

Morecambe Bay Directional Waverider Buoy

Location

OS: 330193E 455388N

WGS84: Latitude: 53° 59.389' N Longitude: 03° 3.970' W

Water Depth

~10 m CD

Instrument Type

Datawell Directional Waverider Mk III

Data Quality

Recovery rate (%)	Sample interval
48	30 minutes

Statistics - 2011

All times are GMT

Month	H _s (m)	T _p (s)	T _z (s)	Dir. (°)	SST (°C)	No. of days
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June	0.56	4.1	3.0	235	-	1
July	0.42	3.9	3.0	219	16.8	31
August	0.56	4.3	3.2	224	16.7	31
September	0.87	5.4	3.7	215	15.1	30
October	0.88	5.4	3.6	214	13.4	31
November	0.69	5.5	3.3	191	11.0	27
December	1.41	6.7	4.4	222	7.5	23

Storm Analysis

Date/Time	H _s (m)	T _p (s)	T _z (s)	Dir. (°)	Water level elevation* (OD)	Tidal stage (hours re. HW)	Tidal range (m)	Tidal surge* (m)	Max. surge* (m)
13-Dec-2011 12:00	3.65	8.3	6.0	224	4.73	HW -1	7.3	0.61	0.74
08-Dec-2011 22:30	3.28	10.0	6.5	231	4.09	HW	6.9	0.51	0.83
29-Dec-2011 01:00	3.23	7.7	5.6	219	3.37	HW -1	7.0	-0.21	-0.24
12-Sep-2011 12:30	3.09	9.1	7.0	217	-	-	-	-	-
06-Oct-2011 18:00	2.96	9.1	5.6	232	-	-	-	-	-

* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at Heysham). The surge shown is the residual at the time of the highest H_s. The maximum tidal surge is the largest surge during the storm event.

Annual Statistics

Year	Annual H_s exceedance* (m)						Annual Maximum H_s	
	0.05%	0.5%	1%	2%	5%	10%	Date	A_{max} (m)
2011	-	-	-	2.47	2.04	1.65	13-Dec-2011 12:00	3.65

* i.e. 5 % of the H_s values measured in 2011 exceeded 2.04 m

Distribution plots

The distribution of wave parameters are shown in the accompanying graphs of:

- Annual time series of H_s (red line is 2.75 m storm threshold)
- Wave roses (Direction vs. H_s and vs. T_p) for all measured data
- Percentage of occurrence of H_s , T_p , T_z and Direction for 2011
- Incidence of storm waves for 2011. Storm events are defined using the Peaks-over-Threshold method. The highest H_s of each storm event is shown
- Joint distribution of all parameters for all measured data, given as percentage of occurrence

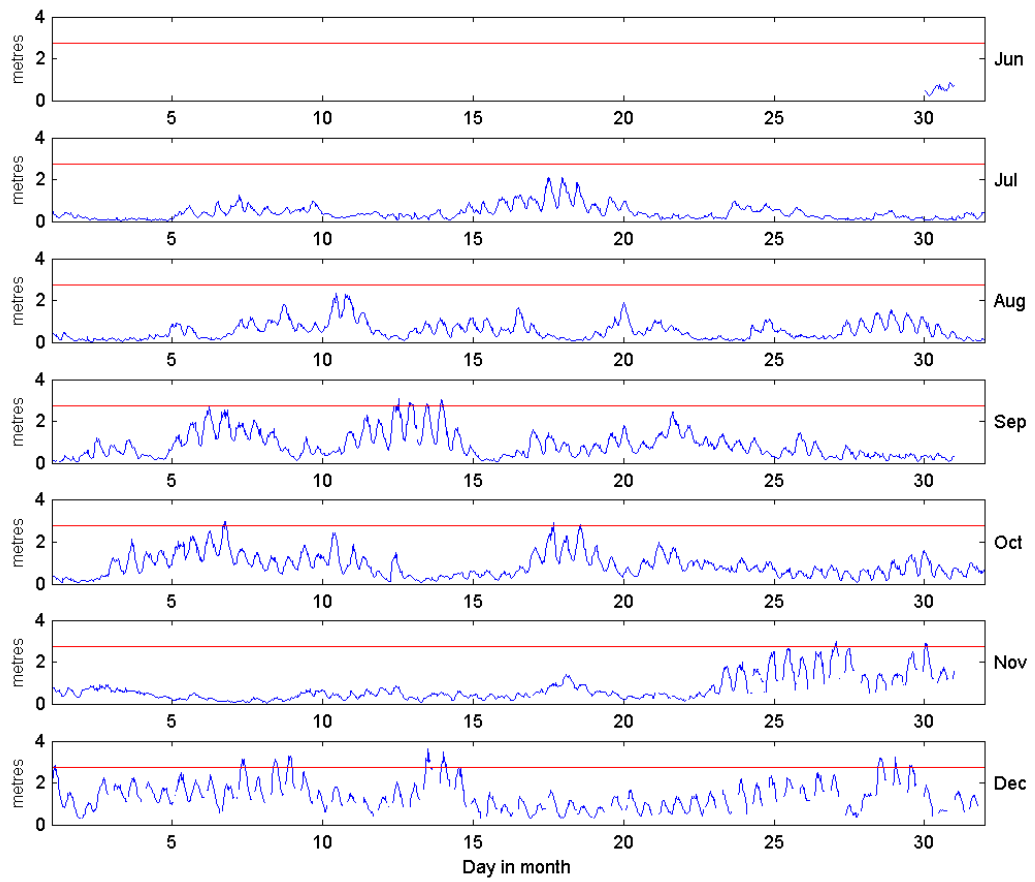
General

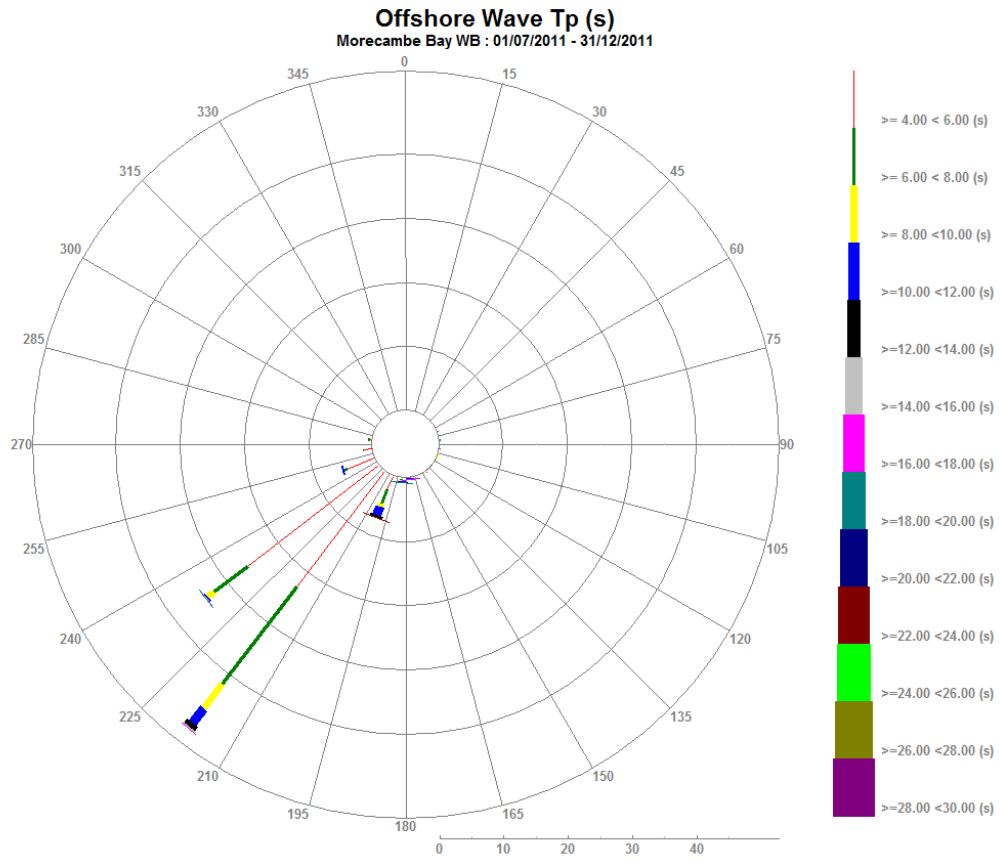
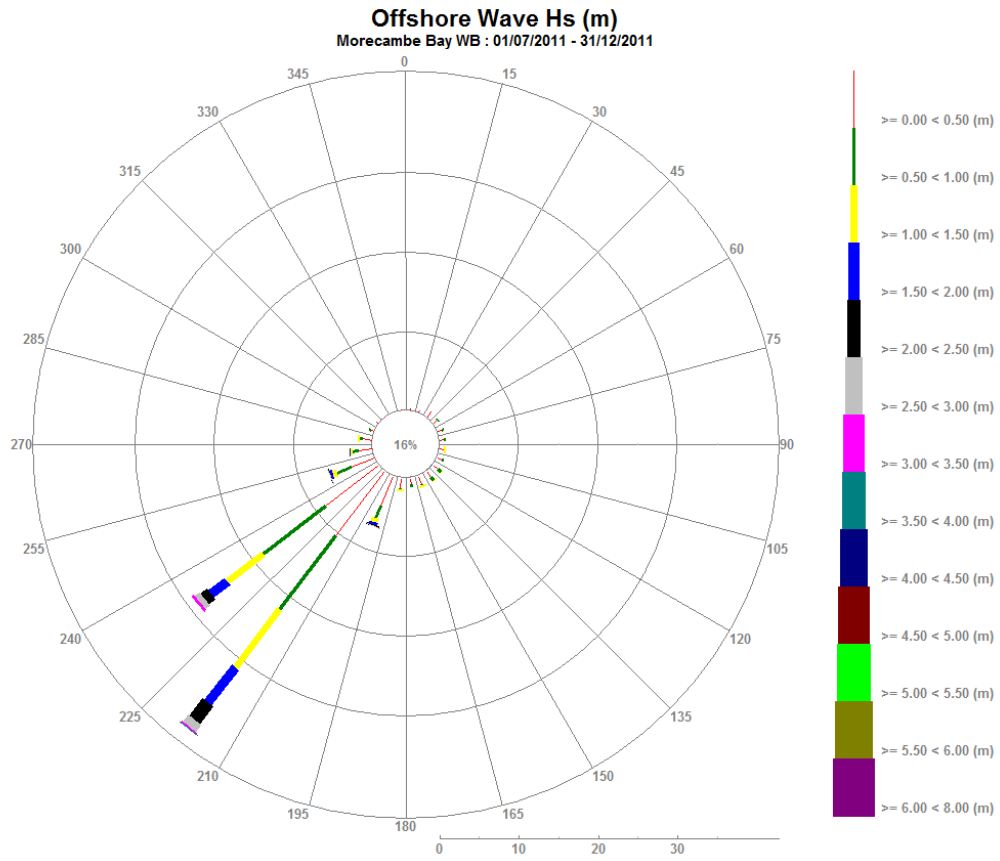
The wave buoy was deployed on 29 June 2011. There is a notable tidal signature to significant wave heights at this location, given the water depth of the buoy (~10 mCD) and the spring tidal range (~8.5 m).

Acknowledgements

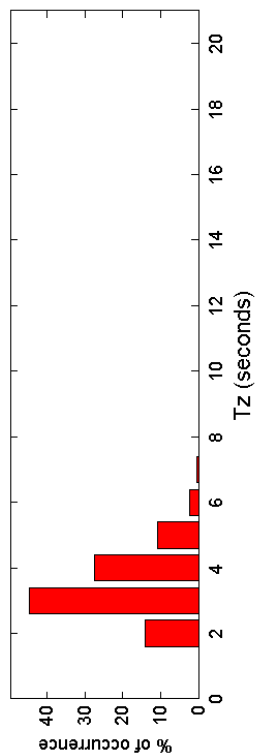
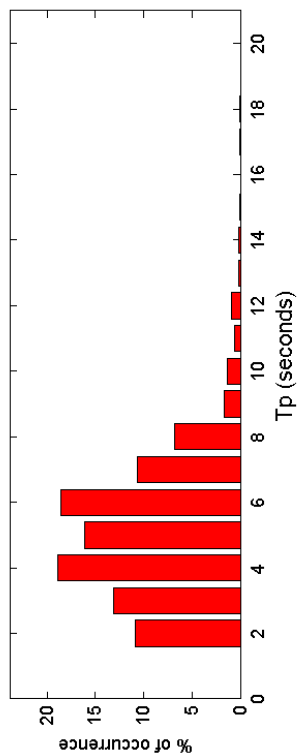
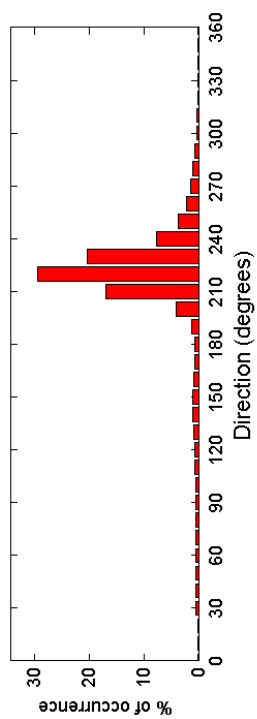
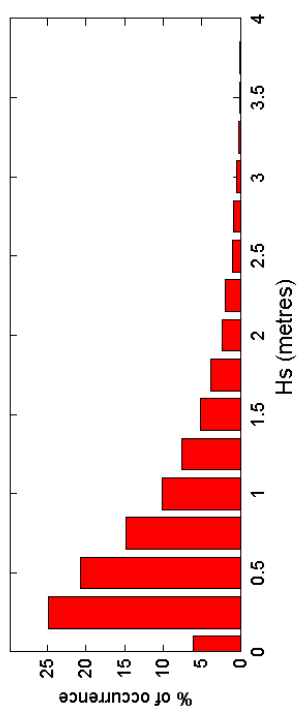
The shore station is kindly hosted by Café Cove, Cleveleys. Tidal data were supplied by the British Oceanographic Data Centre as part of the function of the National Tidal and Sea Level Facility, hosted by the Proudman Oceanographic Laboratory and funded by DEFRA and the Natural Environment Research Council.

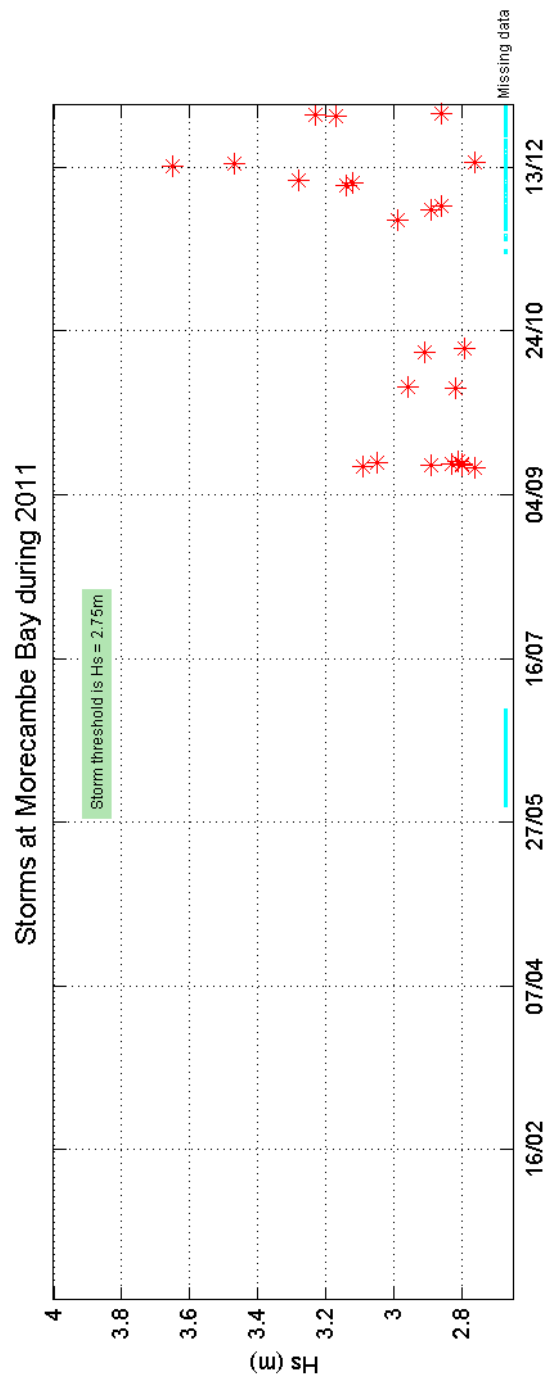
Morecambe Bay – Significant Wave Height (H_s) 2011





Morecambe Bay 2011





Morecambe Bay 2011 to 2011 - Joint distribution (% of occurrence)

