

# Storm Elsa

Wednesday 18 December 2019

Third named storm of the season, named by IPMA, the Portuguese Meteorological Service on Monday 16 December 2019.

A large and complex area of Low Pressure, with multiple vortices, developed in the Atlantic and moved over the west of Ireland on the 18<sup>th</sup> December. The Portuguese weather service named Storm Elsa. Frontal systems associated with this low brought violent winds and torrential rain to Spain and Portugal, which led to at least four deaths. A low-pressure centre spun off the large parent low and deepened rapidly as it approached the Southwest of Ireland on the morning of the 18<sup>th</sup> December. It moved north along the west coast of Ireland during the day and brought widespread rain and very strong winds, especially to the west of the country. The strongest of the winds, which veered south-westerly, coincided with high tide in Galway Bay and caused significant coastal flooding.



Figure 1. Atlantic Chart for 18 December 2019

Peak sustained wind speed was 98 km/h at Mace Head around 9 pm (21 UTC) on Wednesday 18 December 2019. One, out of 25, wind stations observed storm force 10 winds. The peak gust wind speed was 126 km/h at Mace Head at 9:13 pm (21:13 UTC). Thirteen stations (52% of total) observed gusts  $\geq$  48 knots in Connacht (5 stations), Munster (4 stations), Leinster (2 stations) and Ulster (2 stations).

## **Impacts:**

- Flooding on the west coast with significant flooding in Galway Bay due to storm surge and high tide coinciding.
- Power outages in parts of Galway, Mayo, Donegal, Offaly and Kildare

Station Name	Rainfall (mm)	Highest 10-minute mean wind speed (km/h).	Highest Gust (km/h)	Wind Direction (degree)	Hour of occurrence (utc)
MACE HEAD	11.2	98 (53 kt)	126 (68 kt)	210	2100
ROCHES POINT	14.0	83 (45 kt)	113 (61 kt)	180	1800
MALIN HEAD	8.5	81 (44 kt)	113 (61 kt)	160	2300
BELMULLET	7.5	81 (44 kt)	115 (62 kt)	220	2200
FINNER	12.5	76 (41 kt)	109 (59 kt)	190	2200
NEWPORT	11.6	74 (40 kt)	113 (61 kt)	200	2200
SHERKIN ISLAND	17.1	72 (39 kt)	100 (54 kt)	190	1800
KNOCK AIRPORT	22.3	72 (39 kt)	117 (63 kt)	180	2200
CLAREMORRIS	15.0	70 (38 kt)	109 (59 kt)	190	2100
VALENTIA	34.8	70 (38 kt)	104 (56 kt)	220	1900
CASEMENT	4.5	67 (36 kt)	98 (53 kt)	190	2100
GURTEEN	8.2	61 (33 kt)	91 (49 kt)	180	2000
CORK AIRPORT	23.2	61 (33 kt)	87 (47 kt)	210	2000
OAK PARK	18.4	57 (31 kt)	91 (49 kt)	180	1900
SHANNON AIRPORT	4.4	56 (30 kt)	78 (42 kt)	190	2100
JOHNSTOWN CASTLE	23.4	52 (28 kt)	78 (42 kt)	140	1600
BALLYHAISE	6.3	52 (28 kt)	83 (45 kt)	160	2100
DUBLIN AIRPORT	4.3	50 (27 kt)	80 (43 kt)	190	2200
MOORE PARK	26.4	50 (27 kt)	81 (44 kt)	160	1800
DUNSANY	7.2	48 (26 kt)	74 (40 kt)	190	2000
ATHENRY	7.1	48 (26 kt)	80 (43 kt)	180	2000
MULLINGAR	6.0	48 (26 kt)	76 (41 kt)	160	2000
MT DILLON	7.0	44 (24 kt)	69 (37 kt)	110	1700

Figure 2. Station data for 18 December 2019

Issue Time	Valid From	Valid To	Colour	Element	Location	Text
17/12/2019 10:00	18/12/2019 04:00	18/12/2019 19:00	Yellow	Rainfall	Carlow, Kilkenny, Wexford, Wicklow, Cork, Kerry, Tipperary and Waterford	Heavy rain will push northeastwards on Wednesday with rainfall accumulations of 30-40mm expected with the risk of localised flooding.
17/12/2019 10:00	18/12/2019 12:00	18/12/2019 23:59	Yellow	Wind	Ireland	Southeast winds, later veering southerly will gust 90-110km/h on Wednesday, strongest in coastal areas.
18/12/2019 10:43	18/12/2019 12:00	19/12/2019 03:00	Yellow	Wind	Ireland	Southeast winds, later veering southerly will gust 90-110km/h today. Winds will peak this evening and tonight. Stronger winds are possible in west and southwest coastal areas.
18/12/2019 14:00	18/12/2019 18:00	18/12/2019 21:00	Orange	Wind	Cork	A small deepening depression, associated with the Atlantic storm system Elsa, will track northwards close to the Atlantic seaboard this evening. Strong southerly winds veering southwest will reach mean speeds of 65 to 80 km/h with gusts up 120km/h for a s
18/12/2019 20:00	18/12/2019 21:00	19/12/2019 01:00	Orange	Wind	Galway and Mayo	Strong southerly winds, veering southwest will reach mean speeds of 65 to 80km/h with gusts up to 120km/h for a short time tonight.

Figure 3. Wind Warnings issued by Met Éireann for Storm Elsa

## DEFINITIONS

Sustained wind speeds are an average of 10-minute wind speeds.

Gust wind speeds are an average of 3-second wind speeds.

For observations of sustained (10-min mean) wind speeds:

- Storm Force 10  $\geq$  89 km/h (48 kt)
- Violent Storm Force 11  $\geq$  103 km/h (56 kt)
- Hurricane Force 12  $\geq$  117 km/h (64 kt)