



Whitby Directional Waverider Buoy

Location			
OS	490233 E 513103 N		
WGS84	Latitude: 54° 30.314' N Longitude: 00° 36.482' W		
Instrument type			
Datawell Directional Waverider Mk III			
Water depth	~17m CD	Buoy in situ off Whitby beach. Photo courtesy of Fugro EMU Limited	Location of buoy (Google mapping)

Data Quality

Recovery rate (%)	Sample interval
93	30 minutes

Monthly Averages - 2014

All times are GMT

Month	H _s (m)	T _p (s)	T _z (s)	Dir. (°)	SST (°C)	No. of days
January	1.21	9.3	5.6	74	6.9	30
February	0.85	8.2	4.5	94	6.3	27
March	0.92	9.4	4.7	74	6.8	31
April	0.92	7.4	4.7	81	7.8	30
May	1.02	8.4	5.2	45	9.7	24
June	0.81	7.3	4.6	57	12.6	25
July	0.49	5.2	3.7	116	15.9	20
August	0.94	7.3	4.7	89	14.5	31
September	0.72	7.5	4.8	67	14.2	30
October	0.93	8.7	4.9	80	12.8	31
November	1.22	8.6	5.4	75	11.3	30
December	1.14	10.0	4.9	80	8.6	31

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)
14-Oct-2014 05:30	4.10	8.3	6.5	53	1.44	HW -2	3.3	0.20	0.33
19-Jan-2014 19:30	3.74	10.0	8.2	69	1.51	HW +1	4.1	-0.27	-0.15
21-Oct-2014 23:30	3.71	10.5	6.9	4	1.44	HW -3	2.9	0.96	1.20
29-Jan-2014 15:00	3.57	9.1	6.8	70	2.20	HW	4.2	-0.13	0.01
17-Nov-2014 04:30	3.43	11.1	6.9	44	-0.20	HW +5	2.3	0.30	0.32

Annual Statistics

Year	Annual H _s exceedance* (m)						Annual Maximum H _s	
	0.05%	0.5%	1%	2%	5%	10%	Date	A _{max} (m)
2013	-	4.76	4.43	3.93	2.98	2.19	10-Oct-2013 20:00	6.26
2014	3.74	3.16	2.81	2.53	2.12	1.75	14-Oct-2014 05:30	4.10

* i.e. 5 % of the H_s values measured in 2013 exceeded 2.98 m

Distribution plots

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

- Annual time series of H_s (red line is 3.25m storm threshold)
- Wave rose (percentage of occurrence of Direction vs. H_s) for all measured data
- Percentage of occurrence of H_s, T_p, T_z and Direction for 2014
- Incidence of storm waves for 2014. 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

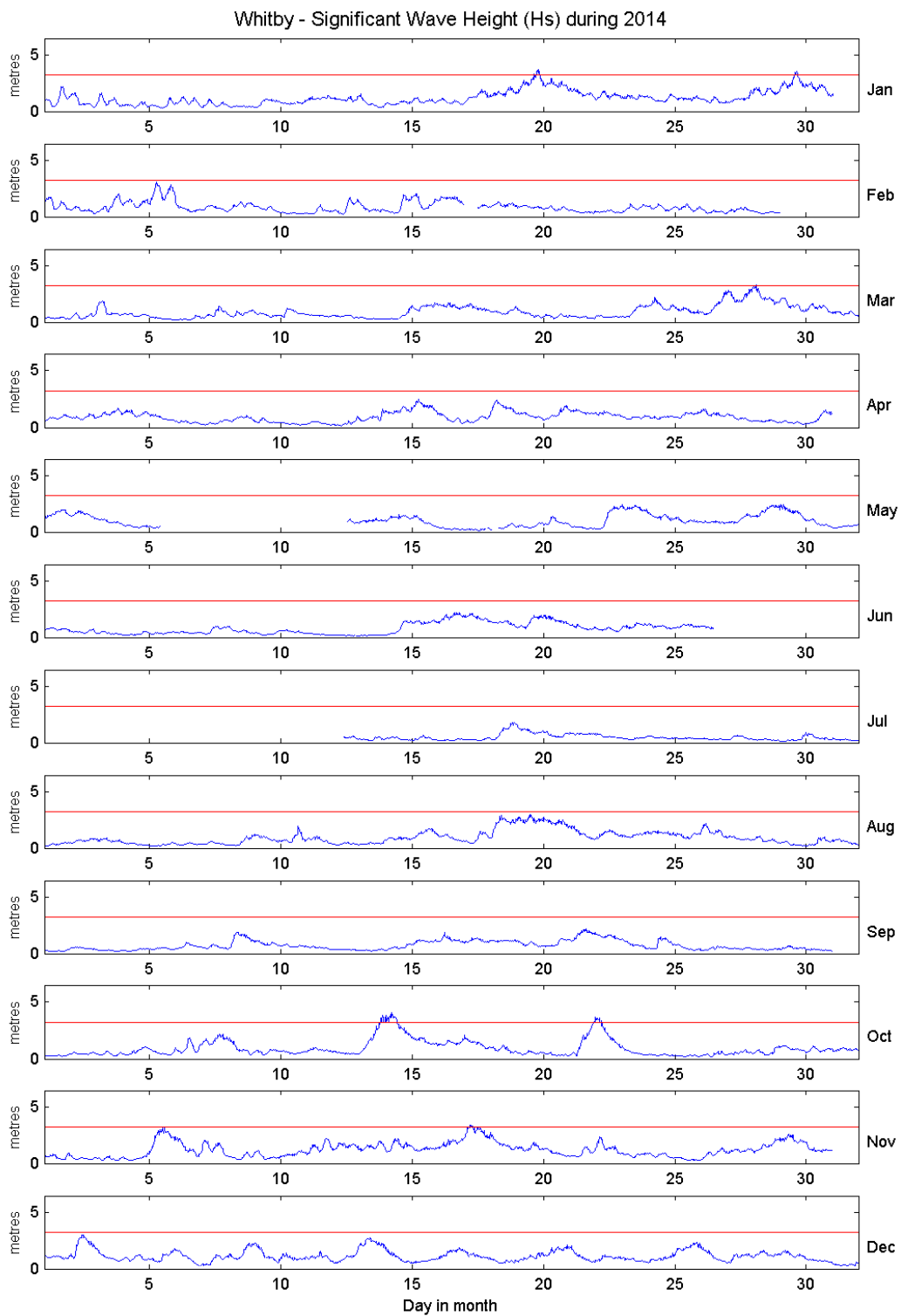
General

The buoy, owned by Scarborough Borough Council, was deployed on 18 January 2013, at which time the magnetic declination at the site was 1.8° west, changing by 0.18° east per year.

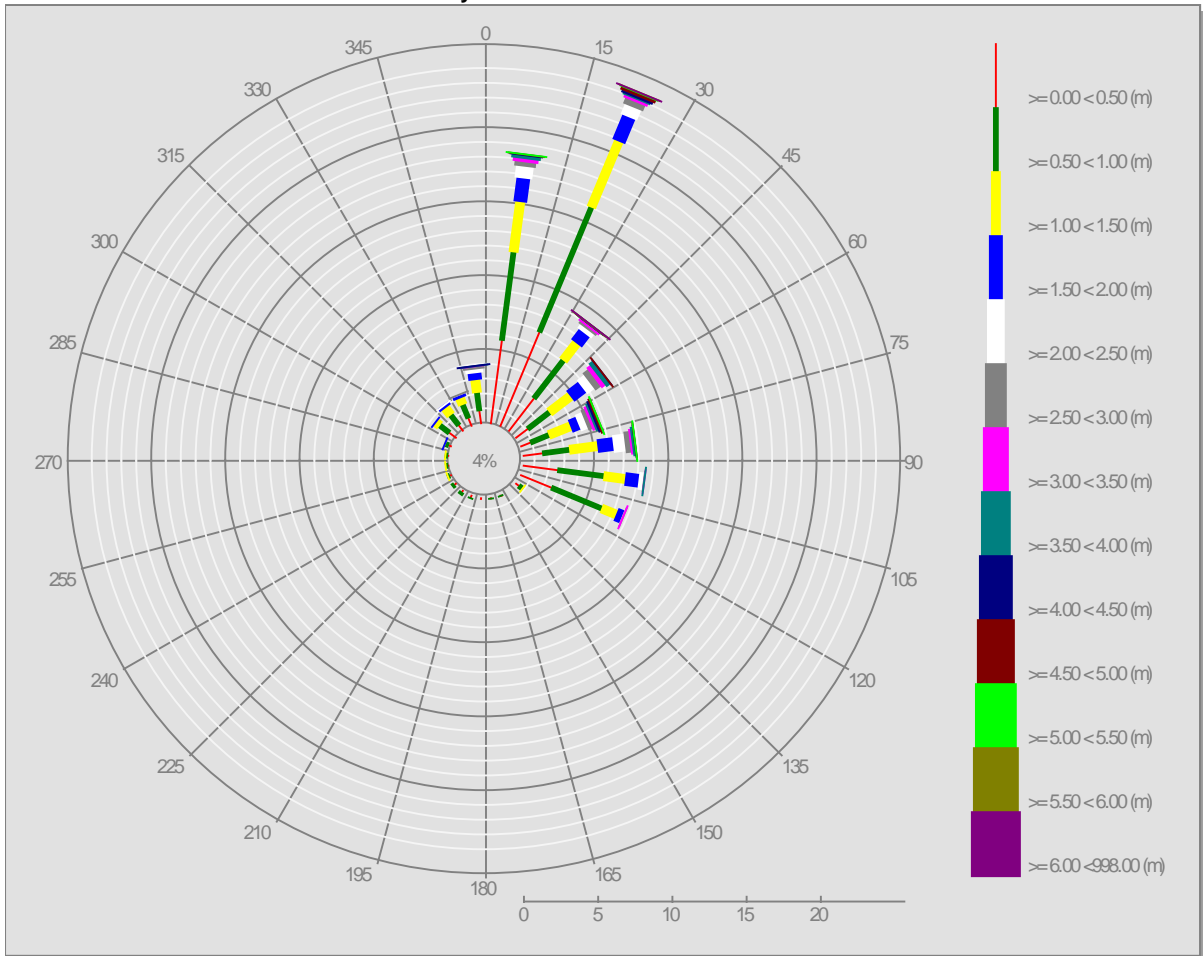
Acknowledgements

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.

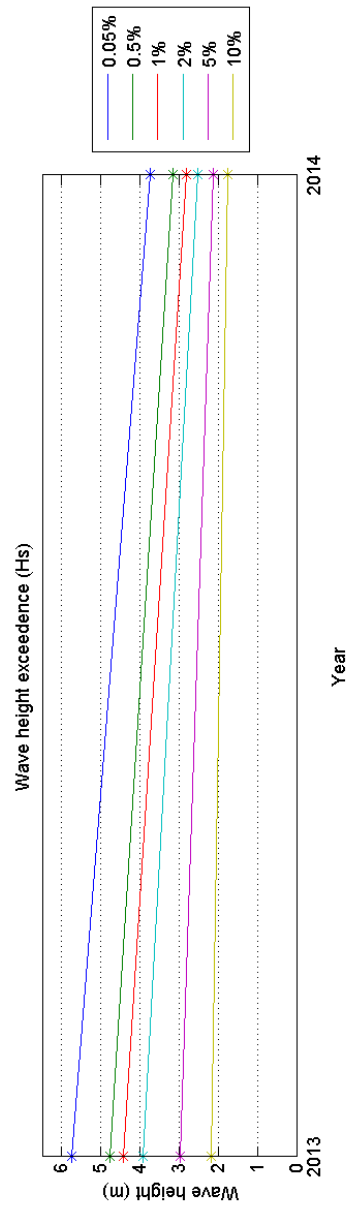
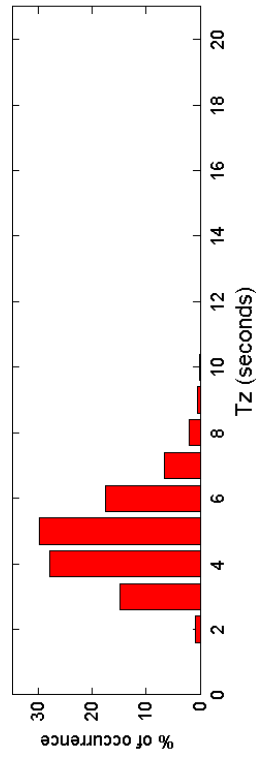
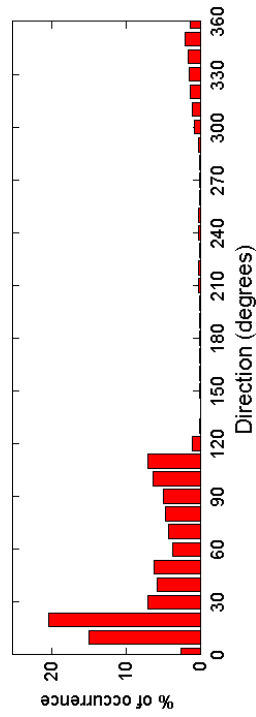
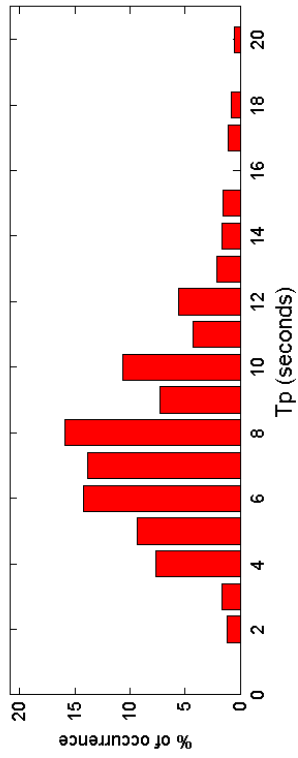
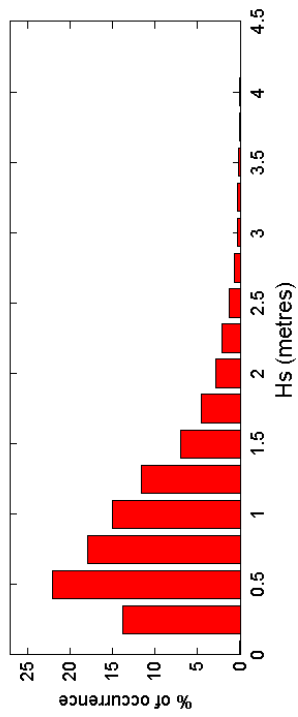
* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at Whitby). The surge shown is the residual at the time of the highest H_s. The maximum tidal surge is the largest positive surge during the storm event.

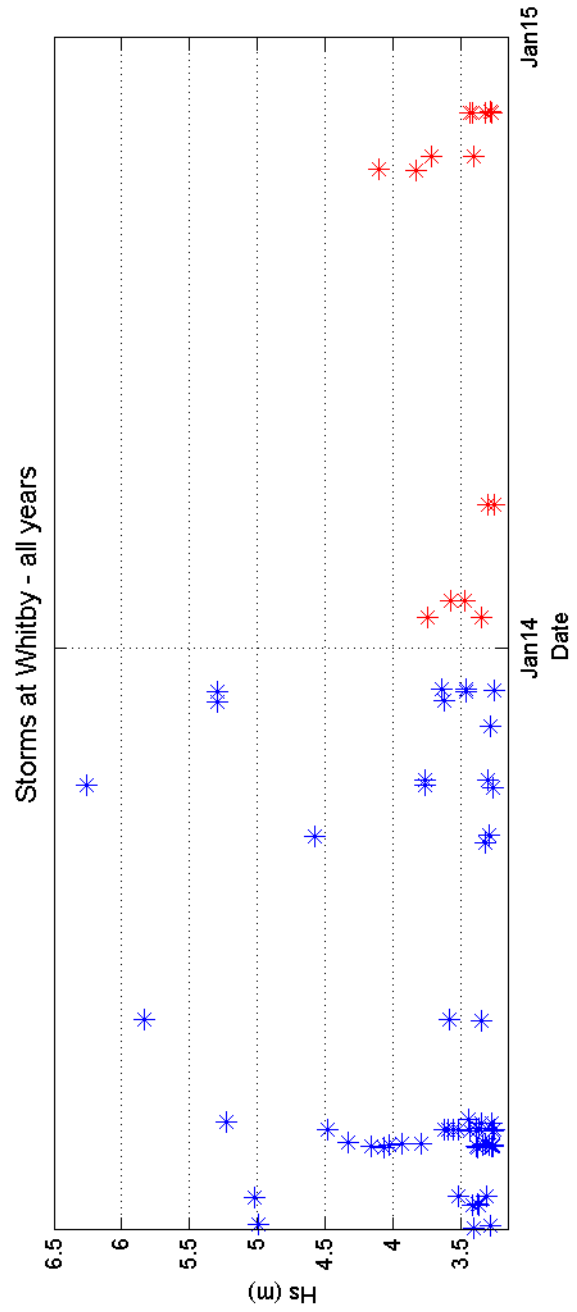
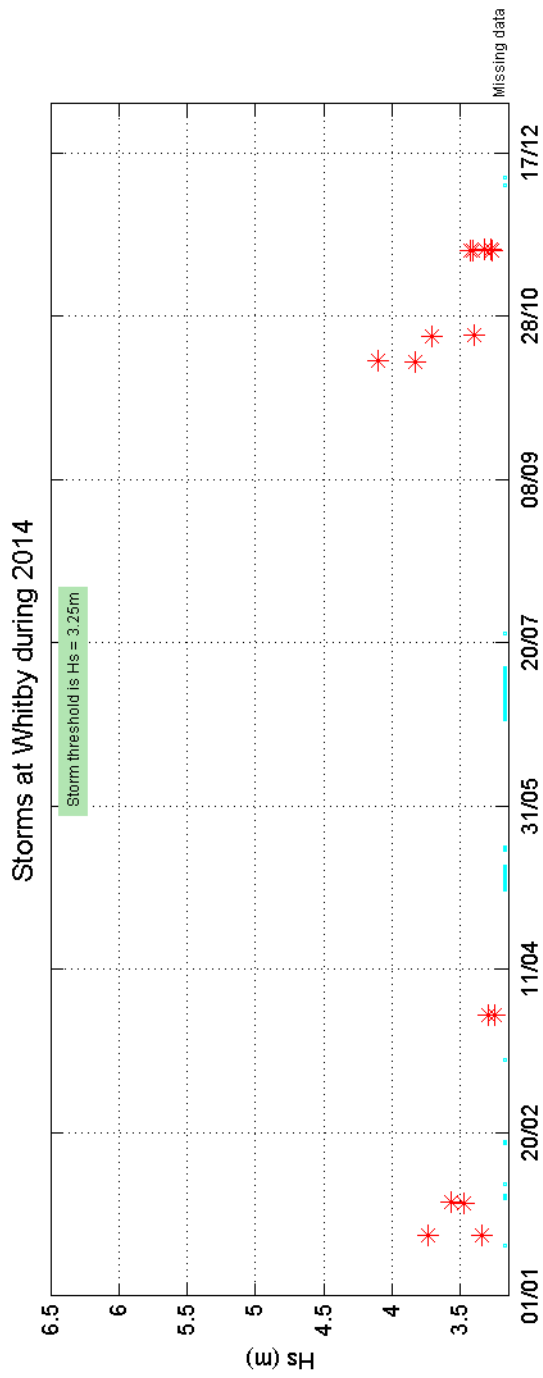


Offshore Wave Hs (m) Whitby WB: 18/01/2013 - 31/12/2014



Whitby 2014





Whitby 2013 to 2014 - Joint distribution (% of occurrence)

