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
96	30 minutes

Statistics - 2012   *All times are GMT*

Month	H_s (m)	T_p (s)	T_z (s)	Dir. (°)	SST (°C)	No. of days
January	0.81	8.7	3.8	188	8.6	30
February	0.53	10.0	4.1	186	6.2	26
March	0.46	10.8	4.0	184	8.2	30
April	0.77	7.4	3.7	178	10.0	30
May	0.42	5.2	3.2	184	12.0	31
June	0.75	6.1	3.5	190	14.9	29
July	0.56	5.6	3.3	198	16.7	30
August	0.59	6.3	3.4	191	18.4	30
September	0.56	5.8	3.2	202	15.2	28
October	0.77	7.5	3.8	191	11.9	30
November	0.82	8.0	3.9	197	9.0	29
December	1.01	10.5	4.3	192	6.1	30

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)
03-Jan-2012 08:30	3.32	10.0	6.1	200	0.91	HW +2	1.8	0.25	0.50

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[*]   *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
2012	3.01	2.4	2.23	1.99	1.58	1.28	03-Jan-2012 08:30	3.32

* 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 2012
- Incidence of storm waves for 2012. 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.
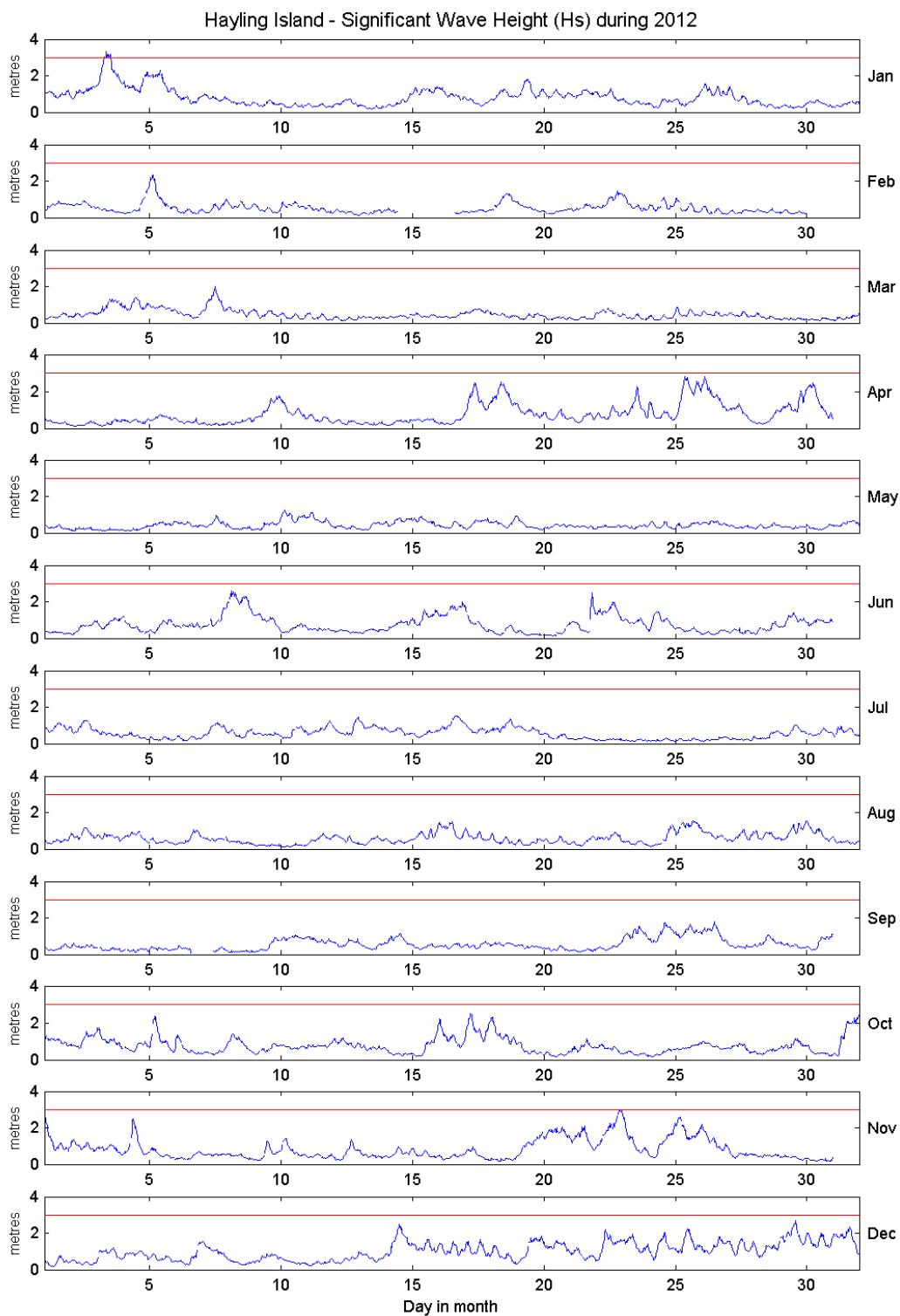
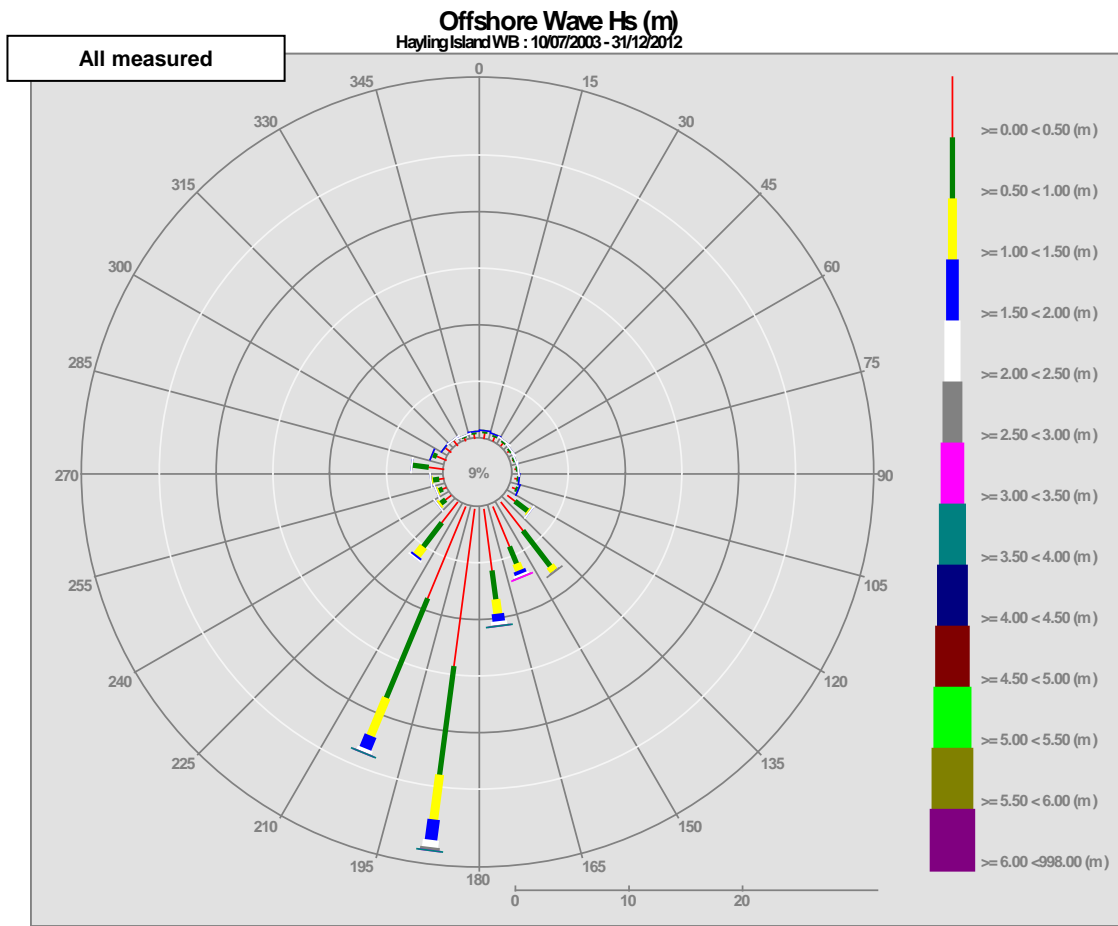| Return period (years)	Significant wave height (m)	Comments
1	3.4	No depth limitation
2	3.5	
5	3.7	
10	3.8	
20	3.9	Depth-limited at MLWS
50	4.0	

General

The buoy was first deployed on 10 July 2003, at which time the magnetic declination at the site was 2.9° west, changing by 0.14° east per year.
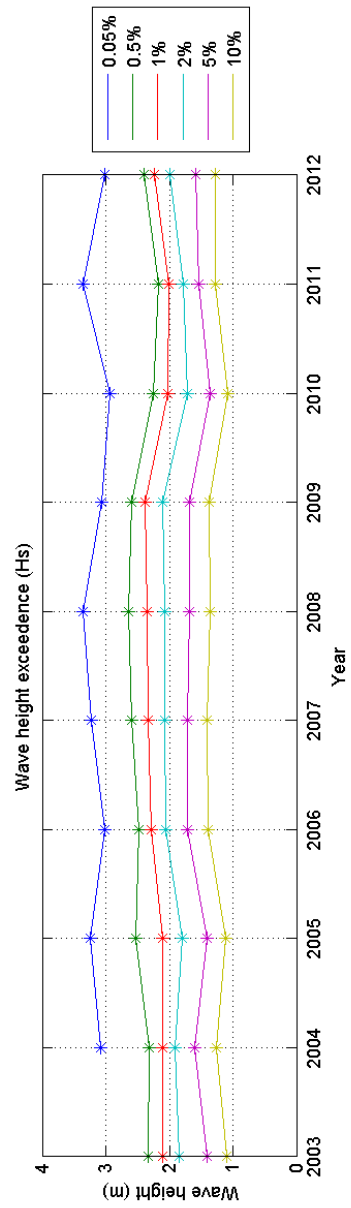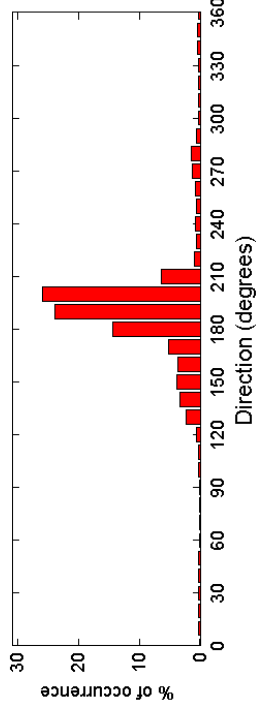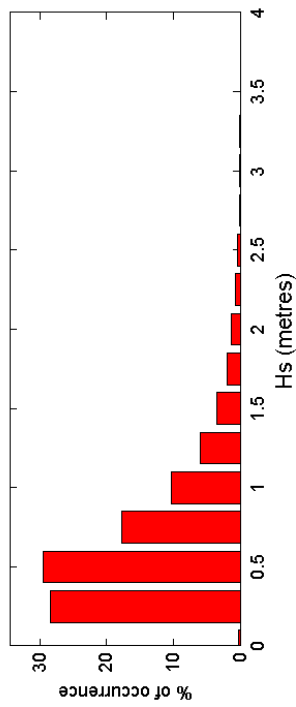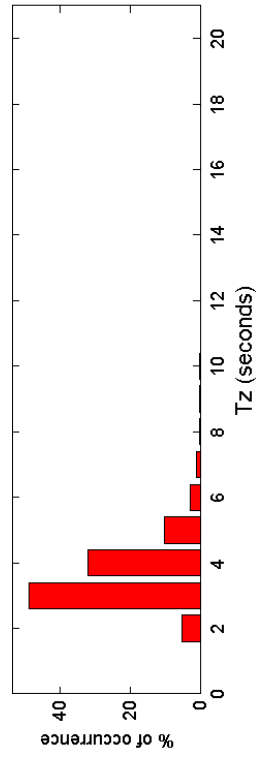
Acknowledgements

Hayling Island - Significant Wave Height (Hs) during 2012

Offshore Wave Hs (m)
Hayling Island WB : 10/07/2003 - 31/12/2012

All measured

>= 0.00 < 0.50 (m)	
>= 0.50 < 1.00 (m)	
>= 1.00 < 1.50 (m)	
>= 1.50 < 2.00 (m)	
>= 2.00 < 2.50 (m)	
>= 2.50 < 3.00 (m)	
>= 3.00 < 3.50 (m)	
>= 3.50 < 4.00 (m)	
>= 4.00 < 4.50 (m)	
>= 4.50 < 5.00 (m)	
>= 5.00 < 5.50 (m)	
>= 5.50 < 6.00 (m)	
>= 6.00 < 998.00 (m)	

Hayling Island 2012

Storms at Hayling Island during 2012

Storm threshold is Hs = 3m

Hs (m)

01/02   22/03   11/05   30/06   19/08   08/10   27/11

Missing data

Storms at Hayling Island - all years

Hs (m)

Jan04   Jan06   Jan08   Jan10   Jan12

Date
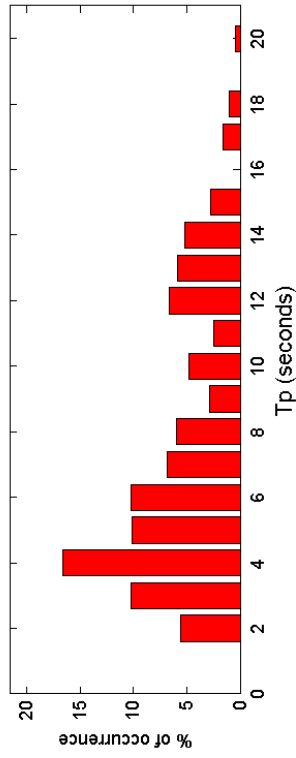
Hayling Island 2003 to 2012 - Joint distribution (% of occurrence)