

## RWE Humboldt Bay OCS-P-0561 - December

Latitude: 41.00 N Longitude: 125.00 W

### Weather Days

Wave Height > 6.0 ft Mean: 23.6 days Range: 22.0 - 25.3 days p50:28.5 days p75:26.5 days p90:25.5 days

Wave Height > 7.0 ft Mean: 21.3 days Range: 18.8 - 23.8 days p50:27.5 days p75:24 days p90:23 days

Wave Height > 8.0 ft Mean: 18.7 days Range: 15.6 - 21.8 days p50:25.5 days p75:22 days p90:21 days

Wind Speed > 10.0 knots Mean: 20.9 days Range: 17.4 - 24.4 days p50:21.5 days p75:19 days p90:17.5 days

Wind Speed > 15.0 knots Mean: 15.1 days Range: 11.5 - 18.8 days p50:16.5 days p75:13.5 days p90:9.5 days

Wind Speed > 20.0 knots Mean: 9.7 days Range: 6.3 - 13.1 days p50:10.5 days p75:7 days p90:5.5 days

### Working Window

Wave Height < 6.0 ft  
A 1 day or longer window will statistically occur 0.7 times per month  
A 2 day or longer window will statistically occur 0.2 times per month  
A 3 day or longer window will statistically occur 0.0 times per month

Wave Height < 7.0 ft  
A 1 day or longer window will statistically occur 1.5 times per month  
A 2 day or longer window will statistically occur 0.5 times per month  
A 3 day or longer window will statistically occur 0.2 times per month

Wave Height < 8.0 ft  
A 1 day or longer window will statistically occur 1.9 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 0.6 times per month

### Waves

Mean Height: 10 - 12 ft

The wave heights will occasionally reach > 18 ft, but rarely higher.

Mean Period: 12 - 14 sec

The wave periods will occasionally reach 22 - 24 sec, but rarely longer.

Principle Direction, from: WNW

WindSea/Swell: 4% / 96%

### Winds

Mean Speed: 15 - 20 kts

The winds will occasionally reach 45 - 50 kts, but rarely greater.

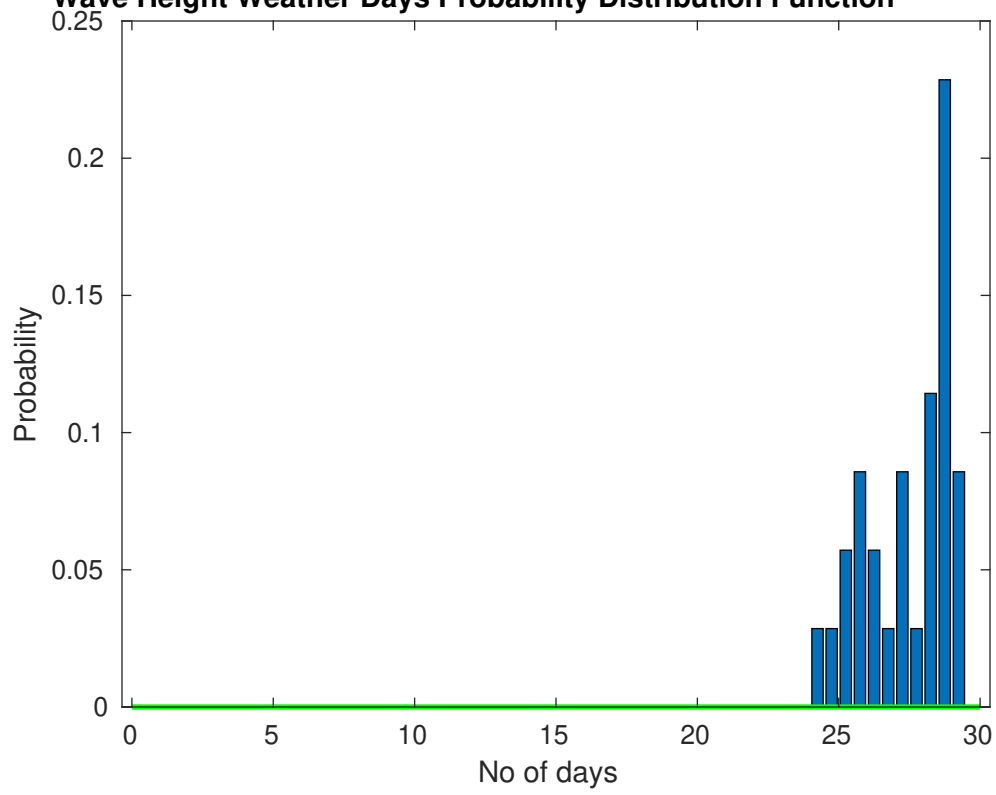
Principle Direction, from: N

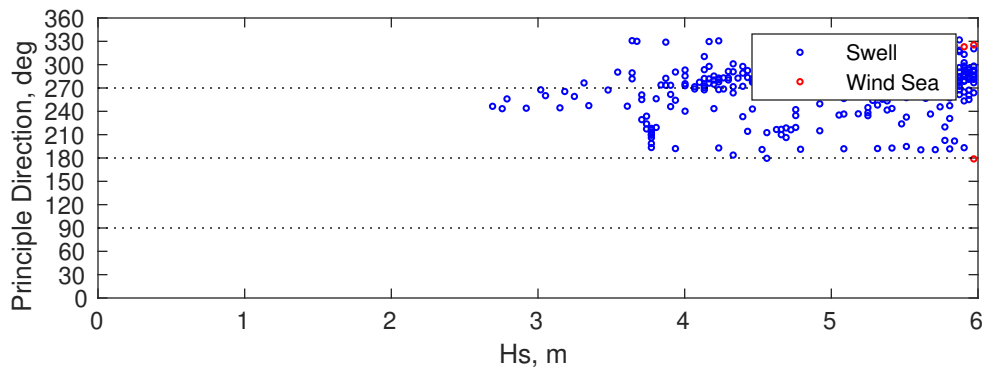
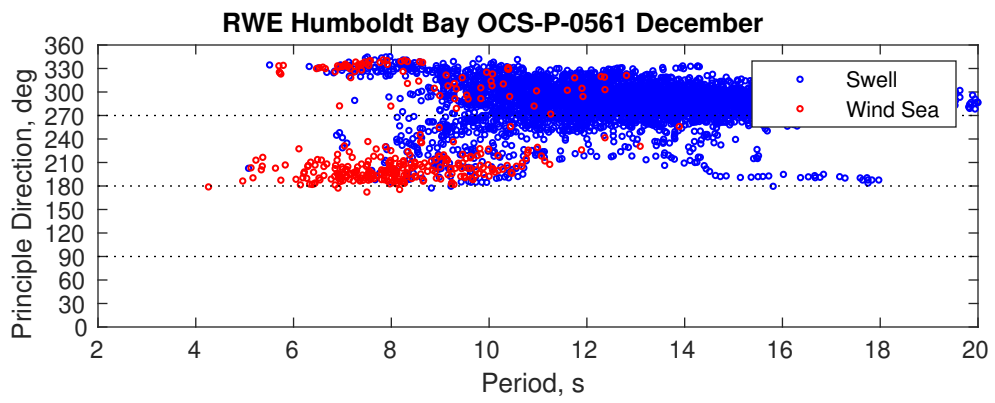
### Severe Storms

There is a 89 % chance of a storm occurring in the month with winds peaking above 34 kts.

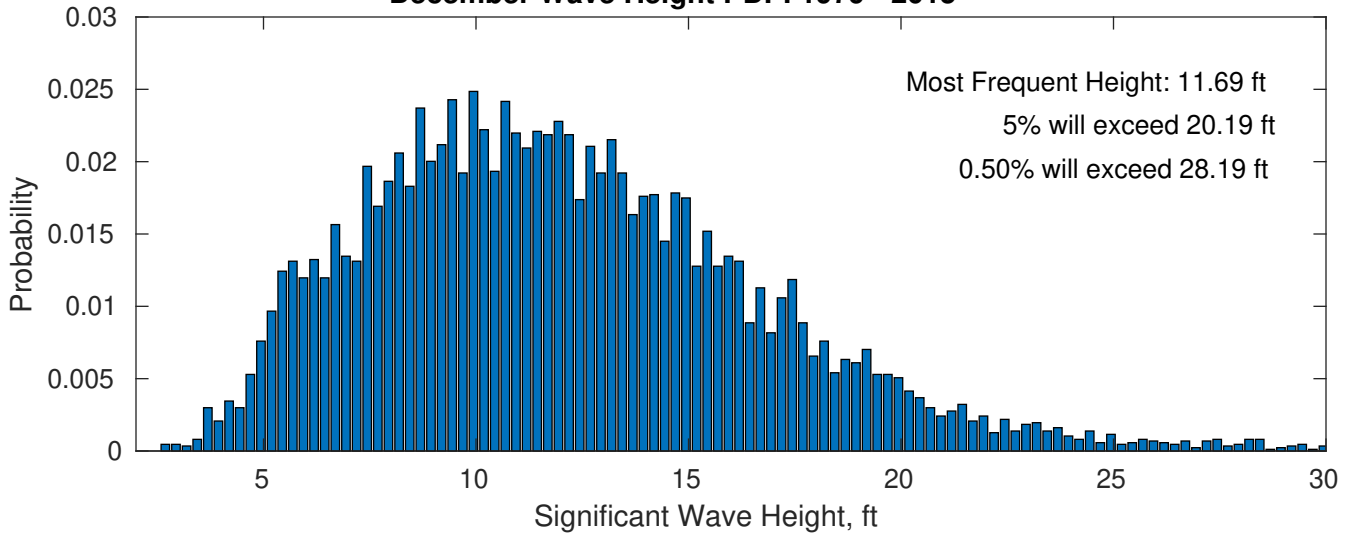
There is a 38 % chance of a storm occurring in the month with waves exceeding 3 m (10 ft) above the mean wave height.

**Wave Height Weather Days Probability Distribution Function**

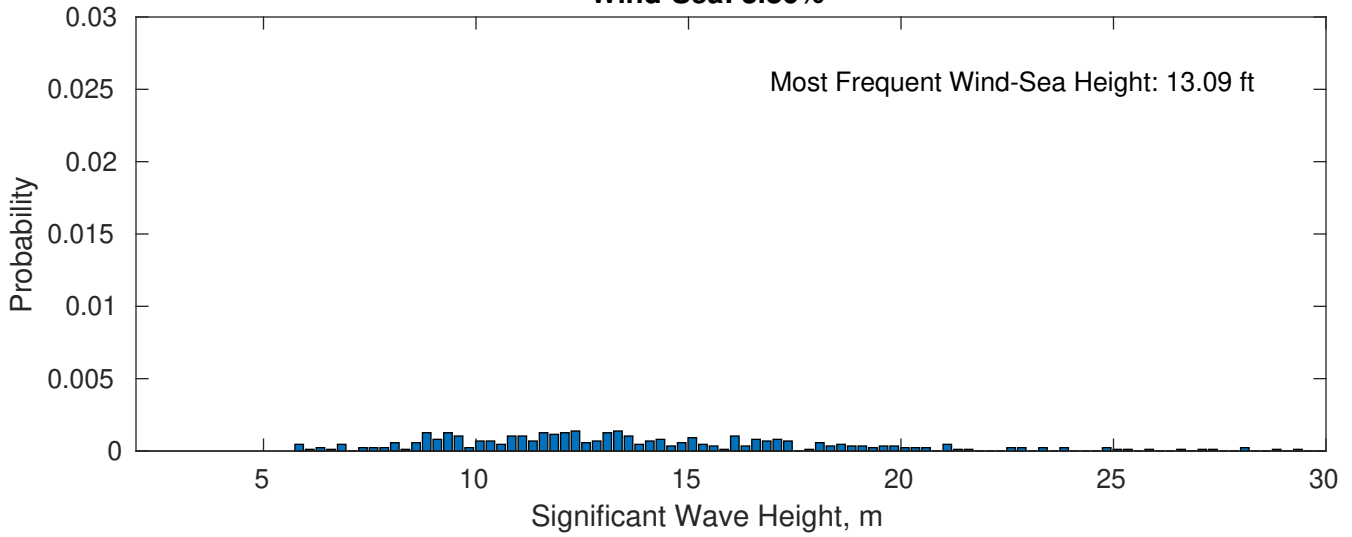




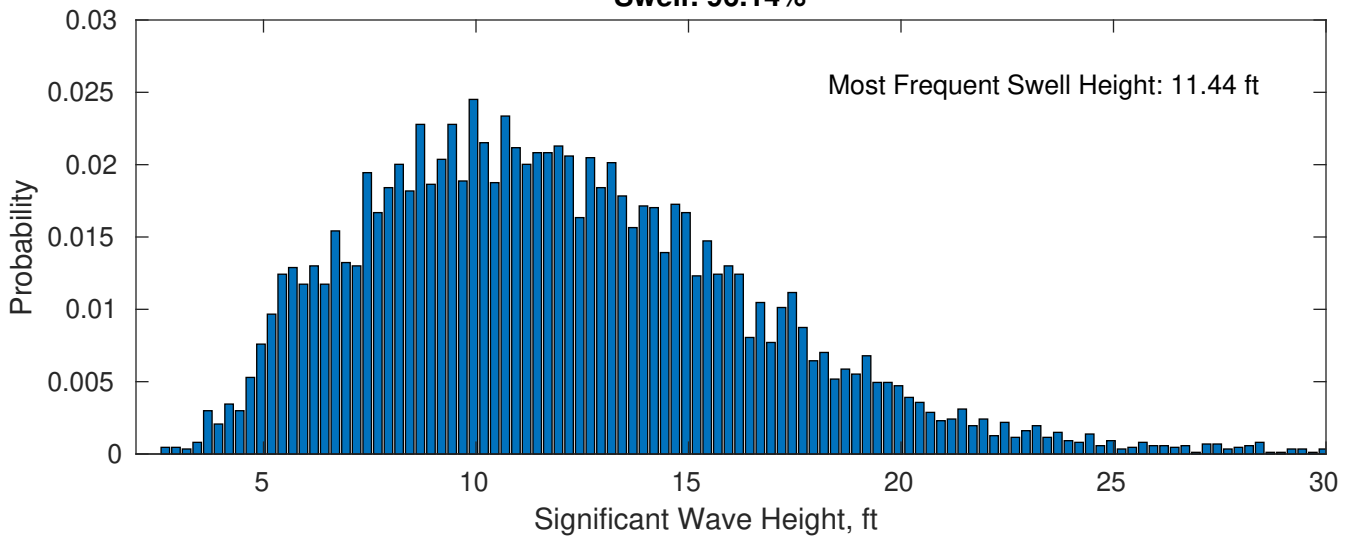
### December Wave Height PDF: 1979 - 2015



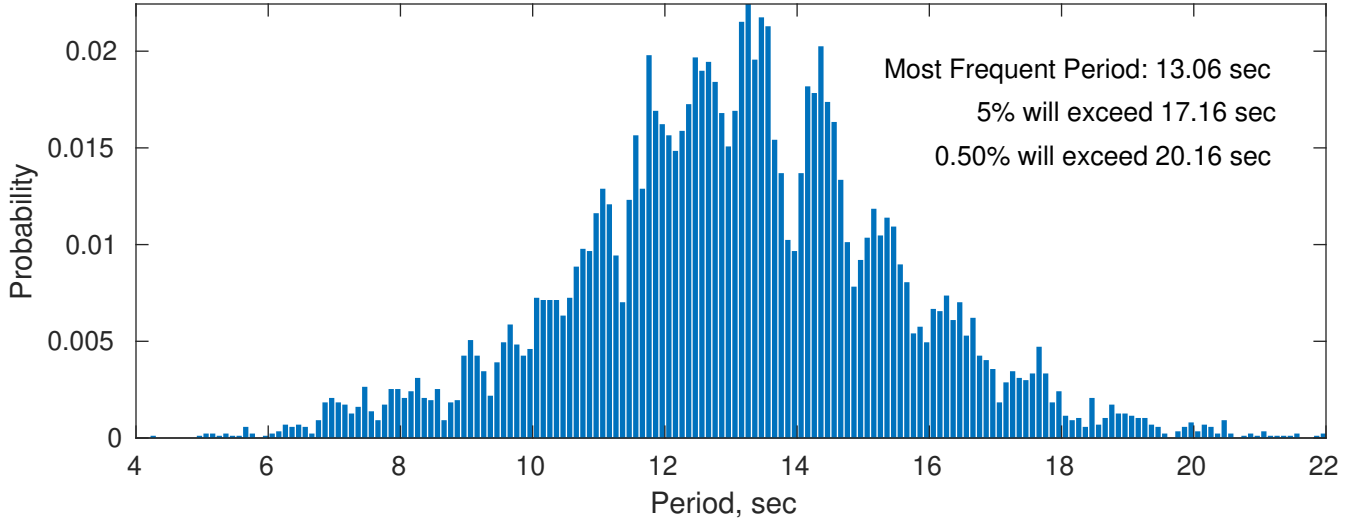
### Wind-Sea: 3.86%



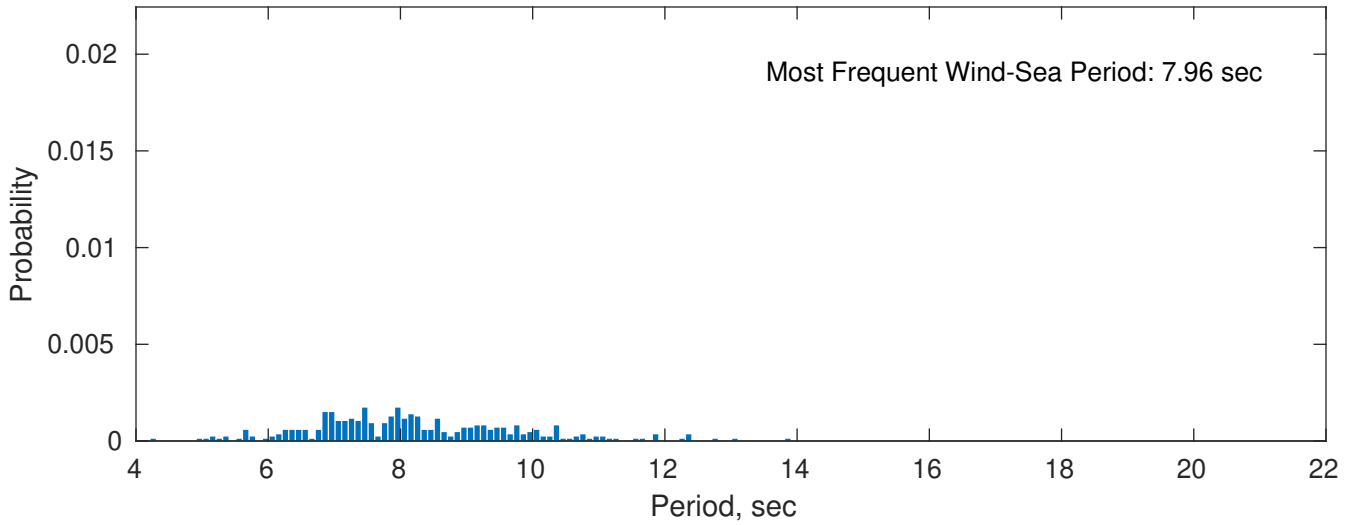
### Swell: 96.14%



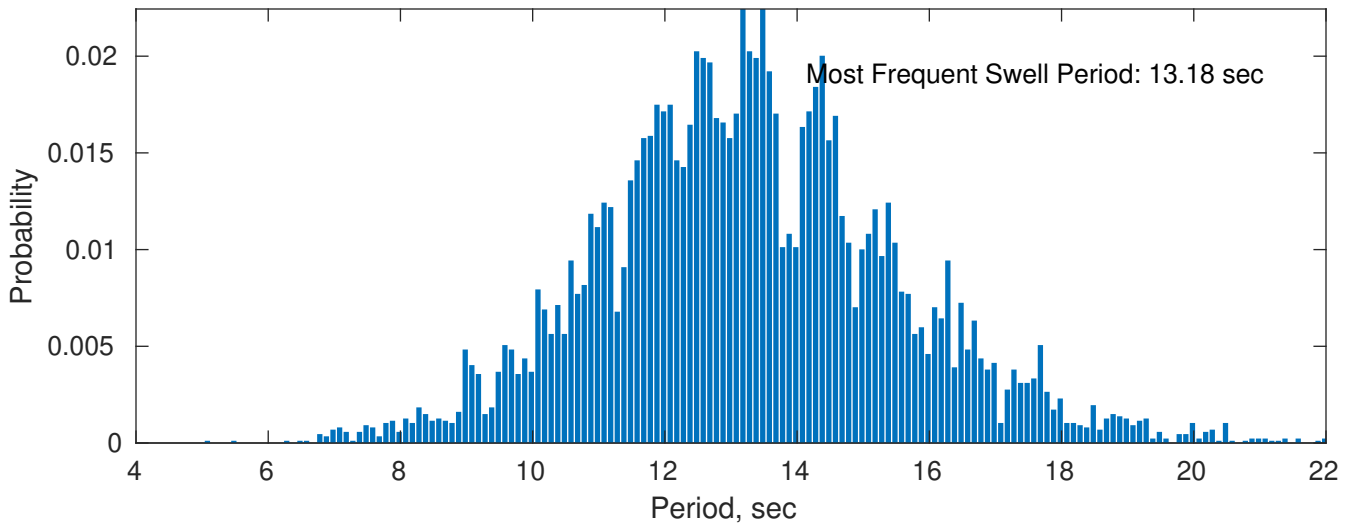
### December Peak Wave Period PDF: 1979 - 2015



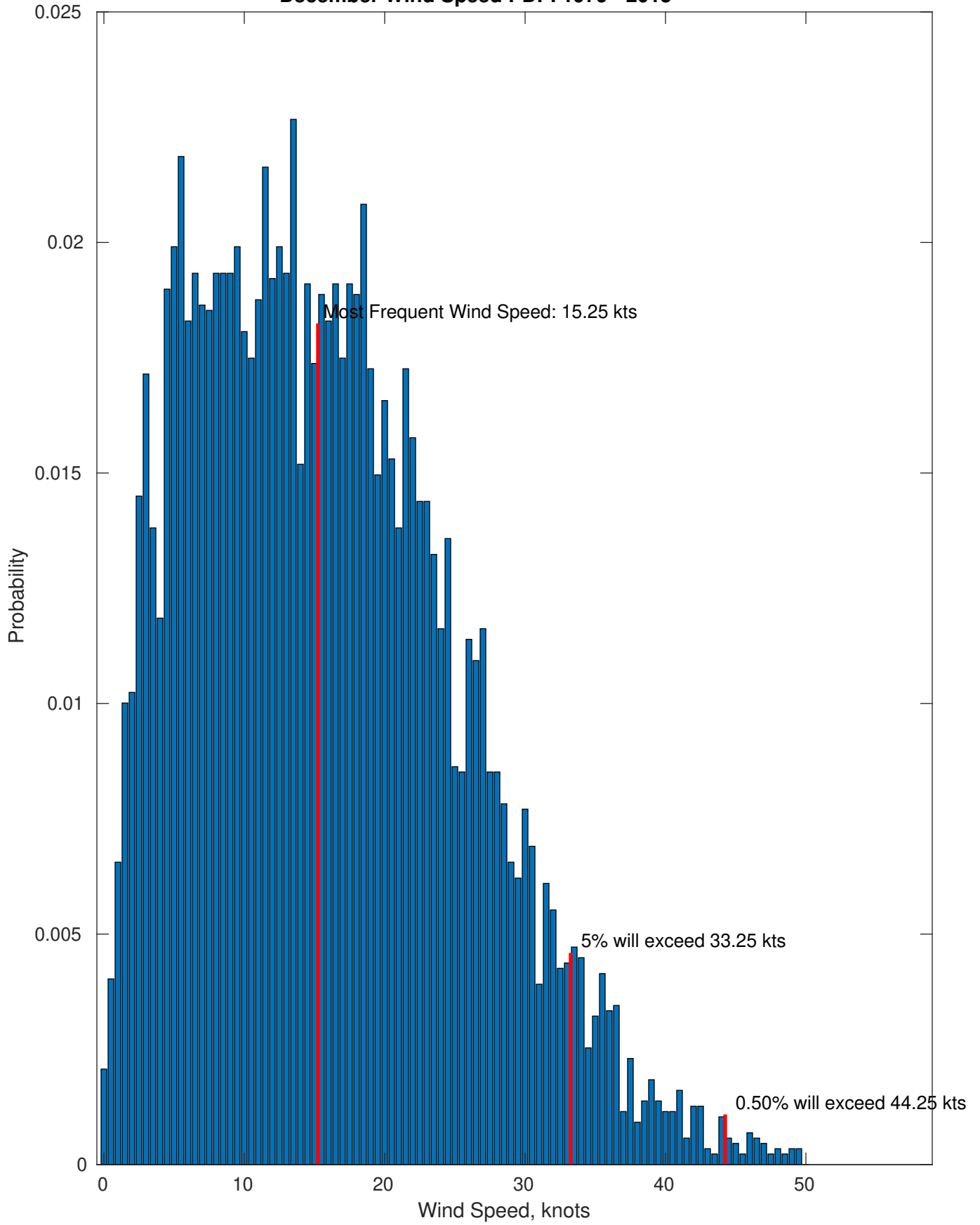
### Wind-Sea: 3.86%



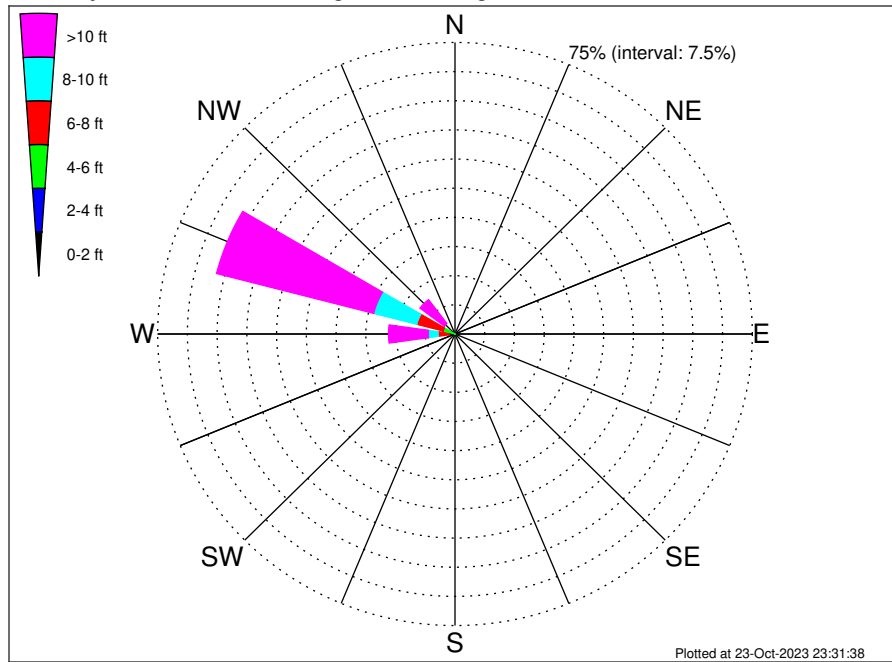
### Swell: 96.14%



December Wind Speed PDF: 1979 - 2015



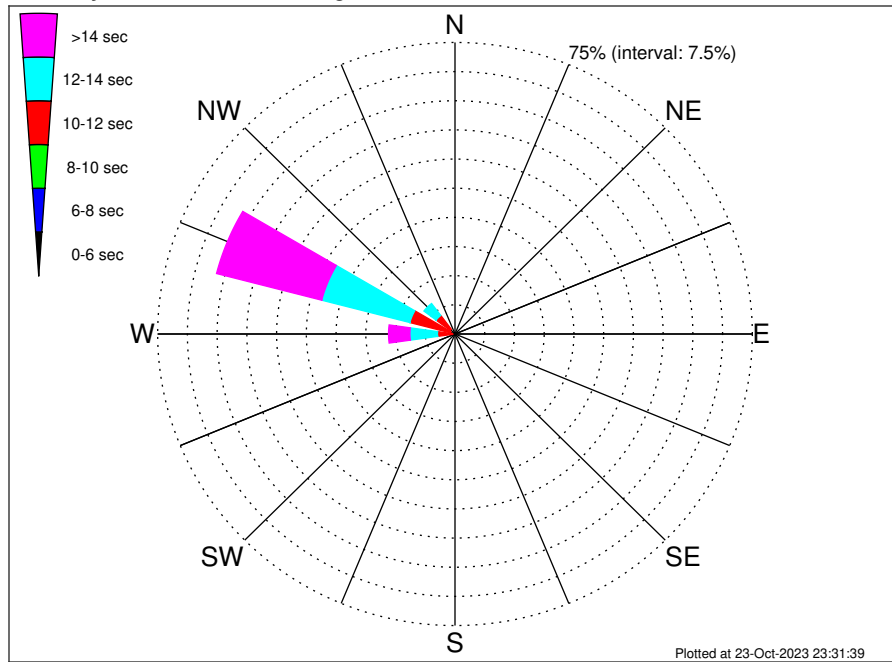
RWE Humboldt Bay OCS-P-0561 Climatological WaveHeight Rose for December: 1979 - 2015



Joint Frequency Distribution Table

|            | N | NNE | NE | ENE | E | ESE | SE | SSE | S    | SSW  | SW   | WSW  | W     | WNW   | NW    | NNW  | Total  |
|------------|---|-----|----|-----|---|-----|----|-----|------|------|------|------|-------|-------|-------|------|--------|
| calm       | . | .   | .  | .   | . | .   | .  | .   | .    | .    | .    | .    | .     | .     | .     | .    | .      |
| 1 - 2 ft   | . | .   | .  | .   | . | .   | .  | .   | .    | .    | .    | .    | .     | .     | .     | .    | .      |
| 2 - 4 ft   | . | .   | .  | .   | . | .   | .  | .   | .    | 0.08 | 0.08 | 0.13 | 0.13  | 0.06  | .     | 0.03 | 0.51   |
| 4 - 6 ft   | . | .   | .  | .   | . | .   | .  | .   | 0.08 | 0.14 | 0.18 | 0.31 | 1.46  | 3.03  | 0.47  | 0.16 | 5.83   |
| 6 - 8 ft   | . | .   | .  | .   | . | .   | .  | .   | 0.03 | 0.09 | 0.12 | 0.22 | 2.67  | 6.89  | 1.31  | 0.39 | 11.73  |
| 8 - 10 ft  | . | .   | .  | .   | . | .   | .  | .   | 0.29 | 0.29 | 0.26 | 0.30 | 2.51  | 11.23 | 1.61  | 0.53 | 17.02  |
| 10 - 12 ft | . | .   | .  | .   | . | .   | .  | .   | 0.29 | 0.44 | 0.09 | 0.30 | 2.46  | 11.42 | 2.13  | 0.55 | 17.68  |
| 12 - 14 ft | . | .   | .  | .   | . | .   | .  | .   | 0.21 | 0.49 | 0.20 | 0.38 | 1.85  | 10.30 | 1.84  | 0.43 | 15.70  |
| 14 - 16 ft | . | .   | .  | .   | . | .   | .  | .   | 0.14 | 0.25 | 0.23 | 0.30 | 2.24  | 7.88  | 1.42  | 0.05 | 12.51  |
| 16 - 18 ft | . | .   | .  | .   | . | .   | .  | .   | 0.07 | 0.31 | 0.13 | 0.22 | 1.42  | 5.16  | 1.01  | 0.10 | 8.41   |
| > 18 ft    | . | .   | .  | .   | . | .   | .  | .   | 0.05 | 0.37 | 0.30 | 0.40 | 2.03  | 6.17  | 1.27  | 0.05 | 10.62  |
| Total      | . | .   | .  | .   | . | .   | .  | .   | 1.15 | 2.46 | 1.59 | 2.55 | 16.77 | 62.13 | 11.06 | 2.29 | 100.00 |

RWE Humboldt Bay OCS-P-0561 Climatological WavePeriod Rose for December: 1979 - 2015

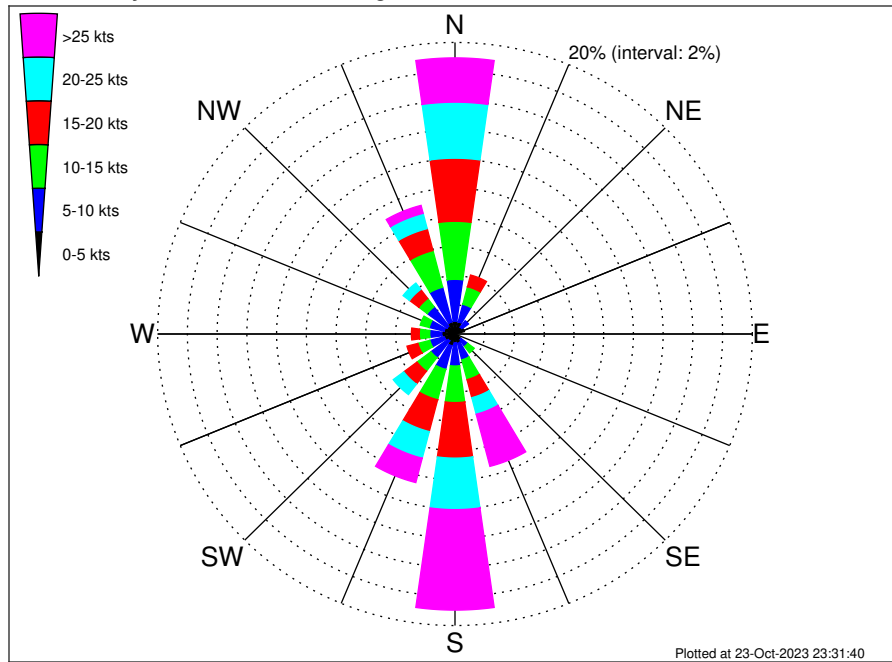


Joint Frequency Distribution Table

|             | N | NNE | NE | ENE | E | ESE | SE | SSE | S    | SSW  | SW   | WSW  | W     | WNW   | NW    | NNW  | Total  |
|-------------|---|-----|----|-----|---|-----|----|-----|------|------|------|------|-------|-------|-------|------|--------|
| calm        | • | •   | •  | •   | • | •   | •  | •   | •    | •    | •    | •    | •     | •     | •     | •    | •      |
| 1 - 2 sec   | • | •   | •  | •   | • | •   | •  | •   | •    | •    | •    | •    | •     | •     | •     | •    | •      |
| 2 - 4 sec   | • | •   | •  | •   | • | •   | •  | •   | •    | •    | •    | •    | •     | •     | •     | •    | •      |
| 4 - 6 sec   | • | •   | •  | •   | • | •   | •  | •   | 0.05 | 0.08 | 0.01 | •    | •     | •     | 0.03  | 0.03 | 0.21   |
| 6 - 8 sec   | • | •   | •  | •   | • | •   | •  | •   | 0.45 | 0.81 | 0.17 | 0.05 | •     | 0.05  | 0.18  | 0.84 | 2.54   |
| 8 - 10 sec  | • | •   | •  | •   | • | •   | •  | •   | 0.46 | 1.02 | 0.60 | 0.71 | 0.62  | 1.13  | 1.30  | 0.72 | 6.57   |
| 10 - 12 sec | • | •   | •  | •   | • | •   | •  | •   | 0.03 | 0.32 | 0.41 | 0.90 | 3.80  | 10.59 | 4.44  | 0.41 | 20.91  |
| 12 - 14 sec | • | •   | •  | •   | • | •   | •  | •   | •    | 0.03 | 0.24 | 0.63 | 6.96  | 22.97 | 3.86  | 0.23 | 34.93  |
| 14 - 16 sec | • | •   | •  | •   | • | •   | •  | •   | 0.03 | 0.14 | 0.15 | 0.23 | 3.84  | 18.10 | 1.02  | 0.05 | 23.57  |
| 18 - 20 sec | • | •   | •  | •   | • | •   | •  | •   | 0.13 | 0.06 | •    | 0.03 | 1.20  | 7.15  | 0.21  | •    | 8.77   |
| 22 - 24 sec | • | •   | •  | •   | • | •   | •  | •   | •    | •    | •    | •    | 0.35  | 2.15  | 0.01  | •    | 2.51   |
| Total       | • | •   | •  | •   | • | •   | •  | •   | 1.15 | 2.46 | 1.59 | 2.55 | 16.77 | 62.13 | 11.06 | 2.29 | 100.00 |



RWE Humboldt Bay OCS-P-0561 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        | 0.02  | 0.05 | •    | 0.03 | 0.02 | 0.03 | 0.01 | 0.06 | 0.03  | 0.08  | 0.02 | 0.03 | 0.09 | 0.05 | 0.03 | 0.03 | 0.61   |
| 0 - 5 kts   | 0.85  | 0.82 | 0.59 | 0.62 | 0.39 | 0.39 | 0.51 | 0.60 | 0.58  | 0.75  | 0.56 | 0.70 | 0.79 | 0.71 | 0.63 | 0.82 | 10.31  |
| 5 - 10 kts  | 2.88  | 1.24 | 0.55 | 0.46 | 0.40 | 0.48 | 0.55 | 1.17 | 1.59  | 1.68  | 1.44 | 1.01 | 0.82 | 1.04 | 1.67 | 2.46 | 19.45  |
| 10 - 15 kts | 3.98  | 1.24 | 0.31 | 0.08 | 0.08 | 0.18 | 0.55 | 1.40 | 2.51  | 2.15  | 1.17 | 0.83 | 0.70 | 0.62 | 0.71 | 2.60 | 19.14  |
| 15 - 20 kts | 4.33  | 0.83 | 0.13 | 0.03 | 0.07 | 0.10 | 0.22 | 1.28 | 3.81  | 2.26  | 1.12 | 0.76 | 0.53 | 0.43 | 0.78 | 1.55 | 18.22  |
| 20 - 25 kts | 3.84  | 0.49 | 0.02 | •    | •    | 0.02 | 0.12 | 1.17 | 3.53  | 1.89  | 0.89 | 0.47 | 0.17 | 0.35 | 0.54 | 1.08 | 14.59  |
| 25 - 30 kts | 2.07  | 0.35 | •    | 0.01 | •    | 0.01 | 0.09 | 1.24 | 2.77  | 1.08  | 0.25 | 0.18 | 0.09 | 0.09 | 0.25 | 0.37 | 8.87   |
| 30 - 35 kts | 0.77  | 0.03 | •    | •    | •    | •    | 0.03 | 1.22 | 2.09  | 0.48  | 0.12 | 0.03 | 0.01 | •    | 0.09 | 0.16 | 5.05   |
| 35 - 40 kts | 0.20  | •    | •    | •    | •    | 0.01 | 0.03 | 0.66 | 1.23  | 0.12  | 0.02 | •    | •    | •    | 0.02 | 0.02 | 2.31   |
| 40 - 45 kts | •     | •    | •    | •    | •    | •    | 0.01 | 0.36 | 0.51  | 0.03  | 0.01 | •    | •    | •    | •    | •    | 0.92   |
| 45 - 50 kts | •     | •    | •    | •    | •    | •    | •    | 0.22 | 0.29  | 0.01  | •    | •    | •    | •    | •    | 0.01 | 0.53   |
| Total       | 18.94 | 5.05 | 1.60 | 1.24 | 0.97 | 1.24 | 2.13 | 9.38 | 18.94 | 10.53 | 5.60 | 4.03 | 3.21 | 3.28 | 4.74 | 9.11 | 100.00 |