

Hayling Island Directional Waverider Buoy

Location

OS: 473530E 93004N
 WGS84: Latitude: 50° 43.92060' N Longitude: 000° 57.57' W

Water Depth

Approx. 10m CD

Instrument Type

Datwell Directional Waverider Buoy Mk III

Data Quality

| C1(%) | Sample interval |
|-------|-----------------|
| 99 | 30 minutes |

Monthly Means

All times GMT

| Month | H _s | T _p | T _z | Direction | SST | No. of days |
|-----------|----------------|----------------|----------------|-----------|------|-------------|
| | (m) | (s) | (s) | (°) | (°C) | |
| January | 1.19 | 11.0 | 4.6 | 188 | 8.3 | 30 |
| February | 0.78 | 9.8 | 4.0 | 180 | 8.0 | 28 |
| March | 0.90 | 8.9 | 3.9 | 205 | 8.2 | 31 |
| April | 0.59 | 7.6 | 3.5 | 191 | 9.5 | 30 |
| May | 0.42 | 6.2 | 3.2 | 153 | 13.5 | 31 |
| June | 0.49 | 6.3 | 3.3 | 199 | 16.3 | 30 |
| July | 0.61 | 5.7 | 3.4 | 204 | 17.6 | 30 |
| August | 0.75 | 5.9 | 3.5 | 198 | 18.2 | 31 |
| September | 0.68 | 6.1 | 3.5 | 174 | 16.8 | 30 |
| October | 0.76 | 7.7 | 3.8 | 194 | 14.7 | 31 |
| November | 0.69 | 6.2 | 3.5 | 193 | 11.3 | 30 |
| December | 0.68 | 9.2 | 4.0 | 192 | 8.2 | 31 |

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 2008 | | | | | | | | | |
|------------------------------|----------------|----------------|----------------|------|-----------------------------|----------------------------|-----------------|------------------|-----------------|
| Date/Time | H _s | T _p | T _z | Dir. | Water level elevation* (OD) | Tidal stage (hours re. HW) | Tidal range (m) | Tidal surge* (m) | Max. surge* (m) |
| 10-Mar-2008 08:00 | 3.79 | 8.3 | 6.3 | 183 | -0.16 | HW -5 | 4.00 | 0.88 | 1.09 |
| 13-Dec-2008 10:00 | 3.64 | 7.7 | 6.0 | 169 | 1.77 | HW | 4.00 | -0.32 | -0.40 |
| 04-Dec-2008 09:00 | 3.02 | 7.7 | 5.8 | 187 | -0.23 | HW +5 | 1.75 | 0.65 | 0.70 |
| 15-Jan-2008 11:30 | 2.92 | 7.1 | 5.6 | 191 | 0.02 | HW -4 | 2.84 | 0.61 | 0.78 |
| 03-Feb-2008 23:00 | 2.90 | 7.7 | 5.8 | 159 | 1.17 | HW +1 | 2.07 | 0.27 | 0.44 |

* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at Portsmouth). 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.

| Year | Annual H_s exceedance* (m) | | | | | | Annual Maximum H_s (m) | |
|------|------------------------------|------|------|------|------|------|--------------------------|-----------|
| | 0.05% | 0.5% | 1% | 2% | 5% | 10% | Date | A_{max} |
| 2003 | 2.65 | 2.33 | 2.11 | 1.85 | 1.41 | 1.10 | 29-Nov-2003 10:00 | 2.68 |
| 2004 | 3.08 | 2.32 | 2.11 | 1.91 | 1.60 | 1.26 | 08-Jan-2004 10:30 | 3.64 |
| 2005 | 3.24 | 2.53 | 2.10 | 1.80 | 1.41 | 1.11 | 02-Dec-2005 17:00 | 3.53 |
| 2006 | 3.03 | 2.48 | 2.28 | 2.06 | 1.71 | 1.39 | 03-Dec-2006 08:00 | 3.42 |
| 2007 | 3.23 | 2.59 | 2.33 | 2.08 | 1.72 | 1.41 | 18-Jan-2007 13:00 | 3.58 |
| 2008 | 3.36 | 2.64 | 2.35 | 2.07 | 1.69 | 1.35 | 10-Mar-2008 08:00 | 3.79 |

* i.e. 5 % of the H_s values measured in 2003 exceeded 1.41m

Distribution plots

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

- Percentage of occurrence of H_s , T_p , T_z and Direction for 2008
- Percentage wave height exceedance (all recorded years) – note that the statistics for 2003 were based on measurements from July to December only
- Joint distribution of all parameters for 2008, given both as number of observations and as percentage of occurrence
- Cumulative joint distribution of parameters from start of records (percentage of occurrence only)
- Incidence of storms during 2008 and for all previous years. Storms 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 threshold)

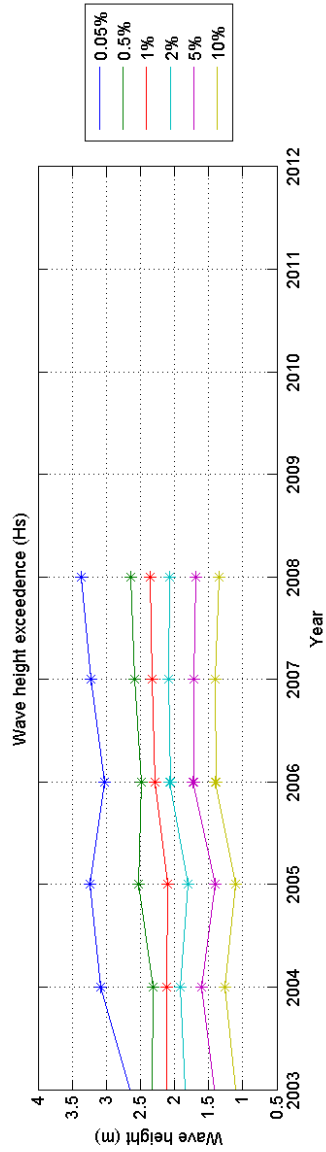
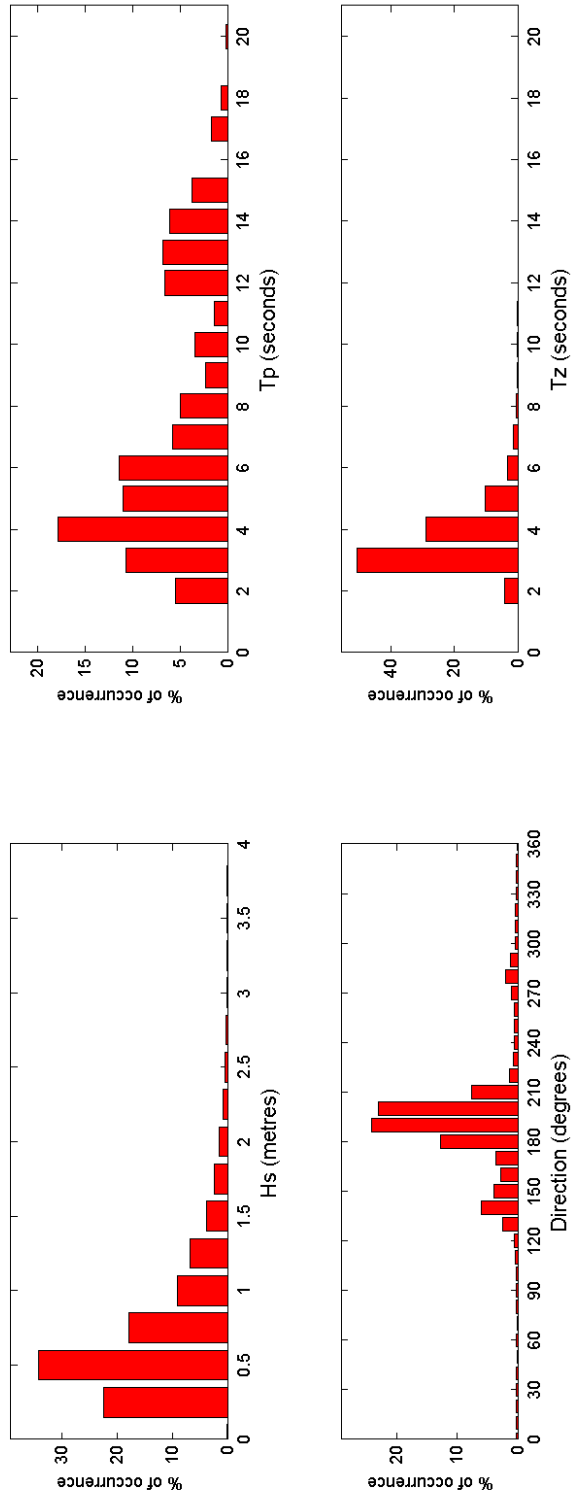
General

The buoy was first deployed on 10 July 2003. The wave directions recorded by the Datawell Directional Waverider Mk III were found to be contaminated by a significant tidal signature, compounded by the on-board data processing. The buoy received new electronics to fix this problem in February 2004; wave directions measured before March 2004 were excluded from the analysis.

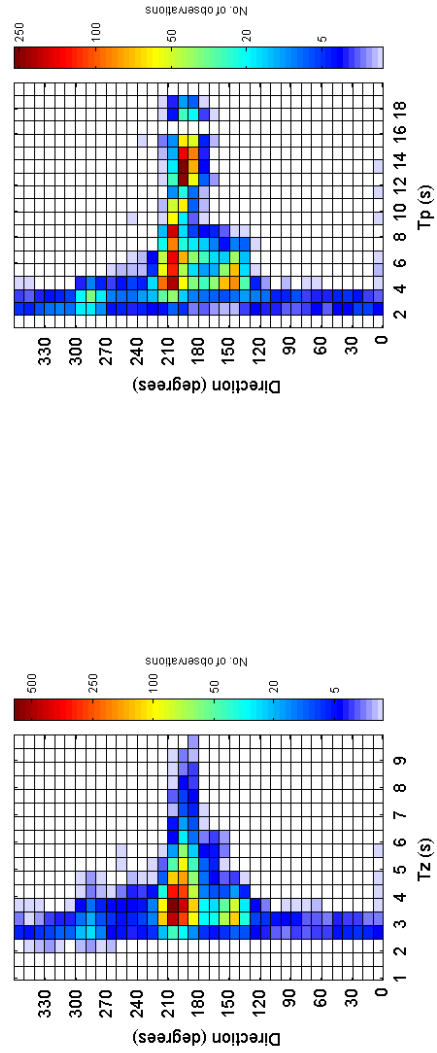
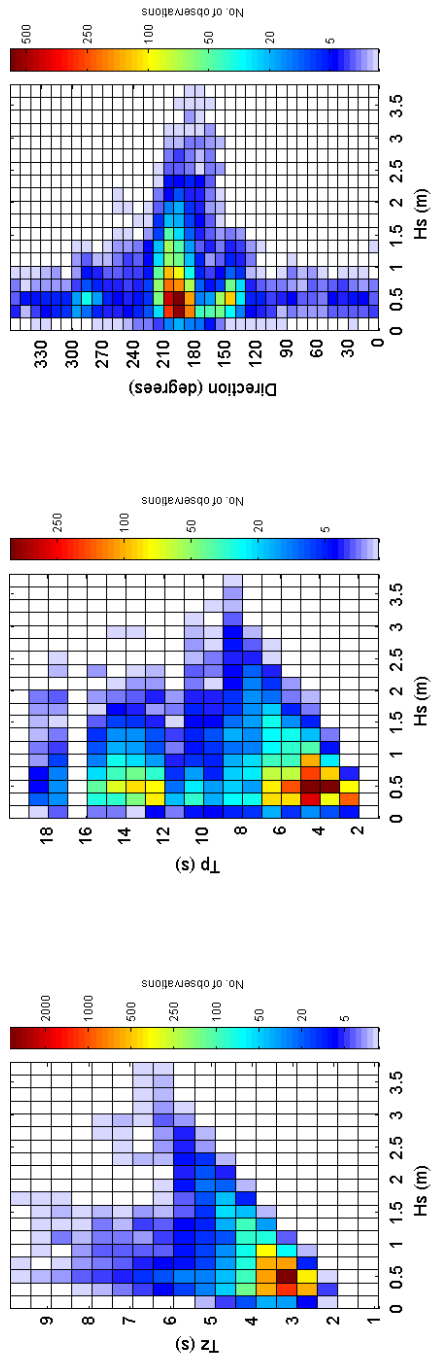
Acknowledgements

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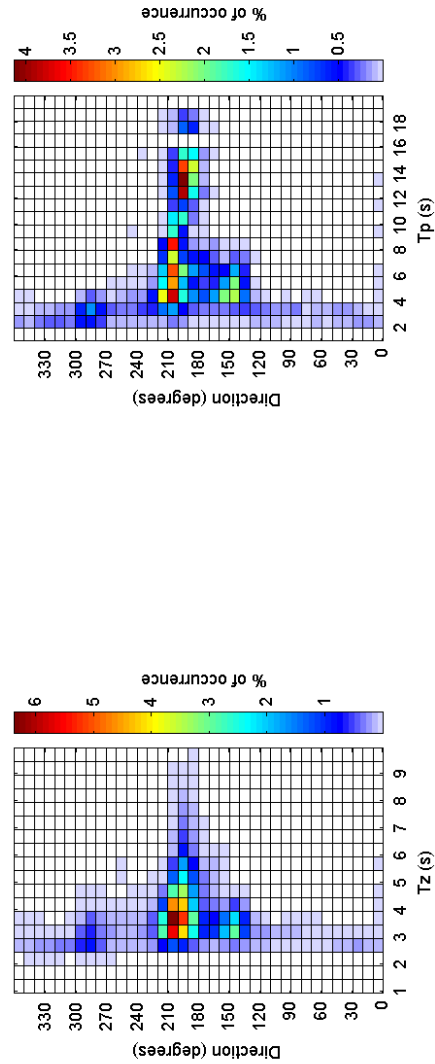
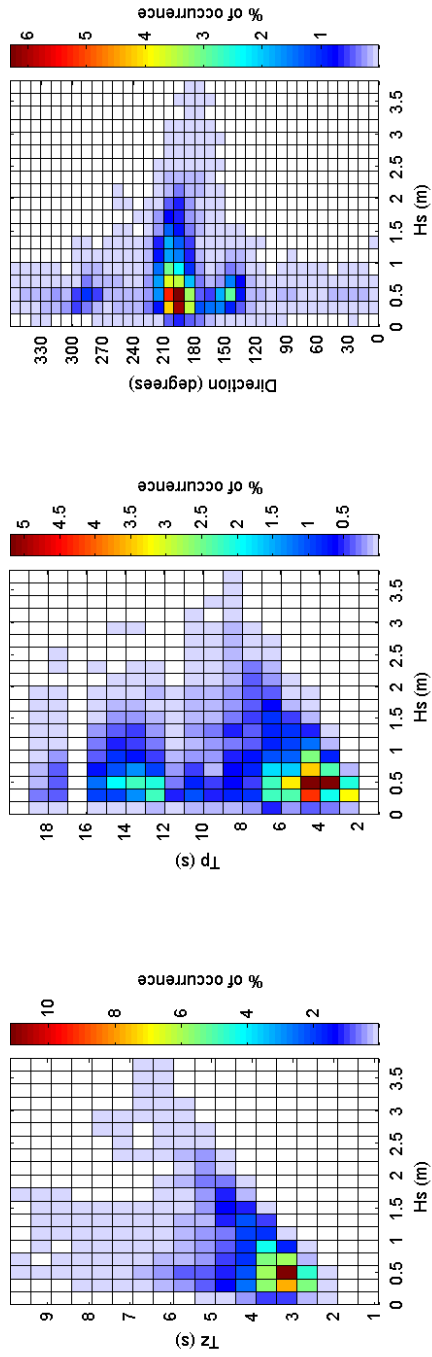
Hayling Island 2008



Hayling Island 2008 - Joint distribution



Hayling Island 2008 - Joint distribution (% of occurrence)



Hayling Island 2003 to 2008 - Joint distribution (% of occurrence)

