

## Boscombe Directional WaveRider Buoy

### Location

OS: 411413E 90302N  
 WGS84: Latitude: 50° 42.681'N Longitude: 001° 50.376'W

### Water Depth

10.4m CD

### Instrument Type

Datawell Directional WaveRider Buoy Mk III

### Data Quality

C1(%)	Sample interval
92	30 minutes

### Monthly Means

Boscombe 2004							
Month	H <sub>s</sub>	H <sub>max</sub>	T <sub>p</sub>	T <sub>z</sub>	Direction	SST	No. of days
	(m)	(m)	(s)	(s)	(°)	(°C)	
January	0.742	1.138	8.7	4.3	-	-	29
February	0.493	0.746	10.0	4.5	-	-	24
March	0.607	0.941	7.8	4.2	175	-	17
April	0.363	0.557	7.9	4.0	181	-	25
May	0.337	0.546	6.4	3.6	175	12.7	31
June	0.398	0.612	5.1	3.4	188	16.3	30
July	0.388	0.597	5.0	3.4	186	17.3	31
August	0.516	0.794	5.6	3.5	182	19.2	31
September	0.560	0.865	6.4	3.7	182	17.5	29
October	0.892	1.390	6.3	4.1	175	14.4	31
November	0.373	0.576	6.9	4.2	179	11.9	30
December	0.518	0.790	9.9	4.4	184	9.3	31

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 2004									
Date/Time	H <sub>s</sub>	T <sub>p</sub>	T <sub>z</sub>	Dir.	Water level elevation (OD)	Tidal stage	Tidal range (m)	Tidal surge* (m)	Max. surge* (m)
08-Jan-2004 09:30	3.62	8.3	6.3	-	1.14	HW	1.0	0.46	0.50
31-Jan-2004 11:00	3.06	8.3	5.9	-	0.53	HW -4	0.5	0.55	0.66
27-Oct-2004 13:30	2.99	7.7	5.6	143	0.49	HW -1	0.9	0.55	0.67
28-Oct-2004 00:00	2.79	7.1	5.6	143	0.91	HW	0.8	0.50	0.65
29-Oct-2004 04:30	2.48	7.1	5.3	165	-0.17	HW -4	1.0	0.45	0.45

\* 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<sub>s</sub>. The maximum tidal surge is the largest positive surge during the storm event.

Year	Annual $H_s$ exceedance* (m)					Annual Maximum $H_s$	
	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	2.790
2004	2.28	1.96	1.69	1.30	1.02	08-Jan-2004 09:30	3.620
2005							

\* 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 2004
- 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 2004, given both as number of observations and as percentage of occurrence
- Cumulative joint distribution of parameters from start of records (percentage of occurrence only)
- Incidence of storm waves for 2004 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.
- Annual time series of  $H_s$  (red line is storm waves threshold)

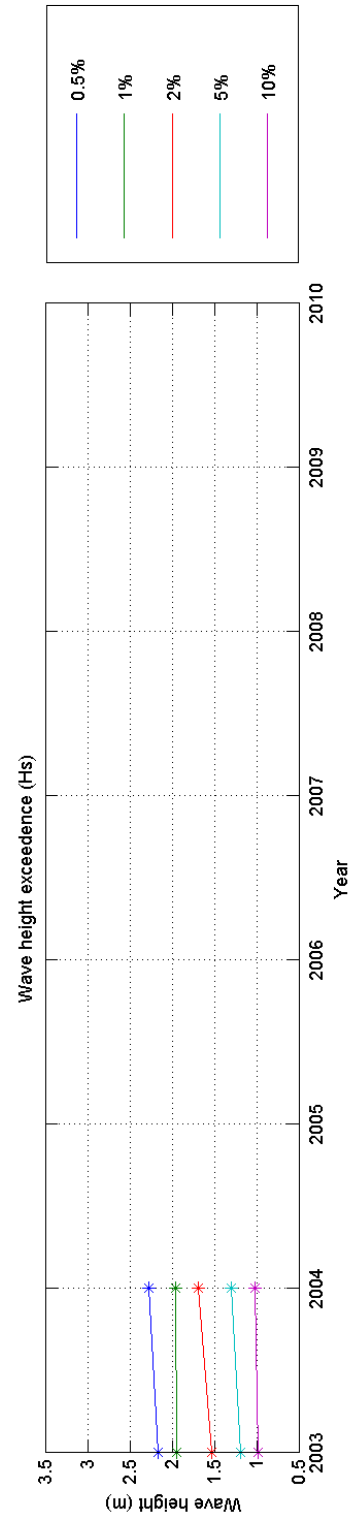
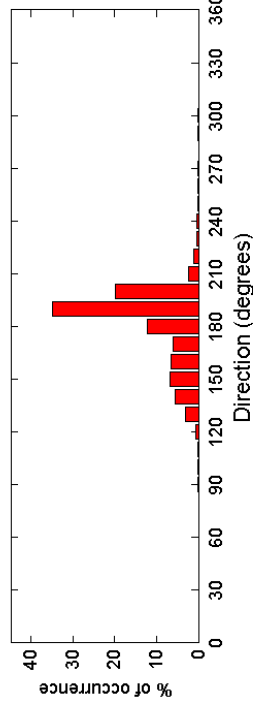
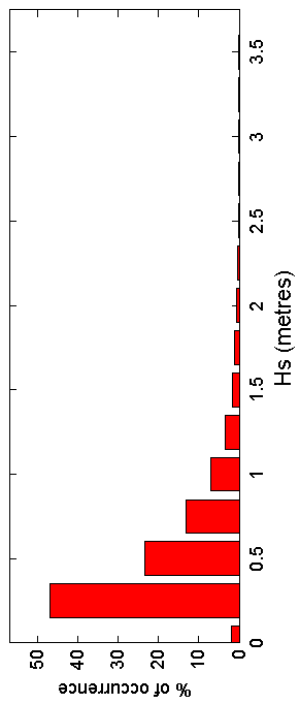
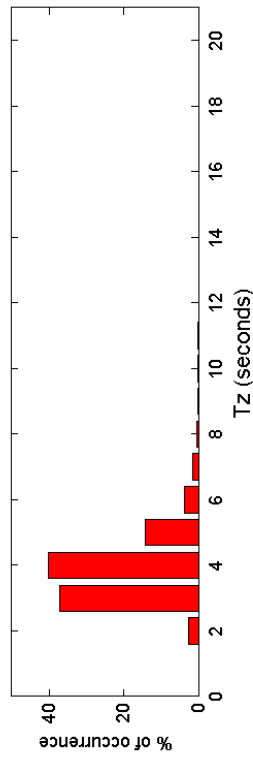
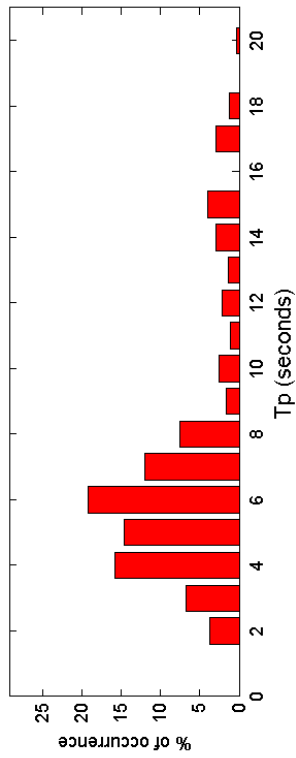
### General

The wave directions recorded by the Datawell Directional WaveRider Mk III were found to be contaminated by a significant tidal signature, compounded by the on-board data processing. The buoy received new electronics to fix this problem in February 2004; wave directions measured before March 2004 were excluded from the analysis.

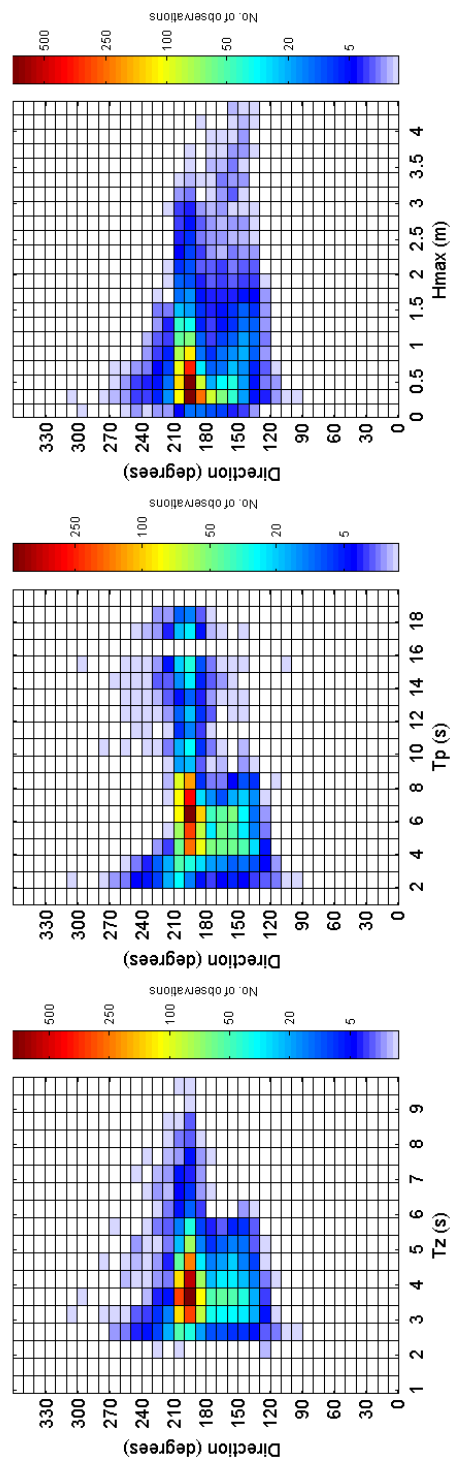
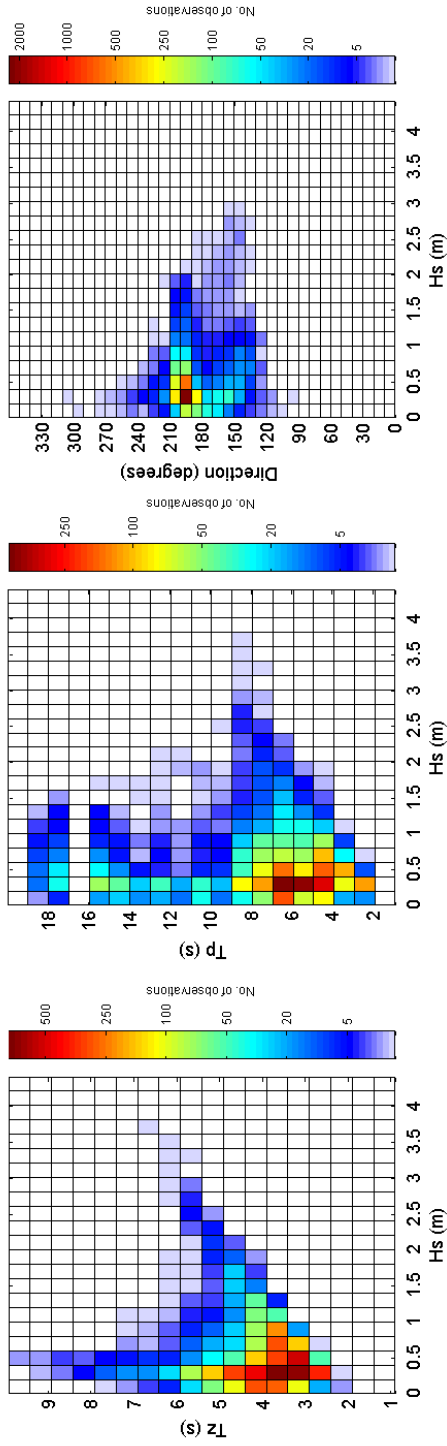
### Acknowledgements

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.

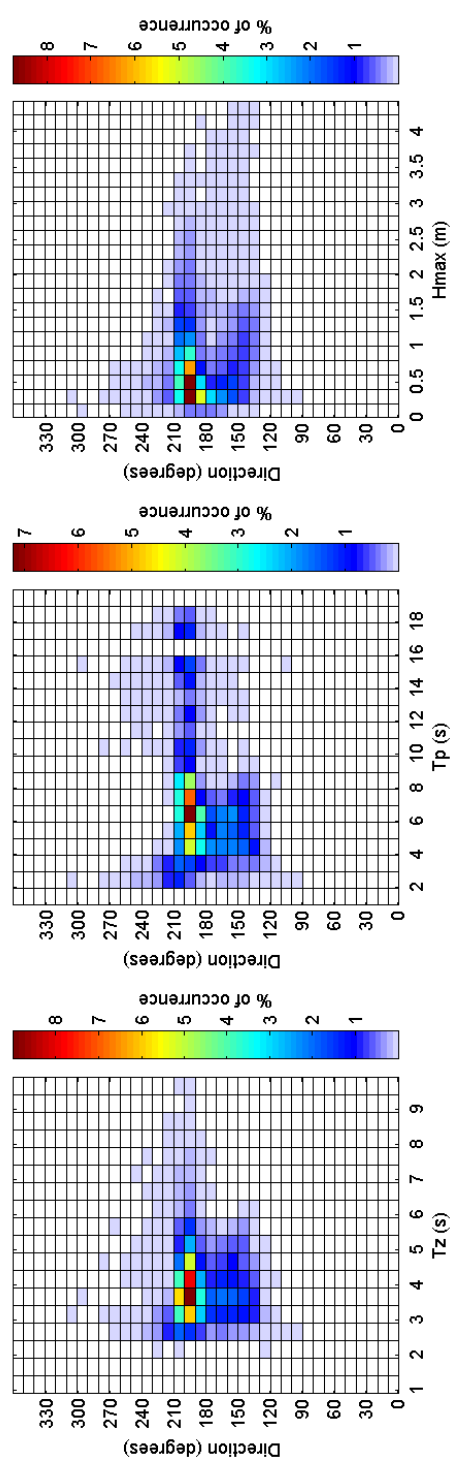
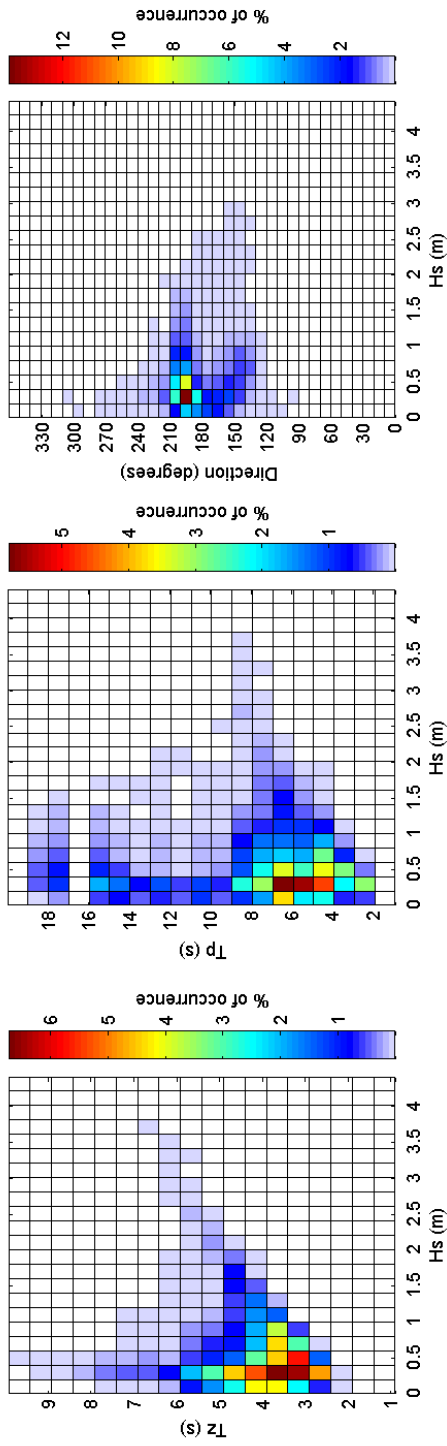
Boscombe 2004



Boscombe 2004 - Joint distribution



Boscombe 2004 - Joint distribution (% of occurrence)



Boscombe 2003 to 2004 - Joint distribution (% of occurrence)

