

## Goodwin Sands Directional Waverider Buoy

### Location

OS: 643186E 155859N  
 WGS84: Latitude: 51° 15.00' N Longitude: 001° 29.01' E

### Water Depth

Approx. 12m CD

### Instrument Type

Datawell 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	0.71	5.4	3.7	120	6.2	31
February	0.81	5.6	3.7	129	4.9	28
March	0.62	5.1	3.5	138	5.6	31
April	0.52	4.8	3.4	126	8.3	30
May	0.62	5.3	3.6	110	10.7	31
June	0.53	5.1	3.5	109	13.9	30
July	0.42	4.5	3.3	156	16.7	30
August	0.64	5.0	3.5	153	17.5	31
September	0.61	5.2	3.5	131	16.8	30
October	0.82	5.5	3.7	133	14.7	31
November	0.85	5.8	3.8	128	12.3	29
December	0.77	5.6	3.7	115	6.3	30

*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 <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)
11-Nov-2010 10:30	2.81	7.7	5.4	184	-1.59	HW -4	3.40	-0.14	-0.95
24-Dec-2010 02:30	2.60	10	6.3	90	2.28	HW +2	5.33	0.27	0.41
23-Oct-2010 08:00	2.38	7.7	5.7	177	-0.53	HW -3	4.60	0.24	0.30
31-Mar-2010 08:00	2.35	8.3	5.8	184	-2.24	HW -4	5.44	0.29	0.33
09-Jan-2010 08:00	2.34	8.3	5.4	101	0.94	HW +3	3.61	-0.26	-0.30

\* Tidal information is obtained from the nearest recording tide gauge (the Wave Radar Rex at Deal Pier). The surge shown is the residual at the time of the highest H<sub>s</sub>. The maximum tidal surge is the largest 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)
2008	-	1.99	1.86	1.69	1.42	1.20	05-Oct-2008 04:00	2.37
2009	2.45	2.07	1.90	1.73	1.46	1.24	28-Nov-2009 06:00	2.57
2010	2.59	2.02	1.86	1.65	1.39	1.19	11-Nov-2010 10:30	2.81

\* i.e. 5 % of the  $H_s$  values measured in 2008 exceeded 1.42m

### 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 exceedence (all recorded years)
- 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)

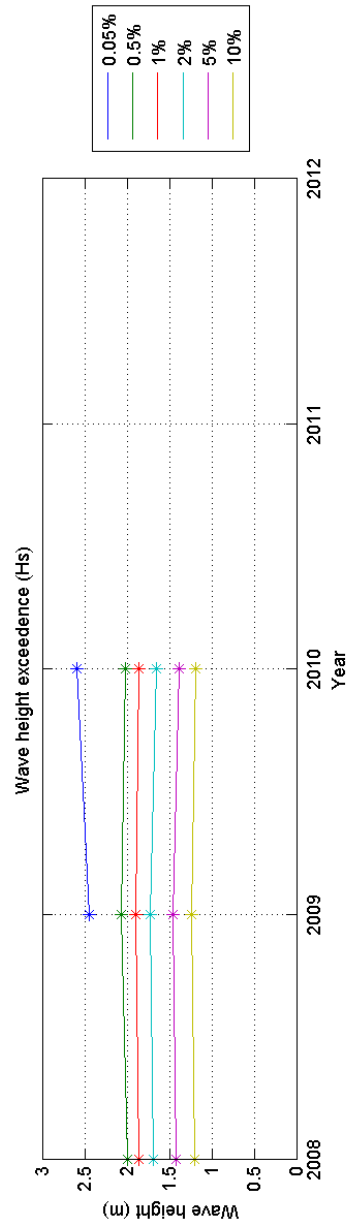
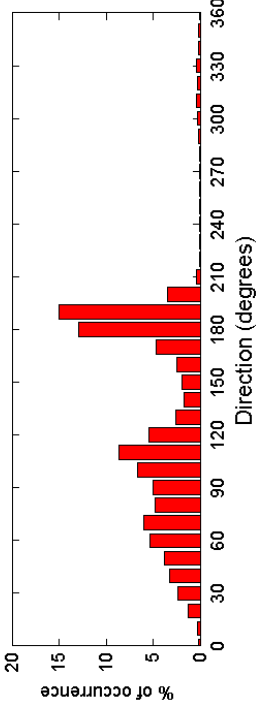
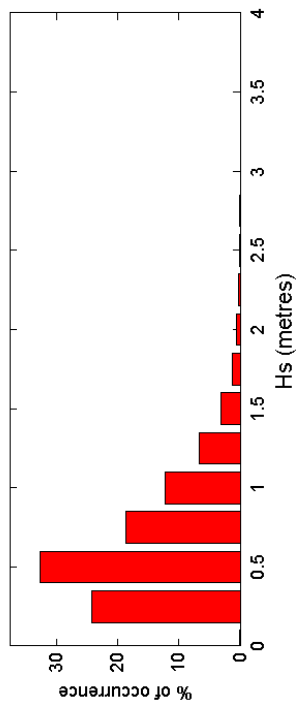
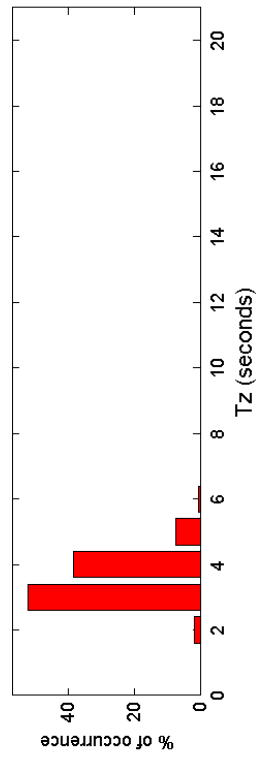
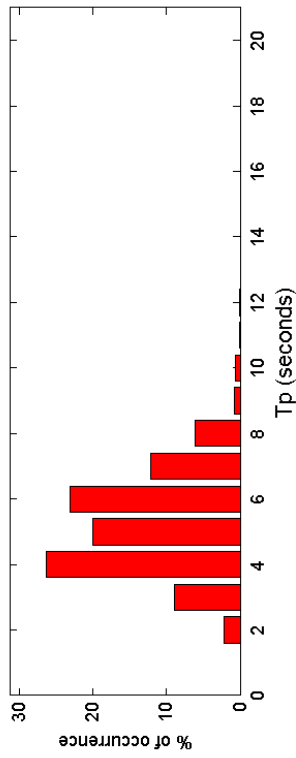
### General

The buoy was deployed on 4 June 2008.

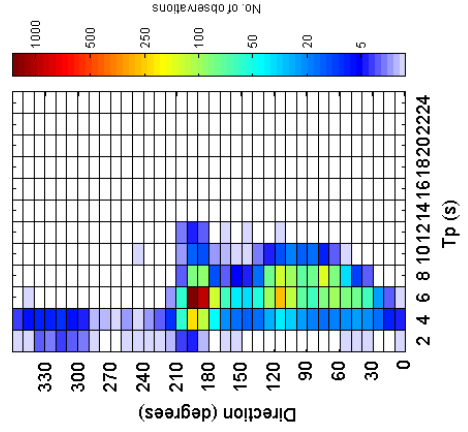
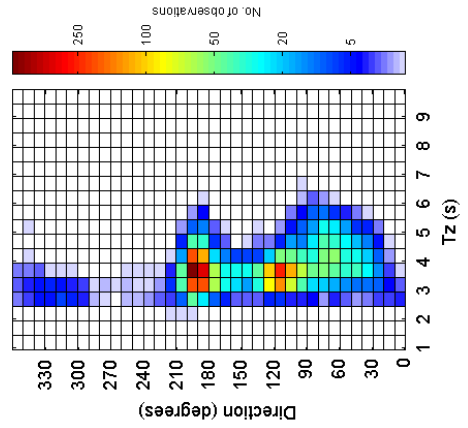
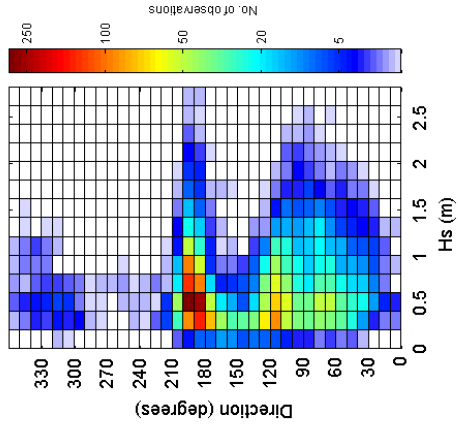
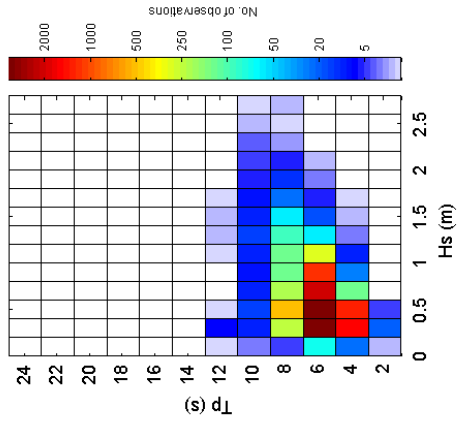
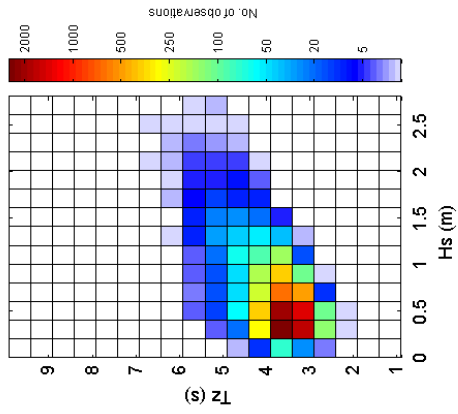
### Acknowledgements

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

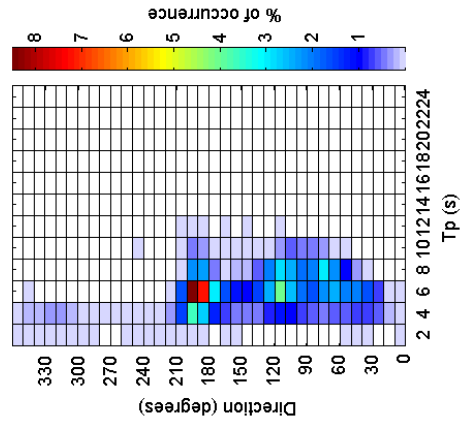
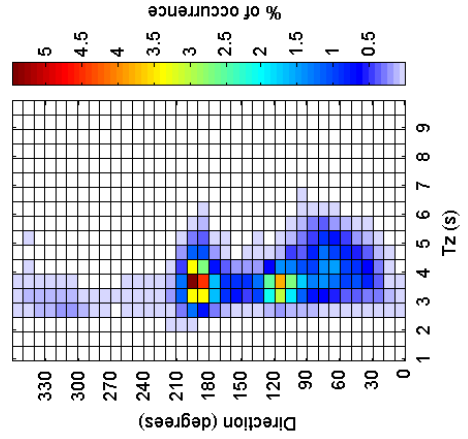
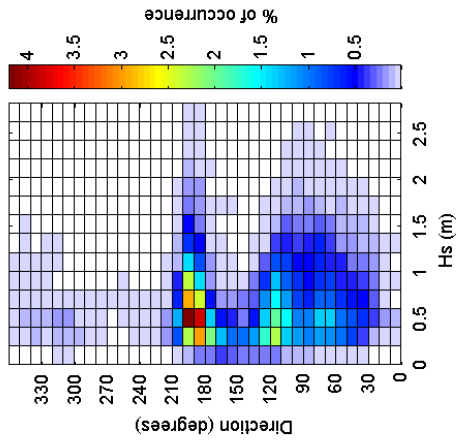
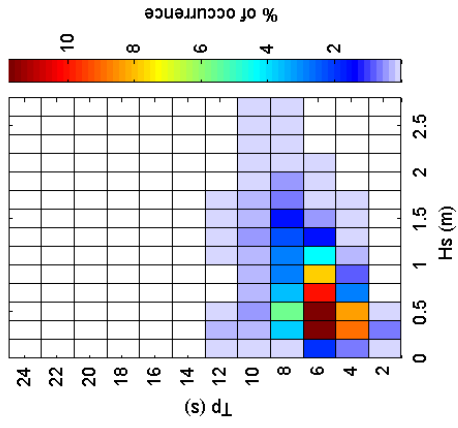
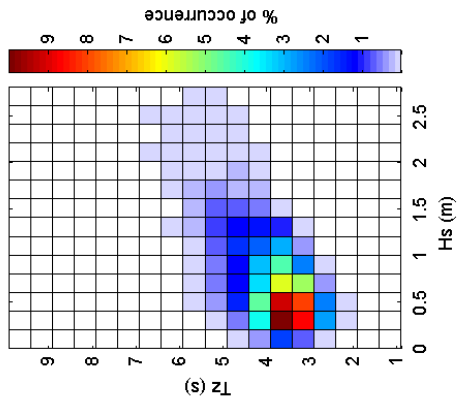
Goodwin Sands 2010



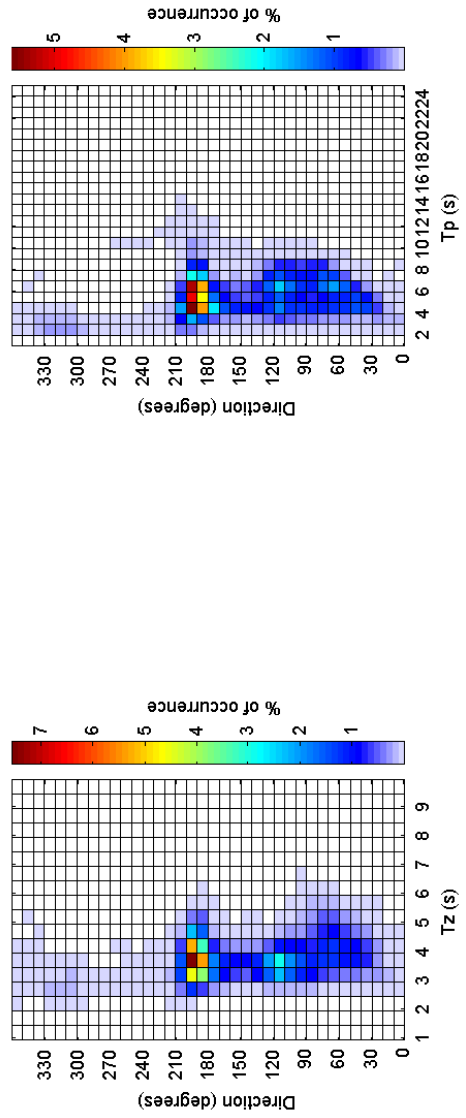
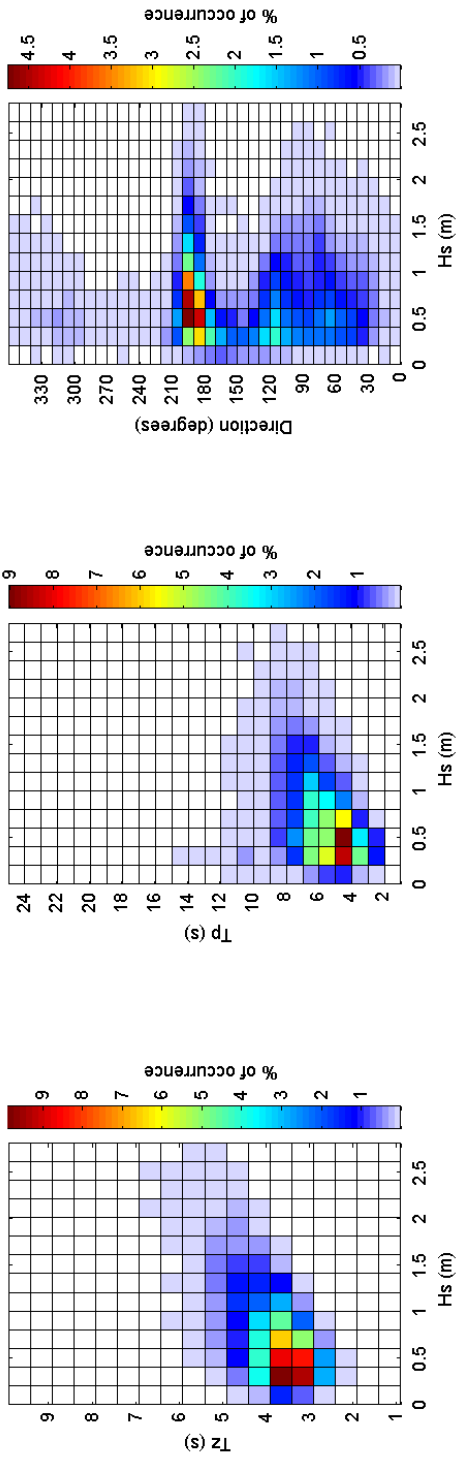
Goodwin Sands 2010 - Joint distribution

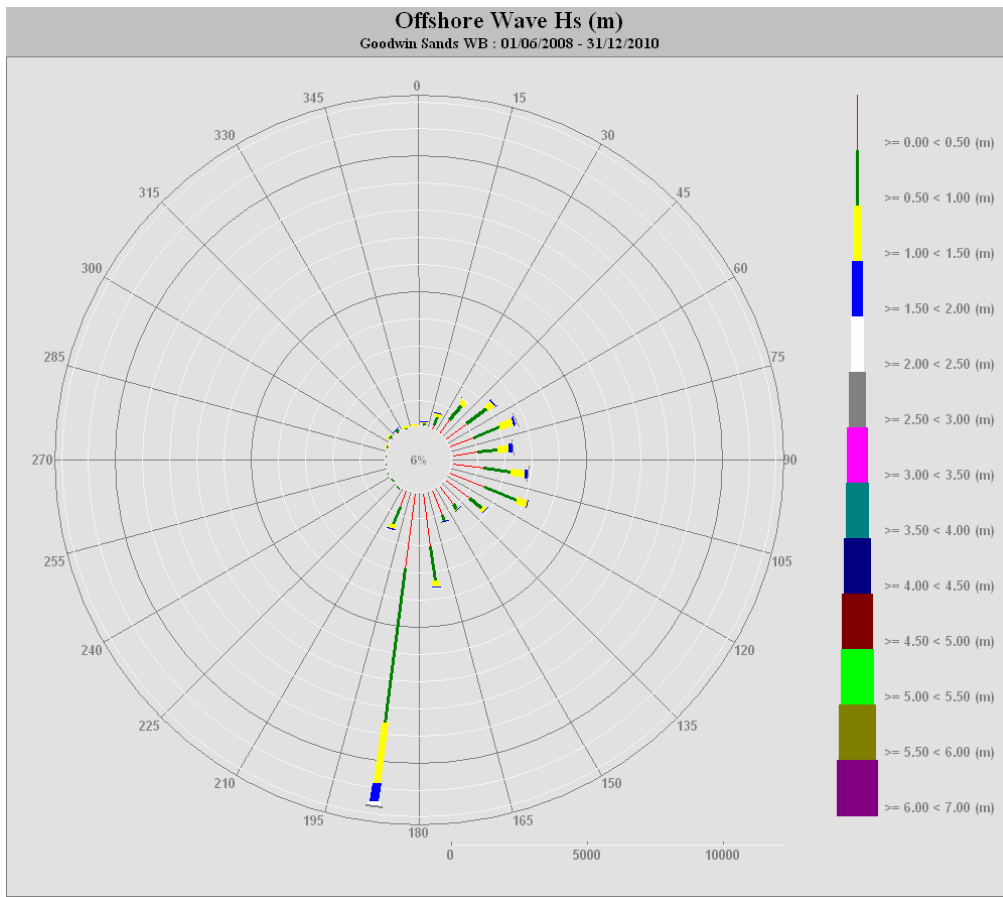


Goodwin Sands 2010 - Joint distribution (% of occurrence)

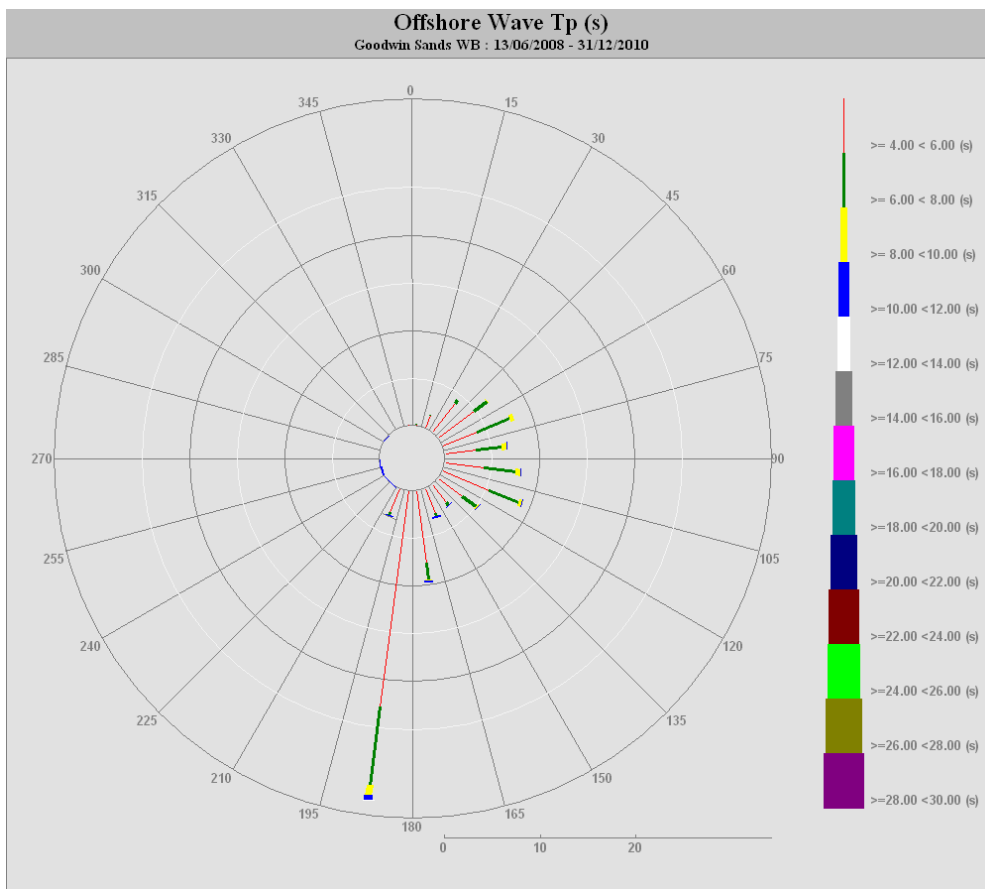


Goodwin Sands 2008 to 2010 - Joint distribution (% of occurrence)





Direction vs. H<sub>s</sub> (all measured data)



Direction vs. T<sub>p</sub> (all measured data)

