

STORM EVENT

——— 3rd November 2005 ———

Around 200 properties flooded during overtopping of the beach by long period swell waves on Hayling Island



Severity Ranking



Social	<u>Loss of life</u>	*
	<u>Residential property</u>	Around 200 properties in Hayling Island were flooded
	<u>Evacuation & rescue</u>	*
Economic	<u>Cost</u>	*
	<u>Ports</u>	*
	<u>Transport</u>	Flooding to roads behind the beach at Eastoke
	<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>	Lowering of the shingle beach by the waves, which allowed for greater overtopping

**No known sources of information available*

Source	<p>The storm developed over the US east coast on 28th October 2005 and moved northeastwards towards the UK. It later approached and crossed Ireland on 3rd November, producing strong southwesterly winds over the Irish Sea and English Channel. The atmospheric pressure dropped to about 970 mbar. On 3rd November the storm crossed Scotland and subsequently dissipated over the North Sea.</p> <p>This event was not associated with any sea level observations which exceeded the 1 in 5 year return period threshold from sites within the National Tide Gauge Network.</p> <p>Wave heights are reported to have exceeded 2 m in places (Wadey, 2013), although we are unaware of any other sources describing the wave conditions during this event.</p>
Pathway	<p>Overtopping and overflow were the primary mechanisms for flooding during this event. Flooding was exacerbated by blockage to a culvert on the rural eastern part of the Eastoke Peninsula which meant that seawater could not efficiently drain away from a pipe underneath the road behind the beach (Thomas, 2009).</p>
Receptor & Consequence	<p>This event was associated with flooding in Southampton, where residential roads were inundated along with some non-residential property in low-lying quayside areas. Affected areas included Millbrook Road, Commercial Road and Portsmouth Road near the Itchen Bridge. In Hayling Island, many local roads were inundated and temporarily closed to traffic. The flooding here reportedly affected 200 residential properties. In the Isle of Portland, the road adjoining to the mainland was partially inundated during this event (West, 2014).</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	03/11/05 11:30	<1	6.91	6.9	0.01
Portsmouth	03/11/05 11:15	<1	5.17	4.87	0.3
Bournemouth	03/11/05 09:45	<1	2.71	2.37	0.34
Weymouth	03/11/05 07:00	3	2.81	2.47	0.34
Devonport	03/11/05 06:15	<1	6.03	5.68	0.35
Newlyn	03/11/05 05:00	<1	5.93	5.7	0.24
St. Mary's	03/11/05 04:45	<1	5.99	5.8	0.19
Ilfracombe	03/11/05 06:15	<1	9.62	9.38	0.25
Hinkley Point	03/11/05 07:00	<1	12.08	11.97	0.11
Avonmouth	03/11/05 07:30	<1	13.7	13.5	0.19
Newport	03/11/05 07:30	<1	12.49	12.33	0.16
Mumbles	03/11/05 06:30	<1	9.93	9.61	0.32
Milford Haven	03/11/05 06:30	<1	7.57	7.23	0.34
Fishguard	03/11/05 07:30	<1	5.27	4.98	0.29
Barmouth	03/11/05 08:30	<1	5.62	5.18	0.44
Holyhead	03/11/05 10:45	<1	6.17	5.79	0.38
Llandudno	03/11/05 11:00	<1	8.07	7.79	0.28
Heysham	03/11/05 11:30	<1	10.08	9.76	0.32
Workington	03/11/05 11:45	<1	8.75	8.4	0.34
Port Erin	02/11/05 23:15	<1	5.84	5.42	0.42
Portpatrick	02/11/05 23:30	<1	4.43	4.06	0.37
Millport	03/11/05 00:15	<1	3.9	3.56	0.34
Tobermory	03/11/05 06:15	<1	5.05	4.73	0.32
Stornoway	03/11/05 07:15	<1	5.23	5.04	0.19
Ullapool	03/11/05 07:15	<1	5.57	5.35	0.22
Kinlochbervie	03/11/05 07:30	<1	5.28	5.05	0.23
Lerwick	03/11/05 23:45	<1	2.51	2.32	0.19
Wick	03/11/05 11:45	<1	3.87	3.62	0.25
Aberdeen	04/11/05 02:00	<1	4.72	4.38	0.34
North Shields	03/11/05 16:00	<1	5.42	5.16	0.26
Whitby	03/11/05 16:30	<1	5.88	5.66	0.22
Immingham	04/11/05 06:45	<1	7.25	7.18	0.07
Cromer	04/11/05 07:15	<1	5.17	5.09	0.08
Lowestoft	04/11/05 10:15	<1	2.71	2.51	0.2
Harwich	04/11/05 12:30	<1	4.19	4.02	0.16
Sheerness	04/11/05 13:30	<1	5.88	5.73	0.15
Dover	04/11/05 12:00	<1	6.8	6.87	-0.07

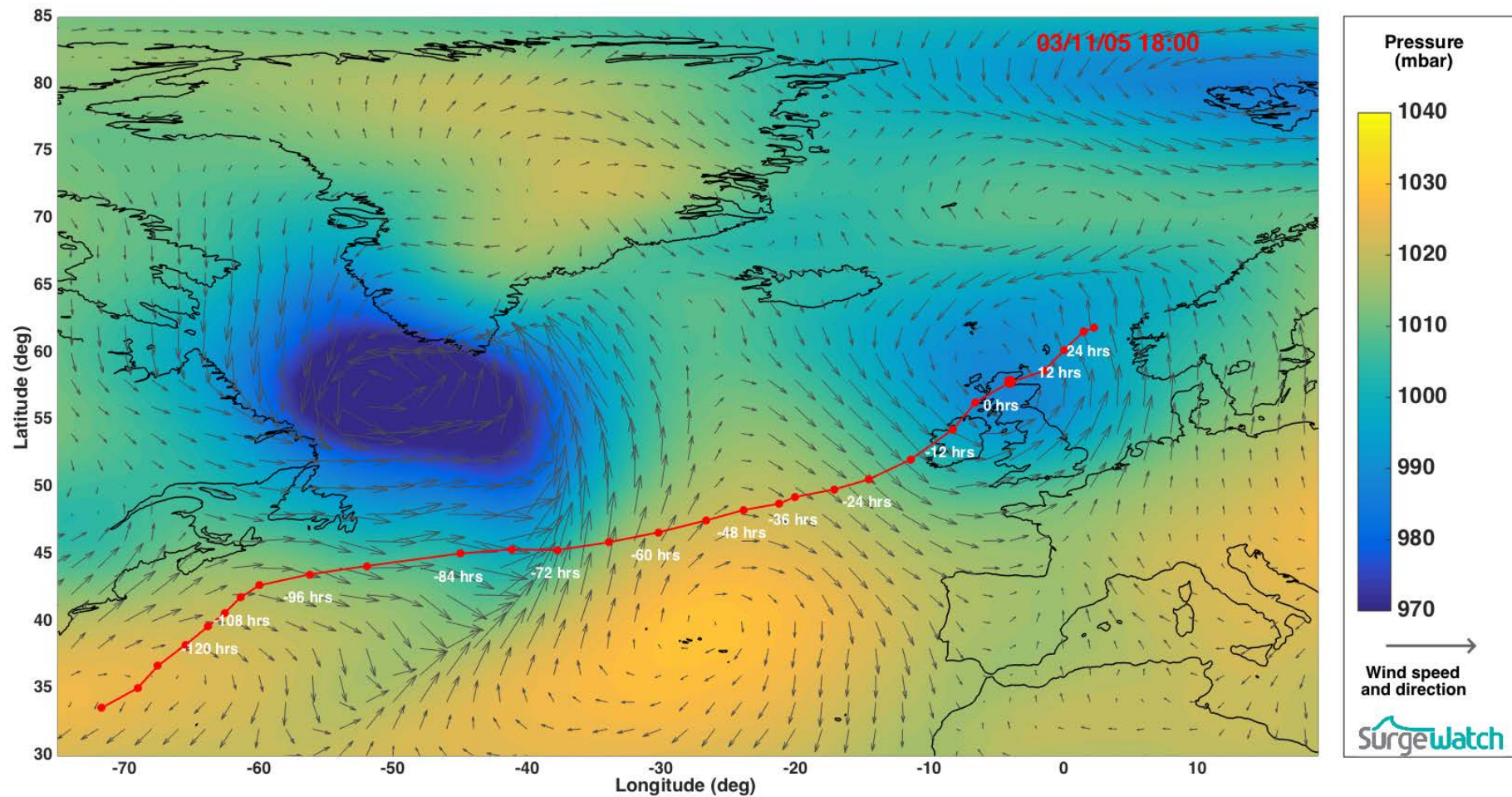


Figure 1: Meteorological conditions at time of maximum water level overlaid by the storm track

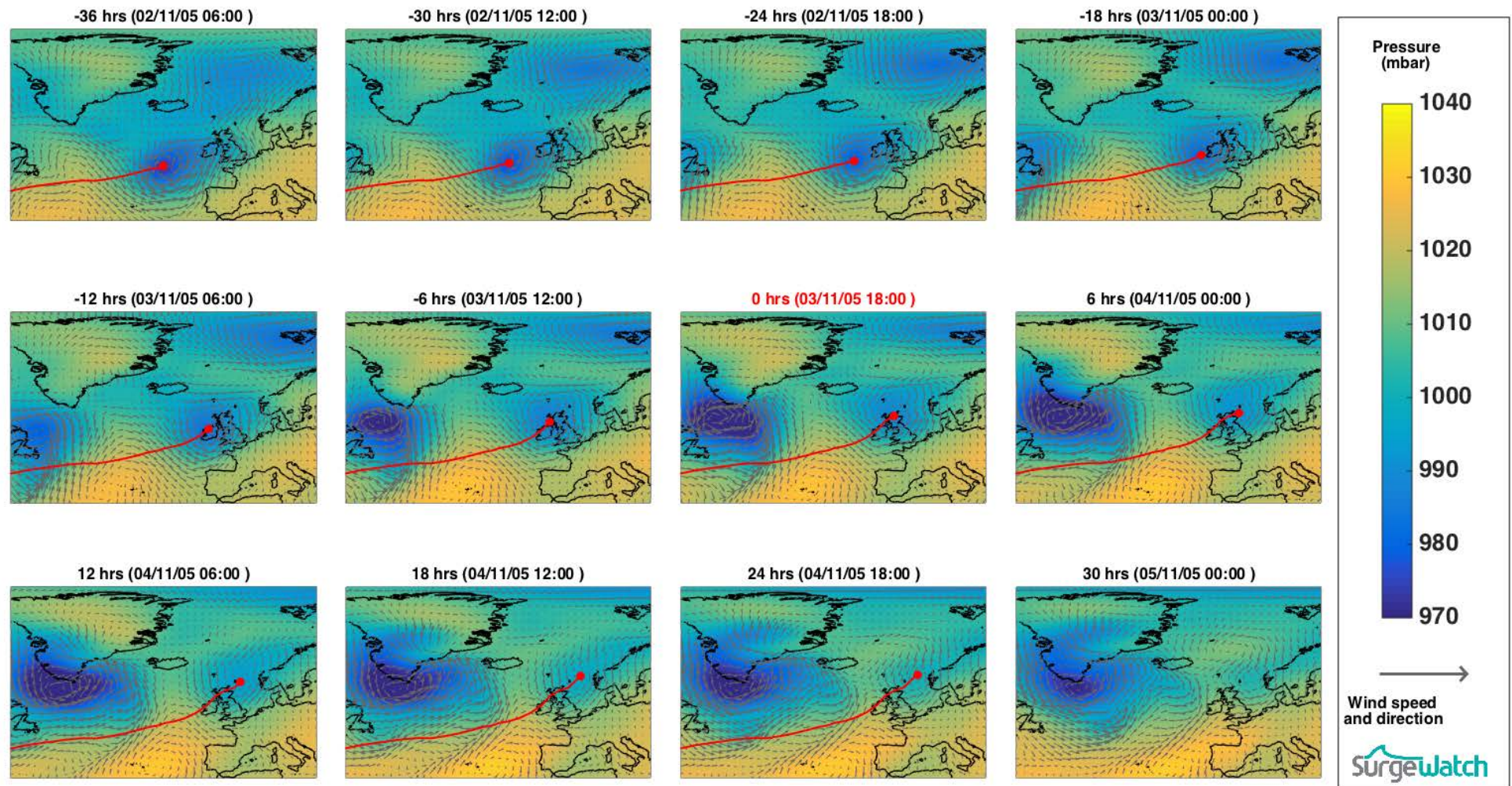


Figure 2: Meteorological conditions during event

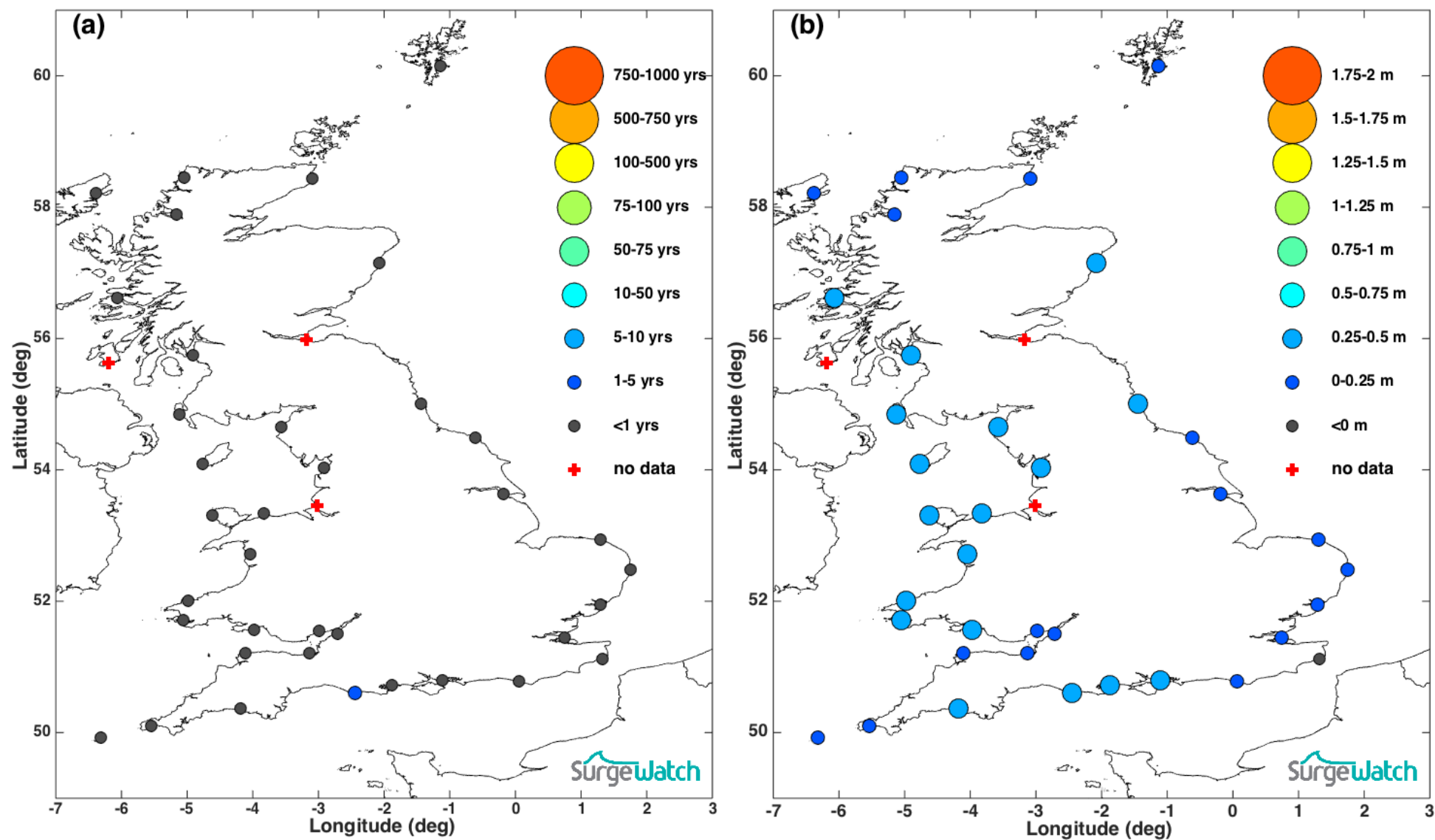


Figure 3: (a) Water level return period; (b) Skew surge levels

References

- Thomas, C., 2009. *An Investigation into the Capabilities of a Shallow Water and Boussinesq Model for Predicting Wave Run-Up and Overtopping at Hayling Island*. University of Southampton.
- Wadey, M.P., 2013. *Understanding Defence Failures and Coastal Flood Events: a Case Study Approach*. University of Southampton.
- West, I.W., 2014. Chesil Beach - Hurricanes, Storms, and Storm Surges. *Geology of the Wessex Coast of Southern England*. Available at: <http://www.southampton.ac.uk/~imw/chestorm.htm> [Accessed March 8, 2015].

Additional sources of information

- Mason, T., Bradbury, A., Poate, T. & Newman, R., 2009. Nearshore wave climate of the English Channel—evidence for bi-modal seas. In:(ed.) *31st International Conference on Coastal Engineering*. Hamburg: World Scientific, Singapore.
- Chickerell BioAcoustics 2010. Storms on Chesil Beach. Available at: <http://www.chesilbeach.org/chesil/storms.html> [Accessed September 6, 2016].