



Storm Antoni

Saturday 5 August 2023

The third named storm of the 2022/2023 season. Named by Met Office (United Kingdom) on Friday 4 August 2023

Date issued: Tuesday 19 December 2023

The following provisional past storm analysis is completed for the named storm Antoni. The impact date for Ireland was Saturday 5 August 2023. This date is based upon the date of the storm's highest sustained (10-minute mean) wind speed of 80 km/h observed at 07 UTC at Roches Point, Co Cork.

- The highest sustained (10-minute mean) wind speed was a north-westerly strong gale force 80 km/h (43 knots | 49 mph) at Roches Point, Co Cork on Saturday 5 August 2023 around 07 UTC (8 am local). The previous highest sustained wind speeds to occur on any 5th August was a south-south-westerly strong gale force 81 km/h (44 knots | 51 mph) at Belmullet, Co Mayo on Thursday 5 August 1965.
- The highest gust (3-second) was a north-westerly 102 km/h (55 knots | 63 mph) at Roches Point, Co Cork on Saturday 5 August 2023 at 07:34 am (8:34 am local). The previous highest gust (3-second mean) wind speeds to occur on any 5th August was a south-south-westerly 111 km/h (60 knots | 69 mph), which occurred at Belmullet, Co Mayo on Thursday 5 August 1965.
- The highest daily rainfall total on the day of the storm was recorded at Dublin Airport, Co Dublin with 48.6 mm (66% of its 1991-2022 long-term average) on Saturday 5 August 2023. See table 3 for daily extremes around the date of the storm.
- The lowest land-station MSLP was 1000.0 hPa observed at Gurteen, Co Tipperary on Saturday 5 August 2023 at around 05:00 UTC (6 am local).
- The highest individual wave was on Friday 4 August 2023 when 8.1 m was recorded at M3 Buoy (off the Kerry/Cork coast).

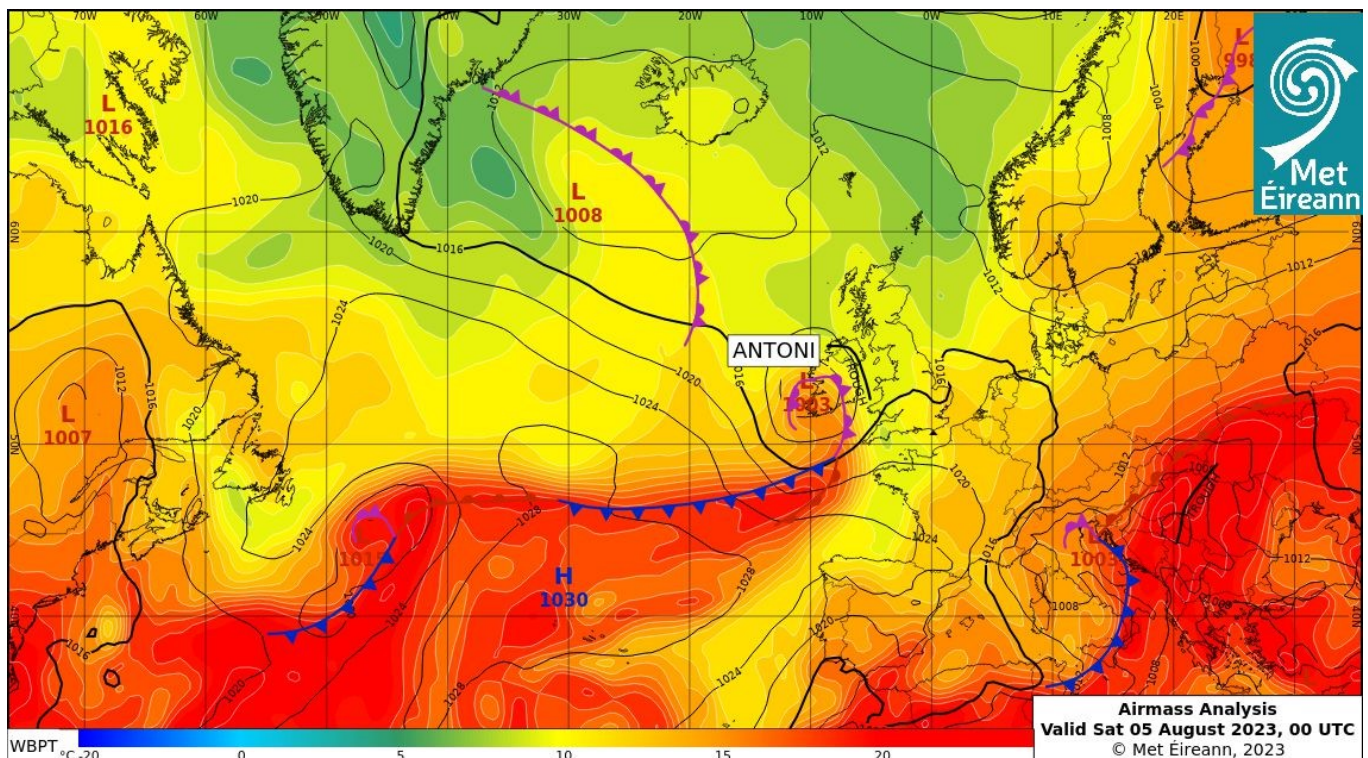


Figure 1. Analysis Chart closest to hour 00:00 UTC on Saturday 5 August when the highest sustained wind speed was reported (80 km/h at Roches Point, Co Cork)

Friday 4th August 2023

On the 4th Ireland lay in a light to moderate northwest airflow under a transient ridge of high pressure extending from an anticyclone of 1030 hPa centred near the Azores. A depression of 1012 hPa centred around 500 nautical miles west of Slyne Head deepened as it approached the west coast later during the day. Isolated showers during the night in the North. Mainly dry and bright in the first half of the morning with sunny spells and isolated showers but the cloud gradually thickened and outbreaks of rain developed in the West and Southwest later in the morning and during the afternoon. The rain extended eastwards by evening. Light to moderate westerly breezes backed south to southeast later during the day.

Saturday 5th August 2023

On the 5th a depression of 1001 hPa, storm Antoni, centred over the south tracked eastwards and cleared into the Irish Sea later during the morning. A fresh to strong cyclonic variable airflow became strong to gale force north-westerly. Heavy rain continued over the North and East with spot flooding during the morning. The rain cleared eastwards by noon followed by brighter weather and scattered showers. The wind also eased during the afternoon. Scattered showers continued for the rest of the day, most frequent across the eastern half of the country, along with some sunny spells. Fresh and gusty north-westerly winds gradually eased by the evening.

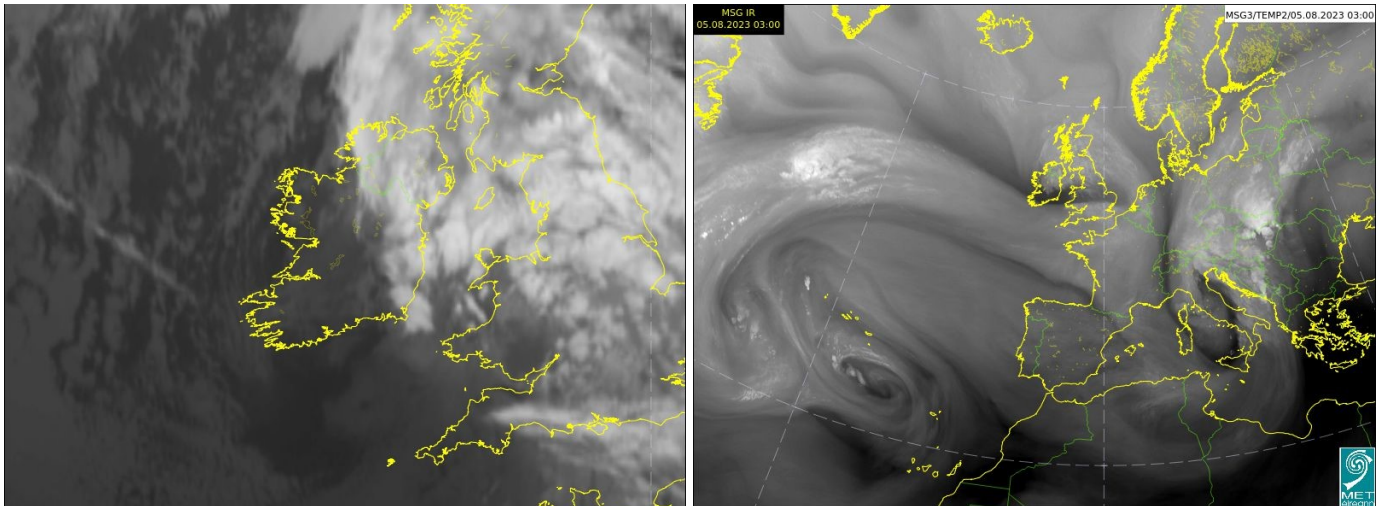


Figure 2 & 3. Infrared satellite & water vapour images closest to hour (0100 & 0200 UTC) of the lowest mean sea level pressure 1000.0 hPa at Gurteen, Co Tipperary on the Saturday 5 August 2023.

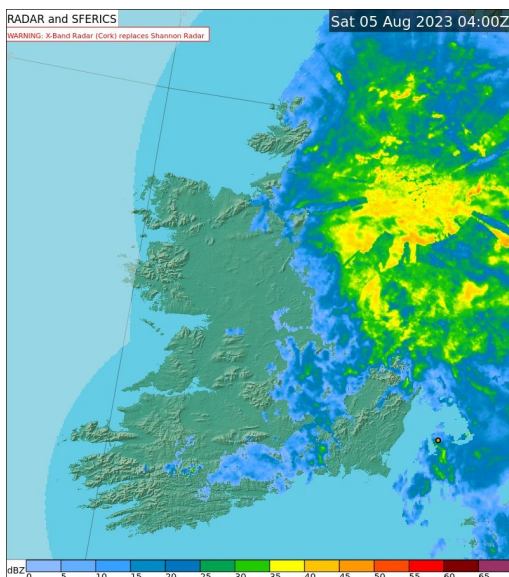


Figure 4. On Sat 05 2023 in the hour ending 04 UTC 12.6 mm of rain fell at Phoenix Park, Co Dublin[

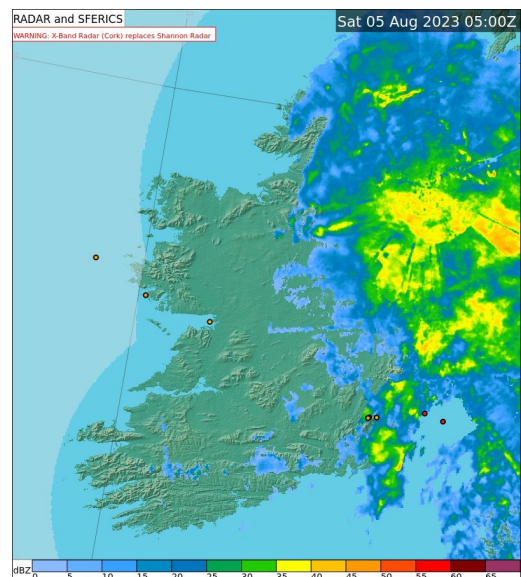


Figure 5. On Sat 05 2023 in the hour ending 05 UTC 10.4 mm of rain fell at Phoenix Park, Co Dublin]

Atmospheric Pressure

The minimum hourly mean sea level pressure (MSLP) observed in Ireland during storm Antoni was 1,000.0 hPa at Gurteen, Co Tipperary on the Saturday 5 August 2023. The MSLP dropped by approximately 25 hPa over a 24-hour period between 00:00 UTC on Friday 4 and 05:00 UTC on Saturday 5 August at Gurteen, Co Tipperary as the low-pressure centre approached Ireland.

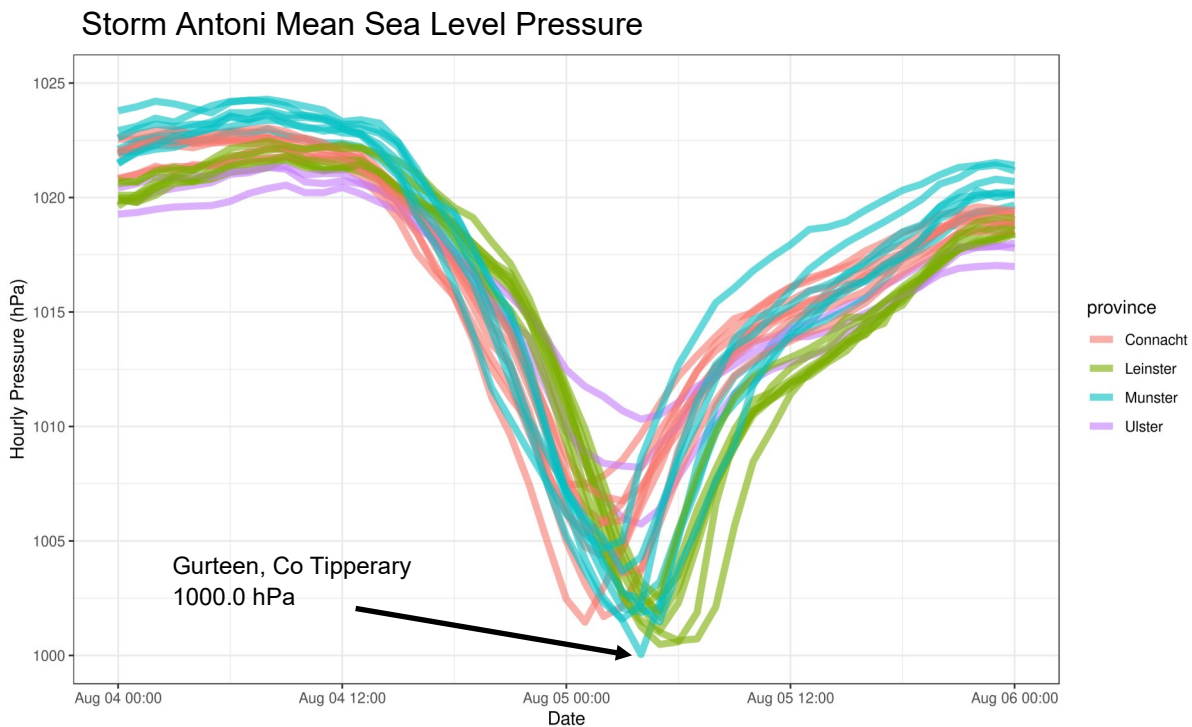


Figure 6: Hourly Mean Sea Level pressure (MSLP) by county (coloured by province) between Friday 4 and Sunday 6 August 2023

Marine Observations

Table 1. Buoy Observations - Friday 4 and Sunday 6 August 2023

Buoy	Max Mean Winds	Max Gust	Max Sig. Wave	Max Individual Wave
M2	29.3 Knots 54.2 km/h 33.7 mph	37.4 Knots 69.2 km/h 43.0 mph	2.2 M 05-Aug-2023 09:00:00	3.9 M 05-Aug-2023 08:00:00
M3	35.7 Knots 66.1 km/h 41.0 mph	50.1 Knots 92.7 km/h 57.6 mph	4.5 M 05-Aug-2023 08:00:00	8.1 M 05-Aug-2023 07:00:00
M4	19.3 Knots 35.7 km/h 22.2 mph	24.6 Knots 44.5 km/h 28.3 mph	2.7 M 04-Aug-2023 01:00:00	4.5 M 04-Aug-2023 02:00:00
M5	35.9 Knots 66.4 km/h 41.3 mph	47.6 Knots 88.1 km/h 54.7 mph	3.6 M 05-Aug-2023 10:00:00	5.3 M 05-Aug-2023 20:00:00
M6	25.5 Knots 47.2 km/h 29.3 mph	36.2 Knots 67.0 km/h 41.6 mph	2.8 M 05-Aug-2023 03:00:00	4.5 M 04-Aug-2023 23:00:00

Synoptic stations—highest wind speeds and rainfall totals

Table 2 contains wind speeds and rainfall observations for the SYNOPTIC stations that reached yellow or orange warning levels during Storm Antoni. Some of the observations have weather warning thresholds and these are highlighted. See the weather warnings page on <https://www.met.ie/weather-warnings>

Table 2. Observations at synoptic stations. Coloured warning levels reached for wind or rainfall totals are shown.

Station location	Sustained (10-min mean) Wind Speed	Date highest mean	Wind Direction Highest sustained	Gust (3-sec mean) Wind Speed	Date Highest Gust	Wind Direction Highest Gust	Daily Rain (mm)	Total Rain (mm)
Roches Point Co Cork	80 km/h Strong Gale Force (43 knots or 49 mph)	Sat 5 Aug 2023 06UTC	310° (NW)	102 km/h (55 knots or 63 mph)	Sat 5 Aug 2023 0634 UTC	320° (NW)	5.1 Fri 4 Aug 2023	5.3
Cork Airport Co Cork	59 km/h Near Gale (32 knots or 37 mph)	Sat 5 Aug 2023 07UTC	310° (NW)	89 km/h (48 knots or 55 mph)	Sat 5 Aug 2023 0746 UTC	330° (NNW)	4.3 Fri 4 Aug 2023	4.7
Sherkin Island Co Cork	59 km/h Near Gale (32 knots or 37 mph)	Sat 5 Aug 2023 04UTC	300° (WNW)	83 km/h (45 knots or 52 mph)	Sat 5 Aug 2023 0649 UTC	310° (NW)	9.9 Fri 4 Aug 2023	10.4
Mace Head** Co Galway	46 km/h Strong Breeze (25 knots or 29 mph)	Fri 4 Aug 2023 19UTC	150° (SSE)	61 km/h (33 knots or 38 mph)	Fri 4 Aug 2023 2027 UTC	130° (SE)	13.8 Fri 4 Aug 2023	19.0
Dublin Airport Co Dublin	44 km/h Strong Breeze (24 knots or 28 mph)	Sat 5 Aug 2023 06UTC	80° (E)	69 km/h (37 knots or 43 mph)	Sat 5 Aug 2023 0535 UTC	80° (E)	48.6 Fri 4 Aug 2023	53.9
Moore Park Co Cork	41 km/h Strong Breeze (22 knots or 25 mph)	Sat 5 Aug 2023 05UTC	310° (NW)	70 km/h (38 knots or 44 mph)	Sat 5 Aug 2023 0517 UTC	290° (WNW)	2.7 Fri 4 Aug 2023	4.2
Shannon Airport Co Clare	41 km/h Strong Breeze (22 knots or 25 mph)	Sat 5 Aug 2023 05UTC	320° (NW)	63 km/h (34 knots or 39 mph)	Sat 5 Aug 2023 0430 UTC	330° (NNW)	2.5 Fri 4 Aug 2023	4.3
Valentia Observatory Co Kerry	41 km/h Strong Breeze (22 knots or 25 mph)	Sat 5 Aug 2023 03UTC	320° (NW)	59 km/h (32 knots or 37 mph)	Sat 5 Aug 2023 0352 UTC	320° (NW)	14.8 Fri 4 Aug 2023	15.8
Casement Aerodrome Co Dublin	39 km/h Fresh Breeze (21 knots or 24 mph)	Sat 5 Aug 2023 07UTC	40° (NE)	65 km/h (35 knots or 40 mph)	Sat 5 Aug 2023 0622 UTC	70° (ENE)	28.6 Fri 4 Aug 2023	31.7
Johnstown Castle Co Wexford	39 km/h Fresh Breeze (21 knots or 24 mph)	Sat 5 Aug 2023 08UTC	350° (N)	65 km/h (35 knots or 40 mph)	Sat 5 Aug 2023 0907 UTC	340° (NNW)	7.0 Fri 4 Aug 2023	9.7
Oak Park Co Carlow	39 km/h Fresh Breeze (21 knots or 24 mph)	Sat 5 Aug 2023 07UTC	0° (N)	57 km/h (31 knots or 36 mph)	Sat 5 Aug 2023 0740 UTC	0° (N)	6.2 Fri 4 Aug 2023	9.9
Gurteen Co Tipperary	35 km/h Fresh Breeze (19 knots or 22 mph)	Sat 5 Aug 2023 06UTC	340° (NNW)	56 km/h (30 knots or 35 mph)	Sat 5 Aug 2023 0602 UTC	330° (NNW)	6.0 Fri 4 Aug 2023	10.6

Table 2. Observations at synoptic stations. Coloured warning levels reached for wind or rainfall totals are shown.

Station location	Sustained (10-min mean) Wind Speed	Date highest mean	Wind Direction Highest sustained	Gust (3-sec mean) Wind Speed	Date Highest Gust	Wind Direction Highest Gust	Daily Rain (mm)	Total Rain (mm)
Malin Head* Co Donegal	35 km/h Fresh Breeze (19 knots or 22 mph)	Fri 4 Aug 2023 03UTC	320° (NW)	48 km/h (26 knots or 30 mph)	Fri 4 Aug 2023 0343 UTC	320° (NW)	12.6 Fri 4 Aug 2023	16.3
Dunsany Co Meath	31 km/h Fresh Breeze (17 knots or 20 mph)	Sat 5 Aug 2023 05UTC	40° (NE)	54 km/h (29 knots or 33 mph)	Sat 5 Aug 2023 0559 UTC	40° (NE)	33.4 Fri 4 Aug 2023	38.9
Mount Dillon Co Roscommon	31 km/h Fresh Breeze (17 knots or 20 mph)	Sat 5 Aug 2023 05UTC	0° (N)	48 km/h (26 knots or 30 mph)	Sat 5 Aug 2023 0416 UTC	20° (NNE)	24.6 Fri 4 Aug 2023	35.4
Claremorris Co Mayo	30 km/h moderate breeze (16 knots or 18 mph)	Sat 5 Aug 2023 04UTC	10° (N)	52 km/h (28 knots or 32 mph)	Sat 5 Aug 2023 0336 UTC	10° (N)	13.5 Fri 4 Aug 2023	25.8
Athenry Co Galway	30 km/h moderate breeze (16 knots or 18 mph)	Sat 5 Aug 2023 04UTC	350° (N)	50 km/h (27 knots or 31 mph)	Sat 5 Aug 2023 0422 UTC	350° (N)	12.6 Fri 4 Aug 2023	23.8
Newport Co Mayo	30 km/h moderate breeze (16 knots or 18 mph)	Fri 4 Aug 2023 21UTC	120° (ESE)	48 km/h (26 knots or 30 mph)	Sat 5 Aug 2023 0104 UTC	70° (ENE)	19.3 Fri 4 Aug 2023	26.7
Finner Co Donegal	30 km/h moderate breeze (16 knots or 18 mph)	Sat 5 Aug 2023 14UTC	290° (WNW)	41 km/h (22 knots or 25 mph)	Sat 5 Aug 2023 1442 UTC	280° (W)	10.7 Fri 4 Aug 2023	19.1
Knock Airport Co Mayo	28 km/h moderate breeze (15 knots or 17 mph)	Sat 5 Aug 2023 04UTC	20° (NNE)	44 km/h (24 knots or 28 mph)	Sat 5 Aug 2023 0408 UTC	10° (N)	15.7 Fri 4 Aug 2023	28.6
Belmullet Co Mayo	28 km/h moderate breeze (15 knots or 17 mph)	Fri 4 Aug 2023 17UTC	170° (S)	39 km/h (21 knots or 24 mph)	Sat 5 Aug 2023 0320 UTC	40° (NE)	19.0 Fri 4 Aug 2023	24.2
Mullingar Co Westmeath	24 km/h moderate breeze (13 knots or 15 mph)	Sat 5 Aug 2023 00UTC	100° (E)	46 km/h (25 knots or 29 mph)	Sat 5 Aug 2023 0606 UTC	10° (N)	26.7 Fri 4 Aug 2023	36.6
Ballyhaise Co Cavan	20 km/h moderate breeze (11 knots or 13 mph)	Sat 5 Aug 2023 13UTC	320° (NW)	39 km/h (21 knots or 24 mph)	Sat 5 Aug 2023 0324 UTC	40° (NE)	30.7 Fri 4 Aug 2023	36.4

Impacts

- **Power Outages:** ESB Power Check showed 5000 customers without power in Dublin on Saturday 05 August with over 800 without power in the Cork area.
- **Flooding:** A number of homes were also evacuated due to the flooding in the Clontarf area of Dublin, Ireland.
- **Travel:** Rail services were suspended between Killester and Clontarf Road and Dublin Connolly and Maynooth due to flooding in the area.

Definitions

- Gust wind speeds are an average of 3-second wind speeds.
- Sustained wind speeds are an average of 10-minute wind speeds.
- Beaufort Scale: www.met.ie/forecasts/marine-inland-lakes/beaufort-scale
- Buoy locations: www.met.ie/forecasts/marine-inland-lakes/buoys/buoy-locations
- This report is based on the observations from Met Éireann's weather and climate stations and data available up to the publication date.
- Unless otherwise stated daily means midnight to midnight UTC.
- Long-Term Averages (LTAs) and 'normal' refer to the observations being averaged over the period 1981-2010.
- Warning colours used are based upon warning thresholds valid on the day.
- For more information <https://www.met.ie/about-us/contact-us>

Caution: Malin Head wind speeds are observed (using an anemometer) at a non-standard height of 23m while all others are at 10m. This will cause Malin Head's wind speeds to be higher in a strong air flow.
Caution: Mace Head anemometer is situated above exposed rock at the coast line.*