

Hayling Island Directional Waverider Buoy

Location

OS: 473530E 93004N
 WGS84: Latitude: 50° 43.92' N Longitude: 000° 57.57' W

Water Depth

Approx. 10m CD

Instrument Type

Datwell Directional Waverider Buoy Mk III

Data Quality

C1 (%)	Sample interval
95	30 minutes

Monthly Means

All times GMT

Month	H _s	T _p	T _z	Direction	SST	No. of days
	(m)	(s)	(s)	(°)	(°C)	
January	0.67	9.5	4.1	180	5.6	31
February	0.73	10.1	4.1	181	5.3	28
March	0.60	8.0	3.6	182	6.2	31
April	0.50	6.7	3.6	173	9.1	30
May	0.39	7.2	3.4	173	11.8	31
June	0.37	7.2	3.3	181	15.6	29
July	0.51	5.8	3.3	202	18.2	31
August	0.58	4.4	3.1	212	18.5	25
September	0.55	7.1	3.3	211	16.9	22
October	0.74	6.6	3.6	183	14.7	30
November	0.83	8.6	3.9	181	11.7	29
December	0.56	6.1	3.5	176	6.1	30

Tables and plots of these values, together with the minimum and maximum values and the standard deviation are available on the website

Highest storm events in 2010									
Date/Time	H _s	T _p	T _z	Dir.	Water level elevation* (OD)	Tidal stage (hours re. HW)	Tidal range (m)	Tidal surge* (m)	Max. surge* (m)
11-Nov-2010 08:30	3.25	7.7	5.9	190	-0.43	HW -4	2.50	0.42	0.50
08-Nov-2010 08:00	3.25	7.7	5.8	187	0.03	HW -3	3.75	0.51	0.51

* 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.

Year	Annual H_s exceedance* (m)						Annual Maximum H_s (m)	
	0.05%	0.5%	1%	2%	5%	10%	Date	A_{max}
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

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

Distribution plots

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

- Percentage of occurrence of H_s , T_p , T_z and Direction for 2010
- Percentage wave height exceedance (all recorded years) – note that the statistics for 2003 were based on measurements from July to December only
- Joint distribution of all parameters for 2010, given both as number of observations and as percentage of occurrence
- Cumulative joint distribution of parameters from start of records (percentage of occurrence only)
- Wave roses (Direction vs. H_s , and vs. T_p) for all measured data
- Incidence of storms during 2010 and for all previous years. Storms are defined using the Peaks-over-Threshold method. The highest H_s of each storm event is shown.
- Annual time series of H_s (red line is storm threshold)

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)
1	3.44
2	3.54
5	3.68
10	3.77
20	3.87
50	3.99

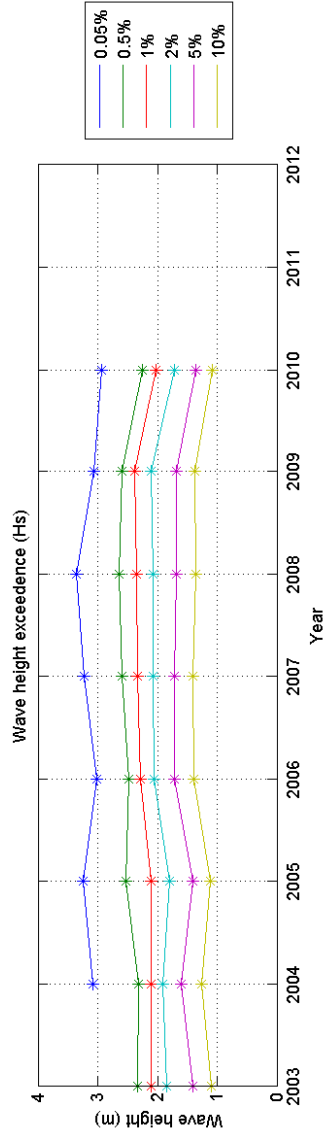
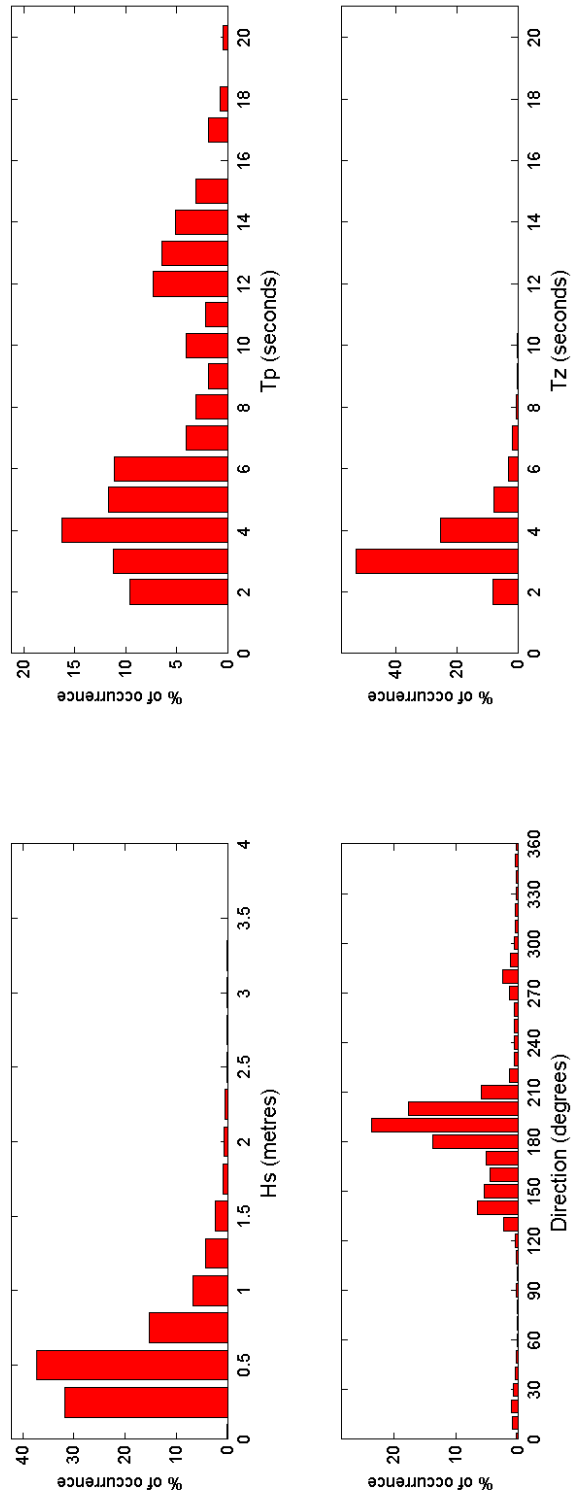
General

The buoy was first deployed on 10 July 2003.

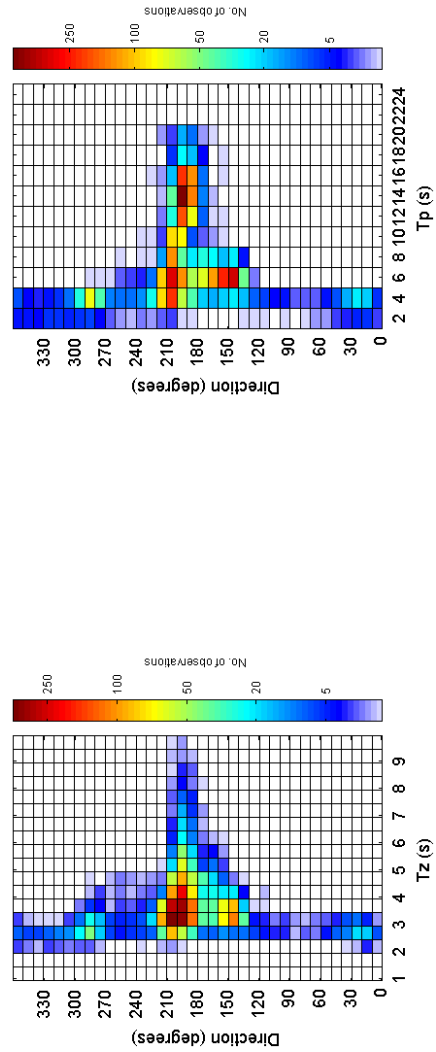
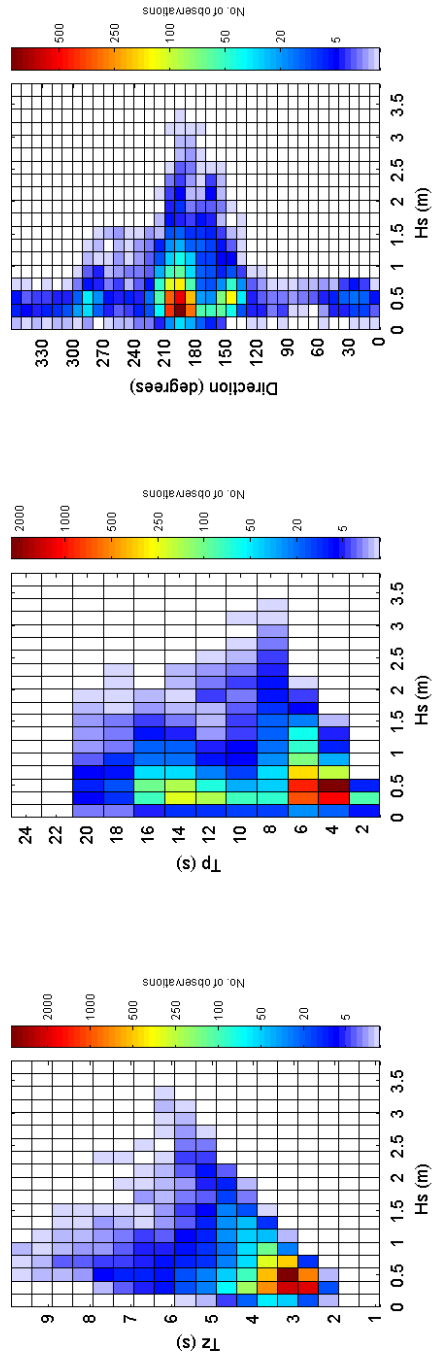
Acknowledgements

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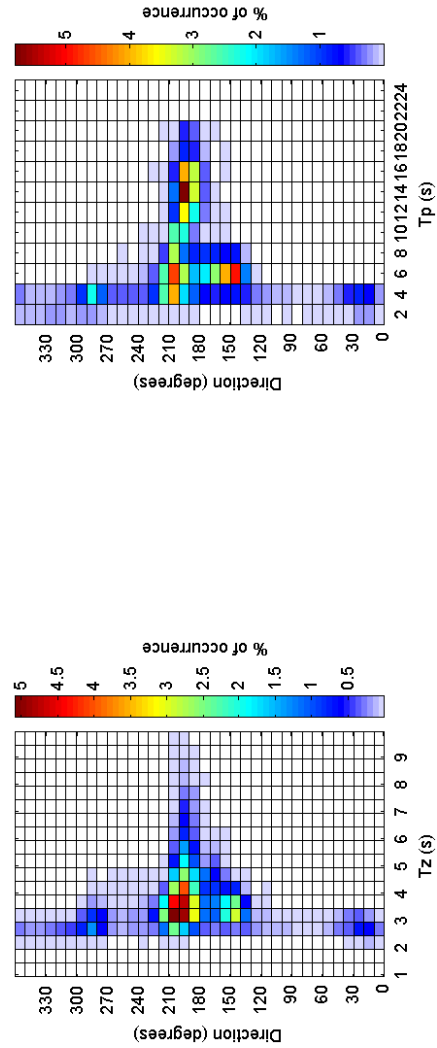
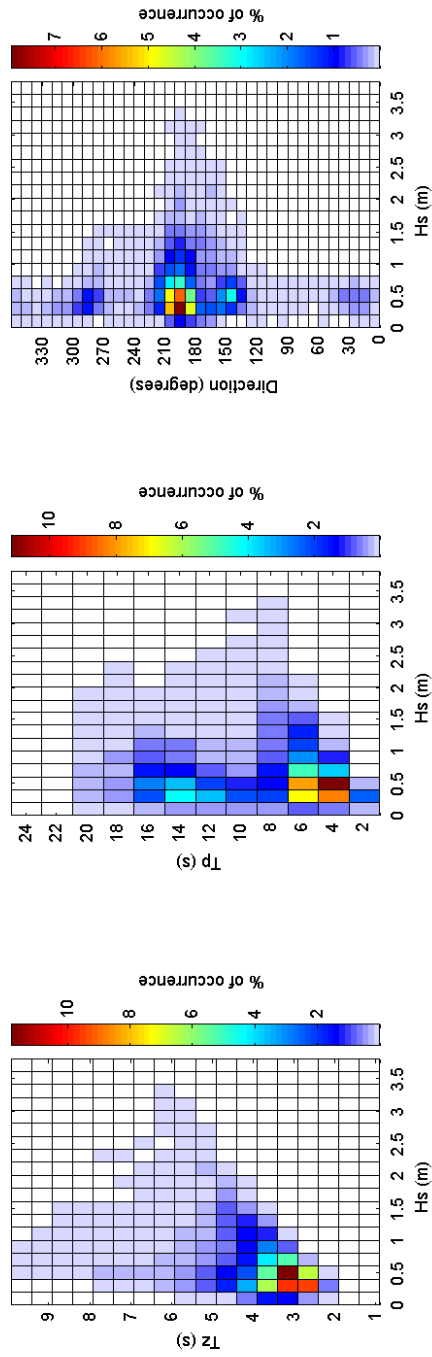
Hayling Island 2010



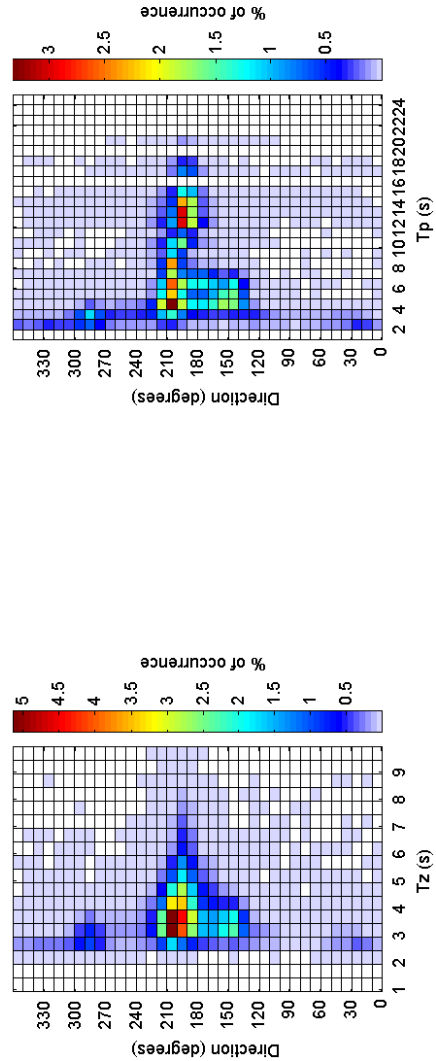
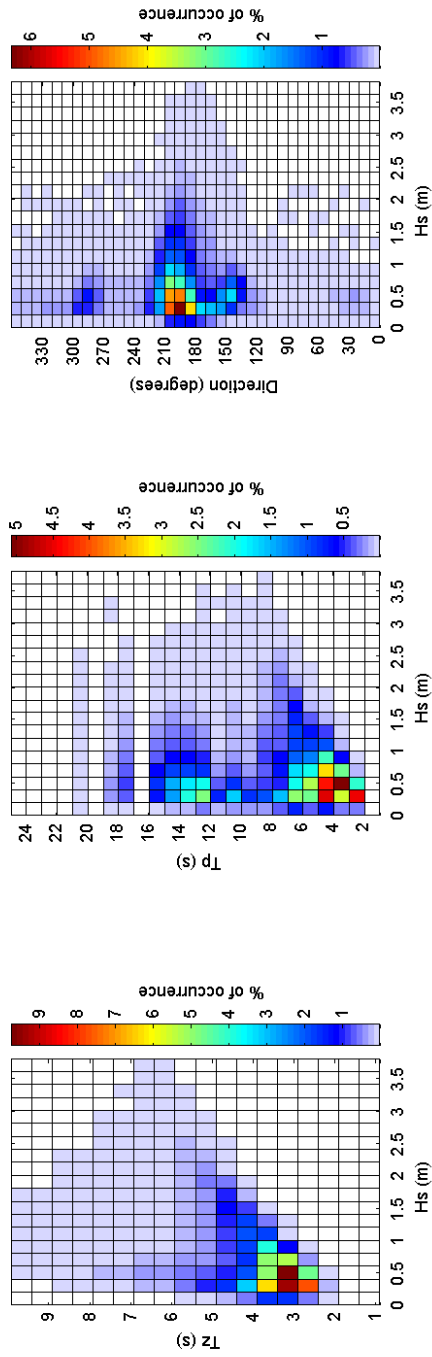
Hayling Island 2010 - Joint distribution

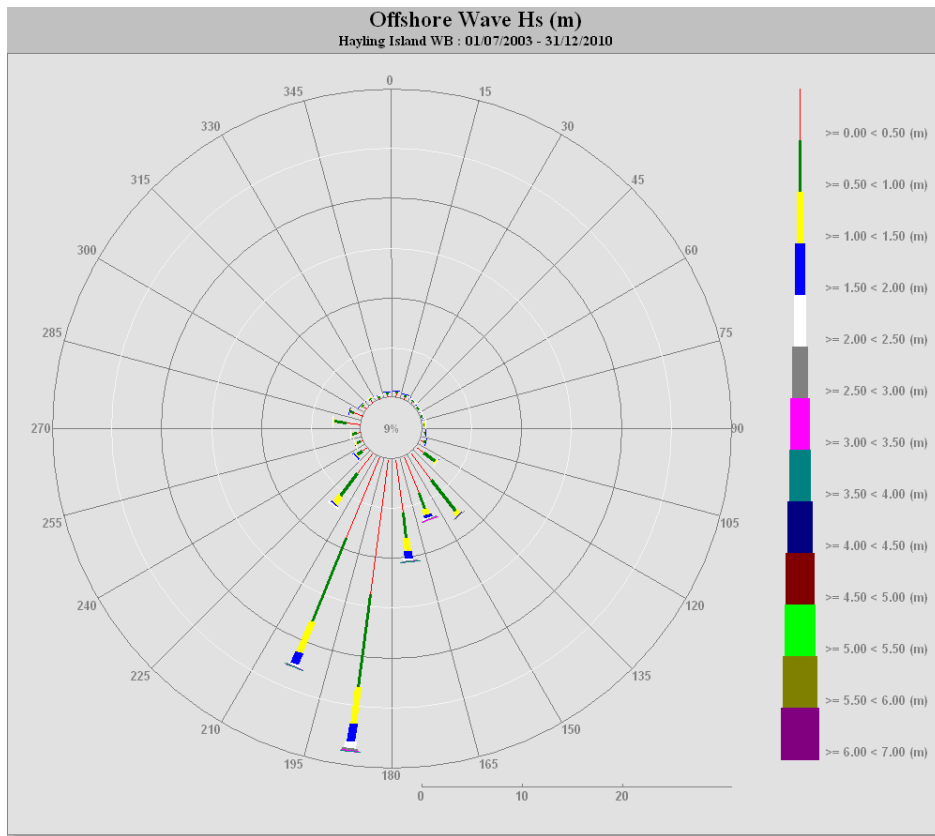


Hayling Island 2010 - Joint distribution (% of occurrence)

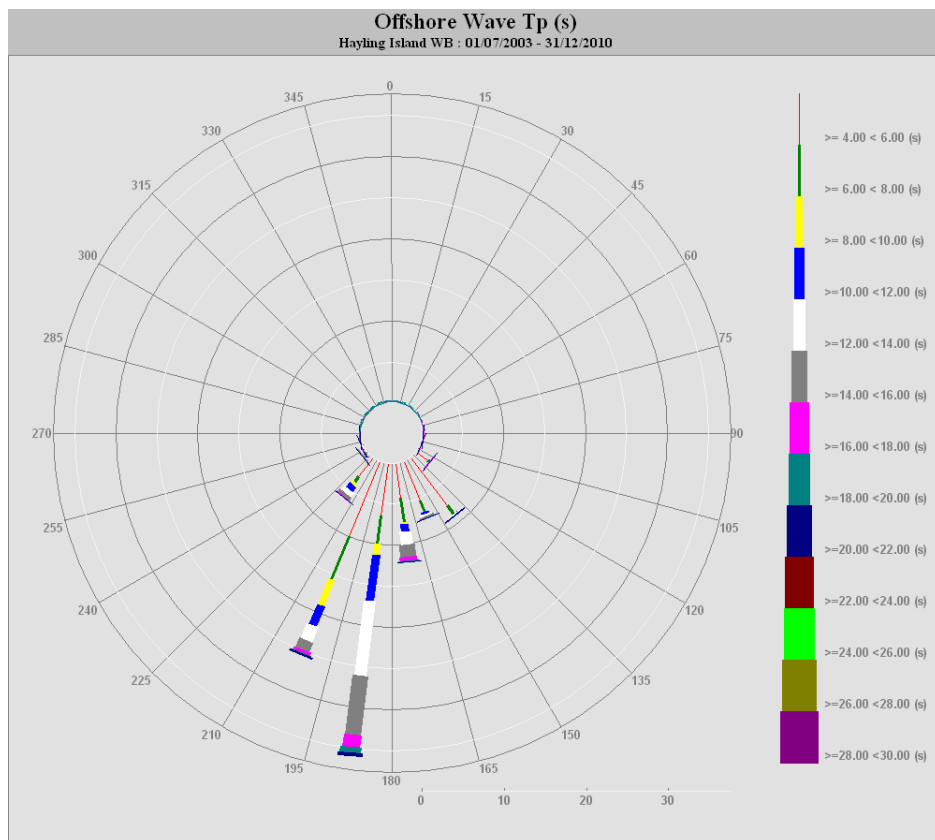


Hayling Island 2003 to 2010 - Joint distribution (% of occurrence)





Direction vs. H_s (all measured data)



Direction vs. T_p (all measured data)

