



Seaford Directional Waverider Buoy

Location			
OS	546444 E 98366 N		
WGS84	Latitude: 50° 45.984' N Longitude: 00° 04.517' E		
Instrument type			
Datawell Directional Waverider Mk III			
Water depth	~11m CD	Buoy in situ off Seaford beach. Photo courtesy of Fugro EMU Limited	Location of buoy (Google mapping)

Data Quality

Recovery rate (%)	Sample interval
98	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	1.55	6.7	4.5	211	8.7	30
February	1.86	6.9	4.7	214	8.0	27
March	0.69	8.7	4.1	211	9.1	27
April	0.52	6.6	3.7	211	10.9	29
May	0.71	6.0	3.7	216	13.5	30
June	0.36	5.3	3.5	205	16.2	29
July	0.43	5.0	3.3	227	18.5	30
August	0.89	5.2	3.7	231	18.9	31
September	0.31	6.7	3.5	193	18.1	30
October	1.06	5.7	4.0	215	16.1	31
November	1.04	6.8	4.1	192	13.5	30
December	1.16	6.5	4.3	225	10.3	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-Feb-2014 23:00	5.34	8.3	7.1	215	3.56	HW	5.5	0.68	1.02
05-Feb-2014 15:00	4.80	9.1	6.9	205	2.96	HW	5.1	0.12	0.64
31-Jan-2014 22:30	4.34	8.3	6.5	196	3.06	HW -1	6.4	0.19	0.45
01-Jan-2014 19:00	4.29	7.7	7.3	198	-1.26	HW -4	5.8	0.44	0.61
12-Feb-2014 17:30	4.19	9.1	6.7	207	-1.06	HW -4	4.0	0.54	0.76

Annual Statistics

Year	Annual H _s exceedance* (m)						Annual Maximum H _s	
	0.05%	0.5%	1%	2%	5%	10%	Date	A _{max} (m)
2008	4.20	3.53	3.15	2.79	2.30	1.80	10-Mar-2008 10:30	4.48 ⁺
2009	3.87	3.28	3.00	2.72	2.23	1.80	14-Nov-2009 14:00	4.53 ⁺
2010	4.06	2.94	2.62	2.25	1.71	1.33	11-Nov-2010 13:00	4.82 ⁺
2011	3.87	2.99	2.71	2.46	2.04	1.75	13-Dec-2011 03:00	5.21 ⁺
2012	4.27	3.22	2.92	2.59	2.14	1.73	25-Nov-2012 06:00	4.39
2013	4.36	3.41	3.17	2.75	2.21	1.73	24-Dec-2013 02:30	5.18
2014	4.62	3.58	3.30	2.97	2.49	2.02	14-Feb-2014 23:00	5.34 ⁺

* i.e. 5 % of the H_s values measured in 2008 exceeded 2.30 m

⁺ Note that waves were breaking at the buoy during this storm; where breaking waves were clearly present in the measured time series, the parameters have been omitted. Accordingly, there may have been short periods where measured significant wave heights exceeded this value.

Distribution plots

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

- Annual time series of H_s (red line is 3.75 m storm threshold)
- Wave roses (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

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

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.

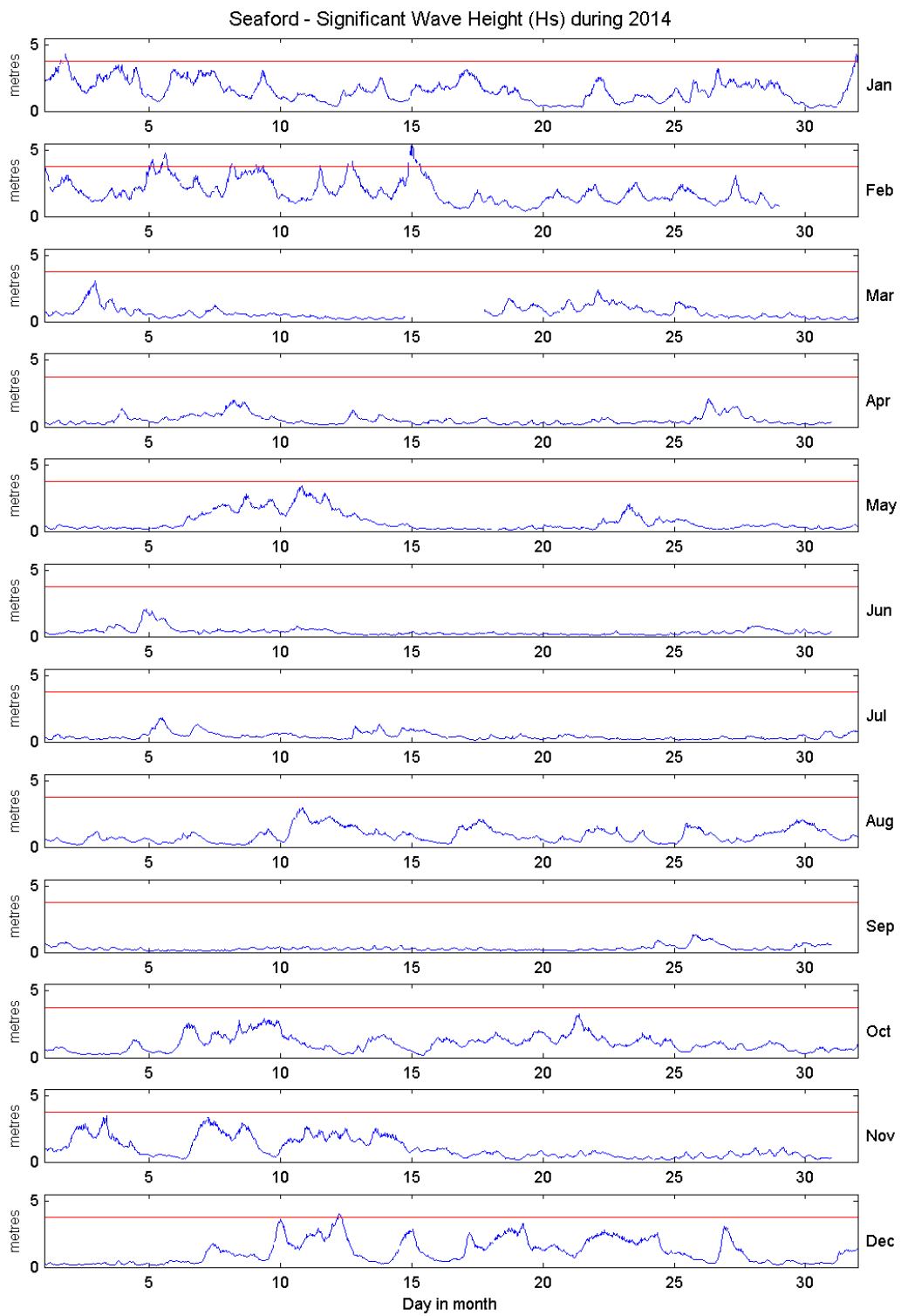
Return period (years)	Significant wave height (m)	Comments
1	4.6	No depth limitation
2	4.9	Depth-limited at MLWS
5	5.2	
10	5.4	
20	5.7	
50	6.0	

General

The buoy was first deployed on 22 January 2008, at which time the magnetic declination at the site was 1.8° west, changing by 0.14° east per year.

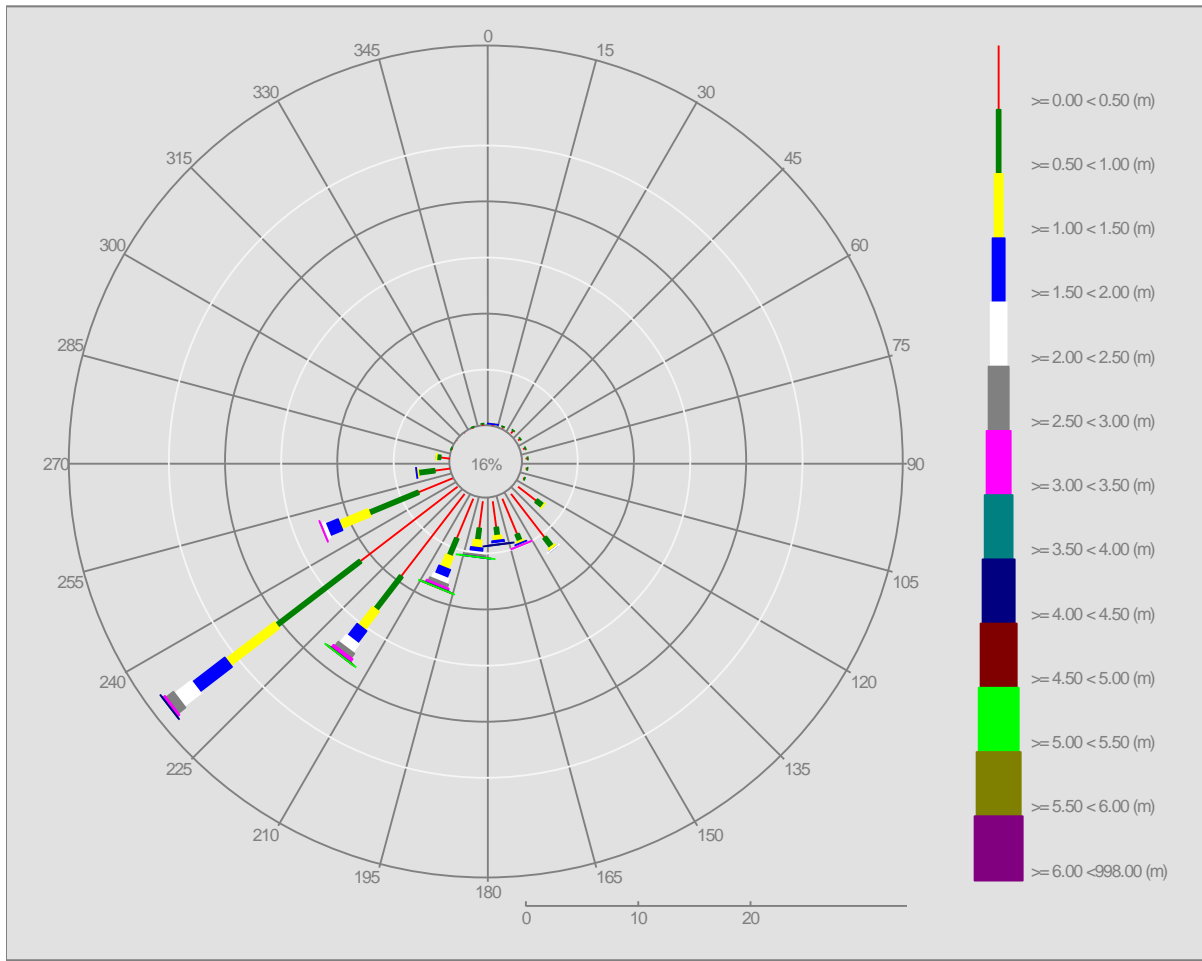
Acknowledgements

The shore station is kindly hosted by Newhaven Fort. 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.

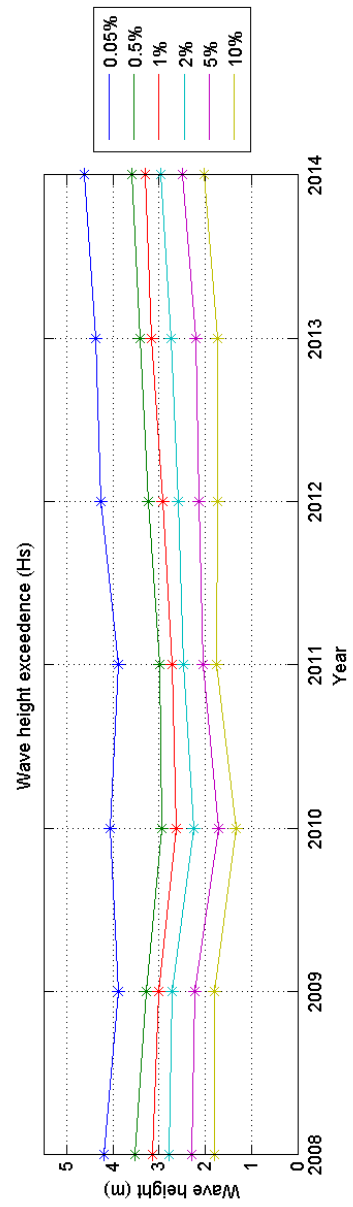
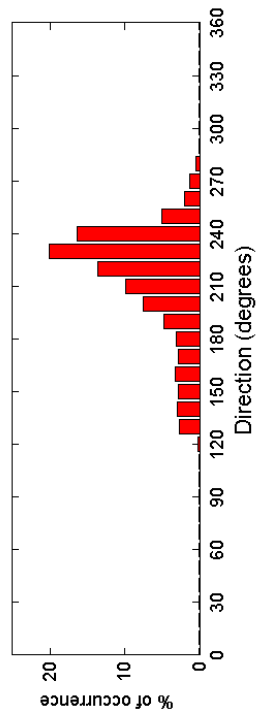
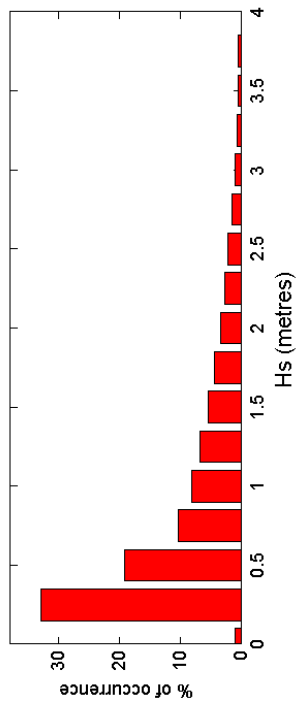
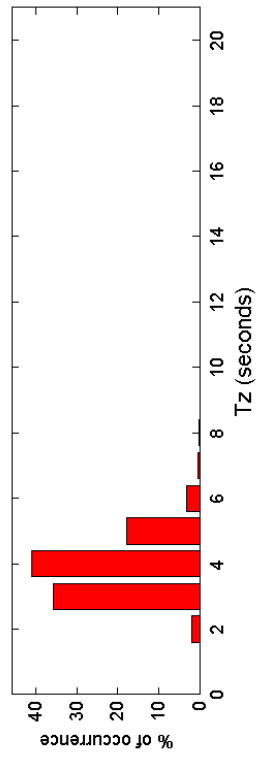
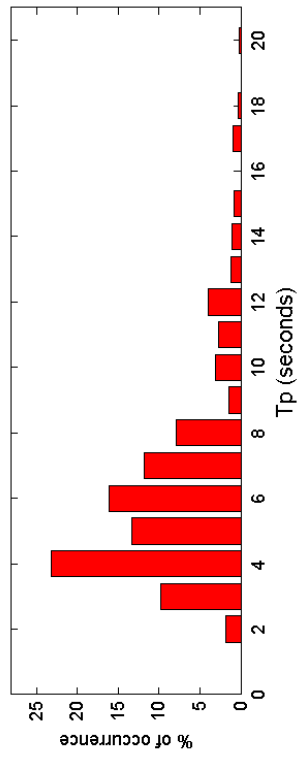


Offshore Wave Hs (m)

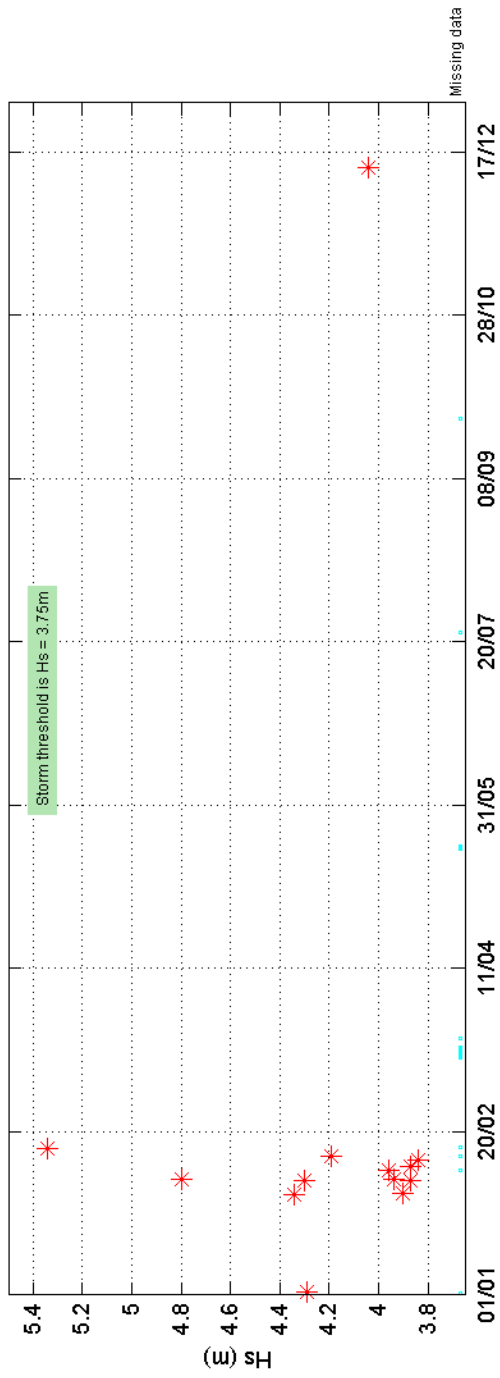
Seaford WB : 22/01/2008 - 31/12/2014



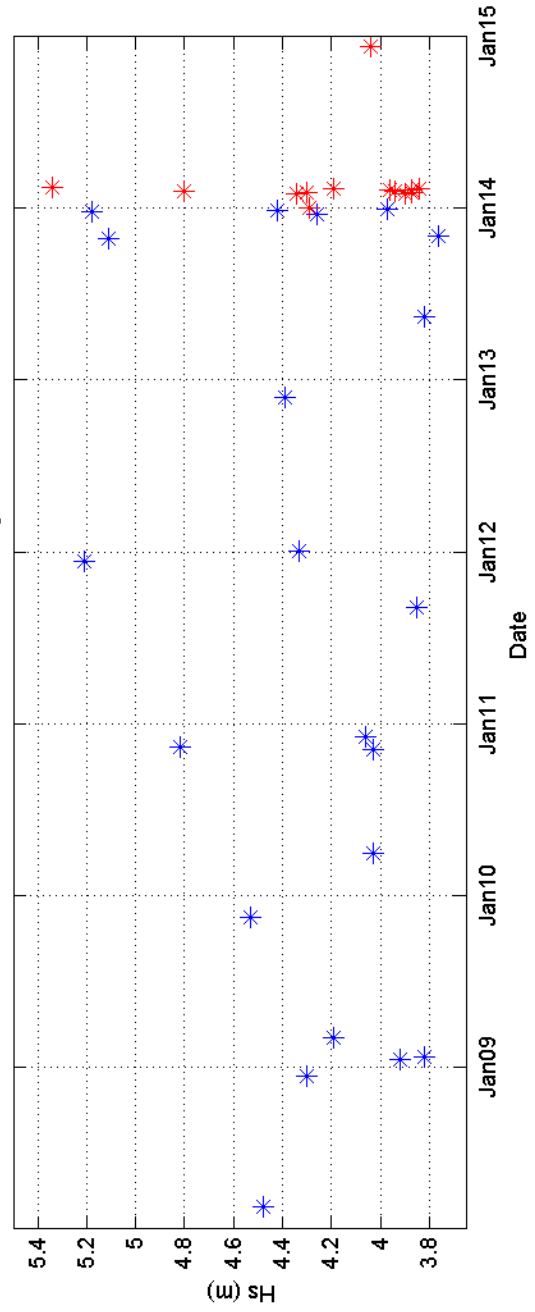
Seaford 2014



Storms at Seaford during 2014



Storms at Seaford - all years



Seaford 2008 to 2014 - Joint distribution (% of occurrence)

