

## Madagascar MBES - July

Latitude: 14.97 S Longitude: 45.59 E

### Weather Days

Wave Height > 5.0 ft Mean: 2.6 days Range: 1.3 - 4.0 days p50:2.5 days p75:2 days p90:1 days  
Wave Height > 6.5 ft Mean: 0.2 days Range: 0.0 - 0.4 days p50:30 days p75:30 days p90:0.5 days  
Wave Height > 8.0 ft Mean: 0.0 days Range: 0.0 - 0.0 days p50:30 days p75:30 days p90:30 days  
Wind Speed > 15.0 knots Mean: 12.8 days Range: 10.3 - 15.2 days p50:13 days p75:12 days p90:10.5 days  
Wind Speed > 20.0 knots Mean: 4.1 days Range: 2.4 - 5.8 days p50:4 days p75:3.5 days p90:3 days  
Wind Speed > 25.0 knots Mean: 0.3 days Range: 0.0 - 0.6 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 3.7 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 2.5 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 1.2 times per month
Wave Height < 8.0 ft	A 1 day or longer window will statistically occur 0.9 times per month A 2 day or longer window will statistically occur 0.9 times per month A 3 day or longer window will statistically occur 0.9 times per month

### Waves

Mean Height: 2 - 4 ft  
The wave heights will occasionally reach 6 - 8 ft, but rarely higher.  
Mean Period: 4 - 6 sec  
The wave periods will occasionally reach 6 - 8 sec, but rarely longer.  
Principle Direction, from: E  
WindSea/Swell: 52% / 48%

### Winds

Mean Speed: 10 - 15 kts  
The winds will occasionally reach 25 - 30 kts, but rarely greater.  
Principle Direction, from: ESE

### Currents

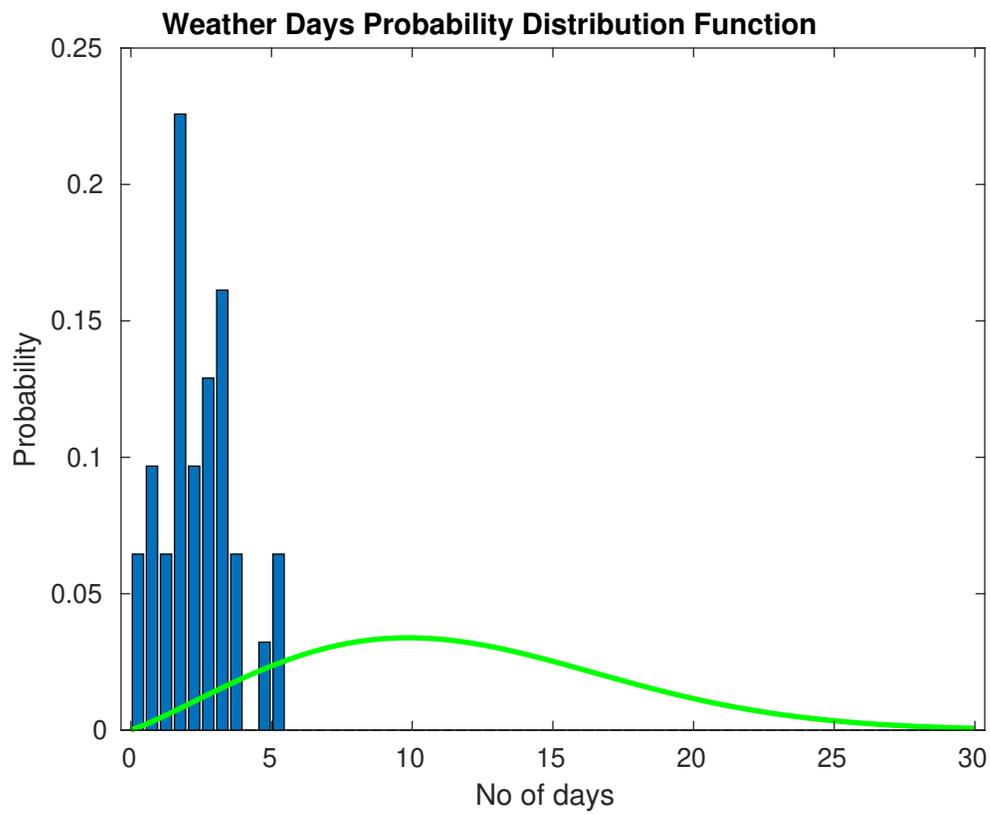
Mean Speed: 0.50-0.75 kts  
The currents will occasionally reach 1.50-1.75 kts, but rarely greater.  
Principle Direction, to: W

#### Weather Days

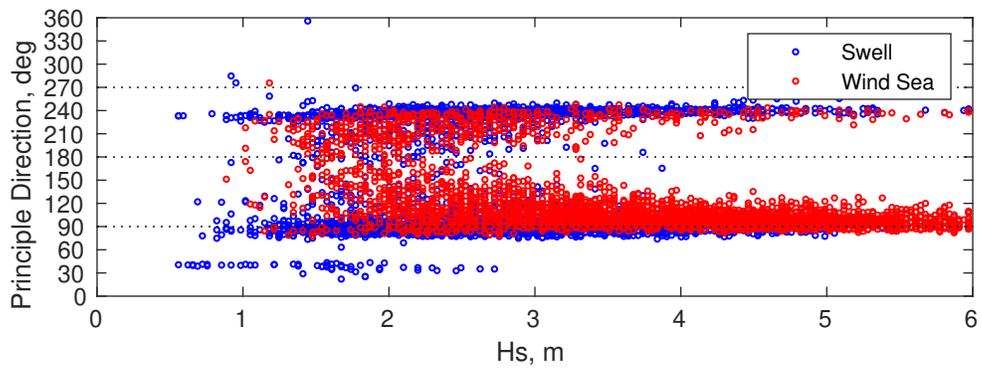
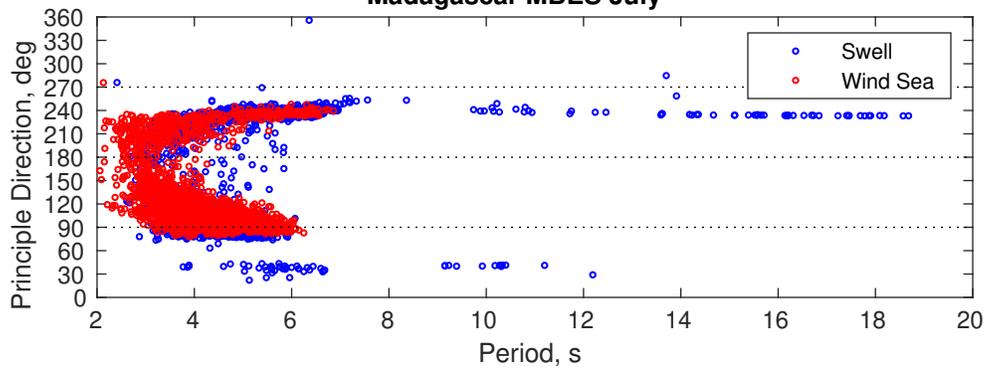
Current Speed > 0.5 knots Mean: 20.2 days Range: 12.2 - 28.2 days p50:24 days p75:12 days p90:9 days  
Current Speed > 1.0 knots Mean: 6.4 days Range: 0.4 - 12.5 days p50:6 days p75:1 days p90:1 days  
Current Speed > 1.5 knots Mean: 0.6 days Range: 0.0 - 1.8 days p50:1 days p75:1 days p90:1 days

### Severe Storms

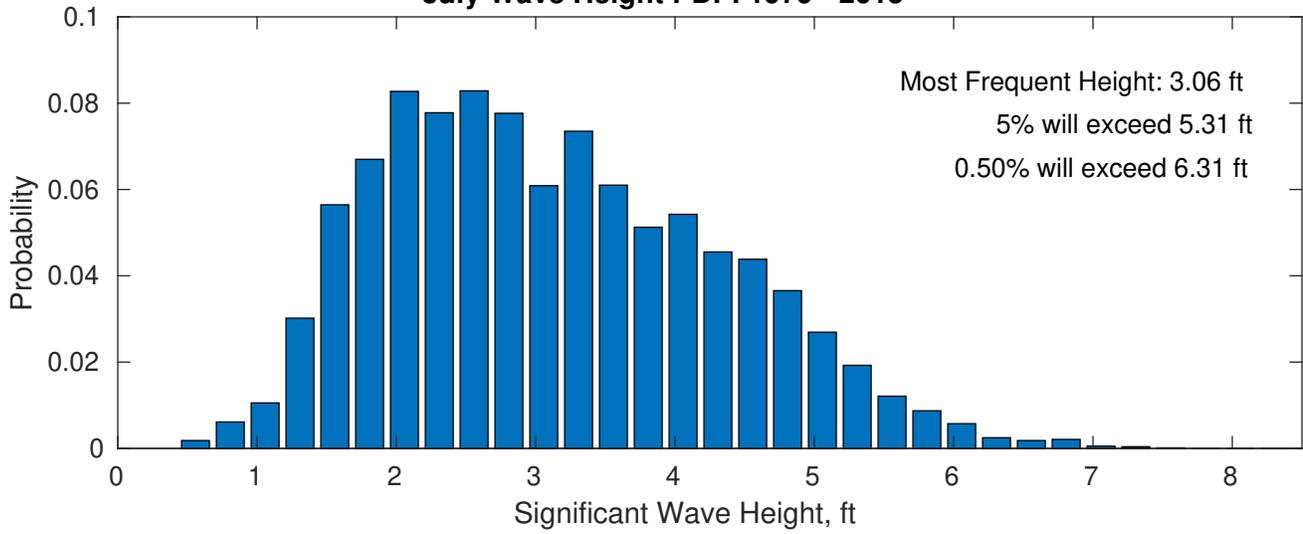
Severe storms with gale force winds and extreme waves are not expected during this month.



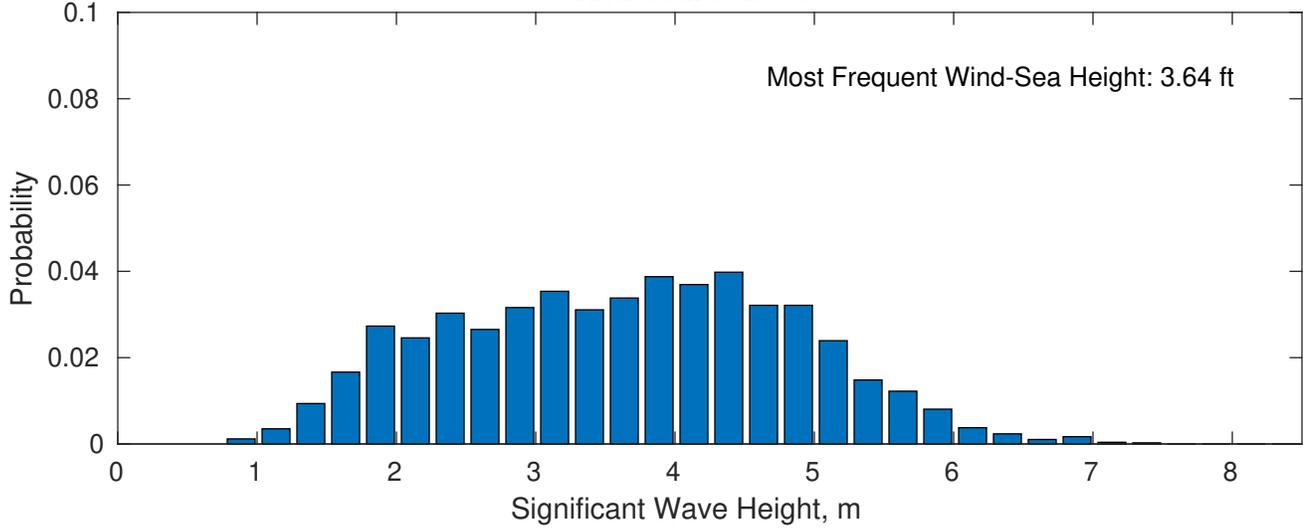
Madagascar MBES July



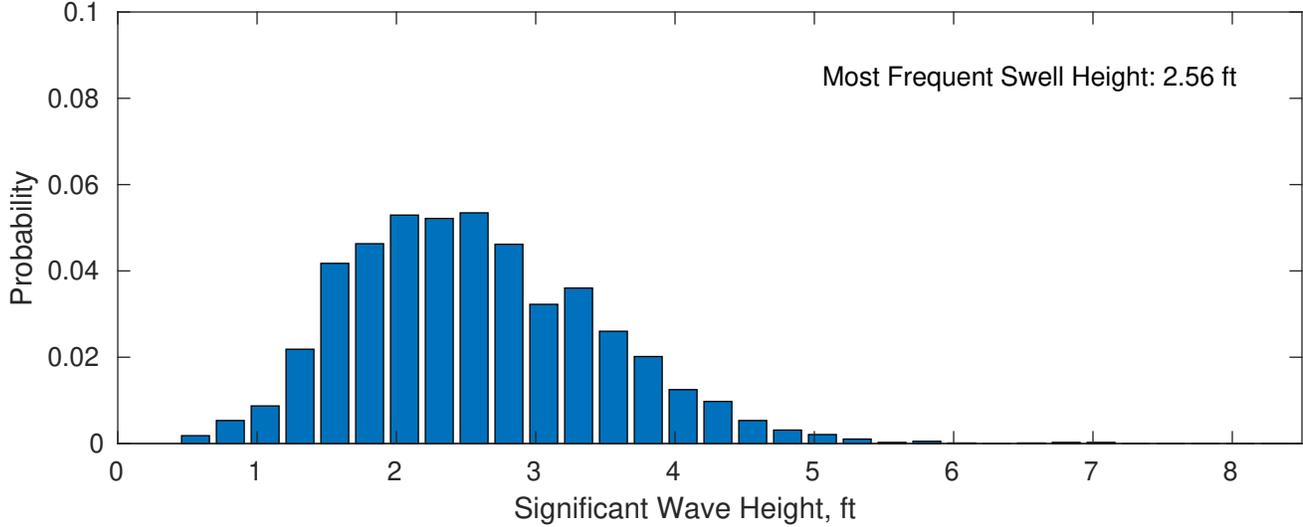
**July Wave Height PDF: 1979 - 2015**



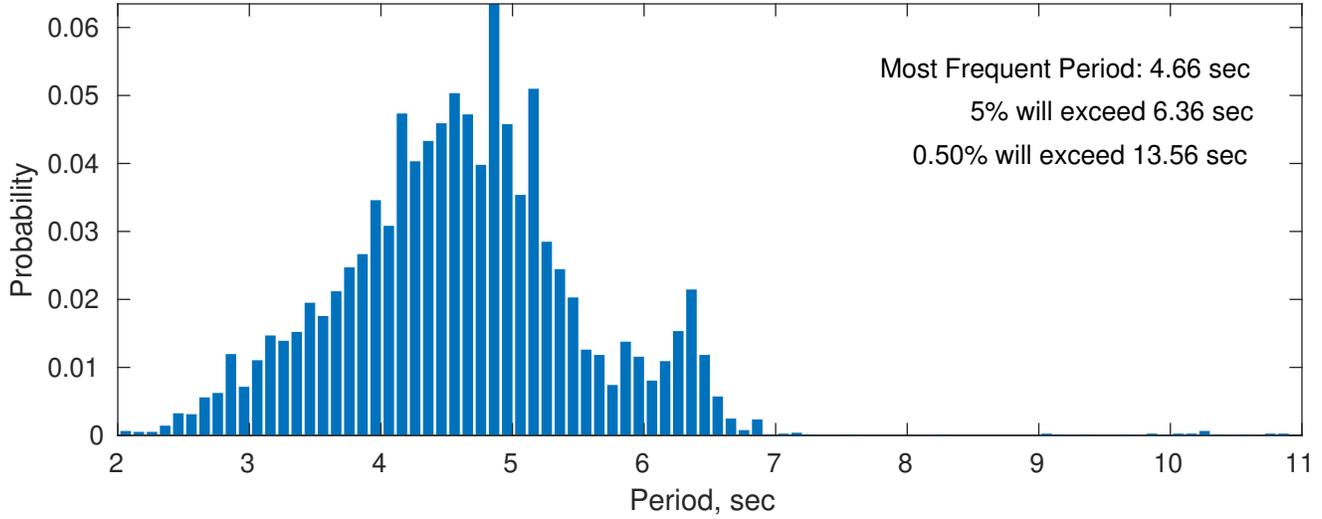
**Wind-Sea: 51.96%**



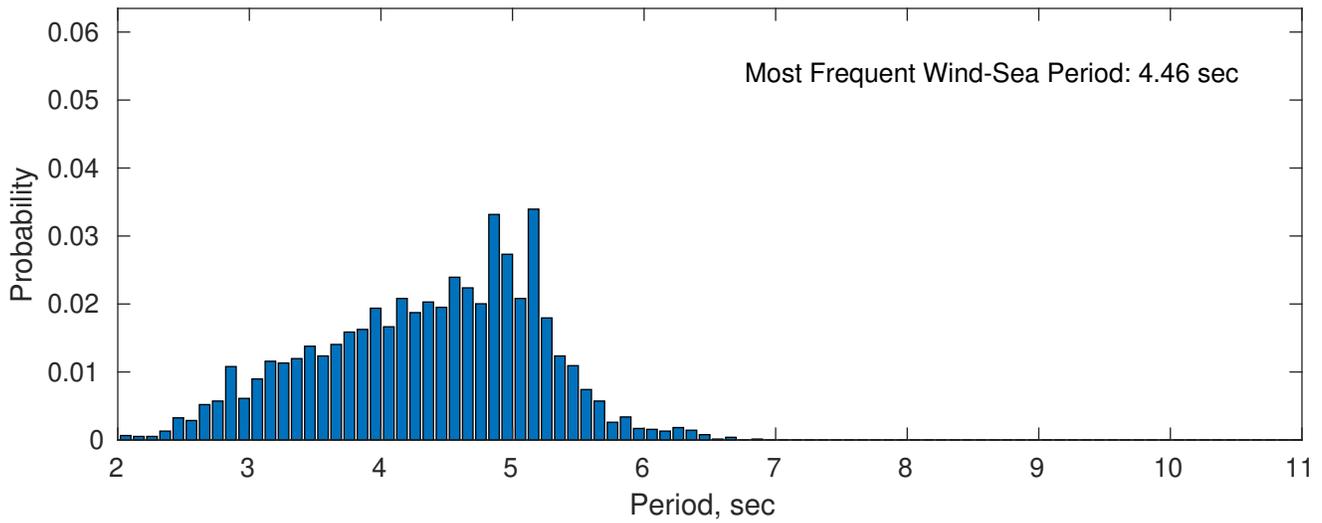
**Swell: 48.04%**



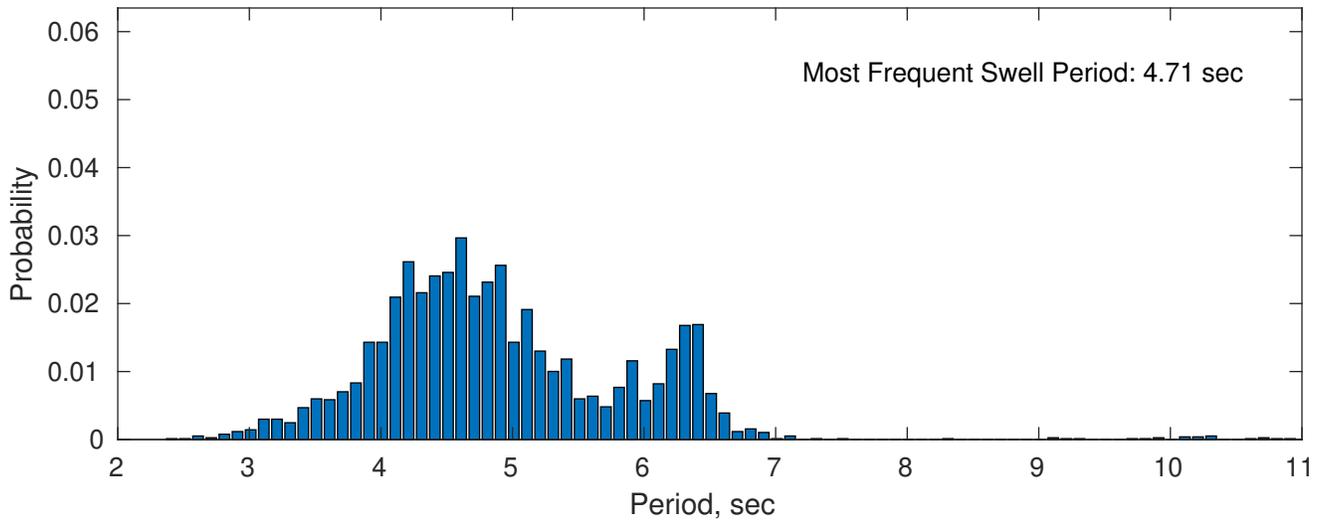
### July Peak Wave Period PDF: 1979 - 2015



### Wind-Sea: 51.96%

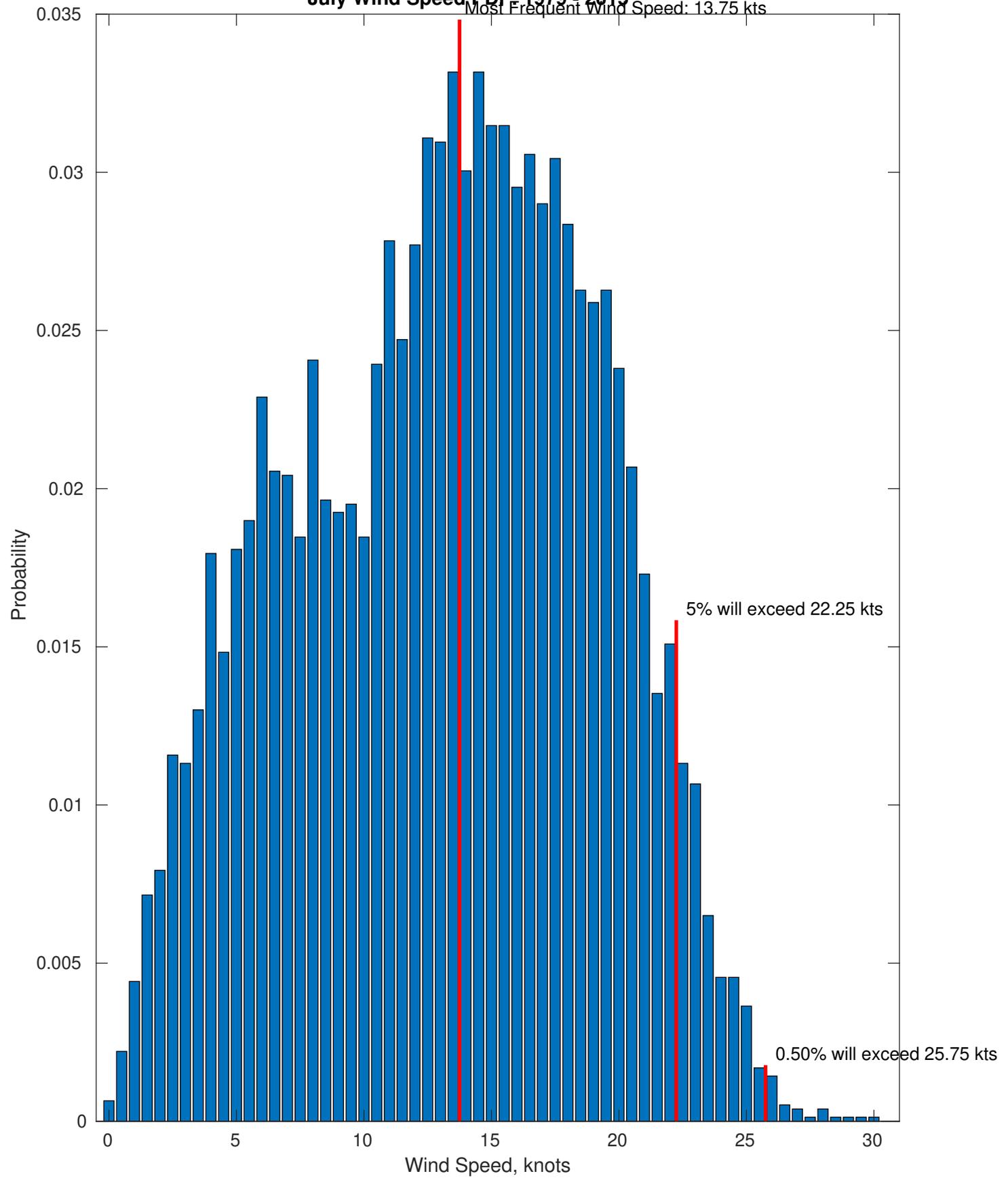


### Swell: 48.04%

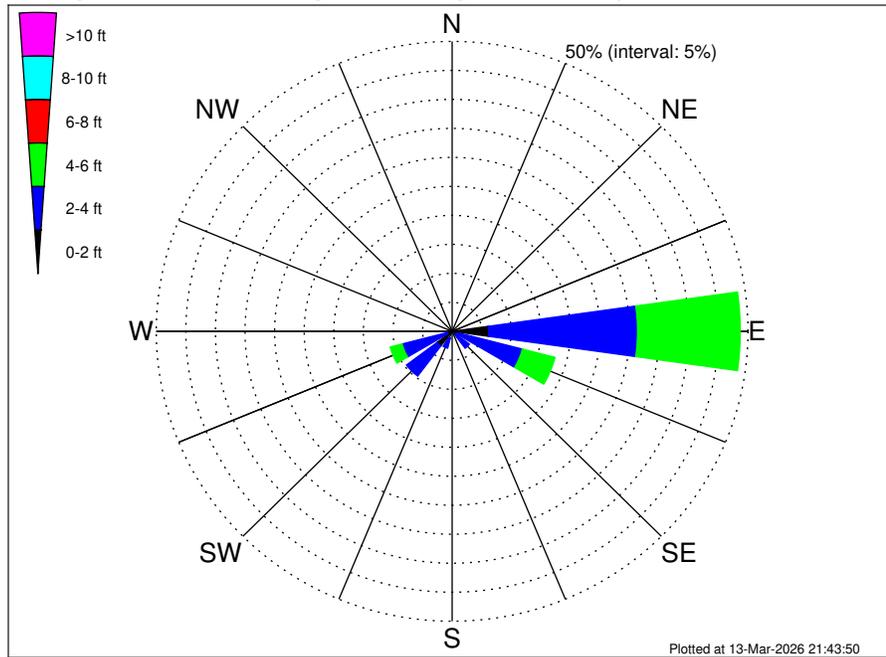


July Wind Speed PDF: 1979 - 2015

Most Frequent Wind Speed: 13.75 kts



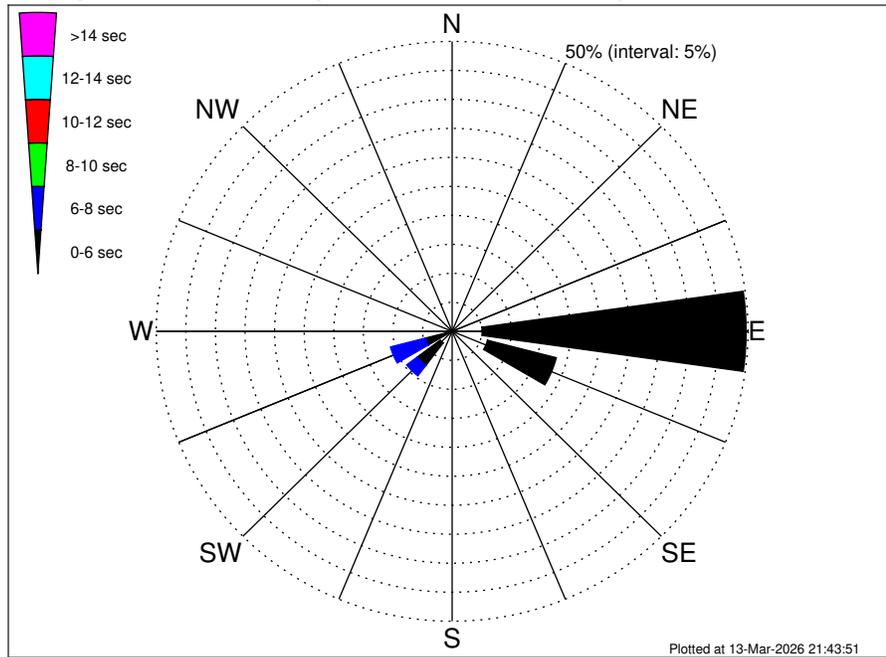
Madagascar MBES Climatological WaveHeight Rose for July: 1979 - 2015



Joint Frequency Distribution Table

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
calm	•	•	0.14	0.03	0.12	0.04	•	0.01	0.01	•	0.14	•	0.01	0.01	•	•	0.52
1 - 2 ft	0.01	0.07	0.38	0.18	6.06	1.04	0.77	0.52	0.61	1.25	3.04	0.83	0.03	•	•	•	14.79
2 - 4 ft	•	0.04	0.08	0.53	25.16	11.19	2.89	0.78	0.55	1.76	6.48	7.90	•	•	•	•	57.34
4 - 6 ft	•	•	•	0.09	17.35	5.68	0.13	•	•	0.04	0.47	2.08	•	•	•	•	25.85
6 - 8 ft	•	•	•	•	1.08	0.25	0.01	•	•	•	•	0.17	•	•	•	•	1.51
8 - 10 ft	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
10 - 12 ft	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
12 - 14 ft	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
14 - 16 ft	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
16 - 18 ft	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
> 18 ft	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Total	0.01	0.10	0.60	0.83	49.77	18.20	3.80	1.31	1.17	3.04	10.13	10.98	0.04	0.01	•	•	100.00

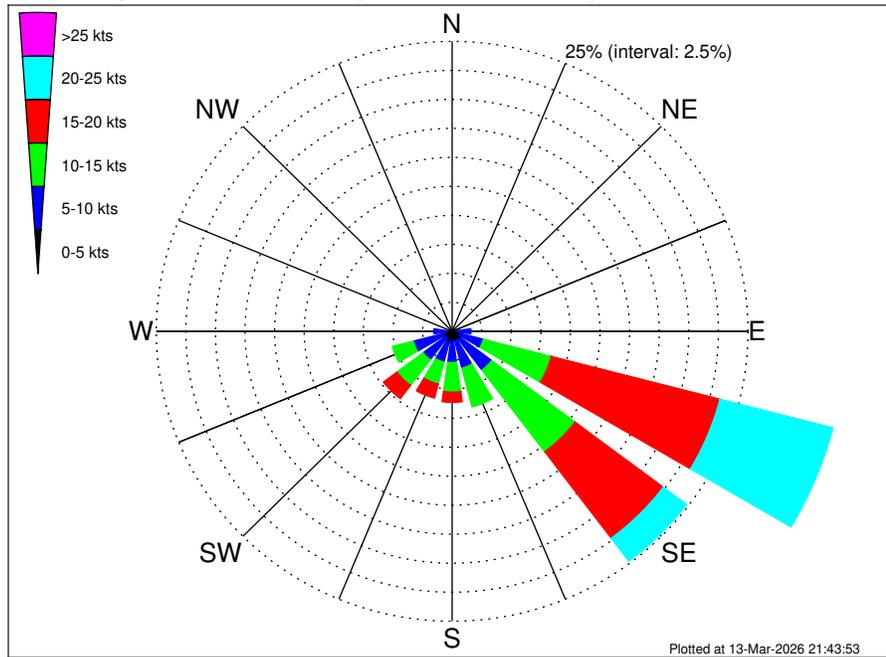
Madagascar MBES Climatological WavePeriod Rose for July: 1979 - 2015



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	•	•	0.05	0.17	5.07	6.17	3.11	1.16	1.03	2.50	2.50	0.01	0.03	•	•	•	21.79
4 - 6 sec	•	0.07	0.27	0.66	44.60	12.02	0.69	0.16	0.14	0.55	4.88	4.67	0.01	•	•	•	68.72
6 - 8 sec	0.01	0.03	0.12	•	0.09	0.01	•	•	•	•	2.24	6.07	•	•	•	•	8.57
8 - 10 sec	•	•	0.07	•	•	•	•	•	•	•	•	0.05	•	•	•	•	0.12
10 - 12 sec	•	•	0.09	•	•	•	•	•	•	•	0.01	0.13	•	•	•	•	0.23
12 - 14 sec	•	0.01	•	•	•	•	•	•	•	•	0.04	0.04	•	0.01	•	•	0.10
14 - 16 sec	•	•	•	•	•	•	•	•	•	•	0.20	•	•	•	•	•	0.20
18 - 20 sec	•	•	•	•	•	•	•	•	•	•	0.22	•	•	•	•	•	0.22
22 - 24 sec	•	•	•	•	•	•	•	•	•	•	0.05	•	•	•	•	•	0.05
Total	0.01	0.10	0.60	0.83	49.77	18.20	3.80	1.31	1.17	3.04	10.13	10.98	0.04	0.01	•	•	100.00

Madagascar MBES Climatological Wind Rose for July: 1979 - 2015



Joint Frequency Distribution Table

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
calm	0.03	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.04	•	0.03	0.04	0.01	•	•	0.29
0 - 5 kts	0.27	0.31	0.23	0.31	0.44	0.69	0.88	0.82	0.82	0.96	0.70	0.75	0.47	0.38	0.43	0.34	8.82
5 - 10 kts	0.14	0.07	0.29	0.44	1.13	2.03	3.29	2.46	1.85	1.74	2.37	2.61	1.04	0.33	0.17	0.23	20.19
10 - 15 kts	•	•	•	0.09	0.60	5.92	8.82	3.43	2.55	1.95	2.77	1.82	0.16	•	•	•	28.11
15 - 20 kts	•	•	•	0.01	0.35	14.72	9.34	0.61	0.88	1.25	1.43	0.33	•	•	•	•	28.93
20 - 25 kts	•	•	•	•	0.07	9.86	2.46	•	0.09	0.25	0.08	•	•	•	•	•	12.80
25 - 30 kts	•	•	•	•	•	0.59	0.27	•	•	•	•	•	•	•	•	•	0.86
30 - 35 kts	•	•	•	•	•	0.01	•	•	•	•	•	•	•	•	•	•	0.01
35 - 40 kts	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
40 - 45 kts	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
45 - 50 kts	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Total	0.44	0.42	0.53	0.87	2.60	33.83	25.08	7.34	6.22	6.19	7.35	5.54	1.70	0.72	0.60	0.57	100.00