

## 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
84	30 minutes

### Monthly Means

Boscombe 2005							
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	0.666	1.007	9.2	4.3	180	8.6	28
February	0.376	0.584	6.8	4.2	168	7.2	27
March	0.409	0.622	9.2	4.2	178	6.7	31
April	0.433	0.660	6.3	3.7	180	9.6	30
May	0.516	0.799	5.7	3.6	177	12.3	30
June	0.383	0.587	5.7	3.5	178	15.5	28
July	0.391	0.605	4.9	3.4	181	18.1	31
August	0.324	0.500	5.3	3.5	184	18.6	31
September	0.424	0.648	7.3	3.8	184	18.6	30
October	0.692	1.078	6.5	3.8	171	15.9	31
November	1.163	-	6.4	5.4	178	15.2	2
December	0.544	0.855	7.8	4.4	-	-	8

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 2005 <sup>1</sup>									
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)
02-Nov-2005 01:00	2.84	6.7	5.5	152	0.799	HW +5	1.0	0.52	0.65
30-Dec-2005 11:30	2.71	7.4	5.8	-	0.692	HW	0.9	0.34	0.34
08-Jan-2005 04:00	2.33	5.0	4.8	200	0.630	HW -3	0.8	0.26	0.34

<sup>1</sup> The buoy was badly damaged just prior to the November/December 2005 storms.

\* 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	2.79
2004	2.28	1.96	1.69	1.30	1.02	08-Jan-2004 09:30	3.62
2005	1.81	1.59	1.40	1.11	0.90	02-Nov-2005 01:00	2.84

\* 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 2005
- 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 2005, 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 2005 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 – see below.
- Annual time series of  $H_s$  (red line is storm waves threshold)

### General

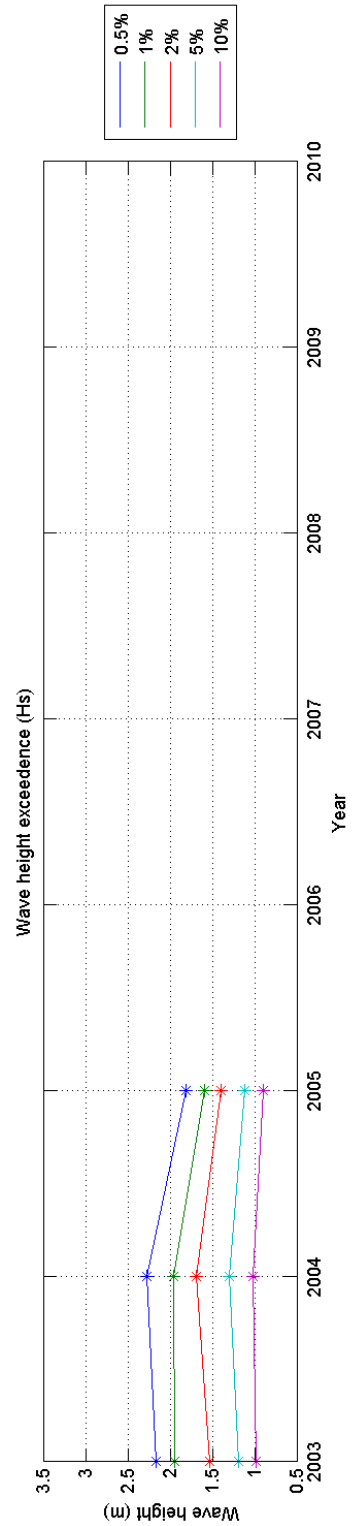
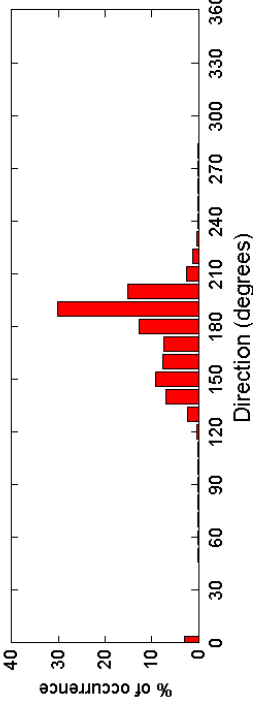
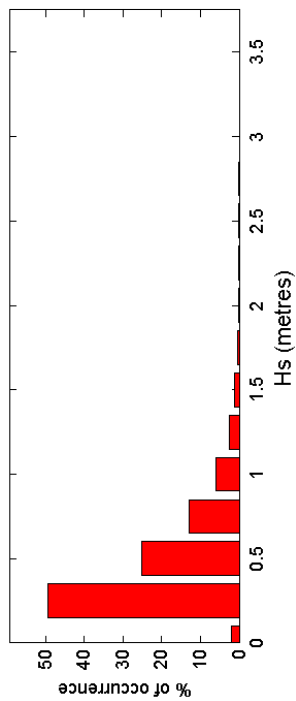
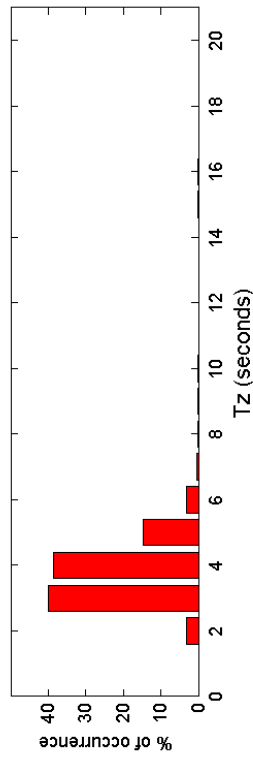
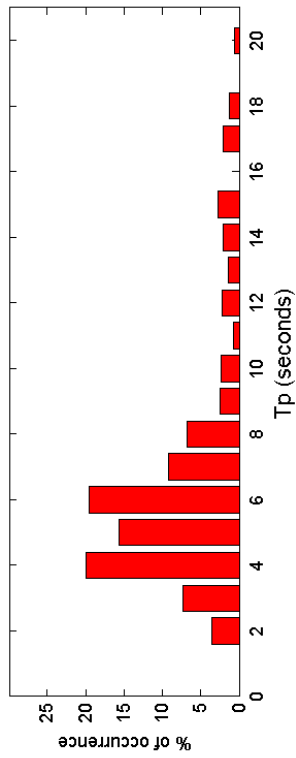
The wave directions recorded by the Datawell Directional WaveRider Mk III were found to be contaminated by a significant tidal signature, compounded by the on-board data processing. The buoy received new electronics to fix this problem in February 2004; wave directions measured before March 2004 were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

The buoy was badly damaged in November 2005, just prior to the series of storms which occurred that month. The summary statistics of highest events, therefore, do not include the November and early December storms. The buoy was replaced in December.

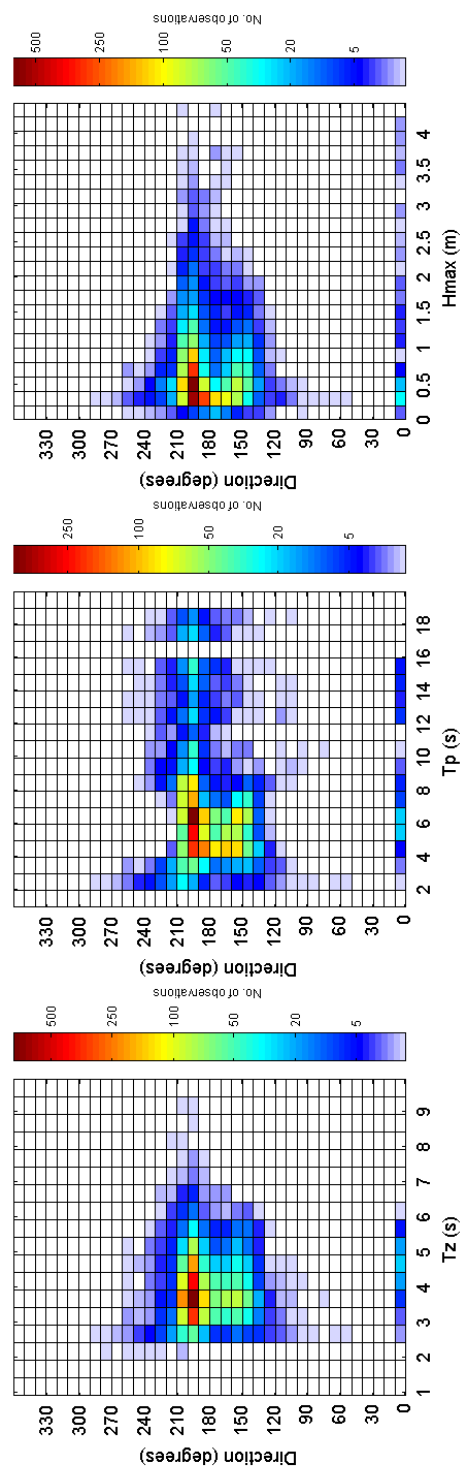
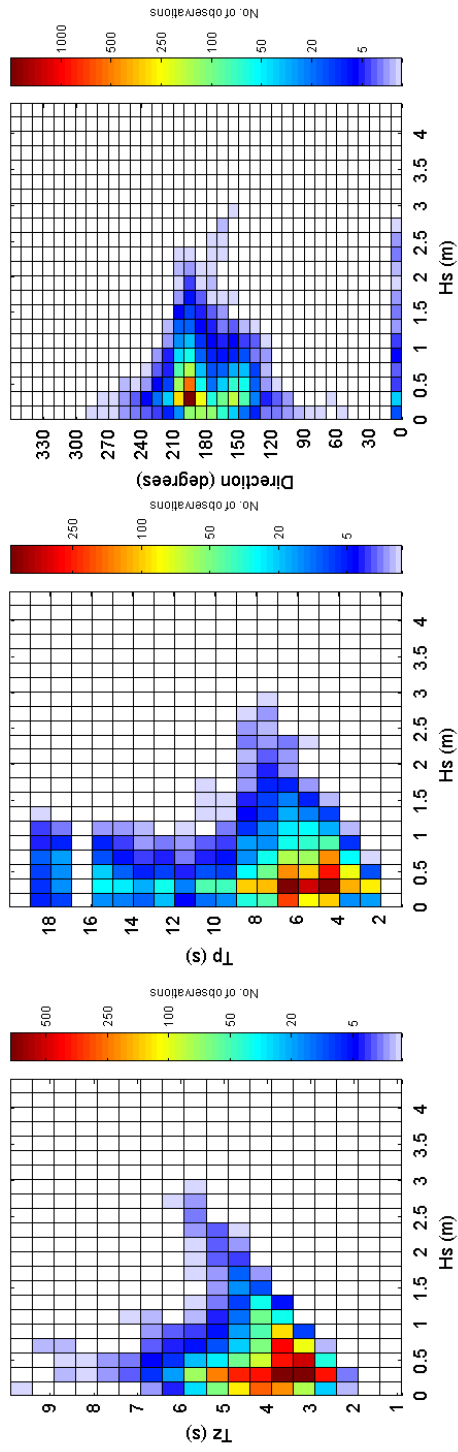
### Acknowledgements

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.

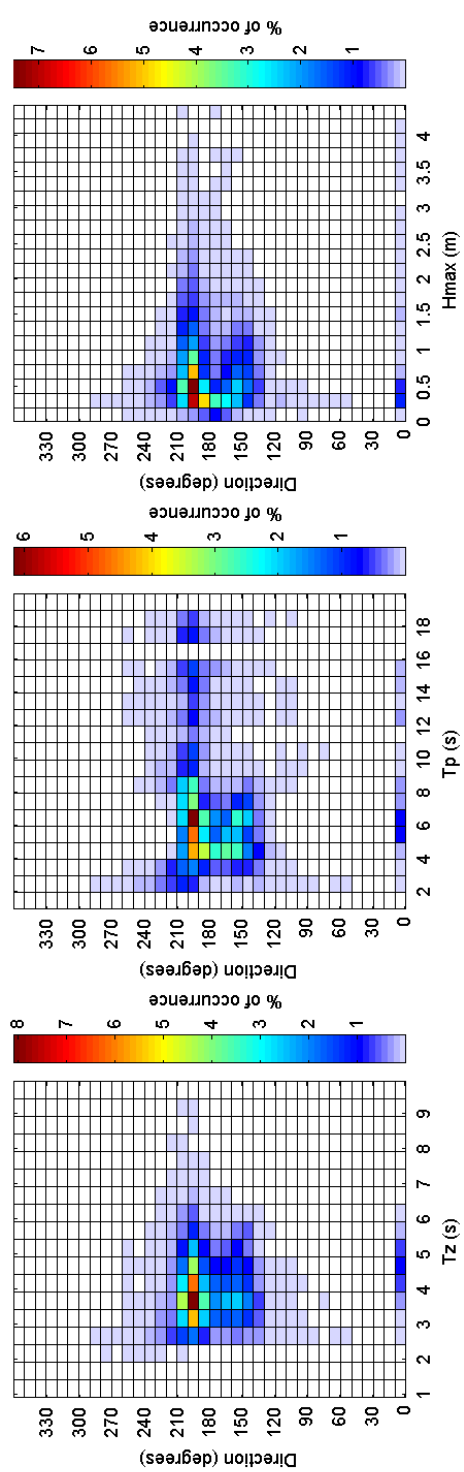
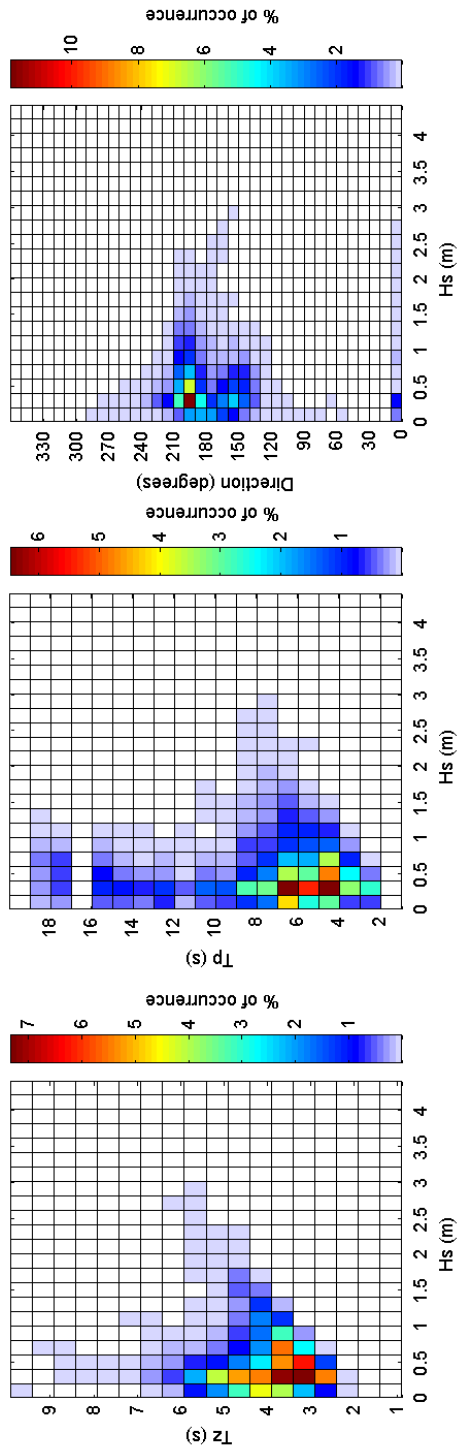
Boscombe 2005



Boscombe 2005 - Joint distribution



Boscombe 2005 - Joint distribution (% of occurrence)



Boscombe 2003 to 2005 - Joint distribution (% of occurrence)

