STORM ASHLEY

Sunday 20 October 2024

The first named storm of the 2024/25 season
Named by Met Éireann on Friday 18 October 2024

Published Thursday 20 March 2025

Introduction

Storm Ashley, the first named storm of the 2024/25 storm naming season, first developed off the east coast of the United States in the early hours of Friday 18 October 2024, as it split away from another stalled low pressure system with tropical features. Initially, storm Ashley was situated on the southern side of a powerful North Atlantic jet stream as it began to move across the Atlantic during Friday. As the low pressure travelled rapidly across the mid-Atlantic early on Saturday 19th, it moved across the jet stream to the northern side and engaged with the left exit region. Here it underwent explosive cyclogenesis on its approach to northwest Europe, with the central pressure deepening by approximately 36 hPa between 6 am Saturday 19th and 6 am on Sunday 20th. Storm Ashley brought strong southerly winds overnight on Saturday night and early Sunday associated with the frontal rain band ahead of the storm centre that moved across the country. A second wave of even stronger south-westerly winds, accompanied by damaging gusts, affected the country from mid-morning on Sunday, right through the afternoon and into the evening, as the centre of the storm moved close to the northwest of Ireland. The storm also coincided with high spring tides, which worsened the impacts around the coasts. The centre moved towards northern Scotland late on Sunday and the winds, which had veered westerly by then, slowly abated over Ireland.

Summary

- On Sunday 20 October 2024, sustained (10-minute mean) wind speeds ranged from a south-southwesterly **100 km/h** (Storm Force 10 or 54 knots or 62 mph) at two stations, Mace Head (coastal), Co Galway and Belmullet (coastal), Co Mayo, at 12 UTC (1 pm local time).
- Gust (3-second mean) wind speeds ranged from highest 1**37 km/h** (74 knots or 85 mph) from the south-southwest at Mace Head (coastal), Co Galway on Sunday at 12 UTC (1 pm local time).
- The lowest hourly mean sea level pressure (MSLP) was **974.4 hPa** on Sunday 20 October 2024 around 12 UTC (1 pm local time) observed at Belmullet, Co Mayo.
- The highest daily (00-00 UTC) rainfall total was **17.2 mm** on Sunday, 20 Oct 2024 at Athenry, Co Galway (15 % of its 1991-2020 Long Term Average). The highest 24-hour rolling rainfall total was **31.5 mm** up to 02 UTC (3 am local time) on Monday, of which 17.8 mm fell in the 6 hours ending at 22 UTC (10 pm local time) on Sunday. This occurred at Gort (Derrybrien), Co Galway.
- The highest individual wave height was **19.7 m** at Buoy M5 (off South Wexford coast) around 19 UTC on Sunday.

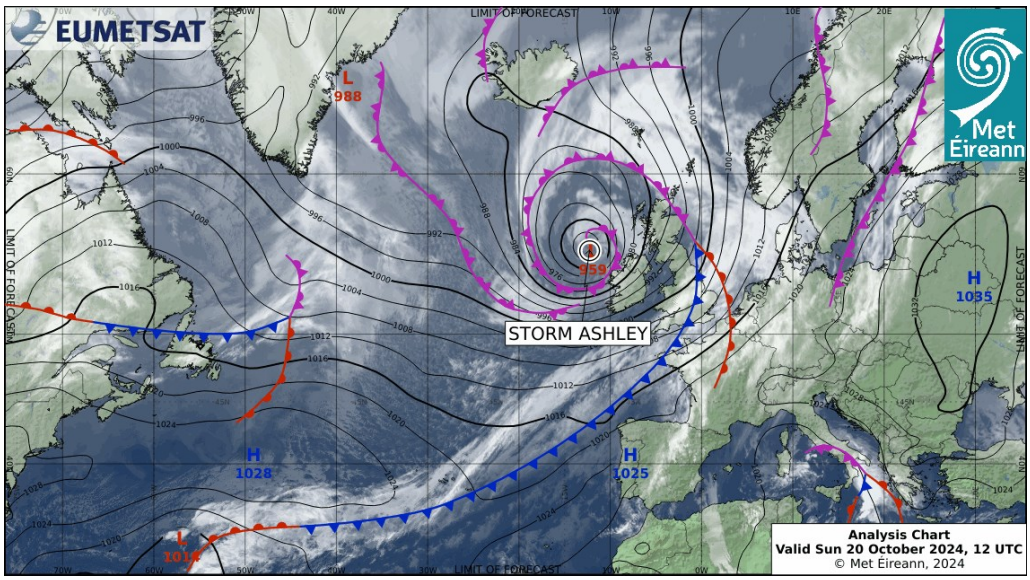

Figure 1. Analysis Chart with EUMETSAT satellite on Sun 20 Oct 2024 at 12 UTC

Daily Weather Summaries

Saturday 19 October 2024

Ireland was under a fresh to strong southwesterly airflow generated by a low-pressure system (981 hPa) located northwest of the country by 23:30 UTC on Saturday. The day was mostly dry across most areas, with good sunny spells. Some well-scattered showers occurred throughout the day, and rain arrived in the southwest during the evening, accompanied by fresh winds. As Storm Ashley approached, conditions became wet and windy overnight.

Sunday 20 October 2024

Storm Ashley brought very windy to stormy conditions throughout the morning, with some heavy and thundery showers. Southwest winds strengthened to strong or gale force, particularly along the northwest, west, and southwest coasts as the morning progressed. Heavy rain cleared eastward followed by sunshine and scattered showers, some of which were heavy and thundery. Winds shifted to the southwest, easing slightly for a brief period further east before more rain spread from the west.

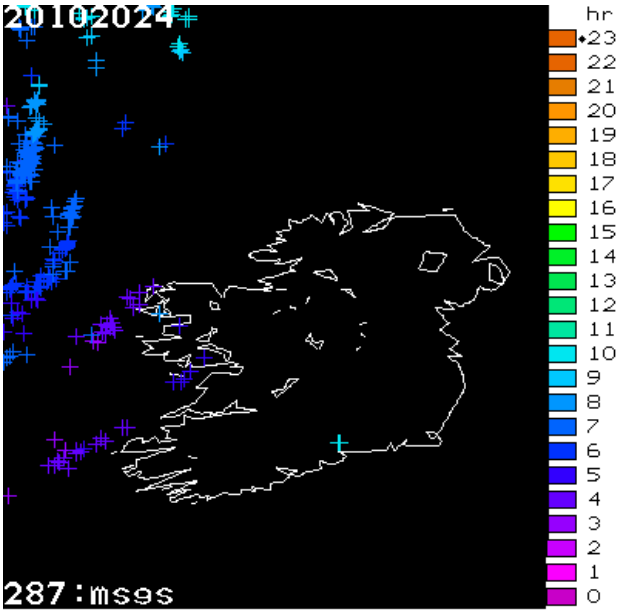

Figure 4. ATDnet Lightning Detection imagery on Sun 20 Oct 2024

Monday 21 October 2024

Ireland experienced a fresh to near-gale, unstable west-to-southwesterly airflow, with frontal troughs embedded in the system. Ashley, now a weakened depression with a central pressure of 969 hPa, was located northeast of Scotland early in the morning and continued to track northward. The day brought a mix of scattered showers and sunshine, accompanied by some morning mist. Winds were occasionally strong along the northern and northwestern coasts.

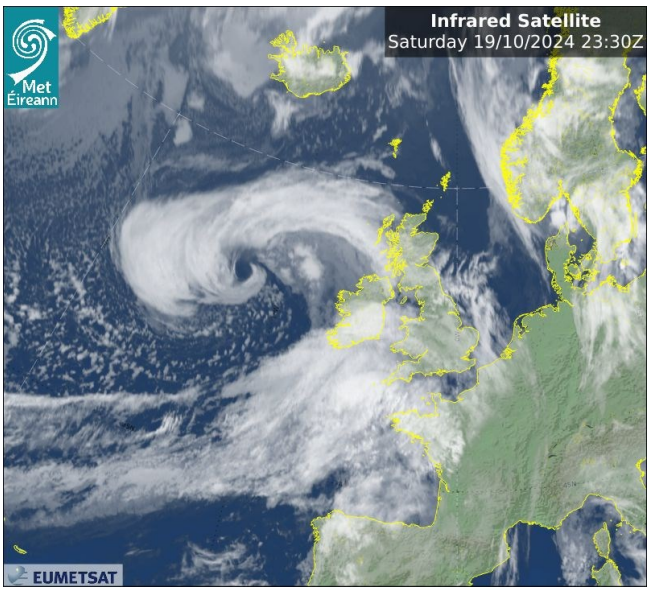

Figure 2. Infrared EUMETSAT Satellite image on Sat 19 Oct 2024 at 23:30 UTC after it underwent explosive cyclogenesis

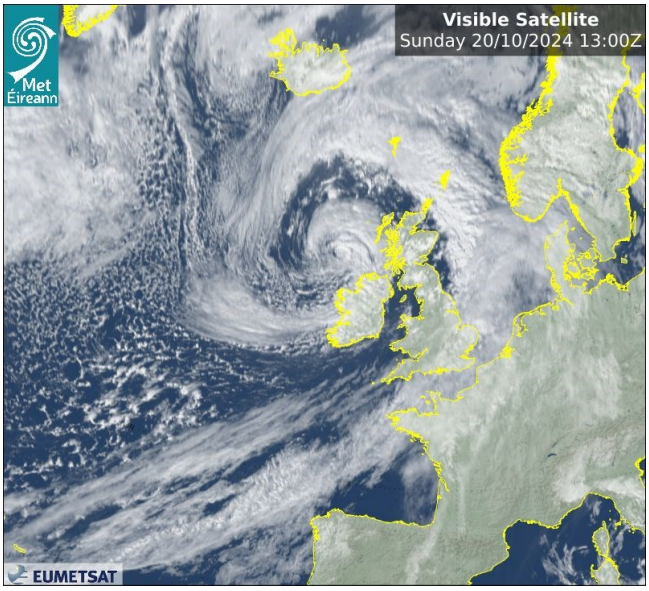

Figure 3. Visible EUMETSAT Satellite image on Sun 20 Oct 2024 at 13:00 UTC

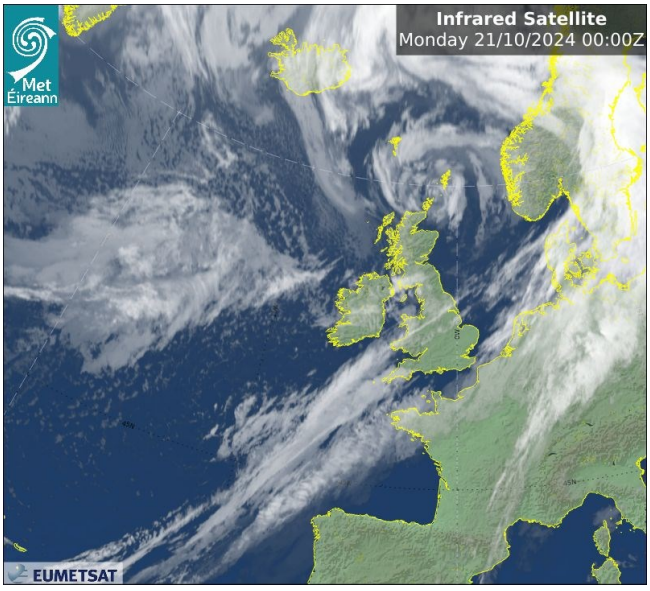

Figure 5. Infrared EUMETSAT Satellite image on archives image on Mon 21 Oct 2024 as the storm system weakened and moved across Scotland.

Mean Sea Level Pressure

The minimum hourly mean sea level pressure (MSLP) observed in Ireland during storm Ashley was 974.4 hPa at Belmullet, Co Mayo around 12 UTC (1 pm local) on Sunday 20th. On Sunday, the maximum MSLP dropped by 26.8 hPa at Belmullet, Co Mayo, decreasing from 1001.2 to 974.4 hPa.

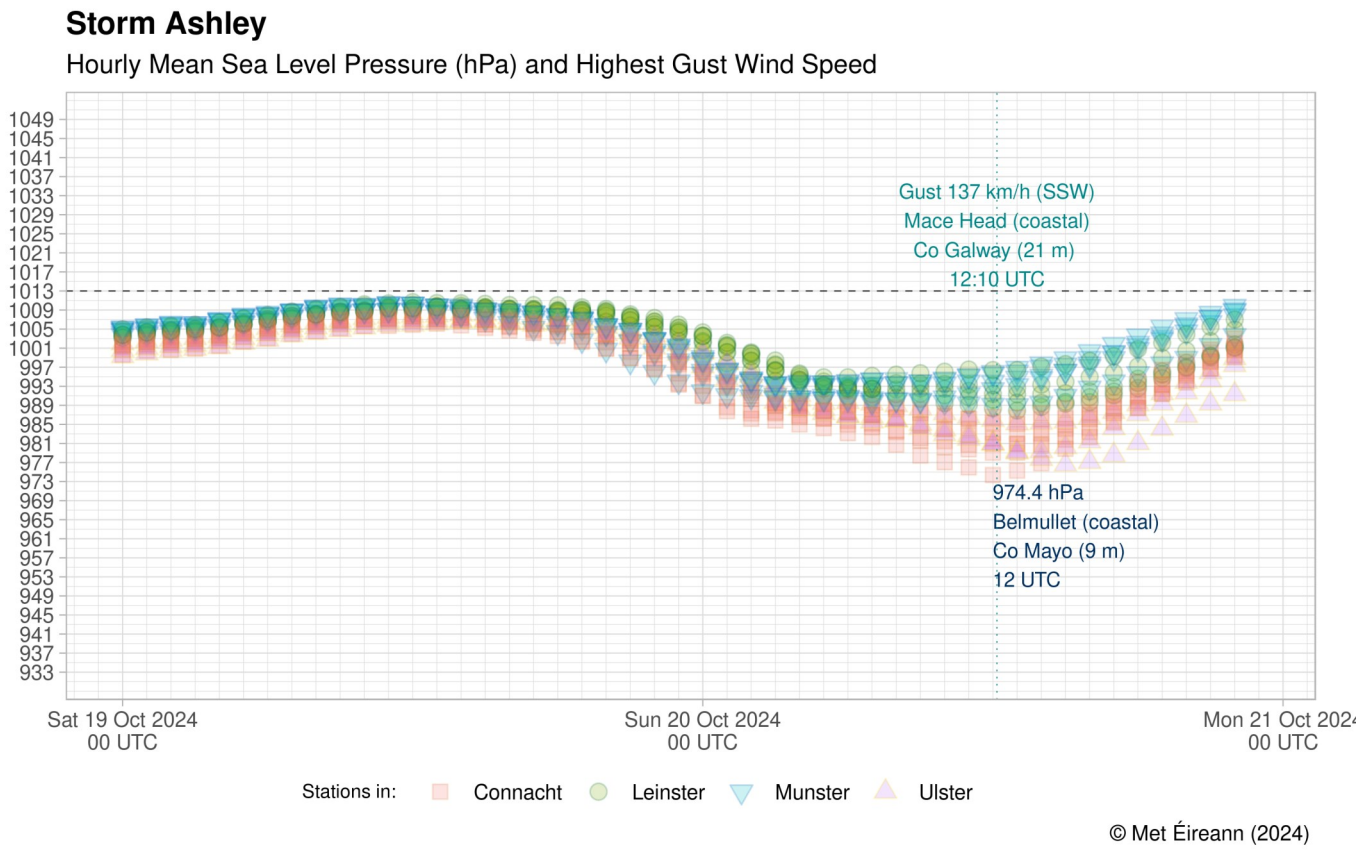

Figure 6: Hourly Mean Sea Level pressure (MSLP) and highest gust wind speed (with stations coloured by province) between Sat 19 and Mon 21 Oct 2024

Marine Observations

Table 1. Extremes of wind speeds and wave heights at buoys

Buoy (Location)	Sustained Wind Speeds	Gust Wind Speeds	Significant Wave Height	Individual Wave	MSLP (hPa)
Buoy M2 (in the Irish Sea)	**66 km/h** (36 knots or 41 mph) Sun 20 Oct 2024 16 UTC	**91 km/h** (49 knots or 57 mph) Sun 20 Oct 2024 16 UTC	**4.5 m** Sun 20 Oct 2024 08 UTC	**8.4 m** Sun 20 Oct 2024 08 UTC	**992.1** Sun 20 Oct 2024 13 UTC
Buoy M3 (off the Cork coast)	**74 km/h** (40 knots or 46 mph) Sun 20 Oct 2024 12 UTC	**101 km/h** (55 knots or 63 mph) Sun 20 Oct 2024 12 UTC	**12.4 m** Sun 20 Oct 2024 16 UTC	**18.9 m** Sun 20 Oct 2024 15 UTC	**991.8** Sun 20 Oct 2024 01 UTC
Buoy M4 (off the Donegal coast)	**88 km/h** (48 knots or 55 mph) Sun 20 Oct 2024 12 UTC	**118 km/h** (64 knots or 73 mph) Sun 20 Oct 2024 12 UTC	**9.1 m** Sun 20 Oct 2024 15 UTC	**13.4 m** Sat 19 Oct 2024 09 UTC	**967.9** Sun 20 Oct 2024 13 UTC
Buoy M5 (off the south Wexford coast)	**48 km/h** (26 knots or 30 mph) Sun 20 Oct 2024 16 UTC	**89 km/h** (48 knots or 55 mph) Sun 20 Oct 2024 15 UTC	**7.7 m** Sun 20 Oct 2024 20 UTC	**19.7 m** Sun 20 Oct 2024 19 UTC	**995.6** Sun 20 Oct 2024 06 UTC
Buoy M6 (in the deep Atlantic)	**83 km/h** (45 knots or 52 mph) Sun 20 Oct 2024 08 UTC	**123 km/h** (67 knots or 77 mph) Sun 20 Oct 2024 04 UTC	**11.4 m** Sun 20 Oct 2024 09 UTC	**19.5 m** Sun 20 Oct 2024 09 UTC	**959.2** Sun 20 Oct 2024 05 UTC

Synoptic stations - extremes of wind speeds and rainfall totals

The table below contains wind speeds and rainfall observations for the primary (SYNOPTIC) stations during Storm Ashley.

Table 2. Extremes of wind and rainfall at synoptic stations

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	Highest Daily Rain (mm)	2-day Total Rain (mm)
Mace Head** (coastal) Co Galway	**100 km/h** Storm Force (54 knots or 62 mph)	Sun 20 Oct 2024 12 UTC	210° (SSW)	**137 km/h** (74 knots or 85 mph)	Sun 20 Oct 2024 1210 UTC	210° (SSW)	**9.0 mm** Sun 20 Oct 2024	**9.4 mm**
Belmullet (coastal) Co Mayo	**100 km/h** Storm Force (54 knots or 62 mph)	Sun 20 Oct 2024 12 UTC	200° (SSW)	**133 km/h** (72 knots or 83 mph)	Sun 20 Oct 2024 1215 UTC	200° (SSW)	**10.8 mm** Sun 20 Oct 2024	**11.1 mm**
Roches Point (coastal) Co Cork	**85 km/h** Strong Gale Force (46 knots or 53 mph)	Sun 20 Oct 2024 12 UTC	210° (SSW)	**109 km/h** (59 knots or 68 mph)	Sun 20 Oct 2024 1220 UTC	210° (SSW)	**5.2 mm** Sun 20 Oct 2024	**6.2 mm**
Malin Head* (coastal) Co Donegal	**81 km/h** Strong Gale Force (44 knots or 51 mph)	Sun 20 Oct 2024 17 UTC	210° (SSW)	**109 km/h** (59 knots or 68 mph)	Sun 20 Oct 2024 1143 UTC	170° (S)	**2.4 mm** Sun 20 Oct 2024	**2.4 mm**
Sherkin Island (coastal) Co Cork	**81 km/h** Strong Gale Force (44 knots or 51 mph)	Sun 20 Oct 2024 16 UTC	240° (WSW)	**106 km/h** (57 knots or 66 mph)	Sun 20 Oct 2024 1650 UTC	240° (WSW)	**4.2 mm** Sun 20 Oct 2024	**7.2 mm**
Newport (coastal) Co Mayo	**80 km/h** Strong Gale Force (43 knots or 49 mph)	Sun 20 Oct 2024 12 UTC	200° (SSW)	**128 km/h** (69 knots or 79 mph)	Sun 20 Oct 2024 1121 UTC	190° (S)	**11.3 mm** Sun 20 Oct 2024	**12.6 mm**
Finner (coastal) Co Donegal	**72 km/h** Gale Force 8 (39 knots or 45 mph)	Sun 20 Oct 2024 12 UTC	190° (S)	**109 km/h** (59 knots or 68 mph)	Sun 20 Oct 2024 1244 UTC	190° (S)	**8.2 mm** Sun 20 Oct 2024	**8.3 mm**
Valentia Observatory (coastal) Co Kerry	**69 km/h** Gale Force 8 (37 knots or 43 mph)	Sun 20 Oct 2024 11 UTC	210° (SSW)	**107 km/h** (58 knots or 67 mph)	Sun 20 Oct 2024 2144 UTC	200° (SSW)	**8.6 mm** Sun 20 Oct 2024	**15.7 mm**
Gurteen Co Tipperary	**65 km/h** Gale Force 8 (35 knots or 40 mph)	Sun 20 Oct 2024 14 UTC	220° (SW)	**98 km/h** (53 knots or 61 mph)	Sun 20 Oct 2024 1440 UTC	210° (SSW)	**13.0 mm** Sun 20 Oct 2024	**13.2 mm**
Claremorris Co Mayo	**63 km/h** Gale Force 8 (34 knots or 39 mph)	Sun 20 Oct 2024 12 UTC	200° (SSW)	**115 km/h** (62 knots or 71 mph)	Sun 20 Oct 2024 1212 UTC	200° (SSW)	**9.3 mm** Sun 20 Oct 2024	**10.6 mm**

Table 2. cont'd

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	Highest Daily Rain (mm)	2-day Total Rain (mm)
Oak Park Co Carlow	**63 km/h** Gale Force 8 (34 knots or 39 mph)	Sun 20 Oct 2024 12 UTC	200° (SSW)	**91 km/h** (49 knots or 56 mph)	Sun 20 Oct 2024 1249 UTC	200° (SSW)	**3.8 mm** Sun 20 Oct 2024	**4.1 mm**
Dunsany Co Meath	**57 km/h** Near Gale (31 knots or 36 mph)	Sun 20 Oct 2024 11 UTC	190° (S)	**89 km/h** (48 knots or 55 mph)	Sun 20 Oct 2024 1157 UTC	200° (SSW)	**3.2 mm** Sun 20 Oct 2024	**3.4 mm**
Athenry Co Galway	**56 km/h** Near Gale (30 knots or 35 mph)	Sun 20 Oct 2024 14 UTC	230° (SW)	**94 km/h** (51 knots or 59 mph)	Sun 20 Oct 2024 1253 UTC	220° (SW)	**17.2 mm** Sun 20 Oct 2024	**18.0 mm**
Johnstown Castle (coastal) Co Wexford	**54 km/h** Near Gale (29 knots or 33 mph)	Sun 20 Oct 2024 18 UTC	230° (SW)	**91 km/h** (49 knots or 56 mph)	Sun 20 Oct 2024 1545 UTC	220° (SW)	**7.9 mm** Sun 20 Oct 2024	**8.3 mm**
Mullingar Co Westmeath	**48 km/h** Strong Breeze (26 knots or 30 mph)	Sun 20 Oct 2024 11 UTC	200° (SSW)	**87 km/h** (47 knots or 54 mph)	Sun 20 Oct 2024 1150 UTC	210° (SSW)	**3.7 mm** Sun 20 Oct 2024	**3.9 mm**
Moore Park Co Cork	**48 km/h** Strong Breeze (26 knots or 30 mph)	Sun 20 Oct 2024 11 UTC	210° (SSW)	**78 km/h** (42 knots or 48 mph)	Sun 20 Oct 2024 1210 UTC	200° (SSW)	**6.8 mm** Sun 20 Oct 2024	**7.9 mm**
Ballyhaise Co Cavan	**44 km/h** Strong Breeze (24 knots or 28 mph)	Sun 20 Oct 2024 16 UTC	210° (SSW)	**85 km/h** (46 knots or 53 mph)	Sun 20 Oct 2024 1522 UTC	210° (SSW)	**6.4 mm** Sun 20 Oct 2024	**7.2 mm**
Mount Dillon Co Roscommon	**43 km/h** Strong Breeze (23 knots or 26 mph)	Sun 20 Oct 2024 11 UTC	190° (S)	**78 km/h** (42 knots or 48 mph)	Sun 20 Oct 2024 1149 UTC	190° (S)	**11.4 mm** Sun 20 Oct 2024	**11.8 mm**
Knock Airport Co Mayo	**35 km/h** Fresh Breeze (19 knots or 22 mph)	Sat 19 Oct 2024 24 UTC	140° (SE)	**61 km/h** (33 knots or 38 mph)	Sat 19 Oct 2024 2318 UTC	140° (SE)	**0.2 mm** Sat 19 Oct 2024	**0.2 mm**
Dublin Airport (coastal) Co Dublin	**35 km/h** Fresh Breeze (19 knots or 22 mph)	Sat 19 Oct 2024 24 UTC	160° (SSE)	**57 km/h** (31 knots or 36 mph)	Sat 19 Oct 2024 2357 UTC	150° (SSE)	**0.0 mm** Sat 19 Oct 2024	**0.0 mm**
Markree Castle Co Sligo	-	-	-	-	-	-	**6.4 mm** Sun 20 Oct 2024	**6.6 mm**
Phoenix Park Co Dublin	-	-	-	-	-	-	**2.1 mm** Sun 20 Oct 2024	**2.3 mm**

Impacts

- **Power Outages**: : ESB reported 53,000 homes without electricity (ESB Power Check, 2024).
- **Flooding**: Coastal overtopping in Salthill (x.com)
- **Airports**: As a result of adverse weather conditions, up to 28 flights were diverted and 60 flights were cancelled at Dublin Airport, while Belfast City Airport saw 28 cancelled departures. Additionally, 13 flights destined for Cork Airport were rerouted to Shannon Airport. (RTE News)

Definitions

- Sustained (or mean) wind speeds are an average of 10-minute wind speeds.
- Gust wind speeds are an average of 3-second wind speeds.
- Unless otherwise stated daily means midnight to midnight UTC.
- Long-Term Averages (LTAs) and 'normal' refer to the observations being averaged over the period 1991-2020.
- Beaufort Scale available at www.met.ie/forecasts/marine-inland-lakes/beaufort-scale
- Marine area buoy maps and definitions available at www.met.ie/forecasts/marine-inland-lakes/sea-area-forecast-terminology

** Malin Head, Co Donegal's wind speeds are observed (using an anemometer) at a non-standard height of 23 m while all others are at 10 m. This will cause Malin Head's wind speeds to be higher in a strong air flow.*

*** Mace Head, Co Galway's anemometer is situated above exposed rock at the coast line.*

This report is based on the observations from Met Éireann's weather and climate stations and data available up to the publication date.

For more information, please contact Met Éireann's Climate Services Division: enquiries@met.ie.
For media and other queries, please see *www.met.ie/about-us/contact-us*.