

The Storminess Record from Armagh Observatory, N. Ireland 1796-2002.

Introduction

Armagh Observatory was established in 1790 by Archbishop Richard Robinson. Robinson was the Church of Ireland Archbishop of Armagh (Butler and Hoskins 1987). Although the main focus of the Observatory was astronomy, daily meteorological records were kept from 1794, when the Observatory became operational. Only air temperature and barometric pressure were recorded during 1794 and 1795. From 1796 to 1843 wind direction was also recorded and a brief written daily weather comment was also included in the daily weather register. The daily description of weather included reference to storms and their effects. The only gap in the record is from mid-1825 to 1832 when no weather data was collected. In addition, no daily weather descriptions were recorded for 1883. From 1844 to the present there is also wind strength data, mostly instrumental but also some observer data. This makes this dataset the longest ongoing weather record on the island of Ireland.

The Observatory is located on top of a drumlin on its own site of approximately 14 acres. The Observatory although located on the edge of Armagh city is still predominantly surrounded by farmland and the playing fields of a number of schools. The city has grown in size from around 7,000 to 15,000 people over the study period and is highly dispersed and low density. A study by Coughlin and Butler (1998) showed the effects of urbanisation on the mean air temperature at the Observatory were minimal. However, the one threat to the quality of the wind data from the Observatory was the growth of trees around the main building. This led to the original cup anemometer on the roof of the Observatory to be abandoned in favour of the more suitable site of the Back Lawn where the current meteorological site is located. This paper will examine the weather diary record of storms in Armagh from 1796 to 1999 and the instrumental/observation record from 1844-1999 and will highlight some of the difficulties in assembling such chronologies, even from one site.

The weather diary record from 1796-1999.

This data was abstracted from the daily weather diary. From the earliest weather diaries the recording of storms seems to have been a key component of the description (Appendix 1). The definition of a storm used was the use of the words 'tempest', 'storm' or 'gale' in the written description. The description must clearly indicate that this event was not a gust, thunderstorm or snowstorm and that the wind was sustained for a length of time. Table 1 contains a brief list of some of the most noteworthy storms that have affected Armagh as recorded in the weather diaries.

Table 1 The most noteworthy storms that have affected Armagh as recorded in the weather diaries.

1799	May 17	stormy (SW) morning with rain. Cloudy day - a meteor. A rainy stormy night
1810	Dec 21	heavy gale with rain. Violent gale and showers all day and evening (Lightning and meteor at night) (WbyS WbyN)

Table 1 Continued.

1817	Feb 8	Stormy and overcast. Heavy rain in the evening - A meteor towards the north (WSW)
1817	Mar 3	Trees blown out of their roots in the evening of this day. Stormy - with showers of rain, snow and hail. Thunder and lightning about 6pm in the SSE - distant (W NW)
1818	Feb 28	very wet morning. Blowing with some rain all day - Stormy night floods (NW)
1818	Apr 8	Stormy, with snow, sleet and rain nearly constant for 24 hours. Great floods (NW)
1819	Feb 21	Floods. Very wet and stormy morning and day - fair evening and night (NW)
1819	Dec 16	Remarkably stormy morning - heavy rain - great floods - heavy showers at night (SW)
1821	Nov 30	Haze and drizzle - A very remarkably wet and stormy night. Trees blown out of roots in several places. (Thunder distant) (SW NW)
1822	Mar 10	Trees blown out of roots about noon - very stormy (NW). See Lamb 1991 for more detail on this storm.
1822	Dec 5	Blowing with rain and snow. A very wet and stormy evening and night. Trees torn out of root about 10pm - great damage done in Dublin and Liverpool. Calmed after mid-night (W SE NW)
1823	Feb 11	Snow rapidly melting. Floods stormy and wet evening and night (SW)
1824	Nov 23	very wet and stormy before day. Floods clouded and blowing (NW)
1839	Jan 6	a tremendous gale in the night. See Carr 1991 and 1993 and Lamb 1991 for more detail on this storm.
1842	Jan 25	A fearful gale (see full entry in Appendix 1).
1846	Mar 2	a tremendous gale in night, my wind gauge and round rain gauge blown down about 2 am. a gale in night the round gauge blown off
1882	Oct 1	heavy gale throughout the day wind blew and rainfall from SSE, several trees were blown down in the observatory grounds wind 48 miles at 5 pm. S M.J.
1886	Mar 30	Stormy afternoon, 45 mph at 3.30pm. Splendid aurora 9pm
1927	Jan 28	Violent gale. Rain squalls. Violent gale. Much damage. Sunshine ball disintegrated by lightning See Lamb 1991 for more detail on this storm.
1942	Dec 9	High wind: intermittent rain: very gusty. Stormy night. Aurora seen 20h
1956	Dec 28	Continuous rain, heavy 21h-2.30h, until 5h. Stormy night. Flooding widespread
1961	Sep 16	Wind rising from early morning (Wind force 9 to 10 to 11) Probably 12. Considerable structural damage. Subsided late afternoon. See Lamb 1991 for more detail on this storm.
1965	Nov 17	Stormy night. Stormy. Widespread flooding evening
1976	Jan 2	gale force wind evening storm force at times (24 killed) The 24 killed refers to Britain, in addition, there were 4 fatalities in Ireland. See Lamb 1991 for more detail on this storm.

Analysis of the weather diary record.

The annual incidence of storms from the descriptive record at Armagh from 1796 to 2000 was plotted and fitted with a 10 year running mean (Fig. 1). Relatively high numbers of storms were recorded from 1796 to 1825 and 1835 to 1844 and it is assumed that the time period between would also contain relatively high numbers of storms (Appendix 2). Three years have more than 30 storms and this includes 1796 with 31. This block of relatively high numbers of storms can be associated with increased storminess symptomatic of the Little Ice Age that probably extended up to end of the 18th century and into the 19th century (Grove 1988). The Little Ice Age was by no means a completely cold period with years of relatively high temperatures as well as periods of cold, storms and disturbed weather. From 1845 to 1910 relatively few storms were recorded at Armagh, typically less than 5 per annum.

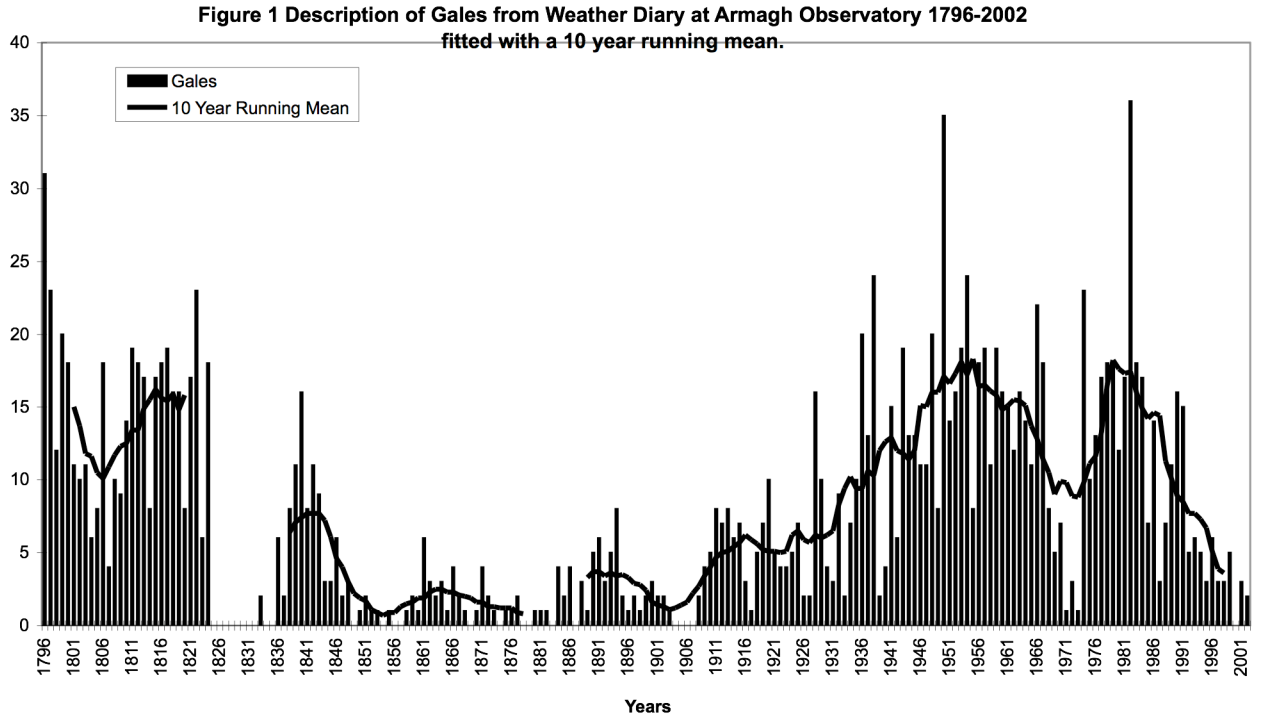
A change occurs in the 1890's with an increase in the numbers of storms being recorded associated with a decline in temperatures. This also coincides with Lamb's (1991) assessment that the 1890's was probably the stormiest decade of the 19th century. From 1911 until 1958 there is a generally rising number of storms being recorded. This includes the exceptional year of 1950 when 35 storms were recorded. There is a decline in the number of storms from 1960 to 1976 and this is followed by a pulse of increased numbers of storms being recorded until 1985. This includes 1982, the stormiest year on record with 36 storms. This is followed by a sharp decline in the number of storms being recorded up to and including 1999. This trend has continued in 2000 and 2001.

There is a very clear monthly distribution of gales for Armagh (Fig. 2). Most gales occur in the Winter half of the year most notably January and December (Appendix 3). There is a decline in gales towards the summer half of the year with very few gales occurring from April to August inclusive but all months record some gales.

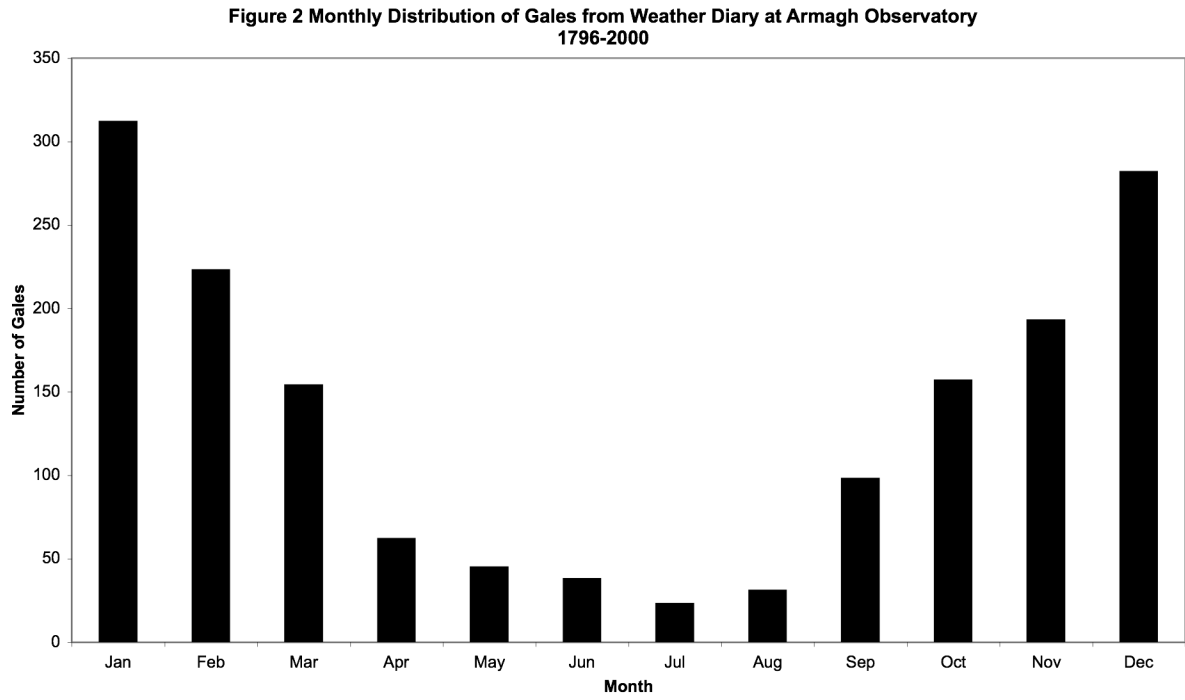
There is also significant variations in the seasonal distribution of gales from the weather diary (Appendix 4). The Winter (December, January, February) gales plot shows relatively high numbers at the start of the record from 1796 up to the 1840's (Fig. 3). Low number of Winter gales are recorded up until the early 1900's with the exception of a few years in the 1890's. This is followed by a period of relatively high numbers of gales particularly in the 1920's and 1930's and early 1980's. There has been a decline in gales from the mid 1980's onwards. This pattern mirrors the annual totals as would be expected with most gales occurring in Winter. The pattern for Spring (March, April, May) gales is similar to that of the Winter and Annual pattern with mini peaks of gales in 1796, 1800, 1821, 1948, 1964-1965, 1968 and 1985 (Fig. 4). The Summer (June, July, August) gales plot is different to this pattern as there is a noticeable cluster most of gales in the 1950's and 1960s with a very exceptional 8 gales in the Summer of 1951 (Fig. 5). The Autumn (September, October, November) gales pattern reverts back to the Winter, Spring and overall pattern (Fig. 6).

One potential weakness with this record is that of observer bias. Work is still ongoing at Armagh in an attempt to identify the meteorological observers and the time periods they covered and so test for bias.

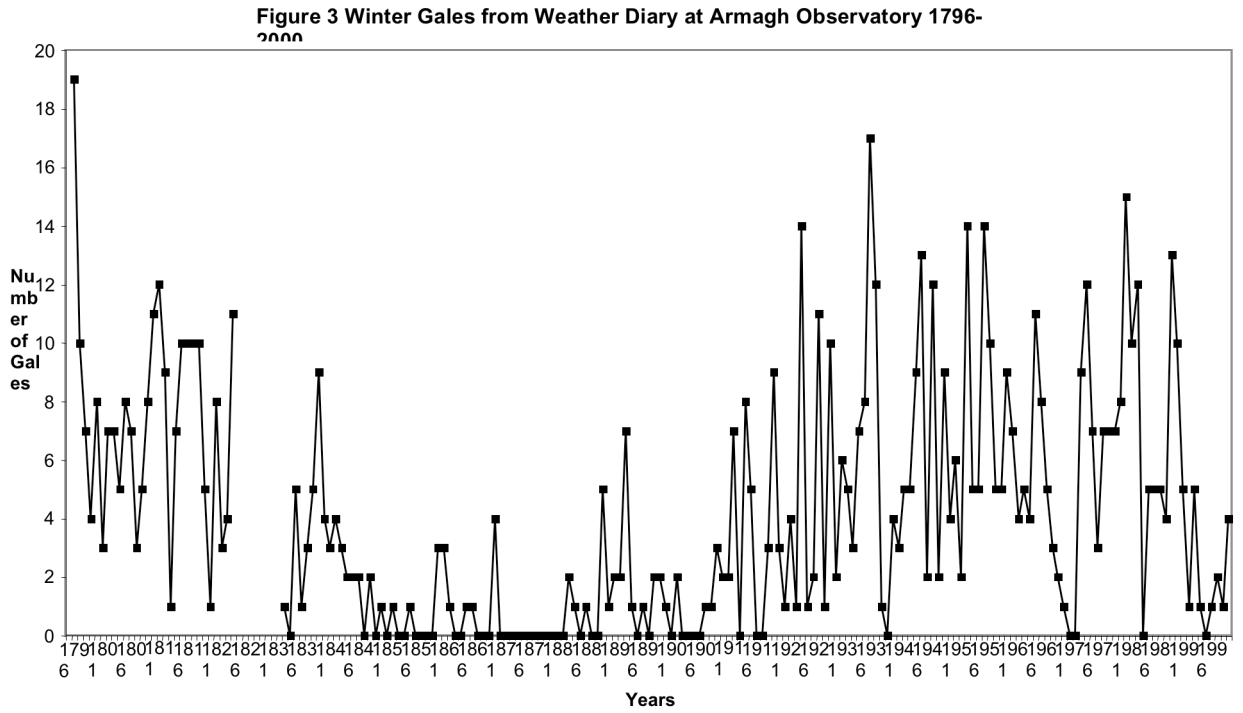
Insert Fig. 1 here



Insert Fig. 2 here

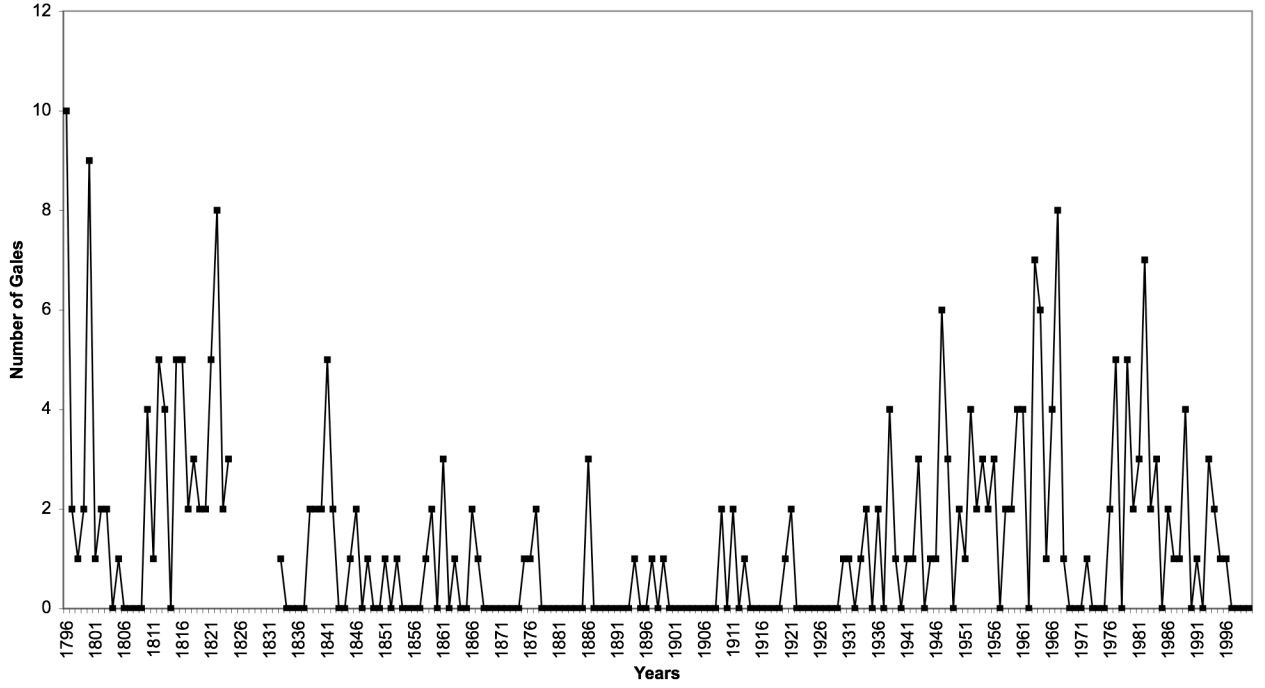


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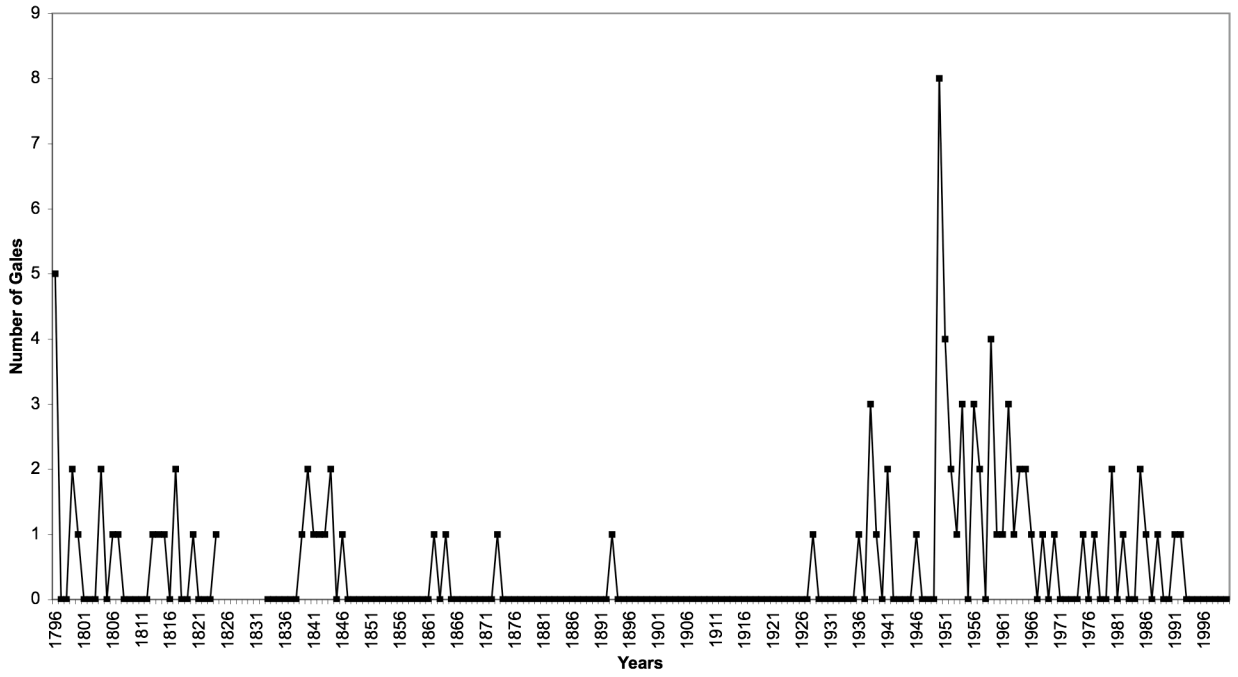
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Figure 4 Spring Gales from Weather Diary at Armagh Observatory 1796-2000



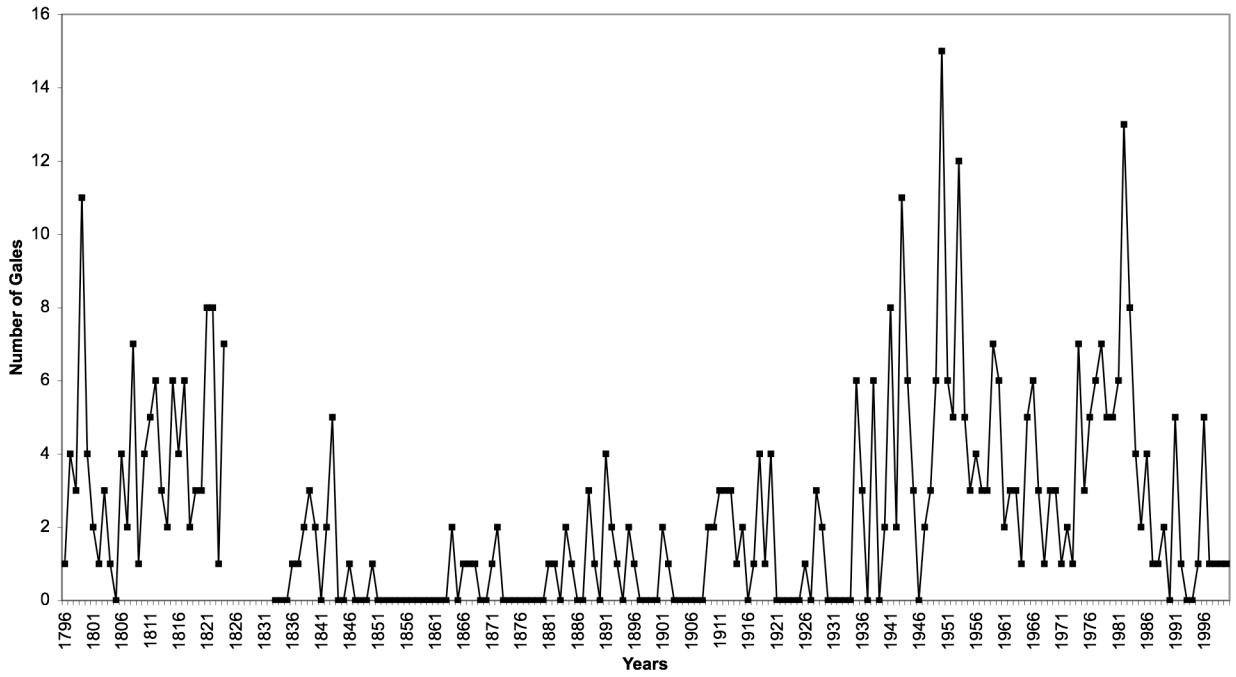
Insert Fig. 5 here

Figure 5 Summer Gales from Weather Diary at Armagh Observatory 1796-2000



Insert Fig. 6 here

Figure 6 Autumn Gales from Weather Diary at Armagh Observatory 1796-2000



The observational/measured record from 1844-1999.

The observational/measured record is a much more complex series consisting of six components which have been combined together. The first two components cover the period from 1844 to 1882 and are not directly compatible with the rest of the chronology in a strict methodological sense. The remaining four components from 1883 are relatively easily converted to a single standardised format.

a) Component 1: 1844 January 1 to 1860 March 3.

The data here appears to be based on an early version of the Beaufort land scale to which actual wind speed was added (Table 2). As a result a gale is defined as force 8 but the given miles per hour is only 24mph (1mph =0.87 knots). The effect of using this scale was the over-recording of gales and their strength. As a result only gales that were given as force 12 or force 12+ were used. This would still include a small number of events that would not be classified as gales today. The data was based on twice-daily observation of wind speed and direction, recorded from the anemometer located on the roof of the Observatory. A further minor complication is that prior to 1st April 1852 astronomical time was used, after this date standard Irish Civil Time (Dublin Time) was used. Astronomical time starts at noon as opposed to midnight. All the data in this component has been corrected to civil time.

Table 2 Old Beaufort land scale that was used to cover the period from 1st January 1844 to 3rd March 1860.

Beaufort Number	Miles Per Hour
1	3
2	6
3	9
4	12
5	15
6	18
7	21
8	24
9	27
10	30
11	33
12	36+
12+	?

b) Component 2: 1860 March 26 to 1882 December 31.

Component 2 consists of the total number of miles (1 mile =1.609km) travelled by the anemometer cup in a 12-hour period (Table 3). Clearly it is very difficult to interpret this data in the context of the overall chronology as the minimum miles travelled to guarantee a gale is 39 and the maximum is 565. Obviously the more miles travelled in a 12-hour period the more likely it is that a gale has occurred. An arbitrary figure of 450 miles travelled was chosen to indicate when gales might have occurred. This was checked against a small amount of hourly data that is available for Armagh from 1874-1882. This showed that the 450 miles travelled was an adequate threshold to use as it picked up two gales that occurred during this time period.

It must be noted that two additional 12-hour periods which had totals in excess of 450 miles also occurred, but which were not recorded as gales in the hourly data. Both had sustained periods of high winds. This at least indicates that no gales will be missed using the 450 mile threshold, but that there is likely to be some over-recording of gales. When this threshold is applied to the period from 1860 to 1873 a further seven possible gales can be identified (Table 4). This part of the chronology is based on twice daily observation of wind speed and direction, recorded from the anemometer located on the roof of the Observatory.

Table 3 Scale of measurement for miles travelled in a 12 hour period

Beaufort Numbers	Miles? hour by wind	Correct mph	Half seconds during 88 revolutions of drum	Pressure on square foot	Description
1	3	1-3	351	0.08	Light Air
2	6	4-7	129.5	0.32	Light Breeze
3	9	8-12	82.7	0.72	Gentle Breeze
4	12	13-18	61.0	1.29	Moderate Breeze
5	15	19-24	48.8	2.02	Fresh Breeze
6	18	25-31	40.3	2.90	Strong Breeze
7	21	32-38	34.5	3.95	Moderate Gale
8	24	39-46	30.1	5.16	Fresh Gale
9	27	47-54	26.7	6.54	Strong Gale
10	30	55-63	24.05	8.07	Whole Gale
11	33	64-72	21.85	9.76	Storm
12	36+	73-82	20.0	11.62	Hurricane

Table 4 Dates on which miles travelled in a 12 hour period exceeded 450 compared with the hourly data and the weather diary at Armagh Observatory.

Date	Miles travelled in 12 hours	Gale from hourly data	Storm from weather diary
1863/12/11	479	no data	No
1864/2/13	542	no data	No
1867/3/14	455	no data	No
1871/1/16	464	no data	Yes
1872/1/1	478	no data	No
1872/1/31	468	no data	No
1872/11/6	464	no data	No
1875/1/1	461	No	No
1880/11/26	450	Yes	Yes
1881/11/22	499	Yes	No
1881/2/6	468	No	No

Component 3: 1883 January 1 to December 31.

The data comes from a separate instrumental hourly time series from the Automatic Weather Station that was in operation. The normal twice daily observations appear not to have been taken or recorded during this year. A gale in this component is designated as 53mph. This is as a result of the correction of the calibration of the Robinson Cup Anemometer which over recorded wind strength by 4/15 or a reduction in the calibration applied to the raw data from 3.0 to 2.2. This calibration correction applies to all measured wind speed using the Robinson Cup Anemometer from 1904 backwards in time. If the earlier data is not recalibrated then the number, duration and strength of gales are dramatically and erroneously increased.

Component 4: 1884 January 1 to 1919 December 31.

The data are based on a modified Beaufort scale using knots where a gale is given as Beaufort force 6 which is given as 34 knots (Table 5). This part of the data set is based on twice-daily observations of wind speed and direction. Any data from 1884 to 1904 was recalibrated as outlined above.

Table 5 Comparison of the different Beaufort scales used from 1st January 1884 to 31st December 2002.

Beaufort Number	Component 4 (knots)	Component 4 (mph)	Component 5 (mph)	Component 6 (knots)
0	3		<1	0
1	8		1-3	2
2	13	10	4-7	5
3	18	15	8-12	9
4	23	20	13-18	13
5	28	30	19-24	19
6	34	40	25-31	24
7	40	50-60	32-38	30
8	48	50-60	39-46	37
9	56	70	47-54	44
10	65	80-90	55-63	52
11	75	100	64-72	60
12	90	110	73-82	69

Component 5: 1920 January 1 to 1958 December 31.

This is a standard Beaufort scale where a gale is equal to Force 8 or 39 mph (Table 5). The data are as a result of twice-daily observations of wind speed and direction from the back lawn of the Observatory.

Component 6: 1959 January 1 to 1999 December 31.

This is a standard Beaufort scale where a gale is 37 knots which is the mid-point of Beaufort Force 8 when using knots (Table 5). The data are based on twice-daily observations of wind speed and direction from the back lawn of the Observatory. From 7th March 1965 onwards the data is based on once a day observation at 0900 GMT.

Analysis of the instrumental/observational record

The instrumental/observational days with gale record was plotted from 1844 to 1999 and fitted with a 10-year running mean (Fig. 7). This includes the data from 1844 to 1883 which although not directly comparable with the remainder of the data set has been included as outlined in the methodology described above. Four distinct periods of increased occurrence of days with gale can be identified. These are 1884 to 1905, 1917-1919, 1947 to 1964 and 1977 to 1991. Since 1993 no gales have been recorded at Armagh at the 0900 GMT observation. Clearly, from the data there is a quasi-cyclical occurrence of increased numbers of days with gales with a mean cycle of 31 years or 27 years if the less prominent increase in days with gales from 1868 to 1874 is included.

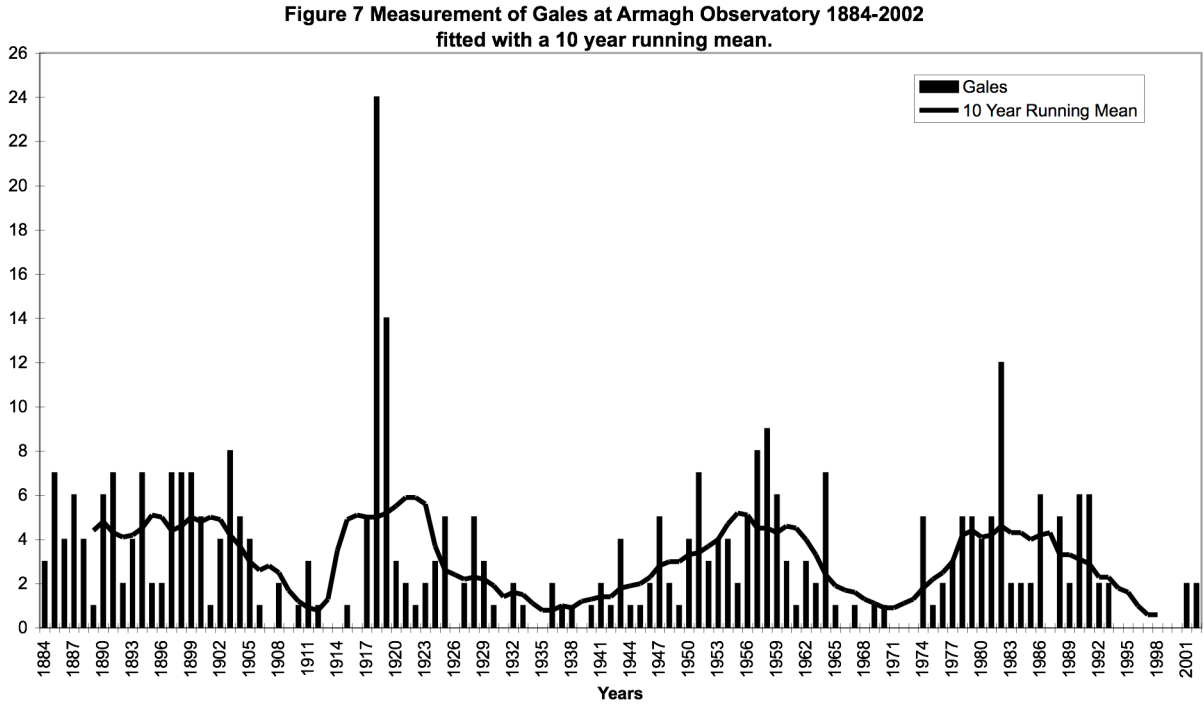
The second item to note is the spike of increased days with gales during 1918 and 1919, these were the two highest individual years with 24 and 12 gales respectively. The only other year that comes close to this number of gales being recorded is 1982 when 12 gales were observed. Clearly this anomaly is worthy of further research. A check of other Irish meteorological stations showed that some had the spike and some did not (Table 6). The spike is clearly evident at Belmullet, is evident only in 1918 at Malin Head, and evident only in 1919 in the two most southerly stations at Roches Point and Valentia; it is not present at Donaghdee. It is not clear what caused this dramatic increase in the number of days with gales being recorded. It is also possible to speculate that the spread of the influenza virus that killed in excess of 20 million people during this time period may have been aided by increased storminess.

Table 6 The number of days with gales recorded at Armagh Observatory, Roches Point, Valentia, Belmullet, Donaghee, Malin Head for 1918 and 1919.

Station	Days with gale	
	1918	1919
Armagh Observatory	24	12
Roches Point	4	18
Valentia	9	12
Belmullet	67	28
Malin Head	37	8
Donaghdee	6	4

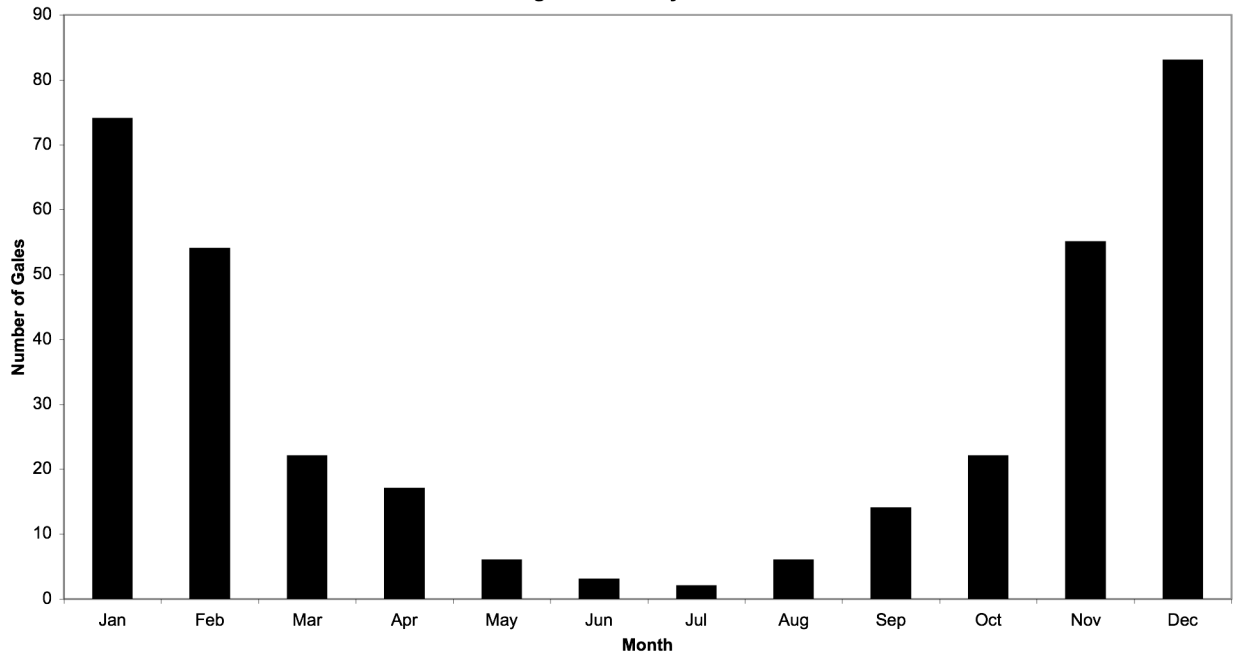
There is a very clear monthly distribution of gales for Armagh similar to that of the weather diary, but there are some differences (Fig. 8). Most gales occur in four months only from November to February (Appendix 6). There are relatively low numbers of gales for the remaining eight months of the year from March to October inclusive with gales being recorded for every month of the year.

Insert Fig. 7 here



Insert Fig. 8 here

Figure 8 Monthly Distribution of Gales from Instrumental/Observational Record at Armagh Observatory 1884-2000

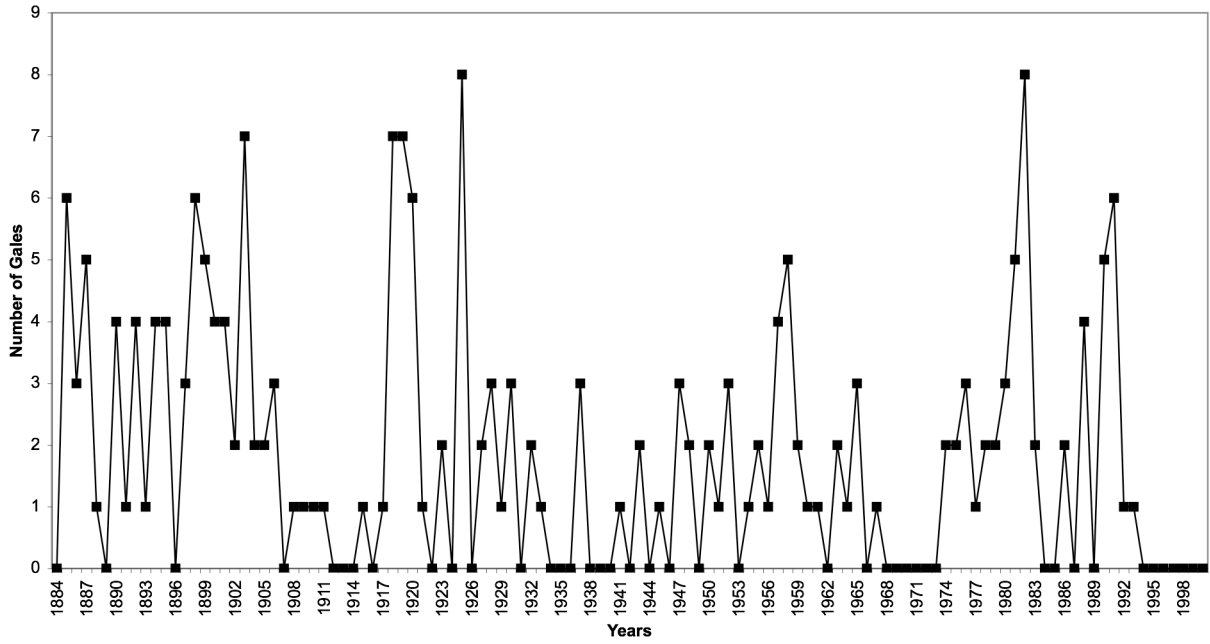


There is also significant variations in the seasonal distribution of gales from the instrumental/observational data from 1884 to 2000 (Appendix 7). The Winter (December, January and February) gales plot shows relatively high numbers in the early 1900's, the 1920's the late 1950's, the early 1980's and the early 1990's. This is a slightly different pattern to that from the weather (Fig. 9). Low number of Winter gales are recorded from 1907 to 1917, the 1930's, the 1940;s, surprisingly the 1960s, the 1970's and most of the 1990's. This pattern to some extent mirrors the annual totals as would be expected with most gales occurring in Winter.

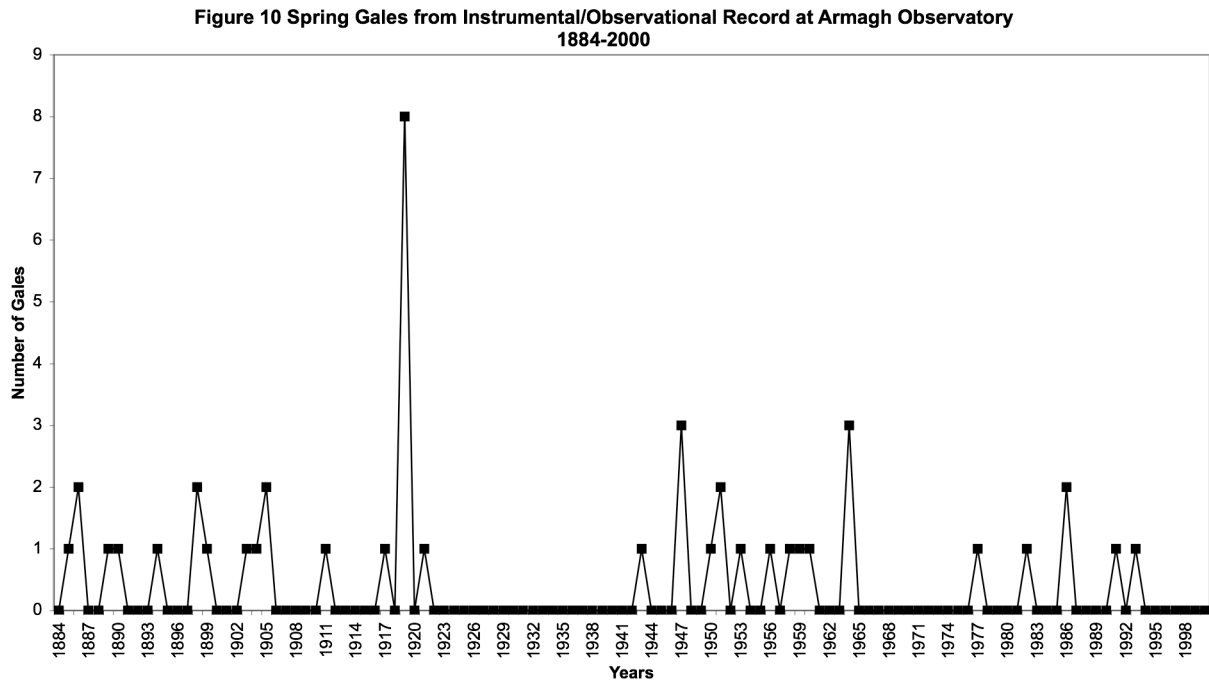
The pattern for Spring (March, April and May) gales is similar to that of the Winter and Annual pattern but with much lower numbers of gales. This plot is noticeable for the exceptional value of 7 gales in the Spring of 1919 as discussed earlier (Fig. 10). The Summer (June, July and August) gales plot just shows the occasional gale one summer in every ten or so on average (Fig. 11). The Autumn (September, October and November) gales pattern reverts back to the Winter, Spring and overall pattern but with 12 gales recorded in Autumn 1918 three times higher than the next highest Autumn total (Fig. 12).

Insert Fig. 9 here

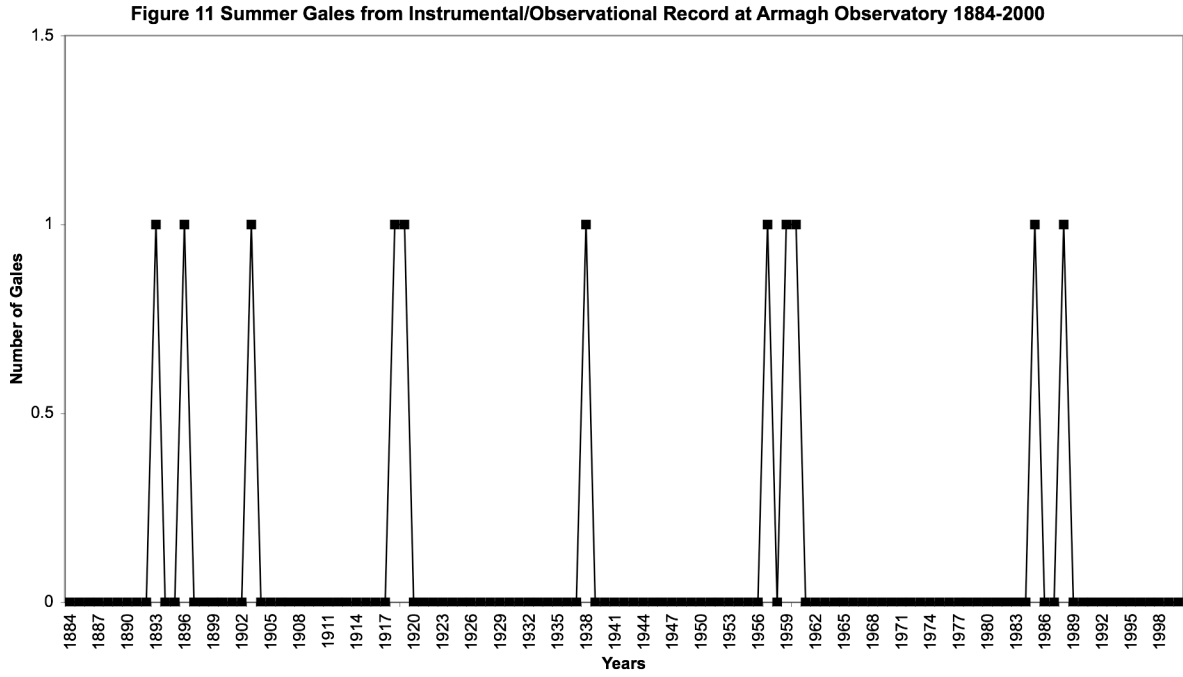
Figure 9 Winter Gales from Instrumental Observational Record at Armagh Observatory
1884-2000



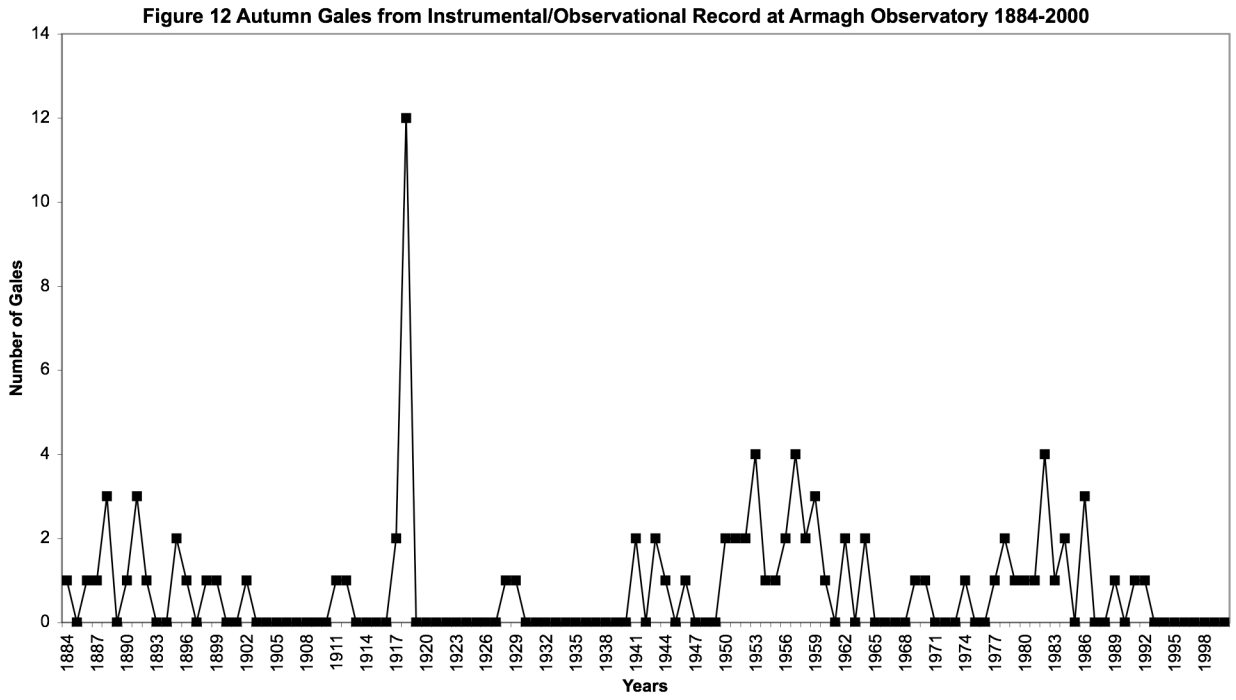
Insert Fig. 10 here



Insert Fig. 11 here



Insert Fig. 12 here



Comparison of the two records of storminess at Armagh Observatory from 1884 to 1999.

As a result of the differences of the two methodologies in generating the storm chronologies it would be exceedingly unlikely that the two records would match numerically but that they should match in terms of the trends. The weather diary dataset would be expected to produce more gales/storms as it covers the whole day and not just one or two specific measurements per day. At the annual level there is a strong similarity for most of the record (Fig. 13). The only periods when the match is relatively poor is 1896 to 1908 and the spike years of 1918 and 1919. In both these cases there was more observation of gales than that recorded in the weather diary. This indicates that the meteorological observer was failing to record storms in the daily weather diary.

A similar pattern emerges when the 10-year running mean of the two chronologies are compared (Fig. 14). The exception is the period from 1922 to 1936 when the observation record shows a rising incidence of storms, whereas the weather diary shows a declining incidence of storms. The peaks in gale/storm incidence in the 1950's and 1980's are clearly shown as the intervening trough in the 1960's. The decline in gales/storms in the 1990's is evident in both records.

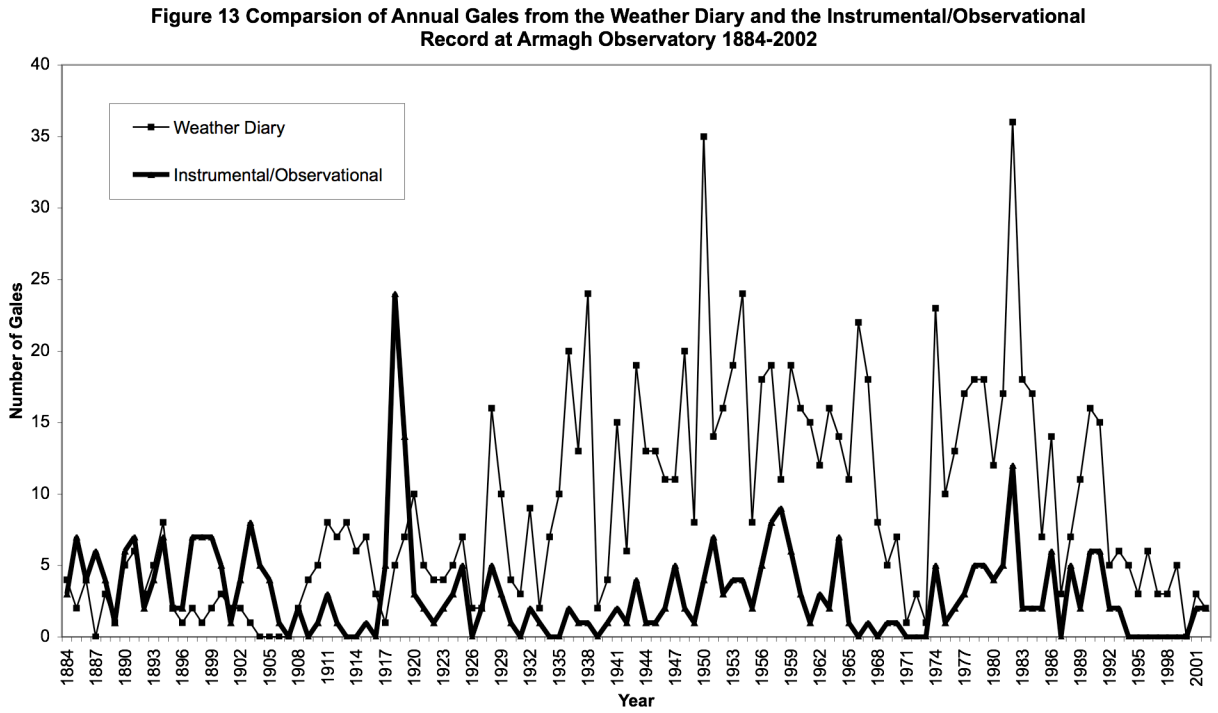
Long and short term changes in storminess

The long term trend in storminess in Armagh as identified in the two different records was calculated using a linear regression. This was also compared with linear regressions from the three west coast stations at Valentia, Belmullet and Malin Head (Table 7). The regressions at the 95% confidence level show that the Armagh and Valentia records show no significant trend although the Valentia hourly shows an increase of 1 gale per year every 14 years. Belmullet shows a decline of 1 gale every 5 years over the length of record, whereas, Malin Head shows an increase of nearly 1 gale every 3 years. There is no overall pattern for these four stations.

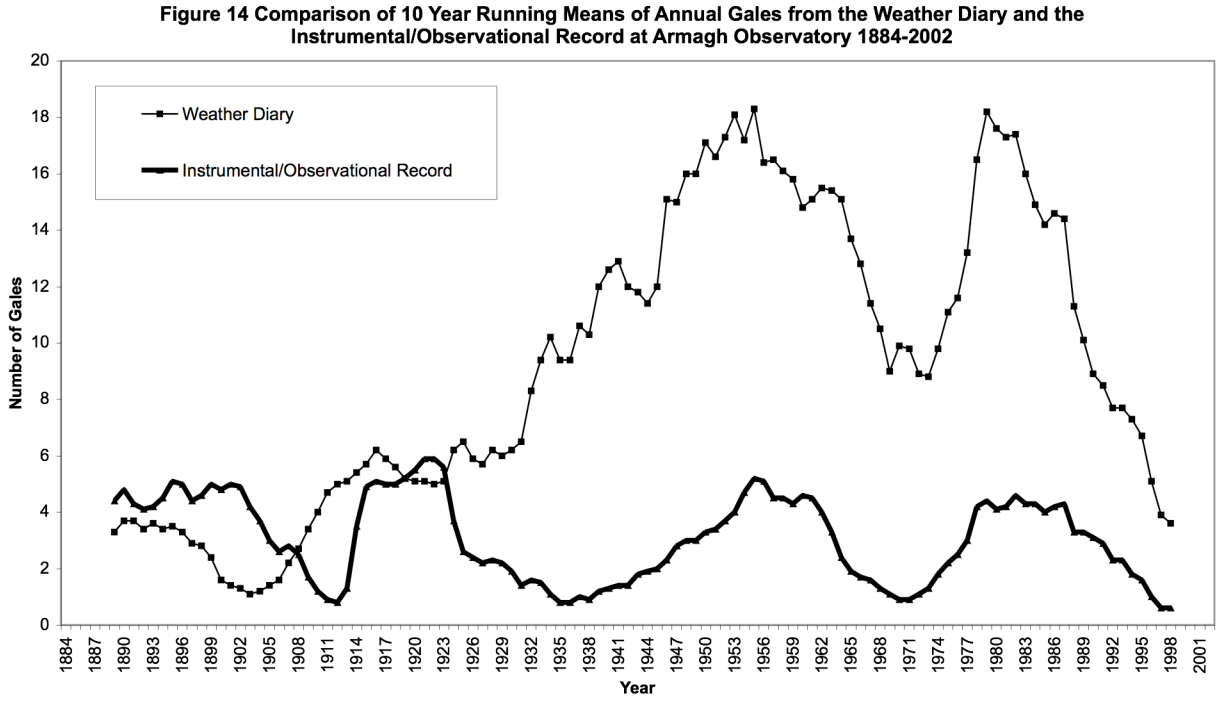
Table 7 Linear regressions of the number of days with gales recorded at Armagh Observatory, Valentia, Belmullet, Malin Head full record. (All linear regressions at the 95% confidence level and based on complete years only)

	Full record	1970-99
Armagh (observation) 1884-1999	-0.02	-0.22
Armagh (description) 1796-1999	-0.03	-0.15
Valentia (hourly data) 1874-1999	+0.03	-0.15
Valentia (observation) 1876-1999	+0.07	
Belmullet (observation) 1885-1999 (hourly)	-0.19	+0.29
Malin Head (observation) 1885-1999 (hourly)	+0.31	+0.86

Insert Fig. 13 here



Insert Fig. 14 here



In order to examine the recent changes in storminess in Armagh over the 30-year period from 1970-1999 linear regressions of the two different measures of storminess were calculated. Again this was compared with linear regressions from the three west coast stations at Valentia, Belmullet and Malin Head (Table 7). This shows some very different results in comparison with the overall regression figures. Armagh and Valentia show a decline in the number of gales being recorded of the order of 1 every 5 to 7 years, whereas Belmullet shows an increase of nearly 1 gale every 3 years and Malin Head showing an increase of nearly 1 gale every year. This indicates an overall pattern of the south and east receiving fewer gales and the north and west receiving more gales, possibly, indicating a northward shift in storm tracks, which Armagh Observatory because of its low gale environment is not yet picking up. This is supported by the only other published storm chronology for Ireland which is for Dublin from 1715-1999 (Sweeney, 2000). A decadal comparison between the Dublin record and the two Armagh record shows substantial similarities, but also some differences (Fig. 15).

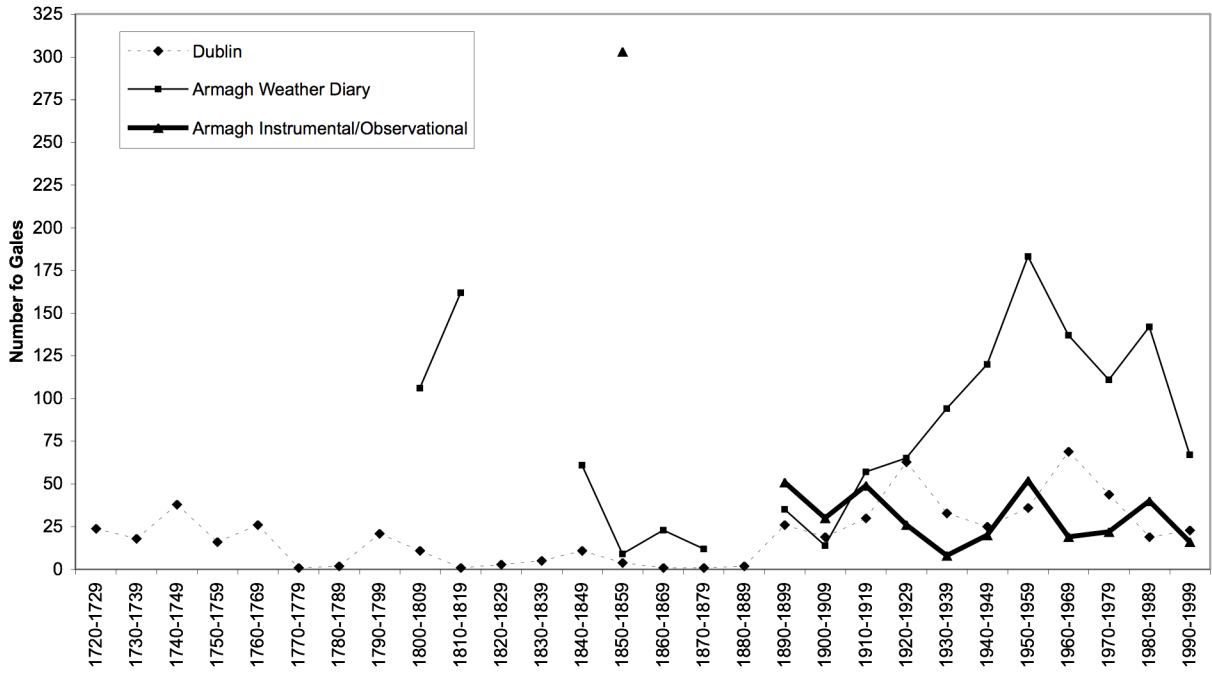
As a result of incomplete decadal totals, it is only possible to do the comparison from the 1840's onwards. From 1840 until the early part of the 20th century relative low levels of storms are being recorded. For the next 40 years the Dublin record more closely resembles the Armagh instrumental/observation record, even in terms of numbers of storms being recorded. From the 1960's onwards the Dublin record more closely resembles the description record in terms of the general trend, but the actual numbers of storms are very different. The comparison also suggests that there is a decadal lag between Dublin and Armagh in terms of peaks and troughs. The decade with the most storms in Armagh is the 1950's whereas in Dublin it is the 1960's.

Conclusions

Very significant variations in storminess have been recorded over the last 200 years for Armagh observatory despite the sheltered inland nature of the site. This includes evidence for increased storminess at the end of the Little Ice Age. However, there is no evidence of increased storminess over the last 30 years. When similar records from other Irish stations are examined, there is some evidence of a possible northwards movement of the storm tracks that have affected the island of Ireland over the last 30 years.

Insert Fig. 15 here

Figure 15 Comparison of the Decadal Total of Gales of the Two Armagh Records with that of Dublin (after Sweeney 2000) 1720-1999 (complete decades only)



References

- Butler C.J. and Hoskin M. (1987) The archives of Armagh Observatory, *Journal for the History of Astronomy*, Vol. 18, p295-307.
- Carr P. (1991) *The Big Wind - The Story of the Legendary Big Wind of 1839 Ireland's Greatest Natural disaster*, Belfast, The White Row Press.
- Carr P. (1993) *The Night of The Big Wind - The Story of the Legendary Big Wind of 1839 Ireland's Greatest Natural disaster*, 2nd Edition, Belfast, The White Row Press.
- Coughlin A.D.S. and Butler C.J. (1998) Is urban spread affecting the mean temperature at Armagh Observatory, *Irish Astronomical Journal*, Vol. 25 (2), p125-128.
- Grove J. (1988) *The Little Ice Age*, London, Methuen, 498pp.
- Lamb H.H. (1991) *Historic storms of the North Sea, British Isles and Northwest Europe*, Cambridge, Cambridge University Press, 204pp.
- Sweeney J. (2000) A three-century storm chronology for Dublin 1715-2000, *Irish Geography* Vol. 33 (1), p1-14.

Appendix 1 Armagh Observatory Relevant Abstracts of Daily Weather Diary Entries of Tempests, Storms or Gales from 1796-1999.

Year	Month	Day	Description and wind direction
1796	1	2	Bright morning. Stormy (WNW) cloudy noon. Bright evening
1796	1	12	Bright morning. stormy (SW) evening
1796	1	13	Very rainy and stormy (SW)
1796	1	23	Exceeding stormy (SSW). much rain great Gale this night. Mercury in barometer heaving
1796	1	24	Morning fine. Evening very stormy (SSW) Barometer mercury heaving
1796	1	25	Morning very stormy (W). Evening calmer. Mercury still heaving
1796	1	26	Stormy (W) with bright intervals
1796	2	3	Cold frosty morning. Fine day - then heavy rain gale (SSW) of wind (alternative SW then S)
1796	2	19	overcast damp morning: damp (W fresh gale)
1796	3	14	Cloudy overcast morning. Blowing fresh. High gale (SW) at night
1796	3	15	After a heavy gale (S) cleared up. and a calm cloudy morning. Rain all the evening
1796	4	21	Bright with a heavy gale (SE) of wind - barometer heaving
1796	4	23	Heavy gale from (SE) bright at intervals. Heavy showers towards evening - Barometer heaving
1796	5	6	overcast day. night stormy (NE) with rain
1796	5	12	Very stormy (SW) and showery day. Hail. Bright evening
1796	5	13	Stormy (WbyS then WbyN) morning. then bright and bright evening. Mercury in barometer heaving
1796	5	14	Stormy (W)and showery until evening, then bright at intervals
1796	5	28	Very stormy (SbyW) day until sunset then bright until near midnight
1796	5	29	Very stormy (SbyW) with hail at intervals. Calmer but cloudy night
1796	6	26	Heavy gale (WbyN) from morning to evening then bright. Mercury in barometer heaving (alternate barometer heaving at 3 in the morning until 6, afternoon heavy gale from W, then bright until 11)
1796	7	16	Showery day but bright noon. very stormy (W and SW) night (alternate Bright noon- otherwise showery day and night and very stormy)
1796	7	17	Very stormy (W and SW) and wet day and night
1796	7	20	Very rainy and stormy (SbyE then byW) day and night
1796	7	25	Showery and stormy (SW) day. overcast night
1796	10	4	Overcast day and night heavy gale (W and SW. W) of wind
1796	12	3	Gale (W) of wind and rain
1796	12	5	Heavy gale (WNW) with sleety rain and snowing all day, cleared up at night.
1796	12	26	Very high wind and gentle thaw then a gale of wind from EbyS (SE)
1796	12	27	Heavy sky, hard gale (E) day and night

1796	12	28	Heavy gale (SE) and some snow then sleet and rain
1796	12	29	Heavy gale (SE. SW) of wind and rain great damp
1797	1	3	Heavy black sky gale (SE SSE) of wind the same all day violent rain and heavy gale
1797	1	4	after a night of storm (SWW SSE) and rain. Damp hazy day
1797	1	13	Heavy gale (SSE SWW) and great rains cleared at night
1797	1	20	Heavy gale from (WbyS) great damp
1797	1	21	Heavy gale (W) with small rain at night. Soft day gale and small rain
1797	1	22	Heavy gale (WSW WbyS) with rain cleared up and windy night at times bright
1797	1	23	Heavy gale (W) in the night dark morning overcast day and night
1797	1	27	Very early in the morning a gale (SbyW) of wind tempest and rain all day
1797	1	28	Bright calm morning overcast evening a gale (W) at night
1797	1	29	A blowing bright morning overcast at noon at night a dark and heavy gale (W)
1797	1	30	Overcast heavy gale (W WbyS) small rain at night heavy gale and heavy rain
1797	1	31	in the past night very heavy gale (WbyN) of wind deluge of rain morning blustery
1797	2	1	constant gales (W) of wind and rain ceased 10 am
1797	3	2	Cloudy blowing morning and day. at night bright and a gale (SSE) of wind
1797	3	4	Constant rain and wind all the past night and morning rain and heavy gale (SSE ESE) at night
1797	9	28	mostly overcast brisk gale (S) a fine day
1797	9	29	strong gale (S) small rain overcast day bright
1797	10	15	Brisk gale (WbyS) no rain quite overcast
1797	10	18	A brisk gale (WbyS) flying clouds some light showers. Overcast and bright alternatively
1797	12	12	Cleared up at 19h after a most tempestuous night of deluge and storm from SbyE blowing day (W)
1797	12	19	Blowly morning after a stormy (W) night fine day brisk wind
1797	12	25	Windy morn then almost constant rain all day and a heavy gale (SSW) of wind
1797	12	26	A very damp stormy (SSW) morning and blowing overcast day
1798	1	4	High gale (SSW WbyN) and rain all day - cloudy at night
1798	1	20	Calm grey morning overcast day high gale (SSW) at night
1798	1	28	Showery and inclined to blow and rain heavy sky at night a gale (SW) of wind
1798	1	29	Deluge and storm (SbyW WSW) all night and morning windy noon cleared up
1798	2	13	Hard gales (W) with heavy showers
1798	2	14	Hard gales (W) with heavy showers rain all night
1798	4	3	Bright morning then overcast at noon at 5pm Heavy gale (EbyS) and constant rain

1798	11	2	high wind cloudy and threatening rain. Fair day hazy night. Gale (SbyW) of wind
1798	11	21	Cold blowing morning and day at night a high gale (ESE) of wind
1798	11	27	after constant rain and gale (SW) of wind a blowing morning, noon and night
1798	12	13	cloudy day and heavy gale (E) of wind all day and all night
1798	12	14	overcast day hazy gale of wind
1799	1	15	blowly damp morning and day at night gale (SbyW) of wind from
1799	2	8	Heavy gale (E) with snow all day - at night much snow and heavy gale
1799	2	9	After a heavy gale at 5 a thaw - all day hazy sky and brisk wind at bright night
1799	2	21	very heavy gale (SSW) and rain all night. Gale and rain
1799	2	24	very hard gale all night and morning
1799	3	13	rain in the night blowing morning and heavy gales (NbyE) all day and evening
1799	5	17	stormy (SW) morning with rain. Cloudy day - a meteor. a rainy stormy night
1799	6	4	an overcast stormy (NW) morning. wind and rain after a very severe night. rain at noon. Blowing cloudy day a very wet evening an overcast night
1799	8	30	stormy (NW) weather with very clouded sky, and some rain. A mostly clear night
1799	9	16	a mostly bright morning with wind and a thick haze. an overcast day with rain. Same evening and night. Stormy (SW)
1799	9	22	a dark morning early. afterwards most severe rain with wind. Stormy (NE) evening and night. Wind and rain
1799	9	26	a stormy (SW) morning wind and wet rain. pretty far until 3pm after that heavy rain until evening. A very clear night later
1799	10	3	an overcast morning after a stormy (NNW) night. Same weather as yesterday with frequent lightning. A stormy wet night
1799	10	4	a stormy (NNW) morning with rain. Same weather as yesterday. A very clear evening and night
1799	10	11	a stormy (SE) morning with rain. a clouded day but fair. A blowing evening and night with heavy clouds
1799	10	12	a stormy (SE) morning with some rain. Same all day. a very severe wind and rain from 2.30 to 4.30 pm. A very clear night
1799	10	31	a clouded morning with some rain flying clouds with wind. A stormy (S) night with rain
1799	11	3	a very wet morning and day. Stormy (SE) and wet towards evening. Rain at night
1799	11	7	Heavy gale (W) all night (i.e. this morning) a clear evening and night
1799	11	13	Blowing night and morning heavy rain until 2pm. Heavy gale (WbyS)

1800	1	5	overcast morning very hard gale(SSE). Damp and rain with wind. Cold day and evening
1800	1	7	overcast blowy morning some rain. Damp overcast day. Gale (SSE) of wind at night
1800	1	23	afternoon gale (SbyW) and constant rain all night. Day cloudy
1800	1	28	Heavy gale (SSW) all night and morning squalls of rain
1800	3	9	Hazy sky blowing fresh at noon. Heavy gale (E SbyE) of rain and hail
1800	3	10	Heavy snow and fresh gale (SE)
1800	4	2	overcast stormy(SW W) wet morning night squalls and bright intervals
1800	4	5	Heavy gale (S) of rain and wind high wind and flying showers
1800	4	16	High gale (SE S) of rain all night, a storm of wind and rain at noon
1800	4	19	Overcast stormy (W) and wet. Heavy squalls and showers all day
1800	4	21	heavy gale (W) in evening night blowing hard. Fine day with showers
1800	4	25	Wind, haze and clouds. stormy (NW) towards the afternoon. A very wet night
1800	5	17	a storm (NE) of wind and rain from about 13h, this day more moderate towards the evening
1800	6	20	a stormy (WSW) morning with some showers from 3am and wind, clouds and showers all day. Cloudy evening and night
1800	9	21	a stormy (SSW) day of wind, rain and thunder
1800	9	24	a very severe shower in the morning. Same in the afternoon. A very wet and stormy (SW) evening and night
1800	9	29	blowing morning after a wet night - hard gales (W) and showers
1800	10	26	clear morning and calm. Cloudy weather, gales (SW) a clap of thunder
1801	1	4	bright morning blowing and raining all day and evening. Heavy gale (S) and rain
1801	1	5	Heavy gale (S and SW) of wind in the night windy day at night calm
1801	1	15	Heavy gale (S) of wind and rain, pretty clear evening, but showery night
1801	1	19	overcast with thick haze, a wet evening and stormy (W) night
1801	1	22	Several showers in the morning. Clouded and rather stormy (W) all day. Snow in the evening
1801	2	3	Heavy gale (SbyW S) and much rain. Open day and evening at night gale and rain
1801	2	25	Extremely heavy constant rain - at night heavy gale (SbyW W) of wind
1801	2	28	Hazy, damp and blowing morning and day. At night high gale (S) of wind and rain
1801	5	14	a storm (SW) of wind and rain from the SW from 9am to 3pm a clouded evening with showers
1801	11	2	Heavy gale (N) with sleet all morning

1801	11	26	Heavy gale (NW) in the night calm morning. Heavy squalls and snow showers
1802	1	31	Hazy day Heavy gale of wind (SW)
1802	2	3	Fine day and bright night Heavy gale of wind and rain (WS)
1802	2	4	Wind gale with rain continued all day and all evening (SW W WbyN)
1802	3	21	Heavy gale and rain all night. Overcast partly looking black very wet (S W)
1802	4	12	Stormy with showers of hail and snow and some thunder about 3pm (SW)
1802	10	3	a hazy day a very stormy evening with thunder and violent rain (SW)
1802	12	2	Heavy gale and constant rain (SbyE)
1802	12	3	Heavy gale and constant rain (SbyS)
1802	12	10	Heavy gale and rain in the night. Squalls and showers - day and night (NbyW)
1802	12	29	Heavy gale of wind and rain (S)
1803	1	6	Heavy gale of wind and rain (SSE)
1803	2	15	overcast blowing and wet a heavy gale all night (WbyS)
1803	2	24	Heavy gale in the night morning calm and overcast (W)
1803	3	3	clear with gales and slight snow showers (NNE)
1803	4	19	gale of wind and rain all the night of 18th gales and hail (NW)
1803	10	3	Sharp rain dry day from 4am Evening clouds and gales (NE NW)
1803	10	16	Hard gale and rain in night. High winds heavy rains (SW)
1803	10	19	Heavy gale and constant rain - all day (SW)
1803	12	10	Early in the morning a very heavy gale with violent rain (SbyE)
1803	12	23	bright morning before noon wind changed to S and at night heavy gale and rain (W S)
1803	12	27	Blowing hard with rain night after tempest of rain and wind (SEbyW)
1804	1	30	Heavy rain and great gale (SbyE)
1804	3	9	after a heavy gale and rain a soft wet day and afternoon (SbyW)
1804	3	25	Extremely heavy snow storm and gale of wind (NW)
1804	3	26	very constant snow and heavy gale day and evening (NE)
1804	7	8	Heavy clouds with rain - stormy night (S)
1804	7	9	overcast and stormy wind wild all day. a clear night (NW)
1804	10	4	Stormy with rain (SSE)
1805	1	3	blowing hard afternoon and heavy rain and gale of wind all day (S)
1805	1	6	blowing and rainy damp air heavy gale and rain at night (SW)
1805	1	19	very heavy gale and constant rain all day wind changed at 4pm (SbyE WSW)

1805	2	24	Violent gale in the night and heavy squalls all day (WbyS)
1805	2	28	Gale in the night. Heavy showers of hail and rain (NW)
1805	3	11	Overcast hazy day afternoon heavy gale and rain all evening (SbyE)
1805	12	21	Heavy gale all night a hazy day with rain. Clear sky at night (W)
1805	12	31	Heavy gale and rain (SW)
1806	1	6	very heavy gale in the night and hazy overcast day (W)
1806	1	7	A fair dry morning very heavy gale with rain all day (SW)
1806	1	10	dreadful gale all night with rain (SbyW)
1806	1	19	after a heavy gale calm morning fair day with small showers (WbyN)
1806	1	23	after a blowy wet night fair calm. Heavy gale and rain (SW)
1806	1	24	Heavy gale and rain all night fair morning but blowy (WbyN)
1806	6	6	Hard gale with showers and strong squalls. Fair in the evening (W NW)
1806	10	22	hazy and stormy with rain clear late (NW)
1806	11	2	Stormy, with much rain (SE)
1806	11	7	clouded morning and day - stormy and wet night (SW)
1806	11	19	clear morning stormy and wet day clouded evening - clear night (WSW)
1806	12	5	Stormy with rain (SW)
1806	12	13	Severe storm of wind and rain (NW)
1806	12	15	Fine and clear. Stormy and wet evening and night (W)
1806	12	16	Mostly good morning but stormy and wet afterwards. Clear evening (W)
1806	12	21	mostly clear day. wet stormy night (NW SW)
1806	12	22	Stormy and wet (SW)
1806	12	23	Stormy and clouded (W SW)
1807	8	13	Rain in the morning. Blowing day rather stormy. clear evening (SE)
1807	10	7	very clouded weather - stormy in the evening - heavy showers at night (SW)
1807	10	22	Clouded morning blowing day pretty clear evening. Heavy gale at (NW)
1807	12	28	hard gale and raining, cleared up but hazy (SW)
1808	1	14	violent gale of wind, calm at night (N)
1808	1	28	snow showers heavy gale (WbyS)
1808	10	8	Stormy, with showers (NW)
1808	10	13	overcast but fine. Much rain and very stormy at night (W SW)
1808	10	25	Stormy, with a great deal of rain (WSW)
1808	11	14	Fine gray weather - A stormy night with rain (WNW)
1808	11	15	very overcast but fair - A very stormy night, with rain (NW)
1808	11	16	Stormy, but fair - Flying clouds some slight showers. A clear interval in the evening (SW)

1808	11	29	very overcast. Wet and stormy evening and night (NW SW)
1808	12	1	A good deal of cloud and haze - A stormy and wet evening and night (WNW)
1809	1	4	overcast and stormy. A great fall of snow at night late (NE SE)
1809	1	14	Blowing and hazy cold wind all day at night gale of wind (E)
1809	2	15	Heavy rain then hazy afternoon at night gale of wind (SW)
1809	2	15	Hazy and stormy afternoon heavy rain at night gale of wind (SW)
1809	11	24	Blowing with clouds and slight showers. Rather stormy - clear night (W)
1809	12	6	Blowing with clouds and haze - very damp. stormy and wet night (SSW)
1809	12	8	Rather stormy (NW)
1809	12	14	Blowing with clouds - very stormy evening and night with rain and snow (S)
1809	12	28	Rain in the morning - hazy. Stormy night (NW)
1810	1	30	Fine clear morning. Clouded afternoon. Wet and stormy all night (W SW)
1810	2	12	Clouded with some slight rain. Wet and stormy night (SSE)
1810	2	22	A blowing overcast morning and day. A wet and stormy night (SSW)
1810	2	24	Rain in the morning clouded with some rain all day. Stormy night (SSW)
1810	3	24	Blowing overcast - hard gale at night (EbyS)
1810	3	25	Very heavy gale and rains all day and night (ESE)
1810	3	26	Blowing hard with rain and wind all day at night gale and heavy rain (SbyE)
1810	4	9	overcast morning heavy gale and rain (EbyS)
1810	10	22	Stormy, with heavy showers (S)
1810	11	14	Very stormy and wet (SSW)
1810	11	21	Heavy gale with rain, rain all day and night (EbyS)
1810	11	26	Heavy gale and rain, rain lashed all day calm night showery (SSE)
1810	12	20	Heavy gale with rain (S)
1810	12	21	heavy gale with rain. Violent gale and showers all day and evening (Lightning and meteor at night) (WbyS WbyN)
1811	1	10	Heavy gale and rain continued gale and rain damp overcast night calm (SbyE)
1811	1	12	Wet and stormy morning hazy and blowing day. At night heavy gale and rain (SSW S)
1811	1	15	Heavy gale with snow and sleet all day and evening - thunder in the south almost 2 miles (SW)
1811	1	16	morning thaw on the ground at night gale with sleet (SW)
1811	1	17	Heavy gale rain and thaw - fair evening (SW NW)
1811	1	20	gale of wind and rain - heavy gale and rain in the evening (S)

1811	2	17	Heavy snow and sleet high wind, heavy gale all the afternoon and evening (SE S)
1811	2	26	Heavy gale and heavy rain all night blowing hard at first (SSW)
1811	2	27	Heavy gale and violent rain all night and day (SW)
1811	3	3	Heavy gale and exceptional rain then hard squalls and some slight showers (WNN)
1811	10	10	Blowing and overcast. Stormy with some rain at night (SW)
1811	10	12	stormy and wet morning. Blowing day and evening etc but clear night (SW)
1811	10	31	Clouded morning Rain afternoon very wet and stormy evening and night. Cleared up before midnight (ESE SW)
1811	11	4	very fine and clear with a breeze. Very stormy at night with rain (W SW)
1811	11	15	Tempest of rain and wind - bitter day with squally wet night (W)
1811	12	1	Blowing hard and hazy hard gale at night (SW)
1811	12	4	Squalls, more showers snow and storm (NW)
1811	12	15	wet morning open day damp and overcast night wet and gale of wind (SW)
1811	12	16	Stormy afternoon a very bad night and rainy. Cold (W)
1812	1	27	Heavy gale and rain fair day wet night (WSW)
1812	1	28	wet and blowing a gale all day and night (SSW)
1812	1	29	very overcast and wet all day at night heavy gale (SbyW)
1812	1	31	very heavy gale and rain (SbyE)
1812	2	20	Blowing a gale and some rain afternoon. Bright night blowing fresh (SW)
1812	2	21	Tempest and rain (S)
1812	2	22	Cloudy and dry, blowing fresh wet night and gale of wind (W)
1812	2	25	Heavy gale and great rain (SW)
1812	3	21	Heavy gale and snow gale all day evening blowing hard with rain (EbyN)
1812	3	27	Heavy gale with rain all day and evening great fall of rain (SSE S)
1812	3	30	Heavy gale all night and rain cold day wet haze (E)
1812	3	31	Violent gale with rain all day and evening and night (E)
1812	4	26	heavy gale with sleety rain - afternoon fair but blowing and snow clouds (NNE)
1812	10	3	Blowing and hazy. Stormy and wet night (SW)
1812	10	18	Rain in the morning. Dry in day - a very wet and stormy night (SE SW)
1812	10	21	Fine, with some clouds. Stormy and wet night (W SW)
1812	10	22	Stormy, with heavy showers. A wet and stormy night (SW)
1812	10	31	Fine, with haze and a breeze. A wet and stormy night (W SW)
1812	11	16	A very wet morning. Clouded day wet and stormy night (NE)

1813	1	6	Stormy and wet (S)
1813	1	10	Clouded and hazy with some light rain - wet and stormy night (SW)
1813	2	8	Blowing and mostly raining. Stormy and wet bright later (SW)
1813	2	12	Very clouded. A very stormy and wet night (WNN)
1813	2	15	Clouded and blowing with rain afternoon. Stormy night (WSW)
1813	2	19	Blowing, with some rain. Stormy at night (SW)
1813	2	20	Blowing, but mostly fair. Wet and very stormy night (SW)
1813	2	21	Fine morning - very wet afternoon - very stormy night (SSE SSW)
1813	2	26	Stormy morning with some rain. Blowing day with flying clouds. Stormy night, with rains (SW)
1813	3	2	Hazy, with some showers. Stormy at night (SW)
1813	3	19	Blowing and clouded - stormy at night (W)
1813	3	21	Stormy and overcast with a good deal of rain (SSW)
1813	5	24	Wet and stormy (SW NW)
1813	6	11	Clouded with some rain. Wet and stormy evening and night (SW)
1813	11	9	Rather stormy, but clear mostly at night blowing hard - a gale (W)
1813	11	12	Heavy gale and rain in the past night bright windy and fair morning (W)
1813	11	17	Heavy gale last night and snow in the morning (NW)
1814	2	29	Heavy gale all night and rain (W)
1814	8	12	Clouded morning and day wet and stormy at night (SSE)
1814	10	10	Thick haze in the morning - Rain in the afternoon - A very wet and stormy night (variable)
1814	11	11	Blowing, wet and very overcast. Wet and stormy night (SW)
1814	12	3	damp overcast morning - stormy and wet evening and night (SSW)
1814	12	14	overcast morning then heavy rain at night gale of wind (SW)
1814	12	16	Stormy, with some showers. High wind all day and evening (SW)
1814	12	17	heavy gale and rain (SW)
1815	1	11	hard gale with rain in the night fair day (W)
1815	2	8	fresh gale and heavy rain all day at night cleared up
1815	2	25	Great rain heavy gale at (SW)
1815	3	8	Tempest in the night of wind and rain fair morning (W)
1815	3	23	very wet day fresh wind tempestuous day and fresh wind at night (WbyS)
1815	3	26	night cold in tempest and rain wet morning cleared about noon at night wind and rain (S)
1815	3	27	Tempestuous night of wind and rain. Blowing hard (WbyS)
1815	3	29	Blowing hard gale and heavy rain (SW)
1815	6	22	Blowing fresh flying clouds. heavy gale and clouds evening. No rain (W)

1815	9	25	Fair and blowing rain and stormy (SSW)
1815	10	13	very heavy rain and gale continued all forenoon and evening heavy gale (SSE)
1815	10	18	severe rain and gale storm of rain and wind cleared up in the evening (S W)
1815	10	23	cloudy afternoon. Tempest of wind and rain all night (S)
1815	10	26	Clouded and wet afternoon. Stormy and rainy night (SW)
1815	11	15	continued rain in the night then gale of wind SW and fair morning (SW NW)
1815	12	12	Fine, but overcast. Clouded and stormy at night rain at night (NW SW)
1815	12	15	Fair early. Showers with a gale snow later (SW)
1815	12	20	very heavy snow and drifting with high wind. Stormy in the evening clouded night (NE)
1816	1	6	Fine, but some clouds; blowing in the evening stormy at night (WNN)
1816	1	11	Stormy, with showers. clear later (WNN)
1816	1	16	Fine, with a good deal of haze - wet and stormy at night (WNN)
1816	2	24	Stormy morning with showers - cleared about noon (SW)
1816	2	25	Stormy before day - Blowing with hail showers - clear night (W)
1816	2	26	Muggy and afterwards clouded stormy night later (NW)
1816	2	27	Stormy morning showery foggy clear at night later (NW)
1816	3	4	Mostly clouded - A heavy hail shower afternoon. Stormy night with snow and sleet (W)
1816	3	6	Snow and sleet in the morning afterwards rain stormy clouded night (ESE)
1816	3	18	very stormy morning with showers of hail and sleet (SSW NW)
1816	3	19	Stormy morning more moderate day settled evening clouded night (NNW)
1816	5	16	Stormy, with rain - clearer at night (NE)
1816	10	23	Fine morning Blowing wind changed to SSE a storm (SSW)
1816	11	8	Hazy stormy evening with snow drift and rain (SW)
1816	11	9	Clouded and overcast with slight rain. stormy with showers in the evening (SSE NNE)
1816	11	11	Hazy morning stormy and wet days - stormy night (SW NW)
1816	12	5	Incessant rain and wind from 2 in the morning all day - stormy evening very wet night (SSE)
1816	12	26	Stormy morning haze and clouds snow showers intervals clear (SW)
1817	1	22	Blowing. Hazy. Storm at night (SW)
1817	1	23	Storm abated about 10h dark and cloudy night (SWbyW)
1817	2	8	Stormy and overcast. Heavy rain in the evening - A meteor towards the north (WSW)
1817	2	15	Fine morning afterwards stormy with showers. wet and stormy night (WNN)

1817	2	23	very overcast and a good deal of rain - stormy in the evening (SW)
1817	2	26	Blowing, with frequent showers. Rain and stormy at night (W)
1817	2	27	Storm of wind rain and hail. Thunder from 3 until 4 am with showers all day clouded evening (NW)
1817	2	28	Blowing and overcast wet and stormy night (NW)
1817	3	3	Trees blown out of their roots in the evening of this day. Stormy - with showers of rain, snow and hail. Thunder and lightning about 6pm in the SSE - distant (W NW)
1817	3	4	Showery all night. Stormy, with snow and rain (SW)
1817	8	30	Clouded - wet and stormy (SE)
1817	8	31	Wet and stormy (SE to SW)
1817	9	26	Stormy, with showers very high wind (SSW)
1817	10	29	Fine, but clouds and a breeze. Stormy and wet at night (WSW)
1817	10	31	Blowing with some clouds and showers clear but stormy night (WSW)
1817	11	10	Blowing and hazy - stormy and wet after midnight (SSW)
1817	11	12	very wet morning - Blowing and clouded wet evening and stormy night (SSE)
1817	11	28	Stormy, with haze. Slight rain in the afternoon (SW)
1817	12	7	Fair, but clouded - very heavy rain at night - stormy (SSW)
1818	1	12	Blowing, with cloud and haze. very stormy evening and night (SSW)
1818	1	14	wind, clouds, haze and heavy showers very stormy and wet throughout the night (SW)
1818	1	15	wind and thick haze stormy with showers at night (W NW)
1818	1	20	Blowing and overcast with wet damp. Stormy and wet throughout the night (SW)
1818	1	22	Very wet and stormy (SW)
1818	2	4	very overcast with snow showers and sleet, heavy rain and stormy at night (SE)
1818	2	23	Blowing, with some rain stormy in the evening A considerable fall of snow (SW)
1818	2	24	Blowing and hazy - very wet afternoon - stormy night (NNW SW)
1818	2	28	very wet morning. Blowing with some rain all day - Stormy night floods (NW)
1818	3	3	Remarkable stormy and wet. Much lightning at night (SW)
1818	3	21	Blowing with some hail showers very wet and stormy late at night (WNNW)
1818	4	8	Stormy, with snow, sleet and rain nearly constant for 24 hours. Great floods (NW)
1818	10	2	Morning very clear. day clouded very hard gale at night (SSE)
1818	10	12	Blowing, but fair and pretty clear night and early morning. Storm and rain (SW)
1818	12	2	Blowing and clouded very wet and stormy in night (WNNW SW)

1818	12	6	overcast, with some rain wet and stormy night (SW)
1819	1	8	Fine, with some clouds and haze, much rain at night, wind changed to S - a storm (NE)
1819	1	10	Night very wet, cloudy day with rain. Rain and storm last night (SSW)
1819	1	14	Very rainy and stormy night and morning, evening and night clear (WSW to WNW)
1819	1	20	Morning clear - afterwards very overcast Storm and rain (WNW)
1819	1	22	Rain and storm afternoon clear heavy shower in the evening (SW)
1819	2	6	clear morning then hazy and afterwards very wet and stormy (SW)
1819	2	21	Floods. Very wet and stormy morning and day - fair evening and night (NW)
1819	2	24	Stormy, with some sleet (NNE)
1819	3	26	smart gales of wind a good deal of rain (SW)
1819	3	29	stormy and showery (WSW)
1819	9	4	very smart gale with slight rain. wet evening (SW)
1819	10	9	Stormy - with a good deal of rain (SE)
1819	11	29	Fine, with some clouds and very damp. clear afternoon haze at night. This night late there was storm with distant thunder and lightning (SW)
1819	12	3	Fine and clear - clouded evening very wet and stormy night (SW)
1819	12	15	some showers of sleet - clouded. Very stormy and wet night (WSW)
1819	12	16	Remarkably stormy morning - heavy rain - great floods - heavy showers at night (SW)
1820	1	22	Light haze and blowing wind - overcast and stormy, late much rain with lightning about 5 in the morning (S)
1820	1	26	Damp, overcast and blowing lightning and stormy before night (some snow still remaining snow blowing out of the observatory grounds (W)
1820	3	10	Rather stormy. And mostly clouded (SSE SW)
1820	3	11	Rather stormy. And mostly clouded (SSW)
1820	8	9	Showers and a smart gale later clearer evening and night (WNW)
1820	10	14	Overcast and blowing with showers Stormy later and before morning (ESE)
1820	10	15	Blowing with some rain. Very stormy during the night (SW)
1820	10	22	some showers and a smart gale (SW)
1821	1	30	Rain in the morning - stormy and clouded. much rain at night (SSW)
1821	3	23	Blowing and hazy. Wet and stormy at night (WNW)
1821	3	30	Fine morning blowing day Wet and stormy night (SW)
1821	4	1	Blowing, with clouds - A very wet evening - stormy night (WNW)
1821	5	7	very wet morning and day - stormy and wet night (SE)
1821	5	8	very fine morning clouds and showers throughout the day and evening. Stormy and wet at night (SW)

1821	9	4	Showery - wet and stormy night (S)
1821	9	5	Blowing - wet and stormy night (SW)
1821	9	29	Stormy with showers (SW)
1821	10	21	Rather stormy with flying clouds and some showers (SSW)
1821	10	26	Fine, but clouded with a breeze. Stormy and overcast at night (WNN)
1821	11	2	Stormy and wet more settled at night (SW)
1821	11	15	Very wet. Stormy and wet night (SW SSW)
1821	11	30	Haze and drizzle - A very remarkably wet and stormy night Trees blown out of roots in several places. (Thunder distant) (SW NW)
1821	12	7	Stormy night, morning incessant rain during more than 12 hours (SW)
1821	12	12	wet evening and night - Stormy and very much and constant rain (SW)
1821	12	17	Fine night and smart winds. Stormy and wet night (SW)
1822	2	1	clouded and rather stormy, stormy and wet evening and night (W)
1822	2	2	very stormy and wet (SW)
1822	2	6	Stormy and hazy - wet and very stormy night (SSW and SSE)
1822	2	16	Fine morning. Stormy afternoon. Rain from 10am until 4pm clouded night (SE)
1822	2	19	Haze, clouds and a breeze. Stormy with rain at night (W)
1822	3	5	Hazy - wet evening very stormy and wet night (WNN)
1822	3	8	Stormy with heavy showers - Rain and sleet with some hail (WSW NW)
1822	3	9	wet morning - overcast day stormy night hail showers (W)
1822	3	10	Trees blown out of roots about noon - very stormy (NW)
1822	4	22	Stormy and showery with some hail (SW)
1822	5	10	Showery, but not too heavy. Stormy and wet evening and night 9NE)
1822	5	11	Very stormy and wet morning blowing day (NE)
1822	5	30	Clouds, haze and a breeze. Stormy in the evening and some slight rain (W)
1822	9	11	Stormy, with some showers (SW NW)
1822	10	7	Stormy with some rain (SW)
1822	10	8	Rather stormy (SW)
1822	11	1	Stormy - wet evening and night (SW)
1822	11	2	Stormy. more settled at night (NW)
1822	11	14	Wet and stormy morning later damp, wet and stormy night (W)
1822	11	23	Stormy with showers - Very wet evening and night (SW)
1822	11	24	Tolerable morning and day very wet and stormy night (S)
1822	12	1	Tolerable day - stormy night with rain and snow (SW)
1822	12	5	Blowing with rain and snow. A very wet and stormy evening and night. Trees torn out of root about 10pm - great damage done in Dublin and Liverpool. Calmed after mid-night (W SE NW)

1823	2	11	Snow rapidly melting. Floods stormy and wet evening and night (SW)
1823	3	3	Wet - stormy at night with showers of sleet (SW NW)
1823	5	13	Stormy, and slight showers (WNW)
1823	9	29	wet and stormy night (SW)
1823	12	3	Showery and hazy. A very wet and stormy night - rain, sleet and snow (SW)
1823	12	31	Fair, but mostly clouded very stormy night (SE)
1824	1	1	Very stormy, with some showers (SSE)
1824	2	12	Clouded with a breeze. Stormy with some rain (W)
1824	3	3	Very stormy morning with showers of hail and sleet. clearer evening and night (NW)
1824	3	6	Cloudy, haze and a breeze - stormy night (E WNW)
1824	4	27	Stormy and very wet with some distant thunder (SW)
1824	6	14	Cloudy, haze and a breeze - wet evening and night. rather stormy (NE)
1824	9	6	Rain in the morning clouds and a breeze. wet and stormy before daylight (NE)
1824	9	7	Rain in the morning clouds and a breeze. wet and stormy before daylight, but slight rain in the morning clouded night (WNW)
1824	9	13	Blowing and hazy - wet and stormy from midnight until 3am (WNW SW)
1824	11	13	Blowing, wet, damp and dark with a stormy night (W0)
1824	11	16	Wet early - stormy day (WSW)
1824	11	22	wet and stormy after midnight (WNW)
1824	11	23	very wet and stormy before day. Floods clouded and blowing (NW)
1824	12	22	wet and stormy morning showery blowing. clear evening (NNW)
1824	12	25	wet and stormy very damp (W)
1824	12	29	snow in the morning, hazy with a breeze very stormy and wet at night (WNW)
1824	12	30	Mostly clouded - stormy at night (W)
1824	12	31	Blowing and clouded - stormy at night (W)
1825	1	1	overcast and then wet - stormy with showers (W)
1825	1	17	Bright morning - then light haze. very stormy night, and a large quantity of rain (W WSW)
1825	1	24	Clouded, with a breeze - stormy and wet night (WNW)
1825	1	26	Fine but mostly overcast, but very stormy and wet at night (W SW)
1825	2	2	Stormy and wet, with rain and snow (WSW)
1825	2	28	Showery, with hail. stormy and wet towards morning (W)
1825	3	1	stormy and wet morning blowing and hazy day wet and clouded evening and night (SW)
1825	3	17	Blowing, with some rain very wet evening and stormy until near midnight (SSE)
1833	4	3	Severe gale
1833	12	30	Gale of wind
1836	1	13	Gale and rain
1836	1	20	Gale

1836	1	21	Tremendous gale and rain
1836	1	26	Gale and rain
1836	2	29	Gale
1836	9	2	Rain all day and gale
1837	2	17	A tempest, much rain but it cannot find its way into the gauge
1837	11	22	Stormy a tremendous gale
1838	1	20	Gale of wind and thaw
1838	2	15	Gale from E
1838	2	16	Maximum temperature 15 degrees Celsius but is this evaporation of the snow. Gale and snow
1838	3	4	a fierce gale
1838	4	14	a tremendous gale from the NE
1838	9	21	Raining much and gale
1838	11	26	a gale from ESE
1838	12	1	a furious gale and rain
1839	1	6	a tremendous gale in the night
1839	1	12	a hard gale in the night
1839	2	7	but much more rain must have followed. Gale
1839	2	13	a hard gale in the night
1839	3	10	Snow in the evening and gale then rain
1839	3	30	Hard gale and rain, much more rain must have fallen
1839	7	18	Gale of wind
1839	9	24	Gale of wind
1839	10	7	0.0060 None in the other. Gale in night
1839	11	23	a gale NW
1839	12	30	Gale
1840	1	1	Strong gale from SW
1840	1	11	Strong gale
1840	1	12	gale increasing
1840	1	15	Strong gale
1840	1	20	tremendous gale
1840	1	23	very strong gale
1840	2	6-7	a furious gale which continued most of the day
1840	4	5	A gale of wind
1840	4	10	a gale
1840	6	7	a violent gale from SE
1840	8	9	Gale and rain
1840	9	15	A gale
1840	11	28	A hard gale of wind in the night
1840	12	6	A hard gale of wind
1840	12	9	The globe has been torn with the gale from W from its base and some water lost, mended on the 11th
1841	1	2	a strong gale
1841	1	15	a furious gale
1841	3	17	a fierce gale
1841	3	18	a fierce gale
1841	3	19	heavy hail, gale
1841	3	20	gale (General comment on page - for all the times I can remember such furious weather)

1841	4	22	Gale
1841	6	19	Gale from SSE
1842	1	11	A gale of exceptional fury
1842	1	25	A fearful gale.
			Additional note entitled 'Gale of January 25th 1842'
			The Barometer was at
			20h 51m Bar 28.233 Attached Thermometer 40.8
			21h 17m 28.184 40.8
			22h 00m 28.156 40.8
			Sun shone and the wind which was at first EES as
			shown by a fallen tree but at 20h 51m was SE veered
			to the westward and recommenced though perhaps less
			violently ending NW.
			23h 30m Bar 28.161 Attached Thermometer 41
1842	2	26	a heavy gale
1842	3	6	a heavy gale
1842	4	26	a gale
1842	6	28	a gale of wind
1842	10	22	a fearful gale and rain
1842	11	8	a severe gale
1842	12	1	a heavy gale
1842	12	14	hard gale
1842	12	30	Hard gale
1843	1	9	Hard gale
1843	6	8	a gale
1843	10	5	Gale of wind
1843	10	6	Gale of wind
1843	10	7	Fresh gale
1843	10	11	Strong gale
1843	11	24	heaving gale
1843	12	14	Strong gale at 12
1843	12	21	heaving, whole gale
1844	2	24	Gale in the night
1844	6	8	a gale at noon
1844	6	12	raining - a gale at midnight
1845	1	10	the gale ceased suddenly
1845	1	25	Wind 11 in night
1845	3	30	Wind at 2pm 10 from SW, at 3pm WbyS 10, at 4pm W 10, at 6pm WbyN 9
1846	1	24	the gale began at 8
1846	1	30	a heavy gale
1846	3	2	a tremendous gale in night, my wind gauge and round rain gauge blown down about 2 am. a gale in night the round gauge blown off
1846	3	15	a hard gale
1846	8	11	a storm of wind and rain in the night
1846	10	13	a tremendous gale but short during the night
1847	1	14	A heavy gale in the night
1847	1	24	a heavy gale

1848	3	22	a gale in the night
1848	12	15	a very heavy gale during day
1848	12	18	vane of anemometer broken by the gale
1850	11	23	a terrible gale at 3pm above 12
1851	1	16	tremendous gale. gale continued
1851	3	25	It blew 10 during the day
1852	12	29	violent storm all day
1853	4	6	Storm during night
1855	12	21	Bar heaving hail falling. Very violent gale during the night (from hourly)
1858	4	5	veering much: a hard gale
1859	3	11	a very heavy gale
1859	3	12	Force up to 11 and squally
1860	12	29	a heavy gale since morning
1861	2	14	A fresh gale
1861	2	20	heavy gales
1861	3	5	a very heavy gale
1861	3	7	A hard gale. Barometer heaving
1861	3	17	a heavy gale
1861	12	11	rain. A gale
1862	1	16	a gale
1862	1	27	A heavy gale
1862	7	24	blowing a gale
1863	1	23	singularly stormy forms
1863	4	5	a very heavy gale
1864	7	31	a spot intensely bright and big, haze a furious gale for 6 hours from 8am to 2pm. Aurora at night.
1864	10	22	heavy gale
1864	11	29	heavy and beating rain. Storm
1865	12	30	violent storm - at 11.30 barometer 28.530
1866	4	15	stormy showers all day
1866	4	16	stormy showers all day
1866	9	25	gale in night and beginning at 7am
1866	12	6	a fearful gale
1867	4	29	a heavy gale
1867	10	26	a very heavy gale
1868	11	3	heavy gale barometer heaving blowing a furious gale
1870	12	14	stormy

1871	1	15	very stormy
1871	2	3	stormy
1871	2	5	stormy
1871	9	30	stormy
1872	10	22	very stormy
1872	10	31	very stormy. Thunder at 7 o'clock
1873	7	29	stormy
1875	3	8	stormy
1876	3	6	stormy showers all day. Snow early
1877	3	25	Downpour and storm all day
1877	4	15	blustery. Storm and rain all day
1881	11	26	heavy gale and heaving gusts and showers
1882	10	1	heavy gale throughout the day wind blew and rainfall from SSE, several trees were blown down in the observatory grounds wind 48 miles at 5 pm. S M.J.
1884	1	26	Snow and sleet. Heavy gale from SW, velocity 67 mph at 5pm. Barometer read 27.768 at 6pm
1884	2	21	Stormy night
1884	10	25	Very stormy
1884	10	30	Very stormy
1885	2	21	Very stormy day
1885	9	30	Wind S, Force 6* from 3 to 5am
1886	3	9	Very stormy day
1886	3	30	Stormy afternoon, 45 mph at 3.30pm. Splendid aurora 9pm
1886	4	7	Very stormy day
1886	12	8	Great storm. Uncorrected 10.35 27.540 39.8, 12.35 27.238 39.7, 2.35 27.394 39.7
1888	10	26	Very stormy am
1888	11	10	Very stormy morning
1888	11	16	Wind 60 mph between 8 and 9am
1889	10	7	Great storm night and early morning
1890	1	5	Gale during night and early morning. Very stormy day
1890	1	14	Great gale in the afternoon
1890	1	18	Great gale night 17th-18th
1890	1	19	Great gale night 18th-19th
1890	1	25	Stormy morning. Very stormy day
1891	1	31	Gale from midnight until 9am
1891	9	25	Very stormy evening
1891	9	26	Very stormy morning
1891	10	5	Strong gale

1891	10	13	Strong gale. Barometer incorrect at 4pm 27.920. Maximum velocity of wind 46 mph, 6-7pm
1891	12	10	Very stormy
1892	2	1	Very stormy morning
1892	9	15	Strong gale
1892	10	26	Strong gale, evening and night
1893	2	8	Velocity of wind 39 miles at midnight 7th-8th
1893	2	10	Very stormy morning
1893	7	21	Very stormy, wind 35 mph 10am
1893	11	18	Stormy
1893	12	7	Very stormy night
1894	1	10	Wind 39 mph 4-5am
1894	1	13	Wind 40 mph 0-5am
1894	1	20	Wind 39 mph 0-3am
1894	2	7	Wind 40 mph 8am
1894	2	11	Wind 40 mph in the afternoon
1894	2	23	Wind 40 mph 2pm
1894	3	11	Wind 45 mph 1-2am
1894	12	22	Great hurricane early morning. Velocity of wind 48 mph at 1am
1895	11	6	Very stormy night and early morning
1895	11	10	Very stormy evening
1896	10	8	Very stormy morning. Stormy day
1897	2	20	Stormy evening
1897	3	2	Stormy until 3.30pm
1898	12	27	Stormy morning
1899	1	12	Stormy morning
1899	3	28	Very stormy and squally afternoon
1900	1	19	Stormy morning
1900	2	23	Very stormy day
1900	12	20	Great storm (maximum velocity 53 miles 8pm)
1901	9	8	Very stormy morning
1901	11	12	Very stormy day
1902	10	15	Very stormy morning
1902	12	16	Very stormy night (15-16)
1903	2	27	Great storm early morning
1908	2	22	Stormy day
1908	12	28	Snow and sleet from 10am, gale in evening, wind 40 mph
1909	4	3	Very stormy night and morning
1909	4	22	Very stormy day
1909	10	7	Stormy and squally

1909	10	14	Stormy day, showers
1910	1	9	Stormy day, some squalls
1910	2	19	Stormy and showery
1910	2	20	Stormy and showery
1910	10	31	Very stormy
1910	11	6	Squally and stormy
1911	2	16	Overcast, stormy
1911	2	23	Squally and stormy
1911	4	18	Stormy and showery
1911	4	19	Stormy and showery
1911	10	30	Stormy and squally
1911	11	5	Stormy, showery
1911	11	14	Stormy, damp
1911	12	1	Stormy morning, rain pm
1912	2	28	Overcast stormy evening
1912	10	27	Fine, rather stormy
1912	11	10	Showers am stormy
1912	11	26	Very stormy till 2pm
1912	12	13	Stormy, overcast
1912	12	19	Overcast, stormy, mild
1912	12	24	Heavy showers, stormy
1913	1	3	Fine am stormy evening
1913	1	9	Very stormy; drizzle pm
1913	1	11	Overcast after very stormy and rainy night
1913	2	7	Squally and stormy
1913	3	5	Stormy, some showers
1913	11	18	Very stormy; a few showers
1913	11	19	Fine am, overcast and stormy pm
1913	11	23	Overcast, stormy
1914	11	10	Very fine day, stormy evening
1914	12	2	Stormy and showers
1914	12	3	Fine am, stormy 3-5pm
1914	12	6	Very stormy and squally 1-4pm
1914	12	7	Fine but rather stormy
1914	12	8	Rain from 1pm, stormy
1915	1	1	Stormy and showery
1915	2	5	Fine an, stormy and squally pm
1915	2	16	Rain and storm in the evening
1915	10	27	Overcast, stormy and squally from 5pm
1915	11	12	Stormy, sleet and rain
1915	12	29	Overcast, showers, stormy evening
1915	12	30	Fine day, stormy evening
1916	1	19	Stormy and squally
1916	1	23	Overcast, stormy evening
1916	1	29	Overcast, stormy
1917	10	24	Wet stormy day, overcast

1918	10	6	Fine day, stormy, few hail showers
1918	11	2	Clearing after stormy night, changeable and squally evening
1918	11	7	Overcast, blustering some rain, violent storm and rain
1918	12	7	Fine morning, windy, cloudy - afternoon, evening wet and stormy
1918	12	17	Cold clear morning, wet and stormy evening and night
1919	1	1	Dull after stormy night
1919	9	4	Clearing, very wet and stormy early morning
1919	12	5	Wet and stormy
1919	12	10	Stormy and wet
1919	12	13	Violent gale, and squalls afternoon to dark
1919	12	14	Gale blowing, overcast, threatening
1919	12	26	Stormy and wet all day
1920	1	8	Fine but dull after gale during night
1920	1	26	Fine, cold, after gale
1920	1	27	Whole gale all day. Violent rain squalls
1920	1	31	Overcast rain squalls. Fine afternoon. Gale at night flying wind squalls
1920	5	18	Very wet and stormy all day
1920	10	3	Wet and stormy all day
1920	10	30	Fine afternoon, wet and stormy night
1920	11	14	Very wet afternoon. Stormy night
1920	11	30	Wet and stormy afternoon
1920	12	3	Gale early. Squally, showery, morning
1921	1	17	Gale early. Dull morning.
1921	1	21	Fine breezy day. Gale, night flying spurts of drizzle
1921	3	15	Gale blowing, mild, slight showers
1921	3	16	Gale early. Fine bright morning, strong breeze
1921	12	30	Stormy wet morning. Barometer 11h 29.3923 corrected
1922	1	15	Cold stormy and wet
1922	1	18	Storm and rain early. Bright morning
1922	4	15	Overcast morning, Very wet afternoon. Cold stormy night
1922	12	25	Gale, squally showers
1923	2	5	Squally showers afternoon. Wild stormy night. Gusts of rain
1923	2	6	Heavy rain and storm early. Wet morning
1923	2	9	Very wet - wild and stormy night
1923	12	7	Wet and stormy
1924	12	4	Gale and rain
1924	12	13	Gale and rain early
1924	12	26	Cloudy threatening afternoon. Gale and rain night
1924	12	27	Gale and rain early. Bright morning
1924	12	29	Stormy and wet afternoon and night
1925	1	1	Gale and rain. Gale and rain all day. Lightning at night

1925	1	2	Gale and rain. Violent hail and sleet showers. Gale all day. Lightning at night
1925	1	13	Violent gale and rain afternoon and night
1925	1	14	Gale and some rain early, fine morning
1925	1	29	Wind and rain. Gale early. Showers forenoon
1925	2	8	Gale and rain afternoon. Squally evening later
1925	2	10	Gale and rain noon. Less wind afternoon, wet
1925	2	22	Bright day. Strong gale and rain at night
1925	2	24	Gale and rain
1926	1	26	Gale. Wild wet afternoon. Driving drizzle night
1926	11	5	Gale early. Heavy squalls. Barometer 7h 28.280 inches
1927	1	27	Snow showers afternoon. Gale at night
1927	1	28	Violent gale. Rain squalls. Violent gale. Much damage. Sunshine ball disintegrated by lightning
1928	1	1	Gale and rain afternoon
1928	1	6	Gale and rain early. Squally
1928	1	10	Gale early. Rain squalls
1928	1	12	Gale and driving rain
1928	1	21	Gale and rain
1928	1	25	Storm and rain afternoon. Hail showers at night
1928	1	31	Gale and rain afternoon
1928	2	8	Gale all day. Rain at night
1928	2	10	Storm and rain. Fierce hailstorm 9.5h (line squall?). Violent snow squalls afternoon. Snow lying. Fierce gale at night. Much lightning
1928	2	11	Storm, rain and sleet all night
1928	2	15	Rain early. Gale blowing. Very warm. Gale all day. Dry
1928	8	7	warm, stormy
1928	10	20	Gale early. Barometer 28.22 (uncorrected) midnight
1928	11	22	Wet and stormy
1928	11	23	Wet and stormy. Gale and rain. Heavy squalls afternoon, moderating at night
1928	12	25	Gale of wind and rain. Strong wind, dry 21h
1929	11	11	Gale and rain
1929	11	25	Gale midnight. Fine morning
1929	12	2	Gale and rain early. Clearing 11h
1929	12	5	Gale and rain early
1929	12	6	Sunny. Gale moderated
1929	12	11	Gale. Violent squalls
1929	12	13	Very wild. Gale forenoon
1929	12	20	Cold, windy. Gale later
1929	12	24	Bright until 13h. Violent gale and rain night
1929	12	25	Violent gale and rain all night. Gale and heavy rain squalls all day
1930	1	5	Gale all night. Clouds on hills
1930	1	7	Gale blowing. Dry, warm
1930	3	28	High wind, dry. Gale 11h
1930	12	27	Wild squally. Rain and gale early. Gale forenoon. Wild squalls all day. Heavy gale forenoon

1931	2	11	Stormy and wet. Gale 10h
1931	3	29	Wet, cold and stormy
1931	12	3	Gale and rain early. Heavy squalls
1932	1	4	Gale and rain afternoon. Cold clear night
1932	1	5	Gale. Driving drizzle
1932	1	13	Gale. Rain squalls. Gusty
1932	1	14	Gale blowing. Gusty, cold. Wild gale all day. Hail squalls. Very wet night
1932	1	15	Gale and rain afternoon. Warm
1932	12	2	Wet and windy, gale early. Bright evening
1932	12	16	Gale and rain early
1932	12	17	Gale and rain. Very wet day. Gale forenoon
1932	12	31	Very wet and stormy afternoon
1933	1	2	Gale and rain. Wild gale and rain all day
1933	3	22	High wind or gale all day. Very dry air
1934	1	6	Overcast dull. Windy, mild. Gale from 5-7h
1934	1	7	Fine. Overcast. Strong breeze blowing. Gale early. Heavy rain 11h
1934	1	17	Overcast dull morning. Stormy. Mild
1934	5	6	Cold wet day. bright 14h - 18h. Hail shower 17h. Cloudy night. Gale and fierce squalls afternoon.
1934	5	7	Stormy during the night. Fairly bright morning
1934	12	8	Some heavy squalls during day. One or two bright periods. Stormy wet night
1934	12	25	Raining most of day. Some squalls. Wet, stormy night
1934	12	28	Stormy and wet early. Dull morning
1935	1	11	Gale blowing. Raining at 9h. Dull and wet
1935	2	16	Stormy and wet morning and afternoon, clearing 14h. Bright evening. Fine night
1935	2	19	Raining 6-8h. Overcast dull morning. Gale 4-5h
1935	2	27	Heavy rain and stormy early. Fine, fairly bright morning
1935	10	18	Gale and heavy rain squalls afternoon
1935	11	2	Stormy early. Very heavy rain 8-9h
1935	11	3	Stormy morning. Shower at observation. Warmer
1935	11	12	Fine, fairly bright morning. Stormy and wet early. Squalls
1935	11	26	Stormy night. Rain 0-5h. Fine morning
1935	11	28	Stormy during night. Squalls. Heavy rain. Cloudy morning
1936	1	5	Very wet afternoon and evening. Stormy night
1936	1	6	Stormy and wet all night and early morning. Dull drizzle observation
1936	1	9	Very wet day. Stormy wild night
1936	1	10	Very stormy all night. Cloudy dull morning
1936	1	27	Stormy and wet early. Overcast morning. Breezy
1936	2	6	Stormy night. Squalls morning. Dull overcast
1936	2	7	Stormy and wet early. Dull morning. Windy
1936	2	10	Cloudy afternoon. Very stormy. Very windy night. Cold

1936	4	23	Stormy, cold and wet day. Dull night
1936	5	14	Mostly cloudy after 9h. some bright intervals afternoon. Rain evening. Rather stormy night
1936	7	23	Two or three bright periods afternoon. Very heavy shower 14.5h. Squalls. Stormy night
1936	9	7	Rain early. Stormy morning. Wet stormy afternoon. Windy night. Raining
1936	9	11	Cloudy day. Becoming rather stormy in the evening. Rain and wind observation
1936	10	24	Very wet and stormy day
1936	12	13	Becoming windy. Stormy, very wet afternoon. Raining at night. Warmer. Gale 18-20h
1936	12	15	Bright forenoon, becoming overcast 12h. Rain 17.5h. Windy later. Very stormy night. Gale 19-21h
1936	12	16	Stormy and wild all night. Breezy morning. Fine, cold
1936	12	17	Heavy rain observation. Squally. Gale at morning observation. Dull day. Some smart showers mid-day. Stormy evening. Windy night
1936	12	19	Dull day. Becoming very stormy late evening. Gale 21- 22h and 23-24h
1936	12	20	Very stormy all night. Windy, wild morning. Gale 1- 2h, 4-5h, 10-11h
1937	1	2	Overcast, showery day. Rather stormy at times. Cloudy night
1937	1	11	Fine, mostly overcast, breezy day. Dull gloomy night - stormy
1937	1	15	Dull, windy day. Commencing to rain 15h. Stormy and wet evening. Squalls
1937	1	20	Rain 12-20h. Squalls. Stormy, wet afternoon and evening. Cloudy night. Gale 17-18h
1937	1	21	Bright until 13h. Dull afternoon, becoming windy. Heavy rain 18h. Very stormy night
1937	1	22	Very stormy morning. Heavy rain 8h. Dull
1937	1	24	Very dull, stormy morning. Driving rain. Gale 9-10h Very wet, stormy nasty forenoon. Rain clearing off 15h. Cloudy later. Fine night
1937	2	4	Fairly bright day. Stormy forenoon and part of afternoon. Fine night, misty
1937	2	15	Dull morning. Rain 13h. Wet afternoon. Rather stormy evening. Breezy night
1937	2	16	Cloudy morning. Bright afternoon. Rain evening - heavy 19-20h. Drizzle night, stormy
1937	2	25	Very wet and stormy all day. Dull wet night
1937	12	20	Dull day. Rain evening. Stormy night
1937	12	23	Dull day. Rain 19.5h. Stormy wet night
1938	1	12	Dull day. Very stormy night
1938	1	13	Stormy early. Fine. Windy morning
1938	1	15	Very stormy and wet early morning. Dull. Squalls
1938	1	22	Overcast day. Dull night. Very stormy
1938	1	24	Stormy and rain early. Squalls early
1938	1	25	Very stormy and wet early
1938	1	28	Overcast day. Becoming windy. Very stormy night. Driving rain observation
1938	1	29	Very stormy and wet early. Windy morning

1938	2	1	Stormy and wet early. Thunderstorm 5h. Windy. Fairly stormy day. Several showers. Breezy night
1938	2	28	Stormy morning. Overcast, squally observation Dull day. Quite stormy at night
1938	3	3	Quite stormy morning. Cloudy. Cold wind
1938	3	16	Stormy, some rain early. Driving drizzle observation
1938	3	18	Breezy day. Bright periods afternoon. Dull night. Stormy
1938	3	19	Stormy, rainy morning. Dull and drizzle at observation. Windy
1938	6	7	Stormy. Bright periods
1938	6	8	Bright periods. Somewhat stormy
1938	6	27	Bright and warm intervals. Windy. Estimated gale force. Stormy day. Bright intervals and showers. Overcast night. Windy. Cooler
1938	9	16	Overcast day - some showers. Stormy, dull night
1938	9	22	Dull, windy day. Stormy night. Wind blowing gale force at times
1938	10	3	Nasty, wild, stormy wet day. Wind at gale force at times. Stormy night
1938	10	4	Stormy, wet morning. Smart showers observation. Windy. Cold
1938	10	7	Very stormy and wet early. Wind at gale force 1-3h. Fine morning
1938	10	31	Dull day. Commencing drizzle 21h. Stormy night. Heavy rain later
1938	12	15	Stormy, wet day. Gale during day. Wild night
1939	3	2	Showers. Windy day. Stormy night. Drizzle
1939	7	7	Showery day. Stormy periods. Bright intervals. Cloudy night
1940	9	17	Stormy day. Bright periods: occasional rain: cloudy night: breezy
1940	10	5	Showery day: clear windy night, observation. Very stormy later
1940	12	6	Stormy early. Thunderstorm 2.20h GMT. Breezy morning: Clearing
1940	12	16	Dull drizzling morning: stormy
1941	1	19	Snowing early forenoon. Cloudy to overcast day. Overcast stormy night
1941	2	26	Cloudy day: bright periods, clouds 400ft at 15.5h GMT Showery since 16h. Stormy overcast night
1941	4	23	Stormy overcast morning, cold
1941	6	15	Overcast dull stormy morning
1941	8	13	Overcast wet stormy morning
1941	10	17	Dull rainy stormy morning
1941	10	18	Stormy damp morning
1941	10	19	Overcast damp stormy morning
1941	11	9	Stormy wet overcast morning. Wild stormy day and night
1941	11	10	Mostly overcast stormy day, wet dark windy night
1941	11	22	Wild stormy morning after clear night.
1941	11	24	Dull wet day stormy, rainy night
1941	11	26	Windy dull day, stormy night

1941	12	10	Overcast day, stormy night
1941	12	11	Mostly dull day, cloudy stormy night
1942	1	15	Cold, windy day; cold stormy night heavy rain and hail
1942	5	23	Cloudy night, stormy rainy morning. Stormy rainy day, clearing slightly 18h
1942	9	3	Warm sunny stormy day, cool breezy night
1942	9	4	Stormy cool sunny morning
1942	12	9	High wind: intermittent rain: very gusty. Stormy night. Aurora seen 20h
1942	12	10	Wild stormy night and morning
1943	1	11	Stormy night and morning with continuous slight - moderate rain
1943	2	5	Overcast day with rain and drizzle. Stormy night with slight rain
1943	2	8	Overcast morning: stormy rainy afternoon until 20h. Dull overcast night
1943	4	25	Cloudy overcast stormy night. Cloudy stormy morning Wild stormy day: Sunny intervals: Heavy showers. Gale at observation
1943	4	26	Stormy night. Fresh morning with bright periods: Showery Stormy day. Sunny periods; showers. Fresh night
1943	5	8	Continuous rain to 17h. Stormy day and night. Slight rain at observation
1943	9	4	Intermittent rain. Overcast day and night. Windy. Gale force
1943	9	5	Very wild stormy night stormy morning
1943	10	5	Overcast wild stormy night and morning with rain and drizzle. Very wild stormy rainy day and night
1943	10	6	Stormy night and morning cool overcast with rain
1943	10	16	Very stormy rainy morning. Afternoon quiet. Night cloudy
1943	10	21	Rainy night. Cold stormy morning
1943	10	28	Night stormy. Morning stormy with slight drizzle
1943	10	30	stormy afternoon, continued moderate rain from 5pm
1943	10	31	Stormy rainy night. Overcast dull morning
1943	11	12	Stormy night and cloudy windy morning
1943	11	23	Windy rainy day. Stormy night
1943	12	17	Wild stormy night and morning. Occasional rain
1943	12	18	Wild stormy day and night with showers of rain
1944	1	5	Mainly cold windy day: overcast stormy night
1944	1	20	Cloudy/ overcast afternoon. Rainy stormy night
1944	1	24	Stormy rainy morning
1944	10	17	cloudy, evening 16h the gale
1944	10	18	Fine to fair morning, stormy night
1944	10	20	stormy continued all night. Fair morning. Calm
1944	11	4	Fair to cloudy night: 7h stormy with rain
1944	11	7	Wild stormy rainy night and morning
1944	11	27	Cloudy early; 13h. Wild stormy squalls
1944	12	1	rainy stormy day and night
1944	12	3	stormy rainy night and morning Cloudy to overcast stormy rainy day and night

1944	12	14	Overcast stormy night; squalls with rain
1944	12	17	rain to 1.20; cloudy. Stormy night and morning
1945	1	17	Cloudy early: intermittent breeze. stormy squally with intermittent rain
1945	2	6	rainy stormy day
1945	2	8	stormy night and morning
1945	2	24	Cloudy squally day and night. Showery. Force 8 at observation
1945	2	25	night with gale during early hours. Rain 3h-5.15h squally day and night frequent squalls often rising to gale force
1945	5	14	Cloudy early. showery stormy morning
1945	9	10	Stormy day continued to night
1945	9	13	Overcast with intermittent rain 0235 stormy
1945	9	22	stormy rainy night and morning with gale later cloudy
1945	12	1	breezy change squally, stormy
1945	12	16	stormy
1945	12	17	stormy night
1945	12	18	stormy
1946	1	4	stormy. stormy day
1946	1	8	squally stormy. stormy early later
1946	1	10	stormy
1946	1	22	Stormy night
1946	2	1	stormy day
1946	2	2	stormy
1946	2	7	day stormy
1946	2	19	breezy later stormy squally day and night
1946	2	20	stormy early
1946	3	13	stormy night and morning
1946	6	5	stormy. Gale during morning: stormy day
1947	1	14	Overcast windy day, rain 12.30 to 15.00; stormy warm night
1947	2	2	Stormy night, wind reaching gale force, breezy morning snow lying 1.5 inches
1947	4	5	Wild stormy morning. Rain from 2.30
1947	4	6	Showers 22.30, 3.30 Stormy night. Bright fresh stormy morning
1947	4	7	Mainly bright sunny day. Stormy. Slight showers
1947	4	21	Stormy night and morning. Brief sunny intervals
1947	4	22	Stormy day
1947	4	22	Stormy morning
1947	4	23	stormy
1947	9	14	stormy morning
1947	11	21	Stormy morning, rain during night
1947	12	27	Stormy day, showers 19h, 21h, few bright periods
1948	1	1	Stormy rainy morning, cloudy day from 1h: clear night
1948	1	13	Stormy night and morning. rain until 9h, mild
1948	1	16	Stormy day, intermittent heavy showers throughout the day

1948	1	26	Dull rainy morning, very mild, rain, stormy during night
1948	1	30	Stormy night and morning, mild, shower 6h
1948	1	31	Stormy night, showers 2.30h 4h-7h, windy morning
1948	2	1	Stormy night, slight showers 23h, windy mild morning Fresh windy morning, stormy afternoon and night, squalls, rain from 20h
1948	2	2	Wild night, wind 8-9, rain 21h-22h, stormy mild morning
1948	2	3	Stormy night, hail 1.30, fresh cloudy morning drizzle
1948	2	7	Rain 0h-4h, distant thunderstorm 0.30h, stormy from 1h to observation. mild
1948	2	8	Mainly overcast day with drizzle throughout, stormy night, gale force
1948	2	9	Stormy night, wind 8-9, sunny warm morning
1948	3	31	Fresh stormy night and morning rain from 7h
1948	4	1	Stormy night and morning, continuous rain 23h-8h
1948	4	8	Stormy night, rain 0.30h-3.00h. showers 5h, 6h cloudy morning
1948	10	20	Mainly clear stormy night, showers 6h
1948	11	3	Sunny morning and early afternoon, rain 17h-20.30h; stormy
1948	11	20	Mainly clear stormy night, showers 6h
1948	12	1	Bright and sunny becoming cloudy at 16h, stormy night
1948	12	2	Stormy wet morning, cloudy afternoon, clear night
1949	9	2	Rain from 4.45 to observation, stormy
1949	10	18	Overcast, rain 21.30-5h, stormy
1949	10	25	Stormy rainy morning, rain from 3h Stormy throughout, rain 10h-11h, 14.30h to observation
1949	11	4	Overcast, stormy, rain 19h-20h
1949	11	12	Mainly cloudy night, stormy morning with rain from 5.30h
1949	11	21	Showers 0h, 2.30h, stormy morning
1949	12	19	Mainly clear stormy night Mainly clear, stormy
1949	12	25	Stormy night and morning, gale force during day and night
1950	1	6	Slight rain 22.30h, stormy cloudy morning
1950	1	29	Stormy night and morning
1950	2	1	Rain from 6h, very stormy Stormy, rain until 14.30h, bright period 15h, rain 18h-19h
1950	2	3	Mainly cloudy to party cloudy, wind gale force in early night
1950	2	15	Rain to 9h and from 5h, stormy night
1950	2	16	Rain ceased 23h, stormy, wind reaching gale force throughout night Overcast, stormy, mild

1950	2	17	Overcast, showers 3h, rain from 7h, gale during night Overcast until 19h, stormy day and night
1950	4	8	Stormy night, shower 4.30-5h Sunny periods, showers, hail, stormy
1950	4	29	Stormy rainy morning
1950	6	28	Rain 6h-7.30h, stormy
1950	6	29	Shower 22h, 23.30h, overcast, stormy Dull and stormy from early morning, clearing from 13h
1950	7	9	Slight intermittent rain early, stormy
1950	7	13	stormy morning, continuous rain from 3.30h Dull stormy day with slight intermittent drizzle
1950	7	15	Intermittent slight rain from 6h, stormy
1950	8	9	mainly cloudy, very stormy Sunny periods, slight showers, stormy throughout
1950	8	11	stormy night and morning, slight intermittent rain morning
1950	8	25	Showers, turning stormy and rain
1950	9	3	Slight intermittent rain 2h-6h, stormy
1950	9	4	Overcast with drizzle and showers. heavy 19h. Rather stormy throughout
1950	9	5	Partly clear sunny morning, stormy slight rain early
1950	9	6	Dull and stormy at observation, very slight intermittent rain early
1950	9	12	Clear and partly cloudy night, dull stormy morning Dull morning, cloudy afternoon to clear night. Stormy throughout
1950	9	13	Stormy day and night with intermittent drizzle, rain 16.30h-18.30h
1950	9	14	Cloudy to partly cloudy at observation, very stormy
1950	9	16	Clear night, dull morning, wind rising at observation gale force mainly throughout Rain 11-18h, stormy, mainly gale force throughout
1950	9	17	Sunny periods, showers, wind gale force, subsiding in afternoon
1950	9	25	Slight rain 4.20h, 6.30h, stormy
1950	9	27	Rain continuous from 4.15h to observation. Stormy
1950	10	8	Heavy showers, sunny periods, stormy throughout
1950	11	18	Stormy morning, slight rain at 9h Stormy, rain at 14h with gale
1950	11	19	Stormy night and morning, slight rain 22h and 10h
1950	11	30	Stormy dull day and night, rain 17.50h-19h
1950	12	1	Stormy day with squally showers of sleet and rain, sunny periods
1950	12	9	Overcast, stormy evening
1950	12	10	Rain 22h-3h, slight shower 4.30h, stormy Rain 12h, some sunshine afternoon, stormy, rather cold
1951	2	4	Mainly overcast, rain from 6.30h, stormy
1951	4	12	Intermittent snow from 23.30h to 8.30h, fresh stormy sunny morning
1951	7	5	Overcast, rain and intermittent rain from 14h. Stormy at observation
1951	8	16	Cloudy with sunshine - becoming overcast and stormy with rain from 18h
1951	8	18	Stormy with rain until 17h, clearing from then

1951	8	25	Stormy morning, intermittent rain from 7h
1951	10	9	Fresh stormy morning
1951	10	26	Short sunny period noon, stormy throughout
1951	10	27	dull and stormy generally
1961	11	4	stormy with continuous rain from morning observation Overcast and stormy with intermittent slight drizzle
1951	11	5	Rain, gale night, early morning
1951	11	6	rain, gale night, early morning
1951	12	9	Stormy night with rain between 0h-2h, 4h-6h and 9h
1951	12	27	Rain (ceased 23h) again at observation, stormy Stormy day with intermittent heavy rain
1952	1	14	Overcast day. Stormy night
1952	1	15	Stormy night, squally Sunny periods morning. Slight showers rain, hail and snow. Stormy.
1952	1	16	Stormy. Snow (1 inch). Bright morning
1952	1	17	Overcast. Stormy. Snow (4 inches)
1952	3	2	mainly cloudy. stormy. passing very slight drizzle
1952	3	8	mainly cloudy. stormy. showers 7h
1952	3	19	Overcast, stormy day. Rain until 15h
1952	3	21	Stormy, overcast day with intermittent slight rain and drizzle
1952	6	4	Sunny periods morning. Stormy. Showers afternoon. Rain from 20.30h
1952	8	31	Wind rising midnight. Rather stormy
1952	9	26	Stormy. Slight rain 0h and 4.30h
1952	9	27	Stormy.
1952	10	23	Stormy. Rain 21h-23.45h
1952	10	28	Stormy gale force. Rain ceased 23.30h
1952	11	6	Overcast, wind: gale force, rain starting at observation
1952	12	10	Mainly overcast. Slight rain. Stormy
1953	2	21	Some rain 5h. Stormy night
1953	3	31	Stormy day with light hail and rain showers
1953	4	11	Stormy. Rain 5h-6h
1953	7	22	Mostly cloudy. Rather stormy
1953	9	1	Stormy and warm
1953	9	2	Slight rain until 23.39h. Stormy. Gale force
1953	9	15	Overcast. Stormy. Rain 21h-0h
1953	9	21	Overcast. stormy. Slight rain until 0h
1953	9	29	Cloudy. Stormy
1953	10	1	overcast. stormy
1953	10	10	Mostly cloudy, stormy night
1953	10	26	Strong gale. Rain from 18.30h
1953	10	27	rain until 23h. Gale subsided. Mainly cloudy
1953	10	30	Rain until 3h. Stormy
1953	11	15	Overcast, rain and stormy wind gale force during night
1953	11	26	Overcast. Rain. Stormy
1953	12	12	Overcast. Rain 0h-8h. Gale at night
1953	12	14	Overcast. Gale. Rain 5h-8h
1953	12	24	Rain ceased 21h. Slight rain early morning. Stormy
1954	1	12	Stormy, threatening rain at observation
1954	1	13	Stormy, threatening rain at observation

1954	1	15	Light shower. Gale all day
1954	1	16	Stormy night. Squalls
1954	1	19	Overcast. Gale. Rain. Continuous or intermittent rain from 9h
1954	1	24	Overcast. Gale. Overcast. Stormy
1954	1	25	Overcast. Gale. Rain from 0h
1954	2	10	Stormy night. Rain 0h-7h
1954	2	13	Slight rain 23h-1h and 6h. Stormy night
1954	2	23	Stormy night. Rain 1-6h
1954	2	26	Stormy night. Rain until 7h
1954	3	2	overcast; snow blizzard wind gale force from 11h turning to sleet 1h-18h
1954	3	4	Overcast, stormy, slight rain or sleet from 6h
1954	5	2	Rain throughout. Stormy
1954	6	24	Overcast, rain threatening at observation. Stormy
1954	6	26	Slight shower 1.15h, shower at observation. Stormy
1954	8	18	Dull stormy morning with drizzle at observation
1954	10	12	Sunny period noon. Overcast, stormy and drizzle rain from 16h
1954	10	13	Overcast with intermittent drizzle. Heavy rain from 18h. Wind gale force during day
1954	11	11	Stormy night, rain 1h-4h and 5h-8h Stormy, sunny day. Pleasant
1954	11	20	Little sunshine. Stormy night, threatening rain
1954	11	30	Rain until 0h. Gale
1954	12	2	Stormy. Slight rain to 0h. Rain from 6.30h
1954	12	4	Squally frequent showers. Gusts reaching gale force night and morning. Showers morning and evening. little sunshine. Stormy day
1954	12	8	Sleet morning. Snow 12h-15h followed by rain. Stormy
1954	12	9	Stormy. Rain until 3h. Slight rain from 6h
1954	12	18	Moderate gale at night and 9h
1955	3	1	Stormy. Rain
1955	5	14	Some rain early. Stormy
1955	9	22	Stormy. Heavy rain 5h-8h
1955	10	5	Stormy. gusts gale force. Light intermittent rain or showers from 16.30h
1955	11	2	Stormy, wind reaching force 7 afternoon. Rain until 17h
1955	12	13	Stormy. Intermittent rain from 3.30h
1955	12	28	Showers 2h and 5h. Wind gale force Some heavy showers. Stormy. Short sunny periods. Hail shower 18h
1955	12	29	Cloudy periods. Showers. wind gale force
1956	1	20	Overcast. stormy. rain 6.30h-9h
1956	2	29	Squally then storm 12h. Brief storm 13.30h.
1956	3	1	Stormy. Overcast. Intermittent drizzle
1956	3	2	Overcast with short cloudy periods. Stormy
1956	5	11	Stormy day with squally showers
1956	6	6	Cloudy. Showers. Wind gale force.
1956	7	29	Overcast to cloudy. Stormy day with squally showers
1956	8	13	Gale force wind 10pm until early morning. Rain until 1h
1956	9	27	Stormy morning with squally showers. Sunny periods afternoon

1956	9	28	Thunderstorm 23h-23.15h. Showers 2.30h and 4.15h. Gale from early in morning Stormy morning and afternoon. Wind force 8 weakening slightly
1956	11	8	Stormy night. Rain from 6.45 Stormy day, wind gale force until 18.30h. Continuous rain until 19.30h
1956	11	25	Overcast, stormy day with continuous rain or drizzle
1956	12	5	Mainly overcast day with a few brief cloudy periods. Moderate gale throughout
1956	12	12	Rather calm early night. Gale blowing from at least 6h. Slight rain or drizzle Squally showers. Bright periods. Gale until about 18h. Slight sleet and snow from 18.30h
1956	12	14	Rain from 6h to observation. Gale blowing from early morning stormy night with frequent gusts of gale force. Squally showers
1956	12	15	variable stormy night with clear cloudy periods Strong wind. frequent gusts of gale force. Squally showers. Hail 17.40h
1956	12	28	Continuous rain, heavy 21h-2.30h, until 5h. Stormy night. Flooding widespread
1956	12	30	Almost continuous rain from 23h. heavy 1h-4h. Stormy night
1957	1	4	Wild, stormy day with frequent gusts of gale force. Almost continuous rain or drizzle
1957	1	5	Almost continuous rain until 15h. Moderate gale until about 17h cloudy periods from 17h. Showers 20h
1957	1	8	Cloudy to mainly overcast day. Moderate gale or gale throughout
1957	1	28	Cloudy to overcast. Stormy. Mild
1957	1	31	Intermittent rain until 14h. Wind force 9 parts of day
1957	2	4	Strong gale most of day. Intermittent rain. Whole gale at observation
1957	2	5	Whole gale subsiding to strong gale at about midnight
1957	2	7	cloudy to overcast. Stormy. Rain from 2.30
1957	8	23	Stormy night. Almost continuous rain from 4h. Heavy 6h
1957	8	24	Heavy shower 23h. Rain 1.30h-6h. Light shower 7.30h. Stormy. Showers. Sunny periods
1957	11	1	Cloudy to overcast. Squally showers. Gale
1957	11	5	Rain from 3.20h-8.30h. Stormy with gusts of gale force early morning
1957	11	18	Overcast. Stormy evening. Slight rain at observation
1957	12	7	Almost continuous rain from 23h-8h. Stormy night with gusts of gale force
1957	12	8	Stormy night. Gusts of force 8 or more. Rain until 21h. Squally showers
1957	12	10	Very stormy morning. Gale force. Rain from 4.30h
1957	12	11	Stormy. Continuous rain from 0.30h to observation
1957	12	19	Overcast. light rain 18h-19h. Gale most of day
1957	12	20	Stormy night with intermittent rain
1958	1	8	Rain 12.30h-17h. Stormy
1958	1	19	Stormy night. Snow depth 4 inches

1958	1	28	Overcast. Wind force 8 or 9 until at least 2h. Intermittent rain
1958	2	11	Variable sky. Fresh. Some light passing rain until 2h at least. Snow. Wind force 8 and 9
1958	3	15	Almost continuous rain from 2.30h-8.30h. Stormy. Gusts of Force 8
1958	5	23	Overcast morning. Mainly overcast afternoon. Intermittent rain. Stormy
1958	9	24	Variable sky. Showers. Stormy
1958	9	25	Showers until 0.30h. Stormy
1958	9	28	Rain 2h-2.30h. Stormy
1958	12	19	Stormy night with fresh gale blowing. rain from 1h- 8.30h. Squally strong breeze. Moderate gale. Very low pressure
1958	12	20	Squally showers. fresh or strong gale until early morning
1959	1	1	Stormy, force 9 afternoon
1959	2	20	Fresh west wind; sunny periods. Very slight passing rain. Strong west wind morning 7-9
1959	2	25	Overcast. Wind near gale to gale. Wind gale force afternoon
1959	3	3	Fresh wind becoming gale force
1959	4	6	Stormy. Moderate showers. Gale most of day
1959	6	6	stormy with gusts of gale
1959	6	7	Strong wind increasing to force 7 or 8 during day
1959	8	14	Stormy night. Gale force with gusts of force 9 or 10
1959	8	15	Stormy night. Wind gale force am declining afternoon force 4 to 5
1959	10	26	Wind 5 to 7 afternoon, reaching gale force later
1959	10	27	Gale throughout the night. Gusts of force 9 and 10 near gale to gale most of day
1959	10	28	Gale most of night
1959	11	9	Gale most of afternoon
1959	11	13	Stormy night
1959	11	14	Stormy. Gale most of night
1959	11	19	Gale from early morning
1959	12	7	Stormy night
1959	12	17	stormy; Brief sunny periods
1959	12	29	Stormy, gale force from early morning gale to near gale most of day
1960	2	2	Stormy night
1960	2	3	Strong breeze, reaching gale force during afternoon
1960	3	1	Stormy night
1960	4	2	Stormy, gale force morning wind gale force
1960	4	13	stormy night. Gale force. Wind force 8 (occasionally 9)
1960	5	23	Strong to moderate gale until afternoon
1960	6	12	Gale from at least 6h. Gale most of morning beginning to subside at noon
1960	11	1	Stormy early. Gusts of gale force
1960	11	2	Stormy, gale force at observation near gale - strong fresh breeze
1960	11	10	stormy night. Near gale force strong or near gale S wind
1960	11	11	Gusts of gale force, cool stormy day. Wind force 6 or

			7
1960	11	14	Wind rising. Cool stormy. Stormy. Wind force 7 or 6
1960	11	30	stormy night and morning. Wind force 6 or 7 declining afternoon and evening
1960	12	4	Stormy, W breeze, force 6 or 7
1960	12	26	Squally showers after 0h. Wind at times gale force
1960	12	28	wind gale force at times around observation
1961	1	18	Strong SSE wind, reaching gale force during night.
1961	1	25	Strong or near gale E wind declining early morning
1961	1	27	Stormy night. Strong to gale force wind. Gale subsiding morning
1961	1	29	SSW wind force 7 with gusts of gale force. Wind 7 to 8 subsiding late afternoon to 5h
1961	2	6	Wind up to gale force
1961	2	26	Gale sometimes. Strong gale
1961	3	12	Strong w breeze reaching gale force
1961	4	20	Wind force 7 to 8 until late evening
1961	5	6	Stormy, southerly force 6 or 7 from early morning. Wind mainly force 7
1961	5	8	Strong or near gale force wind all night
1961	7	4	strong or near gale force wind during night, decreasing morning
1961	9	16	Wind rising from early morning (Wind force 9 to 10 to 11) Probably 12. Considerable structural damage. Subsided late afternoon
1961	10	23	Wind gale force (8 to 9)
1961	12	8	Wind rising. Strong or near gale force
1961	12	11	Wind gale force
1962	1	11	Stormy night, gusts of gale force
1962	1	15	Wind force 7 to 8
1962	1	17	Stormy night. S wind veering to W force 7 or 8
1962	2	12	Stormy night, reaching gale force
1962	2	16	W Wind force 7, reaching gale force
1962	6	18	strong breeze reaching gale force at times
1962	6	23	strong to gale force winds at times from 14h
1962	6	24	strong or near gale force wind during night
1962	9	29	wind gale force afternoon
1962	9	30	Wind gale force all night
1962	11	5	Near gale to gale subsiding late afternoon
1962	12	15	fresh or strong to near gale force wind. gale becoming force 9 late afternoon
1962	12	16	gale subsiding during night
1963	2	6	strong to gale force wind
1963	2	14	Stormy night. Frequent gusts of gale force
1963	3	5	Stormy night near gale all day
1963	3	7	Strong wind reaching force 9 decreasing morning
1963	3	8	strong or near gale force wind during night
1963	3	17	near gale most of morning and early afternoon
1963	3	24	Wind near gale force
1963	3	25	stormy
1963	4	20	Wind 7 to 8
1963	8	26	near gale force SW wind
1963	9	26	wind gale force at times
1963	11	12	Very squally. Gusts of gale force. Wind at times gale force

1963	11	17	Wind near gale
1963	12	23	Stormy
1963	12	24	Strong breeze all day reaching gale force evening
1963	12	25	Gale force subsiding early morning
1964	1	2	Stormy. wind force 7 with gusts of gale force. Wind force 7 occasionally 8
1964	1	3	Stormy night, force 6 or 7
1964	3	17	Gale from early morning
1964	3	18	Stormy night
1964	3	19	Stormy night, gale force from early morning gale decreased am
1964	5	7	Wind force 7 to 8
1964	5	8	stormy night
1964	5	10	Stormy night
1964	7	7	Wind 8 subsiding late afternoon
1964	7	14	gale force wind
1964	9	24	Wind 7 to 8
1964	12	6	Stormy night
1964	12	8	Stormy night. Gusts of gale force. Wind gale force
1964	12	12	Stormy
1965	1	14	Strong gale most of night ceasing morning
1965	3	25	Wind increasing afternoon becoming strong to near gale force decreasing evening
1965	6	15	Wind increasing afternoon to strong to near gale force
1965	8	5	SW wind force 7 to 8
1965	10	31	fresh-strong breeze evening becoming gale force
1965	11	1	gale force wind night and morning
1965	11	17	Stormy night. Stormy. Widespread flooding evening
1965	11	23	wind rising during night. Gusts of gale force stormy morning
1965	11	29	wind increasing during night; Stormy day
1965	12	3	stormy night
1965	12	9	with fresh-strong becoming gale force late afternoon
1966	1	1	cold and stormy; stormy squally
1966	1	5	Stormy morning
1966	1	6	stormy. Dull stormy day
1966	1	7	Stormy
1966	2	2	Stormy night. Gusts of gale force
1966	2	5	stormy
1966	2	25	wind becoming strong to near gale force afternoon and evening
1966	2	26	stormy night. Wind becoming force 6-7
1966	2	27	strong to near gale force wind
1966	3	27	Stormy night wind reaching gale force
1966	4	27	Stormy night, reaching gale force
1966	5	4	Stormy
1966	5	22	stormy day
1966	8	10	stormy night with gusts of gale force
1966	9	6	stormy night
1966	10	4	Stormy night
1966	10	12	Wind rising early morning force 6 or 7 stormy
1966	11	15	Stormy morning

1966	11	16	Wind with gusts of gale force. Cold Strong wind all day reaching gale force
1966	11	30	stormy night
1966	12	1	Stormy night wind gale force wind becoming gale for time during morning
1966	12	2	Stormy night with gale force wind. Stormy day
1967	2	15	Stormy night stormy. Wind 6 or 7
1967	2	17	Stormy
1967	2	20	Stormy
1967	2	24	Dull and stormy. Gusts of gale force
1967	2	27	Stormy. Gale force morning
1967	2	28	stormy. Wind force 6 or 7
1967	3	1	Stormy
1967	3	2	Stormy. Strong wind all day
1967	3	6	Stormy night and morning (reaching gale force at times)
1967	3	26	Stormy
1967	4	6	Stormy, force 6 or 7 during night
1967	5	4	Stormy
1967	5	5	Wind becoming 7 to 8
1967	5	21	Stormy day
1967	10	1	Stormy night and morning
1967	10	20	Stormy
1967	10	25	Stormy night. Stormy day
1967	12	25	Stormy night
1968	1	8	Stormy day (gale force at times)
1968	1	14	Wind rising evening becoming gale force
1968	1	15	Strong gale force wind most of night and morning
1968	2	4	Stormy, gusts of gale force
1968	4	1	Stormy night
1968	6	30	Stormy night
1968	9	28	Wind gale force after midnight
1968	12	22	Stormy night with gusts of gale force
1969	1	17	Wind becoming gale force early am
1969	2	22	Stormy throughout
1969	9	21	wind becoming force 7 to 8 evening
1969	9	28	wind reaching gale force. Wind force 7 to 8
1969	11	2	Stormy night
1970	1	31	Stormy dull day, wind reaching gale force afternoon and evening
1970	2	1	Stormy night though wind declining
1970	8	16	stormy night with wind reaching gale force decreasing somewhat during morning
1970	9	9	Stormy night becoming force 7 to 8
1970	10	31	Wind rising to gale force late afternoon and evening
1970	11	3	Wind becoming gale force from early morning
1970	12	6	Stormy night
1971	11	20	Stormy with gusts of gale force
1972	3	3	winds increase gale force
1972	10	29	wind strong gale force at times
1972	11	9	gale force winds evening

1973	9	27	Wind gale force
1974	1	2	Wind gale force during night
1974	1	3	Wind near gale to gale force all day
1974	1	5	Wind gale force during night
1974	1	8	Wind reaching gale force at times
1974	1	10	Wind reaching gale force during night
1974	1	11	Wind reaching strong gale force in night
1974	1	27	Wind freshening to gale force from early evening
1974	2	12	Wind reaching gale force
1974	2	14	Wind reaching gale force during afternoon
1974	10	27	wind increased to gale
1974	11	8	wind becoming gale force
1974	11	9	wind becoming gale force at times
1974	11	10	wind reaching gale force early evening
1974	11	24	wind reaching gale force to storm at times
1974	11	25	gale force winds
1974	11	28	wind reaching gale force during night
1974	12	17	continuous gales at times gale force around night
1974	12	19	wind reaching gale force at times
1974	12	20	wind gale force at times during night
1974	12	23	gale force winds during night gale force winds during day abating early evening
1974	12	27	wind reaching gale force evening
1974	12	28	continuous gales during night and at observation
1974	12	29	gale force winds during night
1975	1	6	gale force winds night
1975	1	12	wind strong to gale late evening
1975	1	13	wind gale force at times during night gale force evening
1975	1	14	(gale force strong) during night
1975	1	22	wind mainly strong but gale force at times
1975	6	2	gale force winds during day
1975	9	22	winds gale force evening
1975	9	29	gale force winds during night
1975	10	22	winds strong to gale force afternoon
1975	12	30	gale force winds during night
1976	1	2	gale force wind evening storm force at times (24 killed)
1976	1	10	gale force winds at times
1976	1	20	gale force winds night
1976	1	28	gale force winds
1976	1	29	gale force winds
1976	1	30	gale force winds
1976	3	20	strong to gale force winds
1976	5	16	wind gale force at times
1976	9	9	gale winds night
1976	10	5	clearing evening after gale force winds afternoon
1976	10	6	gale force winds during night
1976	11	27	gale force winds evening
1976	11	28	gale force winds
1977	1	18	winds gale force
1977	1	20	gales evening

1977	1	21	gale to strong gale winds with rain
1977	3	8	afternoon gale force winds at times
1977	3	10	gale force winds strong gale winds
1977	3	15	strong gale force winds
1977	3	31	gale force winds evening
1977	4	1	gale force winds
1977	8	24	force 8 winds
1977	10	30	gale force winds
1977	11	6	gale force winds afternoon overcast evening
1977	11	10	sunny periods early afternoon gale force winds
1977	11	11	force 8 winds afternoon
1977	11	12	Force 8 winds night
1977	11	14	showery day strong gale force winds some sunshine afternoon
1977	12	3	gale force winds afternoon
1977	12	9	wind rising from 15h gale force evening
1978	1	2	sunny morning gale force winds afternoon
1978	1	3	force 8 winds
1978	1	28	overcast day with gale force winds
1978	1	29	gales at observation/ winds abating during day
1978	2	1	gales afternoon
1978	9	11	gale force winds
1978	9	16	gale force winds afternoon
1978	9	29	cloudy day sunny periods gale winds
1978	11	6	strong winds gale force at times
1978	11	14	gales during night and at observation
1978	11	15	gales also
1978	11	17	wind force 8 at times
1978	12	2	gale force winds
1978	12	3	force 8 winds night
1978	12	5	overcast day wind reaching force 8
1978	12	6	force 8 during night overcast at observation/ overcast day
1978	12	7	gale force winds gales all day
1978	12	11	gales morning and afternoon
1979	2	27	and gales at observation
1979	3	6	gales afternoon
1979	3	12	gale force winds
1979	3	24	force 8 winds afternoon
1979	3	28	sunny day gale force winds
1979	3	29	force 8 winds at times
1979	9	20	force 8 winds at times afternoon
1979	11	3	gale force winds during night
1979	11	17	force 8 winds also
1979	11	25	winds 8 during night winds 8 during day
1979	11	30	overcast day gale force winds
1979	12	2	gale force winds
1979	12	4	gales later and at observation/ strong gales during day
1979	12	9	gales late afternoon
1979	12	12	gales morning abating afternoon
1979	12	13	gales after 00.00h
1979	12	16	gale force evening
1979	12	17	strong gales night stormy day

1980	3	18	gales evening
1980	3	19	gales during night
1980	6	19	gales all day rain evening
1980	6	20	gales during night
1980	9	11	force 8 winds during night
1980	10	6	force 8 winds afternoon and evening
1980	10	31	gale force winds 00.00h
1980	11	1	gale force winds 00.00h and at observation
1980	11	17	force 8 winds evening
1980	12	10	gales at observation
1980	12	14	gale force winds after 00.00h strong gales morning
1980	12	31	gale force winds
1981	1	3	gales at observation/ strong gales at times
1981	1	12	force 8 winds early morning
1981	1	14	gale force winds
1981	1	17	gales morning and at observation
1981	2	2	gales during night
1981	3	27	gale force winds at times
1981	3	28	gales during night
1981	4	24	gale force winds also
1981	10	3	gale force winds
1981	10	18	gales at times
1981	11	1	gales afternoon
1981	11	3	strong to gale force winds
1981	11	20	gale force winds overcast gales at observation
1981	11	28	(force 8 winds 27th night)
1981	12	13	gale force winds morning
1981	12	19	gales all day some showers also
1981	12	26	some drizzle during night with gales, gales at observation
1982	1	18	strong to gale force winds afternoon
1982	1	20	gales evening
1982	1	21	strong to gale winds during night
1982	1	29	strong to gale force winds
1982	2	3	gales during night and at observation
1982	2	4	force 8 winds at observation
1982	2	6	near gale winds morning
1982	2	8	near gale winds gales
1982	2	12	gales during night gales all day
1982	2	13	gales during night cloudy gales at observation
1982	2	21	strong to gale force winds
1982	2	28	gale force winds
1982	3	1	some sleet during night gales
1982	3	2	gales afternoon and evening
1982	3	3	strong gales during night
1982	3	11	gales
1982	3	12	gales during night
1982	5	2	overcast gales at observation gales during day
1982	5	3	gales at times
1982	6	18	strong to gale winds afternoon
1982	9	12	winds gale force at times
1982	9	24	gales during night
1982	9	28	gales during night
1982	9	30	gales before 00.00h
1982	10	1	gales

1982	10	16	gales during night and at observation/ overcast strong gales all day and evening
1982	10	17	gales during night
1982	10	26	gales during night
1982	11	12	gales at times
1982	11	16	gale force winds at times
1982	11	18	gales all day
1982	11	21	strong gales at times
1982	11	22	overcast gales at observation strong to gales winds
1982	12	15	gales after 00.00h overcast day strong winds gales at times
1982	12	19	force 8 winds
1982	12	20	gales/ strong gales during day
1983	1	3	gales during night
1983	1	5	gale force winds
1983	1	23	strong winds afternoon and evening gale force at times
1983	1	24	gale force at times during night
1983	1	31	strong gales early evening
1983	2	5	gales at times showery evening
1983	2	6	gales during night
1983	3	21	gales during night gales during day
1983	3	22	gales during night
1983	9	2	Stormy during night
1983	9	4	stormy day 8 to 9 force short sunny periods
1983	9	5	Stormy wind
1983	9	19	gales during night
1983	10	13	gales during night strong to gale force at times clear evening
1983	10	15	gales, gales afternoon
1983	10	16	gales night gales morning
1983	10	18	gales night and at observation
1983	12	13	winds gale force at times
1983	12	31	gales during night
1984	1	2	gales/strong gales during day
1984	1	11	force 9 to 10 winds afternoon
1984	1	13	force 9 to 10 winds during night
1984	1	14	strong gale force during night
1984	1	16	winds 9 to 10 afternoon abating evening
1984	1	21	very stormy late afternoon wet evening
1984	2	5	very strong winds
1984	2	6	force 8 at times
1984	2	7	force 8 to 9 winds
1984	2	8	Force 8 to 9 winds during night
1984	3	1	gales before 00.00h
1984	3	2	gales and snow showers during night
1984	3	23	with gale force winds morning and afternoon
1984	10	18	strong gales during night
1984	11	26	winds reaching gale before 23.59h
1984	11	27	gales during night
1984	11	30	gales during night
1985	6	21	gales
1985	8	31	gales, strong gale force winds
1985	10	10	gales 23.00h

1985	10	11	gales during night
1985	12	2	mild fresh to strong winds , gale force before 00.00h
1985	12	3	strong gales during night and at observation
1985	12	20	gales during night
1986	1	13	strong to gale force winds during day
1986	1	14	strong gales during night
1986	3	20	strong gales during night and at observation
1986	5	27	gales and rain during night
1986	8	26	gale force winds
1986	11	9	winds mostly gale force gales evening
1986	11	10	gales during night gales at observation
1986	11	21	gales during day
1986	11	22	gales at observation/gales during day
1986	12	1	gales during night
1986	12	3	gales during night
1986	12	12	gales mid-day onwards
1986	12	14	gales evening
1986	12	15	gales
1987	3	27	overcast day strong to gale force winds
1987	11	12	gales
1987	12	28	strong to gale winds afternoon
1988	1	12	gales during night
1988	1	19	strong to gales winds during night and at observation
1988	2	1	rain during night gales
1988	2	9	strong gales all day
1988	3	24	sunny day gale force winds
1988	7	25	gales during night
1988	10	7	gales during night
1989	1	27	strong gales during night gale force winds mild at observation/ gales to late afternoon
1989	2	6	gales all day abating evening
1989	2	13	strong gales
1989	2	21	strong gales afternoon and evening
1989	3	13	gales before 23.59h
1989	3	14	gales during night
1989	3	22	strong to gale force winds afternoon
1989	3	24	strong to gale force winds
1989	9	20	gales during night
1989	11	2	gales during night and at observation
1989	12	24	gales during night
1990	1	16	gales before 23.59h
1990	1	17	gales during night
1990	1	30	gales 18.30h
1990	2	1	gale to storm force winds afternoon strong gales evening
1990	2	4	gales after 00.00h overcast day gale force winds
1990	2	5	gales during overcast morning gale at observation
1990	2	13	gales evening
1990	2	20	gales during night
1990	2	21	gales during night stormy to mid-afternoon gales before 23.59h
1990	2	22	gales during night and at observation

1990	2	26	storms during night
1990	2	27	gales during night some snow gales
1990	12	25	strong to gales during night
1990	12	26	gales during night
1990	12	28	gales during night, with strong gales
1990	12	29	some snow and gales during night
1991	1	1	gales during night
1991	1	2	gales during night
1991	1	5	gales during night gale to storm winds at observation
1991	1	6	gales during night
1991	1	7	gales at observation
1991	1	18	strong to gales winds after 00.00h overcast gales at observation
1991	3	19	strong to gales winds during night
1991	6	12	sunny day gales afternoon
1991	9	23	gale force near mid-night
1991	10	1	strong to gale force afternoon
1991	10	17	gale force winds overcast afternoon
1991	10	31	strong gales after 00.01h
1991	11	12	strong to gale force winds at observation
1991	12	22	strong winds gale force at times
1991	12	31	gales before 23.59h
1992	1	1	gales during night
1992	1	2	gales during night
1992	2	22	gales during night
1992	8	4	strong to gale force winds evening
1992	11	23	overcast mild morning, gale
1993	1	16	37 in gusts at observation/ remaining 37 to 16.00h
1993	3	30	overcast 37 50 at observation
1993	4	5	gale during night 37
1993	5	18	Gale 37 during night
1993	12	8	very strong winds, easing 23.30h 37
1993	12	10	wind 37 overnight
1994	1	25	gale during night
1994	1	26	gale during night
1994	2	3	gale during night
1994	3	12	gale during night
1994	3	13	gale during night
1995	1	17	37
1995	3	17	gale during night
1995	10	24	37
1996	5	31	gale during night
1996	10	13	gale during night
1996	10	27	gale during night
1996	10	29	gale during night
1996	11	5	Gale during night
1996	11	6	Gale during night
1997	2	20	Gale during night
1997	11	17	30 to 37

1997	12	24	Gale 37, 20.00h cloudy 37
1998	2	16	Gale 37 during night
1998	11	9	gale early morning hours
1998	12	26	strong gale afternoon and evening
1999	11	25	gale
1999	12	3	gale winds early morning
1999	12	8	strong winds, gales and rain in early hours
1999	12	20	gales in evening
1999	12	23	gales
2000	11	30	overcast morning, mild windy/ wind speed increasing late morning. rain and gale most of afternoon, calming down early evening, cloudy night, mild
2000	12	31	rain before observation, overcast morning, breezier, warmer, some thaw/ wind building late morning and rain. Near gale to gale late morning early afternoon, night milder

Appendix 2 Annual Gales from Weather Diary at Armagh Observatory
1796-2002.

Year	Weather Diary	Hourly ¹
1796	31	
1797	23	
1798	12	
1799	20	
1800	18	
1801	11	
1802	10	
1803	11	
1804	7	
1805	8	
1806	18	
1807	4	
1808	10	
1809	9	
1810	14	
1811	19	
1812	18	
1813	17	
1814	8	
1815	17	
1816	18	
1817	19	
1818	16	
1819	16	
1820	8	
1821	17	
1822	23	
1823	6	
1824	18	
1825	8inc ²	
1826	nd ³	
1827	nd ³	
1828	nd ³	
1829	nd ³	
1830	nd ³	
1831	nd ³	
1832	nd ³	
1833	2	
1834	0	
1835	0	
1836	6	
1837	2	
1838	8	
1839	11	

Appendix 2 Continued.

Year	Weather Diary	Hourly ¹
1840	16	
1841	8	
1842	11	
1843	9	
1844	3	
1845	3	
1846	6	
1847	2	
1848	3	
1849	0	
1850	1	
1851	2	
1852	1	
1853	1	
1854	0	
1855	1	
1856	0	
1857	0	
1858	1	
1859	2	
1860	1	
1861	6	
1862	3	
1863	2	
1864	3	
1865	1	
1866	4	
1867	2	
1868	1	
1869	0	
1870	1	
1871	4	
1872	2	
1873	1	
1874	0	0
1875	1	0
1876	1	0
1877	2	0
1878	0	0
1879	0	0
1880	1	1
1881	1	1
1882	1	0
1883	nd ³	0

Appendix 2 Continued.

Year	Weather Diary	Hourly ¹
1884	4	
1885	2	
1886	4	
1887	0	
1888	3	
1889	1	
1890	5	
1891	6	
1892	3	
1893	5	
1894	8	
1895	2	
1896	1	
1897	2	
1898	1	
1899	2	
1900	3	
1901	2	
1902	2	
1903	1	
1904	0	
1905	0	
1906	0	
1907	0	
1908	2	
1909	4	
1910	5	
1911	8	
1912	7	
1913	8	
1914	6	
1915	7	
1916	3	
1917	1	
1918	5	
1919	7	
1920	10	
1921	5	
1922	4	
1923	4	
1924	5	
1925	7	
1926	2	
1927	2	
1928	16	
1929	10	

Appendix 2 Continued.

Year	Weather Diary	Hourly ¹
1930	4	
1931	3	
1932	9	
1933	2	
1934	7	
1935	10	
1936	20	
1937	13	
1938	24	
1939	2	
1940	4	
1941	15	
1942	6	
1943	19	
1944	13	
1945	13	
1946	11	
1947	11	
1948	20	
1949	8	
1950	35	
1951	14	
1952	16	
1953	19	
1954	24	
1955	8	
1956	18	9
1957	19	17
1958	11	14
1959	19	13
1960	16	10
1961	15	10
1962	12	9
1963	16	7
1964	14	10
1965	11	5
1966	22	5
1967	18	3
1968	8	4
1969	5	4
1970	7	4
1971	1	1
1972	3	3
1973	1	2
1974	23	24
1975	10	10

Appendix 2 Continued.

Year	Weather Diary	Hourly ¹
1976	13	14
1977	17	17
1978	18	18
1979	18	19
1980	12	13
1981	17	18
1982	36	36
1983	18	20
1984	17	17
1985	7	8
1986	14	14
1987	3	4
1988	7	7
1989	11	11
1990	16	16
1991	15	15
1992	5	5
1993	6	6
1994	5	5
1995	3	3
1996	6	6
1997	3	3
1998	3	3
1999	5	5
2000	0	
2001	3	
2002	2	

Notes

1 Most hourly data has yet to be looked at

2 inc = data missing incomplete year

3 nd = no data available

Appendix 3 Monthly Distribution of Gales from Weather Diary at Armagh Observatory 1796-2000.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1796	7	2	2	2	6	1	4	0	0	1	0	6	31
1797	12	1	2	0	0	0	0	0	2	2	0	4	23
1798	4	2	0	1	0	0	0	0	0	0	3	2	12
1799	1	4	1	0	1	1	0	1	3	5	3	0	20
1800	4	0	2	6	1	1	0	0	3	1	0	0	18
1801	5	3	0	0	1	0	0	0	0	0	2	0	11
1802	1	2	1	1	0	0	0	0	0	1	0	4	10
1803	1	2	1	1	0	0	0	0	0	3	0	3	11
1804	1	3	0	0	0	0	2	0	0	1	0	0	7
1805	3	2	1	0	0	0	0	0	0	0	0	2	8
1806	6	0	0	0	0	1	0	0	0	1	3	7	18
1807	0	0	0	0	0	0	0	1	0	2	0	1	4
1808	2	0	0	0	0	0	0	0	0	3	4	1	10
1809	2	2	0	0	0	0	0	0	0	0	1	4	9
1810	1	3	3	1	0	0	0	0	0	1	3	2	14
1811	6	3	1	0	0	0	0	0	0	3	2	4	19
1812	4	4	4	1	0	0	0	0	0	5	1	0	19
1813	2	7	3	0	1	1	0	0	0	0	3	0	17
1814	0	1	0	0	0	0	0	1	0	1	1	4	8
1815	1	2	5	0	0	1	0	0	1	4	1	3	18
1816	3	4	4	0	1	0	0	0	0	1	3	2	18
1817	2	6	2	0	0	0	0	2	1	2	3	1	19
1818	5	4	2	1	0	0	0	0	0	2	0	2	16
1819	5	3	2	0	0	0	0	0	1	1	1	3	16
1820	2	0	2	0	0	0	0	1	0	3	0	0	8
1821	1	0	2	1	2	0	0	0	3	2	3	3	17
1822	0	5	4	1	3	0	0	0	1	2	5	2	23
1823	0	1	1	0	1	0	0	0	1	0	0	2	6
1824	1	1	2	1	0	1	0	0	3	0	4	5	18
1825	4	2	2										8
1826													
1827													
1828													
1829													
1830													
1831													
1832													
1833				1	0	0	0	0	0	0	0	1	2
1834	0	0	0	0	0	0	0	0	0	0	0	0	0
1835	0	0	0	0	0	0	0	0	0	0	0	0	0
1836	4	1	0	0	0	0	0	0	1	0	0	0	6
1837	0	1	0	0	0	0	0	0	0	0	1	0	2

Appendix 3 Continued.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1838	1	2	1	1	0	0	0	0	1	0	1	1	8
1839	2	2	2	0	0	0	1	0	1	1	1	1	11
1840	6	2	0	2	0	1	0	1	1	0	1	2	16
1841	2	0	4	1	0	1	0	0	0	0	0	0	8
1842	2	1	1	1	0	1	0	0	0	1	1	3	11
1843	1	0	0	0	0	1	0	0	0	4	1	2	9
1844	0	1	0	0	0	2	0	0	0	0	0	0	3
1845	2	0	1	0	0	0	0	0	0	0	0	0	3
1846	2	0	2	0	0	0	0	1	0	1	0	0	6
1847	2	0	0	0	0	0	0	0	0	0	0	0	2
1848	0	0	1	0	0	0	0	0	0	0	0	2	3
1849	0	0	0	0	0	0	0	0	0	0	0	0	0
1850	0	0	0	0	0	0	0	0	0	0	1	0	1
1851	1	0	1	0	0	0	0	0	0	0	0	0	2
1852	0	0	0	0	0	0	0	0	0	0	0	1	1
1853	0	0	0	1	0	0	0	0	0	0	0	0	1
1854	0	0	0	0	0	0	0	0	0	0	0	0	0
1855	0	0	0	0	0	0	0	0	0	0	0	1	1
1856	0	0	0	0	0	0	0	0	0	0	0	0	0
1857	0	0	0	0	0	0	0	0	0	0	0	0	0
1858	0	0	0	1	0	0	0	0	0	0	0	0	1
1859	0	0	2	0	0	0	0	0	0	0	0	0	2
1860	0	0	0	0	0	0	0	0	0	0	0	1	1
1861	0	2	3	0	0	0	0	0	0	0	0	1	6
1862	2	0	0	0	0	0	1	0	0	0	0	0	3
1863	1	0	0	1	0	0	0	0	0	0	0	0	2
1864	0	0	0	0	0	0	1	0	0	1	1	0	3
1865	0	0	0	0	0	0	0	0	0	0	0	1	1
1866	0	0	0	2	0	0	0	0	1	0	0	1	4
1867	0	0	0	1	0	0	0	0	0	1	0	0	2
1868	0	0	0	0	0	0	0	0	0	0	1	0	1
1869	0	0	0	0	0	0	0	0	0	0	0	0	0
1870	0	0	0	0	0	0	0	0	0	0	0	1	1
1871	1	2	0	0	0	0	0	0	1	0	0	0	4
1872	0	0	0	0	0	0	0	0	0	2	0	0	2
1873	0	0	0	0	0	0	1	0	0	0	0	0	1
1874	0	0	0	0	0	0	0	0	0	0	0	0	0
1875	0	0	1	0	0	0	0	0	0	0	0	0	1
1876	0	0	1	0	0	0	0	0	0	0	0	0	1
1877	0	0	1	1	0	0	0	0	0	0	0	0	2
1878	0	0	0	0	0	0	0	0	0	0	0	0	0
1879	0	0	0	0	0	0	0	0	0	0	0	0	0
1880	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3 Continued.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1881	0	0	0	0	0	0	0	0	0	0	1	0	1
1882	0	0	0	0	0	0	0	0	0	1	0	0	1
1883	0	0	0	0	0	0	0	0	0	0	0	0	0
1884	1	1	0	0	0	0	0	0	0	2	0	0	4
1885	0	1	0	0	0	0	0	0	1	0	0	0	2
1886	0	0	2	1	0	0	0	0	0	0	0	1	4
1887	0	0	0	0	0	0	0	0	0	0	0	0	0
1888	0	0	0	0	0	0	0	0	0	1	2	0	3
1889	0	0	0	0	0	0	0	0	0	1	0	0	1
1890	5	0	0	0	0	0	0	0	0	0	0	0	5
1891	1	0	0	0	0	0	0	0	2	2	0	1	6
1892	0	1	0	0	0	0	0	0	1	1	0	0	3
1893	0	2	0	0	0	0	1	0	0	0	1	1	5
1894	3	3	1	0	0	0	0	0	0	0	0	1	8
1895	0	0	0	0	0	0	0	0	0	0	2	0	2
1896	0	0	0	0	0	0	0	0	0	1	0	0	1
1897	0	1	1	0	0	0	0	0	0	0	0	0	2
1898	0	0	0	0	0	0	0	0	0	0	0	1	1
1899	1	0	1	0	0	0	0	0	0	0	0	0	2
1900	1	1	0	0	0	0	0	0	0	0	0	1	3
1901	0	0	0	0	0	0	0	0	1	0	1	0	2
1902	0	0	0	0	0	0	0	0	0	1	0	1	2
1903	0	1	0	0	0	0	0	0	0	0	0	0	1
1904	0	0	0	0	0	0	0	0	0	0	0	0	0
1905	0	0	0	0	0	0	0	0	0	0	0	0	0
1906	0	0	0	0	0	0	0	0	0	0	0	0	0
1907	0	0	0	0	0	0	0	0	0	0	0	0	0
1908	0	1	0	0	0	0	0	0	0	0	0	1	2
1909	0	0	0	2	0	0	0	0	0	2	0	0	4
1910	1	2	0	0	0	0	0	0	0	1	1	0	5
1911	0	2	0	2	0	0	0	0	0	1	2	1	8
1912	0	1	0	0	0	0	0	0	0	1	2	3	7
1913	3	1	1	0	0	0	0	0	0	0	3	0	8
1914	0	0	0	0	0	0	0	0	0	0	1	5	6
1915	1	2	0	0	0	0	0	0	0	1	1	2	7
1916	3	0	0	0	0	0	0	0	0	0	0	0	3
1917	0	0	0	0	0	0	0	0	0	1	0	0	1
1918	0	0	0	0	0	0	0	0	0	2	2	2	6
1919	1	0	0	0	0	0	0	0	1	0	0	5	7
1920	4	0	0	0	1	0	0	0	0	2	2	1	10
1921	2	0	2	0	0	0	0	0	0	0	0	1	5
1922	0	0	0	0	0	0	0	0	0	0	0	1	1
1923	0	3	0	0	0	0	0	0	0	0	0	1	4

Appendix 3 Continued.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1924	0	0	0	0	0	0	0	0	0	0	0	5	5
1925	5	4	0	0	0	0	0	0	0	0	0	0	9
1926	1	0	0	0	0	0	0	0	0	0	1	0	2
1927	2	0	0	0	0	0	0	0	0	0	0	0	2
1928	7	4	0	0	0	0	0	1	0	1	2	1	16
1929	0	0	0	0	0	0	0	0	0	0	2	8	10
1930	2	0	1	0	0	0	0	0	0	0	0	1	4
1931	0	1	1	0	0	0	0	0	0	0	0	1	3
1932	5	0	0	0	0	0	0	0	0	0	0	4	9
1933	1	0	1	0	0	0	0	0	0	0	0	0	2
1934	3	0	0	0	2	0	0	0	0	0	0	3	8
1935	1	3	0	0	0	0	0	0	0	1	5	0	10
1936	5	3	0	1	1	0	1	0	2	1	0	6	20
1937	7	4	0	0	0	0	0	0	0	0	0	2	13
1938	8	2	4	0	0	3	0	0	2	4	0	1	24
1939	0	0	1	0	0	0	1	0	0	0	0	0	2
1940	0	0	0	0	0	0	0	0	1	1	0	2	4
1941	1	1	0	1	0	1	0	1	0	3	5	2	15
1942	1	0	0	0	1	0	0	0	2	0	0	2	6
1943	1	2	0	2	1	0	0	0	2	7	2	2	19
1944	3	0	0	0	0	0	0	0	0	3	3	4	13
1945	1	4	0	0	1	0	0	0	3	0	0	4	13
1946	4	5	1	0	0	1	0	0	0	0	0	0	11
1947	1	1	0	6	0	0	0	0	1	0	1	1	11
1948	5	6	1	2	0	0	0	0	0	1	2	2	19
1949	0	0	0	0	0	0	0	0	1	2	3	2	8
1950	2	5	0	2	0	2	3	3	11	1	3	3	35
1951	0	1	0	1	0	0	1	3	0	3	3	2	14
1952	4	0	4	0	0	1	0	1	2	2	1	1	16
1953	0	1	1	1	0	0	1	0	5	5	2	3	19
1954	7	4	2	0	1	2	0	1	0	2	3	5	27
1955	0	0	1	0	1	0	0	0	1	1	1	3	8
1956	1	1	2	0	1	1	1	1	2	0	2	6	18
1957	5	3	0	0	0	0	0	2	0	0	3	6	19
1958	3	1	1	0	1	0	0	0	3	0	0	2	11
1959	1	2	1	1	0	2	0	2	0	3	4	3	19
1960	0	2	1	2	1	1	0	0	0	0	6	3	16
1961	4	2	1	1	2	0	1	0	1	1	0	2	15
1962	3	2	0	0	0	3	0	0	2	0	1	2	13
1963	0	2	6	1	0	0	0	1	1	0	2	3	16
1964	2	0	3	0	3	0	2	0	1	0	0	3	14
1965	1	0	1	0	0	1	0	1	0	1	4	2	11
1966	4	5	1	1	2	0	0	1	1	2	3	2	22

Appendix 3 Continued.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1967	0	6	4	1	3	0	0	0	0	3	0	1	18
1968	3	1	0	1	0	1	0	0	1	0	0	1	8
1969	1	1	0	0	0	0	0	0	2	0	1	0	5
1970	1	1	0	0	0	0	0	1	1	1	1	1	7
1971	0	0	0	0	0	0	0	0	0	0	1	0	1
1972	0	0	1	0	0	0	0	0	0	1	1	0	3
1973	0	0	0	0	0	0	0	0	1	0	0	0	1
1974	7	2	0	0	0	0	0	0	0	1	6	7	23
1975	5	0	0	0	0	1	0	0	2	1	0	1	10
1976	6	0	1	0	1	0	0	0	1	2	2	0	13
1977	3	0	4	1	0	0	0	1	0	1	5	2	17
1978	4	1	0	0	0	0	0	0	3	0	4	6	18
1979	0	1	5	0	0	0	0	0	1	0	4	7	18
1980	0	0	2	0	0	2	0	0	1	2	2	3	12
1981	4	1	2	1	0	0	0	0	0	2	4	3	17
1982	4	8	5	0	2	1	0	0	4	4	5	3	36
1983	5	2	2	0	0	0	0	0	4	4	0	2	19
1984	6	4	3	0	0	0	0	0	0	1	3	0	17
1985	0	0	0	0	0	1	0	1	0	2	0	3	7
1986	2	0	1	0	1	0	0	1	0	0	4	5	14
1987	0	0	1	0	0	0	0	0	0	0	1	1	3
1988	2	2	1	0	0	0	1	0	0	1	0	0	7
1989	1	3	4	0	0	0	0	0	1	0	1	1	11
1990	3	9	0	0	0	0	0	0	0	0	0	4	16
1991	6	0	1	0	0	1	0	0	1	3	1	2	15
1992	2	1	0	0	0	0	0	1	0	0	1	0	5
1993	1	0	1	1	1	0	0	0	0	0	0	2	6
1994	2	1	2	0	0	0	0	0	0	0	0	0	5
1995	1	0	1	0	0	0	0	0	0	1	0	0	3
1996	0	0	0	0	1	0	0	0	0	3	2	0	6
1997	0	1	0	0	0	0	0	0	0	0	1	1	3
1998	0	1	0	0	0	0	0	0	0	0	1	1	3
1999	0	0	0	0	0	0	0	0	0	0	1	4	5
2000	0	0	0	0	0	0	0	0	0	0	1	1	2
Total	312	223	154	62	45	38	23	31	98	157	193	282	1618

Appendix 4 Seasonal Distribution of Gales from Weather Diary at Armagh Observatory 1796-2000.

Year	Winter	Spring	Summer	Autumn
1796		10	5	1
1797	19	2	0	4
1798	10	1	0	3
1799	7	2	2	11
1800	4	9	1	4
1801	8	1	0	2
1802	3	2	0	1
1803	7	2	0	3
1804	7	0	2	1
1805	5	1	0	0
1806	8	0	1	4
1807	7	0	1	2
1808	3	0	0	7
1809	5	0	0	1
1810	8	4	0	4
1811	11	1	0	5
1812	12	5	0	6
1813	9	4	1	3
1814	1	0	1	2
1815	7	5	1	6
1816	10	5	0	4
1817	10	2	2	6
1818	10	3	0	2
1819	10	2	0	3
1820	5	2	1	3
1821	1	5	0	8
1822	8	8	0	8
1823	3	2	0	1
1824	4	3	1	7
1825	11			
1826				
1827				
1828				
1829				
1830				
1831				
1832				
1833		1	0	0
1834	1	0	0	0
1835	0	0	0	0
1836	5	0	0	1
1837	1	0	0	1

Appendix 4 Continued.

Year	Winter	Spring	Summer	Autumn
1838	3	2	0	2
1839	5	2	1	3
1840	9	2	2	2
1841	4	5	1	0
1842	3	2	1	2
1843	4	0	1	5
1844	3	0	2	0
1845	2	1	0	0
1846	2	2	1	1
1847	2	0	0	0
1848	0	1	0	0
1849	2	0	0	0
1850	0	0	0	1
1851	1	1	0	0
1852	0	0	0	0
1853	1	1	0	0
1854	0	0	0	0
1855	0	0	0	0
1856	1	0	0	0
1857	0	0	0	0
1858	0	1	0	0
1859	0	2	0	0
1860	0	0	0	0
1861	3	3	0	0
1862	3	0	1	0
1863	1	1	0	0
1864	0	0	1	2
1865	0	0	0	0
1866	1	2	0	1
1867	1	1	0	1
1868	0	0	0	1
1869	0	0	0	0
1870	0	0	0	0
1871	4	0	0	1
1872	0	0	0	2
1873	0	0	1	0
1874	0	0	0	0
1875	0	1	0	0
1876	0	1	0	0
1877	0	2	0	0
1878	0	0	0	0
1879	0	0	0	0
1880	0	0	0	0

Appendix 4 Continued.

Year	Winter	Spring	Summer	Autumn
1881	0	0	0	1
1882	0	0	0	1
1883	0	0	0	0
1884	2	0	0	2
1885	1	0	0	1
1886	0	3	0	0
1887	1	0	0	0
1888	0	0	0	3
1889	0	0	0	1
1890	5	0	0	0
1891	1	0	0	4
1892	2	0	0	2
1893	2	0	1	1
1894	7	1	0	0
1895	1	0	0	2
1896	0	0	0	1
1897	1	1	0	0
1898	0	0	0	0
1899	2	1	0	0
1900	2	0	0	0
1901	1	0	0	2
1902	0	0	0	1
1903	2	0	0	0
1904	0	0	0	0
1905	0	0	0	0
1906	0	0	0	0
1907	0	0	0	0
1908	1	0	0	0
1909	1	2	0	2
1910	3	0	0	2
1911	2	2	0	3
1912	2	0	0	3
1913	7	1	0	3
1914	0	0	0	1
1915	8	0	0	2
1916	5	0	0	0
1917	0	0	0	1
1918	0	0	0	4
1919	3	0	0	1
1920	9	1	0	4
1921	3	2	0	0
1922	1	0	0	0
1923	4	0	0	0

Appendix 4 Continued.

Year	Winter	Spring	Summer	Autumn
1924	1	0	0	0
1925	14	0	0	0
1926	1	0	0	1
1927	2	0	0	0
1928	11	0	1	3
1929	1	0	0	2
1930	10	1	0	0
1931	2	1	0	0
1932	6	0	0	0
1933	5	1	0	0
1934	3	2	0	0
1935	7	0	0	6
1936	8	2	1	3
1937	17	0	0	0
1938	12	4	3	6
1939	1	1	1	0
1940	0	0	0	2
1941	4	1	2	8
1942	3	1	0	2
1943	5	3	0	11
1944	5	0	0	6
1945	9	1	0	3
1946	13	1	1	0
1947	2	6	0	2
1948	12	3	0	3
1949	2	0	0	6
1950	9	2	8	15
1951	4	1	4	6
1952	6	4	2	5
1953	2	2	1	12
1954	14	3	3	5
1955	5	2	0	3
1956	5	3	3	4
1957	14	0	2	3
1958	10	2	0	3
1959	5	2	4	7
1960	5	4	1	6
1961	9	4	1	2
1962	7	0	3	3
1963	4	7	1	3
1964	5	6	2	1
1965	4	1	2	5
1966	11	4	1	6

Appendix 4 Continued.

Year	Winter	Spring	Summer	Autumn
1967	8	8	0	3
1968	5	1	1	1
1969	3	0	0	3
1970	2	0	1	3
1971	1	0	0	1
1972	0	1	0	2
1973	0	0	0	1
1974	9	0	0	7
1975	12	0	1	3
1976	7	2	0	5
1977	3	5	1	6
1978	7	0	0	7
1979	7	5	0	5
1980	7	2	2	5
1981	8	3	0	6
1982	15	7	1	13
1983	10	2	0	8
1984	12	3	0	4
1985	0	0	2	2
1986	5	2	1	4
1987	5	1	0	1
1988	5	1	1	1
1989	4	4	0	2
1990	13	0	0	0
1991	10	1	1	5
1992	5	0	1	1
1993	1	3	0	0
1994	5	2	0	0
1995	1	1	0	1
1996	0	1	0	5
1997	1	0	0	1
1998	2	0	0	1
1999	1	0	0	1
2000	4	0	0	1

Appendix 5 Daily Days With Gale - Instrumental/Observational Data At Particular Times (Once or Twice Daily) By Component at Armagh Observatory 1844-2002

Year Month Day Time Direction Strength
a) Component 1: 1844 January 1 to 1860 March 3
(early version of the Beaufort land scale where gale = force 8 but only 24mph).

1844	1	8	10	SbyE	9
1844	1	29	22	W	9
1844	1	30	22	WbyN	9
1844	2	18	10	N	8
1844	2	29	22	WSW	8
1844	3	2	22	SW	8
1844	3	11	10	W	10
1844	3	11	22	W	9
1844	3	15	10	NE	9
1844	3	16	22	NE	9
1844	6	12	10	SbyW	10
1844	6	13	10	W	9
1844	6	13	22	W	10
1844	7	13	22	SWbyW	8
1844	8	2	10	NEbyN	8
1844	9	30	22	SW	8
1844	10	2	10	WSW	9
1844	10	8	22	SSW	10
1844	10	9	22	SE	11
1844	10	30	10	SEbyS	8
1844	10	30	22	SE	8
1844	10	31	10	ESE	9
1844	10	31	22	SE	8
1844	11	1	10	NNE	10
1844	11	1	22	SEbyE	10
1844	11	2	10	NNE	8
1844	11	2	22	EbyN	10
1844	11	22	22	SbyE	9
1844	11	26	22	SW	8
1844	12	12	10	ESE	8
1845	1	4	22	SW	10
1845	1	5	22	SW	8
1845	1	22	10	S	9
1845	1	25	22	SWbyW	8
1845	3	20	10	SbyW	8
1845	3	21	10	SW	8
1845	3	26	22	W	9
1845	3	27	10	W	9
1845	3	27	22	SWbyW	10
1845	3	29	10	SSE	9
1845	4	13	10	NWbyN	8
1845	4	13	22	WbyN	8
1845	4	14	10	N	8
1845	4	14	22	NWbyN	8
1845	4	25	22	SE	9
1845	4	26	10	SWbyS	9

1845	4	26	22	S	9
1845	6	2	10	SWbyS	8
1845	6	4	10	S	8
1845	6	5	10	SSW	10
1845	6	5	22	S	10
1845	6	6	22	SW	9
1845	6	8	10	SW	8
1845	6	27	10	NbyW	8
1845	6	27	22	NNE	8
1845	8	22	10	SWbyW	8
1845	8	22	22	SbyW	8
1845	9	27	10	WbyS	9
1845	9	27	22	SWbyW	9
1845	10	12	10	S	10
1845	10	12	22	SSE	10
1845	10	13	22	S	9
1845	10	14	22	SSW	9
1845	10	17	10	SW	8
1845	10	17	22	SW	8
1845	10	18	10	WbyS	8
1845	10	19	10	W	8
1845	10	19	22	SWbyW	9
1845	11	18	10	SSW	8
1845	11	25	10	WbyS	9
1845	11	30	10	SW	10
1845	11	30	22	S	9
1845	12	14	22	SW	9
1845	12	20	22	NbyW	8
1845	12	22	22	NWbyW	9
1845	12	25	10	SW	9
1845	12	27	22	W	8
1845	12	29	10	SWbyW	10
1845	12	29	22	SWbyW	8
1845	12	31	22	WbyN	8
1846	1	6	22	SWbyS	8
1846	1	7	22	SW	8
1846	1	12	22	SEbyE	8
1846	1	24	22	SEbyS	8
1846	1	28	22	SWbyS	10
1846	1	29	10	SWhalfS	8
1846	1	30	10	SW	9
1846	2	6	22	SWbyS	9
1846	2	21	22	S	8
1846	2	22	22	S	9
1846	2	23	22	SbyE	9
1846	2	23	22	SSE	8
1846	3	15	10	SW	9
1846	3	15	22	SW	10
1846	3	21	10	WSW	8
1846	3	21	22	SWbyS	9
1846	4	10	10	SE	8
1846	4	11	10	SE	9
1846	4	12	10	SSE	8
1846	5	3	10	E	8
1846	5	9	10	SSW	8

1846	5	10	10	SWbyS	9
1846	5	11	10	SE	10
1846	5	11	22	S	8
1846	6	28	10	SSW	8
1846	6	29	10	SWbyS	8
1846	6	29	22	SW	8
1846	7	22	10	S	8
1846	7	26	22	SbyW	8
1846	10	6	10	S	8
1846	10	7	10	SW	8
1846	10	20	22	SEbyE	8
1846	10	21	10	NW	9
1846	10	21	22	NW	10
1846	10	22	22	NWbyW	9
1846	10	31	10	SbyW	8
1846	10	31	22	S	8
1846	11	1	22	S	8
1846	11	3	22	SbyE	8
1846	11	6	22	SbyE	8
1846	11	16	22	SEbyE	10
1846	11	19	22	SbyE	9
1846	11	20	22	W	8
1847	1	6	10	SE	8
1847	1	7	22	SE	8
1847	1	14	10	SbyE	10
1847	1	22	22	SEbyS	9
1847	1	23	10	SSE	11
1847	3	14	22	S	9
1847	3	15	22	SbyE	8
1847	3	19	22	SE	9
1847	3	20	22	SSE	9
1846	4	7	10	W	10
1846	4	8	10	WbyN	10
1847	4	8	22	WbyS	10
1847	4	25	10	W	10
1847	4	25	22	S	11
1847	4	26	10	SW	11
1847	4	26	22	S	10
1847	4	27	10	WbyS	8
1847	4	27	22	W	10
1847	5	24	10	SWbyS	8
1847	5	24	22	SWbyS	8
1847	5	25	22	SbyW	10
1847	8	3	10	S	8
1847	9	11	22	SW	8
1847	9	15	10	WbyN	9
1847	9	22	10	SW	8
1847	9	22	22	S	9
1847	10	10	10	SSE	8
1847	10	11	22	SEbyS	8
1847	10	22	22	SW	10
1847	10	26	22	S	10
1847	11	1	22	SSW	10
1847	11	6	10	ShalfW	9
1847	11	7	10	S	10

1847	11	8	22	W	9
1847	11	9	10	SSW	9
1847	11	14	22	SWhalfW	8
1847	11	20	10	SbyE	8
1847	11	20	22	S	8
1847	11	21	22	NW	9
1847	11	22	22	SWbyW	8
1847	11	24	10	SbyW	8
1847	12	2	22	SSW	8
1847	12	5	22	N	8
1847	12	7	10	SW	9
1847	12	10	22	SW	10
1847	12	12	10	SSE	9
1847	12	12	22	SbyE	8
1847	12	13	22	SbyE	9
1847	12	15	22	SByE	8
1847	12	16	10	SbyE	10
1847	12	16	22	S	8
1847	12	17	22	SSW	10
1848	1	2	10	S	9
1848	1	4	22	SbyW	9
1848	1	6	22	SSW	8
1848	2	7	10	SbyW	8
1848	2	8	10	WbyN	8
1848	2	11	10	SW	10
1848	2	12	10	SW	10
1848	2	13	22	SW	9
1848	2	21	10	SSW	9
1848	2	22	22	WSW	10
1848	2	24	22	S	8
1848	2	26	10	SbyE	8
1848	2	27	22	SW	9
1848	2	28	22	SWbyS	8
1848	3	16	10	NbyE	9
1848	3	22	10	W	8
1848	3	22	22	S	9
1848	4	18	22	E	8
1848	7	19	10	NW	8
1848	7	22	22	SSW	10
1848	7	26	10	SW	8
1848	7	26	22	SWbyS	8
1848	8	18	22	S	8
1848	8	28	22	SWbyS	9
1848	10	26	22	SbyE	9
1848	11	19	10	SW	10
1848	11	19	22	SW	10
1848	11	20	22	SW	10
1848	11	25	22	SWbyS	9
1848	11	28	22	W	9
1848	12	10	22	S	10
1848	12	12	22	S	8
1848	12	13	10	SSE	8
1848	12	13	22	SE	9
1848	12	14	10	ESE	8
1848	12	15	22	SWbyW	9

1848	12	17	10	SSE	9
1848	12	17	22	SbyE	10
1848	12	26	22	SW	8
1849	1	9	22	SSW	8
1849	1	17	10	SWbyS	10
1849	1	21	22	SW	8
1849	1	22	22	SWbyW	8
1849	1	23	10	S	10
1849	1	23	22	SSW	10
1849	1	24	10	WSW	8
1849	1	24	22	SWbyW	10 and 11
1849	1	29	10	SWbyW	8
1849	1	29	22	S	8
1849	2	7	22	SWbyS	8
1849	2	9	22	SW	9
1849	2	14	22	SWbyS	8
1849	2	18	10	SWbyS	8
1849	2	18	22	SSW	9
1849	2	22	22	WSW	8
1849	2	27	10	WbyN	8
1849	2	27	22	SbyE	8
1849	3	4	22	SWbyW	8
1849	3	6	22	SWbyS	11
1849	3	31	22	SbyW	9
1849	4	7	22	NE	9
1849	4	8	10	NE	8
1849	4	8	22	NE	8
1849	5	12	22	SbyE	8
1849	5	21	22	SSE	8
1849	5	25	22	SSW	8
1849	7	2	22	SSW	8
1849	7	6	22	S	9
1849	7	22	22	SbyW	8
1849	8	10	10	S	8
1849	8	11	10	S	9
1849	8	12	22	SbyW	10
1849	9	26	10	E	10
1849	9	26	22	E	10
1849	10	17	22	S	10
1849	10	18	22	S	8
1849	10	19	22	SbyE	8
1849	10	20	22	S	8
1849	10	22	22	SW	10
1849	10	24	22	SbyW	8
1849	11	8	22	SSW	8
1849	11	17	22	SbyW	10
1849	12	13	22	SbyW	8
1849	12	14	22	W	9
1849	12	15	22	S	8
1849	12	18	22	NbyW	9
1849	12	26	22	NWbyW	9
1850	1	8	22	SSE	8
1850	1	10	22	SEbyS	8
1850	1	27	22	SbyhalfW	11

1850	2	1	22	SWbyW	8
1850	2	5	22	W	11
1850	2	8	22	SW	9
1850	2	17	22	SWbyW	9
1850	3	29	22	SE	10
1850	3	30	10	SbyE	8
1850	3	30	22	W	9
1850	4	1	22	SE	8
1850	6	12	22	WSW	8
1850	6	30	22	SW	8
1850	9	25	21	SSW	8
1850	9	27	9	SWbyS	8
1850	9	28	21	SW	8
1850	10	6	21	SbyW	8
1850	10	18	21	SWbyW	8
1850	10	31	9	SWbyS	8
1850	11	2	21	SW	8
1850	11	3	21	SbyW	9
1850	11	4	21	WSW	9
1850	11	6	9	SWhalfW	9
1850	11	18	9	SEbyS	8 and 9
1850	11	22	21	SbyE	8.25
1850	12	1	21	SSE	8
1850	12	2	9	SbyE	9
1850	12	3	21	SSE	9
1850	12	5	9	S	8
1850	12	9	9	SEbyS	8
1850	12	12	9	S	8
1850	12	13	9	SSE	11
1850	12	14	9	SWbyS	8
1850	12	14	21	SW	9
1850	12	22	9	SWbyS	8
1850	12	29	9	SWbyS	8
1850	12	30	9	S	10
1850	12	31	9	SWhalfS	10
1850	12	31	21	SbyW	8
1851	1	1	21	SbyW	10
1851	1	3	9	SEbyE	8
1851	1	10	21	SSW	10
1851	1	12	9	SbyW	12
1851	1	14	21	SWbyS	9
1851	1	15	9	SSE	12+
1851	1	16	9	SSW	10
1851	1	16	21	SWbyS	12
1851	1	18	9	ShalfW	11
1851	1	18	21	ShalfE	9
1851	1	19	9	S	8
1851	1	19	21	SWbyS	8
1851	1	27	9	SbyW	8
1851	1	27	21	SW3/4 E	10
1851	1	28	9	SSW	10.5
1851	2	2	21	SbyW	8
1851	2	4	9	SbyW	8
1851	2	4	21	SSE	9
1851	2	17	9	SWhalfS	10
1851	2	18	9	SWhalfW	10

1851	2	18	21	SW	9
1851	3	8	9	ShalfW	8
1851	3	8	21	ShalfW	8
1851	3	20	9	SEhalfE	8
1851	4	16	9	ShalfE	8
1851	4	18	9	S	8
1851	5	7	9	SSEbyS1/2E	9
1851	6	7	9	SSWbyW	8
1851	7	13	21	SSW	8
1851	10	10	9	SWhalfS	9
1851	10	18	21	SW	8
1851	12	7	21	SbyW	12
1851	12	8	9	SSW	9
1851	12	9	21	SbyW	8
1851	12	17	9	S	8
1851	12	19	9	SbyW	8
1851	12	20	21	S	9
1852	1	2	9	SbyW	10
1852	1	6	9	SWbyW	8
1852	1	6	21	SbyW	9
1852	1	7	9	SbyW	11
1852	1	8	21	NW	9
1852	1	12	21	SEbyS	9
1852	1	18	9	SbyW	8
1852	1	20	9	S	12
1852	1	21	9	SW	9
1852	1	21	21	SW	8
1852	1	22	21	WSW	9
1852	1	23	9	SWhalfW	9
1852	1	26	21	S	12+
1852	1	31	21	SWbyS	8
1852	2	3	9	SWbyW	9+
1852	2	5	21	SWbyW	8
1852	2	7	9	SWbyW	9
1852	2	7	21	SWbyS	8
1852	2	9	21	NWbyN	8+
1852	2	16	9	WbyN	9
1852	2	16	21	WbyN	12
1852	3	20	9	SSE	8.5
1852	3	20	21	SSEbyE	8
1852	4	22	9	SE	8
1852	5	11	9	WSW	8.5
1852	5	15	9	S	9
1852	6	16	9	EbyS	8
1852	11	1	9	S	9
1852	11	7	21	SW	9
1852	11	12	9	ENE	8
1852	11	13	21	NEbyE	8
1852	11	25	21	ESE	8.5
1852	12	7	21	ShalfE	8
1852	12	10	21	S	9
1852	12	18	21	SbyE	10
1852	12	26	21	SbyE	10+
1852	12	29	9	SSE	12
1852	12	29	21	SSW	10
1852	12	30	9	SWhalfW	9

1852	12	31	9	SSW	9
1852	12	31	21	SWhalfW	8.5
1853	1	3	21	ShalfE	12+
1853	1	4	9	SSW	8
1853	1	7	21	SWbyS	8
1853	1	11	9	SW	9
1853	1	19	21	SSW	9
1853	2	26	9	NNWhalfN	8
1853	3	9	9	S	8
1853	5	16	9	NEbyE	8
1853	5	21	9	SE	8
1853	9	11	9	S	8
1853	9	25	9	SWbyW	8
1853	9	28	9	WSW	8
1853	10	21	9	SbyW	8
1853	10	22	9	SWhalfW	10
1853	10	26	21	ESE	8
1853	10	30	21	S	8
1853	11	22	21	S	9
1853	11	23	21	SbyE	8
1853	11	25	9	SbyW	8.5
1854	1	13	9	SSE	8
1854	1	17	9	SWbyW	9
1854	1	19	9	S	8
1854	1	19	21	S	11
1854	1	20	9	SSE	9
1854	1	21	9	SSE	10
1854	1	21	21	SSW	8
1854	1	23	21	SSW	9
1854	1	24	9	SWhalfS	8
1854	1	25	9	SSW	11
1854	1	27	9	SSW	9
1854	1	28	21	SWbyS	11
1854	1	30	21	WhalfS	9
1854	1	31	21	SW	8
1854	2	7	21	WSW	8
1854	2	17	9	W	9
1854	2	21	21	SWbyS	8
1854	2	24	9	SWbyW	8
1854	2	27	9	SW	9
1854	3	7	21	SWbyS	8
1854	3	9	21	SW	8
1854	3	10	21	SWbyS	8
1854	3	11	9	WSW	8
1854	3	13	9	SSE	10.5
1854	3	13	21	SbyE	11
1854	3	15	21	SSW	10
1854	5	1	9	WbyS	8
1854	6	12	9	SW	9
1854	10	27	9	SSE	10
1854	10	27	21	SE	10
1854	11	23	9	N	8
1854	11	29	9	WhalfS	8
1854	12	3	21	WbyS	8
1854	12	4	21	SbyW	10

1854	12	5	9	SSW	8
1854	12	14	21	SW	8
1854	12	19	21	WbyS	9
1854	12	22	9	SW	9
1854	12	24	21	ShalfE	8+
1854	12	25	9	SW	8.5
1855	1	5	9	SbyW	9
1855	1	6	21	SWbyS	8
1855	2	3	9	ENE	8
1855	2	28	21	SbyW	10
1855	3	1	9	SWbyS	11
1855	3	2	9	S	10
1855	3	2	21	SSE	9
1855	3	22	21	NNE	9
1855	4	10	9	WSW	8
1855	4	10	21	WbyN	8?
1855	5	7	9	SbyW	9
1855	5	13		NEbyN	9
1855	6	5	9	SbyE	8
1855	10	9	9	SWbyS	9
1855	10	30	9	NNE	9
1855	12	21	9	SEbyE	10
1855	12	22	21	SEbyE	9
1855	12	24	9	SbyW	11
1855	12	24	21	SSW	10
1855	12	30	21	S	9
1855	12	31	9	ShalfE	9
1855	12	31	21	SEhalfs	10
1856	2	5	21	S	11
1856	2	6	21	SWbyS	12+
1856	2	7	21	SW	8
1856	2	9	9	ShalfW	8+
1856	2	14	9	SbyW	8
1856	3	15	21	Ehalfs	8
1856	3	16	21	SEbyE	8+
1856	4	2	9	SEbyE	8
1856	4	4	21	SbyE	8
1856	5	21	21	SEbyE	9.5
1856	6	10	21	SWbyS	8
1856	6	11	9	SSW	9
1856	6	11	21	SSW	10
1856	8	12	9	SEbyS	8
1856	9	27	9	SE	8
1856	10	1	21	SEbyS	8
1856	12	6	9	SbyW	10
1856	12	9	21	SbyW	12
1856	12	29	21	SW	8
1857	1	1	21	SW	8
1857	1	2	9	SW	8
1857	1	3	9	NE	8
1857	1	23	9	WNW	8
1857	2	1	21	SSE	8+
1857	2	9	9	SEbyS	12

1857	2	10	9	SbyW	10
1857	2	21	21	SbyW	8
1857	2	22	9	SbyW	9
1857	3	10	21	S	8
1857	3	12	21	S	10
1857	3	14	9	SW	9
1857	3	17	9	SSW	9
1857	3	21	21	E	9
1857	4	17	9	SEbyS	9
1857	5	19	21	SSW	9
1857	10	2	21	WSW	9
1857	12	2	21	SbyE	10
1857	12	3	9	SbyE	10
1857	12	3	21	SWbyS	8
1857	12	5	21	S	9
1857	12	6	21	SbyW	9
1857	12	14	21	SSW	8
1857	12	16	9	SbyW	8
1857	12	17	9	SSW	9
1857	12	17	21	SSW	9
1857	12	18	9	SbyW	10
1857	12	20	9	SW	8
1857	12	21	21	SW	10
1857	12	24	21	SbyW	10
1858	1	1	21	ShalfW	8
1858	1	3	21	SE	8
1858	1	4	9	SE	10
1858	1	8	21	SbyW	10
1858	1	12	9	SWbyS	8
1858	1	19	21	SWbyW	8
1858	1	20	21	NW	8
1858	1	24	21	SbyE	8
1858	1	25	9	SbyE	10
1858	1	26	9	SE	8
1858	1	30	9	SW	10
1858	2	4	9	SSW	8
1858	2	5	21	S	8
1858	2	6	21	SbyE	8
1858	2	9	9	ESE	8
1858	2	9	21	SEbyE	9
1858	2	10	21	E	8
1858	2	21	9	SE	8
1858	2	21	21	SE	10
1858	3	1	21	NEbyN	9
1858	3	2	9	NE	9
1858	3	2	21	ENE	10
1858	3	3	9	NEbyN	8
1858	4	2	21	SE	8
1858	4	5	9	EbyS	8
1858	4	5	21	SE	11
1858	4	6	9	E	9
1858	4	6	21	SEbyE	10
1858	4	7	21	EbyS	8
1858	4	8	9	EbyN	9
1858	4	9	9	E	8
1858	4	14	9	SE	8

1858	4	15	9	S	8
1858	5	1	21	NbyW	8
1858	5	17	9	SSW	8
1858	5	18	9	SSW	10
1858	10	2	21	SW	8
1858	10	4	21	SW	8
1858	10	14	9	SWbyS	9
1858	11	26	21	SbyE	8
1858	12	3	9	S	9
1858	12	3	21	S	9
1858	12	7	21	SbyE	9
1858	12	9	21	SSE	8
1858	12	10	21	SSE	11
1858	12	11	9	SbyE	8
1858	12	11	21	S	9
1858	12	15	9	SEbyE	9
1858	12	16	9	S	8
1858	12	17	21	SEbyS	10
1858	12	21	9	SW	10
1858	12	21	21	SW	8
1858	12	22	9	SW	9
1858	12	26	9	SWbyW	8
1859	1	16	21	SW	11
1859	1	17	21	SWbyS	9
1859	1	18	9	SWbyW	9
1859	1	20	9	SbyW	10
1859	1	20	21	S	11
1859	1	21	21	SSW	8
1859	1	29	9	S	8
1859	1	31	9	SW	8
1859	2	9	21	SbyW	8
1859	2	10	9	S	9
1859	2	16	9	SWbyS	10
1859	3	6	22	SWbyS	8
1859	3	7	10	WbyS	10
1859	3	11	10	SSW	11.5
1859	3	11	22	SW	8
1859	3	12	22	SW	9
1859	3	15	10	NW	9
1859	3	16	10	SWhalfS	8
1859	3	16	22	SbyW	10
1859	3	20	10	SWbyS	10
1859	4	1	10	S	10
1859	4	6	22	S	8
1859	4	24	22	NE	8
1859	4	27	10	E	8
1859	4	28	10	E	9
1859	5	7	10	SEbyS	11
1859	7	31	10	SWbyW	8
1859	9	5	22	SWbyS	9
1859	9	8	22	SSE	10
1859	9	9	10	WSW	6 to 9
1859	9	12	22	SSE	10
1859	10	31	22	SWbyS	8
1859	11	5	22	SWbyS	9
1859	11	11	22	SSE	9

1859	11	18	10	SSW	8
1859	12	3	22	SbyW	9
1859	12	4	22	SWbyS	9
1859	12	5	10	SW	10+
1859	12	5	22	SWbyS	8
1859	12	8	10	SE	9
1859	12	23	22	ESE	9
1859	12	30	10	SW	8
1860	1	1	22	SWbyS	8
1860	1	2	10	SW	10
1860	1	15	10	SbyW	9
1860	1	21	10	SSW	11
1860	1	21	22	WbyN	9
1860	2	4	22	WSW	8
1860	2	10	22	SW	8
1860	2	18	22	WSW	8
1860	2	23	22	S	8
1860	2	25	10	SSW	8
1860	2	25	22	SbyW	8
1860	3	1	10	S	9
1860	3	11	10	SSE	10
1860	3	18	10	WSW	8
1860	3	19	10	SWbyW	11
1860	3	20	10	SWbyW	11
1860	3	23	10	SSW	8

**b) Component 2: 1860 March 26 to 1882 December 31
(miles travelled in 12 hours 300 miles and above).**

1860	10	22	10	SW	300.1
1860	10	26	10	ShalfW	308
1861	1	24	10	S	300
1861	1	25	22	SW	316.5
1861	2	4	10	WbyS	317
1861	2	6	10	SSW	302.5
1861	2	20	10	ESE	360
1861	3	3	22	SW	301
1861	3	6	10	SW	397
1861	3	6	22	W	337
1861	3	25	22	SSW	302.5
1861	9	27	22	SbyE	326
1861	10	12	10	SW	309
1861	10	13	10	SSE	302
1861	10	13	22	S	333
1861	11	5	10	SWbyS	379.5
1861	11	19	22	SWhalfS	339
1861	11	25	10	SWbyS	416
1861	11	25	22	WbyS	343
1861	11	29	22	SW	358.5
1861	11	30	22	SW	376
1861	12	3	10	S	352
1861	12	10	22	S	360
1862	1	16	22	ShalfE	317

1862	1	18	22	SbyE	330
1862	1	22	22	SSW	334
1862	1	23	10	S	333
1862	1	27	10	ShalfW	307
1862	1	27	22	SSE	341
1862	1	28	10	SW	349
1862	1	28	22	SWbyS	310
1862	2	5	10	WbyS	367
1862	2	20	10	SbyW	306.3
1862	2	21	10	SbyE	399.0
1862	2	21	22	S	408.7
1862	3	7	10	SbyW	431.4
1862	4	19	10	SSW	324.4
1862	5	23	22	SW	328
1862	6	7	10	SW	306
1862	6	7	22	SW	342
1862	7	24	22	SW	345
1862	8	4	10	SEbyS	306
1862	8	6	22	SbyE	302
1862	10	23	10	WbyN	329
1862	10	27	10	SW	314
1862	11	8	22	SW	360.2
1862	12	5	22	S	332.5
1862	12	15	22	SbyW	326
1862	12	16	10	WSW	326
1862	12	18	22	WbyS	368.2
1862	12	19	10	W	325.2
1862	12	19	22	WbyN	329
1862	12	25	22	SWbyS	338.5
1862	12	27	22	SW	333.5
1863	1	1	10	SW+W	350.5
1863	1	20	10	W	307
1863	1	20	22	WbyS	322
1863	1	22	10	SSW	338.9
1863	1	22	22	SSW	347
1863	1	23	10	SSW	353
1863	1	23	22	S	326
1863	1	26	10	SbyW	338.5
1863	1	26	22	WSW	328.5
1863	1	29	10	SW	371.8
1863	1	29	22	SSW	340
1863	1	30	10	SW	301.5
1863	2	2	10	WSW	355
1863	2	4	22	W	402.2
1863	2	22	22	SWbyW	311
1863	2	26	10	SWbyS	324.3
1863	2	26	22	SW	305
1863	3	1	10	SSW	316
1863	3	6	22	SW	301.5
1863	3	20	22	SW	319
1863	4	5	10	SWbyS	362
1863	4	21	22	WbyS	302
1863	10	29	22	WbyS	347
1863	10	31	10	SW	379
1863	11	18	22	S	305
1863	12	1	10	SbyW	381

1863	12	4	22	SW	373
1863	12	5	10	SW	386
1863	12	6	22	SW	324
1863	12	7	10	SW	319
1863	12	7	22	SW	383
1863	12	8	10	WbyN	398
1863	12	11	10	WSW	479
1863	12	16	10	WSW	309
1864	1	11	22	SSE	340
1864	1	17	10	SW	337
1864	1	22	10	SWbyS	306.4
1864	2	13	10	SWbyW	542
1864	2	13	22	SW	306
1864	2	14	10	SWbyW	302
1864	2	14	22	SW	345
1864	2	15	10	SWbyW	320
1864	3	13	22	SW	325
1864	3	14	10	SW	300
1864	3	14	22	SW	370
1864	4	29	22	SEhalfE	310
1864	9	9	10	SW	306
1864	11	29	22	S	311
1864	11	30	10	SWbyS	320
1864	12	11	19	S	328
1865	1	9	22	SW	300
1865	1	11	22	S	311
1865	3	19	10	E	357
1865	3	19	22	E	315
1865	11	20	22	SbyW	312
1865	11	21	22	Sbyw	305
1865	12	6	22	S	306
1865	12	21	10	SbyW	343
1865	12	24	22	S	365
1865	12	25	22	SE	381
1865	12	29	22	SbyW	312
1865	12	30	22	S	366
1865	12	31	10	SWbyS	349
1866	1	3	22	S	345
1866	1	4	10	NW	375
1866	1	8	22	WbyS	320
1866	1	14	22	SSW	352
1866	1	15	10	WSW	303
1866	2	4	22	WbyS	314
1866	2	5	22	WbyS	305
1866	2	6	10	WSW	337
1866	2	23	10	W	366
1866	3	5	22	SSW	305
1866	3	23	22	SEbyS	390
1866	4	16	10	SSW	356
1866	4	16	22	SWbyS	318
1866	11	7	10	W	314
1866	12	7	10	WhalfN	441
1866	12	18	10	SSW	306
1866	12	18	22	SW	326

1866	12	26	22	WbyS	311
1867	2	10	10	SSW	313
1867	3	14	10	NE	455
1867	3	26	10	WSW	324
1867	4	9	10	WhalfN	301
1867	4	13	22	W	306
1867	4	20	10	WbyN	367
1867	4	29	22	SEbyE	360
1867	12	15	10	WSW	377
1867	12	16	22	SW	315
1868	1	14	10	SW	325
1868	1	14	22	SW	312
1868	1	16	22	S	331
1868	1	17	10	S	315
1868	1	18	10	SbySE	321
1868	1	18	22	SW	321
1868	1	24	22	SWbyW	433
1868	1	30	22	SW	387
1868	1	31	10	SSW	344
1868	1	31	22	SW	435
1868	2	1	10	WSW	396
1868	2	5	10	SW	390
1868	2	16	22	SbyW	311
1868	2	20	22	WbyS	382
1868	2	22	10	SW	324
1868	3	4	22	WbyS	343
1868	3	13	10	S	321
1868	3	13	22	SW	389
1868	3	16	10	SW	309
1868	5	20	22	SW	342
1868	11	3	10	SWbyW	330
1868	11	3	22	WSW	301
1868	11	22	10	SW	336
1868	11	29	22	SE	346
1868	11	30	10	SSE	435
1868	12	3	10	ShalfE	315
1868	12	4	22	S	341
1868	12	5	10	SWbyS	301
1868	12	6	10	SSW	316
1868	12	10	10	SbyW	395
1868	12	10	22	ShalfW	405
1868	12	14	10	SbyE	321
1869	1	4	10	WhalfS	342
1869	1	14	22	SE	357
1869	1	20	10	S	339
1869	1	29	10	ShalfW	319
1869	1	29	22	SW	382
1869	1	30	10	SW	337
1869	1	30	22	SEhalfS	362
1869	2	4	22	SSW	304
1869	2	7	22	SWbyS	353
1869	2	13	22	SWbyW	398
1869	2	17	22	SSW	439
1869	2	25	22	W	301

1869	2	27	10	WbyN	305
1869	12	10	22	NW	337
1869	12	13	10	SW	340
1869	12	13	22	W	428
1869	12	29	22	SSW	345
1869	12	30	10	SSW	393
1869	12	30	22	SW	330
1870	1	30	10	SE	367
1870	2	6	10	SEbyE	421
1870	2	14	10	NNE	340
1870	2	14	22	NE	302
1870	2	28	10	S	306
1870	3	1	10	S	305
1870	5	12	22	SSW	338
1870	9	9	22	WSW	421
1870	10	18	22	SE	304
1871	1	1	10	S	397
1871	1	16	10	SbyW	464
1871	1	16	22	SWbyS	306
1871	2	5	10	SSW	308
1871	3	5	10	S	310
1871	3	5	22	SSE	323
1871	3	6	10	SbyE	323
1871	3	7	22	SSW	351
1871	3	11	22	SSW	336
1871	3	12	10	S	401
1871	3	21	22	SWbyS	306
1871	4	18	22	SEbyE	313
1871	10	18	22	SbyE	312
1871	11	19	22	S	362
1871	11	20	10	SbyE	403
1871	11	20	22	SbyE	401
1871	11	21	10	SE	385
1871	12	18	10	S	417
1871	12	18	22	WbyS	428
1871	12	30	10	SWbyW	305
1871	12	31	22	S	336
1872	1	1	10	S	478
1872	1	2	10	SbyW	304
1872	1	3	22	S	353
1872	1	17	22	SbyE	312
1872	1	18	10	SW	318
1872	1	30	10	S	326
1872	1	30	22	S	300
1872	1	31	22	S	468
1872	2	1	10	SWbyS	320
1872	2	1	22	S	304
1872	2	3	22	SbyE	312
1872	2	9	10	SE	306
1872	4	22	10	NE	311
1872	11	6	10	SbyW	320
1872	11	6	22	SW	464
1872	11	26	10	SW	306
1872	12	6	10	WbyS	300

1872	12	23	22	SbyE	308
1872	12	24	22	S	357
1872	12	27	10	S	411
1872	12	30	22	SbyE	317
1873	1	3	10	S	330
1873	1	3	22	SW	322
1873	1	6	10	SbyW	382
1873	1	6	22	SSW	367
1873	1	8	10	S	364
1873	1	12	22	S	300
1873	1	13	10	SW	310
1873	1	18	10	S	329
1873	1	28	10	SE	349
1873	1	28	22	SbyE	370
1873	2	2	10	EbyN	312
1873	3	1	10	EbyS	325
1873	11	29	22	WbyN	303
1873	12	16	10	W	336
1873	12	21	22	WbyS	379
1873	12	29	22	SbyE	327
1873	12	30	10	S	374
1873	12	30	22	SSW	305
1874	1	1	22	SWbyS	399
1874	1	7	22	S	356
1874	1	15	10	SWbyS	306
1874	1	18	22	SWbyW	346
1874	2	11	10	SEbyS	313
1874	2	11	22	SSE	314
1874	2	14	10	SbyW	345
1874	2	25	10	SE	364
1874	2	25	22	SEbyS	417
1874	2	26	10	SbyE	427
1874	2	26	22	S	314
1874	2	28	22	SSE	360
1874	3	27	10	S	352
1874	3	27	22	WbyS	362
1874	4	1	22	SW	300
1874	4	2	10	S	354
1874	4	2	22	SbyW	380
1874	4	3	10	W	304
1874	4	13	10	SSE	300
1874	10	21	10	W	359
1875	1	1	10	SE	355
1875	1	1	22	SSW	461
1875	1	2	10	SSW	353
1875	1	3	10	SbyW	320
1875	1	5	22	SbyE	302
1875	1	8	22	SEbyS	300
1875	1	15	10	SEbyS	300
1875	1	15	22	SSW	331
1875	1	19	10	SW	416
1875	1	20	10	SWbyW	349
1875	1	27	22	SSW	324
1875	4	3	22	WSW	360
1875	10	26	10	SE	336

1875	11	2	10	SE	301
1875	12	21	22	SW	382
1875	12	22	22	WSW	300
1875	12	24	10	SWbyW	372
1875	12	31	10	Sbyw	357
1876	1	19	22	SW	345
1876	1	22	22	S	320
1876	1	23	22	SW	405
1876	3	3	22	SW	427
1876	3	4	10	WbyS	303
1876	3	14	22	W	388
1876	11	23	10	SSE	312
1876	12	26	22	SSE	374
1877	1	7	22	S	391
1877	1	18	10	SWbyS	314
1877	1	23	22	SSW	345
1877	1	30	10	WbyN	325
1877	2	3	10	SWbyS	301
1877	4	15	10	SEbyS	358
1877	4	15	22	SE	431
1877	4	16	10	SEbyE	305
1877	10	14	22	SW	306
1877	11	11	22	SWbyS	315
1877	11	14	22	SWbyS	302
1877	12	6	10	S	310
1877	12	11	22	SW	345
1878	1	20	22	SW	318
1878	3	6	22	WbyN	307
1878	4	13	10	SE	334
1878	12	31	10	SWbyS	334
1878	12	31	22	S	320
1879	1	7	22	SE	322
1879	1	17	22	SE	403
1879	3	4	10	SWbyS	332
1879	3	4	22	SWbyS	384
1879	3	5	10	SWbyS	344
1879	3	28	22	SSE	336
1879	3	30	10	SbyW	322
1879	12	26	22	SW	389
1879	12	27	10	S	336
1879	12	27	22	SWbyW	327
1880	1	1	22	SW	380
1880	1	28	22	SbyW	318
1880	1	30	10	SWbyS	320
1880	2	6	22	SWbyW	364
1880	2	13	22	SSE	301
1880	2	14	10	SWbyS	366
1880	2	15	22	SSE	313
1880	3	1	10	SW	374
1880	3	1	22	WSW	312
1880	4	18	10	S	371
1880	4	18	22	SSW	359

1880	4	21	10	SWbyW	312
1880	11	26	10	SWbyS	450
1880	11	26	22	SSW	358
1880	11	28	10	SSW	362
1880	11	28	22	SW	361
1881	2	7	10	SSE	359
1881	2	13	10	SEbyS	317
1881	3	3	22	ESE	316
1881	11	1	10	SbyW	344
1881	11	16	10	SbyW	344
1881	11	16	22	SW	305
1881	11	19	22	SW	373
1881	11	20	22	S	328
1881	11	21	22	S	305
1881	11	22	10	SWbyW	499
1881	11	22	22	SWbyS	327
1881	11	24	10	SSW	369
1881	11	26	22	SWbyW	355
1881	11	27	10	SW	439
1881	11	30	10	SbyE	395
1881	12	6	22	SWbyW	468
1881	12	24	10	S	385
1882	1	6	10	WbyS	342
1882	1	14	22	SSW	356
1882	1	15	10	S	341
1882	2	13	10	WbyS	429
1882	3	7	22	SWbyS	359
1882	3	8	10	SWbyS	351
1882	3	9	10	SW	306

Component 3: 1883 January 1 to December 31.

1883 No gales recorded

**Component 4: 1884 January 1 to 1919 December 31
(modified Beaufort scale using knots where a
gale = force 6 or 34 knots.**

1884	11	5	9	SW	6*
1884	12	7	9	SSW	6*
1884	12	31	9	SSE	6*
1885	1	1	9	SSE	6*
1885	1	28	9	SW	6*
1885	2	8	9	SW	6*
1885	2	21	9	SSE	6*
1885	3	17	9	SW	6*
1885	12	3	21	SSW	6*
1885	12	28	9	SSW	7*
1886	1	3	9	SW	6*
1886	4	2	9	SSW	6*
1886	5	17	21	SW	7*
1886	11	3	9	S	7*

1887	1	3	9	S	6*
1887	1	17	9	S	6*
1887	1	19	9	SW	6*
1887	2	3	9	SSW	7*
1887	2	23	9	SSW	7*
1887	11	26	9	SW	6*
1888	1	25	21	SW	7*
1888	11	16	9	SW	8*
1888	11	22	9	SW	6*
1888	11	26	9	SW	6*
1889	5	3	9	SSE	6*
1890	1	4	21	SSE	6*
1890	1	17	21	SSE	6*
1890	1	18	21	S	7*
1890	1	25	9	SW	7*
1890	3	24	9	SE	6*
1890	11	14	9	SE	6*
1891	1	31	9	SW	6*
1891	9	1	9	SSW	6*
1891	10	5	21	SE	6*
1891	11	28	9	SE	6*
1891	12	9	21	SSW	6*
1891	12	10	21	WSW	6*
1891	12	28	21	SSW	6*
1892	2	1	9	SSW	7*
1892	11	28	21	SW	6*
1893	2	10	9	WNW	6*
1893	7	21	9	SSW	6*
1893	12	8	9	SW	6*
1893	12	15	9	SSW	6*
1894	2	6	9	SW	6*
1894	2	7	9	SW	6*
1894	3	10	21	SSW	6*
1894	12	12	21	SSW	6*
1894	12	13	9	SSW	6*
1894	12	21	21	SSW	6*
1894	12	22	9	WNW	6*
1895	11	5	21	SSW	6*
1895	11	10	21	S	6*
1896	8	29	21	S	6*
1896	10	8	21	SSW	6*
1897	2	20	21	W	6*
1897	2	25	9	SW	6*
1897	2	25	21	SW	6*
1897	2	26	9	SSW	6*
1897	12	7	9	SSW	6*

1897	12	26	9	S	6*
1897	12	29	9	SSW	6*
1897	12	30	9	SSW	6*
1898	1	18	9	SSW	6*
1898	1	19	9	SSW	6*
1898	4	8	21	SSE	6*
1898	4	10	9	SSW	6*
1898	11	2	9	SSW	6*
1898	12	1	21	SSW	7*
1898	12	27	9	SSW	7*
1899	1	12	9	SSW	6*
1899	1	19	21	SSW	6*
1899	2	9	21	SSW	6*
1899	3	28	21	SSW	7*
1899	11	7	9	SSE	6*
1899	12	11	21	SSE	6*
1899	12	16	21	SE	6*
1900	1	19	9	SSW	7*
1900	1	26	9	SSW	6*
1900	12	10	21	SSW	6*
1900	12	11	21	SW	6*
1900	12	20	21	SW	8*
1901	1	13	9	SE	6*
1902	1	19	21	SW	6*
1902	2	16	9	S	7*
1902	11	27	21	SSE	6*
1902	12	25	9	SW	6*
1903	1	25	9	SW	7*
1903	1	30	9	SW	6*
1903	2	6	9	S	6*
1903	2	10	9	SW	6*
1903	2	19	9	SSW	6*
1903	2	26	21	SE	6*
1903	3	30	9	SW	6*
1903	8	30	21	SW	6*
1904	1	28	9	SSW	7*
1904	2	13	9	SSW	6*
1904	5	16	9	SSE	6*
1904	12	4	21	SW	6*
1904	12	29	21	SW	6*
1905	4	12	21	SSE	6*
1905	4	13	21	SSE	6*
1905	12	18	21	SSE	6*
1905	12	31	9	SE	6*
1906	1	14	21	SSW	6*
1908	2	22	9	SW	6*

1908	12	28	21	SSE	6*-7*
1910	1	9	9	SSW	6*
1911	2	28	9	SSW	6*
1911	4	19	9	SSE	6*
1911	11	5	9	SW	5*-6*
1912	11	26	9	S	6*
1915	2	3	21	S	6*
1917	1	26	21	ESE	6*
1917	3	6	21	E	6*
1917	11	24	9	WSW	6*
1917	11	30	21	SSW	6*
1917	12	16	9	N	6*
1918	1	30	21	SSE	6*
1918	2	1	9	SSE	7*
1918	2	16	9	S	6*
1918	2	18	9	S	6*
1918	2	21	21	SW	6*
1918	2	26	9	SW	6*
1918	8	22	9	SSW	6*
1918	9	22	9	S	6*
1918	10	4	21	SSW	6*
1918	10	5	21	SSW	6*
1918	10	6	9	SW	6*
1918	10	9	21	SSW	6*
1918	10	13	21	S	6*
1918	10	30	9	SSE	6*
1918	10	31	9	S	7*
1918	11	2	9	SSE	6*
1918	11	7	21	SSE	7*
1918	11	10	9	SW	7*
1918	11	30	21	S	6*
1918	12	4	9	S	6*
1918	12	7	21	SSE	6*
1918	12	17	21	S	6*-7*
1918	12	19	9	SW	5*-6*
1918	12	26	9	SSW	6*
1918	12	26	21	SSW	6*
1919	1	1	9	SSW	6*
1919	1	13	21	S	5*-6*
1919	3	2	9	SSW	6*-7*
1919	3	10	9	SSW	5*-6*
1919	3	26	21	SW	6*-7*
1919	3	27	9	NW	6*
1919	4	10	21	SW	6*-7*
1919	4	11	9	SW	6*
1919	4	27	21	NW	6*
1919	4	28	9	N	6*
1919	6	8	9	SSW	5*-6*
1919	12	12	9	SW	5*-6*
1919	12	14	21	SE	7*-8*

1919	12	18	9	SW	5*-6*
1919	12	18	21	W	5*-6*

**Component 5: 1920 January 1 to 1958 December 31
(standard Beaufort scale where a gale = force 8 or 39 mph).**

1920	1	25	21	S	8
1920	1	27	9	SE	10
1920	1	31	21	SW	7-8
1921	1	21	21	SW	8
1921	3	15	9	S	8-9
1922	12	25	9	SW	9
1923	2	5	21	S	7-8
1923	2	7	9	S	8
1924	12	4	9	SE	8
1924	12	26	21	S	8
1924	12	29	21	SSW	8
1925	1	1	9	S	8
1925	1	2	9	S	8
1925	1	2	21	SW	8
1925	1	13	21	S	9
1925	2	22	21	SE	9
1925	2	24	9	ESE	8
1927	1	27	21.30	S	8
1927	1	28	9.30	S	9
1928	1	6	9.30	W	8
1928	1	15	9.30	S	8
1928	1	21	9.30	S	8
1928	11	23	9.30	S	8
1928	12	25	21.30	SSW	8
1929	11	11	9.30	S	8
1929	12	11	21.30	SW	8
1929	12	24	21.30	E	9
1930	1	7	9.30	S	8
1932	1	13	9.30	WSW	9
1932	1	14	9.30	S	8
1933	1	2	9.30	S	8
1936	12	17	9	S	8
1936	12	19	21	SSW	8
1937	1	24	9	SE	8
1938	6	27	9	W	8
1940	12	16	9	S	9

1941	11	22	9	SE	8
1941	11	26	21	SSW	8
1942	12	15	9	S'E	9
1943	2	5	21	WSW	8
1943	4	25	21	SSW	8
1943	9	4	21	S'SE	8
1943	10	5	21	WSW	8
1944	11	4	21	SW	8
1945	2	24	21	SSW	8
1946	11	17	21	WNW	8
1946	12	1	21	W	8
1947	1	2	21	S	8
1947	1	8	9	ESE	8
1947	3	25	21	S	8
1947	4	5	21	SW	8
1947	4	23	21	W	8
1948	2	1	21	SSW	8
1948	2	8	21	W	8
1949	12	19	21	W	8
1950	2	17	21	SW	8
1950	4	8	10	WSW	8
1950	9	16	9	S	8
1950	9	16	21	S	8
1950	9	17	9	SW	8
1951	2	4	10	E'S	8
1951	4	3	21	sw	8
1951	4	12	10	SW	8
1951	11	4	21	SE	8
1951	11	14	21	SW	8
1951	12	26	21	SSE	8
1951	12	27	9	S	8
1952	1	14	21	SW	8
1952	10	28	9	SSW	8
1952	10	28	21	SW	8
1952	11	6	21	WNW	8
1953	4	11	9	S	8
1953	9	2	9	SW	8
1953	10	26	21	S	9
1953	11	1	21	NW	8
1953	11	6	21	SW	8
1954	1	15	21	W	8
1954	11	29	21	E	8
1954	12	1	21	SSW	8

1954	12	22	21	W	8
1955	11	2	9	SE	8
1955	12	28	9	WSW	8
1956	3	1	21	W	8
1956	9	28	9	SSW	8
1956	11	8	9	S	8
1956	12	12	9	WSW	8
1956	12	14	9	SSW	8
1956	12	14	21	SW	8
1957	1	3	21	SSW	8
1957	2	5	21	ESE	8
1957	8	24	21	WSW	8
1957	9	7	9	SSW	8
1957	10	27	21	SSW	8
1957	10	31	21	SSW	8
1957	11	18	21	SSE	8
1957	12	19	21	SSW	8
1958	1	8	21	W	8
1958	1	25	21	SSE	8
1958	1	27	21	SSE	8
1958	2	10	21	S	8
1958	3	17	9	E	8
1958	9	24	21	SW	8
1958	9	28	21	SSE	8
1958	12	19	21	SSE	8
1958	12	21	21	SSE	8

**Component 6: 1959 January 1 to 1999 December 31
(standard Beaufort scale where a gale = 37 knots which is
the mid-point of Beaufort Force 8 when using knots).**

1959	3	4	21	16	37
1959	8	14	9	18	37
1959	8	14	21	20	37
1959	10	26	21	34	37
1959	10	27	9	34	37
1959	10	27	21	34	37
1959	11	8	21	23	37
1959	12	29	9	16	37
1960	4	2	9	14	37
1960	6	12	9	23	37
1960	11	2	9	25	37
1961	1	27	9	20	37
1962	9	29	21	16	37
1962	9	30	9	18	37
1962	12	15	21	29	44
1963	2	6	9	11	37
1963	12	24	21	18	37

1964	3	17	9	14	37
1964	3	19	9	9	37
1964	5	7	21	23	37
1964	9	24	21	18	37
1964	10	6	21	18	37
1964	12	8	21	23	37
1964	12	11	21	18	37
1965	1	13	21	27	44
1967	2	28	9	18	37
1969	9	28	9	20	37
1970	11	3	9	20	37
1974	1	3	9	18	37
1974	1	10	9	14	37
1974	11	14	9	23	37
1974	12	17	9	25	37
1974	12	28	9	23	37
1975	12	30	9	23	37
1976	1	29	9	14	37
1976	1	30	9	14	37
1977	1	21	9	18	37
1977	3	10	9	14	37
1977	10	30	9	16	37
1978	1	3	9	29	37
1978	1	29	9	34	37
1978	11	14	9	23	37
1978	11	15	9	18	37
1978	12	7	9	14	37
1979	2	27	9	23	37
1979	11	25	9	23	37
1979	12	3	9	23	37
1979	12	4	9	18	37
1979	12	17	9	25	44
1980	11	1	9	16	37
1980	12	10	9	23	37
1980	12	14	9	16	37
1980	12	31	9	25	37
1981	1	3	9	27	37
1981	1	17	9	29	37
1981	11	20	9	25	44
1981	12	13	9	16	37
1981	12	26	9	14	37
1982	1	29	9	27	37
1982	2	3	9	14	37

1982	2	4	9	16	37
1982	2	12	9	18	44
1982	2	13	9	20	37
1982	2	21	9	14	37
1982	5	2	9	20	37
1982	10	16	9	14	37
1982	10	17	9	14	37
1982	10	26	9	20	37
1982	11	22	9	16	37
1982	12	20	9	23	37
1983	2	1	9	27	37
1983	10	18	9	23	37
1984	11	27	9	20	37
1984	11	30	9	14	37
1985	8	31	9	18	37
1985	12	3	9	23	44
1986	1	14	9	27	37
1986	3	20	9	27	52
1986	5	27	9	23	37
1986	11	9	9	18	37
1986	11	10	9	20	37
1986	11	22	9	18	37
1988	1	12	9	18	37
1988	1	19	9	18	37
1988	2	1	9	18	37
1988	2	9	9	23	44
1988	7	25	9	23	44
1989	11	2	9	20	37
1989	12	24	9	18	37
1990	2	4	9	18	44
1990	2	5	9	18	44
1990	2	22	9	18	37
1990	2	27	9	23	37
1990	12	26	9	23	37
1990	12	28	9	18	44
1991	1	1	9	18	37
1991	1	5	9	18	52
1991	1	7	9	18	37
1991	1	18	9	16	44
1991	3	19	9	20	37
1991	11	12	9	18	37
1992	2	22	9	18	37
1992	11	23	9	20	37
1993	1	16	9	23	37
1993	3	30	9	18	37

Appendix 6 Annual Gales from Instrumental/Observational Record at
 Armagh Observatory 1844-2002.

Year	Instrumental/ Observational	Hourly ¹
1844	24	
1845	37	
1846	36	
1847	43	
1848	34	
1849	42	
1850	36	
1851	30	
1852	34	
1853	19	
1854	36	
1855	18	
1856	18	
1857	28	
1858	46	
1859	38	
1860	17 ²	
1861	18 ³	
1862	26 ³	
1863	27 ³	
1864	13 ³	
1865	12 ³	
1866	16 ³	
1867	9 ³	
1868	25 ³	
1869	15 ³	
1870	8 ³	
1871	17 ³	
1872	18 ³	
1873	14 ³	
1874	15 ³	0
1875	16 ³	0
1876	8 ³	0
1877	12 ³	0
1878	4 ³	0
1879	8 ³	0
1880	12 ³	1
1881	15 ³	1
1882	7 ³	0
1883	18	0
1884	3	
1885	7	

Appendix 6 Continued.

Year	Instrumental/ Observational	Hourly ¹
1886	4	
1887	6	
1888	4	
1889	1	
1890	6	
1891	7	
1892	2	
1893	4	
1894	7	
1895	2	
1896	2	
1897	7	
1898	7	
1899	7	
1900	5	
1901	1	
1902	4	
1903	8	
1904	5	
1905	4	
1906	1	
1907	0	
1908	2	
1909	0	
1910	1	
1911	3	
1912	1	
1913	0	
1914	0	
1915	1	
1916	0	
1917	5	
1918	24	
1919	14	
1920	3	
1921	2	
1922	1	
1923	2	
1924	3	
1925	5	

Appendix 6 Continued.

Year	Instrumental/ Observational	Hourly ¹
1926	0	
1927	2	
1928	5	
1929	3	
1930	1	
1931	0	
1932	2	
1933	1	
1934	0	
1935	0	
1936	2	
1937	1	
1938	1	
1939	0	
1940	1	
1941	2	
1942	1	
1943	4	
1944	1	
1945	1	
1946	2	
1947	5	
1948	2	
1949	1	
1950	4	
1951	7	
1952	3	
1953	4	
1954	4	
1955	2	
1956	5	9
1957	8	17
1958	9	14
1959	6	13
1960	3	10
1961	1	10
1962	3	9
1963	2	7
1964	7	10
1965	1	5
1966	0	5
1967	1	3

Appendix 6 Continued.

Year	Instrumental/ Observational	Hourly ¹
1968	0	4
1969	1	4
1970	1	4
1971	0	1
1972	0	3
1973	0	2
1974	5	24
1975	1	10
1976	2	14
1977	3	17
1978	5	18
1979	5	19
1980	4	13
1981	5	18
1982	12	36
1983	2	20
1984	2	17
1985	2	8
1986	6	14
1987	0	4
1988	5	7
1989	2	11
1990	6	16
1991	6	15
1992	2	5
1993	2	6
1994	0	5
1995	0	3
1996	0	6
1997	0	3
1998	0	3
1999	0	5
2000	0	
2001	2	
2002	2	

Notes

- 1 Most hourly data has yet to be looked at
- 2 A mixture of components 1 and 2 see above
- 3 see component 2 above

Appendix 7 Monthly Distribution Of Days With Gales from Instrumental/Observational Record at Armagh Observatory 1844-2000.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Components
1844	3	2	4	0	0	2	1	1	1	5	4	1	24	Component 1
1845	4	0	5	4	0	6	0	1	1	6	3	7	37	
1846	7	4	2	3	4	2	2	0	0	6	6	0	36	
1847	5	0	4	5	2	0	0	1	3	4	10	9	43	
1848	3	11	2	1	0	0	3	2	0	1	4	7	34	
1849	7	7	3	2	3	0	3	3	1	6	2	5	42	
1850	3	4	2	1	0	2	0	0	3	3	6	12	36	
1851	11	4	2	2	1	1	1	0	0	2	0	6	30	
1852	12	5	1	1	2	1	0	0	0	0	5	7	34	
1853	5	1	1	0	2	0	0	0	3	4	3	0	19	
1854	12	5	6	0	1	1	0	0	0	1	2	8	36	
1855	2	2	3	1	2	1	0	0	0	2	0	5	18	
1856	0	5	2	2	1	2	0	1	1	1	0	3	18	
1857	4	5	5	1	1	0	0	0	0	1	0	11	28	
1858	11	6	3	8	3	0	0	0	0	3	1	11	46	
1859	7	3	7	5	1	0	1	0	4	1	3	6	38	
1860	4	5	6	0	0	0	0	0	0	2	0	0	17	Component 2
1861	2	3	3	0	0	0	0	0	1	2	5	2	18	begins
1862	6	3	1	1	1	1	1	2	0	2	1	7	26	1/10/1860
1863	7	4	3	2	0	0	0	0	0	2	1	8	27	
1864	3	3	2	1	0	0	0	0	1	0	2	1	13	
1865	2	0	1	0	0	0	0	0	0	0	2	7	12	
1866	5	4	2	1	0	0	0	0	0	0	1	3	16	
1867	0	1	2	4	0	0	0	0	0	0	0	2	9	
1868	7	5	2	0	1	0	0	0	0	0	4	6	25	
1869	5	6	0	0	0	0	0	0	0	0	0	4	15	
1870	1	3	1	0	1	0	0	0	1	1	0	0	8	
1871	2	1	6	1	0	0	0	0	0	1	3	3	17	
1872	7	3	0	1	0	0	0	0	0	0	2	5	18	
1873	7	1	1	0	0	0	0	0	0	0	1	4	14	
1874	4	5	1	4	0	0	0	0	0	1	0	0	15	
1875	9	0	0	1	0	0	0	0	0	1	1	4	16	
1876	3	0	3	0	0	0	0	0	0	0	1	1	8	
1877	4	1	0	2	0	0	0	0	0	1	2	2	12	
1878	1	0	1	1	0	0	0	0	0	0	0	1	4	
1879	2	0	4	0	0	0	0	0	0	0	0	2	8	
1880	3	4	1	2	0	0	0	0	0	0	2	0	12	
1881	0	2	1	0	0	0	0	0	0	0	10	2	15	
1882	3	1	3	0	0	0	0	0	0	0	0	0	7	
1883	0	0	0	0	0	0	0	0	0	0	0	0	0	Component 3

Appendix 7 Continued.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Components
1884	0	0	0	0	0	0	0	0	0	0	1	2	3
1885	2	2	1	0	0	0	0	0	0	0	0	2	7
1886	1	0	0	1	1	0	0	0	0	0	1	0	4
1887	3	2	0	0	0	0	0	0	0	0	1	0	6
1888	1	0	0	0	0	0	0	0	0	0	3	0	4
1889	0	0	0	0	1	0	0	0	0	0	0	0	1
1890	4	0	1	0	0	0	0	0	0	0	1	0	6
1891	1	0	0	0	0	0	0	0	1	1	1	3	7
1892	0	1	0	0	0	0	0	0	0	0	1	0	2
1893	0	1	0	0	0	0	1	0	0	0	0	2	4
1894	0	2	1	0	0	0	0	0	0	0	0	4	7
1895	0	0	0	0	0	0	0	0	0	0	2	0	2
1896	0	0	0	0	0	0	0	1	0	1	0	0	2
1897	0	3	0	0	0	0	0	0	0	0	0	4	7
1898	2	0	0	2	0	0	0	0	0	0	1	2	7
1899	2	1	1	0	0	0	0	0	0	0	1	2	7
1900	2	0	0	0	0	0	0	0	0	0	0	3	5
1901	1	0	0	0	0	0	0	0	0	0	0	0	1
1902	1	1	0	0	0	0	0	0	0	0	1	1	4
1903	2	4	1	0	0	0	0	1	0	0	0	0	8
1904	1	1	0	0	1	0	0	0	0	0	0	2	5
1905	0	0	0	2	0	0	0	0	0	0	0	2	4
1906	1	0	0	0	0	0	0	0	0	0	0	0	1
1907	0	0	0	0	0	0	0	0	0	0	0	0	0
1908	0	1	0	0	0	0	0	0	0	0	0	1	2
1909	0	0	0	0	0	0	0	0	0	0	0	0	0
1910	1	0	0	0	0	0	0	0	0	0	0	0	1
1911	0	1	1	0	0	0	0	0	0	0	1	0	3
1912	0	0	0	0	0	0	0	0	0	0	1	0	1
1913	0	0	0	0	0	0	0	0	0	0	0	0	0
1914	0	0	0	0	0	0	0	0	0	0	0	0	0
1915	0	1	0	0	0	0	0	0	0	0	0	0	1
1916	0	0	0	0	0	0	0	0	0	0	0	0	0
1917	1	0	1	0	0	0	0	0	0	0	2	1	5
1918	1	5	0	0	0	0	0	1	1	7	4	5	24
1919	2	0	4	4	0	1	0	0	0	0	0	3	14

Appendix 7 Continued.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Components
1920	3	0	0	0	0	0	0	0	0	0	0	0	3
1921	1	0	1	0	0	0	0	0	0	0	0	0	2
1922	0	0	0	0	0	0	0	0	0	0	0	0	1
1923	0	2	0	0	0	0	0	0	0	0	0	0	2
1924	0	0	0	0	0	0	0	0	0	0	0	3	3
1925	3	2	0	0	0	0	0	0	0	0	0	0	5
1926	0	0	0	0	0	0	0	0	0	0	0	0	0
1927	2	0	0	0	0	0	0	0	0	0	0	0	2
1928	3	0	0	0	0	0	0	0	0	0	1	1	5
1929	0	0	0	0	0	0	0	0	0	0	1	2	3
1930	1	0	0	0	0	0	0	0	0	0	0	0	1
1931	0	0	0	0	0	0	0	0	0	0	0	0	0
1932	2	0	0	0	0	0	0	0	0	0	0	0	2
1933	1	0	0	0	0	0	0	0	0	0	0	0	1
1934	0	0	0	0	0	0	0	0	0	0	0	0	0
1935	0	0	0	0	0	0	0	0	0	0	0	0	0
1936	0	0	0	0	0	0	0	0	0	0	0	2	2
1937	1	0	0	0	0	0	0	0	0	0	0	0	1
1938	0	0	0	0	0	1	0	0	0	0	0	0	1
1939	0	0	0	0	0	0	0	0	0	0	0	0	0
1940	0	0	0	0	0	0	0	0	0	0	0	1	1
1941	0	0	0	0	0	0	0	0	0	0	2	0	2
1942	0	0	0	0	0	0	0	0	0	0	0	1	1
1943	0	1	0	1	0	0	0	0	1	1	0	0	4
1944	0	0	0	0	0	0	0	0	0	0	1	0	1
1945	0	1	0	0	0	0	0	0	0	0	0	0	1
1946	0	0	0	0	0	0	0	0	0	0	1	1	2
1947	2	0	1	2	0	0	0	0	0	0	0	0	5
1948	0	2	0	0	0	0	0	0	0	0	0	0	2
1949	0	0	0	0	0	0	0	0	0	0	0	1	1
1950	0	1	0	1	0	0	0	0	2	0	0	0	4
1951	0	1	0	2	0	0	0	0	0	0	2	2	7
1952	1	0	0	0	0	0	0	0	0	1	1	0	3
1953	0	0	0	1	0	0	0	0	1	1	2	0	5
1954	1	0	0	0	0	0	0	0	0	0	1	2	4
1955	0	0	0	0	0	0	0	0	0	0	1	1	2
1956	0	0	1	0	0	0	0	0	1	0	1	2	5
1957	1	1	0	0	0	0	0	1	1	2	1	1	8
1958	3	1	1	0	0	0	0	0	2	0	0	2	9

Appendix 7 Continued.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Components
1959	0	0	1	0	0	0	0	1	0	2	1	1	6
1960	0	0	0	1	0	1	0	0	0	0	1	0	3
1961	1	0	0	0	0	0	0	0	0	0	0	0	1
1962	0	0	0	0	0	0	0	0	2	0	0	1	3
1963	0	1	0	0	0	0	0	0	0	0	0	1	2
1964	0	0	2	0	1	0	0	0	1	1	0	2	7
1965	1	0	0	0	0	0	0	0	0	0	0	0	1
1966	0	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	1	0	0	0	0	0	0	0	0	0	0	1
1968	0	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	1	0	0	0	1
1970	0	0	0	0	0	0	0	0	0	0	1	0	1
1971	0	0	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	2	0	0	0	0	0	0	0	0	0	1	2	5
1975	0	0	0	0	0	0	0	0	0	0	0	1	1
1976	2	0	0	0	0	0	0	0	0	0	0	0	2
1977	1	0	1	0	0	0	0	0	0	1	0	0	3
1978	2	0	0	0	0	0	0	0	0	0	2	1	5
1979	0	1	0	0	0	0	0	0	0	0	1	3	5
1980	0	0	0	0	0	0	0	0	0	0	1	3	4
1981	2	0	0	0	0	0	0	0	0	0	1	2	5
1982	1	5	0	0	1	0	0	0	0	3	1	1	12
1983	0	1	0	0	0	0	0	0	0	1	0	0	2
1984	0	0	0	0	0	0	0	0	0	0	2	0	2
1985	0	0	0	0	0	0	0	1	0	0	0	1	2
1986	1	0	1	0	1	0	0	0	0	0	3	0	6
1987	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	2	2	0	0	0	0	1	0	0	0	0	0	5
1989	0	0	0	0	0	0	0	0	0	0	1	1	2
1990	0	4	0	0	0	0	0	0	0	0	0	2	6
1991	4	0	1	0	0	0	0	0	0	0	1	0	6
1992	0	1	0	0	0	0	0	0	0	0	1	0	2
1993	1	0	1	0	0	0	0	0	0	0	0	0	2
1994	0	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	257	173	118	74	32	22	14	17	34	81	142	245	1210

Appendix 8 Seasonal Distribution Of Days With Gales from
Instrumental/Observational Record at Armagh Observatory 1844-2000.

Year Winter Spring Summer Autumn Components

1844		4	4	10	Component 1
1845	5	9	7	10	
1846	18	9	4	12	
1847	5	11	1	17	
1848	23	3	5	5	
1849	21	8	6	9	
1850	12	3	2	12	
1851	27	5	2	2	
1852	23	4	1	5	
1853	13	3	0	10	
1854	17	7	1	3	
1855	12	6	1	2	
1856	10	5	3	2	
1857	12	7	0	1	
1858	28	14	0	4	
1859	21	13	1	8	
1860	15	6	0		

Year Winter Spring Summer Autumn Components

1860					Component 2
1861	5	3	0	8	begins
1862	11	3	4	3	1/10/1860
1863	18	5	0	3	
1864	14	3	0	3	
1865	3	1	0	2	
1866	16	3	0	1	
1867	4	6	0	0	
1868	14	3	0	4	
1869	17	0	0	0	
1870	8	2	0	2	
1871	3	7	0	4	
1872	13	1	0	2	
1873	13	1	0	1	
1874	13	5	0	1	
1875	9	1	0	2	
1876	7	3	0	1	
1877	6	2	0	3	
1878	3	2	0	0	
1879	3	4	0	0	
1880	9	3	0	2	
1881	2	1	0	10	
1882	6	3	0	0	

Appendix 8 Continued.

Year	Winter	Spring	Summer	Autumn	Components
1883		0	0	0	Component 3

Year	Winter	Spring	Summer	Autumn	Components
1884		0	0	1	Component 4
1885	6	1	0	0	
1886	3	2	0	1	
1887	5	0	0	1	
1888	1	0	0	3	
1889	0	1	0	0	
1890	4	1	0	1	
1891	1	0	0	3	
1892	4	0	0	1	
1893	1	0	1	0	
1894	4	1	0	0	
1895	4	0	0	2	
1896	0	0	1	1	
1897	3	0	0	0	
1898	6	2	0	1	
1899	5	1	0	1	
1900	4	0	0	0	
1901	4	0	0	0	
1902	2	0	0	1	
1903	7	1	1	0	
1904	2	1	0	0	
1905	2	2	0	0	
1906	3	0	0	0	
1907	0	0	0	0	
1908	1	0	0	0	
1909	1	0	0	0	
1910	1	0	0	0	
1911	1	1	0	1	
1912	0	0	0	1	
1913	0	0	0	0	
1914	0	0	0	0	
1915	1	0	0	0	
1916	0	0	0	0	
1917	1	1	0	2	
1918	7	0	1	12	
1919	7	8	1	0	

Appendix 8 Continued.

Year	Winter	Spring	Summer	Autumn	Components
1920		0	0	0	Component 5
1921	1	1	0	0	
1922	0	0	0	0	
1923	2	0	0	0	
1924	0	0	0	0	
1925	8	0	0	0	
1926	0	0	0	0	
1927	2	0	0	0	
1928	3	0	0	1	
1929	1	0	0	1	
1930	3	0	0	0	
1931	0	0	0	0	
1932	2	0	0	0	
1933	1	0	0	0	
1934	0	0	0	0	
1935	0	0	0	0	
1936	0	0	0	0	
1937	3	0	0	0	
1938	0	0	1	0	
1939	0	0	0	0	
1940	0	0	0	0	
1941	1	0	0	2	
1942	0	0	0	0	
1943	2	1	0	2	
1944	0	0	0	1	
1945	1	0	0	0	
1946	0	0	0	1	
1947	3	3	0	0	
1948	2	0	0	0	
1949	0	0	0	0	
1950	2	1	0	2	
1951	1	2	0	2	
1952	3	0	0	2	
1953	0	1	0	4	
1954	1	0	0	1	
1955	2	0	0	1	
1956	1	1	0	2	
1957	4	0	1	4	
1958	5	1	0	2	

Appendix 8 Continued.

Year	Winter	Spring	Summer	Autumn	Components
1959		1	1	3	Component 6
1960	1	1	1	1	
1961	1	0	0	0	
1962	0	0	0	2	
1963	2	0	0	0	
1964	1	3	0	2	
1965	3	0	0	0	
1966	0	0	0	0	
1967	1	0	0	0	
1968	0	0	0	0	
1969	0	0	0	1	
1970	0	0	0	1	
1971	0	0	0	0	
1972	0	0	0	0	
1973	0	0	0	0	
1974	2	0	0	1	
1975	2	0	0	0	
1976	3	0	0	0	
1977	1	1	0	1	
1978	2	0	0	2	
1979	2	0	0	1	
1980	3	0	0	1	
1981	5	0	0	1	
1982	8	1	0	4	
1983	2	0	0	1	
1984	0	0	0	2	
1985	0	0	1	0	
1986	2	2	0	3	
1987	0	0	0	0	
1988	4	0	1	0	
1989	0	0	0	1	
1990	5	0	0	0	
1991	6	1	0	1	
1992	1	0	0	1	
1993	1	1	0	0	
1994	0	0	0	0	
1995	0	0	0	0	
1996	0	0	0	0	
1997	0	0	0	0	
1998	0	0	0	0	
1999	0	0	0	0	
2000	0	0	0	0	