

STORM EVENT

—— 11th February 1974 ——

High water levels at Aberdeen, and heavy seas damage the Dawlish Railway in southwest England



Severity Ranking



Social	<u>Loss of life</u>	*
	<u>Residential property</u>	Properties were flooded in locations across the south and southeast coasts
	<u>Evacuation & Rescue</u>	*
Economic	<u>Cost</u>	*
	<u>Ports</u>	*
	<u>Transport</u>	The railway station at Dawlish was partially destroyed and roads were flooded in locations across the south and southeast coasts
	<u>Energy</u>	*
	<u>Public services</u>	*
	<u>Water & wastewater</u>	*
	<u>Livestock</u>	*
	<u>Agricultural land</u>	*
Environmental	<u>Coastal erosion</u>	*
	<u>Natural environment</u>	*
	<u>Cultural heritage</u>	*
	<u>Coastal defences</u>	*

**No known sources of information available*

Source	<p>The storm developed off the US northeast on 7th February 1974 and moved northeast towards the UK. On 10th February, as the storm travelled between Ireland and Iceland, it combined with, and was enhanced by, a small low-pressure system located to the west of Iceland. The central pressure deepened to about 950 mbar. On 11th February the storm slowly moved northeast, before turning and travelling west to the northeast of Iceland.</p> <p>The storm generated a skew surge of more than 0.5 m in the Bristol Channel and along the northern and central coast of the North Sea. Water levels exceeded the 1 in 5-year return level at two sites, Milford Haven and Aberdeen. The return period water level was 5 years at Milford Haven and 6 years at Aberdeen. The skew surge at Aberdeen was 0.67 m. The event occurred 2 days after peak spring tides.</p> <p>We are unaware of any sources describing the wave conditions during this event.</p>
Pathway	<p>We are unaware of information regarding the flood pathways for this event, although notable defence failures are implied in descriptions of this event.</p>
Receptor & Consequence	<p>Residential properties and many local roads were flooded in locations across the south and southeast coasts during this event, including Dawlish, Christchurch, Folkstone, Hayling Island, Ryde, Wallington, Fareham, Southsea and in the Severn Valley (Zong and Tooley, 2003; Ruocco et al. 2011). Part of the Dawlish railway station was demolished by waves, disrupting the Exeter-to-Penzance line (Met Office, 1974). The flooding in Plymouth was the worst in living memory (West, 2014). <i>The Times</i> (1974) report the highest tides of the century, which left 40 Devon villages impacted. This event was also associated with flooding at Perranporth, Cornwall (Haigh, 2015).</p> <p>Cornwall Council (2011) describe how throughout February 1974 (no specific dates mentioned) there was flooding in several locations across Cornwall due to a combination of high sea levels and heavy rainfall. Multiple properties were flooded: 37 in Millbrook, 40 in Par and 10 in St Blazey.</p>

Table 1: High water levels (m CD) recorded at the UK National Tide Gauge sites that reached or exceeded a 1 in 5-year return level during the event.

Tide gauge Site	Date and time (GMT)	Return period (years)	Water level (m CD)	Astronomical tide (m CD)	Skew surge (m)
Newlyn	09/02/74 06:00	2	6.12	5.95	0.17
Avonmouth	09/02/74 09:00	2	14.72	14.27	0.45
Milford Haven	09/02/74 08:00	5	7.95	7.72	0.22
Portpatrick	10/02/74 14:00	<1	4.56	4.4	0.16
Lerwick	10/02/74 13:00	<1	2.62	2.48	0.15
Wick	11/02/74 14:00	4	4.21	3.63	0.57
Aberdeen	11/02/74 16:00	6	5.05	4.38	0.67
North Shields	11/02/74 18:00	<1	5.68	5.09	0.58
Immingham	09/02/74 20:00	<1	7.95	7.61	0.35
Lowestoft	09/02/74 23:00	<1	3.03	2.6	0.43
Sheerness	10/02/74 02:00	<1	6.2	5.83	0.37
Dover	10/02/74 01:00	<1	7.22	6.91	0.31

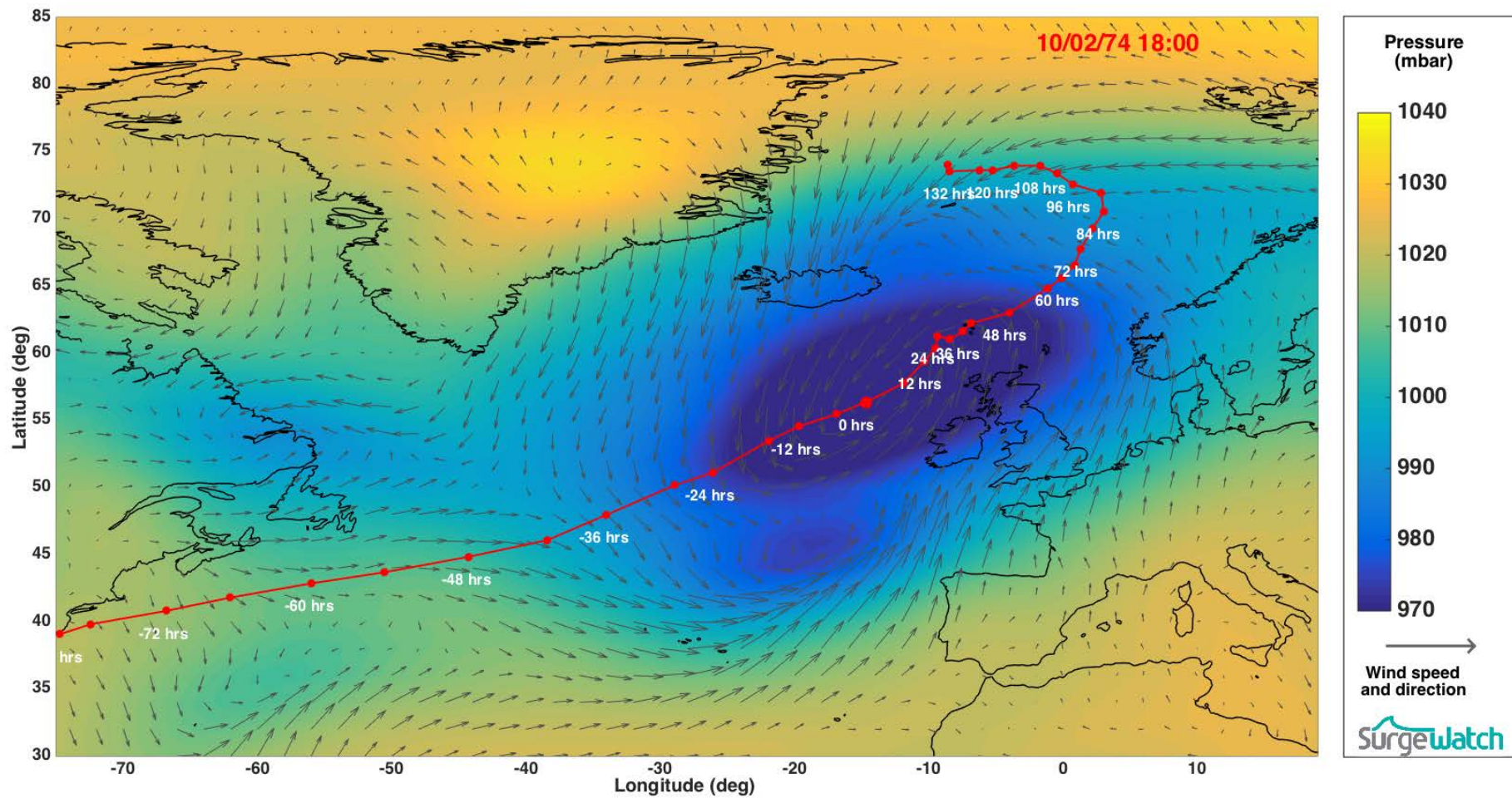


Figure 1: Meteorological conditions at time of maximum water level overlaid by the storm track

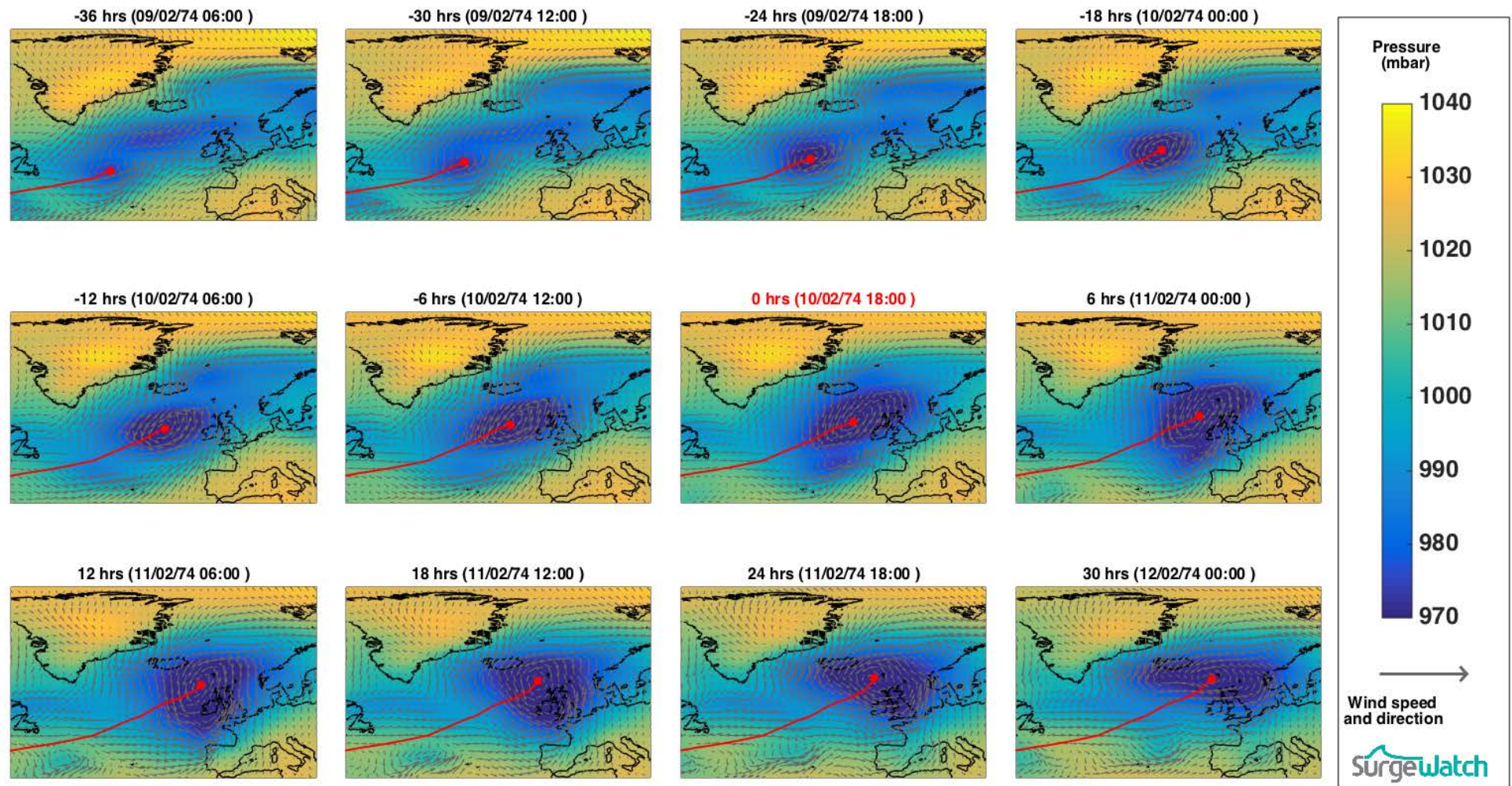


Figure 2: Meteorological conditions during event

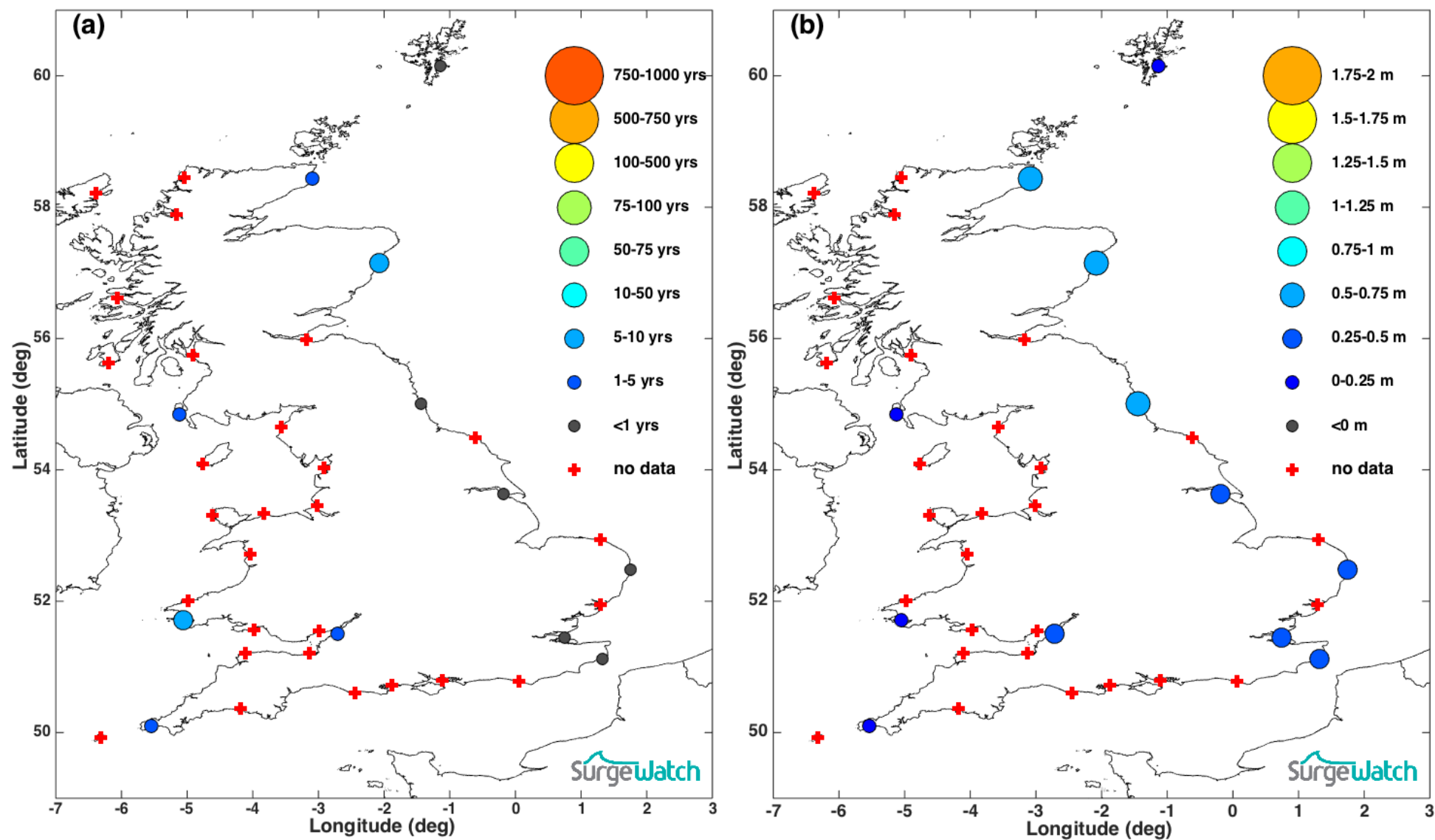


Figure 3: (a) Water level return period; (b) Skew surge levels

References

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- Zong, Y. & Tooley, M.J., 2003. A Historical Record of Coastal Floods in Britain: Frequencies and Associated Storm Tracks. *Natural Hazards*, 29(1), pp.13–36. Available at: <http://link.springer.com/article/10.1023/A%3A1022942801531> [Accessed March 5, 2015].

Additional sources of information