

## Swanage Pier Wave Gauge

### Location

OS: 403692E 78849 N  
 WGS84: Latitude: 50° 36.56' N Longitude: 001° 56.95' W

### Water Depth

N/A

### Instrument Type

Rosemount WaveRadar Rex

### Data Quality

C1 (%)	Sample interval
96	20 minutes

### Monthly Means

All times GMT

Month	H <sub>s</sub>	T <sub>p</sub>	T <sub>z</sub>	Direction	SST	No. of days
	(m)	(s)	(s)	(°)	(°C)	
January	0.47	-	5.1	-	-	29
February	0.43	-	4.8	-	-	27
March	0.48	-	4.7	-	-	28
April	0.40	-	4.5	-	-	30
May	0.38	-	4.3	-	-	29
June	0.38	-	4.3	-	-	29
July	0.38	-	4.0	-	-	29
August	0.34	-	4.0	-	-	30
September	0.41	-	4.4	-	-	29
October	0.44	-	4.9	-	-	30
November	0.45	-	4.9	-	-	30
December	0.41	-	4.9	-	-	30

Tables and plots of these values, together with the minimum and maximum values and the standard deviation are available on the website.

Highest storm events in 2010									
Date/Time	H <sub>s</sub>	T <sub>p</sub>	T <sub>z</sub>	Dir.	Water level elevation (OD)	Tidal stage (hours re. HW)	Tidal range (m)	Tidal surge* (m)	Max. surge* (m)
12-Jan-2010 21:00	1.62	-	8.5	-	0.59	HW -2	0.68	0.22	0.26
17-Nov-2010 10:20	1.57	-	9.7	-	0.76	HW +2	0.63	0.34	0.41
16-Jan-2010 07:00	1.41	-	9.8	-	0.99	HW -1	1.54	0.35	0.36

\* Tidal information is obtained from the nearest recording tide gauge (the wave 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.

Year	Annual $H_s$ exceedance* (m)						Annual Maximum $H_s$ (m)	
	0.05%	0.5%	1%	2%	5%	10%	Date	$A_{max}$
2006	-	-	-	-	0.87	0.66	03-Dec-2006 06:40	1.82
2007	1.35	0.94	0.83	0.71	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

\* i.e. 5 % of the  $H_s$  values measured in 2006 exceeded 0.87m

### Distribution plots

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

- Percentage of occurrence of  $H_s$ ,  $T_p$ ,  $T_z$  for 2010
- Percentage wave height exceedance
- Joint distribution of all parameters for 2010, given both as number of observations and as percentage of occurrence
- Cumulative joint distribution of parameters from start of records
- Incidence of storms during 2010. Storm events are defined using the Peaks-over-Threshold method. The highest  $H_s$  of each storm event is shown.
- Annual time series of  $H_s$  (red line is storm waves threshold)

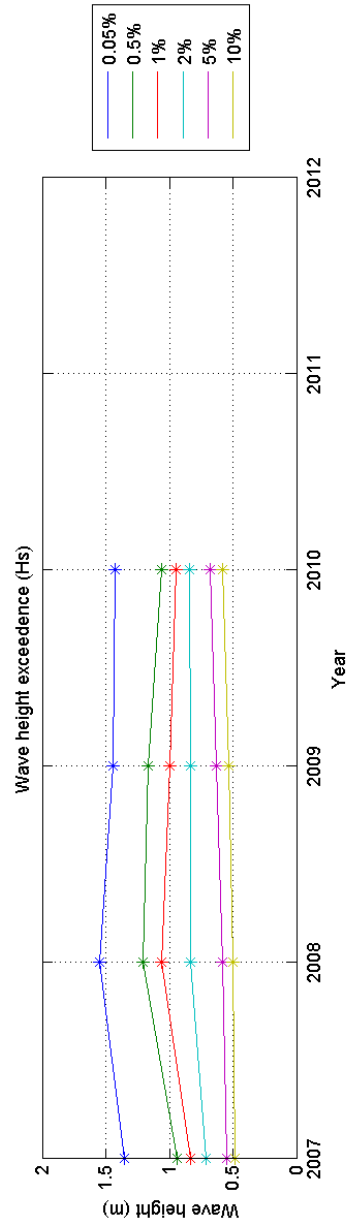
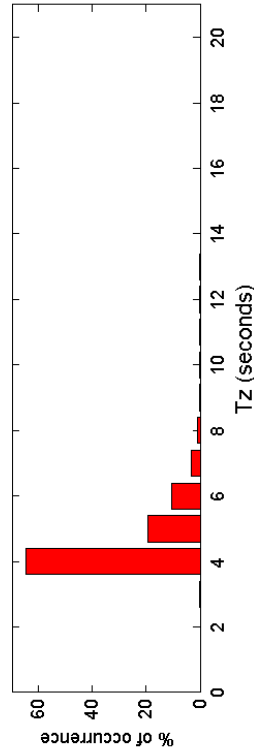
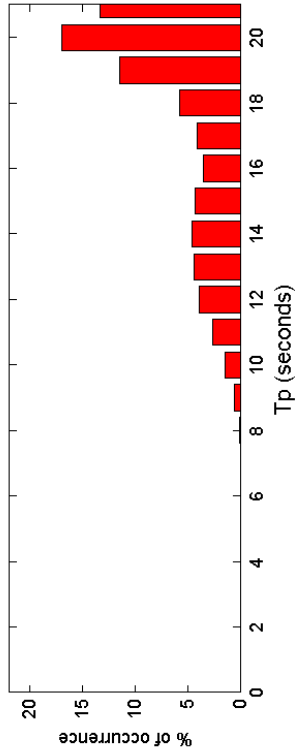
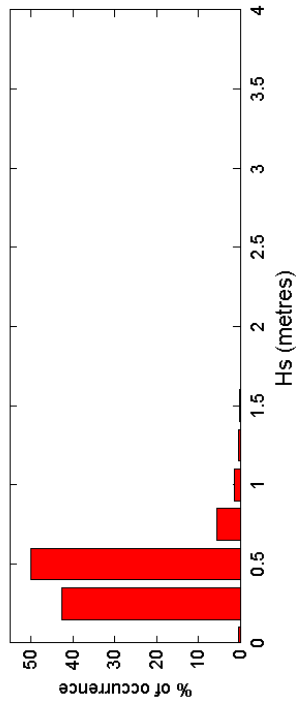
### General

The wave radar was deployed on 07 March 2007.

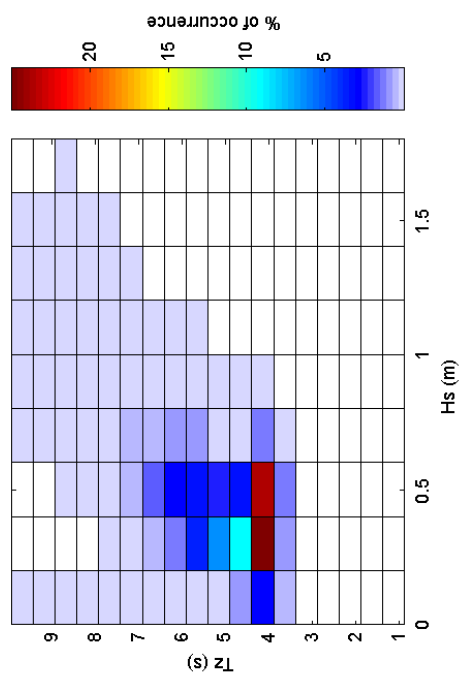
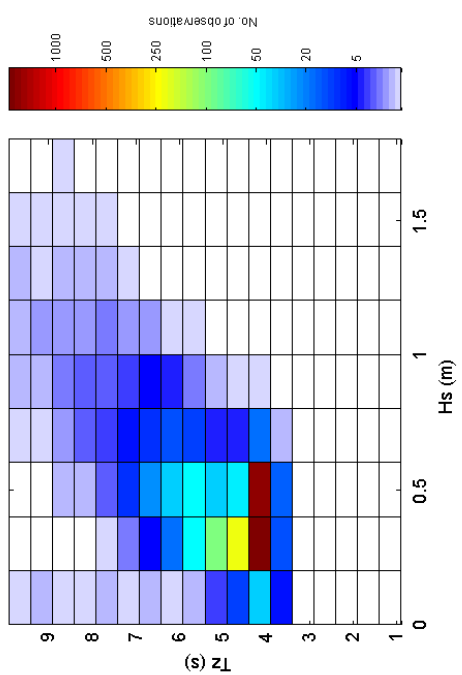
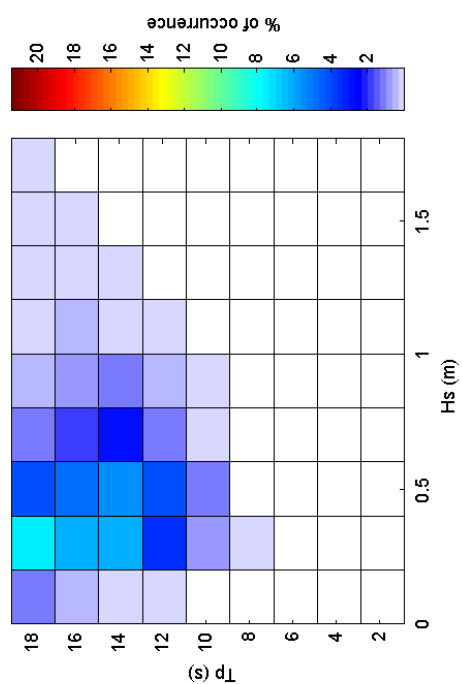
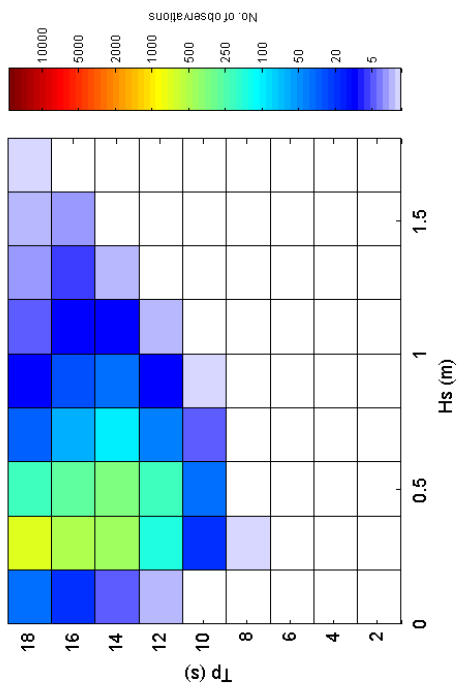
### Acknowledgements

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

Swanage Pier 2010



Swanage Pier 2010 - Joint distribution



Swanage Pier 2007 to 2010 - Joint distribution (% of occurrence)

