

STORM EVENT

— 23rd-24th November 1984 —

Coastal flooding to properties across the Solent, Sussex, and southwest region



Severity Ranking

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Social	<u>Loss of life</u>	*
	<u>Residential property</u>	34 residential properties are known to have flooded in Shoreham, Sussex. Properties flooded in the Solent, specific numbers not known (e.g. on the 24 th it is noted that “many” residential properties were flooded near Sandy Point, Hayling Island). Over 35 properties flooded in Cornwall.
	<u>Evacuation & rescue</u>	*
Economic	<u>Cost</u>	*
	<u>Ports</u>	*
	<u>Transport</u>	“Widespread” disruption to traffic
	<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>	Breach in the sea wall at Gurnard, Isle of Wight; and at Hayling Island

**No known sources of information available*

Source

The storm developed southeast of Nova Scotia, Canada on 19th November 1984 and moved northeastwards towards the UK. On 20th November, the storm combined with, and was enhanced by, another low-pressure system located west of Newfoundland, Canada. Central pressure dropped rapidly to below 960 mbar. The storm crossed to the north of Scotland on 24th November and dissipated to the north of Norway on 25th November. The storm generated strong southwesterly winds over the British Isles. The maximum recorded wind speeds on 23rd November were 70 knots [36 m/s] at Herstmonceux, Sussex, 74 knots [38 m/s] at Glenna Head, Cornwall and 73 knots [37 m/s] at Guernsey Airport, Channel Islands (Met Office, 1984).

The storm generated a skew surge of between 0.25 and 1.0 m at several sites in the Bristol Channel and Irish Sea and between 0.25 m and 0.75 m along the east coast of the UK. Water levels exceeded the 1 in 5 year return level at two sites, Lerwick and Aberdeen. The return period water level was 9 years at both sites. The corresponding skew surges were 0.38 m and 0.41 m respectively. The event occurred at peak spring tides.

We are unaware of any sources describing the wave conditions during this event.

Pathway

Other than reports of a breach in defences at Hayling Island, we are unaware of any further specific information regarding the flood pathways during this event.

Receptor & Consequence

This event saw reportedly the worst flooding in living memory at Shoreham, Sussex where 34 residential properties and an entire factory were flooded, beach huts were destroyed and one road and several gardens were inundated (BBC, 1986). This event was also associated with flooding in many locations around the Solent, Hampshire (Ruocco *et al.*, 2011). A breach in defences at Hayling Island flooded local roads, property and a car park. Considerable flooding exacerbated by heavy rainfall was also experienced in areas of Portsmouth. Other impacted areas included Southampton, Lymington, Fawley, Fareham, Cowes, and Ryde. There was widespread disruption to traffic and businesses, and damages to property. Flooding also occurred along parts of the north Devon coastline (Hansard, 1984). One newspaper article described the impacts at Sandy Point, Hayling Island where many residential properties were flooded during this event with "freak" conditions which occur once in 250 years (Ruocco *et al.*, 2011). Other impacted areas included Langstone, Ryde and Cowes, with the high street in the last location flooded to a depth of 3 ft. [0.9 m].

Cornwall Council (2011) also noted an event of unspecified time in November 1984; associated with "major" flooding in Fowey and Padstow (12 and 35 properties inundated, respectively) due to a combination of high sea levels and high river flows, with reportedly less serious flooding in Wadebridge, Sladesbridge and Perranporth. Whilst the day in the information source is unspecified, we can establish that these occurrences are very likely to be part of this event as the only extreme sea level that month was on the afternoon of 23rd November, so is assumed to be this event which also affected locations further east on the English south coast.

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	23/11/84 17:00	3	6.15	5.68	0.47
Ilfracombe	23/11/84 18:00	4	10.27	9.76	0.51
Avonmouth	23/11/84 19:00	<1	14.52	13.66	0.86
Fishguard	23/11/84 19:00	<1	5.49	5.15	0.35
Holyhead	23/11/84 10:00	<1	6.26	5.93	0.33
Heysham	23/11/84 11:00	<1	10.74	10.18	0.56
Portpatrick	24/11/84 00:00	<1	4.55	4.24	0.31
Lerwick	23/11/84 23:00	9	2.9	2.52	0.38
Wick	22/11/84 23:00	2	4.16	3.79	0.37
Aberdeen	23/11/84 01:00	9	5.11	4.7	0.41
North Shields	23/11/84 03:00	2	5.83	5.4	0.43
Whitby	23/11/84 03:00	<1	6.25	5.77	0.48
Immingham	23/11/84 05:00	<1	7.89	7.48	0.41
Lowestoft	23/11/84 09:00	<1	3.19	2.61	0.59
Sheerness	24/11/84 13:00	<1	6.27	5.89	0.39
Dover	23/11/84 11:00	<1	7.24	6.95	0.3

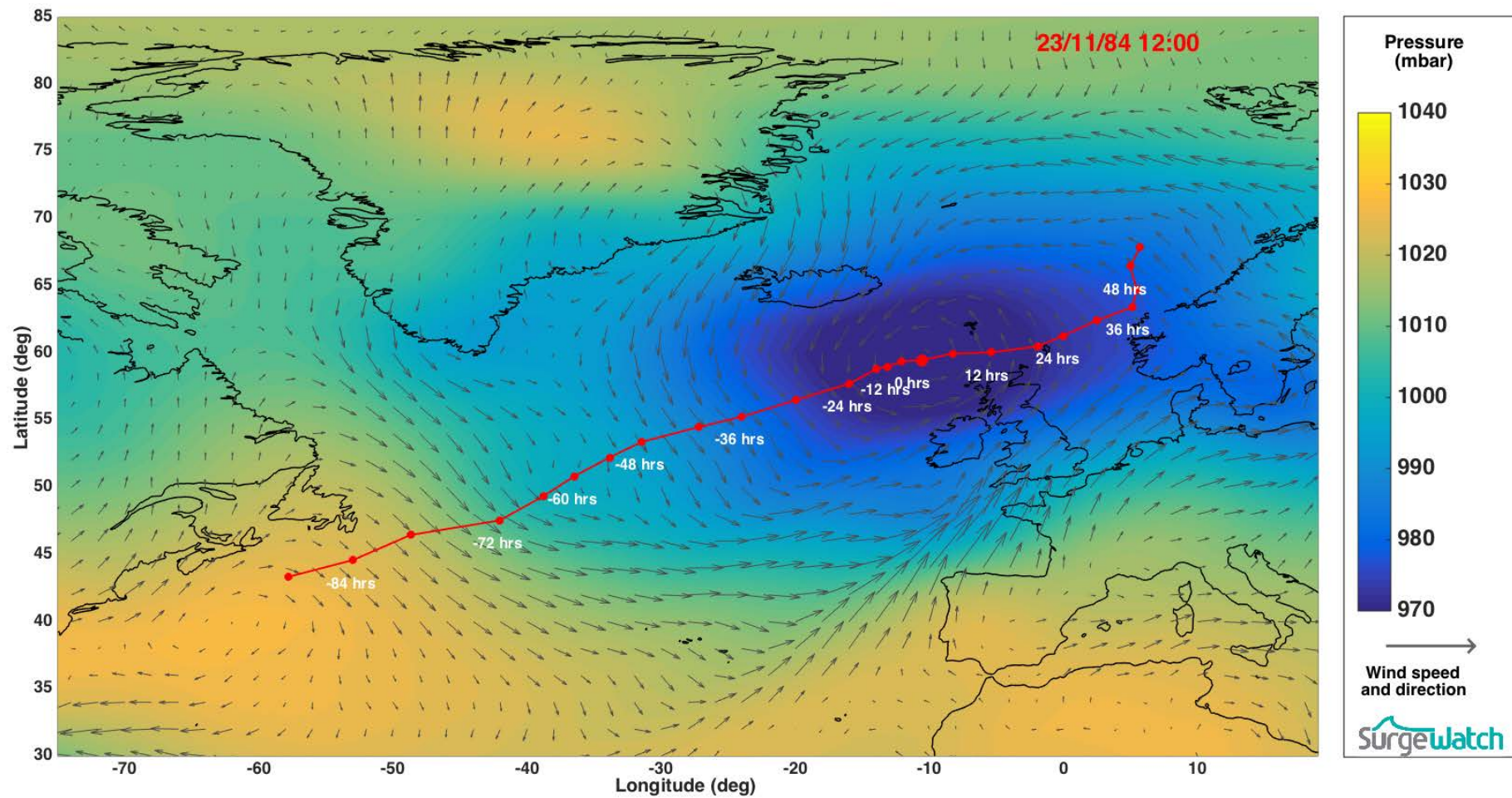


Figure 1: Meteorological conditions at time of maximum water level overlaid by the storm track

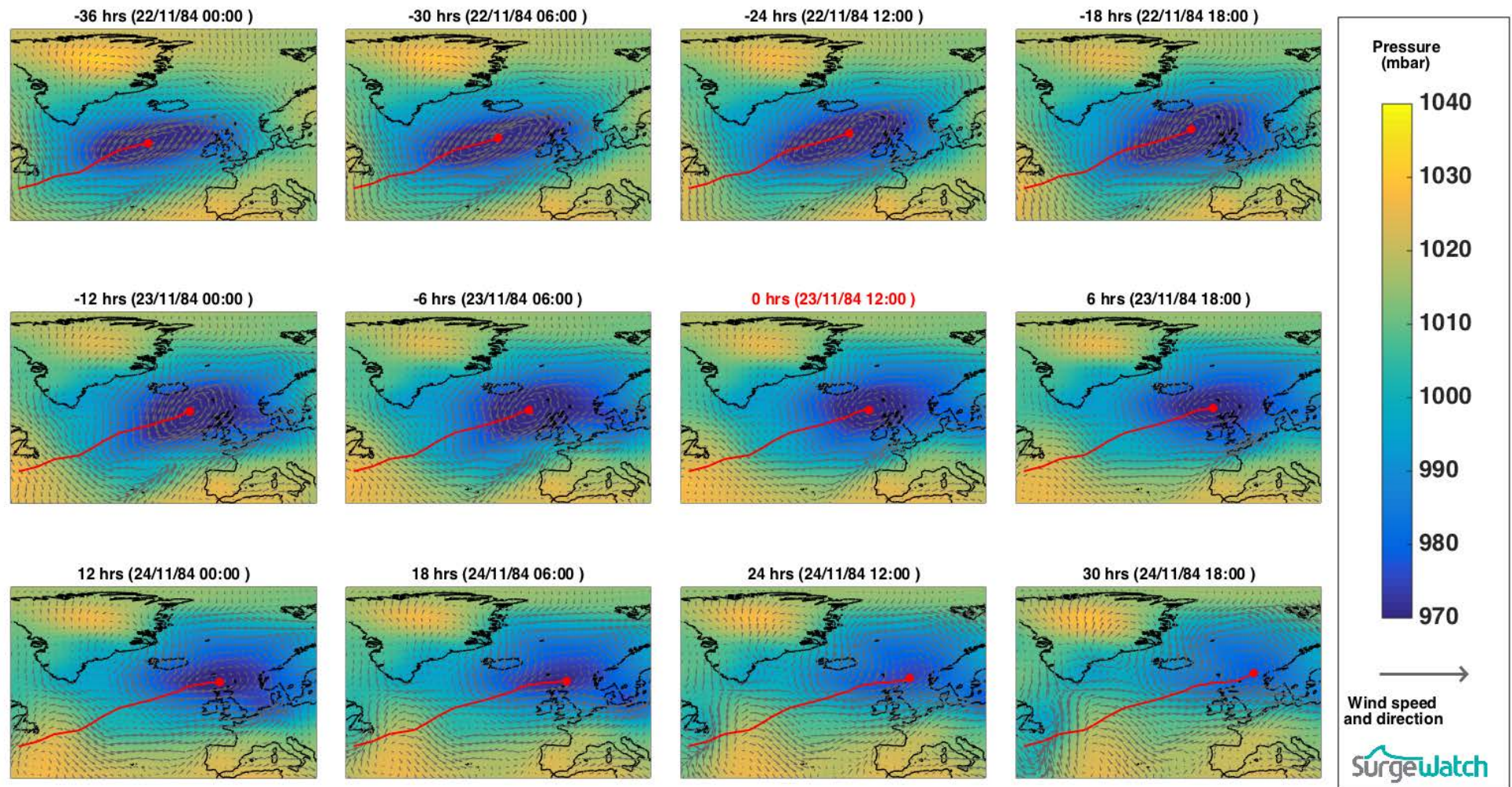


Figure 2: Meteorological conditions during event

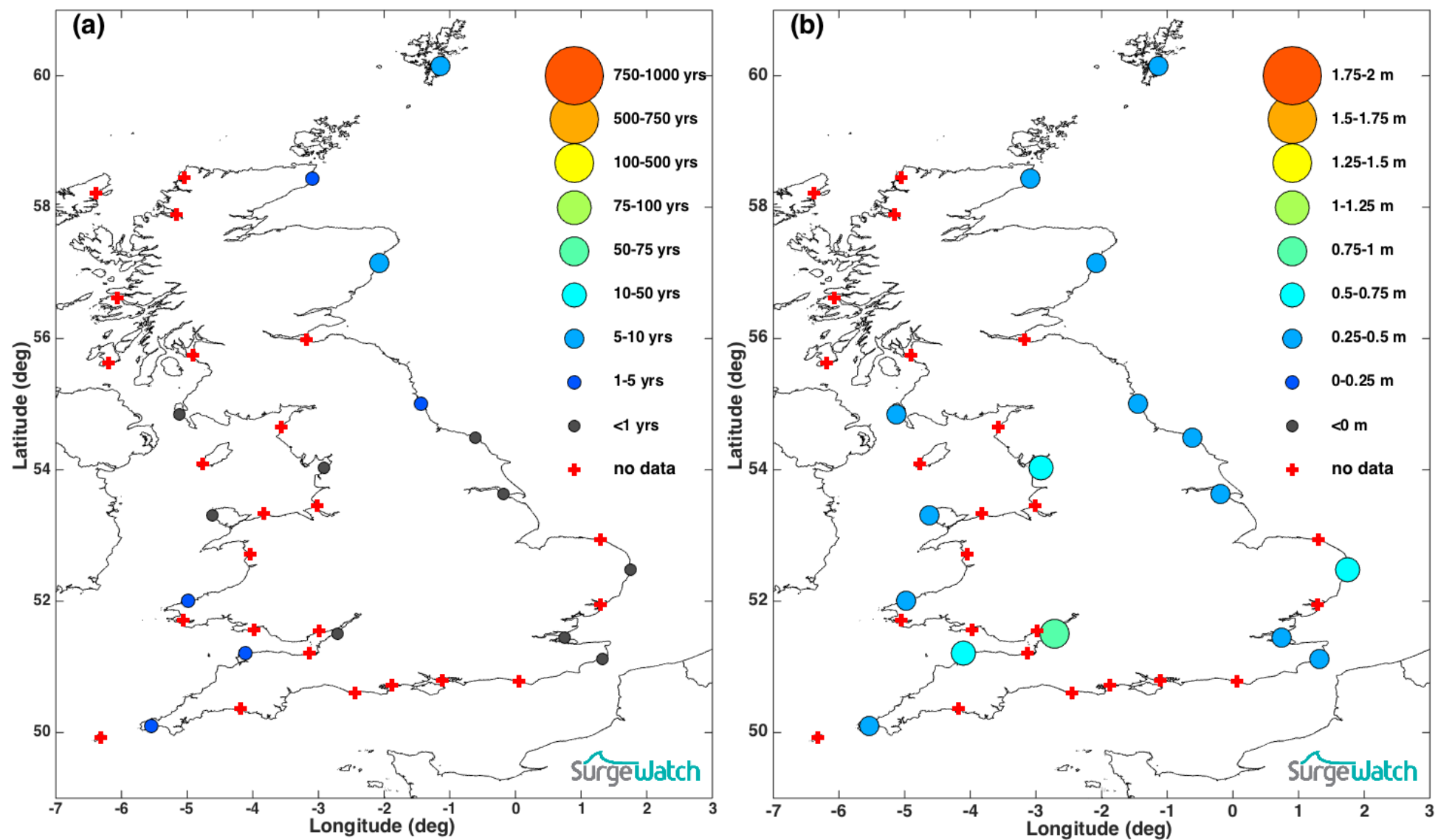


Figure 3: (a) Water level return period; (b) Skew surge levels

References

- BBC, 1986. Domesday Reloaded: Flooding on Shoreham Beach. Available at: <http://www.bbc.co.uk/history/domesday/dblock/GB-520000-102000/page/1> [Accessed March 27, 2015].
- Cornwall Council, 2011. *Preliminary Flood Risk Assessment ANNEX 5 – Chronology of Major Flood Events in Cornwall*, Truro.
- Hansard, 1984. *South-West England (Flood Warning)*, Available at: http://hansard.millbanksystems.com/written_answers/1984/nov/30/south-west-england-flood-warning [Accessed September 29, 2015].
- Met Office, 1984. Monthly Weather Report of the Meteorological Office. *Monthly Weather Report*. 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