TORRO SITE INVESTIGATION

SUMMARY REPORT

Milford On Sea, Hampshire

1 November 2025

Report number: SI20251101_Milford on Sea

Site Investigator: Sarah Horton

Authors: **Site Investigator:** Sarah Horton sarah.horton@torro.org

David Smart david.smrt@gmail.com

Date: 11 November 2025

Document status: FINAL

Document history:

Author	Version	Type	Date	Comments
Horton, S.	0.1	Initial draft	10/11/25	
Smart, D.	0.2	Revision	11/11/25	Added meteorological summary.
Horton	1.0	Final	11/11/25	Minor revisions

Keywords: tornado, Milford on Sea, Hampshire, England south coast, line convection, kata-front

How to cite: Horton, S (2025). TORRO site investigation summary report: Milford on Sea, Hampshire 1 November 2025.

https://www.torro.org.uk/pdf/SI/SI20251101_Milford on Sea.pdf

DOCUMENT OR CONTENT NOT TO BE REPRODUCED WITHOUT EXPRESS PERMISSION

Site Investigation summary

Cause of damage:	Tornado
Strength:	T1
Track Length:	800m
Maximum measured Width:	50m
Time/ duration	0015 UTC +/-10min
Map Location/postcode	SO41 XXX

Figure 1: Damage track of the Milford on Sea tornado (2025). Numbers refer to key damage indicators detailed below. Map data ©2025 Google.

Key damage indicators

1. A small wooden fence panel along the beachfront was blown down (50.7207, -1.5874). Nearby, a low garden fence and an attached brick column were blown over. The mortar between the brickwork appeared deteriorated, which likely weakened the column. **Intensity rating: T1**

2. The south-west facing section of roof on a three-storey block of flats lost several slate tiles at the front corner of the property, resulting in water ingress (50.7204, -1.5869). Some slates were also dislodged from the north-east face of the roof, again next to the front corner of the property. The fascias on three dormer windows facing the sea were bent.
   Slate tiles from the roof were carried approximately 30m NE, with possible impact damage observed on a metal garage door. **Intensity rating: T1**

3. There is some uncertainty about whether this property had been damaged during the tornado, though damage appeared consistent with this. There was evidence of recent re-tiling of the NW front-facing corner of the roof. In alignment with this, was a shrub which appeared to have been broken off, and next to this, a brick pillar in the garden had fallen.

4. The greatest concentration of visible damage was seen around 50.7232, -1.5831. A single skin brick wall, with reported vegetation growing over it, had fallen to the north. Across the road, three properties had been damaged over a width of approximately 50m. The westernmost house experienced lifting and loss of roof tiles on one corner and along the lower edge of the south-west facing roof slope, along with damaged fascias and guttering. Plastic elements lost from the roof were reported to have been carried approximately 50 m to the north-east and embedded in soft ground. Although these had been removed before the survey, small divots remained in the grass.

   The neighbouring house to the east lost a small number of tiles, and the next house lost a couple of tiles. **Intensity rating: T1**

5. Four brick pillars with attached slatted fence panels were blown over (50.7237, -1.5822). A small plastic-and-wood greenhouse was lifted and landed intact approximately 5m to the W. A nearby property lost a single ridge tile. **Intensity rating: T1**

6. A newly installed wooden fence was blown over, snapping concrete posts. A trampoline was lifted and deposited in a neighbouring garden. (50.7237, -1.5822) **Intensity rating: T1**

7. A tree fell to the north-east. (0.7260, -1.5802) The condition of the tree has not been assessed and so therefore no intensity rating was assigned.

Meteorological summary

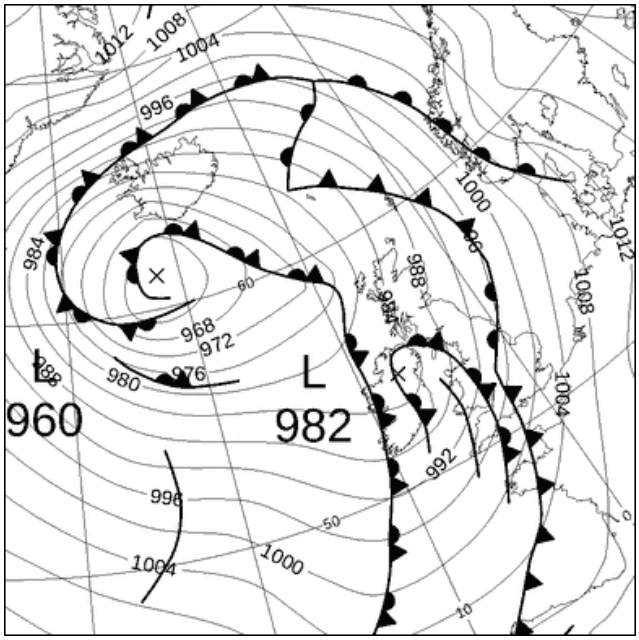

Figure 2: Section of the UKMO ASXX valid 0000 UTC 1 November 2025. Original: Crown copyright.

This event occurred as a surface cold front (SCF) was moving rapidly eastward over southern England. The location was equatorward of a frontal wave deepening at a moderate rate (3 to 6hPa/6hr), part of a complex area of low pressure over the North East Atlantic (see figure 2).

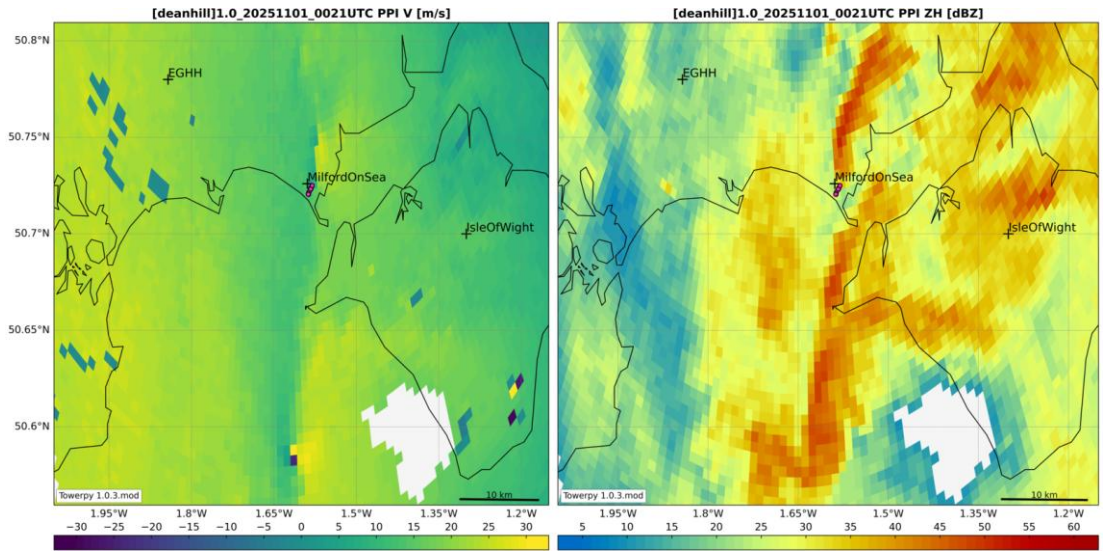

Figure 3: Imagery from the Dean Hill radar 1-degree elevation scan at 0021 UTC 1 November, radial velocity-left panel, reflectivity- right panel. The location of Milford-on-Sea is indicated and damage markers are overlaid in magenta. Note that a line of radial shear appears to run from the location of the event due south where a stronger vortex-couplet can be seen south-west of the Isle of Wight. Original date archived at the Centre for Environmental Data Analysis.

In radar imagery the SCF exhibited core-gap line convection in a wave-like pattern (though at times this was ill-defined) embedded in a wide frontal rainband. The precipitation cores tended to be tilted down-shear i.e. towards the east with echo-tops at around 4km. Satellite imagery (not shown) indicates the SCF was evolving into a kata-front as it moved eastwards and the down-shear tilt is consistent with this. Figure 3 shows a snapshot from Dean Hill radar. The scan was likely a few minutes after the tornado struck Milford-on-Sea and the vortex-couplet had likely weakened by this time. In Figure 3 a much stronger couplet can be seen over the sea to the south. The damage points are oriented SSE to NNW and are located in the gap just equatorward of an elongated precipitation core.

SBCAPE/MUCAPE, estimated from a model profile, was ~200 J/Kg. Sea surface temperatures in the English Channel were around 14–15C and about one degree cooler close to the coast (OSTIA data, not shown), near normal for the time of year. 0–1 km Storm Relative Helicity was around 100m^2s^{-2} and 0–3km SRH somewhat higher at ~150m^2s^{-2}.

As the SCF moved eastwards the core-gap morphology became even less well-defined though there was some tendency to develop small bowing segments. One such arc produced a wind gust of 37 knots (19ms^{-1}) at 0225 UTC at Rye Harbour, East Sussex. Ken Pryor notes:

The closest representative RAOB sounding in the warm sector near Paris, FR indicated favorable conditions for intense downdraft and downburst wind generation, including an MWPI value of 1-2 and wind gust potential of 36 knots. The sounding showed a distinct mid-tropospheric dry air layer concurrent with elevated potential and conditional instability. The high DCAPE/DCIN ratio inferred from the sounding also emphasized the favorability for

downburst winds reaching the surface despite the presence of a weak, shallow nocturnal temperature.

Earlier, on the evening of the 31st convection in network radar imagery appeared to have some supercell-like characteristics and produced a few sferics.

Comments

1 A forecast/discussion thread is available at TORRO Forum and an 'Enhanced Tornado Risk' along southern coastal counties was noted by Tony Gilbert for the evening/early morning. The relevant forum thread for the event analysis: TORRO Forum ACCESS RESTRICTED TO TORRO MEMBERS.

2 No ESTOFEX forecast/discussion was issued for this event.

3 Much of the evidence had been cleared up and repaired by the time the site investigation occurred, a week after the event, so it is likely that some damage was missed.

4 Several witnesses described the wind as being different from any winds they had heard before. All described how loud it was and the short-lived nature of the event (seconds). One said that it was like 'standing on a platform edge when a train goes past.'

Thank you to the members of public who contacted TORRO and all those who aided the site investigation.