

Rhyl Flats Directional Waverider Buoy

Location

OS: 293579 E 388411 N
 WGS84: Latitude: 53° 22.91' N Longitude: 003° 36.08' W

Water Depth

Approx. 10m CD

Instrument Type

Datawell Directional Waverider Buoy Mk III

Data Quality

C1 (%)	Sample interval
100	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	0.74	4.7	3.3	233	4.8	31
February	0.51	5.4	3.2	239	4.7	28
March	0.51	3.9	3.1	240	5.6	31
April	0.42	3.7	3.0	237	8.3	30
May	0.49	3.8	3.1	242	11.3	31
June	0.38	3.5	2.9	231	15.1	30
July	0.50	3.5	2.9	252	16.7	31
August	0.69	4.1	3.2	279	17.1	31
September	0.66	4.3	3.2	243	15.9	30
October	0.68	4.2	3.2	232	13.4	31
November	0.88	4.5	3.4	228	10.1	30
December	0.63	4.6	3.2	230	5.3	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)
31-Mar-2010 10:00	4.22	7.7	6.2	329	3.40	HW -1	7.70	-0.30	0.51
12-Nov-2010 02:30	4.17	9.1	6.3	302	2.90	HW	4.35	0.40	0.42
29-Aug-2010 14:30	2.66	6.7	5.5	326	2.25	HW +2	6.00	0.02	-0.35
01-Apr-2010 02:30	2.65	7.7	5.8	308	1.15	HW +3	8.20	0.00	0.15

* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at Llandudno). 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)
2007	3.55	2.78	2.48	2.24	1.87	1.53	08-Nov-2007 21:00	3.66
2008	3.61	3.11	2.79	2.41	1.82	1.49	01-Mar-2008 06:00	3.97
2009	2.80	2.39	2.17	1.97	1.60	1.31	24-Mar-2009 00:30	2.97
2010	3.90	2.28	2.02	1.76	1.43	1.15	31-Mar-2010 10:00	4.22

* i.e. 5 % of the H_s values measured in 2009 exceeded 1.6m

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
- Joint distribution of all parameters for 2010, given both as number of observations and as percentage of occurrence
- Wave roses (Direction vs. H_s , and vs. T_p) for all measured data
- Incidence of storms during 2010. 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)

General

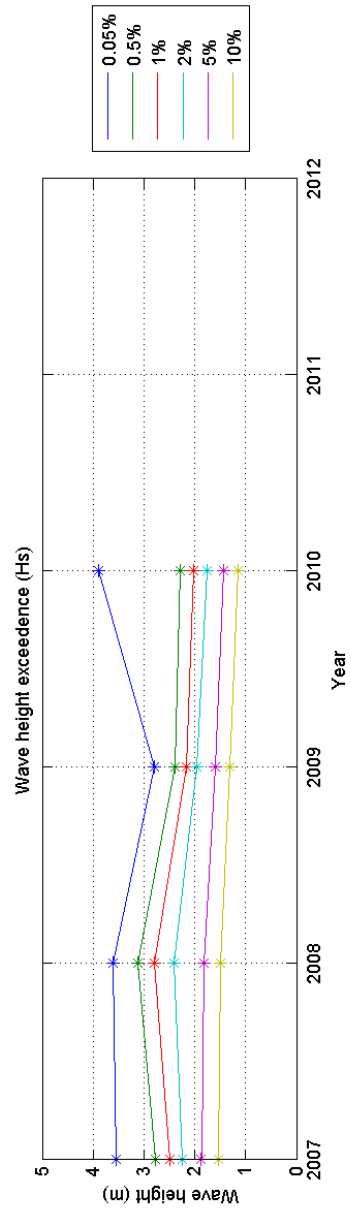
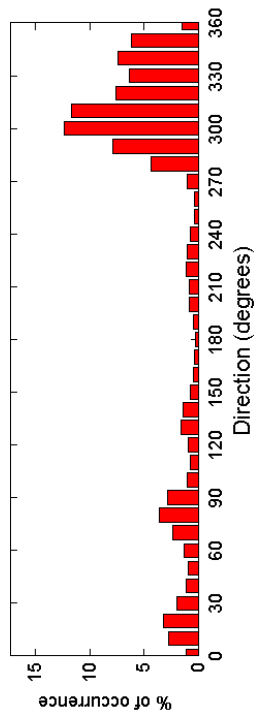
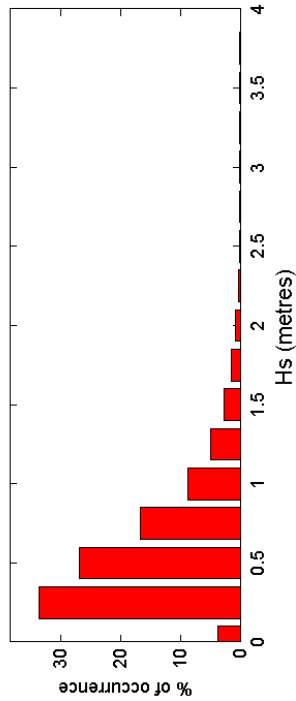
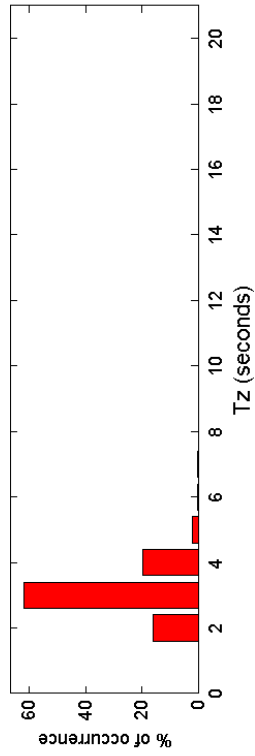
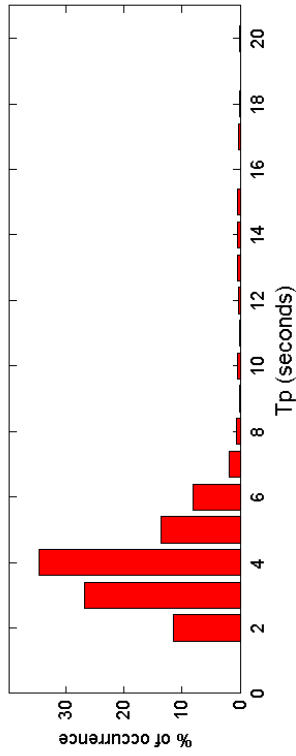
The buoy was deployed on 1 May 2007.

Acknowledgements

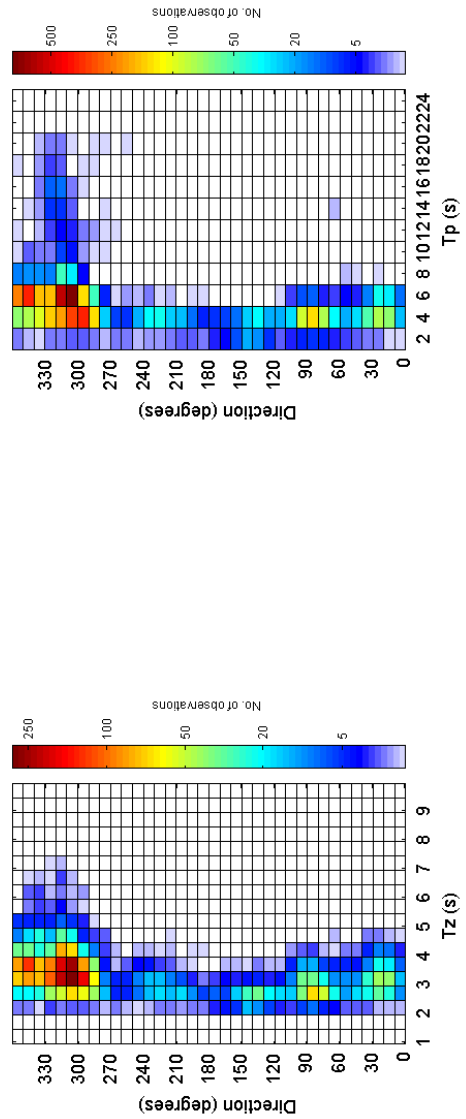
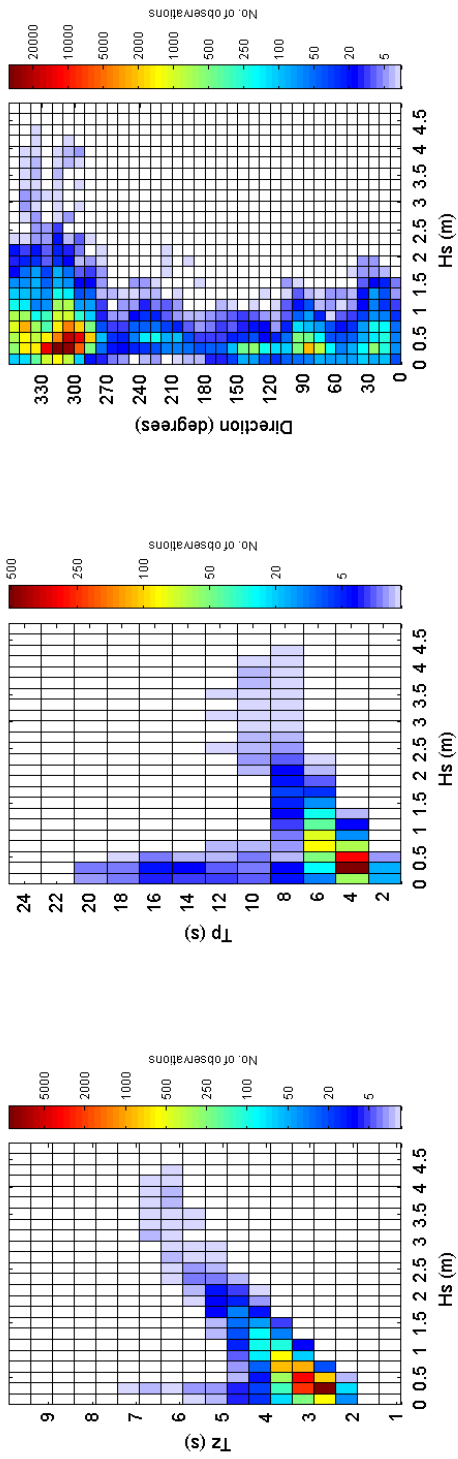
Wave parameters are recorded using a Datawell Directional Waverider Mk III buoy owned by RWE npower renewables, who have kindly agreed to make both real-time and archived data freely available, via the Channel Coastal Observatory website.

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.

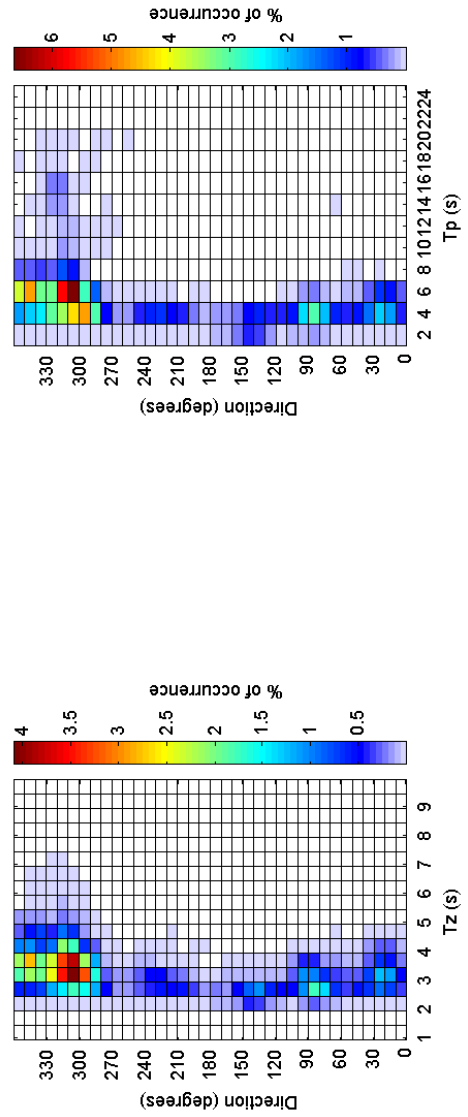
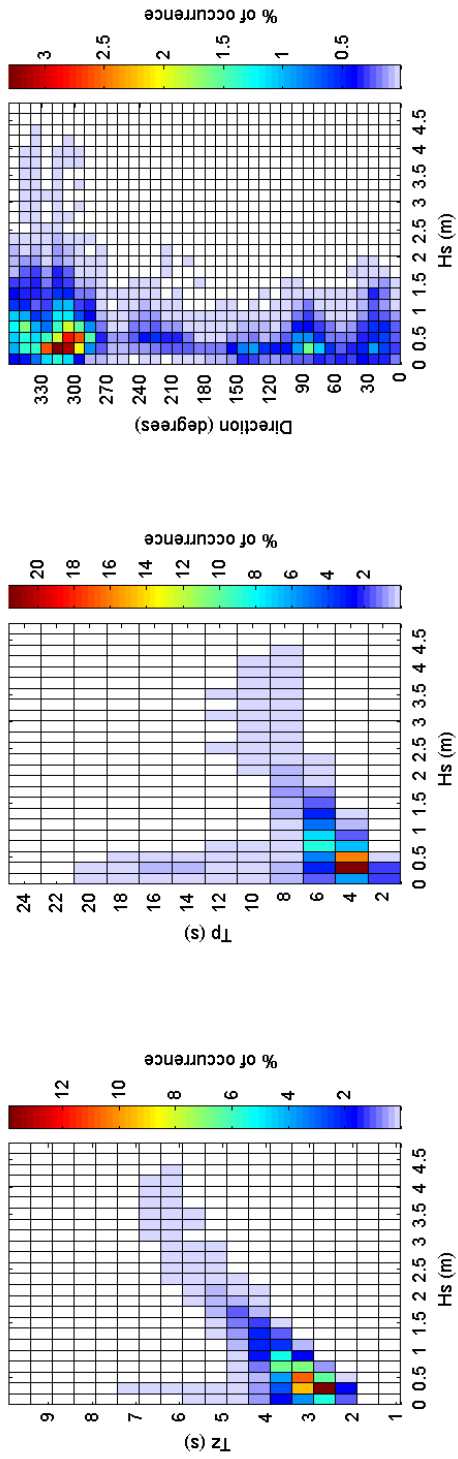
Rhyl Flats 2010



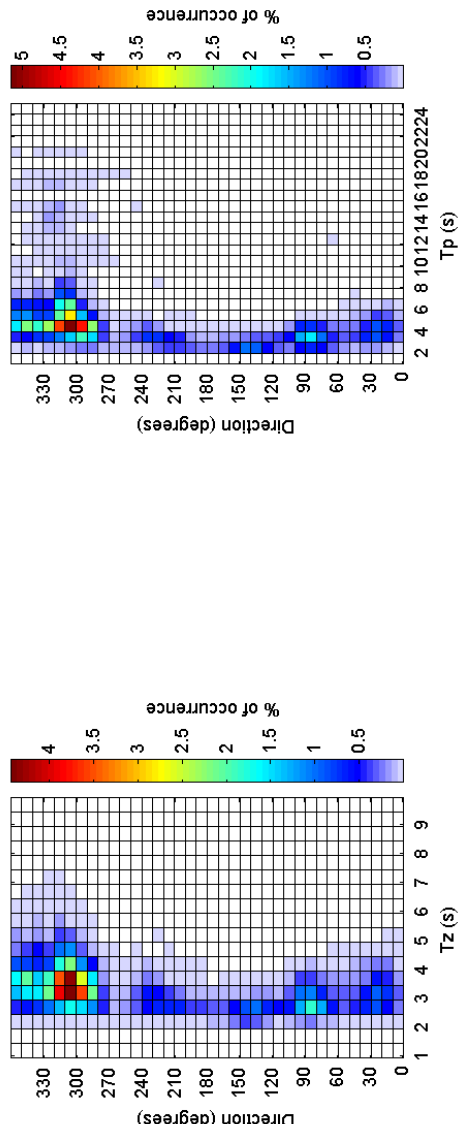
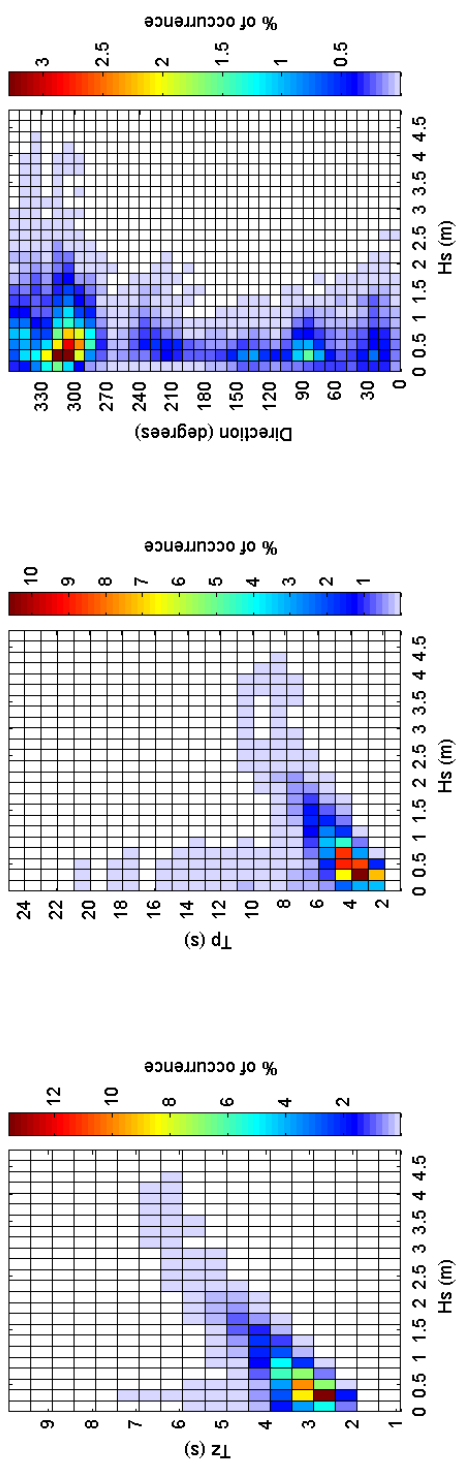
Rhyl Flats 2010 - Joint distribution

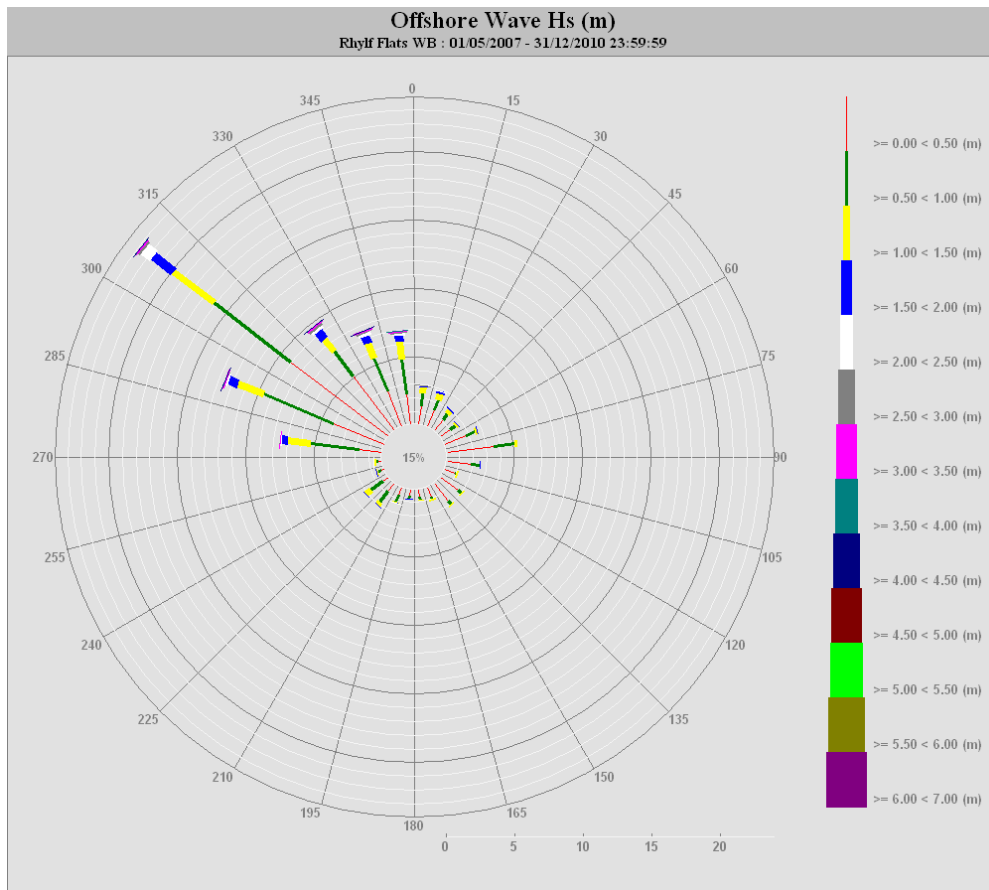


Rhyl Flats 2010 - Joint distribution (% of occurrence)

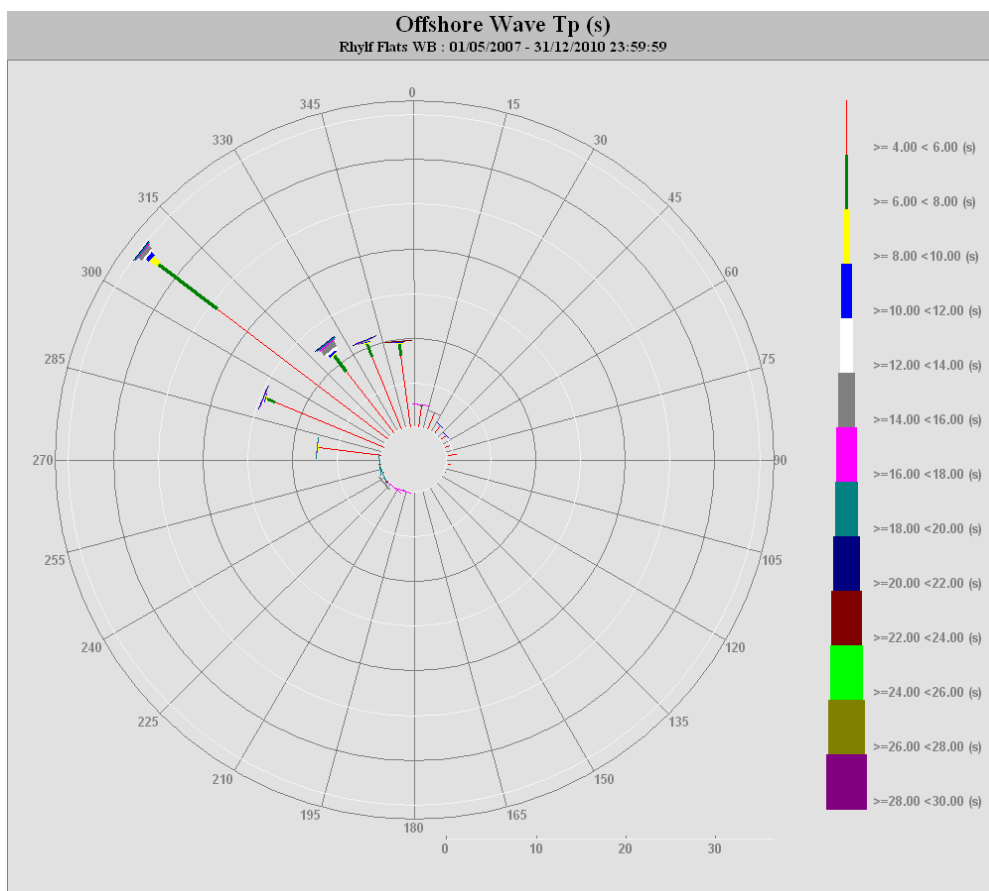


Rhyl Flats 2009 to 2010 - Joint distribution (% of occurrence)





Direction vs. H_s (all measured data)



Direction vs. T_p (all measured data)

