

STORM EVENT

— 14th February 2014 —

The “Valentine’s Day” storm hits the south coast of the UK, triggering severe flood warnings from Cornwall to Hampshire and causing flooding and erosion



Severity Ranking



Social	<u>Loss of life</u>	*
	<u>Residential property</u>	Properties were flooded in locations including Newlyn, Plymouth, Mudeford, Lymington, and Milford-on-Sea
	<u>Evacuation & rescue</u>	32 persons were evacuated in Milford-on-Sea
Economic	<u>Cost</u>	*
	<u>Ports</u>	*
	<u>Transport</u>	Local roads flooded in many locations, which caused much disruption
	<u>Energy</u>	*
	<u>Public services</u>	*
	<u>Water & wastewater</u>	*
	<u>Livestock</u>	*
	<u>Agricultural land</u>	*
Environmental	<u>Coastal erosion</u>	Severe overwashing and damage to Hurst Spit (the gravel barrier at the entrance of the Solent)
	<u>Natural environment</u>	*
	<u>Cultural heritage</u>	*
	<u>Coastal defences</u>	Overtopping occurred in locations including Newlyn, Plymouth, Poole Bay, Milford-on-Sea, Portsmouth, Isle of Wight and numerous other south coast locations. The shingle barriers of Hurst Spit and Chesil Beach were also left damaged.

**No known sources of information available*

Source	<p>The storm developed in the Atlantic east coast of Canada on the 12th February 2014 and moved northeastwards across Ireland and northern England. During the afternoon on 14th February, the depression was centred over Ireland with a central pressure of about 960 mbar. Strong southwesterly winds were felt along the south, southwest and west coasts. Widespread gale force winds of up to 70 knots [36 m/s were recorded in England, Wales and Scotland, and gusts of up to 94 knots (48 m/s) at the Needles Old Battery, Isle of Wight (Met Office, 2014). This storm was the last in a series of at least 12 major storms that impacted the UK during the winter of 2013/14.</p> <p>The storm generated some of the largest recorded skew surges at several sites in the UK southwest. Water levels exceeded the 1 in 5 year return level at two sites on the central south coast: (1) 1 in 11 years at Weymouth, and (2) 1 in 9 years at Portsmouth (where a skew surge of 1.20 m was measured).</p> <p>The storm was accompanied by ‘huge’ waves and heavy rain (BBC, 2014a).</p>
Pathway	<p>Overtopping of sea defences was the primary mechanism for flooding during this event.</p>
Receptor & Consequence	<p>This event impacted areas in the south and southwest coasts, including Cornwall where there was considerable overtopping. In Newlyn, the overtopping led to flooding of adjacent streets and properties (BBC, 2014b). In Plymouth, there were reports of overtopping of the sea wall by large waves, coastal flooding, and damage to sea front properties (BBC, 2014a). Significant erosion and damage to sea defences was also reported at Hurst Spit (Hampshire) and Chesil Beach (near the Isle of Portland, Dorset; West, 2014). At Milford on Sea, Hampshire, 32 people were rescued from a beach front restaurant as waves threw shingle and smashed ground floor windows (Weather Forecast, 2014). Residents in Mudeford (Christchurch, Dorset) were also evacuated (Bournemouth Echo, 2014). A high volume pump was deployed at Lymington quay to alleviate tidal flooding, and Hampshire Fire and Rescue responded to a 93 year old woman in Lymington who needed to be rescued from chest high flooding within her house, where she also had no electricity (HFRS, 2014). Roads across Dorset were flooded – including Shore Road, Sandbanks (Poole, Dorset) which was under 4 ft. [1.22 m] water (Bournemouth Echo, 2014). Rivers across Dorset and Hampshire (e.g. Stour at Wimborne, Avon at Fordingbridge) burst their banks (although mainly due to heavy rainfall). Elsewhere on the south coast there was widespread damage, traffic disruption due to fallen trees and power failures (Weather Forecast, 2014). Severe flooding also occurred along the River Thames, with streets awash with sewage in Egham, Surrey (BBC, 2014c) – although this was more rain than tide-surge related.</p> <p>In London, a motorist was killed after falling masonry struck a vehicle (Met Office, 2014).</p> <p>At the time of this event, following the storms earlier during the winter, around 14,000 properties in Wales were without electricity (BBC, 2014d).</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)
Newhaven	14/02/14 23:30	<1	7.12	6.45	0.67
Portsmouth	14/02/14 23:00	9	5.54	4.34	1.2
Weymouth	14/02/14 19:45	11	2.93	1.99	0.94
Devonport	14/02/14 17:45	2	6.22	5.3	0.92
Newlyn	14/02/14 16:45	<1	6.08	5.26	0.82
St. Mary's	16/02/14 05:30	<1	5.64	5.33	0.31
Ilfracombe	14/02/14 18:00	<1	9.62	8.82	0.8
Hinkley Point	14/02/14 18:45	<1	12.07	11.33	0.73
Newport	14/02/14 19:00	<1	12.56	11.33	1.23
Mumbles	14/02/14 18:00	<1	9.93	9.06	0.87
Milford Haven	14/02/14 18:00	<1	7.59	6.46	1.13
Fishguard	14/02/14 19:30	<1	5.29	4.21	1.09
Barmouth	14/02/14 20:15	<1	5.54	4.62	0.92
Holyhead	14/02/14 22:30	<1	6.04	5.32	0.72
Llandudno	14/02/14 22:45	<1	7.9	7.2	0.7
Liverpool	15/02/14 11:30	<1	9.8	9.15	0.65
Heysham	15/02/14 11:30	<1	9.9	9.27	0.63
Workington	14/02/14 23:30	<1	8.56	7.79	0.77
Port Erin	14/02/14 23:15	<1	5.75	4.98	0.76
Portpatrick	14/02/14 23:30	<1	4.37	3.72	0.64
Millport	15/02/14 00:30	<1	3.78	3.21	0.58
Tobermory	15/02/14 06:15	<1	4.71	4.43	0.27
Stornoway	15/02/14 07:15	<1	4.91	4.77	0.13
Ullapool	13/02/14 06:30	<1	5.26	4.77	0.5
Kinlochbervie	13/02/14 06:45	<1	4.97	4.5	0.46
Lerwick	15/02/14 11:15	<1	2.35	2.12	0.23
Wick	14/02/14 23:30	<1	3.56	3.21	0.35
Aberdeen	15/02/14 13:45	<1	4.43	4.15	0.28
Leith	15/02/14 15:00	<1	5.69	5.36	0.33
North Shields	15/02/14 15:45	<1	5.15	4.93	0.22
Whitby	15/02/14 16:30	<1	5.69	5.48	0.21
Immingham	15/02/14 18:45	<1	7.04	6.91	0.13
Lowestoft	15/02/14 22:30	<1	2.79	2.47	0.32

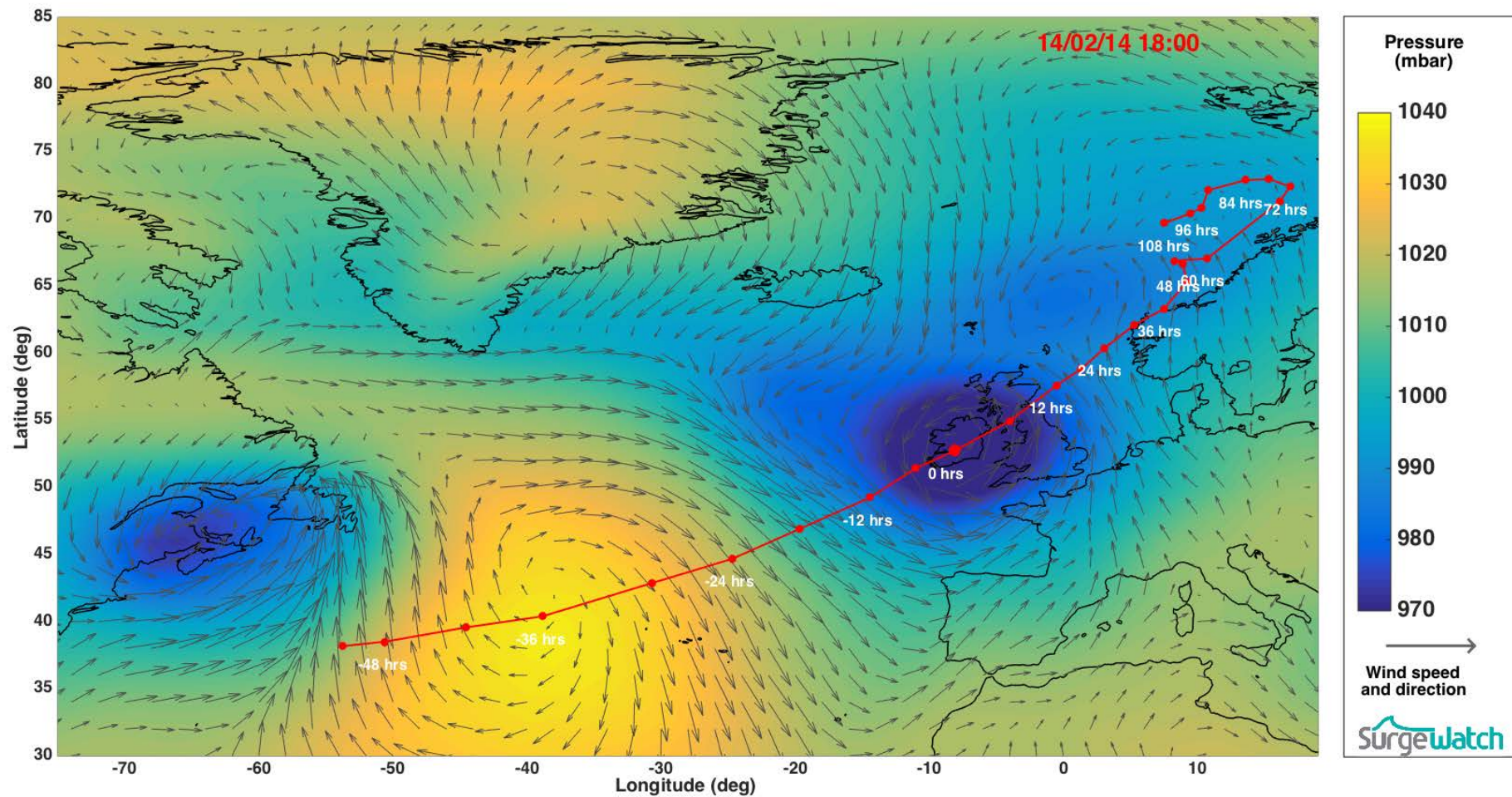


Figure 1: Meteorological conditions at time of maximum water level overlaid by the storm track

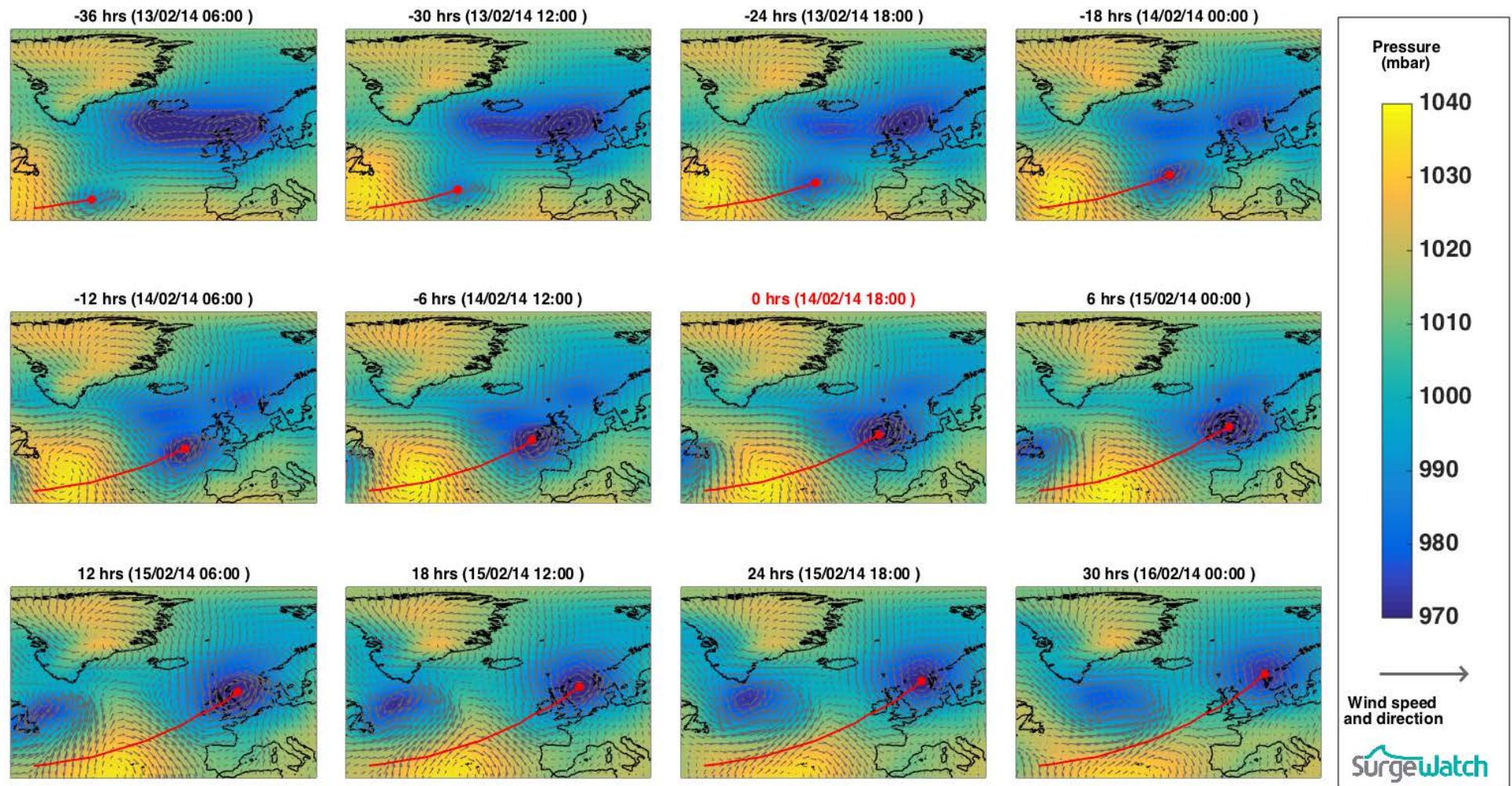


Figure 2: Meteorological conditions during event

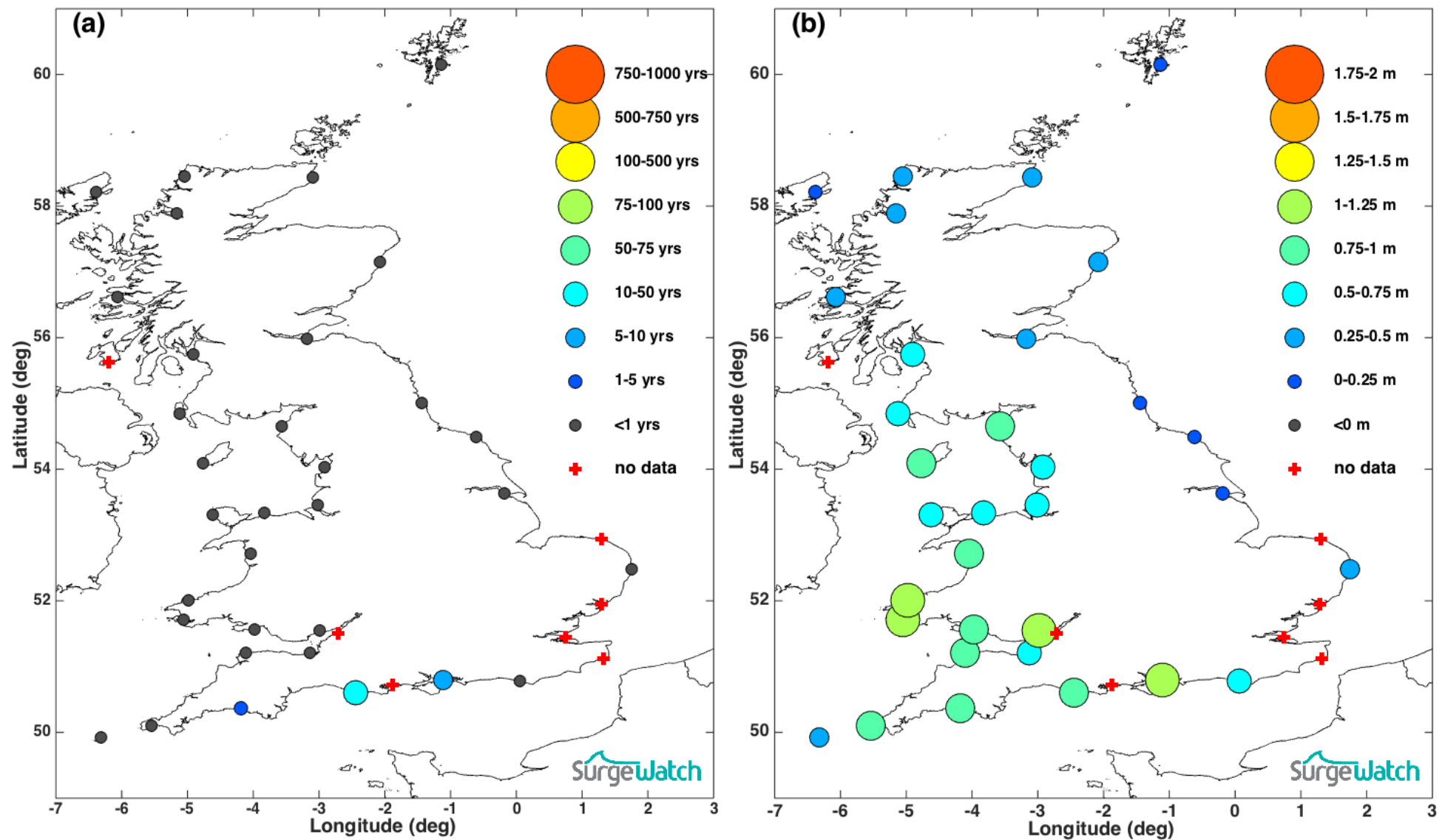


Figure 3: (a) Water level return period; (b) Skew surge levels

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