

DUNBLANE WEATHER REPORT 2015

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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. (G.R. NN 78990143).

I have been recording the weather since 1995 and all averages etc. refer to the last 21 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 Met. Office and additional weather records from Kirkton Farm, Strathfillan (NN 359283; 170 m a.s.l.) and Killin (NN 571326; 130 m a.s.l.). Weather recording began in 1991 at Kirkton Farm and means etc. for this site date from that year. Killin means date from 2002. The data from Kirkton 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.

2015 in Dunblane was slightly cooler but with more precipitation than normal (Figure 1). The mean temperature of 8.35°C was 0.13°C below the norm whereas precipitation of 1326.1 mm was 199.3 mm above the mean making this the 2nd wettest year after 1423.5 mm in 2002 (Plate 9). There was a maximum temperature of 24.4°C (1st July) and a low of -7.04°C (3rd Feb.). There were 213 'rain days' (mean 209) and the highest 24 hour total was 39.6 mm measured at 09.00 hours on 17th July. There were 61 air-frosts (mean 70) while snow lay on the ground at 09.00 hours on 25 occasions (mean 21). The average barometric pressure was 1012 mb (mean 1011 mb) with a high of 1040 mb (8th Feb.) and a low of 974 mb (23rd Feb.). Turning to the seasons: winter (Dec. 2014-Feb. 2015) was colder (-0.23°C) and quite a bit wetter (+59 %) than average. Spring (March-May) was slightly cooler (-0.47°C) and wetter (+23 %) than the norm. Summer (June-July) was noticeably cooler (-1.04°C) and wetter (+30 %) whereas autumn was warmer and a little drier with temperatures 0.34°C above the norm and with 12 % less rainfall.

At **Kirkton** 2015 was a very wet year. The main features of the weather were a wet January; a dry first half of February, followed by a wet second half; a wet

March; a relatively dry, sunny and at times warm April; a cool, wet May; a wet June, July and August, followed by a dry and relatively warm September and early October; and a very wet November and December.

The total rainfall recorded at the Met Office automatic station at Kirkton in 2015 was 3585.8 mm (141 inches) which was 972.0 mm more than the 1991-2015 twenty-five year average (2613.8 mm). This was the highest annual rainfall total since recording began in 1991, exceeding the previous record of 3453.6 mm set in 2011. The wettest month was December when a total of 738.4 mm (29.07 inches) of rainfall was recorded, making it the wettest December and the wettest calendar month since records began in 1991. The rainfall was above average in all months apart from April, September and October. The July rainfall of 249.2 mm was the highest July rainfall recorded since records began in 1991. During June, July and August a total of 624.2 mm of rainfall was recorded making it the wettest summer since records began in 1991. The driest month was September with a total of 63.8 mm of rainfall (only 33 % of the average September rainfall). The highest rainfall over a calendar week (Monday to Sunday) was 228.4 mm between the 5th and the 11th January. The highest rainfall in a single 24 hour period (09:00 GMT to 09:00 GMT) was 95.4 mm on the 4th December. The highest rainfall in a single half-day 12 hour period (21:00 GMT to 09:00 GMT) was 69.6 mm on the 29th December. The total number of rain days was 292 (80 %). There were 46 days when there was more than 25 mm of rainfall recorded, including 6 days when more than 50 mm of rainfall was recorded and 2 days when more than 75 mm of rainfall was recorded.

The lowest temperature recorded during 2015 was on the 19th January when the temperature fell to -8.8°C . This is the fourth year in a row that the temperature has not fallen below -10.0°C . The lowest maximum daily temperature was also recorded on the 19th January (-0.1°C). This was the only day during 2015 when the temperature failed to get above freezing. Air-frosts were recorded on a total of 73 days. The highest temperature recorded was on the 1st July (24.0°C). August was the warmest month with a mean temperature of 13.02°C . Temperatures of 20°C or above were recorded on 15 days: one day in April, 4 days in June, 3 days in July, four days in August, two days in September and one day in October. The 1st October 2015 was the warmest October day on record (20.0°C). The highest temperature recorded in May was only 15.4°C , which is the lowest maximum temperature for May since records began in 1991.

Sleet or snow was recorded falling at the weather station on 42 days during 2015 and lying snow was noted on 43 days. A depth of 20 cm of lying snow was recorded on the 14th January and 18 cm on the 3rd March. As in the previous winter, snow on the mountains above 600 m lasted well into spring, with a few patches on some of the surrounding Munros not melting until August.

There were 9 days when sustained gale force winds were recorded (9th, 10th, 11th, 12th and 15th January; 9th March; 12th and 20th November; and

23rd December) and 6 days when thunder and lightning were recorded (9th and 12th January; 31st March; 5th June; 4th July; and 10th August).

The total rainfall recorded in **Killin** in 2015 (2479.5 mm [97.62 inches]) was significantly higher than the 2002-2011 ten year average (1837.1 mm). 2015 was the second wettest year since recording began in 2002 (2011 was 1.0 mm wetter). September was the driest month with only 45.0 mm of rain, while December was the wettest month with 542.0 mm and the wettest calendar month since recording began in 2002. Nine months of the year were wetter than average, only April, September and October were drier. During 2015 Killin received approximately 69 % of the rainfall recorded at Kirkton (i.e. some 1106.3 mm less). The rainfall was higher at Kirkton in all months.

The Dunblane Year.

January was colder and wetter than normal. The mean temperature of 1.81°C was 0.49°C below the norm with a mean high of 4.0°C and a mean low of -0.39°C. Precipitation of 158.3 mm (507.8 mm Kirkton) was 28 % above the January average. Measurable amounts fell on 18 days (average 20) with a high of 20.2 mm (11th). There were 14 air-frosts (average 14) with snow lying at 09.00 hours on 12 occasions. Across Scotland rainfall was 42 % above the average but whereas in the east of the country it was around the norm, Lerwick (Shetland) had its wettest January in 100 years with almost double the usual amount.

The 1st was a wet and windy day followed by sunny spells and sharp showers, some of hail, on the 2nd. Heavy rain that night resulted in a 48 hour total of 29.6 mm. The 3rd was cloudless and calm – a complete contrast and the perfect mid-winter's day. A rapidly deepening low pressure passing just to the north of Scotland during the night of the 8th/9th brought storm force winds to the northern half of the country. A gust of 113 mph was recorded in Stornaway (equaling the previous record set in 1962) while wind speeds reached 140 mph on Cairngorm summit. There were gusts of up to 61 mph in the Central Belt and all the major road bridges crossing forths were closed until dawn. These winds wreaked the expected damage and disruption with all train services suspended and those north of Dunblane not being recommenced until late on the 9th. C.120,000 homes were without power by dawn on the 9th and as well as all schools in the Western and Northern Isles, 150 were also closed in the Highlands that day. It rained during most of the 9th but the winds quickly moderated only to strengthen again as another vigorous low passed above the north of Scotland. Storm force winds again hit the northern half of the country reaching hurricane force in Shetland. Gusts of 52 mph were recorded in the Central Belt. These winds slowly eased during the 10th as it turned colder with sunny spells interspersed with snow flurries. These became more prolonged during the night with a centimetre of wet snow lying at 09.00 hours the following morning. C.13,000 homes in the north and west of Scotland were still without power on the 11th as snow and strong winds (47 mph Central Belt; 80 mph Shetland) hampered repair work.

The 11th was also a day of heavy rain with 20.2 mm recorded (70.8 mm Kirkton).

Steady snowfall during the evening and night of the 14th/15th resulted in an accumulation of 15 cm (6 inches) by 09.00 hours on the 15th (30 cm Aviemore). Drifting snow on gale force winds during this period blocked the A9 between Pitlochry and Inverness with many motorists being stranded overnight. The strong winds continued throughout the 15th causing even further travel chaos: the major bridges were closed to high-sided vehicles with the Tay Road Bridge being closed to all traffic. The snow gates were closed on the A93, A939 & B974 while there were no trains between Perth and Inverness; Inverness and Kyle of Lochalsh and north of Arrochar on the West Highland lines. Many ferries were also cancelled as winds reached 70 mph through the Central Belt (a gust of 80 mph was recorded on Blackford Hill, Edinburgh). Barometric pressure fell to 963 mb as the depression passed close to the north of Scotland.

The weather then became quieter and colder as pressure rose and northerly winds developed. This Arctic air-stream brought snow flurries and sharp frosts (-7.0°C 18th; -8.8°C Kirkton; -13.7°C Glascarnoch, 19th) but virtually cloudless days on the 18th and 19th. The calm, cold spell lasted until the 23rd when a warm front crossed south-eastwards across Scotland bringing with it a milder, damper spell. This ended on the 28th which was a raw day with frequent snow showers. Both barometric pressure (976 mb, 29th) and the temperature (-5.5°C , -8.5°C Kirkton 30th) fell. Strong, bitterly cold northerly winds were drawn down from the Arctic as the low pressure system drifted into the North Sea. The last 3 days of the month were sunny with very clear air.

February was colder and drier than usual with the mean temperature of 2.70°C being 0.36°C below the norm. The mean high was 5.76°C while the mean low was -0.37°C . Precipitation of 79.2 mm (261.4 mm Kirkton) was 82 % of the norm with measurable amounts on 13 days (mean = 17). There were 17 air-frosts while snow lay on the ground at 09.00 hours on nine occasions. Scotlandwide, the mean temperature was 0.2°C above the 1981-2010 average with a high of 15.6°C at Fyvie Castle (18th) while precipitation was 4 % below it.

The first 12 days of the month were dry and mostly sunny as a high pressure system (1040 mb, 8th) built to the west of Scotland. Light rain during the morning of the 13th ended a run of 13 consecutive days without precipitation which equalled the 4th longest such spell here. There was a cold, northerly airstream on the 1st but it was mostly calm thereafter with 13 nightly frosts (min -7.4°C , -10.8°C Dalwhinnie 3rd). Patches of snow which had fallen on 28th January persisted until 8th February. After the 13th, the weather became more unsettled with days of sunshine and rain – the latter often in the form of showers. The last week of the month was mostly wet and windy as alternative cold and warm fronts raced across Scotland from the west with Kirkton receiving 42.6 mm of rain (23rd) and 49.8 mm (28th) when a gust of

wind reached 70 mph in Edinburgh. Some of the precipitation fell as snow and although amounts were heavy in the hills very little settled in lower areas.

The mean temperature in **March** of 4.91°C was only 0.1°C above the average but precipitation of 111.9 mm (367.2 mm Kirkton) was 45 % above the norm. There were 11 air-frosts (average 11) while there was lying snow at 09.00 hours on 2 days. Similarly, across Scotland, the mean temperature was 0.2°C above the 1981-2010 average with precipitation 22 % above the norm. The latter ranged from 50 % above the average in some western localities to only 50 % of the norm in parts of Aberdeenshire.

Snow during the night of the 2nd/3rd produced 7 cm (2.75") by 09.00 on the 3rd (18 cm Kirkton). There were further wintery showers that morning before they turned to light rain in the afternoon. The 4th was sunny but overcast conditions prevailed for the next 3 days as a mild south-westerly airstream raised daytime temperatures to a year high of 11.1°C (17.4°C Santon Downham, Suffolk, 7th). 122.2 mm of rain fell at Altdearg House, Skye in the 24 hours ending at 09.00 hours on the 7th (60.0 mm Kirkton with a further 45.8 mm the following day). Unsettled weather continued until the 13th with the night of the 9th/10th being particularly wet and windy as a vigorous low crossed the Western and Northern Isles. Gusts of 83 mph and 89 mph were recorded on Skye and Lewis respectively leaving c.4,500 homes without power. A high pressure system developed over Scandinavia from the 11th (1038 mb 15th) with the associated, light easterly airflow bringing in largely overcast conditions to all but the north-west of the UK. Largely calm conditions with some sunshine from the 18th saw a rise in temperatures to a year high of 12.0°C on the 20th when an almost full solar eclipse (91 %) took place at 09.35 hours and, although there were varying amounts of cloud, at times this thinned to just the correct density to allow the phenomena to be observed without eye protection. The following day was one of glorious unbroken sunshine. A succession of Atlantic lows and associated fronts brought very unsettled and rapidly changing weather from the 25th until the month end. Between the spells of wind and rain brighter periods were often accompanied by cold northerly winds with occasional sleet showers at low levels and blizzard conditions on the hills. A gust of 97 mph was recorded at Capel Curig, N. Wales while 44.6 mm of rain was recorded at Kirkton (30th).

April was slightly cooler and noticeably drier than average. The mean temperature of 7.64°C was 0.21°C below the average while in contrast, the 20.8°C recorded on the 22nd and 23rd was the highest temperature for this month since 21.8°C in 2003. There were eight air-frosts (mean five). Precipitation of 43.9 mm (114.6 mm Kirkton) was 70 % of the norm with measurable amounts on 13 days (mean 15). The maximum 24 hour total (daily high) of 6.2 mm was the lowest ever for this month. UK wide, the mean temperature was 0.5°C above the 1981-2010 average while rainfall was 64 % of the norm. A maximum temperature of 25.6°C was recorded at Faversham, Kent (15th) with a minimum of -8.0°C in Co Down (27th). Across Scotland the mean

temperature was 0.2°C above the norm with rainfall 87 % of the average. It was the sunniest April since 1942 being 44 % above the norm. Six cm of snow lay in Aviemore on the 1st.

The first three days of the month were mixed but a high pressure system (1035 mb 8th) moving up from the south brought a dry, settled spell with above average temperatures (17.5°C; 20.7°C Aboyne, 5th) and much sunshine. There was no precipitation from the 4th-10th but an Atlantic front produced a little rain during the night of the 10th/11th. This was followed by a typical April mixture of squally showers (some of hail) and sunshine the next day which was distinctly colder and fresher. A high pressure system developed over the UK from the 15th (1035 mb 21st) bringing settled conditions with virtually unbroken sunshine from the 15th-24th and nine consecutive dry days. A light easterly airflow depressed temperatures down the east coast with the highest values being in NW Scotland (20.6°C Dunblane, 22nd & 23rd; 22.6°C Aberfeldy 22nd). A marked change in the weather from the 24th brought much colder conditions with some night frosts (-3.2°C, 27th) and sleet/snow showers to low levels. The 30th was sunny but with a cold northerly airflow.

May was colder and wetter than usual with the mean temperature of 9.43°C being 1.46°C below the norm making this the 2nd coldest May at this station after 8.27°C in 1996. Scotland wide, the mean temperature was 1.2°C below the norm with rainfall 77 % above average making this the 4th wettest May dating back to 1910. There were two air-frosts with a low of -2.2°C (1st). Precipitation of 97.6 mm (298.2 mm Kirkton) was 39 % above average with measurable amounts on 17 days.

The first 3 weeks of May were unsettled with the 3rd (19.0 mm; 30.6 mm Kirkton; 36.2 mm Durriss, Aberdeenshire), 5th (13.0 mm; 35.0 mm Kirkton) and 10th (13.4 mm; 36.2 mm Kirkton) being particularly wet days. Winds were mostly from the south-west with temperatures below the norm. A ridge of high pressure built on the 19th/20th bringing some much welcome sun and warmth (19.6°C, 23rd). From the 24th the weather was cooler, but mostly sunny and breezy with winds from a westerly quarter and just two spells of rain until the month end.

June was cooler than normal with the mean temperature of 12.9°C being 1.07°C below the average. Rainfall of 70.2 mm (181.0 mm Kirkton) was just below the monthly norm. Across Scotland the mean temperature was 0.7°C below the long-term average with rainfall just 3 % above it.

The cold, unsettled weather which characterised May continued into June with 18.8 mm of rain on the 1st (45.6 mm Kirkton). It was often windy with gusts of 65 and 63 mph recorded on Blackford Hill, Edinburgh (2nd & 6th) A high pressure system (1037 mb, 8th) brought a relieving spell of dry, warm weather from the 9th-12th (24.4°C 11th; 23.8°C Aboyne). Cold conditions returned with a vengeance on the 13th with a maximum temperature of only

11.3°C. Cool conditions continued with only the odd, brief warm day (18.6°C 20th). Temperatures were closer to the seasonal norm from the 21st until the month end but with occasional rain culminating in 16.5 mm during the early hours of the 28th. The temperature on the final day of the month reached 22.6°C (26.9°C Carterhouse, Borders).

July was much cooler and wetter than normal with the mean temperature of 14.31°C being 1.56°C below the average making it the coldest July at this station replacing the 14.47°C in 2007. Rainfall of 177.5 mm (249.2 mm Kirkton) was 103 % above the average which also set a new July record high here (supplanting the 156.3 mm in 2002). Rainfall across Scotland was 53 % above average with central and eastern areas receiving double the normal amount for July. Measurable rainfall occurred on 25 days (average 16). A maximum of 36.7°C was recorded at Heathrow Airport (1st) which set a new UK high for July.

A spell of warm, humid weather (23.6°C 3rd; 29.4°C Kinloss, 1st) culminated in a prolonged electrical storm during the early hours of the 4th which produced 24.0 mm of rain in 6 hours. Another electrical storm delivered 18.8 mm in 1½ hours from 17.00 hours on the 5th. These storms were widespread across the UK and two people were unfortunately killed by lightning in the Brecon Beacons. The weather continued to be very unsettled with rain most days. It was particularly wet from the 17th to the 20th when 71.0 mm fell (85.6 mm Kirkton), severely affecting the Open Golf Championship at St Andrews which couldn't be completed until the Monday.

August was a little cooler and drier than average. The mean temperature of 14.77°C was 0.4°C below the norm while rainfall of 73.9 mm (194.0 mm Kirkton) was 84 % of the average. Across Scotland the mean temperature was 0.1°C below the L.T.A. while rainfall totals equalled it. A monthly high of 25.8°C was recorded at Prestwick Airport (23rd) while the 35.4 mm accumulated at Achnagart (10th) was the wettest day.

Repeated low pressure systems and their associated fronts passing eastwards to the north-west of Scotland meant that the weather continued to be unsettled and mostly damp with only the occasional short sunny period. High pressure finally built on the 12th (1025 mb) producing unbroken sunshine the following day and a high of 22.4°C. It continued mostly sunny and warm until the late afternoon of the 19th when a spell of rain heralded a return to more unsettled weather although rainfall amounts were low until the 26th/27th when regular heavy downpours provided a 24 hour total of 28.3 mm. Sunshine and showers on a south-westerly airflow continued to be the theme until the month end.

September was cooler but much drier than the norm. The mean temperature of 11.64°C was 0.57°C below the average with a day high of 20.1°C (6th) and a night low of 1.7°C (30th). Rainfall of 28.0 mm (63.8 mm Kirkton) was

only 34 % of the average making this the 2nd driest September after 20.5 mm in 2014 and the 6th driest across Scotland in a series dating back to 1910. There were measurable amounts on only 8 days with a 24 hour high of 13.6 mm (12th). Barometric pressure averaged 1017 mb with a high of 1037 mb and a low of 993 mb.

Low pressure to the east of the UK combined with high pressure in the Atlantic produced a cool northerly airflow for the first 4 days of the month. Thereafter high pressure built over Scotland producing a welcome 'Indian Summer'. There were several cloudless and calm days with temperatures peaking at 20.1°C (6th and 7th; 21.4°C Kinlochewe 9th). A spell of 10 consecutive days without rain ended on the 12th as a vigorous depression crossed Scotland from the west producing 13.6 mm of rain on strong easterly winds. Despite low pressure (993 mb 15th) the sunny and largely dry weather returned allowing farmers to continue with the cereal harvest apace. During this period temperatures peaked at 18.5°C (18th) and with clear night skies fell to 2.0°C (15th). The weather was mixed from the 20th to the 25th but settled again as the barometer rose to 1037 mb (30th). This resulted in four cloudless days from the 27th until the month end. A maximum temperature of 17.9°C was recorded on the 29th compared to a high of 24.0°C in Braemar the following day.

October was a little warmer and much drier than the norm. The mean temperature of 8.96°C was 0.41°C above the average with a high of 17.0°C (1st) and a low of -0.6°C (17th). Rainfall of 73.6 mm (173.0 mm Kirkton) was only 56 % of the norm making this the driest October since 2007. The mean barometric pressure was 1017 mb compared to the average of 1009 mb. Across Scotland it was the driest and sunniest October since 2003 with 50 % of average rainfall and 121 % of average sunshine. The mean temperature was 0.8°C above the norm.

The settled spell, which included a run of 10 dry days ended on the 5th although early morning fog sometimes took until mid-morning to clear. The maximum temperature of 22.7°C recorded at Braemar (1st) was the highest for the month in the UK.

The rest of the month was more unsettled with rain from 16.00 on the 23rd until midday the following day produced 15.0 mm (43.0 mm Kirkton) while 29.3 mm fell between 04.00 on the 28th and 11.00 the next day. It was also windy with gusts of up to 60 mph in the north and west on the 21st and 70 mph the following day although it remained unseasonally mild with temperatures reaching 21°C east of the Grampians.

November was milder and wetter than usual with the mean temperature of 5.86°C being 1.04°C above the norm. A monthly high of 13.4°C was recorded (1st & 9th) and low of -1.1°C (30th) and there were four air-frosts and one ground frost. Precipitation of 189.9 mm (437.2 mm Kirkton) was 64 % above the

average with measurable amounts on 23 days. A new UK maximum temperature of 22.4°C for November was recorded near Aberystwyth on the 1st. Scotland wide the mean temperature was 1.3°C above the average while the south of the country had 147 % of the normal rainfall making this the 2nd equal wettest November. Across the UK the mean temperature of 8.2°C made it the third warmest in a series dating back to 1910 (after 1994 and 2011). In the 24 hours ending at 09.00 on the 10th, 96.8 mm of rain fell at Capel Curig (N. Wales). A wind gust of 97 mph was recorded at High Bradfield (S. Yorks) on the 29th while snow lay at a depth of 9 cm at Aviemore on the 30th.

After a perfect sunny, mild autumn day on the 1st overcast conditions with an increasing 'Atlantic' influence pertained although rainfall amounts were initially low. However, autumn storms 'Abigail', 'Barney' and 'Clodagh' brought very wet and windy weather for most of the second half of the month. Rain from 10.30 on the 8th had produced 23.6 mm by 09.00 the following day (48.0 mm Kirkton (+40.4 mm Kirkton 9th); 78.4 mm Alldearg Ho, Skye). Storm 'Abigail' tracked across the north-west of Scotland on the 12th with gust speeds widely in excess of 55-70 mph peaking at 84 mph on S. Uist and Sella Ness (Shetland). Kirkton received 47.0 mm of rain on the 15th and 38.6 mm on the 18th.

The weekend of the 21st/22nd brought a welcome respite from the wind and gales with largely clear skies and calm, dry conditions. Rainfall amounts remained low until the 27th after which it turned colder with snow falling on the hills and occasionally at lower levels, notably in Dunblane during the morning of the 29th.

December was much milder and wetter than normal. The mean temperature of 5.32°C was 2.49°C above the average for the month and the highest at this station (replacing the 4.32°C in December 2013). The average low of 3.08°C and the average high of 7.56°C were also the highest here. The lowest temperature during the month was -6.4°C (13th) and the highest was 13.0°C (19th). There were four air-frosts (mean 14) and one ground frost. Total precipitation of 222.1 mm (738.4 mm Kirkton) was 90 % above the average making this the 2nd wettest December here (supplanting the 225.5 in 2013) with measurable amounts on 26 days (mean 20). Despite the regular Atlantic depressions barometric pressure remained within the fairly narrow range of 990 mb-1017 mb.

For Scotland as a whole, the mean temperature was 2.7°C above the long-term average while precipitation was a massive 115 % above the norm. UK wide, the mean temperature of 7.9°C was 4.1°C above the 1981-2010 long-term average and 1.0°C above the previous warmest December dating back to 1910. The southern half of England was exceptionally mild with Central England recording its warmest December in a series starting in 1659 (Plate 10). Provisionally, it was not only the wettest December, but also the wettest ever calendar month ever recorded across the UK with rainfall 91 % above the average. (Plate 11)

The procession of Atlantic depressions continued throughout the month with the heavy rain and gales accompanying storm 'Desmond' causing extensive flooding in southern Scotland and north-west England from noon on the 4th to late evening on the 5th. Several main roads in the Stirling area were impassable on the morning of the 5th including the southbound carriageway of the M9 between the Keir roundabout and Bannockburn; the M876 and the A821 through Aberfoyle. Bus passengers on the A 81 had to be rescued by the Trossachs Search and Rescue Team. The 48 hour total at this station was 53.6 mm (141.0 mm Kirkton; 114 mm Glasgow; 139 mm Eskdalemuir). Further afield parts of Hawick were under water with 600 houses being evacuated as the R. Teviot topped its banks. The east and west rail lines between Scotland and England were cut while the Perth to Inverness line had already been closed due to flooding at Kingussie for a few days. A gust of 78 mph was recorded at Inverbervie and the gales blew a bus off the road into a field in Fife. In the 24 hours ending at 09.00 on the 5th, 341.4 mm (13.4 inches) of rain fell at Honister Pass (Lake District) – the highest 24 hour total ever recorded in the UK. A further 264.4 mm (10.4 inches) fell at Thirlmere (Lake District) in the following 24 hours causing extensive flooding with many roads closed. Carlisle was particularly badly affected with a number of areas under water and numerous homes evacuated. Even Carlisle United's football ground – Brunton Park – was under several feet of water. The town centres of Cockermouth, Kendall and Keswick also experienced severe flooding.

The south-westerly airstream continued to feed in moist air with rain every day until the 12th. However, the weather turned colder on the 10th with the heavy showers turning to snow around noon – even at low levels. These showers continued through the night to reveal the hills plastered with snow above 1,500 feet the following day (14 cm at Aviemore). After the coldest night of the year on the 12th/13th (-6.4°C ; -8.7°C Dalwhinnie) and a calm, sunny day to follow when the temperature remained below freezing (max. -1.1°C), the weather became increasing mild reaching an unseasonal 13.0°C on the 19th (17.2°C Achnagart and Plockton, Highland; 16th). Unfortunately this was accompanied by mostly damp, dreich conditions made even gloomier by the proximity of the approaching winter solstice.

A belt of heavy rain crossed the Central Belt from west to east during the morning of the 21st depositing 16.8 mm in only 4 hours (38.8 mm Kirkton). This was quickly followed by storm 'Eva' which brought the 3 day total to 59.8 mm (111.2 mm Kirkton). The north of England suffered the most from this storm with parts of Ribchester and Whalley (Lancashire) along with parts of Leeds, Knarsborough, Hebdon Bridge and Tadcaster (Yorkshire) being flooded while c.3,500 properties in York were inundated by the R. Foss. There was a single flash of lightning and accompanying clap of thunder directly overhead at 19.30 on the 24th. Xmas Day was dry and overcast but 'normal' service resumed on Boxing Day with unrelenting rain on a raw north-easterly airflow. The 27th was a rare sunny & calm day.

'Frank', the third named storm of the month hit the northern half of the UK during the night of the 29th/30th. By late afternoon on the 30th, 37.4 mm of rain had fallen (80.0 mm Kirkton). The accompanying gales reached 85 mph in South Uist. The A84 was closed for most of the day between Callander and Lochearnhead due to flooding as was the M74 at Abington. Inevitably, heavy rain (76.0 mm in 20 hours) washed c.250 tonnes of earth onto the A83 just below the summit of the 'Rest and Be Thankful' closing the road to all traffic for several days. Part of the A93 between Ballater and Braemar was washed away by the River Dee producing the unforgettable broadcast image of large static caravans from a site at the former village floating down the river. Six thousand homes across Scotland were without power and many homes had to be evacuated with Dumfries, Newton Stewart, Hawick, Moffat, Peebles and Ballater the worst affected. Twelve passengers had to be airlifted from a bus stuck in floodwater in S. Ayrshire. A gust of 98 mph was recorded at the Needles (Isle of Wight, 31st). The Association of British Insurers estimated that the total cost for the flood damage caused by the three December storms would be £1.3 billion.

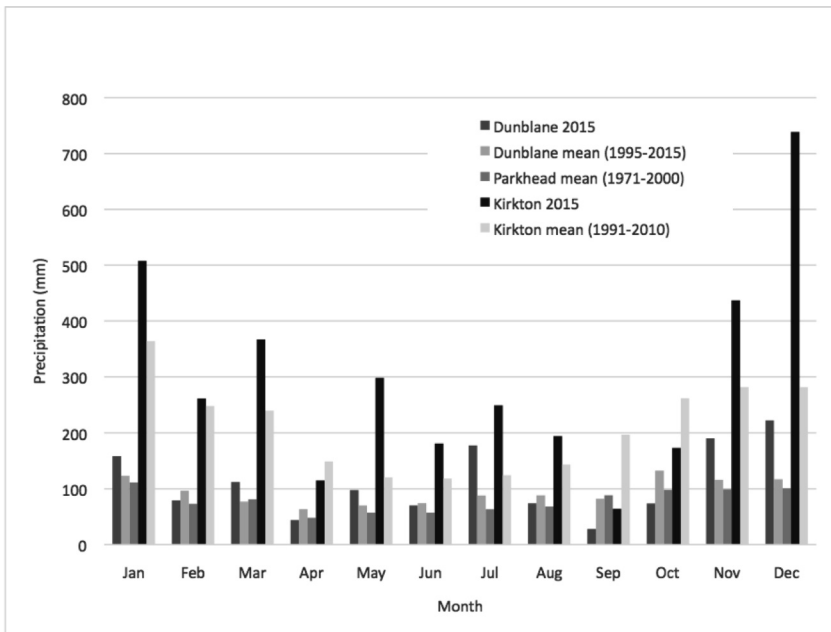


Figure 1. Rainfall 2015

