



Herne Bay Step Gauge

Location			
OS	616895 E 169377 N		
WGS84	Latitude: 51° 22.919' N Longitude: 01° 06.934' E		
Instrument type			
Etrometa Step Gauge			
Water depth	N/A	Step gauge in situ on offshore dolphin. Photo courtesy of Fugro EMU Limited	Location of step gauge (Google mapping)

Data Quality

Recovery rate (%)	Sample interval
97	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	0.09	3.1	2.8	-	-	31
February	0.11	3.5	3.0	-	-	28
March	0.11	3.2	2.8	-	-	31
April	0.10	3.2	2.8	-	-	30
May	0.09	3.0	2.7	-	-	31
June	0.10	3.1	2.7	-	-	30
July	0.08	3.0	2.7	-	-	31
August	0.07	3.0	2.7	-	-	21
September	0.11	3.2	2.8	-	-	30
October	0.11	3.4	2.9	-	-	31
November	0.11	3.2	2.9	-	-	30
December	0.06	3.1	2.6	-	-	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)
21-Nov-2015 19:00	0.88	5.1	4.6	-	2.17	HW +1	2.5	0.43	1.54

* Tidal information is obtained from the nearest recording tide gauge (the step gauge also provides tidal data). 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)
1996	1.66	1.42	1.33	1.19	0.93	0.72	23-Dec-1996 10:20	1.73
1997	1.50	1.15	1.04	0.88	0.69	0.54	01-Jan-1997 20:00	1.75
1998	1.64	1.17	1.00	0.87	0.71	0.54	08-Oct-1998 11:20	1.74
1999	1.56	1.28	1.16	1.01	0.79	0.62	11-Nov-1999 19:40	1.83
2000	1.61	1.19	1.05	0.92	0.67	0.50	04-Apr-2000 22:20	1.78
2001	1.74	1.30	1.14	0.98	0.77	0.59	08-Nov-2001 15:00	2.12
2002	1.44	1.17	1.05	0.90	0.72	0.54	14-Feb-2002 01:00	1.54
2003	1.60	1.25	1.13	0.96	0.73	0.55	29-Jan-2003 09:40	1.78
2004	1.51	1.25	1.11	0.94	0.70	0.52	07-Jul-2004 14:40	1.71
2005	1.71	1.36	1.21	1.04	0.81	0.61	14-Feb-2005 04:20	1.94
2006	1.50	1.26	1.11	0.93	0.71	0.53	20-Feb-2006 03:20	1.60
2007	1.45	1.23	1.11	0.98	0.76	0.60	20-Mar-2007 14:20	1.58
2008	1.54	1.06	0.92	0.78	0.58	0.44	22-Nov-2008 10:00	1.74
2009	1.43	1.08	0.94	0.77	0.57	0.43	23-Jan-2009 11:40	1.88
2010	1.53	1.12	1.01	0.86	0.67	0.52	07-Jan-2010 05:40	1.89
2011	1.49	0.93	0.81	0.70	0.52	0.38	02-Mar-2011 21:40	1.90
2012	0.88	0.56	0.47	0.38	0.27	0.20	27-Oct-2012 08:30	1.06
2013	-	-	-	-	-	-	12-Mar-2013 00:00	1.43
2014	-	-	-	-	-	-	27-Dec-2014 05:30	0.96
2015	0.75	0.49	0.41	0.35	0.27	0.21	21-Nov-2015 19:00	0.88

* i.e. 5 % of the H_s values measured in 1996 exceeded 0.93 m

Distribution plots

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

- Annual time series of H_s (red line is 1.5 m 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

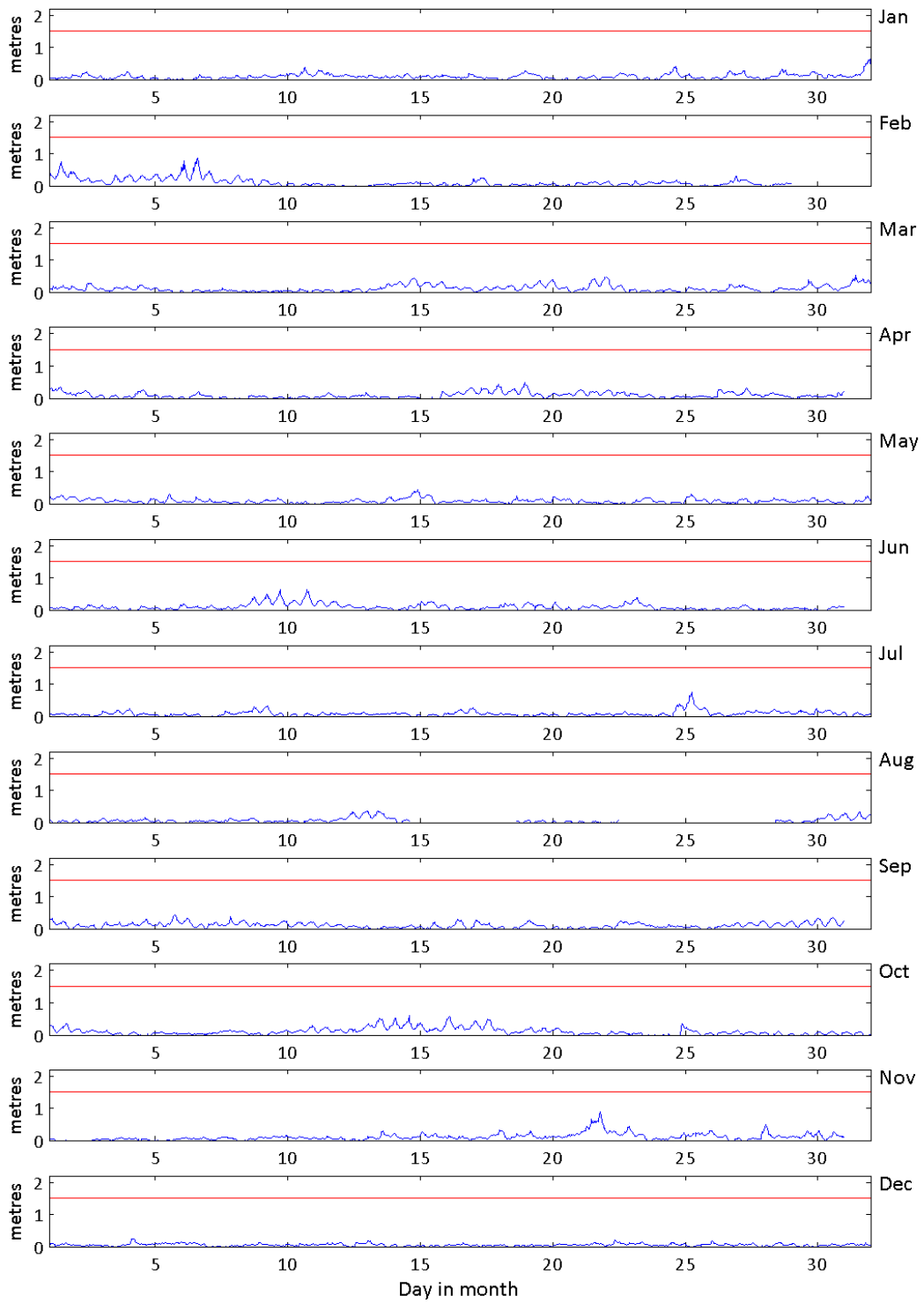
General

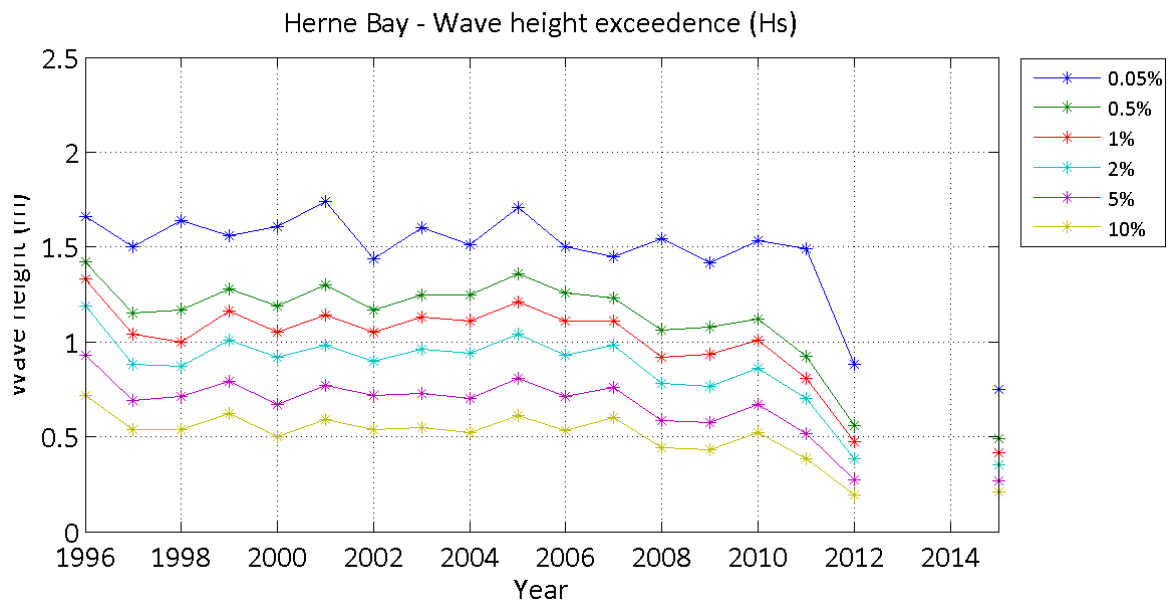
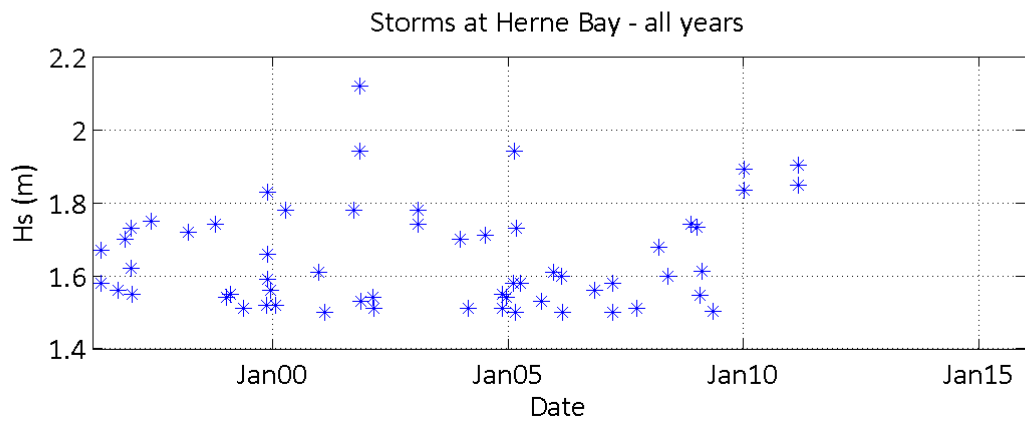
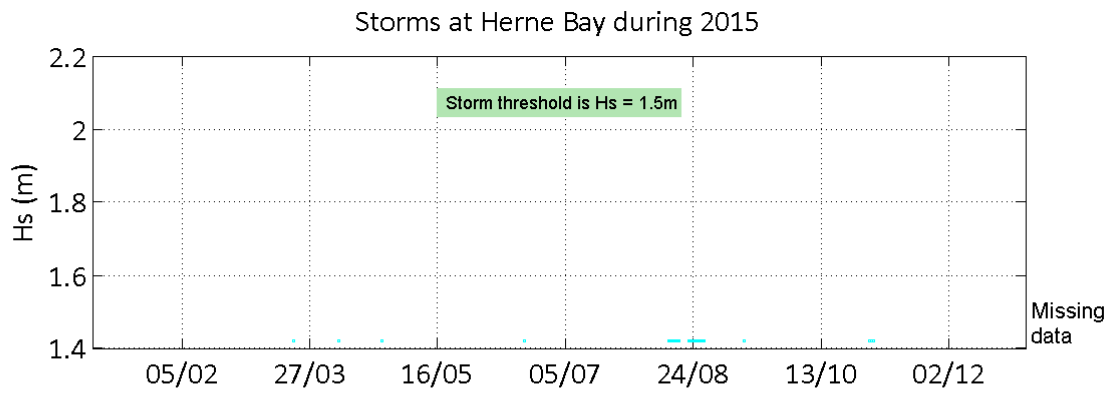
The Step Gauge was first deployed on 19 March 1996. Sections of the gauge were renewed during February and July 2007. The telemetry system was intermittently faulty for several weeks during the winter months of 2008 to 2011. The lower section of the gauge became damaged in 2013 and was out of action for several months of 2013 and 2014.

Acknowledgements

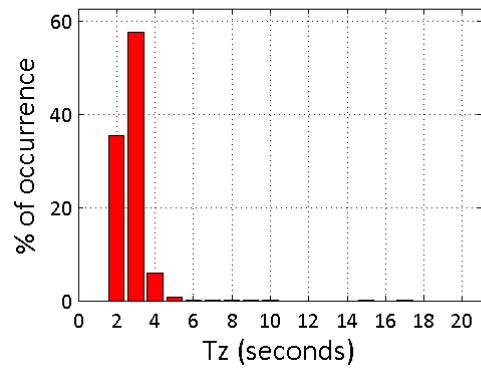
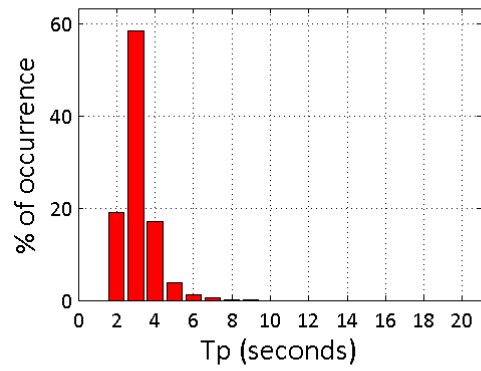
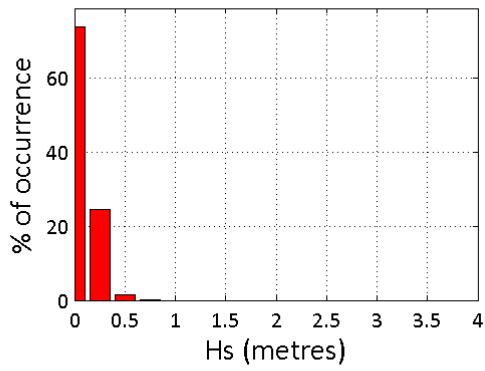
TASK2000 tidal prediction software was kindly provided by the Permanent Service for Mean Sea Level, Proudman Oceanographic Laboratory.

Herne Bay - Significant Wave Height (Hs) during 2015





Heme Bay 2015



Heme Bay 1996 to 2015 - Joint distribution (% of occurrence)

