



## Pevensey Bay Directional Waverider Buoy

<b>Location</b>			
OS	570427 E 100916 N		
WGS84	Latitude: 50° 46.966' N Longitude: 00° 24.975' E		
<b>Instrument type</b>			
Datawell Directional Waverider Mk III			
<b>Water depth</b>	~10m CD	Buoy in situ in Pevensey Bay. 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 <sub>s</sub> (m)	T <sub>p</sub> (s)	T <sub>z</sub> (s)	Dir. (°)	SST (°C)	No. of days
January	1.38	6.5	4.4	200	7.0	30
February	1.62	6.9	4.6	207	6.3	28
March	0.65	6.7	3.7	189	7.2	30
April	0.52	5.8	3.4	175	8.9	29
May	0.62	5.1	3.4	177	11.4	30
June	0.41	5.0	3.2	158	16.0	29
July	0.43	4.2	3.1	173	18.3	30
August	0.72	5.0	3.5	210	18.9	30
September	0.44	4.5	3.1	133	18.2	30
October	0.93	5.7	3.9	203	16.4	31
November	1.02	5.8	3.8	174	13.8	30
December	1.01	6.4	4.1	192	10.5	30

## Storm Analysis

Date/Time	H <sub>s</sub> (m)	T <sub>p</sub> (s)	T <sub>z</sub> (s)	Dir. (°)	Water level elevation* (OD)	Tidal stage (hours re. HW)	Tidal range (m)	Tidal surge* (m)	Max. surge* (m)
15-Feb-2014 02:30	4.26	10.0	7.0	221	0.87	HW +3	5.7	0.84	1.02
05-Feb-2014 04:30	4.00	7.7	6.5	172	2.33	HW +1	5.6	0.42	0.64
12-Feb-2014 16:30	3.74	9.1	6.2	207	-1.58	HW -5	4.0	0.48	0.76
31-Jan-2014 23:30	3.64	8.0	6.1	-	3.56	HW	6.7	0.00	0.45
12-Dec-2014 06:00	3.63	10.0	6.3	218	0.05	HW +3	4.4	0.51	0.53

## Annual Statistics

Year	Annual H <sub>s</sub> exceedance* (m)						Annual Maximum H <sub>s</sub>	
	0.05%	0.5%	1%	2%	5%	10%	Date	A <sub>max</sub> (m)
2003	-	2.66	2.41	2.08	1.61	1.34	02-Nov-2003 11:30	4.18
2004	3.65	2.72	2.51	2.24	1.86	1.53	31-Oct-2004 17:00	3.92
2005	3.44	2.83	2.37	2.09	1.71	1.31	03-Dec-2005 00:00	3.55
2006	3.59	2.89	2.64	2.33	1.91	1.59	03-Dec-2006 09:30	4.10
2007	3.85	2.84	2.58	2.26	1.89	1.54	18-Jan-2007 12:00	4.23
2008	3.79	3.04	2.73	2.44	2.03	1.65	13-Dec-2008 12:00	3.97
2009	3.43	2.88	2.66	2.38	1.92	1.56	14-Nov-2009 17:30	3.61
2010	3.62	2.64	2.24	1.91	1.52	1.22	08-Nov-2010 12:00	4.13
2011	3.85	2.57	2.29	2.02	1.69	1.43	13-Dec-2011 01:30	4.42
2012	3.33	2.75	2.49	2.19	1.82	1.48	03-Jan-2012 13:00	3.51
2013	3.82	2.86	2.62	2.31	1.87	1.47	28-Oct-2013 06:30	4.44
2014	4.00	3.10	2.84	2.54	2.11	1.72	15-Feb-2014 02:30	4.26

\* i.e. 5 % of the H<sub>s</sub> values measured in 2003 exceeded 1.61 m

## Distribution plots

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

- Annual time series of H<sub>s</sub> (red line is 3.25 m storm threshold)
- Wave roses (percentage of occurrence of direction vs H<sub>s</sub>) for all measured data from 01 April 2004
- Percentage of occurrence of H<sub>s</sub>, T<sub>p</sub>, T<sub>z</sub> and Direction for 2014
- Incidence of storm waves for 2014. Storm events are defined using the Peaks-over-Threshold method. The highest H<sub>s</sub> 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<sub>s</sub>. The maximum tidal surge is the largest positive 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.

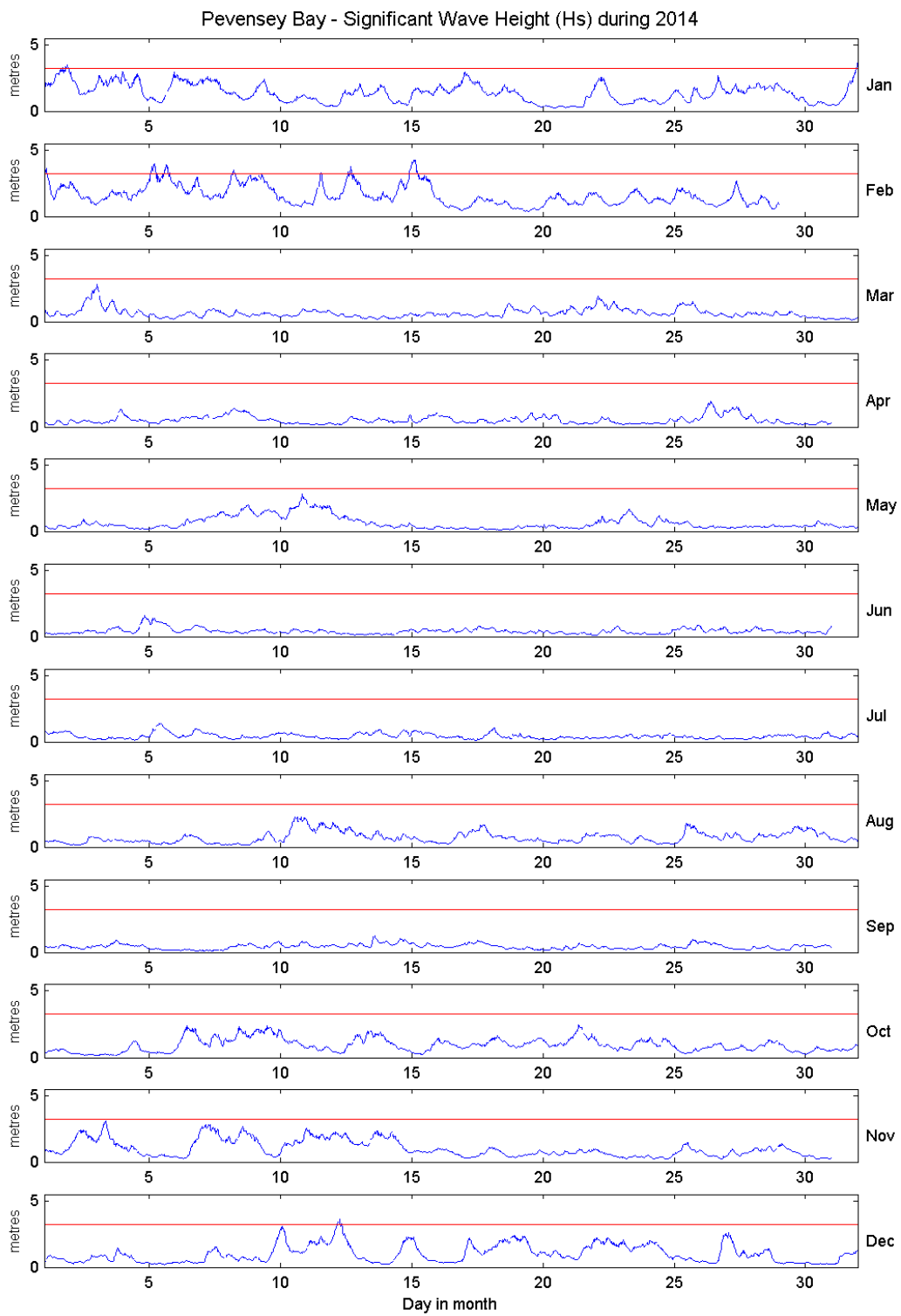
Return period (years)	Significant wave height (m)	Comments
1	3.9	No depth limitation
2	4.1	
5	4.4	Depth-limited at MLWS
10	4.5	
20	4.7	
50	4.9	
100	5.1	

## General

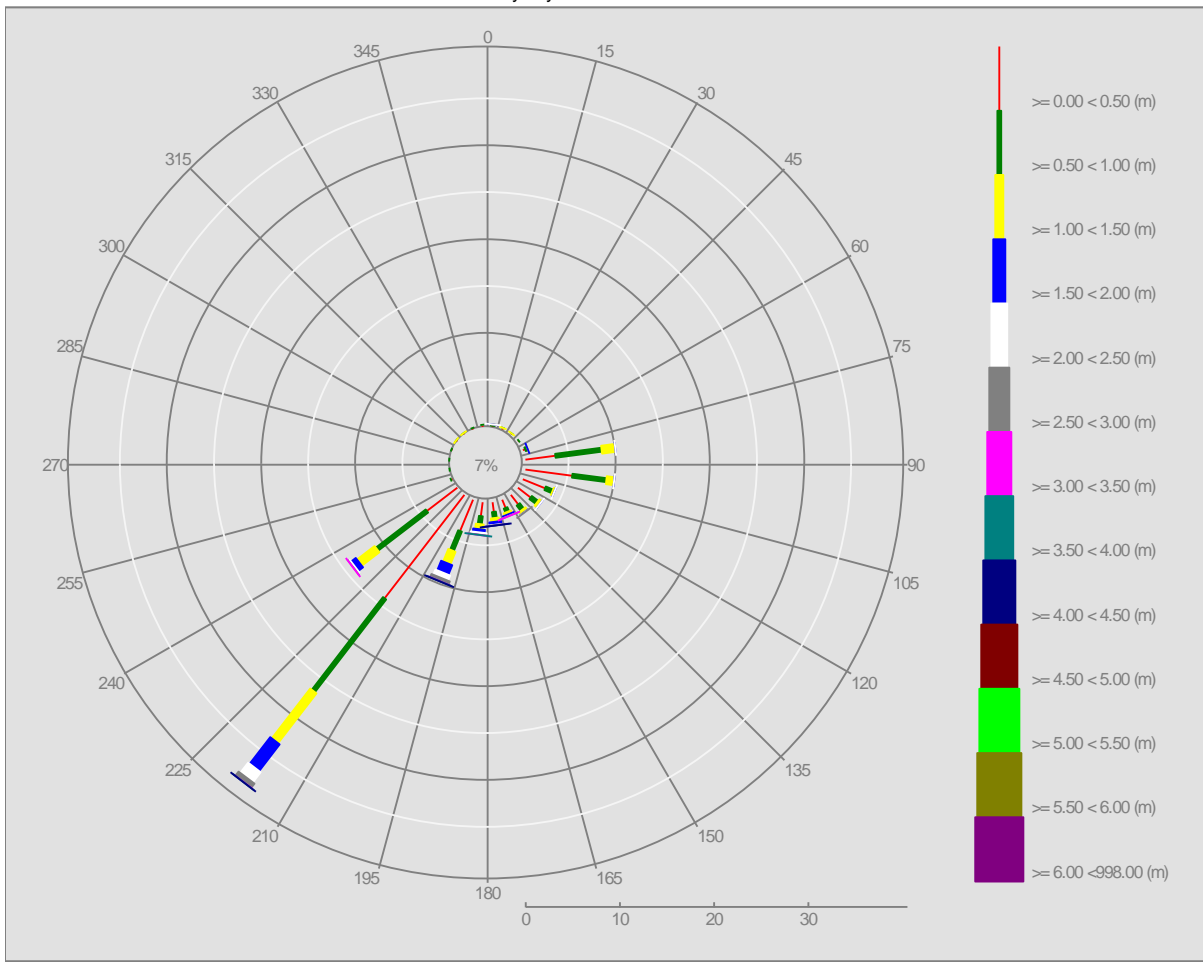
The buoy was first deployed on 9 July 2003, at which time the magnetic declination at the site was 2.3° west, changing by 0.14° east per year.

## Acknowledgements

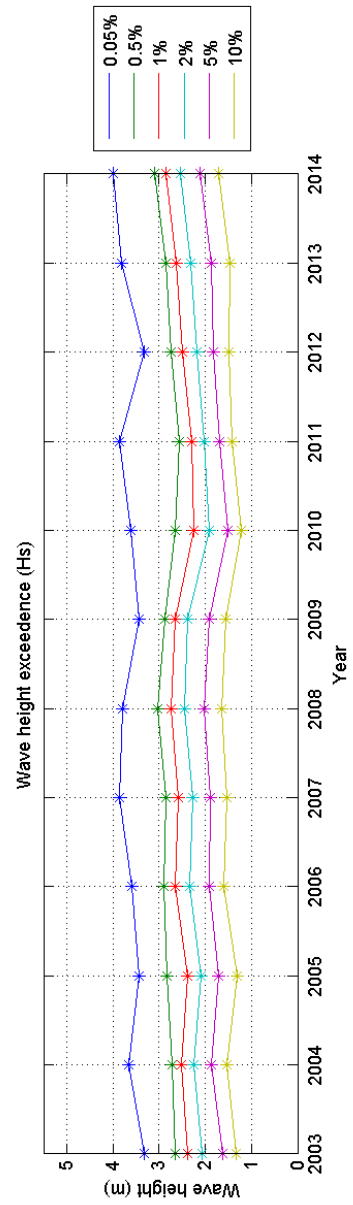
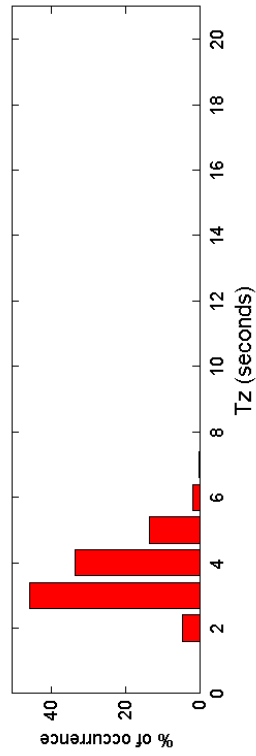
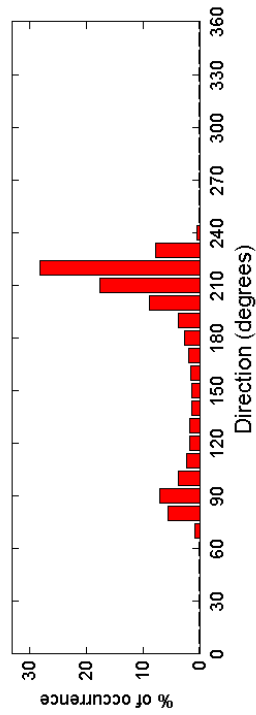
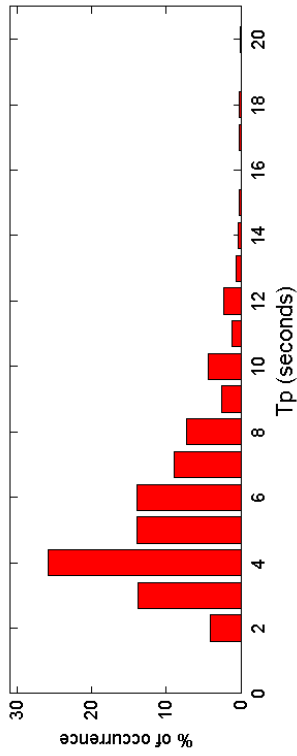
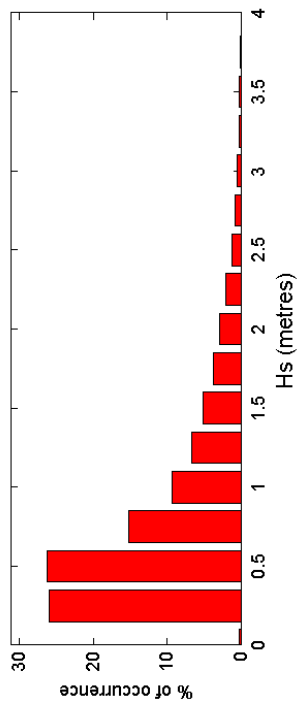
Tidal data were supplied by the British Oceanographic Data Centre as part of the function of the National Tidal and Sea Level Facility, hosted by the Proudman Oceanographic Laboratory and funded by DEFRA and the Natural Environment Research Council.

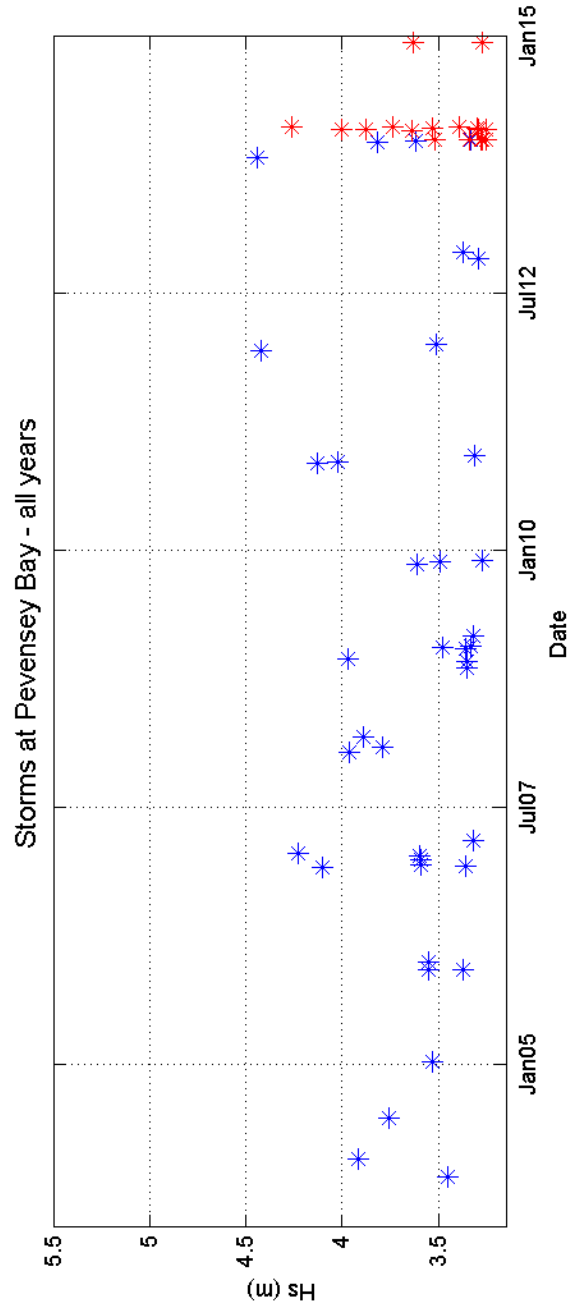
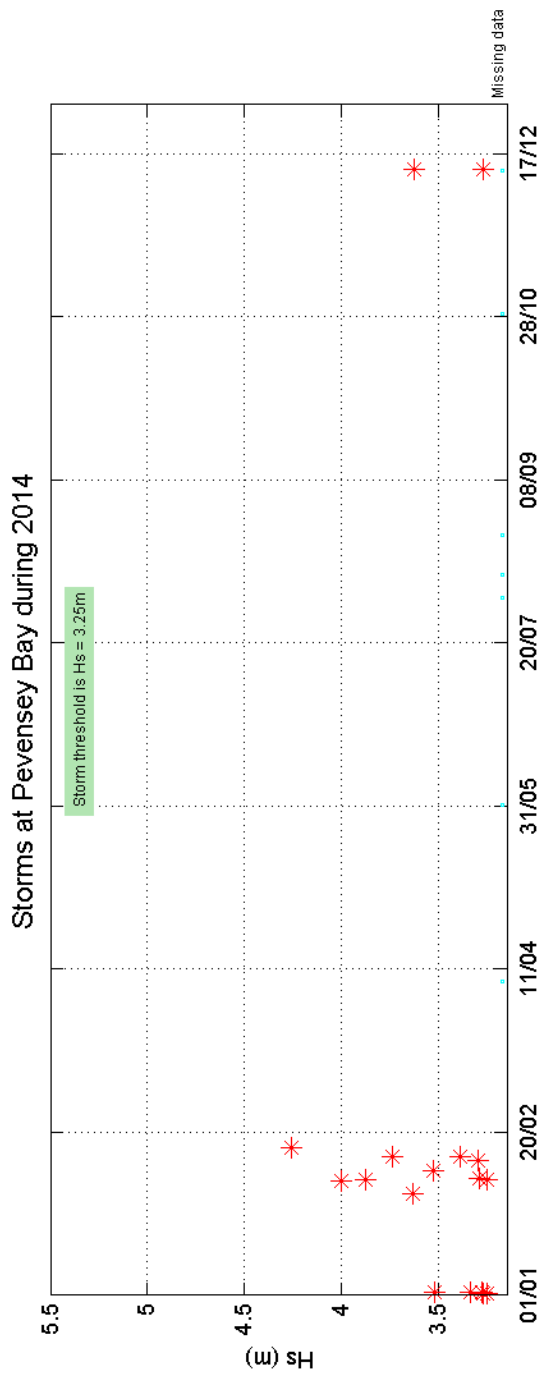


### Offshore Wave Hs (m) Pevensey Bay WB : 01/04/2004 - 31/12/2014



Pevensey Bay 2014





Pevensey Bay 2003 to 2014 - Joint distribution (% of occurrence)

