

## Madagascar MBES - December

Latitude: 14.97 S Longitude: 45.59 E

### Weather Days

Wave Height > 5.0 ft Mean: 0.6 days Range: 0.0 - 1.6 days p50:30 days p75:2 days p90:1 days

Wave Height > 6.5 ft Mean: 0.3 days Range: 0.0 - 0.8 days p50:30 days p75:3 days p90:1 days

Wave Height > 8.0 ft Mean: 0.1 days Range: 0.0 - 0.5 days p50:30 days p75:30 days p90:0.5 days

Wind Speed > 15.0 knots Mean: 1.4 days Range: 0.1 - 2.7 days p50:1.5 days p75:0.5 days p90:0.5 days

Wind Speed > 20.0 knots Mean: 0.3 days Range: 0.0 - 0.9 days p50:0.5 days p75:0.5 days p90:0.5 days

Wind Speed > 25.0 knots Mean: 0.1 days Range: 0.0 - 0.4 days p50:0.5 days p75:0.5 days p90:0.5 days

### Working Window

Wave Height < 5.0 ft  
A 1 day or longer window will statistically occur 1.4 times per month  
A 2 day or longer window will statistically occur 1.3 times per month  
A 3 day or longer window will statistically occur 1.2 times per month

Wave Height < 6.5 ft  
A 1 day or longer window will statistically occur 1.2 times per month  
A 2 day or longer window will statistically occur 1.2 times per month  
A 3 day or longer window will statistically occur 1.1 times per month

Wave Height < 8.0 ft  
A 1 day or longer window will statistically occur 1.1 times per month  
A 2 day or longer window will statistically occur 1.1 times per month  
A 3 day or longer window will statistically occur 1.0 times per month

### Waves

Mean Height: 2 - 4 ft

The wave heights will occasionally reach 6 - 8 ft, but rarely higher.

Mean Period: 6 - 8 sec

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

Principle Direction, from: NNE

WindSea/Swell: 10% / 90%

### Winds

Mean Speed: 5 - 10 kts

The winds will occasionally reach 20 - 25 kts, but rarely greater.

Principle Direction, from: NW

### Currents

Mean Speed: 0.50-0.75 kts

The currents will occasionally reach 1.50-1.75 kts, but rarely greater.

Principle Direction, to: ENE

### Weather Days

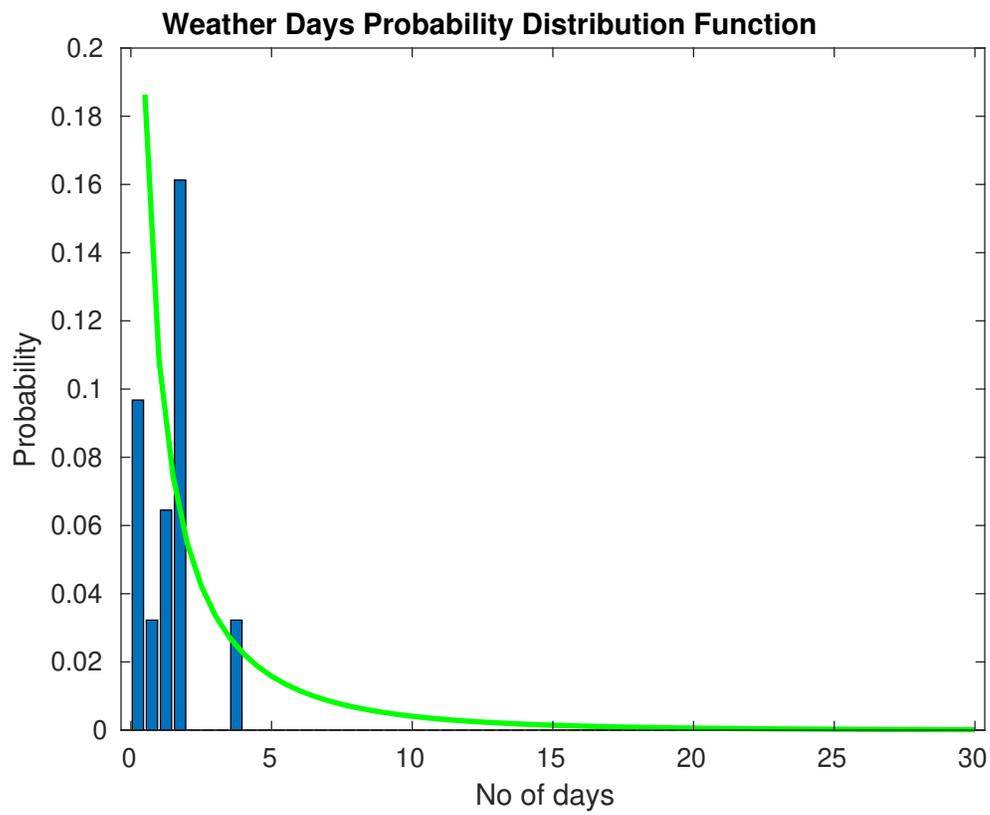
Current Speed > 0.5 knots Mean: 19.5 days Range: 14.0 - 25.0 days p50:21 days p75:18 days p90:11 days

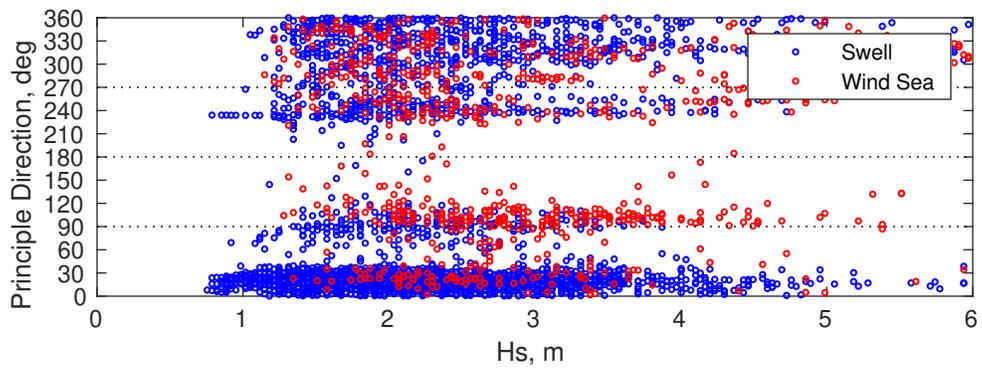
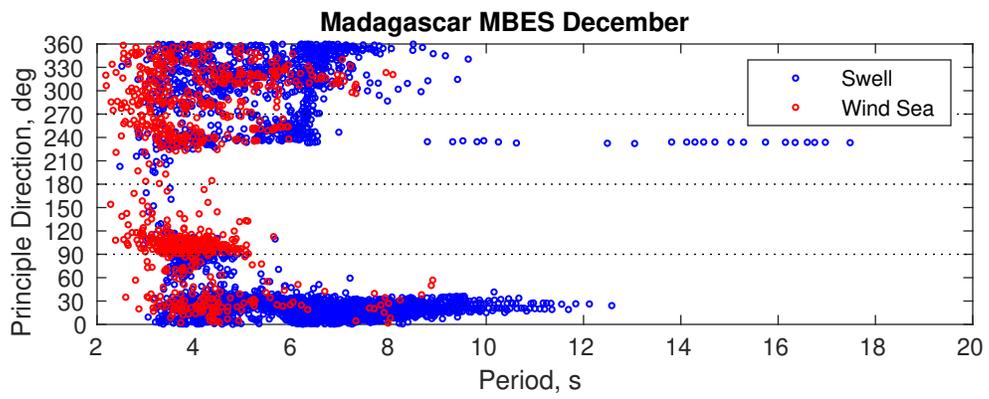
Current Speed > 1.0 knots Mean: 5.6 days Range: 0.0 - 11.2 days p50:5 days p75:3 days p90:1 days

Current Speed > 1.5 knots Mean: 0.5 days Range: 0.0 - 1.7 days p50:1 days p75:1 days p90:1 days

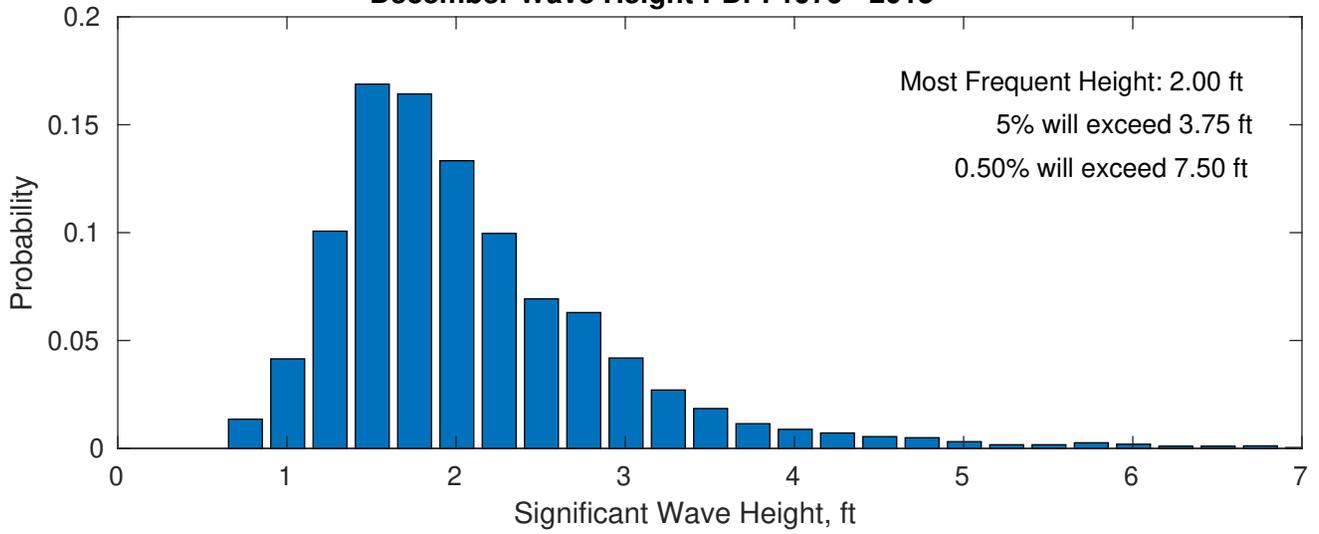
### Severe Storms

Severe storms with gale force winds and extreme waves are not expected during this month.

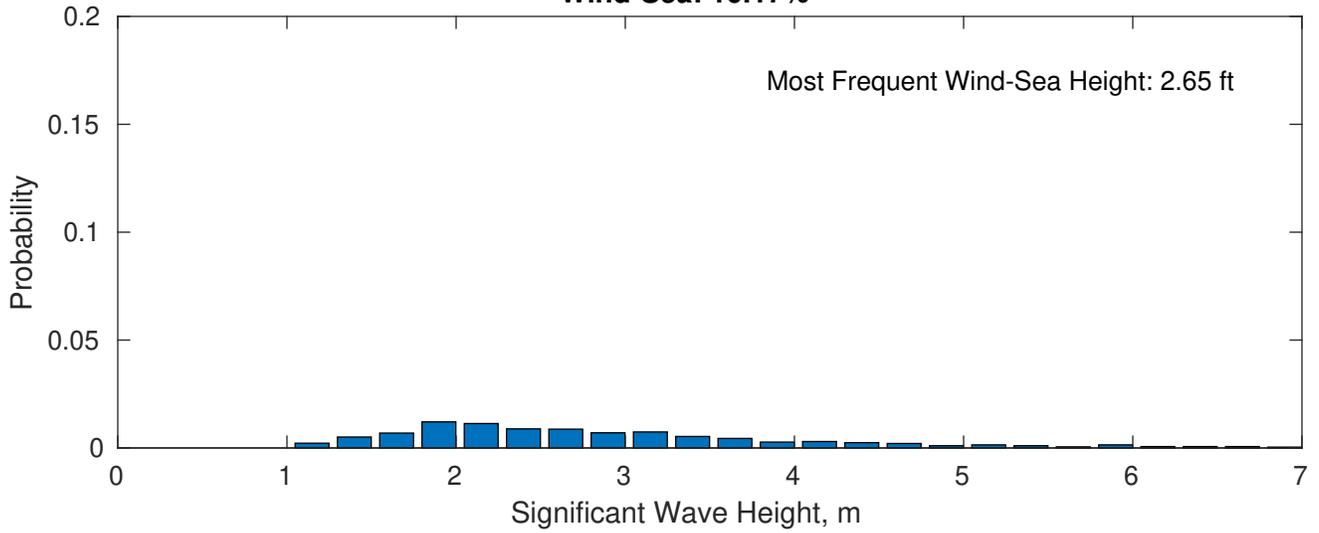




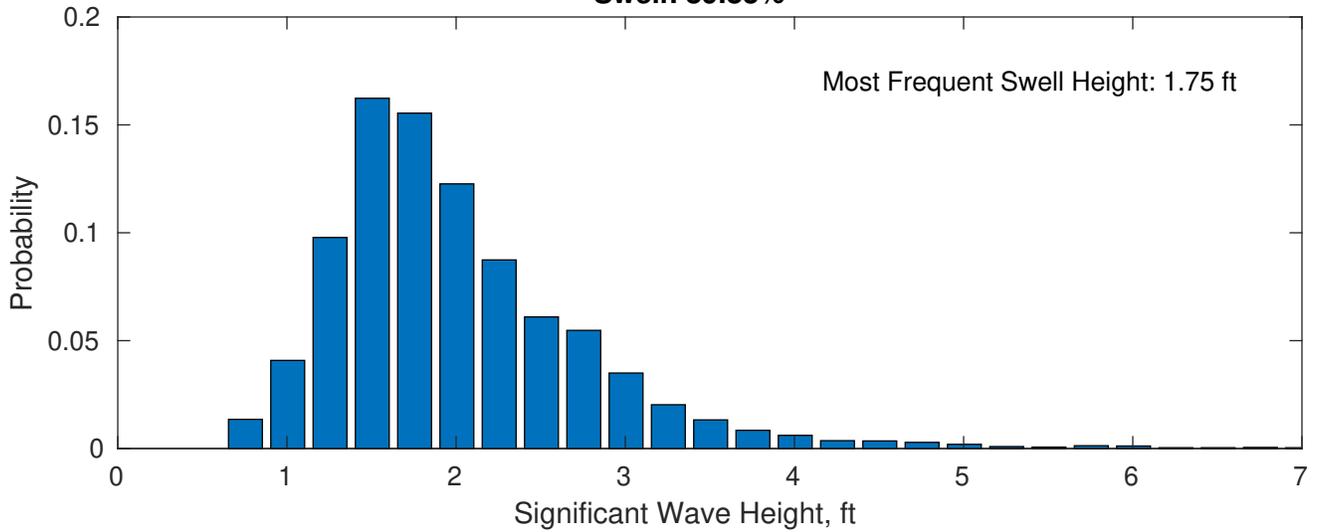
**December Wave Height PDF: 1979 - 2015**



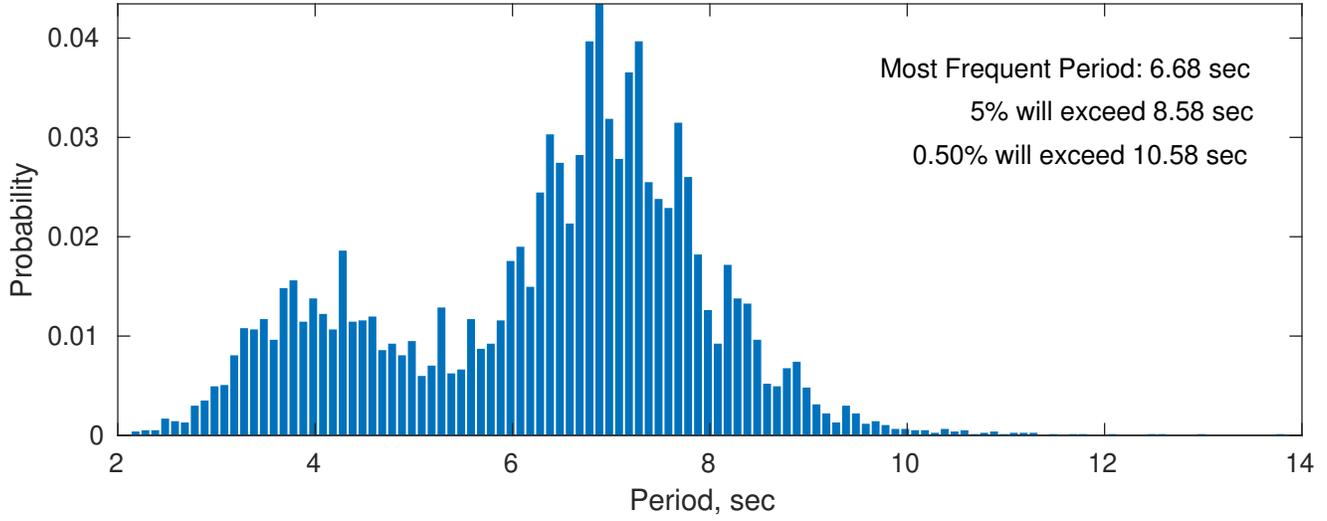
**Wind-Sea: 10.17%**



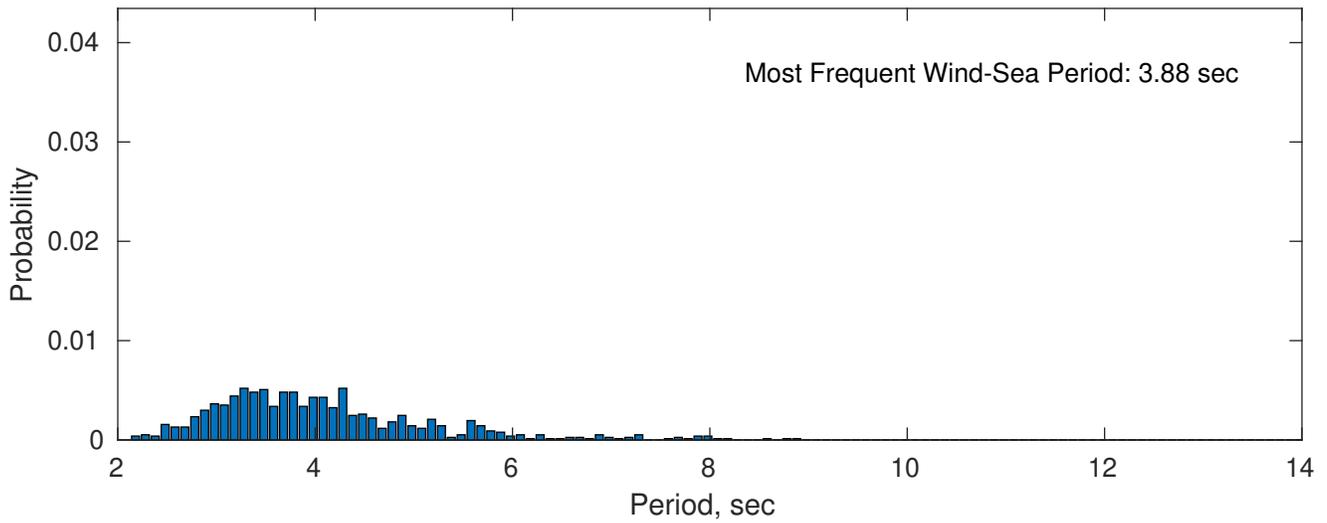
**Swell: 89.83%**



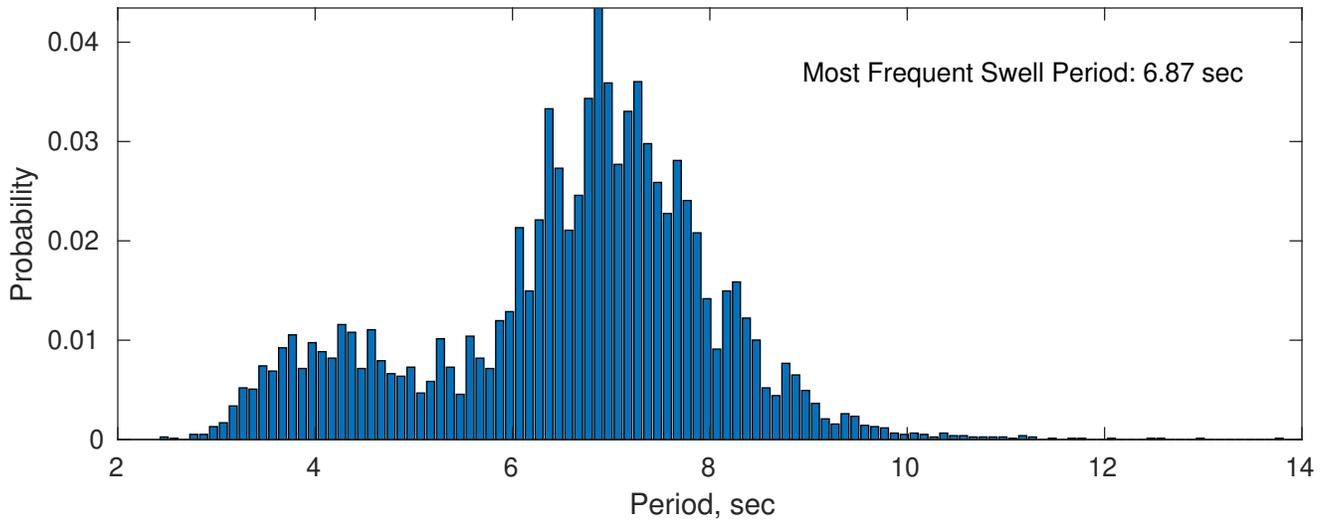
**December Peak Wave Period PDF: 1979 - 2015**



**Wind-Sea: 10.17%**

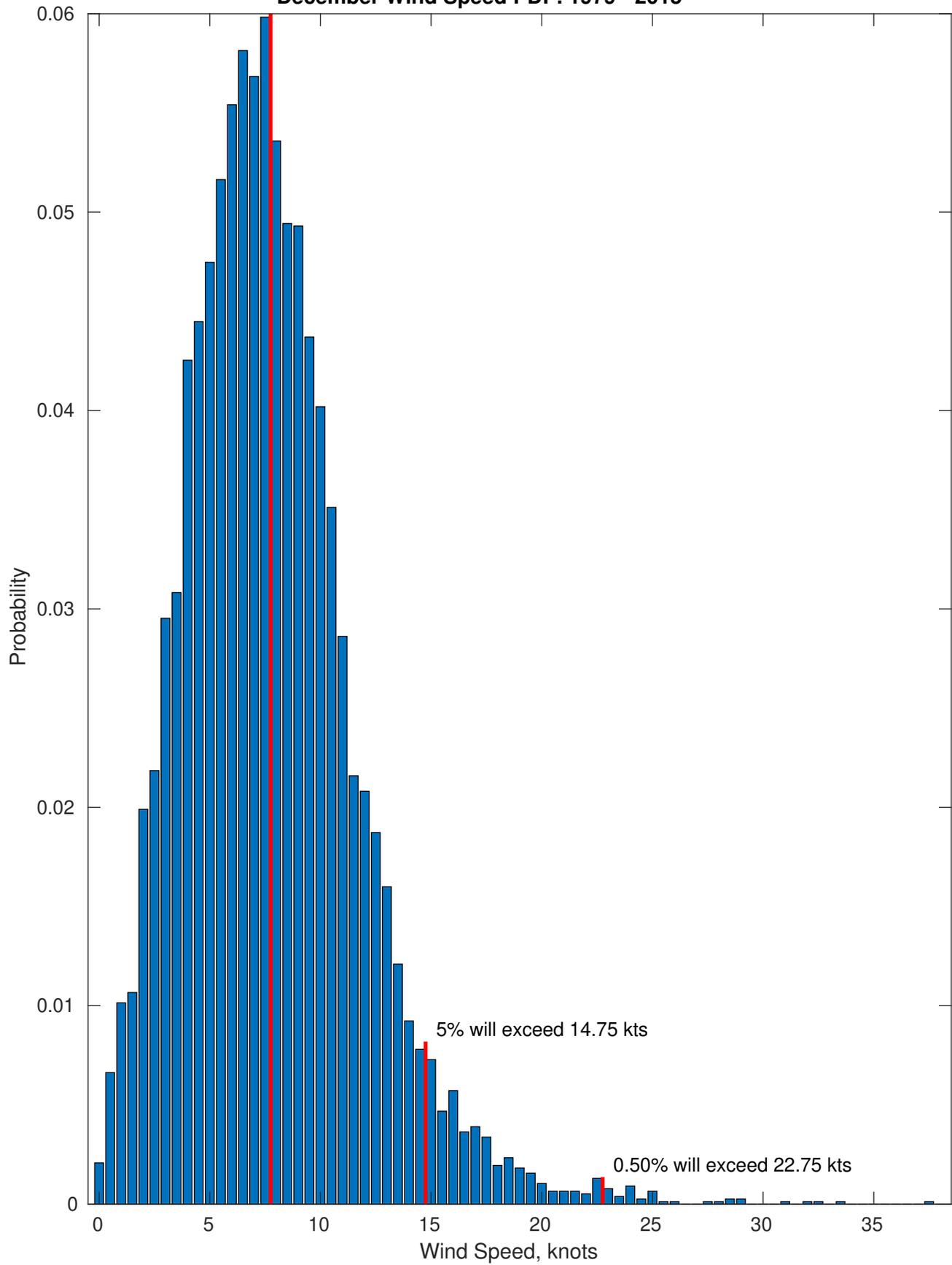


**Swell: 89.83%**

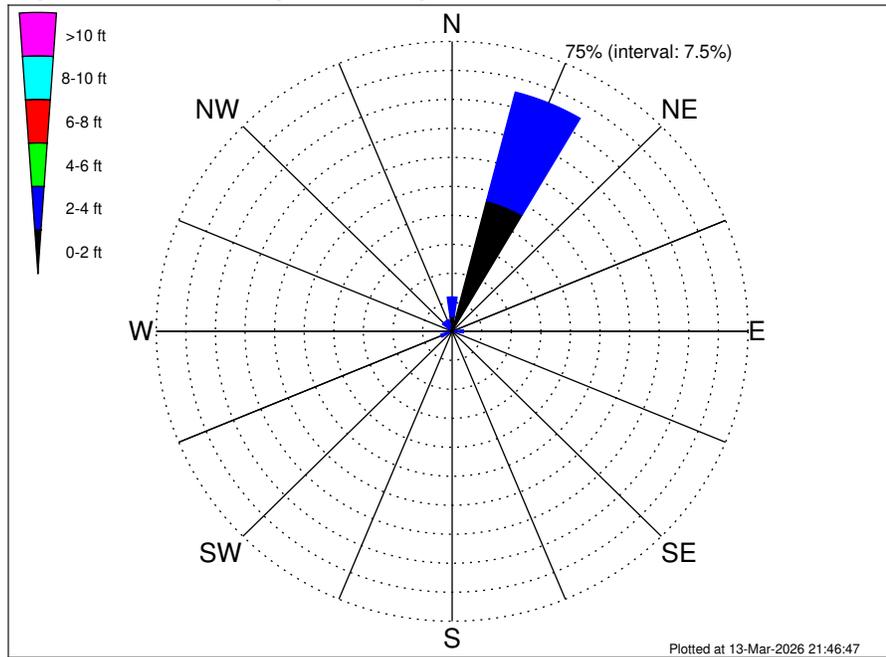


Most Frequent Wind Speed: 7.75 kts

### December Wind Speed PDF: 1979 - 2015



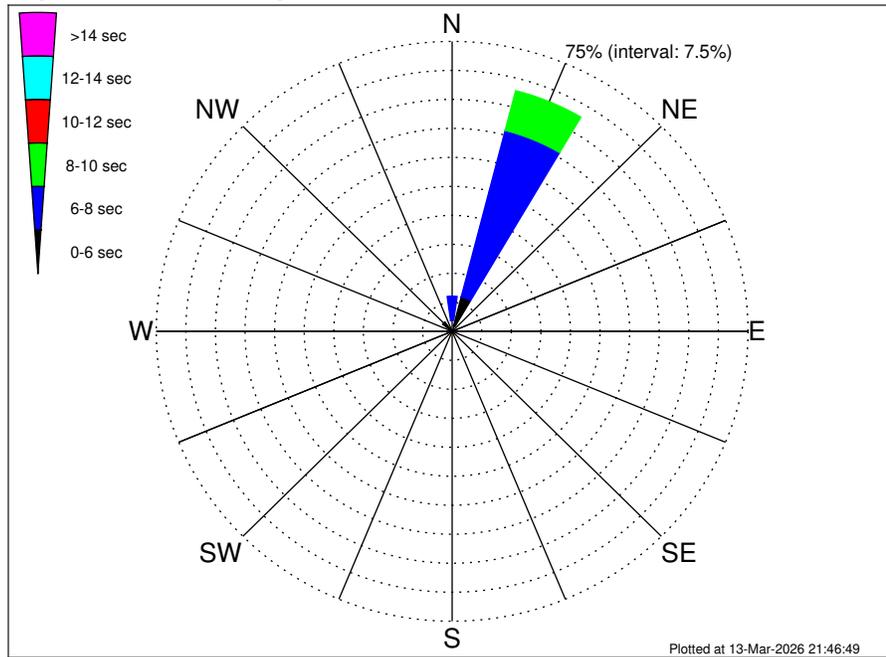
**Madagascar MBES Climatological WaveHeight Rose for December: 1979 - 2015**



**Joint Frequency Distribution Table**

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
calm	0.16	1.07	0.01	0.01	•	•	•	•	•	•	0.10	•	•	•	•	•	1.35
1 - 2 ft	3.63	33.88	1.21	0.27	0.66	0.33	0.12	0.05	0.03	0.08	0.87	0.91	0.52	0.74	0.81	1.24	45.34
2 - 4 ft	5.10	28.98	1.12	0.52	2.20	1.61	0.12	0.04	0.04	0.07	0.59	2.03	0.72	1.20	2.25	1.89	48.45
4 - 6 ft	0.59	0.70	0.14	0.01	0.20	0.12	0.05	•	0.03	•	0.03	0.38	0.16	0.16	0.79	0.33	3.67
6 - 8 ft	0.05	0.10	0.04	0.03	•	0.01	•	•	•	•	•	•	•	0.07	0.33	0.12	0.74
8 - 10 ft	0.04	0.03	0.03	0.01	•	•	•	•	•	•	•	•	•	0.04	0.09	0.01	0.25
10 - 12 ft	0.01	0.03	•	•	•	•	•	•	•	•	•	•	•	•	0.04	0.01	0.09
12 - 14 ft	0.04	0.03	•	0.01	•	•	•	•	•	•	•	•	•	•	•	•	0.08
14 - 16 ft	•	•	0.03	•	•	•	•	•	•	•	•	•	•	•	•	•	0.03
16 - 18 ft	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
> 18 ft	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Total	9.61	64.82	2.58	0.87	3.06	2.07	0.29	0.09	0.09	0.14	1.59	3.32	1.39	2.20	4.31	3.59	100.00

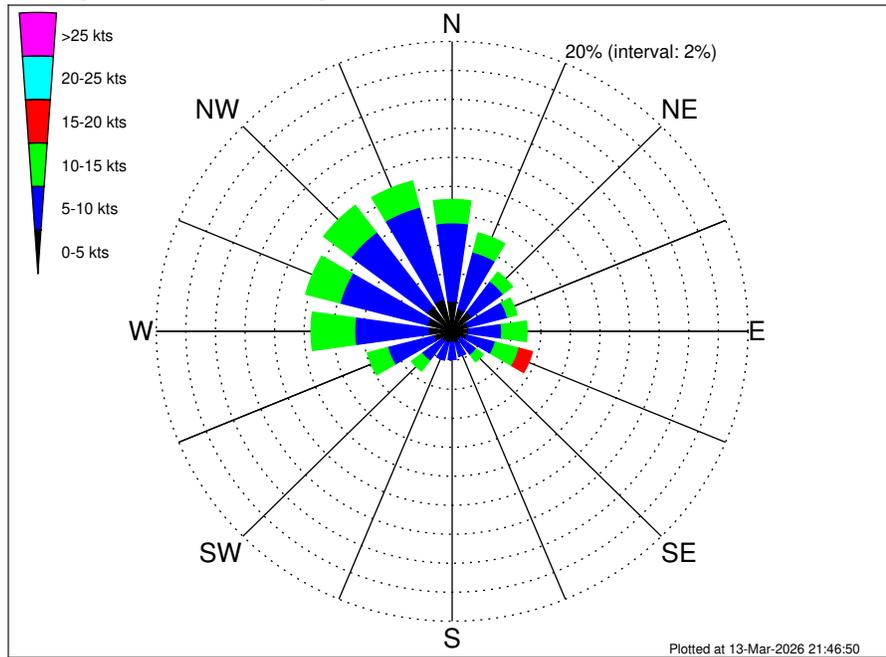
Madagascar MBES Climatological WavePeriod Rose for December: 1979 - 2015



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	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
2 - 4 sec	1.05	1.43	0.34	0.57	1.55	1.44	0.22	0.08	0.07	0.14	0.77	0.92	0.49	1.00	0.70	0.95	11.73
4 - 6 sec	1.78	7.78	1.61	0.27	1.51	0.62	0.07	0.01	0.03	•	0.43	1.65	0.52	0.81	2.34	1.31	20.75
6 - 8 sec	6.26	44.47	0.31	0.01	•	•	•	•	•	•	0.08	0.74	0.38	0.36	1.21	1.29	55.11
8 - 10 sec	0.52	10.61	0.29	0.01	•	•	•	•	•	•	0.07	•	•	0.03	0.05	0.04	11.62
10 - 12 sec	•	0.49	0.03	•	•	•	•	•	•	•	0.03	•	•	•	•	•	0.55
12 - 14 sec	•	0.03	•	•	•	•	•	•	•	•	0.04	•	•	•	•	•	0.07
14 - 16 sec	•	•	•	•	•	•	•	•	•	•	0.10	•	•	•	•	•	0.10
18 - 20 sec	•	•	•	•	•	•	•	•	•	•	0.08	•	•	•	•	•	0.08
22 - 24 sec	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Total	9.61	64.82	2.58	0.87	3.06	2.07	0.29	0.09	0.09	0.14	1.59	3.32	1.39	2.20	4.31	3.59	100.00

Madagascar MBES Climatological Wind Rose for December: 1979 - 2015



Joint Frequency Distribution Table

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
calm	0.08	0.07	0.01	0.05	0.05	0.05	0.05	0.04	0.10	0.07	0.03	0.07	0.05	0.05	0.03	0.08	0.87
0 - 5 kts	2.00	1.53	1.64	1.08	1.08	1.00	0.66	0.86	0.64	0.78	0.86	1.24	1.57	1.69	2.13	2.22	20.99
5 - 10 kts	5.41	4.05	2.65	2.73	2.22	1.96	1.34	0.90	1.21	1.21	1.66	3.20	4.97	6.09	6.39	6.54	52.54
10 - 15 kts	1.60	1.37	0.81	0.66	1.70	1.66	0.57	0.25	0.18	0.39	0.88	1.42	2.94	2.39	2.33	1.86	21.02
15 - 20 kts	0.46	0.09	0.12	0.08	0.43	0.92	0.20	0.04	0.01	0.04	0.10	0.18	0.23	0.29	0.26	0.18	3.63
20 - 25 kts	0.04	0.08	0.08	•	0.13	0.07	0.04	0.01	•	•	•	0.03	0.01	0.04	0.13	0.07	0.72
25 - 30 kts	•	0.09	0.01	•	•	•	0.01	•	•	•	•	•	•	•	0.01	0.04	0.17
30 - 35 kts	•	0.04	•	•	•	0.01	•	•	•	•	•	•	•	•	•	•	0.05
35 - 40 kts	•	•	0.01	•	•	•	•	•	•	•	•	•	•	•	•	•	0.01
40 - 45 kts	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
45 - 50 kts	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Total	9.59	7.31	5.33	4.60	5.62	5.68	2.87	2.09	2.15	2.48	3.54	6.13	9.78	10.55	11.28	10.99	100.00