

Hayling Island Directional Waverider Buoy

Location

OS: 473700E 93006N

WGS84: Latitude: 50° 43.920' N Longitude: 00° 57.424' W

Water Depth

~10 m CD

Instrument Type

Datawell Directional Waverider Mk III

Data Quality

Recovery rate (%)	Sample interval
94	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	0.75	9.4	4.0	180	6.3	30
February	0.99	13.5	5.0	184	6.7	27
March	0.47	8.5	3.6	170	7.4	30
April	0.43	9.9	4.0	181	10.8	29
May	0.62	6.1	3.3	197	13.6	30
June	0.62	5.6	3.4	192	15.2	29
July	0.47	6.2	3.2	190	17.1	30
August	0.50	5.2	3.2	195	17.9	30
September	0.74	7.6	3.6	188	17.1	29
October	0.78	7.0	3.7	194	15.9	30
November	0.84	9.5	4.0	173	13.6	24
December	1.03	8.8	4.0	201	10.1	28

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 01:00	3.77	9.1	6.3	187	2.13	HW	3.5	0.31	0.61

* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at Portsmouth). The surge shown is the residual at the time of the highest H_s. The maximum tidal surge is the largest positive 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)
2003	-	2.33	2.11	1.85	1.41	1.10	29-Nov-2003 10:00	2.68
2004	3.08	2.32	2.11	1.91	1.60	1.26	08-Jan-2004 10:30	3.64
2005	3.24	2.53	2.10	1.80	1.41	1.11	02-Dec-2005 17:00	3.53
2006	3.03	2.48	2.28	2.06	1.71	1.39	03-Dec-2006 08:00	3.42
2007	3.23	2.59	2.33	2.08	1.72	1.41	18-Jan-2007 13:00	3.58
2008	3.36	2.64	2.35	2.07	1.69	1.35	10-Mar-2008 08:00	3.79
2009	3.06	2.59	2.39	2.11	1.69	1.38	14-Nov-2009 13:30	3.36
2010	2.93	2.26	2.03	1.72	1.36	1.08	11-Nov-2010 08:30	3.25
2011	3.35	2.17	2.01	1.78	1.53	1.27	13-Dec-2011 01:00	3.77

* i.e. 5 % of the H_s values measured in 2003 exceeded 1.41 m

Distribution plots

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

- Annual time series of H_s (red line is 3.0 m storm threshold)
- Wave roses (Direction vs. H_s and vs. T_p) for all measured data from 01 April 2004
- 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

Significant wave height return periods

Return periods for significant wave height can be calculated since the buoy has been deployed for more than 5 years. The return periods are based on 3-hourly records and are calculated for periods up to 10 times the record length, using a Weibull distribution.

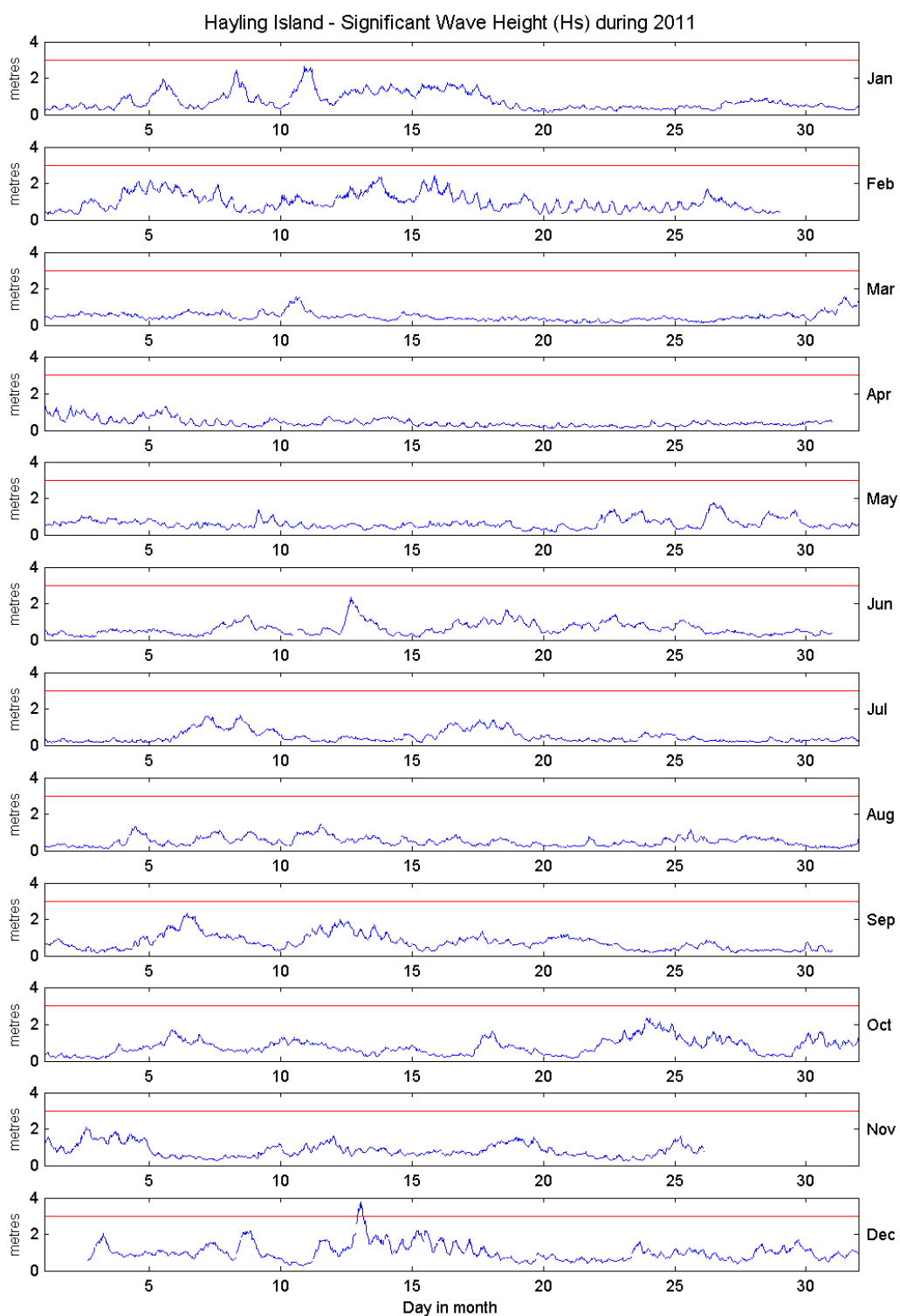
Return period (years)	Significant wave height (m)	Comments
1	3.42	No depth limitation
2	3.56	
5	3.74	
10	3.86	
20	3.98	Depth-limited at MLWS
50	4.14	

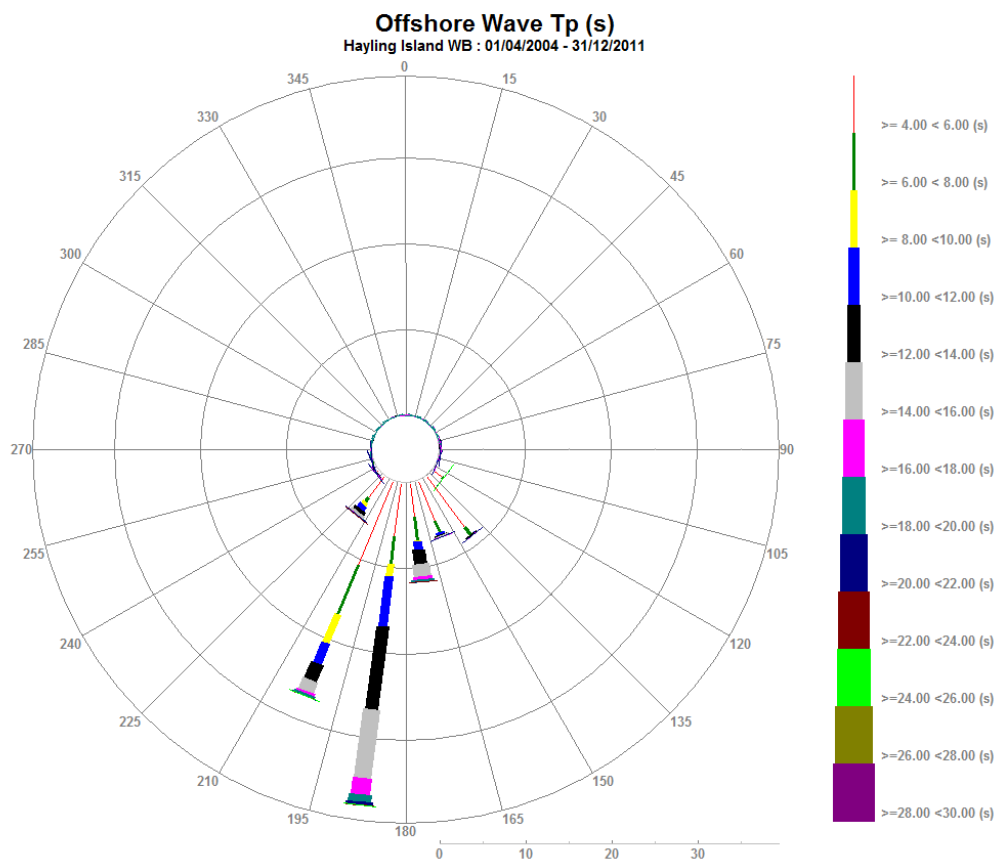
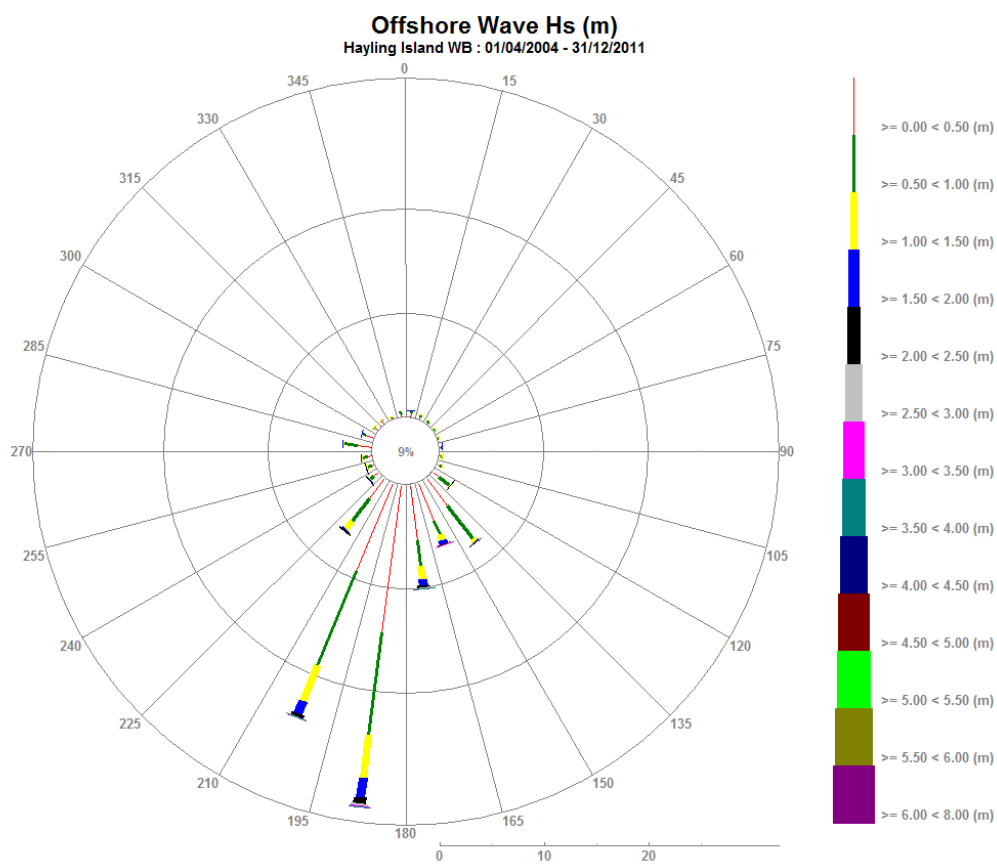
General

The buoy was first deployed on 10 July 2003.

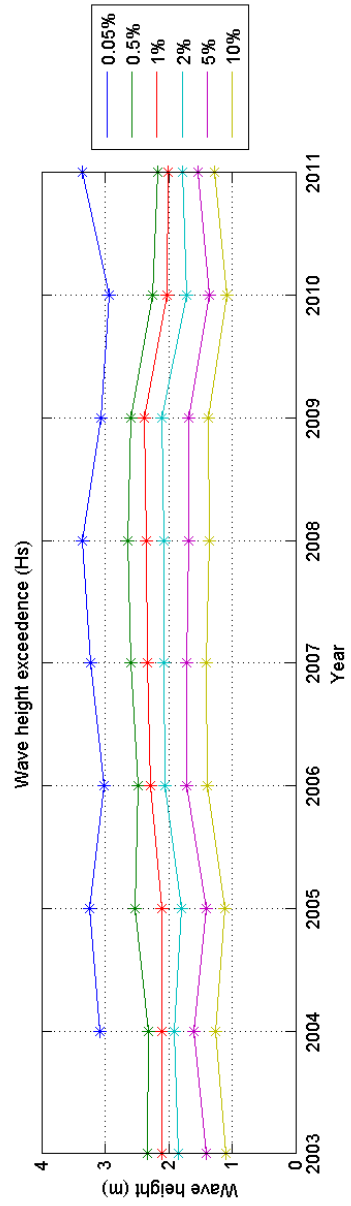
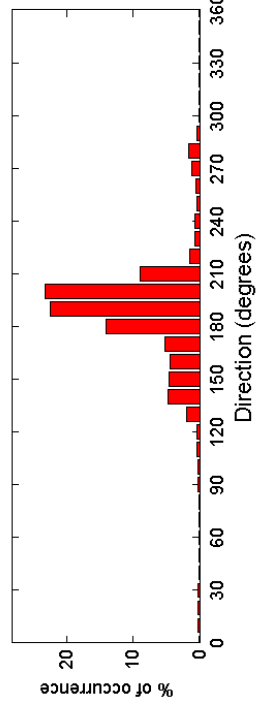
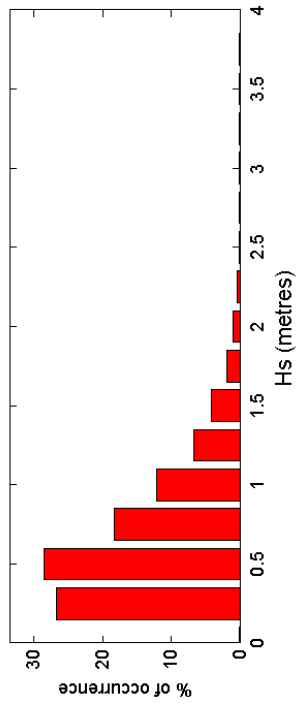
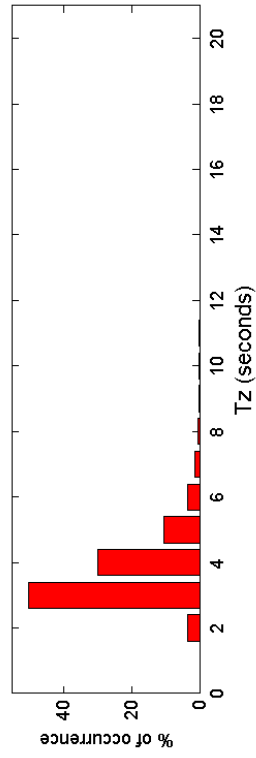
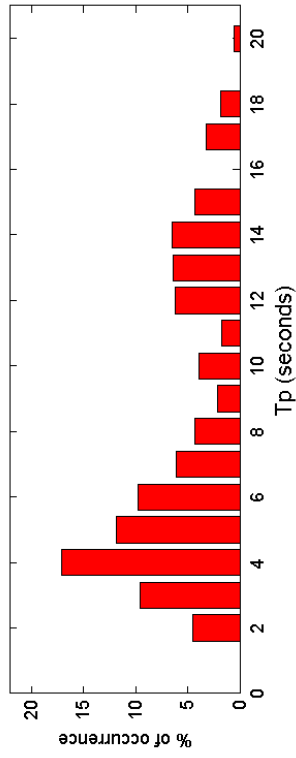
Acknowledgements

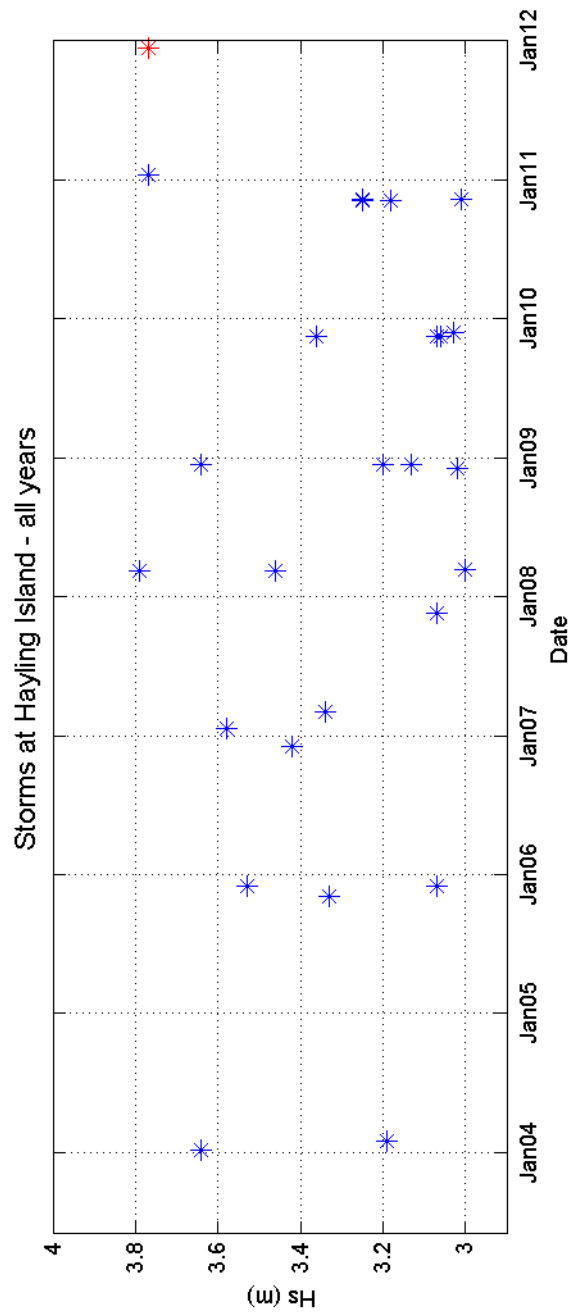
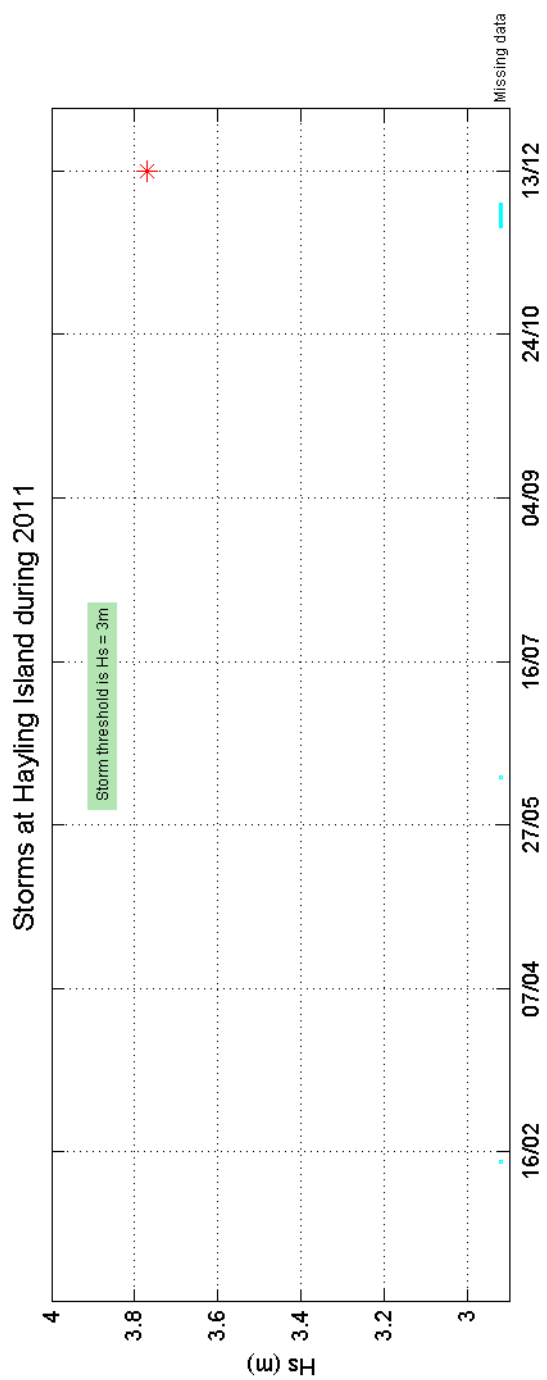
Tidal data were supplied by the British Oceanographic Data Centre as part of the function of the National Tidal and Sea Level Facility, hosted by the Proudman Oceanographic Laboratory and funded by DEFRA and the Natural Environment Research Council.





Hayling Island 2011





Hayling Island 2003 to 2011 - Joint distribution (% of occurrence)

