

## Weymouth Directional Waverider Buoy

### Location

OS: 370833 E 80423 N  
 WGS84: Latitude: 50° 37.366' N Longitude: 002° 24.819' W

### Water Depth

Approx. 10m CD

### Instrument Type

Datowell Directional WaveRider Buoy Mk III

### Data Quality

C1 (%)	Sample interval
99	30 minutes

### Monthly Means

*All times GMT*

Month	H <sub>s</sub>	T <sub>p</sub>	T <sub>z</sub>	Direction	SST	No. of days
	(m)	(s)	(s)	(°)	(°C)	
January	0.74	8.5	4.3	150	7.1	30
February	0.41	9.0	4.4	152	6.7	28
March	0.37	6.5	3.9	161	7.9	30
April	0.38	6.0	3.8	150	10.0	29
May	0.43	6.2	3.6	160	12.1	31
June	0.30	5.2	3.5	149	15.1	30
July	0.43	5.0	3.3	165	16.8	31
August	0.35	4.9	3.5	166	17.6	30
September	0.38	5.9	3.7	149	16.8	30
October	0.47	5.7	3.7	154	15.6	31
November	0.84	7.1	4.1	168	13.3	30
December	0.59	7.1	4.2	151	9.9	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 2009									
Date/Time	H <sub>s</sub>	T <sub>p</sub>	T <sub>z</sub>	Dir.	Water level elevation* (OD)	Tidal stage (hours re. HW)	Tidal range (m)	Tidal surge* (m)	Max. surge* (m)
13-Nov-2009 23:30	2.62	7.7	5.6	160	0.08	HW -5	1.40	0.55	0.70
02-Dec-2009 00:00	2.17	7.7	5.4	163	-0.27	HW +5	1.63	0.25	0.25
01-Nov-2009 10:00	2.06	7.1	5	165	-0.22	HW +4	1.60	0.30	0.30
25-Jan-2009 04:30	2.05	6.7	5	165	0.98	HW -1	1.48	0.22	0.45

\* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at Weymouth). 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 $H_s$	
	0.05%	0.5%	1%	2%	5%	10%	Date	$A_{max}$ (m)
2007	2.29	1.72	1.43	1.24	1.03	0.85	18-Nov-2007 13:30	2.56
2008	2.57	1.95	1.75	1.46	1.1	0.89	03-Feb-2008 13:00	2.74
2009	2.17	1.75	1.63	1.48	1.18	0.90	13-Nov-2009 23:30	2.62

\* i.e. 5 % of the  $H_s$  values measured in 2007 exceeded 1.03m

### 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 2009
- Percentage wave height exceedance (all recorded years)
- Joint distribution of all parameters for 2009, 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 storms during 2009 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 threshold)

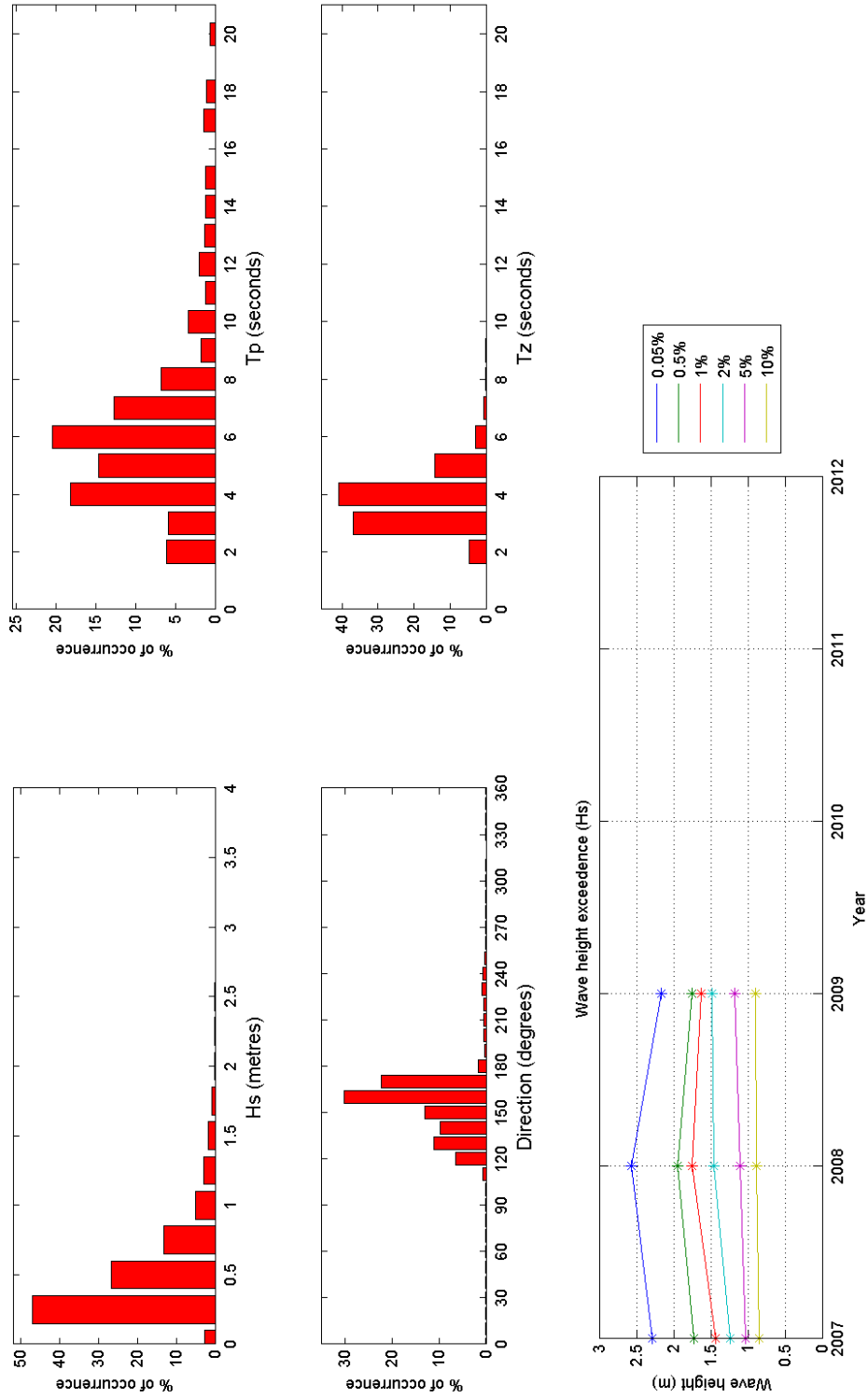
### General

The Waverider buoy was first deployed on 18 December 2006.

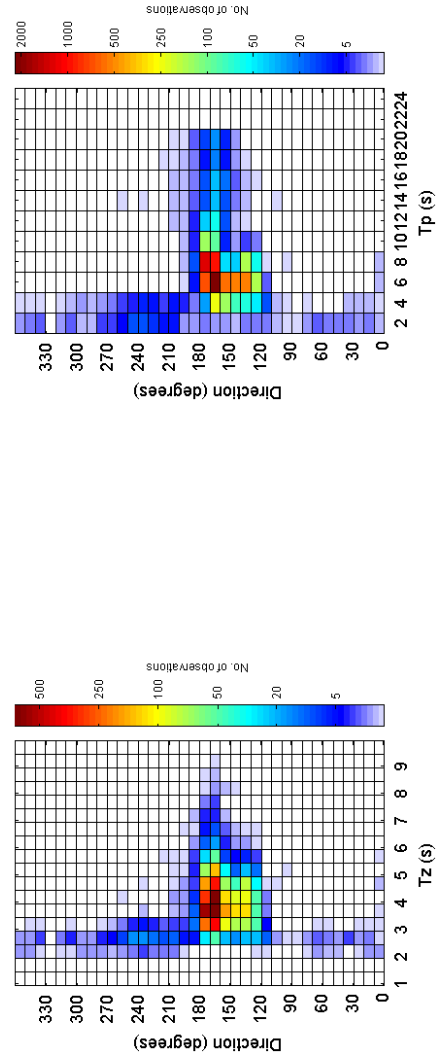
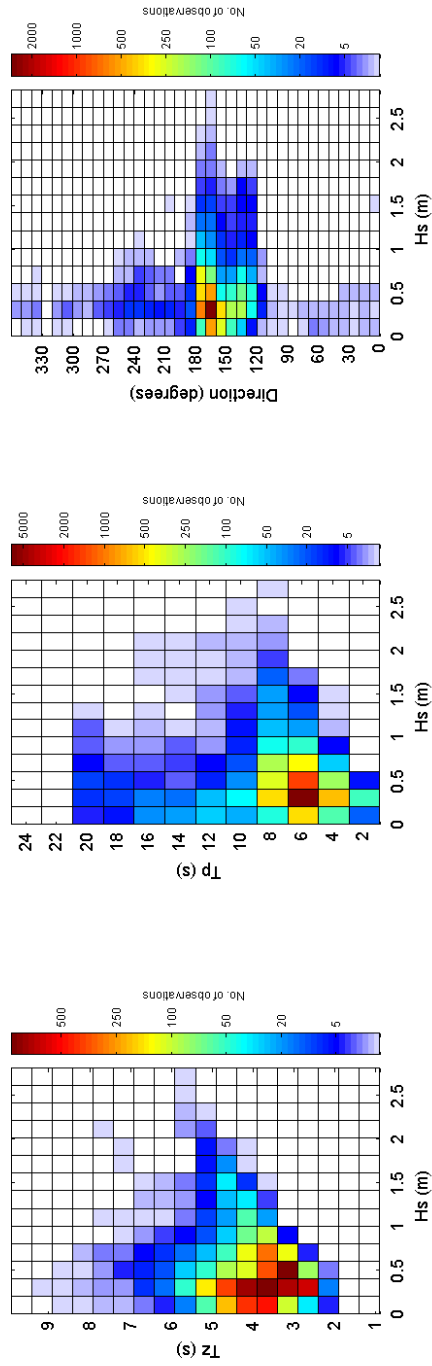
### Acknowledgements

The shore station is kindly hosted by the Weymouth and Portland National Sailing Academy. 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.

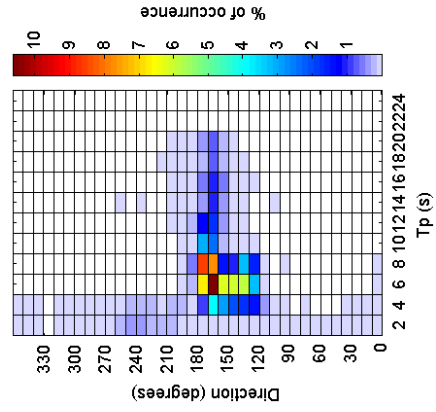
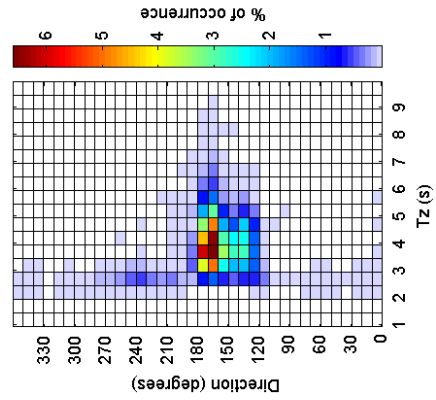
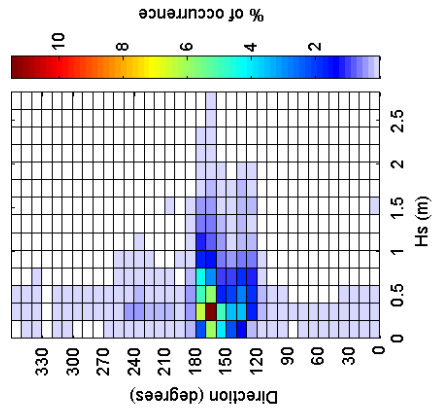
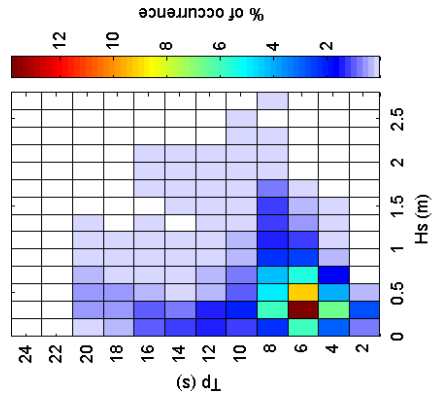
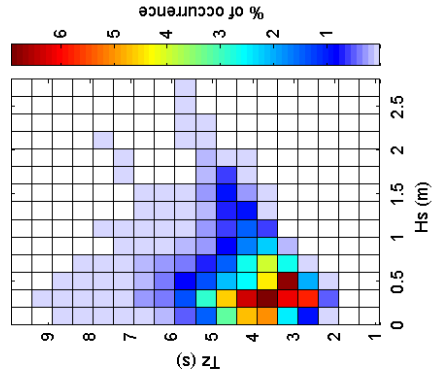
Weymouth 2009



Weymouth 2009 - Joint distribution



Weymouth 2009 - Joint distribution (% of occurrence)



Weymouth 2006 to 2009 - Joint distribution (% of occurrence)

