

Penzance Directional Waverider Buoy

Location

OS: 149662E 29688N

WGS84: Latitude: 50° 06.862' N Longitude: 05° 30.184' W

Water Depth

~10 m CD

Instrument Type

Datawell Directional Waverider Mk III

Data Quality

Recovery rate (%)	Sample interval
99	30 minutes

Statistics - 2011

All times are GMT

Month	H _s (m)	T _p (s)	T _z (s)	Dir. (°)	SST (°C)	No. of days
January	0.74	8.8	5.0	177	9.1	31
February	1.08	10.4	5.0	186	8.9	28
March	0.42	9.7	4.3	173	9.4	31
April	0.44	10.4	4.4	179	11.3	30
May	0.56	9.2	4.0	179	12.4	31
June	0.50	7.9	4.2	184	13.1	30
July	0.32	7.9	4.3	181	14.7	31
August	0.37	7.2	4.1	183	15.6	30
September	0.64	7.7	4.1	184	15.0	30
October	0.64	9.2	4.3	185	14.3	31
November	0.99	9.2	4.7	183	13.3	30
December	0.78	9.7	4.5	186	11.8	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-Jan-2011 15:00	3.32	9.1	6.3	184	-1.10	HW -5	3.1	0.40	0.41
23-Oct-2011 22:30	3.06	10.5	6.2	190	0.01	HW -4	3.5	0.41	0.45
15-Feb-2011 04:00	2.69	7.1	5.6	173	1.25	HW +2	2.9	0.36	0.46
13-Feb-2011 05:00	2.66	8.3	5.8	190	-0.49	HW +6	1.8	0.25	0.37
08-Jan-2011 07:00	2.66	11.8	8.2	190	2.49	HW	4.2	0.18	0.31

* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at Newlyn). 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.

Annual Statistics

Year	Annual H_s exceedance* (m)						Annual Maximum H_s	
	0.05%	0.5%	1%	2%	5%	10%	Date	A_{max} (m)
2007	-	2.05	1.84	1.63	1.34	1.10	20-Jun-2007 09:00	2.96
2008	3.91	2.60	2.28	1.93	1.54	1.22	13-Jan-2008 11:30	4.54
2009	4.25	2.83	2.52	2.15	1.75	1.43	13-Nov-2009 18:30	4.64
2010	3.91	3.01	2.31	1.90	1.50	1.23	16-Jan-2010 03:30	4.70
2011	2.95	2.26	2.06	1.86	1.55	1.27	10-Jan-2011 15:00	3.32

* i.e. 5 % of the H_s values measured in 2007 exceeded 1.34 m

Distribution plots

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

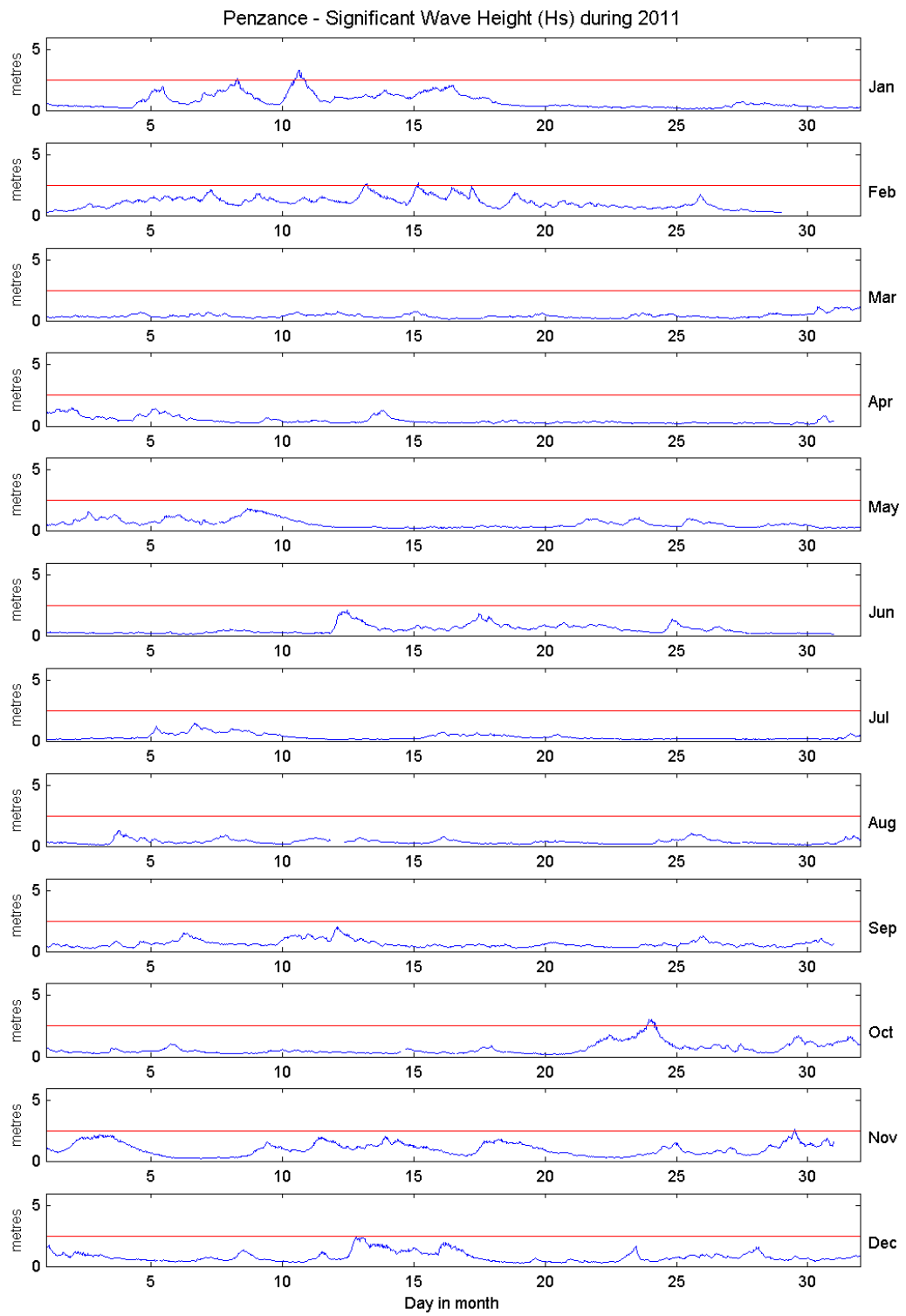
- Annual time series of H_s (red line is 2.5 m storm threshold)
- Wave roses (Direction vs. H_s and vs. T_p) for all measured data
- Percentage of occurrence of H_s , T_p , T_z and Direction for 2011
- Incidence of storm waves for 2011. Storm events are defined using the Peaks-over-Threshold method. The highest H_s of each storm event is shown
- Joint distribution of all parameters for all measured data, given as percentage of occurrence

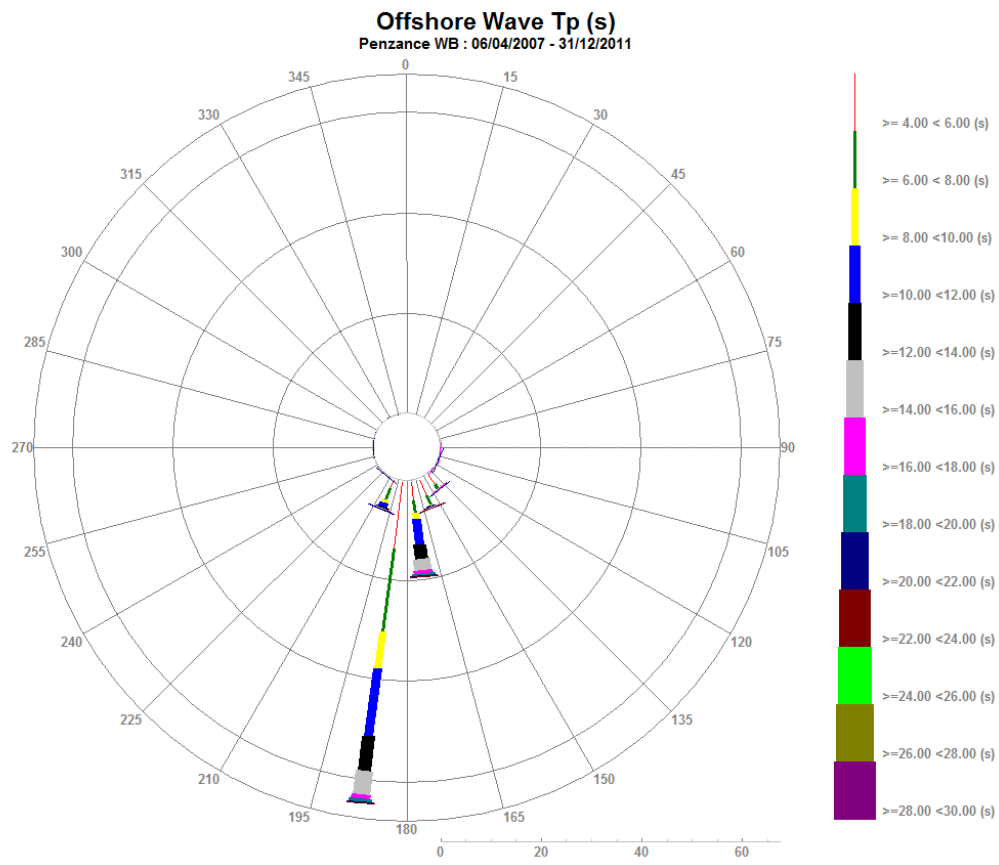
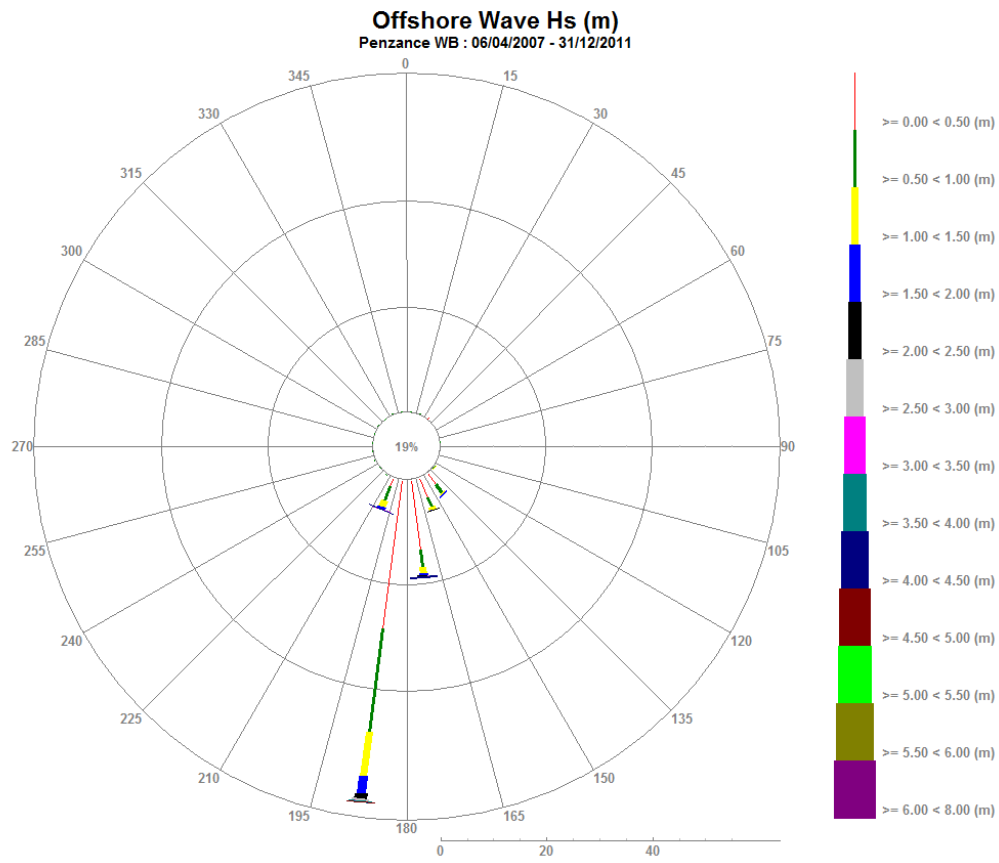
General

The buoy was first deployed on 6 April 2007.

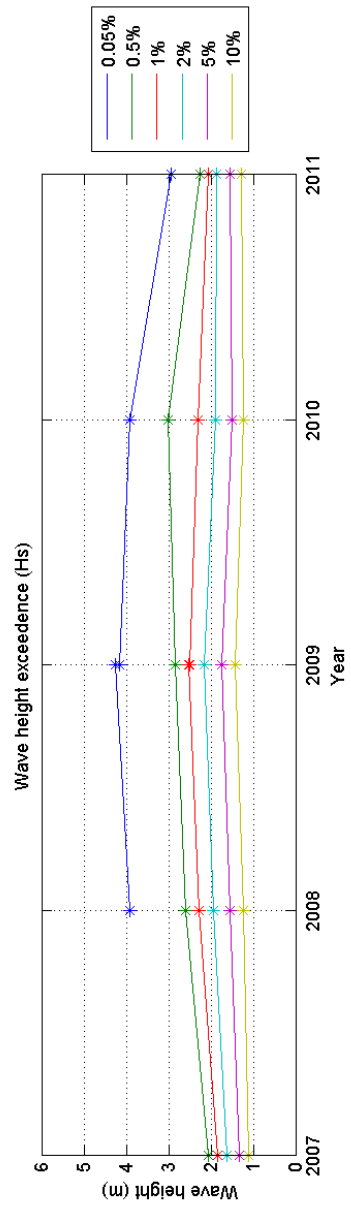
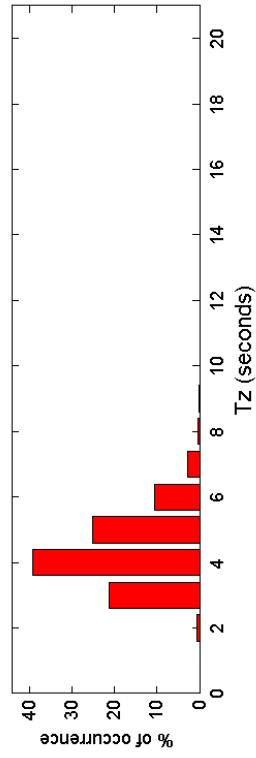
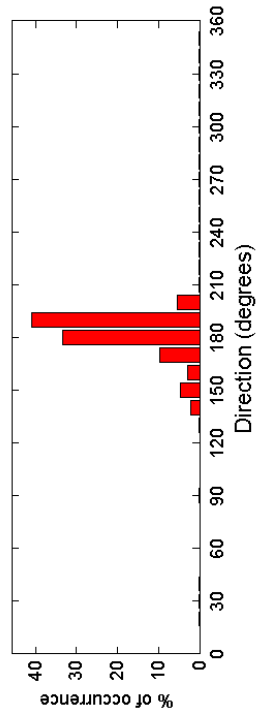
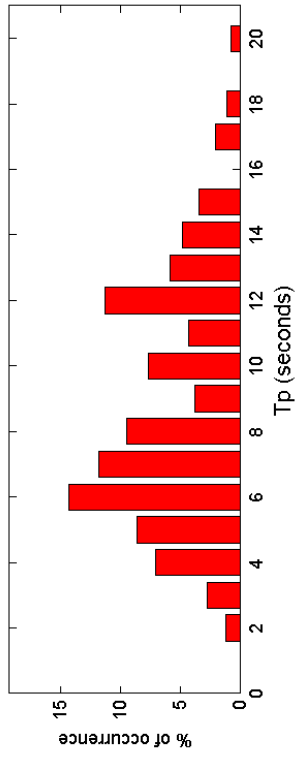
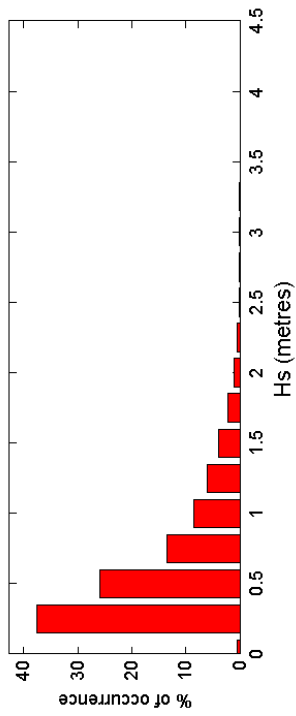
Acknowledgements

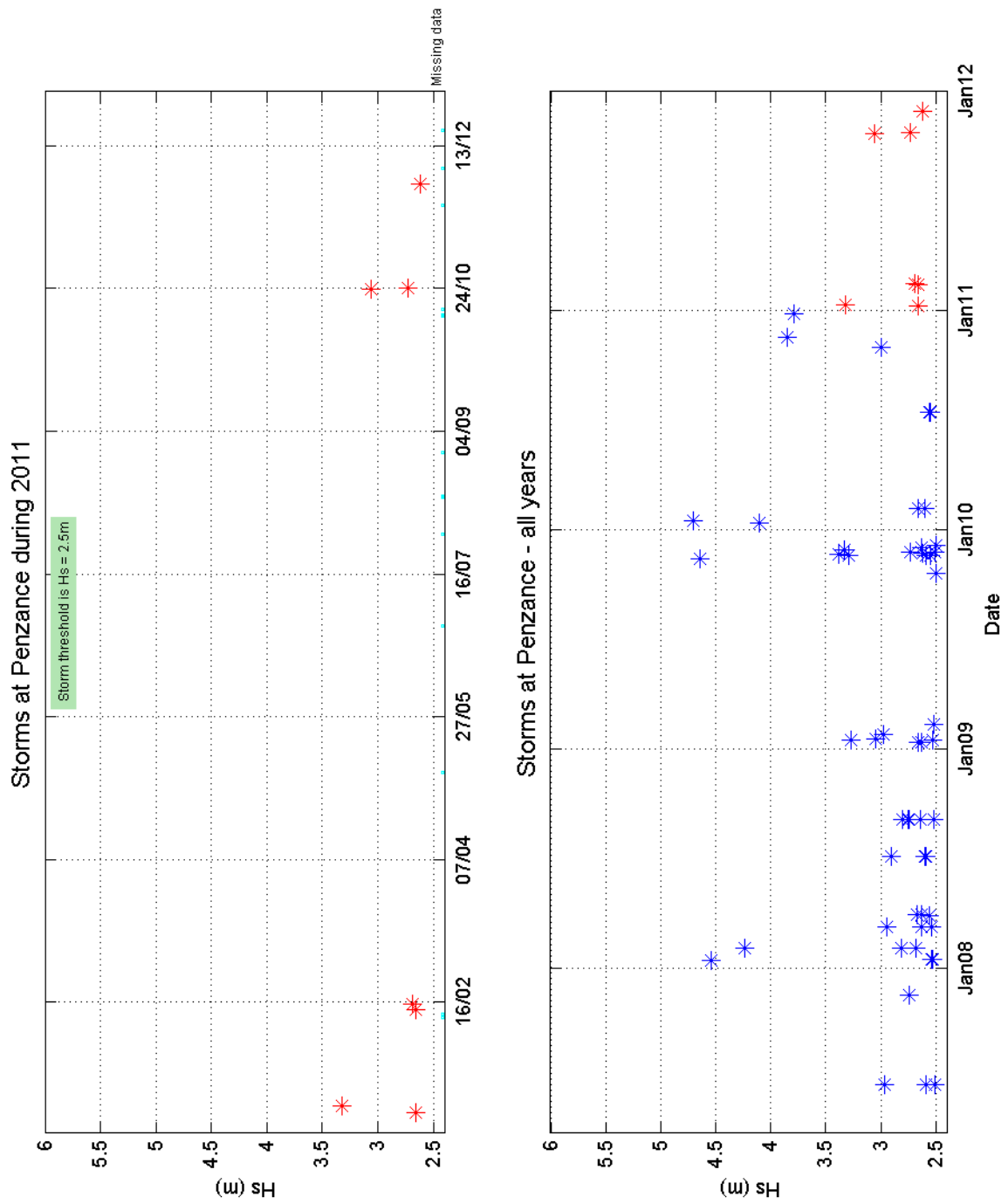
The shore station is kindly hosted by Penzance Harbourmaster. Tidal data were supplied by the British Oceanographic Data Centre as part of the function of the National Tidal and Sea Level Facility, hosted by the Proudman Oceanographic Laboratory and funded by DEFRA and the Natural Environment Research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





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Penzance 2007 to 2011 - Joint distribution (% of occurrence)

