Folkestone Directional Waverider Buoy

Location
OS: 619265E 133907N
WGS84:   *Latitude:* 51° 03.76' N   *Longitude:* 001° 07.67' E

Water Depth
Approx. 13m CD

Instrument Type
Datawell Directional Waverider Buoy Mk III

Data Quality

C1 (%)	Sample interval
99	30 minutes

Monthly Means   *All times GMT*

Month	H_s (m)	T_p (s)	T_z (s)	Direction (°)	SST (°C)	No. of days
January	0.56	6.1	3.8	138	5.9	30
February	0.63	5.7	3.8	149	5.0	28
March	0.53	5.0	3.4	148	5.9	31
April	0.41	5.1	3.4	136	8.5	30
May	0.40	5.1	3.5	130	10.9	31
June	0.34	5.5	3.5	129	14.1	30
July	0.40	4.3	3.2	173	15.9	29
August	0.51	4.6	3.5	166	17.6	31
September	0.46	4.9	3.5	151	16.9	30
October	0.65	5.3	3.8	143	14.6	30
November	0.67	5.9	3.9	142	9.0	30
December	0.54	5.6	3.9	131	6.3	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 2010									
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)
08-Nov-2010 12:00	2.92	6.7	5.4	174	2.74	HW	5.49	-0.45	-0.45
11-Nov-2010 13:00	2.75	7.7	5.1	177	1.33	HW -1	3.75	-0.75	-0.75

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* *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$_s$	
	0.05%	0.5%	1%	2%	5%	10%	Date	A$_{max}$ (m)
2003	-	2.23	2.03	1.75	1.37	1.16	29-Nov-2003 13:30	3.07
2004	2.91	2.30	1.97	1.75	1.44	1.18	08-Jan-2004 12:00	3.25
2005	2.90	2.15	1.81	1.54	1.25	0.97	30-Dec-2005 14:00	3.15
2006	2.55	2.08	1.84	1.68	1.42	1.17	03-Dec-2006 09:00	3.13
2007	2.56	2.06	1.83	1.59	1.34	1.11	08-Dec-2007 17:00	2.86
2008	2.98	2.40	2.10	1.85	1.44	1.16	10-Mar-2008 10:30	3.58
2009	2.65	2.14	1.88	1.68	1.39	1.12	22-Jan-2009 08:30	2.98
2010	2.66	1.95	1.69	1.42	1.15	0.94	08-Nov-2010 12:00	2.92

* i.e. 5 % of the H$_s$ values measured in 2008 exceeded 1.44m

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 2010
- Percentage wave height exceedence (all recorded years)
- Joint distribution of all parameters for 2010, given both as number of observations and as percentage of occurrence
- Cumulative joint distribution of parameters from start of records (percentage of occurrence only)
- Wave roses (Direction vs. H$_s$ and vs. T$_p$) for all measured data
- Incidence of storms during 2010 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 threshold)

Significant wave height return periods

Return periods for significant wave height can be calculated since the buoy has been deployed for more than 5 years. The return periods are based on 3-hourly records and are calculated for periods up to 10 times the record length, using a Weibull distribution.

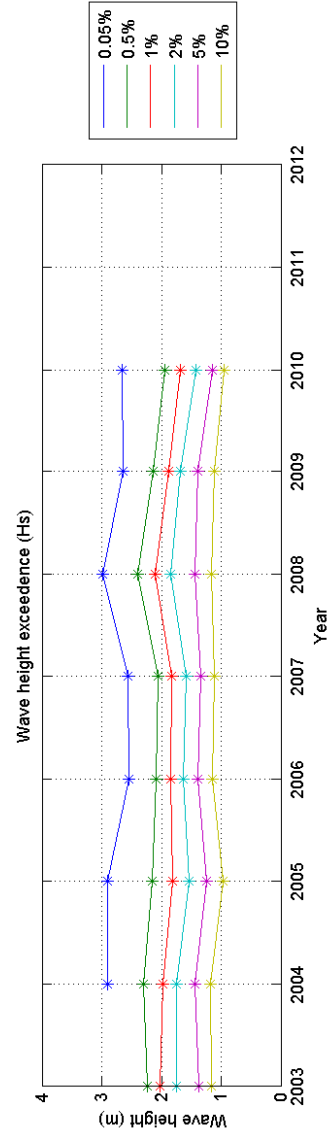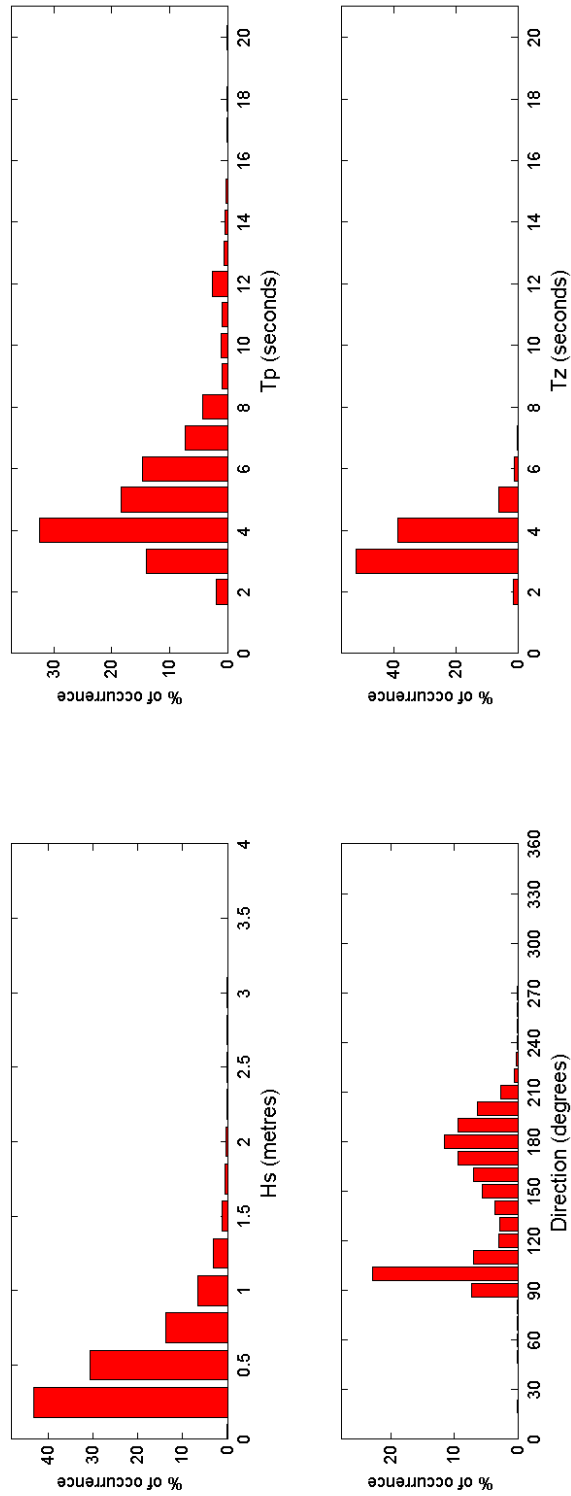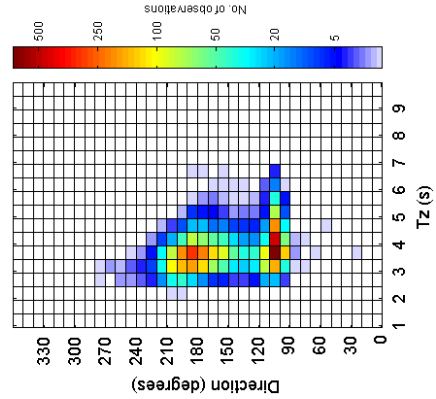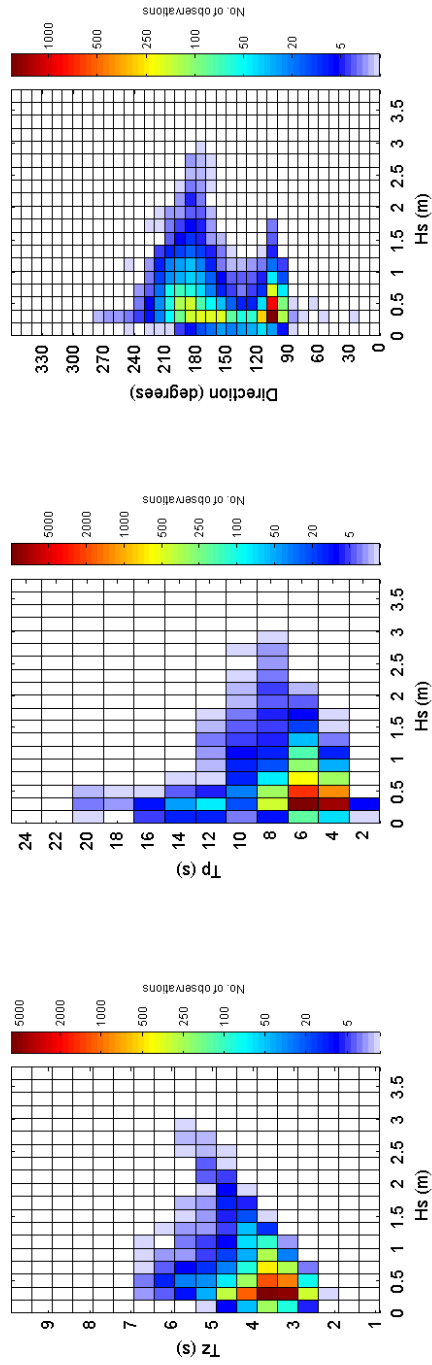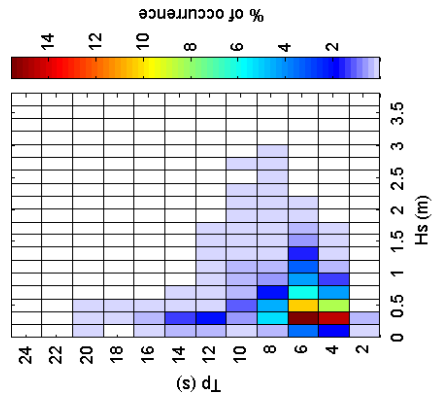| Return period (years)	Significant wave height (m)
1	3.03
2	3.20
5	3.42
10	3.58
20	3.74
50	3.94

General

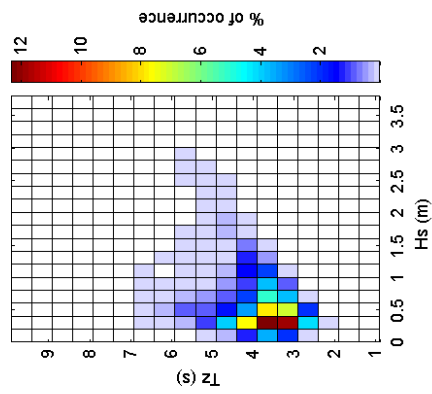The buoy was first deployed on 1 June 2003.
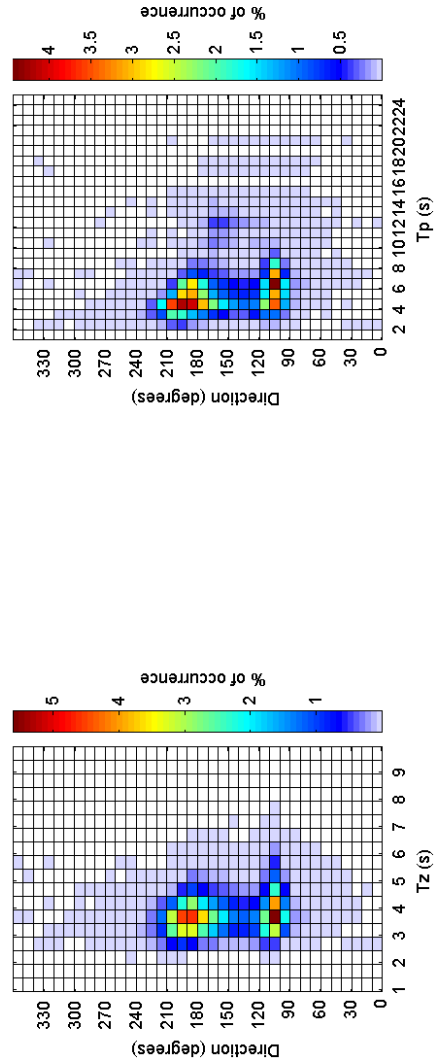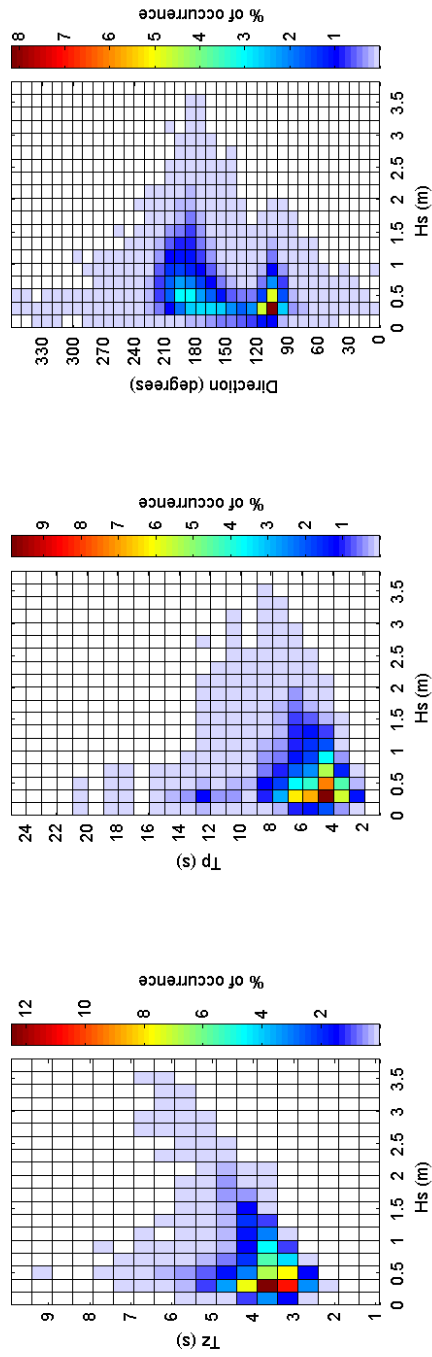
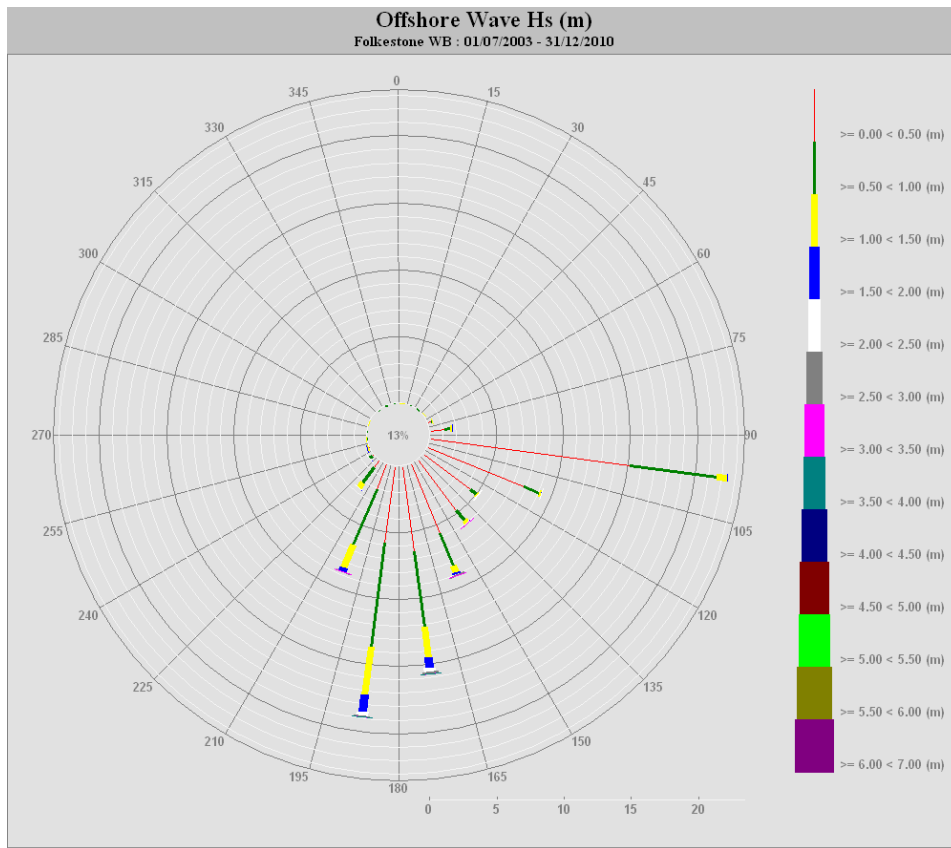## Acknowledgements

Folkestone 2010

Folkestone 2010 - Joint distribution
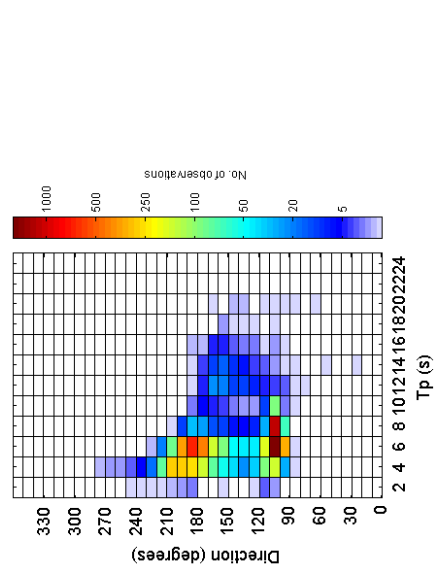
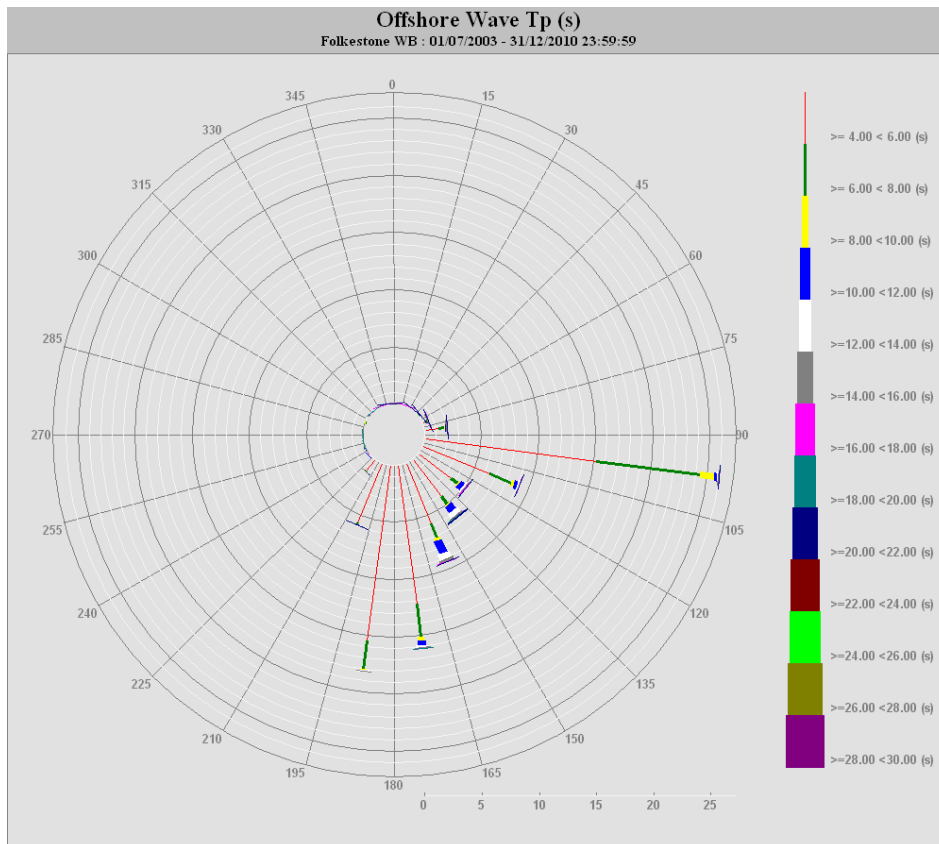Folkestone 2010 - Joint distribution (% of occurrence)
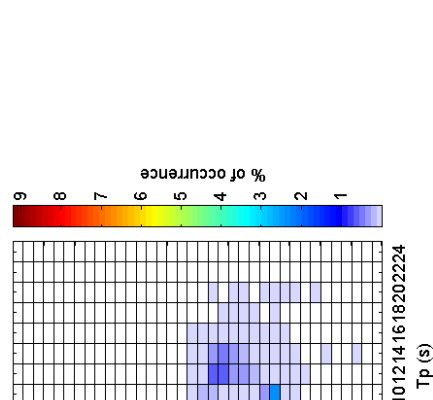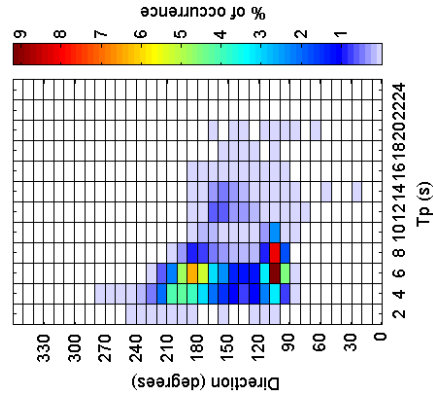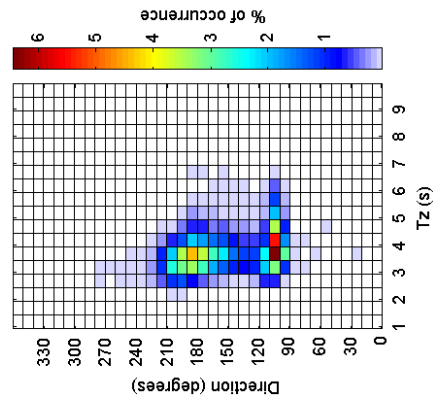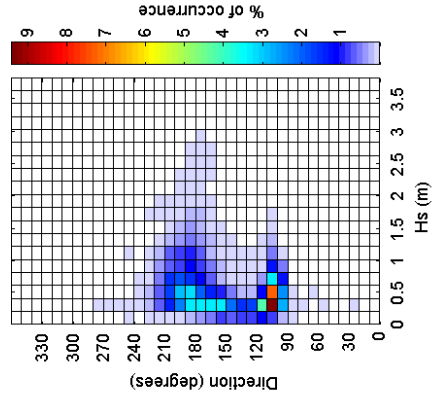
Folkestone 2003 to 2010 - Joint distribution (% of occurrence)

Direction vs. H$_s$ (all measured data)

Direction vs. T$_p$ (all measured data)

Storms at Folkestone during 2010

Storm threshold is Hs = 2.5m

Missing data

Storms at Folkestone - all years

Folkestone - Significant Wave Height (Hs) during 2010