

Hornsea Directional Waverider Buoy

Location

OS: 527071E 448459N
 WGS84: Latitude: 53° 55.003' N Longitude: 000° 4.004' W

Water Depth

~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 _s	T _p	T _z	Direction	SST	No. of days
	(m)	(s)	(s)	(°)	(°C)	
January	1.52	8.1	5.2	62	5.3	31
February	1.25	7.7	4.9	57	4.8	26
March	0.81	8.6	4.5	52	5.7	31
April	0.66	8.3	4.3	52	7.4	30
May	0.77	7.3	4.4	53	9.7	31
June	0.70	7.0	4.3	48	12.3	30
July	0.48	5.3	3.4	101	14.6	31
August	0.75	6.9	4.0	64	14.9	31
September	1.07	7.1	4.5	75	14.5	30
October	1.02	7.6	4.3	74	12.9	31
November	1.35	8.5	4.7	63	10.2	30
December	1.19	8.4	5.0	51	6.3	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)
10-Jan-2010 04:00	4.08	10.0	7.1	62	0.95	HW +2	3.65	0.05	0.22
09-Nov-2010 11:30	4.04	10.0	6.9	63	-0.65	HW +4	5.58	0.00	0.41
01-Dec-2010 16:00	3.87	9.1	6.7	72	1.58	HW +2	4.50	0.06	0.25
30-Nov-2010 01:30	3.68	10.0	6.6	58	1.60	HW +2	4.12	0.00	0.19

*Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at Immingham). 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	
	0.05%	0.5%	1%	2%	5%	10%	Date	A_{max} (m)
2008	-	3.03	2.78	2.52	1.77	1.44	22-Nov-2008 13:30	3.78
2009	4.34	3.37	2.93	2.34	1.77	1.44	17-Dec-2009 14:30	4.87
2010	3.78	3.39	3.12	2.77	2.24	1.80	10-Jan-2010 04:00	4.08

* i.e. 5 % of the H_s values measured in 2008 exceeded 1.77m

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 for H_s and T_p (all 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)

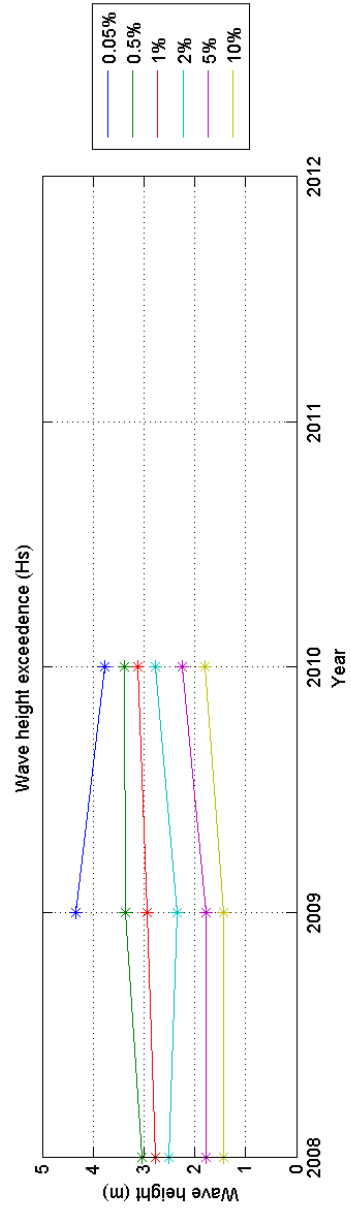
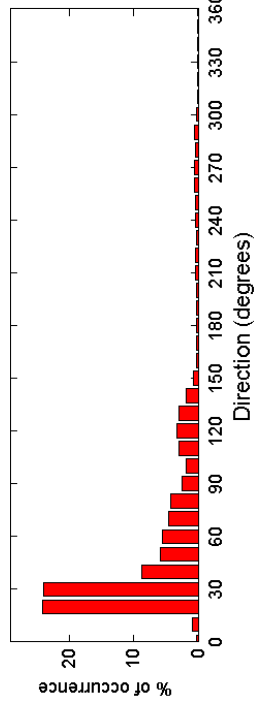
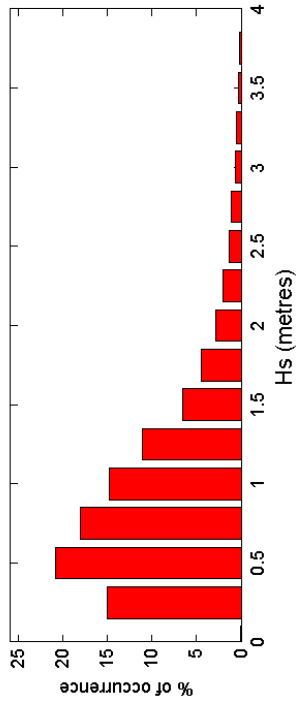
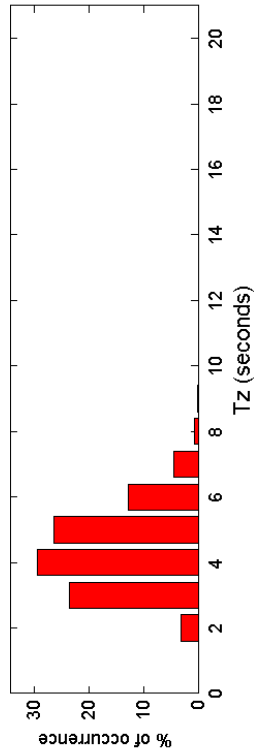
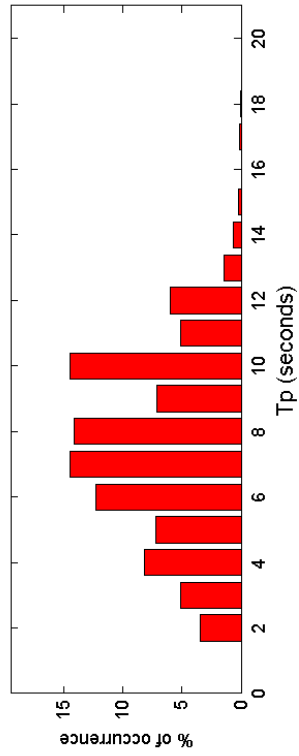
General

The Directional Waverider buoy, owned by East Riding of Yorkshire Council, was deployed on 5 June 2008.

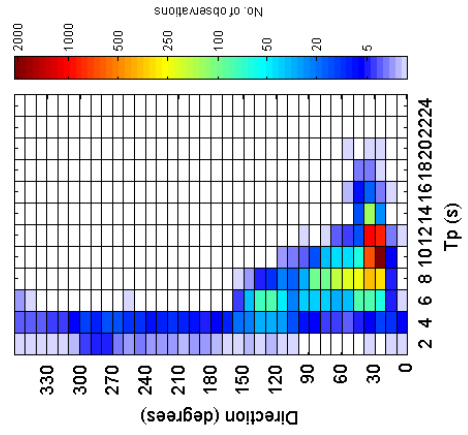
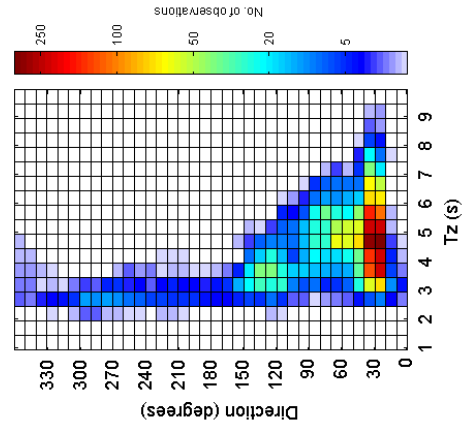
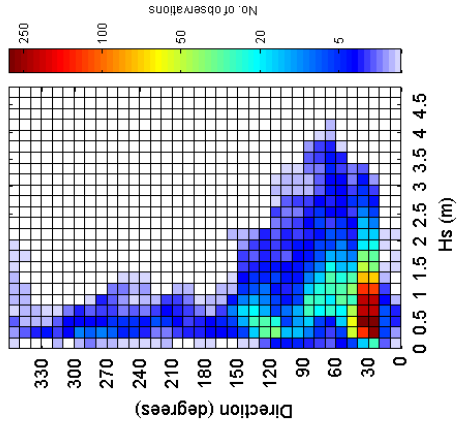
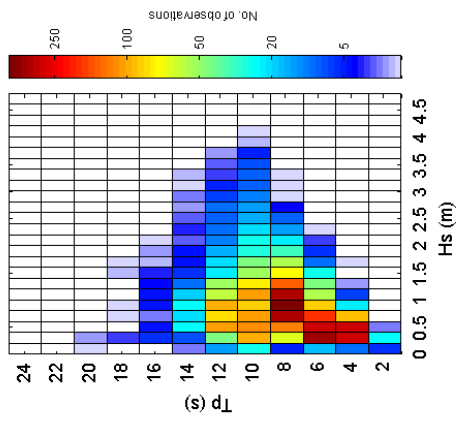
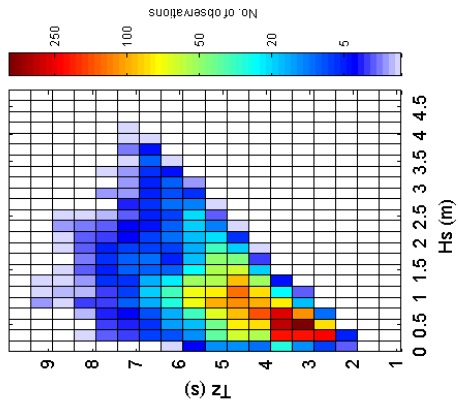
Acknowledgements

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.

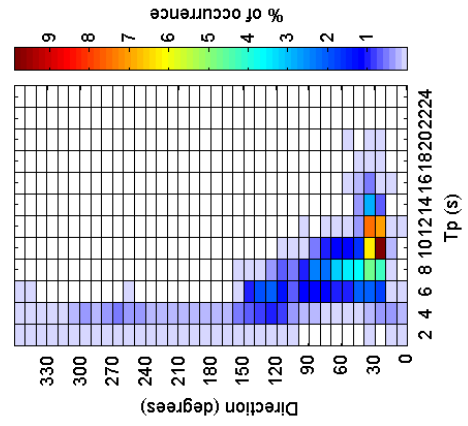
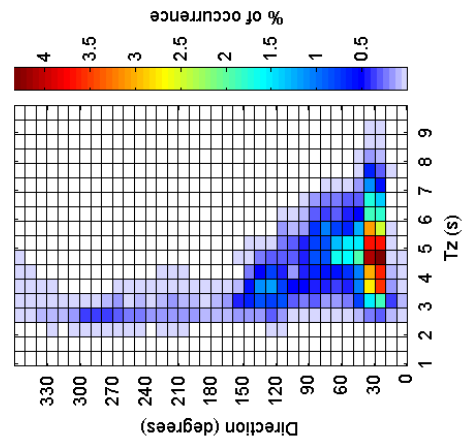
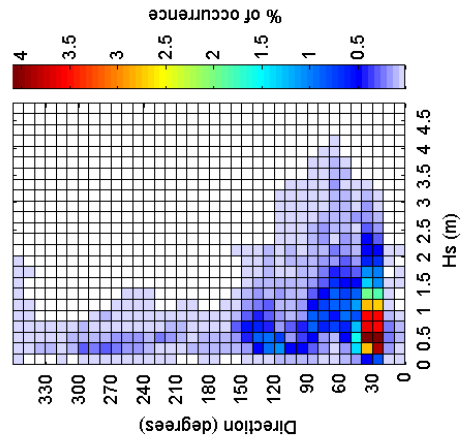
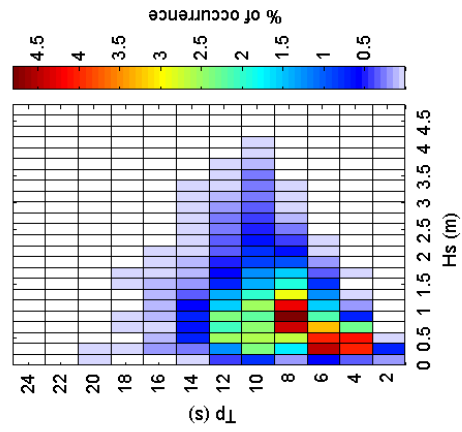
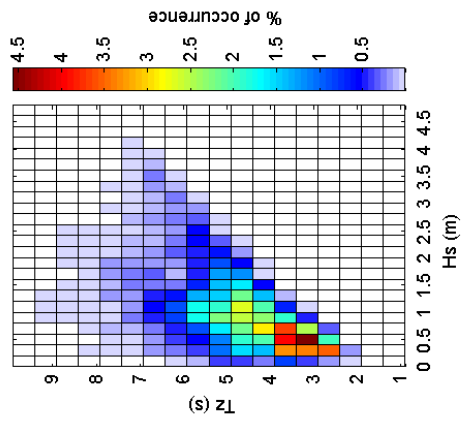
Hornsea 2010



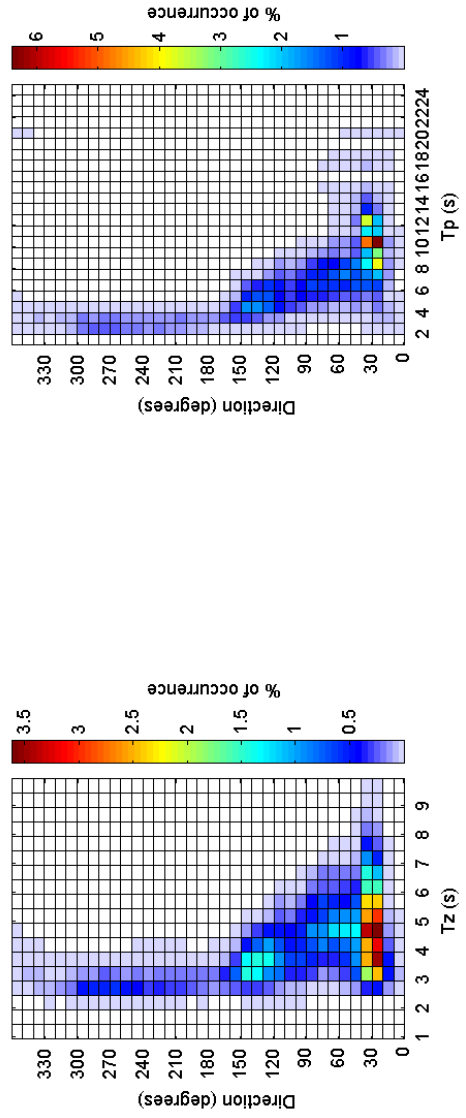
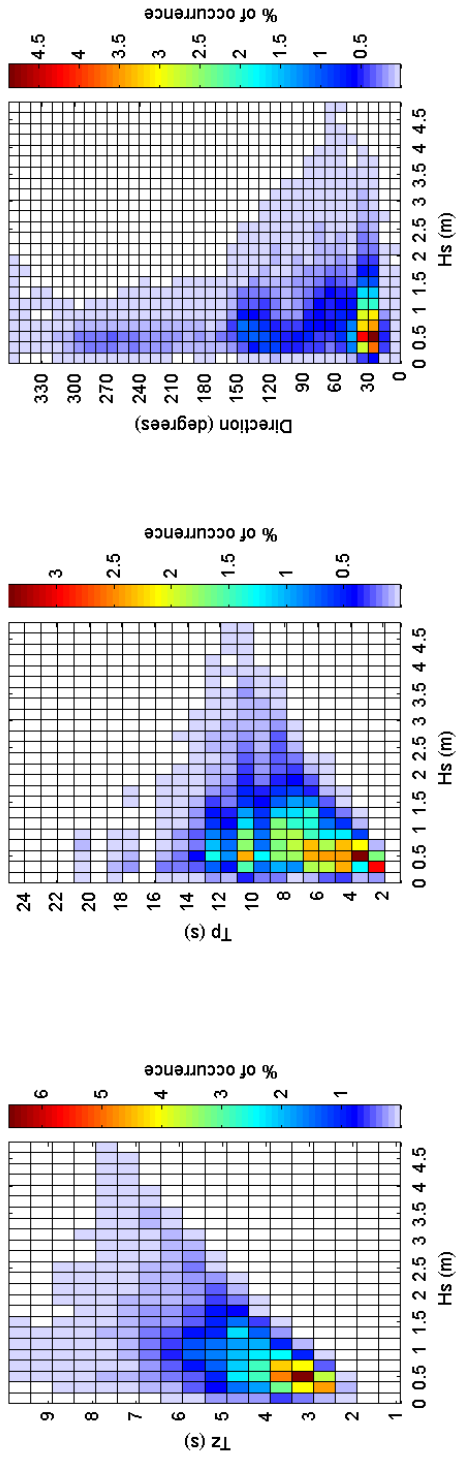
Hornsea 2010 - Joint distribution

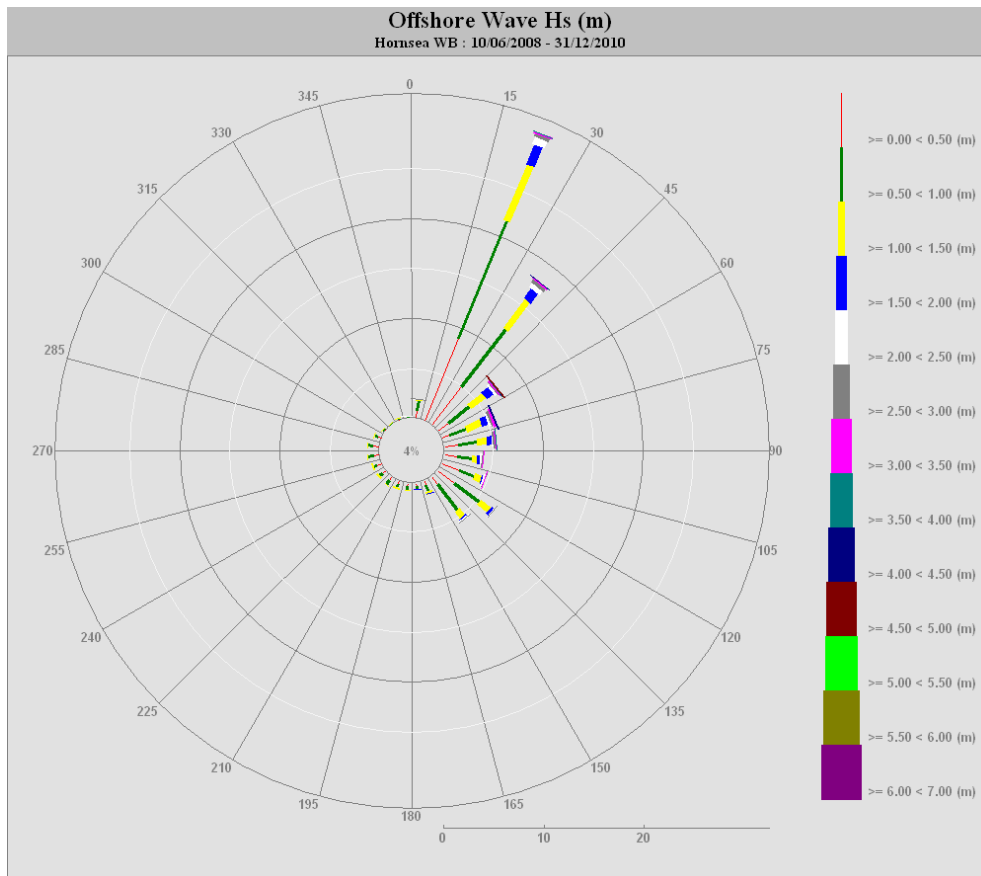


Hornsea 2010 - Joint distribution (% of occurrence)

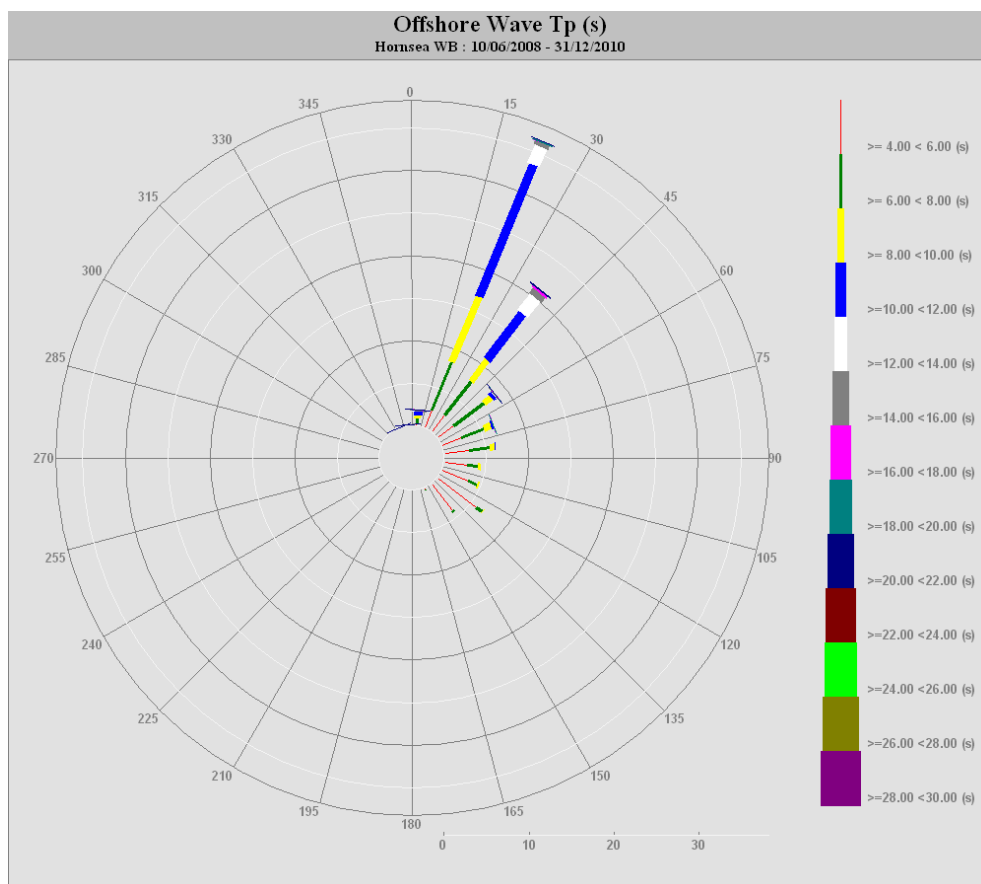


Hornsea 2008 to 2010 - Joint distribution (% of occurrence)





Direction vs. H_s (all measured data)



Direction vs. T_p (all measured data)

