



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, image ©2016 Getmapping plc)

Data Quality

Recovery rate (%)	Sample interval
84	30 minutes

Monthly averages - 2015

All times are GMT

Month	H _s (m)	T _p (s)	T _z (s)	Dir. (°)	SST (°C)	Bimodal seas (%)	No. of days
January	-	-	-	-	-	-	0
February	1.61	7.4	5.1	142	10.1	4	4
March	1.33	9.1	5.2	217	9.8	16	31
April	1.32	8.9	5.1	204	10.2	10	30
May	0.81	8.0	4.8	218	11.3	5	31
June	0.74	7.9	4.8	239	13.3	2	30
July	0.70	7.5	4.6	264	14.8	4	31
August	0.87	7.8	4.8	253	15.5	4	31
September	1.12	8.5	5.1	246	15.0	13	29
October	1.21	8.0	4.8	195	14.2	3	30
November	1.21	7.8	4.7	180	13.0	9	30
December	1.45	9.3	5.3	213	12.0	30	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)
10-Apr-2016 14:30	5.13	8.3	6.9	135	-1.58	HW -4	5.18	0.41	0.46
28-Mar-2016 07:30	4.02	11.1	8.5	200	2.23	HW	3.74	0.26	0.31
23-Oct-2016 15:30	4.01	8.3	6.6	115	-0.71	HW +5	2.8	-	-
15-Apr-2016 00:00	3.96	11.1	7.5	200	1.46	HW +1	2.79	0.31	0.34
19-Aug-2016 20:00	3.85	9.1	7.3	224	0.99	HW +2	5.4	-	-

* Tidal information is obtained from the National Network gauge at St Mary's and/or estimated from the predicted tide levels (Admiralty Total Tide). 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.

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
2016	4.76	3.59	3.06	2.72	2.32	1.95	10-Apr-2016 14:30	5.13

** 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 2016. 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 2016
- 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

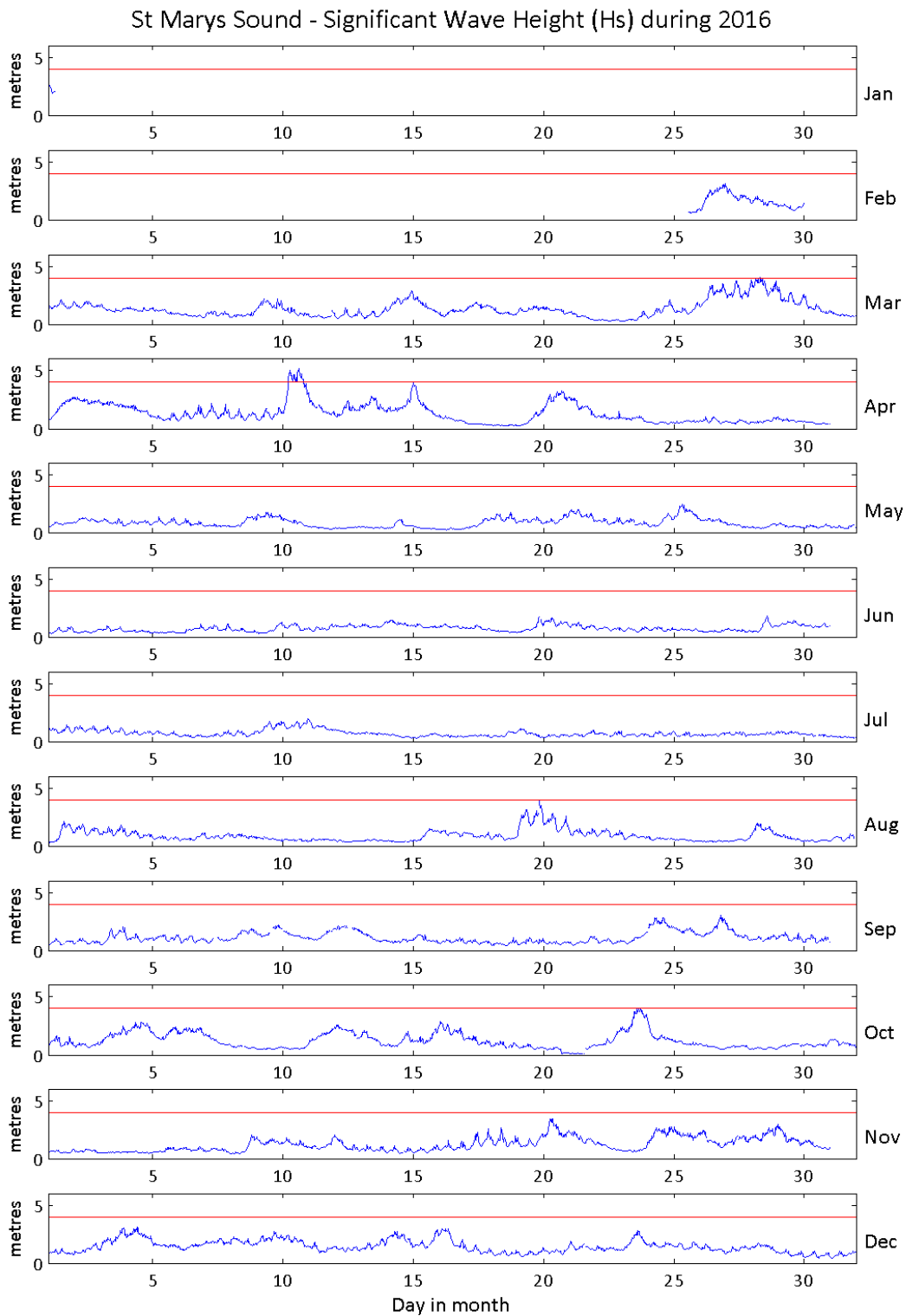
General

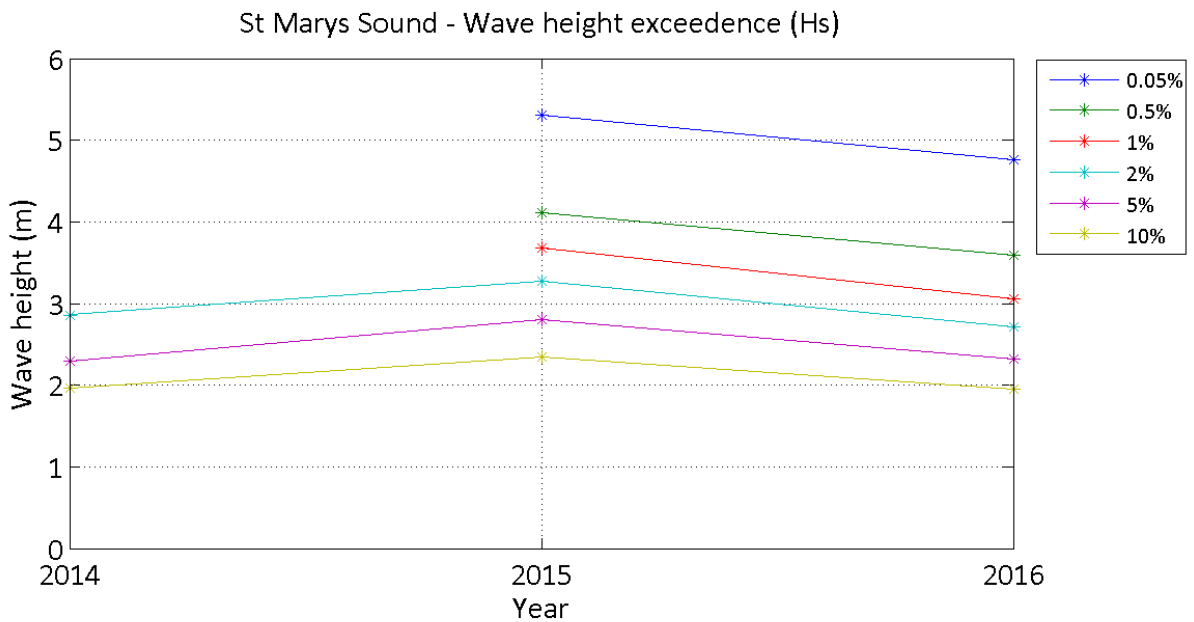
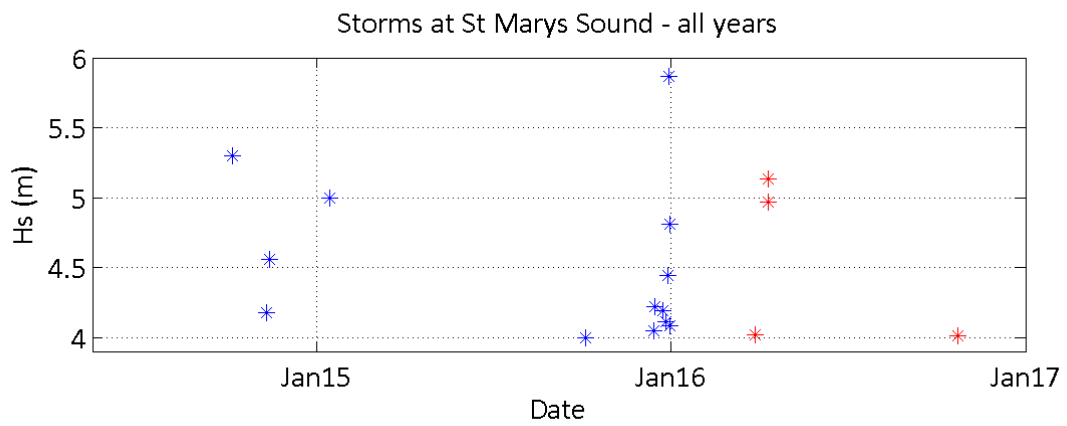
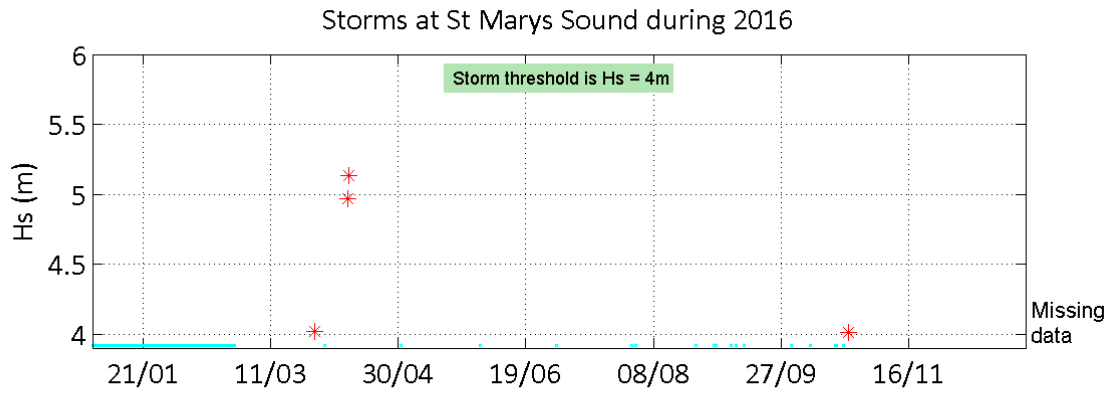
The buoy, owned by Teignbridge District Council, was first deployed on 15 May 2014, at which time the magnetic declination at the site was 3.03° west, changing by 0.17° east per year.

Acknowledgements

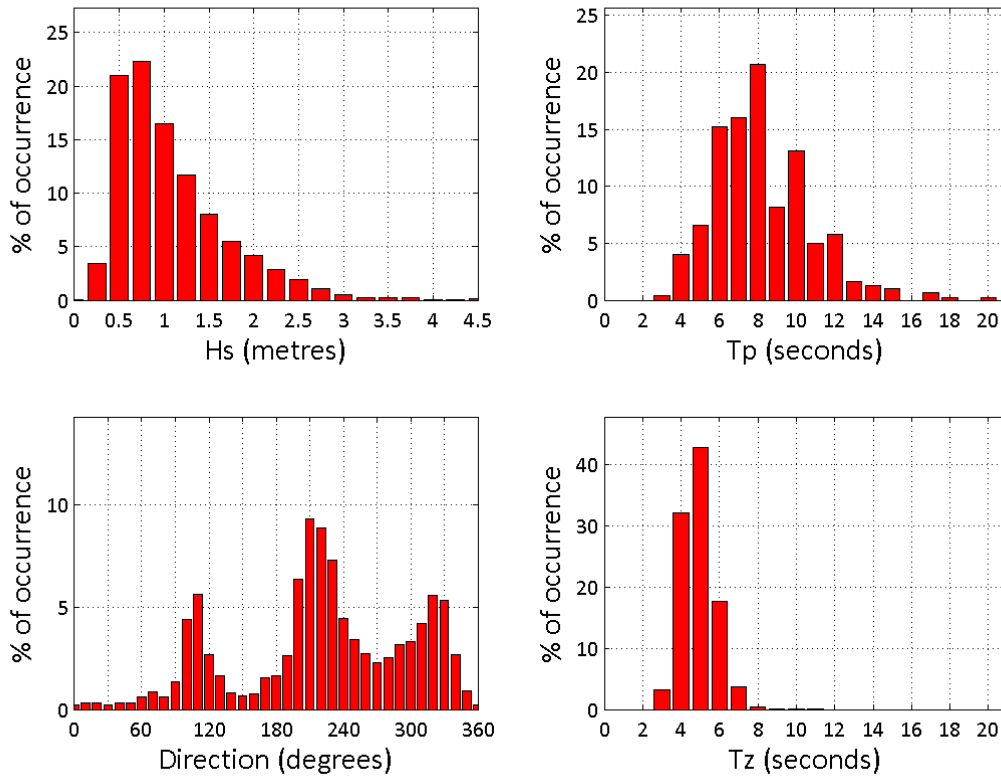
The shore station is kindly hosted by the leaseholder of the Coastguard Tower.

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.





St Marys Sound 2016



St Marys Sound 2014 to 2016 - Joint distribution (% of occurrence)

