



St Mary's Sound Directional Waverider Buoy

Location			
OS	90410 E 8005 N		
WGS84	Latitude: 49° 53.52' N Longitude: 06° 18.73' W		
Instrument type			
Datawell Directional Waverider Mk III			
Water depth	~53m CD	Buoy in situ in St Mary's Sound. Photo courtesy of Fugro EMU Limited	Location of buoy (Google mapping)

Data Quality

Recovery rate (%)	Sample interval
99	30 minutes

Monthly averages - 2015

All times are GMT

Month	H _s (m)	T _p (s)	T _z (s)	Dir. (°)	SST (°C)	No. of days
January	1.63	9.0	5.3	235	11.0	31
February	1.31	8.7	5.1	196	9.7	28
March	1.27	8.8	5.0	217	9.5	31
April	1.06	7.8	4.7	199	10.0	30
May	1.13	8.1	5.0	240	11.1	30
June	0.83	7.8	4.7	220	12.6	30
July	1.01	7.5	4.7	228	14.6	30
August	0.95	7.7	4.7	228	14.8	30
September	0.93	7.0	4.4	178	14.6	30
October	1.23	8.0	4.9	184	13.7	30
November	1.61	8.5	5.3	233	13.1	30
December	2.66	9.3	6.0	214	12.3	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)
30-Dec-2015 06:00	5.87	10.0	7.7	193	-	HW -1	~4.0	-	-
14-Jan-2015 22:30	5.00	10.0	7.1	215	-	HW -1	~2.2	-	-
30-Dec-2015 23:00	4.81	11.1	7.8	204	-	HW +3	3.5	-	-
28-Dec-2015 18:30	4.44	8.3	6.9	191	-	HW	~4.5	-	-
15-Dec-2015 23:30	4.22	10.0	7.4	217	-	HW +4	~4.0	-	-

Annual Statistics

Year	Annual H _s exceedance* (m)						Annual Maximum H _s	
	0.05%	0.5%	1%	2%	5%	10%	Date	A _{max} (m)
2014	-	-	-	2.86	2.29	1.96	06-Oct-2014 02:30	5.30
2015	5.31	4.11	3.68	3.27	2.80	2.35	30-Dec-2015 06:00	5.87

* i.e. 5 % of the H_s values measured in 2014 exceeded 2.29 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 4m storm threshold)
- Incidence of storm waves for 2015. Storm events are defined using the Peaks-over-Threshold method. The highest H_s of each storm event is shown
- Wave height exceedance each year since deployment
- Percentage of occurrence of H_s, T_p, T_z and Direction for 2015
- Joint distribution of all parameters for all measured data, given as percentage of occurrence
- Wave rose (percentage of occurrence of direction vs. H_s) for all measured data

General

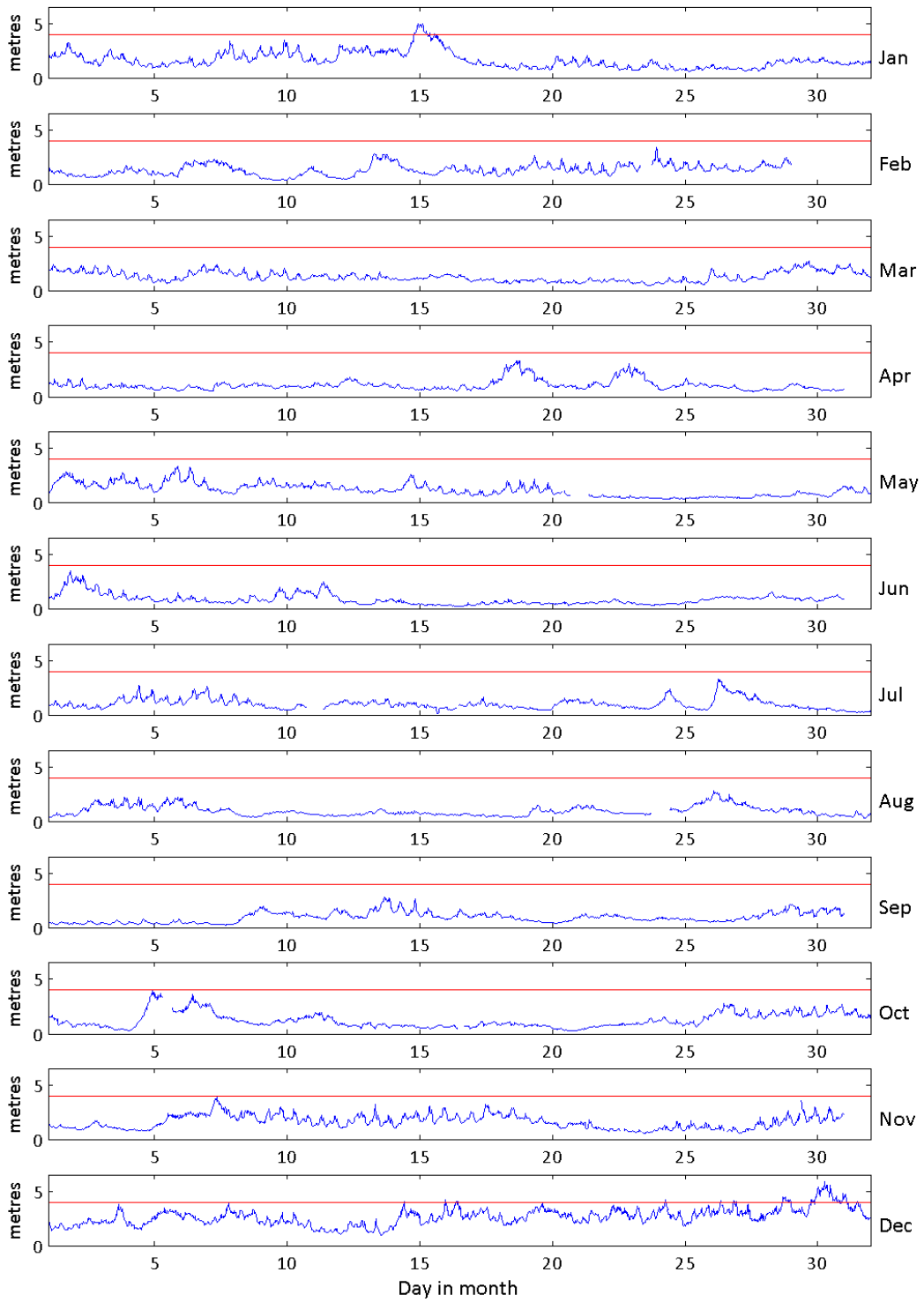
The buoy was first deployed on 15 May 2014, at which time the magnetic declination at the site was 3.03° west, changing by 0.17° east per year.

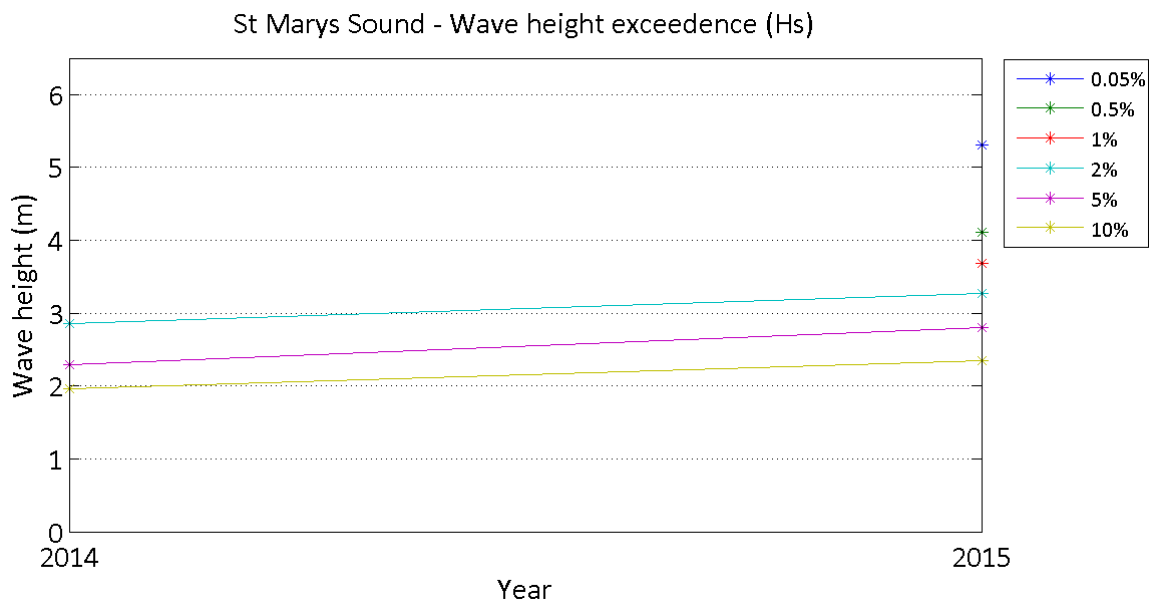
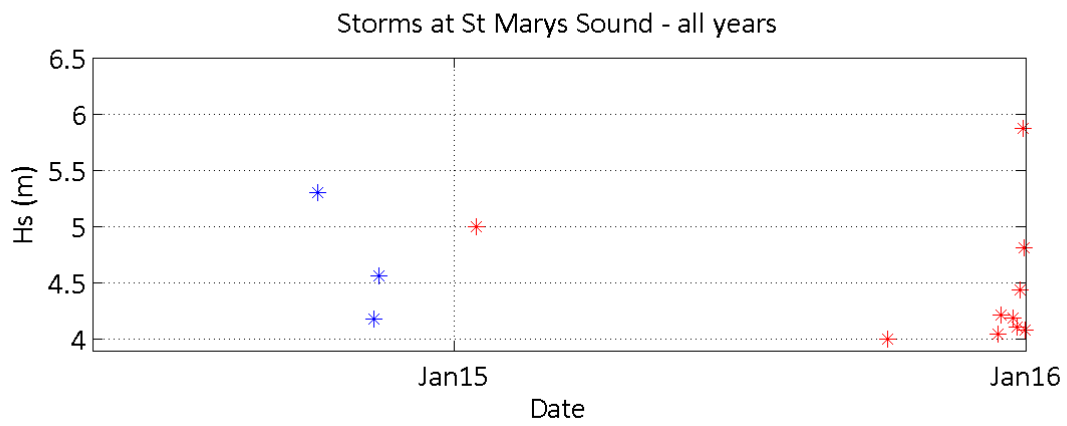
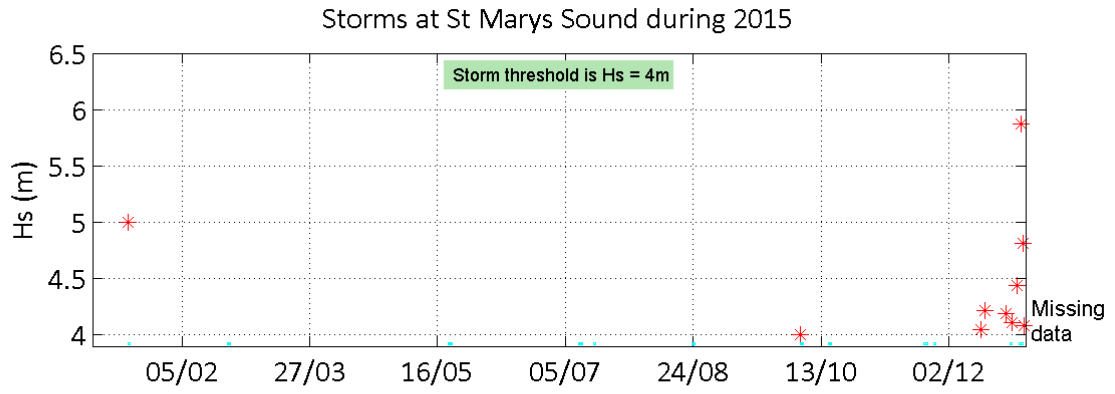
Acknowledgements

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. The shore station is kindly hosted by the leaseholder of the Coastguard Tower.

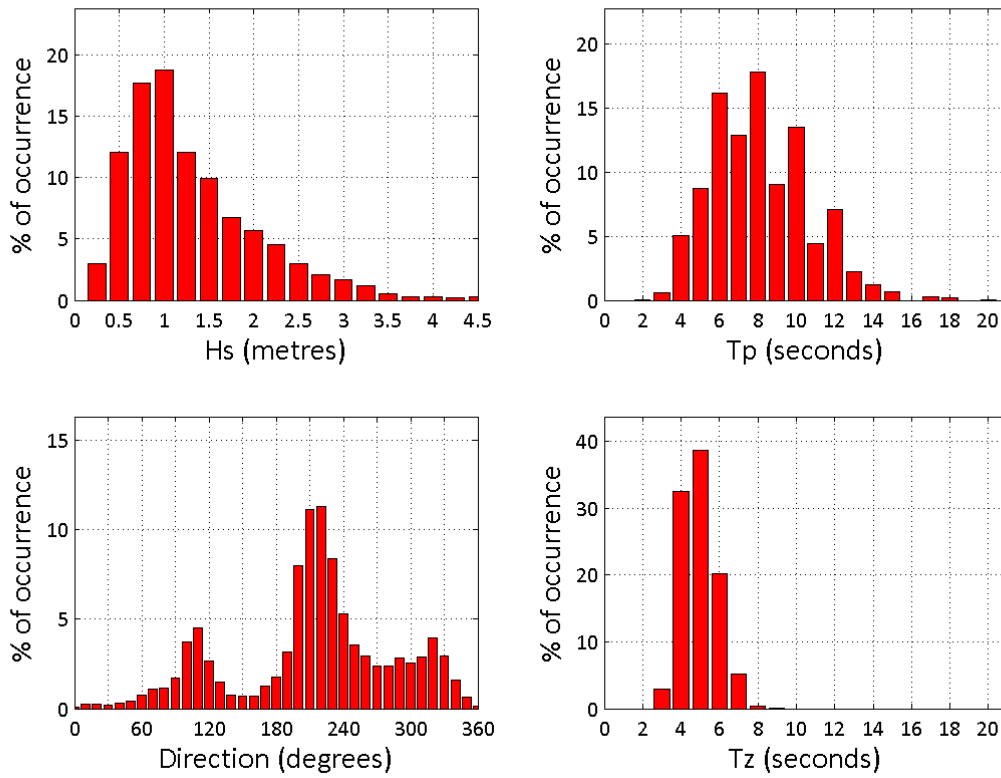
* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at St Mary's). The surge shown is the residual at the time of the highest H_s. The maximum tidal surge is the largest positive surge during the storm event.

St Marys Sound - Significant Wave Height (Hs) during 2015





St Marys Sound 2015



St Marys Sound 2014 to 2015 - Joint distribution (% of occurrence)

