



## Swanage Pier Wave Radar

<b>Location</b>			
OS	403692 E 78831 N		
WGS84	Latitude: 50° 36.560' N Longitude: 01° 56.951' W		
<b>Instrument type</b>			
Rosemount WaveRadar REX			
<b>Water depth</b>	N/A	Radar in situ on Swanage Pier. Photo courtesy of Fugro EMU Limited	Location of radar (Google mapping)

## Data Quality

<b>Recovery rate (%)</b>	<b>Sample interval</b>
99	30 minutes

## Monthly Averages - 2015

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	0.22	8.8	4.4	-	-	31
February	0.24	8.2	4.2	-	-	28
March	0.21	7.9	4.0	-	-	30
April	0.19	6.0	3.8	-	-	30
May	0.16	5.9	3.7	-	-	31
June	0.15	5.2	3.5	-	-	30
July	0.13	5.8	3.5	-	-	30
August	0.13	5.3	3.5	-	-	31
September	0.20	5.1	3.5	-	-	30
October	0.23	5.9	3.7	-	-	30
November	0.20	7.7	4.2	-	-	30
December	0.30	8.4	4.9	-	-	31

## 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)
18-Apr-2015 10:30	1.13	21.3	4.4	-	-0.03	HW +2	2.1	-0.28	0.04

## Annual Statistics

Year	Annual H <sub>s</sub> exceedance* (m)						Annual Maximum H <sub>s</sub>	
	0.05%	0.5%	1%	2%	5%	10%	Date	A <sub>max</sub> (m)
2007	-	-	-	-	0.55	0.48	18-Nov-2007 18:20	1.65
2008	1.55	1.21	1.06	0.83	0.58	0.5	02-Jan-2008 19:20	1.69
2009	1.44	1.17	1.00	0.83	0.63	0.53	01-Feb-2009 14:20	1.51
2010	1.43	1.06	0.95	0.84	0.68	0.58	12-Jan-2010 21:00	1.62
2011	1.36	1.06	0.92	0.77	0.63	0.56	23-Oct-2011 22:40	1.62
2012	1.21	0.96	0.85	0.65	0.44	0.33	23-Sep-2012 14:30	1.48
2013	1.31	1.01	0.89	0.76	0.55	0.41	11-Mar-2013 17:00	1.41
2014	1.35	0.94	0.81	0.64	0.47	0.37	04-Feb-2014 23:30	1.58
2015	0.98	0.76	0.63	0.55	0.43	0.35	18-Apr-2015 10:30	1.13

\* i.e. 5 % of the H<sub>s</sub> values measured in 2008 exceeded 0.58 m

## Distribution plots

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

- Annual time series of H<sub>s</sub> (red line is 1.2 m storm threshold)
- Incidence of storm waves for 2015. Storm events are defined using the Peaks-over-Threshold method. The highest H<sub>s</sub> of each storm event is shown
- Wave height exceedance each year since deployment
- Percentage of occurrence of H<sub>s</sub>, T<sub>p</sub>, T<sub>z</sub> and Direction for 2015
- Joint distribution of all parameters for all measured data, given as percentage of occurrence

## General

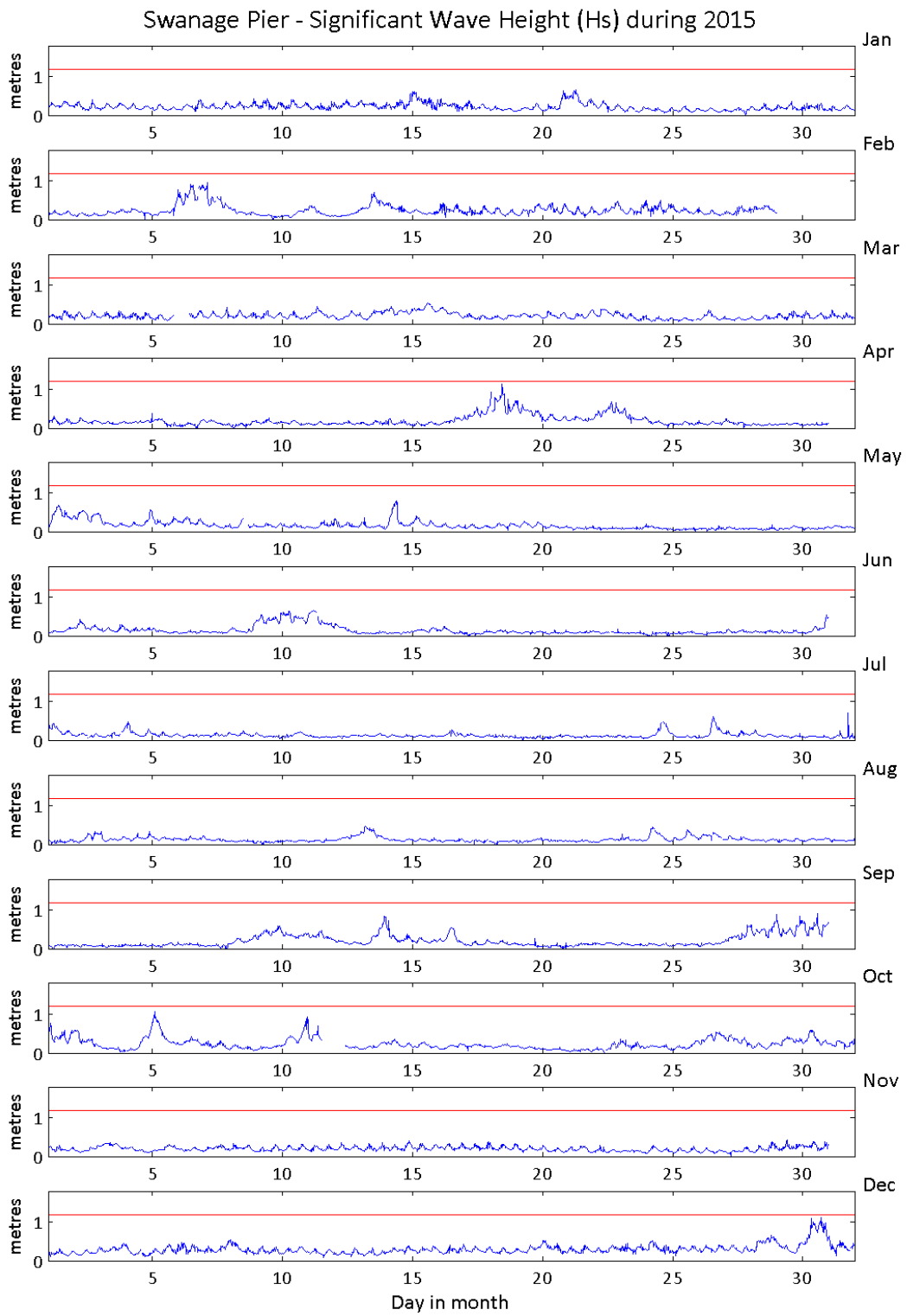
The WaveRadar REX was installed on 7 March 2007.

## Acknowledgements

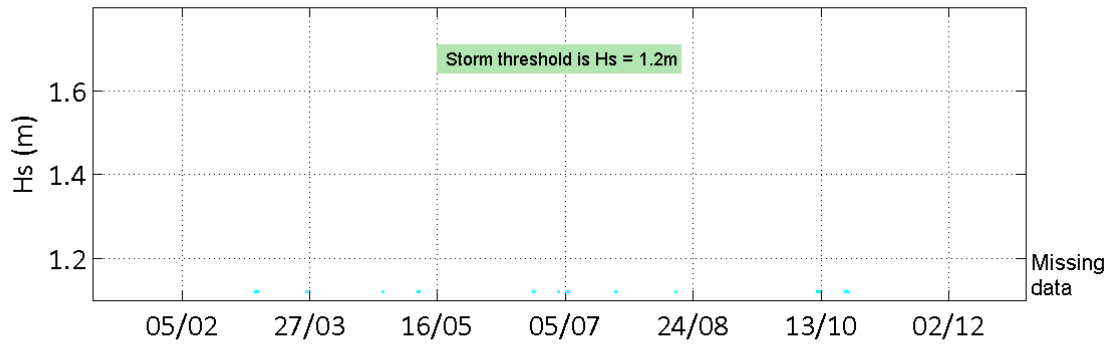
The WaveRadar REX is installed on Swanage Pier by kind permission of Swanage Pier Trust. Tide predictions for Swanage were provided by EMU Limited.

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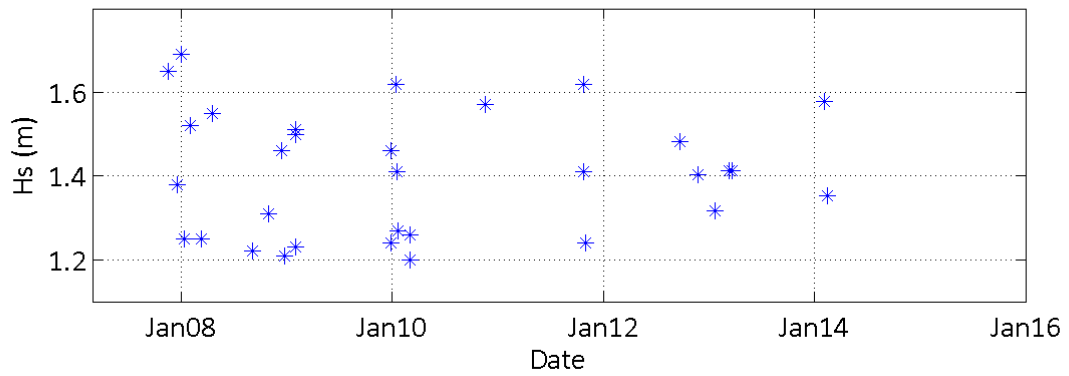
\* Tidal information is obtained from the nearest recording tide gauge (the radar also provides tidal data). The surge shown is the residual at the time of the highest H<sub>s</sub>. The maximum tidal surge is the largest positive surge during the storm event.



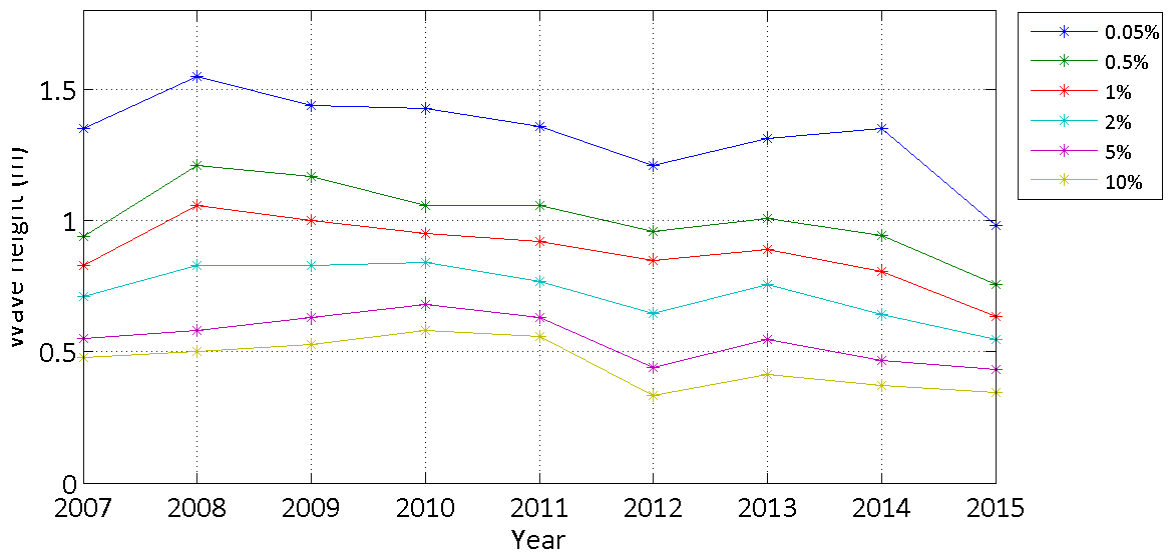
Storms at Swanage Pier during 2015



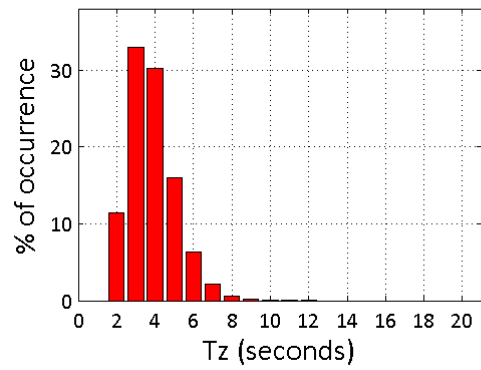
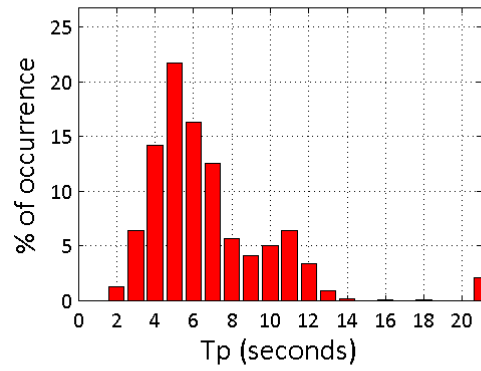
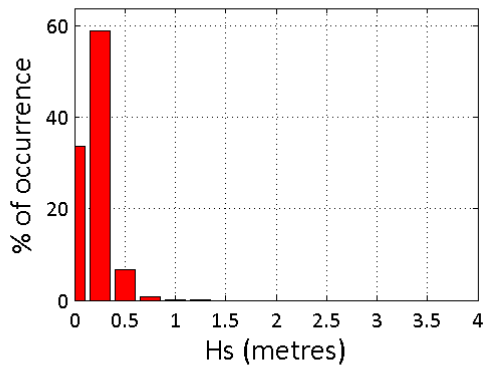
Storms at Swanage Pier - all years



Swanage Pier - Wave height exceedance ( $H_s$ )



Swanage Pier 2015



Swanage Pier 2007 to 2015 - Joint distribution (% of occurrence)

