

Milford Directional Waverider Buoy

Location

OS: 427264E 90396N
 WGS84: Latitude: 50° 42.75' N Longitude: 001° 36.91' W

Water Depth

Approx. 10m CD

Instrument Type

Datawell WaveRider Buoy Mk III (from 17 November 2005)
 Datawell WaveRider Buoy Mk II

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	0.52	10.9	4.8	212	5.7	31
February	0.67	11.4	5.0	212	5.5	28
March	0.54	9.5	4.1	213	6.3	31
April	0.42	8.4	4.0	210	9.0	30
May	0.32	8.2	3.9	211	11.7	31
June	0.31	7.9	3.9	211	15.5	29
July	0.56	5.8	3.5	218	18.5	30
August	0.60	5.7	3.6	219	18.2	31
September	0.55	8.4	3.9	215	17.1	30
October	0.63	7.9	4.3	214	14.6	31
November	0.71	9.4	4.5	212	11.6	30
December	0.40	8.5	4.3	210	5.9	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)
31-Mar-2010 06:00	2.96	10.5	5.9	218	-0.73	HW -5	2.56	0.17	0.52
11-Nov-2010 11:00	2.93	8.3	5.9	212	0.50	HW -2	1.41	0.40	0.63

* Tidal information is obtained from the nearest recording tide gauge (the gauge on Royal Lympington Yacht Club starting platform). 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}
1996	-	-	-	-	-	-	28-Oct-1996 21:00	4.05
1997	3.08	2.39	2.15	1.97	1.59	1.20	24-Feb-1997 23:00	3.32
1998	2.89	2.47	2.28	2.00	1.66	1.37	27-Oct-1998 13:00	3.21
1999	3.01	2.32	2.11	1.85	1.56	1.29	24-Dec-1999 22:00	3.23
2000	3.90	2.85	2.50	2.19	1.74	1.41	31-Dec-2000 19:00	4.09
2001	3.71	2.63	2.24	1.91	1.52	1.20	01-Jan-2001 00:00	4.07
2002	3.54	2.92	2.61	2.35	1.96	1.62	15-Oct-2002 18:00	4.06
2003	2.82	2.20	2.02	1.76	1.37	1.12	14-Nov-2003 15:00	2.92
2004	3.21	2.49	2.29	2.05	1.69	1.42	31-Jan-2004 17:00	3.44
2005	3.09	1.86	1.72	1.56	1.28	1.05	02-Dec-2005 18:30	3.53
2006	2.89	2.46	2.31	2.10	1.73	1.41	03-Dec-2006 06:30	3.51
2007	3.21	2.53	2.25	2.04	1.74	1.46	18-Jan-2007 12:00	3.64
2008	3.09	2.40	2.16	1.96	1.70	1.42	10-Mar-2008 20:00	3.42
2009	3.26	2.60	2.36	2.05	1.69	1.39	14-Nov-2009 15:00	4.08
2010	2.68	2.17	1.91	1.59	1.29	1.04	31-Mar-2010 06:00	2.96

* i.e. 5 % of the H_s values measured in 2004 exceeded 1.69m

Distribution plots

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

- Percentage of occurrence of H_s , T_p and T_z for 2010
- Percentage wave height exceedance (all recorded years) – note that the statistics for 1996 were based on measurements from May to December only
- Joint distribution of all parameters for 2010, given both as number of observations and as percentage of occurrence – note that measurement of T_p began in December 2004
- 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 since November 2005
- Incidence of storms above a given threshold, for 2010 and for all years. Storms are defined by 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

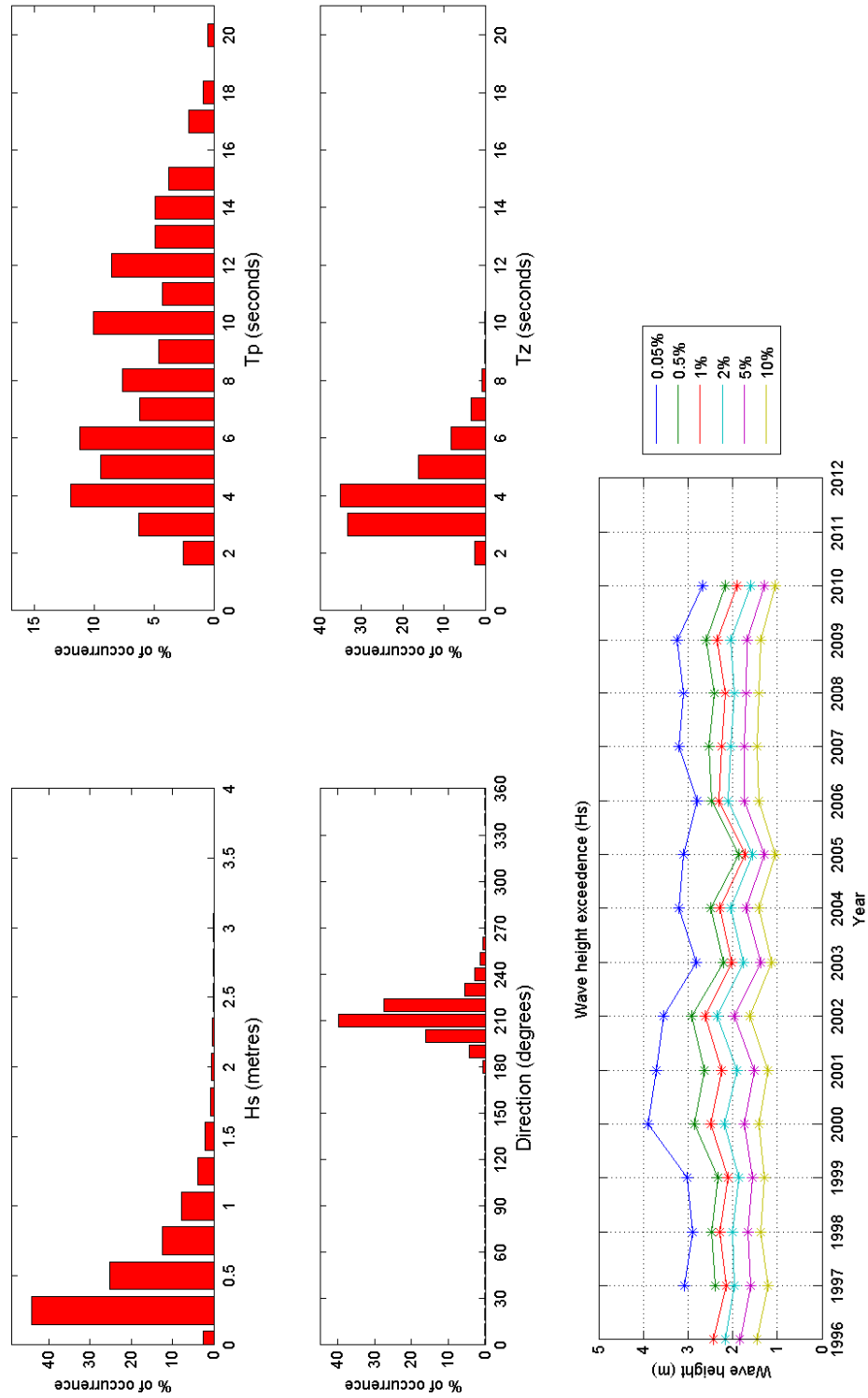
Return periods for significant wave height can be calculated since a wave buoy has been deployed at this site for more than 5 years. The return periods are based on 3-hourly records and are calculated for periods up to 10 times the record length, using a Weibull distribution.

Return period (years)	Significant wave height (m)	Comments
1	3.52	
2	3.70	
5	3.93	
10	4.10	
20	4.27*	* depth-limited at MLWS
50	4.47*	* depth-limited at MLWS

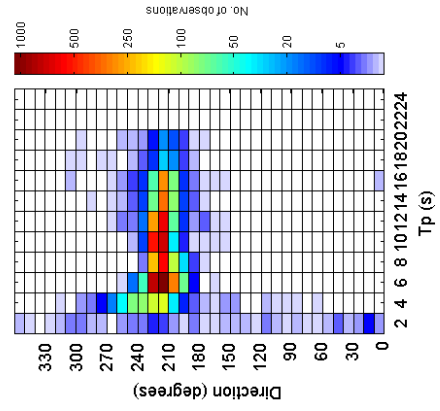
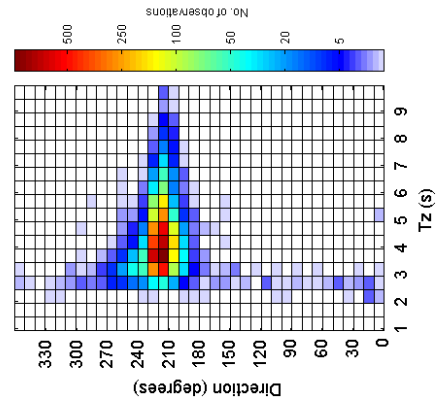
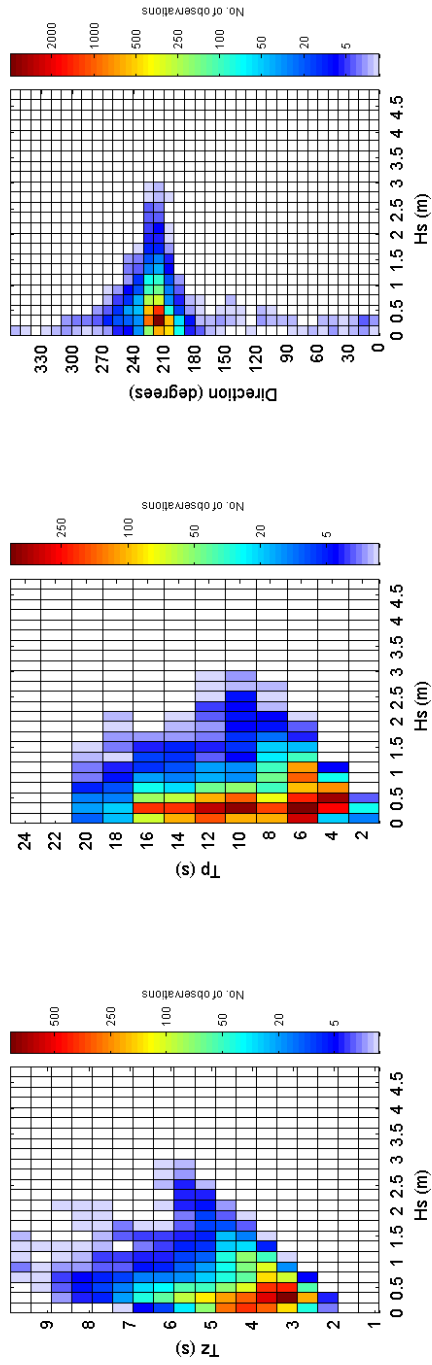
General

The buoy was first deployed in May 1996. It was replaced by a Directional Waverider in December 2005.

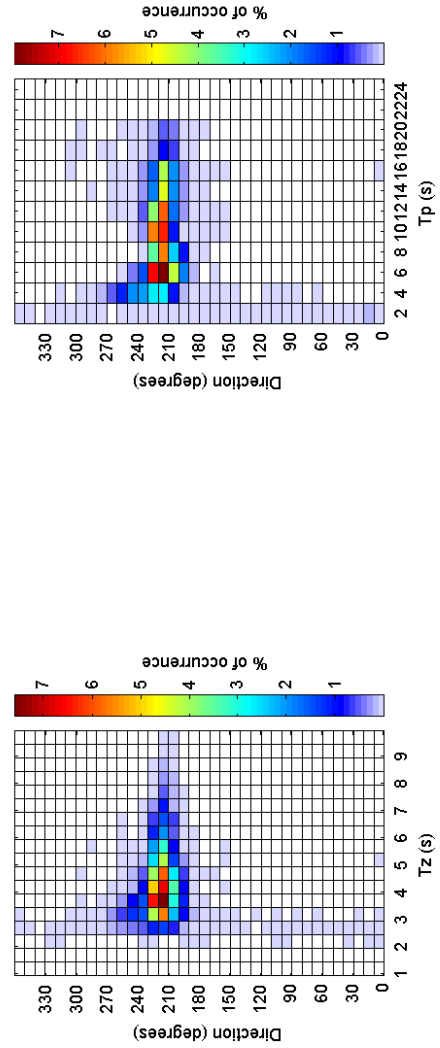
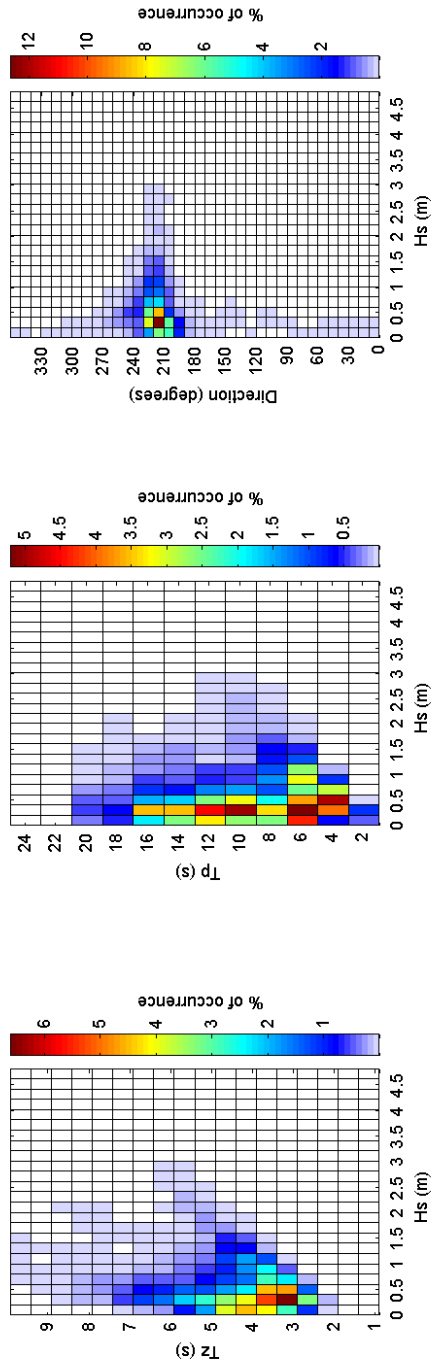
Milford 2010



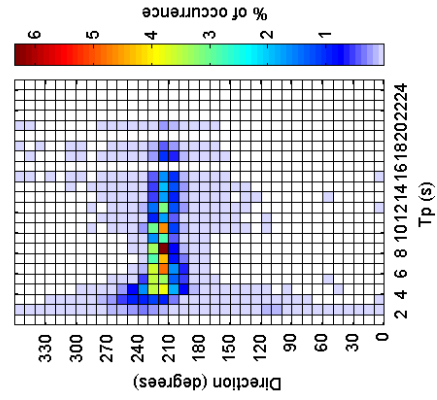
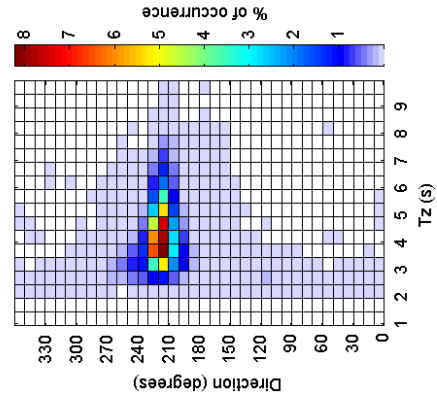
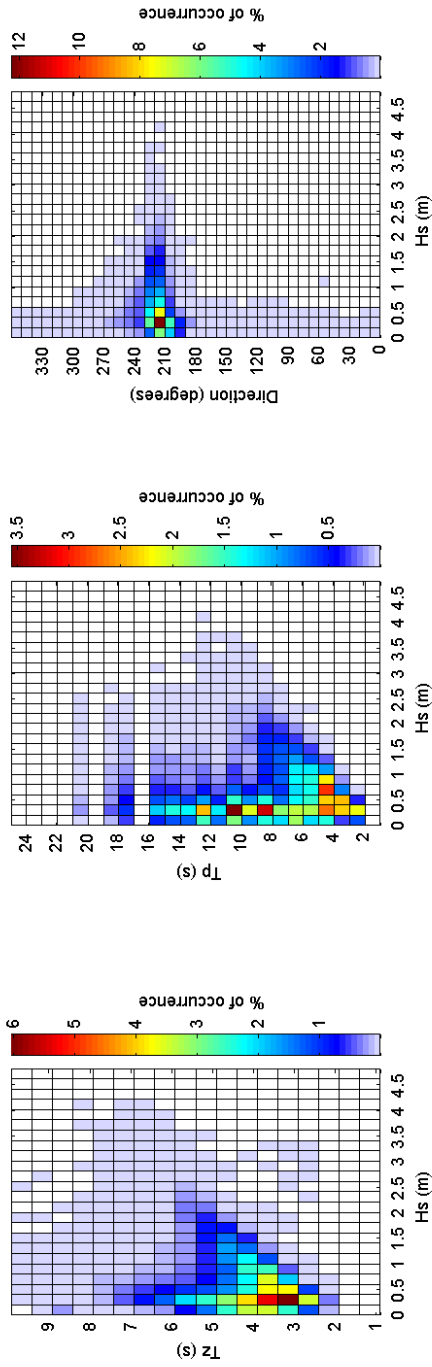
Milford 2010 - Joint distribution

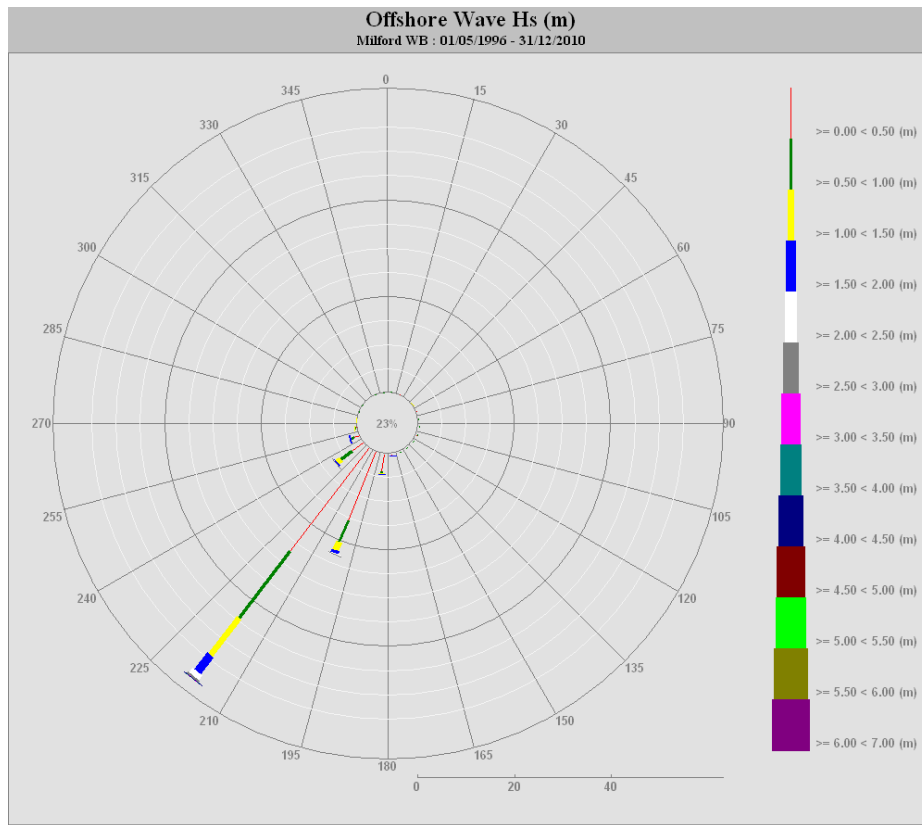


Milford 2010 - Joint distribution (% of occurrence)

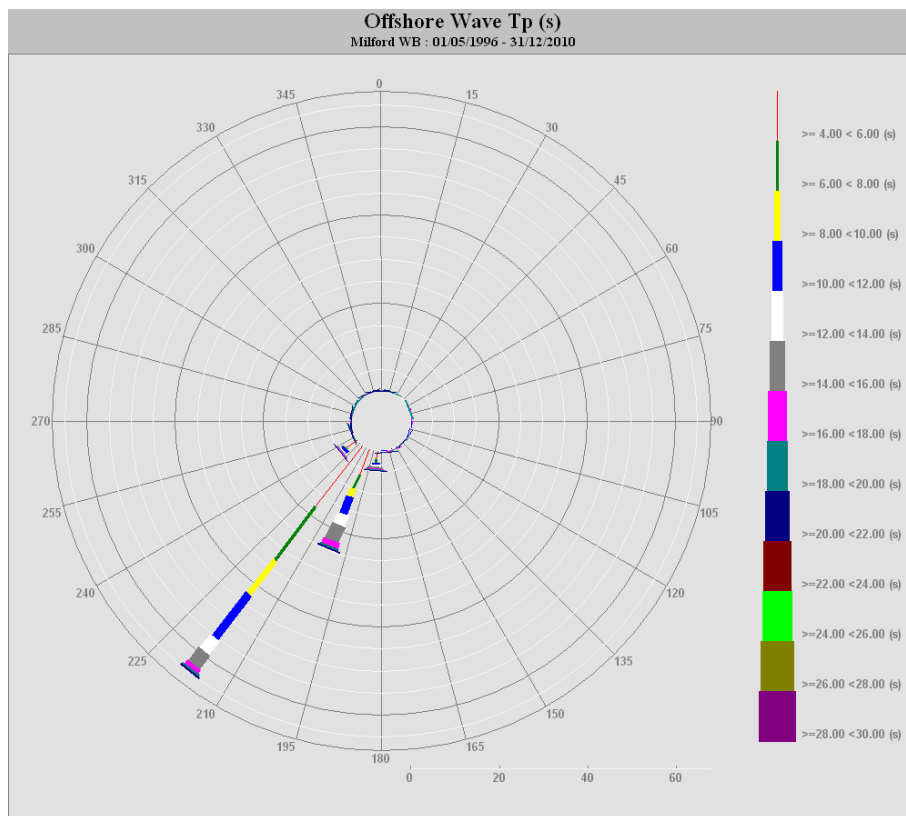


Milford 1996 to 2010 - Joint distribution (% of occurrence)





Direction vs. H_s (all measured data)



Direction vs. T_p (all measured data)

