

**Storm Gerrit**  
**Marine Storm Report**  
Marine Unit

Report Date: 01 September 2025

Report Time: 13:32 UTC

## Marine Observations Summary

### Data Sources

- **Buoy 62091** (M1 Buoy (Retired)): 53.47°N, 5.42°W
- **Buoy 62092** (M2 Buoy): 53.48°N, 5.42°W
- **Buoy 62094** (M4 Buoy): 51.69°N, 6.70°W
- **Buoy 62095** (M5 Buoy): 53.06°N, 7.90°W

### Peak Conditions Observed

- **Maximum Wind Speed:** 37.6 knots (69.6 km/h) at Buoy 62092
- **Maximum Significant Wave Height (Hm0):** 9.7 m at Buoy 62092
- **Maximum Wave Height (Hmax):** 14.5 m at Buoy 62092
- **Minimum Pressure:** 977.4 hPa at Buoy 62095
- **Temperature Range:** 6.5°C (Buoy 62095) to 12.9°C (Buoy 62092)
- **Total Observations:** 470 records from 4 stations (QC good data only)

### Station-by-Station Analysis

#### Buoy 62091 - M1 Buoy (Retired)

- **Location:** 53.47°N, 5.42°W
- **Peak Wind Speed:** 34.5 knots (63.9 km/h)

- **Peak Significant Wave Height (Hm0):** 3.9 m
- **Peak Maximum Wave Height (Hmax):** 5.8 m
- **Minimum Pressure:** 986.7 hPa
- **Data Quality:** Excellent (100.0% good data)
- **Observations:** 97 records (QC good data only)

### Buoy 62092 - M2 Buoy

- **Location:** 53.48°N, 5.42°W
- **Peak Wind Speed:** 37.6 knots (69.6 km/h)
- **Peak Significant Wave Height (Hm0):** 9.7 m
- **Peak Maximum Wave Height (Hmax):** 14.5 m
- **Minimum Pressure:** 989.0 hPa
- **Data Quality:** Excellent (100.0% good data)
- **Observations:** 97 records (QC good data only)

### Buoy 62094 - M4 Buoy

- **Location:** 51.69°N, 6.70°W
- **Peak Wind Speed:** 37.6 knots (69.6 km/h)
- **Peak Significant Wave Height (Hm0):** 7.7 m
- **Peak Maximum Wave Height (Hmax):** 13.1 m
- **Minimum Pressure:** 991.1 hPa
- **Data Quality:** Excellent (100.0% good data)
- **Observations:** 89 records (QC good data only)

### Buoy 62095 - M5 Buoy

- **Location:** 53.06°N, 7.90°W
- **Peak Wind Speed:** 28.8 knots (53.4 km/h)
- **Peak Significant Wave Height (Hm0):** 7.0 m
- **Peak Maximum Wave Height (Hmax):** 13.4 m
- **Minimum Pressure:** 977.4 hPa
- **Data Quality:** Excellent (100.0% good data)
- **Observations:** 187 records (QC good data only)

## Meteorological Analysis

### Wind Analysis

The storm produced maximum sustained winds of **37.6 knots** (69.6 km/h).

#### Wind Categories:

- Force 7 — Near gale: 28–33 kn (50–61 km/h)
- Force 8 — Gale: 34–40 kn (62–74 km/h)
- Force 9 — Severe gale (aka Strong gale): 41–47 kn (75–88 km/h)
- Force 10 — Storm: 48–55 kn (89–102 km/h)
- Force 11 — Violent storm: 56–63 kn (103–117 km/h)

- Force 12 — Hurricane force:  $\geq 64$  kn ( $\geq 118$  km/h)

## Wave Analysis

**Significant Wave Heights (Hm0):** Peak values reached **9.7 m**, representing **very high**.

**Maximum Wave Heights (Hmax):** Individual wave heights peaked at **14.5 m**. Note: Hmax values represent individual wave heights and are not used for sea state classification.

**Wave Height Relationship:** The Hmax/Hm0 ratio was **1.50**, within normal range (1.3-1.8).

### Sea State Classification (Hm0):

- Rough: 2.5-4.0 m
- Very Rough: 4.0-6.0 m
- High: 6.0-9.0 m
- Very High: 9.0-14.0 m
- Phenomenal:  $>14.0$  m

### Wave Height Definitions:

- **Hm0 (Significant Wave Height):** Average height of the highest one-third of waves
- **Hmax (Maximum Wave Height):** Highest individual wave recorded during the period

## Quality Control Summary

**Total Records:** 470

### QC Status Distribution:

- Good Data (QC=1): 470 records (100.0%)
- Adjusted Data (QC=5): 0 records (0.0%)
- Missing Data (QC=9): 0 records (0.0%)
- No QC (QC=0): 0 records (0.0%)

## Data Sources and Logger Information

### Active Logger Information During Storm Period

#### Buoy 62091 (M1 Buoy (Retired)):

- Logger(s) used: 347\_Wavesense , 8704\_CR6

#### Buoy 62092 (M2 Buoy):

- Logger(s) used: 314\_Wavesense , 12146\_CR6

#### Buoy 62094 (M4 Buoy):

- Logger(s) used: 12142\_CR6 , 12143\_CR6

#### Buoy 62095 (M5 Buoy):

- Logger(s) used: 12145\_CR6 , 341\_Wavesense

**Note:** This report uses only quality-controlled data (QC indicators 1 and 5) for meteorological analysis. Logger information shows which data acquisition systems were active during the storm period.

## Data Visualization

!Storm Overview

*Figure 1: Marine meteorological analysis showing wind speed, wave height, atmospheric pressure, air temperature, wind direction, and wave period during Storm Gerrit.*

## Technical Notes

### QC Methods Applied

- **Manual QC:** Visual inspection and expert validation
- **Automatic QC:** Range checks, spike detection, and flat-line identification

### Data Quality Indicators

- 0: No QC performed
- 1: QC performed, data OK
- 4: QC performed, raw data not OK and not adjusted
- 5: QC performed, raw data not OK but value adjusted/interpolated
- 6: QC performed, data OK (Datawell Hmax sensor specific)
- 9: Data missing

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*Report generated by Marine Storm Analysis System Data source: Irish Marine Data Buoy Network Quality controlled data from Met Éireann marine observations*

## Marine Meteorological Analysis



**Figure 1:** Marine meteorological observations during Storm Gerrit. Eight-panel analysis showing wind speed, significant wave height (Hm0), maximum wave height (Hmax), atmospheric pressure, air temperature, wave period, wind direction patterns, and comparative wave heights across the Irish Marine Data Buoy Network. Quality-controlled data only.

## Met Éireann Marine Unit

### Irish Marine Data Buoy Network

Valentia Observatory, Co. Kerry

[www.met.ie/climate/storm-centre](http://www.met.ie/climate/storm-centre)