

## Severn Bridge Wave Radar

### Location

OS: 351580E 185927N

WGS84: Latitude: 51° 34.207' N Longitude: 02° 42.001' W

### Water Depth

N/A

### Instrument Type

Rosemount WaveRadar REX

### Data Quality

Recovery rate (%)	Sample interval
34	20 minutes

### Statistics - 2011

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	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June	-	-	-	-	-	-
July	-	-	-	-	-	-
August	0.11	-	2.1	-	-	30
September	0.15	-	2.2	-	-	29
October	0.13	-	2.2	-	-	30
November	0.09	-	2.5	-	-	15
December	0.14	-	2.3	-	-	19

### 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)
06-Sep-2011 06:40	0.91	-	4.9	-	-2.46	HW +6	6.5	-	-

\* 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.

## Annual Statistics

Year	Annual $H_s$ exceedance* (m)						Annual Maximum $H_s$	
	0.05%	0.5%	1%	2%	5%	10%	Date	$A_{max}$ (m)
2011	-	-	-	0.40	0.31	0.22	06-Sep-2011 06:40	0.91

\* i.e. 5 % of the  $H_s$  values measured in 2011 exceeded 0.31 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)
- Percentage of occurrence of  $H_s$  and  $T_z$  for 2011
- Incidence of storm waves for 2011. 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

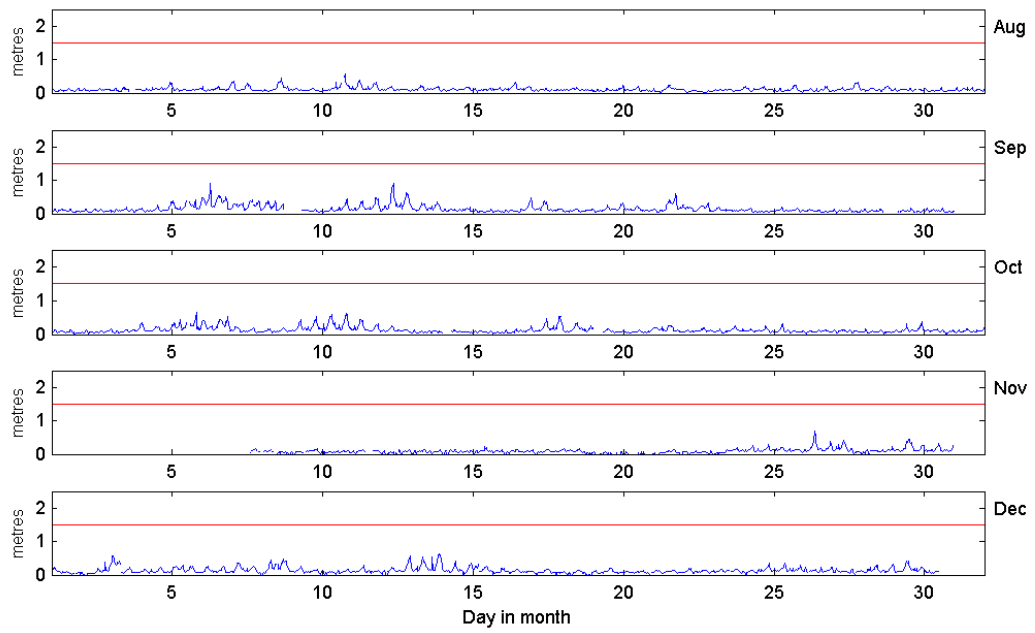
## General

The WaveRadar REX was installed on 1 August 2011.

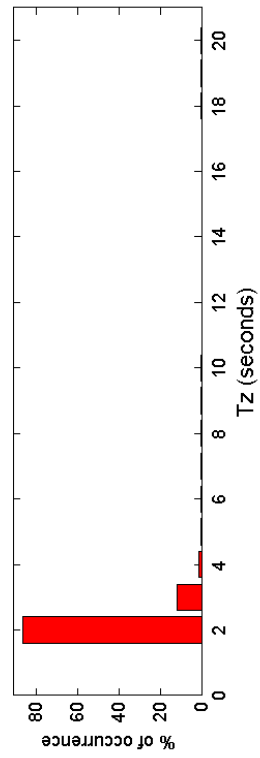
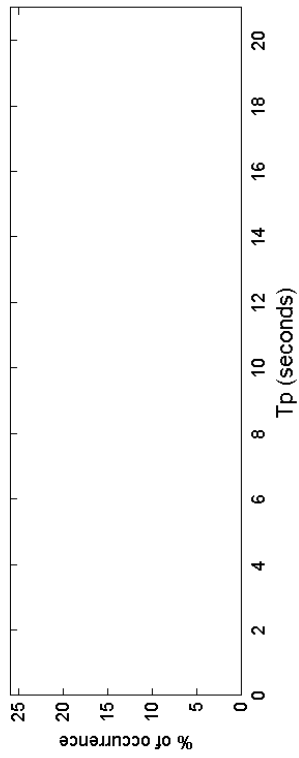
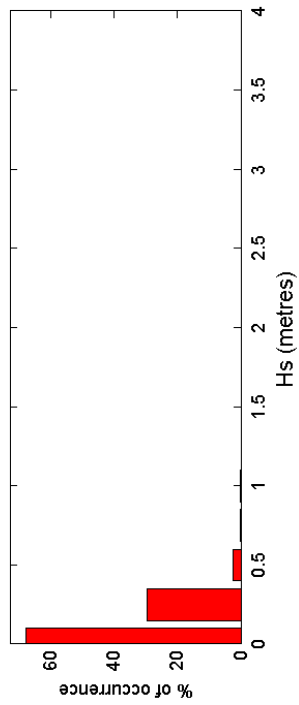
## Acknowledgements

The WaveRadar REX is installed on the Severn Bridge by kind permission of Second Severn Crossing Partnership. TASK2000 tidal prediction software was kindly provided by the Permanent Service for Mean Sea Level, Proudman Oceanographic Laboratory.

### Second Severn Crossing – Significant Wave Height ( $H_s$ ) 2011



Second Severn Crossing 2011



Second Severn Crossing 2011 to 2011 - Joint distribution (% of occurrence)

