



**An Roinn Tithíochta,
Pleanála agus Rialtais Áitiúil**
Department of Housing,
Planning and Local Government

Temperature extremes and heatwaves during July 2019

This is a preliminary report based upon data from the National Synoptic weather stations operated and maintained by Met Éireann.

Friday 26 July 2019



Temperature extremes and heatwaves during July 2019

The working national definition in Ireland of a heatwave is five (5) consecutive days or more with maximum temperature over 25 degrees Celsius (> 25 °C).

Figure 1. This image shows the areas with the hottest land across Europe. Any white area are where the Sentinel3 satellite couldn't see land. Ireland was cloudy yesterday, giving us cooler (than Europe) and humid weather.

Ireland normally has a moderate maritime climate. Heatwaves in Ireland start during June to August, and rarely in September. At Synoptic Weather Stations, the longest June heatwave occurred last year starting on Sunday 24 June for 11 days at Oak Park, Co Carlow. The longest July heatwave started on Thursday 7 July 1983 for 9 days at Birr, Co Offaly. The longest August heatwave started Saturday 14 August 1976 at Birr, Co Offaly. Only one September heatwave has been observed at a Synoptic Weather Station, which started

Wednesday 9 September 1959 for 5 days in Kilkenny, Co Kilkenny.

For weather extremes in Ireland, check out www.met.ie/climate/weather-extreme-records.

For reports on weather extremes in Ireland, check out www.met.ie/climate/major-weather-events.

Last year's warm weather report, see www.met.ie/recent-warm-weather-report-up-to-6th-july-2018.

What causes a heatwave?

A heatwave occurs when a high pressure system moves into an area. This results in air from the upper levels of the atmosphere being pushed to the ground, where it becomes compressed and increases in temperature. The high atmospheric pressure makes it hard for other weather systems to move in, blocking them. Therefore heatwaves normally lasts for several days.

Three broad types of heatwave events may be identified as:

1. Dry heatwaves are associated with a continental or Mediterranean climate and stable periods of weather with clear skies and large amounts of solar radiation. Similar to what is currently happening in Europe.
2. Moist heatwaves are very warm with humid conditions throughout the day and night, often with night-time cloud cover, which prevents the escape of day's accumulated heat and therefore little relief at night-time.
3. Either of the above plus the Heat Island Effect. Large urban area experience heatwave with more intensity as the Sun's heat is stored efficiently in road tarmac and buildings; with this heat only escaping during the night-time if conditions allow.

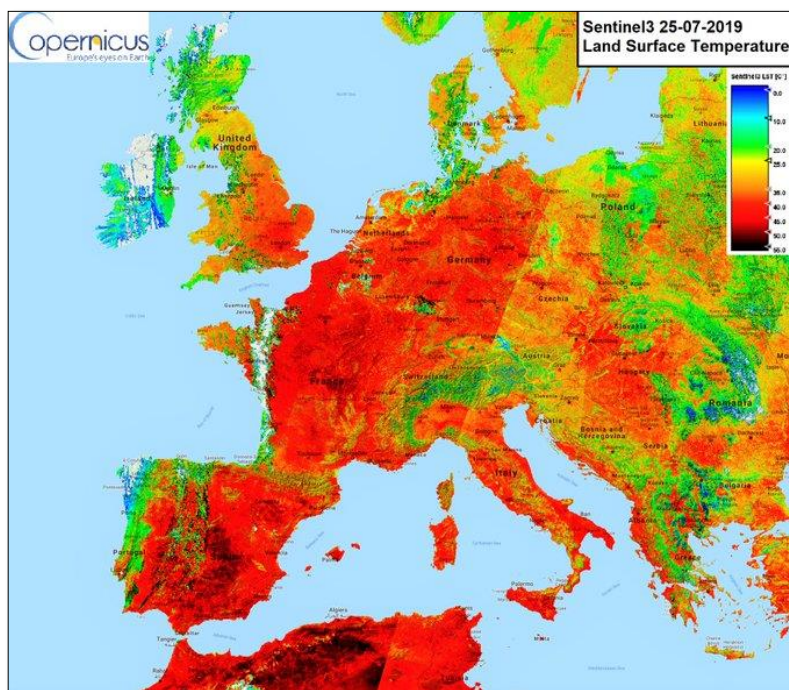
For advice on health and high temperatures from the HSE, go to :

www.hse.ie/eng/services/list/5/publichealth/publichealthdepts/extreme/heatwaves.html

What has been happening in Ireland?

Yesterday a depression of 991 hPa centred approximately 350 km to the west of Valentia is generating a fresh to strong southeast airflow over Ireland. Associated frontal troughs are bringing showery rain over the western half of the country this morning, the rain will break up in to showers for this afternoon and the turbulence caused by the fresh wind is breaking up the cloud to give sunny spells. The warm and humid airmass stays in place until tomorrow.

For the latest forecast, head to www.met.ie/forecasts/national-forecast.



Using the definition above, using this definition, official national heatwaves have not yet occurred during 2019.

With the heat island effect, day-time temperatures were high with warm humid nights at Phoenix Park, Co Dublin. There were two days over 25 °C:

Date	Max T	Min T	Relative Humidity (%)
Thursday, 25 Jul 2019	24.1	16.6	Lowest during day 60-65%, highest during the night 85-90%
Wednesday, 24 Jul 2019	24.9	16.1	Lowest during day 50-55%, highest during the night 85-90%
Tuesday, 23 Jul 2019	25.5	16.1	Lowest during day 55-60%, highest during the night 85-90%
Monday, 22 Jul 2019	26.6	18.3	At peak during day 50-55%, highest during the night 80-85%

The top 3 highest daily *maximum* temperatures reached in Ireland so far in 2019 are:

Date	location	Daily Maximum Air Temp (°C)
Thursday, 27 Jun 2019	SHANNON AIRPORT, Co Clare	28.4 and 40-45% relative humidity
Thursday, 27 Jun 2019	VALENTIA OBSERVATORY, Co Kerry	28.0 and 45-50% relative humidity
Thursday, 27 Jun 2019	MOORE PARK, Co Cork	27.0 and 40-45% relative humidity

The top 3 highest daily *minimum* temperatures of 2019 all occurred during July 2019:

Date	location	Daily Maximum Air Temp (°C)
Monday, 22 Jul 2019	SHANNON AIRPORT, Co Clare	18.9 and 80-85% relative humidity
Monday, 22 Jul 2019	MARKREE, Co Sligo	18.4 and 90-95% relative humidity
Monday, 22 Jul 2019	PHOENIX PARK, Co Dublin	18.3 and 75-80% relative humidity

Temperature Extremes in Europe

Following June 2019, now the warmest June on record globally, the World Meteorological Organisation (WMO) reports that for the second time in less than a month, 'Europe is experiencing a widespread and intense heatwave, with many new maximum and minimum temperature records, disruption to transport and infrastructure and stress on people's health and the environment'.

- Meteo France reported **43.1°C** in Saint-Maur-des-Fossés.
- DWD in Germany reported **42.6°C** in Lingen its highest temperature on record.
- Netherland reached **40.7°C** at Gilze-Rijen, its highest temperature on record.
- Belgium record of 39.9°C at Kleine Brogel on Wednesday was broken yesterday at Beitem with **40.7°C**.
- The UK Met Office stated today that the highest daily *maximum* air temperature recorded yesterday was **38.7°C** at Cambridge, this value is provisional. It may become their highest temperature ever recorded in the UK once quality control checks are complete. They also have a new Scottish highest *minimum* temperature of **20.9°C** at Achnagart.

The WMO has provided further information here:

<https://public.wmo.int/en/media/news/new-heatwave-hits-europe>

Climate change

The temperature changes in Ireland will more or less mirror the global changes, that is an increase in 1.5°C to 4°C by end of the century. Following from this, we will have less days with frost/ice and more days with temperatures above 25°C 'summer days'. Consequently milder winters and warmer, drier summers with more heatwaves likely during summers. There is also likely to be a seasonal change in that Ireland will get more rainfall in winter, and more heavy-rainfall-days and less rainfall in the summer months with an increase in dry periods. Our awareness and understanding of these extreme events is increasing.

Efforts in addressing the effects of severe meteorological events are being addressed nationally by the Office of Emergency Planning at the National Emergency Coordination Centre. www.emergencyplanning.ie