

DUNBLANE WEATHER REPORT, 2016

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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 22 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 (via their automatic weather station) and additional weather records from Kirkton Farm, Strathfillan (NN 359283; 170 metres above sea level) 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 allows for some interesting meteorological comparisons between the far north-west and central areas of our region.

Daily rainfall (> 0.1mm, 'rain days'), 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 (Plate 3/a).

2016 in Dunblane was slightly warmer and drier than average. The mean temperature of 8.59°C was 0.11°C above the norm with precipitation of 1004.8 mm (39.6 inches) being 116.4 mm (10%) below the mean. The wettest month was January with 178.5 mm whilst the driest was March with 42.0 mm. The warmest month was July and the coldest February. The highest recorded temperature was 28.8°C (19th July) and the lowest -8.0°C (24th Nov.). There were 71 air-frosts (mean 70) while snow lay on the ground at 09.00 hours on 18 occasions (mean 21). Temperatures of over 25°C were recorded on three days (two in June and one in July).

Table 1. Temperature and precipitation 2016. Climatological Station Dunblane / Kirkton.

	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	0.7/0.5 (0.2)	4.4/5.7 (4.5)	14/13 (14)	178.5/441.2 (125.7/365.2)	17.5/73.6	26/30 (21)
February	-1.2/-1.5 (0.2)	4.9/6.0 (5.9)	17/18 (13)	100.2/306.6 (96.6/253.6)	17.1/44.8	18/23 (17)
March	1.0/0.6 (1.3)	9.4/9.1 (8.6)	11/14 (11)	38.9/129.0 (75.1/227.4)	8.2/25.2	14/21 (16)
April	1.7/0.6/(3.3)	11.2/10.1 (12.3)	10/15 (5)	48.1/114.8 (62.4/151.5)	12.3/26.8	11/20 (15)
May	6.4/5.0 (5.8)	17.5/16.2 (16.1)	1/3 (2)	60.2/134.8 (69.7/140.7)	13.3/37.2	9/11 (16)
June	9.6/9.3 (8.9)	19.2/17.9 (19.1)	0/0 (0)	76.9/120.4 (74.2/116.9)	19.4/21.2	17/22 (15)
July	10.5/9.9 (10.8)	19.7/16.9 (20.9)	0/0 (0)	125.3/170.8 (89.3/129.2)	31.3/19.0	19/27 (16)
August	10.8/9.3 (10.5)	19.4/17.6 (19.9)	0/0 (0)	66.2/171.2 (86.9/149.8)	15.0/35.4	18/23 (16)
September	10.5/10.1 (8.4)	17.4/16.6 (16.1)	0/0 (0)	109.0/279.2 (83.2/194.7)	17.7/45.0	20/25 (16)
October	5.3/4.6 (5.3)	12.4/12.6 (11.8)	1/3 (1)	44.6/83.8 (128.4/262.6)	31.2/20.8	14/19 (21)
November	-0.2/-1.4 (2.0)	5.5/6.5 (7.3)	12/17 (8)	55.4/136.6 (112.9/281.0)	14.2/30.4	14/21 (20)
December	3.0/2.9 (0.0)	7.1/8.9 (4.3)	5/5 (14)	101.5/294.2 (115.9/332.3)	21.5/40.6	19/25 (20)
Year	4.8/4.2 (4.8)	12.3/12.1 (12.2)	71/88 (70)	1004.8/2382.6 (1127/2604.9)	31.3/73.6	199/267 (209)

The climatological means for Dunblane are shown in (). Where either two 2016 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 (09.00 hours to 09.00 hours). Temperatures are given in degrees Celsius.

There were 199 (55%) 'rain days' (mean 208) and the highest 24 hour total was 31.3 mm measured at 09.00 hours on 20th July – the only day when 25 mm (one inch) or more of precipitation occurred. The average barometric pressure was 1013 mb (mean 1011 mb) with a high of 1040 mb (27th Dec.) and a low of 966 mb (8th Feb.). Turning to the seasons: winter (Dec. 2015 – Feb. 2016) was milder (+0.85°C) and wetter (+59%) than average. Spring (Mar. – May) was drier than the norm (-29%) with average temperatures. Summer (June – July) was very slightly cooler (-0.1°C) and wetter (+7%) while both the average temperature and rainfall total were within 1% of the norm in autumn.

The main features of the weather at Kirkton during 2016 were a wet January and February; a dry and sunny spring (March to mid-June); a relatively damp but warm summer (mid-June to September), which proved ideal for grass growth on the farm; and an unusually dry and comparatively calm autumn and early winter (October to mid-December). The weather was more settled in 2016 compared to 2015, with considerably less rainfall (well below the 25 year average), fewer rain days, higher summer temperatures and fewer storms.

The total rainfall recorded at the Met Office automatic station at Kirkton in 2016 was 2,382.6 mm (93.8 inches) which was 231.2 mm less than the 1991-2015 twenty five year average (2613.8 mm). This was 1203.2 mm less than the rainfall in 2015. Killin, only 14 miles east of Kirkton, recorded 1674.5 mm, 70% of the Kirkton total). The wettest month was January when a total of 441.2 mm (17.37 inches) of rainfall was recorded. The rainfall was above average in January and February, and during the summer months of June, July, August and September. The driest month was October with 83.8 mm of rainfall (only 31% of the 25 year average). The 136.6 mm of rainfall recorded in November was the lowest November rainfall since records began in 1991 (47.6% of the 25 year average). The highest rainfall over a calendar Week (Monday to Sunday) was 235.6 mm between the 25th and the 31st January. The highest rainfall in a single 24 hour period (09:00 GMT to 09:00 GMT) was 73.6 mm on the 28th January. This was the only day in 2016 when more than 50 mm of rainfall was recorded. The highest rainfall in a single half-day 12 hour period (21:00 GMT to 09:00 GMT) was 52.0 mm again on the 28th January. The total number of rain days was 267 (73%). There were 22 days when there was more than 25 mm of rainfall recorded. There was no recorded rainfall between the 5th May and the 16th May (a period of 12 days); and there was only one rain day between the 23rd May and the 5th June (Plate 3/b).

The lowest temperature recorded during 2016 was on the 25th November when the temperature fell to -9.5°C . This is the fifth year in a row that the temperature has not fallen below -10.0°C . The lowest maximum temperature was recorded on the 8th January (-0.6°C). This was the only day during 2016 when the temperature failed to rise above freezing. An air-frost was recorded on a total of 88 days. The highest temperature recorded was on the 6th June (26.7°C). June was the warmest month with a mean temperature of 13.64°C and a mean maximum temperature of 17.94°C . Temperatures of 25°C or above were recorded on three days while temperatures above 20°C (but less than 25°C) were recorded on a further 25 days: eight days in May, eight days in June, three days in July, three days in August and three days in September. Sleet or snow was recorded falling at the weather station on 32 days during 2016 and lying snow (recorded at 09:00) was noted on 24 days. A depth of 12 cm of lying snow was recorded on the mornings of the 17th and 18th January.

There were five storms when sustained gale force winds were recorded at the farm (28th and 29th January - storm 'Gertrude'; 1st and 2nd February - storm 'Henry'; 28th September; 23rd and 24th December - storm 'Barbara'; and 25th and 26th December - storm 'Conor'). Thunder and lightning was recorded on three days (19th July; 3rd and 19th August).

January was a little milder but with more precipitation than average. The mean temperature of 2.55°C was 0.24°C above the norm with a mean high of 4.39°C and a mean low of 0.71°C . The highest day-time temperature was 11.3°C (24th) and the lowest night temperature was -7.8°C (16th - when the maximum day-time temperature was -1.4°C). There were 14 air-frosts (mean 14) and snow lay on the ground at 09.00 hours on 10 occasions (mean seven). Precipitation of 178.5 mm was 42% above the norm with 10 % falling as snow.

For the first eight days of the month a stationary depression over the UK resulted in an easterly airflow over Scotland which brought virtually continuous rain to the east coast and especially Aberdeenshire (eastern Perthshire was also badly affected). This rain (29.8 mm Kirkton, 3rd), falling on already heavily saturated ground, quickly fed into the still swollen Dee, Don and Ythan rivers causing several more road closures and flooded homes with Inverurie, Elphinstone and Ellon the worst affected. Rare clear skies during the night resulted in frosty mornings on the 8th and 9th (-5.1°C , 9th). Heavy rain / sleet resumed on the afternoon of the 10th as yet another low pressure system (968 mb) settled over Scotland. Snow started falling at 16.30 on the 13th with five cm having accumulated by 09.00 the following morning. Developing high pressure (1030 mb, 16th) with associated clear skies resulted in four days in which the temperature struggled to breach 0°C (max of -1.4°C , 16th). Night frosts were increasingly severe culminating in -7.8°C (-8.4°C Kirkton, 16th). There was a dusting of snow during the night of the 13th/14th with a further two cm during the afternoon/evening of the 16th and another

centimetre during the night of the 17th/18th. Thereafter a slow thaw ensued with damp, overcast, raw days which the word 'dreich' describes perfectly. Heavy rain during the early hours of the 22nd combined with a rapid increase in temperature (10.1°C, 18th) removed virtually all of the remaining snow. A short, relatively calm and remarkably mild spell followed with an unusually high night 'low' of 11.9°C (24th/25th). The 25th and 26th were particularly wet at Kirkton with 69.0 mm of rain.

The remnants of storm 'Janus', which had deposited large amounts of snow along the eastern seaboard of the USA, arrived in the UK on the 26th. Accompanied by gale force winds, it brought heavy rain (17.5 mm) during the first 12 hours of the day, causing disruption on Scotland's roads. Locally, the M9 was closed due to flooding at Stirling while further afield, two lorries were blown over when crossing the bridge over the River Tyne on the A1 east of Haddington and a carriageway on the M8 was closed when two Portacabins blew off a lorry. Further south the A66 over the Pennines was also closed due to overturned lorries, a situation which carried over to the following day. On the 27th further heavy rain during the morning (17.5 mm; 73.6 mm Kirkton) resulted in several roads in the Borders and Dumfries and Galloway being closed due to flooding. Colder conditions saw this rain fall as snow above 300 metres.

'Gertrude', the eighth named storm of the winter, hit Scotland in the early hours of the 29th. Although accompanied by heavy rain the storm force winds were the major factor. These peaked at 77 mph at 08.00 hours in the Stirling area but gusted at 91 mph on the Forth Road Bridge; 105 mph in Lerwick and 144 mph on Cairngorm. As would be expected, these winds caused major disruption and damage. All schools in the Western and Northern Isles were closed for the day while only the Bute and Cumbrae ferries operated. Many rail services were either cancelled or disrupted. The Forth and Tay road bridges were closed to all traffic during the morning with the other major bridges being closed to high-sided vehicles. A lorry was blown over on the M9 at 06.50 where it crosses the Carse of Stirling. Power lines were brought down leaving some 1,200 homes in the north of Scotland without power for two days. The A82 was blocked for most of the morning at Letterfinlay on the side of Loch Lochy by a landslide. Kirkton had 45.8 mm of rain on the 31st. On the morning of the 30th we awoke to a 'winter wonderland' with a snow covering of seven centimetres.

February was colder than usual but with average precipitation. The mean temperature of 1.89°C was 1.11°C below the norm with the mean low being 1.33°C and the mean high 0.93°C below their norms. There were 17 air-frosts (mean 10) and snow lay on the ground at 09.00 on five occasions (mean 5). Precipitation of 123.7 mm (av. 171.2 mm across Scotland) was 4 % above the norm with recordable amounts on 18 days. Mean barometric pressure of 1004

mb was 5 mb below the average with a high of 1028 mb and a low of 971 mb. The mean temperature for Scotland of 2.2°C was 0.5°C below the long-term average while precipitation was 31 % above the average with it being particularly wet in the SW. Sunshine was 21 % above the average. This past winter (December 2015 – February 2016) saw an average of 760 mm of precipitation across Scotland (Argyll was the wettest area) the highest since records began in 1910.

The month started with yet another named storm 'Henry' during the night of the 1st/2nd (83.6 mm Cassley, Sutherland). South-westerly gales gusting up to 90 mph in the Western Isles left some 3,000 homes in the North of Scotland without power. The winds peaked at 100 mph on the Tay Road Bridge causing some structural damage. The 3rd was a rare sunny day before another succession of Atlantic depressions brought more wind and rain.

Being in the centre of the low pressure system (966 mb, 8th) the Central Belt largely escaped the strong winds (96 mph, the Needles) and heavy rain which the 10th named storm of the winter, 'Imogen' brought to the southern half of England on the 8th. Night frosts and mostly sunny days pertained from the 10th – 12th before snow showers in the early morning of the 13th continued until 13.00 by which time five cm of wet snow had accumulated. Clear skies under rising pressure (1031 mb, 16th) resulted in three successive sharp night frosts (-7.5°C, -14.1°C Braemar 14th) which enabled the lying snow to remain until the 19th (10 cm Aviemore, 15th). Atlantic fronts then brought rain on raw south-westerly winds until the 22nd. Rainfall amounts in Dunblane were moderate (15.7 mm from the 18th – 21st) but much heavier further west (44.8 mm, 16th; 27.2 mm, 19th Kirkton). High pressure then settled over Scotland (1026 mb, 28th) giving seven days of dry, mostly sunny weather with nightly frosts (-6.1°C; -8.2°C Kirkton, -9.8°C Glascarnoch, Highland 28th) on a light, northerly airstream. This dry spell was broken by heavy rain during the night of the 29th / 1st March (20.0mm, 43.0 mm Kirkton).

March had a mean temperature in of 5.22°C was 0.3°C above the LTA (long-term average) with the mean high being 0.84°C above and the mean low being 0.23°C below their LTA's. The highest temperature during the month was 14.1°C (22nd; 14.7°C Kirkton, 14th) and the lowest -5.4°C (6th). There were 11 air-frosts and one ground frost. Precipitation of 38.9 mm was only 52 % of the LTA and the third lowest for March after 35.7 mm (2012) and 37.8 mm (2006). There were measurable amounts on 14 days (LTA 16) and snow lay on the ground at 09.00 hours on one occasion. Average pressure was 1013 mb (LTA 1012) with a high of 1038 mb and a low of 984 mb. Scotland wide the mean temperature was 0.4°C above the LTA with precipitation only 62% of the average. Fair Isle recorded gusts of up to 84 mph (27th) while storm 'Katie' brought damaging winds to the SE of England the following day with a gust of 106 mph recorded at the Needles (Isle of Wight).

Early March saw largely sunny weather with several night frosts (-5.4°C 6th; -6.2°C Kirkton, 10th) and only occasional rain (8.0 mm 3rd). Two cm of snow at 09.00 on the 2nd (11 cm Tulloch Br.) quickly melted. It was often calm while any wind was mostly light. With high pressure (1038 mb, 14th) becoming established over Scotland the weather continued to be very settled with a mixture of sunny, calm, spring like days and overcast (occasionally damp) ones when cloud drifted in from the North Sea on light north-easterly winds. It was largely frost-free after the 11th (-1.6°C, 20th) with daytime temperatures peaking at 14.1°C on the 22nd (18.7°C Braemar, 17th – the highest in the UK during the month). This settled spell lasted until the 23rd when Atlantic fronts pushed in as the high pressure system deteriorated. From midnight to midnight on the 26th 25.2 mm of rain fell at Kirkton compared to only 8.9 mm at Dunblane. The weather remained unsettled until the month end with a mixture of sunshine and showers.

April was colder and drier than usual with the mean temperature of 6.43°C being 1.36°C below the norm. The mean high of 11.15°C was 1.16°C below the average with a high of 17.5°C (21st) while the mean low of 1.71°C was 1.56°C below the average with a low of -3.0°C (28th). There were 10 air-frosts (average 5) and one ground frost. Averaged over the past two decades, April has been the driest month and the total precipitation of 54.7 mm this month was only 77 % of the norm thus enhancing its position. There were measurable amounts (>0.2 mm) on 11 days (mean 15) with snow lying at 09.00 hours on one occasion. The mean barometric pressure was 1012 mb with a high of 1032 mb (20th) and a low of 993 mb (6th).

Increasingly heavy rain on the 1st produced 9.4 mm from midnight to midnight in Dunblane but 26.8 mm at Kirkton. The weather continued unsettled with the occasional dry, sunny day and normal temperatures until the 10th. From the 10th until the 17th a north-easterly, then northerly airstream brought colder but drier weather with night frosts on the 15th/16th (-2.5°C). A high pressure system then built over the UK (1032 mb, 20th) bringing dry, calm, sunny and warmer conditions for 5 days with temperatures peaking at 17.5°C (16.8°C Kirkton, 21st) – perfect spring weather. A northerly air-stream then developed causing temperatures to drop. The winds continued from this airt until the month end giving mostly sunny but cold weather with the occasional brief flurry of hail. The 28th was an exception when spells of rain, sleet, hail, some sun and then snow gave us four seasons in 24 hours and brought to an end 10 days with no measurable precipitation.

May was warmer and drier than usual with the mean temperature of 11.96°C being 1.02°C above the average making it the warmest May since 2008 (12.46°C). The minimum temperature was -1.3°C (14th, the only air-frost) and the maximum 24.2°C (31st). Precipitation of 63.9 mm was 14 % below the

norm with measurable rain on only 9 days (average 16). Across Scotland the mean temperature was 1.0°C above the 1981-2010 average with rainfall being 7 % below the norm. Apart from two wet spells, at the start of the month and between the 17th – 22nd, a dry easterly airstream dominated.

The often marked difference in rainfall totals between the lowland area and the 'Highland' north-west of our three council districts was again illustrated on the 2nd when Dunblane received 11.4 mm compared to Kirkton's 37.2 mm (81.2 mm Alltdearg Ho, Skye, 1st). The unsettled spell continued until the 5th when warmer weather moved up from the south (17.1°C 6th) although sunshine was still scarce. After a damp start to the 8th the clouds cleared at noon to give a sunny and very warm afternoon (23.0°C – the highest temperature of the year to date). This proved to be the prelude to 8 days of virtually unbroken sunshine with no rain.

Temperatures peaked at 23.0°C again on the 9th (27.7°C Plockton) and reached 21.0°C on the following 3 days (23.1°C Kirkton, 11th). Fresh north-easterly breezes down Scotland's east coast during this period depressed maximum temperatures by 10°C until a light, northerly airstream saw temperatures fall across the whole of the country with a frost during the early hours of the 14th (-1.3°C; -3.4°C Kirkton; -5.7°C Tulloch Br.). The spell of 9 days without measurable rain came to an end at 16.00 on the 17th. Rain every day until the 22nd then produced 41.7 mm – disliked by some but welcomed by gardeners. Largely dry weather then ensued until the end of the month with 1.4 mm on the 27th (brought in on easterly winds) the only rain. In contrast, the west remained dry and warm with Stornaway enjoying 15.9 hours of sunshine. The late May bank holiday weekend was sunny and warm. The fine weather continued until the month end with the 31st recording the warmest day of the year so far, 24.2°C and Leuchars receiving 16.0 hours of sunshine – the months highest.

June was warmer and slightly wetter than the norm. The mean temperature of 14.41°C was 0.42°C above the average with a high of 25.9°C (7th) and a low of 4.1°C (3rd). Rainfall of 87.4 mm was just 4% above the average with measurable amounts on 17 days (mean 15). Average pressure of 1014.5 mb was exactly equal to the norm. Across Scotland the mean temperature was 0.9°C above the LTA but this hid a marked east / west split with the former's mean maximum average was close to normal while that of the latter was well above. Aberdeenshire had twice its normal June rainfall but Scotland overall had only 7% more than usual. Sunshine totals were slightly below average but Shetland was unusually sunny.

The fine weather continued until the 10th. On some mornings overcast conditions took a while to clear but all afternoons were sunny and warm with temperatures peaking at 25.9°C on the 3rd (26.7°C Kirkton and 27.3°C

Glasgow, 6th). Mornings were generally calm with easterly breezes in the afternoon. Rain on the 10th ended a run of 13 dry days with only 1.4 mm in the past 19 days.

With the jetstream directly above the UK a spell of unsettled weather then ensued with rain most days until the month end. Amounts were generally moderate apart from the evening of the 14th when torrential spells contributed heavily to a 24 hour total of 19.5 mm. North-easterly breezes predominated during the early part of this period – mostly in the afternoon following calm mornings – but a south-westerly airstream became established from the 20th with an accompanying rise in temperatures which peaked at 20.3°C (23rd).

July was cooler and wetter than usual with the mean temperature of 15.1°C being 0.73°C below the average. The maximum daytime temperature was 28.8°C (19th) and the night-time low was 6.1°C (2nd). Total rainfall of 125.3 mm was 40 % above the norm with measurable amounts on 19 days (average 16). Scotlandwide the mean temperature was 0.2°C below the 1981-2010 mean with a low of 0.5°C at Altnaharra (2nd). Rainfall was 44% above the norm with the east coast, along with the Western and Northern Isles, being particularly wet. In the UK, a maximum temperature of 33.5°C was recorded at Brize Norton in Oxfordshire (19th).

The weather continued unsettled with spells of rain as successive Atlantic low pressure systems with associated fronts crossed Scotland. Amounts were generally moderate apart from 22.00 hours (7th) to 10.00 (8th) when 18.0 mm fell (there was a further 17.8 mm on the 10th). Winds were from the south-west and there was the occasional dry day when sunshine pushed the temperature up to 22.1°C (14th). A plume of warm, humid air pushing up from the south raised temperatures to a year high of 28.8°C on the 19th (26.5°C Kirkton; 29.8°C at Floors Castle and in Motherwell). This humidity resulted in an electrical storm on the morning of the 20th which deposited 31.3 mm of rain in 2 hours from 09.00 – 11.00 (97.9 mm at Nunraw Abbey, E. Lothian during the day). These storms were widespread across Scotland with lightning striking a church spire in Denny and hailstones ‘as large as gobstoppers’ damaging cars in Annan. The weather remained warm with some sun, but thankfully a little less humid, until the 24th when a day of rain produced 11.6 mm. The rest of the month was reasonably warm (daily max’s of c.20°C) with some good sunny periods and only a little rain.

August was drier than normal with average temperatures. The mean temperature of 15.09°C was only 0.07°C below the average with a high of 25.0°C (16th) and a low of 3.3°C (10th). Rainfall of 66.2 mm was 76 % of the norm with measurable amounts on 18 days (average 16). The mean temperature for Scotland was 0.3°C above the LTA with rainfall 9 % above the mean. It was wetter than normal on the Hebrides but drier in Aberdeenshire and Fife. The UK mean temperature was 15.5°C which is 0.6°C above the 1981-2010 LTA. The UK maximum temperature was 34.1°C at Faversham, Kent (23rd) with a minimum temperature of -1.5°C at Kindrogan, Perthshire (10th). In the 24 hours to 09.00 on the 11th, 70.2 mm of rain fell at Loch Shiel.

The unsettled weather with regular Atlantic lows and accompanying fronts continued for 13 days. Thunder and lightning during the early hours of the 3rd was followed by increasingly heavy rain during the afternoon and evening producing 24.2 mm in total. The 7th was a very windy day with a gust of 115 mph recorded on Cairngorm. Although rainfall amounts in Dunblane were at most moderate, Kirkton received 35.4 mm and the NW of Scotland had much heavier and more continuous rain which eventually caused a landslip to close both the Fort William to Mallaig railway and the adjacent A830 west of Arienskill on the 10th. A plume of warm air coming up from France brought more summery weather from the 14th – 18th with temperatures peaking at 25.0°C (24.2°C Kirkton, 16th) and 27.4°C Kinlochewe (17th). A touch of autumn quickly followed on the 19th with a maximum temperature of only 15.6°C. An Atlantic depression crossed the UK over the weekend of the 19th-21st but with the centre passing over Scotland we escaped the strong winds around it and, despite dire warnings, only received 7.5 mm of rain. It was then often overcast but with little rain and normal temperatures until the month end.

September was warmer and wetter than normal with the mean temperature of 13.98°C being 1.69°C above the average making it the warmest September to date (replacing the 13.93°C in 2014). The month high of 24.2°C (7th) was the 2nd hottest after 24.5°C (2005) while the average daily low of 10.52°C also set a new high as did the lowest temperature of 6.1°C (17th). Rainfall of 109.0 mm was 31% above the norm with measurable amounts on 20 days (average 16). The mean barometric pressure of 1011.8 mb was 2.6 mb above the norm. Across Scotland the mean temperature was 1.8°C above the LTA making it the second warmest September since 1911. Rainfall was 6 % above average being wetter in the west and drier in the east than the norm. At Alltdearg House (Skye) 92.4 mm of rain fell in the 24 hours ending at 09.00 on the 12th. The UK mean temperature of 14.6°C was 2.0°C above the 1981-2010 LTA making it the 2nd equal warmest since 1910. A maximum temperature of 34.4°C was recorded at Gravesend (Kent, 13th) – the highest for September since 2011.

The unsettled weather continued with rain every day until the 10th. Some torrential downpours on the 8th produced c.16.0 mm between 09.00 – 12.00 hours. Temperatures were mostly above the norm for early September with the 7th being particularly warm and humid (24.2°C; 25.0°C Fyvie Castle, Aberdeenshire) with a night low of 15.7°C which was a year high. Another plume of unseasonally warm air from the south raised temperatures to 22.7°C on the 12th but the associated humidity produced 12.5 mm of rain in the early hours of the 13th (32.0mm Kirkton). Also on the 13th, heavy rain in the Manchester area caused widespread flooding with several shopping centres inundated and Manchester City's Champions League match to be postponed. It remained warm and humid producing a morning of dense fog on the 15th which only started to clear after midday when temperatures at Kirkton reached a monthly high of 22.1°C. On the 15th and 16th further torrential downpours caused widespread chaos in the south and east of England with much disruption on both rail and road. These, along with lightning strikes, saw 38,000 homes in NE England without power.

A weak front crossed Scotland during the night of the 15th/16th introducing fresher and brighter weather behind it with the 17th being a day of unbroken sunshine. Three days without rain followed with temperatures peaking at 18.1°C (20th). Unsettled weather returned on the evening of the 21st with the 24th being a day of wind and rain (17.7 mm, 34.8 mm Tyndrum). The West of Scotland was particularly affected on the 24th with water pouring off the hillsides closing the A85 near Oban. The south-westerly airstream persisted until the last day of the month with rain every day until then. Strong winds on the 27th-29th (max. 71 mph Loch Glascarnoch) caused disruption to rail, road and sea communications in the northern half of Scotland with 45.0 mm of rain falling on Kirkton on the 28th.

October was an unusually quiet month, slightly warmer but much drier than usual. The mean temperature of 8.84°C was 0.28°C above the norm (+0.5°C for Scotland) with a high of 16.5°C (19.4°C Port Henderson, Ross & Cromarty; 4th) and a low of -0.1°C (-1.6°C Kirkton, 2nd; -5.0°C Tulloch Br. 25th). There was one ground and one air frost. Rainfall of 44.6 mm was only 35% of the average making this the 2nd driest October at this station (after 23.1 mm in 2003). Only 14 days had measurable rain which equals the previous low. Average barometric pressure of 1023.6 mb set a new high for October here being 14 mb above the norm with a high of 1036 mb (5th). Excepting Aberdeenshire, Scotland had only 37% of the average rainfall making it the 4th driest since records for rainfall began in 1910.

The weather was very settled until light rain during the morning of the 11th ended a spell of 11 consecutive dry days. This was thanks to a high pressure system which peaked at 1036 mb (5th – the highest since 1038 mb on 16 March). There were many sunny days and the first frost of the autumn (-

0.1°C, -1.6°C Kirkton, 2nd). There were then varying amounts of rain every day till the 19th. Increasing barometric pressure (1027 mb, 20th) resulted in another mainly dry spell until the month end. An easterly airstream of varying strength predominated until the 27th when south-westerly winds brought driven drizzle. The continental high pressure system re-established itself (1033 mb 29th) and brought mild, calm but overcast weather.

November was colder and much drier than normal with the mean temperature of 2.62°C being 2.01°C below the average and precipitation of 60.4 mm being only 49% of the norm. There was a high daytime temperature of 13.1°C (14th; 14.1°C Aboyne) and a night-time low of -8.0°C (24th; -12.1°C Braemar, 21st). There were 12 air-frosts and 4 ground frosts while the daytime temperature didn't rise above freezing on the 21st and 24th. Measurable precipitation occurred on 14 days with a high of 14.2 mm (16th) while snow lay on the ground at 09.00 hours on the 9th. The average barometric pressure was 1014 mb with a high of 1034 mb (28th) and a low of 987 mb (18th). Across Scotland the mean temperature was 1.6°C below the 1981-2010 average while rainfall was 69% of the norm. It was Scotland's sunniest November in a series dating from 1929. The first named storm of the winter (Angus) battered the south of England on the 19th/20th with 20 mm of rain falling on Exeter in 1 hour. Another weather system caused flooding in the north of England on the 21st when 70.0 mm of rain was recorded at Chillingham, Northumberland.

High pressure continued for the first two days with much sunshine and ground frosts. As it slipped eastwards across the North Sea strong, cold northerlies developed in its wake on the 5th & 6th. These days were mostly sunny but the strong winds caused several organized bonfire night firework displays to be cancelled due to safety fears. After two sunny days an Atlantic front produced the first snow of the winter during the night of the 8th/9th. This melted during the 9th at lower levels but the hills were 'plastered' and looked splendid during the 10th which was a sunny day with very clear air. Quite heavy rain during the night of the 11th/12th (12.6 mm; 30.4 mm Kirkton) quickly cleared before breakfast to give a sunny and milder day (8.9°C). Frequent showers, some heavy, deposited 23.4 mm (25.6 mm Kirkton) during the 16th/17th but as the barometer dropped quickly to 986 mb (18th) the weather surprisingly improved with several dry and mostly sunny days along with a succession of night frosts (-6.3°C, 21st). A series of high pressure systems from the 21st (1034 mb, 28th) produced very calm, settled weather with some sharp frosts (-8.0°C 24th; -9.5°C Kirkton, 25th) and good periods of winter sunshine until the month end. Temperatures remained below freezing throughout the 21st and 24th.

December was much milder and a little drier than usual with the mean temperature of 5.03°C being 2.86°C above the norm with a high of 12.0°C (7th). There were five air-frosts (mean 14) with a low of -3.9°C (20th). Rainfall

of 105.7 mm was 87 % of the norm with measurable amounts on 19 days (mean 19.6 days). The average barometric pressure was 1020.0 mb (norm 1010.0 mb) with a high of 1040 mb (27th). With the high pressure system remaining virtually stationary over Scotland the weather remained dry and calm with good spells of sunshine until the 6th when rain from mid-afternoon heralded a damper but much milder spell (13.5°C, 14.2°C Kirkton, 7th). High pressure re-established itself (1032 mb, 17th) providing a prolonged spell of quiet weather but with little sun or wind and temperatures mostly above the average for mid-December. This quiet spell came to an abrupt end as the second named storm of the winter, 'Barbara' hit Scotland during the 23rd with the north and west bearing the brunt as winds gusted to 80 – 90 mph causing most ferry services to be cancelled and several bridges closed to high-sided vehicles. 70.0 mm of rain fell between the afternoon of the 20th and noon on the 26th. The weather was much quieter from then until the month end with the night low of 9.4°C on the 31st being the highest of the month.

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