

Sandown Bay Directional Waverider Buoy

Location

OS: 461478E 83827N

WGS84: Latitude: 50° 39.053' N Longitude: 01° 07.904' W

Water Depth

~11 m CD

Instrument Type

Datawell Directional Waverider Mk III

Data Quality

Recovery rate (%)	Sample interval
98	30 minutes

Statistics - 2011

All times are GMT

Month	H _s (m)	T _p (s)	T _z (s)	Dir. (°)	SST (°C)	No. of days
January	0.51	6.3	3.8	144	6.3	30
February	0.61	8.6	3.9	166	6.7	28
March	0.43	5.4	3.6	141	7.4	31
April	0.30	6.4	3.7	155	10.4	30
May	0.45	5.2	3.5	168	13.3	30
June	0.45	5.2	3.5	170	15.0	30
July	0.34	5.1	3.4	162	16.9	31
August	0.36	5.0	3.4	168	17.8	31
September	0.50	5.5	3.5	173	17.1	30
October	0.61	5.8	3.7	170	16.0	30
November	0.72	6.0	3.8	153	13.8	28
December	0.57	6.7	4.1	183	10.4	29

Storm Analysis

Date/Time	H _s (m)	T _p (s)	T _z (s)	Dir. (°)	Water level elevation* (OD)	Tidal stage (hours re. HW)	Tidal range (m)	Tidal surge* (m)	Max. surge* (m)
12-Dec-2011 23:30	2.87	7.7	5.6	169	1.86	HW -1	3.3	0.39	0.56

* Tidal information is obtained from the nearest recording tide gauge (the WaveRadar REX 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.

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	-	2.21	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
2011	2.52	1.92	1.62	1.37	1.12	0.90	12-Dec-2011 23:30	2.87

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

Distribution plots

The distribution of wave parameters are shown in the accompanying graphs of:

- Annual time series of H_s (red line is 2.75 m storm threshold)
- Wave roses (Direction vs. H_s and vs. T_p) for all measured data from 01 April 2004
- Percentage of occurrence of H_s , T_p , T_z and Direction for 2011
- Incidence of storm waves for 2011. Storm events are defined using the Peaks-over-Threshold method. The highest H_s of each storm event is shown
- Joint distribution of all parameters for all measured data, given as percentage of occurrence

Significant wave height return periods

Return periods for significant wave height can be calculated since the buoy has been deployed 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.

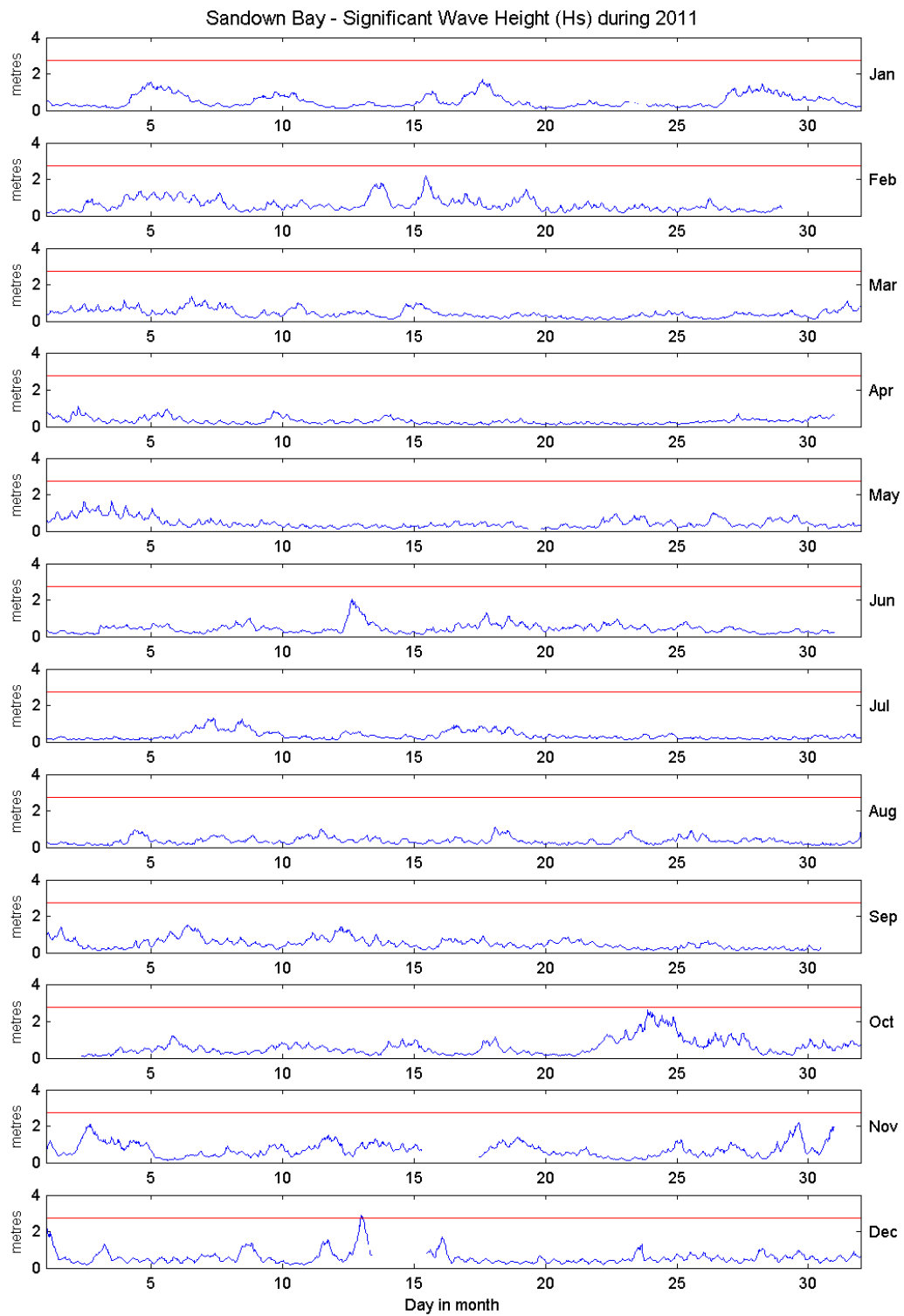
Return period (years)	Significant wave height (m)	Comments
1	3.14	No depth limitation
2	3.31	
5	3.53	
10	3.69	
20	3.84	
50	4.04	

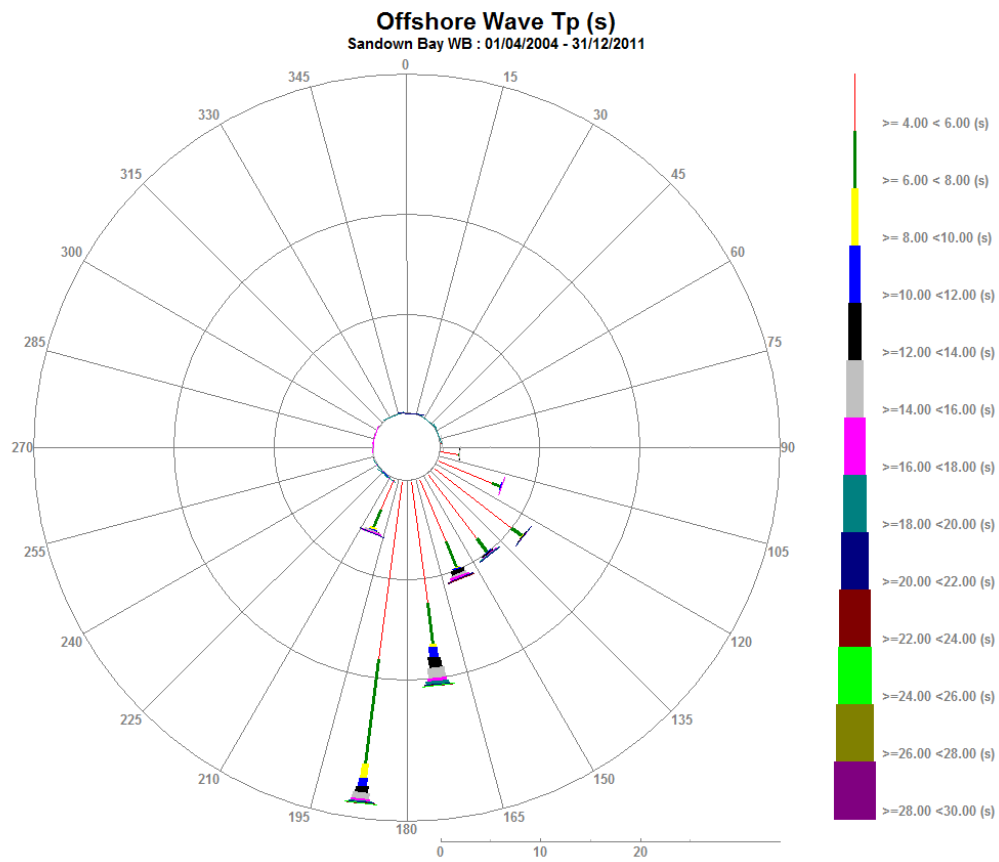
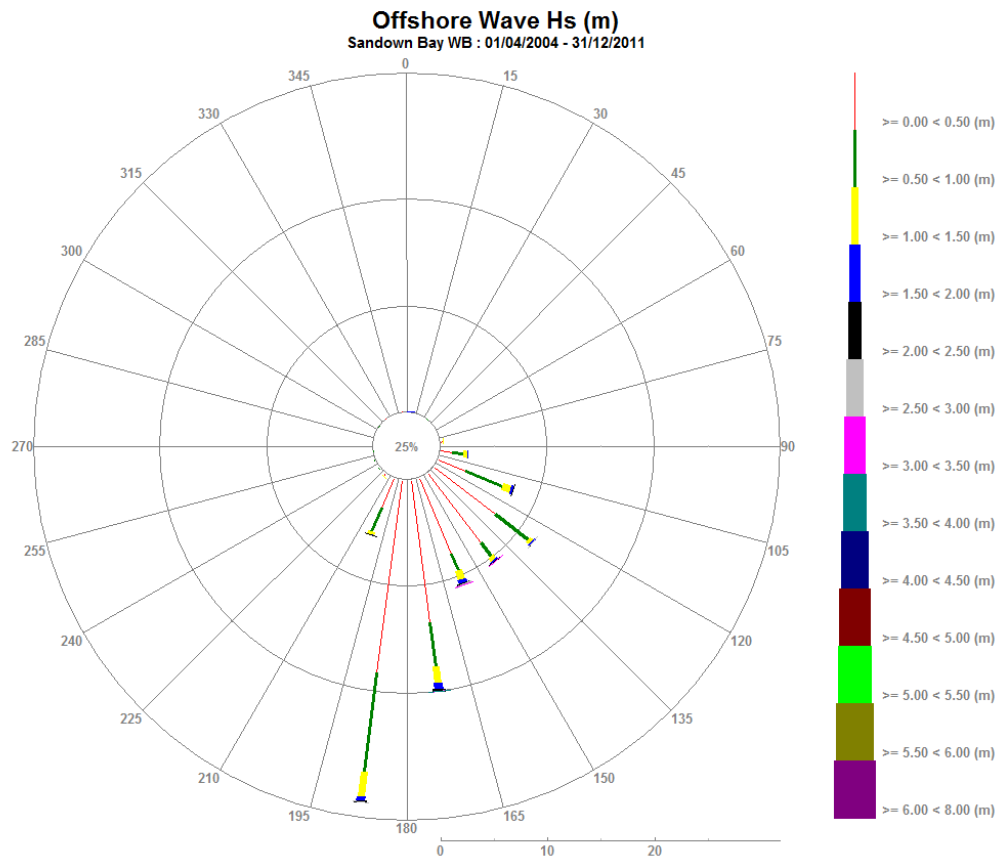
General

The buoy was first deployed on 16 July 2003.

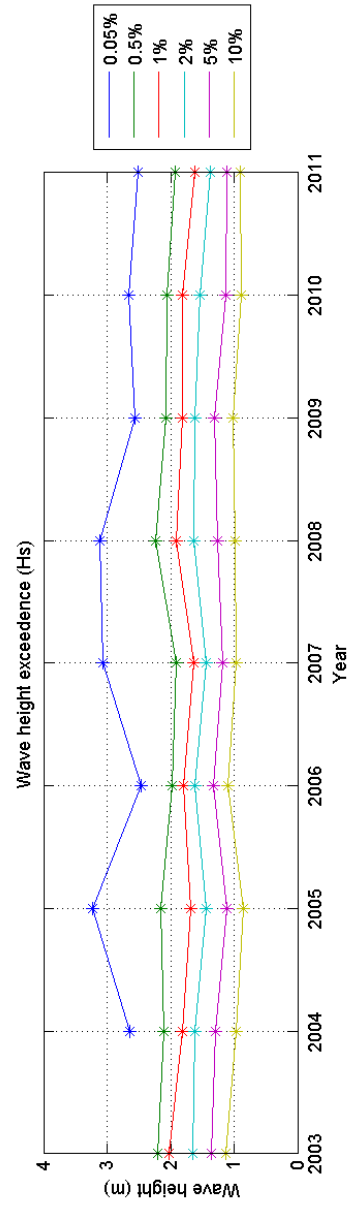
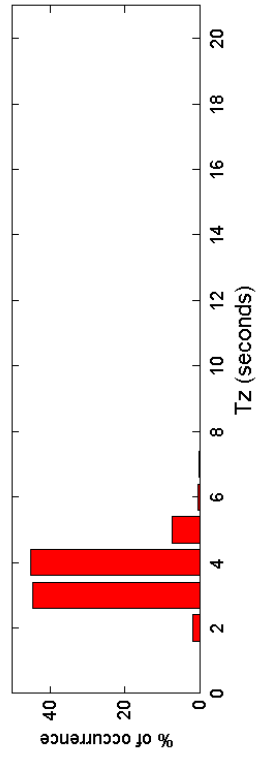
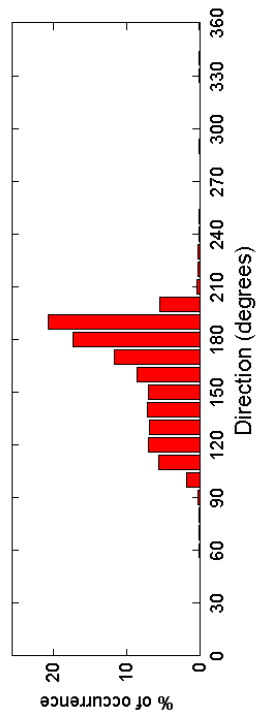
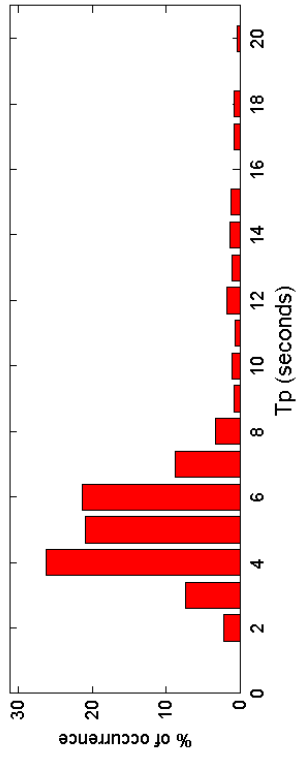
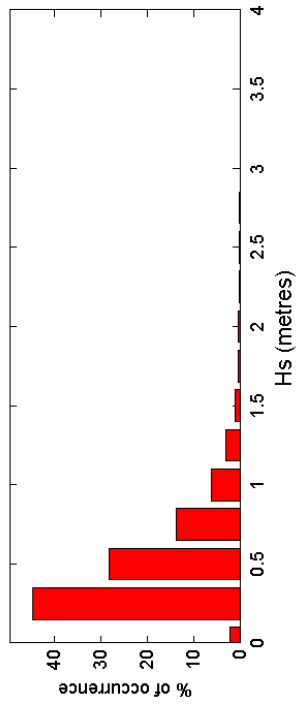
Acknowledgements

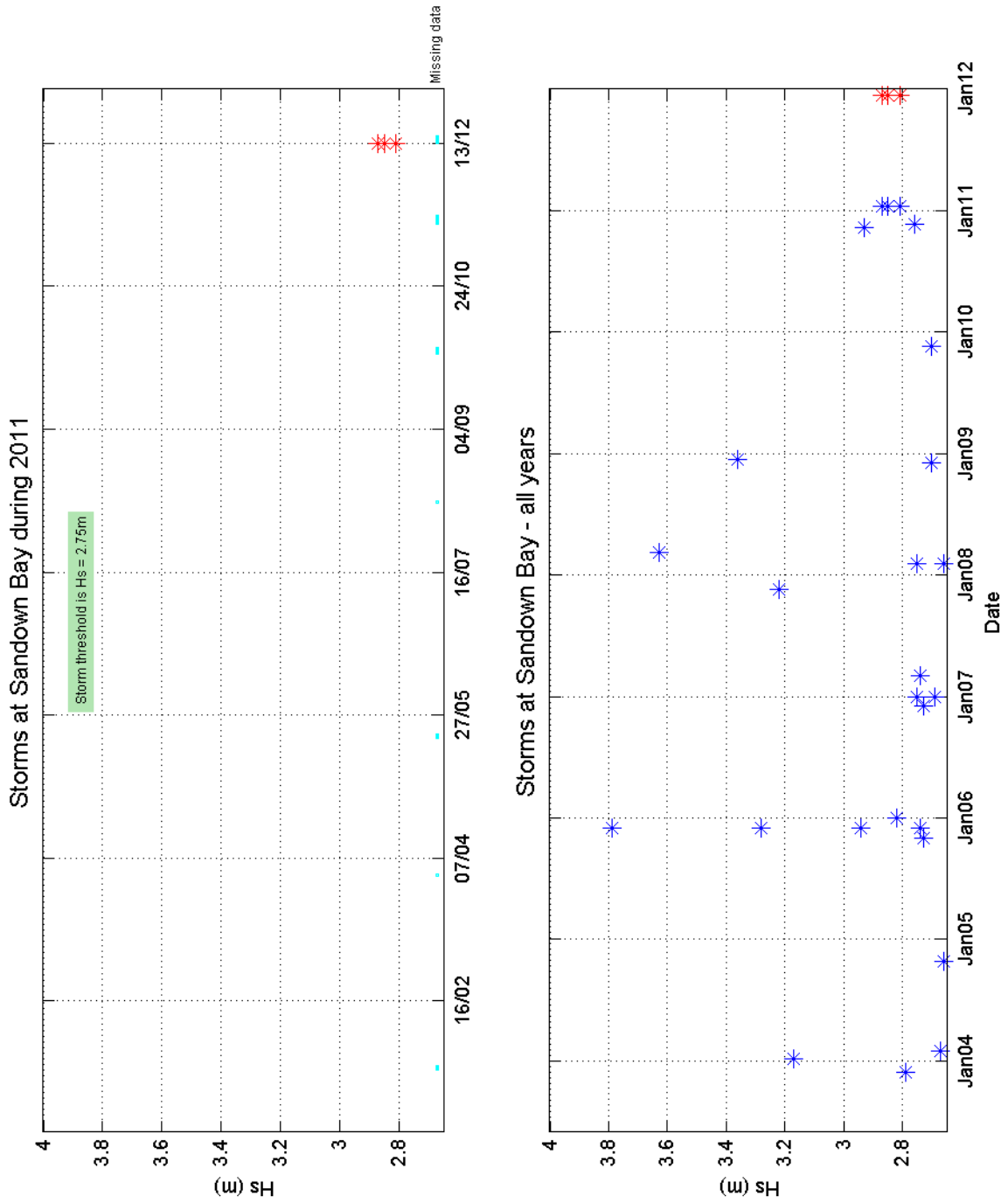
TASK2000 tidal prediction software was kindly provided by the Permanent Service for Mean Sea Level, Proudman Oceanographic Laboratory. The shore station is kindly hosted by Sandown Golf Club.





Sandown Bay 2011





Sandown Bay 2003 to 2011 - Joint distribution (% of occurrence)

