

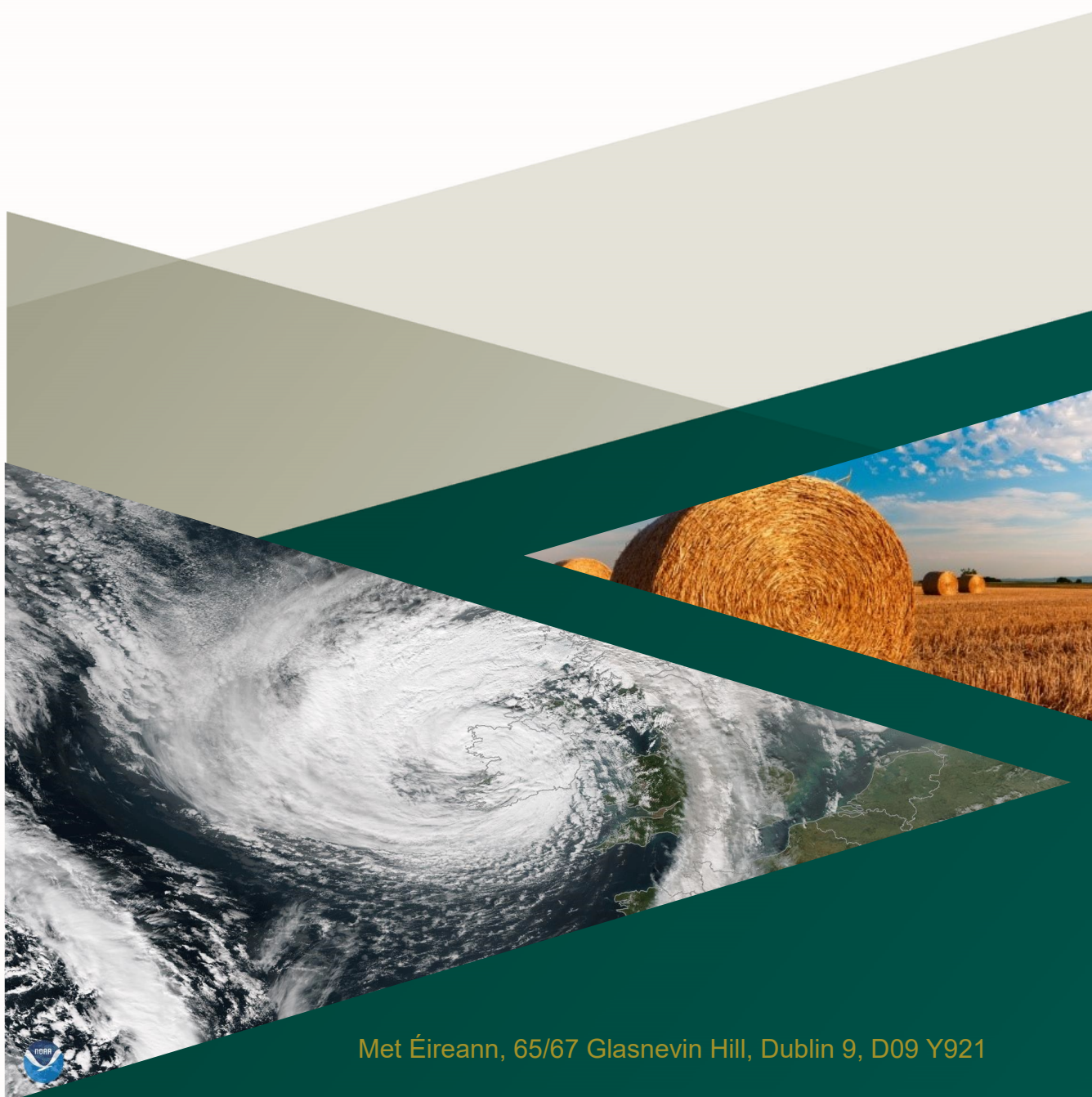


Rialtas na hÉireann
Government of Ireland



Annual Climate Statement

2018



Met Éireann, 65/67 Glasnevin Hill, Dublin 9, D09 Y921

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Front Cover Image Credit: NOAA National Environmental Satellite, Data, and Information Service

(NESDIS). The Visible Infrared Imaging Radiometer Suite (VIIRS) instrument aboard the NOAA/NASA Suomi NPP satellite captured this image of Storm Ophelia as it struck Ireland on October 16, 2017.

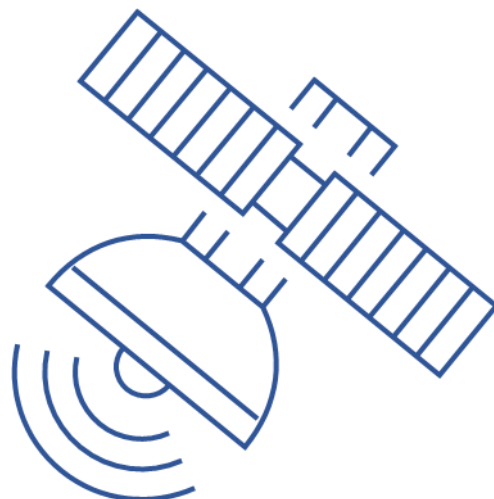
INTRODUCTION

About Climatology

Climatology is the study of climate, the workings of the climate system, its variations and extremes and its influences on a variety of activities. Climate, in a narrow sense, can be defined as the average weather conditions for a particular location and period of time. Climate may be described in terms of statistical descriptions of the central tendencies and variability of relevant elements such as temperature, precipitation, atmospheric pressure, humidity and winds, or through combinations of elements. Climatic variability refers to variations in climate conditions from time-period to time-period (e.g. intra-seasonal, inter-annual and inter-decadal). Changes in our long term climate regime will continue to be incrementally small and barely noticeable on a year to year basis, and will occur against the background of natural climate variability such as El Nino and variations in the sea temperature of the north Atlantic. This means that we are still likely to have periods of colder weather which appear to go against the long-term warming trend.

Annual Climate Statement 2018

This report provides an overview of Ireland's weather during 2018. It gives an assessment of the variations, extremes and trends of the climate during the year. Expressions of the average of elements such as precipitation, temperature, sunshine and wind are employed in climatic tables, the deviations from these averages are also used to describe the climate of a region. Climate is often thought of in terms of the average weather conditions (30-year means) at any given place. Long-Term Averages (LTAs) and "average" refer to the period 1981-2010 in this report unless otherwise stated. Thirty-year long-



term average tables have been produced by Met Éireann (Walsh. S. 2012) for the period 1981 to 2010.

Precipitation

Precipitation is one of the most variable of meteorological parameters; the amounts of rain for a given time at any locality can vary considerably. As well as larger scale weather patterns, local topography has a considerable influence on this. Met Éireann has a network of over 500 rainfall stations. Daily rainfall amounts are recorded for periods 0900 - 0900utc from either 5-inch copper rain gauges or tipping-bucket rain gauges. The data from these are quality controlled and are fed into our gridding software to produce the graphical output included in this report. We have also detailed amounts and deviations from the norm on a monthly, seasonal and annual basis. Extremes in terms of amounts, return periods and events are also detailed. Droughts and dry spells are also monitored and are described where they occur.

Temperature

Situated in the middle latitudes, our temperate climate is influenced by prevailing westerly winds and the proximity of the ocean. The mild maritime effects are due to the dominating influence of the North Atlantic drift which originates in the Gulf of Mexico and whose currents transport large volumes of water to the northern European seaboard. The effects are most marked near the coasts, while inland the ocean influence becomes less discernible. Met Éireann records data on a minute-by-minute basis at our Synoptic stations. We also have over 70 Climate stations that record daily data. Again, graphical temperature outputs are included in this report together with extremes and deviations from the norm. A heatwave refers to a prolonged period of abnormally hot weather. In Ireland, a heatwave is classified as five consecutive days with a maximum temperature in excess of 25 °C.

Wind

Records of wind are measured at 23 Synoptic stations. We pay particular attention to highest mean wind speed, highest gust and highest 10-minute wind speed. As air travels faster over the ocean than over land, conditions are usually windier along the coasts than inland areas. We have also included deviations from mean values and record extremes information.

Sunshine

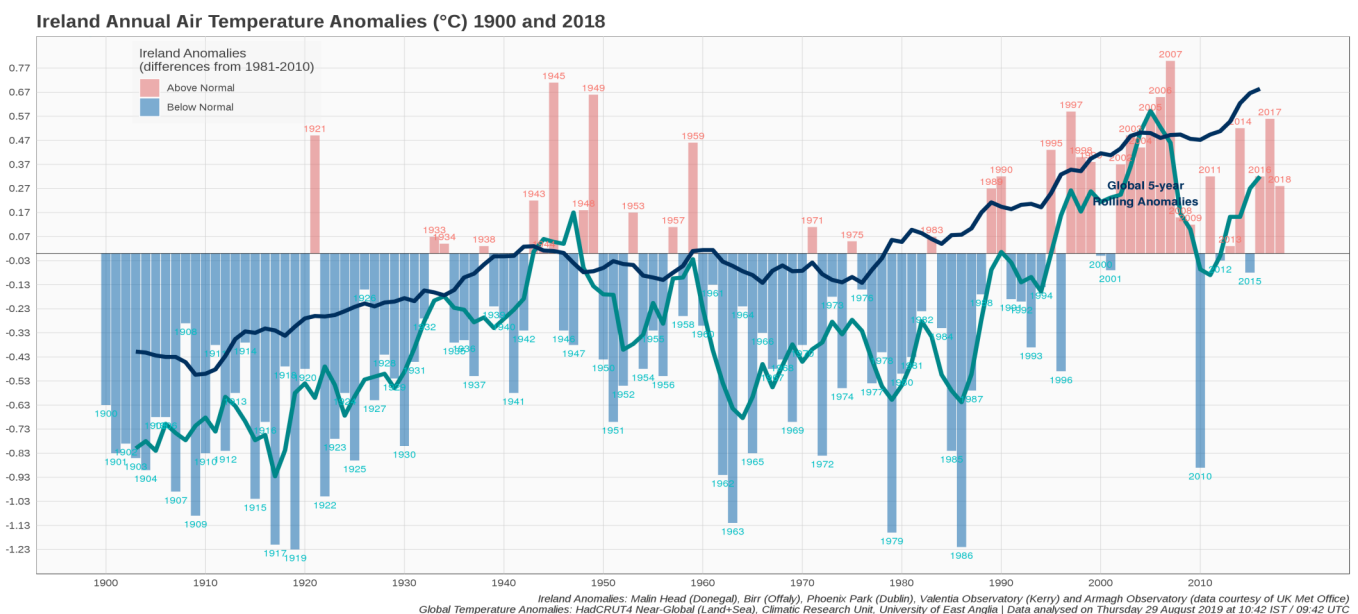
Sunshine is measured at ten synoptic stations throughout the country and at a number of our Climate stations. Details we note are monthly totals, daily averages, daily totals and dull days. We also describe deviations from the norm and extremes. Graphical representations of sunshine are also included. In general, proximity to the tracks of the North Atlantic depressions, which usually pass to the northwest of the country result in more cloudiness in the Northwest of the country than in the Southeast.

LONG-TERM TEMPERATURE TRENDS

Surface air temperature is an essential climate variable. A number of locations in Ireland have continuous observations of air temperature from the late nineteenth century. Long term observations such as these are crucial in monitoring the national and global climate. The global mean temperature has increased by approximately 1°C from pre-industrial times.

The rate of increase in air temperature in Ireland, since 1900, is consistent with this global trend. Since 1900, the average rate of increase in mean air temperature in Ireland is approximately 0.08 degrees Celsius per decade. A national average of the air temperature using five long-term stations is shown below. The year 2018 ranks as the 21st warmest in this time series. Of the 25 warmest years since 1900, seventeen have occurred since 1990.

Figure1



CLIMATE CHANGE

The Fifth Assessment report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) concluded that 'human influence on the climate system is clear' and that 'changes in many extreme weather and climate events have been observed since about 1950'. Societies around the world are now confronted with the consequences of an increasing occurrence of extreme weather events.

A consolidated analysis by the World Meteorological Organization of five leading international datasets showed that the global average surface temperature in 2018 was approximately 1.0° Celsius (with a margin of error of $\pm 0.13^{\circ}\text{C}$) above the pre-industrial baseline (1850-1900). It ranks as the fourth warmest year on record. 2015–2018 were the four warmest years on record as the long-term warming trend continues. Extreme and high impact weather affected many countries and millions of people, with devastating repercussions for economies and ecosystems in 2018.

Figure 2



The physical signs and socio-economic impacts of climate change are accelerating as record greenhouse gas concentrations drive global temperatures towards increasingly dangerous levels. The WMO Statement on the State of the Global Climate in 2018 (see Figure 2 for related impacts) highlights record sea level rise, as well as exceptionally high land and ocean temperatures over the past four years. This warming trend has lasted since the start of this century and is expected to continue.

The IPCC special report on the impacts of global warming of 1.5 °C reported that the average global temperature for the period 2006–2015 was 0.86 °C above the pre-industrial baseline. For comparison, the average anomaly above the same baseline for the most recent decade 2009–2018 was 0.93 ± 0.07 °C,¹ and the average for the past five years, 2014–2018, was 1.04 ± 0.09 °C above this baseline. Both of these periods include the warming effect of the strong El Niño of 2015–2016.

Above-average temperatures were widespread in 2018. According to continental numbers from NOAA, 2018 was ranked in the top 10 warmest years for Africa, Asia, Europe, Oceania and South America. Only for North America did 2018 not rank among the top 10 warmest years, coming eighteenth in the 109-year record.

Table 1. 'Warmest' Average Temperature Anomalies (°C) 1900 to 2018 in Ireland (LTA 1981-2010)

rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Winter	Spring	Summer	Autumn	Annual
1	2.2°C 1916	2.8°C 1998	2.7°C 1957	2.6°C 2011	2.0°C 2008	1.9°C 1940	2.1°C 2013	2.5°C 1995	1.8°C 2006	2.4°C 1969	2.4°C 1994	2.6°C 2015	1.7°C 1989	1.4°C 1945	1.4°C 1995	1.4°C 2011	0.8°C 2007
2	2.1°C 1921 1944 1989	2.4°C 1945	2.3°C 1948	2.4°C 2007	1.6°C 2017	1.8°C 2018	1.9°C 1983 2006	2.0°C 1947	1.6°C 1949	2.0°C 1995 2001	2.3°C 2011	2.5°C 1934	1.5°C 1943	1.2°C 2017	1.2°C 1976	1.3°C 2006	0.7°C 1945
3	2.0°C 1932	2.2°C 1961	2.2°C 1938	1.7°C 1944	1.4°C 2018	1.6°C 1970 1976	1.8°C 1989	1.8°C 1955	1.5°C 1941	1.9°C 1959 1968	1.8°C 1948 2015	2.3°C 1988	1.4°C 1975 1998	1.0°C 2007	1.1°C 2006 2018	1.1°C 1945 2007	0.7°C 1949
4	1.9°C 2002	1.8°C 1918	2.1°C 1945	1.6°C 1945 2014	1.3°C 1960 1990	1.3°C 2006 2010	1.7°C 1934	1.4°C 1983 1997	1.2°C 1971	1.8°C 1908 1921 2006	1.6°C 1938 2007	2.2°C 1921 1974	1.2°C 2012	0.9°C 1961 2011	1.0°C 1983	1.1°C 1978	0.7°C 2006
5	1.6°C 2005 2007	1.7°C 1903 1943 2012	2.0°C 1961 2012	1.5°C 1943	1.2°C 1919 1953 1992	1.2°C 1950 1960	1.5°C 1921 1995	1.2°C 1975 2003	1.1°C 1958 2005 2014 2016	1.6°C 1971 2007 2013	1.4°C 1978	2.0°C 1953 2018	1.2°C 1935 1949	0.9°C 1957	0.9°C 2013	1.1°C 2001	0.6°C 1997
6	1.4°C 2012	1.6°C 1926	1.6°C 1990	1.4°C 2003	1.1°C 1952 1970	1.1°C 2005 2016	1.3°C 2018	1.1°C 1976	1.0°C 1945 1959	1.5°C 1978 2005	1.3°C 1997 2002	1.9°C 1942	1.1°C 2007 2017	0.8°C 1997	0.9°C 1933	0.9°C 1959 1971 1995	0.6°C 2005
7	1.3°C 1949	1.4°C 1949 1993 2011	1.4°C 2017	1.2°C 1987	1.0°C 1964 1989 1999	1.0°C 1992 2004 2017	1.1°C 1933 2014	0.9°C 1984 1999	0.9°C 1929 1933 1955 1999	1.4°C 1945	1.2°C 1939 2004	1.7°C 1971 2016	1.1°C 2008	0.8°C 2003 2014	0.8°C 2003	0.8°C 1949	0.6°C 2017
8	1.2°C 1923 1990 2008	1.3°C 1928 1939	1.3°C 1998	1.1°C 1997	0.9°C 1959 2001 2016	0.9°C 1934 1949 2009 2014	0.8°C 1926 1955 1976 1999	0.8°C 1911 1916 1933 2004	0.8°C 2004	1.3°C 1977 2009 2017	1.1°C 1920 2001	1.6°C 1918 1924 1954	1.0°C 2016	0.8°C 1990 1999	0.7°C 1955 1975	0.8°C 1958 2005	0.5°C 2014
9	1.1°C 1974 1975 1983	1.2°C 1920 2002	1.2°C 1997 2005	1.0°C 1955	0.8°C 1940 1998	0.7°C 1933 1959 1966 2003	0.6°C 1901 1949 1975 1991 2003	0.7°C 1959 1991	0.7°C 1985 1991 1998 2003	1.2°C 2011	1.0°C 1945 1953	1.5°C 1945	0.9°C 1922 2005	0.7°C 1948	0.6°C 1949 1989	0.7°C 1997 2014	0.5°C 1921 2003
10	1.0°C 1976	1.1°C 1946 1959 1997 2000	1.1°C 1950	0.9°C 1933 1949 1961 1999	0.7°C 1911 2014	0.6°C 1982 1988 2003 2007	0.5°C 1900 1911 1984 1990	0.6°C 1944 1953 2012 2013	0.6°C 1953 2010 2011 2013	1.1°C 1989	0.9°C 1908 1917 1995 2003	1.4°C 1900 1905 1931 1983	0.9°C 1932	0.7°C 1960	0.6°C 2016	0.7°C 1921	0.5°C 1959

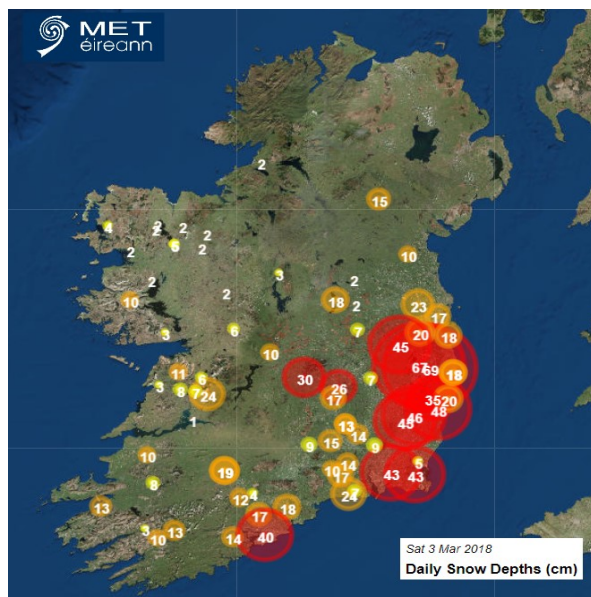
Table 2. 'Coolest' Average Temperature Anomalies (°C) 1900 to 2018 in Ireland (LTA 1981-2010)

rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Winter	Spring	Summer	Autumn	Annual
1	-4.6°C 1963	-4.6°C 1947	-3.2°C 1916 1919	-3.2°C 1922	-2.3°C 1923	-2.4°C 1972	-2.6°C 1922	-3.6°C 1912	-2.5°C 1918	-2.9°C 1981	-3.8°C 1919	-4.6°C 2010	-2.9°C 1963	-1.9°C 1979	-2.0°C 1912	-2.2°C 1905	-1.2°C 1919
2	-3.2°C 1941 1945 1979 1985	-4.0°C 1986	-3.1°C 1937	-2.9°C 1917	-2.2°C 1902 1979 1996	-2.2°C 1927	-2.1°C 1920	-2.9°C 1986	-2.4°C 1952	-2.8°C 1905 1917	-3.3°C 1923	-3.0°C 1950	-2.4°C 1917	-1.7°C 1951	-1.9°C 1922	-2.1°C 1919	-1.2°C 1986
3	-2.8°C 1940	-3.3°C 1969	-2.9°C 1900 1962 2013	-2.7°C 1986	-1.8°C 1967	-2.0°C 1907 1916	-1.9°C 1919	-2.2°C 1922	-2.2°C 1912 1974	-2.6°C 1992	-3.2°C 1915	-2.8°C 1981	-2.4°C 1947	-1.7°C 1916 1917	-1.6°C 1972	-1.9°C 1923 1974	-1.2°C 1917
4	-2.6°C 1917 2010	-3.2°C 1963	-2.7°C 1909 1955	-2.2°C 1983	-1.7°C 1968	-1.6°C 1909	-1.8°C 1954 1965	-2.1°C 1956	-1.9°C 1925	-2.5°C 1993	-2.7°C 1910	-2.6°C 1976	-2.3°C 1986 2013	-1.5°C 1986 2013	-1.6°C 1907	-1.7°C 1918	-1.2°C 1979
5	-2.0°C 1959 1977	-3.1°C 1900	-2.4°C 1901 1947	-2.1°C 1908	-1.5°C 1906 1941 1951	-1.4°C 1928 1977 1991	-1.6°C 1912 1980	-1.9°C 1903 1920	-1.8°C 1986	-2.2°C 1974	-2.6°C 1985	-2.3°C 1916	-2.0°C 1979	-1.5°C 1906	-1.4°C 1920	-1.6°C 1952	-1.1°C 1963
6	-1.8°C 1952	-3.0°C 1955	-2.3°C 1917	-2.0°C 1989	-1.4°C 1907 1983	-1.3°C 1971 1985 1987	-1.5°C 1902 1909 1913 1915 1938 1940 1988	-1.8°C 1985	-1.7°C 1965	-2.0°C 1926	-2.5°C 1925	-2.0°C 1935 2009	-1.9°C 1951	-1.4°C 1941 1962	-1.3°C 1954	-1.6°C 1909 1993	-1.1°C 1909
7	-1.7°C 1987	-2.9°C 1930	-2.2°C 1969 1979	-1.8°C 1910 1924	-1.3°C 1926	-1.2°C 2011	-1.4°C 1910 1961	-1.7°C 1907 1946 1972 1992	-1.6°C 1905 1909 1972 1992	-1.8°C 1912 1987	-2.4°C 1909	-1.9°C 1961	-1.7°C 1941 1977	-1.4°C 1924	-1.3°C 1903	-1.5°C 1912	-1.0°C 1915
8	-1.6°C 1933 1980 1984	-2.7°C 1956	-2.1°C 1904	-1.7°C 1903 1906 1932 1936 1941	-1.2°C 1925 1955 1963 1984	-1.1°C 1946	-1.3°C 1962 1968 1974 1978	-1.6°C 1905	-1.5°C 1922 1923	-1.7°C 1918 1939	-2.3°C 1905 1969	-1.8°C 1914	-1.5°C 2011	-1.3°C 1922 1925	-1.2°C 1909 1956 1985	-1.4°C 1925	-1.0°C 1922
9	-1.5°C 1929 1936	-2.6°C 1968	-2.0°C 1908 1951 1958 2018	-1.6°C 1951 1978	-1.1°C 1972 1975	-1.0°C 1903 1913 1922 1923 1929 1999	-1.2°C 1924 1963 1970	-1.5°C 1924 1954 1963	-1.4°C 1927 1954 1962	-1.5°C 1932	-2.1°C 1965	-1.7°C 1903	-1.5°C 1915	-1.3°C 1923	-1.2°C 1902 1962	-1.4°C 1992	-1.0°C 1907
10	-1.4°C 1955 1965 1978 2011	-2.4°C 1917	-1.8°C 1970	-1.5°C 1925 1934 1953	-1.0°C 1904	-0.9°C 1901 1912 1956 1962	-1.1°C 1918 2002 2012	-1.4°C 1902 1921 1962 1992 1993	-1.3°C 1919 1924 1931	-1.4°C 1907 1922 1980	-2.0°C 1977	-1.6°C 1917 1927 1937 1960	-1.5°C 1936	-1.2°C 1904	-1.2°C 1946 1986 2011	-1.3°C 1915	-0.9°C 1962

EXTREME EVENTS

Cold Spell / Storm Emma

One of the most significant snowfall of recent years affected Ireland in late February and early March. Weather from the 27th February to 3rd of March saw temperatures plummet with widespread snowfall across the country. Temperatures struggled to rise above freezing (with record low daily maxima in several locations) as bitterly cold easterly winds swept in over the country causing widespread disruptions to roads, rail and air travel, work and school closures, and water shortages. From Friday 2nd March, a named depression 'Emma' further developed over Biscay and tracked northwards towards the country with its associated frontal systems during the first week.



Strong easterly Siberian winds fed by moisture from Storm Emma while moving up from the South resulted in a spell of heavy snow and blizzard conditions that led to considerable drifting particularly on higher grounds. Over 50 cm of snow depths were reported at some locations, with drifts of several feet reported on higher ground and in isolated rural areas. Some rural villages were cut-off for days. A slow thaw ensued from the 4th March.

Heatwaves and Droughts

The summer of 2018 was one of the hottest and driest on record, with heat wave and drought conditions affecting many parts of the country. Many places had half of their normal rainfall. The prolonged dry spell led to water restrictions and a fodder crisis. Fifteen Synoptic stations recorded heatwave conditions and 21 synoptic stations recorded drought conditions during the summer.

NOTABLE STORMS

Storm Ali - 19th Sep: Gusts of 146 km/h and sustained wind speeds of 115 km/hr were recorded at Mace Head in Co Galway while, in Co Mayo, gusts of 124 km/h were recorded at both Newport and Belmullet. ESB networks said that over 70,000 electricity customers were without power because of the storm. The areas most impacted by power outages included were Cavan, Sligo, Donegal, Castlebar, Galway, Portlaoise, Dundalk, Mullingar and parts of north Co Dublin. A fatality occurred in Co Galway during the storm.

Storm Eleanor - 2nd/3rd Jan: Storm Eleanor caused widespread disruption with coastal flooding along the west coast. Winds gusts of up to 156 km/h left thousands of homes and businesses without electricity. Roads were impassable in parts of Galway city and Salthill due to flash flooding. Highest 10-minute mean wind speed – 107 km/h.



Storm Fionn – 16th Jan: Storm Fionn brought rain, snow and strong winds. ESB networks reported that 3000 homes were without power in Cavan and Monaghan. Highest gust 137 km/h and highest 10-minute mean wind speed 95 km/h.

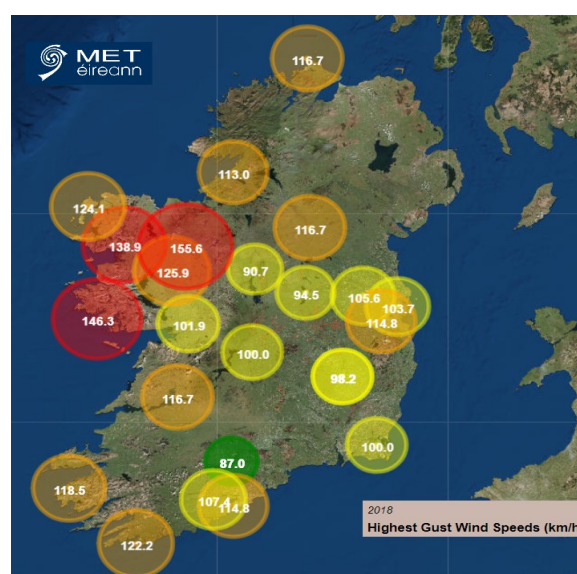
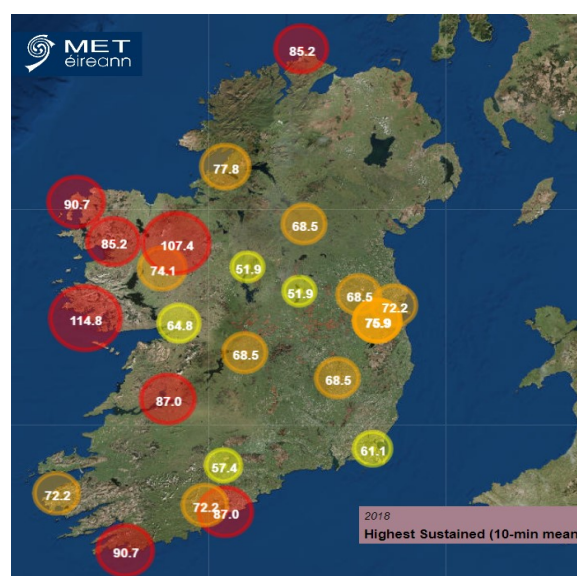
Storm Callum - 11th/12th Oct: Storm Callum affected counties along western and southern seaboard including Kerry, Cork, Clare, Mayo and Donegal. The storm swept over the country on Thursday night, bringing powerful gusts of up to 124 km/h and disrupting transport services in many parts of the country. Highest 10-minute mean wind speed 91 km/h.

Storm Hector - 14th June: South to southwest winds veering westerly, associated with Storm Hector, reached mean speeds 89 km/h with gusts of up to 113 km/h. Winds were strongest in coastal areas. The storm made landfall in the early hours of Thursday morning, bringing down trees, which in turn brought down power lines. The storm also resulted in the strongest gusts ever recorded in Northern Ireland in June.

Storm Diana - 28th Nov: ESB Networks has said that around 1,500 homes and businesses are without power due to strong winds. The majority of the outages were in the south west of the country. The strongest gusts were recorded at Sherkin Island off the West Cork coast at midday, at 122 km/h. Gusts of 115 km/h were recorded at Roche's Point in Cork and at Casement Aerodrome, Baldonnell, Co Dublin. Highest 10-minute mean wind speed 87 km/h.

Storm Deirdre - 15th Dec: Thousands of homes were left without power in Cork. Spot flooding was reported in a number of counties. Highest gust 109 km/h and highest 10-minute mean wind speed 87 km/h.

Storm Georgina – 23rd/24th Jan: Storm Georgina tracked to the north-west of Ireland and it placed Ireland in a strong to gale force south-westerly air flow. Hundreds of homes across Galway, Tipperary, Cork and Wexford were without power and trees were blown down on a number of roads in Carlow, Cavan, Donegal and Dublin. Highest gust – 109 km/h and highest 10-minute mean wind speed – 80 km/h.



EXTREME VALUES

Rainfall

Highest total: 3024.2 mm at Leenane, Co. Galway.

Lowest total: 637.2 mm (75% of LTA) at Wilkinstown, Co. Meath.

Highest daily rainfall: 119.9 mm at Gernapeka, Co. Cork on the 13th November 2018.

Temperature

Highest mean temperature: 11.6°C at Dooks, Glenbeigh, Co. Kerry.

Lowest mean temperature: 9.5°C at Nealstown, Co. Laois (0.5°C above LTA).

Highest air temperature: 32.0°C at Shannon Airport on the 28th June (its highest temperature since 1946).

Lowest air temperature: -9.7°C at Durrow, Co. Laois on the 1st March.

Lowest grass minimum: -14.2°C at Straide, Co. Mayo on the 20th March.

Sunshine

Highest annual total: 1670.9 hrs (daily mean 4.6 hrs/day) at Johnstown Castle, Co Wexford.

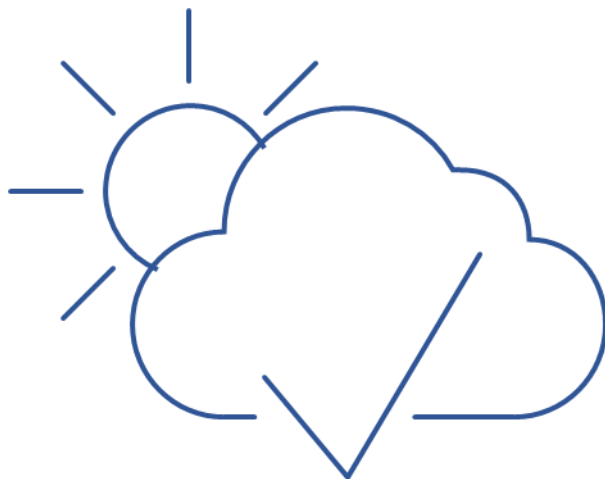
Lowest annual total: 1064.1 hrs (daily mean 3.2 hrs/day) at Knock Airport, Co Mayo.

Highest daily sunshine: 16.5 hrs at Malin Head, Co Donegal on the 28th June (its highest daily total since 1955).

Wind

Highest mean 10-minute wind speed recorded: 62 knots (115 km/hr) at Mace Head, Co Galway on 19th September.

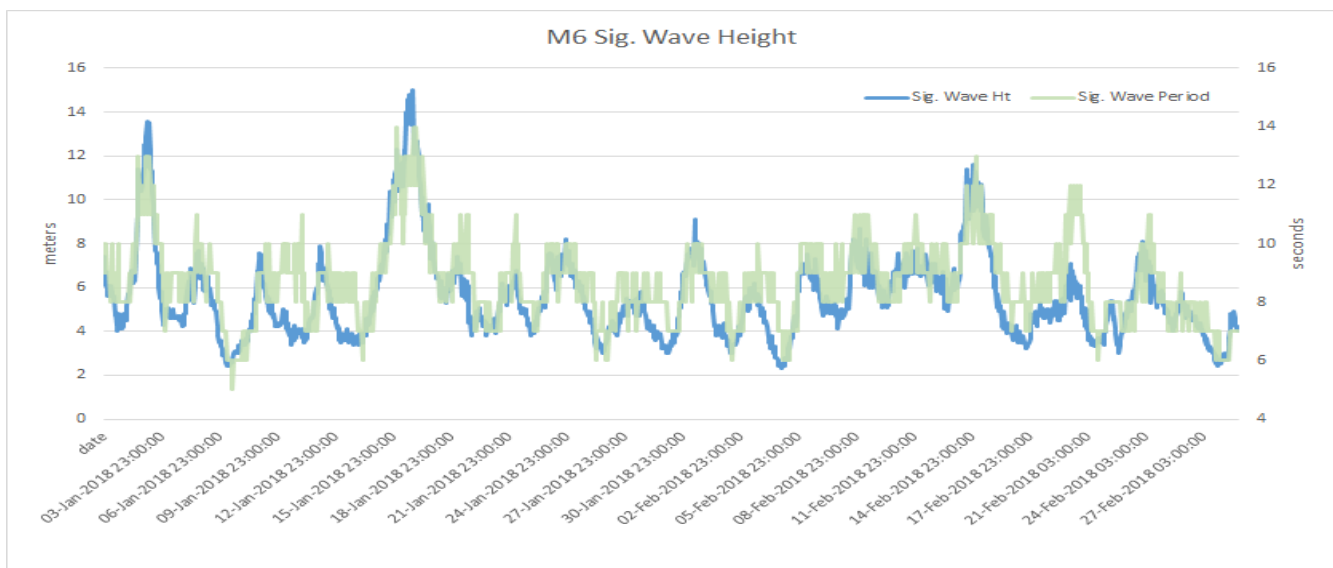
Highest Gust recorded: 84 knots (156 km/hr) at Knock Airport, Co Mayo on 2nd January



MARINE

The monthly mean significant wave height at M6 buoy exceeded the average by 1.0 m and recorded an average significant wave height of 5.8 m in January 2018. This trend continued into February 2018 when a monthly average significant wave height of 5.4 m was recorded.

A maximum significant wave height of 15.0 m was recorded during Storm Fionn on the 16/17th January. This is the 3rd highest storm recorded at the buoy which has been in operation since 2006. The M3 buoy recorded the Irish Weather Buoy Network highest individual wave for 2018 of 20.6 m during the same storm. Interestingly at the same buoy, a 20.2 m wave was recorded on January 3rd, which was created predominantly from a swell rather than being mostly wind-driven. In June, both the M3 and M4 buoys recorded individual wave heights of 9.6 and 10.1 m respectively during Storm Hector on 13th/14th June which exceeded previous June records of 6.2 and 7.5 m.



METEOROLOGICAL SYNOPSIS

ANNUAL SYNOPSIS

Temperature and Sunshine above average in most places. Storm Emma brought widespread snow.

The year began unsettled with a mainly westerly airflow for January with Storm Eleanor bringing strong winds on the 2nd. A cold and dry February finished with a polar continental air mass. This brought snow showers with significant accumulations in the East and South. Storm Emma at the beginning of March gave widespread snow in a cold and changeable month. The unsettled theme continued during April with temperatures near normal. May started changeable but overall it was a warm dry and sunny month with high pressure dominating. The settled conditions continued for most of June and July apart from Storm Hector in the middle of June, which brought wet and windy weather briefly. Heatwave and drought conditions in many places towards the end of June continued into early July in several places lasting longest in the South and East. Changeable weather returned towards the end of July and continued in the North and West for much of August. The South and East stayed predominantly warm and dry. September and October were cool and dry, however in September Storm Ali brought the strongest winds of the year on the 19th followed by Storm Bronagh, and Storm Callum on the 12th October. It was mild and unsettled for most of November with Storm Diana on the 28th. Atlantic westerlies dominated in December with Storm Deirdre on the 15th.

MONTHLY OVERVIEW

January: Wetter than normal. Near or slightly above average temperatures

A predominantly zonal westerly airflow influenced Ireland's weather during January. The first week was very unsettled as several frontal systems brought wet and windy weather. A deep depression passed eastwards over the country on the 2nd bringing rain and some of the strongest winds of the month. Pressure rose at the beginning of the second week bringing a dry period, but at

the expense of low temperatures and sharp night time frosts. The third week was characterised by cold changeable and blustery conditions. Northwest winds sometimes brought wintry showers. An active slow moving occlusion edged slowly northwards on the 21st resulting in the wettest day of the month in most areas. While the final week remained unsettled, it was quite mild overall as southwest winds prevailed. The period 27th/28th indeed had some of the higher temperatures of the month. Fog was a significant feature throughout the month, particularly in the West and South.

February: A cold sunny dry month for many

During the first week of February an unstable, north-westerly airflow brought occasional light wintry showers, with high pressure in the Southwest. The second week was dominated by a succession of fronts when temperatures rose temporarily with the passage of weak warm fronts. A low pressure system tracked across the country during the 10th, which brought the heaviest daily rainfall of the month. Unsettled weather continued for the second and third weeks with frontal rain, showers, some thunder and strong winds due to the passage of Atlantic depressions interspersed with calmer conditions as a result of transient ridges of high pressure. Towards the end of the third week and for all of the final week the jet stream pushed southwards which caused a ridge of high pressure to extend into Ireland. This resulted in easterly winds which pushed continental polar air across Ireland. Snow showers crossed the country on the 27th and led to significant accumulations in eastern and southern counties on the last day of the month.

March: Very cold. Heavy snowfall in many areas

An exceptionally cold Polar Continental easterly airstream covered Ireland from the beginning of the month. A named depression 'Emma' further developed over the Bay of Biscay and tracked northwards towards the country with its associated frontal systems during the first week. It yielded widespread snow, ice and low temperatures. The depression filled, but low pressure prevailed into much of the second week. Then a transient weak ridge declined allowing a milder mainly southwest airflow to dominate through the second week bringing a succession of Atlantic frontal systems. The mid-month period was subsequently very unsettled. It became more settled as anti-cyclonic conditions became established during the third week. However it was very cold with widespread air and ground frosts. The end of the month was unsettled as the Atlantic influence returned. There were some fine, dry and mild days too.

April: Unsettled dull and wet. Near normal temperatures

The unsettled weather continued into the first week of April as low pressure invariably affected Ireland with slow moving frontal systems pushing northwards over the country. Slacker wind flows prevailed during the second week. While it was changeable with passing weak fronts, the latter part of that week was mainly dry. The third week began very unsettled again as an active Atlantic frontal system brought a very wet and windy spell during the 16th and 17th. By contrast there followed the warmest spell of the month as a southerly airstream developed, bringing some fine and dry days up until the 21st. The final week was unsettled yet again as a predominantly southwesterly wind flow brought more fronts in over the country. Then a weak ridge gave a mainly dry albeit cool end to the month with air and ground frosts forming widely.

May: Generally dry and sunny. Warm

While a high pressure ridge lay to the south of

Ireland, a mobile Atlantic regime produced changeable weather over Ireland during the first week. This situation persisted through the second week also with frontal systems bringing rain and showers on most days, while turning cold towards the end of that week as the airflow veered northwest. An anticyclone developed early on the third week bringing a drier and more settled spell. However the intrusion of a slow moving wave occlusion yielded the wetter spell of the month on the 20th and 21st. A blocking high over Scandinavia gave a largely fine and dry latter part of the month. A slack easterly continental type airflow prevailed giving warm sunny conditions, though high temperatures did cause thundery showers to break out in places.

June: Heatwave conditions experienced in many places in a mostly dry and sunny month

There were intense thunderstorms especially on the 1st and 8th, but in general the dry, settled weather from the end of May continued for the first two weeks of June with high pressure in charge and a slack easterly flow. The north Atlantic jet stream stayed well to the north. There was a break in the fine weather for the third week of the month. Storm Hector passed close to the Northwest, giving two days of rain and gales on the 13th and 14th followed by frontal systems crossing the country from the west up to the 20th. Even during this unsettled spell, rainfall totals were very low especially in the South and East. From the 21st, the remainder of the month was settled and exceptionally dry due to an area of high pressure building over Ireland. Heat wave and partial drought conditions were reported in several locations.

July: Drier and warmer than normal everywhere with drought conditions in many areas

High temperatures and drought conditions were experienced in most places, most prolonged in the East and South, during July. The first half of the month was characterised by a large area of blocking high pressure stretching from the Azores to Scandinavia pushing the north Atlantic Jet

Stream well to the north away from Ireland. This gave dry and very warm conditions with a lot of sunshine and light variable winds, with heatwave conditions continuing for a few days at the beginning of the month. For the second half of the month, up to the 26th, pressure stayed relatively high, but Atlantic weather fronts broke through on some occasions giving somewhat cooler conditions with some rain at times to Western and Northern areas and more generally on the 15th, 20th and 23rd. An area of low pressure to the northwest became dominant from the 26th to the end of the month, with associated frontal troughs bringing wind, rain or heavy thundery showers.

August: Cooler and wetter in the North and West, warmer and drier in the South and East

For the majority of August there was low pressure to the northwest and high pressure to the southeast with Ireland caught in a westerly flow. A meandering north Atlantic jet stream moved over Ireland at times bringing frontal rain and showers, interspersed with high pressure ridges building from the south and pushing the jet stream further north giving many fine and dry days. This led to a split in the weather with the north and west having a cooler and wetter than average month, and the south and east having a warmer and drier than average month. The start of the month was typical of this pattern with rain affecting mainly the north and the west, followed by a transient ridge of high pressure building from the South. The remnants of post-tropical cyclone Ernesto affected the west and north again on the 18th. Only the 26th gave widespread heavy rain across the whole country.

September: A Dry, Cool Month

The first week of September had high pressure dominating overall with weak weather fronts breaking through from time to time interspersed with some fine and dry days. The jet stream remained mostly to the north of Ireland. During the second week, the jet stream moved south over Ireland bringing more active frontal rain and showers at times in a westerly

airflow. The third week was unsettled with a very active jet stream over Ireland. Two named storms, Ali and Bronagh plus Helene (remnants of a hurricane named by the National Hurricane Centre) passed close to or across Ireland between the 16th and 20th. Storm Ali brought widespread disruptive winds on the 19th with heavy rain in the North and West. The strong winds from Storm Bronagh passed Ireland to the east bringing heavy rain to the South and East on the 20th. High pressure re-established itself over Ireland from the 22nd, and became the dominant feature again up to the end of the month.

October: A cool and dry month with above average sunshine

Air pressure was relatively high over Ireland for the first week of October with the North Atlantic Jet Stream staying to the North. After a mild and mostly cloudy start, a weak cold front introduced a cooler air mass from the northwest for the second half of the week. Much of the second week was mild with a southeast to southwesterly airflow but it became more unsettled as the jet stream moved southwards. Storm Callum, with a minimum pressure of 938 hPa (the lowest early season pressure for an extratropical Atlantic storm since at least 1979), moved northwards close to the west of Ireland on the 12th giving the windiest spell of the month and widespread heavy rain on the 12th and 13th. It settled down again for most of the second half of the month with high pressure close to Ireland. It was cool overall and especially from the 26th onwards when a cold front introduced an Arctic Maritime air mass over Ireland from the north. This gave cold clear conditions with heavy showers mainly in the north and west, some wintry. The month finished cold with Atlantic frontal systems encroaching from the west bringing bands of rain and localised intense hail showers.

November: Dull and wet in the south and east

After a chilly start, much of the first three weeks of November were relatively mild. Low pressure centred to the northwest of Ireland was a constant feature between the 3rd and 15th. An active North

Atlantic jet stream fed weather fronts and troughs up over Ireland from the south and southwest, sometimes stalling over the east of the country as they pushed against a blocking high-pressure system over Northern Europe. This gave rain or showers on most days with heavy widespread rain and strong winds on the 9th. After the 15th, the blocking high pressure system over Northern Europe began to move westwards over Scandinavia pushing the Atlantic weather fronts away from Ireland. This introduced a progressively cooler, drier southeasterly then easterly airflow over Ireland up to the 19th. The easterly flow became more unstable after the 19th, with showers or longer spells of heavy rain or hail principally to the east and south. From the 27th to the end of the month, the Atlantic influence returned with a succession of weather fronts and active low pressure systems, including Storm Diana on the 28th, traversing the country bringing heavy rain or showers and gales at times.

December: Mild and unsettled

The first week of December was mild and unsettled with low-pressure systems and associated weather fronts traversing the country frequently in a mainly westerly airflow. This gave rain or showers every day with windy conditions at times, especially on the 7th and 8th. The second week continued with the generally unsettled theme, although less active on the 9th and 10th, as a transient area of high pressure moved over the country. High pressure established itself over Scandinavia on the 12th and the airflow over Ireland backed to south or southeast up to the 15th. The bulk of the rain during this period fell in the South. On the 15th, Storm Deirdre deepened rapidly as it moved across the country giving widespread heavy rain and very strong winds. The remainder of the third week was Atlantic dominated again in a south or south-westerly air flow with rain or showers on most days. It settled down towards Christmas as high pressure built from the south over the country giving a mostly dry Christmas and final week of the month and year.

SEASONAL OVERVIEW

Winter (December 2017, January 2018, February 2018): Colder than normal

The Winter of 2017-2018 was an average winter overall with seasonal unsettled weather in each month, however the season was slightly colder than normal for most due to a cold February. December saw mild, windy and wet spells with interludes of colder conditions with frost and snow at times. For the Christmas period heavy rainfall in the west and north on Christmas Eve was followed by colder conditions with wintry showers and night frost on Christmas Day. January 2018 was wetter than normal with near or slightly above average temperature as a result of a predominantly zonal westerly airflow. Several deep depressions crossed the country during January with rain and strong south-westerly winds followed by cold, blustery north-westerly winds with wintry showers, however the final week of January saw air temperatures above normal. February in contrast was a cold, sunny and dry month for many due to high pressure which dominated most of the month's weather. However, during the second week of February a low pressure system and a succession of fronts brought the heaviest daily rainfall of the season. During the second half of the month, the jet stream was pushed southwards by the phenomenon known as sudden stratospheric warming (SSW). This caused a blocking high pressure system to form over Scandinavia which resulted in easterly winds into Ireland from the 22nd onwards. These easterlies pushed continental polar air (originating from Siberia) into the country with a significant wind chill effect. Fronts embedded in the cold easterly flow caused widespread snow on the last day of the season with significant accumulations in eastern and southern counties as well as record low *maximum* temperatures.

Spring (March, April, May): Very cold start, very warm finish

Overall, Spring 2018 was characterised by a very cold and snowy start, average in the middle and a dry, warm and settled finish. March started with high pressure over Scandinavia that brought an extremely cold Siberian air mass over Ireland from the east. Storm Emma pushed up from the south into the cold air giving widespread disruptive snow and ice for the first few days of March. It gradually got milder over the following few days but areas of low pressure hung around and gave generally unsettled conditions through much of March apart from the third week where an area of high pressure gave a cold settled spell. The month of April had above average rainfall and temperatures generally with low pressure in charge and a series of slow moving fronts moving northwards across the country interspersed with some fine dry days. Winds were southerly or south-easterly in direction but south-westerly or westerly in the last week. May was warm overall with above average sunshine. The first half of the month saw low pressure nearby and mostly weak fronts crossing the country from the west. The second half of the month was dominated by blocking high pressure to the north and a warm continental airflow over Ireland with a few thundery troughs.

Summer (June, July, August): A summer of heatwaves and drought

The summer of 2018 will be remembered for heatwave and drought conditions that affected many parts of the country. Intense thunderstorms were also a feature at the start of the meteorological season. Temperatures were above normal and rainfall amounts were below normal at most stations. Large blocking high pressure systems were the dominant feature of the summer. This kept the north Atlantic jet stream to the north of Ireland. The periods through the summer where high pressure dominated were the first two weeks in June, ending temporarily with the arrival of Storm Hector on 14th June. High pressure to the north stretched from the Azores to Scandinavia at times between the 21st June and the 14th July. This gave slack winds and very

warm mainly dry conditions. In between these dry settled spells and especially during August a weak jet stream moved south over Ireland, with frontal troughs and showers crossing the country from time to time. However most of the rain fell in the north and west of the country.

Autumn (September, October, November): Cool and dry overall

September and October were cool and dry. High pressure in the first week of September gave way to a mainly Atlantic dominated westerly airflow for the middle of the month. Two named storms Ali and Bronagh brought disruptive violent storm force winds and heavy rain during this period. It settled down again for the last week with high pressure dominating. High pressure continued to keep most of the first week of October dry and settled. It became more unsettled during the second week. An exceptionally deep area of low pressure associated with Storm Callum moved north close to the West coast, bringing the windiest spell of the month. The second half of October was mostly cool and settled with high pressure nearby. A northerly airflow towards the end of the month brought the coldest period of the season. November was mild overall with above average rainfall in the South and East for the first time since April 2018. Low pressure dominated the first half of the month with numerous Atlantic weather fronts crossing the country. A continental easterly airflow developed mid-month and lasted for nearly two weeks. The month finished unsettled with Atlantic low-pressure systems, including Storm Diana, bringing heavy rain and strong winds.

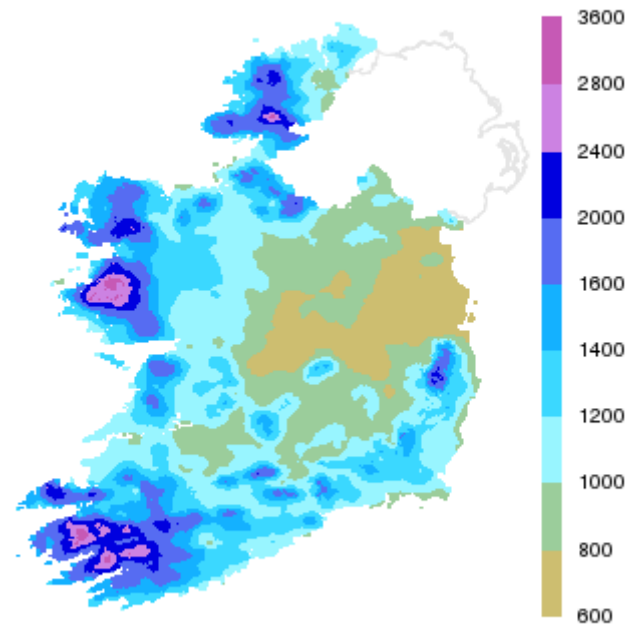
RAINFALL

ANNUAL RAINFALL

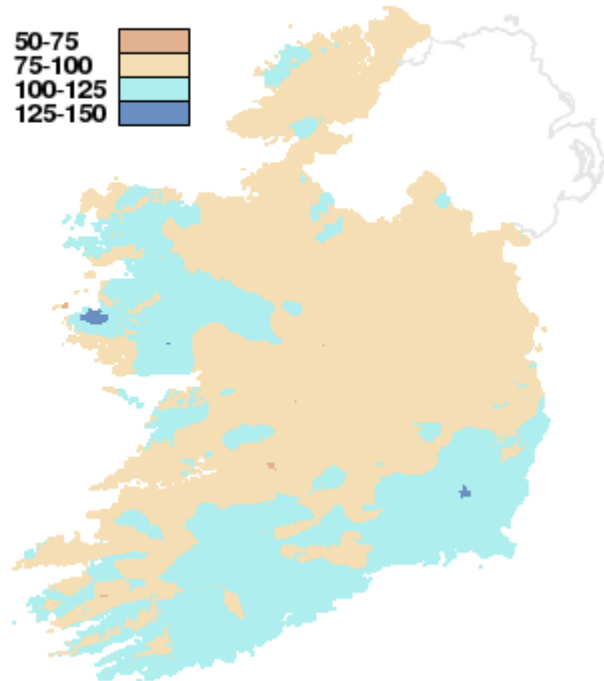
Rainfall: Drier than average at two thirds of stations

One third of rainfall totals were above average with the South and West having the highest percentage rainfall. January and April and last two months of 2018 were wetter than normal with the six months from May to October drier than normal. Widespread heavy drifting snowfall occurred from 28th February to 2nd March due to Storm Emma. There were widespread droughts from mid-June to mid-July. Soil moisture deficits were very high during this period, particularly in the Southeast. Annual rainfall totals ranged from 637.2 mm (percentage of LTA 75 %) at Wilkinstown, Co Meath to 3024.2 mm at Leenane (Glanagimla), Co Galway. The highest daily rainfall total was 119.9* mm at Gernapeka, Co Cork on the 13th November.

Annual Rainfall 2018



Annual Percentage of 1981-2010 Average Rainfall



ANNUAL RAINFALL VALUES (FOR SELECTED STATIONS)

STATION	COUNTY	Rainfall Total (mm)	% of LTA	Greatest Daily Fall (mm)	Date Greatest Daily Fall (mm)	Rain Days	Wet Days
Oak Park	Carlow	821.3	98	22.9	14 Mar	204	148
Ballyhaise	Cavan	934.5	93	25.3	10 Feb	220	164
Carron	Clare	1672.2	104	45.9	20 Jan	240	200
Shannon Airport	Clare	962.2	98	23.9	20 May	224	164
Cork Airport	Cork	1274.7	104	36.6	16 Apr	229	181
Moore Park	Cork	1076.7	105	34.6	16 Apr	230	166
Sherkin Island	Cork	1218.4	103	39.3	04 Dec	237	185
Finner	Donegal	1144.6	92	24.9	19 Jun	243	190
Malin Head	Donegal	1100.1	99	34.3	07 Oct	249	191
Casement	Dublin	657.7	87	19.3	06 Nov	187	134
Dublin Airport	Dublin	703.7	93	22.3	06 Nov	193	128
Phoenix Park	Dublin	685	89	25.7	20 Nov	192	131
Ballinasloe (Derrymullen)	Galway	845.5	84	18.5	02 Jan	218	160
Mace Head	Galway	1071.1	80	24.8	17 Dec	235	165
Derriana	Kerry	2501.4	115	80	12 Dec	259	226
Valentia Observatory	Kerry	1757.4	113	51.7	17 Dec	249	214
Athy (Chanterlands)	Kildare	818.7	99	25.4	01 Jun	205	134
Dungarvan (Castlefield)	Kilkenny	983.7	114	30.1	12 Dec	200	143
Mullinavat (Glendonell)	Kilkenny	1355.2	119	48.5	14 Dec	184	157
Clonaslee Waterworks	Laois	1014.5	87	25.3	15 Dec	256	173
Parknahown Cullahill	Laois	828.6	97	25.1	20 Jan	219	153
Lough Glencar	Leitrim	1721.2	95	39	02 Nov	252	212
Castlemahon W.W.	Limerick	1064.8	105	33.2	04 Dec	227	162
Mount Russel	Limerick	1415.9	111	42.3	05 Apr	243	197
Ardee (Boharnamoe)	Louth	748.1	92	27.6	28 Jul	202	137
Togher (Barmeath Castle)	Louth	762.4	93	22.4	28 Jul	192	134
Crossmolina (Castlehill)	Mayo	1058.7	91	39.3	08 Oct	243	173
Westport (Carrabawn)	Mayo	1385.4	103	42.2	17 Dec	242	183
Slane (Ardcalf)	Meath	733.5	86	25.6	20 Nov	188	142
Carrickmacross (Dunoge)	Monaghan	767.6	83	22	20 Jan	206	139
Newbliss (Crappagh)	Monaghan	916.1	91	22	15 Dec	207	159
Edenderry (Ballinla)	Offaly	692.5	79	27	20 Jan	197	141
Mount Dillon	Roscommon	963.5	92	30.9	08 Jun	226	170
Sligo Airport	Sligo	1037.3	95	29	20 Jan	227	170
Fethard (Parsonhill)	Tipperary	911.2	94	34.6	04 Dec	229	160
Gurteen	Tipperary	961.2	89	26.2	20 Jan	225	157
Waterford (Tycor)	Waterford	1150.9	112	42.6	14 Dec	202	152
Athlone (Glynnwood)	Westmeath	770	86	25.6	08 Jun	218	150
Wexford Wildfowl Reserve	Wexford	1107.4	115	45.6	04 Dec	213	155
Ashford (Cronykeery)	Wicklow	1001.6	105	38	09 Nov	182	123
Glenbride Lodge	Wicklow	1529	100	71.2	14 Mar	238	188

FULL STATION DATA AVAILABLE [HTTPS://WWW.MET.IE/CLIMATE/AVAILABLE-DATA/HISTORICAL-DATA](https://www.met.ie/climate/available-data/historical-data)

MONTHLY OVERVIEW

January: Wetter than normal.

Over half rainfall totals were above their Long-Term Average (LTA) for the month. Percentage of monthly rainfall values ranged from 61% (monthly rainfall total of 117.6 mm) at M.Glenmalure (Cloghernagh Forest), Co Wicklow to 250% (monthly rainfall total of 248.4 mm) at Scarriff (Fossabeg) Co Clare. Monthly rainfall totals ranged from 71.2 mm (percentage of LTA 122%) at Dublin (Ringsend) to 508.9 mm (percentage of LTA 154%) at Cloone Lake (Caragh River Area), Co Kerry. The Cloone Lake (Caragh River Area), Co Kerry rainfall total was the country's highest rainfall total for a low-lying region (below 200 m). Malin Head recorded its highest monthly total since 1885 with 204.0 mm. The highest daily rainfall total was 41.2 mm at Valentia Observatory, Co Kerry on the 12th Jan. The number of rain days ranged from 18 days at Dublin (Ringsend) to 31 days at Kenmare (Derreen), Co Kerry. The number of wet days ranged from 13 days at Dublin (Phoenix Park) to 29 days at Leenane (Glanagimla), Co Galway, Kildysart (Cappanavarnogue), Co Clare, and Cuilcagh Mountains, Co Cavan.

February: Below average totals almost everywhere, snow on 28th

Approximately three quarters of rainfall totals were below their Long-Term Average (LTA) for the month. Percentage of monthly rainfall values ranged from 23% (monthly rainfall total of 25.0 mm) at Moneystown, Co Wicklow to 132% (monthly rainfall total of 120.3 mm) at Kinsellagh, Co Sligo. Monthly rainfall totals ranged from 19 mm (44% of its LTA) at Ringsend, Dublin to 305.9 mm (116% of its LTA) at Mt.Cummeragh No.3, Co Kerry. The wettest day was also recorded at Maam Valley, Co Galway with 50.2 mm on the 9th Feb. Rain days ranged from 13 days at Merrion Square, Dublin, and Moneystown, Co Wicklow, to 23 days at Roundstone, Co Galway, and Castleisland (Coom), Co Kerry. Wet days ranged from 6 days at Carrick-on-Suir, Co Tipperary to 20 days at M.Inchigeelagh

(Pipe Hill), Co Cork, Creeslough (Brockagh), Co Donegal. Widespread snow occurred on the 28th. Fog was reported at inland stations on the 18th and 19th February.

March: Significant falls of snow on 1st, 2nd, 3rd and 18th

Most rainfall totals were below their Long-Term Average (LTA) for the month. Percentage of monthly rainfall values ranged from 36% (monthly rainfall total of 32.1 mm) at Easkey, Co Sligo to 255% (monthly rainfall total of 196.0 mm) at Foulkesmill, Co Wexford. Monthly rainfall totals ranged from 51.0 mm (48% of its LTA) at Mace Head, Co Galway to 169.8 mm (215% of its LTA) at Johnstown Castle, Co Wexford. The wettest day was recorded at Dunsany, Co Meath with 53.2 mm on the 2nd. Rain days ranged from 15 days at Castleblaney, Co Monaghan to 28 days at a number of stations in Cork, Kerry, and Donegal. Wet days ranged from 9 days at Kincasslagh, Co Donegal to 27 days at Lombardstown, (Drompeach) Co Cork. Very wet days ranged from zero days at a few stations to 6 days at Johnstown Castle, Co Wexford. Widespread heavy falls of drifting snow occurred on 1st, 2nd and 3rd, heaviest in the East and Southeast, with accumulations of up to 69 cm in the Wicklow mountains. Fairly widespread snow also occurred on 18th.

April: Wettest April at Valentia Observatory since 1940

The majority of monthly rainfall totals were above their Long-Term Average (LTA). Percentage of monthly rainfall values ranged from 54% (monthly rainfall total of 40.4 mm) at Greencastle, Co Donegal to 268% (monthly rainfall total of 244.7 mm) at Millstreet Sewage Works, Co Cork. Monthly rainfall totals were as much as 370.0 mm (percentage of LTA 229%) at M.Beenreagh Mountain, Co Kerry. The month's wettest day was recorded at Cloone Lake (Caragh River Area), Co Kerry with 95.4 mm on the 16th. The number of rain days ranged from 15 days at Portumna O.P.W. and Inishbofin Co Galway to 29 days at Mulrany

(Doughbeg), Co Mayo. The Cloone Lake (Caragh River Area), Co Kerry rainfall total was the country's highest rainfall total for a low-lying region (below 200 m). The number of wet days ranged from 10 days at Ardtarmon, Co Sligo, and Inishbofin, Co Galway to 24 days at a few stations in Co Cork.

May: Driest May at Casement Aerodrome since 1991

A high proportion of rainfall totals were below their Long-Term Average (LTA) for the month. Percentage of monthly rainfall values ranged from 23% (the month's lowest monthly rainfall total of 13.5 mm) at Merrion Square, Dublin to 130% (monthly rainfall total of 87.5 mm) at Muskerry (Golf Club), Co Cork. Monthly rainfall totals were as much as 158.2 mm (percentage of LTA 80%) at M.Cummeragh No.3, Co Kerry. The month's wettest day was also recorded at Mulrany (Doughbeg), Co Mayo with 66.5 mm on the 1st. The number of rain days ranged from 7 days at Kiltlealy (Askinvillar), Co Wexford to 24 days at M.Cummeragh No.3, Co Kerry and a few other stations. The number of wet days ranged from 4 days at Ringsend, Dublin and Ashford (Glanmore Gardens), Co Wicklow to 18 days at Mulrany (Doughbeg), Co Mayo. Lightning was a significant feature in the South and Southeast on the 27th.

June: Driest June at Dublin (Phoenix Park) since 1941

The majority of rainfall totals were below their Long-Term Average (LTA) for the month. Percentage of monthly rainfall values ranged from 2% (the month's lowest monthly rainfall total of 1.2 mm) at Dun Laoghaire, Co Dublin, to 139% at Monaghan (Castleshane). Monthly rainfall totals were as much as 153.3 mm (percentage of LTA 102%) at Maam Valley, Co Galway. The highest daily rainfall total was 55.8 mm at Drummin (Tawneyard), Co Mayo on the 19th. The number of rain days ranged from 2 days at Dublin (Ringsend) and Dun Laoghaire, Co Dublin, to 16 days at Creeslough (Carrownamaddy), Co Donegal. The number of wet days ranged from 1 day at a few stations (mostly in

Dublin and Wicklow) to 12 days at Cuilcagh Mtns, Co Cavan. An absolute drought occurred at Belmullet earlier in the month. Partial droughts were still being recorded at Dublin Airport, Phoenix Park and Oak Park up to the end of the month. There were a large number of lightning strikes observed on the 1st and the 8th.

July: Drought conditions continued

The majority of monthly rainfall totals across the country were below their Long-Term Average (LTA). Percentage of monthly rainfall values ranged from 24% at M.Cummeragh No. 5, Co Kerry to 157% at Omeath, Co Louth. Monthly rainfall totals were as much as 175.1 mm (percentage of LTA 95%) at M.Glentornan (L.Nabrukbaddy), Co Donegal. The highest daily rainfall total was 71.3 mm at Omeath, Co Louth on the 28th. The number of rain days ranged from 5 days at Mallow Racecourse, Co Cork to 25 days at Falcarragh (Lough Altan), Co Donegal. The number of wet days ranged from 3 days a couple of sites in Co Waterford to 18 days at a few stations in the West and Northwest. Absolute drought conditions continued until the 14th at stations in the East, Midlands, West and South, whilst Partial drought conditions continued in the South until the 25th.

August: Wettest in the North and West

Around two-thirds of monthly rainfall totals across the country were below their Long-Term Average (LTA). Percentage of monthly rainfall values ranged from 36% (monthly rainfall total of 29.5 mm) at Inishcara (Gen Stn), Co Cork to 163% (monthly rainfall total of 228.9 mm) at Falcarragh (Lough Altan), Co Donegal. Monthly rainfall totals ranged from 25.8 mm (40% of LTA) at Merrion Square, Dublin to 305.8 mm (151% of LTA) at M.Glentornan (L.Nabrukbaddy), Co Donegal. The month's wettest day was also recorded at M.Rathdrum (Ballintombay Forest), Co Wicklow with 39.8 mm on the 25th. The number of rain days ranged from 9 days at Wexford (Newtown W.W.), and Donoughmore, and Castlemartyr-Dower Pumphouse in Co Cork, to 31 days at Creeslough (Brockagh), Co Donegal and Mulrany (Doughbeg),

Co Mayo. The number of wet days ranged from 3 days at Ashford (Cronykeery), and Kilcoole Treatment Plant, both in Co Wicklow, to 28 days at Dooagh (Water Treatment Plant), Co Mayo. Thunderstorms affected the South East of the country on the 24th.

September: Lower than average rainfall totals nearly everywhere

Over two-thirds of monthly rainfall totals across the country were below their Long-Term Average (LTA). Percentage of monthly rainfall values ranged from 41% (monthly rainfall total of 33.7 mm) at NewBliss (Drumshannon), Co Monaghan to 144% (the month's highest monthly rainfall total of 222.2 mm) at Keenagh Beg, Co Mayo. Malin Head had a total of 107.8 mm, which was also 112% of LTA. The month's wettest day was recorded at Leenane (Glanagimla), Co Galway with 64.7 mm on the 17th. The number of rain days ranged from 11 days at a Kilcoole (Treatment Plant), Co Wicklow to 30 days at Mulrany (Doughbeg), Co Mayo, Kylemore Abbey, Co Galway, and Creeslough, Co Donegal. The number of wet days ranged from 8 days at a few stations to 30 days at Kylemore Abbey Gardens, Co Galway.

October: Below average totals everywhere

All monthly rainfall totals across the country were below their Long-Term Average (LTA). Percentage of monthly rainfall values ranged from 29% (monthly rainfall total of 32.6 mm) at Newbliss, Co Monaghan to 144% (monthly rainfall total of 219.10 mm) at Bloody Foreland, Co Donegal. Monthly rainfall totals ranged from 29.30 mm (31% of LTA) at Carrickmacross, Co Monaghan to 311.2 mm (131% of LTA) at M. Glentoran (L.Nabruckbaddy), Co Donegal. The highest daily rainfall total was 99.1 mm at Derryhillagh, Co Mayo on the 8th. The number of rain days ranged from 6 days at Dublin (Ringsend) to 30 days at a few stations in the West and North-West. The number of wet days ranged from 4 days at Athlone O.P.W., Co Westmeath to 30 days at Kylemore Abbey Gardens, Co Galway. The number of very wet

days ranged from one day at a few stations to 13 days at Kylemore Abbey Gardens, Co Galway.

November: Above average in most places

The majority of monthly rainfall totals were above their Long-Term Average (LTA). Percentage of monthly rainfall values ranged from 58% (monthly rainfall total of 71.4 mm) at Dunfanaghey, Co Donegal to 250% (monthly rainfall total of 278.9 mm) at Mullinavat, Co Kilkenny. Monthly rainfall totals ranged from 86.3 mm (71% of LTA) at Athlone O.P.W., Co Westmeath to 604.00 mm (149% of LTA) at M. Cumberagh No.3, Co Kerry. The month's wettest day was also recorded at Gernapeka, Co Cork with 119.9 mm on the 13th. The number of rain days ranged from 18 days at a few stations to 30 days at stations in Cork and Kerry. The number of wet days ranged from 13 days at Dublin (Ringsend) to 26 days at a few stations. The number of very wet days ranged from 1 day at a number of stations to 18 days at M.Cumberagh No.3, Co Kerry.

December: Higher than average rainfall totals in the Southern half

Many stations were around normal for the time of year, but above normal rainfall totals were reported at stations in the Southern half of the country. Percentage of monthly rainfall values ranged from 84% (monthly rainfall total of 175.0 mm) at M.Beenreagh Mtn, Co Kerry to 224% (the month's highest monthly rainfall total of 220.1 mm) at Waterford (Tycor). Monthly rainfall totals for the month were lowest at Wilkinstown, Co Meath with 66.0 mm (79% of LTA). The highest daily rainfall total was 88.1 mm at Glencar, Co Kerry on the 17th. The number of rain days ranged from 16 days at Dublin (Ringsend) to 31 days at Creeslough, Co Donegal. The number of wet days ranged from 13 days at Clogher Head, Co Louth, and a few stations in Dublin to 29 days at Dooagh (Water Treatment Plant), Co Mayo. The number of very wet days ranged from 1 day at several stations to 16 days at Glencar, Co Kerry.

ANNUAL NUMBER OF RAIN DAYS, WET DAYS, AND VERY WET DAYS (NUMBER OF)

RAIN DAYS ≥ 0.2

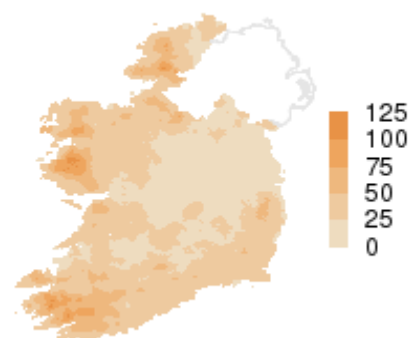
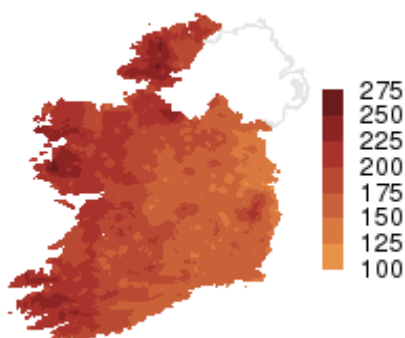
WET DAYS ≥ 1.0

VERY WET DAYS ≥ 10.0

Rain Days

Wet Days

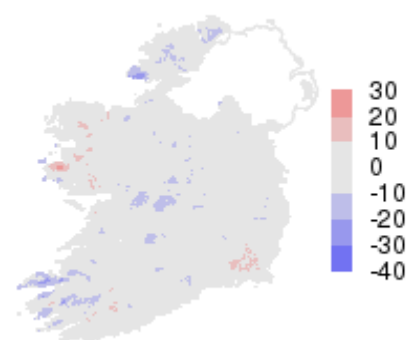
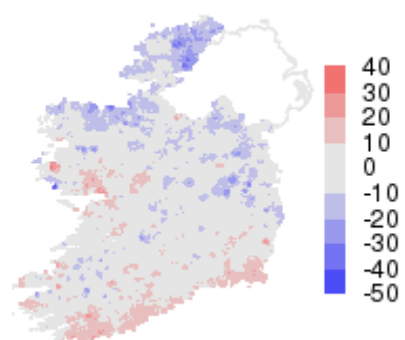
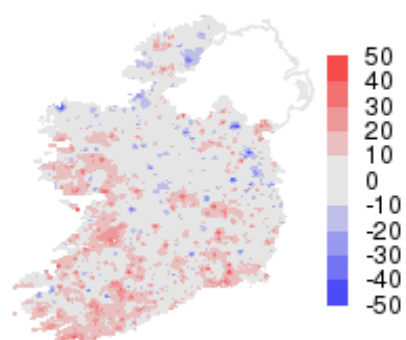
Very Wet Days



Difference from Normal

Difference from Normal

Difference from Normal



DIFFERENCE FROM LTA 1980-2010 FOR RAIN DAYS, WET DAYS, AND VERY WET DAYS (NUMBER OF DAYS)

RAIN DAYS ≥ 0.2

WET DAYS ≥ 1.0

VERY WET DAYS ≥ 10.0

TABLE OF SYNOPTIC STATIONS REPORTING DROUGHT

AN ABSOLUTE DROUGHT IS A PERIOD OF 15 OR MORE CONSECUTIVE DAYS WHERE PRECIPITATION WAS LESS THAN 0.2 mm

A PARTIAL DROUGHT IS A PERIOD OF AT LEAST 29 CONSECUTIVE DAYS THE MEAN DAILY RAINFALL OF WHICH DOES NOT EXCEED 0.2 mm

Type	Name	County	Start date	End date	Length
Absolute drought:	OAK PARK	Carlow	20-Jun-18	14-Jul-18	25
Absolute drought:	BALLYHAISE	Cavan	20-Jun-18	10-Jul-18	21
Absolute drought:	SHANNON AIRPORT	Clare	20-Jun-18	13-Jul-18	24
Absolute drought:	CORK AIRPORT	Cork	20-Jun-18	05-Jul-18	16
Absolute drought:	ROCHES POINT	Cork	20-Jun-18	05-Jul-18	16
Absolute drought:	SHERKIN ISLAND	Cork	20-Jun-18	13-Jul-18	24
Absolute drought:	FINNER	Donegal	20-Jun-18	09-Jul-18	20
Absolute drought:	CASEMENT	Dublin	20-Jun-18	14-Jul-18	25
Absolute drought:	DUBLIN AIRPORT	Dublin	20-Jun-18	13-Jul-18	24
Absolute drought:	PHOENIX PARK	Dublin	29-Jun-18	13-Jul-18	15
Absolute drought:	ATHENRY	Galway	20-Jun-18	06-Jul-18	17
Absolute drought:	MACE HEAD	Galway	20-Jun-18	05-Jul-18	16
Absolute drought:	VALENTIA OBSERVATORY	Kerry	20-Jun-18	13-Jul-18	24
Absolute drought:	BELMULLET	Mayo	21-May-18	11-Jun-18	22
Absolute drought:	CLAREMORRIS	Mayo	20-Jun-18	13-Jul-18	24
Absolute drought:	KNOCK AIRPORT	Mayo	20-Jun-18	07-Jul-18	18
Absolute drought:	NEWPORT	Mayo	20-Jun-18	09-Jul-18	20
Absolute drought:	DUNSANY	Meath	20-Jun-18	14-Jul-18	25
Absolute drought:	MT DILLON	Sligo	20-Jun-18	10-Jul-18	21
Absolute drought:	GURTEEN	Tipperary	20-Jun-18	13-Jul-18	24
Absolute drought:	MULLINGAR	Westmeath	20-Jun-18	13-Jul-18	24
Absolute drought:	JOHNSTOWN	Wexford	20-Jun-18	14-Jul-18	25

Partial drought:	OAK PARK	Carlow	27-May-18	18-Jul-18	53
Partial drought:	CORK AIRPORT	Cork	16-Jun-18	14-Jul-18	29
Partial drought:	MOORE PARK	Cork	14-Jun-18	13-Jul-18	30
Partial drought:	ROCHES POINT	Cork	20-Jun-18	25-Jul-18	36
Partial drought:	CASEMENT	Dublin	02-Jun-18	19-Jul-18	48
Partial drought:	DUBLIN AIRPORT	Dublin	28-May-18	18-Jul-18	52
Partial drought:	PHOENIX PARK	Dublin	28-May-18	18-Jul-18	52
Partial drought:	DUNSANY	Meath	16-Jun-18	14-Jul-18	29
Partial drought:	GURTEEN	Tipperary	16-Jun-18	14-Jul-18	29
Partial drought:	JOHNSTOWN	Wexford	16-Jun-18	14-Jul-18	29

TABLE OF SYNOPTIC STATIONS REPORTING HEATWAVES

A HEATWAVE IS A PERIOD OF 5 CONSECUTIVE DAYS OR MORE WITH MAXIMUM TEMPERATURE
OVER 25 DEGREES CELCIUS. (i.e. daily max > 25°C)

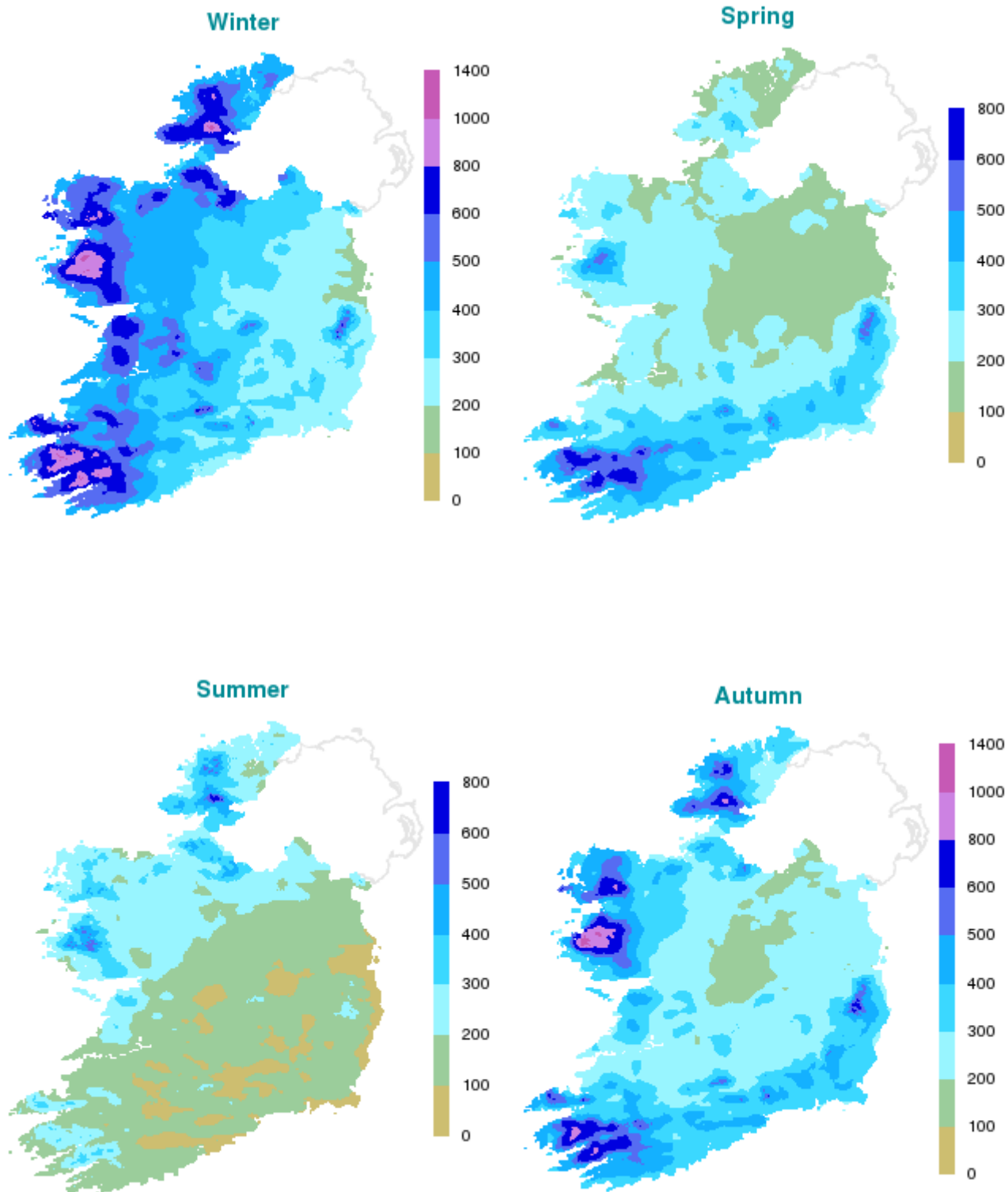
Type	Name	County	Start date	End date	Length
Heatwave:	OAK PARK	Carlow	24-Jun-18	04-Jul-18	11
Heatwave:	BALLYHAISE	Cavan	25-Jun-18	29-Jun-18	5
Heatwave:	SHANNON AIRPORT	Clare	24-Jun-18	30-Jun-18	7
Heatwave:	MOORE PARK	Cork	26-Jun-18	04-Jul-18	9
Heatwave:	FINNER	Donegal	26-Jun-18	30-Jun-18	5
Heatwave:	CASEMENT	Dublin	24-Jun-18	28-Jun-18	5
Heatwave:	ATHENRY	Galway	24-Jun-18	30-Jun-18	7
Heatwave:	NEWPORT	Mayo	25-Jun-18	30-Jun-18	6
Heatwave:	CLAREMORRIS	Mayo	25-Jun-18	30-Jun-18	6
Heatwave:	KNOCK AIRPORT	Mayo	26-Jun-18	30-Jun-18	5
Heatwave:	DUNSANY	Meath	24-Jun-18	29-Jun-18	6
Heatwave:	MT DILLON	Roscommon	24-Jun-18	30-Jun-18	7
Heatwave:	MARKREE	Sligo	26-Jun-18	30-Jun-18	5
Heatwave:	GURTEEN	Tipperary	24-Jun-18	30-Jun-18	7
Heatwave:	MULLINGAR	Westmeath	24-Jun-18	29-Jun-18	6

TABLE OF SYNOPTIC STATIONS REPORTING DRY SPELLS

A DRY SPELL IS A PERIOD OF 15 OR MORE CONSEQUITIVE DAYS DURING WHICH THE DAILY PRECIPITATION WAS LESS THAN 1.00 mm (i.e. daily precipitation < 1.0 mm)

Type	Name	County	Start date	End date	Length
Dry spell:	OAK PARK	Carlow	27-May-18	12-Jun-18	17
Dry spell:	OAK PARK	Carlow	20-Jun-18	14-Jul-18	25
Dry spell:	OAK PARK	Carlow	14-Oct-18	29-Oct-18	16
Dry spell:	BALLYHAISE	Roscommon	20-Jun-18	13-Jul-18	24
Dry spell:	SHANNON AIRPORT	Clare	20-Jun-18	13-Jul-18	24
Dry spell:	CORK AIRPORT	Cork	28-May-18	12-Jun-18	16
Dry spell:	CORK AIRPORT	Cork	20-Jun-18	14-Jul-18	25
Dry spell:	MOORE PARK	Cork	17-Jun-18	13-Jul-18	27
Dry spell:	ROCHES POINT	Cork	27-May-18	12-Jun-18	17
Dry spell:	ROCHES POINT	Cork	20-Jun-18	13-Jul-18	24
Dry spell:	SherkinIsland	Cork	28-May-18	12-Jun-18	16
Dry spell:	SherkinIsland	Cork	19-Jun-18	13-Jul-18	25
Dry spell:	FINNER	Donegal	20-Jun-18	09-Jul-18	20
Dry spell:	MALIN HEAD	Donegal	21-Jun-18	09-Jul-18	19
Dry spell:	CASEMENT	Dublin	20-Jun-18	18-Jul-18	29
Dry spell:	DUBLIN AIRPORT	Dublin	16-Jun-18	14-Jul-18	29
Dry spell:	DUBLIN AIRPORT	Dublin	14-Oct-18	29-Oct-18	16
Dry spell:	PHOENIX PARK	Dublin	28-May-18	14-Jun-18	18
Dry spell:	PHOENIX PARK	Dublin	16-Jun-18	14-Jul-18	29
Dry spell:	PHOENIX PARK	Dublin	14-Oct-18	01-Nov-18	19
Dry spell:	ATHENRY	Galway	20-Jun-18	13-Jul-18	24
Dry spell:	MACE HEAD	Galway	20-Jun-18	13-Jul-18	24
Dry spell:	VALENTIA OBSERVATORY	Kerry	20-Jun-18	13-Jul-18	24
Dry spell:	BELMULLET	Mayo	21-May-18	11-Jun-18	22
Dry spell:	BELMULLET	Mayo	20-Jun-18	13-Jul-18	24
Dry spell:	CLAREMORRIS	Mayo	20-Jun-18	13-Jul-18	24
Dry spell:	KNOCK AIRPORT	Mayo	20-Jun-18	13-Jul-18	24
Dry spell:	NEWPORT	Mayo	20-Jun-18	09-Jul-18	20
Dry spell:	DUNSANY	Meath	28-May-18	12-Jun-18	16
Dry spell:	DUNSANY	Meath	20-Jun-18	14-Jul-18	25
Dry spell:	MT DILLON	Roscommon	20-Jun-18	13-Jul-18	24
Dry spell:	MARKREE	Sligo	20-Jun-18	13-Jul-18	24
Dry spell:	GURTEEN	Tipperary	20-Jun-18	14-Jul-18	25
Dry spell:	MULLINGAR	Westmeath	20-Jun-18	13-Jul-18	24
Dry spell:	JOHNSTOWN	Wexford	27-May-18	12-Jun-18	17
Dry spell:	JOHNSTOWN	Wexford	20-Jun-18	14-Jul-18	25

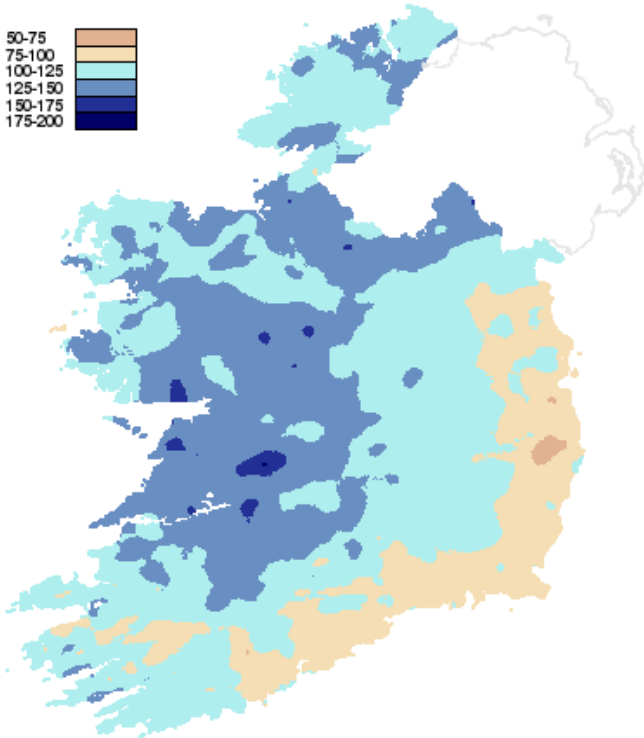
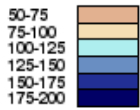
SEASONAL RAINFALL TOTALS (mm)



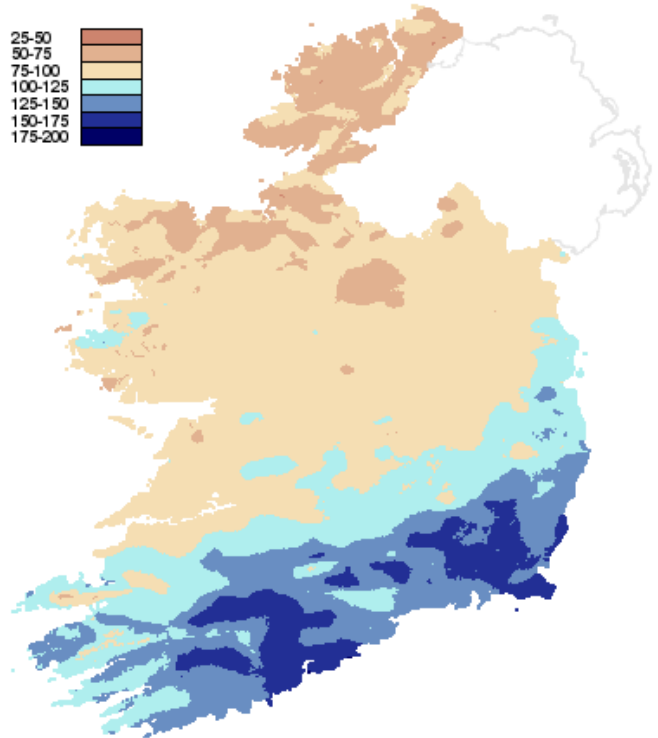
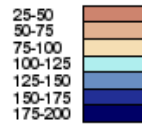
* WINTER REFERS TO DECEMBER 2017, JANUARY 2018, AND FEBRUARY 2018

SEASONAL PERCENTAGE OF 1981-2010 AVERAGE RAINFALL (%)

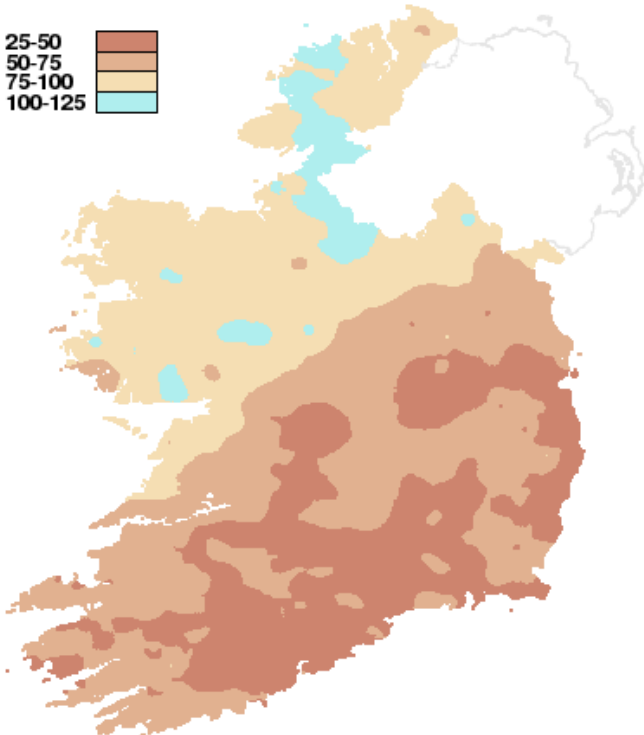
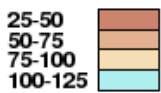
Winter Percentage of 1981-2010
Average Rainfall



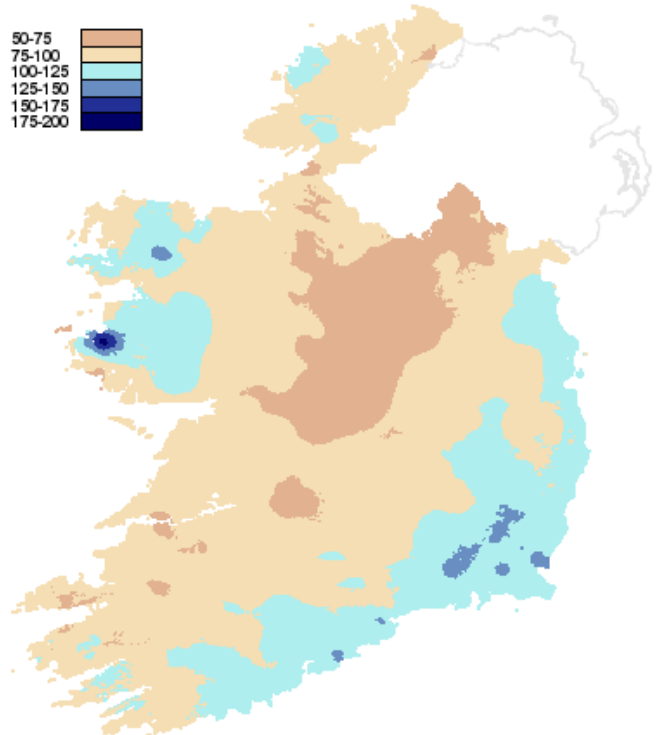
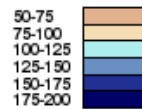
Spring Percentage of 1981-2010
Average Rainfall



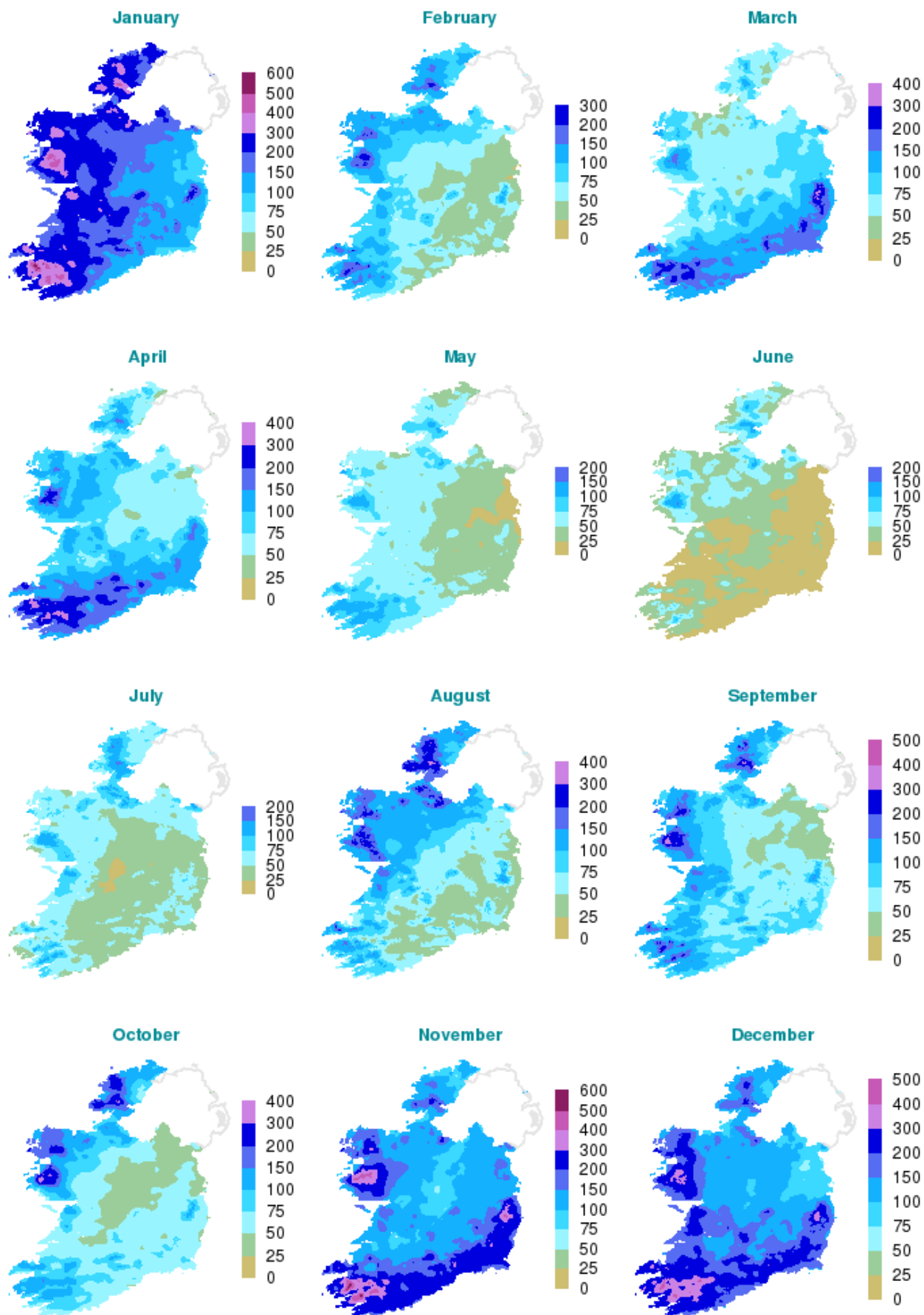
Summer Percentage of 1981-2010
Average Rainfall



Autumn Percentage of 1981-2010
Average Rainfall



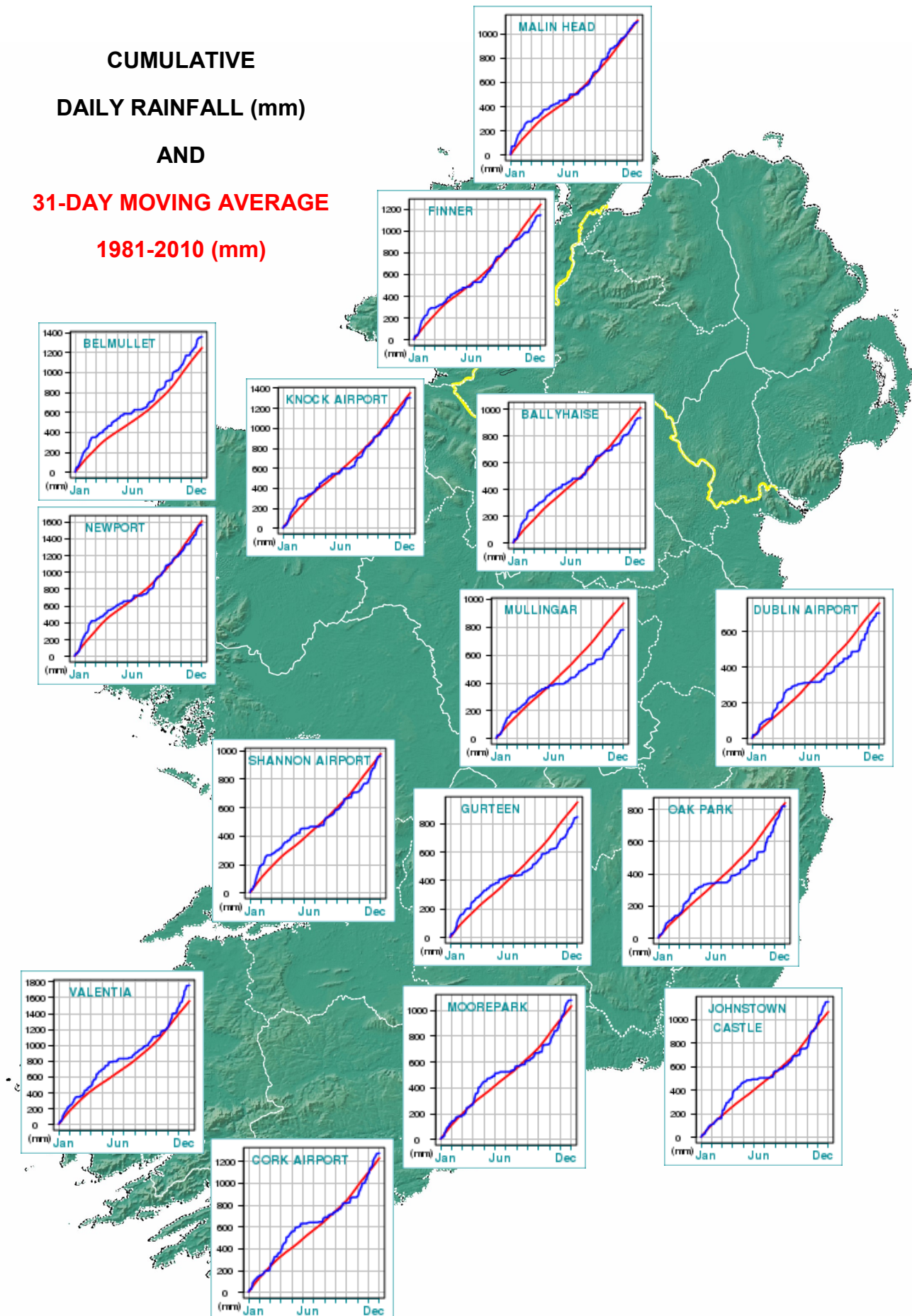
MONTHLY RAINFALL TOTALS (mm)



CUMULATIVE DAILY RAINFALL (mm)

AND

31-DAY MOVING AVERAGE 1981-2010 (mm)



TEMPERATURE

ANNUAL TEMPERATURES

Temperature: Widespread heatwaves in Summer

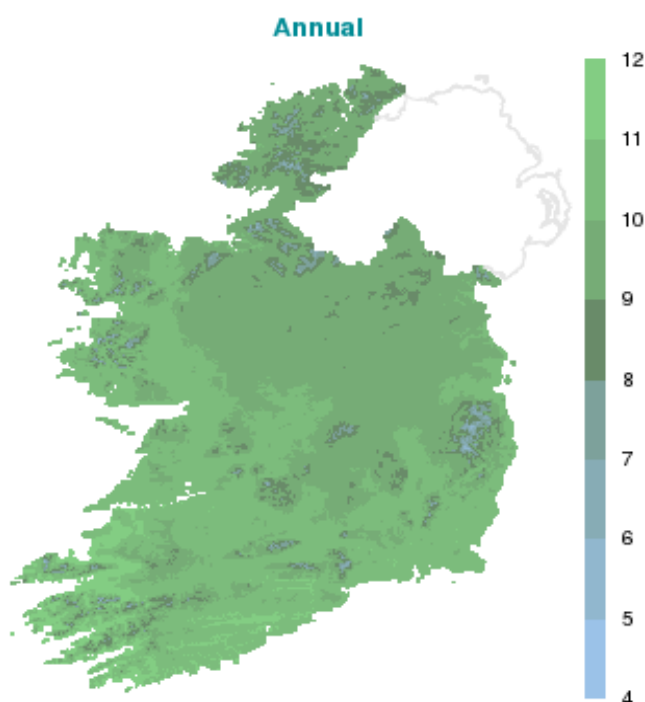
Nearly all stations had above average temperature overall. It was only slightly above average in most places. Although we had a very warm Summer, we also had several colder than average months including February, March, September and October. The highest yearly mean temperature was 11.6°C at Dooks, Glenbeigh, Co. Kerry. The lowest yearly mean temperature was 9.5°C at Nealstown, Co. Laois (0.5°C above LTA). The highest air temperature recorded was 32.0 °C reported at Shannon Airport on 28th June (a record for a Synoptic station). The lowest air temperature recorded was -9.7 °C reported at Durrow, Co Laois, on 1st March (during Storm Emma). There were widespread heatwaves from late June through to early July.

SEASONAL OVERVIEW

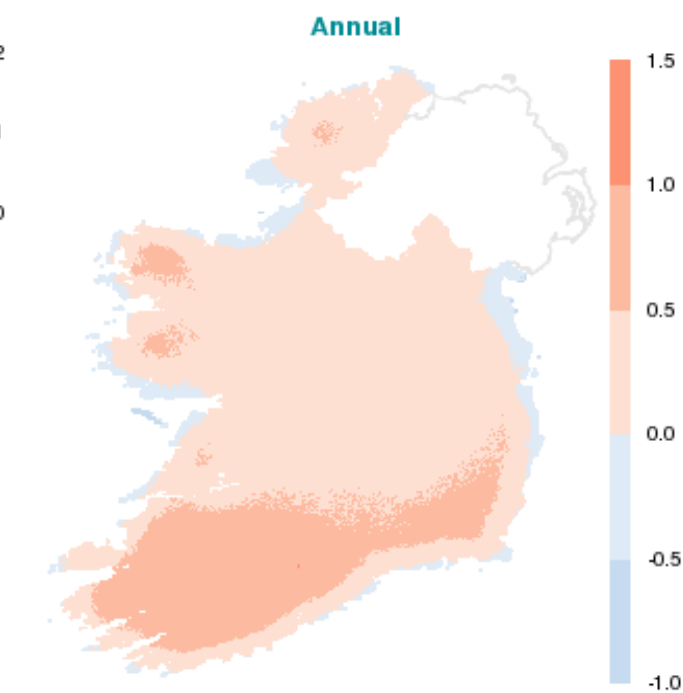
Winter (December 2017, January 2018, February 2018):

Coldest winter since 2011 in many places

Apart from Carron and Belderrig, all mean air temperatures were below or at their Long-Term Average (LTA) for the season. This is mainly attributed to February as both December and January's monthly mean temperatures were above Average overall. Deviations from mean air temperature for the season ranged from -0.9°C (4.2°C mean temperature) at Ballyhaise, Co Cavan to 0.3°C (5.9°C mean temperature) at Belderrig, Co Mayo. Mean temperatures for the season ranged from 4.0°C (0.1°C below its LTA) at Knock Airport, Co Mayo to 7.5°C (0.1°C below its LTA) at Sherkin Island, Co Cork. The season's lowest temperatures were recorded on the 8th Jan with the lowest air minimum reported at Athenry, Co Galway with a temperature of -6.8°C and the lowest grass minimum reported at Mount Dillon, Co Roscommon with -12.4°C. The highest maximum was reported



ANNUAL MEAN AIR TEMPERATURE



ANNUAL MEAN AIR TEMPERATURE
DIFFERENCE FROM 1981-2010 AVERAGE

on the 21st Dec at Mullagh (Carrowlagan), Co Clare with a temperature of 16.0°C. All stations reported air and ground frost during the season. Gurteen, Co Tipperary recorded a maximum air temperature of – 1.1°C on 28th February, (9.8°C below its LTA).

Spring (March, April, May):

Very cold start, very warm finish

Overall, Spring 2018 was characterised by a very cold and snowy start, average in the middle and a dry, warm and settled finish. March started with high pressure over Scandinavia that brought an extremely cold Siberian air mass over Ireland from the east. Storm Emma pushed up from the south into the cold air giving widespread disruptive snow and ice for the first few days of March. It gradually got milder over the following few days but areas of low pressure hung around and gave generally unsettled conditions through much of March apart from the third week where an area of high pressure gave a cold settled spell. The month of April had above average rainfall and temperatures generally with low pressure in charge and a series of slow moving fronts moving northwards across the country interspersed with some fine dry days. Winds were southerly or south-easterly in direction but south-westerly or westerly in the last week. May was warm overall with above average sunshine. The first half of the month saw low pressure nearby and mostly weak fronts crossing the country from the west. The second half of the month was dominated by blocking high pressure to the north and a warm continental airflow over Ireland with a few thundery troughs.

Summer (June, July, August):

A Summer of heatwaves and droughts.

The summer of 2018 will be remembered for heatwave and drought conditions that affected many parts of the country. Intense thunderstorms were also a feature at the start of the meteorological season. Temperatures were above normal and rainfall amounts were below normal at most stations. Large blocking high pressure systems were the dominant feature of the summer. This kept

the north Atlantic jet stream to the north of Ireland. The periods through the summer where high pressure dominated were the first two weeks in June, ending temporarily with the arrival of Storm Hector on 14th June. High pressure to the north stretched from the Azores to Scandinavia at times between the 21st June and the 14th July. This gave slack winds and very warm mainly dry conditions. In between these dry settled spells and especially during August a weak jet stream moved south over Ireland, with frontal troughs and showers crossing the country from time to time. However most of the rain fell in the north and west of the country.

Autumn (September, October, November):

Cool and dry overall.

September and October were cool and dry. High pressure in the first week of September gave way to a mainly Atlantic dominated westerly airflow for the middle of the month. Two named storms Ali and Bronagh brought disruptive violent storm force winds and heavy rain during this period. It settled down again for the last week with high pressure dominating. High pressure continued to keep most of the first week of October dry and settled. It became more unsettled during the second week. An exceptionally deep area of low pressure associated with Storm Callum moved north close to the West coast, bringing the windiest spell of the month. The second half of October was mostly cool and settled with high pressure nearby. A northerly airflow towards the end of the month brought the coldest period of the season. November was mild overall with above average rainfall in the South and East for the first time since April 2018. Low pressure dominated the first half of the month with numerous Atlantic weather fronts crossing the country. A continental easterly airflow developed mid-month and lasted for nearly two weeks. The month finished unsettled with Atlantic low-pressure systems, including Storm Diana, bringing heavy rain and strong winds.

MONTHLY OVERVIEW

January: Milder than normal at the majority of stations

The majority of mean air temperatures were above their Long-Term Average (LTA) for the month. Deviations from long-term average temperature for the month ranged from -0.7 degree celsius (4.4°C mean temperature) at Ballyhaise, Co Cavan to 0.9°C at Waterford (Tycor), Moore Park, and Glengarriff, Co Cork, and Littleton, (Bord.na Mona), Co Tipperary. Mean temperatures for the month ranged from 4.1 °C (difference from LTA 0.1 °C) at Knock Airport, Co Mayo to 8.1 °C (difference from LTA 0.7°C) at Sherkin Island, Co Cork. The month's lowest temperatures were recorded on the 8th Jan with the lowest air minimum reported at Athenry, Co Galway with a temperature of -6.8°C and the lowest grass minimum reported at Straide, Co Mayo with -12.6 °C. The highest maximum was reported on the 27th Jan at Waterford (Tycor), with a temperature of 15.2°C. All stations - where such measurements are performed - reported ground frost during the month. The number of days with ground frost ranged from 2 days at Sherkin Island, Co Cork to 23 days at Dublin (Phoenix Park). The majority of stations reported air frost. The number of days with air frost ranged from zero days at eight stations to 12 days at Carrickmacross (Dunoge), Co Monaghan.

February: All mean temperatures below average

All mean air temperatures across the country were below their Long-Term Average for the month. Deviations from long-term average temperature for the month ranged from -2.3°C at Craggaunowen, Co Clare and Delphi Lodge, Co Mayo (mean temperature 3.6°C and 4.1°C respectively) to -0.7°C (4.9°C mean temperature) at Belderrig, Co Mayo. Mean temperatures for the month ranged from 3.0°C (1.3°C below its LTA) at Slieve Bloom Mountains (Nealstown), Co Laois and Knock Airport, Co Mayo to 6.4°C (1.1°C below its LTA) at Sherkin Island, Co Cork. The month's highest temperature was

reported at Mallow (Spa House), Co Cork on the 19th Feb with a temperature of 14.7°C. The month's lowest air minimum was recorded also on the 27th at Glenties Hatchery, Co Donegal at -6.1°C while the lowest grass minimum was -14.0°C reported at Straide, Co Mayo on the 27th Feb. All stations reported air and ground frost during the month. The number of days with ground frost ranged from 5 days at Sherkin Island, Co Cork to 27 days at Dublin Clonroche (Knoxtown), Co Wexford amongst others. The number of days with air frost ranged from 1 day at Sherkin Island, Co Cork to 17 days at both Kilkenny (Greenshill) and Durrow, Co Laois.

March: All monthly mean temperatures were 2 or 3°C below average

Deviations from long-term average temperature for the month ranged from -3.2°C at Delphi Lodge, Co Mayo (4.4°C mean temperature) to -1.5°C at Belderrig, Co Mayo. Mean temperatures for the month ranged from 3.9°C (1.7°C below its LTA) at Knock Airport, Co Mayo to 6.4°C at Glengarriff, Co Cork. The month's highest temperature was reported at Springfield Castle, Co Limerick on 11th with a temperature of 14.9°C. The month's lowest air minimum was recorded on 1st at Durrow, Co Laois with -9.7°C while the lowest grass minimum was -14.2°C, reported at Straide, Co Mayo on the 20th. All stations - where such measurements are made - reported air and ground frost during the month. The number of days with ground frost ranged from 8 days at Malin Head, Co Donegal to 25 days at Durrow, Co Laois. The number of days with air frost ranged from 3 days at Ballycroy (Knockmoyleen), Co Mayo to 18 days at Delphi Lodge, Co Mayo.

April: Most monthly mean temperatures were slightly above average

The majority of mean air temperatures were above their Long-Term Average (LTA) for the month. Deviations from mean air temperature for the month ranged from -0.9 °C (8.2 °C mean temperature) at Delphi Lodge, Co Mayo to 1.1 °C (9.2 °C mean temperature) at Ballincurrig (Peafield), Co Cork. Mean temperatures for the month ranged from 7.7 °C

C (0.2 °C above LTA) at Knock Airport, Co Mayo to 9.9 °C at Dooks, Co Kerry. The month's lowest grass (-11.5 °C at Straide, Co Mayo) and ground temperatures (1°C at Newport, Co Mayo, and both Sherkin Island, and Ballincurrag (Peafield) , in Co Cork) were recorded on the 5th. The lowest air minimum was reported at Clonroche (Knoxtown), Co Wexford with a temperature of -6. 2°C. The highest maximum temperature was reported on the 21st at Lullymore Nature Centre, Co Kildare with a temperature of 20.5 °C. Sherkin Island recorded its lowest max temperature (12.8 °C) for April in 32 years. All stations - where such measurements are made - reported ground frost during the month. The number of days with ground frost ranged from 1 day at Sherkin Island and Ballincurrag, Co Cork, and Newport, Co Mayo to 13 days at Ashford (Cronykeery) station, Co Wicklow. More than two-thirds of stations reported air frost. The number of days with air frost ranged from zero days at a few stations to 6 days at both Markree, Co Sligo, Ballina Golf Club, Co Mayo, Straide, Co Mayo, and Mount Dillon, Co Roscommon.

May: Most monthly mean temperatures were above average

Most mean air temperatures across the country were above their Long-Term Average (LTA) for the month. Differences from the normal of the mean air temperature for the month ranged from 0.5 °C (12.2°C mean temperature) at Sherkin Island, Co Cork to 2.1 °C (12.8 °C mean temperature) at Glenties Hatchery, Co Donegal. Mean temperatures for the month ranged from 11.7 °C at Dublin Airport (0.8 °C above LTA) to 13.7 °C at Waterford (Tycor) (2.0 °C above LTA). The month's highest temperatures were reported on the 29th at Newport (Furnace), and Straide, Co Mayo, and Glenties Hatchery, Co Donegal, with a temperature of 26.5 °C. The month's lowest air minimum temperature was recorded on the 12th at Mount Dillon, Co Roscommon. The lowest air minimum was -1.2 °C. The lowest grass minimum was recorded on the 1st at Ashford (Cronykeery), Co Wicklow, with a temperature of -6.3 °C. More than half of stations reported ground frost. The number of

days with ground frost ranged from zero days at 18 stations to 13 days at Ashford (Cronykeery), Co Wicklow. Only two stations reported air frost. These occurred at Markree, Co Sligo and Mount Dillon, Co Roscommon on the 12th.

June: Highest maximum temperature since 1946 at Shannon Airport

All mean air temperatures across the country were above their Long-Term Average (LTA) for the month. Deviations from mean air temperature for the month ranged from 0.8 °C (mean temperature 13.5 °C) at Malin Head, Co Donegal to 3.3 °C (16.6 °C mean temperature) at Ballincurrag (Peafield), Co Cork. Mean temperatures ranged from 13.5 °C at Malin Head to 17.1°C (2.5 °C above LTA) at Shannon Airport, Co Clare (its warmest June since 1946). The month's lowest temperatures were recorded on the 22nd with the lowest air minimum reported at Mount Dillon, Co Roscommon with a temperature of 2.1 °C and the lowest grass minimum reported at Athleague, Co Roscommon with -2.0 °C. The highest maximum temperature was reported on the 28th at Shannon Airport, Co Clare with a temperature of 32.0 °C (its highest daily maximum temperature, of any month, since 1946). There was no air frost reported this month. The number of days with ground frost ranged from zero days at two thirds of stations to 3 days at Straide, Co Mayo.

July: Temperature: Heatwave conditions at start of month

All mean air temperatures were above their Long-Term Average (LTA) for the month. Deviations from mean air temperature for the month ranged from -0.1 °C (15.4 °C mean temperature) at Markree, Co Sligo to 2.6 °C at Ballinacurrag, Co Cork (17.7 °C mean temperature). Mean temperatures for the month ranged from 15.0 °C (1.0 °C above LTA) at Knock Airport, Co Mayo to 18.1 °C (2.42 °C above LTA) at Mallow, Co Cork. The lowest minimum was reported on the 10th with a temperature of 4.5 °C while the highest maximum was reported on the 4th with a temperature of 29.3°C at Derrygreenagh, Co

Offaly. The lowest grass minimum was reported at Finner, Co Donegal on the 2nd with 0.1 °C (its lowest July grass min since 2011). There was no air or ground frost reported this month. Heatwave conditions continued until the 4th at Moore Park, Co Cork and Oak Park, Co Carlow.

August: Warmest in the South and East

Difference from Long-Term Average mean air temperatures were variable across the country. Deviations from mean air temperature for the month ranged from -0.6 °C at Markree, Co Sligo, (mean temperature 14.3 °C) to 1.1 °C (with the month's highest mean temperature of 17.3 °C) at Cahore, Co Wexford. Mean temperatures for the month were lowest at Knock Airport, Co Mayo with 13.6 °C (0.2 °C below LTA). The month's highest temperature was reported at Carlow (Oak Park) on the 18th with a temperature of 26.6 °C (the highest max for August in 23 years). The month's lowest air minimum was recorded on the 11th at Mount Dillon, Co Roscommon with 1.2 °C while the lowest grass minimum was reported at Fermoy (Moore Park), Co Cork on the 25th with -1.3 °C (its lowest August grass min since 2006). In addition, Markree, Co Sligo recorded its lowest August grass min temp in 36 years (at -0.9 °C). There was no air frost reported this month. Less than one-third of stations reported ground frost. The number of days with ground frost ranged from zero days at most stations to 3 days at Straide, Co Mayo. Valentia Observatory experienced its dullest August in 28 Years (at 82.9 hours).

September: Cooler than average everywhere

All mean air temperatures across the country were below their Long-Term Average for the month. Deviations from mean air temperature for the month ranged from -1.8 °C at Markree, Co Sligo (11.3 °C, mean temperature) to -0.2 °C (12.6 °C mean temperature) at Clonroche (Knoxtown), Co Wexford. Mean temperatures for the month ranged from 11.0 °C (1.1 °C below LTA) at Knock Airport, Co Mayo to 13.9 °C (0.4 °C below LTA) at Dublin (Merrion Square) and Dublin (Glasnevin). The

month's highest temperature was reported at Dublin (Phoenix Park) on the 2nd with a temperature of 25.1 °C. The month's lowest air was recorded at Mount Dillon, Co Roscommon on the 29th at -2.2 °C while the lowest grass minimum (-6.3 °C) was recorded at Kilkenny (Greenshill) on the 29th. Dublin Airport recorded its lowest September minimum temperature on record at -0.4 °C. More than half of stations reported ground frost. The number of days with ground frost ranged from zero days at a few stations to 12 days at Straide, Co Mayo. Less than quarter of stations reported air frost. The number of days with air frost ranged from zero days at the majority of stations to 3 days at both Markree, Co Sligo and Mount Dillon, Co Roscommon.

October: Most monthly mean temperatures were below average

Nearly all mean air temperatures were below their Long-Term Average (LTA) for the month. Deviations from mean air temperature for the month ranged from -1.0 °C at Valentia, Co Kerry (10.7 °C mean temperature) to 0.1 °C at Ballincurragh, Co Cork (10.2 °C mean temperature). Mean temperatures for the month ranged from 8.9 °C (0.2 °C below LTA) at Knock, Co Mayo to 11.2 °C at Sherkin Island, Co Cork. The month's lowest temperatures were recorded on the 30th. The lowest air minimum was reported at Dublin Airport with a temperature of -4.7 °C (its lowest October daily minimum temperature since 1941). The lowest grass minimum was reported at Kilkenny (Greenshill) with -9.6 °C. and the second lowest grass minimum was reported at Casement Aerodrome, Co Dublin with -9.2 °C (its lowest October daily grass minimum temperature since 1964). The highest maximum was reported on the 10th at Sligo Airport with a temperature of 22.0 °C. Almost all stations reported ground frost during the month. The number of days with ground frost ranged from zero days at Sherkin Island, Co Cork to 16 days at Kilkenny (Greenshill). More than half of stations reported air frost. The number of days with air frost ranged from zero days at a few stations to 5 days at Littleton, Bord na Mona, Co Tipperary.

November: Most monthly mean temperatures were above average

Nearly all mean air temperatures were above their Long-Term Average (LTA) for the month. Deviations from mean air temperature for the month ranged from -1.1°C at Newport, Co Mayo (mean temperature 7.2°C) to 1.5°C (mean temperature 8.6°C) at Dublin (Phoenix Park). Mean temperatures for the month ranged from 6.4°C (0.2°C above LTA) at Knock Airport, Co Mayo to 10.1°C (0.6°C above LTA) at Sherkin Island, Co Cork. The month's highest air temperature was reported at Dooks, Co Kerry on the 2nd with a temperature of 16.7°C . Shannon Airport, Co Clare recorded its highest November temperature since 2007 on the 3rd with a temperature of 16.3°C . The lowest air temperature was reported on the 2nd at Mount Dillon, Co Roscommon with -5.0°C (its lowest November min since 2010). The lowest grass minimum was -10.2°C , reported at Kilkenny (Greenshill) on the 2nd. All stations reported ground frost during the month. The number of days with ground frost ranged from 2 days at a few stations to 23 days at Kilkenny (Greenshill). Around half of stations reported air frost. The number of days with air frost ranged from zero days at a few stations to 9 days at Mount Dillon, Co Roscommon.

December: Warmer than average everywhere

All mean air temperatures across the country were above their Long-Term Average (LTA) for the month. Deviations from mean air temperature for the month ranged from 1.2°C (7.6°C mean temperature) at Malin Head, Co Donegal to 3.1°C (8.1°C mean temperature) at Fethard, Co Tipperary. Mean temperatures for the month ranged from 6.4°C (2.1°C above LTA) at Knock Airport, Co Mayo to 10.1°C (2.2°C above LTA) at Sherkin Island, Co Cork. The month's highest air temperature was recorded at Mallow, Co Cork with 15.0°C on the 2nd. The lowest air temperature was reported on the 17th with a temperature of -3.5°C at Clonroche, Co Wexford.

The lowest grass minimum was reported at Kilkenny (Greenshill) at -9.2°C on the 4th. All stations reported ground frost during the month. The number of days with ground frost ranged from zero days at a few stations to 13 days at Straide, Co Mayo. Less than half of stations reported air frost. The number of days with air frost ranged from zero days at a few stations to 4 days at Mallow, Co Cork.

2018 TEMPERATURE EXTREME VALUES

Highest mean temperature:	11.6°C at Dooks, Glenbeigh, Co. Kerry.
Lowest mean temperature:	9.5°C at Nealstown, Co. Laois (0.5°C above LTA).
Highest air temperature:	32.0°C at Shannon Airport on the 28th June (its highest temperature since 1946)
Lowest air temperature:	-9.7°C at Durrow, Co Laois on the 1st March
Lowest grass minimum:	-14.2°C at Straide, Co Mayo on the 20th March

NOTES & DEFINITIONS

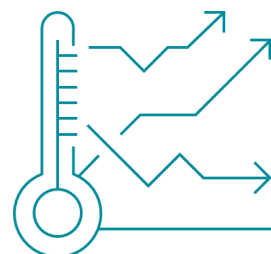
For temperature, a '**day**' refers to the period from 0900 UTC on a particular day to 0900 UTC on the following day.

Long-Term Average (LTA) and "**average**" refer to the period 1981- 2010.

Mean air temperature: mean air temperature over a period is taken as the mean of the daily maxima and daily minima (averaged separately over the period).

Air frost: Days with 'air frost' are a day where the minimum air temperature reported is less than 0.0°C.

Ground frost: Days with 'ground frost' are a day where the grass minimum temperature reported is less than 0.0°C.



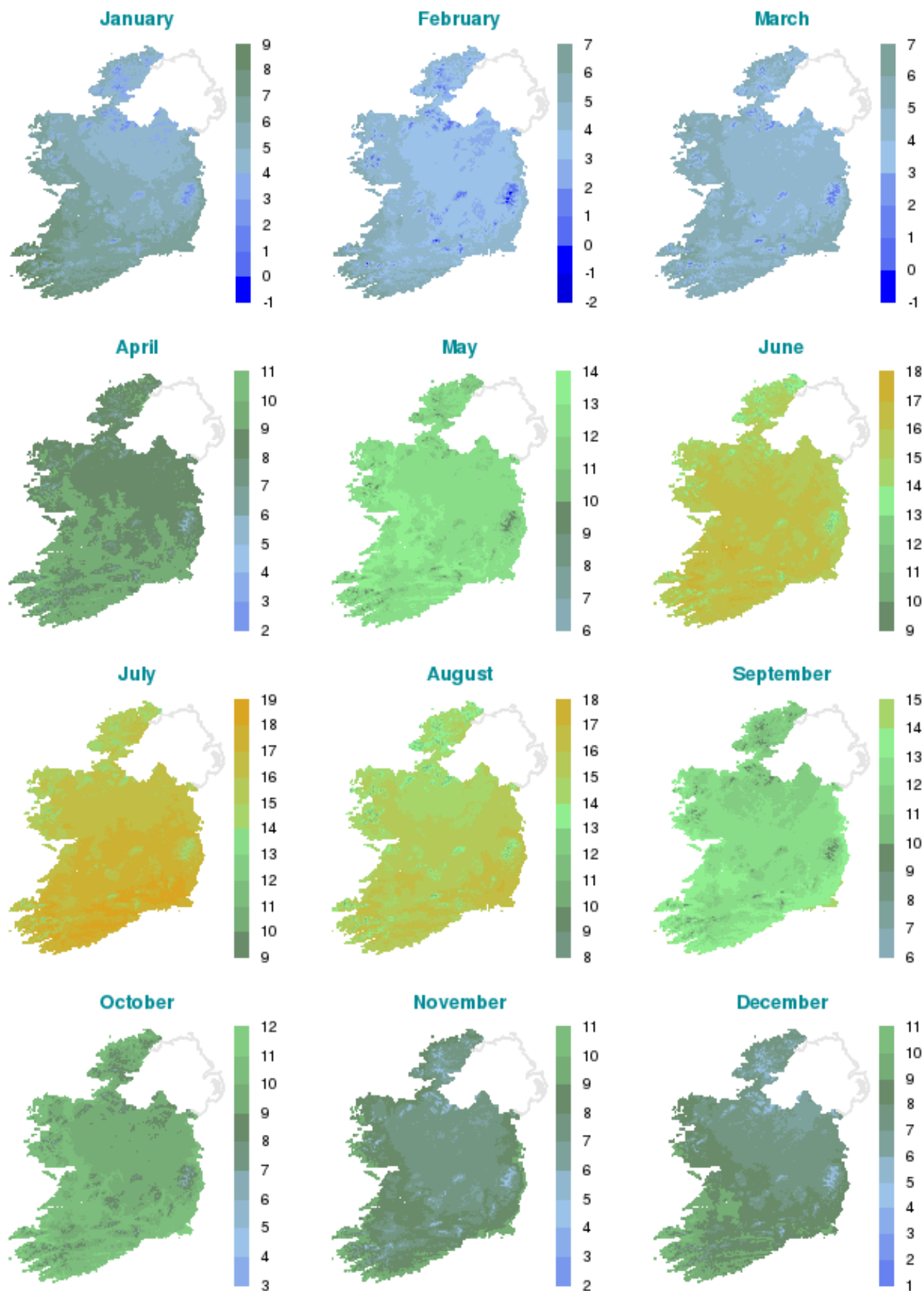
ANNUAL TEMPERATURE (FOR SELECTED STATIONS)

STATION	COUNTY	MEAN MAX (°C)	MEAN (°C)	DIFF. FROM LTA (°C)	HIGHEST MAX (°C)	MEAN MIN (°C)	LOWEST AIR MINIMUM (°C)	LOWEST GRASS MIN (°C)	NO. OF DAYS WITH GROUND FROST	NO. OF DAYS WITH AIR FROST
OAK PARK	Carlow	14.5	10.5	0.3	29.8	6.5	-5.4	-10.6	111	39
BALLYHAISE	Cavan	13.2	9.6	0	28.8	6.0	-5.5	-11.3	106	46
CARRON	Clare	13.2	9.9	0.5	29.5	6.7	-5.7	-8.2	74	21
SHANNON AIRPORT	Clare	14.4	10.9	0.2	32	7.3	-5	-8	47	21
CLOYNE	Cork	14.7	11	0.2	28.2	7.3	-5.4	-8.1	87	25
CORK AIRPORT	Cork	13.5	10.3	0.4	26.7	7.0	-7	-6	79	19
MOORE PARK	Cork	14.5	10.5	0.6	30.1	6.4	-5.9	-7.8	85	47
ROCHES POINT	Cork	13.6	11	0.2	26.9	8.3	-5.4	-5.6	40	7
SHERKIN ISLAND	Cork	13.6	11.2	0.1	25.1	8.8	-4.9	-6.1	26	5
FINNER	Donegal	13.1	10	0.2	29.3	6.8	-5	-9.4	66	21
GLENTIES HATCHERY	Donegal	13.3	9.7	0.3	31	6.1	-6.5	-10.6	115	39
MALIN HEAD	Donegal	12.3	9.9	0.1	25.2	7.4	-2.4	-4.8	36	8
CASEMENT	Dublin	13.9	10.1	0.4	27.5	6.2	-5.1	-9.2	101	37
MERRION SQUARE	Dublin	14.1	11.1*	0.2*	26.9*	8.1	-4.2*	-	-	8*
DUBLIN AIRPORT	Dublin	13.7	9.9	0	26.7	5.8	-5.1	-10.4	94	38
PHOENIX PARK	Dublin	14.4	10.5	0.7	27.9	6.5	-4.6	-8.7	117	35
ATHENRY	Galway	13.7	10	0	30.2	6.1	-6.8	-11.8	87	45
MACE HEAD	Galway	12.9	10.6	0	29.2	8.3	-4.4	-9.2	51	10
ARDFERT	Kerry	14.7	10.9	0.4	31.6	7.0	-5.9	-7.3	44	21
LISTOWEL	Kerry	14.6	10.6	-	30.9	6.5	-5.7	-	-	30
VALENTIA	Kerry	13.7	11	0.1	28.4	8.2	-5	-7	45	12
ATHY	Kildare	14.3	10.3*	0.4*	30.1	6.4	-6.5*	-	-	49*
MOUNT RUSSELL	Limerick	13.8	10.4	0.7	29.8	6.9	-7.4	-13.3	80	27
BALLINA	Mayo	13.2	9.7	0	29.2	6.3	-5.9	-8	80	35
BELDERRIG	Mayo	12.5	9.9	0.2	27.5	7.3	-2.6	-4.1	49	10
BELMULLET	Mayo	12.9	10.3	0	27.2	7.5	-3.5	-7	42	12
CLAREMORRIS	Mayo	13.5	9.7	0.3	30.2	5.8	-5.7	-12.1	113	43
KNOCK AIRPORT	Mayo	12.2	9	0.3	28.9	5.7	-6.8	-7.1	91	35
NEWPORT	Mayo	13.8	10.6	0.1	29.8	7.3	-3.6	-5.9	30	15
DUNSANY	Meath	13.6	9.8*	0.5*	27.5*	5.9	-4.8*	-8.1*	98*	41*
EDENDERRY	Offaly	13.9	10	0.5	28.8	6.0	-5.5	-8	84	35
MOUNT DILLON	Roscommon	14.00	9.7	0.1	30.5	5.2	-6.7	-12.4	133	55
FETHARD	Tipperary	14.00	10.2	0.8	30.1	6.3	-6.5	-8.9	66	35
GURTEEN	Tipperary	14.00	10	0.2	30.1	5.9	-6.5	-11.8	114	38
DUNGARVAN	Waterford	14.9	10.8	0.3	27.8	6.6	-6.7	-8	104	40
MULLINGAR	Westmeath	13.6	9.6	0.3	28.7	5.5	-5.3	-8.9	110	47
CLONROCHE	Wexford	14.6	10.4	0.9	28.8	6.1	-6.2	-10	132	40
JOHNSTOWN	Wexford	13.4	10.5	0.3	24.9	7.5	-3.8	-8	81	14
GLENEALY	Wicklow	13.7	10.3	0.3	26	6.9	-4.3	-	-	18

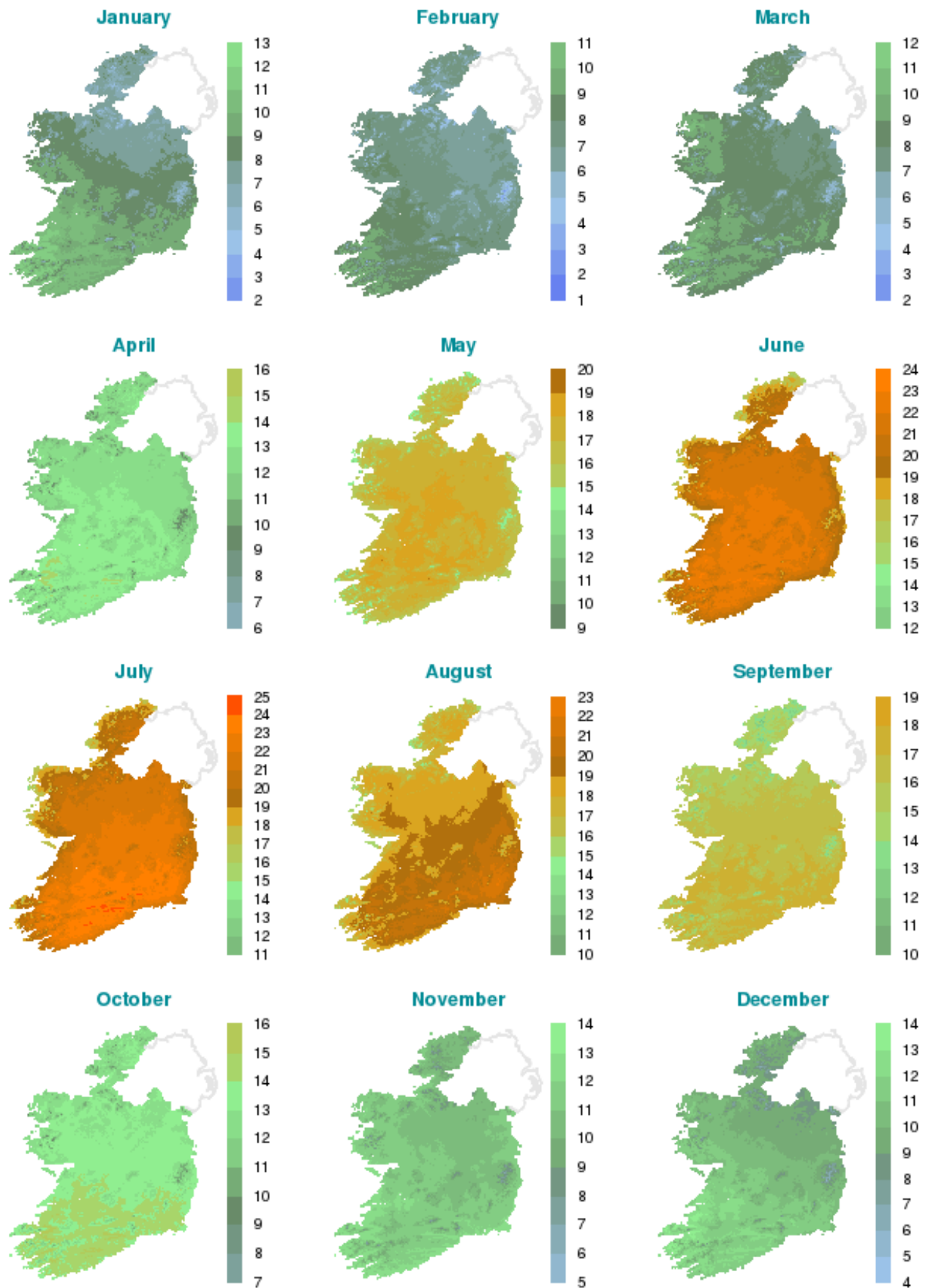
FULL STATION DATA AVAILABLE [HTTPS://WWW.MET.IE/CLIMATE/AVAILABLE-DATA/HISTORICAL-DATA](https://www.met.ie/climate/available-data/historical-data)

*SOME VALUES MISSING IN DATASET.

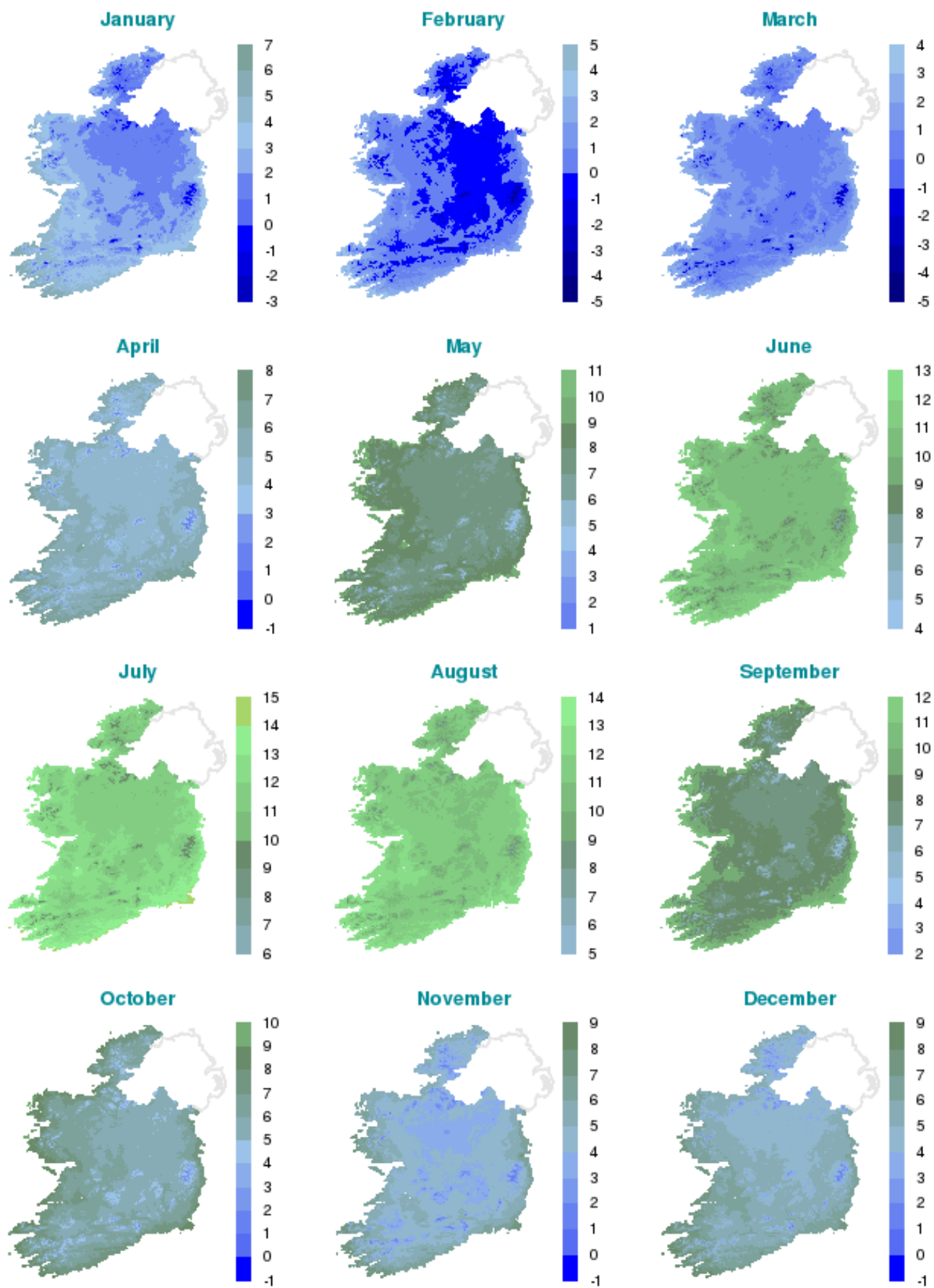
MONTHLY MEAN TEMPERATURE (°C)



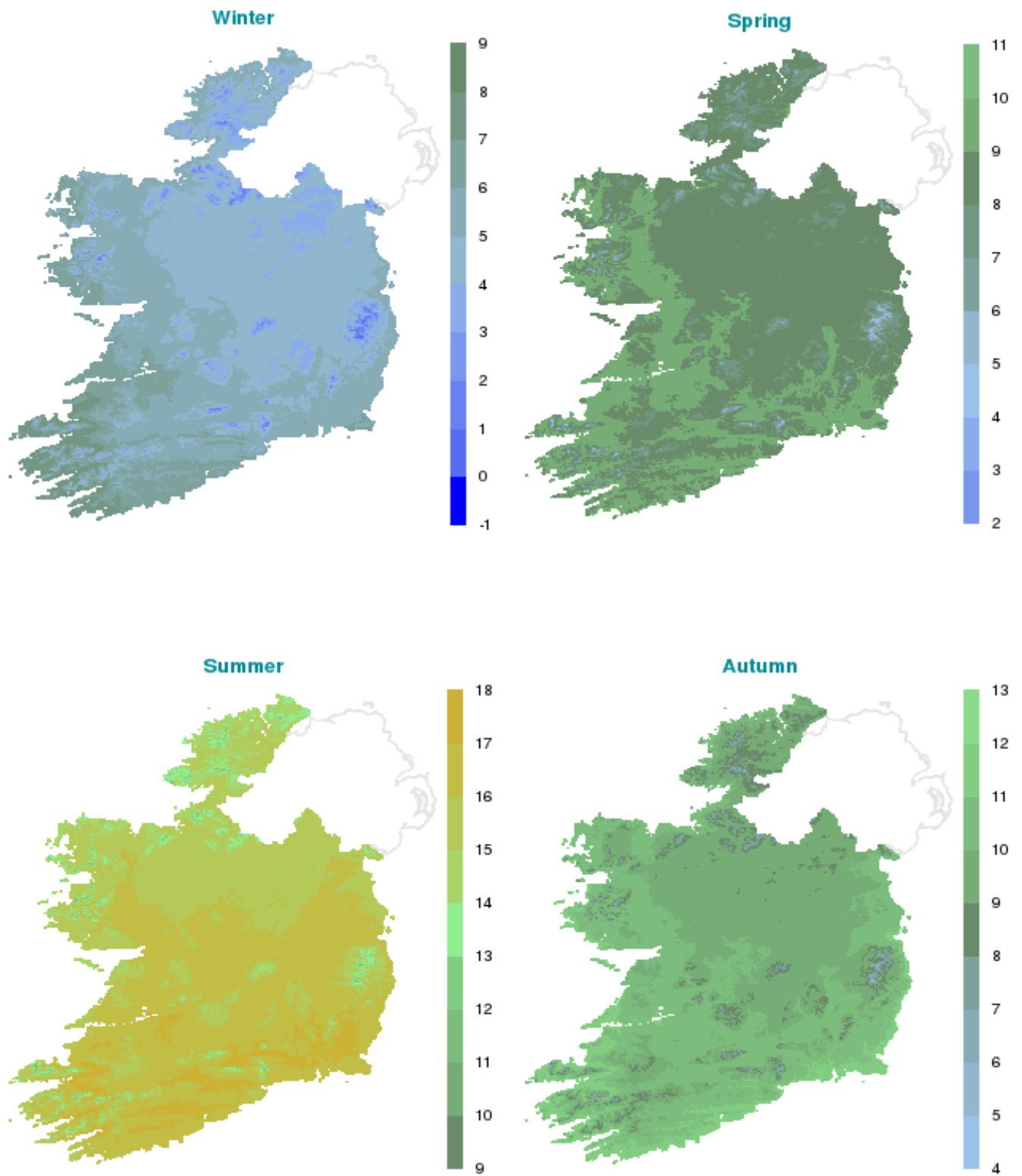
MONTHLY MEAN MAXIMUM TEMPERATURE (°C)



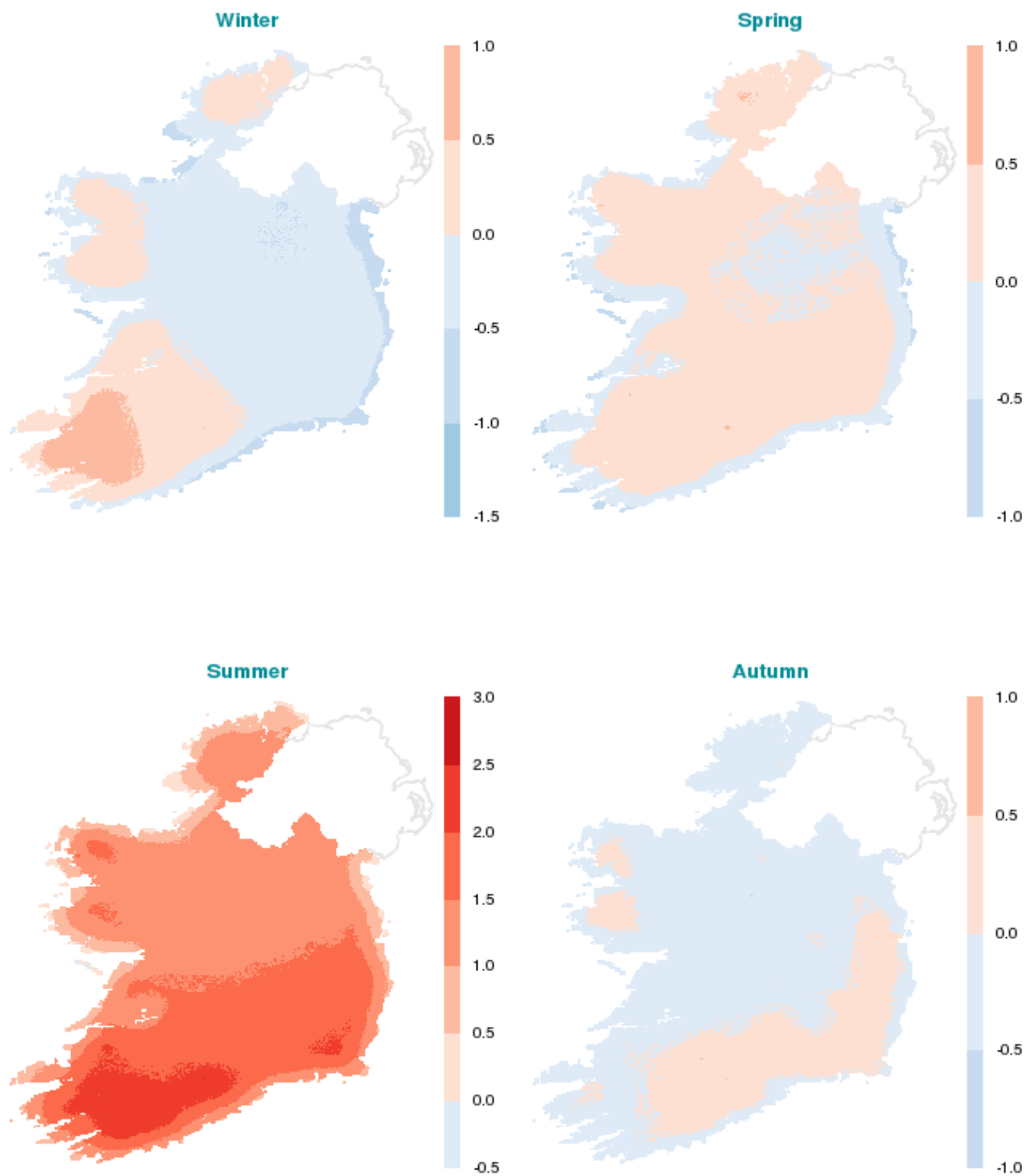
MONTHLY MEAN MINIMUM TEMPERATURE (°C)



SEASONAL MEAN TEMPERATURE (°C)



SEASONAL MEAN TEMPERATURE DIFFERENCE
FROM 1981-2010 AVERAGES (°C)

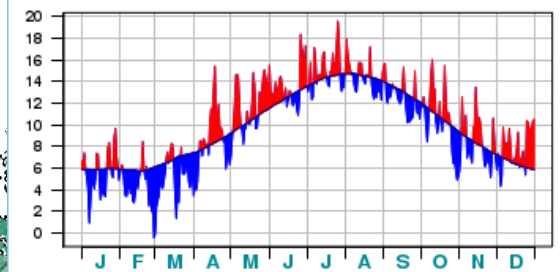


DAILY MEAN TEMPERATURES

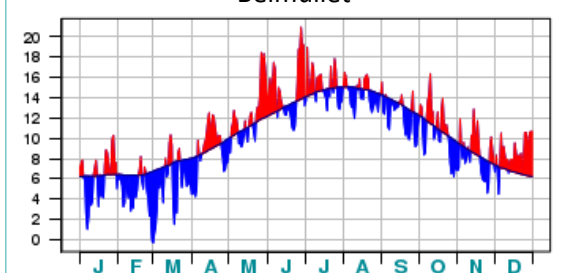
DIFFERENCE FROM AVERAGE
1981—2010 (°C)

— Above average
— Below average

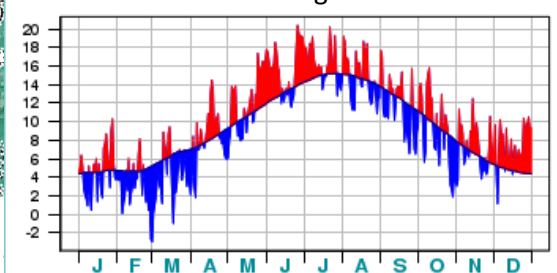
Malin Head



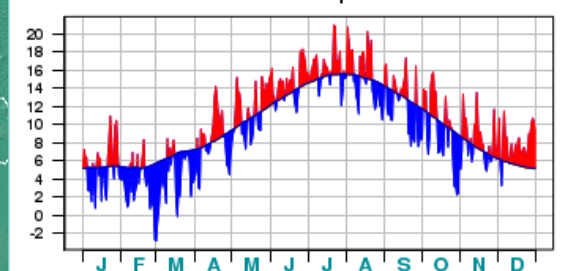
Belmullet



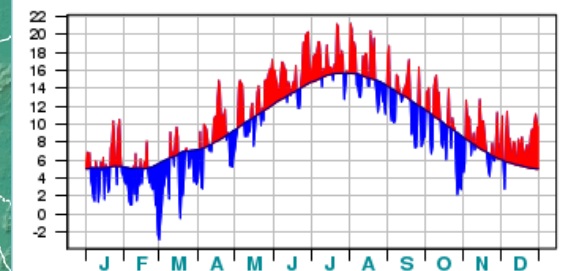
Mullingar



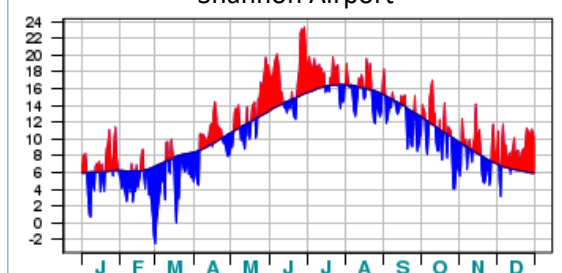
Dublin Airport



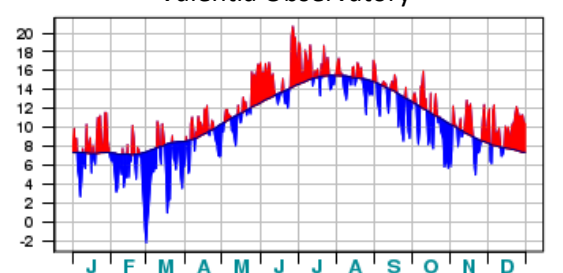
Casement Aerodrome



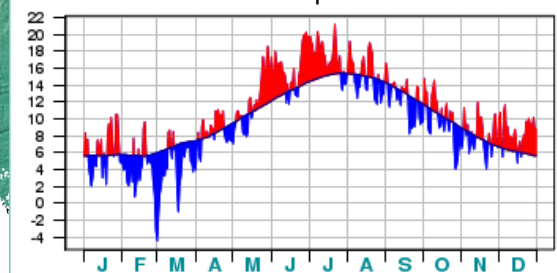
Shannon Airport



Valentia Observatory



Cork Airport



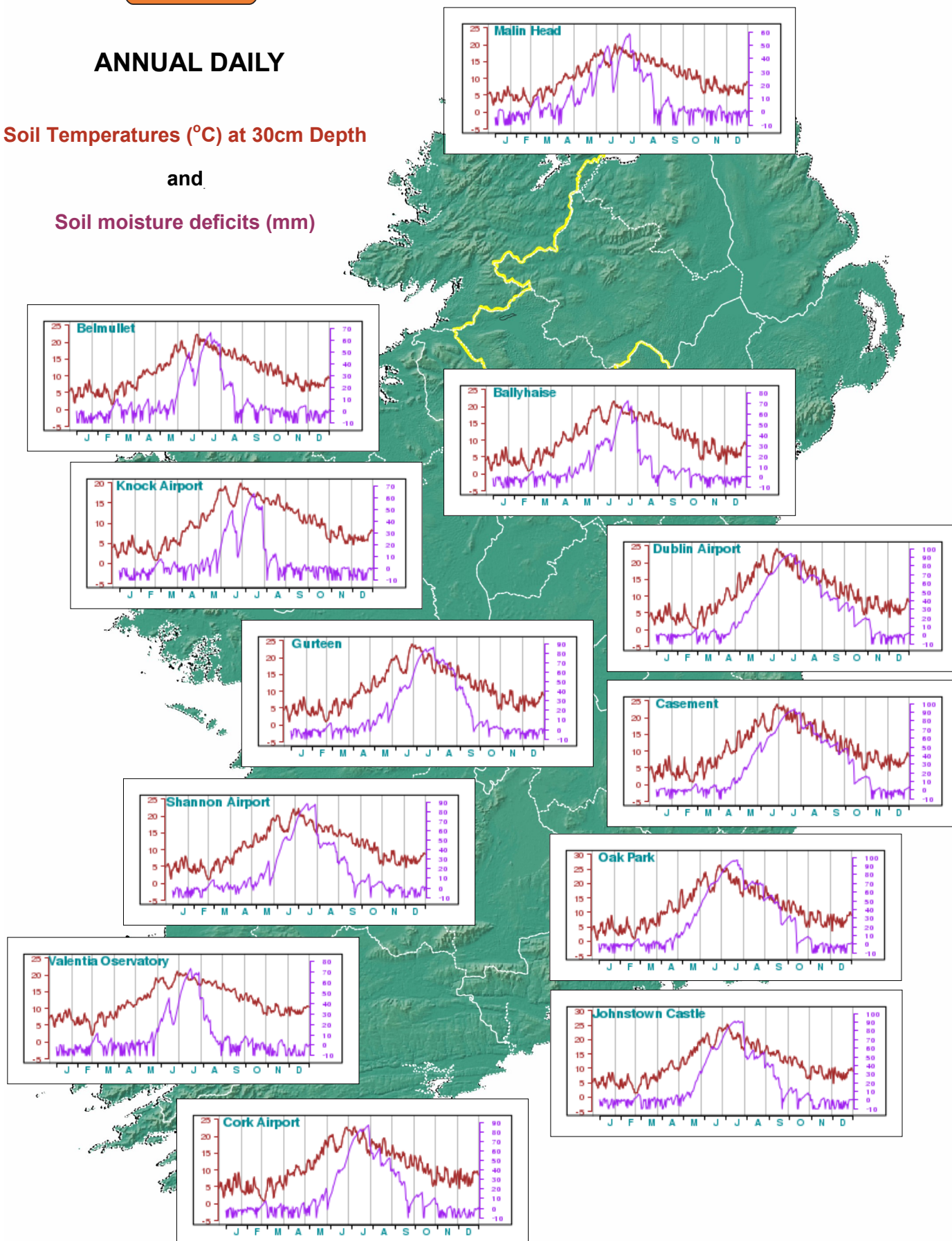
SOIL

ANNUAL DAILY

Soil Temperatures ($^{\circ}\text{C}$) at 30cm Depth

and

Soil moisture deficits (mm)



WIND

ANNUAL WIND

Wind: Numerous storms brought Storm force winds mainly to West and South

Annual mean wind speeds ranged from 6.1 knots (11.3 km/h) at Moore Park, Co Cork to 14.8 knots (27.41 km/h) at Malin Head, Co Donegal. There were numerous days with gales and strong gales with storm force winds on the 2nd Jan (Eleanor), 16th Jan (Fionn), 14th Jun (Hector), 19th Sep (Ali), and 11th and 12th Oct (Callum). The number of days with up to strong gales ranged from zero days at a few stations to 18 days at Mace Head, Co Galway. The number of days with storm force winds was as high as 4 days at Mace Head, Co Galway. The year's highest gust was reported at Knock Airport, Co Mayo on the 2nd Jan with 84 knots (156 km/h). The year's highest 10-minute mean wind speed was 62 knots (115 km/h) at Mace Head, Co Galway on the 19th Sep.

In September 2015, the UK Met Office and Met Éireann introduced a pilot project providing names for wind storms. The wind storm season runs from 1st November through to 1st March (of the following year). Therefore 2018 incorporated parts of two different storm seasons.

WIND STORMS IN 2017

Storm Eleanor: - 2nd/3rd Jan

Storm Fionn: - Tuesday, 16th Jan

Storm Georgina: - 23rd/24th Jan

Storm Diana: - Wednesday, 28th Nov

Storm Deirdre: - Saturday, 15th Dec

SEASONAL OVERVIEW

Winter: December and January were the windiest months

There were five major wind events this Winter. Storm Caroline and Storm Dylan brought storm force winds to the West and North in December. Storm Eleanor, Storm Fionn and Storm Georgina brought storm force winds to the West in January. Seasonal mean wind speeds ranged from 6.7 knots (12 km/h) at Fermoy (Moore Park), Co Cork, Mullingar, Co Westmeath to 17.6 knots (33 km/h) at Mace Head, Co Galway. There were numerous days with gales and strong gales with storm force winds on the 31st Dec, 2nd Jan and 16th Jan. The number of days with up to strong gales ranged from zero at a few stations to 16 days at Mace Head, Co Galway. Mace Head reported the highest number of days with storm force winds, 3 days. Both the season's highest gust and 10-minute mean wind speed was reported at Knock Airport, on the 2nd Jan. The highest gust was 84 knots (156 km/h) while the season's highest 10-minute mean wind speed was 58 knots (107 km/h).

Spring: Wind: Normal for the season

Seasonal mean wind speeds ranged from 6.4 knots (11.9 km/h) at Moore Park, Co Cork to 14.6 knots (27.0 km/h) at Malin Head, Co Donegal. Gales were reported on numerous days with up to strong gales reported on the 1st March, 2nd March and 17th April. The number of days with gales ranged from zero days at most stations to 12 days at Malin Head, Co Donegal. The number of days with strong gales ranged from zero days at most stations to 2 days at Malin Head, Co Donegal. The season's highest gust was reported at Belmullet, Co Mayo on the 17th April with 58 knots (107 km/h). The season's highest 10-minute mean wind speed was 45 knots (83 km/h) at Malin Head, Co Donegal on the 1st March.

Summer: Storm Hector brought storm force winds to the West in mid-June

Seasonal mean wind speeds ranged from 4.8 knots (8.9 km/h) at Mullingar, Co Westmeath to 11.5 knots (21.3 km/h) at Mace Head, Co Galway. Gales were reported on the 13th and 14th June, and the 28th July with strong gales reported on the 13th and 14th June. Mean wind speeds were storm force on the 14th Jun at Mace Head (due to Storm Hector). Both the season's highest gust and 10-minute mean wind speed were reported at Mace Head, Co Galway on the 14th Jun. The highest gust was 61 knots (113 km/h) while the season's highest 10-minute mean wind speed was 48 knots (89 km/h).

Autumn: Storms Ali, Callum and Diana brought strong winds

Seasonal mean wind speeds ranged from 6.0 knots (11.1 km/h) at Moore Park, Co Cork to 16.8 knots (31.1 km/h) at Malin Head, Co Donegal. On the 19th September, Storm Ali brought violent storm force winds to Western coastal areas. On the 11th and 12th October, Storm Callum brought storm force winds to the South and West. On the 28th November, Storm Diana brought strong gales to the South and West. Both the season's highest gust and 10-minute mean wind speed were reported at Mace Head, Co Galway on the 19th Sep. The highest gust was 79 knots (146 km/h) while the season's highest 10-minute mean wind speed was 62 knots (115 km/h).

MONTHLY OVERVIEW

January: Storm force winds in West

Monthly mean wind speeds ranged from 7.6 knots (14.1 km/h) at Moore Park, Co Cork to 20.3 knots (37.6 km/h) at Mace Head, Co Galway. Gales were reported on numerous days with up to strong gales reported on the 3rd Jan, 4th Jan, 15th Jan, 16th Jan, 17th Jan and 24th Jan. Storm force winds were reported on the 2nd Jan (due to Storm Eleanor) and 16th Jan (due to Storm Fionn). The number of days

with gales ranged from zero days at a few stations to 13 days at Mace Head, Co Galway. The greatest number of days with strong gales was 6 days at Mace Head, Co Galway. Both the month's highest gust and 10-minute mean wind speed was reported at Knock Airport, Co Mayo on the 2nd Jan. The highest gust was 84 knots (155.6 km/h) while the month's highest 10-minute mean wind speed was 58 knots (107.4 km/h).

February: Strongest in the West

Monthly mean wind speeds ranged from 6.5 knots (12 km/h) at Fermoy (Moore Park), Co Cork and Mullingar, Co Westmeath to 17.2 knots (32 km/h) at Malin Head, Co Donegal. Gales were reported on the 1st, 8th, 9th, 10th, 11th, 12th, 14th, 15th, and 28th with up to strong gale winds reported on the 8th, 10th, 11th, 12th, 15th. The number of days with gales ranged from zero days at a few stations to 7 days at Mace Head, Co Galway. The number of days with strong gales ranged from zero at nearly all stations to 5 days at Mace Head, Co Galway. The month's highest gust was reported at both Mace Head, Co Galway and Roche's Point, Co Cork on the 15th and 12th respectively with 58 knots (107 km/h). The highest 10-minute wind speed was 45 knots (83 km/h) at Mace Head, Co Galway on the 11th.

March: Strongest in the North

Monthly mean wind speeds ranged from 7.0 knots (13.0 km/h) at Moore Park, Co Cork and Mullingar, Co Westmeath to 17.8 knots (33.0 km/h) at Malin Head, Co Donegal. Gales were reported on the 1st, 2nd, 3rd, 10th, 14th, 15th, 16th, 17th, 18th and 22nd with up to strong gale force 9 winds reported on the 1st and 2nd. The number of days with gales ranged from zero days at most stations to 9 days at Malin Head, Co Donegal. Strong gales were reported at Malin Head, Co Donegal on 1st and 2nd. The month's highest gust and highest 10-minute wind speed was reported at Malin Head, Co Donegal on 1st. The highest gust was 56 knots (104 km/h). The highest 10-minute wind speed was 45 knots (83 km/h).

April: Strong gales in the West on 17th

Monthly mean wind speeds ranged from 6.9 knots (12.8 km/h) at Moore Park, Co Cork to 14.3 knots (26.5 km/h) at Malin Head, Co Donegal. Gales were reported on the 2nd, 6th, 16th, 17th and 18th with strong gales reported on the 17th. The number of days with gales ranged from zero days at most stations to 3 days at Malin Head, Co Donegal. The only day with strong gales was the 17th at Belmullet, Co Mayo. Both the month's highest gust and 10-minute mean wind speed was reported at Belmullet, Co Mayo on the 17th. The highest gust was 58 knots (107 km/h) while the month's highest 10-minute mean wind speed was 42 knots (78 km/h).

May: Strongest in the West

Monthly mean wind speeds ranged from 5.5 knots (10.2 km/h) at Moore Park, Co Cork to 12.9 knots (23.9 km/h) at Belmullet, Co Mayo (its highest monthly mean wind speed for May since 2011). Gales were reported on the 1st, 9th and 11th. The number of days with gale force winds ranged from zero at most stations to 2 days at Belmullet, Co Mayo. There were no strong gales or storm force winds reported this month. The month's highest gust of 46 knots (85 km/h) was reported at three stations, all on the 11th - Sherkin Island, Malin Head and Casement Aerodrome. The highest 10-minute wind speed was 35 knots (64 km/h) reported at Roche's Point, Co Cork on the 11th.

June: Storm Hector brought storm force winds mid-month

Monthly mean wind speeds ranged from 4.5 knots (8.3 km/h) at Ballyhaise, Co Cavan to 10.0 knots (18.5 km/h) at Mace Head, Co Galway. Strong gales were reported on the 13th and storm force winds were reported on the 14th. The number of days with strong gales ranged from zero days at a few stations to 2 days at Belmullet, Co Mayo. There was 1 day with storm force winds at Mace Head, Co Galway. Both the month's highest gust and 10-minute mean wind speed were reported at Mace Head, Co Galway on the 14th. The highest

gust was 61 knots (113 km/h), its highest June gust since 2005. The month's highest 10-minute mean wind speed was 48 knots (89 km/h), its highest June 10-minute wind speed since 2005.

July: Not significantly strong

Monthly mean wind speeds ranged from 4.6 knots (8.5 km/h) at Mullingar, Co Westmeath to 10.3 knots (19.1 km/h) at Mace Head, Co Galway. Gales were reported at Malin Head on the 28th. This was the only day and station where gales were recorded this month. The month's highest gust was reported at Mace Head, Co Galway on the 31st with 51 knots (94 km/h). The month's highest 10-minute mean wind speed was 34 knots (63 km/h) at Malin Head, Co Donegal on the 28th.

August: No gales reported during the month

Monthly mean wind speeds ranged from 5.1 knots (9.4 km/h) at Mullingar, Co Westmeath to 14.2 knots (26.3 km/h) at Mace Head, Co Galway. There were no days with gales, strong gales or storms reported this month. Both the month's highest gust and 10-minute mean wind speed was reported at Mace Head, Co Galway. The highest gust was reported on the 26th with 42 knots (78 km/h) while the month's highest 10-minute mean wind speed was reported on the 26th and 27th with 32 knots (59 km/h).

September: Storm Ali brought violent storm force winds to Western coastal areas

Monthly mean wind speeds ranged from 5.5 knots (10.2 km/h) at Fermoy (Moore Park), Co Cork to 16.3 knots (30.2 km/h) at Malin Head, Co Donegal. Gales were reported countrywide on the 9th, 15th, 17th, 18th, 19th, 21st, and 25th with strong gale force winds reported on the 19th, predominantly in coastal areas. Violent storm force 11 winds were recorded at our coastal station Mace Head, Co Galway on the 19th due to Storm Ali. Both the month's highest gust and 10-minute mean wind speed were reported at Mace Head on the 19th.

The highest gust was 79 knots (146 km/h), its highest September gust since the station opened in 2004. The month's highest 10-minute mean wind speed was 62 knots (115 km/h), its highest September value since 2004.

October: Storm Callum brought Storm force winds to the South and West

Monthly mean wind speeds ranged from 5.6 knots (10.2 km/h) at Fermoy (Moore Park), Co Cork to 16.7 knots (30.9 km/h) at Malin Head, Co Donegal. Gales were reported on the 7th, 8th, 9th, 11th, 12th, 23rd, 26th and the 27th. The number of days with gales ranged from zero days at Dublin (Phoenix Park) to 3 days at Mace Head, Co Galway and 4 days at Malin Head, Co Donegal. Strong gales were reported on the 11th and 12th. The number of days with strong gales ranged from zero at Dublin (Phoenix Park) to 2 days at both Sherkin Island, Co Cork and Roche's Point, Co Cork. Storm force winds were reported on the 11th at Sherkin Island, Co Cork and the 12th at Belmullet, Co Mayo. Mean wind speeds were storm force on the 11th and the 12th (due to storm Callum) at Sherkin Island, Co Cork and at Belmullet, Co Mayo respectively. The month's highest 10-minute mean wind speed was reported at both Sherkin Island, Co Cork and Belmullet, Co Mayo on the 11th and 12th respectively, with 49 knots (91 km/h). The highest gust was 67 knots (124 km/h) reported at Belmullet, Co Mayo on the 12th.

November: Storm Diana brought strong gales to the South and West

Monthly mean wind speeds ranged from 6.9 knots (12.8 km/h) at Fermoy (Moore Park), Co Cork to 17.6 knots (32.6 km/h) at Mace Head, Co Galway. Strong gale winds were reported on the 9th, 27th and 28th. The number of days with gales ranged from zero days at Dublin (Phoenix Park) to 5 days at both Mace Head, Co Galway and Malin Head, Co Donegal. The number of days with strong gales ranged from zero days at most stations to 3 days at Sherkin Island, Co Cork. Both the month's high-

est gust and 10-minute mean wind speed were reported at Sherkin Island, Co Cork on the 28th due to storm Diana. The highest gust was 66 knots (122 km/h) while the month's highest 10-minute mean wind speed was 47 knots (87 km/h). Both Casement Aerodrome, Co Dublin and Roche's Point, Co Cork recorded a gust of 62 knots (115 km/h) on the 28th also due to storm Diana. This was the highest November gust recorded at Casement for 27 years and the highest November gust at Roche's Point for 13 years.

December: Storm Deirdre brought strong gale force winds to the West and South

Monthly mean wind speeds ranged from 6.6 knots (12.2 km/h) at Moore Park, Co Cork to 16.3 knots (30.2 km/h) at Mace Head, Co Galway. Gales were reported on 5 days during the month with strong gale winds reported on the 7th, 8th, 9th, 15th, 17th and 18th. The number of days with strong gales ranged from zero days at most stations to 3 days at both Mace Head, Co Galway and Roche's Point, Co Cork. The month's highest gust was reported at Sherkin Island, Co Cork on the 8th with 61 knots (113 km/h). The month's highest 10-minute mean wind speed was 47 knots (87 km/h) at Roche's Point, Co Cork on the 15th (during Storm Deirdre).

NOTES & DEFINITIONS

1 Knot = 1.852 Km / h

For wind, a '**day**' refers to the period from 0000UTC to 0000 UTC.

Gust: A short burst of high speed wind (> 33.5 Knots (Kts)).

Gale: A gale is a a mean wind speed over a 10-minute period of 34 Kts or more.

Strong Gale: A strong gale is a a mean wind speed over a 10-minute period of 41 Kts or more.

Storm Force: A storm force wind is a a mean wind speed over a 10-minute period of 48 Kts or more.

Violent Storm Force: A violent storm force wind is a a mean wind speed over a 10-minute period of 56 Kts or more.

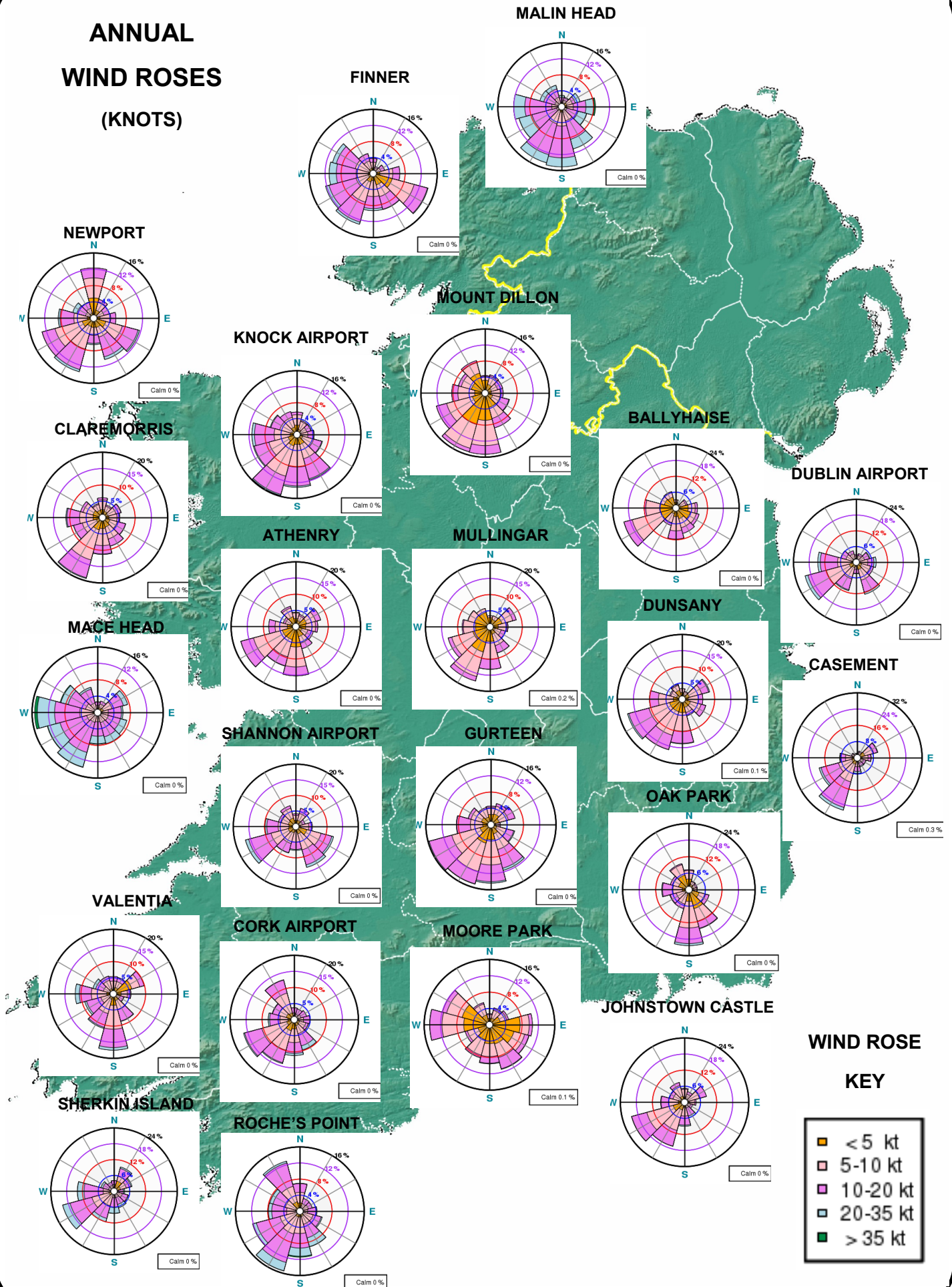


ANNUAL WIND (FOR SYNOPTIC STATIONS)

Station	County	Mean Wind Speed Knots	Highest 10-min Wind Speed Knots	Direction of Highest 10-min Wind Speed	Date of Highest 10-min Wind Speed	Highest Gust Knots	Direction of Highest Gust	Date of Highest Gust	Days with Gales	Days with Gusts > 33.5 Knots
Oak Park	Carlow	7.4	37	220	19 Sep	53	170	28 Nov	3	40
Ballyhaise	Cavan	6.4	37	230	02 Jan	63	230	02 Jan	1	22
Shannon Airport	Clare	9.2	47	260	16 Jan	63	260	16 Jan	12	62
Cork Airport	Cork	9.6	39	140	14 Mar	58	270	04 Jan	9	68
Moore Park	Cork	6.1	31	280	04 Jan	47	180	18 Dec	0	30
Roches Point	Cork	11.9	47	290	15 Dec	62	250	28 Nov	28	95
Sherkin Island	Cork	12.3	49	170	11 Oct	66	240	28 Nov	31	101
Finner	Donegal	10.2	42	280	16 Jan	61	200	19 Sep	11	88
Malin Head	Donegal	14.8	46	260	19 Sep	63	260	19 Sep	49	147
Casement	Dublin	9.7	41	240	19 Sep	62	200	28 Nov	13	75
Dublin Airport	Dublin	10	39	250	02 Jan	56	250	19 Sep	11	64
Athenty	Galway	7.1	35	220	19 Sep	55	210	19 Sep	1	32
Mace Head	Galway	14.6	62	240	19 Sep	79	240	19 Sep	44	128
Valentia	Kerry	9.4	39	270	16 Jan	64	130	11 Oct	10	78
Belmullet	Mayo	12.1	49	180	12 Oct	67	180	12 Oct	24	98
Claremorris	Mayo	8	40	250	02 Jan	68	260	02 Jan	2	46
Knock Airport	Mayo	9.4	58	280	02 Jan	84	280	02 Jan	4	75
Newport	Mayo	9.3	46	260	02 Jan	75	280	02 Jan	7	75
Dunsany	Meath	8	37	220	19 Sep	57	210	19 Sep	1	35
Mt Dillon	Roscommon	6.7	28	230	19 Sep	49	220	19 Sep	0	28
Gurteen	Tipperary	8.4	37	230	19 Sep	54	230	19 Sep	1	39
Mullingar	Westmeath	6.2	28	160	18 Apr	51	210	19 Sep	0	17
Johnstown	Wexford	8.7	33	160	12 Oct	54	150	12 Oct	0	49

FULL STATION DATA AVAILABLE [HTTPS://WWW.MET.IE/CLIMATE/AVAILABLE-DATA/HISTORICAL-DATA](https://www.met.ie/climate/available-data/historical-data)

ANNUAL WIND ROSES (KNOTS)

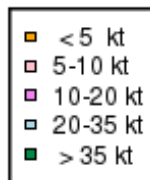
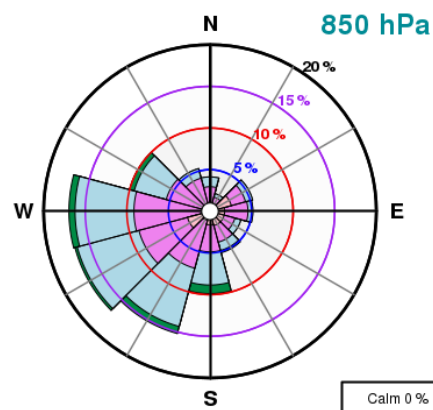
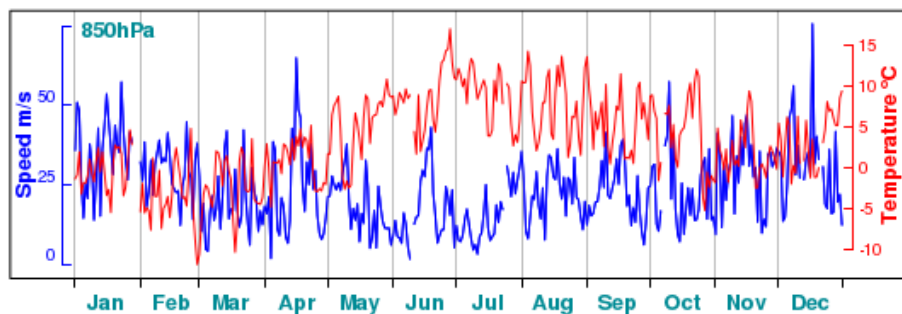
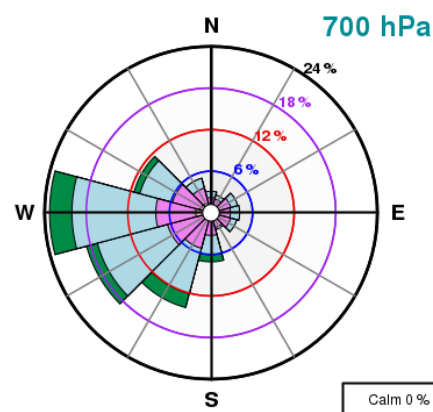
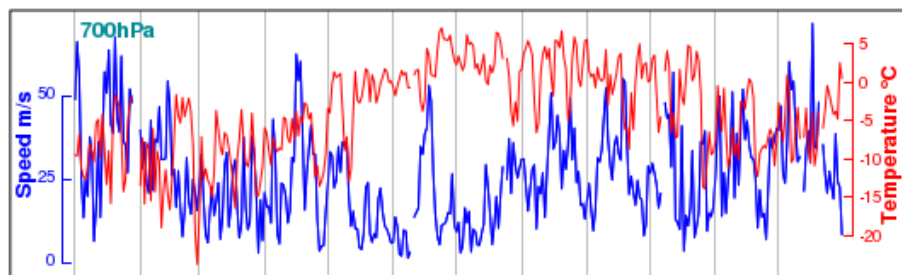
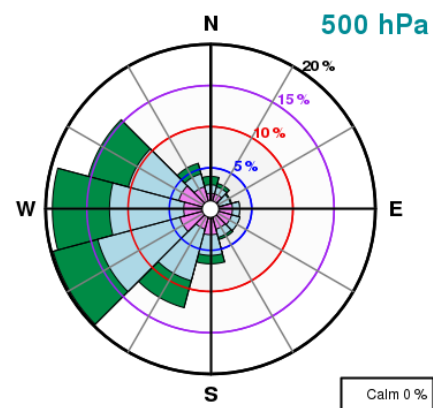
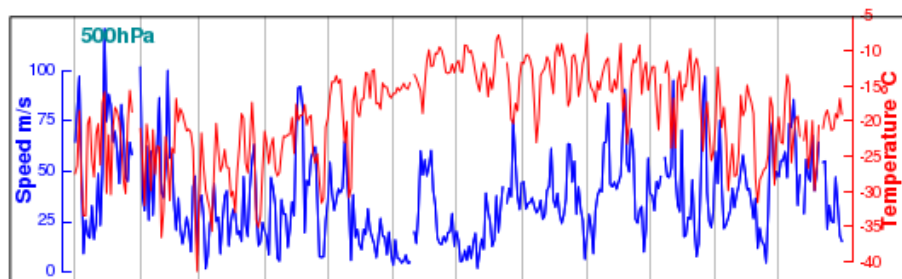
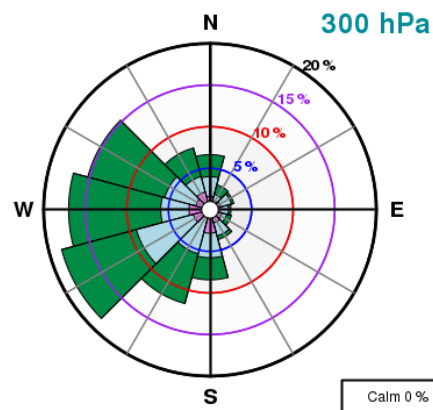
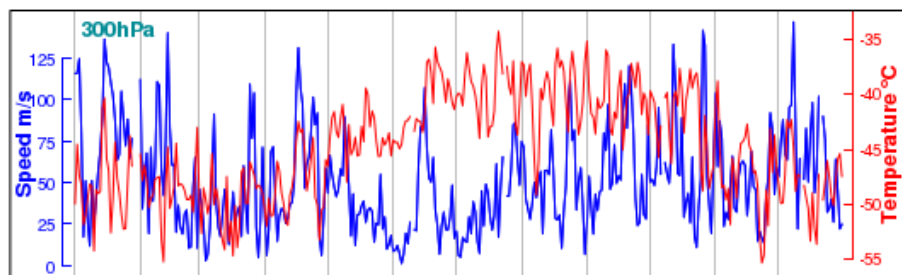


Upper atmosphere wind and temperature readings are made at Valentia Observatory twice daily by a radiosonde (a balloon with meteorological instruments attached). Shown below are annual average wind speeds and temperatures at defined pressure levels of 850, 700, 500, and 300 hPa, corresponding approximately to heights of 1.5, 3, 5, and 10 km respectively.

Wind roses are also shown for each pressure level.

VALENTIA UPPER AIR WIND SPEED & TEMPERATURE

Valentia Upper Air Wind Speed & Temperature 2018



SUNSHINE

ANNUAL SUNSHINE

Sunnier than average nearly everywhere

Apart from Knock Airport, all available sunshine totals were above their Long-Term Average (LTA). Percentage of annual sunshine values ranged from 89 % (the year's lowest annual sunshine total of 1064.1 hours) at Knock Airport, Co Mayo to 118 % (the year's highest annual sunshine total of 1670.9 hours) at Johnstown Castle, Co Wexford. Case-moment Aerodrome had its sunniest year since 1964 with 1576.8 hours (115 % of LTA). The highest number of daily sunshine hours recorded this year was 16.5 hours at Malin Head, Co Donegal on the 28th Jun (its highest daily total since 1955).

SEASONAL OVERVIEW

Winter (Dec 2017, Jan 2018, Feb 2018)

December was the duller month

All available sunshine totals were above their Long-Term Average (LTA) for the season. This is attributed to January and February as December was a duller than average month. Percentage of seasonal sunshine values ranged from 108% (seasonal sunshine total of 160.1 hours) at Knock Airport, Co Mayo to 131% (seasonal sunshine total of 210.7 hours) at Shannon Airport, Co Clare. The season's lowest seasonal sunshine total was 147.5 hours at Valentia Observatory*, Co Kerry. The season's highest seasonal sunshine total was 254.9 hours at Johnstown Castle*, Co Wexford (no LTA comparison). The highest number of daily sunshine hours this season was 10.0 hours at both Dublin Airport and Belmullet, Co Mayo on the 25th Feb and 26th Feb respectively. The number of dull days ranged from 23 at Johnstown Castle, Co Wexford to 41 at Valentia Observatory*, Co Kerry.

Spring (Mar 2018, Apr 2018, May 2018)

May was the sunniest month of the season

Percentage of Long-Term Average (LTA) sunshine values were variable (where available) across the country. May was the sunniest month as March and April had below normal sunshine totals. Percentage of seasonal sunshine values ranged from 87% (seasonal sunshine total of 396.7 hours) at Cork Airport to 108% (seasonal sunshine total of 466.8 hours) at Shannon Airport, Co Clare. Seasonal sunshine totals ranged from 353.3 hours at Knock Airport, Co Mayo (87% of LTA) to 495.9 hours at Malin Head, Co Donegal. The highest number of daily sunshine hours recorded this season was 16.0 hours at Malin Head, Co Donegal on the 29th May. The number of dull days ranged from 16 days at Shannon Airport, Co Clare to 28 days at Cork Airport.

Summer (Jun 2018, Jul 2018, Aug 2018)

Above average Sunshine nearly everywhere

Apart from Malin Head, all stations had above average sunshine. This is attributed to June and July as August had below average sunshine everywhere. Percentage of seasonal sunshine values ranged from 98% (seasonal total of 434.9 hours of bright sunshine) at Malin Head, Co Donegal to 140% (the season's highest seasonal sunshine total of 693.5 hours) at Johnstown Castle, Co Wexford. Seasonal sunshine totals were lowest at Knock Airport, Co Mayo with 405.9 hours (102% of LTA). The highest number of daily sunshine hours recorded this season was 16.5 hours at Malin Head, Co Donegal on the 28th June. The number of dull days ranged from 8 days at both Dublin Airport and Johnstown Castle, Co Wexford to 24 days at Valentia Observatory, Co Kerry.

Autumn (Sep 2018, Oct 2018, Nov 2018)

Above average overall

Nearly all available sunshine totals were above their Long-Term Average (LTA) for the season. October was sunnier than average, with variable sunshine amounts in September and November. Percentage of seasonal sunshine values ranged from 94% (the season's lowest seasonal sunshine total of 223.6 hours) at Knock Airport, Co Mayo to 112% (the season's highest seasonal sunshine total of 326.1 hours) at Casement Aerodrome, Co Dublin. The highest number of daily sunshine hours recorded this season was 12.3 hours at Johnstown Castle, Co Wexford on the 4th Sep. The number of dull days ranged from 22 days at Dublin Airport to 35 days at Knock Airport, Co Mayo.

MONTHLY OVERVIEW

January: Sunshine: Above average almost everywhere

Apart from Knock Airport and Straide, Co Mayo, all available sunshine totals were above their Long-Term Average (LTA). Percentage of monthly sunshine values ranged from 87% (the month's lowest monthly sunshine total of 41.9 hours) at Knock Airport, Co Mayo to 137% at Ashford, Co Wicklow (monthly sunshine total of 83.9 hours the month's highest monthly sunshine total). The highest number of daily sunshine hours recorded this month was 7.2 hours at Ashford, Co Wicklow on the 31st Jan. The number of dull days² ranged from 4 days at Wexford Wildfowl Reserve to 16 days at Ballyshannon, Co Donegal.

February: Above average monthly totals everywhere

All available sunshine totals were above their Long-Term Average (LTA). Percentage of monthly sunshine values ranged from 127% (monthly sunshine total of 102.3 hours) at Ashford, Co Wicklow to 176% at Straide, Co Mayo (monthly sunshine total of 105.2 hours). The month's highest monthly sun-

shine total was 114.0 hours at Johnstown Castle*, Co Wexford (no LTA comparison*). Monthly sunshine totals were lowest at Valentia Observatory, Co Kerry with 81.7 hours. The highest number of daily sunshine hours recorded this month was 10.0 hours at both Dublin Airport* and Belmullet*, Co Mayo on the 25th Feb and 26th Feb respectively. The number of dull days ranged from 2 days at Johnstown Castle*, Co Wexford to 10 days at Valentia Observatory*, Co Kerry.

March: Highest monthly totals in the West

Percentage of monthly sunshine values ranged from 75% of its LTA (monthly sunshine total of 80.6 hours) at Dublin (Glasnevin) to 113% at Sherkin Island, Co Cork (monthly sunshine total of 128.6 hours), the month's highest monthly sunshine total. Monthly sunshine totals were lowest at Clonroche, Co Wexford with 79.3 hours. The highest number of daily sunshine hours recorded this month was 11.3 hours at Ballyshannon, Co Donegal on 20th. The number of dull days² ranged from 7 days at Valentia Observatory*, Co Kerry and Belmullet*, Co Mayo to 13 days at Ballincurragh, Co Cork.

April: Dullest April at Cork Airport since 1987

Apart from Casement Aerodrome, Malin Head, and Ballyshannon, all available monthly sunshine totals were below their Long-Term Average (LTA). Percentage of monthly sunshine totals ranged from 49% at Knock Airport, Co Mayo (69.7 hours) to 109% (the month's highest monthly sunshine total of 165.3 hours) at Malin Head, Co Donegal. Cork Airport recorded its dullest April since 1987. The monthly sunshine value for Cork Airport was 66% of LTA (the month's second lowest monthly sunshine total of 104.4 hours). The highest number of daily sunshine hours recorded this month was 14.9 hours at Casement Aerodrome, Co Dublin on the 20th (its highest April daily value since 1964). The number of dull days² ranged from 3 days at Malin Head, Co Donegal to 12 days at Cork and Knock airports.

May: All stations had above average Sunshine

Percentage of monthly sunshine values ranged from 95% (monthly sunshine total of 180.7 hours) at Ballincurragh, Co Cork to 128% at Newport, Co Mayo (monthly sunshine total of 208.4 hours). Monthly sunshine totals ranged from 179.2 hours (No LTA comparison*) at Valentia Observatory*, Co Kerry to 238.0 hours (No LTA comparison*) at Ashford, Co Wicklow. The highest number of daily sunshine hours recorded this month was 16.0 hours at Malin Head*, Co Donegal on the 29th. The number of dull days² ranged from 1 day at Newport, Co Mayo to 7 days at Clonroche, Co Wexford and Edenderry, Co Offaly.

June: All stations had above average Sunshine

Percentage of monthly sunshine values ranged from 120% (monthly sunshine total of 199.3 hours) at Malin Head, Co Donegal to 189% (monthly sunshine total of 299.9 hours) at Johnstown, Co Wexford (no LTA comparison). The highest number of daily sunshine hours recorded this month was 16.5 hours at Malin* Head, Co Donegal on the 28th. The number of dull days² ranged from zero days at Dublin Airport and Johnstown Castle to 7 days at both Malin Head, Co Donegal and Valentia Observatory, Co Kerry. Dense fog (visibility $\leq 40\text{m}$) at Knock Airport, Co Mayo, was reported on the 5th.

July: Most stations had above average Sunshine

Percentage of monthly sunshine values ranged from 91% (monthly sunshine total of 123 hours) at Belmullet, Co Mayo to 149% at Dungarvan, Co Waterford (monthly sunshine total of 246.0 hours). Monthly sunshine totals were lowest at Knock Airport, Co Mayo with 122.8 hours (94% of LTA). The highest number of daily sunshine hours recorded this month was 16.4 hours at Malin Head*, Co Donegal on the 3rd. The number of dull days² ranged from 2 at a few stations to 7 at Belmullet*,

Co Mayo and Malin Head, Co Donegal.

August: All stations had below average Sunshine

Percentage of monthly sunshine values ranged from 60% (monthly sunshine total of 82.9 hours) at Valentia Observatory, Co Kerry to 102% (monthly sunshine total of 169.4 hours) at Dungarvan, Co Waterford. Monthly sunshine totals ranged from 82.9 hours (No LTA comparison*) at Valentia Observatory, Co Kerry to 169.4 hours at Dungarvan, Co Waterford. The highest number of daily sunshine hours recorded this month was 13.2 hours at Cork Airport on the 10th. The number of dull days² ranged from 4 days at both Ardfert, Co Kerry and Dungarvan, Co Waterford to 11 days at Valentia Observatory*, Co Kerry.

September: Variable sunshine amounts

Available sunshine totals were variable with regard to Long-Term Average (LTA). Percentage of monthly sunshine values ranged from 63% at Knock Airport, Co Mayo to 110% (monthly sunshine total of 136.8 hours) at Casement Aerodrome, Co Dublin. The month's lowest monthly sunshine total was 66.7 hours at Knock Airport, Co Mayo. Monthly sunshine totals were as much as 143 hours at Dungarvan, Co Waterford. The highest number of daily sunshine hours recorded this month was 12.3 hours at Johnstown Castle*, Co Wexford on the 4th. The number of dull days ranged from 5 days at Casement Aerodrome, Co Dublin and Belmullet, Co Mayo, to 10 days at Knock Airport, Co Mayo.

October: All stations had above average sunshine

All available monthly sunshine totals were above their Long-Term Average (LTA). Percentage of monthly sunshine values ranged from 95% (monthly sunshine total of 98.2 hours) at Dublin (Glasnevin) to 139% (the month's highest monthly

sunshine total of 141.0 hours) at Sherkin Island, Co Cork. Monthly sunshine totals were lowest at Malin Head, Co Donegal with 81.7 hours (No LTA comparison*). The highest number of daily sunshine hours recorded this month was 9.9 hours at Johnstown Castle, Co Wexford on the 15th Oct. The number of dull days ranged from 5 days at Dungarvan, Co Waterford, and Wexford Wildfowl Reserve to 12 days at both Malin Head*, Co Donegal and Belmullet, Co Mayo.

November: Above average in the north and west, below average in the south and east

Sunshine values were variable across the country. Percentage of monthly sunshine values ranged from 60% at Clonroche, Co Wexford to 174% (monthly sunshine total of 85.2 hours) at Belmullet, Co Mayo. The month's lowest monthly sunshine total of 39.8 hours was recorded at Dublin (Glasnevin) and highest monthly sunshine totals were as much as 85.2 hours (No LTA comparison*) at Belmullet, Co Mayo. The highest number of daily sunshine hours recorded this month was 8.7 hours at Casement Aerodrome, Co Dublin on the 1st. The number of dull days₂ ranged from 5 days at Belmullet, Co Mayo to 17 days at a few stations in the south of the country.

December: Duller than average everywhere

Percentage of monthly sunshine values ranged from 30% (monthly sunshine total of 11.6 hours) at Belmullet, Co Mayo to 76% (monthly sunshine total of 26.7 hours) at Malin Head*, Co Donegal. Monthly sunshine totals ranged from 11.6 hours (No LTA comparison*) at Belmullet*, Co Mayo to 35.1 hours (67% of LTA) at Cork Airport. The highest number of daily sunshine hours recorded this month was 8.0 hours at Ballincurragh, Co Cork on the 25th. The number of dull days₂ ranged from 17 days at Shannon Airport, Co Clare and a few other stations to 23 days at Ballyshannon, Co Donegal and Edenderry, Co Offaly .

ANNUAL SUNSHINE (FOR SELECTED STATIONS)

STATION	COUNTY	No. of Hours	Highest Daily Sunshine	% of LTA	Date of Highest Daily Sunshine	Dull Days
KNOCK AIRPORT	Mayo	1134.1	15.9	95%	24-Jun	121
DUBLIN AIRPORT	Dublin	1542	15.9	107%	28-Jun	82
CASEMENT	Dublin	1576.5	15.8	116%	28-Jun	94
SHERKIN ISLAND	Cork	1587.1	15.1	103%	24-Jun	103
CORK AIRPORT	Cork	1529.5	15.7	107%	28-Jun	102
BELMULLET	Mayo	1330.2	15.9	105%	28-Jun	100
SHANNON AIRPORT	Clare	1431.6	15.6	110%	28-Jun	88
Straide	Mayo	1145.3	15.4	93%	28-Jun	90
Ballincurrig (Peafield)	Cork	1436.0	14.3	99%	29-Jun	102
Clonroche (Knoxtown)	Wexford	1512.8	14.6	105%	03-Jul	95

FULL STATION DATA AVAILABLE [HTTPS://WWW.MET.IE/CLIMATE/AVAILABLE-DATA/HISTORICAL-DATA](https://www.met.ie/climate/available-data/historical-data)

EXTREME SUNSHINE VALUES AT SYNOPTIC STATIONS

Highest annual total:	1670.9 hrs (daily mean 4.6 hrs/day) at Johnstown Castle*, Co Wexford
Lowest annual total:	1064.1 hrs (daily mean 3.2 hrs/day) at Knock Airport, Co Mayo
Highest daily sunshine:	16.5 hrs at Malin Head*, Co Donegal on the 28th June (its highest daily total since 1955)

NOTES & DEFINITIONS

For sunshine a 'day' refers to the period from 0000 UTC to 0000 UTC. Long-Term Average (LTA) and 'average' refer to the period 1981-2010.

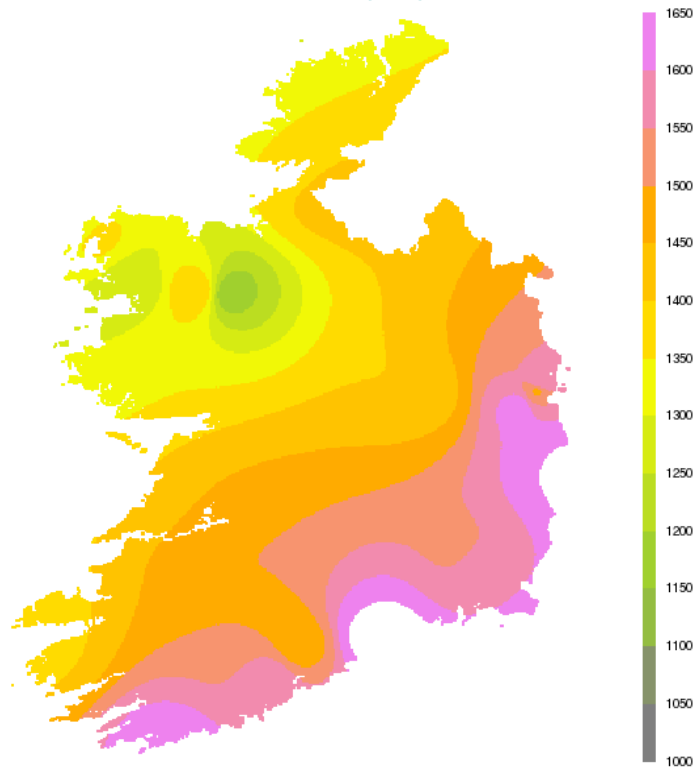
* Data retrieved from the Autosol network...not used for Long-Term Average comparison or record analysis.

²**Dull Day:** Day reporting less than 0.5 hours of sunshine.

*Sunshine data is from the Autosol Network. LTAs for these sites are currently not used for comparison purposes. For more information, contact Met Éireann at 01-8064200 or e-mail: enq@met.ie

ANNUAL SUNSHINE

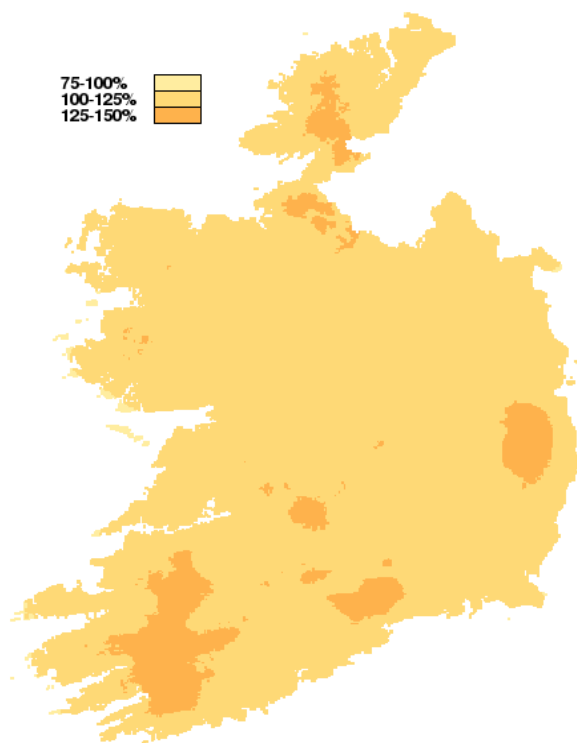
2018 Total Sunshine (hours) Annual



TOTAL ANNUAL SUNSHINE

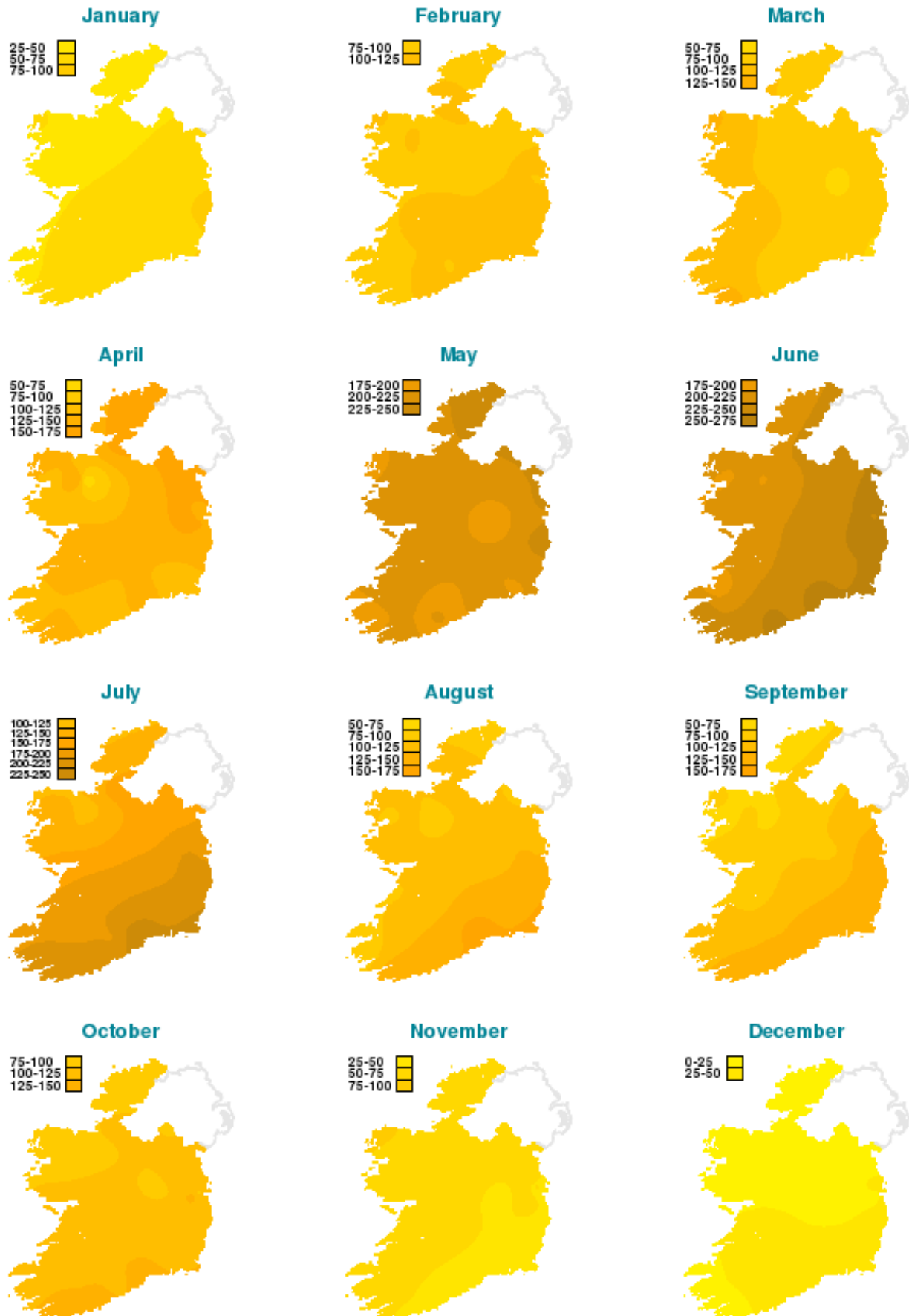
2018 Sunshine % of LTA Annual

75-100%
100-125%
125-150%

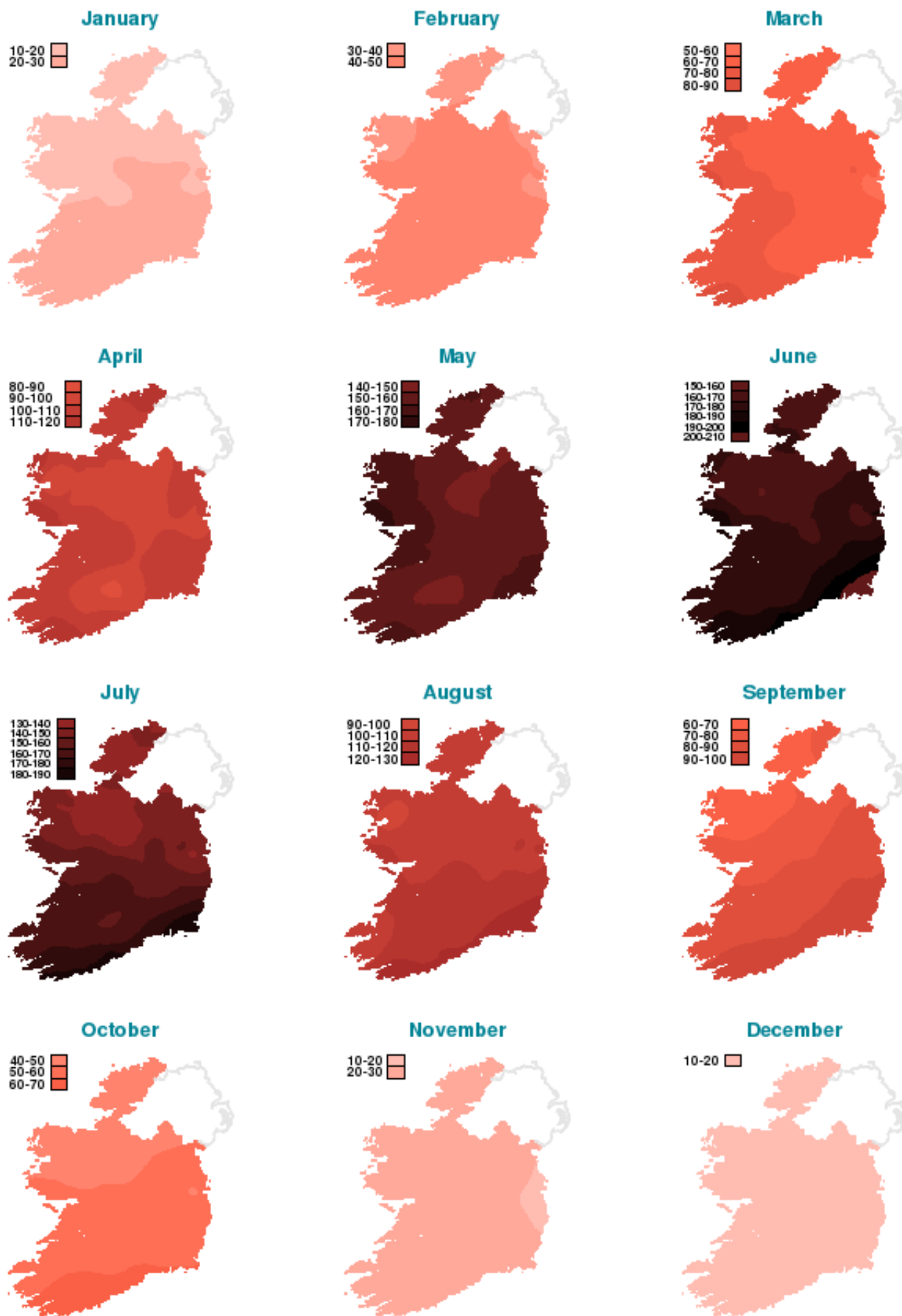


ANNUAL PERCENTAGE OF 1981-2010 AVERAGE SUNSHINE

MONTHLY SUNSHINE TOTALS (Hours)

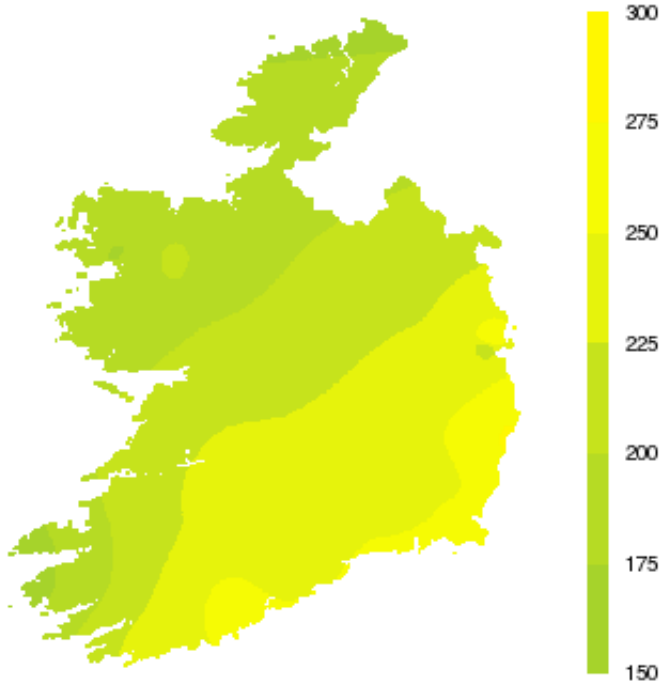


AVERAGE DAILY GLOBAL RADIATION (Kwh/m²)

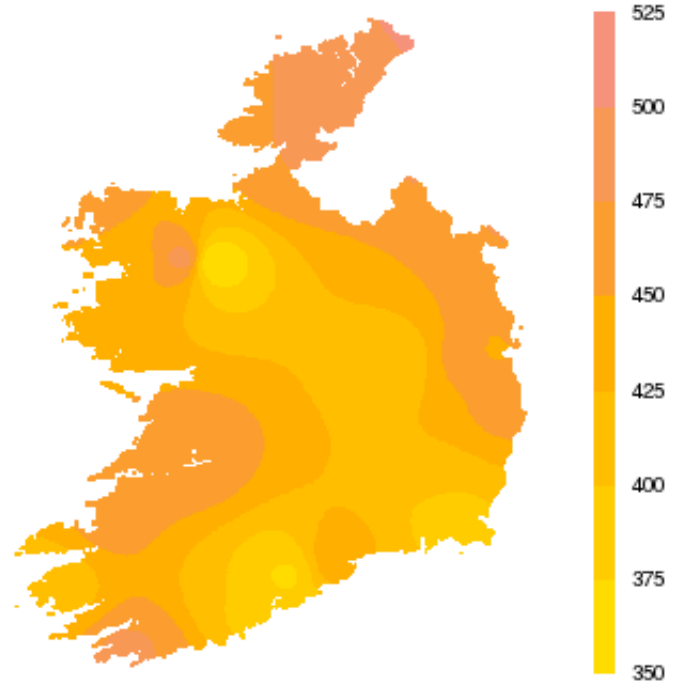


SEASONAL SUNSHINE (Hours)

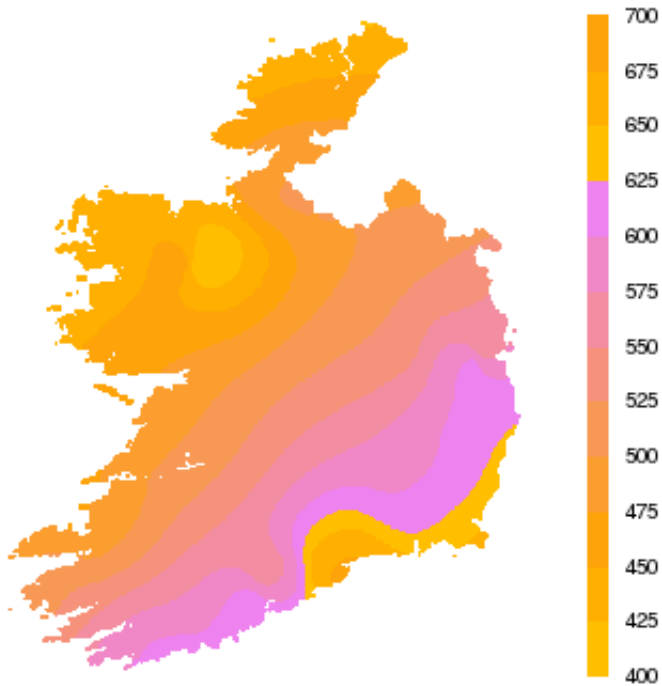
2018 Total Sunshine (hours) Winter



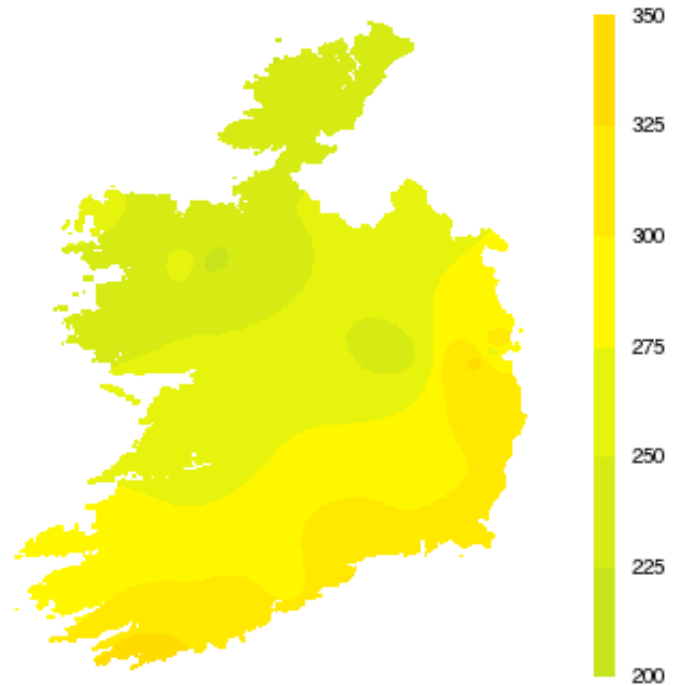
2018 Total Sunshine (hours) Spring



2018 Total Sunshine (hours) Summer



2018 Total Sunshine (hours) Autumn

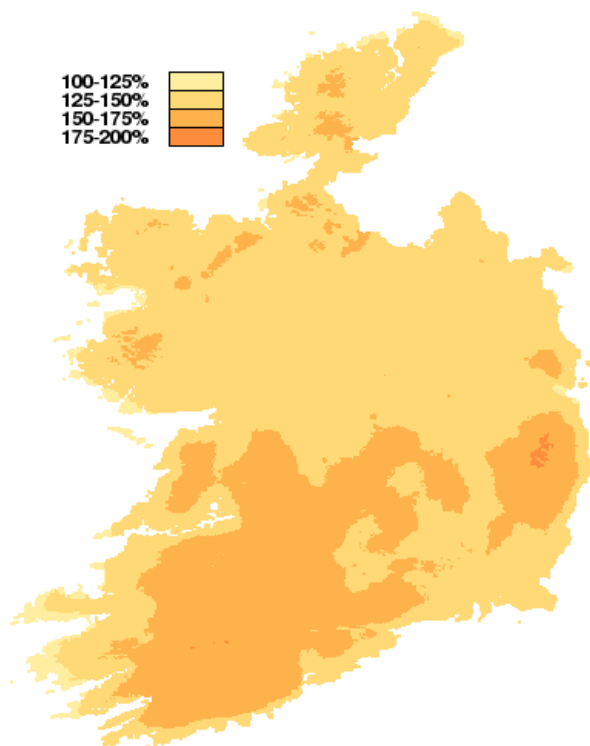


Note: Winter refers to December 2017, January 2018, and February 2018.

SEASONAL PERCENTAGE OF 1981-2010 AVERAGE SUNSHINE (%)

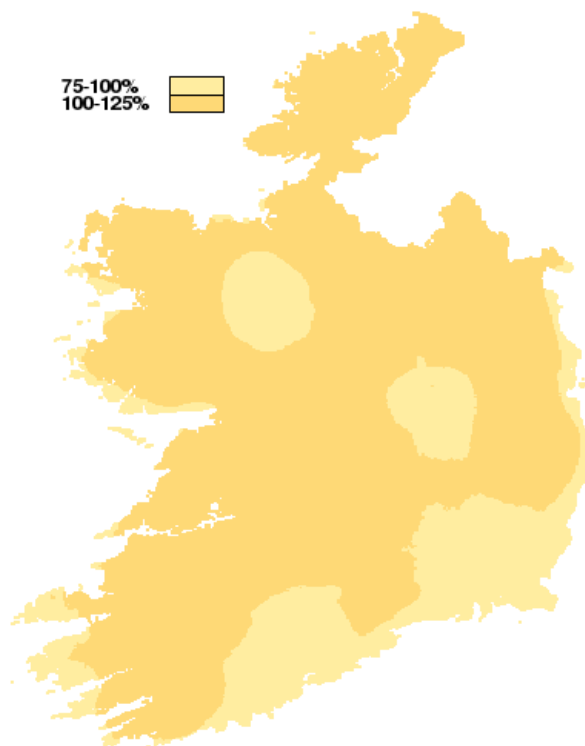
2018 Sunshine % of LTA Winter

100-125%
125-150%
150-175%
175-200%



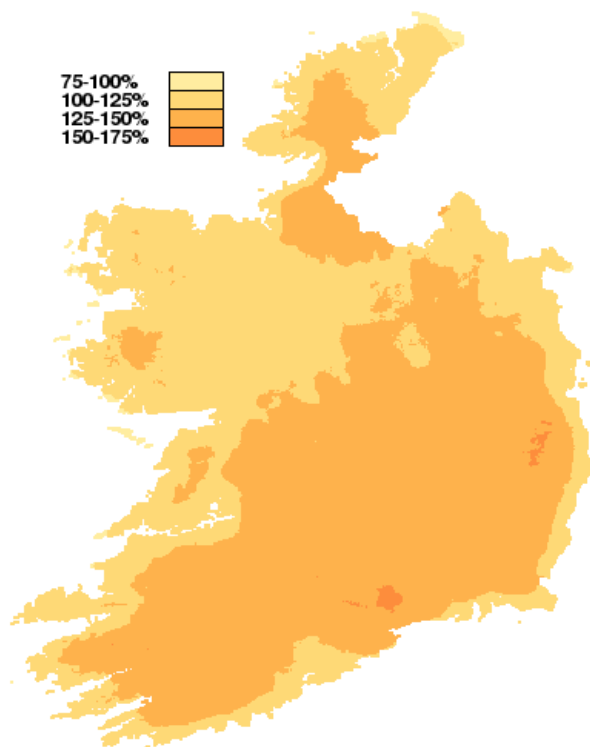
2018 Sunshine % of LTA Spring

75-100%
100-125%



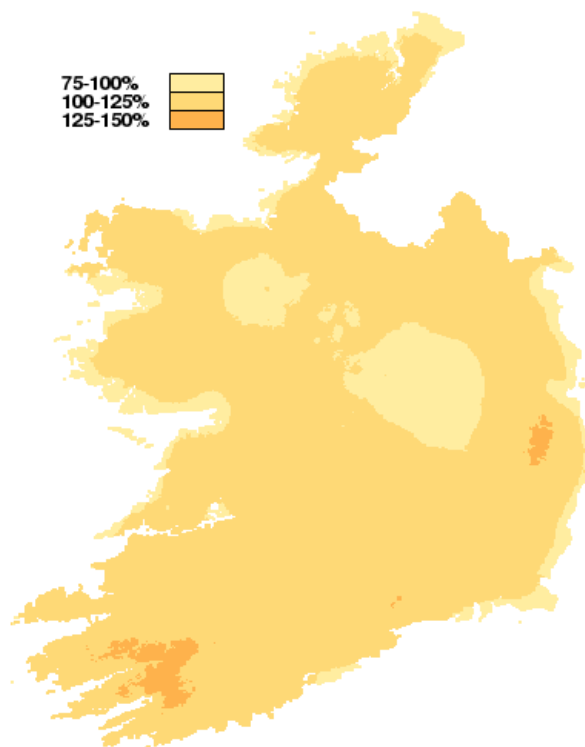
2018 Sunshine % of LTA Summer

75-100%
100-125%
125-150%
150-175%



2018 Sunshine % of LTA Autumn

75-100%
100-125%
125-150%



Note: Winter refers to December 2017, January 2018, and February 2018.

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