

Boscombe Directional Waverider Buoy

Location

OS: 411412E 90203N

WGS84: Latitude: 50° 42.681' N Longitude: 01° 50.384' W

Water Depth

~10 m CD

Instrument Type

Datawell Directional Waverider Mk III

Data Quality

Recovery rate (%)	Sample interval
99	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	0.61	8.5	4.4	176	6.6	30
February	0.79	12.8	4.6	188	7.1	28
March	0.39	8.0	4.0	172	7.8	31
April	0.33	9.2	4.1	182	11.0	30
May	0.52	5.7	3.4	183	13.7	31
June	0.52	5.4	3.6	184	15.3	30
July	0.38	5.8	3.6	184	17.2	30
August	0.41	5.1	3.5	183	18.0	30
September	0.61	6.5	3.6	186	16.9	30
October	0.66	7.3	3.8	183	15.7	31
November	0.76	8.4	4.2	172	13.4	30
December	0.74	8.4	4.2	191	10.5	31

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)
10-Jan-2011 22:30	2.88	7.1	5.6	169	0.47	HW -5	0.7	0.19	0.35
12-Dec-2011 23:30	2.86	8.3	5.6	190	0.95	HW +1	1.3	0.53	0.59

* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge on Bournemouth Pier). 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	-	2.17	1.95	1.53	1.19	0.98	14-Nov-2003 11:00	2.79
2004	2.98	2.28	1.96	1.69	1.30	1.02	08-Jan-2004 09:30	3.62
2005	2.62	1.81	1.59	1.40	1.11	0.90	02-Nov-2005 01:00	2.84
2006	2.82	2.24	2.03	1.82	1.47	1.17	29-Dec-2006 23:00	3.14
2007	2.94	2.07	1.84	1.63	1.33	1.07	18-Nov-2007 14:00	3.19
2008	3.08	2.32	2.02	1.71	1.34	1.05	10-Mar-2008 07:00	3.84
2009	2.87	2.18	1.93	1.72	1.39	1.10	13-Nov-2009 23:30	3.10
2010	2.75	2.13	1.76	1.48	1.14	0.90	08-Nov-2010 08:30	3.21
2011	2.61	2.11	1.91	1.57	1.26	1.04	10-Jan-2011 22:30	2.88

* i.e. 5 % of the H_s values measured in 2003 exceeded 1.19 m

Distribution plots

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

- Annual time series of H_s (red line is 2.75m 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. Note that the buoy was not deployed during the late autumn storms in 2005
- 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.

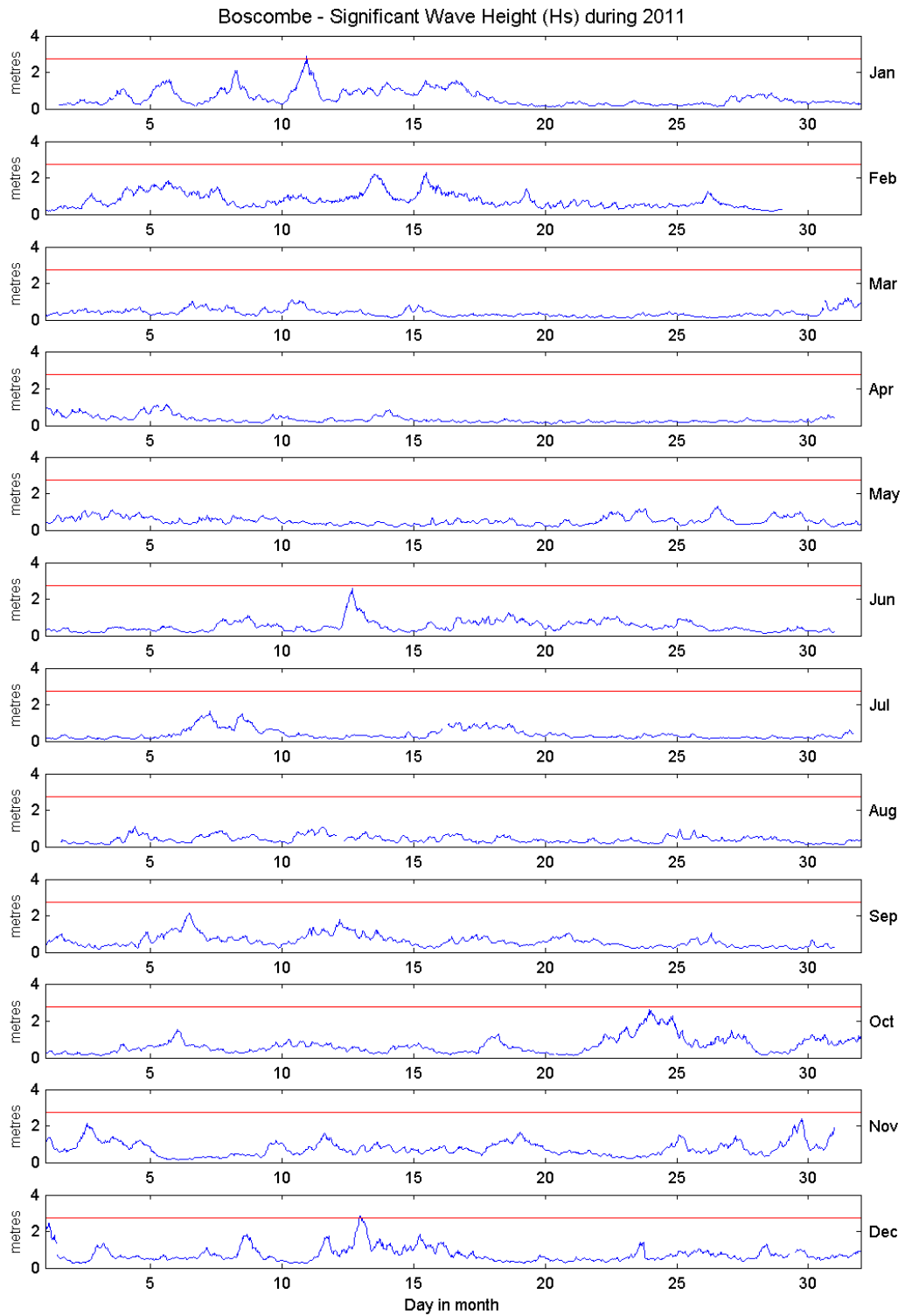
Return period (years)	Significant wave height (m)	Comments
1	3.14	No depth limitation
2	3.31	
5	3.54	
10	3.71	
20	3.87	
50	4.08	Depth-limited at MLWS

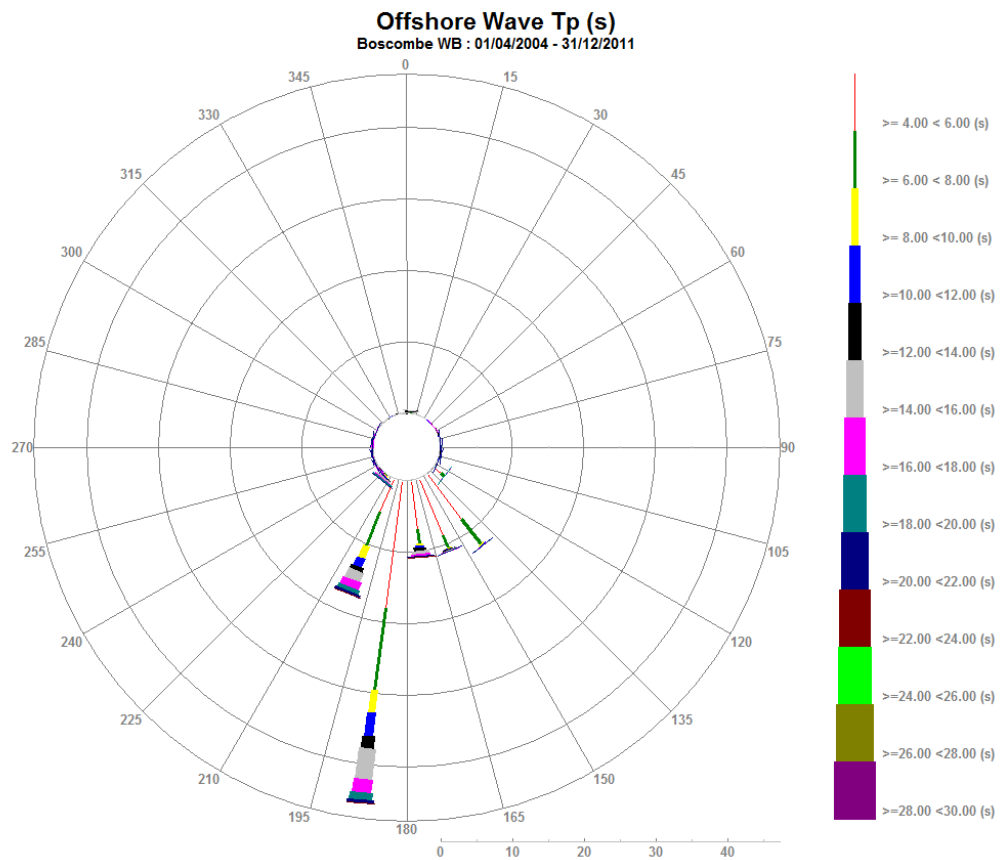
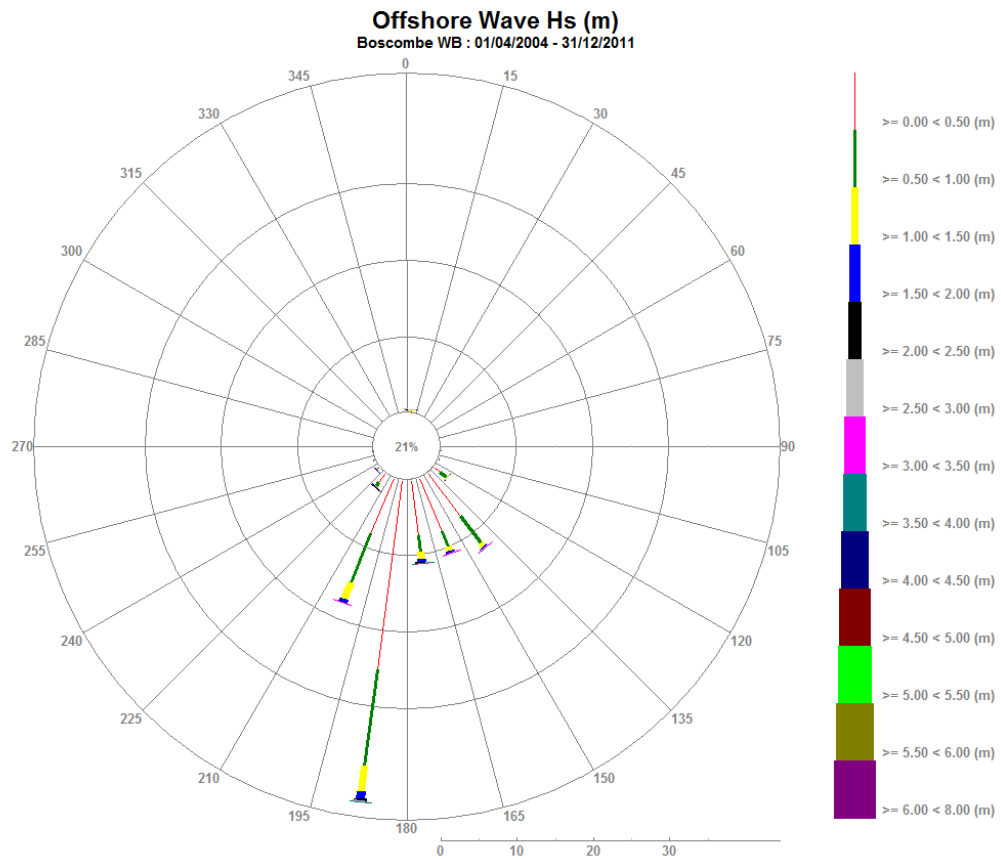
General

The buoy was first deployed on 11 July 2003.

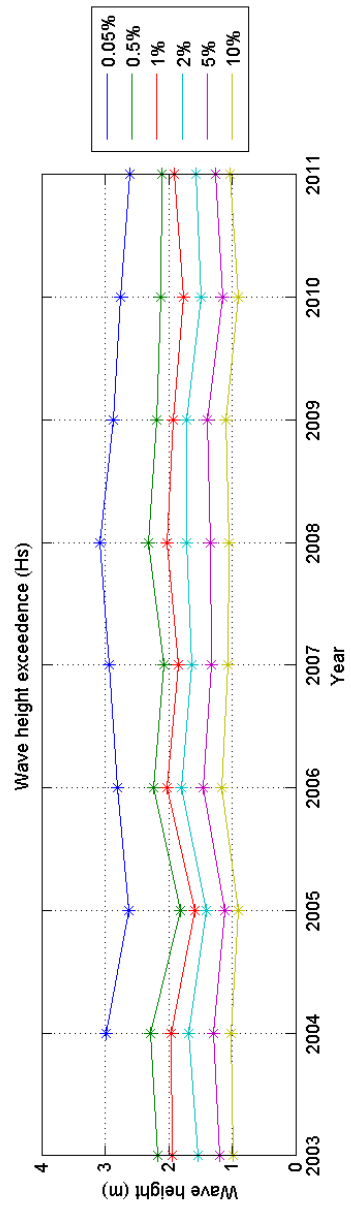
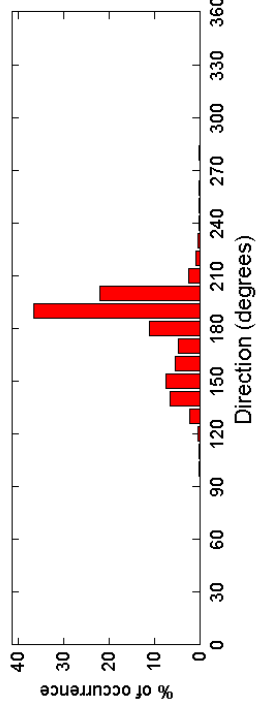
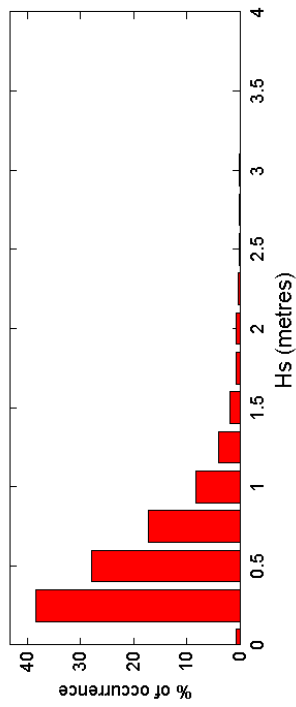
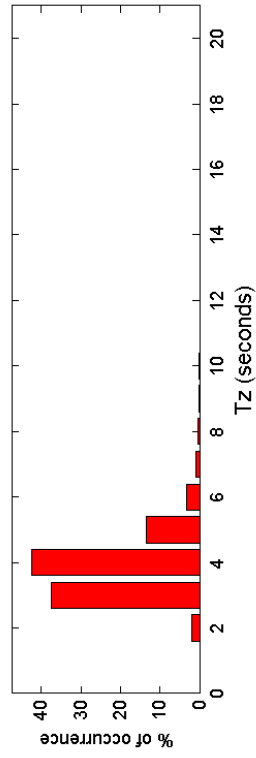
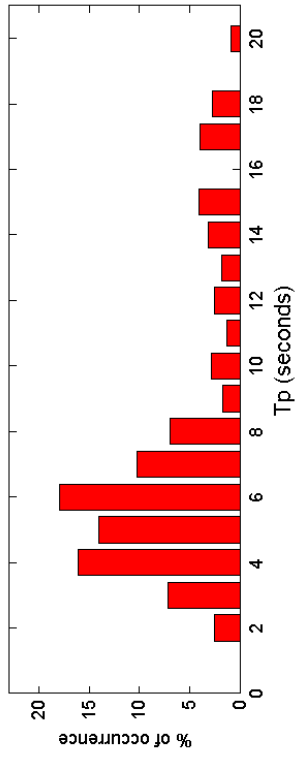
Acknowledgements

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Boscombe 2011



Boscombe 2003 to 2011 - Joint distribution (% of occurrence)

