Hayling Island Directional WaveRider Buoy

Location
OS: 473504E   93216N
WGS84:   *Latitude:* 50°43.9936'N   *Longitude:* 00°57.5557'W

Water Depth
10.2m CD

Instrument Type
Datawell Directional WaveRider Buoy Mk III

Data Quality

C1(%)	Sample interval
94	30 minutes

Monthly Means

Hayling Island 2005							
Month	**H_s**	**H_{max}**	**T_p**	**T_z**	**Direction**	**SST**	**No. of days**
	(m)	(m)	(s)	(s)	(°)	(°C)	
January	0.893	1.433	9.3	3.9	203	8.2	24
February	0.485	0.736	6.0	3.2	196	6.8	25
March	0.570	0.863	9.5	4.0	181	6.0	25
April	0.488	0.761	7.5	3.6	194	9.3	30
May	0.562	0.860	6.0	3.4	186	12.1	30
June	0.445	0.688	6.1	3.4	188	15.5	28
July	0.472	-	4.6	3.1	200	18.0	31
August	0.405	0.620	5.0	3.0	209	18.2	31
September	0.510	0.775	8.0	3.6	188	17.2	30
October	0.785	1.200	7.4	3.7	178	14.1	31
November	0.748	1.142	7.3	3.6	202	10.4	29
December	0.702	1.076	8.5	3.9	192	6.4	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 2005									
Date/Time	**H_s**	**T_p**	**T_z**	**Dir.**	**Water level elevation** [*] **(OD)**	**Tidal stage**	**Tidal range (m)**	**Tidal surge** [*] **(m)**	**Max. surge** [*] **(m)**
02-Dec-2005 17:00	3.53	8.3	6.3	169	-0.92	HW +5	3.8	0.90	0.90
03-Nov-2005 13:00	3.33	18.2	6.9	200	2.04	HW +1	3.8	0.30	0.60

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[*] *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)	
	0.5%	1%	2%	5%	10%	Date	A_{max}
2003	2.33	2.11	1.85	1.41	1.10	29-Nov-2003 10:00	2.68
2004	2.32	2.11	1.91	1.60	1.26	08-Jan-2004 10:30	3.64
2005	2.53	2.10	1.80	1.41	1.11	02-Dec-2005 17:00	3.53

* 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 2005
- 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 2005, 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 2005 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 waves 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.
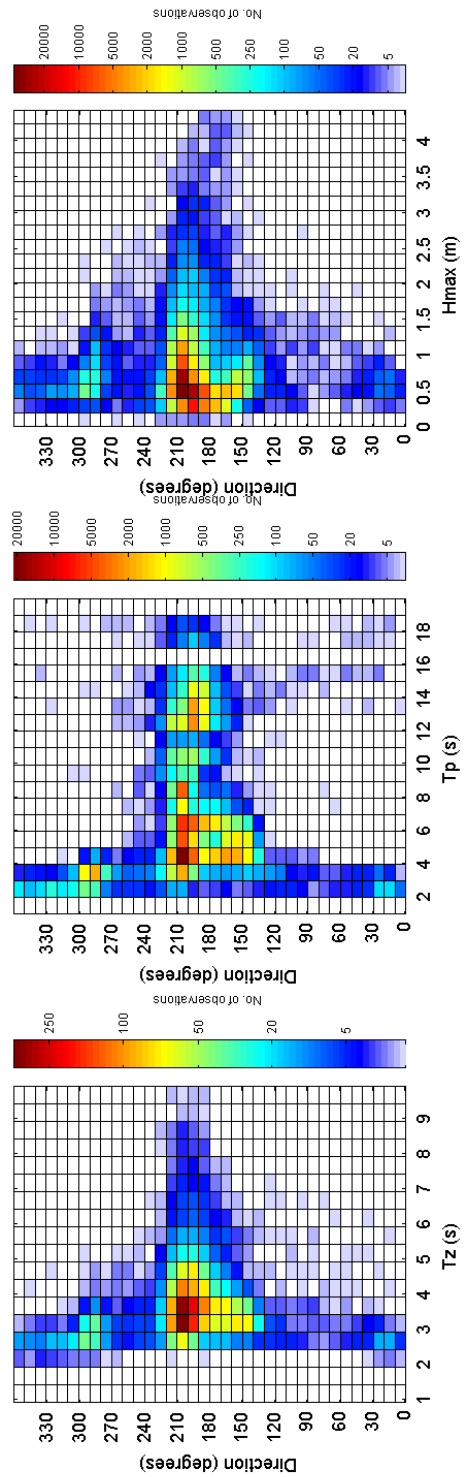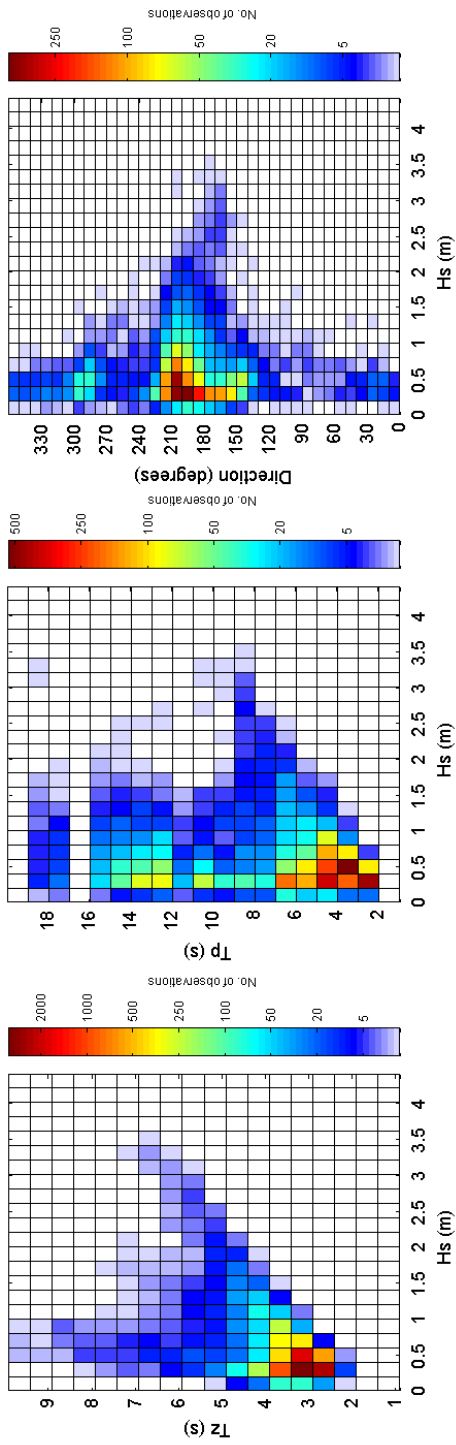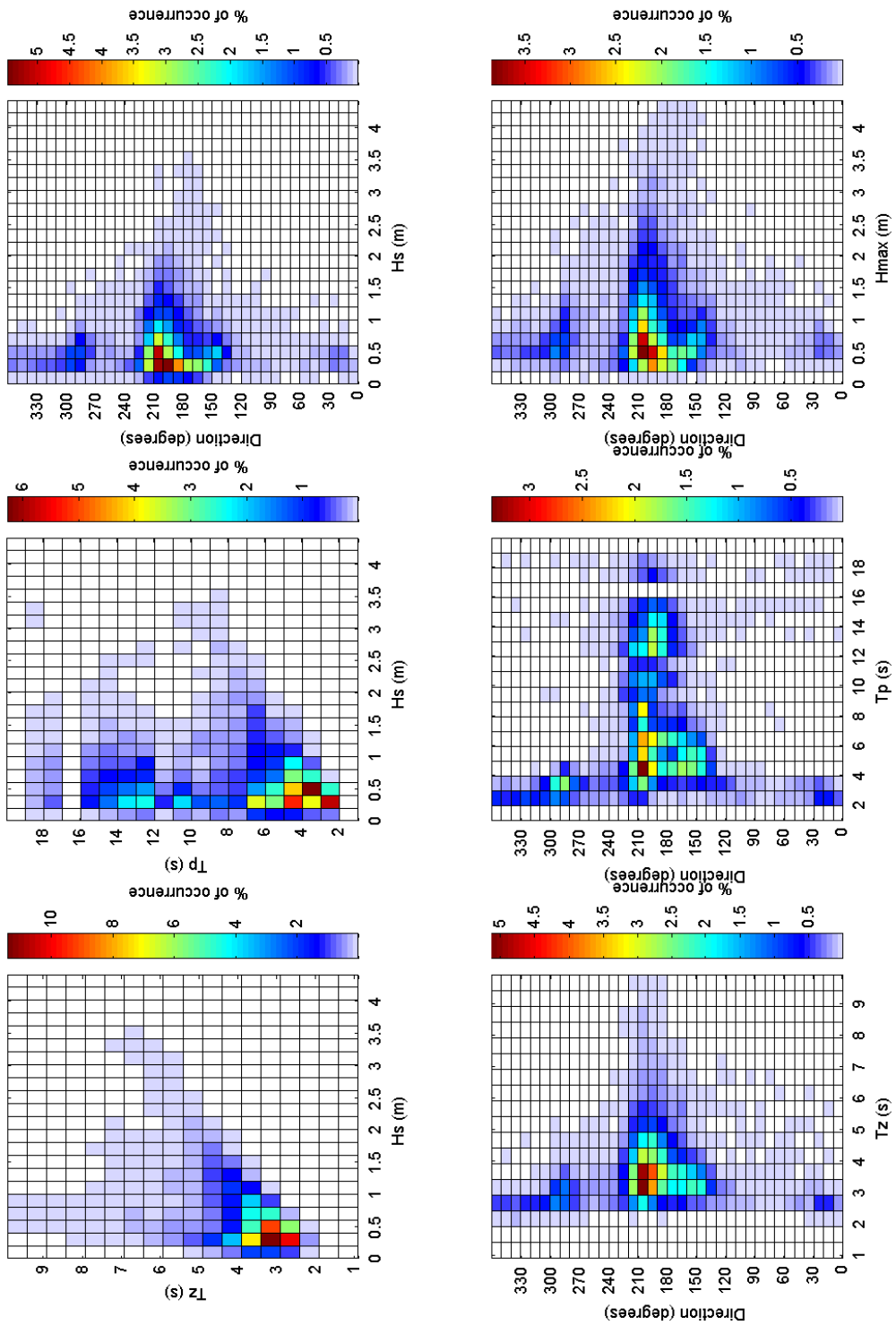
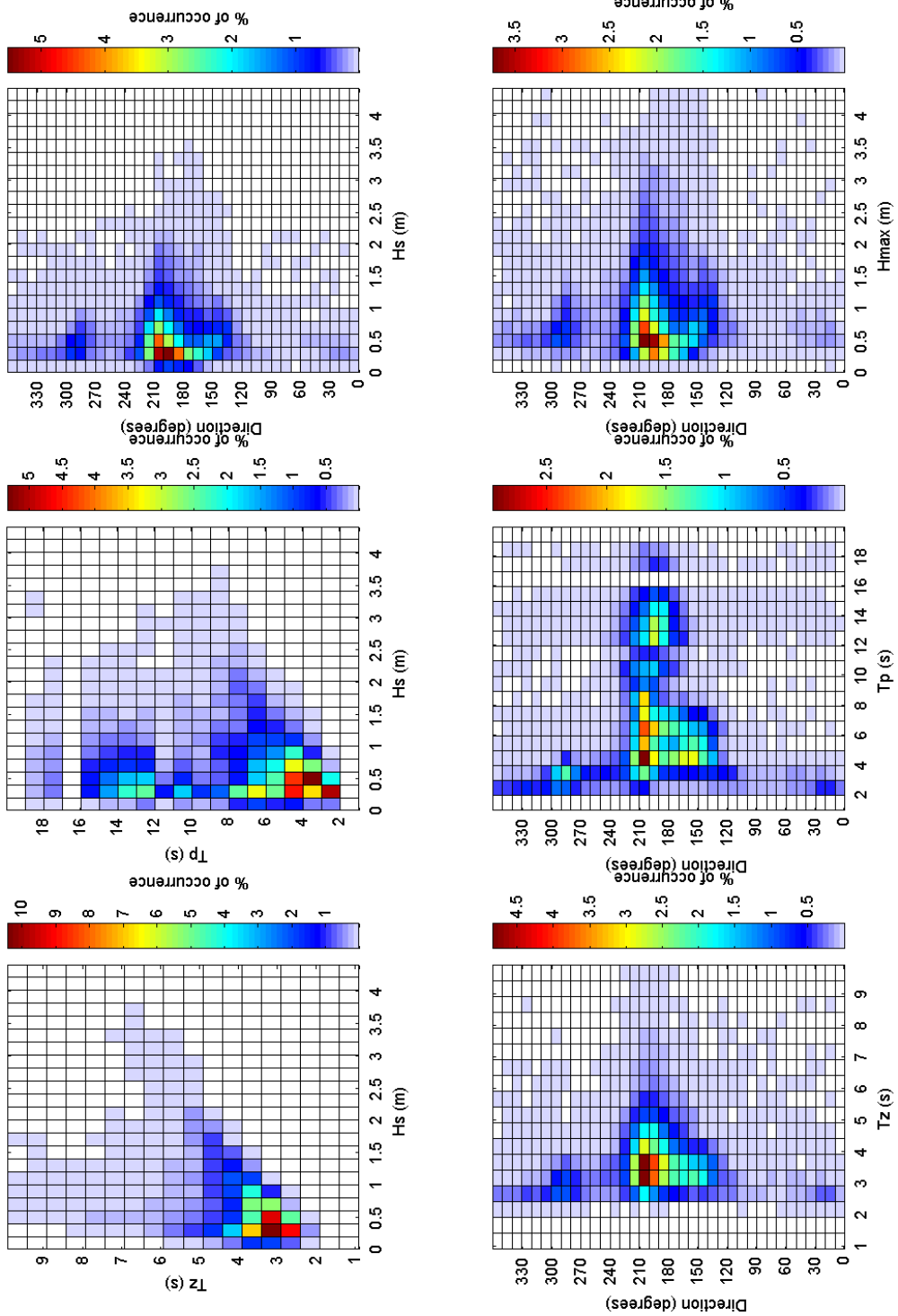## Acknowledgements

Folkestone 2005
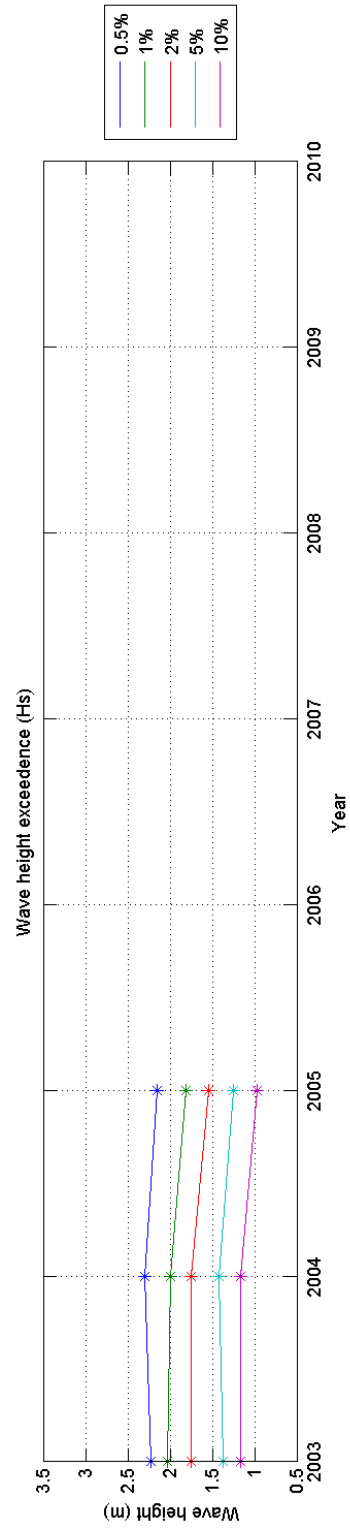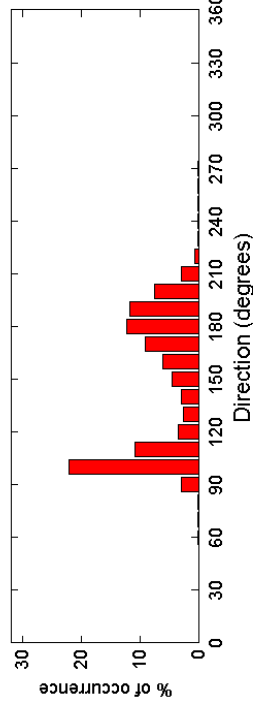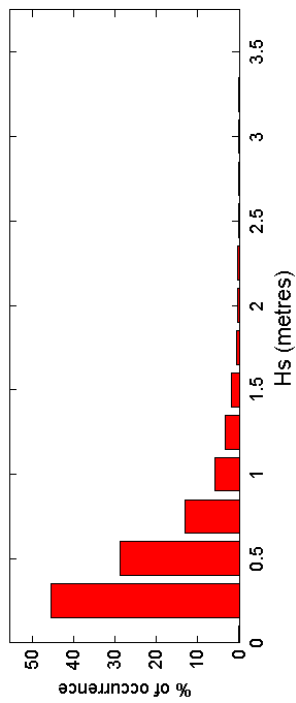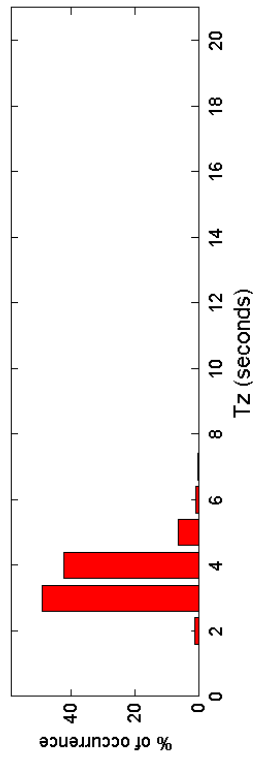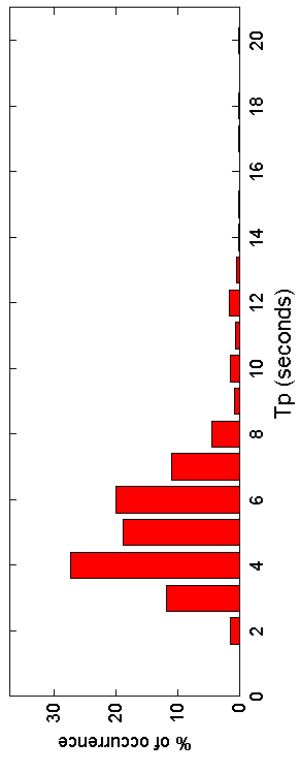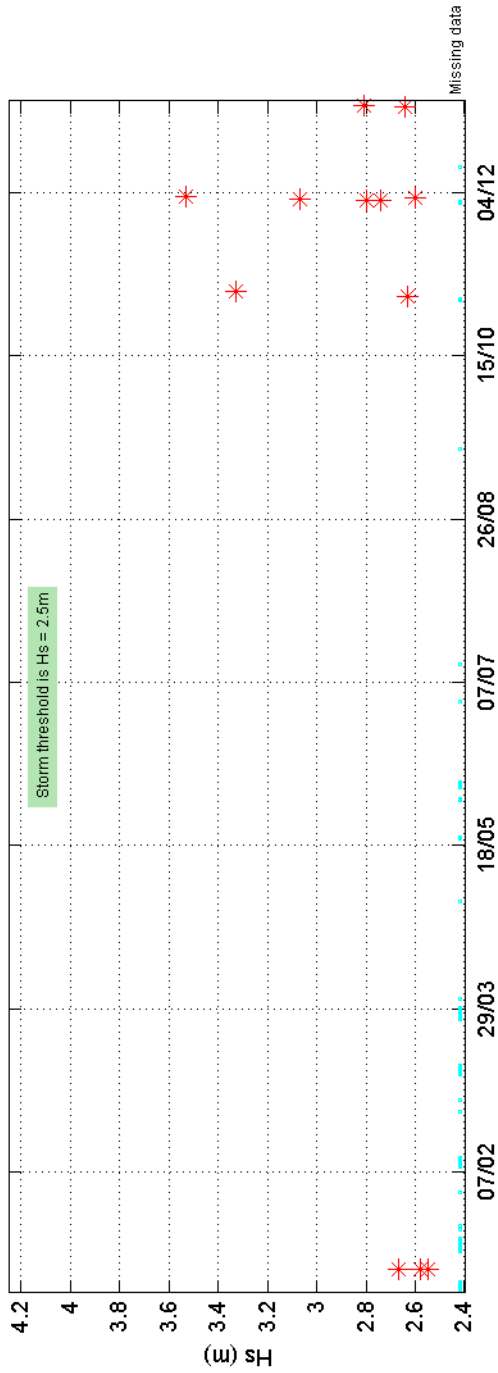
Hayling Island 2005 - Joint distribution

Hayling Island 2005 - Joint distribution (% of occurrence)

Hayling Island 2003 to 2005 - Joint distribution (% of occurrence)

Storms at Hayling Island during 2005

Storm threshold is Hs = 2.5m

Storms at Hayling Island - all years

Hayling Island - Significant Wave Height (Hs) during 2005