahead, Lewis... "the sea rose upon the shores of the lighthouse island to an unexemplified height"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
   Newspaper... Inverness Journal 1836 April 1, "Barrahead Lighthouse"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
   Short description of event based on eyewitness account of the lightkeeper.
NUMBER OF EVENT: CE.34

DATE OF EVENT: 1837-1838 Winter.

CAUSE OF EVENT
B) WIND CONDITIONS:
Otterswick, Sanday..."A prolonged NE'ly gale "

C) DURATION OF STORM: Type 3.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Otterswick, Sanday..."A prolonged NE'ly gale...caused the sea to scour the beach, laying bare an ancient forest floor"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CE.35

DATE OF EVENT: 1 1849 January 10.
2 1849.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Peterhead...very heavy seas were rolling onshore...flood tide...the sea, which was rolling
very heavily at the back of the North Harbour...at half tide 2 tremendous waves dashed over
the breach, the last one being upwards of 14 to15 feet high in the North Harbour.
2 Buckie..."destroyed by the waves"
3 Alloa..."Exceptionally high tide"

B) WIND CONDITIONS:
1 Peterhead..."one of those severe easterly gales...the gale commenced blowing east by south"
2 Buckie...storm.

C) DURATION OF STORM: Type 1.

G) ANY OTHER FACTORS:
1 Peterhead..."heavy rain"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Peterhead...threw down about 186 yards of the enclosing wall on the east side of the North
Harbour and washed away new herring-curing yards.

B) DAMAGE CAUSED:
1) 1 Peterhead...2 of the crew of a vessel were drowned when it was wrecked on the rocks
beside the baths...15 people drowned on the quay in the North Harbour when 2 tremendous
waves washed them into the harbour, only 1 body was not recovered.
2) 1 Peterhead..."five vessels have been totally wrecked...186 yards of east side enclosing
wall of North harbour thrown down...much of this material was thrown around the harbour or
onto the roadway and quay...new herring-curing yards washed away.
2 Buckie..."A wooden harbour built in 1843...lasted only six years.

B) DAMAGE CAUSED:
1) 1 Peterhead...on east side of North Harbour new herring-curing yards flooded and washed away...at
half tide, two tremendous waves spread over the quay at the North Harbour to a great depth.
2 Buckie...harbour affected by the storm.
3 Alloa...exceptional high tide in harbour.

C) IMPACT AT OTHER SITES:
1) 1 Slains...all crew perished from a vessel driven ashore.
1 Boddam...all crew perished from a brig wrecked on the shore.
2) 1 Slains...1 vessel driven ashore.
1 Boddam...1 brig wrecked on shore.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book...J.T. Findlay (1933) "A History Of Peterhead From Prehistoric Times To A.D. 1896", Revised
Peterhead. Author gives description of event written the day after its occurrence in Peterhead.
No original reference specified but a list of references given at the back of the book.
3 Newspaper... Alloa Journal 1869 February 15 "High Tide"
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Detailed description of event written by a witness the day after the event took place.
2. Short description of event.
3. Brief mention of event as part of a discussion of a later event.
NUMBER OF EVENT: CE.36

DATE OF EVENT: 1850 October 7.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Aird Districts..."The tide of yesterday was unusually high"

B) WIND CONDITIONS:
Aird Districts..."and owing to the high wind"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1

IMPACT OF EVENT
A) EXTENT OF EVENT:
Aird Districts..."undermining, and throwing down a considerable piece of the stone parapet of the road at Phopachy"

B) DAMAGE CAUSED:
3) Aird Districts..."undermining, and throwing down a considerable piece of the stone parapet of the road at Phopachy"
4) Aird Districts..."For about a mile the shore was strewed with prop-wood, which had been laid down at the same place for shipment"
5) Aird Districts...some carse lands flooded.
8) Aird Districts..."overflowing a number of low carse lands"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Inverness Advertiser 1850 October 8, "High Tides"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event.
NUMBER OF EVENT : CE.37

DATE OF EVENT : 1852 January 8.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Stranraer... "the tide was observed to be advancing to an unusual height"
Stranraer... on Friday 9th, Saturday 10th, Sunday 11th the tides were again very high.
Kirkcolm... "at Caimside... the tide rose sixteen yards higher than it has been seen for nearly 20 years"
Whitehaven... "there was a tremendous sea"

B) WIND CONDITIONS :
Stranraer... "great storm... the wind, which hitherto had been from the south-west, suddenly
veered round to the north-west"
Ballantrae... "the extreme violence of the storm"
Ayr... "the gale was very heavy"
Whithaven... "gale"
Newton - Stewart... "the wind rose to a perfect hurricane."

C) DURATION OF STORM : Type 1.

G) ANY OTHER FACTORS :
Newton - Stewart... the rain fell in torrents the whole day and the creek was unusually swollen... frost
and snow during the night"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Stranraer... "the battery for a considerable distance, and the Clayton street or roadway, near the
commencement of the village, has been effectively washed away... breaches were made in the
Caimryan Road.

B) DAMAGE CAUSED :
2) Stranraer... more than 20 ships and fishing boats damaged or sunk in the harbour.
3) Stranraer... at Clayton street the roadway was washed away... breaches in Caimryan Road,
wall at Ballgreen badly damaged.
4) Stranraer... the shed on the Quay lost its roof... box used as counting house also washed
away... gasworks flooded.
5) Stranraer... some trees blown down and stacks of grain scattered.
7) Stranraer... Clayton street... two houses washed away, many others badly damaged and most
flooded... behind Fisher Street... one house levelled, many houses flooded... North Strand Street
and Harbour Street many houses flooded... some houses lost chimney cans and pains of glass.
8) Stranraer... Clayton street... almost every house was enveloped in the surge and
foam... Many of the houses behind Fisher Street, next to the shore, were flooded... the houses in
North Strand Street and Harbour Street were likewise flooded... gasworks flooded.

C) IMPACT AT OTHER SITES :
2) Ballantrae... 3 ships damaged in harbour.
6) Newton - Stewart... one window blown in at the United Presbyterian Church.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper... Wigtownshire Free Press 1852 January 15, "Great Storm At Stranraer"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Detailed description of event concentrating on the effects in Stranraer.
NUMBER OF EVENT: CE.38

DATE OF EVENT: 1852 December 27.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Stranraer..."the tide rose ...to a greater height than it has been known to do since the year 1814"
Ballantrae..."the tide rose to a great height...higher...than at any period ion the last 50 years"
Cairnryan..."the tide was up on the street"
Portpatrick..."the tide rose so high"
Drummore..."the tide rose to a great height"
Stairhaven..."there was one of the highest tides in the recollection any person here"
Portwilliam..."the tide also rose to an unusual height"
Borgue and Kirkcudbright..."the spring tide was flowing with alarming rapidity"
Greenock..."the highest tide that has occurred in this locality for many years"

B) WIND CONDITIONS:
Stranraer..."the storm has been very violent...The wind being in the south-west"
Ballantrae..."the wind came from the south-west in awful fury"
Portpatrick..."a heavy gale of wind...In the early part of the morning we had the wind from the
S.E. and as the day came on it veered round by S.W. about 11o'clock it checked up to W.N.W"
Drummore..."the gale was very violent.
Glenluce..."a storm of wind"
Stairhaven..."a tremendous gale, first from the south, and veering round to the west"
Portwilliam..."a perfect hurricane"
Borgue and Kirkcudbright..."violent gale of wind from the south"
Greenock..."The strong south-west wind"

C) DURATION OF STORM: Type 2.

D) ESTUARINE CONDITIONS:
Greenock..."the swollen state of the river"

E) ANY OTHER FACTORS:
Stranraer..."accompanied by heavy rain"
Kirkcudbright..."the rain was falling in torrents"
Greenock..."recent rains"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Cairnryan..."the stone battery here is greatly damaged; the bank and a good part of the road is
washed away...at Claddyhouse half the dyke is levelled"
St Helene's Island..."almost carried away"

B) DAMAGE CAUSED:
2) Cairnryan...damage to some fishing boats.
3) Cairnryan...road partially washed away.
8) Cairnryan..."The tide was up on the street...the stackyard at Claddyhouse was flooded to a
depth of one foot"
St Helene's Island..."almost carried away"

C) IMPACTS AT OTHER SITES:
1) Kirkmaiden...3 dead in shipwreck.
2) Ballantrae..." a few fishermen's huts swept away"
Portpatrick..."the old harbour has sustained much damage"
Stairhaven...part of new quay swept away and breaches made in other parts of it...£20-£30 damage.
Portwilliam...harbour sustained some damage.
Portlogan...3 ships damaged in the harbour
Kirkmaiden...1 ship wrecked of the coast.
Glenluce...a stranded vessel completely wrecked.
Moathill... 5 vessels stranded.
Barassie bay near Troon... 1 vessel shipwrecked.
3) Stranraer... Shore road covered in shingle... considerable damage to the ledging of the bridge at the foot of North Strand Street.
4) Greenock... bonded warehouses on the west quay flooded, some damage done to the stock...
Queen's warehouse flooded. Several small stores flooded and damage done to their contents.
5) Stranraer District... "a great number of trees were torn up from the roots"
Innermessan... stackyard flooded damage to grain, potatoes and carrots in storage.
6) Stranraer... part of garden wall of the North-West Castle broken down.
7) Stranraer... many houses on Shore St flooded to a depth of several feet... houses on North Strand St flooded to a considerable depth... several houses at Clayhole flooded... a house at the Well flooded to a depth of 1.5 feet.
Portpatrick... some houses on the street along the shore flooded.
Portwilliam... houses damaged by the storm.
Greenock... some houses on low street and surrounding area flooded causing some damage.
Glenluce... several houses lost their chimney stacks.
8) Stranraer... North-West Castle, its grounds and outhouses flooded... the Shore road was completely under water... Harbour St flooded... North Strand St flooded... Clayhole partially flooded... from Quayhead up to the Well flooded to a depth of two feet... Fisher St flooded, most gardens in the area flooded.
Balrantrae... harbour.
Innermessan... stackyard flooded.
Portpatrick... the street along the shore flooded.
Stairhaven... part of new quay swept away and breaches made in other parts of it.
Portwilliam... harbour.
Kirkcudbright... "a considerable part of the road near Nunmill, opposite to St Mary's Isle... was flooded" Greenock... west quay flooded to a depth of three feet... steamboat quay flooded... low street and other areas around it flooded, some to a depth of three feet.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
England London, Plymouth and Preston suffered damage due to the storm. Source as below.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper... Wigtownshire Free Press 1852 December 30 "Violent Storm And High Tide"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Very detailed description of the event, its causes and effects.
NUMBER OF EVENT: CE.39

DATE OF EVENT: 1861.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Anstruther..."At the West Haven you may see how the sea is breaking in"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Anstruther..."At the West Haven you may see how the sea is breaking in; undermining footpaths; sucking down the black loam; bending and breaking stout walls of stone which once the wind-blown spray could not touch"

B) DAMAGE CAUSED:
3) Anstruther..."At the West Haven you may see how the sea is breaking in; undermining footpaths"
5) Anstruther..."At the West Haven...sucking down the black loam; bending and breaking stout walls of stone which once the wind-blown spray could not touch"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...H Farnie (1861) "The Fife Coast From Queensferry To Fife Ness" J.C. Orr, Cupar-Fife, p176.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CE.40

DATE OF EVENT: 1863 January 23.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Inverness..."the tide rose to an extraordinary height"

D) ESTUARINE CONDITIONS:
Inverness..."The overflowing of the river's banks"

E) LAMB'S CIRCULATION PATTERN: 22ND 23RD 24TH

W CW W

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Inverness..."The long embanking between Kessock and the canal has been much destroyed, particularly towards the Kessock end...some of the substantial stone steps lately erected at the river side have been loosened in their position by indentations in the bank at either side"

B) DAMAGE CAUSED:
2) Inverness..."some of the substantial stone steps lately erected at the river side have been loosened in their position by indentations in the bank at either side"
7) Inverness..."the flooding of many ground cellars of houses in the vicinity"
8) Inverness...The overflowing of the river's banks...On the east side of the river the roadway by Douglas Row was flooded...water swept over the long embanking between Kessock and the canal.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Inverness Advertiser 1863 January 27, "The Flood Of The Ness"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event.

COMMENTS:
Same description indicated by newspaper for the events of the 24th and 27th.
NUMBER OF EVENT: CE.41

DATE OF EVENT: 1863 January 24.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Inverness... "the tide rose to an extraordinary height"

D) ESTUARINE CONDITIONS:
Inverness... "The overflowing of the river's banks"

E) LAMB'S CIRCULATION PATTERN: 23RD 24TH 25TH
   CW W (W)

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Inverness... "The long embanking between Kessock and the canal has been much destroyed, particularly towards the Kessock end... some of the substantial stone steps lately erected at the river side have been loosened in their position by indentations in the bank at either side"

B) DAMAGE CAUSED:
2) Inverness... "some of the substantial stone steps lately erected at the river side have been loosened in their position by indentations in the bank at either side"
7) Inverness... "the flooding of many ground cellars of houses in the vicinity"
8) Inverness... "The overflowing of the river's banks... On the east side of the river the roadway by Douglas Row was flooded... water swept over the long embanking between Kessock and the canal.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper... Inverness Advertiser 1863 January 27, "The Flood Of The Ness"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event.

COMMENTS
Same description indicated by newspaper for the events of the 23rd and 27th.
NUMBER OF EVENT : CE.42

DATE OF EVENT : 1, 2 1863 January 27.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Portwilliam..."the violence of the wind increased the height of the tide to such an extent"
2 Inverness..."the water rose to a higher level than it had reached since January 1849"

B) WIND CONDITIONS :
1 Portwilliam..."heavy gale...it had increased to a perfect hurricane, and, blowing from the N.W."
2 Inverness..."high wind"

C) DURATION OF STORM : Type 1.

D) ESTUARINE CONDITIONS :
1 Inverness..."The river...still in extraordinary volume, and tearing its way down to the sea
with surprising noise and velocity...the rain still continues"

E) LAMB'S CIRCULATION PATTERN : 26TH 27TH 28TH
CW AW A

G) ANY OTHER FACTORS :
Belief among local fishermen that great harm had been done to the harbour by the removal of
part of a battery on the N.W. of the harbour several years ago.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Portwilliam..."a portion of the wooden barricade which broke the sea from the S.W. was also swept
away ; and on the North side...a garden wall with a considerable portion of garden was swept away"

B) DAMAGE CAUSED :
2) 1 Portwilliam...20 feet of wall between harbour and road converted into debris.
3) 1 Portwilliam..."pier flooded...harbour area"

C) IMPACT AT OTHER SITES :
3) 2 Inverness...roadways flooded at Ness Bank a foot deep, Tanner's Lane and Huntly
Street...bridges connecting islands also partly flooded.
7) 2 Inverness...houses and cellars flooded in Ness Bank, Little Green and Tanner's Lane.
8) 2 Inverness..."The houses in Ness Bank were for the most part flooded...and the roadway all along was
a foot deep in water...On the other side of te river made its way over a part of the embankment at the
Little Green, and sweeping into the houses ran down Tanner's Lane, where it formed immense pools. For
some hundred yards along Huntly Street the roadway was under water...The islands were of course
covered, and parts of the connecting bridges even were submerged"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Wigtownshire Free Press 1863 January 29, "The Storm"
2 Newspaper...Inverness Advertiser 1863 January 30, "The Floods In The Ness"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Description gives detail on cause and effect of event.
2 Description gives detail on cause and effect of event.

COMMENTS
Same description indicated by newspaper for the events of the 23rd and 24th.
NUMBER OF EVENT : CE.43

DATE OF EVENT : 1866 - 1896.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Burghead Bay..."the sea has encroached"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Burghead Bay..."the sea has encroached some 100 - 150 yards and a promontary called The Point near the Bessie Burn has been entirely swept away"

B) DAMAGE CAUSED :
B) Burghead Bay..."a promontary called The Point near the Bessie Burn has been entirely swept away"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Article...S. Ross (1976) "Erosion In Burghead Bay" Moray Field Club Bulletin, Number 3, p1-2.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CE.44

DATE OF EVENT : 1868 October 26

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Stranraer..."when the tide was full...the tide rose to an unusual height"

B) WIND CONDITIONS :
Stranraer..."gale of unusual severity...the wind had been blowing somewhat strongly from the
south...up till 3 o'clock when it shifted to W.N.W. and increased in force"

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 25TH  26TH  27TH

W       W       AW

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Stranraer..."Breaches were made in the old and new wharf walls"

B) DAMAGE CAUSED :
2) Stranraer...3 ships stranded and several fishing boats destroyed in the harbour...wharf
walls in harbour breached and considerable damage done to the old pier.
8) Stranraer...the sea flowing over the breast wall for 30 or 40 yards flooding the road at the
foot of North Strand Street and along the shore past Bellevilla...wharfs and old pier damaged..

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Wigtownshire Free Press 1868 October 29, "The Gale Of Saturday"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Detailed description of event.
NUMBER OF EVENT : CE.45

DATE OF EVENT : 1, 2 1869 January 30.

CAUSE OF EVENT

A) TIDAL CONDITIONS :
1 Fort William..."The tide came up still higher"
1 Inverness..."a high spring tide"
1 Campelltown..."The high tide...by the tide overflowing"
2 Campelltown..."no one expected that the tide would rise to such a height as it did"
2 Ardersier...coastal inundation.
2 Avoch and Fortrose..."the tides were very high and the sea was rough"
2 Glenelg..."the tide rose to a height that no one now living remembers to have seen"
2 Brora, Sutherlandshire..."the tides of the latter end of last week flowed to a very unusual height"
2 Oban..."was visited by an extremely high tide"
2 Caithness..."the tides rose higher round the whole Caithness coast than they have done for many years back"
2 Gairloch..."the tide there rose to a height unequalled within the memory of the oldest inhabitant"
2 Auchtercaim Bridge...high tide.

B) WIND CONDITIONS :
2 Campelltown..."the very high wind blowing from the west"
2 Oban..."and violent storm of wind"
2 Gairloch..."A pretty strong gale of south west wind blew during the whole of the preceding night"

C) DURATION OF STORM : Type 3.

E) LAMB'S CIRCULATION PATTERN : 29TH 30TH 31ST

W W CSW

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT :
1 Campelltown..."this part of the village, where the shore is more abrupt, is threatened with complete destruction...the earth is torn up to within a foot or two of the walls, and as the water is here gaining year by year, it cannot be long before the whole street is swept away"
2 Brora, Sutherlandshire...considerable erosion of sand banks along the shore especially at Port Cheanraidh where old salt pans were laid bare from under the sand.
2 Oban...A portion of the sea-wall at Alexander Road has been thrown down...a dry sea-wall has been thrown in on part of the Gallanach Road near the ferry slip.
2 Gairloch..."The road leading to Messrs Hogarth's salmon station here was, in some parts, entirely swept off"

B) DAMAGE CAUSED :
2 Gairloch...At Sand three or four boats thought save were floated and dashed to pieces...At Melvaig, oars and spars usually laid up for safety under the sides of herring boats, were broken or otherwise damaged.
3) 1 Campelltown...parliamentary road and Stewart St flooded.
2 Oban..."Considerable damage has been done to the roads within and beyond the town which were exposed to the waves...Alexander Road permanent way ploughed up...The promenade in front of Columbia Terrace...has now the appearance of a natural sea beach...The Gallanach Road, on both sides of the ferry slip, for nearly 100 yards, has been considerably injured"
3) 2 Gairloch..."The road leading to Messrs Hogarth's salmon station here was, in some parts, entirely swept off...some forty yards of the strath road is one mass of shingle"
4) 1 Campelltown...flood caused considerable damage and inconvenience to the merchants.
2 Oban...Two shops were flooded on the North Pier.
5) 1 Campelltown...the Earl of Moray's property, has been greatly damaged...which swept down barns, sheds, dikes and other fences...stacks of corn and potato pits were surrounded by water.
7) 1 Campelltown...many houses flooded and much damage caused.
2 Oban..."a house on the North pier and houses at the South Pier and between the bridges, were
flooded - in some instances to the depth of nearly two feet... Stevenson terrace (partially built) was flooded to a depth of about three feet. The damage however has not been very great*

8) 1 Campelltown...overflowing the streets and inundating many of the houses... water up to three feet deep... The parliamentary road has been much cut up, and the whole of Stewart St... has been greatly damaged by the inroads of the waves*

2 Campelltown... "the water... entered the houses and shops on the west side of the high street... flooded to a depth of two feet"*

2 Brora, Sutherlandshire... "the sea attained to a solid depth of eighteen inches over the pier head"*

2 Oban... "Two shops and a house on the North pier and houses at the South Pier and between the bridges, were flooded - in some instances to the depth of nearly two feet... Stevenson terrace (partially built) was flooded to a depth of about three feet"

2 Gairloch... "The encroachment upon every sandy part of the shore has been considerable... some forty yards of the strath road is one mass of shingle*"

C) IMPACT AT OTHER SITES:

2) 1 Fort William... "some damage done to boats in harbour of which one boat was cut in two... and quay flooded."

2 Avoch and Fortrose... "1 fishing boat almost totally destroyed and several others damaged and some damage done to their fishing gear."

2 Glenelg... "boats smashed*"

3) 1 Inverness... "the roadway on both sides of the river at several points were impassable, Douglas Row, Glebe St, Waterloo Place, Gilbert St, Celt St roadways flooded."

1 Findhorn... "some thirty yards or so of the permanent way having been partially washed away*"

2 Glenelg... "roads have been damaged, fences knocked down*"

4) 1 Fort William... "twenty sacks of barley washed off the quay."

2 Scrabster... "on the pier a quantity of goods in the Aberdeen company's store was damaged."

2 Charleston... "bake-house flooded to a depth of four feet and steamboat store flooded to a depth of two feet."

2 Strath... "the salt cellar belonging to Mr Macpherson... had its contents all washed out*"

5) 2 Badenoch... "flooding of agricultural land at Kingussie, Belleville and Abermesty."

7) 1 Inverness... "flooded many houses in the lower quarters of the town, at the Maggot some houses were flooded also Celt St."

2 Ardersier... "The houses in that part of the village called 'Stuart town'... were completely flooded*"

2 Avoch and Fortrose... "along the beach, the water entering into many houses"*

2 Glenelg... "some houses close to the shore, in which the water was several feet deep... in one instance... the houses was filled with shingle to the height of three feet... several houses were knocked down*"

2 Thurso... "several houses near the river were so greatly flooded that the furniture was floating around the rooms*"

8) 1 Fort William... "low-lying lands and quay flooded."

1 Inverness... "flooded many houses in the lower quarters of the town by the water flowing over the river banks... the roadway on both sides of the river at several points were impassable. At Douglas Row the water reached to within a few feet of the houses at the broadest part, and towards the end of Glebe St, it entirely covered the road... a large portion of Waterloo Place was under water... at the Maggot some houses were flooded... at the bottom of Gilbert St... a foot of water. At Celt St the water made its way about sixty yards inland, in fact, along the whole extent of the street and flooded the houses."

2 Ardersier... "The houses in that part of the village called 'Stuart town'... were completely flooded*"

2 Avoch and Fortrose... "along the beach, the water entering into many houses*"

2 Glenelg... "some houses close to the shore, in which the water was several feet deep*"

2 Thurso... "several houses near the river were so greatly flooded."

2 Scrabster... "at the harbour the pier was completely inundated."

2 Dunnet... "houses were surrounded by the sea, at places where the rocks are fully 30 feet in height*"

2 Charleston... "The quay... was covered to a depth of several feet. The water rose four feet in the bake-house there, and in the steamboat store two feet*"

2 Achtermair Bridge... "A house... had the tide up to the windows*"

2 Strath... "the salt cellar belonging to Mr Macpherson... had its contents all washed out*"

1 Fort William... "sand was carried up over the low-lying lands by the strength of the waves."

2 Badenoch... "extensive river flooding of the meadows in the neighbourhood of Kingussie, and also the low ground of Belleville... also the meadows at Abermesty."

2 Wick... "the river overflowed its banks to a great extent."

E) SIZE OF EVENT: Intermediate.
AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1. Newspaper...Inverness Advertiser 1869 February 2, "High Tides - High Tide At Fort William"
2. Newspaper...Inverness Advertiser 1869 February 5, "The Late Storm And Floods"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Detailed description of event.
2. Detailed description of event.

NUMBER OF EVENT: CE. 46

DATE OF EVENT: 1869 February 28.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Inverness..."high tide"
Beauly..."the highest tide that has been seen for many a day"

B) WIND CONDITIONS:
Dingwall..."high westerly winds"
Dundee...gale most of preceding day and gale during night

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: FEB 27TH 28TH MAR 1ST
\[\text{NW NW CNW}\]

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Beauly..."It broke the bank in several places, and deluged part of Temigh and Easter Lovat farms"

B) DAMAGE CAUSED:
3) Beauly...some of the roads were impassable and the railway service disrupted because of the snow.
5) Beauly..."deluged part of Temigh and Easter Lovat farms...a good quantity of turnips were lost on Easter Lovat by the receding tide washing them away"
8) Beauly..."deluged part of Temigh and Easter Lovat farms.

C) IMPACT AT OTHER SITES:
3) Inverness..."several of the lower parts of the town were partially flooded...Douglas Row was impassable"
4) Dingwall..."a large wooden workshop in Tullock Street, which was thrown considerably off the perpendicular"
7) Inverness..."the water entered a number of houses on the west side of the river"
8) Inverness..."Several of the lower parts of the town were partially flooded for a short time, and the water entered some houses on the west side of the river. The roadway at Douglas Row was also impassable"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Inverness Advertiser 1869 March 2, "High Tides - Flooding Of The Ness"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of all aspects of the event.
NUMBER OF EVENT : CE.47


CAUSE OF EVENT
A) TIDAL CONDITIONS :
   Edinburgh..."with high tide"

B) WIND CONDITIONS :
   Edinburgh..."Severe N.E. gale"

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 1876 DEC 31ST  1877 JAN 1ST  2ND  3RD
   C     CW     AS     W

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
   Edinburgh..."Nearly the whole of the sea-wall between Portobello and Joppa washed away"

B) IMPACT OF EVENT :
   B) Edinburgh...Portobello and Joppa affected by high tide.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
   Journal Article...R.C. Mossman 1902-1903 "The Meteorological Of Edinburgh, Part 3" in
   Original Reference...Although the author does not assign an original reference to the event, he
   does give a list of some of the original references used, including newspapers at the start of
   the appendix.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
   Very short description of the event.
NUMBER OF EVENT: CE.48


CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Clyde..."high tide"
1 Stranraer..."the tide rose to an unprecedented height"
2 Stranraer..."the sea rose to a great height"

B) WIND CONDITIONS:
1 Scotland...the storm had abated early on Tuesday.
1 Crieff...a strong gale blew from the north-west.
2 Stranraer..."The stormy weather which prevailed...was experienced with particular severity at Stranraer and vicinity"

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
1 Clyde."great body of water coming down the river which overflowed its banks at several places"

E) LAMB'S CIRCULATION PATTERN JAN 30TH 31ST FEB 1ST 2ND

CNW W W W

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
2 Stranraer...almost half of the Caimryan Road washed away.

B) DAMAGE CAUSED:
2) 1 Stranraer...disruption to shipping.
2) 2 Stranraer..."ships to Glasgow and Lame could not sail"
3) 2 Stranraer..."Much damage was done to Caimryan Road, almost half the road being washed away"
4) 1 Stranraer..."the roof was blown off a large store on the breast work"
7) 2 Stranraer...part of town along coast flooded...damage to roofs of some houses.
8) 2 Stranraer..."flooded that part of the town which lies along the coast...also Caimryan Road for a considerable distance"

C) IMPACT AT OTHER SITES:
2) 1 Clyde...considerable interruption was caused to the ferry traffic between Govan and Partick.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
England, Wales..."a severe gale from the north-west...causing much destruction and loss of life". Source see below.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Stirling Journal And Advertiser 1877 February 2, "The Storm"
2 Newspaper...Dumfries And Galloway Standard 1877 February 3, "Storm At Stranraer"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF INFORMATION:
1 Short description of event as part of a longer description of the more local effects of the storm.
2 Short description of event.
NUMBER OF EVENT: CE. 49

DATE OF EVENT: 1878 - 1953.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Golspie... "encroachment by the sea"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Golspie... "erosion which was most serious opposite the village itself encroachment by the sea had been proceeding at the rate of 8 inches a year, 50 feet of land having disappeared in 75 years"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper... Glasgow Herald 1953 September 23, Rev C.A. Dodds "Coastal Erosion Inroads in Golspie Area"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

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NUMBER OF EVENT: CE. 50

DATE OF EVENT: 1881/1882

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Frazerburgh... "South Harbour... The patent slip was swept away"

G) ANY OTHER FACTORS:
Frazerburgh... "South Harbour... when the first deepening operations were carried out"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Frazerburgh... "South Harbour... The patent slip was swept away"

B) DAMAGE CAUSED:
2) Frazerburgh... "South Harbour... The patent slip was swept away"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book... J. Cranna (1914) "Frazerburgh : Past And Present" Rosemount Press, Aberdeen, 502pp, p337. Original reference... The author was harbour treasurer during the occurrence of this event so his later record is essentially an eyewitness report although dimmed somewhat by memory as regards the date of occurrence.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT : CE.51

DATE OF EVENT : 1 1882 February 21. 2 1882.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Buckie...during high water at the Cluny Harbour.

B) WIND CONDITIONS :
2 Lonmay...*a storm*

C) DURATION OF STORM : Type 1.

E) LAMB’S CIRCULATION PATTERN : 20TH 21ST 22ND 23RD
   AW ANW A A

H) CLASSIFICATION OF CAUSE OF FLOOD : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Buckie...The beach embankment along the north side of the fishcuring premises and the sawmills wood yard were carried off. At the fishcuring premises in Low street a concrete wall erected to protect the back ground from the sea was made a complete wreck.
2 Lonmay...outlet to a stream from Strathbeg a partial failure until a storm scoured out the beach at that point.

B) DAMAGE CAUSED :
2) 1 Buckie...several boats were damaged at the Cluny harbour. A quantity of gravel was carried over the pier and into the basin.
8) 1 Buckie...at the back of the north-east pier, the sea wrought around the end of the parapet, and carried a quantity of gravel over the pier and into the basin.

C) IMPACT AT OTHER SITES :
2) 1 Portgordon...some damage was done at the harbour.
3) 1 Port Tannachy...the road was literally covered with shingle.
7) 1 Nether Buckie...1 house flooded.
1 Portessie...several houses flooded.
1 Port Tannachy...the road was literally covered with shingle.
8) 1 Nether Buckie...a dwelling house was flooded by the sea, and a quantity of gravel washed into it.
1 Portessie...several houses were also flooded.
1 Port Tannachy...the road was literally covered with shingle.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Banffshire Advertiser 1882 February 23. "Buckle", "High Tide"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of event at each location, little information on cause of event.
2 Very short description of the event.
NUMBER OF EVENT: CE.52

DATE OF EVENT: 1, 2 1891 October 17.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Isle Of Whithorn..."fortunately the tides had not reached their full height"

B) WIND CONDITIONS:
1 Isle Of Whithorn..."the storm...was felt in all its fury"

C) DURATION OF STORM: Type 1.

E) LAMBS CIRCULATION PATTERN: 16TH 17TH 18TH

C W W

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Isle Of Whithorn...sea wall breached in several places in front of Pnyagil Row

B) DAMAGE CAUSED:
3) 1 Isle Of Whithorn...public road from bridge flooded and blocked for a number of hours.
B) 1 Isle Of Whithorn.....the public road from the bridge downward was flooded to a depth of several feet.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Wigtownshire Free Press 1891 October 22 "Isle Of Whithorn - The Late Storms"
2 Newspaper...Dumfries And Galloway Standard 1896 October 10 "Destructive Gale And Floods"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA
1 Short description of event which forms part of a description of two events.
2 Provides correct date of event but not any detail on the event.
NUMBER OF EVENT: CE.53

DATE OF EVENT: 1, 2 1891 October 19.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Drummore..."the tide was exceedingly high...some say it was the highest... for fifty years"
1 Isle Of Whithorn..."the tide rose to an unprecedented height"

B) WIND CONDITIONS:
1 Drummore..."wind blowing a gale from the south"
1 Isle Of Whithorn..."although the gale had considerably abated"

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 18TH 19TH 20TH

W W S

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Grennan...road from Curghie washed away...sea wall recently erected also washed away.

B) DAMAGE CAUSED:
3) 1 Grennan...road from Curghie badly damaged and covered in with tons of shingle and seaweed.
8) 1 Grennan...road from Curghie partly washed away...sea wall recently erected also washed away.

C) IMPACT AT OTHER SITES:
4) 1 Isle Of Whithorn...several warehouses and a cold store sustained damage the latter being washed away.
5) 2 Dumfries..."a good deal of loss of livestock"
2 Troqueer...at Flatts Of Cargon 100 sheep drowned.
6) 1 Isle Of Whithorn...some damage to local church.
7) 1 Isle Of Whithorn...lower end of town many houses flooded and damaged.
2) 1 Isle Of Whithorn...the beacon on the Screen rocks has been swept away.
8) 1 Drummore...a foot of water on the new quay.
1 Isle Of Whithorn...lower end of town extensive flooding.
2 Dumfries...great flood...the greatest which had occurred in the district in living memory.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Wigtownshire Free Press 1891 October 22, "Kirkmaiden - The Storm", "Isle Of Whithorn - The Late Storms"
2 Newspaper...Dumfries And Galloway Standard 1896 October 10, "Destructive Gale And Floods"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event gives its cause and effects and is part of description of two events.
2 Brief mention of event as part of a very long discussion of a later event.
NUMBER OF EVENT : CE.54

DATE OF EVENT : 1894 February 11-12.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
West Coast..."the waters had greatly subsided before nightfall"
Portpatrick..."and a heavy sea on"

B) WIND CONDITIONS :
West Coast..."the storm"
Stranraer..."a south-west wind...a hurricane of tremendous force"
Caimryan..."the severity of the gale"
Portpatrick..."The storm...proved terrific in its violence"
Drummore..."fierce gale...The wind was from the west and west-north-west.
Newton - Stewart..."a most severe storm of wind"
Whithorn..."violent gale"

C) DURATION OF STORM : Type 2.

E) LAMB’S CIRCULATION PATTERN : 10TH 11TH 12TH 13TH
W CW NW ANW

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Stranraer..."sea wall at Port Rodie damaged"

B) DAMAGE CAUSED :
3) Stranraer...damage to telegraph lines occurred blocking communication.
4) Stranraer...1 shop on North Strand Street had its plate glass window blown in.
Stranraer...some houses lost slates.
6) Stranraer...sea wall at Port Rodie damaged by storm.

C) IMPACTS AT OTHER SITES :
1) Portpatrick...1 sailor died as a result of the wreck off the coast.
2) West Coast..."In the Solway three ships were driven ashore, and in the Clyde, several vessels suffered more or less injury. At Ayr a steamer broke from its moorings, and seriously damaged four or five other vessels"
Portpatrick...1 vessel smashed to pieces in the harbour and 1 vessel wrecked off coast.
Caimryan...1 vessel driven ashore but not wrecked.
4) Newton - Stewart...£50 worth of damage at brick yard when a brick stack was blown down.
Penninghame a wooden shed blown down.
5) West Coast..." a further destruction was caused to many plantations.
Portpatrick...some farms had outhouses unroofed and stockyards levelled.
Drummore...some stack-yards suffered damage.
Newton - Stewart...Stock-yards at several farms were damaged as were farm houses and other buildings.
Whithorn...2 hay sheds unroofed at Bishopton and Rispa.
6) Drummore...some grave-stones at Kirkmaiden Cemetery blown down.
7) West Coast...considerable damage done to many house properties.
Drummore...some house lost slates and chimney cans.
Newton - Stewart...several houses stripped of slates, lead, glass and chimney cans and other damage.
A house being built had a wall blown down and other damage... Some farm houses also damaged.
7) Whithorn...several houses lost slates, chimney cans and windows.
Portpatrick...many houses suffered damage, had windows broken and lost slates.
8) West Coast..."considerable amount of flooding"
Portpatrick...harbour area affected by heavy seas.

E) SIZE OF EVENT : Local.

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AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper... Dumfries Advertiser And Wigtownshire Free Press 1894 February 15 "Disastrous Storm"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of event concentrates on the damage to shipping.
NUMBER OF EVENT: CE.55

DATE OF EVENT: 1, 2 1894 December 22.
3 1894 December 21-22.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
3 Stranraer..."The tide rose rapidly to a height possibly unprecedented in a century"
3 Portpatrick..."accompanied by a very high tide"
3 Girvan..."The sea was fearfully high in the firth...There was a very high tide"

B) WIND CONDITIONS:
1 Stranraer..."memorable gale"
3 West Coast..."a gale of extraordinary violence...it commenced from a westerly direction, but afterwards veered round to the north-west"
3 Stranraer..."the storm raged with frightful severity...from the north-west"
3 Kirkcolm..."a gale of appaling violence...the wind veering round from south-west to west and north-west."
3 Kirkmaiden...the most disastrous gale ever experienced...hurricane from west.
3 Portpatrick..."the storm"
3 Glenluce..."storm"
3 Newton - Stewart..."gale from west...increased to a hurricane."
3 Wigtown..."A violent storm of wind...The wind seems to have been from the west or west by south"
3 Whithorn..."the storm"
3 Isle of Whithorn..."hurricane from north-west."
3 Portwilliam..."gale"
3 Kirkcowan..."A storm of great severity...The gale blew from west-north-west"
3 Garlieston..."A most disastrous hurricane of wind"
3 Girvan..."One of the heaviest and locally most disastrous gales...The wind was from the north-north-west"
3 Gatehouse..."a violent and damaging storm"
3 Creetown..."the storm"
3 Castle - Douglas..."gale from west."
3 Kirkcudbright..."A terrific gale"
3 Garlieston..."A most disastrous hurricane of wind"
3 Gatehouse..."a violent and damaging storm"
3 Creetown..."the storm"
3 Castle - Douglas..."gale from west."
3 Kirkcudbright..."A terrific gale"

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 20TH 21ST 22ND 23RD

ANW W CNW W

G) ANY OTHER FACTORS:
3 Kirkcolm..."torrents of rain"
3 Newton - Stewart..."heavy showers of rain."
3 Wigtown..."A violent storm of...rain"
3 Castle - Douglas..."rain."

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
3 Stranraer...The damage to the sea walls skirting the Loch is enormous...the unsubstantial clay and stone frontage from the slaughter house to the East Pier has simply dissolved and left scarcely a trace behind...Beyond the railway the road is seriously breached and the substantial sea wall running eastwards from Bowling Green Road has been undermined in various places and in one or two parts completely demolished...sea wall under construction east of Ladies Walk was completely destroyed...From Port Rodie westwards large portions of the sea wall up to Adair’s sawmill were broken down...damage done to the breastwork between the sawmill and the East Pier ...The retaining wall running along Agnew Crescent has been partially thrown down and footwalk has been torn up...the foreshore opposite Mr Kyle’s new dwelling was greatly torn up and the new wall and railing were thrown down...erosion of part of Broadstone Road and sea wall and garden wall.
3 Kirkcolm...the Kirkcolm road is seriously breached in places.
3 Girvan...the breastwork at the Doune Cemetery has been damaged, and the road along the shore from Woodlands Bay has been considerably cut up.

B) DAMAGE CAUSED:
1) 3 Stranraer...4 dead due to wreck of 2 fishing boats at sea.
3 Kirkcolm...2 sailors drowned when vessel wrecked.
3 Girvan...4 died when their caravan was blown over by the gale and caught fire at the back of the harbour.
2) 2 Stranraer..."a number of vessels were driven ashore between Corsewall and Portlogan"
3 Stranraer...many vessels smashed to bits in the harbour...1 vessel stranded, 3 vessels wrecked...1 fishing smack and a number of small boats wrecked also...some damage done to railway pier, part of its surface was washed away, also where it joins the railway where it breached the sidewalk and covered the carriage way wth shingle and broke most of the lamps on the pier...at Clayhole Bay all the boats on the bank were either washed away or destroyed...3 yachts destroyed and 4 seriously damaged at Seabank...Some parts of the Broadstone road have disappeared.
3 Kirkcolm...All boats except one were washed away and lost...1 vessel wrecked at South Cairn...the beacon at Laggan Rock or Ebbstone north of daily bay was washed away.
3 Girvan...3 vessels driven from their moorings...five or six fishing boats have been wrecked and a similar number badly damaged.
3) 1 Stranraer..."which so extensively damaged the foreshore roads"
3 Stranraer..."the Cairmyan Road from Bellevilla Road in Stranraer almost to Balyett no longer exists. Great stretches of it have been completely washed away...east of Bowling Green Road the road is very badly damaged...the road at Sheuchan Mill blocked by fallen trees...railway workshop roofs lost alot of slates.
3 Kirkcolm...the Kirkcolm road is seriously breaches in places.
3 Girvan...roadway along shore from Woodlands Bay has been considerably cut up...many telegraph wires were blown down.
4) 3 Stranraer...many sheds on breastwork either demolished or badly damaged also a small show ground had most of its rides smashed...at Clayhole Bay 1 shed demolished and 3 badly damaged...the creamery hoardings around the enclosure was swept away as well as some pig sheds and pigs...the 65ft chimney stack at the gasworks was demolished in the storm...extensive damage done at the Tileworks.
3 Girvan..."a number of plate glass shop windows have been blown in"
5) 3 Stranraer...1 field flooded and part of its boundary wall demolished...trees blown down on the road opposite Sheuchan Mill...some trees in the grounds of Broadstone House have fallen and the garden is partially wrecked...Low Auchneel Farm lost 70 poultry...the garden and 1 turnip field at Waukmill House were flooded with the loss of some of the crop...the 65ft chimney stack at the gasworks was demolished in the storm...extensive damage done at the Tileworks.
3 Girvan...two ornamental corners towers...church under construction in Sun St lost its roof...many stone monuments felled and other damage was done at the cemetary.
3 Girvan...Two ornamental windows in the South Parish Church have been blown in, and a memorial window damaged. In the Roman Catholic Church Of The Sacred Heart...a large strip of the roof has been torn off...About 20 of the gravestones in the Doune Cemetery have been blown down as well as some damage being done to the breastwork.
6) 3 Stranraer...new town hall lost an ornamental corner turret...church under construction in Sun St lost its roof...many stone monuments felled and other damage was done at the cemetary.
3 Girvan...Two ornamental windows in the South Parish Church have been blown in, and a memorial window damaged. In the Roman Catholic Church Of The Sacred Heart...a large strip of the roof has been torn off...About 20 of the gravestones in the Doune Cemetery have been blown down as well as some damage being done to the breastwork.
7) 3 Stranraer...some houses lost walls, slates, chimney pots, hoardings, pailings and some doors were torn from their hinges...from Clayhole Bay westwards the back garden walls of many houses were either breached or levelled...most houses on Sheuchan Street suffered damage 1 lost its roof...Broadstone house and the gardeners house flooded the later to a depth of several feet...Lewis Street badly affected.
3 Kirkcolm...many houses lost slates and windows and other damage.
3 Girvan...many houses lost slates, chimney can, chimney tops and windows.
8) 1 Stranraer..."the foreshore roads in the Burgh of Stranraer and its vicinity flooded"
3 Stranraer...roadway at the West Pier flooded...The sea ran along some of the front roads like a mill race and was nearly waist deep...the field opposite the East Pier transformed into a small lake...the low flats of the houses on Agnew Crescent flooded...the sea made a breach over the road opposite Seabank and Sheuchan Mill...Waukmill House had its garden and 1 field flooded by the sea...part of gasworks flooded.
3 Kirkcolm...road flooded.
3 Girvan..."the waves swept over the pier and breakwater with great fury.
C) IMPACT AT OTHER SITES:

1) 3 West Coast...the loss of life is enormous.
   3 Lochryan...1 sailor drowned.
   3 Portpatrick...2 lives lost when a steamer was stranded near Corsewall.
   3 Lochwinnoch...4 dead and 11 injured due to mill collapse.
   3 Ayr...3 dead and several injured due to tenement collapse.
   3 Finnart...4 sailors drowned and 7 injured when vessel wrecked.
   3 Kirkmaiden...off Logan Head 1 shipwreck with 25 casualties.

2) 3 West Coast...the loss of shipping has been enormous.
   3 Wigtownshire...numerous wrecks on the coast.
   3 Lochryan...some vessels stranded in the storm.
   3 Portpatrick...the south pier behind the lighthouse building was blocked with stones and
   boulders and a quantity of debris...on the northside a considerable quantity of stones and debris
   was carried over into the inner harbour...1 vessel was wrecked and another driven ashore and
   suffered some damage...1 steamer was stranded near Corsewall with 2 lives lost.
   3 Finnart...1 vessel wrecked.
   3 Kirkmaiden...3 vessels were damaged in the harbour one of these vessels knocked 15 feet of
   part of the wall on top of the harbour, 1 vessel was driven ashore, 1 yacht was wrecked and
   many vessels lost their gear...off Logan Head 1 vessel was wrecked with many casualties.
   3 Isle of Whithorn...1 beached boat blown hundreds of yards inland and slightly
   damaged...lifeboat slightly damaged in attempted rescue.
   3 Portwilliam...vessel driven ashore 10 miles south of the harbour.
   3 Creetown...1 vessel blown ashore and considerably damaged.
   3 Kirkcudbright...4 vessels and a number of fishing boats were wrecked and many collided.
   3) 3 South - West Coast...major damage and disruption done to the telegraphic and telephone
   communications system...major disruption to the train service partially as a result of fallen
   trees on some lines.
   3 West Coast...the telegraph system is completely broken down*
   3 Portpatrick...roadway adjoining breastwork torn up...many roads around Dunskey House were
   blocked due to fallen trees.
   3 Glenluce...telegraphic communications were disruted for some time.
   3 Newton - Stewart...some roads blocked by falling trees...some gas street lamps damaged.
   3 Garlieston...some roads blocked by fallen trees.
   3 Creetown...the public road near Ravenshall was completely blocked with fallen trees*
   3 Castle - Douglas...most of the roads leading into the town were blocked by fallen trees*
   3 Kirkcudbright...the roads were completely blocked by fallen trees...the railway station had its roof
   completely stripped of slates and the boundary paling was completely knocked down.

4) 3 Lochwinnoch...1 mill collapsed.
   3 Newton - Stewart...many sheds, some used by a builder, have all been completely
   unroofed...the brick stacks of the two woolen mills at Kirkcowan have been blown down.
   3 Wigtown...considerable damage done to the distillery*
   3 Whithorn...some shop windows were smashed and 2 stores lost their entire corrugated roofs.
   3 Kirkcowan...both woolen mills were badly wrecked; the stalks in both cases being blown away*
   3 Kirkcudbright...the tall chimney of the gasworks was thrown down...completely wrecking the works*

5) 3 West Coast...the damage to growing wood is enormous.
   3 Caimryan...at Lochryan House the deerpark wall has been demolished and numerous trees and
   evergreen shrubs have been uprooted...at Lochinch many of the trees and much of the
   ornamental garden has been demolished in the storm...500 crows found dead in the lake also.
   3 Portpatrick...many stackyards were levelled and outhouses unroofed...many trees were
   blown down on Dunskey plantations.
   3 Wigtownshire...in the high lying districts many stackyards blown away, much damage done to
   byres, stables and outhouses, many of which lost their roofs.
   3 Kirkmaiden...many farms had stackyards blown over and lost grain and fodder...a farm at
   High Curglie lost 16 stacks of grain.
   3 Glenluce...many stackyards overturned and many trees uprooted...one farm ouhouse lost its
   entire corrugated roof.
   3 Newton - Stewart...many trees have fallen in the town and many more outside of it...many
   stackyards destroyed and much damage to byres and other outhouses.
   3 Wigtown...great numbers of trees are lying flat, and Baldoon wood has been greatly thinned*
   3 Whithorn...trees in great numbers being uprooted, and many stackyards levelled to the ground*
   3 Isle of Whithorn...much valuable grain, hay, straw etc, has been lost entirely, or badly damaged*
   3 Garlieston...many trees have been felled in every direction.

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Gatehouse..."The woods on the various estates have been much damaged"
Creetown...many trees uprooted and broken down.
Castle - Douglas...many trees uprooted in the town and district...many farms had their outbuildings unroofed.
Kirkcudbright...many trees have been blown over including 30 on a two mile stretch of road...the railway line was also blocked and telegraphic communications were disrupted...many granaries, hay and corn ricks, stables were upset and demolished.
Kirkmaiden..."In the graveyard 16 headstones were blown down and smashed.
Newton - Stewart...Penninghame Church had a ton of freestone torn from its parapet and damage done to the weather vane, and lamps at the entrance way to the church damaged...Minigaff, Penninghame, All Saints, and at the new cemetary some monuments had been thrown down and broken.
Wigtown...the court building lost its roof and most of the walls of its upper storey.
Whithorn...some damage to the steeple of the parish church and the weather vane on it.
Castle - Douglas...the Victoria Hall lost one of its gables and part of its roof...the United Presbyterian Church was also badly damaged.
Lochryan...at Lochinchar part of old castle demolished.
Portpatrick..."In the quarry the Gun Harbour...was turned upside down, and a considerable outlay will be entailed before the ground resumes its wonted appearance".

7) West Coast...the damage to house property has been enormous...hundreds of people have lost their all in the destruction.
Caimryan...many houses lost slates.
Portpatrick...many houses lost numerous slates off their roofs...flooded some of the houses on the lower level near the harbour.
Ayr...1 tenement collapsed.
Kirkmaiden...most houses lost slates or chimney pots or in some cases roofs especially the village of Drummore...a number of houses were partially destroyed.
Wigtownshire...in the high lying districts many farmhouses damaged, some were made uninhabitable.
Newton - Stewart...many houses lost slates, chimney cans, skylights, windows, garden walls and other walls and wooden railings on some streets and the lead off some roofs...a number of houses suffered severe damage including farmhouses.
Wigtown...many houses lost slates, chimney cans, lead and other parts of their roofs.
Whithorn...many houses lost slates, chimney cans, window glass.
Isle of Whithorn...many houses suffered damage including farmhouses, some lost their entire roofs.
Kirkcowan...many houses lost slates, chimney cans, glass and large blocks of solid masonry.
Garleston...some houses lost slates and chimney cans.
Gatehouse...some houses lost part of their roofs, many others lost slates and fallen chimneys.
Creetown...some houses lost part of their roofs, many others lost slates, windows and chimney cans...many outhouses and other wooden erections were blown to pieces.
Kirkcudbright...some houses destroyed by fallen trees...and one houses was damaged by a fallen chimney...many houses lost slates and chimney cans.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
England railway disaster at Crewe 13 people killed and over 50 seriously injured, many are not expected to recover...In several towns there was much destruction of property accompanied by loss of life...In Sheffield a great chimney stack fell killing 5...At Bradford 2 steam cars overturned killing 1 man...At Blackburn 5 were injured when a chimney stack fell on an infirmary...damage done to factories is so severe.
Ireland The storm was also experienced with equal severity.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
1 Newspaper...Wigtownshire Free Press 1905 November 30, "Sea Encroachment At Stranraer"
2 Newspaper...Wigtownshire Free Press 1911 November 9, "The Storm"
3 Newspaper...Wigtownshire free Press 1894 December 27, "The Great Storm"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event, event mentioned in comparison to a more recent event so the details are sketchy.
2 Very short description of event which forms part of a longer description of a later event.
3 Very detailed description of all aspects of the event and the locations affected and the damage done.
NUMBER OF EVENT: CE.56

DATE OF EVENT: 1896 October 7 (P.M. event).

CAUSE OF EVENT
A) TIDAL CONDITIONS:
    Troqueer..."by the previous night's tide"

E) LAMB'S CIRCULATION PATTERN: 6TH 7TH 8TH
    W - C

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
    Troqueer...a nine foot breach in the embankment at Nethertown Farm.

B) DAMAGE CAUSED:
    5) Troqueer...In Nethertown Farm a number of fields flooded.
    8) Troqueer...In Nethertown Farm a number of fields flooded due to breach of embankment.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
    Newspaper...Dumfries And Galloway Standard 1896 October 10, "Destructive Gale And Floods"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
    Very brief mention of event as part of a detailed description of a later event.
NUMBER OF EVENT: CE.57

DATE OF EVENT: 1, 2 1896 October 8 (A.M. event).

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Portpatrick..."the high tide which swept over the quay walls"
1 Drummore..."the sea rose to a great height"
1 Wigtown..."the tides being at their highest at present...one of the largest floods witnessed"
1 Garliestown..."a very high tide...the water rose to a greater height than the oldest inhabitant can recall"
1 Isle Of Whithorn..."the day tide...was of an abnormal height"
2 Solway..."a 21 foot tide, and the force of the wind drove it to an even greater height"
2 Troqueer...a very high tide.
2 Kingholm Quay..."the tide was the cause of a large degree of discomfort"
2 Glencaple district..."The tide all along the estuary of the Nith was of an unprecedented height"
2 Annan...the tide was very high...an hour before high water the tide was 21 feet 4 inches.
2 Carsethorn...a still higher tide.
2 Southerness..."the tide overflowed"
2 Dalbeattie..."added to a high tide"
2 Colvend..."Along the Colvend coast the sea ran mountains high"
2 Gatehouse..."A heavy sea rushed into Gatehouse Bay.
2 Creetown..."a very high tide"

B) WIND CONDITIONS:
1 Portpatrick...one of the worst storms in many years.
1 Drummore..."the gale was very severely felt"
1 Wigtown..."A storm of a rather a severe nature...wind blowing from the south-west"
1 Garliestown..."A storm of unusual severity"
2 Solway..."a south west gale of exceptional violence"
2 Glencaple district..."the gale"
2 Carsethorn..."a strong south-west gale.
2 Kirkcudbright..."the gale was felt in its full weight"
2 Auchencairn..."the storm"
2 Mid - Annansdale..."the full effect of the gale was received"
2 Langholm..."gale very violent"
2 Creetown..."a severe gale from the S.W."

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
2 Nith..."the Nith came down in heavy flood"
2 Annan...the North Bum overflowed its banks.

E) LAMB'S CIRCULATION PATTERN: 7TH 8TH 9TH
- C C C

G) ANY OTHER FACTORS:
2 Solway..."accompanied by heavy rainfall"
2 Dumfries..."the rainfall for the forty-eight hours up to nine o'clock yesterday morning (friday)...registered 1.96 inches"
2 Dalbeattie and Colvend..."Both the river Urr and the Dalbeattie Burn were in spate"
2 Mid - Annansdale..."Consequent on the heavy rains...river flooding of hundreds of acres around the Annan...Corrie water also in spate"
2 Langholm..."2.16 inches of rain descended in 12 hours causing extensive river flooding...river Lyne and Esk in flood.
2 Glenkens...the Ken came down in raging flood...also the Dee in flood.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.
IMPACT OF EVENT

A) EXTENT OF EVENT:
1. Portpatrick... "harbour... on the north and south sides large portions of the protecting banks have been washed away."
2. Drummore... "some coastal roads eroded in places... the pitched battery being broken in several places... one road impassable to vehicular traffic."
1. Isle Of Whithorn... "the protecting sea walls at the back of nearly all the properties were demolished... the protecting sea wall at the back of the harbour was washed away."
2. Solway... "The river embankments at a great many points proved insufficient to combat the force of the water and extensive flooding, causing widespread disaster was the result."
2. Dumfries... "below the town many breaches made in the embankments."
2. Troqueer... "the bank for the protection of Broomlands and Priestlands fields were washed away... breaches made in embankment at Nethertown... breaches in bank at Flatts Of Cargen."
2. Kingholm Quay... "one breach of 30 yards and several smaller ones... damage to bank on Dumfries side."
2. Glencaple district... "several breaches in the bank opposite Netherwood loaning... banking at Sherrington and Hollsuds breached in several places."
2. Annan... "the embankment between the bridge and Milnfield gave way... the wall surrounding the Moat burst... embankment at Hillend broken through... embankment at Waterfoot farm swept away."
2. Carsethorn... "damage done to coastal fences and embankments in town... embankment between Slate Row and The Barracks breached in several places... Many yards of a sea wall recently built below the town also broken down, which caused the fall of a long stretch of stone dyke forming the fence of an adjoining field... Along the shore as far as Arbigland an enormous amount of damage has been done to sea walls and dykes."
2. Kirkbean... "embankment at Mersehead Farm collapsed... embankment collapse aided by the burrowing of rabbits."
2. Auchencaim... "the sea wall at Balcary Tower has been almost completely washed away."
2. Creetown... "the banking in several places has been washed away."
2. Powfoot... "portion of road washed away."

B) DAMAGE CAUSED:
1) 2. Annan... "1 youth drowned when his small boat capsized."
2. Solway... "1 sailor slightly injured when Solway lightship was stranded at Lochar."
2) 1. Isle Of Whithorn... "1 fishing boat smashed to pieces in the harbour... the sea carried away a large portion of the back of the harbour."
2. Glencairn... "all the fishermen's huts blown away... 1 schooner stranded on the shore."
2. Solway... "lightship stranded at Lochar."
2. Auchencaim... "the pier at Fish House Green has been utterly destroyed... boathouse at Balcary was wrecked."
2. Creetown... "A few of the fishermen's boats were sunk and net stakes though out of reach were washed away."
2. Portpatrick... "some small boats set adrift from their moorings in the harbour."
3) 1. Portpatrick... "the roadway in front of the harbour was completely torn up."
1. Drummore... "the roadway known as Stair St was partially washed away... cost £150 to repair... the public road leading from Low Curghie to Tiralyn Point and at Kilatay Bay were also badly damaged and in several places the road cut away."
1. Isle Of Whithorn... "the roadway leading to the Cairn was washed away."
2. Solway... "many telephone wires down leading to much communication disruption."
2. Troqueer... "public road flooded in three places between Pleasance and Islesteps."
3) 2. Annan... "part of the railway embankment at the Old Mill destroyed."
2. Carsethorn... "several roads flooded especially the road at North Carse farmhouse... the road opposite Victoria Terrace flooded and the road from Victoria Lodge to Slate Row... road to Kirkbean was flooded at Pow Bridge... roadway between Slate Row and The Barracks was totally destroyed."
2. Kirkbean... "roads in the area of Mersehead Farm flooded as a result of an embankment giving way."
2. Powfoot... "portion of road washed away... road so badly damaged that it is unusable for wheeled traffic."
2. Creetown... "some of the roads were flooded and damage done to them."
4) 1. Isle Of Whithorn... "offices, stores and stables received considerable damaged... Some blocks of solid masonry weighing several tons were moved some feet."
2. Dumfries... "Hoddam Castle Inn flooded... some damage to showmen's caravans and one tent blown away."
2. Kingholm Quay... "3 stores on the quay flooded one to a depth of five feet and damage to goods of about £100... damage to goods was also caused in the other two stores."
2 Glencaple...1 small store blown away.
2 Annan...gasworks flooded interrupting supply for 12 hours...1 office flooded to a depth of 16 inches and some warehouses in Port Street.
2 Carsethorn...1 saw mill flooded...1 stable and coach house damaged...1 manure store and 1 other premises damaged.
2 Creetown...a lot of loose timber thought out of reach of the water was washed away.
5) 1 Isle Of Whithorn...a field...Low Isle was flooded, and a quantity of potatoes washed out of the drills*
2 Solway...farms flooded at Ladyhall and Stanhope.
2 Dumfries...Dalwinton meadows and many other fields above the town were flooded.
2 Troqueer...4 fields flooded at Nethertown...11 fields flooded at Pleasance and Flatts Of Cargen...at Pleasance hundreds of rabbits drowned and numbers of partridge also perished...vinery at Cargenholm blown down.
2 Kingholm Quay...many fields flooded...1 field of turnips badly damaged...300 yards of iron railing felled.
2 Glencaple district...many fields flooded and large quantities of turnips and other farm produce have been washed away...fields flooded at Sherrington and Hollsuds.
2 Annan...fields flooded at Hillend and crops in them badly damaged...a field of wheat at Waterfoot farm swept away.
2 Carsethorn...North Carse farm...several buildings flooded.
2 Kirkbean...Mersehead farm and farmhouse flooded when embankment gave way...fencing destroyed, crops damaged and thousands of rabbits drowned.
6) 2 Kingholm Quay...park flooded.
2 Annan...at the Moat an ornamental summer house was washed away.
7) 1 Portpatrick...some houses flooded.
1 Isle Of Whithorn...many low lying houses flooded.
2 Solway...cottages flooded at Brow Well.
2 Kingholm...many houses flooded to a depth of between two and three feet causing some interior damage.
2 Glencaple...a few houses flooded...nearly all the cottages at Conheath were flooded.
2 Annan...many houses on Rose and Butte Streets flooded...also houses in Port Street and 1 house at Waterfoot flooded.
2 Carsethorn...some houses flooded and the gardens of several other houses flooded.
2 Creetown...houses in Mill Street and Silver Street flooded.
8) 1,2 Portpatrick..."the high tide, which at noon swept over the quay walls in a solid mass, flooding shops and houses"
1 Isle Of Whithorn...many houses flooded and parts of the harbour were washed away...a part of the Low Isle also flooded.
8) 2 Solway..."the fury of the gale combined with the heavy spate and a series of high tides produced floods of rarely exemplified magnitude in the district...cottages at Brow Well flooded...farms at Ladyhall and Stanhope flooded
2 Dumfries...The Whitesands was covered to a great extent up to and including the Hoddam Castle inn...The Dock Park was submerged from the Old Infirmary Loaning down...Dalwinton meadows and many other fields above the town were standing deep in water...below the town much flooding due to numerous breaches in the embankments.
2 Troqueer...The fields between the Newabbey road and the river on Redbank were flooded...at Nethertown the tide rushed over a nine foot gap in the embankment flooding four fields...further breaches made later on...farm of Pleasance and Flatts Of Cargen extensively flooded, 11 fields in total, between 200 and 300 acres. At three points between Pleasance and Islesteps the public road was flooded, up to three feet in places and the greatest distance being a hundred and thirty yards.
2 Kingholm Quay...the tide rushed over the embankment into the fields all around, covering the whole of the surrounding district with water...several breaches made in the embankment...many houses flooded...quay flooded to a depth of five feet...Kingholm park inundated.
2 Glencaple district...flooding of a few houses...cottages at Conheath flooded...many fields flooded in the district including at Sherrington and Hollsuds.
2 Annan...Rose and Butte Streets flooded...the holm above the bridge and Everholm were flooded...area around the Moat flooded...flooding in Port Street...fields at Hillend flooded...1 house and fields at Waterfoot flooded...in stackyard at Waterfoot farm there was five feet of water.
2 Carsethorn...The tide soon washed over several of the gardens on the opposite side of the road from the houses, and at high water several portions of the road along the village were covered by the sea. At North Carse farmhouse the sea covered the road for a considerable distance...the road opposite Victoria Terrace flooded also from the Victoria Lodge to Slate Row...road to Kirkbean was flooded at Pow Bridge.
2 Kirkbean... Mersehead farm and farmhouse flooded when embankment gave way... roads in the area are also flooded as a result.
2 Auchencairn... the pier at Fish House Green, Balcary was enveloped with the raging waves and utterly destroyed.
2 Creetown... flooding of houses in Mill Street and Silver Street... a number of public roads also flooded.

C) IMPACT AT OTHER SITES:
2) 1 Portwilliam... some damage done to the harbour.
2 Portling... fisherman's hut damaged where the bedding was all washed away.
2 Colvend... at Kippford several small boats were carried out to sea.
2 Kirkcudbright... 2 vessels run aground in the storm.
3) 1 Garliestown... road to Egemess is damaged and covered in sand and large stones.
2 Mid Annansdale... low-lying roads impassable in several places due to river flooding.
2 Langholm... many roads flooded by the river... the river Lyne flooded the main line of the North British Railway for a quarter of a mile and part of the embankment was swept away.
2 Dalbeattie... roadway at quay flooded.
2 Colvend... road to Kippford suffered considerable damage.
2 Gatehouse... roads at the drawbridge and Skyreburn Bridge flooded.
4) 1 Portwilliam... 2 properties suffered some damage.
2 Glenkens... roof of luncheon pavilion blown away at the New Galloway show field.
2 Dalbeattie... lumber stored on the quay damaged and washed away.
2 Kirkcudbright... 1 warehouse flooded and much of its stock damaged... 3 large casks of paraffin and some lumber were washed off the dock and out to sea.
2 Gatehouse... several hundred tons of lumber washed off the quay... slaughterhouse at Boatgreen surrounded by water.
5) 1 Wigtown... 2 farms flooded at Maidland and Crook.
2 Mid Annansdale... many hundreds of acres of land flooded due to river flooding... much grain washed away or damaged.
2 Langholm... many fields flooded by the river.
2 Glenkens... at the Mains Of Kenmure some fields flooded... also along the Dee some fields partially flooded.
2 Dalbeattie... "nearer the town a large number of rats were destroyed*.
2 Kirkcudbright... fields near the town flooded and at the Tarff valley where a considerable portion of hay was carried away... a few ash trees have been snapped down.
2 Gatehouse... fields around drawbridge flooded.
6) 2 Gatehouse... vestry of Free Church flooded... haystack at Boatgreen surrounded by water.
7) 1 Garliestown... some low-lying houses flooded.
2 Colvend... 1 house at Port-o'-Warren flooded and destroyed.
8) 1 Wigtown... one of the largest witnessed here for a number of years... farmland flooded at Maidland and Crook.
1 Garliestown... "some of the low-lying houses were inundated... road to Egemess is damaged and covered to a depth of three feet with sand and large stones.
2 Southerness... a road and merses were flooded.
2 Dalbeattie and Colvend... a general flood especially at the ports.
2 Dalbeattie... "the quay and roadway were submerged*.
2 Colvend... a house at Port-o'-Warren was flooded and destroyed.
2 Kirkcudbright... "the lower part of the town was flooded... the noon tide overflowed the harbour and in the nearest warehouse there was 18 inches of water... The river embankment was completely covered, the water flowing into the adjacent fields... Tarff valley.
2 Gatehouse... flooded the area from the drawbridge to the Boatgreen including the quay... fields around drawbridge flooded as was the roadway of the bridge... flooding of roadway at Skyreburn Bridge... flooding of vestry of the Free Church.
10) 2 Palnackie... considerable damage was done.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
2 England 10 lives lost in the Humber due to a collision in fog... reports of heavy damage come from English ports. Tremendous seas were experienced at Blackpool. 2 children died when the back walls of four houses in Stone Street, Newcastle were blown to the ground.
2 Wales 5 lives lost at Holyhead when a vessel being towed snapped her hawser and foundered... other fishermen's lives have been lost from Tenby... and Ramsey in the Isle Of Man... At Towyn nearly two miles of railway embankment running along the shore was washed away and several bridges were also demolished, the gasworks were submerged and the town plunged into darkness. In many other parts of North Wales the Cambrian Railway has suffered much damage. near Feyrd? a sea
wall in the course of construction was completely demolished.
2 Ireland 10 lives lost as the Daunts Rock Lighthouse is believed sunk just outside Cork harbour.

E) SIZE OF EVENT : Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Wigtownshire Free Press 1896 October 15, "Portpatrick"
2 Newspaper...Dumfries And Galloway Standard 1896 October 10, "Destructive Gale And Floods"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Long description of the event describing in detail the cause and impact of the event.
2 Very long detailed description of all aspects of the event.

NUMBER OF EVENT : CE.58

DATE OF EVENT : 1, 2 1896 October 8 (P.M. event).

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Isle Of Whithorn...a repetition of the day tide but not as high.
2 Kingholm Quay..."The following tide at midnight was almost as high"
2 Carsethorn..."Fortunately there was less sea and the tide did not strike so high a level"

B) WIND CONDITIONS :
1 Isle Of Whithorn..."although it still blew hard...shift in the wind"

E) LAMB'S CIRCULATION PATTERN : 7TH 8TH 9TH

    - C C

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Isle Of Whithorn..."Several breaches were made in the sea wall skirting the street"
2 Carsethorn..."At the Slate Row a little more of the road was washed away"

B) DAMAGE CAUSED :
3) Carsethorn..."At the Slate Row a little more of the road was washed away"
4) 1 Isle Of Whithorn...the Post Office was closed as a result of the flood waters surrounding it.
4) 2 Carsethorn...saw mill and 1 other premises suffered further damage.
8) 1 Isle Of Whithorn...nothing like as much water came in...Post Office had 4 to 5 feet of water around it.

C) IMPACT AT OTHER SITES :
7) 2 Kingholm Quay...some houses flooded.
8) 2 Kingholm Quay...some houses again flooded.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Wigtownshire Free Press 1896 October 15, "Isle Of Whithorn"
2 Newspaper...Dumfries And Galloway Standard 1896 October 10, "Disastrous Gale And Floods"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Description of event forms part of a much longer discussion of a previous event.
2 Brief mention of event which forms part of a very long description of a later event.
NUMBER OF EVENT: CE59

DATE OF EVENT: 1897 November 28-29.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Scotland, East Coast..."at several places the high tide and heavy sea"
England..."The tide was about seven feet above its usual level"
Stranraer..."an abnormally high tide was experienced"

B) WIND CONDITIONS:
Scotland..."A gale of great severity swept over the country...northerly"
England..."north-westerly to westerly gale"
Stranraer..."the gale was felt with great severity in Lochryan owing to its northerly direction.

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 27TH 28TH 29TH 30TH

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Scotland, East Coast..."destruction of roads near the sea margin"
Stranraer...40 yards of the sea wall and Caimryan Road collapsed sinking at the deepest point to a depth of 5 feet, cost of repair is about £200.

B) DAMAGE CAUSED:
1) Scotland, East Coast...South of Berwich some sailors drowned in shipwreck.
2) Scotland, East Coast...several fishing boats damaged and wrecked...Peterhead 3 yaws blown out to sea. South of Berwick a shipwreck occurred.
Stranraer..."one or two fishing boats sustained some damage"
3) Scotland, East Coast...some roads destroyed.
Stranraer...part of Caimryan road collapsed and closed to traffic..
4) Scotland, East Coast...some places affected by storm.
Stranraer..."When at its height the breastwork and some of the shore roads were inundated...part of sea wall and Caimryan Road collapsed due to the pounding of the sea.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
England shipwrecks off Northumberland, Yorkshire and Cornish coasts. The damage done in the English Channel to vessels, coast towns and dock works was very extensive.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Wigtownshire Free Press 1897 December 2, "Severe Storm"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Detailed description of event.
NUMBER OF EVENT: CE.60

DATE OF EVENT: 1899.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Arbroath...coastal erosion.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Arbroath...coastal erosion going on to the east of the town...material transported to Buddonness promentory, which is growing.

E) SIZE OF EVENT: Local

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
FLOOD NUMBER: CE. 61

DATE OF EVENT: 1, 2 1899 February 11.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Solway..."The tides...were exceptionally high"
2 South Alloa..."high tides...On Sunday the height of the tide was 25 feet 9 inches. It is more than 26 years since the like happened before"

B) WIND CONDITIONS:
1 Solway...in the absence of any up-channel winds*

B) WIND CONDITIONS:
1 Solway...in the absence of any up-channel winds*

D) ESTUARINE CONDITIONS:
1 Solway..."the Nith, which was in flood at the time"
2 South Alloa..."The storm of last week has caused the River Forth to become much swollen"

E) LAMB'S CIRCULATION PATTERN: 10TH 11TH 12TH

SW SW CW

H) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Troqueer...breaches made to embankments.
1 Nethertown...breaches made to embankments.
1 Kirkconnel...breaches made to embankments.

B) DAMAGE CAUSED:
5) 1 Troqueer, Nethertown, Kirkconnel...agricultural land flooded.
8) 1 Troqueer..."several breaches in the embankments...adjacent land flooded"
1 Nethertown..."made a gap in the bank at a farm...adjacent land flooded"
1 Kirkconnel...estate banks was pierced in three place...adjacent land flooded.

C) IMPACT AT OTHER SITES:
4) 2 South Alloa...hotel cut off by water.
5) 2 South Alloa...several fields on the Inch Farm were flooded.
7) South Alloa...houses on both banks were flooded, some had part of their contents washed into the street.
8) 2 South Alloa...the water rushed over the banks of the river at a terrific rate...the hotel at the south side was completely surrounded by water...1 street flooded and the lower parts of houses on it...Several of the fields on the Inch Farm were flooded and some houses on the north side also were flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Dumfries And Galloway Standard 1899 February 15, "High Tides And Flooding"
2 Newspaper...Alloa Journal 1899 February 18, "High Tides - Serious Flooding At South Alloa"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event forms part of a longer description of a sequence of two events.
2 Description of event gives detail on both the cause and the effect of the event.
DATE OF EVENT: 1, 2 1899 February 12.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1) Solway: "On Monday the tide was even higher"
2) Priestlands: "tide rose higher than the new bank constructed a few years ago"
3) Dundee: exceptional high tide.

B) WIND CONDITIONS:
1) Solway: "on account of the wind being stronger"

D) ESTUARINE CONDITIONS:
1) Solway: "the Nith, which was in flood at the time"

E) LAMB'S CIRCULATION PATTERN: 11TH 12TH 13TH
   SW CW CS

H) CLASSIFICATION OF CAUSE OF EVENT: Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1) Flatts Of Cargen, ...breach in embankment.
2) Troqueer: "a portion of the river-side footpath below Troqueer Mill was washed away"

B) DAMAGE CAUSED:
5) 1 Flatts Of Cargen, Priestlands and Broomlands...agricultural land and gardens flooded respectively.
6) 1 Flatts Of Cargen...breach made...adjacent land flooded.
8) 1 Troqueer..."a portion of the river-side footpath below Troqueer Mill was washed away"

C) IMPACT AT OTHER SITES:
2) 1 Dumfries and Kingholm...dock and quay flooded respectively.
3) 1 Nith..."the roadway at the foot of Nith Place was blocked"
7) 1 Kingholm...houses flooded.
8) 1 Priestlands..."tide rose higher than the new bank constructed a few years ago...submerging part of the land behind"
1) Broomlands..."and the flood also extended up to the gardens at Broomlands"
1) Kingholm..."the water was standing to a depth of five feet on the quay and houses were surrounded"
1) Dumfries..."a considerable portion of the Dock has been converted into a miniature lake and embankment overflowed.
1) Nith..."the roadway at the foot of Nith Place was blocked"
1) East Coast Of Scotland, Grangemouth and other places flooded.
1) Whitehaven and other places on the Cumberland coast flooded.
2) Dundee...harbour.

E) SIZE OF EVENT: Local...

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1) Newspaper: Dumfries And Galloway Standard 1899 February 15, "High Tides And Flooding"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1) Detailed description of event including description of event of the previous day.
2) Brief mention of event as part of a description of a later event.
NUMBER OF EVENT: CE.63

DATE OF EVENT: 1901 October 28.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
Bridgeness Harbour..."an unusually high tide"

B) WIND CONDITIONS:
Bridgeness Harbour...a great storm...gales lasted for about a fortnight and on the 28th...the storm reached its height.

C) DURATION OF STORM: Type 3.

D) LAMB'S CIRCULATION PATTERN: 27TH 28TH 29TH

AW - ANE

G) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
Bridgeness Harbour..."some 30 acres of unreclaimed foreshore east of the harbour...the sea was finally shut out at the begining of 1901...the sea burst through the bank at a weak place and flooded the whole enclosure"

B) DAMAGE CAUSED:
9) Bridgeness Harbour...30 acres of newly reclaimed land lost to the sea.

C) IMPACT AT OTHER SITES:
1) Granton...20 lives lost when H.M. Revenue cutter "Active" was wrecked.
2) Granton..."H.M. Revenue cutter "Active" was driven against Granton Pier and totally wrecked"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF DATING OF EVENT AND SOURCES: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of event as part of a longer description of reclamation techniques including the affected site.
NUMBER OF EVENT : CE.64

DATE OF EVENT : 1 1902 September 3.
             2 1902.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Solway..."a high tide...swept with destructive force along the sea-board of the Solway from Portpatrick to Gretna and up the estuaries of the rivers"
1 Glencaple..."tide was mountains high...many feet above the height registered in the nautical almanacs.
1 Annan..."the tide...rose to within two feet of the top of the railway viaduct which connects Annan and the Cumberland coast...a height of 33 feet.
1 Dumfries..."the tide rose so high that the Caul was obliterated...between twelve and one o'clock a height of 8 feet 3 inches was registered on the New Bridge, and the river had fallen to 7 feet 3 inches at three o'clock... a foot of the height at the earlier hour was due to the presence of tidal waters"
1 Kingholm..."The tide was up fully an hour before its usual time"
1 Carlaverock..."the high tide"
1 Troqueer..."The rapidity with which the tide rose above the embankment.
2 Carsethorn..."high tide"

B) WIND CONDITIONS :
1 Scotland..."a terrific gale...The storm swept over...the whole of lowland Scotland, from the Solway to Clyde and 1 Forth...In the early morning the direction of the wind was from the south-east; but while the hurricane was at its strongest, between ten o'clock and one, it blew from the south-west *
1 Kingholm..."the gale driving in"
1 Edinburgh...wind speed measured at 78 mph.
1 Dumfries..."the force of the wind"
2 Dumfries gale from S.W.

C) DURATION OF STORM : Type 2.

D) ESTUARINE CONDITIONS :
1 Solway..."a high tide...swept with destructive force along the sea-board of the Solway from Portpatrick to Gretna and up the estuaries of the rivers...following the heavy rain of Tuesday and the preceding night, the storm on Wednesday" brought down the rivers in roaring flood, and the combined effects of the high sea and the fresh in tidal rivers had disastrous results.

E) LAMB'S CIRCULATION PATTERN : 2ND 3RD 4TH

S C W

G) ANY OTHER FACTORS :
1 Scotland..."torrential rain"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Solway..."banks being broken down in many places"
1 Dumfries..."numerous breaches were made in the river banks"
1 Kingholm...opposite the lands of the Crichton Royal Institution the east bank was broken in two places, one gap extending 90 feet the other 20 feet.
1 Glencaple...embankment along farm broken in two places.
1 Carlaverock... a two mile protective wall was overtopped by four feet of water and as a result is riddled with holes at East Park farm...a sea bank at Nether Lochanwoods broken down.

B) DAMAGE CAUSED :
1) 1 Dumfries...2 people suffered minor injuries after being blown off their feet...1 man seriously injured when horses bolted due to the storm.
2) 1 Dumfries...many roads blocked by fallen trees....Telegraph and telephone were broken in many places, and communication has been seriously disrupted.
1 Glencaple... "bridge at north end of village damaged... the road between Glencaple and Kenneth Bank had its macadam surface stripped off.
4) 1 Kingholm... many stores on the quay flooded... in one damage was estimated at between £1200 and £1300... timber washed off Laghall Quay.
1 Glencaple... one wooden store carried away with all the goods in it... 2 wooden refreshment houses on the edge of the village were washed away.
5) 1 Solway... "miles of crops submerged, and in some instances live stock drowned"
1 Dumfries... many trees felled in the storm including at the Convent grounds... Nithbank orchard seven trees blown down... Dock Park 6 trees completely uprooted... most other trees in the park suffered severe damage... severe damage to crops all around the town six hay ricks blown over.
1 Glencaple... 1 farm partially flooded.
1 Carlaverock... 5 farms flooded... 70 acres of grain destroyed and much green crop lands flooded at East Park... two dozen sheep drowned at Hollands... much crop damage done at Nether Locharwoods... £400 worth of damage done to a potato field at Stanhope.
6) 1 Dumfries... the roof of the new block at the Convent lost many slates and roof lead.
1 Carlaverock... pavilion for use of visitors at Stanhope completely destroyed.
7) 1 Dumfries... many plate glass windows blown in, wall protecting entrance to house blown down.
1 Glencaple... some houses damaged by the flood... one had its hedge broken down.
8) 1 Dumfries... "The Dock Park was submerged, and on the Whitesands the overflowing waters swept around the Hoddam Castle corner".
1 Kingholm... quay and house in the village surrounded by the flood up to several feet in depth.
1 Glencaple... road flooded... at the village the water covered the high wall in front of the houses flooding the gardens... the quay was also flooded... 1 farm flooded.
1 Carlaverock... the very large farm of East Park was almost completely flooded when the two mile wall protecting it was overtopped and riddled with holes by the high tide by as much as 4 feet... farm at Hollands flooded... farm at Newfield flooded... farm at Nether Locharwoods flooded... farm at Stanhope flooded.

C) IMPACTS AT OTHER SITES:
3) 1 Moffat... road between Marchmount and Marchili blocked by a fallen tree.
1 Bankend... road blocked by 4 fallen trees also affected New Abbey road, Dalbeattie road, the Castle-Douglas road, the Terriglas road.
1 Lochmaben... Lockerbie-Dumfries train damaged when it ran into a tree that had fallen on the line.
1 Troqueer... many farms flooded on Stewartry side especially at Greenmerse farm on the Kirkconnel estate.
4) 1 Troqueer and Nithsdale Mills... alot of glass blown in.
6) 2 Carsethorn... "houses facing beach were flooded".
7) 1 Lochruittongate... a cottage badly damaged by a falling tree.
8) 1 Troqueer... The farms on the Stewartry side of the river were flooded to an extent unprecedented within living memory... farm of Greenmerse on the Kirkconnel estate heavily inundated, the tide rose 3 feet above the embankment*.
2 Carsethorn... "houses facing beach were flooded"

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England the storm swept over the north of England.
1 Ireland the storm swept over the north of Ireland.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper... Dumfries And Galloway Standard 1902 September 2 "Wild Wednesday Havoc By Gale And Floods"
2 Letter... A.E. Truckell pers comm. letter dated 1990 September 13. Mr Truckell is the former curator of the Dumfries Museum and has a particular interest in the history of the Carsethorn area. Original Reference... memory of older relatives.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very detailed description of the event giving information on all aspects of the event.
2 Letter from local curator/historian giving a brief description of the event.
NUMBER OF EVENT: CE.65

DATE OF EVENT: 1903 - 1906.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Nairn..."the sea has made considerable inroads"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Nairn..."the very serious condition of the foreshore near the harbour and Fishertown...During the past three years the sea has made considerable inroads and unless something is done very soon the Fishertown will be in danger of being inundated"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Glasgow Herald 1906 December 17, "The Erosion Of Nairmshire Shore"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CE.66


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Golspie...coastal erosion.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Golspie...Loss of 36 feet of land between the golf clubhouse and the high water mark...erosion here has thus taken place at a rate of 8.5 inches per year.

B) DAMAGE CAUSED:
6) Golspie...loss of land beside the golf clubhouse.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Glasgow Herald 1953 September 23, Rev C.A. Dodds "Coastal Erosion Inroads In Golspie Area" Based on a comparison with the 1904 Ordnance Survey map of the area.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT : CE.67

DATE OF EVENT : 1904 November 10.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Buckie...a very high tide prevailed.

E) LAMB'S CIRCULATION PATTERN : 9TH 10TH 11TH
   CW W CW

H) CLASSIFICATION OF CAUSE OF FLOOD : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Buckie..."sea made a further encroachment at the east end of Commercial Road..."The waves washed away the land to the very edge of the road leaving a sheer fall of 8 or 10 feet on to the beach"

B) DAMAGE CAUSED :
3) Buckie..."The waves washed away the land to the very edge of the road leaving a sheer fall of 8 or 10 feet on to the beach. A telephone pole was undermined and fell and has been erected in another spot"
8) Buckie..."The waves washed away the land to the very edge of the road leaving a sheer fall of 8 or 10 feet on to the beach.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENTS
A) SOURCES OF INFORMATION :
Newspaper...Banffshire Advertiser 1904 November 17 "Buckie - Encroachment Of The Sea"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CE-68

DATE OF EVENT : 1, 2, 5 1908 February 21-22.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Stranraer..."high tide in Lochryan...hevy seas"
1 Portpatrick..."there was a heavy sea in the harbour"
1 Whithorn..."There was a heavy sea at the Isle and the tide rose level with the quay"
2 Largs..."invasive high tides"
5 Largs..."a high tide...that the high tidal waters were driven over the pier"
5 Ardrossan..."the tide was a high one"
5 Fairlie..."there was a heavy sea running and the tide was the highest we have had for some years"

B) WIND CONDITIONS :
1 Stranraer..."a south-west gale set in on Saturday morning. In the forenoon the wind suddenly
backed to the north-west...and gradually increased in force till between noon and three o'clock
it was blowing with the force of a hurricane"
1 Scotland..."the country...was swept by a fierce south-west gale which in places had the force
of a tornado"
1 Portpatrick...a gale but not from S.W.
1 Glenluce..."a severe storm of wind...hurricane force...from the north-west"
1 Drummore..."a severe gale"
1 Wigtown..."the wind blew with terrific force"
1 Portwilliam..."a severe gale"
1 Garlieston..."a hurricane of wind"
2 Largs..."the storm"
5 Largs..."the violence of last Saturday's storm...a strong wind from the south with a change in
the direction of the wind to the west or north-west"
3 Methill..."storm"
5 Ardrossan..."a severe storm of wind"
5 Fairlie..."the storm"

4 Kilmarnock (Gle)...Wind at 9 am and pm : 19TH  20TH  21ST  22ND  23RD
Direction NW  SW  W  W  SW  W  SW  SW  SW  SW
Force (mph)  6  10  10  6 10 16 10 10 10 10

C) DURATION OF STORM : Type 2.

E) LAMB'S CIRCULATION PATTERN : 19TH 20TH 21ST 22ND 23RD
NW  W  W  NW

G) ANY OTHER FACTORS :
1 Scotland..."In many places thunder and lightning accompanied the storm, and rain was general"
1 Glenluce..."with heavy showers of hail"
1 Drummore..."accompanied by blinding showers of hail and sleet"
1 Wigtown...accompanied by hail showers.
1 Portwilliam...accompanied by heavy hail showers.
1 Garlieston..."accompanied by rain sleet and snow"
5 Ardrossan..."rain and hail"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Stranraer...The embankment at the approach to the railway bridge at the foot of Stair Drive suffered
severely, however, huge cavities being made in the earthenwork above the stone pitching by the action of
the waves...the embankment from Seabank Road to the end of the Wigtownshire Creamery premises...being
partially washed away, Creamery shed had part of its foundation washed away...An embankment erected to
protect a roadway to a house in Low Largs was lifted away...roadway at Innermessan brae extensive erosion
taking place. Sea wall and road beyond the burgh boundary badly damaged.

B) DAMAGE CAUSED:
1) 1 Stranraer...1 cyclist injured.
5 Largs..."several people were blown down and injured"
2) 1 Stranraer...1 vessel damaged at the East Pier.
3 Methill..."harbour damaged"
3) 1 Stranraer...some roads and streets impassable owing to the flood waters and driving spray.
Roadway outside burgh boundary will have to be resurfaced.
5 Largs...Bath Street and part of Main Street flooded and the low-lying districts of the town were flooded.
4) 5 Largs...shops flooded in low-lying districts of the town, up to a foot of water in them which caused considerable damage.
5) 1 Stranraer...1 field flooded at High Balyett.
6) 1 Stranraer..."most of the seats in Stair Park knocked over"
7) 1 Stranraer...some houses flooded, mant lost slated and chimney pots, several windows blown in.
8) 1 Stranraer..."the waves were making a clean sweep over the Breastwork, the esplanade at Portrodie, the west pier, Aignew Crescent and the sea-wall in Cairnryan Road...the sea was soon flowing into the low lying parts of market Street, Harbour Street and North Strand Street...being submerged to a depth of several feet...the embankment at the slaughter-house, the latter being flooded for a considerable time...The gardens of householders on the shore side of Sheuchan Street were flooded...also Armstrong Close and Broadstone Road...the embankment from Seabank Road to the end of the Wigtownshire Creamery premises...an embankment at Low Largs was lifted away...a field and the Innermessan brae roadway at High Balyett...sea wall and road beyond Burgh boundary.

C) IMPACTS AT OTHER SITES:
1) 1 Kilmarnock...1 man killed when wall blown down.
2) 1 Drummore...1 vessel slightlt damaged.
1 Portwilliam...1 small fishing boat sunk.
1 Firth Of Clyde...much disruption to ferry services.
3 Methill..."harbour damaged"
5 Ardrossan...considerable disruption to ferry services.
3) 1 Newton - Stewart...telegraph wires to the Whithorn district damaged.
1 Scotland...much disruption to telephonic communications.
5 Ardrossan...numerous telephone wires were blown down.
4) 5 Ardrossan..."The door of the broker's store at the Inches...was also burst open.
5) 1 Glenluce...slight damage to stacks and trees.
1 Newton - Stewart..."several trees uprooted"
1 Garlieston..."great numbers of trees have been blown down. Farm stackyards have also suffered"
7) 1 Glenluce...slight damage done to some roofs.
1 Wigtown...a good deal of damage was done to property.
1 Newton - Stewart..."Chimney cans and slated blown down"
1 Garlieston..."Houses have been stripped of slates and chimney cans"
5 Ardrossan..."the wooden barricade which tops the wall at the rear of Lauriston South Crescent was blown down and part of the wall with it...many houses lost chimney cans and slates"

8) 1 Portpatrick...harbour.
1 Whithorn...Isle and harbour.
2 Largs...flooding of seafront.
3 Methill..."harbour damaged"

D) LOCATION AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England Fatalities due to the storm at Manchester, Wisbech, Leeds, Liverpool, Sheerness (Kent) and Oldbury. At Grimsby a lightship was sunk. A mill at High Lane, four miles from Stockport had £20,000 worth of damage done.
1 Ireland part of train blown off tracks.

E) SIZE OF EVENT: Local.
AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Galloway Advertiser And Wigtownshire Free Press 1908 February 27, "Disastrous Gale"
2 Letter...pers comm Judith Davenport, letter dated 25th November 1991, Assistant Librarian, Ardrossan. Original Reference...photograph of event with caption
No original reference specified but a list of references given at the back of the book.
4 Observations...Meteorological Office 1908 Monthly Climatic Summaries, Kilmarnock (Glenfields Works).
5 Newspaper...The Ardrossan And Saltcoats Herald 1908 February 28 "The Storm", "Storm At Largs", "Fairlie", "Accidents"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very detailed description of the event, especially on the flooding and the damage caused.
2 Very brief description of the event.
3 Short description of event.
4 Instrumental data and a weather diary.
5 Detailed description of the event.

NUMBER OF EVENT: CE.69


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Southwick...Mersehead Farm...have lost 200 acres of merse by coastal erosion. Preston-merse...land lost by coast erosion.

G) ANY OTHER FACTORS:
Mersehead...previously reclaimed land.
Preston-merse...previously reclaimed land.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Southwick..."Mersehead Farm...have lost 200 acres of merse land by coastal erosion.
Preston-merse...previously reclaimed land lost by coastal erosion.

B) DAMAGE CAUSED:
9) Southwick...Mersehead Farm...loss of 200 acres of merse land...previously reclaimed.
Preston-merse...previously reclaimed land lost by coastal erosion.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event concentrating on the possibilities of reclamation.
NUMBER OF EVENT : CE.70

DATE OF EVENT : 1910 October 20

CAUSE OF EVENT
B) WIND CONDITIONS :
Buckie...on Thursday it blew with terrific force from the north-east...severe gale.
Portknockie...gale...wind from north.
Lerwick...a gale from the north-east.
Aberdeen...gale.

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 19TH 20TH 21ST

G) ANY OTHER FACTORS :
Buckie...gale accompanied by exceptional heavy rain.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Buckie...a part of the embankment in front of a sawmills on the quay was washed away and the
rails left without support.

B) DAMAGE CAUSED :
2) Buckie..."the works in connection with the extension at the Cluny Harbour were slightly
damaged", a huge heavy crane grab was lost...and the railway laid on the North Pier was torn
up in one place and undermined in another.
8) Buckie...The sea was particularly rough, and it dashed against the sea wall with great
violence...During the storm the works in connection with the extension at the Cluny Harbour
were slightly damaged"

E) SIZE OF EVENT : Local

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Banffshire Advertiser 1910 October 27 "Severe Gale In The Moray Firth", "Damage
To Buckie Harbour Extension Works"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Detailed description of the event.

736
NUMBER OF EVENT: CE.71

DATE OF EVENT: 1911 - 1912.

CAUSE OF EVENT

A) TIDAL CONDITIONS:
   1 Sandhead to Drummore: "The erosion is stated to have been caused not only by the action of the sea"
   2 Low Curghie: "sea encroachment"

G) ANY OTHER FACTORS:
   1 Sandhead to Drummore: "The erosion is stated to have been caused...but also by the removal of
      materials from the foreshore by boats from Ireland, which have made a practice of lifting stones and gravel"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 5.

IMPACT OF EVENT

A) EXTENT OF EVENT:
   1 Sandhead to Drummore: "encroachment of the sea which is taking place"
   1 Lochryan: "erosion on both shores"
   2 Low Curghie: sea encroachment.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
   1 Newspaper...Wigtownshire Free Press 1911 June 29 "Coast Erosion In Wigtownshire"
   2 Newspaper...Dumfries And Galloway Standard 1912 June 15 "Coast Erosion In Wigtownshire"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
   1 Description of the event concentrates on the institutional response to the problem.
   2 Description of the event concentrates on the institutional response to the problem.
NUMBER OF EVENT: CE.72

DATE OF EVENT: 1 1911 November 9 (date of newspaper, Sunday flood)
3 1911 November.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Glasgow...An exceptionally high tide raised the vessels high above the quay walls in the harbour.
1 Stranraer...the tide at mid-day rose to an abnormal height in the harbour.
1 Portpatrick..."at high water"
1 Luce Bay..."a heavy sea was running"
1 Ballantrae..."the tide swept over the land"
1 Girvan..."there was an exceptionally high tide"
3 Troon...very high water.
3 Ayrshire...the storm from the north-west.

B) WIND CONDITIONS:
1 Glasgow...a south-west hurricane...winds up to 60 m.p.h.
1 Stranraer...hurricane.
1 Portpatrick...gale of unusual severity from the west...veered round to North-West and moderated in severity.
1 Drummore...a gale of exceptional severity.
1 Glenluce...the storm continued...coming from the west in great gusts.
1 Kirkcudbright..."the gale continued"
1 Newton - Stewart..."one of the most violent storms experienced"
1 Wigtown..."the wind blew with the force of a gale from the north-west"
1 Whithorn..."not for many years has such a gale been experienced"
1 Ballantrae..."a fierce tempest raged"
3 Stevenston..."the storm"
3 Saltcoats...storm unequalled for thirty years previously...wind from north-west.

2 Colmonell...Wind at 9am: 4TH W 5TH W 6TH W 7TH W 8TH W
   Direction W W W W W
   Force (mph) 59 75+ 59 28 28
2 Dunfries...Wind at 9am and pm: 5TH SW 6TH SW 7TH SW 8TH SW SW SW SW SW SW SW SW
   Direction SW SW SW NW SW SW SW SW
   Force (mph) 51 43 16 2 6 22 2 2

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: 4TH W 5TH W 6TH W

F) LAMB'S SINGULARITIES: No 38. 21 Oct - 18 Nov, 29 days, W + C.

G) ANY OTHER FACTORS:
1 Glasgow, Kirkcudbright, Wigtown...heavy rain.
1 Newton - Stewart...the Cree came down in heavy flood.

2 Dumfries...Comments:
5TH Gale all night. Gale all day, wet.
7TH Very wet and windy.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
8) 1 Portpatrick..."a considerable stretch of tarmacadam pavement in North Crescent was torn up"}
1 Ballantrae...large portions of the beach were washed away. Big threat by erosion to several houses, a public road and water pipes and sewage drains in the area beside the river-mouth.
1 Girvan... a considerable portion of the sea banks on both sides of the harbour were washed away.

B) DAMAGE CAUSED:
4) 1 Girvan... many shops had their windows blown in.
6) 1 Portpatrick... a number of trees were blown down in the Dunskey area.
7) 1 Portpatrick... some house damaged due to flooding in North and South Crescents, some houses lost slates.
1 Girvan... many houses damaged, many slates lost and windows blown in.
8) 1 Portpatrick... houses in the front street were inundated... South Pier and Old Quay portions washed away.
1 Ballantrae... "the tide swept over the land... beach... flooding fields and reaching the houses at the Foreland and the Shellknowe"
1 Girvan... portions of the sea banks on both sides of the harbour were washed away.

C) IMPACTS AT OTHER SITES:
1) 1 Rhins District... 1 man injured.
1 Ailsa Craig... 2 men injured, 1 seriously.
1 Glasgow... a few people injured but not seriously.
2) 1 Wemyss Bay... a large part of the pier has been seriously damaged.
1 Portpatrick... "blocks of limestone forming the south pier, were dislodged... also the Old Quay... had a considerable portion washed away"
1 Ardrossan... steamer damaged in storm.
3) 1 Drummore... telegraphic communications damaged.
3) 1 Stranraer... some telegraph wires and poles damaged or blown down... the roadways in the North and South Crescents were slightly damaged.
4) 1 Kirkcowan... the smithy had its roof blown off.
1 Newton - Stewart... several zinc sheds lost their roofs.
1 Ailsa Craig... the whole plant consisting of steam crusher, cranes and rails and wagons were swept into the sea and lost or rendered useless, damage is estimated at 2,000 pounds. Two storage receivers belonging to the lighthouse were also blown down.
5) 1 Culhorn, Lochinchar, Kildrochat... many stacks and trees blown over.
1 Drummore... several stacks were blown down and some damage to farm buildings.
1 Glenluce... stacks were blown down and trees were blown down at Balkail.
1 Kirkcowan... a great amount of damage done to stackyards and farm buildings, many trees blown down at Craighlaw and Carsenigan Woods.
1 Whithorn... many stacks upset and some farm buildings damaged including at Catyans.
1 Newton - Stewart... many trees blown down.
1 Glasgow... many trees blown down in the city.
6) 1 Glasgow... damage to Exhibition especially Industrial Hall, Scenic Railway and Aviation Pavilion.
1 Stranraer... a pinnacle of one of the small spires of the Parish church was blown down... Stair Park soccer ground had most of its barricade round the ground blown down.
7) 1 Bridge Of Aird... 1 house had its ceiling collapse.
1 Glenluce... a few houses damaged in the countryside.
1 Kirkcowan... a great amount of damage done to houses, many lost slates.
1 Newton - Stewart... many houses lost slates and chimney pots, some windows blown in. Some damage to street lamps and signs.
1 Whithorn... many houses lost slates and many outhouses were damaged.
1 Glasgow... numerous houses lost slates, chimney pots, plate glass windows, hoardings and parts of their roofs.
7) 1 Stranraer... numerous houses lost slates, chimney pots, windows, pailings and lamps... at Caimryan many houses damaged due to flooding.
8) 1 Glasgow... "vessels were raised high above the quay walls"
1 Wemyss Bay... "pier seriously damaged"
1 Stranraer... at Caimryan village some flooding of houses... at the North - east corner of Lochryan the sea made further inroads.
10) 3 Stevenston... severe damage done.
3 Saltcoats... extensive damage done.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
1 England Berwick and Liverpool... some deaths reported due to gale.

E) SIZE OF EVENT: Intermediate.
AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Wigtownshire Free Press 1911 November 9, "The Storm"
2 Observations...Meteorological Office 1911 Monthly Climate Summaries, Stations Nos. 6505 Colmonell, 6641 Dumfries.
3 Newspaper...The Ardrossan And Saltcoats Herald 1911 November 29 "The Gale, Ayshire's Experience, Flood And Havoc"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

E) ASSESSMENT OF QUALITY OF DATA :
1 Very detailed description of event in terms of the cause of the event, the locations affected and the damage caused.
2 Instrumental data and a weather diary.
3 Brief mention of event as part of a detailed discussion of a later event.

NUMBER OF EVENT : CE.73

DATE OF EVENT : 1 1912 February 5-6.
2 1912 February.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Low Curghie..."by the high tide"

B) WIND CONDITIONS :
1 Low Curghie..."and gale"
2 Dundee..."South East gale"

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 4TH 5TH 6TH 7TH

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H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Low Curghie...roadway and seawall damaged.

B) DAMAGE CAUSED :
3) 1 Low Curghie...damage to roadway.
8) 1 Low Curghie...damage to roadway and seawall by the storm.

C) IMPACTS AT OTHER SITES :
8) 2 Dundee...damage to promenade.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper...Wigtownshire Free Press 1912 March 7, "Tidal Damage At Low Curghie"
2 Book...E. S. Valentine (1915) "Forfarshire"Cambridge, Cambridge University Press, p40.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF EVENT :
1 Short description of event as part of longer description of possible remedies and their costs.
2 Short description of event.
FLOOD NUMBER:

DATE OF EVENT: 1, 2, 4 1912 November 26-27

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Buckie... "By yesterday morning it went round to the north, and blew with unabated force raising a heavy sea in the Firth, the waves dashing in volumes over Buckle Harbour"  
2 Millport... "invasive high tide"
3 Ayrshire... "a higher tide because of the south-west wind."
4 Ardrossan... "high tide... heavy seas... spray up to a hundred feet high."
5 Fairlie... "high tide."
6 Irvine... "at the harbour one of the highest tides on record was raised"  
7 Largs... "the sea, which was breaking over the pier and esplanades"  
8 Saltcoats... "the tide was perhaps the highest recorded in the district for many years... the water made its way to marks previously untouched"  
9 Troon... "the sea rose higher and higher"  
10 Skelmorlie... "Severe havoc was wrought by the... tide"  
11 Wemyss Bay... "Severe havoc was wrought by the... tide"

B) WIND CONDITIONS:
1 Buckie... "The wind veered round to the west towards Tuesday evening... By yesterday morning it veered round to the north, and blew with unabated force"  
2 Millport... "storm"
3 Ayrshire... "hurricane of devastating force... from a south-westerly direction... wind of 73 mph recorded."  
4 Ardrossan... "high wind... gale"  
5 Dairy... "wind velocity very high."
6 Fairlie... "storm... gale"  
7 Galloway... "The storm"
8 Irvine... "the wind which has been blowing for some time increased enormously in force... the hurricane"  
9 Kilbarchan... "the gale was one of the severest ever experienced in this locality."
10 Scotland... "The storm which raged furiously"  
11 Largs... "the continuance of the gale which veered round to the west"  
12 Saltcoats... "storm... unequalled for more than 30 years... gale from the south-west...60 or 70 knot gale"  
13 Stevenston... "a strong gale"  
14 Troon... "violent gale from south-west"  
15 West Kilbride... "storm"
16 Skelmorlie... "Severe havoc was wrought by the wind"  
17 Wemyss Bay... "Severe havoc was wrought by the wind"

3 Inverness... Wind at 9 am and pm: 24TH 25TH 26TH 27TH 28TH  
Direction  W  W  W  SW  SE  W  N  NW  SW  S  
Force (mph)  16  16  6  10  6  43  6  6  2  2  
3 Kilmarnock... Wind at 9 am: 24TH 25TH 26TH 27TH 28TH  
Direction  W  W  S  NW  SE  
Force (mph)  22  16  43  16  2  

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: 24TH 25TH 26TH 27TH 28TH  
W  W  CW  CN  C

F) LAMB'S SINGULARITIES: No. 43 1912/1913 November 23 - January 7, 46 days, Character W.

G) ANY OTHER FACTORS:
3 Kilmarnock... Comments:
26TH Wind force 8 in am, force 9 1-2pm then force 8 to 5pm.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.
IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Buckie...Opposite the sawmills on Commercial Road a considerable part of the roadway was washed away.
1 Ardrossan...a section of the stone sea-wall in front of the New Parish Church was thrown down...a breach was made in the wall behind the shipyard...wall at Bath Villa partly washed away.
1 Fairlie...All along the shore footpaths and promenade were torn up.
1 Irvine...upriver at Waterside the Garnock river flooded the roadway and gardens near the footbridge and the greater part of the Low Green.
1 Largs...A part of the Alexandra Esplanade has been broken up, while the sea wall to the north, near Phan-a-mara has been completely wrecked : and the road in front of Auberry Crescent has been almost washed away.
1 Saltcoats...the pathway and road at the Bathing Station have been utterly destroyed and the place where once it was is strewn with huge boulders...at the Braes...all the banking which had been placed on the seaward section of that part of town was swept away and a huge gap made in the road...the wall at the back of the Braes was knocked down...at the end of the East Shore a considerable gap was made in the slope...The sleeper fence which finishes off the earthwork was almost wrecked...some earth washed away from the railway line...The high tide effectively removed the sand which had drifted against the West Esplanade.
1 Stevenston...surrounding sand dunes were covered by water...The new pier...the major part of last year's deposit was swept away.
1 Troon...At the south end of the Ballast Bank and along Titchfield Road, a lengthy portion of the roadway and the turf next to the sea were damaged...the esplanade road was cut up to some extent. Along the South Beach most of the boat was torn completely away*
1 West Kilbride..."esplanade and cinder path entirely washed away"
1 Wemyss Bay..."the sea-wall recently erected has been demolished"

B) DAMAGE CAUSED:
2) 1 Buckie...waves swept the divers boat off the quay at the new harbour extension and was lost. Part of the railway on the quay was also demolished, and swept into the sea.
1 Ianstown...a wooden pier at the slip was smashed and half of it carried away.
1 Ardrossan...The depot of the Shipping federation was flooded out...£200 worth of damage done to the harbour.
1 Fairlie...much damage was done to the pier.
1 Irvine...much flooding at the harbour.
1 Stevenston..."the new pier has been rendered useless, and the pier has been considerably damaged"*
1 Saltcoats...two small vessels and one larger fishing boat destroyed in the harbour.
1 Stevenston..."the pier suffered very severely, and the major part of last year's deposit was swept away"
1 West Kilbride...pier at Portencross split, damage estimated at several hundred pounds.
1 Wemyss Bay..."and the damage done to the timber of the pier was extensive...the steamboat traffic had to be suspended"*
3) 2 Millport...extensive flooding of streets on seafront.
4 Ardrossan...pathway on South Beach Green badly damaged...£100 worth of damage done...roadway at New Parish Church and North Crescent flooded.
3) 4 Fairlie...Bay Street and Allanton Park Terrace flooded...the main railway line north of the tunnel was flooded and the upline was damaged so as to stop traffic...Telephonic and telegraphic communication to Largs and West Kilbride were stopped for some time.
4 Irvine...Harbour Street and footpath from the Smithy corner to the shipyard was flooded, the latter to a depth of 3 to 4 feet.
4 Saltcoats...at the Braes...the roadway was encroached upon...Dockhead Street was flooded to a depth of two feet in places.
4 Stevenston...the water even found its way beyond the railway lines...making the intervening space look like an inland sea.
4 Troon...telegraphic communications disrupted for most of Tuesday...many streets flooded.
4 West Kilbride...road to Ardrossan damaged.
4 Irvine...the windmill pump was levelled to the ground and the chimney of a washing house was blown over and fell through the roof.
4 Largs...some shops flooded and their stock damaged in Main Street and Gallowgate Street, shop windows were blown in on Nelson Street.
4 Saltcoats...the wall at the back of the Braes was knocked down and some of the premises situated there were invaded by the tide...1 pub flooded to a depth of three feet on Quay Street.
4 Troon...many shops flooded at the Cross, damage done estimated at a £1,000...Post Office flooded to a depth of two feet...one window of the Co-operative Premises was smashed.
5) 4 Ardrossan...1 tree at the Holm Plantation blown down blocking the Sorbie Road...some poultry and tame rabbits were drowned.
6) 4 Ardrossan...some of the wooden seats on South Beach Green were torn from their fastenings and carried some distance away...the barricading round the Celtic football pitch was also laid flat...stone cross on the roof of St John's Free Church blown down...park at Princes Street damaged.
7) 4 Ardrossan...some house cellars on Arran Place flooded...One house on North Crescent had its front wall and ornamental railings demolished.
8) 1 Buckie...Opposite the sawmills on Commercial Road a considerable part of the road was washed away.
1 Buckie...the wind went round to the north, and blew with unabated force raising a heavy sea in the Firth, the waves dashing in volumes over Buckie Harbour. "waves swept the divers boat off the quay at the new harbour extension...Part of the railway was also demolished and swept off the quay". Opposite the sawmills on Commercial Road the sea was very rough...a considerable part of the roadway was washed away
1 lanstown...The huge seas smashed the wooden pier at the slip, half of it being carried away
2 Millport...extensive flooding of seafront and streets on it.
4 Ardrossan...caused heavy seas to sweep over the South Beach Green...a section of the stone sea-wall in front of the New Parish Church was blown down and the roadway flooded.
The water found its way into some of the cellars on Arran Place...a breach was made in the wall behind the shipyard...the North Crescent was flooded for several hours...The depot of the Shipping federation was flooded out...park at Princes Street flooded...wall at Bath Villa partly washed away.
4 Fairlie...Bay Street and Allanton Park Terrace flooded where some houses were flooded...All along the shore footpaths and promenade were torn up...the main railway line north of the tunnel was flooded.
4 Irvine..."considerable damage was done to the roofs of properties in various quarters of the town"
4 Largs...some houses flooded in Bath Street. Many houses lost slates, rhones and chimney cans.
4 Saltcoats...while the entrance at the minstrel stand was so flooded that the water even invaded the Melbourne Park...the railings surrounding the pond at the Bathing Station have been torn up...the Bathing station was flooded and much damage has been done to the inside of its buildings.
4 Stevenston...the old golfcourse was flooded...the kiosk was covered by water...many windows blown in at the school.
7) 4 Ardrossan...some house cellars on Arran Place flooded...One house on North Crescent had its front wall and ornamental railings demolished.
4 Fairlie...on Allanton Park Terrace some houses were flooded, damage was also done to the wall and railings in front.
4 Irvine..."considerable damage was done to the roofs of properties in various quarters of the town"
4 Largs...some houses flooded in Bath Street. Many houses lost slates, rhones and chimney cans.
4 Saltcoats...while the entrance at the minstrel stand was so flooded that the water even invaded the Melbourne Park...the railings surrounding the pond at the Bathing Station have been torn up...the Bathing station was flooded and much damage has been done to the inside of its buildings.
4 Stevenston...the old golfcourse was flooded...the kiosk was covered by water...many windows blown in at the school.

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4 Troon...road at Port Ronald flooded...for hundreds of yards the esplanade walk was submerged...Portland Street and West Portland Street flooded...the Cross and the streets converging on it were flooded to a considerable depth...from Ayr Street down to the old Parish Church on the one side, and to the end of Rome's Buildings in Templehill on the other were also under water. Later on Church Street and Barassie Street were flooded...also flooded were Union Street, Bach Templehill, Welbeck Crescent, and the lane running behind Portland Street where the water was at the height of the garden walls...Post Office flooded to a depth of two feet...flooding of the Ballast Bank and the houses at Harbour Row.
4 West Kilbride...pier at Portencross split.
4 Wemyss Bay..."the sea-wall recently erected has been demolished...and the damage done to the timber of the pier was extensive"

C) IMPACTS AT OTHER SITES:
1) 1 Portessie...1 fisherman drowned and 1 small boat lost.
1 Helmsdale...2 fishermen drowned.
4 Glasgow...personal injuries were more numerous.
4 West Coast...nineteen fatalities reported.
3) 2 Millport...extensive flooding of streets on seafront.
4) 4 Kilmarnock...some damage to the Dennyholm Mill.
4) 4 Dalry...the damage to land, fences and property is considerable.
5) 4 Kilmarnock...in the country districts trees were uprooted and stacks of hay blown down.
4 Kilmarnock..."much havoc has been wrought to farmsteadings"
6) 4 Dalry...a wooden barricade at the Public School was blown down.
4 Galston...windows in school blown in.
4 Kilmarnock...the barricade at the western side of the Hurfford Football Ground has been damaged, the cost of repair is £40.
7) 4 Galston...many houses lost slates and chimneys...many outhouses have lost their roofs.
4 Kilmarnie...many chimney heads, pots, slates and lead were blown down.
4 Kilmarnock...some houses lost their chimney cans.
8) 2 Millport...extensive flooding of seafront and streets on it.
4 Dalry..."river Gamock and its tributaries overflowed its banks in all directions, the valley or miles having the appearance of a lake"
4 Galston..."The local burns were high, but little damage has been caused by flooding.
4 Kilmarnock...fields next to the Garnock were flooded.
4 Skelmorlie...the shore and road are torn up.

E) SIZE OF EVENT : Large.

AUTHENTICITY OF INFORMATION
A) SOURCES OF INFORMATION :
1 Newspaper...Banffshire Advertiser 1912 November 28, "Storm In The Moray Firth", "Buckie And Portessie Fishermen Drowned"
3 Observations...Meteorological Office 1912 Monthly Climatic Summaries, Station Inverness, 6557 Kilmarnock.
4 Newspaper...The Ardrossan And Saltcoats Herald November 29 "The Gale, Ayrshire's Experience, Flood And Havoc"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Detailed description of event.
2 Very brief description of the event.
3 Instrumental data and a weather diary.
4 Very detailed description of all aspects of the event.
NUMBER OF EVENT : CE.75

DATE OF EVENT : 1912 December 24.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Portpatrick..."and at high water at night ...the sea in the harbour was unusually heavy"

B) WIND CONDITIONS :
Glenluce..."there was a perfect hurricane from the south-west"
Portpatrick..."a gale of exceptional violence...from the S.S.W.
Newton - Stewart..."a fierce gale swept over the district"
Girvan..."a severe southerly gale raged"
Whithorn...following the fierce gale of Tuesday.

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 23RD 24TH 25TH

SW W W

F) LAMB'S SINGULARITIES : NO. 43, 23 Nov - 7 Jan 1912/1913, 46 days, Charavter W.

G) ANY OTHER FACTORS :
Girvan...serious river flooding in the district...river Girvan in spate.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
8) Girvan...the foreshore was badly cut up.

B) DAMAGE CAUSED :
3) Girvan...a horse drawn van blown over and damaged.
5) Girvan...a large elm tree on the Ardmillan Policies was blown down.
6) Girvan...a small part of St. Josephs convent on Alisa St was blown down.
7) Girvan...a number of houses lost slates and had windows blown in.

C) IMPACT AT OTHERS SITES :
3) Portpatrick...the roadways...in the Crescents suffered considerably.
5) Newton - Stewart...a number of trees were uprooted.
7) Glenluce...some houses lost slates and other minor damage.
   Newton - Stewart...many houses lost slates and chimney cans.
   Portpatrick..."the houses in the Crescents suffered badly"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Wigtownshire Free Press 1912 December 26, "Glenluce"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Description of event as it affects a number of locations.
NUMBER OF EVENT : CE.76

DATE OF EVENT : 1913 February 7-8.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Stranraer..."there was an extremely high and strong tide in the harbour.
Girvan..."the night tide rose to a great height"

B) WIND CONDITIONS :
Stranraer..."gale, which blew with great severity from the west"
Girvan..."a severe south-easterly gale raged"
Whithorn..."gale"

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 6TH 7TH 8TH 9TH
          W   SW  W  W

G) ANY OTHER FACTORS :
Whithorn..."heavy rain followed"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT
8) Girvan..."All along the foreshore the sea made considerable inroads and at Shallock Mill a recently made embankment was almost completely washed away"

B) DAMAGE CAUSED :
2) Girvan..."one of the piers was covered by water to a considerable depth.
3) Girvan...at Shallock Mill...the waves were washing up to the main public road"
8) Girvan..."one of the piers was covered to a considerable depth...at Shallock Mill...the waves were washing up to the main public road"

C) IMPACTS AT OTHER SITES :
1) Glasgow...Scotstoun, 3 men died when river water flooded Elderslie Graving Dock.
2) Stranraer...3 boats sunk or damaged in the harbour and 1 at Portrodie.
8) Stranraer...harbour affected by the storm.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES :
England off Liverpool a ship sunk, 11 sailors drowned...1 man killed in Cheshire.
Ireland off Tory Island 3 drowned off a ship.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Wigtownshire Free Press 1913 February 13 "Disastrous Storm"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Description of event.
NUMBER OF EVENT: CE.76

DATE OF EVENT: 1915.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Monifieth...considerable erosion taking place.
Buddon Ness...considerable erosion taking place.

H) CLASSIFICATION OF CAUSE OF FLOOD: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Monifieth...considerable erosion taking place.
Buddon Ness...considerable erosion taking place.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...E. Valentine (1915) "Forfarshire" Cambridge, Cambridge University Press.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Detailed description of event.
NUMBER OF EVENT: CE.77

DATE OF EVENT: 1 1915 September.
    2 1915 October 29.

CAUSE OF EVENT
B) WIND CONDITIONS:
   1 Nairn..."September gale"
   2 Buckie...Sunday's storm.

   3 Nairn...Wind at 7 am and 6 pm: 28TH NNW 29TH NNW 30TH NNW
   Force (mph): 10 10 22 16 16 2

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN:

   27TH 28TH 29TH 30TH
   NCNN

G) ANY OTHER FACTORS:
2 After two days rain extensive river flooding on the Spey and Nairn.

3 Nairn...Comments:
29TH Squally with passing showers during the night.

H) CLASSIFICATION OF CAUSE OF FLOOD: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
2 Buckie...loss of half reclaimed area in West Bay...many thousands of tons of material were
carried seaward...embankment protecting reclaimed area was broken in upon and between a
quarter and a half mile of the railway was engulfed and washed away.

B) DAMAGE CAUSED:
8) 2 Buckie...An extensive area that was being reclaimed over the previous three years in the
West Bay...half the entire area was washed away when the protecting embankment was broken
into by the sea...from a quarter to a half mile of railway on top of embankment was engulfed.

C) IMPACT AT OTHER SITES:
2) 1 Nairn...damage to harbour.
8) 1 Nairn...flooding of harbour.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Forres Gazette 1915 November 17, "Nairn Harbour Damaged"
2 Newspaper...Courant 1915 October 1, "Havoc At Buckie Harbour"
3 Observations...Meteorological Office 1915 Monthly Climate Summaries, Station No. 1008 Nairn.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENTS: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event which forms part of a discussion of a more recent event, few
details given.
2 Detailed description of event.
3 Instrumental data and a weather diary.
NUMBER OF EVENT : CE.78


CAUSE OF EVENT
B) WIND CONDITIONS :
Nairn..."A terrible gale from the north-east"

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 12TH 13TH 14TH

CE N N

G) ANY OTHER FACTORS :
Nairn...accompanied by heavy rain.

H) CLASSIFICATION OF CAUSE OF FLOOD : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Nairn..."the almost total destruction of the protection works on the foreshore. The work recently carried out and older works have been washed away. A breach has been made in the bar.

B) DAMAGE CAUSED :
2) Nairn..."the head of the west pier having sustained further damage"
5) Nairn..."several stables close to the harbour were flooded"
8) Nairn..."Several stables close to the harbour have been flooded", the almost total destruction of the protection works at the foreshore.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Forres Gazette 1915 November 17, "Nairn Harbour Damaged"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Detailed description of event.
NUMBER OF EVENT: CE.79.

DATE OF EVENT: 1925 - 1926.

CAUSE OF EVENT
B) WIND CONDITIONS:
Skara Brae..."a further severe storm"

C) DURATION OF STORM:

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Skara Brae..."a further severe storm was soon to tear away part of the coast and also the midden heap and the previously excavated remains"  

B) DAMAGE CAUSED:
6) Skara Brae...a further severe storm was soon to tear away part of the coast and also the midden heap and the previously excavated remains. A seawall was quickly erected in 1927 to prevent any further marine erosion.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...D. Willis (1986) "Sand And Silence - Lost Villages Of The North"
Original Reference...Book...V. Childe (1931) "A Pictish Village In Orkney" p5.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event which forms part of a longer description of the site and its history.
NUMBER OF EVENT: CE.80


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Carsethorn...erosion of shore.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Carsethorn..."Erosion of shore at West Viveston farm of up to 200 yards ...a six to ten foot cliff of boreal peat disappearing with it"

B) DAMAGE CAUSED:
5) Carsethom...loss of agricultural land at West Viveston farm.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Letter...A. Truckell (1990) pers comm, letter dated 13 September 1990, based on the authors own recollections.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CE. 81


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Fetteresso... "The encroachment of the sea"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Fetteresso... "The encroachment of the sea in Stonehaven Bay has led to the decline in the village of Cowie... the high-water mark of ordinary spring tides has advanced over sixty feet since 1935"

B) DAMAGE CAUSED:
10) Fetteresso... "the decline in the village of Cowie"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT : CE.82

DATE OF EVENT : 1 1936 January 10.
2 1936.

CAUSE OF EVENT

A) TIDAL CONDITIONS :
1 Firth Of Clyde..."an exceptionally high tide"
1 Troon..."At high water huge waves broke over the Ballast Bank"
1 Lamlash..."A phenomenally high tide"
1 Rothesay..."high tide"
1 Ardrossan..."invasive high tides"

B) WIND CONDITIONS :
1 West Coast..."the full force of the gale"
1 Troon..."gale"
1 Lamlash..."and strong wind"
1 Portwilliam...very strong wind.
1 Glasgow..."Despite periods when the wind reached gale force...by the storm"
1 Paisley..."The strongest gust of wind recorded reached a velocity of 71 miles per hour at
the Coats Observatory"
1 Abbotsinch...highest velocity recorded was 67 miles per hour at the meteorological station.
1 Aberdeen..."gale"
1 Firth Of Forth...gale.
2 Ardrossan..."storm"

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 8TH 9TH 10TH 11TH

G) ANY OTHER FACTORS :
1 Glasgow...the rainfall during the 24 hours up to 9 o'clock was 0.61 inches at Springburn Park.
1 Paisley...the rainfall was 0.88 inches for the same period.
1 Perth...Tay river flooding of North Inch golf club.
1 Canongate Bridge...Jed river flooding.
1 Teviot valley..."extensive flooding...main road between Jedburgh and Kiolo had 4 feet of
water on it.
1 River Tweed...also in flood, rose 8 feet and flooded St Boswells Golf Course.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT :
1 Troon...the Ballast Bank...cutting a deep gully on the east side opposite Harbour Row...on the
north shore a portion of the town's controlled refuse dump was washed away.

B) DAMAGE CAUSED :
7) Troon...6 houses flooded at Harbour Row with water and silt and some damage was done to
the belongings in these houses.
8) 1 Troon...a number of houses flooded at Harbour Row...Portland St also had surface
water...The Italian rock-gardens adjoining the swimming pool were again submerged.

C) IMPACT AT OTHER SITES :
2) 1 Portwilliam...1 vessel torn from its moorings in the harbour and damaged.
1 Aberdeen ...1 steamer forced to turn back because of the gale.
2) 1 Largs...delay to 2 vessels caused by the gale.
3) 1 Lamlash...Brodick-Lamlash road blocked by falling trees causing delay to traffic...road at
Brodick flooded causing delay...some trunk phone lines blown down.
4) 1 Rothesay...a number of shops flooded with damage done to their stock.
5) 1 Lamlash...many trees felled onto the Brodick-Lamlash Road.

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8) 1 Firth Of Clyde... “flooding in several towns”
1 Largs... streets near the sea front were flooded... Lower part of Bath St had a foot of water... at Brodick the tide was over the road.
1 Rothesay... “where the water flowed over the esplanade and into a number of shops”
2 Ardrossan... “flooding of coastal area”
10) 1 Glasgow... some minor damage done.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Newspaper... Glasgow Herald 1936 January 11, “Great Gale Clyde Coast Floods”

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Description of event giving detail on cause and effect.
2 Letter from local librarian giving a very brief description of the event.

NUMBER OF EVENT : CE.83

DATE OF EVENT : 1939 - 1945.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Carsethorn... washed away by the sea.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Carsethorn... road between North Carse farm and the village completely washed away.

B) DAMAGE CAUSED :
3) Carsethorn... road between North Carse farm and the village completely washed away.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CE.84

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Dysart to West Wemyss..."due to the effects of coast erosion"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Dysart to West Wemyss..."the pathway suffered greatly, mainly due to the effects of coast erosion"

B) DAMAGE CAUSED :
3) Dysart to West Wemyss...pathway damaged by coastal erosion.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Fife Free Press 1955 February 26 "Man I The Rock Is In Danger"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Detailed description of the event.

NUMBER OF EVENT : CE.85

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Aberdeen...Royal Aberdeen Golf Club...erosion of the dunes.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Aberdeen...Royal Aberdeen Golf Club..."the anti-tank concrete blocks and the occasional machine gun pill boxes which are readily visible on the beach and in the sea at low tide were originally situated on the top of the dunes and over the past 50 years, as the dunes have eroded and collapsed, these World War 2 defensive measures have resited or toppled onto the beach"

B) DAMAGE CAUSED :
6) Aberdeen...Royal Aberdeen Golf Club...damage to golf course especially the 5th hole.
8) Aberdeen...Royal Aberdeen Golf Club...erosion of coastal dunes.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Questionnaire...R.D. Hutchinson (Club committee member) 1992 August 26.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT: CE.86

DATE OF EVENT: 1942 December 9-10.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Solway Firth... "The highest tide seen ... for over 40 years.

B) WIND CONDITIONS:
Solway Firth... "wind storm"

C) DURATION OF STORM: Type 1.

D) ESTUARINE CONDITIONS:
Annan... the river in spate combined to flood other houses above Annan Bridge.

E) LAMB'S CIRCULATION PATTERN: 8TH 9TH 10TH 11TH
\[ \text{W SW SW CW} \]

H) CLASSIFICATION OF CAUSE OF EVENT: Class 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Annan... "burst in two places through a nine-foot embankment alongside the river
Annan... breaches 4 feet wide... other damage was done to the embankment... and cut two large gaps in the roadway between Annan Bridge and Milnfield"

B) DAMAGE CAUSED:
1) Annan... 1 person injured when cycled into eroded hole in roadway.
5) Annan... agricultural land flooded... 20 cartloads of turnips washed away and land flooded at Waterfoot farm... and land flooded at Hillend farm.
7) Annan... houses flooded in town.
8) Annan... broke in flood over adjoining land... flooded 22 acres around the Annan-Dumfries road... and flooded houses in Port St in the town... the river Annan in spate combined to flood other houses above Annan Bridge... flooding at Waterfoot farm and Hillend farm on the other side of the river had 20 acres flooded.

C) IMPACT AT OTHER SITES:
3) Solway Firth... roads flooded along the shore.
Annan... roadway damaged between Annan Bridge and Milnfield.
5) Solway Firth... fields flooded along the shore... many sheep lost... land flooded between Sark and Esk... Sarkfoot farm flooded and 40 tons of turnips washed away.
Gretna... 40 sheep lost and land flooded at Ellison Bank Farm... land flooded at Old Graitney Farm
6) Gretna... the Sark Tollbar marooned.
8) Solway... fields and roads at many points along the shore disappeared under floods... The inrush of water overran land between the river Sark and Esk, and penetrated up the Sark for almost a mile and marooned the Sark Tollbar, famous old Gretna marriage house... Sarkfoot farm flooded.
Gretna... Ellison Bank Farm and Old Graitney Farm flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper... Glasgow Herald 1942 December 21, "River Bank Cut By Flood"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of event gives detail on cause and effect.
NUMBER OF EVENT : CE.87

DATE OF EVENT : 1947 April 23.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Solway Firth..."exceptionally high tide"

B) WIND CONDITIONS :
Lower Annandale..."gales"

C) DURATION OF STORM : Type 1.

D) LAMB'S CIRCULATION PATTERN : 22ND 23RD 24TH
   W C W

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT
   Solway Firth...many river banks breached...near the river Sark tide and flood water were
   lapping around farm steadings half a mile from the shore.

B) DAMAGE CAUSED :
   5) Solway Firth..."large tracts of farmland under water...also around river Sark"
   8) Solway Firth..."large tracts of land flooded...near the river Sark tide and flood water were
   lapping around farm steadings half a mile from the shore.

C) IMPACTS AT OTHER SITES :
   5) Lower Annandale..."Haysheds and other wooden buildings have been blown down or damaged.
   7) Annan...some damage to the new housing scheme.
   8) Annan..."street alongside the harbour has again been flooded"

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION
   Newspaper...Glasgow Herald 1947 April 24, "Solway Floods"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
   Short description of the event.
NUMBER OF EVENT: CE.88

DATE OF EVENT: 1949.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Gretna-Dornock...previously reclaimed land at Old Graitney, Redkirk and Baurch suffering from ongoing coastal erosion.
2 Southerness...is undergoing constant erosion.

F) ANY OTHER FACTORS:
1 Gretna-Dornock...previously reclaimed land at Old Graitney, Redkirk and Baurch.
2 Southerness...erosion is balanced by accretion of foreshore and land to the west.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Gretna-Dornock...previously reclaimed land at Old Graitney, Redkirk and Baurch suffering from ongoing coastal erosion.
2 Southerness..."the promontory of coastal plain south of Criffell, is undergoing constant erosion"

B) DAMAGE CAUSED:
5) 2 Southerness..."the promontory of coastal plain south of Criffell, is undergoing constant erosion"
9) 1 Gretna-Dornock...previously reclaimed land at Old Graitney, Redkirk and Baurch suffering from ongoing coastal erosion.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Article...A. G. Ogilvie (1949) "Land Reclamation In Scotland" Scottish Records Office, File No. AF44/270, p1-7.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Short description of the event.
NUMBER OF EVENT: CE.89


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Fife Ness to Elie..."by no means negligible pounding of storm waves originating in the upper reaches of the Forth";
St. Andrews..."the sea has worn away...now it is attacking"

B) WIND CONDITIONS:
Fife Ness to Elie..."Exposed to the full force of easterly and south easterly gales"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Fife Ness to Elie..."this stretch of coast as far as Elie is a rocky one, with erosion dominant";
St. Andrews..."the sea has worn away all traces of the 25-foot terrace on which local tradition has it that cattle were grazed within historic times. Now it is attacking the inner margin cliffs on the 25-foot beach"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of the event.
NUMBER OF EVENT: CE.90

DATE OF EVENT: 1951.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
St Fergus...the effects of the tide.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
St Fergus..."Along the coast the bents are showing the effects of the tide; at the southern end sand is being removed"

B) DAMAGE CAUSED:
8) St Fergus...removal of sand from coast.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CE.91


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Cullen..."sea erosion"

E) LAMB'S CIRCULATION PATTERN: 1ST 2ND 3RD 4TH 5TH 6TH
   C  C  W  SW  C

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Cullen...sea erosion occurring to the golf links...there was a breach in the protective wall.

B) DAMAGE CAUSED:
6) Cullen...erosion of part of local golf links.
8) Cullen...breach in the protection wall.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Glasgow Herald 1951 January 7, "Links Erosion Danger"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CE.92


CAUSE OF EVENT

A) TIDAL CONDITIONS:
1. Portessie to Portgordon...mountainous seas.
2. Flotta..."With a full moon the tide was exceptionally high...heavy seas"
3. Kirkwall..."spring tides...gigantic seas in the harbour"
4. Flotta..."the tide was exceptionally high"
5. Stromness..."the height of the tide"
6. Clyde..."high seas"
7. North - East..."tremendous seas which were running"
8. Crovie..."high seas"
9. Buchan..."the highest tide of the month"
10. Banff..."the highest tide of the month"
11. Leith..."tide height of 10.8 feet O.D.

B) WIND CONDITIONS:
1. Portessie to Portgordon...Saturday's storm.
2. Flotta..."wind of hurricane force"
3. Kirkwall..."wind previous day was NNW. On day of event was northerly hurricane, wind up to 125 m.p.h. at Costa Head.
4. Firth..."a hurricane"
5. Orphir..."severe storm"
6. Stromness..."the severity of the storm"
7. Kirkwall..."wind, which reached 110 m.p.h.
8. North Scotland..."gale"
9. West Scotland..."gale"
10. Clyde..."full fury of the gale"
11. Orkney..."full force of the storm"
12. North - East..."full force of the storm"
13. Deeside..."gale"
14. Forth..."the high wind"
15. Stromness..."gale"
16. Shetland..."gale in excess of 100 m.p.h.
17. Crovie..."storm"

C) DURATION OF STORM: Type 3.

E) LAMB'S CIRCULATION PATTERN: JAN 30TH 31ST FEB 1ST

W N AN
G) ANY OTHER FACTORS:
2 Kirkwall...sleet and snow...during the storm the temperature dropped from 41 degrees F down to 33 degrees F.
2 Finstown..."dense banks of sleet"
2 Flotta..."accompanied by sleet"
2 Stromness..."a hail shower"
3 Deeside...snow with drifts up to 4ft deep.
3 Cairn O' Mount..."snowdrifts"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Portessie...coast road badly eroded, at the promontory 20 feet of ground eroded.
2 Kirkwall..."in little over three hours crumpled the sea-wall and washed away the roadway along the entire length of the Ayre Road, a distance of 420 yards, and also in Shore St, where water gas and oil pipes were laid bare. The seafront damage alone is estimated at over £25,000 Kirkwall-Deerness road near Dingieshowe where 70 yards of pitching on the north side of the road was washed away...There has been damage to the Kirkwall-Carness...seawall" 2 Finstown..."the sea washed right into the road's edge near Sidney Cottage"
2 Westray..."the seawall has been demolished over a distance of 70 yards near Chalmersquoy to the Mill burnard a further 70 yards is so badly damaged that it will have to be taken down and replaced. the seawall was also badly damaged at another two points - Surrigarth and Swithmill"
2 St Margaret's Hope..."The seawall was also badly damaged on the front"
2 Flotta... a sea wall built many years ago at Bothliego...was breached and flattened by the heavy seas.
2 Stromness..."About 20 yards of the retaining wall of the road below the putting green at Stromness Golf Course was ripped open and much of the road was washed away...Many of the heavy stones on the pier itself were shifted and much of their backing washed away"
3 Portessie....mountainous seas tore away slices of the land on the road to Portgordon...many houses on the foreshore undermined and sheds and garages and cars washed away.
3 Musselburgh...road to Levenhall, Musselburgh, Cuthill and Prestonpans undermined by the force of the waves.
3 Edinburgh, Portobello...masonry was dislodged from the breakwaters to Prestonpans...weak parts of the promenade were further loosened.
4, 5 Crovie...coastal path and the sea-wall was undermined and washed away in a number of places from the village to Crovie Burn.
5 Banff..."at several places the sea-wall gave way"
5 Seatown..."Below the main street to the west of the harbour the ground was undermined"
7 Drainie Parish...a large bed of gravel was deposited on the Stotfield Sands.
9 Scotland...900 breaches have been made in about 500 to 600 miles of sea wall.

B) DAMAGE CAUSED:
2) 2 Kirkwall...all shipping suspended during hurricane...one oil tanker dashed against the West Pier causing a fifty foot hole...one old motor launch on the slipway was converted into matchwood...some small boats in the harbour were damaged...one steamer damaged at sea.
2 Flotta...two dingies were smashed to bits and two more damaged.
2 Stromness..."Many of the heavy stones on the pier itself were shifted and much of their backing washed away"
7 Drainie Parish...1 fishing boat was lost.
3) 2 St Margaret's Hope...damage done to seafront roads.
2 Finstown...telegraph and telephone and hydro lines blown down, as a result of the latter some houses were without electricity...road at Loan of Breckon blocked by fallen trees...bus and postal services were disrupted and local vans were unable to make their rounds.
2 Kirkwall...Ayre road, Shore St and Junction Road flooded and badly damaged......much damage to water gas and oil pipes on Shore St...eighty yards of the 12 inch water main supplying Kirkwall was moved out of position, cutting the main supply to the town...air and bus services suspended during hurricane...a pump set in stone on Shore Street was torn up...Back Road flooded...a door blown in at the Hydro-Electric Power Station in Peerie Sea...Kirkwall-Deerness road near Dingieshowe where 70 yards of pitching on the north side of the road was washed away...There has been damage to the Kirkwall-Carness road.
2, 3 Kirkwall...on Shore St 12 inch water main completely destroyed over 20 yards in length, seriously affecting the towns water supply.
2 Scotland..."power cuts in several parts of the mainland"
3 Scotland...many post office lines down especially at Dundee, Aberdeen, Inverness and the far north, in all about 200 exchanges were isolated.
3 Portessie...road blocked due to shingle and huge boulders feet deep being piled.
3 Musselburgh...road to Levenhall, Musselburgh, Cuthill and Prestonpans undermined and traffic had to be diverted.
5 Banff..."gasworks was badly damaged"
4) 1 Portessie...1 shop washed away and petrol station badly damaged.
2 Stromness..."the building of the West Mainland Mart Ltd...was reduced to matchwood"
2 Kirkwall...Ayre Hotel flooded...several of the downstairs windows were also smashed...ground floor covered in silt, sand and seaweed...a number of stores on Shore Street were flooded and damage was done to the feeding stuffs in them...petrol station flooded...Kirakwll Hotel lost some tiles and the zinc on the ridges twisted...many shops flooded on Junction Road.
2 Finstown...a large shed lost its iron roof.
3 Banff...the gasworks was swept into the sea, as were a number of other buildings...on the seawfront some buildings flattened and some shops flooded.
3 Stromness...auction mart completely destroyed.
5 Crovie..."shed, garages at the west end...were also destroyed"
5) 1 Portessie...trees blown down at Kirk Green and St Magnus Churchyard.
2 Finstown...many trees blown down including at the Loan Of Breckon and Fermdale...also at Firth Manse and Binscarth plantation.
2 Flotta..."Some stacks of fodder were blown over and a few hen houses suffered damage"
5 Banff..."hundreds of trees were blown down"
3,9 Scotland...6 million trees fell...total agricultural land flooded 150,000 acres minimum.
6) 1 Portessie to Strathblane...tennis courts wrecked.
2 Westray..."One of the two large windows on the end of the U. F. Church blew in and all the glass smashed"
2 Kirkwall...Labour Exchange flooded.
7 Drainie Parish...all the bathing huts on Stotfield Sands were wrecked.
7) 1 Portessie...Many houses flooded at Craigenroan Place, Chapel St and Great Eastern Road.
1 Buckpool...houses were undermined and collapsed at The Yardie. many sheds and fences washed away at Main St and the Great Western Road.
2 St Margaret's Hope...one family had to be evacuated...damage done to some buildings.
2 Kirkwall...end house of the Ayre Houses also flooded...houses on Shore Street suffered many broken windows...many houses on Junction Road flooded...the leaning chimney of Tankerness House was blown down and damaged part of the roof.
2 Flotta..."a certain amount of damage was done, particularly to roofs of steadings"
2 Westray..."Part of the roof has gone off Blinkbonny"
3 Banff...some house on the seawfront flooded and furniture washed out of them...some were left with a deposit of pebbles and sand.
3 Portessie...on road to Portgordon many sheds and garages washed away and dwelling houses undermined on the foreshore.
3 Portbello...some older dwellings damaged.
7) 4, 5 Crovie...some houses in the west end of the village were completely destroyed and others heavily damaged.
5, 9 Banff..."lower area of the town was flooded...and many houses lost slates and chimney cans"
7 Drainie Parish...some houses in Seatown flooded.
8) 1 Portessie...many houses flooded to a depth of several feet at Craigenroan Place, Chapel St and Great Eastern Road...And coast road.
3 Portessie...road to Portgordon and land around it badly flooded.
2 Flotta...a sea wall built many years ago at Bothliego...was breached and flattened by the heavy seas.
2 Westray..."The sea wall from Chalmersquoy to the Mill burn is wrecked and the sea has eaten well into the roadway" 140 yards of the wall is either demolished or badly damaged. "The seawall also badly damaged at another two points-Surigarth and Swarthill" The seawall was also damaged on the front of St Margaret's Hope.
2 Stromness..."About 20 yards of the retaining wall of the road below the putting green at Stromness Golf Course was ripped open and much of the road was washed away...Many of the heavy stones on the pier itself were shifted and much of their backing washed away"
2 Finstown...the sea washed right into the road's edge near Sidney Cottage.
2 Kirkwall...Ayre Hotel flooded...the end houses of the Ayre Houses also flooded...a number of stores on Shore St and the petrol station were flooded...also flooded many houses and shops on Junction Road.to a depth of up to two feet...Labour Exchange flooded...Back Road flooded.
2, 3 Kirkwall...sea front extensively flooded and damaged by hurricane especially Ayre Road
where the retaining wall was completely destroyed over a distance of 400 yards...Shore St
which was also badly flooded and damaged...Junction Road flooded
3 Banff...gasworks flooded to a depth of 7 ft...and a number of other buildings...on the seafront
some buildings and a protecting wall were flattened by the waves and flooded many houses and shops.
3 Edinburgh, Portobello..."some flooding"
3 Musselburgh..."some flooding"
4, 5 Crovie...coastal flooding especially west end of village.
5, 9 Banff..."the lower area of the town was flooded"
7 Drainie Parish...Seaton partially flooded.
9 Scotland...total agricultural land flooded 150,000 acres minimum.

C) IMPACT AT OTHER SITES:
1) 2 Orkney..."there are many cases of people being bowled over by the tremendous wind and
receiving minor injuries"
3 Islay...2 of the lifeboat crew died in the search for a Fleetwood trawler missing the 15 crew
are presumed drowned.
3 Elgin...1 woman injured due to a fallen chimney.
3 Lerwick...2 fishermen drowned when their vessel was wrecked.
5 Loch Broom...some of the fishing vessels from Gardenstown which were sheltering in the
Lock were driven ashore.
2) 1 Buckle Harbour...many ships flooded and severely damaged...old wooden buildings and
fences of the fish curing yards crumpled like paper in the force of the gale. Fish curing premises swept
away on Thomson's Slipway.
1 Buckpool Harbour...damaged in several places.
1 Portgordon...the harbour wall collapsed and several small boats were flooded.
2 Orkney...many small boats sunk or washed away.
3 Loch Broom...27 drifters driven ashore many of them badly damaged, damage is expected to
run to more than £100,000.
3 Ullapool...more than 5 vessels stranded.
3 Stornoway...4 vessels lost all their gear worth £4000.
3 Lerwick...1 fishing vessel wrecked.
3 Orkney...inter-island steamer damaged.
3 Lewis...1 vessel adrift on the west coast of the island.
3 Whitelands..."fish houses were left lying crazily along the street"
2) 3 Lossiemouth...at Stotfield beach the lifeboat shed at the west end...was shattered by the wind.
5 Macduff..."The launching beach of the boat building yard was filled with boulders...At the east end of
the harbour the slipway was badly damaged"
3) 2 Orphir, Orkneys...hundreds of phones out of action and a number of poles down...some
power cuts and lines down.
2 North Isles...damage done to seafront roads.
2 Longhope...damage done to seafront roads.
2 Stornoway...damage done to seafront roads...covered in seaweed and large stones...wireless
aerials and telephone wires were early victims.
3 North-East...many roads and railway lines blocked due to fallen trees.
3 Macduff...no gas or electricity.
3 Forres...about a mile beyond the town the road to Inverness was blocked by fallen trees.
3 Wick...railway line to Helmsdale blocked by fallen trees and telephone wires...some trains delayed.
3 Deeside...many roads blocked by fallen trees...especially the road at Crathes.
3 Aberdeen...power cuts brought trams to a standstill...north road at Pitcaple blocked.
3 Cairn O' Mount...road south blocked by snow.
5 Macduff..."The road from Deveron Bridge to Macduff was undermined in two places...the road
to the swimming pool was covered in shingle...power wires supplying electricity were blown
down and there was no light...and telephones were out of action"
9 Cromarty..."road flooded"
4) 1 Buckle Harbour...garage swept away on Thomson's Slipway. At Baron St an office and
joinery were damaged.
3 Macduff...shipbuilding yard was extensively damaged.
3 Elgin...Station Hotel lost its chimney, it fell through dining room roof.
3 Lossiemouth...at Stotfield beach 200 beach huts were blown down.
3 North-East...much damage to property.
5 Macduff...garages and buildings were damaged when sea-wall was destroyed.
5 Gardenstown..."a shop had its windows and doors smashed and the building flooded"
5 Seaton..."garages and sheds on reclaimed ground to the east of the village were damaged
and in some cases destroyed"
5) 2 Stronsay..."many farms had outhouses damaged, and stacks partially blown away. Hen houses...were early victims.
2 Orkney..."many trees brought down - there were a hundred laid low at Berstane plantation, hens killed, hen-houses overturned...stacks blown down...some larger outhouses demolished.
2 Firth, Orkneys..."Hen houses were blown over, corn stacks flattened"
2 Orphir, Orkneys...many hen houses damaged including one new one designed for 600 hens at Grassthowe which was entirely unroofed and had most of its walls demolished. Many stacks have been knocked over and the sheaves scattered.
3 North - East..."blew down countless trees"
3 Forres..."fallen trees on road to Inverness."
3 Deeside..."many fallen trees.
5 Banff District..."Many poultry houses were overturned and poultry killed. stacks of straw were blown down"
6 Dyke And Moy Parish..."A tremendous number of trees were brought down...It is estimated that on Darnaway estate alone approximately 200 acres were blown down...Damage was also done to the Forestry Commission's woods in the parish and to trees on the Brodie estate."
9 Cromarty..."3 fields flooded and damage done to the crops in them."
5) 5 Gamrie..."45 tombstones in the town were blown down"
7) 1, 3 Portgordon...many houses at Lennox Place and Stewart St were flooded...a number of these houses had to be evacuated.
2 Longhope..."damage done to some buildings."
2 Orkney..."houses unroofed...slates and chimney stacks off"
2 North Isles..."damage done to some buildings."
2 Stronsay..."every house on the village front received much damage...including one farmhouse at Whitehall farm...many were flooded...along with their back gardens...Many rainwater tanks at the rear of the houses were ruined as salt water poured into them."
5 Gardenstown..."two houses on the west side of the village were completely destroyed"
2 Firth, Orkneys..."houses stripped of slates, roof tiles and iron sheeting. Large coping stones were lifted from garden walls, debris being scattered in all directions"
2 Orphir, Orkneys..."Some roofs of dwelling houses have been badly shaken, and, in several places, holes can be observed in them"
5 Banff District..."many farmsteads lost slates and some lost entire roofs."
9 Buchan..."severe flooding of many cottages, some washed away or badly damaged."
9 Cromarty..."some damage done to a house."
11 Pittulie..."the houses were an awful mess with seaweed"
8) 1 Buckie Harbour..."a garage and a small fishcuring premises on Thomson's Slipway were swept away when the sea surged round the old lifeboat house."
1 Buckpool Harbour..."houses were undermined and collapsed at The Yardie and sheds were washed away. Westward along the shore at Main St and Great Western Road the story of sheds and fences gone was the same"
1 Portgordon..."many houses on Stewart St and Lennox Place were flooded to a depth of several feet."
2 Stronsay..."Inhabitants of the village who have lived there all their lives...never remember the sea breaking over their houses with such force...salt water poured into the dwelling houses through doors windows and sky-lights."
3 Portgordon..."flooding of buildings in Lennox Place and Stewart St."
3 Prestonpans..."some flooding"
5 Macduff..."sea wall at the west end of the town was destroyed...the slipway at the east end of town was badly damaged"
5 Gardenstown..."some flooding of shops and houses."
9 Buchan..."severe flooding of many cottages."
9 Cromarty..."flooding of road and three fields."
11 Pittulie..."the houses were an awful mess with seaweed"
10) 11 Pittulie..."did not cause any serious damage"

E) SIZE OF EVENT : Large.
AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
1 Newspaper...Banffshire Advertiser 1953 February 5, "Storm Left Fantastic Trail Of Devastation", "Many Homes And Businesses Wrecked"
2 Newspapers...The Orcadian 1953 February 5 (Numerous articles)
   The Orkney Herald 1953 February 10 (Numerous articles)
3 Newspaper...Glasgow Herald 1953 February 2, "Storm Blow To Scots Herring Fleet"
5 Book...Scottish Council of Social Service (1961) 'The Third Statistical Account Of Scotland:
   Volume 10 Banffshire' Account Of The District of Banff, p187-188 and 208.
6 Book...Scottish Council Of Social Services (1965) "The Third Statistical Account Of Scotland:
   Volume 17 The Counties Of Moray And Naim" Account Of The Parish Of Dyke And Moy, p354.
7 Book...Scottish Council Of Social Services (1965) "The Third Statistical Account Of Scotland:
   Volume 17 The Counties Of Moray And Naim" Account Of The Parish Of Drainie, p270.
8 Archives...Aberdeen City Archives, File No. TC 9/8/5, "Sea-Front Coast Protection 1961 - 1972"
9 Archives...Scottish Records Office, File AF 44 318 No. 116973/3/5.
   Oceanographic Laborator, 12pp.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

D) ASSESSMENT OF QUALITY OF INFORMATION :
1 Detailed description of the event.
2 Extremely detailed descriptions of the events and the damage caused.
3 Extremely detailed descriptions of the events and the damage caused.
4 Short description of event concentrating on the damage caused.
5 Detailed description of event.
6 Very short description of the event concentrating on the damage caused.
7 Short description of the event concentrating on the damage caused.
8 Detailed local government file on various aspects of coast protection with special reference
to damage repair.
9 Detailed national government file on various aspects of the storm of 1953.
10 Brief description of event as part of a detailed technical study of a later surge.

766
NUMBER OF EVENT : CE.93


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Montrose...been washed away by the sea.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Montrose..."damage to the concrete embankment at the foot of the esplanade is considerable...another few feet of the beach at the south end had been washed away"

B) DAMAGE CAUSED :
Montrose..."damage to the concrete embankment at the foot of the esplanade is considerable...another few feet of the beach at the south end had been washed away"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Glasgow Herald 1954 January 13, "Damage To Sea Front"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Description of the event concentrates on the institutional response to the problem.

NUMBER OF EVENT : CE.94


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Dysart to West Wemyss..."as a result of the sea tunnelling"

E) LAMB'S CIRCULATION PATTERN : 23RD 24TH 25TH

H) CLASSIFICATION OF CAUSE OF EVENT : TYPE 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Dysart to West Wemyss..."as a result of the sea tunnelling some eighty yards underneath the site of the carving"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Fife Free Press 1955 February 26 "Man I! The Rock Is In Danger"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CE.95


CAUSE OF EVENT
A) TIDAL CONDITIONS :
   1 Kingston..."at high tide"

B) WIND CONDITIONS :
   1 Kingston..."Gale-force winds"

C) DURATION OF STORM : Type 3.

D) ESTUARINE CONDITIONS :
   1 Kingston..."The gradual encroachment of the River Spey"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
   1 Kingston..."the weak embankment, four yards of which was swept away...crumbling land defences"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
   Newspaper...The Moray, Nairn And Banff Courant 1957 January 23 "Sea And River Threaten Moray Village"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
   Description of the event with three photographs showing the erosion.
NUMBER OF EVENT : CE.96

DATE OF EVENT : 1957 February 16.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Crovie..."were pounded mercilessly by mountainous seas for hours"
Gardenstown..."huge waves...heavy seas"

B) WIND CONDITIONS :
Crovie..."the storm"

C) DURATION OF STORM : Type 1.

E) LAMB'S CIRCULATION PATTERN : 15TH 16TH 17TH

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Crovie..."the road which runs around the foot of the cliff was swept away"

B) DAMAGE CAUSED :
3) Crovie...coast road washed away.
7) Crovie...foundation of many houses shaken beyond the limit of safety...30 families had to evacuate their homes...nearly half the houses made uninhabitable by the storm...prospect of eventually having to abandon the village.
8) Crovie...flooding of coast road below the village.

C) IMPACT AT OTHER SITES :
1) Gardenstown...1 person slightly injured.
4) Gardenstown...ship's chandler's premises extensively flooded, stock to the value of between £4000 and £5000 was swept into the sea and destroyed.
8) Gardenstown...chandlers premises on the seashore extensively flooded.
10) Gardenstown...total damage estimated at £100,000.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Glasgow Herald 1957 February 18, "Huge Seas Wreck Village"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Description of event.
NUMBER OF EVENT: CE.97


CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Forth..."The miniature tidal wave which swept up the Forth last week"
1 Alloa..."At Alloa Docks the tidal waters rose about one foot six inches higher than any previously recorded tide...This tide was 26ft 10in or a good eighteen inches higher than anything previously recorded...nearly a hundred years"

E) LAMB'S CIRCULATION PATTERN: 5TH  6TH  7TH
   A A A

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
2 Stirling...breach in bank of Forth at Cambus.

B) DAMAGE CAUSED:
5) 1, 2 Stirling...agricultural land flooded at Cambus and one farmer had 21 ewes drowned...more than 20 acres flooded.
8) 1, 2 Stirling...agricultural land flooded at Cambus...more than 20 acres flooded.

C) IMPACT AT OTHER SITES:
2) 1 Alloa..."Planks and piles from the wooden quays had been hurled onto the road and grass verge by the force of the water"
4) 1 South Alloa..."Alloa Co-operative shop flooded...office at dock gate flooded...dock gate at engineering workshop burst open and flooded workshop to a depth of nine inches"
5) 1 Alloa...agricultural land at Alloa Inch flooded on Tullibody Island.
7) 1 Alloa..."several houses flooded"
8) 1 Forth..."The floods had spread even further inland on the southern bank...where at one stage the waters, to a depth of several feet, spread inland about two hundred yards"
1 Grangemouth...parts flooded.
1 Bo'ness...parts flooded.
1 Alloa..."The waters broke over the dock gates and also rose above the edge of the quay...dock gates office flooded to a depth of about six inches...The floods rose rapidly on Alloa Inch...flooding of engineering workshop by about nine inches of water"
1 South Alloa..."the waters swirled into several houses and one shop.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Alloa Journal 1960 January 8, "Flooding Havoc"
2 Newspaper...Alloa Journal 1961 January 6, "Flooding Fears"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

D) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of all aspects of the event.
2 Description of attempts to get repairs done to the banks on the Forth, with some further information on the main event of 1960.
NUMBER OF EVENT : CE.98

DATE OF EVENT : 1961 April.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Nigg Bay...northside suffering from ongoing erosion.

G) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Nigg Bay...northside suffering from ongoing erosion.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Archives...Aberdeen City Archives File TC 9/8/5 "Sea Front Coast Protection"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.

NUMBER OF EVENT : CE.99


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Nigg Bay...on the northside of the bay a section of old sea-wall was undermined and collapsed by the sea.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Nigg Bay...on the northside of the bay a section of old sea-wall was undermined and collapsed by the sea.

B) DAMAGE CAUSED :
B) Nigg Bay...on the northside of the bay a section of old sea-wall was undermined and collapsed by the sea.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Archives...Aberdeen City Archives File TC 9/8/5 "Sea Front Coast Protection"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT: CE.100


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Burghead Bay...active erosion over the past 15 years.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Burghead Bay..."Using the rate at which old wartime defences slip down on to the beach as a guide to the rate of coastal retreat we arrive at a minimum average rate of 1 metre per year. In close agreement with this figure is the amount by which the salmon fishers have lengthened the leader to their nets over the past 15 years which averages 1.33 metres per year"

B) DAMAGE CAUSED:
6) Burghead Bay...old wartime defences slipping down on to the beach.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CE.101


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Nigg (Kincardineshire)..."Erosion by the sea"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Nigg (Kincardineshire)..."Erosion by the sea has washed away much of the soft clay and gravel at the southern end of the bay and in 1963 the coast road was threatened and had to be moved inland.

B) DAMAGE CAUSED:
3) Nigg (Kincardineshire)..."the coast road was threatened and had to be moved inland"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
CAUSE OF EVENT
A) TIDAL CONDITIONS:
Burghead Bay...the sea is still advancing very considerably.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Burghead Bay......the sea is still advancing very considerably to the east by scooping out the sandy verge.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CE.103

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Burghead Bay...active erosion over the past 10 years.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Burghead Bay..."near the mouth of the Bessie Burn the sand and gravel cliff is being actively eroded. Over the past 10 years a large concrete protective barrier has gradually been undermined and has collapsed on to the beach... Behind the barrier the sea has cut away some 10-15 metres of the cliff"

B) DAMAGE CAUSED:
B) Burghead Bay..."near the mouth of the Bessie Burn the sand and gravel cliff is being actively eroded. Over the past 10 years a large concrete protective barrier has gradually been undermined and has collapsed on to the beach... Behind the barrier the sea has cut away some 10-15 metres of the cliff"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Article...S. Ross (1976) "Erosion In Burghead Bay" Moray Field Club Bulletin Number 3, p1-2.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CE.104

DATE OF EVENT: 1966 April 11.

CAUSE OF EVENT
B) WIND CONDITIONS:
Aberdeen...storm.

C) DURATION OF STORM: Type 1.

E) LAMB'S CIRCULATION PATTERN: 10TH 11TH 12TH

SE E E

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Aberdeen...at the sea beach...washed away path and sea-wall.

B) DAMAGE CAUSED:
8) Aberdeen...sea beach area flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Archives...Aberdeen City Archives, File No. TC 9/8/5, "Sea-Front Coast Protection 1961 - 1972"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Detailed local government file on various aspects of coast protection with special reference to damage repair.
NUMBER OF EVENT: CE.105

DATE OF EVENT:  
1 1967.  
2 1967 January.

CAUSE OF EVENT  
A) TIDAL CONDITIONS:  
1 Carsethorn...high seas.  
2 Nigg Bay, Aberdeenshire...high seas.

B) WIND CONDITIONS:  
1 Carsethorn...gale from S.W.  
2 Nigg Bay, Aberdeenshire...storm.

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT  
A) EXTENT OF EVENT:  
2 Nigg Bay, Aberdeenshire..."sea-wall breached during storm"

B) DAMAGE CAUSED:  
8) 2 Nigg Bay, Aberdeenshire...Northside existing sea-wall breached causing some minor flooding.

C) IMPACT AT OTHER SITES:  
5) 1 Carsethorn...agricultural land flooded.  
7) 1 Carsethorn...some houses flooded.  
8) 1 Carsethorn...fields at back of houses flooded to a depth of 2.5 feet also some houses flooded.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT  
A) SOURCES OF INFORMATION:  
1 Letter...A.E. Truckell pers comm. letter dated 1990 September 13. Mr Truckell is the former curator of the Dumfries Museum and has a particular interest in the history of the Carsethorn area. Description of event based on personal observation.  
2 Archives...Aberdeen City Archives, File No. TC 9/8/5, "Sea-Front Coast Protection 1961 - 1972"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:  
1 Letter from local curator/history giving a brief description of the event which he observed.  
2 Detailed local government file on various aspects of coast protection with special reference to damage repair.
NUMBER OF EVENT : CE.106


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Burhead Bay...active erosion over the past 15 years.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Culbin...The point at the eastern tip of Culbin has narrowed from 60.2 metres in 1968 to 5
metres in 1983...this gives an average annual loss of 3.7 metres.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Article...S. Ross (1984) "Erosion At Culbin Sands And Burhead Bay In 1983" Moray Field Club
Bulletin Number 11, p21-23.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.

NUMBER OF EVENT : CE.107


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Dysart to West Wemyss...Man in the Rock is now cut off by landslides and rockfalls caused by
coastal erosion.

E) LAMB'S CIRCULATION PATTERN : 13TH 14TH 15TH

C CE E

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Dysart to West Wemyss...Man in the Rock is now cut off by landslides and rockfalls caused by
coastal erosion.

B) DAMAGE CAUSED :
3) Dysart to West Wemyss...coastal path locked by landslides and rockfalls.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Courier 1968 September 16 "The Man In The Rock"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.

776
NUMBER OF EVENT: CE.108


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Dysart To West Wemyss...following the collapse of part of the cliff due to ongoing coastal erosion.

E) LAMB'S CIRCULATION PATTERN: 3RD 4TH 5TH

C C E

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Dysart To West Wemyss...following the collapse of part of the cliff due to ongoing coastal erosion...The well-known right-of-way is blocked for good.

B) DAMAGE CAUSED:
3) Dysart To West Wemyss...following the collapse of part of the cliff...The well-known right-of-way is blocked for good.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...Courier And Advertiser 1969 May 6 "No Action On Man I' The Rock Path"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

777
NUMBER OF EVENT : CE.109


CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Whalsay (Shetlands)... "accompanied by a spring tide gave the highest seas in living memory on the north side of the island"
2 Stornoway... tidal surge at high tide of 0.8 feet with a peak surge of 2.1 feet.
2 Ullapool... tidal surge at high tide and peak surge of 0.6 feet.
2 Wick... tidal surge at high tide of 1.8 feet with a peak surge of 2.4 feet.
2 Lerwick... tidal surge at high tide and peak surge of 0.9 feet.
2 Aberdeen... tidal surge at high tide of 2.5 feet with a peak surge of 2.8 feet.
2 Rosyth... tidal surge at high tide and peak surge of 1.7 feet.
2 Leith... tidal surge at high tide and peak surge of 1.5 feet.

B) WIND CONDITIONS :
1 Whalsay... storm from north-west. Lerwick Observatory had a top gust of 74 kt and RAF station on Saxa Vord Hill (935ft) had a top gust of 113 kt.
2 Hebrides... 28th, 6am... Southwesterly gales of 35 to 40 knots.
2 Wick... 28th, 6pm... Westerly winds of 48 knots.
2 East Coast of Scotland... 29th... severe Northwesterly gales continued until midday.

C) DURATION OF STORM : Type 3.

E) LAMB'S CIRCULATION PATTERN : 27TH 28TH 29TH 30TH

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Whalsay... a sea-wall was swept away.

B) DAMAGE CAUSED :
2 1 Whalsay... some boats sunk.
5 1 Whalsay... many stone walls blown down
7 1 Whalsay... 1 small house completely destroyed, which had been undamaged by the sea since it was built nearly a century ago.
8 1 Whalsay... "on the north side of the island, resulting in a sea-wall being swept away and tearing down a small house"

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES :
1 England, Hulit... sea flooded parts of Hull to a depth of 3 feet.
2 England, East Suffolk and North Norfolk, Great Yarmouth... minor coastal flooding.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Detailed description of event based on writer's own observations plus instrumental meteorological data.
2 Detailed technical study of the cause and quantification of the surge, gives little information on the impact of the surge.
NUMBER OF EVENT : CE.110


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Culbin Sands...ongoing coastal erosion.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Culbin Sands...ongoing coastal erosion.

B) DAMAGE CAUSED :
B) Culbin Sands...ongoing coastal erosion requiring the construction of a timber groyne system and wave screens.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT: CE.111

DATE OF EVENT: 1, 2 1970 October 1.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Dysart to West Wemyss..."Carving crashed into the sea. Rockfalls and landslides the product of relentless erosion."
2 Dysart to West Wemyss...The Man i' The Rock statue crashed to the shore as a result of ongoing coastal erosion.

D) LAMB'S CIRCULATION PATTERN: SEP 29TH 30TH OCT 1ST 2ND
   W W NW NW

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Dysart to West Wemyss..."Rockfalls and landslides the product of relentless erosion, isolated the life-size sculpted figure even more, for they brought about the collapse of the wood-fringed pathway which led past his natural grotto."
2 Dysart to West Wemyss...The Man i' The Rock statue crashed to the shore as a result of ongoing coastal erosion.

B) DAMAGE CAUSED:
3) 1 Dysart to West Wemyss..."the collapse of the wood-fringed pathway."
6) 1, 2 Dysart To West Wemyss...loss of Man i' the Rock statue.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Fife Free Press 1970 October 2 "120 Yr - Old Prisoner Crashes To His Doom."
2 Newspaper...Courier 1970 October 6 "The Man i' The Rock"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Short description of the event.
NUMBER OF EVENT : CE.112

DATE OF EVENT : 1972 February 2.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Isle Of Whithorn..."after huge seas"

B) WIND CONDITIONS :
Isle Of Whithorn..."driven by gale force winds"
Holm Island..."force 8 gale"
South West...gusts of up to 78 m.p.h.
North East and North...gale force winds.

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Isle Of Whithorn..."tore holes in the harbour wall"

B) DAMAGE CAUSED :
2) Isle Of Whithorn..."the pier at the village is already reduced to rubble...dislodged massive concrete blocks...damage to harbour estimated at £50,000"
8) Isle Of Whithorn...harbour area severely affected by the storm.

C) IMPACT AT OTHER SITES
2) West Coast...ferry services disrupted...1 Skye fishing boat ran aground on Holm Island.
3) Central Scotland...following roads blocked by snow...A9, A939, A93, B974, A68.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Glasgow Herald 1972 February 3, "Heavy Seas Threaten Village"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Detailed description of event.
NUMBER OF EVENT: CE.113


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Culbin..."tidal scour"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Culbin...at the eastern most point 125 metres has been lost in the last 17 years.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, Aberdeen, 196pp, p6. Based on the authors own observations of the area.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event with map.
NUMBER OF EVENT: CE.114

DATE OF EVENT: 1, 2 1975 - 1979.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Findhorn Bay...erosion.
2 Lossiemouth...considerable erosion.
2 Bay Of Cruden...ongoing erosion.
2 Catterline Bay...ongoing erosion.

B) WIND CONDITIONS:
2 Burghead..."recent storms"
2 Lossiemouth..."recent storms"

G) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Findhorn Bay..."the deepest part of the exit channel has shifted westwards and now runs against the Culbin sands side...hundreds of trees have been swept away. measurements from aerial photographs show a loss of some 20 metres over a 5 year period at certain points"
2 Burghead..."The coastline within the town limits comprise of a low bank which has been eroded by recent storms creating some damage to the sewer and the Maltings"
2 Lossiemouth...at the West Beach...at the car park and promenade recent storms have undermined part of the pavement and damaged the grouted revetment...also considerable erosion at the exposed eastern face of the North headland.
2 Banff...a coastal track to Banff caravan park was partially washed away and then restored.
2 Crovie..."breach in stone revetment in recent years"
2 Bay Of Cruden...ongoing erosion is seriously threatening the 15th tee at the Cruden Bay Golf And Country Club.
2 Catterline Bay...the roadway down to the harbour pier has been at risk due to the ongoing erosion of the cliff base.

B) DAMAGE CAUSED:
3) 2 Burghead..."creating some damage to the sewer"
2 Lossiemouth...at the West Beach...at the car park and promenade recent storms have undermined part of the pavement.
2 Banff...a coastal track to Banff caravan park was partially washed away and then restored.
4) 2 Burghead..."creating some damage to the...Maltings"
5) 1 Findhorn Bay..."hundreds of trees have been swept away"
6) 2 Bay Of Cruden...ongoing erosion is seriously threatening the 15th tee at the Cruden Bay Golf And Country Club.
8) 2 Lossiemouth...at the West Beach...at the car park and promenade...damaged the grouted revetment.
2 Crovie..."breach in stone revetment in recent years"

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Article...S.M. Ross (1979) "Erosion At The Culbin Sands" Moray Field Club Bulletin, Number 7, p18-21. Based on the authors own observations of the area.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event based on the direct observations of the author.
2 Detailed description of the event particularly its impacts.
FLOOD NUMBER : CE.115

3 1976 January.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Scotland...storm surge.
3 Udal, North Uist..."quite exceptional spring tide"

B) WIND CONDITIONS :
2 Inverness...Wind at 9 am : 1ST 2ND 3RD 4TH
Direction S SW NW W
Force (mph) 2 6 10 2

2 Stonehaven...Wind at 9 am : 1ST 2ND 3RD 4TH
Direction SW SW NW S
Force (mph) 6 6 28 6

2 Edinburgh (Blackford Hill) Gales occurred on the 2nd and 3rd.

C) DURATION OF STORM : Type 3.

G) ANY OTHER FACTORS :
2 Stonehaven...Comments :
2ND Cloudy and overcast. Cloudy, wintry showers turning to rain, winds gusting 24-30 knots.
3RD Cloudy, very windy. Long sunny spells, light showers.

2 Edinburgh (Blac)...Comments :
2ND Gale force winds from 1 pm.
3RD snow clearing from Pentland Hills - Gale continued until 8 am.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
3 Udal, North Uist..."damaged the whole shore face severely"

B) DAMAGE CAUSED :
3 Udal, North Uist..."damaged the whole shore face severely...it exposed a major monument, and an
important piece of stratigraphy and necessitated an immediate salvage excavation"

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES :
1 England East Coast.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Article...N.S. Heaps (1983) "Storm Surges, 1967 - 1982" Geophysics Journal Of The Royal
Astronomy Society, Volume 74, p331-376.
2 Observations...Meteorological Office 1976 Monthly Climatic Summaries, Station Nos. 0588
Inverness, 1324 Stonehaven, 1646 Edinburgh (Blackford Hill).
3 Article...I. Crawford and R. Switsur (1977) "Sandscaping And C14: Udal, N. Uist" in
Antiquity, Vol. 51, p124-136. Based on the authors own work at the site.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Brief mention of event which forms part of a scientific study of surges from 1967 to 1982.
2 Instrumental data and a weather diary.
3 Short description of the event.
NUMBER OF EVENT: CE.116

DATE OF EVENT: 1976 Spring.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Burghead Bay..."heavy seas"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Burghead Bay..."heavy seas scooped away between 1 and 2 metres of the coast"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CE.117

DATE OF EVENT: 1976 Summer.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Burghead Bay..."heavy seas"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Burghead Bay..."heavy seas scooped away between 1 and 2 metres of the coast"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CE.118


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Outer Hebrides..."under recent conditions of shore face erosion"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Outer Hebrides..."under recent conditions of shore face erosion"

B) DAMAGE CAUSED:
B) Outer Hebrides...ongoing erosion of the shore which has resulted in the discovery of many archaeological sites.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CE.119

DATE OF EVENT: 1977 December.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Burghead Bay..."unusually high tides...the highest many people could recall."

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Burghead Bay..."during unusually high tides a further 1-2 metres were lost along the entire length of the bay"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CE.120

DATE OF EVENT: 1 1978.
2, 3, 4 1978 January 11-12.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Buckie...coastal inundation.
2 Scotland...storm surge.
3 Sandend, Sandy Bay..."high tides"

B) WIND CONDITIONS:
2 Scotland...storm.
2 Grampian Region...storm.
3 Portgordon...storm.
3 Cullen...storm.
4 Findhorn..."northerly gale"
4 Burghead Bay..."northerly gale"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
3 Grampian...coastline suffered substantial damage... a few coastline defences failed.
3 Sandend, Sandy Bay...sand dunes eroded due to high tides.
3 Portgordon..."Midway along the bay east of the town some protection work was provided a
few years ago to safeguard the nearby public road. In the 1978 storms the adjoining section
westwards suffered erosion and again threatened the public road and old icehouse which is being
preserved"
3 Inverlochy, Shore Street...considerable damage occurred to a sloping coastal wall in the
1978 storm.
4 Findhorn...a minimum of 4 metres was measured was eroded with bights here and there of up
to 12 metres...some groynes were smashed.
4 Burghead Bay...a good 2 metres was eroded in central parts.
4 Culbin...severe erosion occurred on the north-east shore...just west of the Shelly Head Bothy
waves have washed inland up to 11 metres...also the the ridge and dunes to the west of the loch
has been reduced in height and truncated.

B) DAMAGE CAUSED:
3) 4 Findhorn...car park flooded.
5) 4 Findhorn...some coastal trees uprooted.
8) 3 Grampian...coastline suffered substantial damage.
3 Sandend...Sandy Bay.
4 Findhorn..."The sea washed over the bank near the beach huts on an almost continuous front of
130 metres and flooded the car park area.
4 Culbin...also the the ridge and dunes to the west of the loch has been reduced in height and
truncated...at Buckie Loch...waves have washed over the bank along a 50 metre front and
carried debris to within 5 metres of the road. Over some 200 metres west of this waves have
also splashed over.
C) IMPACT AT OTHER SITES:
6) 3 Cullen..."as a result of the 1978 storm the timber wall at the Golf Club House and car park collapsed"
7) 1 Buckie...many houses flooded.
8) 1 Buckie...many houses on Rannas Place flooded, some under several inches of water.
3 Cullen...Golf Club House and car park damaged by storm.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
2 England East Coast.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...The Northern Scot 1983 February 5, "Storms Pound Coastal Belt" Data based on personal memory of long-term resident of affected street.
3 Report...Grampian Regional Council (1980) "Grampian Region - Coast Protection" Grampian Regional Council.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very brief mention of event, need much more information.
2 Brief mention of the event which forms part of a scientific study of surges from 1967 to 1982.
3 Very detailed local government concentrating on erosion.
4 Detailed description of the event based on the direct observations of the author.
NUMBER OF EVENT : CE.121


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Kirkcaldy..."mountainous seas"

B) WIND CONDITIONS :
Kirkcaldy..."gales"

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Kirkcaldy...sea-wall breached.

B) DAMAGE CAUSED :
2) Kirkcaldy...part of the harbour closed.
8) Kirkcaldy...harbour, a sea-wall was breached.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Glasgow Herald 1978 December 28, "Sea Wall Is Live"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Very short description of event.
NUMBER OF EVENT : CE.122

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Findhorn Bay...The erosion of the old bar.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Findhorn Bay..."The remaining part of the bar continues to move towards Nairn and between 1979 and
1991 was losing an average of 2.75 metres per annum from the shingle ridges along the northeast end".

B) DAMAGE CAUSED :
8) Findhorn Bay..."The remaining part of the bar continues to move towards Nairn and between 1979 and
1991 was losing an average of 2.75 metres per annum from the shingle ridges along the northeast end".

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies,
Aberdeen, 196pp, p10. Based on the authors own observations of the site.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.

NUMBER OF EVENT : CE.123

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Culbin...at Shelly Head Bothy erosion of the dunes.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Culbin...at Shelly Head Bothy erosion of the dunes at the rate of 12 metres over the last 5
years...this gives an annual average rate of 2.4 metres.

B) DAMAGE CAUSED :
8) Culbin...at Shelly Head Bothy erosion of the dunes at the rate of 12 metres over the last 5
years...this gives an annual average rate of 2.4 metres.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Article...S. Ross (1985) "Erosion of The Moray Coast In 1984" Moray Field Club Bulletin,
Number 12, p28-29. Based on the authors own observations of the area.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT: CE.124

DATE OF EVENT: 1, 2 1979.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Burghead Bay...erosion.
1 Portgordon..."erosion problems"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Burghead Bay..."the vertical cliffs cut in the sand and gravel margins have now slumped and have been graded back to an angle of 30 degrees in places. This is in effect a further loss of part of the coastline"
1 Portgordon..."The westwards movement of shingle continues to present erosion problems to the west"
2 Culbin..."severe erosion continues to affect the central part of the old bar"

B) DAMAGE CAUSED:
8) 1 Portgordon..."The westwards movement of shingle continues to present erosion problems to the west"
2 Culbin..."severe erosion continues to affect the central part of the old bar"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Article...S.M. Ross (1980) "Coastal Erosion At Burghead Bay And The Culbin Sands" Moray Field Club Bulletin, Number 7, p.5.
2 Article...S.M. Ross (1979) "Erosion At The Culbin Sands" Moray Field Club Bulletin, Number 7, p.18-21.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event based on the direct observations of the author.
2 Short description of the event based on the direct observations of the author.
NUMBER OF EVENT : CE.125


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Aberdeen...Royal Aberdeen Golf Club...continuing erosion.

G) ANY OTHER FACTORS :
Aberdeen...Royal Aberdeen Golf Club..."A major contributory factor is the volume of pedestrian traffic along the top of the dunes"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Aberdeen...Royal Aberdeen Golf Club...the Bridge of Don estate outflow to the beach...in line with the 4th green was erected in 1980 and is now exposed and isolated some 15 yards on the seaward side. When it was built it was on the edge of the dune.

B) DAMAGE CAUSED :
6) Aberdeen...Royal Aberdeen Golf Club...damage to 4th green on golf course.
8) Aberdeen...Royal Aberdeen Golf Club...erosion of coastal dunes along 4th green.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Questionnaire...R.D. Hutchinson (Golf committee member) 1992 August 26.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
FLOOD NUMBER: CE.126


CAUSE OF EVENT:
A) TIDAL CONDITIONS:
Findhorn Bay...erosion.
Culbin... at Buckie Loch there was severe erosion.

H) CLASSIFICATION OF THE CAUSE OF THE EVENT: Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
Findhorn Bay..."Over the year 8.2 metres were lost along the north side of this point and 10.9 metres from the eastern point.
Culbin... "at Buckie Loch there was severe erosion during this period and the planing away of a bulge along the coastline resulted in the loss of some 10 to 13 metres".

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
Article...S.M. Ross (1981) "Erosion At Burghead Bay And At The Culbin Sands in 1980"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Detailed description of the event based on the direct observations of the author.
FLOOD NUMBER: CE.127


CAUSE OF EVENT:
A) TIDAL CONDITIONS:
Burghead Bay..."very high tides"
Findhorn Bay..."near the village..."very high tides"

B) WIND CONDITIONS:
Burghead Bay..."fresh northwest winds"

H) CLASSIFICATION OF THE CAUSE OF THE EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Burghead Bay..."effectively cleaned up the slumped material along the 'cliffs' and cut a fresh edge which would give an average loss of around 0.5 metres. In some parts the net erosion was nil, while in others small bights up to 2 metres were cut"
Findhorn Bay..."More than 7 metres were lost from the eastern tip of the sandy point in one day"

B) DAMAGE CAUSED:
5) Burghead Bay...loss of some coastal land.

C) IMPACT AT OTHER SITES:
5) Findhorn...flooding of some low-lying land.
8) Findhorn...near the village low-lying greens between shingle ridges were flooded when waves washed over the main coastal ridge.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Detailed description of the event based on the direct observations of the author.
NUMBER OF EVENT: CE.128


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Culbin... "continued to be scoured away by the tide."

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Moray... "erosion was largely confined to the removal of blown sand from earlier in the year."
Culbin... "The point in the Culbin Forest opposite Findhorn continued to be scoured away by the tide. Along the northern edge 8 metres was lost and at the eastern point 10.9 metres was lost during the year."

B) DAMAGE CAUSED:
8) Culbin... "The point in the Culbin Forest opposite Findhorn continued to be scoured away by the tide. Along the northern edge 8 metres was lost and at the eastern point 10.9 metres was lost during the year."

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CE.129

DATE OF EVENT: 1981 June 24 (date of newspaper).

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Wemyss... "caves in danger of being lost due to natural erosion."

G) ANY OTHER FACTORS:
Wemyss... also a problem of vandalism in the caves adding to the damage.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Wemyss... "caves in danger of being lost due to natural erosion."

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper... Courier 1981 June 24 "Unique Fife Caves Are In Danger"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT : CE.130

DATE OF EVENT : 1, 2 1982.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Findhorn Bay..."tidal scour"
2 St Andrews...erosion.

B) WIND CONDITIONS :
1 Burghead Bay..."what storms there were"
1 Culbin..."what storms there were"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Burghead Bay..."what storms there were did remove a considerable amount of sand from the beaches"
1 Culbin..."what storms there were did remove a considerable amount of sand from the beaches...at Buckie Loch there has been a loss of 1.0 metres along a limited stretch...Another loss of 1.8 metres has occurred immediately north of the Shelly Head Bothy"
1 Findhorn Bay..."At the point at the river mouth opposite Findhorn and along its northern edge tidal scour has removed 1.3 metres over the year"
2 St Andrews...The Eden Golf Course had begun to suffer the effects of coastal erosion.

B) DAMAGE CAUSED :
6) 2 St Andrews...The Eden Golf Course had begun to suffer the effects of coastal erosion...but a £56,000 sea defence stemmed the threat.
8) 1 Burghead Bay..."what storms there were did remove a considerable amount of sand from the beaches"
1 Culbin..."what storms there were did remove a considerable amount of sand from the beaches"

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Article S.Ross (1983) "Coastal Erosion" Moray Field Club Bulletin, Number 10, p9. Based on the authors own observations of the area.
2 Newspaper...The Scotsman Newspaper, 1987 March 19, "Sea Threat To Camoustie Golf Course"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Description of the event concentrates on its impacts on the coastline.
2 Short description of the event.
NUMBER OF EVENT : CE.131


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Aberdeen...Royal Aberdeen Golf Club...ongoing coastal erosion.

G) ANY OTHER FACTORS :
Aberdeen...Royal Aberdeen Golf Club..."A major contributory factor is the volume of pedestrian traffic along the top of the dunes".

H) CLASSIFICATION OF CAUSE OF EVENT : Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Aberdeen...Royal Aberdeen Golf Club..."There is no doubt that in the past 9 years we have lost some 15/20 metres in certain areas".

B) DAMAGE CAUSED :
6) Aberdeen...Royal Aberdeen Golf Club...damage to parts of golf course.
8) Aberdeen...Royal Aberdeen Golf Club...erosion of coastal dunes along golf course up to 20 metres lost in places.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Questionnaire...R.D. Hutchinson (Golf committee member) 1992 August 26.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.

NUMBER OF EVENT : CE.132


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Burghead Bay..."the high tides"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Burghead Bay..."the high tides...did allow the waves to wash away the slumped sand at the base of the marginal cliffs"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.

797
NUMBER OF EVENT: CE.133


CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Portgordon..."just off Stewart St...The water was well across the road separating our houses from the beach an hour and a half before high tide. The water was at its deepest just after high tide*"
1 Buckie..."A watery scene at Craigenroan Place, Portessie as the waves roll in across Great Eastern Road at high tide*"
2 Garmouth...flooding with incoming tide.
2 Lossiemouth...Thundersous seas...the high tide started coming shorewards at about midnight on Monday and by lunchtime the following day the force of the water had breached the harbour wall over a 50 foot section...basin with 21 feet of water at one point.
2 Findhorn..."when the waters broke through the weakened defences at high tide*"
2, 3 Moray's coast...heavy seas...as high tides overtopped sea defences...storm surge.
3 Culbin..."tidal scour*"

B) WIND CONDITIONS:
1 Portgordon to Cullen..."the storms which raged throughout the day were the worst since the great gale of February 1st 1953*"
1 Portgordon..."gale force winds*"
1 Cullen..."gale*"
2 Moray's coast...gale force winds.
2 Lossiemouth...the teeth of the gale.
2 Findhorn..."backed by gale force north-west winds*"
3 Moray coast..."northerly gales*"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
2 Findhorn..."waters broke through the weakened sea defences...the dunes have been devastated, we have lost yards and yards of coastline*"
3 Findhorn..."Again these sand filled hollows between the ridges eroded into spectacular bights and some embayments up to 11 metres deep were cut, while to the east erosion fell gradually away to 1.5 metres to nil*"
3 Culbin...at the eastern tip...quite severe losses have occurred as a result of tidal scour. Here 8.8 metres were lost along the northern edge and the point itself was shortened by 11.8 metres...Along the edge of Buckie Loch some 4 to 6 metres of the coastal bank were washed away...a 12 metre high dune was reduced to a small pile of sand... at the Shelly Head Bothy erosion was also spectacular with a projecting tree-clad dune being cleaned back by some 8 metres.

C) DAMAGE CAUSED:
3) 3 Culbin...Buckie Loch...sand covered the road.
2 Findhorn...boathouse marooned.
5) 3 Buckie Loch...some land flooded and sand covered vegetation up to 50 metres from the road.
7) 2 Findhorn...several houses marooned
8) 2, 3 Findhorn...flooded a large low-lying area to the north and north-east of the village...flooded the main beach road and and car park...many acres of the dune area are under water*"
8) 3 Culbin...at the eastern tip...quite severe losses have occurred as a result of tidal scour. Here 8.8 metres were lost along the northern edge and the point itself was shortened by 11.8 metres...Along the edge of Buckie Loch some 4 to 6 metres of the coastal bank were washed away...a 12 metre high dune was reduced to a small pile of sand... at the Shelly Head Bothy erosion was also spectacular with a projecting tree-clad dune being cleaned back by some 8 metres.
3 Culbin...Buckie Loch..."The sea broke into Buckie Loch along a 100 metre front and flooded the basin with salt water. Tree stumps, whole trees and a wide variety of debris were driven across the road and up to 100 metres into the loch...At the eastern end of the loch trees up to 75 metres to 100 metres from the coast were again standing in salt water.
C) IMPACT AT OTHER SITES:

2) Lossiemouth... 50 feet of the harbour wall was broken... 1 boat destroyed and a number of others slightly damaged in the harbour... several plant pots and concrete slabs were uprooted on the esplanade.

3) Burghead and Hopeman... damage to villages was minimal.

4) Portgordon... some shops and a bar flooded.

2 Buckie, Portessie... post office flooded to a depth of several inches.

2 Lossiemouth... many businesses flooded on Shore St, old railway site flooded.

7) Portgordon... many houses flooded.

1 Buckie, Portessie... many houses flooded.

2 Kingston... 1 house flooded.

8) Portgordon... "The seashore area from West High Street along Lennox Place to Stewart St was submerged under a foot of water around midday."

1 Buckie, Portessie... Craigenroan Place and Great Eastern Road were flooded.

2 Buckie, Portessie... Rannas Place and Craigenroan Place flooded nearly 2ft deep.

2 Kingston... "As the incoming tide spilled onto the Burghead-Kingston road, making it impassable."

2 Lossiemouth... Shore street flooded after 50 feet of harbour wall was broken... the car park at the West beach was under 2ft of water... Part of the footbridge giving access to the east beach was also under water for a spell... the old railway site was also awash.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:

A) SOURCES OF INFORMATION:

1 Newspaper... Banffshire Advertiser February 8, "Storms Batter Moray Coastal Communities"

2 Newspaper... The Northern Scot February 5, "Storms Pound Coastal Belt"


B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: CLASS 1.

C) ASSESSMENT OF QUALITY OF DATA:

1 Detailed description of the event.

2 Detailed description of the event at each site.

3 Detailed description of the event based on the direct observations of the author.
NUMBER OF EVENT: CE.134


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Burghead..."erosion"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Burghead..."erosion at the slipway on the west side of the town"
Culbin...on its side of the exit of the FIndhorn the point has been shortened by 5.7 metres during the year and along its northern side 3.1 metres have been lost...100 metres to the west 6.2 metres have vanished. West of this spot a large semicircular bay is being cut into the dunes and the losses are even greater...at Buckie Loch along stretch of foredune has been cut away and the higher dunes behind truncated
Portgordon..."the sea wall which is being undercut and eroded"

B) DAMAGE CAUSED:
2) Burghead...erosion of the slipway on the west side of the town...cost of improved protection at the site is £25,000.
6) Culbin...West of this spot a large semicircular bay is being cut into the dunes and the losses are even greater.
Portgordon..."the sea wall which is being undercut and eroded...total cost of repairs needed is £225,000" 

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Article...S. Ross (1985) "Erosion of The Moray Coast In 1984" Moray Field Club Bulletin, Number 12, p28-29. Based on the authors own observations of the area.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of the event concentrates on the impact of the coastline.
NUMBER OF EVENT : CE.135


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Findhorn Bay...erosion of new bar.

G) ANY OTHER FACTORS :
Findhorn Bay...the growth of the new bar was stopped by the building of a series of groynes on the eastern side in 1985.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Findhorn Bay...erosion of new bar began once it was groyned, the bar is now receding slowly eastwards.

B) DAMAGE CAUSED :
8) Findhorn Bay...erosion of new bar began once it was groyned, the bar is now receding slowly eastwards.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, Aberdeen, 196pp, p6. Based on the authors own observations of the area.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.

NUMBER OF EVENT : CE.136


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Culbin...erosion.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Culbin...the northeast point of the Culbin Sands was shortened by 1 metre and narrowed by 0.9 metres, but by 2.3 metres near the tip...at Buckle Loch the loss varied from 4 to 9 metres, but at the Shelly Head Bothy the loss was less than a metre*
Burghhead Bay..."there were only small losses of the order of 0.5 metres, the main effect being the cleaning out of the slumped debris at the base of the cliffs"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Article...S. Ross (1986) "The Moray Coastline In 1985" Moray Field Club Bulletin, Number 13, p33-37. Based on the authors own observations of the area.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CE.137


CAUSE OF EVENT
A) TIDAL CONDITIONS :
Culbin..."at Buckie Loch...not too large tides"

B) WIND CONDITIONS :
Culbin..."at Buckie Loch...One small gale"

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Culbin..."at Buckie Loch...An 8 to 12 metre artificial bank was completely washed away in one small gale"

B) DAMAGE CAUSED :
3) Culbin...at Buckie Loch the road was covered in trees and debris.
8) Culbin..."at Buckie Loch...debris was washed some 60 metres inland through some of the breaks"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Based on the authors own observations of the area.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT: CE.138


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Camoustie...at Buddon...scouring away of the coast...washed away by the waves.

B) WIND CONDITIONS:
Camoustie...at Buddon...easterly winds.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Camoustie...at Buddon...a 200 yard stretch of beach and dune has been scoured away to a depth of 40 feet. Protective measures taken by the regional council two years ago at a cost of £120,000 have been wrecked and washed away.

B) DAMAGE CAUSED:
Camoustie...at Buddon...a 200 yard stretch of beach and dune has been scoured away to a depth of 40 feet. Protective measures taken by the regional council two years ago at a cost of £120,000 have been wrecked and washed away.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...The Scotsman, 1987 March 19, "Sea Threat To Carnoustie Golf Course"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Detailed description of the impact of the event.
NUMBER OF EVENT: CE.139


CAUSE OF EVENT
A) TIDAL CONDITIONS:
1, 2 Cockburnspath...at Cove Harbour...erosion.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1, 2 Cockburnspath...at Cove Harbour...erosion of the cliff has caused the closing of the road, down to the harbour from the village.

B) DAMAGE CAUSED:
3) 1, 2 Cockburnspath...at Cove Harbour...erosion of the cliff has caused the closing of the road, down to the harbour from the village.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...The Scotsman, 1987 July 21, "Fears For Future Of Harbour As Unsafe Road Is Closed"
2 Newspaper...The Scotsman, 1987 July 19, "New Steps To Save Harbour"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Short description of the event.
NUMBER OF EVENT: CE.140


CAUSE OF EVENT
A) TIDAL CONDITIONS:
Wemyss... "A combination of storms and high tides has caused unprecedented erosion of the coastline".

B) WIND CONDITIONS:
Wemyss... "A combination of storms".

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Wemyss... unprecedented erosion of the coastline between East Wemyss and Buckhaven... the erosion has exposed a 40-metre section of the concrete protection to the new outfall sewer and access track damaged... One of the most affected areas of the shoreline is adjacent to the Dovecot where the sea has cut into the original shoreline by between three and six metres.

B) DAMAGE CAUSED:
3) Wemyss... exposure of a 40-metre section of the concrete protection to the new outfall sewer and access track damaged... cost of repairs and further protection is put at £40,000.
5) Wemyss... loss of coastal land especially adjacent to the Dovecot where between three and six metres of land was lost.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper... East Fife Mail 1987 November 4 "Move To Combat Coastal Erosion"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of the event covers all aspects of its cause and effect, unclear as to the exact date of occurrence.
NUMBER OF EVENT : CE.141


CAUSE OF EVENT
A) TIDAL CONDITIONS :
1 Troon...erosion by the sea.
2 Southerness..."high tides"

B) WIND CONDITIONS :
1 Troon..."storm"
2 Southerness..."gale-force winds"

C) DURATION OF STORM : Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Troon...erosion of land behind the 2nd and 3rd tees of the Royal Troon Golf Course.
2 Southerness...previous conservation attempts have been obliterated by gale-force winds and high tides.

B) DAMAGE CAUSED :
6) Troon...erosion of land behind the 2nd and 3rd tees of the Royal Troon Golf Course, requiring protection works to be built.
B) 2 Southerness...previous conservation attempts have been obliterated.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
2 Newspaper...The Scotsman 1991 May 19.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of the event.
2 Short description of the event.
NUMBER OF EVENT: CE.142

DATE OF EVENT:  
1 1988 February - 1990 December.  
2 1988 - 1990

CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Troon...erosion by the sea.  
2 Southerness..."the coastline has been washed away"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Troon...erosion of the golf course along the edge of the first (180 metres) and second (270 metres) holes.  
2 Southerness..."In past two years, 50 feet of the coastline has been washed away. Farmers have lost whole fields. Gardens are getting smaller...dunes have been suffering from erosion"

B) DAMAGE CAUSED:
5) 2 Southerness... "Farmers have lost whole fields"
6) 1 Troon...erosion of the golf course along the edge of the first (180 metres) and second (270 metres) holes.  
7) 2 Southerness..."Gardens are getting smaller"
8) Southerness...dunes have been suffering from erosion"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
2 Newspaper...The Scotsman 1991 May 19.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.  
2 Detailed description of the problem of erosion at the site.
NUMBER OF EVENT : CE.143

DATE OF EVENT : 1988 March 18 (date of newspapers).

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Wemyss...The caves are being hit by coastal erosion.

G) ANY OTHER FACTORS :
Wemyss...The caves also suffer from ongoing vandalism.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 5.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Wemyss...The caves at East Wemyss are being hit by coastal erosion...some of them are collapsed or collapsing.

B) DAMAGE CAUSED :
3) Wemyss...Loss of archaeologically significant caves occurring.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Fife Free Press 1988 March 18 "Urgent Talks To Save Unique Carvings"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Description of the event concentrates on the contents of the caves and what has so far been lost mainly through vandalism.

NUMBER OF EVENT : CE.144

DATE OF EVENT : 1988 October.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Wemyss Caves..."For the high tides of October washed away 17 feet of the roadway"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Wemyss Caves..."For the high tides of October washed away 17 feet of the roadway leading to the caves, leaving only a narrow two-foot approach"

B) DAMAGE CAUSED :
3) Wemyss Caves..."washed away 17 feet of the roadway leading to the caves"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...East Fife Mail 1989 February 22 C. Hume "Erosion Threat To Wemyss Caves"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CE.145

DATE OF EVENT : 1989 April 17 (date of newspaper).

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Wemyss Caves..."bid to stop the tide eating away the shoreline...after a recent high tide, when
earth and sand used to strengthen the beach were swept away"

G) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Wemyss Caves..."bid to stop the tide eating away the shoreline...after a recent high tide, when
earth and sand used to strengthen the beach were swept away"

B) DAMAGE CAUSED :
Wemyss Caves..."bid to stop the tide eating away the shoreline...after a recent high tide,
when earth and sand used to strengthen the beach were swept away"

E) SIZE OF EVENT : Local

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...East Fife Mail 1989 April 17 "Protecting Caves At East Wemyss"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of event with two photographs of before and after the erosion event.
NUMBER OF EVENT: CE.146


CAUSE OF EVENT
A) TIDAL CONDITIONS:
1 Elie...has been lost to the sea...coastal erosion.

B) WIND CONDITIONS:
2 Turnberry..."Heavy storms"

C) DURATION OF STORM: Type 1.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Elie...20 metres of sand dunes have been lost to the sea between the beach and the 12th
   fairway at Elie Golf Club.
2 Elie...at the Golf Course over the past two winters potentially serious problems of erosion
   have arisen at the 11th and 12th holes.
2 Turnberry...heavy storms forced the introduction of a storm fence due to the erosion and at
   least one hole is causing considerable concern.

B) DAMAGE CAUSED:
6) 1 Elie...20 metres of sand dunes have been lost to the sea between the beach and the 12th
   fairway at Elie Golf Club...estimated cost of protection needed £50,000.
2 Elie...at the Golf Course over the past two winters potentially serious problems of erosion
   have arisen at the 11th and 12th holes.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Questionnaire...A. Sneddon (Secretary) Elie Golf Club, 1992 July 8.
2 Newspaper...The Scotsman 1990 October 10.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Short description of the event.
NUMBER OF EVENT : CE.147

DATE OF EVENT : 1990.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Dornoch...threatened by erosion.
Montrose...erosion problem.
Troon...steady erosion.

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Dornoch...at the Royal Dornock Golf Course erosion problem developing at the 10th, 11th and 16th holes.
Montrose...at the Montrose Golf Course erosion of the course being monitored on a weekly basis.
Troon...at the Royal Troon Golf Course there has been steady erosion of the of the 1st fairway.

B) DAMAGE CAUSED :
Dornock...at the Royal Dornock Golf Course erosion problem developing at the 10th, 11th and 16th holes.
Montrose...at the Montrose Golf Course erosion of the course being monitored on a weekly basis.
Troon...at the Royal Troon Golf Course there has been steady erosion of the of the 1st fairway.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...The Scotsman 1990 October 10.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CE.148

DATE OF EVENT : 1990 February 2.

CAUSE OF EVENT
A) TIDAL CONDITIONS :
Stornoway..."high tides...4.85 metres...as the tide poured over sea walls"

B) WIND CONDITIONS :
Stornoway..."gale force winds...force 9 winds"

C) DURATION OF STORM : Type 1.

G) ANY OTHER FACTORS :
Stornoway..."accompanied by torrential rain, hail and heavy sleet"

H) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Stornoway...at the Point road sea water breached the defences opposite the end of the airport runway...The shingle breakwater at the Braighe was virtually washed away as the sea poured through.

B) DAMAGE CAUSED :
3) Stornoway...South Beach Street, Cromwell St, Point Road and the Braighe flooded and covered in seaweed and debris...Central Bus Station cut off and services disrupted.
4) Stornoway...the bookmaker's shop at the junction of South Beach and Cromwell St was flooded...Gazette building had its fuseboxes flooded, cutting off power.
6) Stornoway..."the Town Hall was flooded out"
8) Stornoway..."Parts of South Beach Street were knee deep in water...the Town Hall was flooded out and the Central Bus Station was cut off by waves...The Point road...was flooded when sea water breached the defences opposite the end of the airport runway...at the Braighe...the sea water poured through across the road to reach the end of the airport runway...and Cromwell St also flooded...Gazette building minor flooding"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Stornoway Gazette And West Coast Advertiser 1990 February 3, "Gales Bring Town Centre To A Halt"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Detailed description of the event with 4 photographs.
FLOOD NUMBER: CE.149
       2, 5, 6 1991 January 5.

CAUSE OF EVENT
A) TIDAL CONDITIONS:
   1 Ardrossan..."invasive high tide"
   2 Helensburg...Highest tide since 1907...tide was 5 meters, 1.2 meters above its expected height.
   3, 5 Millport, Great Cumbrae Island..."high tides"
   5 Largs..."heaving sea"
   6 Troon..."astronomically high tides"

B) WIND CONDITIONS:
   1 Ardrossan..."storm"
   2 Helensburg..."wind-savaged...very severe storms from the south west...gusts of up to 90 miles per hour"
   3, 5 Millport, Great Cumbrae Island...a very bad storm, high winds.
   6 Troon..."severe storm"

   4 Millport...Wind at 9 am : 3RD 4TH 5TH
      Direction    SSW W
      Force (mph) 22 28 60+
      Gale occurred on the 5th.

   4 Helensburg...Wind at 9 am : 3RD 4TH 5TH 6TH
      Direction    SW SW WNW WNW
      Force (mph) 28 28 34 28
      Gale occurred on the 5th.

C) DURATION OF STORM: Type 3.

G) ANY OTHER FACTORS:
   2 Helensburg..."conditions may have been worsened by the overflowing of the Glennan Burn, which runs directly under West Clyde Street"

   4 Helensburg...Rainfall : 3RD 4TH 5TH 6TH
      Rain (mm) 7.8 20 14.1 9.1

   4 Millport...Comments:
      3RD Very windy showers.
      5TH Hellish storm all day and overnight. Structural damage. Dry.
      6TH Windy. Snow in evening.

   4 Helensburg...Comments:
      4TH Dull and cold - outbreaks of rain. Heavy rain and strong winds.
      5TH Strong winds - very cold. Stormy conditions.
      6TH Strong wind - outbreaks of rain. Very cold.

H) CLASSIFICATION OF CAUSE OF EVENT: Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT:
   1 Ardrossan..."when many sand dunes and shore-line constructions were damaged or washed away"
   2 Helensburg...massive waves breached the seawall at Craigendoran.
   5 Millport...A huge section of the sea-wall in Millburn Street was ripped away by the waves, parts of the island pier were also washed away, up to 50 metres of the promenade was also washed away. A coastal section of Crichton Street has also been badly damaged and retaining walls at properties in Miller Street have been washed away.
   6 Troon..."major erosion along the edge of these two fairways resulting in the loss of virtually all the rough and spectating area on the seaward side of the 1st fairway...It swept away all the
protection works that the Club had undertaken after the January 1988 storm...over 20 metres have been lost along parts of this section.

B) DAMAGE CAUSED:
2) 5 Millport...promenade extensively flooded and badly damaged in a number of places, island pier was devastated, parts of it were washed away. The promenade in Kames Bay has also been badly hit. 3) 2 Helensburgh...Clyde Street, West Clyde Street and William Street flooded...train services suspended...power failure for all areas west of Dumbarton due to power lines being cut. 4) 5 Millport...at Millburn Street part of the road collapsed. 4) 2 Helensburgh...many shops on Clyde Street flooded. 5 Millport...shops flooded on Glasgow Street, Ritz cafe under a foot of water., a hairdressers also badly damaged.
6) 6 Troon...major erosion along the edge of these two fairways resulting in the loss of virtually all the rough and spectatoring area on the seaward side of the 1st fairway...It swept away all the protection works that the Club had undertaken after the January 1988 storm...over 20 metres have been lost along parts of this section...estimated cost of repairs is £119,000* 7) 5 Millport...houses flooded on Glasgow Street, Newton Shore, the promenade and Clyde Street. 8) 1 Ardrossan.."coastal area" 2 Helensburgh...completely submerged the waterfront...Clyde Street up to three feet of water...William Street and West Clyde Street, the Rhu also flooded 5 Millport, Great Cumbrae Island...extensive flooding of town, sea front completely flooded including the promenade which was badly damaged in a number of places, streets flooded included Glasgow Street, Newton Shore flooded, Clyde Street, Stuart Street. The Ritz cafe was under about a foot of water, other properties were also flooded out with up to 9 inches of water. 10) 4 Millport..."Structural damage" 6 Millport..."Structural damage" 2 Cala..."coastal area" 8) 1 Ardrossan.."coastal area"

C) IMPACT AT OTHER SITES:
2) 5 Largs...pier flooded., sea front completely flooded. 8) 5 Largs...pier flooded. 5 Saltcoats...suffered from flooding. 5 Rothesay...flooded. 10) 5 Saltcoats...suffered from extensive damage. 5 Rothesay...suffered from extensive damage.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Letter from local librarian giving a very brief description of the event. 2 Detailed description of event. 3 Letter from local librarian giving a very brief description of the event. 4 Instrumental data and a weather diary. 5 Detailed description of all aspects of the event. 6 Detailed description of the event.
NUMBER OF EVENT: CE.150

DATE OF EVENT: 1991 April 17 (date of newspaper)

CAUSE OF EVENT
A) TIDAL CONDITIONS:
Wemyss Caves..."that the nature and speed of erosion was progressing at such a rate"

H) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Wemyss Caves..."that the nature and speed of erosion was progressing at such a rate that
active collapse of the cliff east of the most important of the caves was advancing steadily"

B) DAMAGE CAUSED:
8) Wemyss Caves..."that the nature and speed of erosion was progressing at such a rate that
active collapse of the cliff east of the most important of the caves was advancing steadily"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper...The Scotsman 1991 April 17.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
APPENDIX 8 SCOTTISH COASTAL SAND MOVEMENTS

Part 1 Organisation Of Database

NUMBER OF EVENT:
DATE OF EVENT:
CAUSE OF EVENT
A) SAND CONDITIONS:
B) SITE CHRONOLOGY:
C) TIDAL CONDITIONS:

Table 3.14 Classification of Paleo-Tidal Regimes Associated with Individual Events.

Type 1 - Very Severe, very exceptional tides and water level heights with a return interval of 50 years or more.
Type 2 - Severe, exceptional tides and water level heights with a return interval of between 25 and 49 years.
Type 3 - Moderate exceptional tides and water levels with a return interval of between 10 and 24 years.
Type 4 - Normal high or spring tides and water levels with a return interval of less than 10 years.
Type 5 - No mention of tides or storm surges in the descriptions of the events.

D) WIND CONDITIONS:
E) STORM DURATION:

Table 3.13 Classification of Storm Duration.

Type 1 - Storm, where gale force winds (Beaufort force 7 or more) are recorded for less than 5 hours.
Type 2 - Storm, where gale force winds (Beaufort force 7 or more) are recorded for between 5 and less than 10 hours.
Type 3 - Storm, where gale force winds (Beaufort force 7 or more) are recorded for 10 hours or more.

F) LAMB’S CIRCULATION PATTERN:
Based on Lamb (1972) and provides a daily classification of the circulation pattern over Britain and Ireland from 1861-1971.

G) LAMB’S ‘SPELLS’:
Based on Lamb (1950) and provides a list of ‘spells’ over the period 1898-1948.

H) ANY OTHER FACTORS:
I) CLASSIFICATION OF CAUSE OF EVENT:

Table 3.12 Classification of the Types of Coastal Sand Movements.

Type 1 - Events primarily due to the movement of existing dunes onto land not normally covered by dunes.
Type 2 - Events due to both the movement of existing sand dunes onto land not normally covered by dunes and of the movement of sand (from non-dune sources) onto land not normally covered by sand.
Type 3 - Events due primarily to the movement of sand from non-dune sources onto land not normally covered by sand.

IMPACT OF EVENT
A) EXTENT OF EVENT:
B) DAMAGE CAUSED:
Only the code number with a half parentheses is used in the database. This is to distinguish it from the source number (e.g. 5) 2 this means that the type of impact was 'Rural' and the data comes from source number 2)

1) Loss of life, injuries.
2) Marine - harbours, ships and boats, lighthouses and lightships.
3) Infrastructure - towns and villages, roads and streets, bridges, railway lines and stations, structures for the transmission of water, gas, electricity, cables, pipes, lines of communication and transport.
4) Commercial - retailing, service and industrial buildings and stock, mineral extraction.
5) Rural - loss of agricultural land, farm buildings, livestock and crops, forestry.
6) Public/Heritage - public buildings, parks, sports facilities and grounds, historic buildings and archaeological sites, military barracks and grounds, religious buildings and graveyards.
7) Homes/Gardens - houses, gardens, garden walls.
8) Geomorphological/Hydrological - coastal and estuarine defence works, sand bars, sand spits and other similar coastal features, river flooding associated with storms.
9) Other - reclaimed land.
10) General Statements.
11) No Impact Specified.

C) IMPACT AT OTHER SITES:
D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES:
E) SIZE OF EVENT:

Table 3.9 Classification of the Magnitude of Coastal Sand Movements.

Local - These are events with a limited impact on a small area.
Intermediate - These include events with a moderate impact on an small to medium-sized area. This category would include events where the impact caused significant but reversible damage
Large - These include events with a severe impact on a relatively large area. This category would include events where there was permanent and irreversible damage.
AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Each source is given a number where there is more than one source of information for an event. This source number is then used at the start of all the rest of the information for that particular event so that it is clear where each piece of information on any aspect of the event is from.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT:

Table 3.4 Classification of Events Based on Estimated Reliability of Information Sources and Dating.

Class 1 - Events considered as completely reliable because the original data source is contemporary or near contemporary with the event it records. The use of the term 'contemporary' means that the observer was present at the time of the occurrence at the place and time of the event. In certain cases where there are two or more independent records of an event having occurred, these events are also considered as reliable.

Class 2 - This category includes events considered as reliable although there may be minor problems of verification e.g. an original source that may differ slightly from the date of the event.

Class 3 - These are events included in the chronologies on the basis of likely reliability. This category includes many of the pre-1700 A.D. events where there is a strong dependence on work undertaken by previous researchers that is very difficult to verify.

C) ASSESSMENT OF QUALITY OF DATA:

COMMENTS
Note that if a category is not included in any of the event descriptions this means that there is no information available under this heading.
Part 2 Database

NUMBER OF EVENT: CSM.1

DATE OF EVENT: circa 1200

CAUSE OF EVENT
A) SAND CONDITIONS:
Moray..."a section of the most fertile land in Moray, stretching along the sea-coast for several miles, was overblown and devastated by an eruption of sand from the westward"

D) WIND CONDITIONS:
Moray..."an eruption of sand from the westward"

E) STORM DURATION: Type 1.

H) ANY OTHER FACTORS:
Moray..."The immediate cause of this catastrophe is supposed to have been that partial upraising of the coast out of the bed of the ocean now ascertained to have taken place within the present geological era"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Moray..."a section of the most fertile land in Moray, stretching along the sea-coast for several miles, was overblown and devastated by an eruption of sand from the westward"

B) DAMAGE CAUSED:
5) Moray..."a section of the most fertile land in Moray, stretching along the sea-coast for several miles, was overblown and devastated by an eruption of sand from the westward"

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...Society For The Sons And Daughters Of The Clergy (1845) "New Statistical Account Of Scotland - Volume 13 Banff, Elgin And Nairn" p217. No original reference given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2

C) ASSESSMENT OF QUALITY OF DATA:
Description of the event covers all its aspects.

COMMENTS
Slight possibility that this event is confused with the 1694 main event.
NUMBER OF EVENT : CSM. 2

DATE OF EVENT : - 1381.

CAUSE OF EVENT
A) SAND CONDITIONS :
Ayr...blowing away of sand on the coast beside the town.

D) WIND CONDITIONS :
Ayr..."the violence of the western storms having been so great"

H) ANY OTHER FACTORS :
Ayr...the problem was significant enough that King Robert granted a charter in 1381 offering a reward to those who could devise means of protecting the town’s church and cemetery from the blowing of sand.

I) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Ayr..."the church-yard having been close by the church, the violence of the western storms having been so great, as to uncover the bodies of the dead, by blowing or washing away the loose sand in which they were buried"

B) DAMAGE CAUSED :
6) Ayr...damage to graves in the local church-yard.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...Society For The Sons And Daughters Of Clergy (1837) "New Statistical Account Of Scotland - Volume 5 Ayrshire And Buteshire" 'Account of the Parish of Ayr' p35-36. No original reference specified but based on the royal charter.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

D) ASSESSMENT OF QUALITY OF DATA :
Description of event concentrates on the damage caused.

E) CLASSIFICATION OF RELIABILITY OF EVENT : Class 1.
NUMBER OF EVENT : CSM.3

DATE OF EVENT : 1381 - 1425.

CAUSE OF EVENT
A) SAND CONDITIONS :
Ayr...blowing away of sand on the coast beside the town ongoing.

B) SITE CHRONOLOGY :
-1381 Ayr...blowing away of sand on the coast beside the town.

D) WIND CONDITIONS :
Ayr..."the violence of the western storms having been so great"

H) ANY OTHER FACTORS :
Ayr..."The same annoyance was afterwards complained of by the inhabitants, as is shown by an application to the Duke of Albany, who was Regent during the reign of Robert III, for liberty to straiten the Sandgate Vennel, in order to guard against the same evil, which is represented as threatening the destruction of the town. Liberty having been granted, an order to build houses closer to one another was given by the magistrates in 1425. The receding of the sea and the building of the fort walls have totally removed the evil"

I) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Ayr...the church-yard still suffering from incidents of blown sand.

B) DAMAGE CAUSED :
6) Ayr...damage to graves in the local church-yard.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...Society For The Sons And Daughters Of Clergy (1837) "New Statistical Account Of Scotland - Volume 5 Ayrshire And Buteshire" ‘Account of the Parish of Ayr’ p35-36. No original reference specified but based on the royal charter and various deeds.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Description of event concentrates on the solution to the problem.
NUMBER OF EVENT : CSM.4

DATE OF EVENT : 1400 - 1499.

CAUSE OF EVENT
A) SAND CONDITIONS :
1 Udal, North Uist...Initially stable coastal dunes followed by a long period of drifting sand.
2 Coileagan an Udail, North Uist...Fifteenth-century shell middens interspersed with layers of calcareous blown sand.

C) TIDAL CONDITIONS :
1 Udal, North Uist...due to the greater tidal range occurring about that time which had not occurred for many hundreds of years before that or at any time since.

D) WIND CONDITIONS :
1 Udal, North Uist..."presumably due to increased storminess"

I) CLASSIFICATION OF CAUSE OF EVENT : Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Udal, North Uist...a long period of drifting sand...which has left great bands of nearly white, loose sand from the shore burying the earlier cultural levels
2 Coileagan an Udail, North Uist..."shell middens interspersed with layers of calcareous blown sand"

B) DAMAGE CAUSED :
5) 1 Udal, North Uist...burial of land by drifting sand.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
References Used : Article...I. A. Crawford (1967) "Hebridean Settlement at Siabaidh, Berneray, Harris" Post - Medieval Archaeology, Volume 1, p110-113.
Based on ongoing research of the author.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of the event as part of a longer discussion of later event.
2 Short description of the event.
NUMBER OF EVENT : CSM.5

DATE OF EVENT : 1401.

CAUSE OF EVENT
A) SAND CONDITIONS :
Forvie..."seems rather to have been the beginning of a process which ended a thousand-year-long period of stability of the local landscape"

D) WIND CONDITIONS :
Forvie..."storm"

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Forvie...sand beginning to drift.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...H.H. Lamb (1991) "Historic Storms Of The North Sea, British Isles And Northwest Europe"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2

C) ASSESSMENT OF QUALITY OF DATA :
Very brief mention of the event.
NUMBER OF EVENT: CSM.6

DATE OF EVENT: 1404.

CAUSE OF EVENT
A) SAND CONDITIONS:
Forvie..."seems rather to have been the beginning of a process which ended a thousand-year-long period of stability of the local landscape"

B) SITE CHRONOLOGY:
1401 Forvie...sand beginning to drift.

D) WIND CONDITIONS:
Forvie..."storm"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Forvie...further drifting of sand.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2

C) ASSESSMENT OF QUALITY OF DATA:
Very brief mention of the event.
NUMBER OF EVENT: CSM.7

DATE OF EVENT: 1413 August 19.

CAUSE OF EVENT
A) SAND CONDITIONS:
   1, 2, 3 Forvie...Initial disturbance of existing coastal sand dunes due to two previous storms.
   3 Aberdeen and the adjacent coasts..."sudden destruction"

B) SITE CHRONOLOGY:
   1 1401 Forvie...sand beginning to drift.
   1 1404 Forvie...further drifting of sand.

C) TIDAL CONDITIONS:
   1 Forvie..."the date given for this storm was very near to the extreme astronomical tide. With a S'ty storm
     superimposed on the extreme tidal range it would be the low tide that was probably most extreme"

D) WIND CONDITIONS:
   1 Forvie..."a great S'ty storm"
   2 Forvie..."a fierce easterly gale"
   3 Aberdeen and the adjacent coasts..."severe storm"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
   1 Forvie..."The Forvie sand-dune which advanced 50 to 250 metres to the north in this storm"
   2 Forvie..."was said to have succumbed to the moving mass of sand in that one, fateful blow"
   2 River Don..."blocked the mouth of the River Don with sand"
   3 Aberdeen and the adjacent coasts..."sudden destruction"

B) DAMAGE CAUSED:
   3) 1, 2 Forvie..."the medieval township buried by the moving sand dune"
   6) 1 Forvie..."the Church of Forvie was ultimately inundated"
   8) 2 River Don..."blocking of the mouth of the river with sand."
   10) 3 Aberdeen and the adjacent coasts..."sudden destruction"

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
   Article...H. H. Lamb (1980) "Climatic Fluctuations In Historical Times And Their Connection With Transgressions Of The Sea, Storm Floods And Other Coastal Changes" in A. Verhulst And M. K. E. Gottschalk (eds) "Transgressies En Occupatiegeschiedenis In De Kustgebieden Van Nederland En Belgie" Belgisch Centrum Voor Landelijke Greschiedenis, p251-281.

825
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Description of event concentrates on the causes of the event with little information on the impact.
2 Short description of the event as part of a longer discussion of the history of the site.
3 Short description of event, unclear as to what type of sudden destruction occurred but read in context implies some type of coastal sand movement.

NUMBER OF EVENT: CSM.8

DATE OF EVENT: 1414 - 1499.

CAUSE OF EVENT
A) SAND CONDITIONS:
1 Forvie...Initial disturbance of existing coastal sand dunes due to three previous storms...further advance of 200 metres.

B) SITE CHRONOLOGY:
1 1401 Forvie...sand begining to drift.
1 1404 Forvie...further drifting of sand.
1 1413 Aug 19 Forvie..."The Forvie sand-dune which advanced 50 to 250 metres to the north in this storm"
2 1413 Aug 19 Forvie..."was said to have succumbed to the moving mass of sand in that one, fateful blow"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Forvie..."The Forvie sand-dune...advanced about 200 metres farther before the end of the 15th century" 

B) DAMAGE CAUSED:
3) 1 Forvie...further burial of the medieval township and surrounding area.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Short description of the event as part of a longer discussion of the history of the site.
NUMBER OF EVENT: CSM.9

DATE OF EVENT: 1500 - 1599.

CAUSE OF EVENT

A) SAND CONDITIONS:
1 Forvie... Initial disturbance of existing coastal sand dunes due to three previous storms... further advance of 200 metres up to A.D.1500, followed by a further advance of sand.
2 Coileagan an Udail, North Uist... Fifteenth-century shell middens interspersed with layers of calcareous blown sand followed by a further period of blown sand activity revealed by later shell middens.

B) SITE CHRONOLOGY:
1 1401 Forvie... sand beginning to drift.
1 1404 Forvie... further drifting of sand.
1 1413 Aug 19 Forvie... "The Forvie sand-dune which advanced 50 to 250 metres to the north in this storm"*
3 1413 Aug 19 Forvie... "was said to have succumbed to the moving mass of sand in that one, fateful blow"*
1 1400-1499 Forvie... "The Forvie sand-dune... advanced about 200 metres farther before the end of the fifteenth century"*
2 1400-1499 Coileagan an Udail, North Uist... "shell middens interspersed with layers of calcareous blown sand"*

I) CLASSIFICATION OF CAUSE OF EVENT: Type 2.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Forvie... "The Forvie sand-dune... but still greater advances occurred later, in the sixteenth century.
2 Coileagan an Udail, North Uist... later shell middens interspersed with layers of calcareous blown sand.

B) DAMAGE CAUSED:
3 1 Forvie... further burial of the medieval township and surrounding area.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
Article... A. Crawford (1967) "Hebridean Settlement at Siabaidh, Berneray, Harris" Post - Medieval Archaeology, Volume 1, p110-113.
Based on ongoing research of the author.
Other Sources : Book... J.H. Burnett [ed] (1964) "The Vegetation Of Scotland" Oliver And Boyd, p106-107.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Short description of the event.
3 Short description of the event as part of a longer discussion of the history of the site.

827
NUMBER OF EVENT: CSM.10

DATE OF EVENT: 1526.

CAUSE OF EVENT
A) SAND CONDITIONS:
Bay Of Cruden..."there was much sand movement on the coast...violent blasts of sand"

G) CLASSIFICATION OF CAUSE OF EVENT: Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Bay Of Cruden..."there was much sand movement on the coast, and that a chapel built in about 1012...as often occurs in these parts was occasioned by violent blasts of sand"

E) SIZE OF EVENT: Local:

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

D) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

E) CLASSIFICATION OF RELIABILITY OF EVENT: Class 2.
NUMBER OF EVENT: CSM.11

DATE OF EVENT: 1542-1696.

CAUSE OF EVENT
A) SAND CONDITIONS:
Udal, North Uist...Initially stable coastal dunes followed by a long period of drifting sand from
1400 to 1499 then stabilisation occurred up to 1542, followed by another period of drifting sand.

B) SITE CHRONOLOGY
1400-1499 Udal, North Uist...a long period of drifting sand...which has left great bands of nearly white,
loose sand from the shore burying the earlier cultural levels

D) WIND CONDITIONS:
Udal, North Uist..."the storms were increasing again"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Udal, North Uist...another period of drifting sand.

B) DAMAGE CAUSED:
5) Udal, North Uist...burial of land by drifting sand.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...H.H. Lamb (1991) "Historic Storms Of The North Sea, British Isles And Northwest
References Used: Article...I. A. Crawford (1967) "Hebridean Settlement at Slabaidh,
Berneray, Harris" Post - Medieval Archaeology, Volume 1, p110-113.
Article...I. A. Crawford and R. Switsur (1977) "Sandscaping And C14: The Udal, N. Uist"
Article...A. Morrison (1967-1968) "Report From The Harris Estate Papers" Transactions Of

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event as part of a longer discussion of later event.
2 Short description of the event.
NUMBER OF EVENT: CSM.12

DATE OF EVENT: 1573 - 1680.

CAUSE OF EVENT
A) SAND CONDITIONS:
1 Forvie...the chapel of Forvie...no indication of a problem with blown sand in 1573. However in 1680 it was sand covered.

B) SITE CHRONOLOGY:
2 1401 Forvie...sand begining to drift.
2 1404 Forvie...further drifting of sand.
2 1413 Aug 19 Forvie..."The Forvie sand-dune which advanced 50 to 250 metres to the north in this storm"
3 1413 Aug 19 Forvie..."was said to have succumbed to the moving mass of sand in that one, fateful blow"
2 1400-1499 Forvie..."The Forvie sand-dune...advanced about 200 metres farther before the end of the fifteenth century"
2 1500-1599 Forvie..."The Forvie sand-dune...but still greater advances occurred later, in the sixteenth century.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Forvie...the chapel of Forvie completely inundated by sand.

B) DAMAGE CAUSED:
6) 1 Forvie...the chapel of Forvie completely inundated by sand.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Article...I. A. Crawford (1967) "Hebridean Settlement at Siabaidh, Berneray, Harris" Post - Medieval Archaeology, Volume 1, p110-113.
Other Sources: Book...J.H. Burnett [ed] (1964) "The Vegetation Of Scotland" Oliver And Boyd, p106-107.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event concentrating on the damage caused.
2 Short description of the event.
3 Short description of the event as part of a longer discussion of the history of the site.
NUMBER OF EVENT: CSM.13

DATE OF EVENT : 1600 - 1699.

CAUSE OF EVENT
A) SAND CONDITIONS :
1 Forvie...Initial disturbance of existing coastal sand dunes due to three previous storms...further advance of 200 metres up to A.D.1500, followed by further advances of sand in the sixteenth and seventeenth centuries. From 1500 to 1680 the sand dunes had advanced northwards by 450 metres.

B) SITE CHRONOLOGY :
1 1401 Forvie...sand begining to drift.
1 1404 Forvie...further drifting of sand.
1 1413 Aug 19 Forvie..."The Forvie sand-dune which advanced 50 to 250 metres to the north in this storm"
3 1413 Aug 19 Forvie..."was said to have succumbed to the moving mass of sand in that one, fateful blow"
1 1400-1499 Forvie..."The Forvie sand-dune...advanced about 200 metres farther before the end of the fifteenth century"
1 1500-1599 Forvie..."The Forvie sand-dune...but still greater advances occurred later, in the sixteenth century.
2 1573-1680 Forvie...the chapel of Forvie completely inundated by sand.

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Forvie...The Forvie sand-dune...but still greater advances occurred later, in the seventeenth century. From 1500 to 1680 the sand dunes had advanced northwards by 450 metres.

B) DAMAGE CAUSED :
3) 1 Forvie...further burial of the medieval township and surrounding area.

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Article...I. A. Crawford (1967) "Hebridean Settlement at Siabaidh, Berneray, Harris" Post - Medieval Archaeology, Volume 1, p110-113.
Other Sources : Book...J.H. Burnett [ed] (1964) "The Vegetation Of Scotland" Oliver And Boyd, p106-107.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of the event.
2 Short description of the event concentrating on the damage caused.
3 Short description of the event as part of a longer discussion of the history of the site.
NUMBER OF EVENT : CSM.14

DATE OF EVENT : 1600-1678.

CAUSE OF EVENT
A) SAND CONDITIONS :
West Coast...stable dune systems becoming unstable.
Bemera Island, Uists...west coast...existing coastal dunes becoming unstable.

H) ANY OTHER FACTORS :
Bemera Island..."that local men secured the drifting sandbanks of the west coast with turfs"

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
West Coast..."sand overwhelming machair areas and even buildings"
Bemera Island..."the drifting sandbanks of the west coast"

B) DAMAGE CAUSED :
5) West Coast..."sand overwhelming machair areas"
Bemera Island...land covered by drifting sand.
7) West Coast...sand overwhelming buildings.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Article...W. Ritchie (1979) "Machair Development And Chronology In The Uists And Adjacent Islands" Proceedings Of The Royal Society Of Edinburgh, Volume 77B, p107-122.
References Used : Article...A. Morrison (1961) "Harris Estate Papers" Unpublished manuscripts.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CSM.15

DATE OF EVENT : 1 - 1601.
2 - 1630.

CAUSE OF EVENT
A) SAND CONDITIONS :
1 Uist..."the oldest men report this island to be much impaired and destroyed by the sands blowing-over and burying habitable lands"*
2 Uist..."the sand does flow with the wind and destroys both the land and hides the houses below the sand, and so the most part of the country is overwhelmed with sand"

E) ANY OTHER FACTORS :
2 Uist..."much of the land overwhelmed and destroyed by the sea"

G) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Uist..."there are destroyed the townes and parish churches of Kilmarchirmoir and Kilpetil, and the church of Kilmorie is now called Kilpetil...but now the sea and the sand have approached it, there are some remains of the destroyed churches yet to be seen at low tide or ebbing water"*
2 Uist..."the parish churches and the lands of the parishes of Kilmarchirmore and Kilpettil covered by blown sand, the latter church is below the sand except for five feet of the pinnacle...certain of them will be seen when the sea ebbs in the summer time"

B) DAMAGE CAUSED :
3) 1 Uist...the towns of Kilmarchirmoir and Kilpetil were destroyed by blown sand.
5) 1, 2 Uist...much agricultural land overblown and destroyed with sand.
6) 1, 2 Uist...the parish churches of Kilmarchirmoir and Kilpetil were destroyed by blown sand.
2 Uist...the parish churches of Kilpettil is below the sand except for five feet of the pinnacle.
7) 2 Uist...some houses buried by blown sand.

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Original Reference : James Gordon, Parson Of Rothiemay "Noates And Observations Of Dyvers Parts Of The Hielands And Isles Of Scotland" written between 1641 and 1654. The descriptions are based principally on the notes left by Timothy Pont written between 1583 and 1601.

Original Reference : Anon "Ane Descriptione Of Certaine Pairs Of The Highlands Of Scotland" no date given but it is suggested in Sibbald's 'Repertory' that they were prepared for Sir Robert Gordon sometime around 1630.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of the event.
2 Short description of the event.
NUMBER OF EVENT : CSM.16

DATE OF EVENT : - 1649 December.

CAUSE OF EVENT
A) SAND CONDITIONS :
Nairn..."in the locality...formerly of great repute for the fertile land surrounding it, which for
the most part the sea has destroyed with accumulations of sand. On the shore traces remain of
its celebrated castle of old, but it is now buried by the inroads of the sea"* 

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Nairn..."which for the most part the sea has destroyed with accumulations of sand. On the shore
traces remain of its celebrated castle of old, but it is now buried by the inroads of the sea"*

B) DAMAGE CAUSED :
5) Nairn..."in the locality...formerly of great repute for the fertile land surrounding it, which
for the most part the sea has destroyed with accumulations of sand.
6) Nairn..."On the shore traces remain of its celebrated castle of old, but it is now buried by
the inroads of the sea"*

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...W. MacFarlane (1907) "MacFarlane's Geographical Collections, Volume 2" Scottish
Original Reference : Sir Robert Gordon Of Straloch (1649 December) "Adnotata Ad Tabulam
Veteris Scotiae" in Sibbalds "Topographical Notices" no date and Blaeu's "Atlas" Scottish

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CSM.17

DATE OF EVENT : 1, 3 - 1654.
2 - 1662.

CAUSE OF EVENT
A) SAND CONDITIONS :
1 Inlet Of Strathbeg...ongoing deposition of sand into the inlet up to 1654...it is probable that
this sand inundation was a temporary blockage.
2 Strathbeg..."small bay once noted for its harbour now almost completely blocked with sand"
2 Rattray..."Traces remain of the town ...which now follows the fortunes of the harbour"
3 Bettyhill, Caithness..."On the sandy beach between the two noble rivers, Naver and
Torrisdail, whose mouths are a space of two miles distant from each other, ruins, now covered
by the sea and sand, show that there was once a town"

I) CLASSIFICATION OF CAUSE OF EVENT : Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Inlet Of Strathbeg..."almost obliterated with sand"
2 Strathbeg..."small bay once noted for its harbour now almost completely blocked with sand"
2 Rattray..."Traces remain of the town"
3 Bettyhill, Caithness..."ruins, now covered by the sea and sand, show that there was once a town"

B) DAMAGE CAUSED :
2) 1, 2 Inlet Of Strathbeg...this sand inundation was a temporary blockage...but caused a
shallowing which seriously impeded the movement of coastal craft.
3) 2 Rattray..."Traces remain of the town"
3 Bettyhill, Caithness..."ruins, now covered by the sea and sand, show that there was once a town"

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Book...H.H. Lamb (1991) "Historic Storms Of The North Sea, British Isles And Northwest
Reference used By Walton : Book...R. Gordon (1843) "Description Of The Sheriffdoms Of
Aberdeen And Banff" in 'Collections For A History Of The Shires Of Aberdeen And Banff' Aberdeen, p19.
2 Book...W. MacFarlane (1907) "MacFarlane's Geographical Collections, Volume 2" Scottish
Original Reference : Sir Robert Gordon Of Straloch (1662) "Descripation Duarum Praefectuarum
Aberdoniae Et Banfiae" in Blaeu (1662) "Atlas" Scottish Volume, 2nd Edition. Account was not
publised in the first edition in 1654.
3 Book...W. Macfarlane (1907) "Macfarlane's Geographical Collections, Volume 2" Scottish
Original Reference : Sir Robert Gordon Of Gordonstoun 'Vera Southerlandiae Chorographica* Description in Sibbald's "Topographical Notices" no date given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of the event.
2 Very short description of the event.
3 Short description of the event.
NUMBER OF EVENT : CSM 18

DATE OF EVENT : 1, 2 1663 April 21.

CAUSE OF EVENT
A) SAND CONDITIONS :
1 Culbin...Existing coastal dunes fairly stable up to this time...severe episode of blowing sand.
1, 2 Nairn...the town was threatened by drifting sand from the shoreline of the Moray Firth.

B) SITE CHRONOLOGY
3 - 1649 Dec Nairn..."which for the most part the sea has destroyed with accumulations of sand. On the shore traces remain of its celebrated castle of old, but it is now buried by the inroads of the sea"

D) WIND CONDITIONS :
1 Culbin...storm.
1 Nairn..."The likeliest wind direction for this storm...from some northerly point"

I) CLASSIFICATION OF CAUSE OF EVENT : Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Culbin...severe episode of blowing sand in the area.
1, 2 Nairn..."the neighbouring town to the west, was also threatened by drifting sand from its environs"

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Letter...S.M. Ross Of Forres, personal communication, letter dated 17th September 1990.
Original Reference : Manuscript...A. Brodie (1663) "The Diary Of Alexander (Lord) Brodie of Brodie Castle". This diary was contemporary with the time of the event.
Other Sources : Article...H. H. Lamb (1980) "Climatic Fluctuations In Historical Times And Their Connection With Transgressions Of The Sea, Storm Floods And Other Coastal Changes" in A. Verhulst And M. K. E. Gottschalk 'Transgressies En Occupatiegeschiedenis In De Kustgebieden Van Nederland En Belgie' Belgisch Centrum Voor Landelijke Geschiedenis, p251-281.
2 Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, University Of Aberdeen, 196pp, p64.
Original Reference : Manuscript...A. Brodie (1663) "The Diary Of Alexander Brodie Of Brodie" Aberdeen. This diary was contemporary with the time of the event.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Description of the event also forms part of a very detailed description of a later event.
2 Short description of the event.
3 Short description of the event.
NUMBER OF EVENT: CSM. 19

DATE OF EVENT: 1, 2 1676 Autumn.

CAUSE OF EVENT
A) SAND CONDITIONS:
1, 2 Culbin...Existing coastal dunes fairly stable up to this time...severe episode of blowing sand in 1663 followed by another episode of blown sand.

B) SITE CHRONOLOGY
1 1663 Apr 21 Culbin...severe episode of blowing sand in the area.

D) WIND CONDITIONS:
1 Culbin..."NW'ly gale"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1, 2 Culbin...buried the harvest on the westernmost Culbin farms with up to two feet (60cm) of sand

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Letter...S.M. Ross Of Forres, personal communication, letter dated 17th September 1990.
Other Sources: Article...H. H. Lamb (1980) "Climatic Fluctuations In Historical Times And Their Connection With Transgressions Of The Sea, Storm Floods And Other Coastal Changes" in A. Verhulst And M. K. E. Gottschalck 'Transgressies En Occupatiegeschiedenis In De Kustgebieden Van Nederland En Belgie' Belgisch Centrom Voor Landelijke Greschiedenis, p251-281.
2 Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, University Of Aberdeen, 196pp, p85.
Reference Used: Newspaper...J. Martin (1867) "The Sandhills Of Culbin" Forres Gazette, 18 December 1867.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event as part of a very detailed description of a later event.
2 Short description of the event.
NUMBER OF EVENT: CSM.20

DATE OF EVENT : 1688 (event of nine days duration).

CAUSE OF EVENT
A) SAND CONDITIONS :
Aberdeen and adjacent coasts...site with a history of sand movement followed by an event of
sudden destruction.

B) SITE CHRONOLOGY :
1413 Aug 19 Aberdeen and adjacent coasts...sudden destruction.

D) WIND CONDITIONS :
Aberdeen and adjacent coasts...storm of nine days duration.

E) STORM DURATION : Type 3.

I) CLASSIFICATION OF CAUSE OF EVENT : Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Aberdeen and adjacent coasts...an event of sudden destruction.

B) DAMAGE CAUSED :
10) Aberdeen and the adjacent coasts..."sudden destruction"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...Scottish Council Of Social Service (1970) "The Third Statistical Account Of Scotland -
Volume 7 The County Of Aberdeen" H Hamilton (ed), Collins, Glasgow, p452-453.
No original reference given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event, unclear as to what form the sudden destruction took but read in
context implies some type of sand movement.
NUMBER OF EVENT: CSM.21

DATE OF EVENT: 1689 September.

CAUSE OF EVENT
A) SAND CONDITIONS:
1 Naim...at Delnies...a severe sandstorm.

B) SITE CHRONOLOGY:
4 - 1649 Dec Naim..."which for the most part the sea has destroyed with accumulations of sand. On the shore traces remain of its celebrated castle of old, but it is now buried by the inroads of the sea"
2, 3 1663 Apr 21 Naim..."the neighbouring town to the west, was also threatened by drifting sand from its environs"

D) WIND CONDITIONS:
1 Culbin...storm.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Naim...at Delnies...a severe sandstorm.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, University Of Aberdeen, 196pp, p64.
Original Reference: Manuscript...J. Allan (1689) "Memoirs" Moray District Office, DBL 79/1.
Based on author's eyewitness account of the event.
Letter...S.M. Ross Of Forres, personal communication, letter dated 17th September 1990.
Original Reference: Manuscript...A. Brodie (1689) "The Diary Of Alexander Brodie Of Brodie Castle, Aberdeen."
Other Sources: Article...H. H. Lamb (1980) "Climatic Fluctuations In Historical Times And Their Connection With Transgressions Of The Sea, Storm Floods And Other Coastal Changes" in A. Verhuiit And M. K. E. Gottschalk "Transgressies En Occupatiegeschiedenis In De Kustgebieden Van Nederland En Belgie" Belgisch Centrum Voor Landelijke Geschiedenis, p251-281.
2 Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, University Of Aberdeen, 196pp, p64. This diary was contemporary with the time of the event.
Original Reference: Book...A. Brodie (1689) "The Diary Of Alexander Brodie Of Brodie" Aberdeen. This diary was contemporary with the time of the event.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Description of the event also forms part of a very detailed description of a later event.
3 Short description of the event.
4 Short description of the event.
NUMBER OF EVENT: CSM.22

DATE OF EVENT: 1694 Autumn (most likely November 1 - 2).

CAUSE OF EVENT

A) SAND CONDITIONS:
1 Culbin...Existing coastal dunes in a SW or WSW orientation fairly stable up to this time...two episodes of blown sand prior to the main event which has been described as one of the greatest wind-borne deposits formed anywhere in Britain in recent geological time.
3 Culbin...destruction of the estate by the sands...the great sand drift came from the west.

B) SITE CHRONOLOGY:
3 1663 Apr 21 Culbin...severe episode of blowing sand in the area.
3 1676 Aut Culbin...buried the harvest on the westernmost Culbin farms with up to two feet (60cm) of sand.

C) TIDAL CONDITIONS:
1 Culbin..."concided with spring tides which probably caused the wild seas to tear open the face of the coastal sand-dunes".
1, 5 Culbin...buried the harvest on the westernmost Culbin farms with up to two feet (60cm) of sand.

D) WIND CONDITIONS:
1 Culbin...a great NW'ly or NNW'ly storm of exceptional strength and duration, lasting perhaps 36 hours, and preceded by about 24 hours of a very strong W'Iy storm wind with already rough seas, the NW to N wind blew over a very long fetch of open sea from the Arctic...winds probably up to between 100-130 knots when the storm was at its worst.

E) STORM DURATION: Type 3.

F) ANY OTHER FACTORS:
1, 3 Culbin...the destabilisation of the coastal dunes may partially be due to the excessive plucking of marram grass used for local industries, this was subsequently banned by an Act of the Scottish parliament in 1695.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Culbin..."16 fertile farms and farmland with a total area of 20-30km² on the Culbin Estate, near the north-facing coast of Moray Firth, close to the towns of Findhorn and Forres, were reportedly overwhelmed, in a single violent storm, by moving sand. The whole area and the buildings, including the mansion house, were buried, with depths of up to 30 metres of loose sands...The distance covered by the spreading sand lateral to the dunes was not very great, only 2-3km (perhaps 4km at one point).
3 Culbin...most recent study indicates that the area overwhelmed was one-fifth original size circa 1,000 hectares.

B) DAMAGE CAUSED:
3) 2 Culbin...first village called Seatoun of Kinloss...obliterated by the shifting Culbin Sands
5) 1 Culbin...16 fertile farms and farmland with a total area of 20-30km² on the Culbin Estate...were reportedly overwhelmed, in a single violent storm, by moving sand. The whole area and the buildings, including the mansion house, were buried, with depths of up to 30 metres of loose sands.
3 Culbin...most recent study indicates that the area overwhelmed was one-fifth original size circa 1,000 hectares.

E) SIZE OF EVENT: Large.
AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...G. Bain (1922) "The Culbin Sands or the story of a buried estate" Nairnshire Telegraph, Nairn.
Original Reference: Manuscript...A. Brodie (1694) 'The Diary Of Alexander Brodie Of Brodie' Aberdeen. This diary was contemporary with the time of the event.
Newspaper...J. Martin (1867) "The Sandhills Of Culbin" Forres Gazette, 18 December 1867.
3 Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, University Of Aberdeen, 196pp, p2, 65, 100 and 151. Book contains numerous references both contemporary and/or near contemporary and later.
Original Reference: Manuscript...A. Brodie (1694) "The Diary Of Alexander Brodie Of Brodie" Aberdeen. This diary was contemporary with the time of the event.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Very detailed description of all aspects of the event.
2 Short description of the event.
3 Detailed description of the event.
NUMBER OF EVENT: CSM.23

DATE OF EVENT: 1695 - 1704.

CAUSE OF EVENT
A) SAND CONDITIONS:
1 Culbin...Existing coastal dunes in a SW or WSW orientation fairly stable up to this time...two episodes of blown sand prior to the main event which has been described as one of the greatest wind-borne deposits formed anywhere in Britain in recent geological time followed by a period of numerous blown sand and drift events.

B) SITE CHRONOLOGY:
2 1663 Apr 21 Culbin...severe episode of blowing sand in the area.
2 1676 Aut Culbin...buried the harvest on the westernmost Culbin farms with up to two feet (60cm) of sand
1 1694 Aut Culbin..."16 fertile farms and farmland with a total area of 20-30km² on the Culbin Estate, near the north-facing coast of Moray Firth, close to the towns of Findhorn and Forres, were reportedly overwhelmed, in a single violent storm, by moving sand. The whole area and the buildings, including the mansion house, were buried, with depths of up to 30 metres of loose sands. The distance covered by the spreading sand lateral to the dunes was not very great, only 2-3km (perhaps 4km at one point).
2 1694 Aut Culbin...most recent study indicates that the area overwhelmed was one-fifth original size circa 1,000 hectares.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Culbin..."there were frequent periods of blowing sand"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...G. Bain (1922) "The Culbin Sands or the story of a buried estate" Naim.
Book...D.P. Willis (1986) "Sand And Silence - Lost Villages Of The North (Forvie, Rattray, Culbin And Skara Brae)" University Centre For Scottish Studies, Aberdeen.
Letter...S.M. Ross Of Forres, personal communication, letter dated 17th September 1990.
2 Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, University Of Aberdeen, 196pp, p2, 65, 100 and 151. Book contains numerous references both contemporary and/or near contemporary and later.
Original Reference : Manuscript...A. Brodie (1704) "The Diary Of Alexander Brodie Of Brodie" Aberdeen. This diary was contemporary with the time of the event.
Newspaper...J. Martin (1867) "The Sandhills Of Culbin" Forres Gazette, 18 December 1867.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Detailed description of the event
NUMBER OF EVENT: CSM24

DATE OF EVENT: 1, 3 1697 Autumn (most likely October 1-2).
2 1679 (clearly error in transcribing date).

CAUSE OF EVENT
A) SAND CONDITIONS:
1 Udal, North Uist...Initially stable coastal dunes followed by a long period of drifting sand from
1400 to 1500 then stabilisation occurred up to 1542, followed by another period of drifting
sand up to 1696 and in the following year a great sand-blow disaster occurred.
2, 3 Bernera Island...A great sandstorm after a period of dune instability since 1600.
3 South Pabbay...No previous record of dune instability followed by a great sandstorm.

B) SITE CHRONOLOGY:
1 1400 - 1499 Udal, North Uist...a long period of drifting sand...which has left great bands of
nearly white, loose sand from the shore burying the earlier cultural levels
1 1542 - 1696 Udal, North Uist...another period of drifting sand.
1 1600 - 1678 Bernera Island...Land covered by drifting sand.

D) WIND CONDITIONS:
1 Udal, North Uist..."suggesting a cyclonic system which having produced an unusually severe
gale from a westerly or northwesterly direction in North Uist in the Hebrides, travelled
southeastwards towards southern Norway and Denmark"*
2, 3 Bernera Island...storm.
3 South Pabbay...storm.

H) ANY OTHER FACTORS:
1 Extensive sea floods reported for October 1-2 on the coasts around the German Bight from
Denmark to north Holland.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Udal, North Uist..."great sand-blow disaster...obliterated a site that had been inhabited for
4000 years...the sand depth on the site reached 6 metres"
2 Bernera Island..."the west coast...but since the great sandstorm of 1679, that area has become a long
Sahara...so devoid of vegetation that...not sufficient grass grew upon it to feed one lamb"*
3 South Pabbay..."there was considerable damage done...by blown sand so that the farm of
Middleton disappeared from the Rent Rolls"
3 Berneray..."it suffered severely in the great sand storm...when the pendicle of Shiaby was covered by
blown sand to a depth of several feet"

B) DAMAGE CAUSED:
3) 1 Udal, North Uist..."obliterated a site that had been inhabited for 4000 years"
5) 2 Bernera Island...covering of agricultural land with sand substantially reducing productivity.
3 South Pabbay..."the farm of Middleton disappeared from the Rent Rolls"
3 Berneray..."the farm of...the pendicle of Shiaby was covered by blown sand to a depth of several feet.

E) SIZE OF EVENT: Large.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book...H.H. Lamb (1991) "Historic Storms Of The North Sea, British Isles And Northwest
References Used : Article...I.A. Crawford (1967) "Hebridean Settlement at Siabaldh,
Berneray, Harris" Post - Medieval Archaeology, Volume 1, p110-113.
Article...I.A. Crawford and R. Switsur (1977) "Sandscaping And C14 : The Udal, N. Uist"
Article...A. Morrison (1967-1968) "Report From The Harris Estate Papers" Transactions Of
2 Article...W. Ritchie (1979) "Machair Development And Chronology In The Uists And Adjacent Islands" Proceedings Of The Royal Society Of Edinburgh, Volume 77B, p107-122.
Reference Used...A. Morrison (1961) "Harris Estate Papers" (Unpublished manuscripts).
Original Reference : A. Morrison (1961) "Harris Estate Papers" Unpublished manuscripts, contemporary with the event.

B) RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Description of event concentrates on its meteorological cause.
2 Short description of the event.
3 Short description of the event.
NUMBER OF EVENT: CSM.25

DATE OF EVENT: 1700-1799

CAUSE OF EVENT

A) SAND CONDITIONS:
1 Forvie...Initial disturbance of existing coastal sand dunes due to three previous storms...further advance of 200 metres up to A.D.1500, followed by a further advances of sand in the sixteenth and seventeenth centuries. From 1500 to 1688 the sand dunes had advanced northwards by 450 metres. Advance of 100 to 150 metres at some points in the eighteenth century.

B) SITE CHRONOLOGY:
1 1401 Forvie...sand beginning to drift.
1 1404 Forvie...further drifting of sand.
1 1413 Aug 19 Forvie..."The Forvie sand-dune which advanced 50 to 250 metres to the north in this storm"
3 1413 Aug 19 Forvie..."was said to have succumbed to the moving mass of sand in that one, fateful blow"
1 1400-1499 Forvie..."The Forvie sand-dune...advanced about 200 metres farther before the end of the fifteenth century"
1 1500-1599 Forvie..."The Forvie sand-dune...but still greater advances occurred later, in the sixteenth century.
2 1573-1680 Forvie...the chapel of Forvie completely inundated by sand.
1 1600-1699 Forvie...The Forvie sand-dune...but still greater advances occurred later, in the seventeenth century. From 1500 to 1680 the sand dunes had advanced northwards by 450 metres.

CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT:
1 Forvie...The Forvie sand-dune...advance of 100 to 150 metres at some points.

B) DAMAGE CAUSED:
3) 1 Forvie...further burial of the medieval township and the surrounding area.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION:
Article...I. A. Crawford (1967) "Hebridean Settlement at Siabaidh, Berneray, Harris" Post-Medieval Archaeology, Volume 1, p110-113.
Other Sources: Book...J.H. Burnett [ed] (1964) "The Vegetation Of Scotland" Oliver And Boyd, p106-107.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Short description of the event concentrating on the damage caused.
3 Short description of the event as part of a longer discussion of the history of the site.

845
NUMBER OF EVENT: CSM.26
DATE OF EVENT: 1700-1792.

CAUSE OF EVENT
A) SAND CONDITIONS:
Harris...ongoing drifting of sand onto agricultural land.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Harris..."The most destructive process of Nature is, the continual wasting of the land on the western shore, by the perpetual drifting of the sand...This is evinced by the clearest testimonies. Lands, which were ploughed within the remembrance of people yet living, are now no more".

B) DAMAGE CAUSED:
5) Harris...loss of agricultural land.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CSM.27
DATE OF EVENT: 1700-1780.

CAUSE OF EVENT
A) SAND CONDITIONS:
Tain..."and, where some old people remember dwelling houses and growing corn, nothing is now to be seen but sand banks"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Tain..."and, where some old people remember dwelling houses and growing corn, (Morrich Mor) nothing is now to be seen but sand banks"

B) DAMAGE CAUSED:
5) Tain...loss of cornfields...due to the gradual encroachment of sand.
7) Tain...loss of some dwelling houses due to the gradual encroachment of sand.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...Sir John Sinclair (1790) 'The Statistical Account Of Scotland : Volume 17 Invernessshire, Ross And Cromarty' 'Account of the Parish of Tain' p626.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT : CSM.28

DATE OF EVENT : 1700 - 1709 c.

CAUSE OF EVENT
A) SAND CONDITIONS :
2 Culbin..."Roseisle, when sand-blowing affected the lands of Inverurgie"

B) SITE CHRONOLOGY :
2 1663 Apr 21 Culbin...severe episode of blowing sand in the area.
2 1676 Aut Culbin...buried the harvest on the westernmost Culbin farms with up to two feet (60cm) of sand"
1 1694 Aut Culbin...16 fertile farms and farmland with a total area of 20-30km² on the Culbin Estate, near the north-facing coast of Moray Firth, close to the towns of Findhorn and Forres, were reportedly overwhelmed, in a single violent storm, by moving sand. The whole area and the buildings, including the mansion house, were buried, with depths of up to 30 metres of loose sands...The distance covered by the spreading sand lateral to the dunes was not very great, only 2-3km (perhaps 4km at one point).
2 1694 Aut Culbin...most recent study indicates that the area overwhelmed was one-fifth original size circa 1,000 hectares.
1 1695-1704 Culbin..."there were frequent periods of blowing sand"

H) ANY OTHER FACTORS :
2 Culbin..."Roseisle, the sand was successfully trenched to regain its use.

I) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
2 Culbin..."Roseisle, when sand-blowing affected the lands of Inverurgie"

B) DAMAGE CAUSED :
5) 2 Culbin..."Roseisle...when sand-blowing affected the lands of Inverurgie'

D) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...G. Bain (1922) "The Culbin Sands or the story of a buried estate" Naim.
Book...D.P. Willis (1986) "Sand And Silence - Lost Villages Of The North (Forvie, Rattray, Culbin And Skara Brae)" University Centre For Scottish Studies, Aberdeen.
Letter...S.M. Ross Of Forres, personal communication, letter dated 17th September 1990.
2 Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, University Of Aberdeen, 196pp, p2, 65, 70, 100 and 151. Book contains numerous references both contemporary and/or near contemporary and later.
Original Reference : Manuscript...A. Brodie (1704) "The Diary Of Alexander Brodie Of Brodie" Aberdeen. This diary was contemporary with the time of the event.
Newspaper...J. Martin (1867) "The Sandhills Of Culbin" Forres Gazette, 18 December 1867.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT: CSM.29

DATE OF EVENT: 1 1702 October 22.
2 1701 (Some dispute over year of occurrence most likely 1702).

CAUSE OF EVENT
A) SAND CONDITIONS:
1 Culbin...Existing coastal dunes in a SW or WSW orientation fairly stable up to this time...two
episodes of blown sand prior to the main event which has been described as one of the greatest
wind-borne deposits formed anywhere in Britain in recent geological time followed by a period
of numerous blown sand and drift events up to 1704.
2 Findhorn..."channel filled with blown sand"

B) SITE CHRONOLOGY:
1 1663 Apr 21 Culbin...severe episode of blowing sand in the area.
2 1676 Aut Culbin...buried the harvest on the westernmost Culbin farms with up to two
feet (60cm) of sand"
1 1694 Aut Culbin..."16 fertile farms and farmland with a total area of 20-30km² on the Culbin
Estate, near the north-facing coast of Moray Firth, close to the towns of Findhorn and
Forres, were reportedly overwhelmed, in a single violent storm, by moving sand.
The whole area and the buildings, including the mansion house, were buried, with
depths of up to 30 metres of loose sands...The distance covered by the spreading
sand lateral to the dunes was not very great, only 2-3km (perhaps 4km at one point).
2 1694 Aut Culbin...most recent study indicates that the area overwhelmed was one-fifth
original size circa 1,000 hectares.
1 1695-1704 Culbin..."there were frequent periods of blowing sand"
2 1700-1709 Culbin..."Roseisle, when sand-blowing affected the lands of Inverugie"

C) TIDAL CONDITIONS:
1 Findhorn..."suggests battering of the outer coast at some stage by a heavy northwesterly or
northerly sea"

D) WIND CONDITIONS:
1 Culbin..."A storm, apparently from about WSW, but the wind perhaps again shifting later to NW"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Culbin..."caused further severe drift of the loose sands that had covered the Culbin estates in
1694, extending the area devastated"
2 Findhorn..."channel filled with blown sand"

B) DAMAGE CAUSED:
8) 1 Findhorn..."the old town of Findhorn at the mouth of the river, was destroyed by the sea"
9) 1 Culbin...the river Findhorn had its mouth blocked by the drifting sand and its waters rose
until it could force a new passage to the sea eastwards, to its present mouth.
2 Findhorn...channel of river filled with blown sand.

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book...H.H. Lamb (1991) "Historic Storms Of The North Sea, British Isles And Northwest
References Used : Article...H.I. Edlin (1976) "The Culbin Sands" in J. Linehan and W.W. Fletcher
Book...G. Bain (1922) "The Culbin Sands or the story of a buried estate' Naim.
Book...Dyke Women's Rural Institute (1966) "A History Of The Parish Of Dyke And Moy"
Waverley Press, Aberdeen.
Book...D.P. Willis (1986) "Sand And Silence - Lost Villages Of The North (Forvie, Rattray,
Culbin And Skara Brae)" University Centre For Scottish Studies, Aberdeen.
Letter...S. M. Ross Of Forres, personal communication, letter dated 17 September 1990.
2 Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, University Of Aberdeen, 196pp, p2, 8, 65, 70, 100, 112 and 151. Book contains numerous references both contemporary and/or near contemporary and later.
Original Reference : Manuscript...A. Brodie (1704) "The Diary Of Alexander Brodie Of Brodie" Aberdeen. This diary was contemporary with the time of the event.
Newspaper...J. Martin (1867) "The Sandhills Of Culbin" Forres Gazette, 18 December 1867.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 2.

D) ASSESSMENT OF QUALITY OF DATA :
1 Short description of the event.
2 Short description of the event.
NUMBER OF EVENT: CSM.30

DATE OF EVENT: 1720.

CAUSE OF EVENT
A) SAND CONDITIONS:
1 Rattray Head... Stable coastal hill of sand between the Castle Hill of Rattray and the sea which
was subsequently demolished.
2, 3 Rattray Head... the harbour mouth was blocked by sand swept in from the beaches by
waves and wind.

B) SITE CHRONOLOGY:
4 -1662 Rattray... "Traces remain of the town ... which now follows the fortunes of the
harbour" being covered by sand.

D) WIND CONDITIONS:
1 Rattray Head... "Storm... a furious east wind"
2 Rattray Head... sand swept in from the beaches by waves and wind.
3 Rattray Head... an easterly storm.

L) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Rattray Head... "Storm demolished a coastal hill of sand and deposited it, blocking for good a
formerly useful fishing harbour... the loch of Stratbeg".
2, 3 Rattray Head... the harbour mouth was blocked by sand swept in from the beaches by waves and wind.

B) DAMAGE CAUSED:
2) 1 Rattray Head... "and deposited it, blocking for good a formerly useful fishing harbour... a
small vessel is reported to have been trapped within the harbour".
2 Rattray Head... the harbour mouth was blocked by sand.
3 Rattray Head... "a small vessel is reported to have been trapped within the harbour".

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Book... H.H. Lamb (1991) "Historic Storms Of The North Sea, British Isles And Northwest
Original Reference: Society For The Sons And Daughters Of The Clergy (1845) "The New
2 Article... K. Walton (1956) "Rattray Head : a study in coastal evolution" Scottish Geographical
Magazine, Volume 72, p85-96.
Reference Used: Book... R. Gordon (1843) "Description Of The Sheriffdoms Of Aberdeen And
Banff" in 'Collections For A History Of The Shires Of Aberdeen And Banff Aberdeen, p19.
Original Reference: Book... Sir John Sinclair (1792) "The Statistical Account Of Scotland :
Volume 12 Aberdeen" p704-705.
Other Sources: Book... J.B. Sisson (1967) "The Evolution Of Scotland's Scenery" Oliver And
Boyd, p229-230.
Book... D. P. Willis (1966) "Sand And Silence - Lost Villages Of The North" Centre For Scottish
Studies, University of Aberdeen, 53pp, p20.
4 Book... W. MacFarlane (1907) "MacFarlane's Geographical Collections, Volume 2" Scottish
Original Reference: Sir Robert Gordon Of Straloch (1662) "Descriptio Duarum Praefectuarum
Aberdoniae Et Banfiæ" in Blaeu (1662) "Atlas" Scottish Volume, 2nd Edition. Account was not

850
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Detailed description of the event which forms part of a discussion of coastal change at that site.
2 Short description of the event.
3 Short description of the event.
4 Short description of the event.

NUMBER OF EVENT: CSM.31

DATE OF EVENT: 1732.

CAUSE OF EVENT
A) SAND CONDITIONS:
Duffus...major blown sand event.

D) WIND CONDITIONS:
Duffus..."by the west winds"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Duffus..."several hundred acres of the best ground on the sea coast were covered with sand, blown from the western coasts. Some parts of this ground is three feet deep of sand...In one night, I am told, more than 14 inches of sand were laid on some fields"

B) DAMAGE CAUSED:
5) Duffus..."several hundred acres of the best ground on the sea coast were covered with sand.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...Sir John Sinclair (1792) "The Statistical Account Of Scotland: Volume 16 Banffshire, Moray and Nairnshire" p504.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Description of all aspects of the event.
NUMBER OF EVENT: CSM.32

DATE OF EVENT: 1750

CAUSE OF EVENT:
A) SAND CONDITIONS:
3 Forvie...Extensive sand dune area with a long history of sand movement.

B) SITE CHRONOLOGY:
1 1401 Forvie...sand beginning to drift.
1 1404 Forvie...further drifting of sand.
1 1413 Aug 19 Forvie..."The Forvie sand-dune which advanced 50 to 250 metres to the north in this storm"
3 1413 Aug 19 Forvie..."was said to have succumbed to the moving mass of sand in that one, fateful blow"
1 1400-1499 Forvie..."The Forvie sand-dune...advanced about 200 metres farther before the end of the fifteenth century"
1 1500-1599 Forvie..."The Forvie sand-dune...but still greater advances occurred later, in the sixteenth century.
2 1573-1680 Forvie...the chapel of Forvie completely inundated by sand.
1 1600-1699 Forvie...The Forvie sand-dune...but still greater advances occurred later, in the seventeenth century. From 1500 to 1680 the sand dunes had advanced northwards by 450 metres.
1 1700-1799 Forvie...The Forvie sand-dune...advance of 100 to 150 metres at some points.

D) WIND CONDITIONS:
3 Forvie..."northward blowing of sand"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
3 Forvie..."Even as late as the mid 18th century, there had been such a considerable northward blowing of sand that the Earl of Errol, proprietor of the estate, found it necessary to reduce his tenant's rent"

B) DAMAGE CAUSED:
5) 3 Forvie...damage to some agricultural land.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
Article...I. A. Crawford (1967) "Hebridean Settlement at Siabaidh, Berneray, Harris" Post - Medieval Archaeology, Volume 1, p110-113.
Original Reference: Book...J. Dalgaro (1896) "From The Brig O' Balgownie To The Bullers O' Buchan" p13.
Other Sources: Book...J.H. Burnett [ed] (1964) "The Vegetation Of Scotland" Oliver And Boyd, p106-107.
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Short description of the event.
2. Short description of the event concentrating on the damage caused.
3. Short description of the event as part of a longer discussion of the history of the site.

NUMBER OF EVENT: CSM.33

DATE OF EVENT: -1766.

CAUSE OF EVENT
A) SAND CONDITIONS:
Earlsferry...“shifting of the sand”

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Earlsferry...“the silting up of the harbour by the shifting of the sand, for the former harbour of Earlsferry is said to be buried beneath the sand dunes where the land has won an area from the sea”

B) DAMAGE CAUSED:
2) Earlsferry...“ceased to be a fishing port...the silting up of the harbour”

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CSM.34

DATE OF EVENT: 1770-1791.

CAUSE OF EVENT
A) SAND CONDITIONS:
Auldearn... "by the blowing of sands in its neighbourhood, in which are two of those hills of fluctuating sand... These hills have shifted eastwards within these twenty years 500 yards, still preserving their magnitude and relative distance"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Auldearn... "These hills have shifted eastwards within these twenty years 500 yards, still preserving their magnitude and relative distance"

B) DAMAGE CAUSED:
5) Auldearn... land covered by moving dunes and blown sand.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT : CSM.35

DATE OF EVENT : 1780 - 1790.

CAUSE OF EVENT
A) SAND CONDITIONS :
Tain..., site with a history of sand dune movement which is continuing.

B) SITE CHRONOLOGY :
1700-1780 Tain..."and, where some old people remember dwelling houses and growing corn, (Morrich Mor) nothing is now to be seen but sand banks"

I) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Tain..."in a plain to the eastward, (Morrich Mor) there are, more alarming encroachments made, and yearly making, by sand blowing. Many acres of pasture and arable ground have been thus covered within the last 10 years"

B) DAMAGE CAUSED :
5) Tain..."Many acres of pasture and arable ground have been thus covered within the last 10 years"

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...Sir John Sinclair (1790) "The Statistical Account Of Scotland : Volume 17 Invernessshire, Ross And Cromarty" 'Account of the Parish of Tain' p626.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CSM.36

DATE OF EVENT : 1782 - 1954.

CAUSE OF EVENT
A) SAND CONDITIONS :
1 Forvie...extensive areas of dunes with a history of activity, followed by relatively little
movement of the dunes.

B) SITE CHRONOLOGY :
1 1401 Forvie...sand begining to drift.
1 1404 Forvie...further drifting of sand.
1 1413 Aug 19 Forvie..."The Forvie sand-dune which advanced 50 to 250 metres to the north
in this storm"
3 1413 Aug 19 Forvie..."was said to have succumbed to the moving mass of sand in that one, fateful blow"
1 1400-1499 Forvie..."The Forvie sand-dune...advanced about 200 metres farther before the
end of the fifteenth century"
1 1500-1599 Forvie..."The Forvie sand-dune...but still greater advances occurred later, in the
sixteenth century.
2 1573-1680 Forvie...the chapel of Forvie completely inundated by sand.
1 1600-1699 Forvie..."The Forvie sand-dune...but still greater advances occurred later, in the seventeenth
century. From 1500 to 1680 the sand dunes had advanced northwards by 450 metres.
1 1700-1799 Forvie..."The Forvie sand-dune...advance of 100 to 150 metres at some points.
3 1750 Forvie..."there had been such a considerable northward blowing of sand that the Earl of
Errol, proprietor of the estate, found it necessary to reduce his tenant's rent.

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Forvie..."There has been little major changes in the past 170 years. In some years, however, the shallow
forward lapping of the sand may be as much as 9 metres, while in others no perceptible advance occurred" 

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Book...H.H. Lamb (1991) "Historic Storms Of The North Sea, British Isles And Northwest
Reference Used : S. Y. Landsberg (1955) "The Morphology And Vegetation Of the Sands Of
Forvie" University Of Aberdeen, Unpublished Ph.D thesis.
Article...I. A. Crawford (1967) 'Hebridean Settlement at Siabaidh, Berneray, Harris' Post -
Medieval Archaeology, Volume 1, p110-113.
Article...I. A. Crawford and R. Switsur (1977) "Sandscaping And C14 : The Udal, N. Uist"
Article...A. Morrison (1967-1968) "Report From The Harris Estate Papers" Transactions Of
Reference Used : Thesis...S. Y. Landsberg (1955) "The Morphology And Vegetation Of the Sands
3 Book...D.P. Willis (1986) "Sand And Silence - Lost Villages Of The North" Centre For Scottish
Studies, University Of Aberdeen, 53p, p13-14.
Original Reference : Book...J. Dalgarno (1896) "From The Brig O' Balgownie To The Bullers O' Buchan" p13.
Other Sources : Book...J.H. Burnett [ed] (1964) "The Vegetation Of Scotland" Oliver And Boyd, p106-107.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of the event.
2 Short description of the event concentrating on the damage caused.
3 Short description of the event as part of a longer discussion of the history of the site.
NUMBER OF EVENT : CSM.37

DATE OF EVENT : 1793 Winter.

CAUSE OF EVENT
A) SAND CONDITIONS :
South Uist...Ongoing drifting sand problem.

H) ANY OTHER FACTORS :
South Uist...fields covered seasonally by drifting sand in winter, only restored to use by the addition of sea-weed as a manure every spring.

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
South Uist..."there are delightful fields to be seen covered with the finest natural grass in summer, yet in the winter season, many of these very spots are covered over with drifted sand in such a manner that the least trace of verdure cannot be seen for many months"

B) DAMAGE CAUSED :
5) South Uist...loss of winter pasture land by drifting sand.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of the event.
NUMBER OF EVENT : CSM.38


CAUSE OF EVENT
A) SAND CONDITIONS :
1 Forvie...Initial disturbance of existing coastal sand dunes due to three previous storms...further advance of 200 metres up to 1500, followed by a further advances of sand in the sixteenth and seventeenth centuries. From 1500 to 1688 the sand dunes had advanced northwards by 450 metres. Advance of 100 to 150 metres at some points in the eighteenth century. This last advance was partially lost afterwards and elsewhere fixed by vegetation.

B) SITE CHRONOLOGY :
1 1401 Forvie...sand begining to drift.
1 1404 Forvie...further drifting of sand.
1 1413 Aug 19 Forvie..."The Forvie sand-dune which advanced 50 to 250 metres to the north in this storm"
3 1413 Aug 19 Forvie..."was said to have succumbed to the moving mass of sand in that one, fateful blow"
1 1400-1499 Forvie..."The Forvie sand-dune...advanced about 200 metres farther before the end of the fifteenth century"
1 1500-1599 Forvie..."The Forvie sand-dune...but still greater advances occurred later, in the sixteenth century.
2 1573-1680 Forvie...the chapel of Forvie completely inundated by sand.
1 1600-1699 Forvie...The Forvie sand-dune...but still greater advances occurred later, in the seventeenth century. From 1500 to 1680 the sand dunes had advanced northwards by 450 metres.
1 1700-1799 Forvie... The Forvie sand-dune...advance of 100 to 150 metres at some points.
3 1750 Forvie...there had been such a considerable northward blowing of sand that the Earl of Errol, proprietor of the estate, found it necessary to reduce his tenant's rent.
1 1782-1954 Forvie... "There has been little major changes in the past 170 years. In some years, however, the shallow forward lapping of the sand may be as much as 9 metres, while in others no perceptible advance occurred"

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Forvie...This last advance in the eighteenth century was partially lost afterwards and elsewhere fixed by vegetation, yet the site of the township remains covered by a 30-metres-high dune...reached Collieston more than 5 km north of the nearest beach source and at altitudes greater than 45 metres O.D.

B) DAMAGE CAUSED :
5) 1 Forvie...land covered by sand going towards Collieston.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Other Sources : Article...W. Ritchie and K. Walton (1972) "The Evolution Of The Sands Of Forvie And The Ythan Estuary" in C. M. Clapperton 'North East Scotland Geographical Essays' Department Of Geography, University Of Aberdeen, p12-14.
Article...I. A. Crawford (1967) "Hebridean Settlement at Siabaidh, Bemeray, Harris" Post Medieval Archaeology, Volume 1, p110-113.
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1

C) ASSESSMENT OF QUALITY OF DATA:

1 Short description of event.
2 Short description of the event concentrating on the damage caused.
3 Short description of the event as part of a longer discussion of the history of the site.
NUMBER OF EVENT : CSM.39

DATE OF EVENT : 1800-1850.

CAUSE OF EVENT
A) SAND CONDITIONS :
1 Uists...relatively stable coastal dunes being reactivated after a century...recurring periods of sand drifting along the coast.

B) SITE CHRONOLOGY :
2 -1601 Uist..."...there are destroyed the townes and parish churches of Kilmarchirmoir and Kilpetil, and the church of Kilmonie is now called Kilpetil...but now the sea and the sand have approached it, there are some remains of the destroyed churches yet to be seen at low tide or ebbing water"
2 -1630 Uist..."the parish churches and the lands of the parishes of Kilmarchirmore and Kilpettil covered by blown sand, the latter church is below the sand except for five feet of the pinnacle...certain of them will be seen when the sea ebbs in the summer time"

H) ANY OTHER FACTORS :
1 During this period some drainage of machair areas had begun as had sand stabilisation works.

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Uists...coast.

B) DAMAGE CAUSED :
5) 1 Uists...some land covered by drifting sand.

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
1 Article...W. Ritchie (1979) "Machair Development And Chronology In The Uists And Adjacent Islands" Proceedings Of The Royal Society Of Edinburgh, Volume 77B, p107-122.
Original Reference...The Clanranald Papers particularly the Factor's Reports. These records are contemporary with the events they record.
Original References : James Gordon, Parson Of Rothiemay "Noates And Observations Of Dyvers Parts Of The Hielands And Isles Of Scotland" written between 1641 and 1654. The descriptions are based principally on the notes left by Timothy Pont written between 1583 and 1601.
Anon "Ane Descriptione Of Certaine Pairs Of The Highlands Of Scotland" no date given but it is suggested in Sibbald's 'Repertory' that they were prepared for Sir Robert Gordon sometime around 1630.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of the event.
2 Short description of the event.
NUMBER OF EVENT: CSM 40

DATE OF EVENT: 1811.

CAUSE OF EVENT
A) SAND CONDITIONS:
Findhorn...The Outlet...destruction caused by blowing sand.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Findhorn...The Outlet...one mill demolished and another little used because of the blowing sand.

B) DAMAGE CAUSED:
6) Findhorn...The Outlet...one mill demolished and another little used because of the blowing sand.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, University Of Aberdeen, 196pp, p8 and 112.
Original Reference: Book...W. Leslie (1811) "General View Of The Agriculture In The Counties Of Nairn And Moray" London.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CSM. 41

DATE OF EVENT: 1830.

CAUSE OF EVENT
A) SAND CONDITIONS:
2 Culbin...Existing coastal dunes in a SW or WSW orientation fairly stable up to this time...two episodes of blown sand prior to the main event which has been described as one of the greatest wind-borne deposits formed anywhere in Britain in recent geological time followed by a period of numerous blown sand and drift events up to 1704 followed by a further sand drift event.

B) SITE CHRONOLOGY:
2 1663 Apr 21 Culbin...severe episode of blowing sand in the area.
2 1676 Aut Culbin...buried the harvest on the westernmost Culbin farms with up to two feet (60cm) of sand*
1 1694 Aut Culbin..."16 fertile farms and farmland with a total area of 20-30km² on the Culbin Estate, near the north-facing coast of Moray Firth, close to the towns of Findhorn and Forres, were reportedly overwhelmed, in a single violent storm, by moving sand. The whole area and the buildings, including the mansion house, were buried, with depths of up to 30 metres of loose sands...The distance covered by the spreading sand lateral to the dunes was not very great, only 2-3km (perhaps 4km at one point)."
2 1694 Aut Culbin...most recent study indicates that the area overwhelmed was one-fifth original size circa 1,000 hectares."
1 1695-1704 Culbin..."there were frequent periods of blowing sand"* 
2 1700-1709 Culbin..."Roseisle, when sand-blowing affected the lands of Inverurgie"
1 1702 Oct 22 Culbin..."caused further severe drift of the loose sands that had covered the Culbin estates in 1694, extending the area devastated"*

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
2 Culbin...sand drifting in the sands exposed the remnants of an old style clay built house.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...G. Bain (1922) "The Culbin Sands or the story of a buried estate" Nairn.
Book...D.P. Willis (1986) "Sand And Silence - Lost Villages Of The North (Forvie, Rattray, Culbin And Skara Brae)" University Centre For Scottish Studies, Aberdeen.
Letter...S.M. Ross Of Forces, personal communication, letter dated 17th September 1990.
2 Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, University Of Aberdeen, 196pp, p2, 8, 65, 70, 100, 112 and 151. Book contains numerous references both contemporary and/or near contemporary and later.
Original Reference: Manuscript...A. Brodie (1704) "The Diary Of Alexander Brodie Of Brodie" Aberdeen. This diary was contemporary with the time of the event.
Newspaper...J. Martin (1867) "The Sandhills Of Culbin" Forres Gazette, 18 December 1867.
Newspaper...J. Martin (1860) "The Buried Estate Of Culbin" Elgin Courant, Elgin.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Short description of the event.
NUMBER OF EVENT: CSM.42

DATE OF EVENT: -1841.

CAUSE OF EVENT:
A) SAND CONDITIONS:
Dunrossness..."a snug estate...all the most valuable part thereof having been blown over with sand...A part of the estate of Sumburgh...is now also so much overspread with sand...And a small inlet, which could formerly admit small craft, is now filling up very fast by sand blowing from the waste"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
Dunrossness..."a snug estate that belonged to Alexander Sinclair, Esq. of Brow, all the most valuable part thereof having been blown over with sand, and only some small patches, called outsets or pendicles, now remaining. A part of the estate of Sumburgh, which was surrounded with sand, like an oasis in a desert, and which carried a good flock of sheep, is now also so much overspread with sand that it has not one upon it. And a small inlet, which could formerly admit small craft, is now filling up very fast by sand blowing from the waste"

B) DAMAGE CAUSED:
2) Dunrossness...infilling of inlet which could formerly admit small craft with blown sand.
5) Dunrossness...loss of much agricultural and grazing land on the estates of Brow and Sumburgh.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
Book...Society For The Sons And Daughters Of The Clergy (1842) "New Statistical Account Of Scotland : Volume 15 Sutherland, Caithness, Orkney and Shetland" 'Account of the Parish Of Dunrossness' p94.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Description of all aspects of the events if a little weak on dating.
NUMBER OF EVENT: CSM.43

DATE OF EVENT: 1842.

CAUSE OF EVENT
A) SAND CONDITIONS:
Auldearn...site with a history of dune movements which are ongoing.

B) SITE CHRONOLOGY:
1770-1791 Auldearn..."These hills have shifted eastwards within these twenty years 500 yards, still preserving their magnitude and relative distance"

D) WIND CONDITIONS:
Auldearn..."by the action of the wind"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Auldearn..."Opposite to it are two sand-hills, about 100 feet in perpendicular height, and gradually moving to the eastwards by the action of the wind, yet retaining their form"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...Society For The Sons And Daughters Of The Clergy (1842) "New Statistical Account Of Scotland: Volume 13 Banff, Elgin And Naim" 'Account of the Parish Of Auldearn" by Rev. W. Barclay, p7.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CSM.44

DATE OF EVENT: 1850.

CAUSE OF EVENT
A) SAND CONDITIONS:
Skara Brae...Initially stable sandhill broken up by a storm resulting in the blowing of great quantities of sand from the dune.

D) WIND CONDITIONS:
Skara Brae..."a storm of exceptional severity, even by Orkney standards"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Skara Brae..."This resulted in the blowing of great quantities of sand from the dune"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 2.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event as part of a longer discussion of the site.

COMMENTS
The destruction of the sandhill uncovered a relatively intact prehistoric village.

NUMBER OF EVENT: CSM.45

DATE OF EVENT: 1855-1861.

CAUSE OF EVENT
A) SAND CONDITIONS:
Dubbieside, Inverleven...Initially stable beach starting to drift.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Dubbieside, Inverleven...large sand-drifts coming onto local golf course.

B) DAMAGE CAUSED:
6) Dubbieside, Inverleven...damage to local golf course by large sand-drifts.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Book...H. Famie (1861) "The Fife Coast From Queensferry To Fifeness" J. C. Orr, Cupar-Fife, p115.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT : CSM.46

DATE OF EVENT : 1869 January 30.

CAUSE OF EVENT
A) SAND CONDITIONS :
Fort William...marine sand deposited.

C) TIDAL CONDITIONS :
Fort William..."The tide came up still higher"

F) LAMB'S CIRCULATION PATTERN : 29TH 30TH 31ST

W W CSW

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1

IMPACT OF EVENT
A) EXTENT OF EVENT :
Fort William...sand was carried up over the low-lying lands by the strength of the waves.

B) DAMAGE CAUSED :
2) Fort William...some damage done to boats in harbour of which one boat was cut in two...and quay flooded.
4) Fort William...twenty sacks of barley washed off the quay.
8) Fort William...low-lying lands and quay flooded.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Inverness Advertiser 1869 February 2, "High Tide At Fort William"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Short description of event.
NUMBER OF EVENT: CSM.47

DATE OF EVENT: -1871.

CAUSE OF EVENT:
A) SAND CONDITIONS:
   2 Culbin...Roseisle, On previous blown sand incident followed by another.

B) SITE CHRONOLOGY:
   2 1663 Apr 21 Culbin...severe episode of blowing sand in the area.
   2 1676 Aut Culbin...buried the harvest on the westernmost Culbin farms with up to two
      feet (60cm) of sand
   1 1694 Aut Culbin...16 fertile farms and farmland with a total area of 20-30km$^2$ on the Culbin
      Estate, near the north-facing coast of Moray Firth, close to the towns of Findhorn and
      Forres, were reportedly overwhelmed, in a single violent storm, by moving sand.
      The whole area and the buildings, including the mansion house, were buried, with
      depths of up to 30 metres of loose sands...The distance covered by the spreading
      sand lateral to the dunes was not very great, only 2-3km (perhaps 4km at one point).
   2 1694 Aut Culbin...most recent study indicates that the area overwhelmed was one-fifth
      original size circa 1,000 hectares.
   1 1695-1704 Culbin..."there were frequent periods of blowing sand"
   2 1700-1709 Culbin..."Roseisle, when sand-blowing affected the lands of Inverurgie"
   1 1702 Oct 22 Culbin..."caused further severe drift of the loose sands that had covered the
      Culbin estates in 1694, extending the area devastated"
   2 1830 Culbin...sand drifting in the sands exposed the remnants of an old style clay built house.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
   2 Culbin...Roseisle, "blown sand having filled the Lochs of Roseisle, Outlet and Keam"

B) DAMAGE CAUSED:
   9) 2 Culbin...Roseisle, "blown sand having filled the Lochs of Roseisle, Outlet and Keam"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
   1 Book...H.H. Lamb (1991) "Historic Storms Of The North Sea, British Isles And Northwest
   References Used : Article...H.I. Edlin (1976) "The Culbin Sands" in J. Linehan and W.W. Fletcher
   Book...G. Bain (1922) "The Culbin Sands or the story of a buried estate" Nairn.
   Book...Dyke Women's Rural Institute (1966) "A History Of The Parish Of Dyke And Moy"
      Waverley Press, Aberdeen.
   Book...D.P. Willis (1986) "Sand And Silence - Lost Villages Of The North (Forvie, Rattray,
      Culbin And Skara Brae)" University Centre For Scottish Studies, Aberdeen.
   Article...J.A. Steers (1937) "The Culbin Sands And Burghead Bay", Geographical Journal,
      Volume 90. p498-528.
   Letter...S.M. Ross Of Forres, personal communication, letter dated 17th September 1990.
   2 Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies,
      University Of Aberdeen, 196pp, p2, 8, 65, 70, 100, 112 and 151. Book contains numerous
      references both contemporary and/or near contemporary and later.
   Original Reference : Book...J. Young (1871) "The Parish Of Spynie" Elgin.
   Manuscript...A. Brodie (1704) "The Diary Of Alexander Brodie Of Brodie" Aberdeen. This diary
      was contemporary with the time of the event.
   Newspaper...J. Martin (1867) "The Sandhills Of Culbin" Forres Gazette, 18 December 1867.
   Newspaper...J. Martin (1860) "The Buried Estate Of Culbin" Elgin Courant, Elgin.

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B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Short description of the event.
2. Short description of the event forms part of a detailed description of the site.
NUMBER OF EVENT : CSM. 48


CAUSE OF EVENT:
A) SAND CONDITIONS :
1 Forvie...Extensive sand dune area with a long history of movement.

B) SITE CHRONOLOGY :
1 1401 Forvie...sand beginning to drift.
1 1404 Forvie...further drifting of sand.
1 1413 Aug 19 Forvie..."The Forvie sand-dune which advanced 50 to 250 metres to the north in this storm"
3 1413 Aug 19 Forvie..."was said to have succumbed to the moving mass of sand in that one, fateful blow"
1 1400-1499 Forvie..."The Forvie sand-dune...advanced about 200 metres farther before the end of the fifteenth century"
1 1500-1599 Forvie..."The Forvie sand-dune...but still greater advances occurred later, in the sixteenth century.
2 1573-1680 Forvie...the chapel of Forvie completely inundated by sand.
1 1600-1699 Forvie...The Forvie sand-dune...but still greater advances occurred later, in the seventeenth century. From 1500 to 1680 the sand dunes had advanced northwards by 450 metres.
1 1700-1799 Forvie...The Forvie sand-dune...advance of 100 to 150 metres at some points.
3 1750 Forvie...there had been such a considerable northward blowing of sand that the Earl of Errol, proprietor of the estate, found it necessary to reduce his tenant's rent.
1 1782-1954 Forvie..."There has been little major changes in the past 170 years. In some years, however, the shallow forward lapping of the sand may be as much as 9 metres, while in others no perceptible advance occurred"
1 1800-1991 Forvie...This last advance in the eighteenth century was partially lost afterwards and elsewhere fixed by vegetation, yet the site of the township remains covered by a 30-metres-high dune...reached Collieston more than 5 km north of the nearest beach source and at altitudes greater than 45 metres O.D.

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT:
A) EXTENT OF EVENT : Forvie...path and burn covered by sand since 1899.

B) DAMAGE CAUSED :
3) 1 Forvie...path covered by sand.
8) 1 Forvie...burn covered by sand.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION :
Original Reference : Maps, a comparison of the 1954 situation with the 1899 O. S. map of the area.
Other Sources : Article...W. Ritchie and K. Walton (1972) "The Evolution Of The Sands Of Forvie And The Ythan Estuary" in C. M. Clapperton 'North East Scotland Geographical Essays' Department Of Geography, University Of Aberdeen, p12-14.
Article...I. A. Crawford (1967) "Hebridean Settlement at Siabaidh, Bemery, Harris" Post - Medieval Archaeology, Volume 1, p110-113.
B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1. Description of event based on map data.
2. Short description of the event concentrating on the damage caused.
3. Short description of the event as part of a longer discussion of the history of the site.

NUMBER OF EVENT: CSM.49

DATE OF EVENT: 1900-1922.

CAUSE OF EVENT
A) SAND CONDITIONS:
Burghead... initially sand free site followed by the development of dunes which began to drift inland.

H) ANY OTHER FACTORS:
Burghead... due to the drifting sand a half mile of blowers designed to prevent this disruption to rail traffic was installed on the Burghead to Alves line.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Burghead... "When the line was first laid down there was no sand, the area now occupied by the dunes consisting of grass and meadowland... year by year more and more sand was blown inland until it began to encroach upon the railroad"

B) DAMAGE CAUSED:
5. Burghead... loss of pasture land.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Newspaper... The Northern Scot And Moray And Nairn Express, 1926 March 13, "Great Sandstorm On The Moray Coast"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of event.
NUMBER OF EVENT : CSM.50

DATE OF EVENT : 1 1903 April 7.

CAUSE OF EVENT
A) SAND CONDITIONS :
Solway...estuary, which had a sandstorm of an unusually severe nature...the gale dried the sand on the banks and shores very rapidly, with the result that it was driven in enormous clouds for great distances.

C) TIDAL CONDITIONS :
Solway..."the tides were low"

D) WIND CONDITIONS :
Solway..."the prevalence of a strong gale from the north-west"

F) LAMB'S CIRCULATION PATTERN : 5TH 6TH 7TH

   AW  W  NW

I) CLASSIFICATION OF CAUSE OF EVENT : Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT :
Solway..."It was a striking site to see the great clouds of sand careering along the Blackshaw and other banks, but those who had occasion to be on or near the shore on the Kirkbean coast were much inconvenienced by it. The sandstorm was one of the most severe remembered by old residents in the neighbourhood of the Solway. It was greatly felt at Silloth"

B) DAMAGE CAUSED :
10) Solway... "but those who had occasion to be on or near the shore on the Kirkbean coast were much inconvenienced by it...It was greatly felt at Silloth"

E) SIZE OF EVENT : Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Newspaper...Dumfries And Galloway Standard, 1903 April 15, "A Sandstorm In The Solway"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
Description of all aspects of the event especially its cause.
NUMBER OF EVENT : CSM.51

DATE OF EVENT : 1, 2 1920 May 13.

CAUSE OF EVENT

A) SAND CONDITIONS :
1 Moray Firth...most severe sandstorm.....swept the sand and light gravel from large tracts of lands on the southern shores.
2 Moray...the worst sandstorm that has been experienced for many years.

B) SITE CHRONOLOGY :
4 circa 1200 Moray..."a section of the most fertile land in Moray, stretching along the sea-coast for several miles, was overblown and devastated by an eruption of sand from the westward"

D) WIND CONDITIONS :
1 Moray Firth...a strong westerly gale developed...a chill wind.
2 Moray...high wind.

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F) LAMB'S CIRCULATION PATTERN : 11TH 12TH 13TH 14TH

H) ANY OTHER FACTORS :
2 Moray...some of the blown sand was topsoil.

3 Nairn...Comments :
13TH Gale.

3 Inverness...Comments :
13TH Gale.

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT

A) EXTENT OF EVENT :
1 Moray Firth...southern shores...streets were swept bare.
2 Moray..."The sandstorm of last week was the worst for many years...when the wind was at its height the sand began to drift like snow"

B) DAMAGE CAUSED :
1) 1 Moray Firth...southern shores...caused much discomfort to pedestrians, against whom the gravel was carried with stinging force by a chill wind.
5) 2 Moray...damage to agricultural land running to many thousands of pounds primarily due to the removal of topsoil.
7) 1 Moray Firth...southern shores...the sand penetrated houses.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT

A) SOURCES OF INFORMATION :
1 Newspaper...Glasgow Herald 1920 May 14, "Moray Firth Sandstorm"
2 Newspaper...Forres Gazette, 1920 May 19, "Violent Sandstorm - Serious Results In Moray" written 'By A Moray Farmer'.

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3 Observations: Meteorological Office, Monthly Climatic Summaries 1920, Station Nos. 1008 Naim, 0588 Inverness.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Description of event concentrates on the damage to agricultural land and the removal of topsoil.
3 Instrumental data and a weather diary.
4 Description of event covers all its aspects.
NUMBER OF EVENT: CSM.52

DATE OF EVENT: 1, 2 1923 February 1 (date of newspaper, event in late January).

CAUSE OF EVENT
A) SAND CONDITIONS:
1 Burghead...initially sand free site followed by the development of dunes which began to drift inland and gradually encroach onto the land beside the railway track, followed by a number of periods of drifting sand in the 1920s.
2 Burghead..."A similar area of sand on the south-east of Burghhead Bay has been known to drift and block the Burghhead - Alves railway.

B) SITE CHRONOLOGY:
4 1900-1922 Burghhead..."When the line was first laid down there was no sand, the area now occupied by the dunes consisting of grass and meadowland...year by year more and more sand was blown inland until it began to encroach upon the railroad"

D) WIND CONDITIONS:
1 Burghhead..."The high gales of last week"
3 Naim...Wind at 7 am and 1 pm: 28TH 29TH 30TH 31ST
Direction
W Calm W Calm Calm W W W
Force (mph) 2 6 6 10

F) LAMB'S CIRCULATION PATTERN: JAN 28TH 29TH 30TH 31ST
AW W W W

H) ANY OTHER FACTORS:
1 Burghhead...a half mile of blowers designed to prevent this disruption to rail traffic proved completely ineffective.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Burghhead..."a serious drifting of sand from the adjoining sandhills on to the railway line near Burghhead...over 1000 tons of sand have so far been removed from the permanent way"
2 Burghhead..."A similar area of sand on the south-east of Burghhead Bay has been known to drift and block the Burghhead - Alves railway.

B) DAMAGE CAUSED:
3) 1, 2 Burghhead..."a serious drifting of sand from the adjoining sandhills on to the railway line near Burghhead...over 1000 tons of sand have so far been removed from the permanent way"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Banffshire Advertiser, 1923 February 1, "Railway Blocked By Sand At Burghhead"
3 Observations: Meteorological Office, Monthly Climatic Summaries 1923, Station No.1008 Naim.
4 Newspaper...The Northern Scot And Moray And Nairn Express, 1926 March 13, "Great Sandstorm On The Moray Coast"

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Short description of the type of event which affects this site.
3 Instrumental data and a weather diary.
4 Short description of event.
NUMBER OF EVENT : CSM.53

DATE OF EVENT : 1, 2 1926 March 11-12.

CAUSE OF EVENT
A) SAND CONDITIONS :
1 Burghead... initially sand free site followed by the development of dunes which began to drift inland and gradually encroach onto the land beside the railway track, followed by a number of periods of drifting sand in the 1920s.
2 Burghead... "A similar area of sand on the south-east of Burghead Bay has been known to drift and block the Burghead - Alves railway.

B) SITE CHRONOLOGY :
5 1900-1922 Burghead... "When the line was first laid down there was no sand, the area now occupied by the dunes consisting of grass and meadowland... year by year more and more sand was blown inland until it began to encroach upon the railroad" 4 1923 Feb 1 Burghead... "a serious drifting of sand from the adjoining sandhills on to the railway line near Burghead... over 1000 tons of sand have so far been removed from the permanent way" 2 1923 Feb 1 Burghead... "A similar area of sand on the south-east of Burghead Bay has been known to drift and block the Burghead - Alves railway.

D) WIND CONDITIONS :
1 Burghead... "since the March gales commenced a fortnight ago a strong wind has been blowing in continuously from the sea.

3 Naim... Wind at 7 am and 1 pm : 9TH 10TH 11TH 12TH
   Direction : W W W WNW W W WSW W
   Force (mph) : 2 16 51 28 16 22 35 43

G) STORM DURATION : Type 3.

F) LAMB'S CIRCULATION PATTERN : 9TH 10TH 11TH 12TH
   W NW W W

H) ANY OTHER FACTORS :
1 Burghead... a half mile of blowers designed to prevent this disruption to rail traffic proved completely ineffective.

3 Naim... Comments :
   9TH Squally.
   10TH Wind fell about noon.
   11TH Squally.
   12TH Squally.

I) CLASSIFICATION OF CAUSE OF EVENT : Type 2.

IMPACT OF EVENT
A) EXTENT OF EVENT :
1 Burghead... "the worst sandstorm in living memory... two or three hundred yards from Burghead Station... railway track between Alves and Burghead covered in a 1000 tons of sand... a half mile of railroad... covered by huge wreaths of sand, where in some places lay to a depth of from six to seven feet" 2 Burghead... "A similar area of sand on the south-east of Burghead Bay has been known to drift and block the Burghead - Alves railway.

B) DAMAGE CAUSED :
3) 1, 2 Burghead... railroad to Alves blocked by sand, will take a week to clear, severe disruption to rail traffic.

E) SIZE OF EVENT : Local.
AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1. Newspaper...The Northern Scot And Moray And Nairn Express, 1926 March 13, “Great Sandstorm On The Moray Coast”
4. Newspaper...Banffshire Advertiser, 1923 February 1, “Railway Blocked By Sand At Burghead”
5. Newspaper...The Northern Scot And Moray And Nairn Express, 1926 March 13, “Great Sandstorm On The Moray Coast”

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1. Detailed description of the event concentrating on the disruption to rail traffic and the blocking of the line.
2. Short description of the type of event which affects this site.
3. Instrumental data and a weather diary.
4. Short description of the event.
5. Short description of event.
NUMBER OF EVENT : CSM.54


CAUSE OF EVENT
A) SAND CONDITIONS :
2 Culbin...Existing coastal dunes in a SW or WSW orientation fairly stable up to this time...two episodes of blown sand prior to the main event which has been described as one of the greatest wind-borne deposits formed anywhere in Britain in recent geological time followed by a period of numerous blown sand and drift events up to 1830 followed by a further sand drift event.

B) SITE CHRONOLOGY :
2 1663 Apr 21 Culbin...severe episode of blowing sand in the area.
2 1676 Aut Culbin...buried the harvest on the westernmost Culbin farms with up to two feet (60cm) of sand
1 1694 Aut Culbin...16 fertile farms and farmland with a total area of 20-30km² on the Culbin Estate, near the north-facing coast of Moray Firth, close to the towns of Findhorn and Forres, were reportedly overwhelmed, in a single violent storm, by moving sand. The whole area and the buildings, including the mansion house, were buried, with depths of up to 30 metres of loose sands...The distance covered by the spreading sand lateral to the dunes was not very great, only 2-3km (perhaps 4km at one point).
2 1694 Aut Culbin...most recent study indicates that the area overwhelmed was one-fifth original size circa 1,000 hectares.
1 1695-1704 Culbin..."there were frequent periods of blowing sand"
2 1700-1709 Culbin..."Roseisle, when sand-blowing affected the lands of Inverurgie"
1 1702 Oct 22 Culbin..."caused further severe drift of the loose sands that had covered the Culbin estates in 1694, extending the area devastated"
2 1830 Culbin...sand drifting in the sands exposed the remnants of an old style clay built house.
2 -1871 Culbin...Roseisle, "blown sand having filled the Lochs of Roseisle, Outlet and Keam"

I) CLASSIFICATION OF CAUSE OF EVENT : Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT :
2 Culbin...northwest of Kincorth...after sand-drifting the foundations of the mansion house and a number of other buildings were found.

D) LOCATIONS AFFECTED OUTSIDE OF SCOTLAND AND SOURCES :
1930-1936 Ireland...Hom Head...drifting sand and blown sand threatened harbour, new road and boathouse Quinn A.C.M. (1977) "Sand Dunes : Formation, Erosion And Management" An Foras Forbatha, Dublin.

E) SIZE OF EVENT : Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION :
Book...G. Bain (1922) "The Culbin Sands or the story of a buried estate" Naim.
Book...D.P. Willis (1986) "Sand And Silence - Lost Villages Of The North (Forvie, Rattray, Culbin And Skara Brae)" University Centre For Scottish Studies, Aberdeen.
Letter...S.M. Ross Of Forres, personal communication, letter dated 17th September 1990.
2 Book...S. Ross (1992) "The Culbin Sands - Fact And Fiction" Centre For Scottish Studies, University Of Aberdeen, 196pp, p2, 8, 65, 70, 100, 112, 129 and 151. Book contains numerous references both contemporary and/or near contemporary and later.
Original Reference : Newspaper...M. Anderson (1938) "The Culbin Sands" Forres Gazette.
Other References: Book...J. Young (1871) "The Parish Of Spynie" Elgin.
Manuscript...A. Brodie (1704) "The Diary Of Alexander Brodie Of Brodie" Aberdeen. This diary was contemporary with the time of the event.
Newspaper...J. Martin (1867) "The Sandhills Of Culbin" Forces Gazette, 18 December 1867.
Newspaper...J. Martin (1860) "The Buried Estate Of Culbin" Elgin Courant, Elgin.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of the event.
2 Short description of event as part of longer more detailed study of site.
NUMBER OF EVENT: CSM.55

DATE OF EVENT: 1 1934 July 7.

CAUSE OF EVENT
A) SAND CONDITIONS:
1 St Andrews...West Sands...clouds of sand were blown into the air.
1 Arbroath..."the sea front was swept by clouds of dust"

C) TIDAL CONDITIONS:
1 St Andrews...West Sands...when the sea rose suddenly.

D) WIND CONDITIONS:
1 St Andrews..."The day had been rather sultry and windless up till then, when suddenly a squall broke from an easterly direction"
1 Arbroath..."a similar storm took place"

2 St Andrews...Wind at 9 am: 7TH 8TH
Direction SW W
Force (mph) 2 2

2 Arbroath...Wind at 9 am and pm: 7TH 8TH
Direction Calm SE ESE Calm
Force (mph) 2 2

F) LAMB'S CIRCULATION PATTERN: 6TH 7TH 8TH

H) ANY OTHER FACTORS:
1 St Andrews..."The temperature dropped from 78 degrees to 67 degrees"

2 Arbroath...Comments: 8TH ESE wind.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 St Andrews..."West Sands"
1 Anstruther..."sea front"

B) DAMAGE CAUSED:
1) 1 St Andrews...people fled the beach.
1 Anstruther...people fled the sea front.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Newspaper...Glasgow Herald 1934 July 9, "Sand Storm At St Andrews"
2 Observations: Meteorological Office, Monthly Climatic Summaries 1934, Station Nos. 1558 St Andrews, 1393 Arbroath.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short descriptions of both locations affected giving some detail on its cause and effect.
2 Instrumental data and a weather diary.

879
NUMBER OF EVENT: CSM.56


CAUSE OF EVENT
A) SAND CONDITIONS:
Drainie..."the sand dunes on the east side of the mouth of the River Lossie have increased...The blown sand is continuing to pile higher on the dunes"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Drainie..."the sand dunes on the east side of the mouth of the River Lossie have increased...The blown sand is continuing to pile higher on the dunes"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.

NUMBER OF EVENT: CSM.57

DATE OF EVENT: -1949.

CAUSE OF EVENT
A) SAND CONDITIONS:
Sands Of Luce...significant drifting of sand.

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
Sands Of Luce..."where three farms have been swallowed up by drifting sand"

E) SIZE OF EVENT: Intermediate.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
Short description of the event.
NUMBER OF EVENT: CSM.58


CAUSE OF EVENT
A) SAND CONDITIONS:
2 Forvie...extensive dune system with gales instigating significant sand movement.

B) SITE CHRONOLOGY:
1 1401 Forvie...sand beginning to drift.
1 1404 Forvie...further drifting of sand.
1 1413 Aug 19 Forvie..."The Forvie sand-dune which advanced 50 to 250 metres to the north in this storm"
3 1413 Aug 19 Forvie..."was said to have succumbed to the moving mass of sand in that one, fateful blow"
1 1400-1499 Forvie..."The Forvie sand-dune...advanced about 200 metres farther before the end of the fifteenth century"
1 1500-1599 Forvie..."The Forvie sand-dune...but still greater advances occurred later, in the sixteenth century.
2 1573-1680 Forvie...the chapel of Forvie completely inundated by sand.
1 1600-1699 Forvie...The Forvie sand-dune...but still greater advances occurred later, in the seventeenth century. From 1500 to 1680 the sand dunes had advanced northwards by 450 metres.
1 1700-1799 Forvie...The Forvie sand-dune...advance of 100 to 150 metres at some points.
3 1750 Forvie...there had been such a considerable northerly blowing of sand that the Earl of Errol, proprietor of the estate, found it necessary to reduce his tenant's rent.
1 1782-1954 Forvie..."There has been little major changes in the past 170 years. In some years, however, the shallow forward lapping of the sand may be as much as 9 metres, while in others no perceptible advance occurred"
1 1800-1991 Forvie...This last advance in the eighteenth century was partially lost afterwards and elsewhere fixed by vegetation, yet the site of the township remains covered by a 30-metres-high dune...reached Collieston more than 5 km north of the nearest beach source and at altitudes greater than 45 metres O.D.
1 Forvie 1899-1954...path and burn covered by sand since 1899.

D) WIND CONDITIONS:
2 Forvie..."the gales"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
2 Forvie..."set great masses of sand in motion in the southern and central parts of the area, and that at that time the parabolic forms of some of the dunes was accentuated"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Original Reference: Maps, a comparison of the 1954 situation with the 1899 O. S. map of the area.
Other Sources: Article...W. Ritchie and K. Walton (1972) "The Evolution Of The Sands Of Forvie And The Ythan Estuary" in C. M. Clapperton 'North East Scotland Geographical Essays' Department Of Geography, University Of Aberdeen, p12-14.
Article...I. A. Crawford (1967) "Hebridean Settlement at Siabaidh, Bemeray, Harris" Post - Medieval Archaeology, Volume 1, p110-113.
Original Reference : Book... J. Dalgarno (1896) "From The Brig O' Balgownie To The Bullers O' Buchan" p13.
Other Sources : Book...J.H. Burnett [ed] (1964) "The Vegetation Of Scotland" Oliver And Boyd, p106-107.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT : Class 1.

C) ASSESSMENT OF QUALITY OF DATA :
1 Short description of the event.
2 Short description of the event concentrating on the damage caused.
3 Short description of the event as part of a longer discussion of the history of the site.

882
NUMBER OF EVENT: CSM. 59


CAUSE OF EVENT
A) SAND CONDITIONS:
3 Forvie... extensive dune system with a substantial movement of sand.

B) SITE CHRONOLOGY:
1 1401 Forvie... sand beginning to drift.
1 1404 Forvie... further drifting of sand.
1 1413 Aug 19 Forvie... "The Forvie sand-dune which advanced 50 to 250 metres to the north in this storm"
3 1413 Aug 19 Forvie... "was said to have succumbed to the moving mass of sand in that one, fateful blow"
1 1400-1499 Forvie... "The Forvie sand-dune... advanced about 200 metres farther before the end of the fifteenth century"
1 1500-1599 Forvie... "The Forvie sand-dune... but still greater advances occurred later, in the sixteenth century.
2 1573-1680 Forvie... the chapel of Forvie completely inundated by sand.
1 1600-1699 Forvie... "The Forvie sand-dune... but still greater advances occurred later, in the seventeenth century. From 1500 to 1680 the sand dunes had advanced northwards by 450 metres.
1 1700-1799 Forvie... "The Forvie sand-dune... advance of 100 to 150 metres at some points.
3 1750 Forvie... "there had been such a considerable northward blowing of sand that the Earl of Errol, proprietor of the estate, found it necessary to reduce his tenant's rent.
1 1782-1954 Forvie... "There has been little major changes in the past 170 years. In some years, however, the shallow forward lapping of the sand may be as much as 9 metres, while in others no perceptible advance occurred"
1 1800-1991 Forvie... "This last advance in the eighteenth century was partially lost afterwards and elsewhere fixed by vegetation, yet the site of the township remains covered by a 30-metres-high dune... reached Collieston more than 5 km north of the nearest beach source and at altitudes greater than 45 metres O.D.
1 1899-1954 Forvie... path and burn covered by sand since 1899.
1 1960-1961 Forvie... "set great masses of sand in motion in the southern and central parts of the area, and that at that time the parabolic forms of some of the dunes was accentuated"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 1.

IMPACT OF EVENT
A) EXTENT OF EVENT:
3 Forvie... a substantial movement of sand.

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
Original Reference: Maps, a comparison of the 1954 situation with the 1899 O.S. map of the area.
Other Sources: Article... W. Ritchie and K. Walton (1972) "The Evolution Of The Sands Of Forvie And The Ythan Estuary" in M. Clapperton 'North East Scotland Geographical Essays' Department Of Geography, University Of Aberdeen, p12-14.
Article... J. A. Crawford (1967) "Hebridean Settlement at Siabaidh, Beneray, Harris" Post - Medieval Archaeology, Volume 1, p110-113.
Original Reference: J. Dalgarno (1896) "From The Brig O' Balgownie To The Bullers O' Buchan" p13.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Brief description of event.
2 Short description of the event concentrating on the damage caused.
3 Short description of the event as part of a longer discussion of the history of the site.

884
NUMBER OF EVENT: CSM.60


CAUSE OF EVENT
A) SAND CONDITIONS:
1 Bay Of Cruden..."On the south side of the estuary there is a magnificent sandy beach with
dunes...There is evidence of sand being blown onto the dunes"

B) SITE CHRONOLOGY:
2 1526 Bay Of Cruden..."there was much sand movement on the coast, and that a chapel built in
about 1012...as often occurs in these parts was occasioned by violent blasts of sand"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT
A) EXTENT OF EVENT:
1 Bay Of Cruden..."There is evidence of sand being blown onto the dunes and covering the lower
slopes of marram grass creating a false impression. There is further evidence that accretion
does take place since the familiar concrete blocks are almost buried in sand"

E) SIZE OF EVENT: Local.

AUTHENTICITY OF EVENT
A) SOURCES OF INFORMATION:
1 Report...Grampian Regional Council (1980) "Coast Protection - Grampian Region" Grampian
Regional Council, p35.
2 Book... J.A. Steers (1973) "The Coastline Of Scotland" Cambridge University Press,
Cambridge, p241. Original Reference...Boece, no date 1500's.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Short description of event.
2 Short description of event.
NUMBER OF EVENT: CSM.61


CAUSE OF EVENT:
A) SAND CONDITIONS:
1 Moray...unstable coastline prone to erosion followed by a blown sand event.

B) SITE CHRONOLOGY:
3 circa 1200 Moray..."a section of the most fertile land in Moray, stretching along the sea-
coast for several miles, was overblown and devastated by an eruption of sand from the westward"
2 1920 May 13 Moray..."The sandstorm of last week was the worst for many years...when the
wind was at its height the sand began to drift like snow"

I) CLASSIFICATION OF CAUSE OF EVENT: Type 3.

IMPACT OF EVENT:
A) EXTENT OF EVENT:
1 Moray..."accumulated blown sand from earlier in the year"

B) DAMAGE CAUSED:
8) 1 Moray...associated with some erosion of unconsolidated material from the coastline.

E) SIZE OF EVENT: Local

AUTHENTICITY OF EVENT:
A) SOURCES OF INFORMATION:
2 Newspaper...Forres Gazette, 1920 May 19, "Violent Sandstorm - Serious Results In Moray"
written 'By A Moray Farmer'.
3 Book...Society For The Sons And Daughters Of The Clergy (1845) "New Statistical Account Of
Scotland : Volume 13 Banff, Elgin And Nairn" p217. No original reference given.

B) ESTIMATED RELIABILITY OF SOURCES AND DATING OF EVENT: Class 1.

C) ASSESSMENT OF QUALITY OF DATA:
1 Based on the authors own monitoring of the area.
2 Description of event concentrates on the damage to agricultural land and the removal of topsoil.
3 Description of event covers all its aspects.