

Sandown Bay Directional Waverider Buoy

Location

OS: 461648E 83780N
 WGS84: Latitude: 50° 39.03' N Longitude: 001° 07.76' W

Water Depth

Approx. 11m 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	0.65	5.8	3.9	140	6.6	31
February	0.52	6.9	4.0	151	5.8	28
March	0.55	5.8	3.7	159	5.9	30
April	0.44	5.3	3.6	148	8.3	30
May	0.33	5.0	3.4	148	10.4	31
June	0.31	6.0	3.5	156	13.2	30
July	0.36	5.0	3.4	161	16.7	31
August	0.39	4.8	3.4	178	17.0	31
September	0.48	5.2	3.6	158	17.6	30
October	0.51	5.8	3.8	170	15.5	31
November	0.71	6.4	4.0	159	12.5	30
December	0.44	5.2	3.8	145	7.4	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)
09-Nov-2010 21:00	2.93	8.3	6.0	170	-0.46	HW -5	3.23	-0.01	0.27
22-Nov-2010 08:30	2.76	7.1	5.5	149	0.67	HW -3	3.12	0.12	0.19
13-Nov-2010 23:30	2.51	7.1	5.3	183	-0.03	HW -5	2.02	0.38	0.42

* Tidal information is obtained from the nearest recording tide gauge (the wave radar on Sandown 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 (m)	
	0.05%	0.5%	1%	2%	5%	10%	Date	A_{max}
2003	-	2.21	2.02	1.65	1.35	1.13	29-Nov-2003 09:00	2.79
2004	2.64	2.11	1.82	1.61	1.29	0.97	08-Jan-2004 10:30	3.17
2005	3.23	2.15	1.69	1.44	1.11	0.86	02-Dec-2005 18:00	3.79
2006	2.47	1.97	1.80	1.61	1.33	1.10	30-Dec-2006 00:00	2.75
2007	3.06	1.91	1.64	1.44	1.18	0.96	18-Nov-2007 16:00	3.22
2008	3.11	2.23	1.91	1.64	1.26	0.99	10-Mar-2008 11:30	3.63
2009	2.56	2.07	1.81	1.61	1.31	1.01	18-Nov-2009 03:00	2.70
2010	2.66	2.06	1.8	1.52	1.13	0.89	09-Nov-2010 21:00	2.93

* i.e. 5 % of the measured H_s values in 2003 exceeded 1.35m

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 statistics for 2003 are based on June 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. 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)

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)
1	3.21
2	3.63
5	3.56
10	3.72
20	3.84
50	4.02

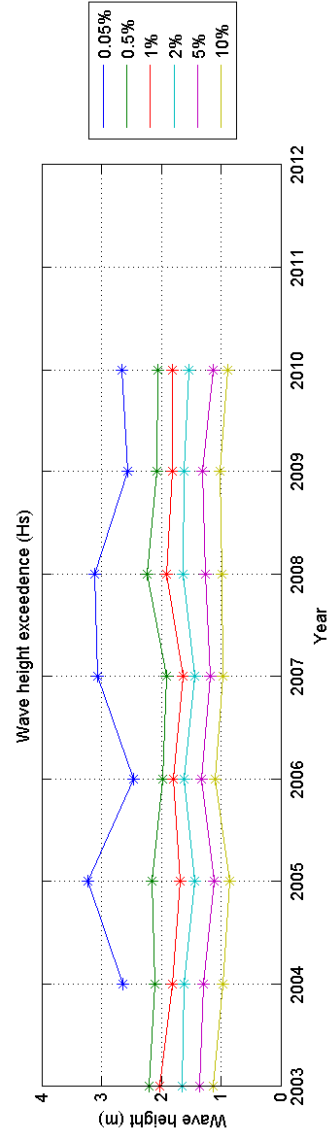
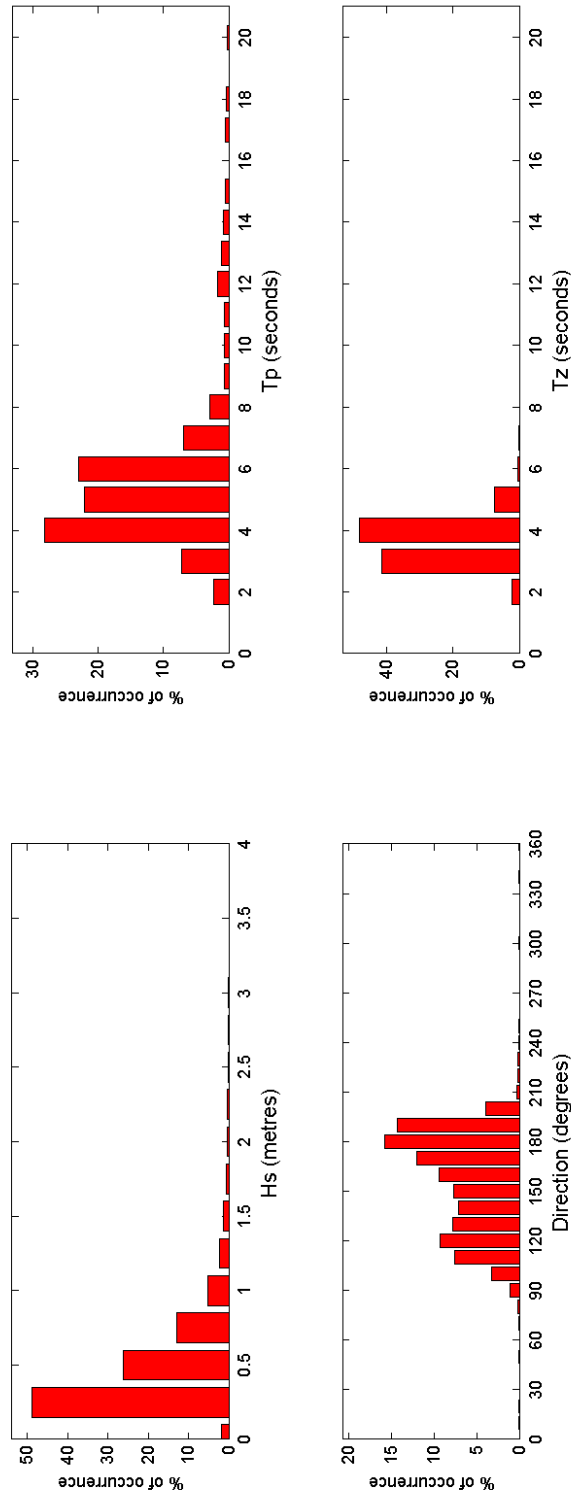
General

The buoy was deployed on the 1 June 2003.

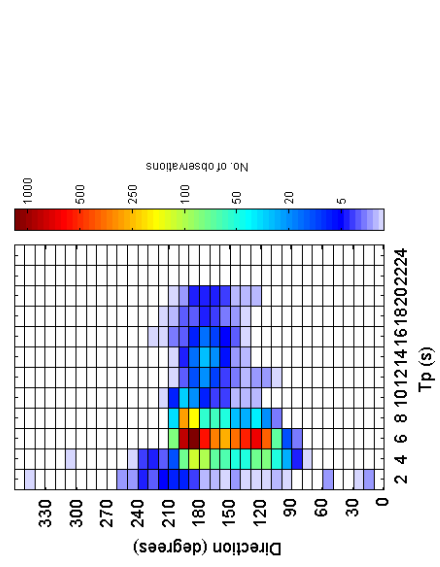
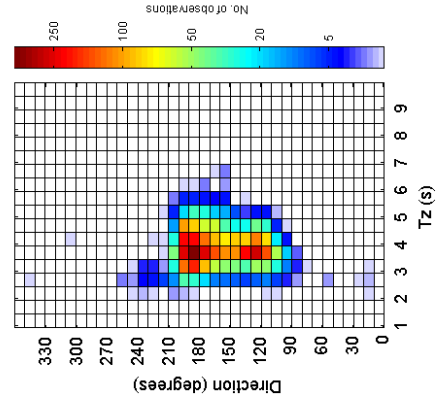
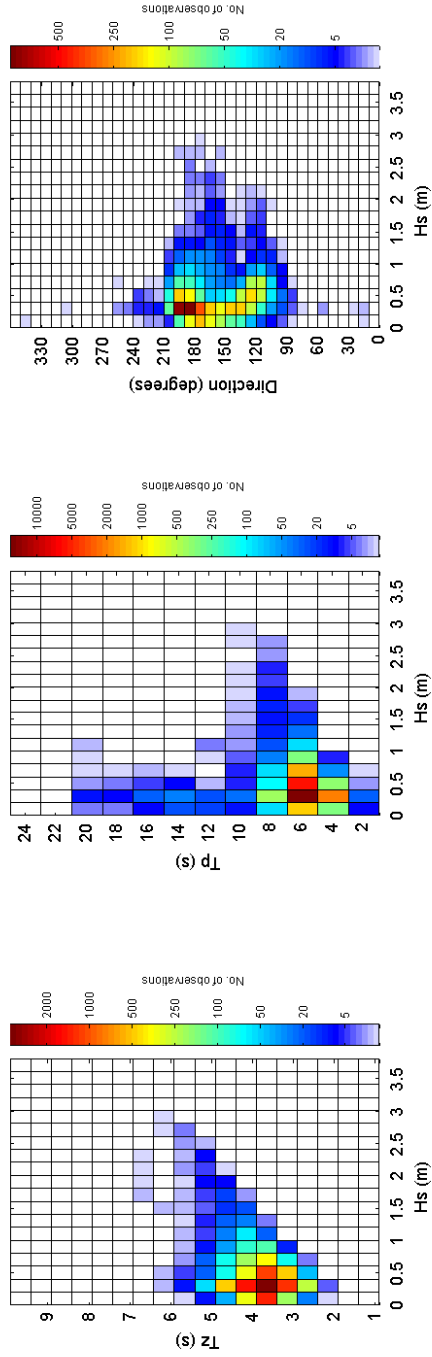
Acknowledgements

TASK2000 tidal prediction software was kindly provided by the Permanent Service for Mean Sea Level, Proudman Oceanographic Laboratory. The shore station is kindly hosted by Sandown Golf Club.

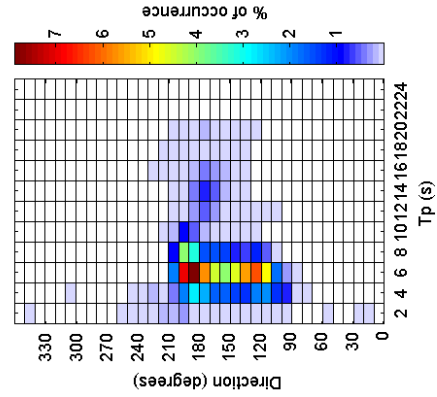
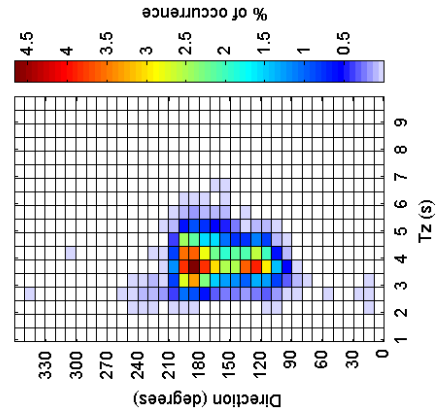
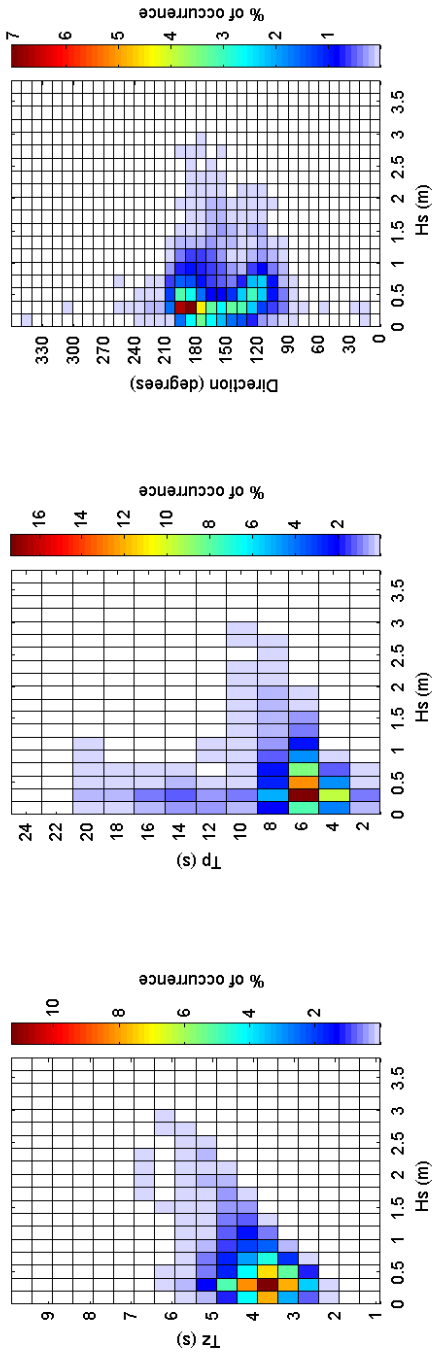
Sandown Bay 2010



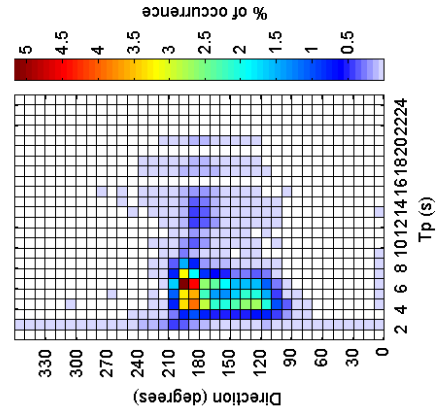
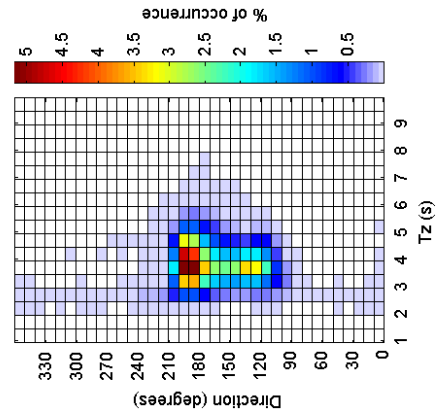
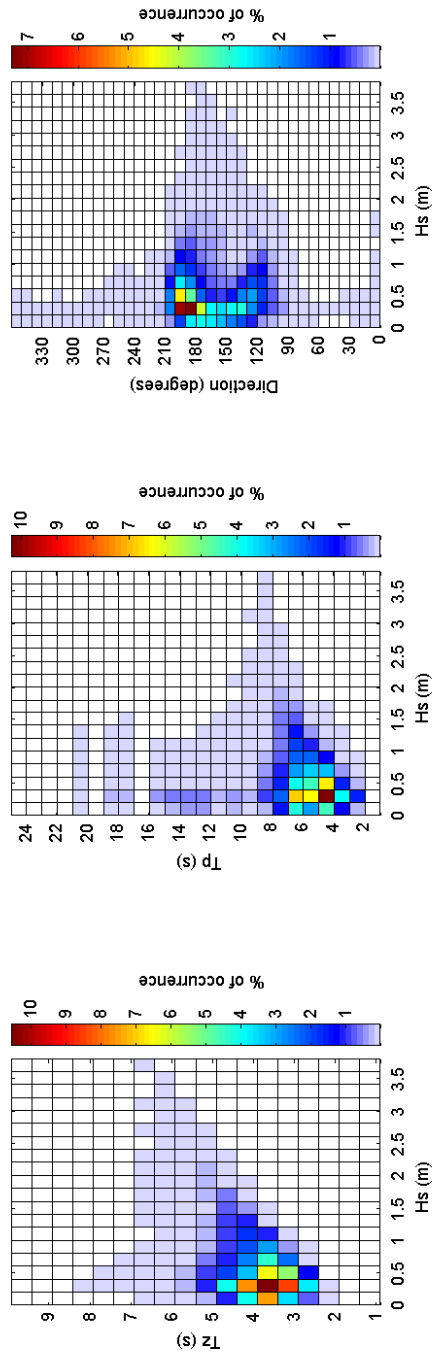
Sandown Bay 2010 - Joint distribution

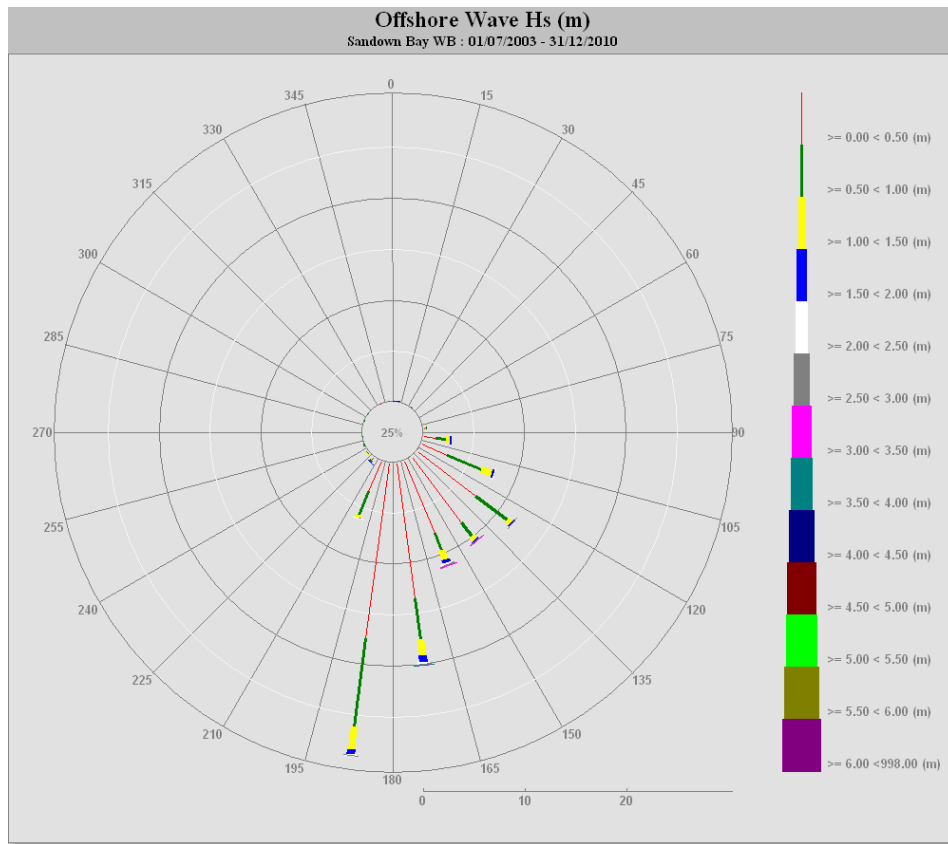


Sandown Bay 2010 - Joint distribution (% of occurrence)

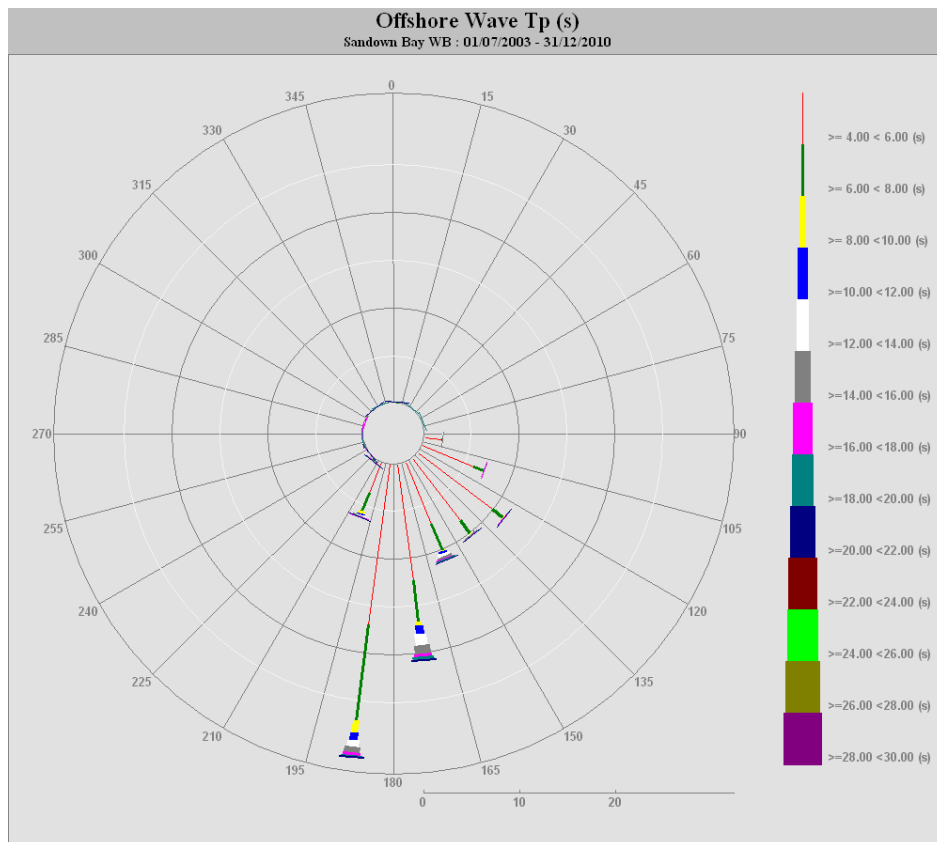


Sandown Bay 2003 to 2010 - Joint distribution (% of occurrence)





Direction vs. H_s (all measured data)



Direction vs. T_p (all measured data)

