Folkestone Directional WaveRider Buoy

Location
OS: 619711E 132538N
WGS84: *Latitude:* 51°03.5335'N *Longitude:* 01°08.2988'E

Water Depth
12.7m CD

Instrument Type
Datawell Directional WaveRider Buoy Mk III

Data Quality

C1(%)	Sample interval
65	30 minutes

Monthly Means

Folkestone 2004							
Month	**H_s** (m)	**H_{max}** (m)	**T_p** (s)	**T_z** (s)	**Direction** (^{o})	**SST** (^{o}C)	**No. of days**
January	0.807	1.264	5.8	3.8	-	-	29
February	0.723	1.131	6.8	4.0	143	7.9	21
March	0.708	1.117	5.3	3.6	143	7.9	19
April	0.457	0.717	5.8	3.6	129	-	30
May	0.415	0.652	5.1	3.5	128	7.7	31
June	0.432	0.674	4.7	3.5	153	14.1	23
July	-	-	-	-	-	-	0
August	-	-	-	-	-	-	0
September	-	-	-	-	-	-	0
October	0.874	1.376	4.9	3.6	161	14.6	24
November	0.453	0.702	5.4	3.7	144	12.0	30
December	0.524	0.810	5.6	3.6	155	9.5	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 2004									
Date/Time	**H_s**	**T_p**	**T_z**	**Dir.**	**Water level elevation*** **(OD)**	**Tidal stage**	**Tidal range (m)**	**Tidal surge* (m)**	**Max. surge* (m)**
08-Jan-2004 12:00	3.25	7.1	5.6	-	2.158	HW	4.9	-0.29	-
23-Jun-2004 15:30	3.18	10.5	6.2	198	1.845	HW +1	4.4	-0.23	0.29
31-Jan-2004 13:00	2.71	7.7	5.1	-	-1.070	HW -6	3.0	0.29	0.37
18-Apr-2004 09:30	2.64	6.7	5.3	188	2.246	HW -1	5.6	-0.02	0.28
14-Oct-2004 09:30	2.49	9.1	5.0	186	2.138	HW -1	5.6	0.08	0.37

* *Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at Dover). 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	
	0.5%	1%	2%	5%	10%	Date	A_{max} (m)
2003	2.23	2.03	1.75	1.37	1.16		
2004	2.30	1.97	1.75	1.44	1.18	08-Oct-2004 12:00	3.25
2005							

** i.e. 5 % of the H_s values measured in 2003 exceeded 1.37m*

Distribution plots

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

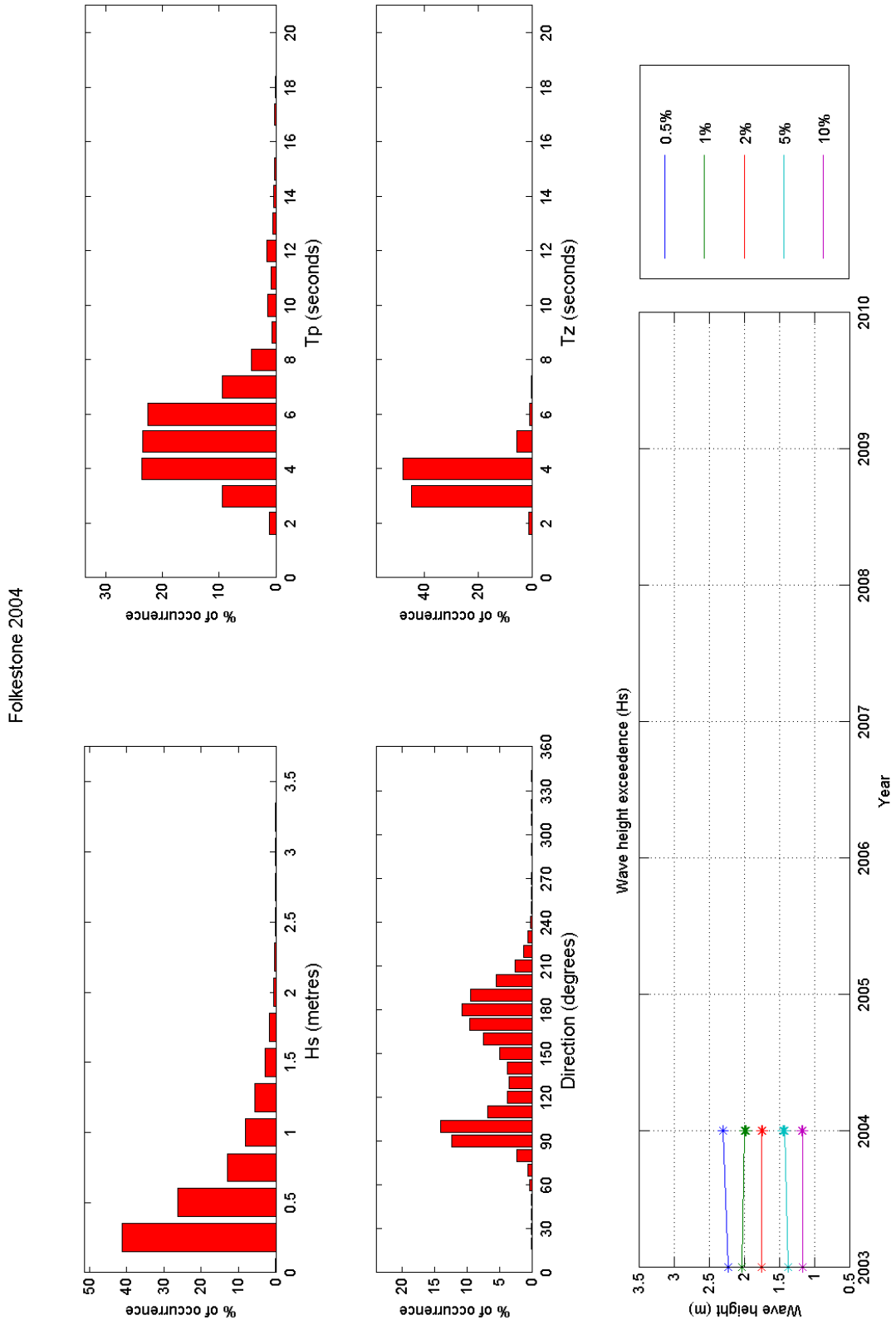
- Percentage of occurrence of H_s, T_p, T_z and Direction for 2004
- Percentage wave height exceedence (all recorded years) – note that the statistics for 2003 were based on measurements from July to December only
- Joint distribution of all parameters for 2004, given both as number of observations and as percentage of occurrence
- Cumulative joint distribution of parameters from start of records (percentage of occurrence only)
- Incidence of storms during 2004 and for all previous years. 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)

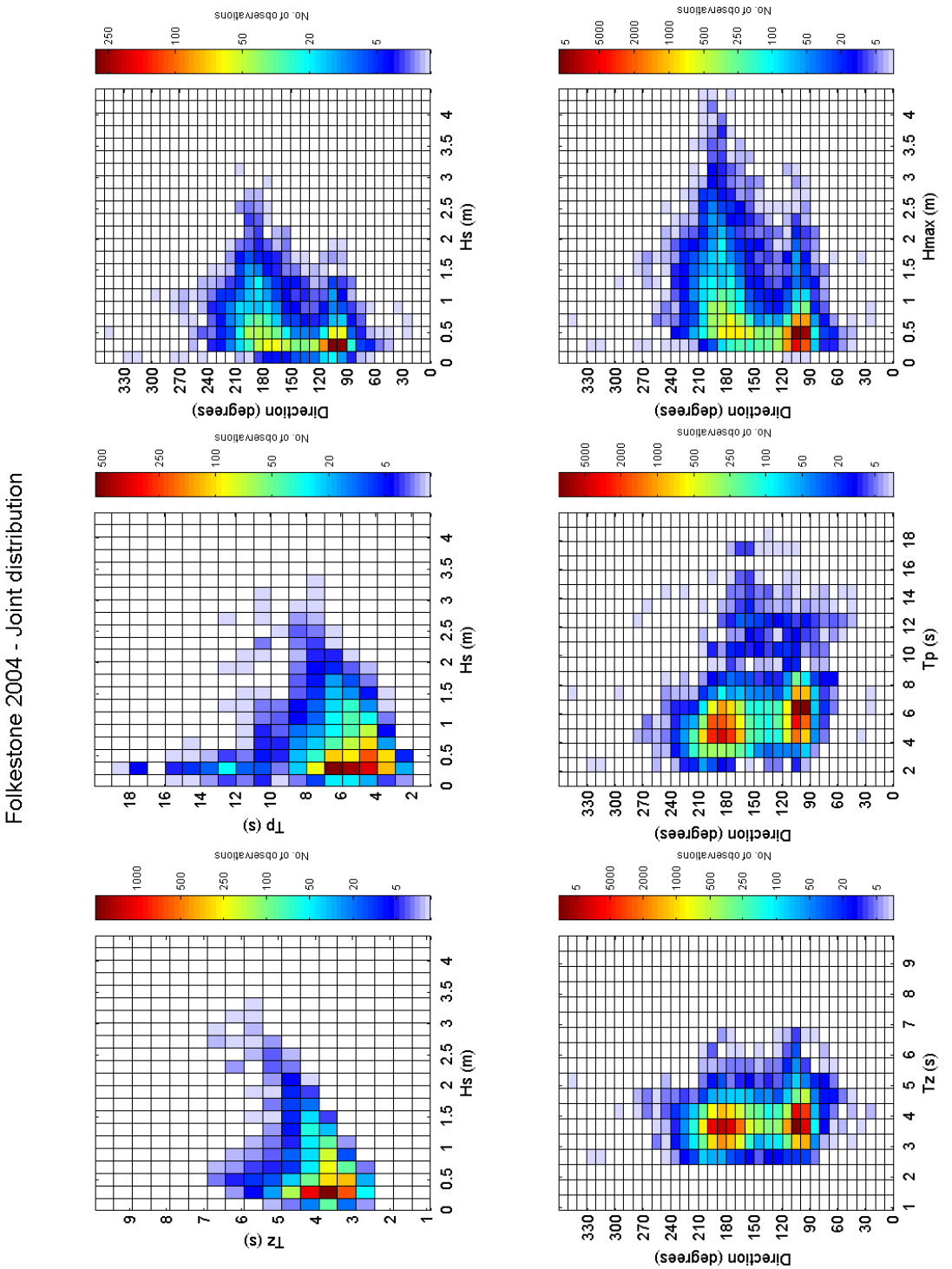
General

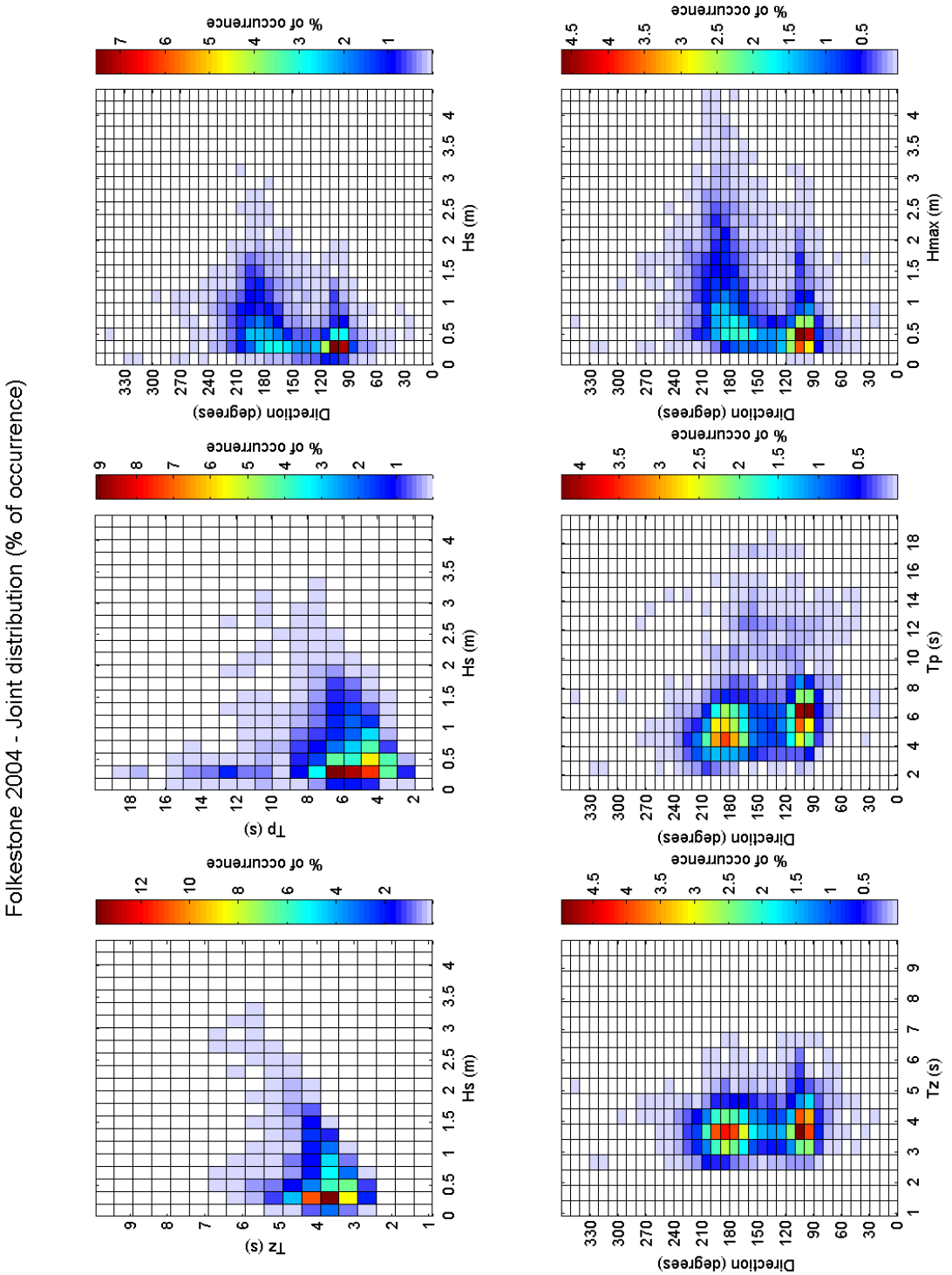
The buoy was first deployed on 08 July 2003. The wave directions recorded by the Datawell Directional WaveRider Mk III were found to be contaminated by a significant tidal signature, compounded by the on-board data processing. The buoy received new electronics to fix this problem in February 2004; wave directions measured before April 2004 were excluded from the analysis. In late June 2004, the buoy was cut from its moorings and recovered a week later in the southern North Sea, 35nm east of Ipswich. The buoy was serviced and refurbished and re-deployed in early October, approximately 100m away from its earlier location.

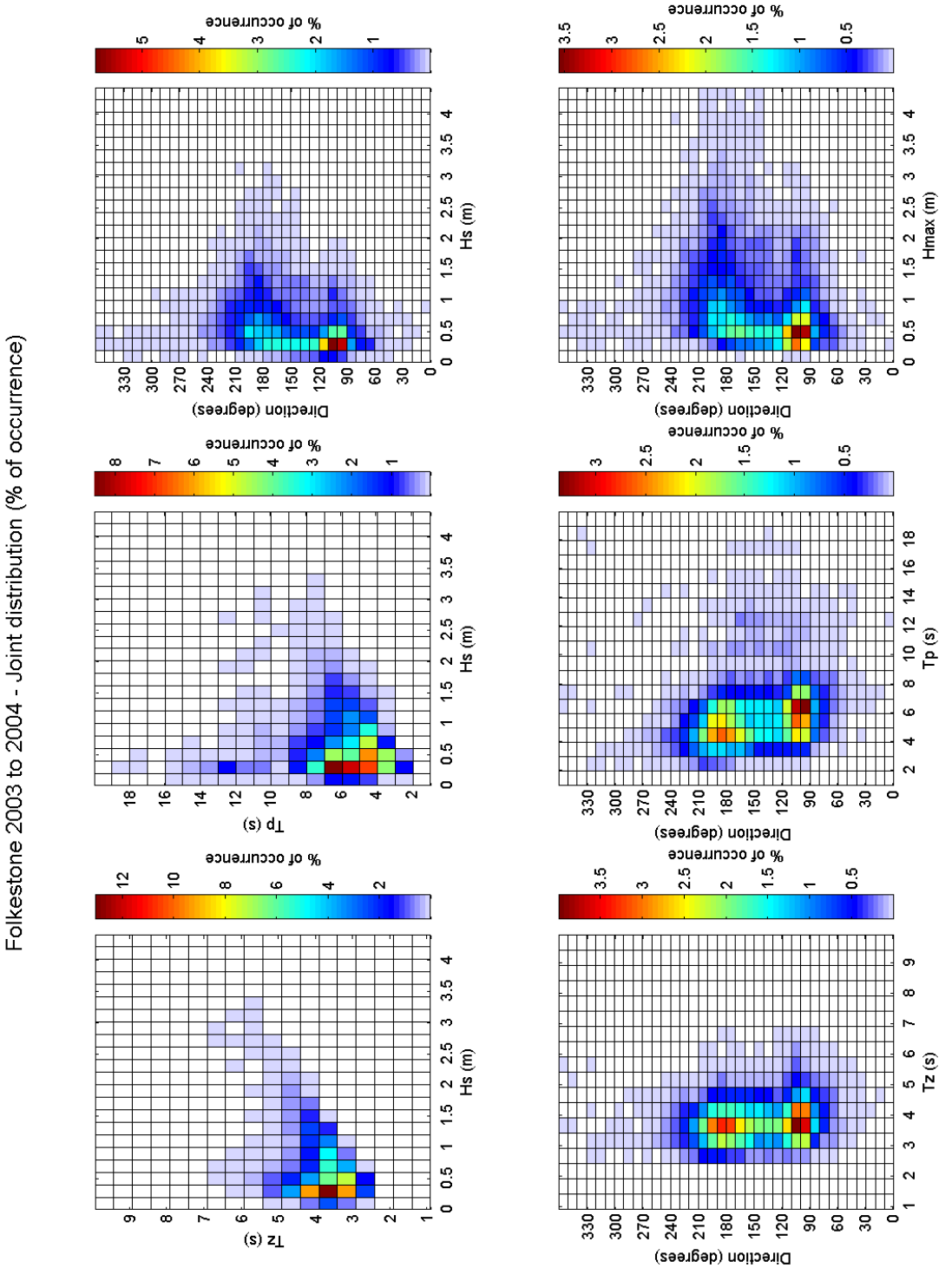
Acknowledgements

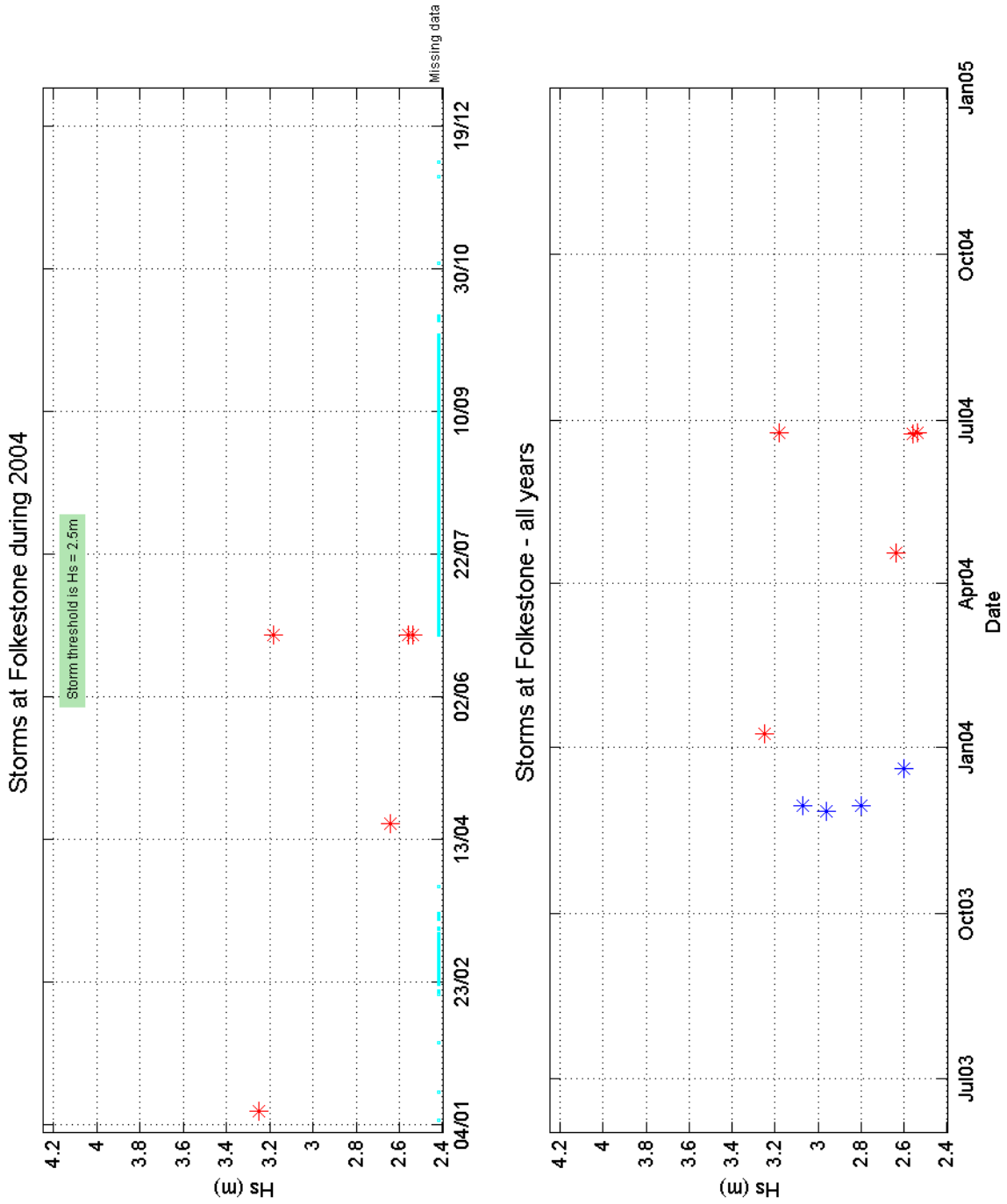
Tidal data were supplied by the British Oceanographic Data Centre as part of the function of the National Tidal and Sea Level Facility, hosted by the Proudman Oceanographic Laboratory and funded by DEFRA and the Natural Environment Research Council.

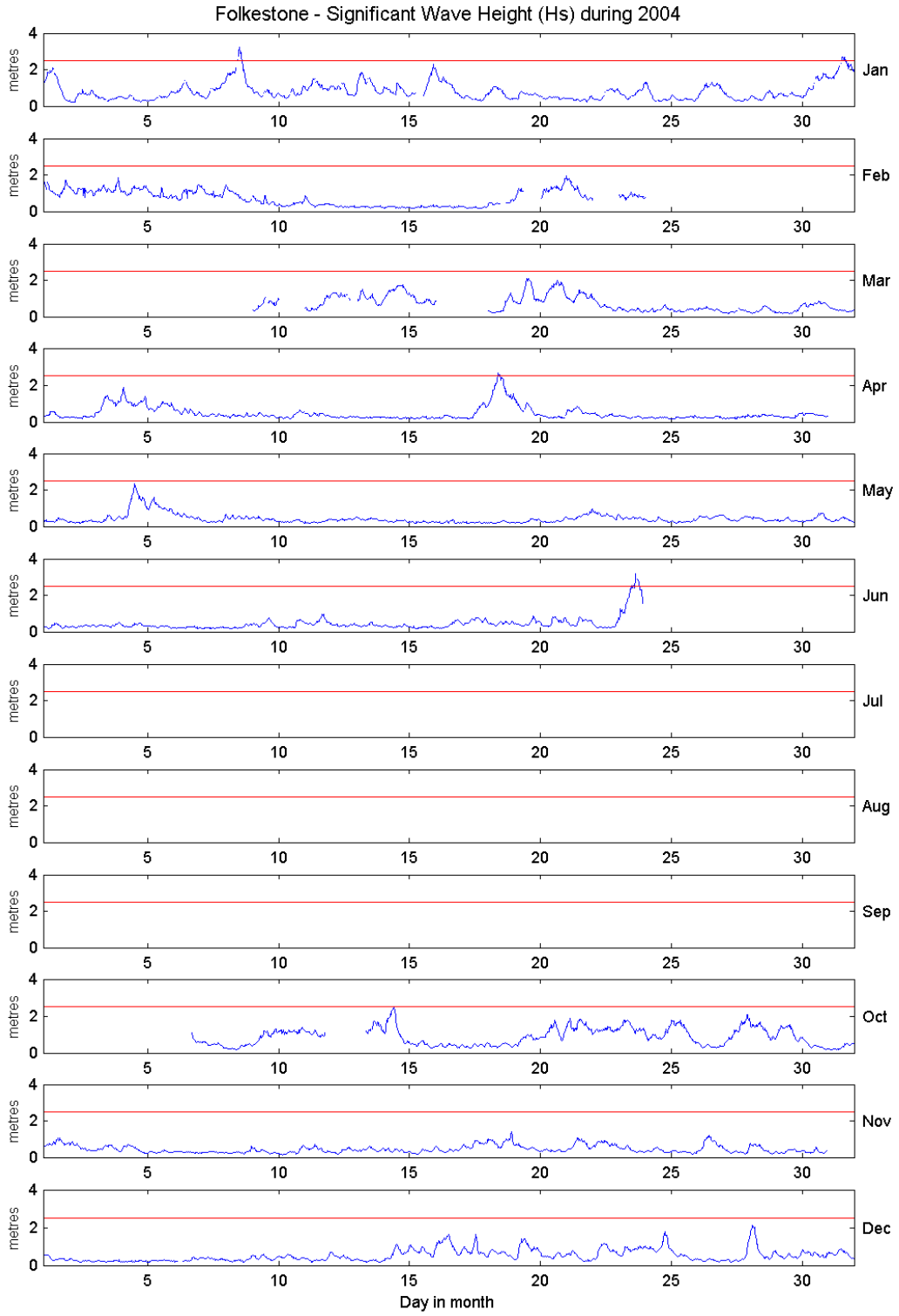

Folkestone 2004
% of occurrence
Hs (metres)
% of occurrence
Tp (seconds)
% of occurrence
Direction (degrees)
% of occurrence
Tz (seconds)
Wave height exceedence (Hs)
Wave height (m)
Year
0.5%
1%
2%
5%
10%


Folkestone 2004 - Joint distribution
Direction (degrees)
Hs (m)
Tz (s)
Tp (s)
Hmax (m)
No. of observations


Folkestone 2004 - Joint distribution (% of occurrence)
Direction (degrees)
Hs (m)
Hmax (m)
Tp (s)
Tz (s)
% of occurrence


Folkestone 2003 to 2004 - Joint distribution (% of occurrence)
Direction (degrees)
Hs (m)
Hmax (m)
Tp (s)
Tz (s)
% of occurrence


Storms at Folkestone during 2004
Storm threshold is Hs = 2.5m
Missing data
Hs (m)
4.2
4
3.8
3.6
3.4
3.2
3
2.8
2.6
2.4
04/01
23/02
13/04
02/06
22/07
10/09
30/10
19/12
Storms at Folkestone - all years
Hs (m)
Jul03
Oct03
Jan04
Apr04
Jul04
Oct04
Jan05
Date


Folkestone - Significant Wave Height (Hs) during 2004
metres
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
0
2
4
5
10
15
20
25
30
Day in month