



Newbiggin Directional Waverider Buoy

Location			
OS	433318 E 588000 N		
WGS84	Latitude: 55° 11.11' N Longitude: 01° 28.70' W		
Instrument type			
Datawell Directional Waverider MkIII			
Water depth	~18m CD	Buoy in situ off Newbiggin-by-the-Sea. 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	0.88	10.3	4.4	87	7.3	31
February	1.05	9.8	4.9	74	6.1	28
March	0.87	7.8	4.4	91	6.2	31
April	0.65	8.6	4.5	63	7.4	30
May	0.72	7.4	4.2	73	8.7	31
June	0.62	6.7	4.3	75	10.5	30
July	0.86	6.9	4.5	72	11.9	31
August	0.71	5.8	4.1	98	12.7	31
September	0.95	6.8	4.6	67	12.8	30
October	1.01	6.9	4.6	91	12.1	30
November	0.76	7.8	4.3	93	10.8	30
December	1.14	7.3	4.6	109	9.2	30

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)
21-Nov-2015 04:30	4.74	10.0	7.3	38	-0.64	HW +6	2.8	0.50	0.72
01-Feb-2015 02:00	3.50	10.0	6.6	38	1.77	HW	2.8	-0.05	0.19
03-May-2015 12:30	3.36	8.3	6.1	107	0.83	HW -3	3.6	0.06	0.12
21-Mar-2015 14:30	3.25	10.0	6.8	44	2.14	HW -1	4.8	-0.18	-0.11
30-Dec-2015 11:30	3.07	9.1	5.8	114	-1.17	HW +5	2.7	-0.26	-0.11

Annual Statistics

Year	Annual H _s exceedance* (m)						Annual Maximum H _s	
	0.05%	0.5%	1%	2%	5%	10%	Date	A _{max} (m)
2013	-	3.26	3.04	2.71	2.27	1.88	10-Oct-2013 18:30	4.15
2014	3.76	3.27	3.01	2.73	2.24	1.86	19-Jan-2014 20:00	4.22
2015	3.90	2.90	2.66	2.37	1.97	1.61	21-Nov-2015 04:30	4.74

* i.e. 5 % of the H_s values measured in 2013 exceeded 2.27 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 3.0 m storm threshold)
- Wave rose (percentage of occurrence of Direction vs. H_s) for all measured data
- Percentage of occurrence of H_s, T_p, T_z and Direction for 2015
- 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
- Joint distribution of all parameters for all measured data, given as percentage of occurrence

General

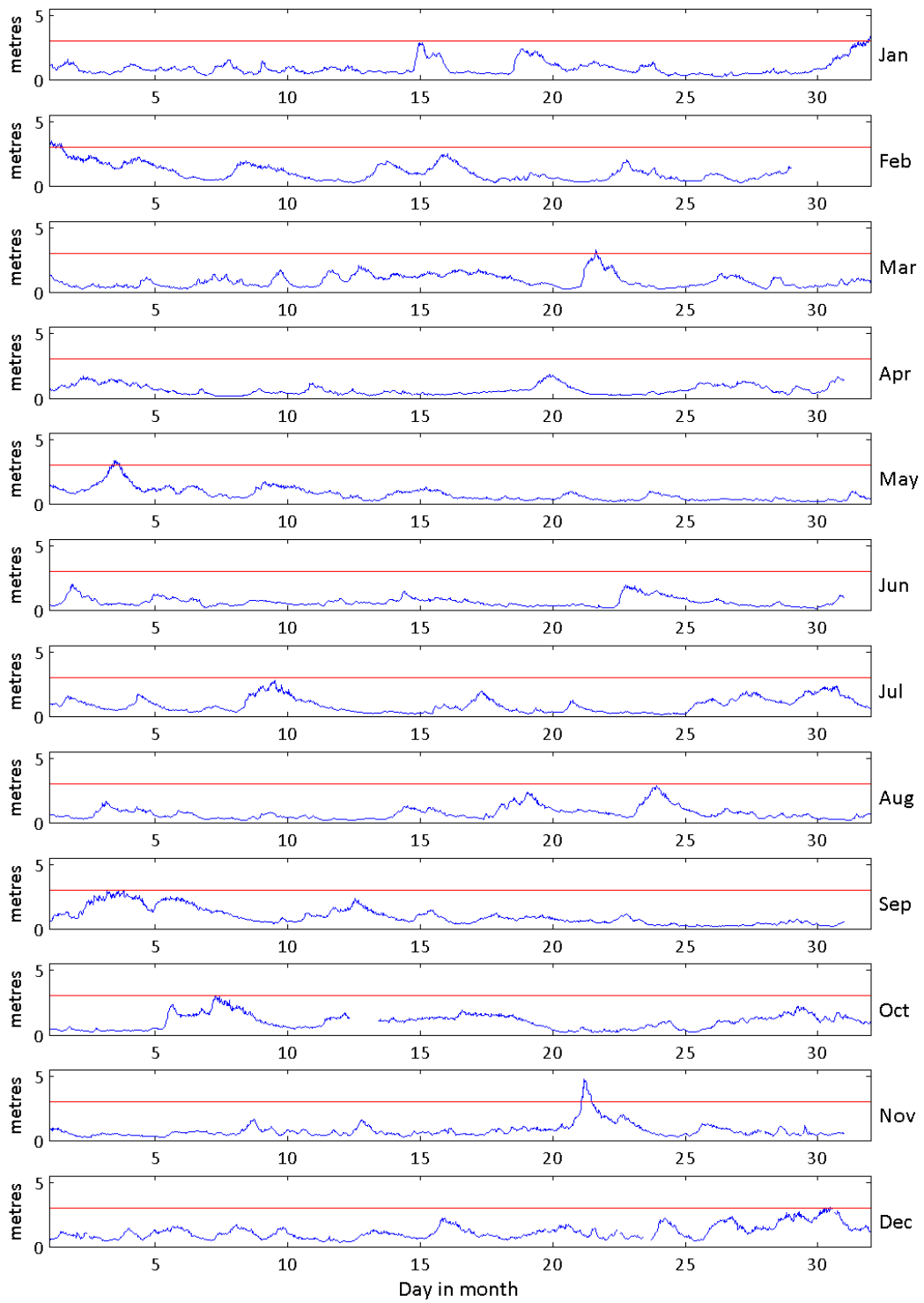
The buoy, owned by Scarborough Borough Council, was deployed on 21 June 2013, at which time the magnetic declination at the site was 2.2° west, changing by 0.18° east per year. A DWR had previously been deployed at this location from 20 May 2010 to 04 February 2011.

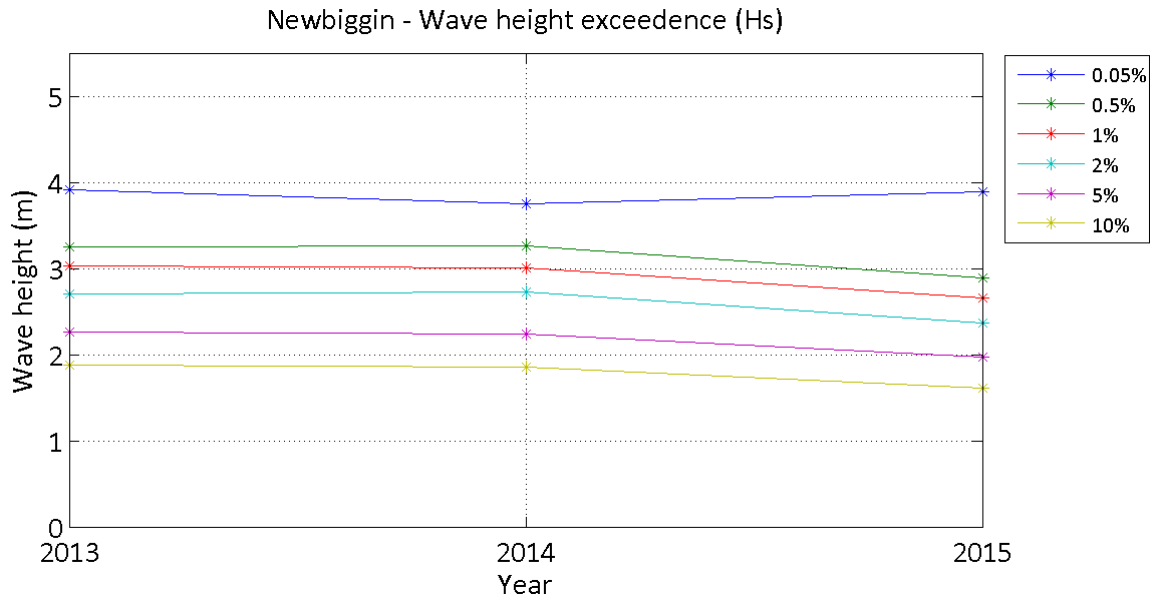
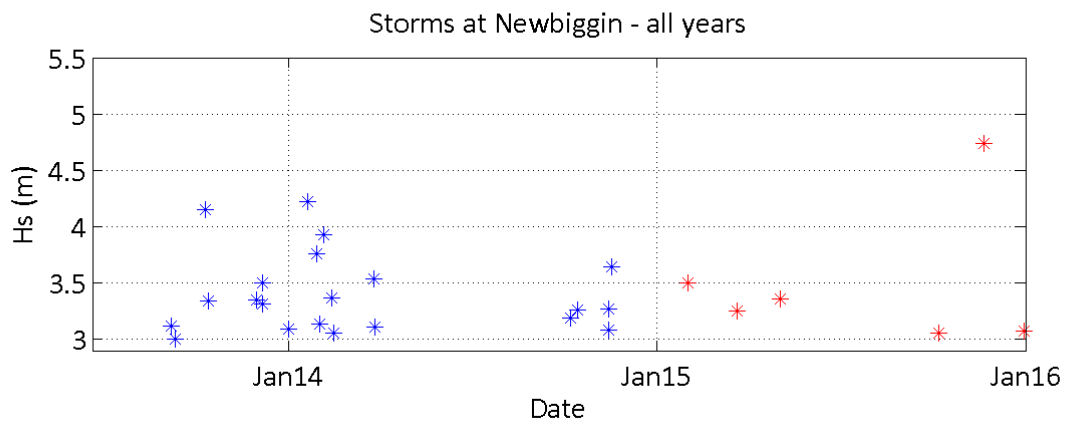
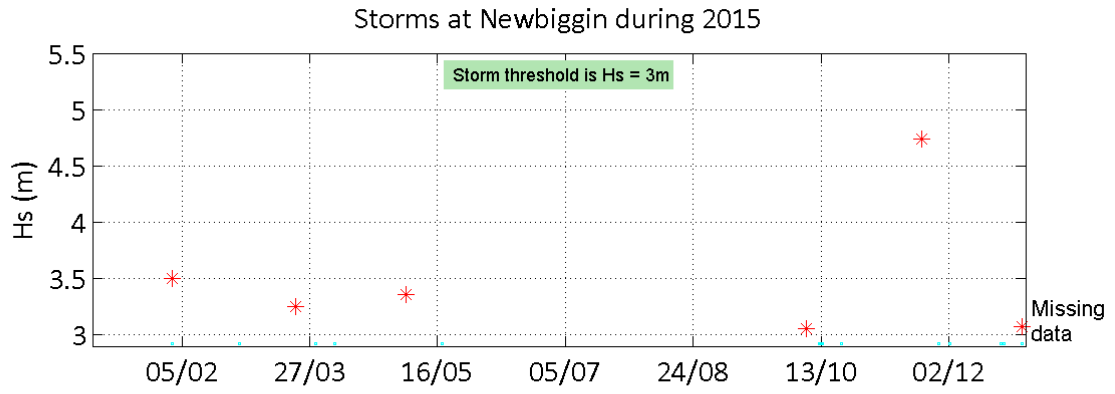
* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at North Shields). The surge shown is the residual at the time of the highest H_s. The maximum tidal surge is the largest positive surge during the storm event.

Acknowledgements

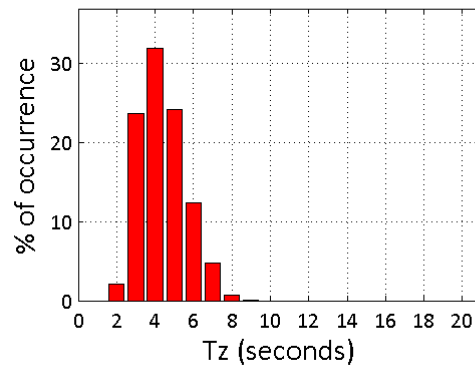
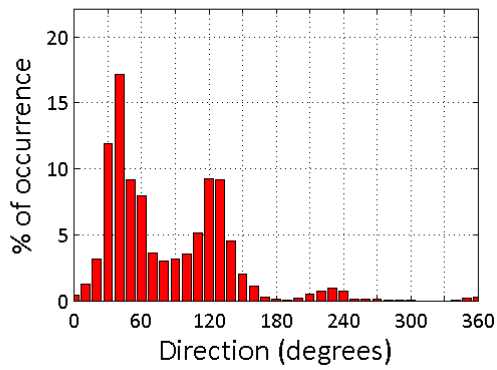
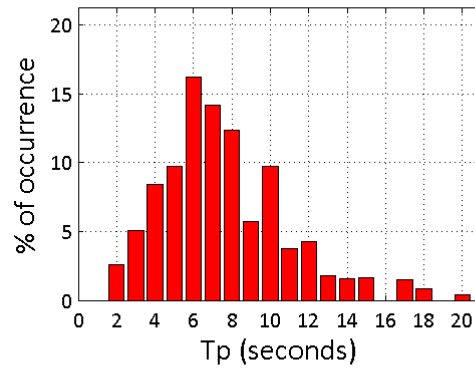
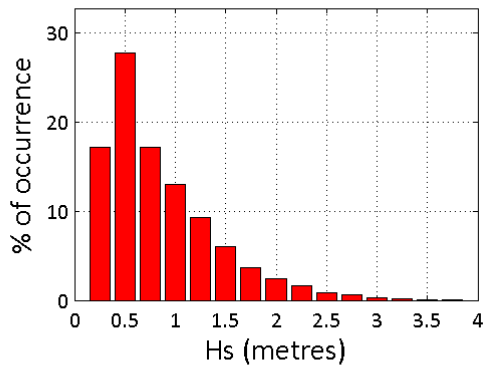
Tidal data were supplied by the British Oceanographic Data Centre as part of the function of the National Tidal and Sea Level Facility, hosted by the Proudman Oceanographic Laboratory and funded by DEFRA and the Natural Environment Research Council.

Newbiggin - Significant Wave Height (Hs) during 2015

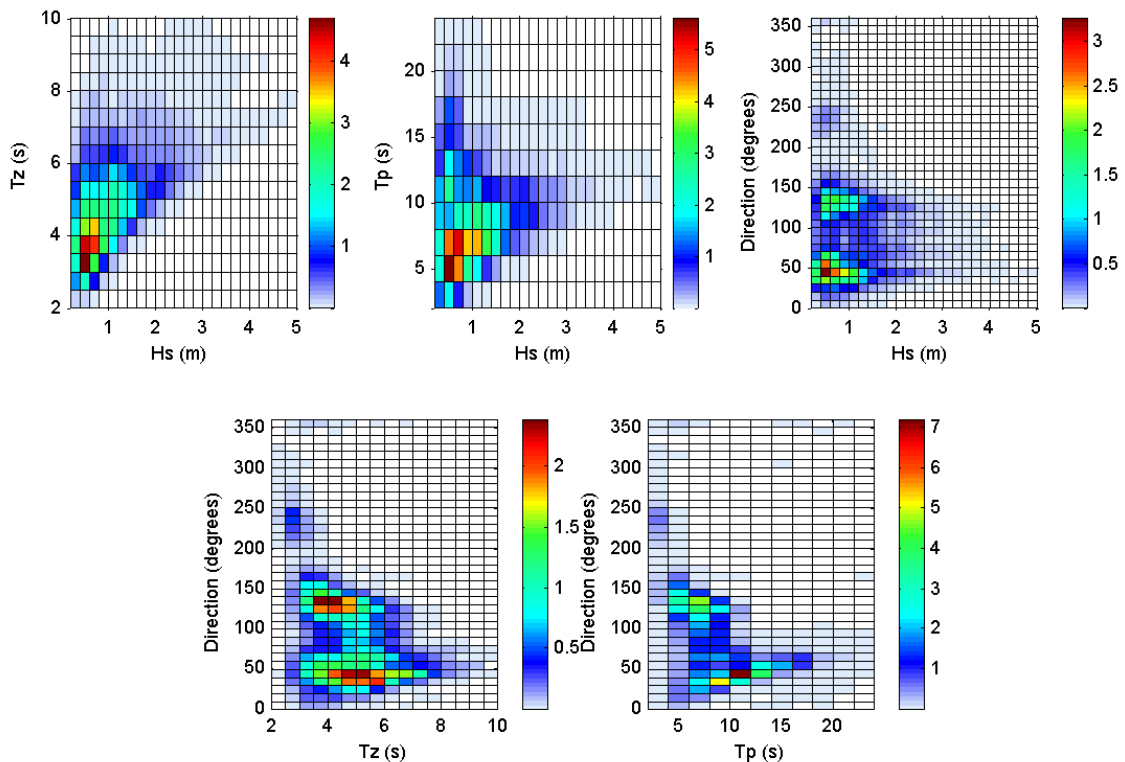




Newbiggin 2015



Newbiggin 2013 to 2015 - Joint distribution (% of occurrence)



Offshore Wave Hs (m)
Newbiggin WB : 21/06/2013 - 31/12/2015

