

UK Cable Route GT - Middlesborough - September

Latitude: 54.60 N Longitude: 0.81 E

Weather Days

Wave Height > 6.0 ft Mean: 5.8 days Range: 2.9 - 8.6 days p50:5 days p75:3.5 days p90:3 days

Wave Height > 7.0 ft Mean: 3.7 days Range: 1.2 - 6.3 days p50:3 days p75:2 days p90:1.5 days

Wave Height > 8.0 ft Mean: 2.4 days Range: 0.4 - 4.5 days p50:1.5 days p75:1 days p90:1 days

Wind Speed > 15.0 knots Mean: 14.8 days Range: 11.9 - 17.7 days p50:15 days p75:13.5 days p90:12 days

Wind Speed > 20.0 knots Mean: 7.2 days Range: 4.5 - 9.9 days p50:7 days p75:6 days p90:4.5 days

Wind Speed > 25.0 knots Mean: 2.7 days Range: 1.0 - 4.4 days p50:2.5 days p75:2 days p90:1.5 days

Working Window

Wave Height < 6.0 ft
A 1 day or longer window will statistically occur 4.1 times per month
A 2 day or longer window will statistically occur 3.1 times per month
A 3 day or longer window will statistically occur 2.4 times per month

Wave Height < 7.0 ft
A 1 day or longer window will statistically occur 3.3 times per month
A 2 day or longer window will statistically occur 2.8 times per month
A 3 day or longer window will statistically occur 2.2 times per month

Wave Height < 8.0 ft
A 1 day or longer window will statistically occur 2.9 times per month
A 2 day or longer window will statistically occur 2.5 times per month
A 3 day or longer window will statistically occur 2.1 times per month

Waves

Mean Height: 2 - 4 ft

The wave heights will occasionally reach 14 - 16 ft, but rarely higher.

Mean Period: 4 - 6 sec

The wave periods will occasionally reach 10 - 12 sec, but rarely longer.

Principle Direction, from: N

WindSea/Swell: 47% / 53%

Winds

Mean Speed: 10 - 15 kts

The winds will occasionally reach 35 - 40 kts, but rarely greater.

Principle Direction, from: SSW

Currents

Mean Speed: 0.01-0.25 kts

The currents will occasionally reach 1.00-1.25 kts, but rarely greater.

Principle Direction, to: NE

Weather Days

Current Speed > 1.0 knots Mean: 0.1 days Range: 0.0 - 0.3 days p50:1 days p75:1 days p90:1 days

Current Speed > 1.5 knots Mean: 0.0 days Range: 0.0 - 0.0 days p50:1 days p75:1 days p90:1 days

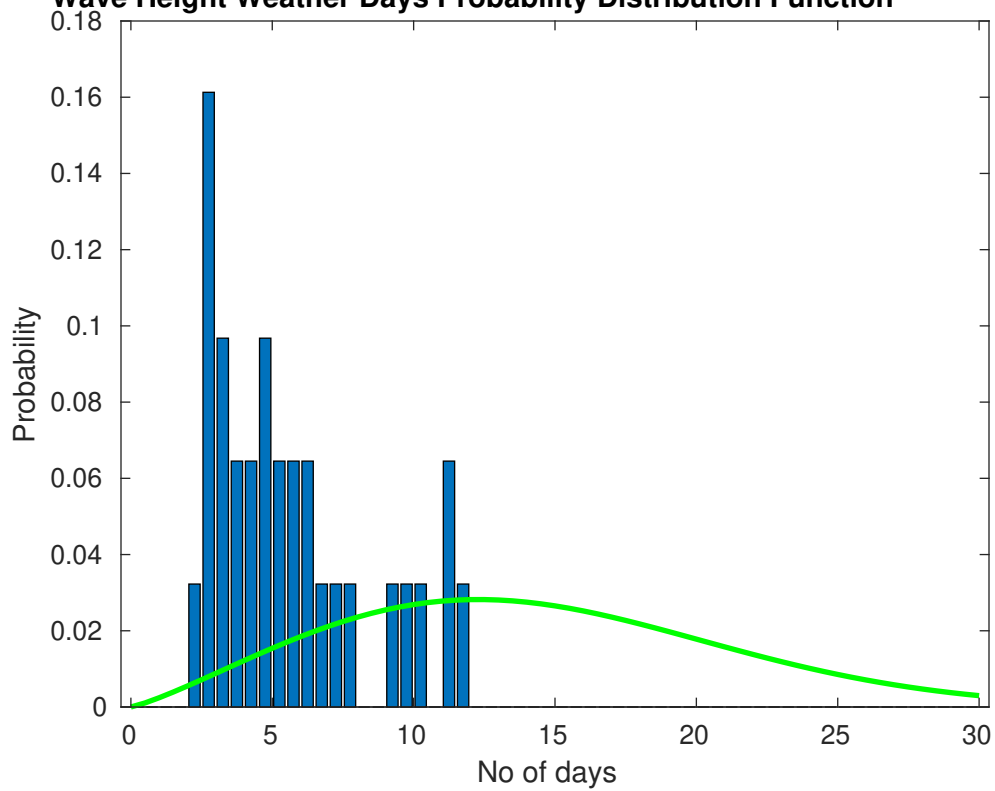
Current Speed > 2.0 knots Mean: 0.0 days Range: 0.0 - 0.0 days p50:1 days p75:1 days p90:1 days

Severe Storms

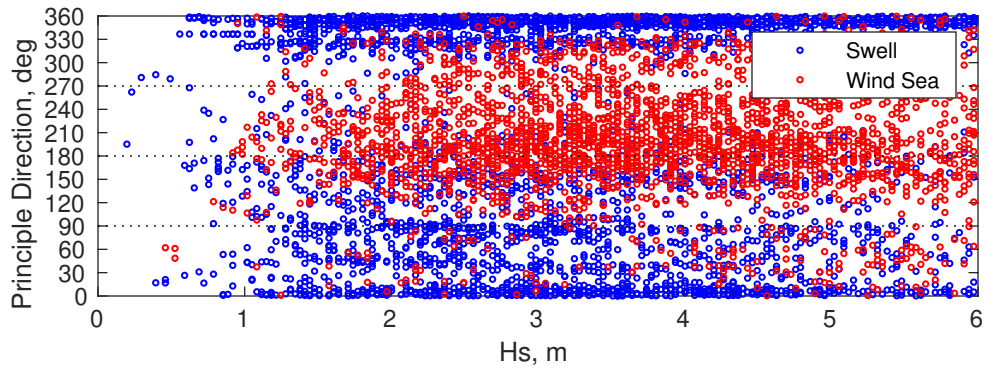
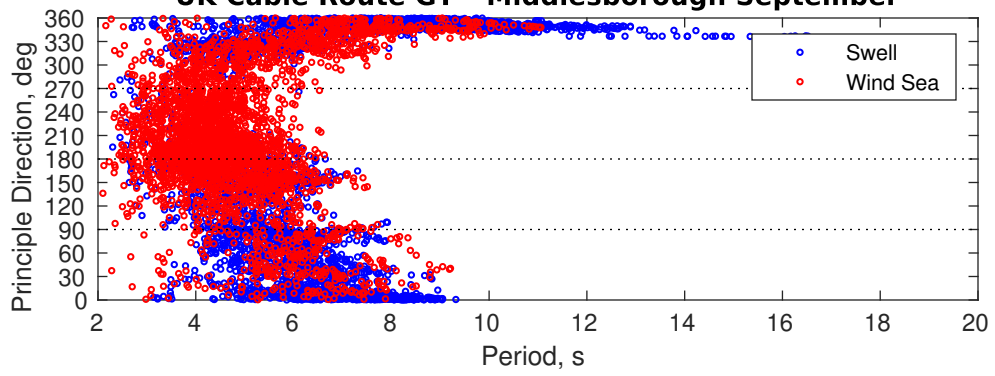
There is a 6 % chance of a storm occurring in the month with winds peaking above 34 kts.

There is a 13 % chance of a storm occurring in the month with waves exceeding 3 m (10 ft) above the mean wave height.

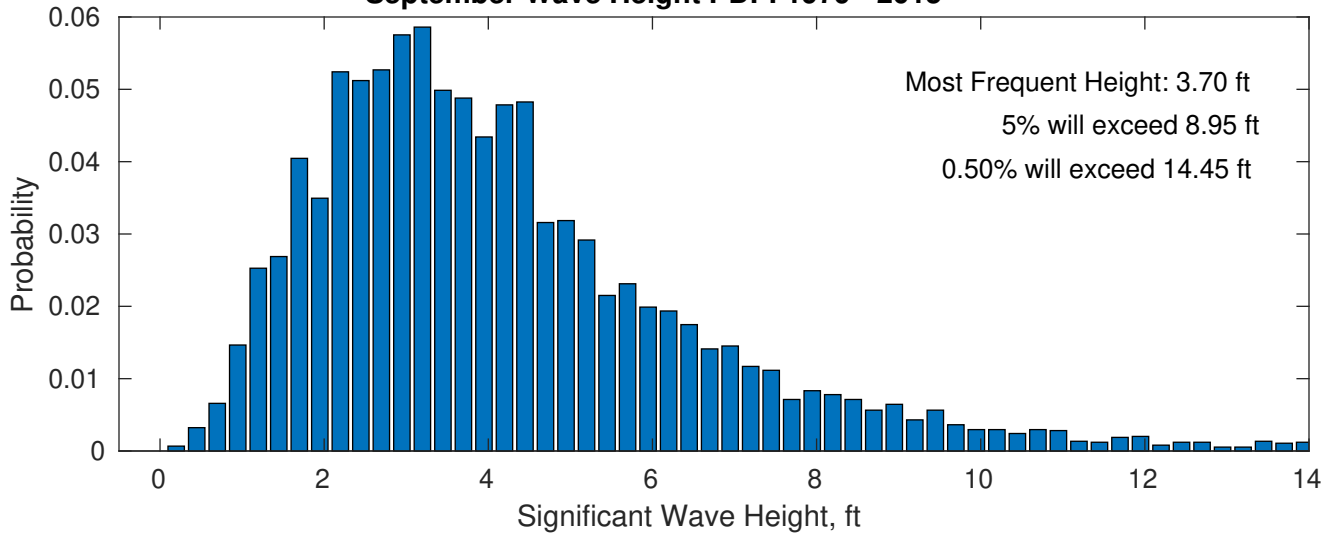
Wave Height Weather Days Probability Distribution Function



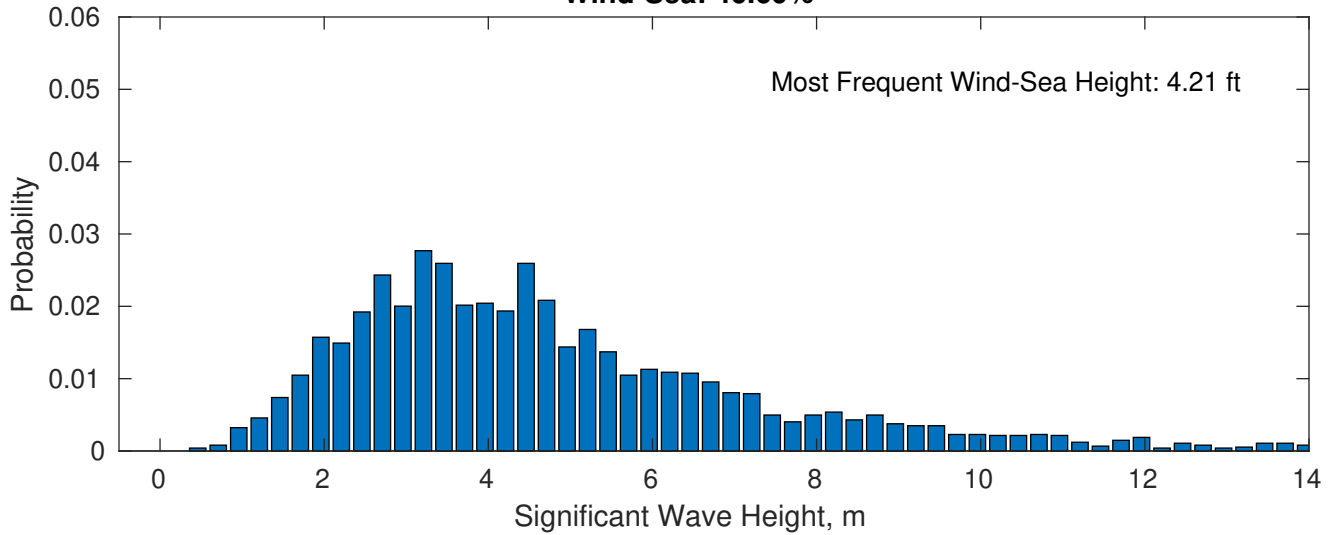
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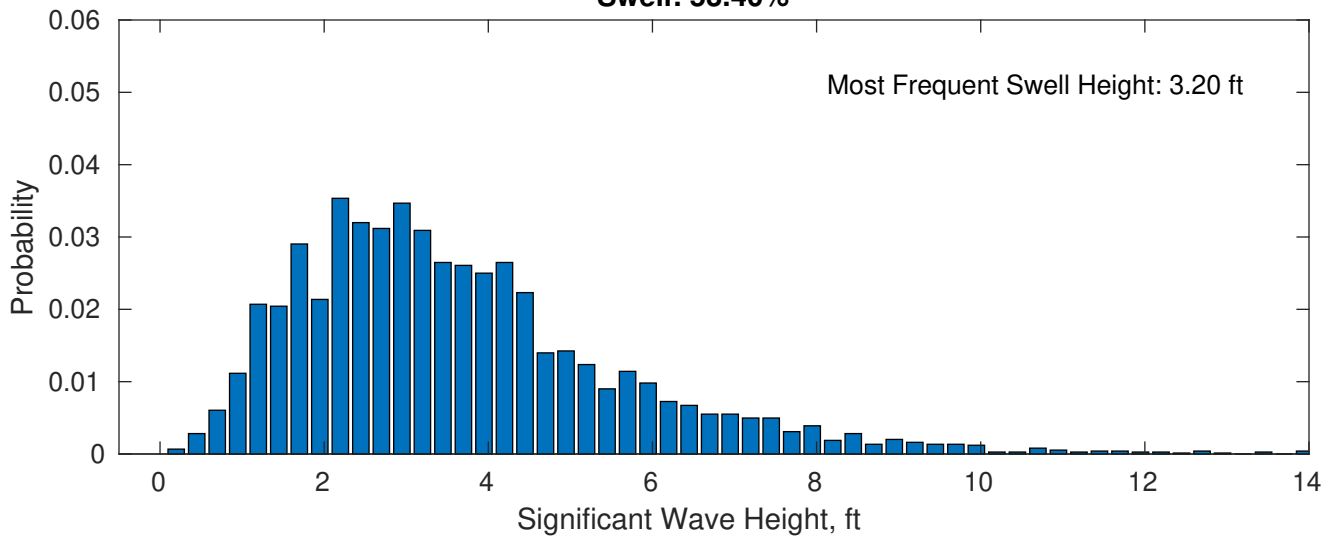
September Wave Height PDF: 1979 - 2015



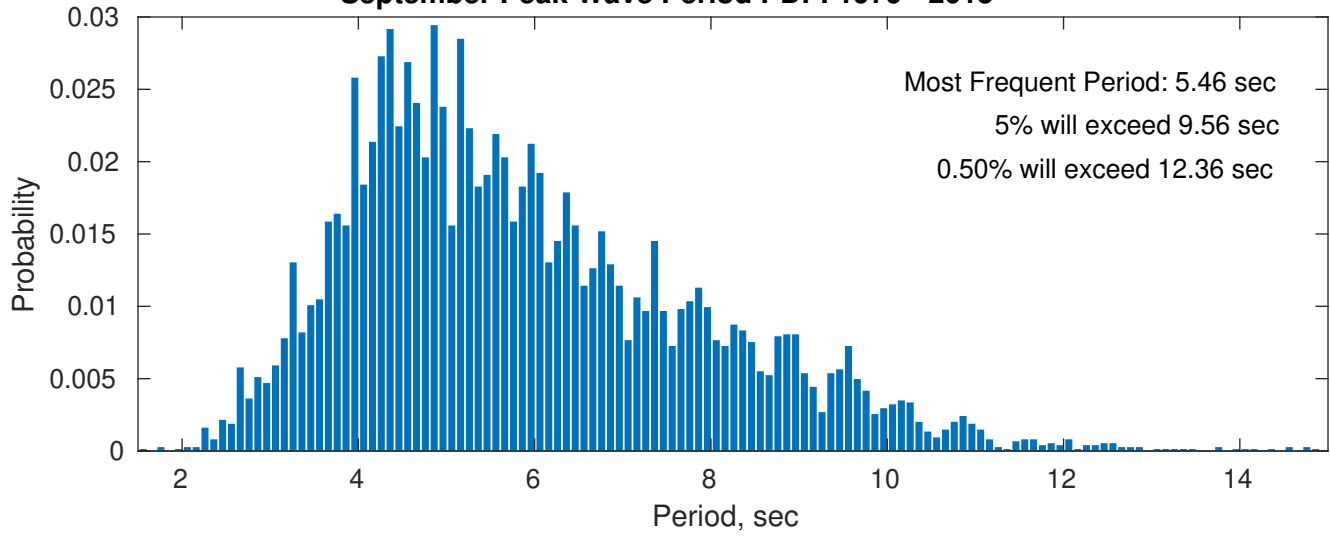
Wind-Sea: 46.60%



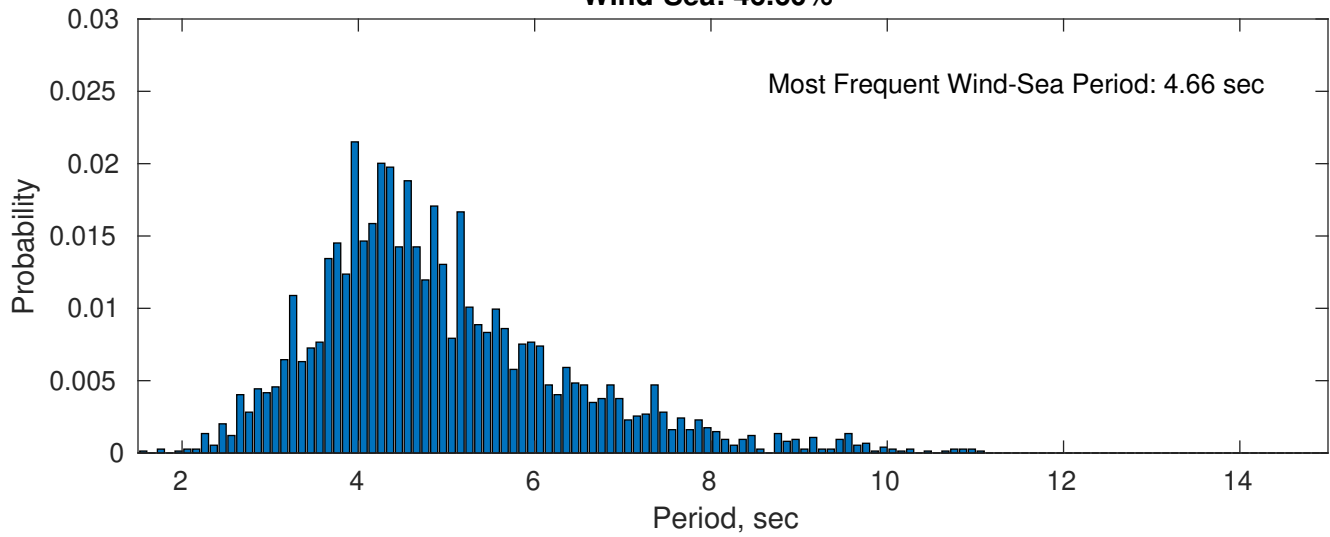
Swell: 53.40%



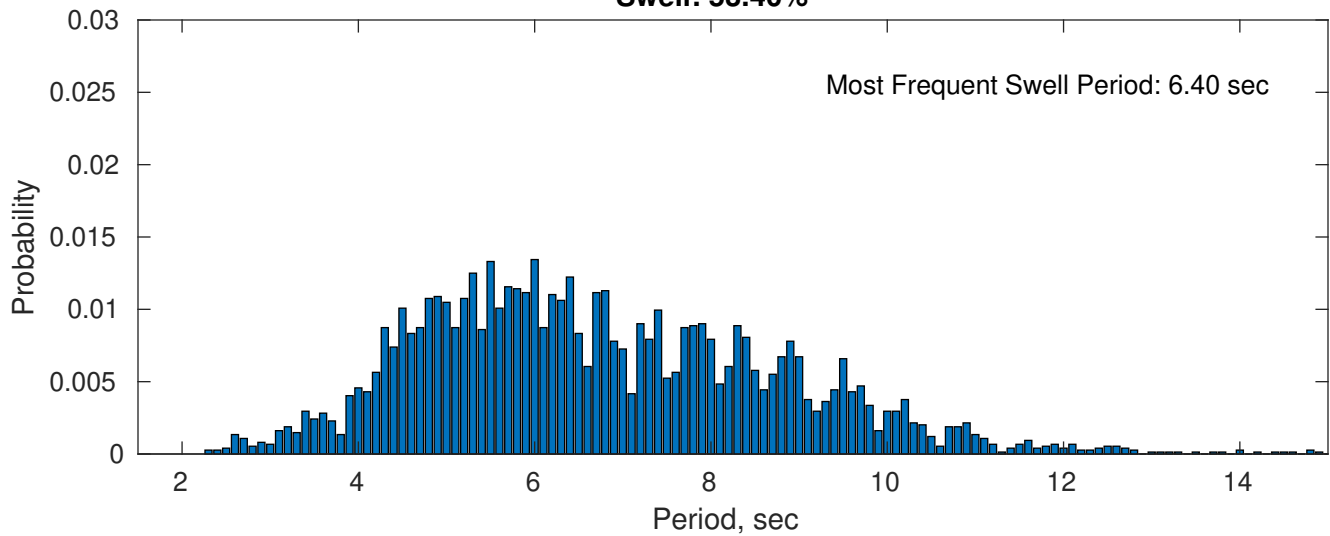
September Peak Wave Period PDF: 1979 - 2015



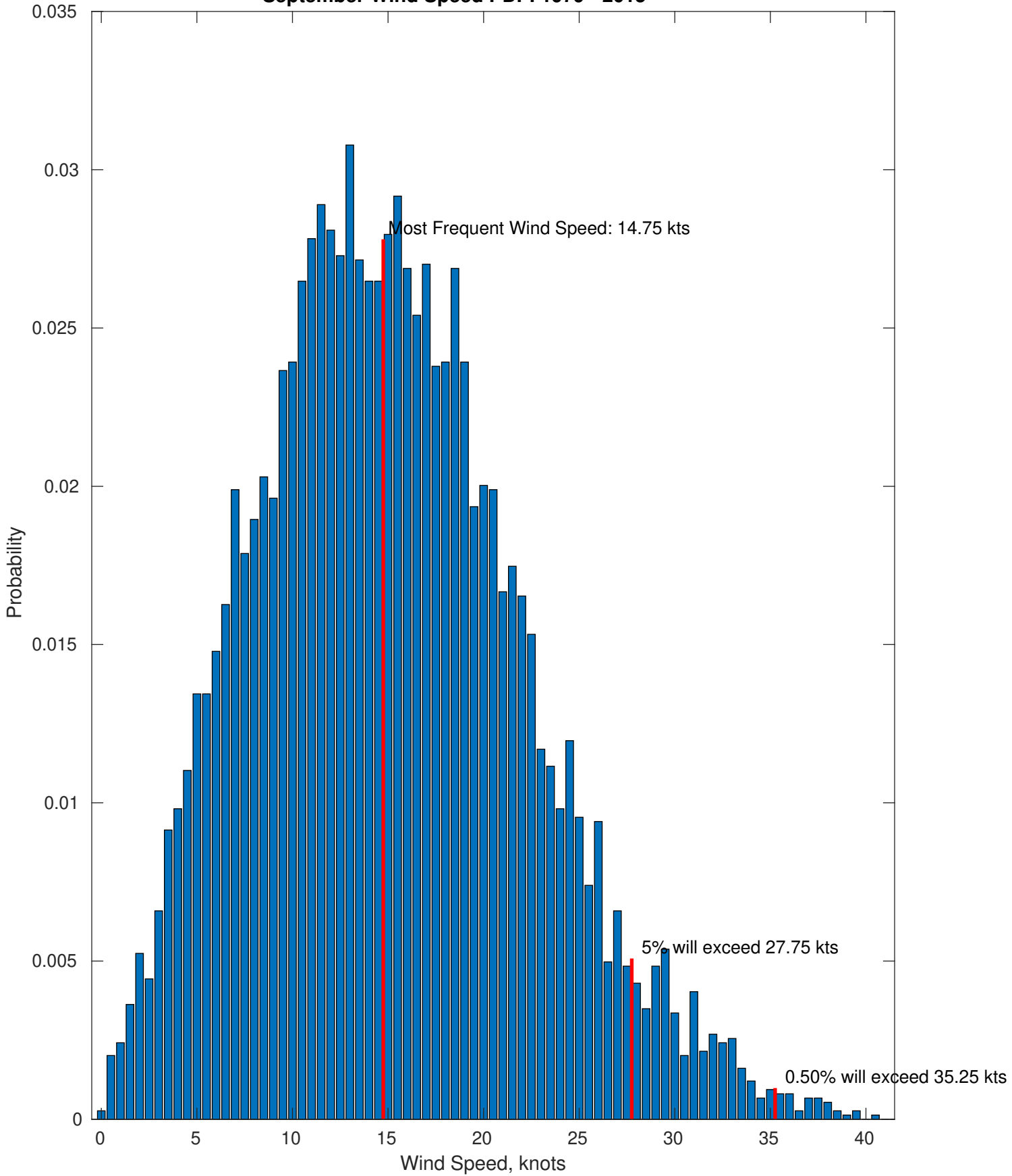
Wind-Sea: 46.60%



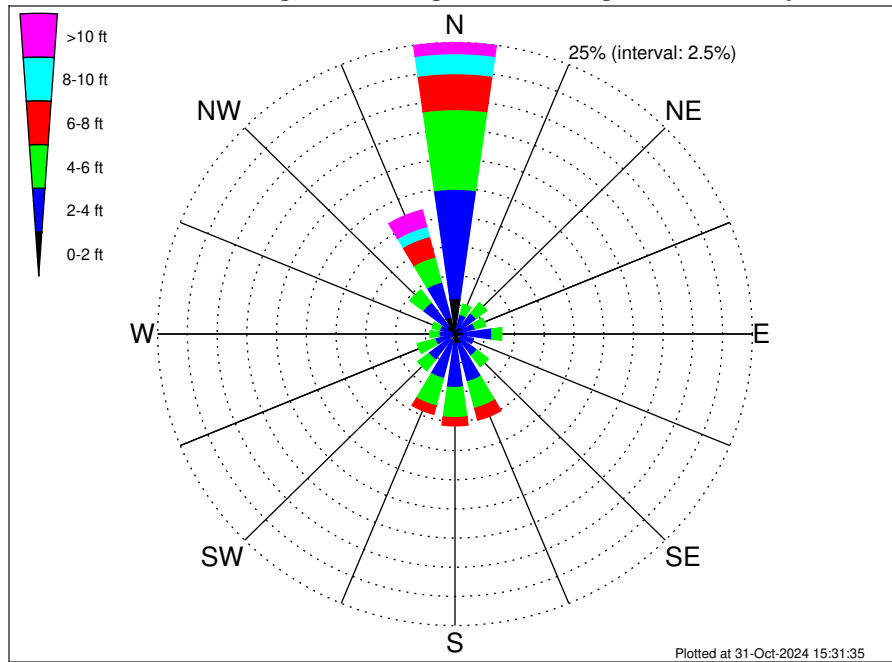
Swell: 53.40%



September Wind Speed PDF: 1979 - 2015



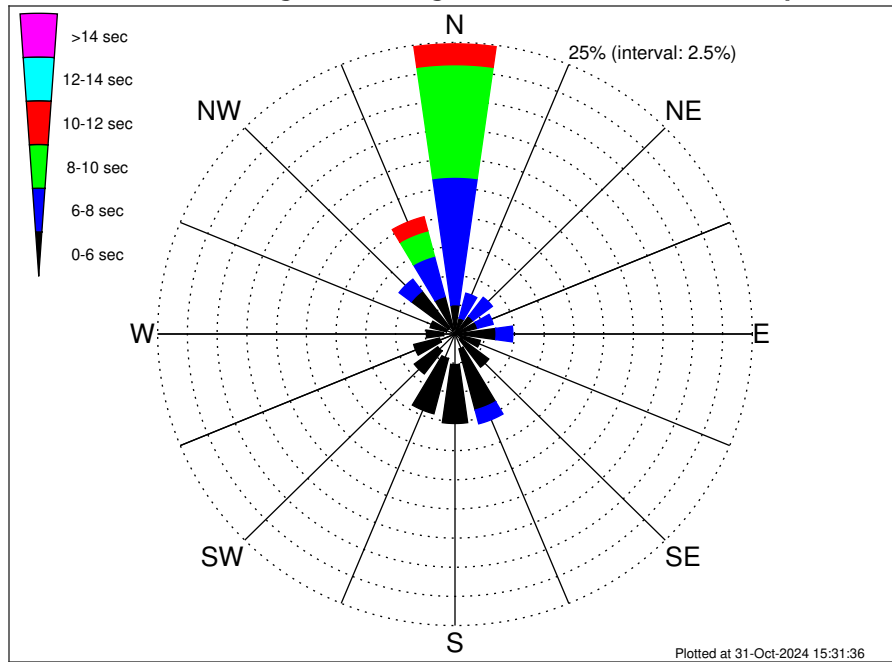
UK Cable Route GT - Middlesborough Climatological WaveHeight Rose for September: 1979 - 2015



Joint Frequency Distribution Table

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
calm	0.31	0.11	0.05	0.03	0.01	0.07	0.05	0.11	0.12	0.07	0.03	0.01	0.05	0.01	0.04	0.16	1.24
1 - 2 ft	2.73	0.28	0.65	0.38	0.70	0.47	0.46	0.75	0.75	0.55	0.55	0.32	0.17	0.12	0.82	1.34	11.05
2 - 4 ft	9.38	1.34	1.52	1.34	2.39	1.06	1.79	3.36	3.72	3.32	2.19	1.41	1.13	1.21	2.51	3.09	40.78
4 - 6 ft	6.83	0.91	1.13	0.93	0.83	0.44	1.20	2.37	2.58	2.43	1.16	1.53	0.75	0.65	1.37	2.22	27.33
6 - 8 ft	3.08	0.50	0.27	0.50	0.56	0.31	0.26	1.03	0.70	0.74	0.31	0.24	0.27	0.16	0.60	1.81	11.34
8 - 10 ft	1.72	0.31	0.24	0.13	0.27	0.07	0.01	0.24	0.09	0.08	0.07	0.08	0.11	0.11	0.36	0.89	4.78
10 - 12 ft	0.39	0.20	0.15	•	0.05	•	0.03	0.09	•	•	0.03	•	0.03	0.04	0.17	0.65	1.83
12 - 14 ft	0.27	0.11	0.03	0.03	0.04	•	0.01	•	•	•	•	•	•	•	•	0.39	0.87
14 - 16 ft	0.22	•	0.01	0.03	0.04	•	•	•	•	•	•	•	•	•	•	0.32	0.62
16 - 18 ft	0.03	•	•	•	•	•	•	•	•	•	•	•	•	•	•	0.05	0.08
> 18 ft	0.03	•	•	•	•	•	•	•	•	•	•	•	•	•	•	0.05	0.08
Total	24.97	3.76	4.05	3.36	4.91	2.42	3.80	7.96	7.97	7.19	4.33	3.60	2.51	2.30	5.89	10.98	100.00

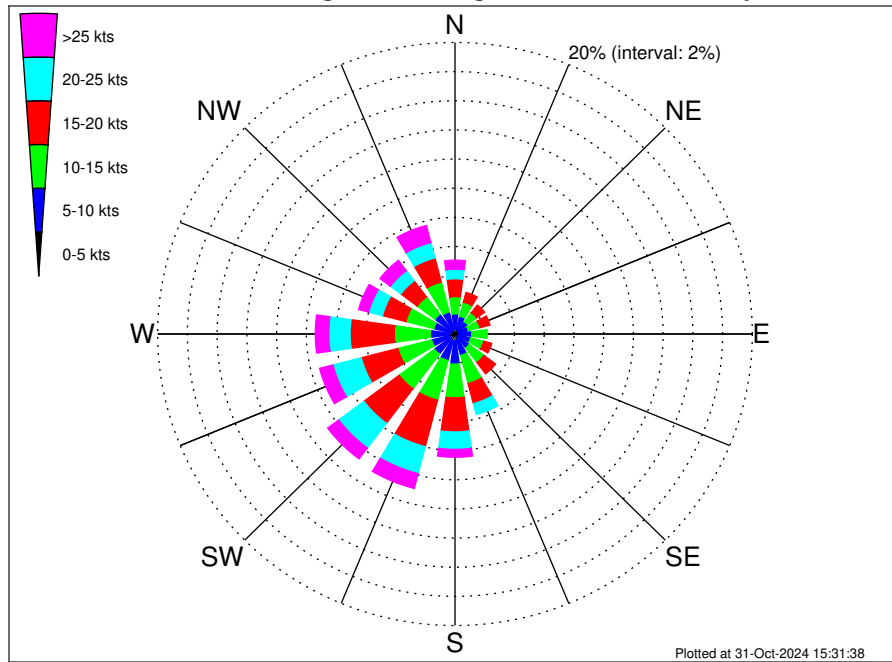
UK Cable Route GT - Middlesborough Climatological WavePeriod Rose for September: 1979 - 2015



Joint Frequency Distribution Table

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
calm	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1 - 2 sec	•	•	0.01	0.03	•	•	•	•	0.01	•	•	•	•	•	•	•	0.05
2 - 4 sec	0.43	0.20	0.15	0.03	0.12	0.44	0.60	1.32	2.61	2.16	1.81	1.34	0.97	0.74	0.67	0.35	13.95
4 - 6 sec	2.08	1.24	1.76	1.91	3.33	1.76	2.96	5.42	5.05	4.91	2.47	2.24	1.44	1.42	3.94	2.97	44.91
6 - 8 sec	10.94	2.18	2.02	1.36	1.41	0.22	0.24	1.22	0.30	0.12	0.04	0.01	0.11	0.13	1.28	3.58	25.15
8 - 10 sec	9.64	0.15	0.11	0.04	0.04	•	•	•	•	•	•	•	•	•	•	2.24	12.22
10 - 12 sec	1.79	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1.25	3.04
12 - 14 sec	0.09	•	•	•	•	•	•	•	•	•	•	•	•	•	•	0.38	0.47
14 - 16 sec	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	0.13	0.13
18 - 20 sec	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	0.08	0.08
22 - 24 sec	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Total	24.97	3.76	4.05	3.36	4.91	2.42	3.80	7.96	7.97	7.19	4.33	3.60	2.51	2.30	5.89	10.98	100.00

UK Cable Route GT - Middlesborough Climatological Wind Rose for September: 1979 - 2015



Joint Frequency Distribution Table

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
calm	0.01	0.03	0.01	0.03	0.01	0.04	•	0.01	0.01	0.01	•	0.03	•	•	0.03	•	0.23
0 - 5 kts	0.35	0.34	0.27	0.23	0.30	0.24	0.23	0.38	0.47	0.44	0.42	0.34	0.39	0.24	0.31	0.30	5.23
5 - 10 kts	1.02	0.90	0.78	0.67	0.82	0.81	0.97	1.13	1.59	1.42	1.32	1.26	1.28	1.24	1.36	1.26	17.82
10 - 15 kts	1.18	0.99	0.77	0.81	1.03	0.91	1.25	1.99	2.31	2.81	2.97	2.34	2.42	1.94	1.49	2.12	27.34
15 - 20 kts	1.22	0.69	0.66	0.70	0.38	0.55	0.97	1.42	2.34	3.29	2.97	2.55	2.97	1.63	1.38	1.71	25.43
20 - 25 kts	0.66	0.35	0.40	0.34	0.34	0.22	0.44	0.77	1.20	1.91	2.12	1.96	1.44	0.95	0.87	1.09	15.05
25 - 30 kts	0.46	0.13	0.22	0.05	0.09	0.07	0.03	0.23	0.39	0.83	0.71	0.74	0.48	0.48	0.54	0.62	6.08
30 - 35 kts	0.16	0.07	0.07	0.03	0.01	0.03	0.03	0.05	0.13	0.20	0.20	0.12	0.32	0.16	0.22	0.47	2.27
35 - 40 kts	•	•	•	•	0.03	•	0.01	0.01	0.01	0.01	0.01	0.07	0.09	0.05	0.12	0.11	0.54
40 - 45 kts	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	0.01	0.01
45 - 50 kts	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Total	5.07	3.49	3.17	2.85	3.01	2.86	3.92	5.99	8.45	10.94	10.73	9.41	9.40	6.69	6.32	7.69	100.00