

DUNBLANE WEATHER REPORT 2013

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The weather station is my suburban back garden in Ochiltree, Dunblane. This is situated 50 m to the east of the Dunblane Hydro ridge, 100 m a.s.l., in a shallow, sheltered valley. (GR NN 78990143).

I have been recording the weather since 1995 and all averages etc. refer to the last 19 years. (Note: because there is much variation from year to year in Britain in the parameters used to define climate, climatological averages are usually taken over periods of 30 years for temperature and 35 years for rainfall. Therefore, all averages in this report should be viewed with some caution). I am indebted to Dr. John P. Holland for providing automatic Met Office data and additional weather records from Kirkton Farm, Strathfillan (NN 359283; 170 m a.s.l.) and Killin. Weather recording began in 1991 at Kirkton Farm and means etc. for this site date from that year. Killin means date from 2000. The data from Kirkton (this is close to Tyndrum – the latter name being used by the Met Office for online data from this station) allows for some interesting meteorological comparisons between the far north-west and central areas of our region.

Daily rainfall (> 0.2 mm), maximum and minimum temperatures, barometric pressure, cloud cover, wind direction and speed (Beaufort scale) are recorded. All except the maximum daily temperature are recorded at 09.00 hours. A brief description of the day's weather is also noted along with exceptional and unusual weather phenomena across the UK. Unless indicated otherwise, daily (24 hour) rainfall amounts are measured from 09.00 hours on the date mentioned until 09.00 hours the following morning.

2013 was cooler and drier than normal. The mean temperature of 7.99°C (7.88°C Kirkton) was 0.44°C below the average with a high of 29.0°C (9th July) and a low of -8.9°C (12th March). There were 91 air-frosts (average = 72), 3 ground frosts while snow lay on the ground at 09.00 hours on 20 occasions. The 989.0 mm (2,384.0 mm Kirkton) of precipitation was 89 % of the norm with measurable amounts on 196 days (54 %; average = 207; 57 %). Ten months (including the first nine) had precipitation totals lower than their norms while that for December was the highest for that month and the second highest ever. The maximum 24 hour total (09.00-09.00) was 36.4 mm (29th December). The average air pressure was very close to the norm at 1011.8 mb with a high of 1040 mb (25th November) and a record low of 952 mb (27th December).

At Kirkton, the highest temperature recorded was 27.7°C (19th July) with a low of -8.4°C (12th March). Air frosts were recorded on 96 days. Precipitation of 2,384.0 mm was 94 % of the 1991-2010 average with measurable amounts on 275 days (75.5 %).

Lying some 13.5 miles (21.6 km) to the east of Kirkton, Killin (at the head of L. Tay), received 76 % of the former's precipitation in 2013.

Turning to the seasons: Winter (December-February) was warmer and slightly wetter than usual with December 2012 accounting for 58 % of the precipitation whereas February had less than half the norm. Spring (March-May) was cooler and drier than usual with the mean temperature being 1.86°C and precipitation 21 % below their norms respectively. The mean temperature for March was 3.07°C lower than normal. The mean summer temperature (June-August) was above normal but rainfall was only 62 % of the average making this the driest summer since 1996. The mean July temperature was 2.08°C above the norm. Autumn (September- November) was a little cooler and drier than usual with the mean temperature for November being 2.07°C below the norm. (Monthly temperature and precipitation details can be found in Table 1 with a graphic depiction of rainfall amounts in Figure 1).

January was a little milder and drier than usual. The mean temperature of 2.39°C (3.27°C Kirkton) was 0.12°C above the norm. The maximum temperature was 10.0°C, 3rd (10.7°C Kirkton, 8th) while the minimum temperature was -5.3°C (-3.4°C Kirkton, 16th). There were 17 air-frosts and snow lay on the ground on 10 mornings. Precipitation of 98.5 mm (252.0 mm Kirkton) was 83 % of normal with measurable amounts on 21 days. Across Scotland it was marginally warmer and drier than average. It was also a relatively dull month with 74 % of average sunshine.

The year's weather started on a quiet note as a ridge of high pressure developed (1030 mb, 4th). South-westerly winds brought mild air up from the Azores (10.0°C; 13.0°C Aberdeen, 3rd; 14.5°C Colwyn Bay, N. Wales, 2nd) but the weak winter sun only appeared sporadically. The calm, settled weather continued until the 13th with very little sunshine. Maximum daytime temperatures fell from 8.7°C (8th) to 3.3°C (12th). There was a thin covering of wet snow on the morning of the 13th but while England, Wales and Eastern Scotland received varying amounts of snow, some substantial, this station remained dry, calm but cold. Temperatures ranged from -5.3°C to 2.0°C (-13.1°C Braemar, 16th).

Raw easterly winds on the 18th heralded a change with a light dusting of snow in the evening. Snow flurries during the 19th continued during the 20th with an accumulation of 6.0 cm by 09.00 hours on the 21st when it continued to snow all day. England bore the brunt of the wintery weather with the A68 and A66 trunk roads closed and c.5,000 schools also closed (only 30 were in Scotland). Several airports across England were severely affected by lying snow with Heathrow faring worst as hundreds of flights were cancelled. While there was a slow thaw here on the 22nd/23rd the easterly winds meant it was the turn of the Eastern Borders and Aberdeenshire to receive the bulk of the snow with an accumulation of 40.0 cm at Balmoral and c.150 schools being closed throughout both areas. Temperatures dropped to -13.6°C in Hertfordshire (22nd).

An Atlantic front reached the UK early on the 25th and rain on western coasts quickly turned to snow as it moved inland. There was light to medium snowfall in Dunblane throughout the day but it was heavier on higher ground – Eskdalemuir recording a depth of 30 cm. Aberdeen airport was closed for several hours and in the evening, heavy snowfall in NE England brought the M6 near Manchester to a standstill. The morning of the 26th saw some rare sunshine but thickening cloud during the afternoon heralded the arrival of another Atlantic weather system. This deep low (975 mb) brought much milder air and steady rain which produced a rapid thaw of lying snow during the night of the 26th/27th.

Yet another Atlantic weather system on the 29th/30th brought storm force winds to the north and west of Scotland with gusts of up to 86 mph recorded in the Outer Hebrides, Orkneys and Shetland. The causeways in the Uists and on Orkney were closed to traffic while a wind speed of 135 mph was recorded on Cairngorm summit. It was also wet from the 26th to the month end and while this station received only 33.1 mm during this period Kirkton totalled 163.4 mm.

February was colder and drier than usual with the mean temperature of 1.74°C (2.36°C Kirkton) being 1.29°C below the average. Total precipitation of 43.6 mm (106.2 mm Kirkton) was only 46 % of the norm with measurable amounts on 10 days. There were 18 frosts (average 13) while snow lay on the ground at 09.00 hours on three occasions. Pressure ranged from 896 mb to 1039 mb. Across Scotland the mean temperature was 0.5°C below the 1981-2010 average with 61 % of the long-term average precipitation. It was the 4th sunniest February in a series dating back to 1929.

A brief ridge of high pressure on the 2nd (1016 mb) gave a rare sunny day. A very deep low off Greenland (4th) produced 70 mph plus winds in the Western and Northern Isles with waves of up to 20 metres; the latter destroying a wall at the lighthouse on Fair Isle which had stood for 122 years. Here, sleet showers during the day turned to snow which gave a 1.0 cm covering at 09.00 hours (5th). It continued snowing that morning but cleared to a sunny afternoon with temperatures rising to 5.0°C which caused a rapid melt.

The 6th was a very clear, sunny day with a biting cold northerly airflow. The next 3 days were calm and damp with light rain during the night. In the early hours of the 13th, rain on an Atlantic front turned to snow as it moved inland. By noon that day 8.0 cm of wet snow had accumulated (22.0 cm at Whitehillocks, Angus). In the afternoon the snow turned to sleet, then rain and with temperatures rising during the night, the lying snow had virtually disappeared by 09.00 hours on the 14th. The weather remained on the mild side (8.6°C, 15th) with several sunny, spring-like days until the 19th (13.9°C Kinlochewe, 17th). High pressure (1039 mb, 26th) persisted until the month end with regular night frosts (-6.6°C, 19th; -10.0°C Aviemore, 22nd) and often sunny but cool days. It remained mostly calm with occasional, light E or SE

breezes during the day. There was no precipitation during the last 14 days of the month. Fog in the Carse of Stirling on the 27th and 28th was slow to clear.

March was notably colder and drier than usual. The mean temperature of 1.73°C (1.52°C Kirkton) was 3.12°C below the average making this the coldest March at this station (after 2.57°C, March 1995). There were 20 air-frosts while snow lay on the ground at 09.00 hours on six occasions. Total precipitation of 40.9 mm (52.2 mm Kirkton) was 60 % of the norm with recordable amounts on 14 days. At Kirkton it was the coldest month of the year and the coldest March in a series dating from 1991. Precipitation at Kirkton was only 22 % of the March norm.

The first two days of the month were sunny but as the high pressure system decayed it became permanently overcast with light rain/drizzle on raw easterly breezes. 0.5 mm of rain on the 6th brought to an end 20 days without precipitation. A north-easterly airstream on the 10th delivered regular snow showers with a covering of one cm of fine snow at 09.00 hours on the 11th. Clear skies during the night of the 11th/12th saw the thermometer plummet to -8.9°C (-8.4°C Kirkton), the lowest temperature of the winter. A combination of a south-westerly airstream and falling barometric pressure brought dull and damp conditions on the 14th and 15th but the reinstatement of north-easterlies on the 16th produced snow (not settling) until mid-aft when it turned to rain. The easterly airstream persisted until the end of the month producing snow flurries most days on bitterly cold winds.

More persistent snow during the night of the 18th/19th had produced 6.5 mm of lying snow by 09.00 on the 19th. As would be expected, the east coast bore the brunt of both the wind and snow but, during the early hours of the 22nd, snow on south-easterly gales produced blizzard conditions in SW Scotland with several main roads becoming impassable and c.10,000 homes in the region losing power including the whole of the island of Arran where power was not restored to all until the 26th. Towards the end of the month the winds moderated and with clearer skies temperatures dropped to -7.2°C (30th; -12.0°C Braemar, 31st).

April was colder than normal with the mean temperature of 5.9°C (4.96°C Kirkton) being 1.92°C below the average. The lowest temperature was -4.2°C (6th) with a high of 14.2°C (18th). There were 11 air frosts (average = 5). Precipitation of 61.2 mm (247.8 mm Kirkton, 66 % above the norm) was just below the average with measurable amounts on 18 days. The highest daily rainfall amount was 16.8 mm (17th). Scotland wide the mean temperature was 1.3°C below the 1981-2010 average with 133 % of average rainfall with the north and west being particularly wet. All areas (apart from the Borders) had above average amounts of sunshine with Northern Scotland enjoying its sunniest April since 1974. Across the UK the average temperature was similar to April 2012 and the coldest since 1989. The highest temperature recorded was in Faversham (Kent) with 23.1°C (25th) whilst the coldest was -11.2°C at

Braemar (2nd). In the 24 hours ending at 09.00 on the 17th, 63.6 mm of rain fell at Lusa, Skye.

High pressure and the easterly airstream continued until the 11th. It was mostly sunny but the cool easterly breezes and nightly frosts (-4.2°C ; -6.1°C Kirkton, 6th) kept temperatures down as the daily maximum temperature slowly increased from 6.4° (1st) to 9.8°C (6th). There was no measurable precipitation during the first 9 days. A south-westerly airstream predominated for the rest of the month providing classic April weather of sunshine and showers. There were strong south-westerly winds on the 16th (72 mph at Inverbervie, Angus) followed the next day by heavy rain (16.8 mm; 46.6 mm Kirkton). There were two heavy hail showers on the 26th.

May was a little cooler and drier than normal. The mean temperature of 10.2°C (9.42°C Kirkton) was 0.72°C below the mean with a high of 22.6°C (20th) and a low of -0.7°C (15th). There was one air and one ground frost. Rainfall of 59.3 mm (170.6 mm Kirkton) was 86 % of the norm with measurable amounts on 16 days. In Scotland, the mean temperature was 0.4°C below the 1981-2010 average while across the UK it was 0.8°C cooler at 9.5°C , making it the coldest May since 1996. A maximum temperature of 23.8°C was recorded at Drumburgh, Cumbria (7th) and a low of -5.5°C at Alston, Cumbria (2nd).

The weather continued in an unsettled mode with a band of heavy rain between 12.00-20.00 on the 3rd depositing 14.5 mm (28.8 mm Kirkton). An Atlantic airstream ensured that the weather continued unsettled until the 18th with regular fronts passing through Scotland producing spells of rain, these being heaviest in the west. The 7th was a rare warm, dry day with the promise of summer as the temperature climbed to 21.0°C (21.4°C Kinlochewe). After heavy rain during the afternoon, evening and night of the 18th (17.0 mm) the weather slowly improved as the barometric pressure built. The 20th was a humid day (22.6°C) while strong, cold northerly winds on the 23rd produced a wintery feel with a maximum temperature of only 10.9°C . The 25th was a rare cloudless day. A slow-moving front produced some rain on the 27th when a maximum temperature of only 10.5°C was recorded. Building high pressure then ensued with no measurable rain falling during the final 4 days of the month and temperatures reaching 22.4°C (30th).

June was warmer and much drier than usual with the mean temperature of 14.08°C (12.43°C Kirkton) being 0.16°C above the norm. Rainfall of 27.5 mm (51.4 mm Kirkton) was only 37 % of the average with measurable amounts on only 10 days. Barometric pressure ranged from 995 mb to 1033 mb.

High pressure remained over the country for the first 8 days of the month giving dry and warm weather with several sunny 'summer' days. Temperatures peaked at 25.1°C , 8th (22.4°C Kirkton), the warmest day of the year to date. The mornings were mostly calm with north-easterly breezes picking up during the day. It then became more unsettled as pressure fell

culminating in heavy rain during the night of the 14th/15th. Maximum daytime temperatures ranged from 18.1°C to 19.8°C between the 9th and 14th but the 15th was a cold, grey day when temperatures only reached 10.3°C. From the 16th to the 21st the weather was mostly sunny and warm (23.5°C, 17th) but rain during the night of the 21st/22nd heralded a change to more unsettled, cooler conditions which persisted until the month end.

July was warmer and a little drier than normal with the mean temperature of 17.97°C (16.12°C Kirkton) being 2.08°C above the average making this the warmest July since 2006. Precipitation of 77.5 mm (94.6 mm Kirkton) was 91 % of the norm (84 % for Scotland overall) and fell at the start and end of the month. Across Scotland it was the warmest July since 2006 and the 2nd warmest on record in a sequence dating back to 1910. It was also the 3rd sunniest July in Scotland on record. UK wide it was the 3rd warmest July (after 1983 and 2006) with a mean temperature of 17.0°C in a series also dating back to 1910.

The unsettled weather continued until the 5th when high pressure started to build over the UK. Daytime temperatures also climbed with year high's continually being set: 27.6°C (8th); 29.0°C (9th); 29.3°C Grangemouth – the hottest place in the UK that day). Year UK highs were also breached with 29.7°C at Bournemouth (7th); 31.4°C Heathrow (13th); 32.2°C London (17th). These often hot, mostly sunny conditions, lasted until the 23rd with 18 consecutive days without rain. This was the hottest spell of weather in the UK since 2006 with the temperature reaching at least 28°C somewhere in the UK on 19 consecutive days. The highest temperature recorded in Scotland was 30.5°C in Kirkcudbrightshire (19th) while in the UK it was 33.5°C at Heathrow (22nd).

The hot, dry spell finally ended on the 23rd with a downpour at noon (60.4 mm Livingston Mill, West Lothian). An unsettled spell then ensued as an Atlantic low replaced the high pressure system. With temperatures remaining above the norm for the time of year it became humid which triggered thunderstorms across Scotland. Some of these were violent causing localized flooding. At this station, one such deposited 10.0 mm of rain and hail in 20 minutes at 13.30 on the 26th. A more generalized band of rain moving up from England produced 13.4 mm between 21.30 on the 27th to noon the following day. With a low pressure system remaining just to the west of the UK, the weather continued unsettled until the month end although it remained fairly warm, especially when the sun did break through.

August was a little warmer but much drier than the norm. The mean temperature of 15.6°C (13.97°C Kirkton) was 0.34°C above average while rainfall of 48.4 mm (133.4 mm Kirkton) was only 54 % of the average making this the driest August since 2003 (24.3 mm). The mean pressure of 1013 mb was equal to the overall mean.

Rain, heavy at times, starting at 19.00 hours on the 31st July continued until 14.30 hours the following day depositing 27.0 mm. Thereafter, with the jet-

stream over the UK, the weather remained a little unsettled, although the Stirling area avoided much of the wetter weather to the north and west, receiving only the occasional shower or short spell of rain until the 25th when a ridge of high pressure introduced a more settled spell for 3 days. Temperatures were a little cooler ranging from 18.0°C to 22.8°C but feeling warm in the sun on calm days. A south-westerly airstream predominated throughout this period.

From the 28th to the month end, frontal systems crossing the north-west of Scotland brought cooler, cloudier conditions to the Stirling area although rainfall was infrequent with only small amounts. The 31st was noticeably cooler with a maximum temperature of only 15.5°C.

September was slightly cooler and noticeably drier than average. The mean temperature of 11.91°C (11.49°C Kirkton) was 0.24°C below the mean with a daytime high of 20.7°C (22nd) and a night low of 2.6°C (14th). Rainfall of 62.9 mm (140.2 mm Kirkton) was 72 % of the mean with measurable amounts falling on 14 days (mean = 16). Atmospheric pressure ranged from 990 mb to 1025 mb with a mean of 1013 mb. Across Scotland it was the driest September since 2003 with 70 % of the average rainfall.

The 1st was appropriately cool and autumnal with a maximum temperature of 14.7°C. The next 3 days were warmer (21.0°C; 24.7°C Fyvie Castle, Aberdeenshire 3rd) and mostly sunny if breezy before cooler conditions returned. Heavy rain from 19.00 on the 6th produced 16.0 mm in 14 hours (71.0 mm Nunraw Abbey, East Lothian). Thereafter the weather remained relatively 'quiet' with rain most days but amounts were normally small – the highest being 11.0 mm on the 14th. Winds were mostly light and from a south-westerly direction until the 24th after which an easterly airflow between an anticyclone over Scandinavia and low pressure systems in the Atlantic pertained until the month end.

October was milder and wetter than average. The mean temperature of 9.63°C (9.69°C Kirkton) was 1.13°C above the norm with the mean daily low of 6.9°C being 1.62°C above average and the mean daily high of 12.35°C being 0.63°C above average. A high temperature of 17.6°C (4th) and a low of -2.2°C were recorded, this latter being the only air-frost. Rainfall of 181.1 mm (281.6 mm Kirkton) was 33 % above the mean with measurable amounts on 23 days making this the wettest month since December 2012. Mean pressure was 1003.0 mb with a high of 1033 mb and a low of 978 mb. Across Scotland the mean temperature was 1.4°C above the 1981-2010 average but rainfall was just 3 % above the norm compared to plus 27 % for the UK as a whole.

Heavy pulses of rain during the evening/nights of the 2nd/3rd and 3rd/4th deposited 34.9 mm (53.6 mm Kirkton), the first substantial amount since the beginning of August (66.4 mm at Benmore, Argyll where the A83 was yet again closed by a landslide at the Rest and be Thankful). The weather continued a little

unsettled until the 8th when high pressure built over the North Atlantic and a low developed over Norway. This drew down cold northerly winds on the 9th and 10th. From the 9th to the 13th the days were mostly unbroken sunshine and the clear skies produced the first frost of the autumn on the morning of the 11th (-2.2°C). Easterly winds pertained from the 11th-13th bringing a blanket of cloud from the SE during the afternoon of the 13th. A largely stationary low pressure system then established itself to the west of the British Isles and slow moving fronts associated with it and further Atlantic lows deposited various amounts of rain daily until the 29th. The 19th was a particularly wet day with 23.0 mm deposited during the 24 hours from 09.00. A south-westerly airstream dominated during this period which kept temperatures above the seasonal norm with a high of 14.8°C (20th). Another moisture laden front produced 33.7 mm of rain during the 16 hours from 16.00 hours on the 21st (37.0 mm Eskdalemuir). Pressure at 09.00 on the 23rd fell to 981 mb; its lowest level since the 27th of January. Another deep low on the 28th (978.0 mb) led to storm force winds across the south of England (80 mph) that day with a gust of 99 mph recorded at the Needles (Isle of Wight). At one point c.600,000 homes were without power. Four people were killed by falling trees and there was widespread structural damage. Scotland escaped this storm but the unsettled weather continued with the 29th being a rare dry day.

November was colder and drier than normal. The mean temperature of 2.5°C (3.41°C Kirkton) was 2.07°C below the norm with a mean low of -0.74°C and a mean high of 5.73°C . The lowest temperature was -7.4°C (22nd) and the highest 11.1°C (27th). There were 19 air-frosts (average 9). Total rainfall of 62.6 mm (202.8 mm Kirkton) was only 55 % of the average with measurable amounts on 15 days.

Regular Atlantic depressions kept the weather largely unsettled although this area escaped the much wetter conditions affecting the north-west of Scotland and southern England. The 3rd and the 4th were scarce dry days with unbroken sunshine and temperatures were notably lower with several frosts (-5.7°C , 5th). The weather then became relatively quiet for November with occasional night frosts and the odd mild day (10.7°C , 11th.)

A vigorous front crossed south across Scotland during the night of the 19th/20th depositing 11.0 mm of rain. An unstable polar airstream followed in its wake with biting northerly winds producing gusts which were violent enough to bring down branches and the odd tree during the night of the 20th/21st. Subsequently, high pressure built from the west accompanied by night frosts (-7.4°C , 22nd; -7.7°C Kirkton) and a continuation of the sunny, calm days which had largely been the norm since the 17th. This settled spell lasted until the month end with only two weak fronts bringing a little rain and overcast conditions. There was dense fog in the Carse of Stirling during the morning of the 25th.

December was milder and much wetter than usual. The mean temperature

of 4.52°C (5.47°C Kirkton) was 2.66°C above the average making this the warmest December at this station. The minimum temperature of 10.3°C (recorded between 09.00 hours on the 12th to 09.00 hours on the 13th) was the highest ever in a 24 hour period for this month. There were only 4 air-frosts (average 15) and only one occasion when snow lay on the ground at 09.00 hours. Rainfall of 225.5 mm (651.2 mm Kirkton) was 103 % more than the norm making this the wettest ever December with measurable amounts on 28 days. Barometric pressure of 952 mb at 09.00 hours on the 27th was the lowest ever recorded here. Across Scotland the mean temperature was 2.3°C above the 1981-2010 average making it the 5th mildest December since 1910. At Kirkton, precipitation was more than double the 20 year average while, for Scotland, it was 81 % above the norm making it the wettest December in a series also dating from 1910.

A high pressure system over the UK (1031 mb, 2nd) meant settled weather for the first 4 days of the month, two of which were largely sunny.

Storm force winds associated with a vigorous Atlantic low pressure system crossed Scotland from north to south during the early morning of the 5th. Gusts of 116 mph and 106 mph were reported from Stornaway and Glen Ogle respectively. The height of the storm coincided with the morning rush hour in the Central Belt of Scotland causing much travel chaos. All train services were suspended until mid-afternoon; the Skye, Dornoch, Kessock, Tay, Friarton and Erskine bridges were closed to all traffic (an articulated lorry was blown over on the Friarton Bridge at Perth with several other lorries being blown over across Scotland); 130,000 homes were without power including some in Dunblane and 195 schools were closed.

Winds of over 80 mph were recorded throughout the Central Belt with a gust of 91 mph on the Forth Road Bridge. These winds brought down many trees which blocked roads and railway lines – there were reports of garden trampolines careering across the countryside. Heavy rain (19.0 mm; 57.4 mm Kirkton) accompanied this depression with flooding in some places. Gusts of over 140 mph were recorded on Aonach Mór near Fort William. A storm surge affected North Sea coasts with thousands of homes evacuated and several houses collapsing into the sea due to erosion.

A cold north-westerly airstream followed in the wake of the storm dragging down Arctic air and with it sporadic short, light snow showers which produced a thin covering – the first of the winter.

From the 8th until the month end a continuous conveyor belt of Atlantic depressions and associated fronts swept across Scotland bringing south-westerly winds, rain and above average temperatures – a high of 16.6°C was recorded in Sutherland (9th). The 14th was a particularly wild day of driving rain (19.0 mm; 38.2 mm Kirkton). The night of the 18th/19th was also particularly windy with gusts of up to 90 mph recorded in South Uist and

60 mph in Glasgow. Further heavy rain (11.0 mm Dunblane; 44.2 mm Kirkton) on the 20th left the ground saturated with standing water widespread.

Heavy rain and gale force winds which swept across the south of England during the 23rd continued through the night resulting in widespread travel chaos south of the M4 corridor the following morning. Train services were suspended to enable lines to be cleared of fallen trees and many roads were impassable due to flooding – especially in Dorset. Over 1,000 homes were inundated with flood water with c.100,000 without electricity while a cross-channel ferry had to ride out the storm outside Dover through the night.

A particularly deep low on the 24th produced the lowest ever recorded barometric pressure here at 957 mb (936 mb Stornaway – the lowest at a UK land station for ‘many years’). The accompanying strong winds gusted to 82 mph in Peterhead. While rainfall amounts in Dunblane were moderate (4.5 mm) Kirkton received 50.0 mm. Christmas Day was relatively calm with some weak winter sunshine and the occasional light shower. Yet another intense low pressure system on the 27th saw the barometer record another new low at 952 mb with accompanying gales (81 mph Inverbervie, Angus). 77.0 mm of rain fell at Kirkton in the 36 hour period from 21.00 on the 26th while heavy and persistent rain during the evening/night of the 29th/30th produced 36.4 mm in Dunblane and severe flooding in parts of SW Scotland and the Glasgow area.

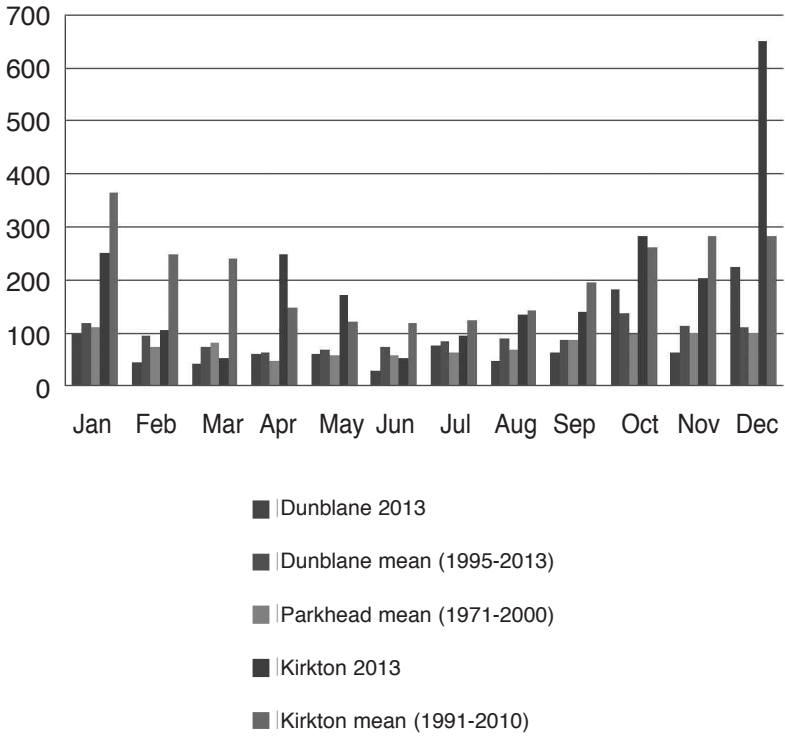


Figure 1. Rainfall 2013

Table 1. Temperature and precipitation 2013. Climatological Station Dunblane.

	Temp Mean minima	Temp Mean maxima	Number of air frosts	Total precipitation (mm)	Greatest 24 hour total (mm)	Number of days of measurable precipitation
January	0.86 (0.07)	3.92 (4.47)	17/14 (15)	98.5/252.0 (118.7/364.2)	16.1 (35.0)	21/25 (20)
February	-1.46 (0.17)	4.93 (3.03)	18/19 (13)	43.6/106.2 (94.2/247.9)	18.8 (38.0)	10/18 (17)
March	-1.35 (1.21)	4.8 (8.5)	20/22 (11)	40.9/52.2 (73.8/239.6)	9.3 (30.5)	14/20 (16)
April	1.39 (3.35)	10.41 (12.3)	11/11 (5)	61.2/247.8 (63.0/148.9)	16.8 (27.8)	18/22 (15)
May	5.27 (5.76)	15.13 (16.08)	1/2 (2)	59.3/170.6 (69.0/120.3)	17.0 (27.1)	16/25 (17)
June	8.62 (8.83)	19.53 (19.01)	0/0 (0)	27.5/51.4 (74.3/118.1)	7.0 (39.8)	10/13 (15)
July	12.59 (10.79)	23.34 (20.98)	0/0 (0)	77.5/94.6 (85.4/124.1)	13.5 (33.5)	13/17 (16)
August	11.03 (10.53)	20.17 (19.98)	0/0 (0)	48.4/133.4 (88.9/143.1)	13.7 (40.0)	14/29 (16)
September	7.97 (8.35)	15.84 (15.94)	0/1 (<1)	62.9/140.2 (88.1/196.3)	16.0 (36.5)	14/22 (16)
October	6.9 (5.28)	12.35 (11.72)	1/3 (4)	181.7/281.6 (136.5/261.8)	33.7 (41.9)	23/28 (22)
November	-0.74 (1.88)	5.73 (7.25)	19/19 (7)	62.6/202.8 (113.6/282.0)	12.0 (39)	15/26 (20)
December	2.54 (-0.27)	6.49 (4.0)	4/5 (15)	225.5/651.2 (111.2/281.9)	36.4 (36.4)	28/30 (19)
Year	4.4 (4.73)	11.59 (12.13)	91/96 (72)	989.0/2384.0 (1117.4/2528.2)	36.4 (41.9)	196/275 (207)

The climatological means for Dunblane are shown in (). Where either two 2013 values or climatological means are given, the first relates to Dunblane and the second to Kirkton. Figure in parenthesis in the 'Greatest 24 hour total (mm)' table refer to the highest ever 24 hour value for that month at Dunblane (09.00 hours to 09.00 hours). Figure in parenthesis in the 'Number of days of measurable precipitation' refer to Dunblane. Temperatures are given in degrees Celsius.