

Perranporth Directional Waverider Buoy

Location

OS: 174209E 55231N

WGS84: Latitude: 50° 21.21' N Longitude: 005° 10.53' W

Water Depth

Approx. 10m CD

Instrument Type

Datwell Directional Waverider Mk III

Data Quality

| C1 (%) | Sample interval |
|--------|-----------------|
| 97 | 30 minutes |

Monthly Means

All times GMT

| Month | H _s | T _p | T _z | Direction | SST | No. of days |
|-----------|----------------|----------------|----------------|-----------|------|-------------|
| | (m) | (s) | (s) | (°) | (°C) | |
| January | 2.26 | 13.8 | 7.4 | 283 | 8.9 | 31 |
| February | 1.45 | 12.2 | 6.0 | 246 | 8.4 | 19 |
| March | 1.82 | 11.2 | 6.1 | 169 | 9.0 | 31 |
| April | 1.32 | 10.7 | 6.3 | 279 | 10.7 | 30 |
| May | 1.62 | 10.7 | 5.9 | 282 | 11.9 | 31 |
| June | 0.75 | 9.1 | 5.1 | 280 | 14.6 | 30 |
| July | 1.45 | 8.7 | 5.2 | 277 | 16.6 | 31 |
| August | 1.42 | 9.3 | 5.4 | 279 | 17.1 | 31 |
| September | 1.25 | 10.0 | 5.2 | 288 | 16.2 | 30 |
| October | 1.27 | 10.4 | 6.1 | 283 | 14.9 | 31 |
| November | 2.93 | 11.8 | 6.6 | 282 | 12.9 | 30 |
| December | 1.70 | 11.5 | 5.9 | 286 | 10.1 | 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 2009 | | | | | | | | | |
|------------------------------|----------------|----------------|----------------|------|----------------------------|----------------------------|-----------------|------------------|-----------------|
| 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) |
| 22-Nov-2009 21:00 | 5.69 | 15.4 | 8.7 | 286 | - | HW +1 | 3.60 | - | - |
| 08-Mar-2009 17:00 | 5.64 | 13.3 | 7.7 | 287 | - | HW +2 | 4.70 | - | - |
| 30-Nov-2009 03:30 | 5.63 | - | 8.7 | - | - | HW | 4.90 | - | - |
| 07-Nov-2009 21:00 | 5.46 | 15.4 | 8.0 | 283 | - | HW +1 | 4.60 | - | - |

* There is no nearby measured tidal information so tidal stage and range are from predicted tides at Perranporth.

| Year | Annual H_s exceedance* (m) | | | | | | Annual Maximum H_s | |
|------|------------------------------|------|------|------|------|------|----------------------|---------------|
| | 0.05% | 0.5% | 1% | 2% | 5% | 10% | Date | A_{max} (m) |
| 2007 | 6.90 | 5.21 | 4.89 | 4.48 | 3.79 | 3.12 | 09-Dec-2007 18:00 | 8.14 |
| 2008 | 6.37 | 4.59 | 4.20 | 3.85 | 3.28 | 2.86 | 10-Mar-2008 16:30 | 7.78** |
| 2009 | 5.48 | 4.74 | 4.45 | 4.09 | 3.57 | 3.02 | 22-Nov-2009 21:00 | 5.69 |

* i.e. 5 % of the H_s values measured in 2007 exceeded 3.79m

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 2009
- Percentage wave height exceedance
- Joint distribution of all parameters for 2009, 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 in 2009. 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 threshold)

General

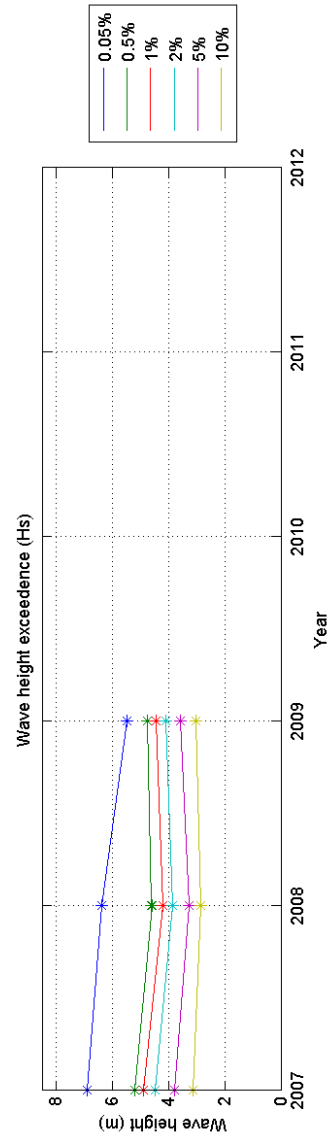
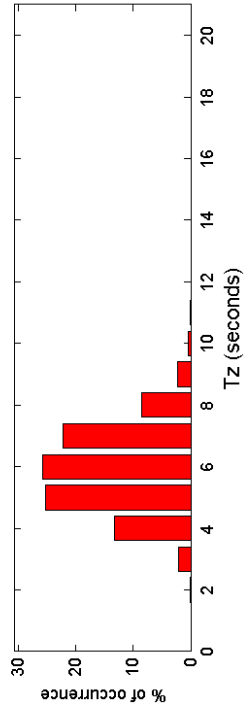
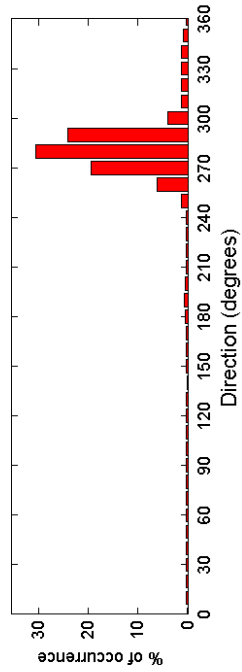
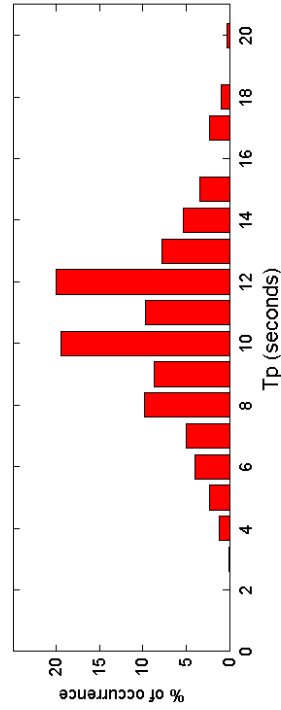
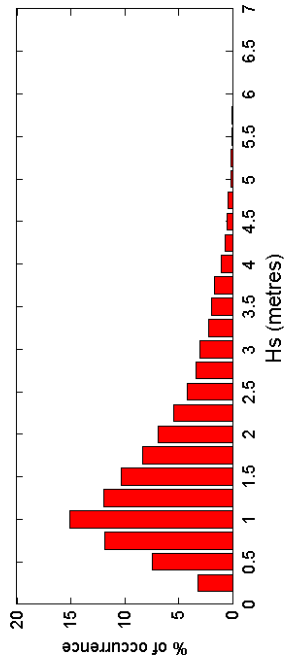
The Waverider was deployed on 18 December 2006.

** The Waverider was in breaking waves during the storm on 10 March 2008. Detailed analysis of the buoy heave data suggests that significant wave heights during part of the measurement burst were in excess of 8m, but short periods of readings in what are interpreted to be breaking waves contaminated the burst statistics, leading to subsequent failure of quality control. Hence, it is likely that the A_{max} for 2008 may underestimate the true figure.

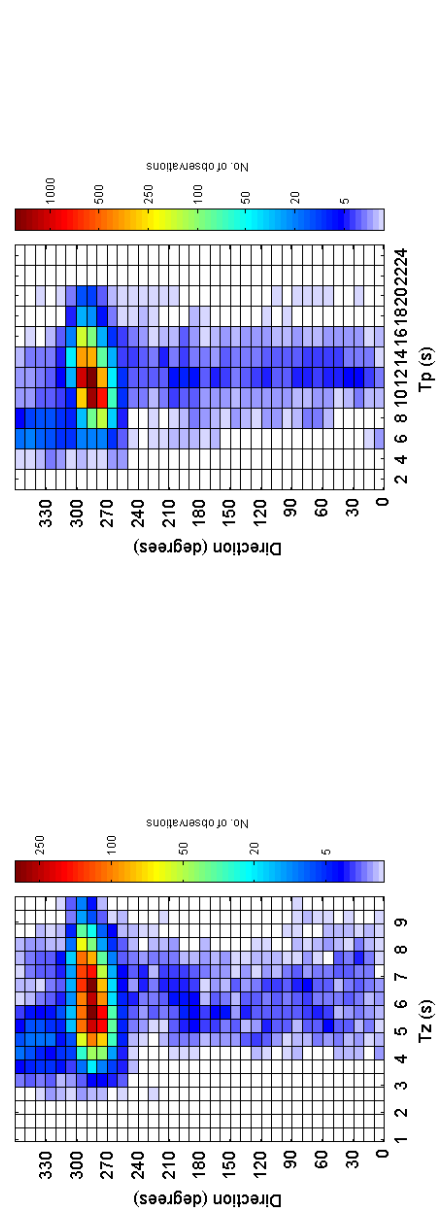
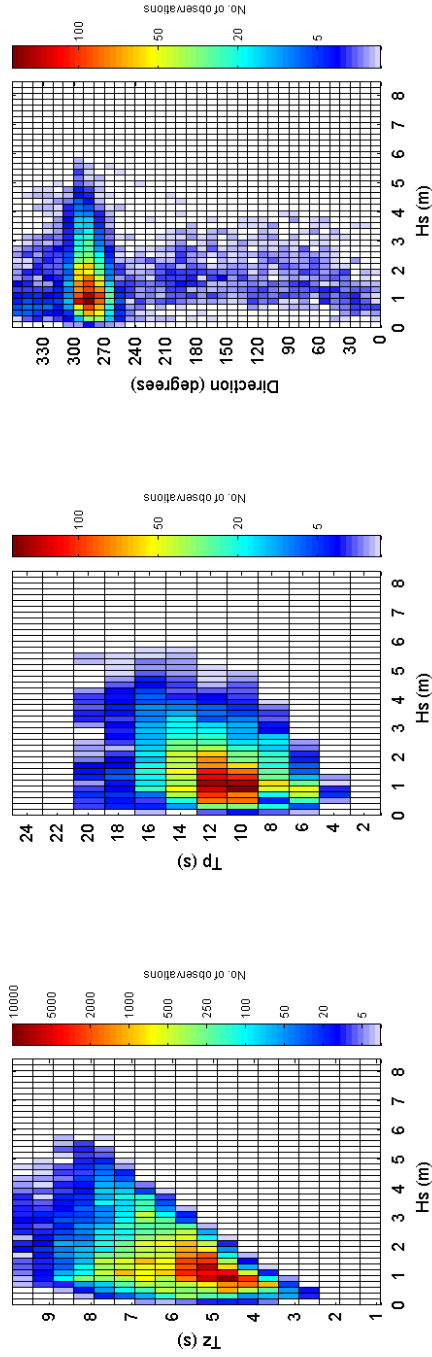
Acknowledgements

The shore station is kindly hosted by Perranporth Youth Hostel.

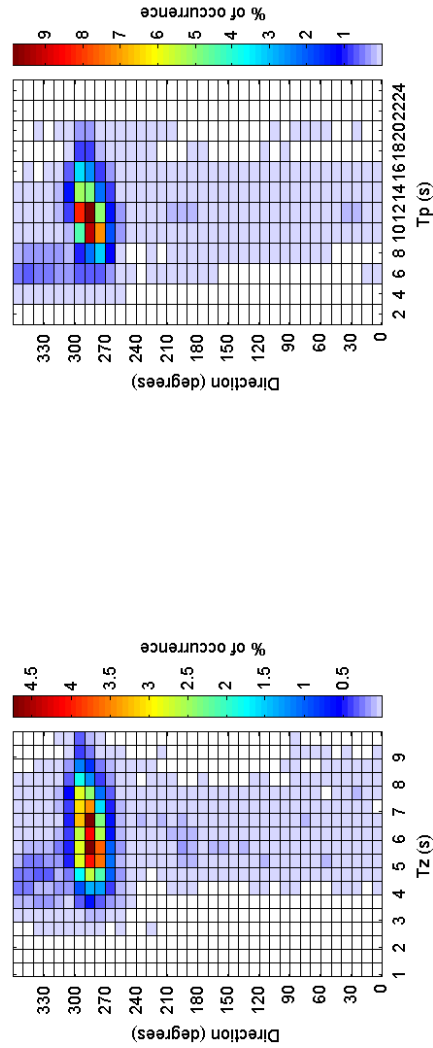
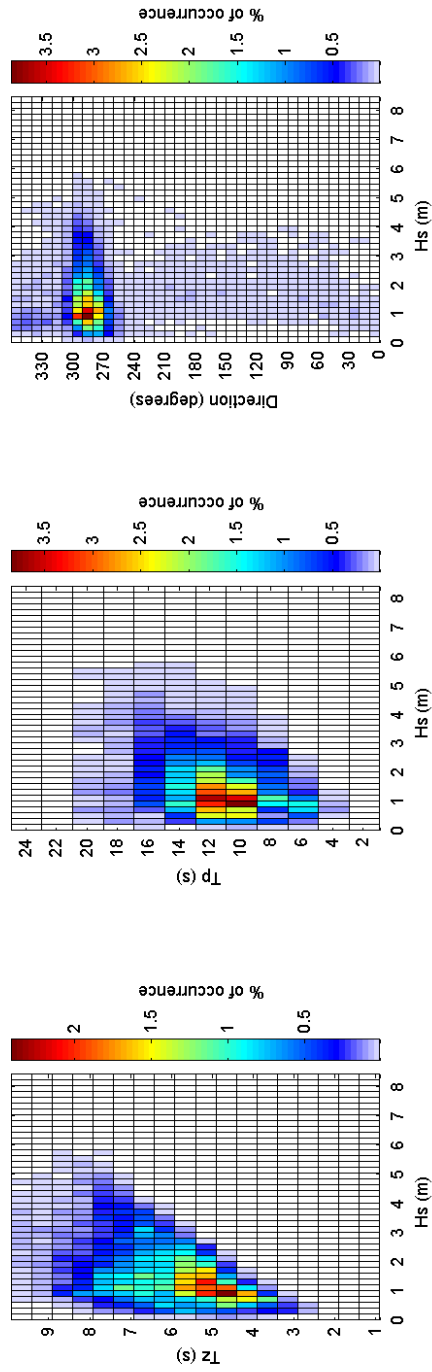
Perranporth 2009



Perranporth 2009 - Joint distribution



Perranporth 2009 - Joint distribution (% of occurrence)



Perranporth 2006 to 2009 - Joint distribution (% of occurrence)

