TORRO site investigation

summary report

Hayling Island-Nutbourne, Hampshire

8 October 2024

Report number: SI20241008_HaylingIsland

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Date: 4 November 2024

Document status: Final

Document history:

Author	Version	Type	Date	Comments
Horton, S.	0.1	Initial draft	18/10/2024	Initial test draft
Smart, D.	0.2	Revised draft	4/11/2024	Added meteorological summary and imagery.
Horton, S.	0.3	Revised draft	4/11/2024	
Smart, D.	1.0	Final	6/11/2024	Reformat to accommodate title pages, small mods to Fig4.

Keywords: tornado, Hayling Island, Thorney Island, Nutbourne, Hants.

How to cite: Horton, S (2024). TORRO site investigation summary report: Hayling Island-Nutbourne, Hampshire 8 October 2024

URL: https://www.torro.org.uk/pdf/SI/SI20241008_HaylingIsland.pdf

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Site Investigation summary

Figure 1: Damage track of the Hayling Island - Nutbourne tornado (2024). Map data ©2024 Google

Cause of damage:	Tornado
Strength:	T2
Track Length:	8.3km. (See comment 1)
Maximum Width:	40m
Time/ duration	1936 UTC or soon after/ 5 min
Map Location/postcode	PO11 /9QG/9SL, PO10 8DT, PO18 8RT

Key damage indicators

<u>Hayling Island</u>

1. A very narrow damage track 1.2km across the SE of the island from coast to coast was found.
2. Garden wall blown over to N. (location: 50.7778, -0.9470) **Intensity rating: T2**
3. Ridge tiles removed in at least two locations (50.7785, -0.9457 and 50.7793, -0.9451) Several fences fallen. **Intensity rating: T1**
4. An estimated 10-15 small boats relocated approximately 20m SW. **Intensity rating: T2**

Thorney Island

1. Multiple trees toppled or snapped in varying directions along a track of 540m long and estimated width around 40m.
2. Damaged/felled trees include one tree (girth 45cm) snapped to fall NW (50.8148, -0.9116) and a tree split in half to fall W (location 50.8179, -0.9097). **Intensity rating: T2**
3. Two small boats appeared to be displaced around 5m NW **Intensity rating: T1**

Nutbourne

1. Neither a track length nor width were ascertained due to the limited number of damage points.
2. A small number of ridge tiles and roof tiles on E edge of roof fell onto neighbours car. (location: 50.8433, -0.8922) **Intensity rating: T1**
3. Oak branches around 4m long snapped off a tree. (50.8433, -0.8920)

Meteorological summary

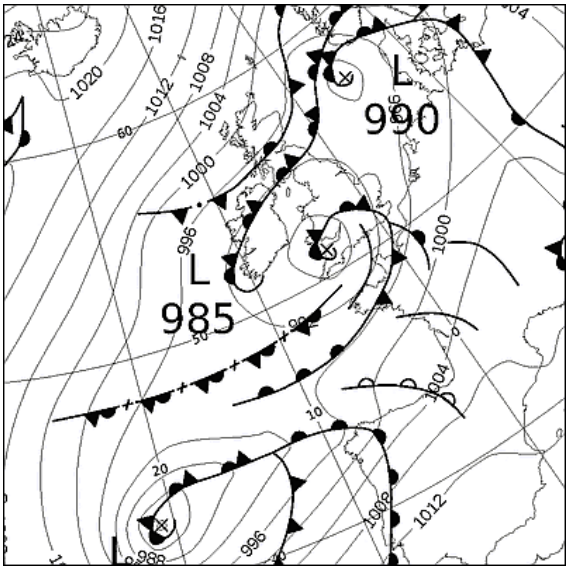

Figure 2: UKMO ASXX 1800 UTC 8 October 2024. Original: Crown copyright.

A complex area of low pressure lies from off Iberia to southern Scandinavia and an upper trough is marked over southern England and the Channel. The small discrete shower which spawned the waterspout/tornado appears to have occurred in the airmass in the rear of this trough having passed close to the Isle of Wight. Rather typically for this type of showery set-up a west-east tropopause fold was over the area.

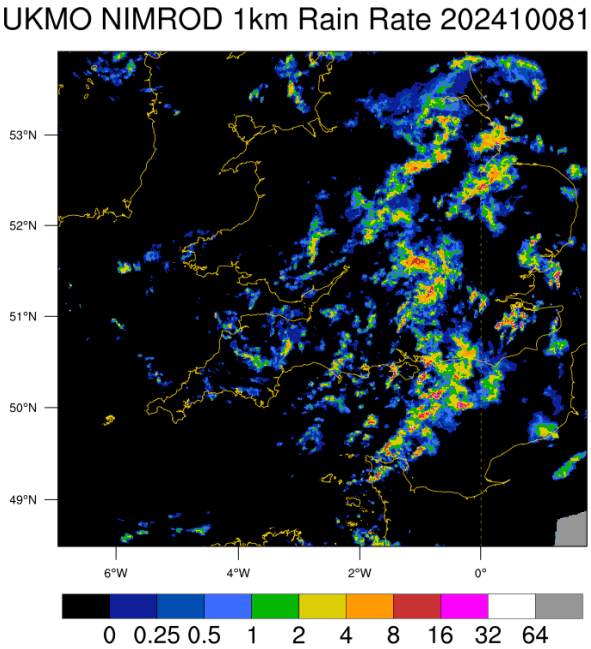

Figure 3: UKMO Nimrod 1km product network radar overview 1930 UTC.

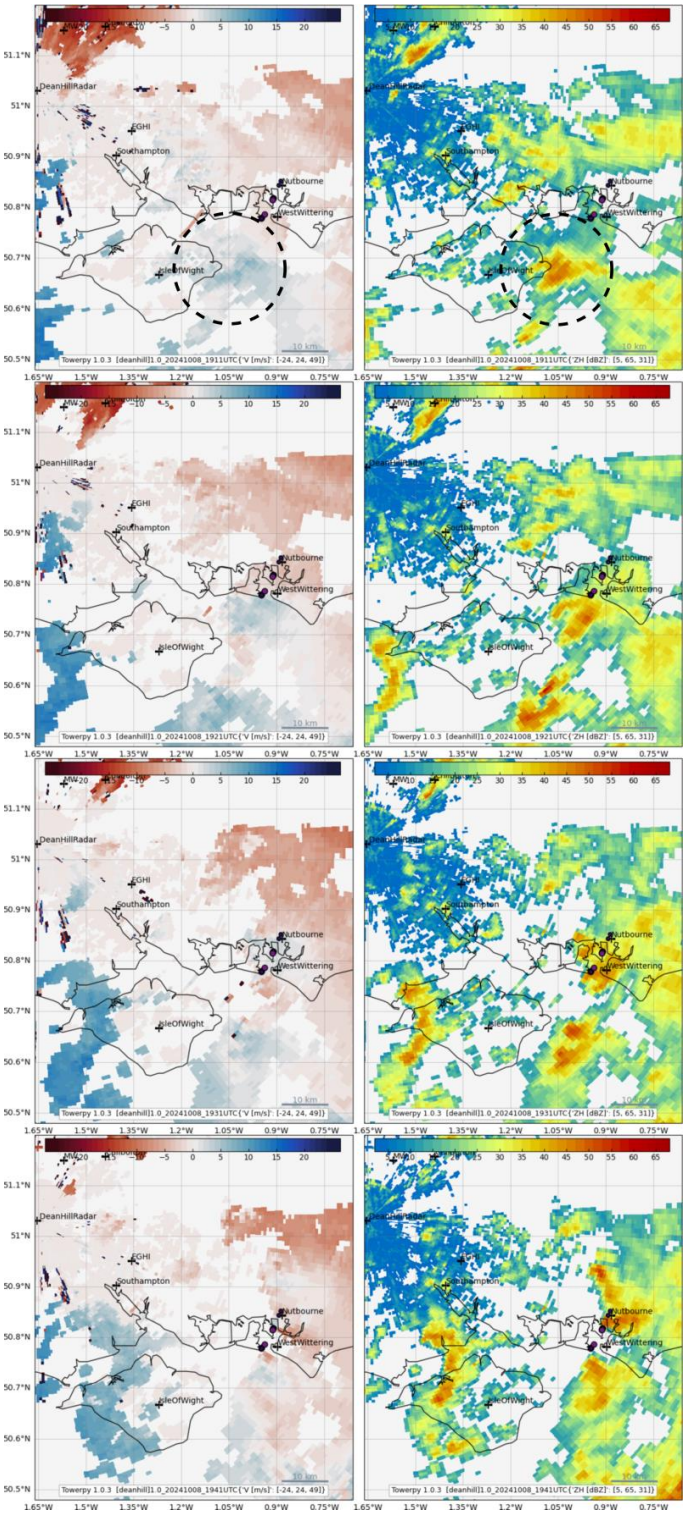

Figure 4: Sequence of reflectivity and radial velocity plots from the Dean Hill radar at one-degree elevation 1901-1941 UTC. SI damage locations are indicated by circular markers. The location of the parent shower is indicated by a dashed circle in the top frame. The cell morphology varies from isolated, discrete cells to non-linear clusters.

Comments

1 The track length has been estimated assuming the tornado remained on the ground/water between the damage points. However, given the terrain in between points; water or flat open land, this cannot be proven. The most northerly damage point was not included in the track length as there was insufficient evidence to conclude the damage reported here was due to a tornado. If this last point were included, the track length would be 9.4km

2 There were credible witness statements in Thorney Island, clearly describing a narrow tornado passing their properties.

3 A TORRO convective discussion had been issued:

> Convective Discussion.11:43 BST Tue 08 Oct 2024 – 03:00 BST Wed 09 Oct 2024. Areas affected S England Parts of the Midlands, E Anglia, Channel Islands Hazards: Gusty winds to 55mph, Hail to 10mm diameter, CG lightning, Isolated tornadoes. Discussion; An area of low pressure will move from the SW Approaches to the Midlands through this period. Showers and occasional thunderstorms will accompany it. Across and close to the area highlighted fairly strong flow at 850 hPa will lead to reasonable low-level shear. Some of the heavier cores may bring hail to around 10mm diameter, perhaps 15mm in the south, where better deep-layer shear may assist in organising cells a little more. Gusty winds to 50-55mph are also possible, as well as occasional CG lightning. Whilst the overall tornado risk is low, high low-level relative humidity/low cloud bases, along with reasonable low-level shear, means that an isolated tornado or two is possible. Last updated by RPK at 11:52 BST Tuesday 8th October 2024

4 Relevant forum thread: TORRO forum ACCESS RESTRICTED TO TORRO MEMBERS.

5 Other relevant events on this day: There were other reported tornadoes in Finham, Coventry (reports vary between 1810-1845 UTC); Draycott, Gloucestershire (1500 UTC) and in Cirencester, Gloucestershire (time uncertain, most likely around 1710 UTC according to radar imagery). A possible tornado was also reported in Bedford, Bedfordshire (around 1640 UTC according to radar imagery).

6 For further imagery and data contact: david.smrt@gmail.com