

## Looe Bay Directional Waverider Buoy

### Location

OS: 228463E 51549N

WGS84: Latitude: 50° 20.329' N Longitude: 04° 24.717' W

### Water Depth

~10 m CD

### Instrument Type

Datawell Directional Waverider Mk III

### Data Quality

Recovery rate (%)	Sample interval
98	30 minutes

### Statistics - 2012

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	0.99	8.7	4.5	203	10.6	30
February	0.62	10.2	4.6	210	9.1	29
March	0.62	10.4	4.5	194	9.9	31
April	0.86	8.0	4.4	191	10.4	30
May	0.67	7.2	4.4	198	12.1	30
June	1.06	7.4	4.5	206	13.8	30
July	0.63	6.4	4.0	209	14.5	30
August	1.04	7.9	4.6	206	16.6	31
September	0.57	8.2	4.0	204	15.7	29
October	1.05	8.2	4.7	206	14.5	30
November	1.07	8.8	4.8	203	12.4	30
December	1.44	9.6	5.3	207	11.1	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)
22-Nov-2012 15:30	4.99	10.5	7.5	208	0.80	HW +3	2.8	0.41	0.42
07-Jun-2012 17:30	4.88	11.8	7.8	214	1.66	HW -2	4.6	0.47	0.71
15-Aug-2012 18:00	4.51	11.8	7.7	212	1.70	HW +2	3.6	0.44	0.44
03-Jan-2012 10:30	4.44	10.0	7.3	217	1.05	HW -2	1.8	0.15	0.33
25-Apr-2012 19:30	4.39	11.8	8.5	211	2.43	HW	3.7	0.52	0.71

\* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at Devonport). The surge shown is the residual at the time of the highest H<sub>s</sub>. 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)
2009	-	-	3.33	2.98	2.42	1.95	14-Nov-2009 03:30	5.25 <sup>+</sup>
2010	4.06	3.04	2.75	2.40	1.94	1.57	16-Jan-2010 05:00	4.82
2011	3.71	2.97	2.71	2.41	2.02	1.69	08-Jan-2011 07:30	4.00
2012	4.54	3.37	2.88	2.56	2.18	1.73	22-Nov-2012 15:30	4.99 <sup>+</sup>

\* i.e. 5 % of the  $H_s$  values measured in 2009 exceeded 2.42 m

<sup>+</sup> 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:

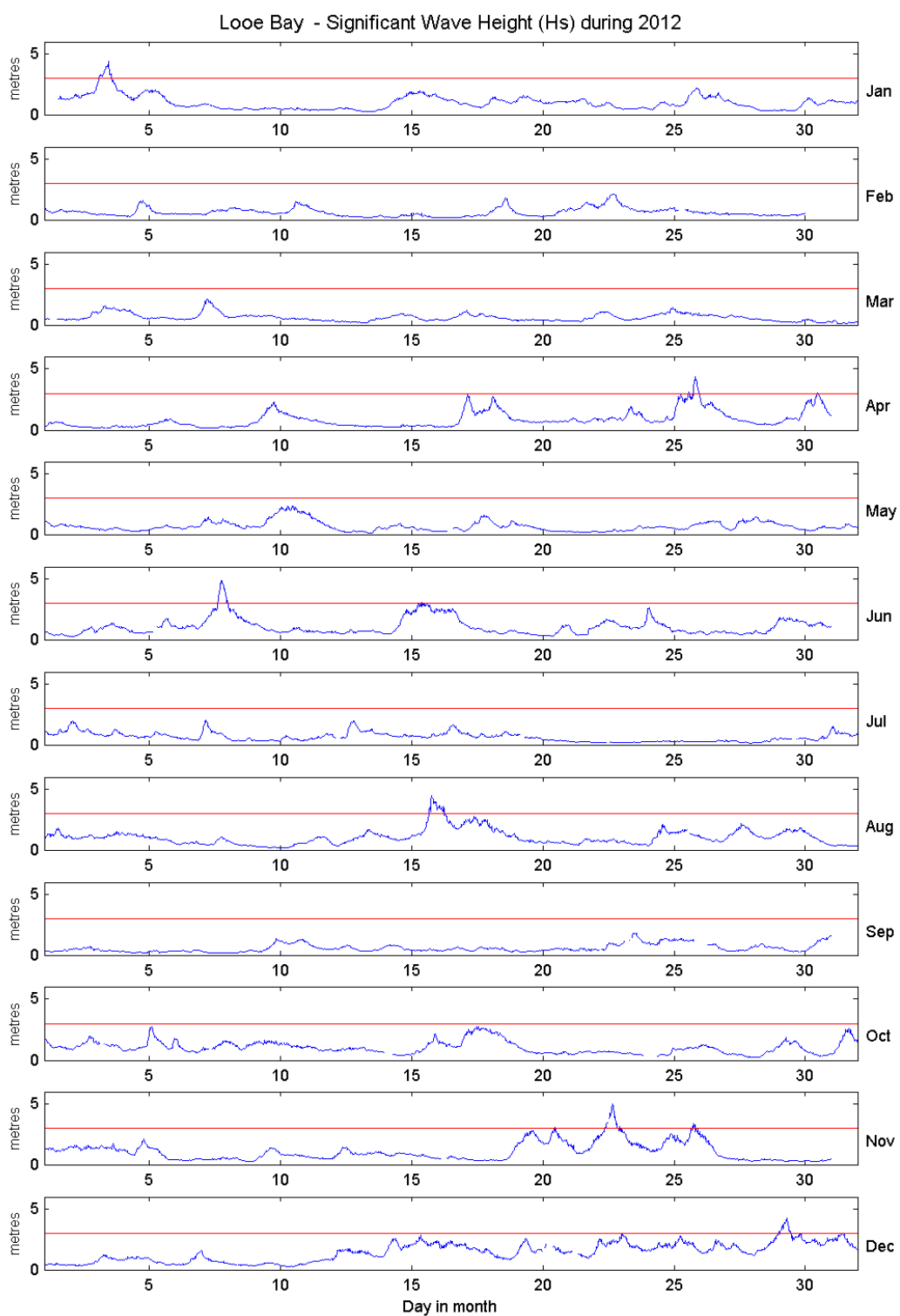
- Annual time series of  $H_s$  (red line is 3.0 m storm threshold)
- Wave roses (Direction vs.  $H_s$  and vs.  $T_p$ ) for all measured data
- Percentage of occurrence of  $H_s$ ,  $T_p$ ,  $T_z$  and Direction for 2012
- Incidence of storm waves for 2012. Storm events are defined using the Peaks-over-Threshold 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

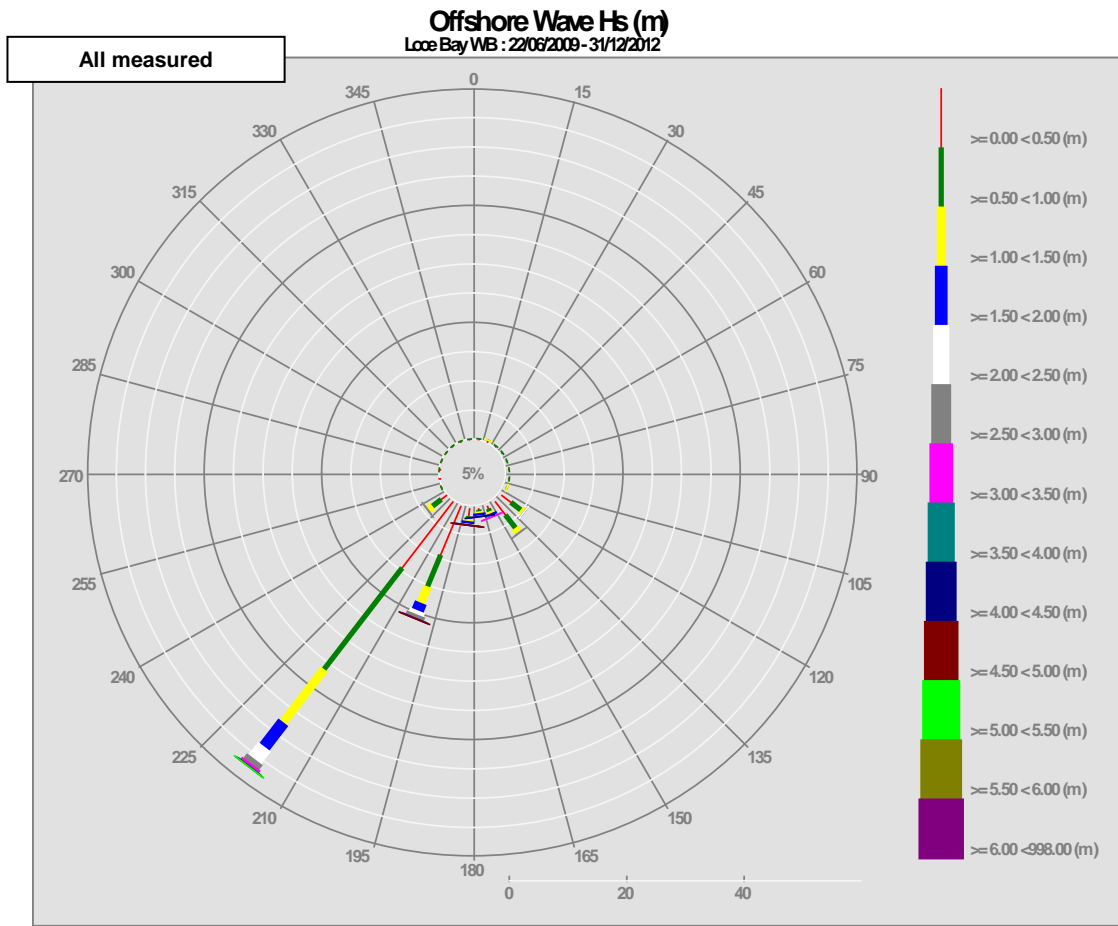
## General

The buoy, owned by the Environment Agency (Southwest Region), was deployed on 22 June 2009 at which time the magnetic declination at the site was 3.2° west, changing by 0.15° east per year.

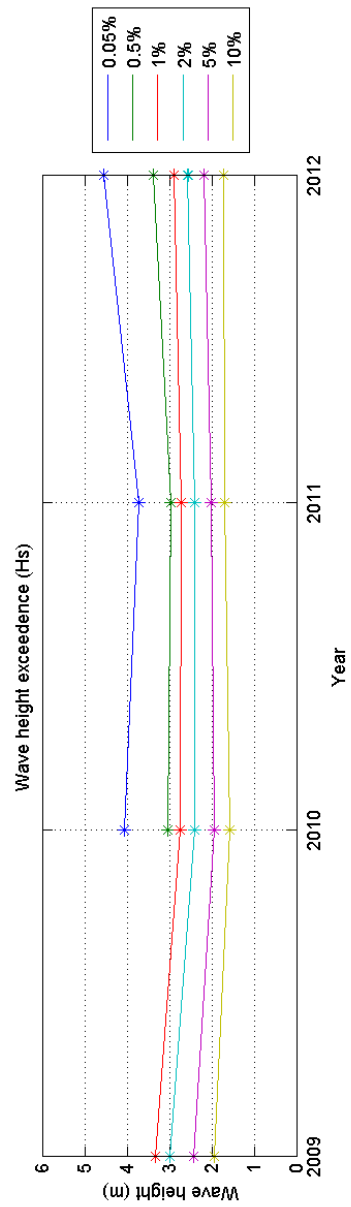
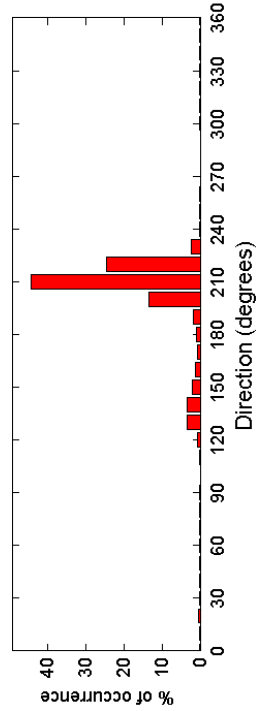
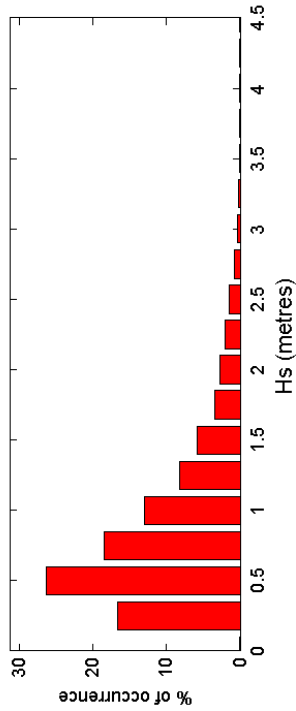
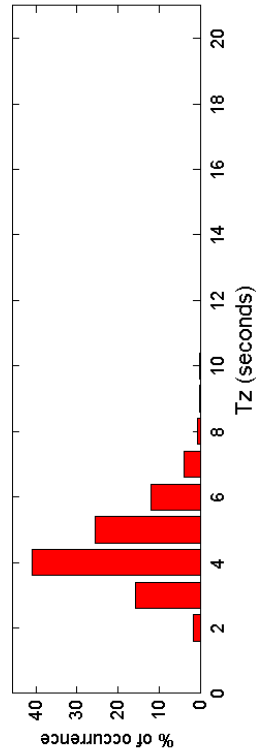
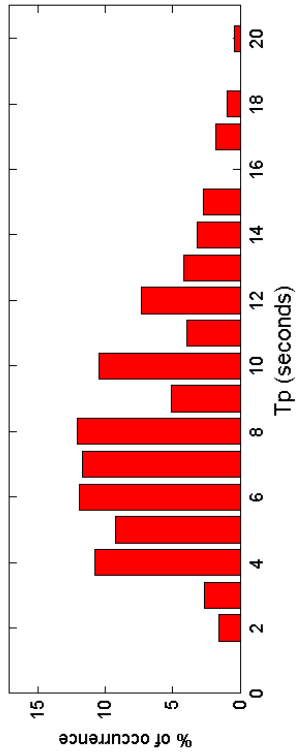
## Acknowledgements

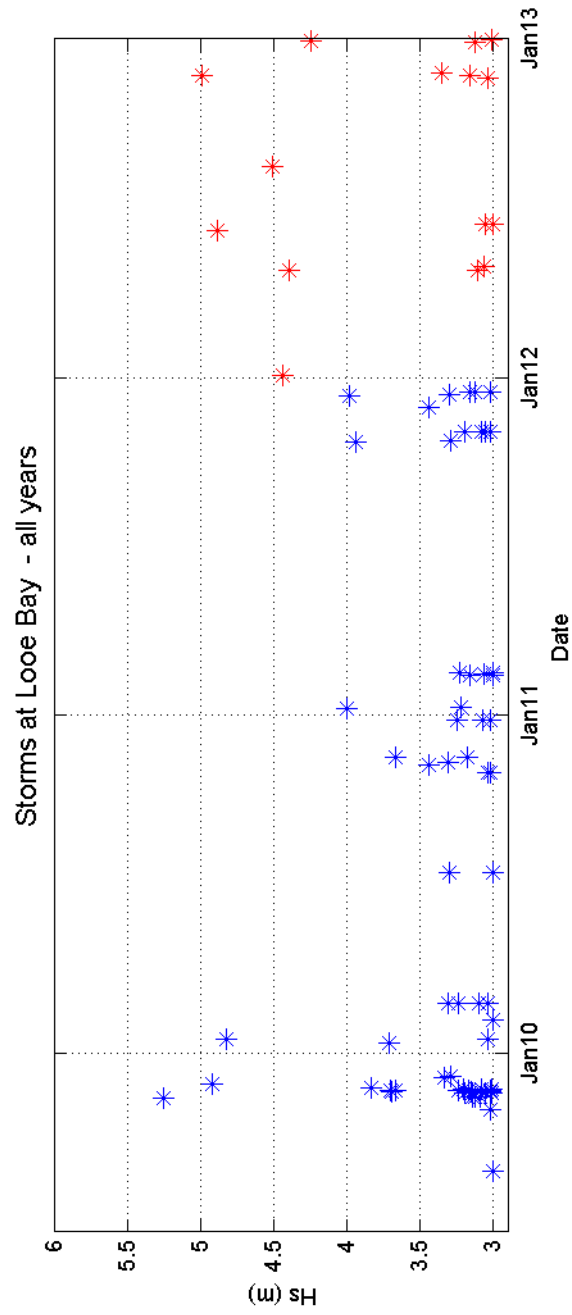
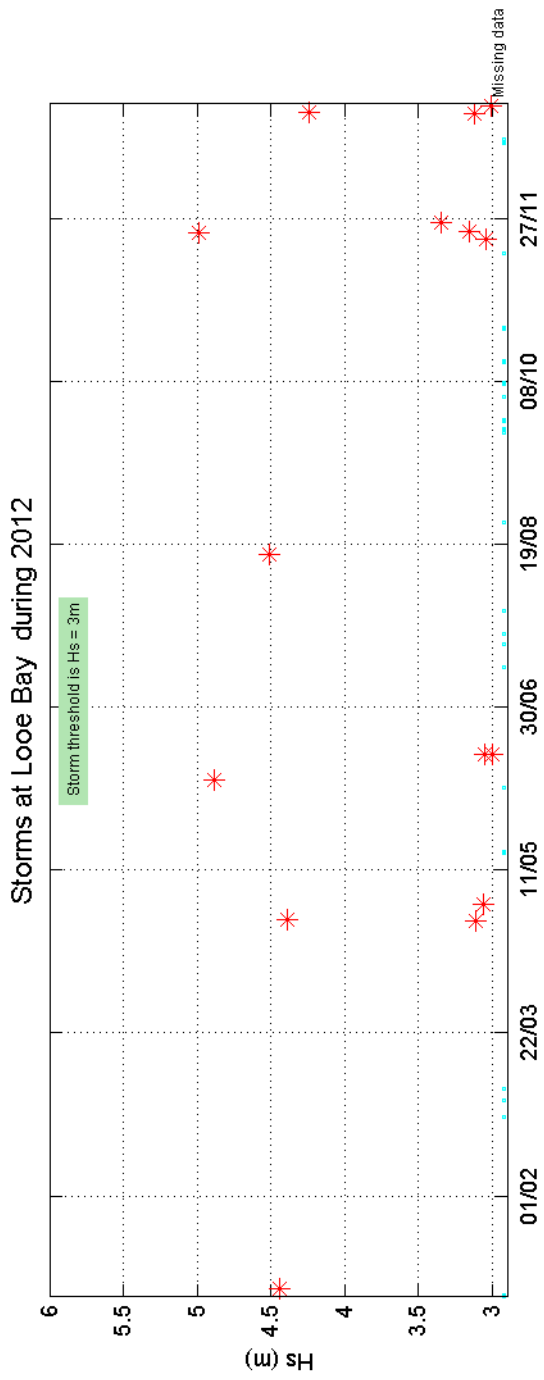
The shore station for the Waverider is kindly hosted by the Maritime & Coastguard Agency. Tidal data were supplied by the British Oceanographic Data Centre as part of the function of the National Tidal and Sea Level Facility, hosted by the Proudman Oceanographic Laboratory and funded by DEFRA and the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





Looe Bay 2012





Looe Bay 2009 to 2012 - Joint distribution (% of occurrence)

