SurgeWatch

STORM EVENT

20th December 1983

High tides and storm surge cause flooding on the south coast

Severity Ranking

		3			

Social	Loss of life	*
	Residential property	Properties were inundated in Portsmouth and Cowes
	Evacuation & rescue	*
Economic	Cost	*
	Ports	*
	Transport	The A27 near Emsworth was inundated, causing some disruption
	Energy	*
	Public services	*
	Water & wastewater	*
	Livestock	*
	Agricultural land	*
Environmental	Coastal erosion	*
	Natural environment	*
	Cultural heritage	*
	Coastal defences	The sea wall at Ryde experienced a breach of 20 yards in width

**No known sources of information available*

Source	The storm began to form over the central North Atlantic in the wake of another low-pressure system situated over the British Isles on 19th December. While interacting with the second anticyclone, this storm moved eastwards overnight reaching southern England with a central air pressure of approximately 970 mbar, generating south-westerly winds over the English Channel. Within the national tide gauge network, there were no observations of notable high water levels, although a skew surge value of up to 0.6 m was recorded at Newlyn on the south coast. There are no water level observations available from within the Solent, which is where the impacts of this event are concentrated. We are unaware of any sources describing the wave conditions during this event.
Pathway	The sea wall at Ryde was breached over a length of approximately 60 ft. [18 m]. We are unaware of any further specific information concerning the flood pathways during this event.
Receptor & Consequence	The unusual movement of this storm and its interaction with another anticyclone meant that flooding happened over several days. On 19th December there was localised flooding in Hythe, Hampshire (Ruocco *et al*., 2011). A "large" number of locations were impacted on 20th December (Met Office, 1983; Eden, 2008). Many local roads and properties in low-lying areas of Portsmouth were inundated, including the A27 nearby Emsworth (Ruocco *et al*., 2011). The flooding in Cowes was described as the worst in a number of years, and 20 properties were inundated. In Ryde, damages totalling many thousand pounds were incurred as large section of the sea wall was breached, along with many flooded properties. Other impacted locations included Hythe and Fareham, and also Hayling Island where some residents were trapped in their homes. Cornwall Council (2011) describe an event which occurred during an unspecified time in December 1983; associated with flooding in Penzance, Fowey and Looe (Cornwall Council, 2011). We determined that this event is very likely to have occurred on the 20th December 1983; as the 20th saw the largest water level in December, and it was only during the 18th-20th that saw significant surge activity recorded at Newlyn tide gauge during that month.

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	20/12/83 11:00	<1	7.06	6.8	0.27
Newlyn	20/12/83 05:00	<1	6.01	5.44	0.57
Ilfracombe	20/12/83 18:00	<1	9.54	9.16	0.38
Milford Haven	20/12/83 18:00	<1	7.36	7	0.37
Fishguard	21/12/83 08:00	<1	5.16	4.93	0.23
Holyhead	21/12/83 11:00	<1	6.1	5.85	0.24
Heysham	21/12/83 12:00	<1	10	9.74	0.26
Portpatrick	21/12/83 12:00	<1	4.39	4.14	0.25
Millport	21/12/83 13:00	<1	3.71	3.57	0.14
Ullapool	21/12/83 07:00	<1	5.39	5.34	0.05
Lerwick	20/12/83 11:00	<1	2.33	2.34	-0.01
Wick	20/12/83 11:00	<1	3.72	3.62	0.1
Aberdeen	21/12/83 14:00	<1	4.5	4.48	0.03
North Shields	21/12/83 04:00	<1	5.17	4.96	0.21
Whitby	19/12/83 03:00	<1	5.55	5.29	0.26
Immingham	19/12/83 05:00	<1	7.29	6.89	0.4
Lowestoft	19/12/83 08:00	<1	2.58	2.41	0.18
Sheerness	20/12/83 00:00	<1	5.83	5.66	0.17
Dover	19/12/83 10:00	<1	6.66	6.49	0.16

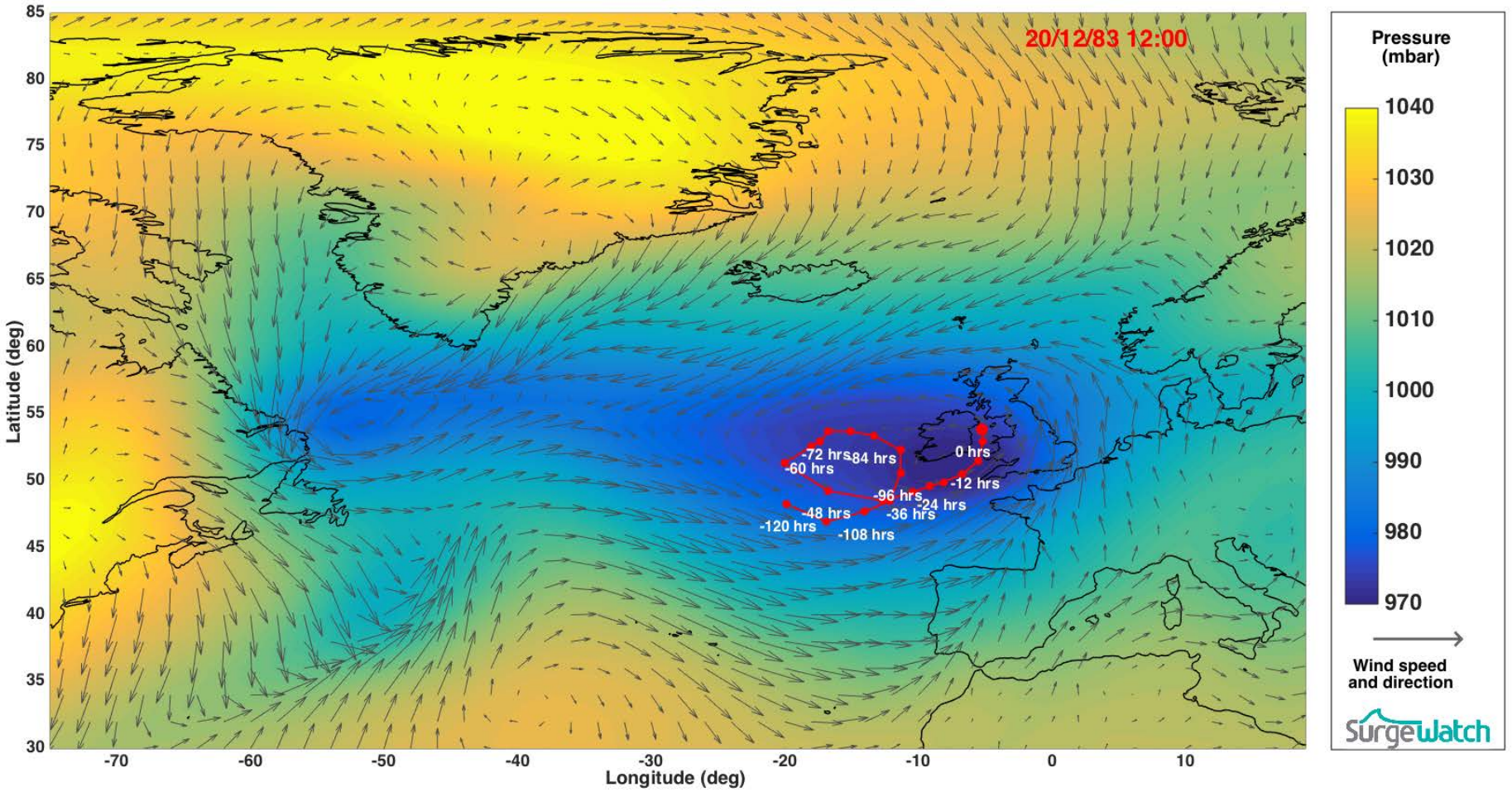

Figure 1: Meteorological conditions at time of maximum water level overlaid by the storm track

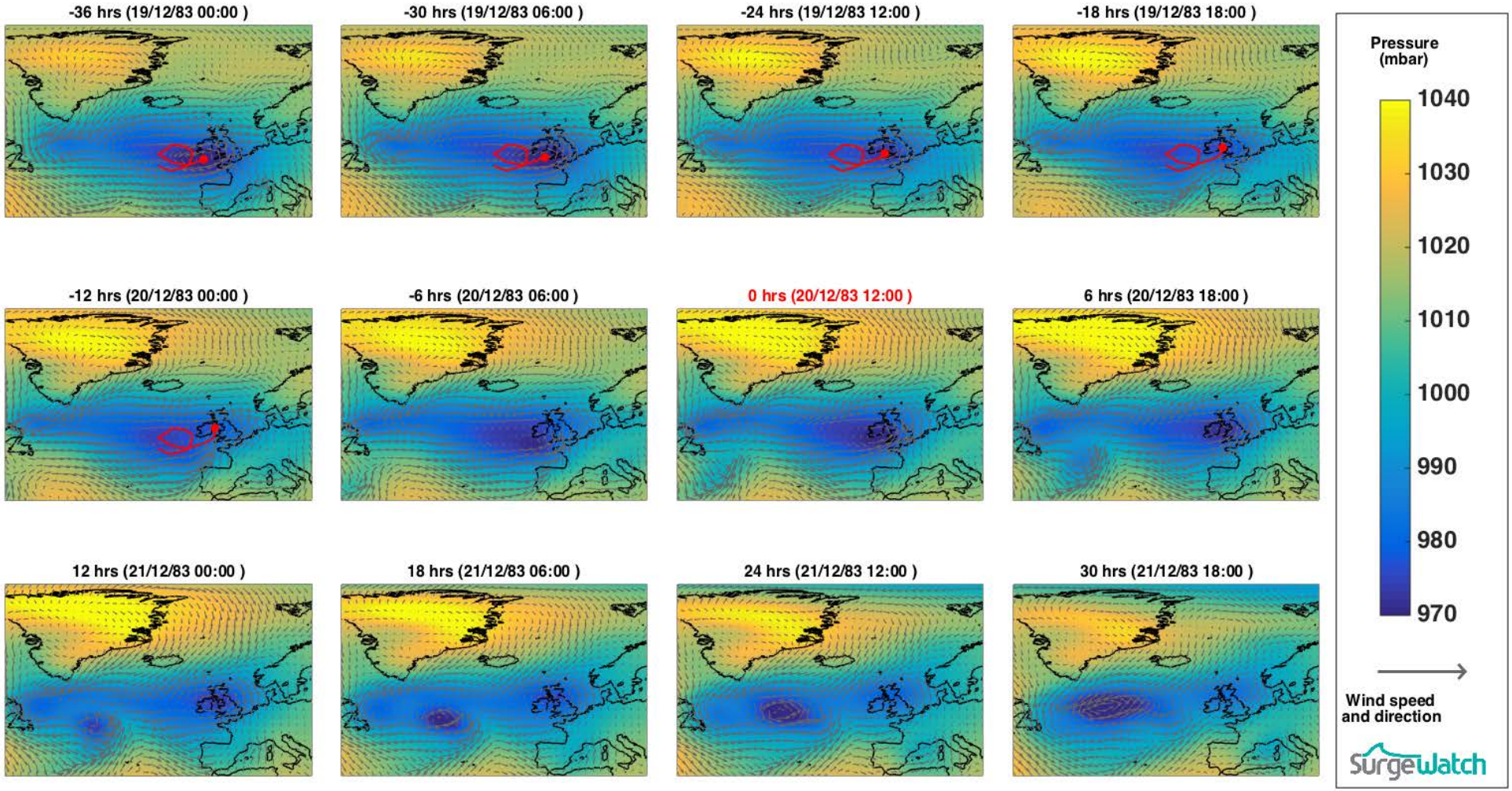

Figure 2: Meteorological conditions during event

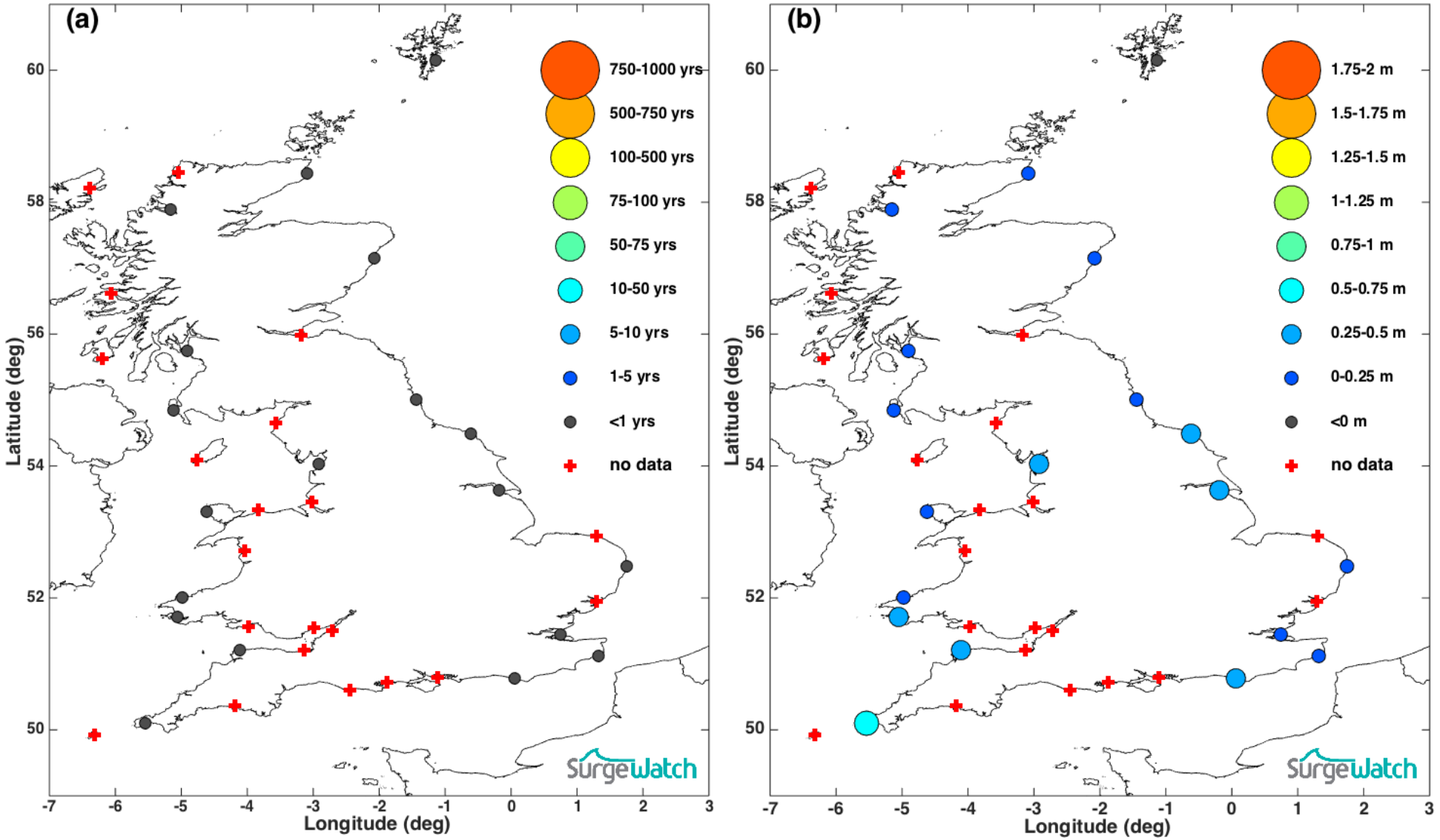

Figure 3: (a) Water level return period; (b) Skew surge levels

References

Cornwall Council, 2011. *Preliminary Flood Risk Assessment ANNEX 5 – Chronology of Major Flood Events in Cornwall*, Truro.

Eden, P., 2008. *Great British Weather Disasters*, London: Continuum UK.

Met Office, 1983. Monthly Weather Report of the Meteorological Office. *Monthly Weather Report*, 100(12). Available at: http://www.metoffice.gov.uk/learning/library/archive-hidden-treasures/monthly-weather-report-1980s.

Ruocco, A.C. et al., 2011. Reconstructing coastal flood occurrence combining sea level and media sources: a case study of the Solent, UK since 1935. *Natural Hazards*, 59(3), pp.1773–1796. Available at: http://link.springer.com/10.1007/s11069-011-9868-7 [Accessed March 27, 2015].

Additional sources of information