

Boscombe Directional Waverider Buoy

Location

OS: 411413E 90203N
 WGS84: Latitude: 50° 42.68' N Longitude: 001° 50.38' W

Water Depth

Approx. 10m CD

Instrument Type

Datwell Directional Waverider Buoy Mk III

Data Quality

C1 (%)	Sample interval
99	30 minutes

Monthly Means

All times GMT

Month	H _s	T _p	T _z	Direction	SST	No. of days
	(m)	(s)	(s)	(°)	(°C)	
January	0.53	9.2	4.7	174	6.0	31
February	0.54	9.8	4.6	181	5.7	28
March	0.51	6.9	3.9	172	6.6	31
April	0.40	6.9	3.9	174	9.2	29
May	0.32	6.2	3.8	170	11.9	31
June	0.30	6.6	3.7	177	15.7	30
July	0.44	5.3	3.3	191	18.6	30
August	0.44	5.3	3.6	188	18.3	31
September	0.48	7.0	3.8	183	17.3	30
October	0.63	6.5	4.1	172	14.9	30
November	0.65	8.7	4.6	176	12.1	30
December	0.43	7.0	4.5	167	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)
08-Nov-2010 08:30	3.21	8.3	6.3	176	1.15	HW -2	1.48	0.32	0.45
17-Nov-2010 11:00	2.81	7.7	5.6	141	0.30	HW +2	1.40	0.30	0.41
01-Oct-2010 13:30	2.69	7.7	5.5	177	0.45	HW -3	0.95	0.21	0.35
16-Jan-2010 07:30	2.60	7.7	5.4	158	0.95	HW -2	1.60	0.35	0.32

* 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.

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

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

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 storm waves for 2010 and for all previous years. 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.
- 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)	Comments
1	3.12	
2	3.32	
5	3.57	
10	3.75	
20	3.93	
50	4.17*	* depth-limited at MLWS

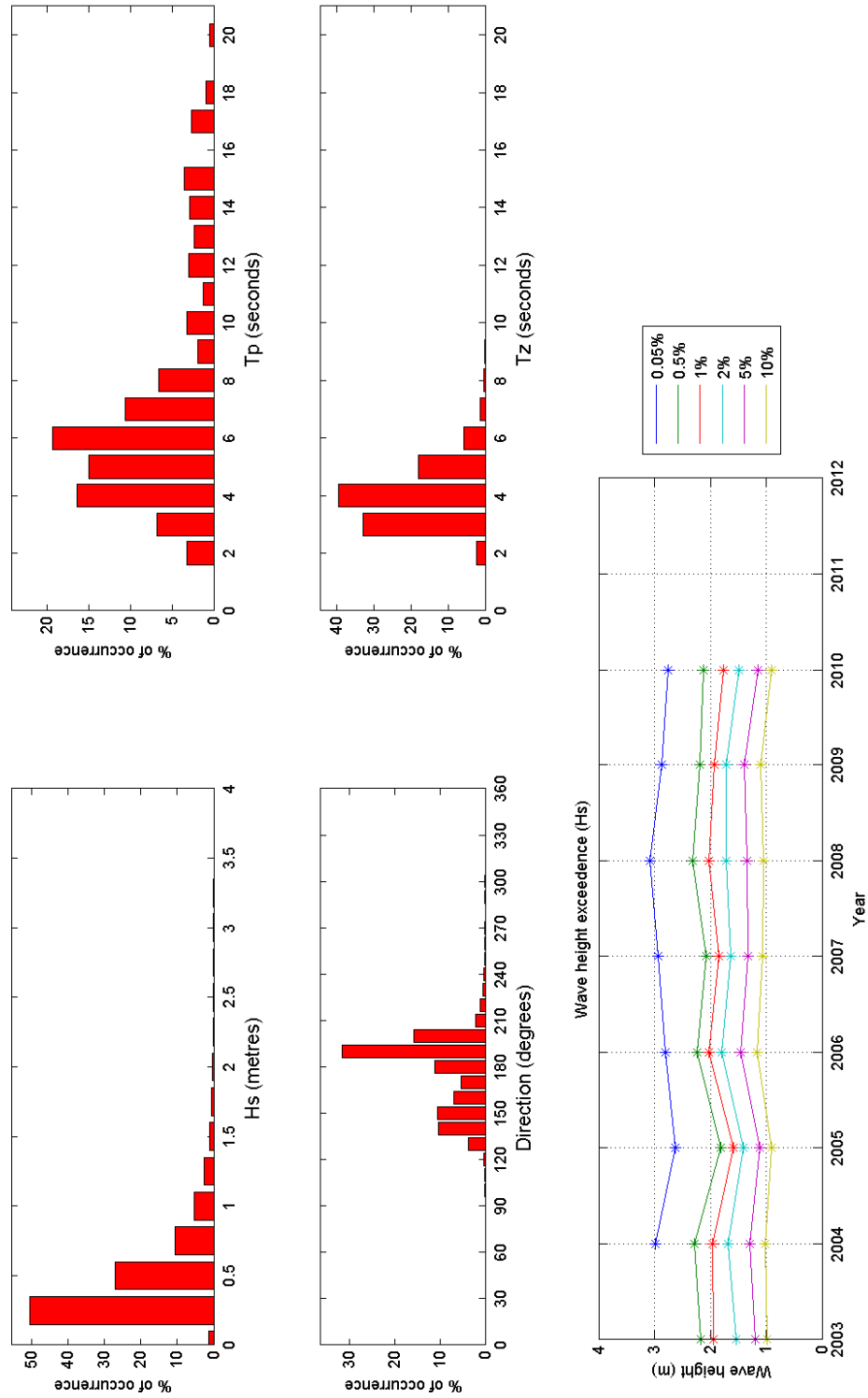
General

The buoy was first deployed on 11 July 2003.

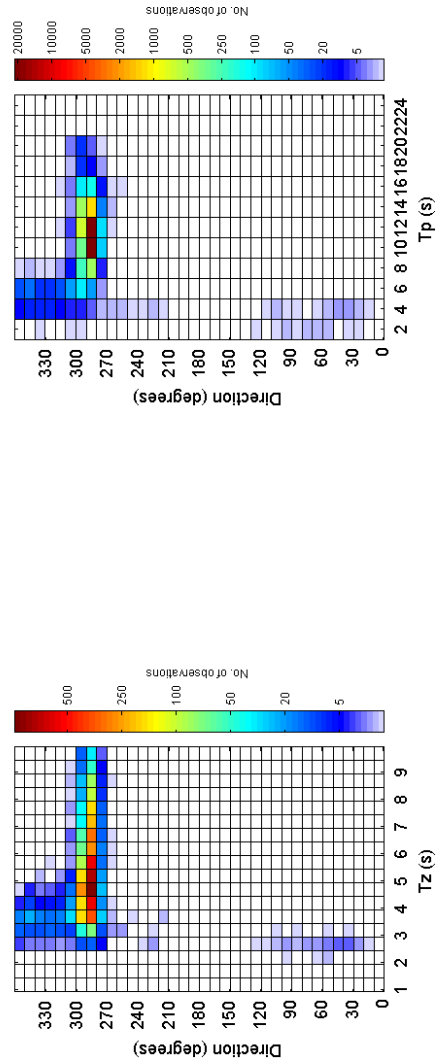
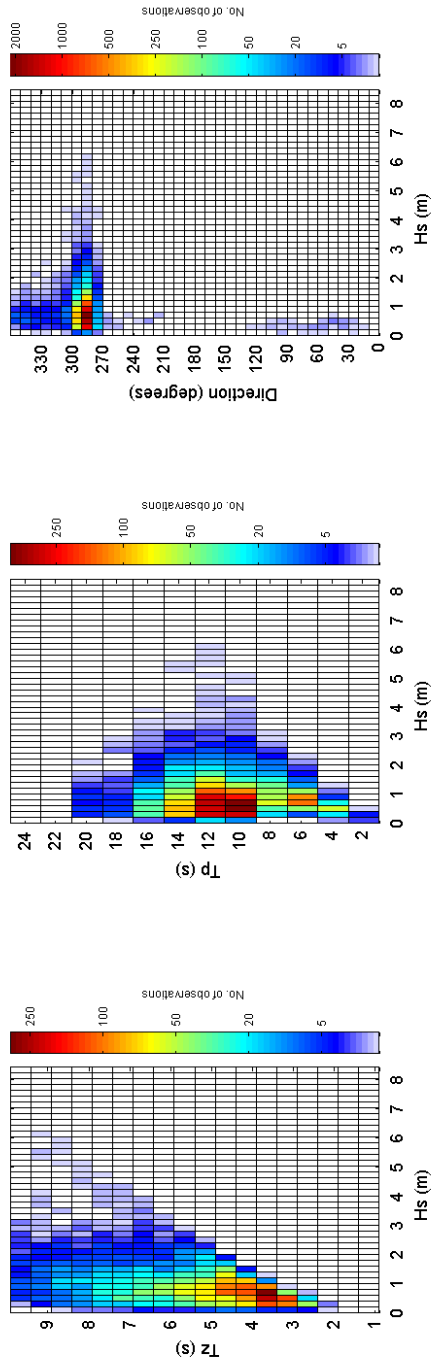
Acknowledgements

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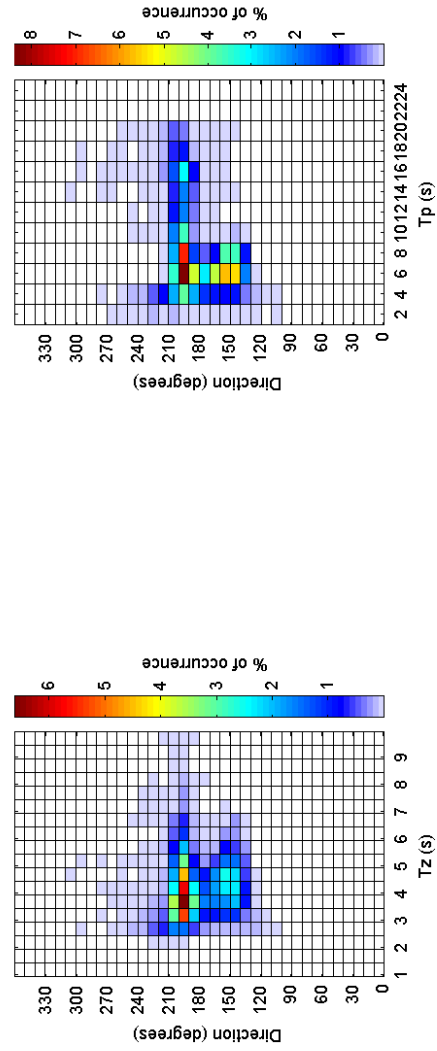
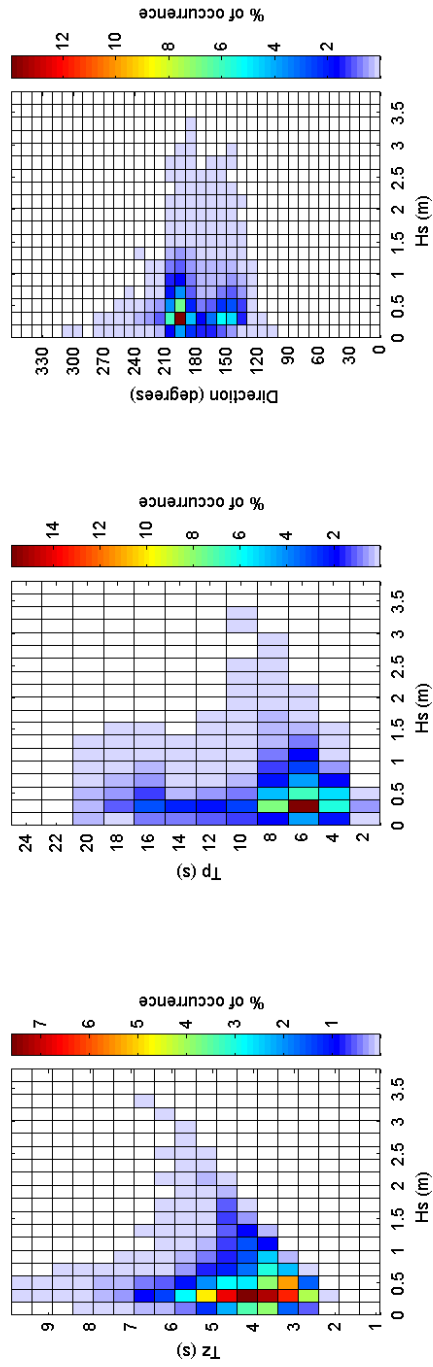
Boscombe 2010



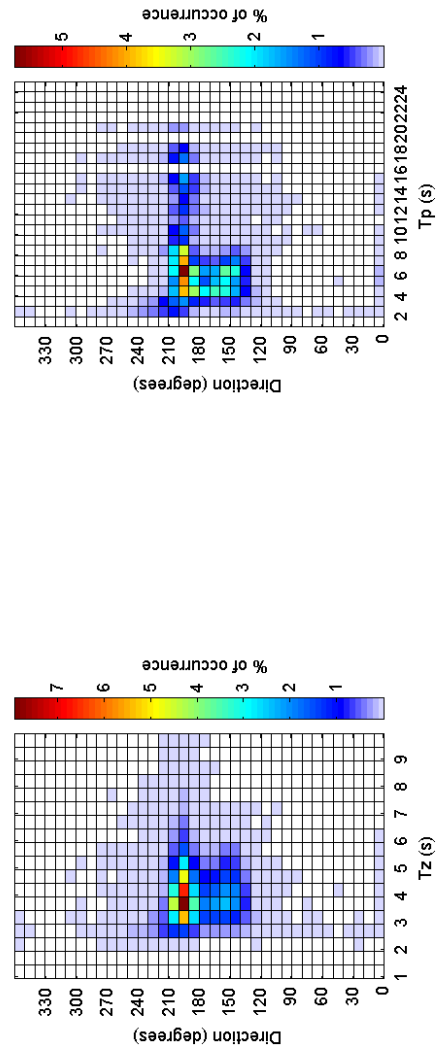
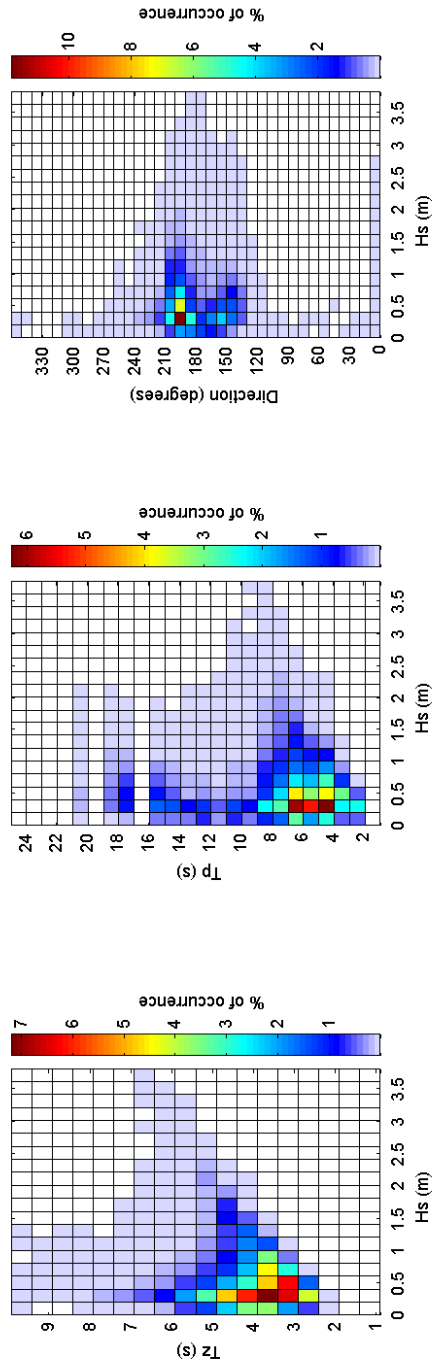
Bideford Bay 2010 - Joint distribution

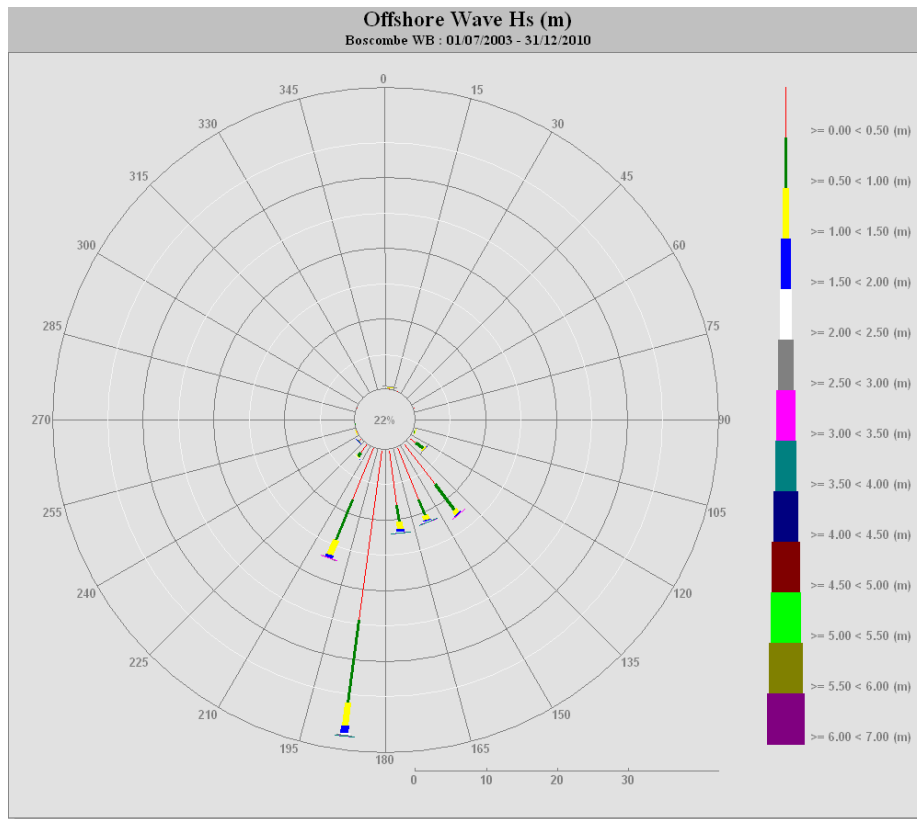


Boscombe 2010 - Joint distribution (% of occurrence)

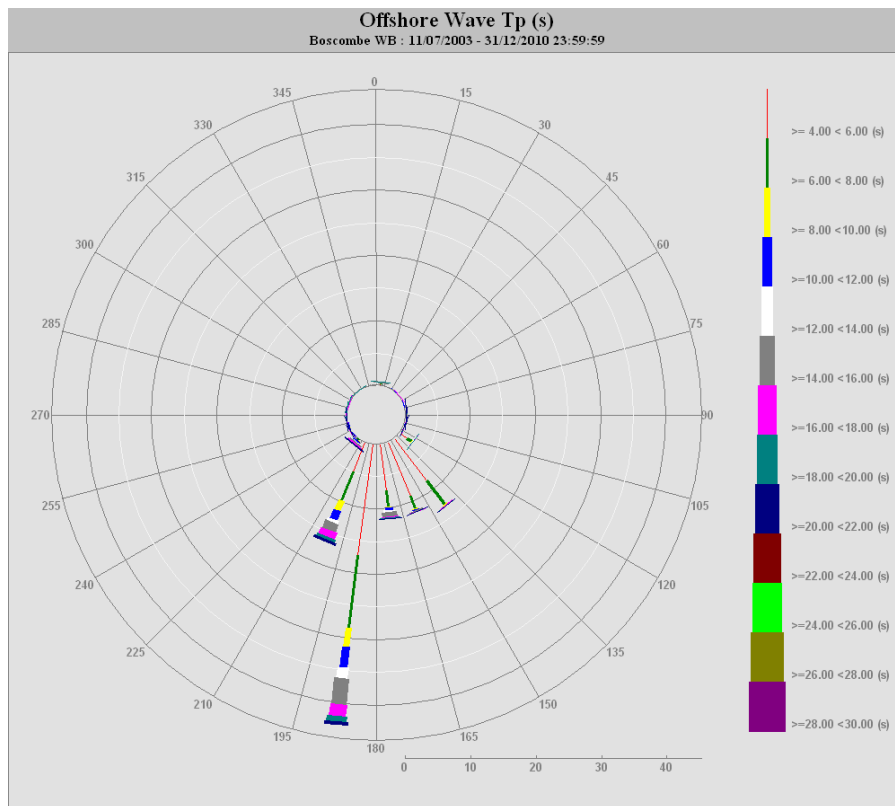


Boscombe 2003 to 2010 - Joint distribution (% of occurrence)





Direction vs. H_s (all measured data)



Direction vs. T_p (all measured data)

