

Pevensey Bay Directional Waverider Buoy

Location

OS: 570429E 100915N

WGS84: Latitude: 50° 46.97' N Longitude: 000° 24.97' E

Water Depth

Approx. 9.8m CD

Instrument Type

Datawell Directional Waverider Buoy Mk III

Data Quality

C1 (%)	Sample interval
99	30 minutes

Monthly Means

All times are GMT

Month	H _s	T _p	T _m	Direction	SST	No. of days
	(m)	(s)	(s)	(°)	(°C)	
January	0.72	6.4	3.8	171	6.4	31
February	0.85	6.1	3.8	175	5.6	28
March	0.75	5.5	3.7	171	6.1	30
April	0.57	5.4	3.5	156	8.7	30
May	0.50	5.4	3.3	151	11.2	31
June	0.43	5.9	3.4	160	14.5	30
July	0.49	5.3	3.4	213	16.9	31
August	0.64	4.7	3.4	199	17.5	29
September	0.63	5.1	3.4	187	17.1	30
October	0.85	5.3	3.7	165	14.8	31
November	0.91	6.3	3.9	169	12.2	30
December	0.68	5.4	3.5	154	7.2	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 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 12:00	4.13	8.3	6.3	173	3.39	HW	5.85	0.03	0.32
11-Nov-2010 13:00	4.02	8.3	6.3	200	2.23	HW -1	4.16	0.16	0.39
31-Mar-2010 10:30	3.33	10.0	6.1	214	2.80	HW -2	6.20	0.16	0.47
04-Dec-2010 09:00	3.31	7.7	6.0	204	2.83	HW	5.46	-0.08	0.20

* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at Newhaven). 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	-	2.66	2.41	2.08	1.61	1.34	02-Nov-2003 11:30	4.18
2004	3.65	2.72	2.51	2.24	1.86	1.53	31-Oct-2004 17:00	3.92
2005	3.44	2.83	2.37	2.09	1.71	1.31	03-Dec-2005 00:00	3.55
2006	3.59	2.89	2.64	2.33	1.91	1.59	03-Dec-2006 09:30	4.10
2007	3.85	2.84	2.58	2.26	1.89	1.54	18-Jan-2007 12:00	4.23
2008	3.79	3.04	2.73	2.44	2.03	1.65	13-Dec-2008 12:00	3.97
2009	3.43	2.88	2.66	2.38	1.92	1.56	14-Nov-2009 17:30	3.61
2010	3.62	2.64	2.24	1.91	1.52	1.22	08-Nov-2010 12:00	4.13

* i.e. 5 % of the H_s values measured in 2003 exceeded 1.61m

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 storms during 2010 and for all previous years. Storms are defined using the Peaks-over-Threshold method. The highest H_s of each storm is shown.
- 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 at this site 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	3.93	
2	4.04	
5	4.18*	* depth-limited at MLWS
10	4.28*	* depth-limited at MLWS
20	4.37*	* depth-limited at MLWS
50	4.49*	* depth-limited at MLWS

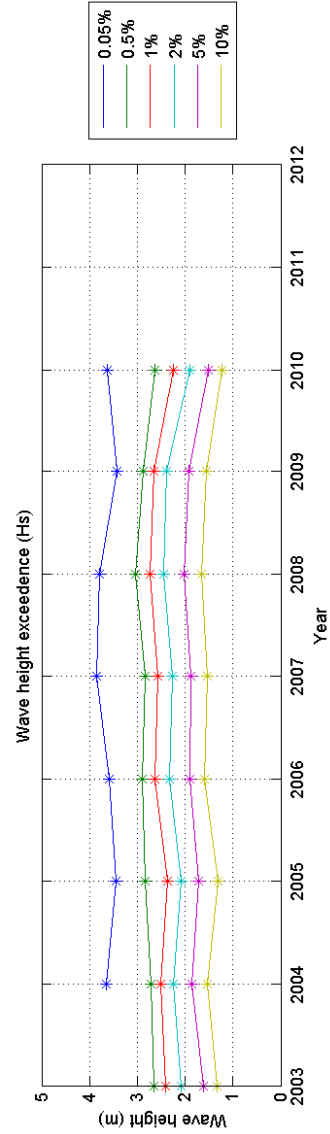
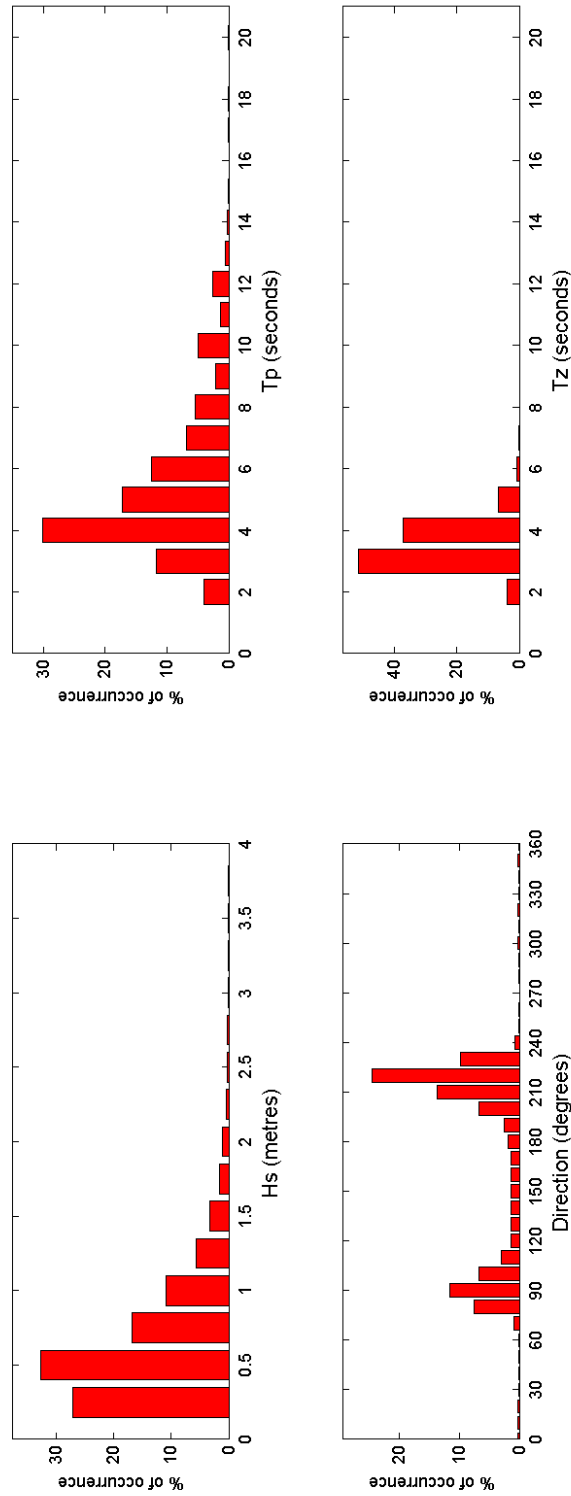
General

The buoy was first deployed on 1 June 2003.

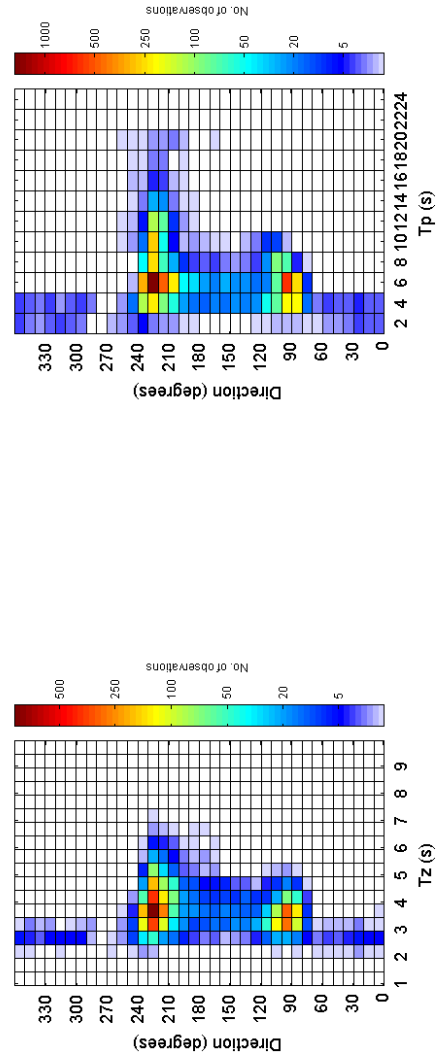
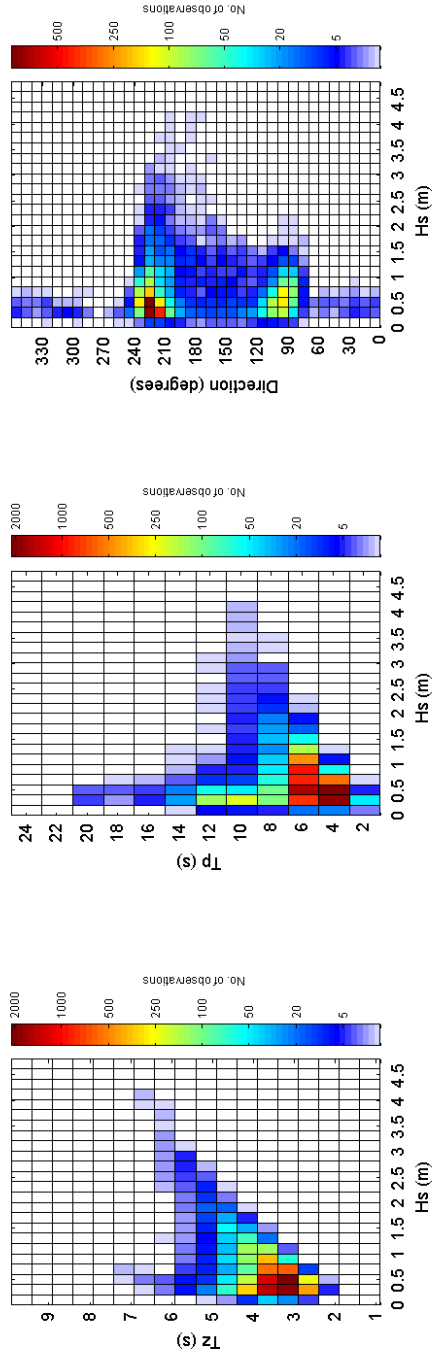
Acknowledgements

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.

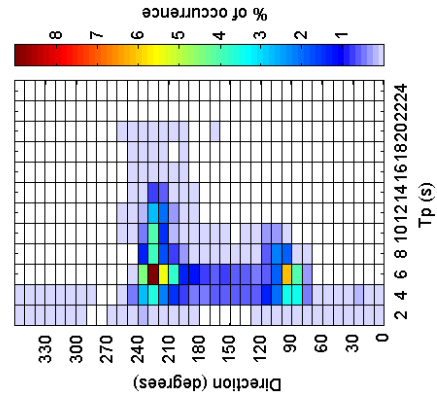
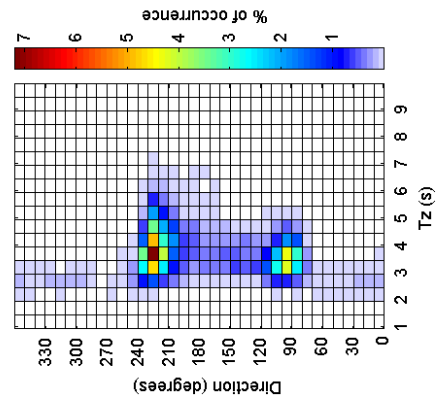
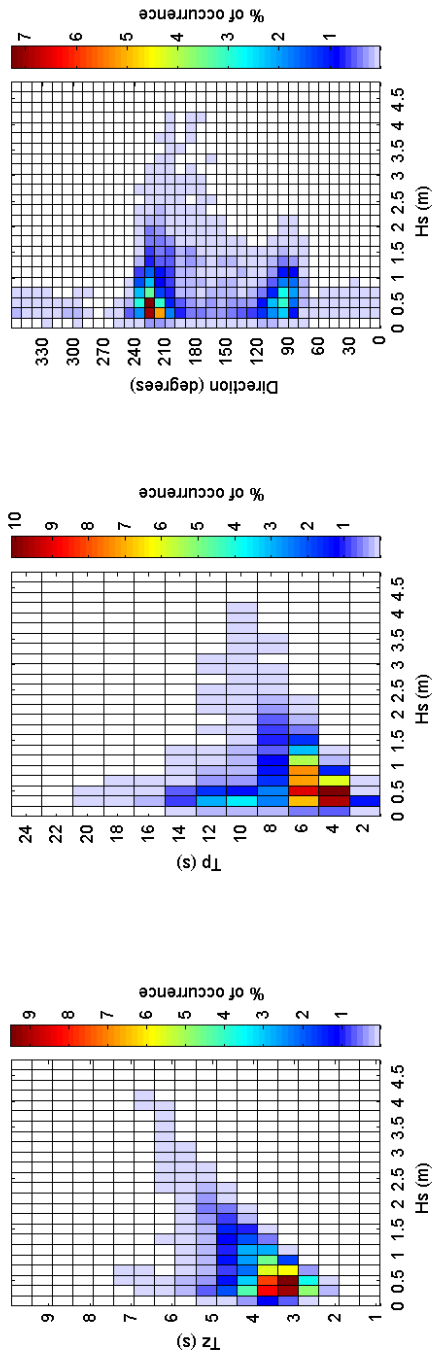
Pevensey Bay 2010



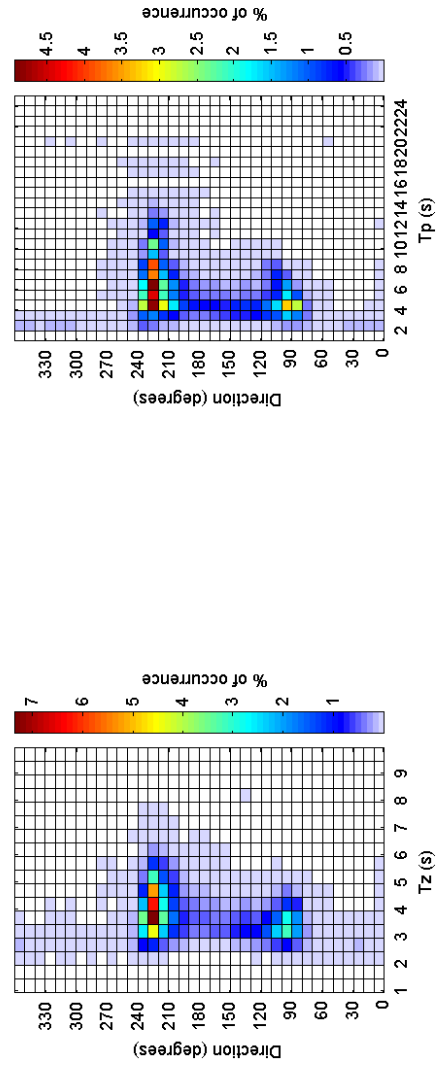
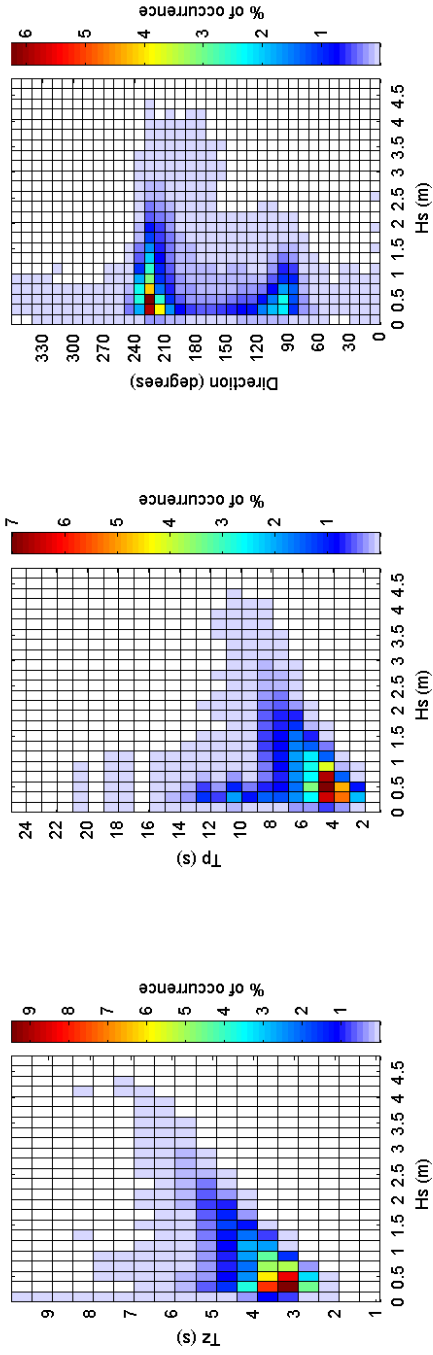
Pevensey Bay 2010 - Joint distribution

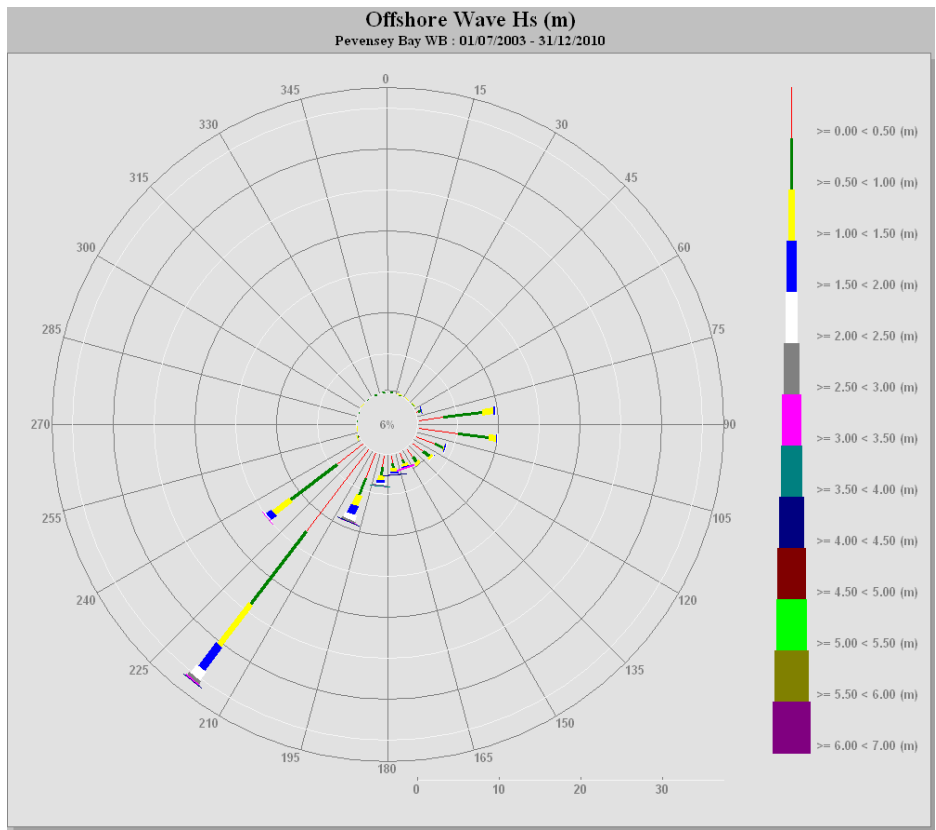


Pevensey Bay 2010 - Joint distribution (% of occurrence)

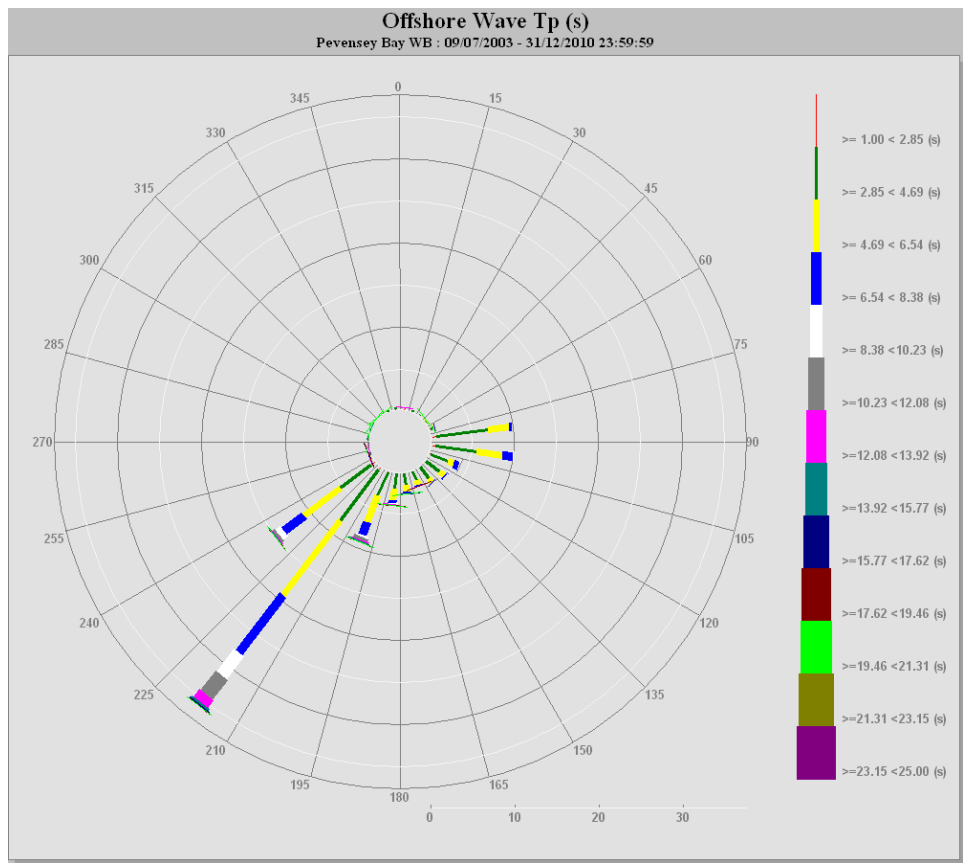


Pevensey Bay 2003 to 2010 - Joint distribution (% of occurrence)





Direction vs. H_s (all measured data)



Direction vs. T_p (all measured data)

