



Nautical Musings

by Captain Stan Glatzer

How Strong Is A “Blow”?

Recreational power boaters, sailors, and professional seamen who cross oceans on cruise ships, freighters, and military Naval vessels all spend vast amounts of concentration studying the wind. More than any one aspect of the weather, the wind speed affects a journey, whether it is across the bay or around the world. How is the speed of the wind measured and classified? What are the signs that allow one to judge how hard the wind is blowing and how can one predict how strong it will be? With my electronics inoperative, how can I answer these questions?

Once again I agree with the watchword of Whole Sailors International, a nautical educational service in existence since 1991: “Don’t let your brains die when the batteries do.”

The most commonly used measurements for recording wind speed in the United States are miles per hour (mph) and knots (kts). Note that a knot means speed per hour. A knot is the equivalent of 1.15 mph and is noted, for example, as 18 kts. The “per hour” is implied and not written.

The speed of the wind was first classified by John Smeaton, specifying land conditions with the corresponding effect on the number of revolutions a local windmill made per minute given the wind speed. Smeaton listed eight force categories of wind speed. Alexander Dalrymple, a British Admiralty Hydrographer, expanded the categories to 12 and brought the chart to Admiral Beaufort’s attention. Beaufort, in 1805, masterfully

comprised a system stipulating what sails a full-rigged Man-O-War would utilize under each “force” of the wind’s strength. Beaufort’s scale covered the most common wind speeds from calm, called Force 1, less than one mph, to Force 12, which included wind speeds of 74 to 95 mph. The latter is a category 1 hurricane.

Chart 1 is Beaufort’s categories for the recommended setting of sails on square-rigged Naval vessels. The second chart is the commonly used chart for vessels today. Chart 2 is exceptionally useful in that the last two columns give a description of sea conditions for boaters and conditions seen on land signifying the wind force blowing at the time of the observation.

The Beaufort scale is used by forecasters around the world. The Chinese and Taiwanese have extended the scale to include

Forces 13,14,15,16 and 17 to be used in monitoring typhoons. For categorizing hurricanes, see the Saffir-Simpson scale and for tornados see the Fujita-Pearson scale.

Using the Beaufort scale, I have added to my personal list the following: White caps appear when, with wind and waves in opposition, the wind blows 12-13 mph; streaks of white appear when wind reaches 18-20 mph; the rigging begins to moan when wind attains a speed of 27-30 mph; I

find it hard to stand erect (I have to lean forward), if wind exceeds 32-34 mph.

One method of predicting whether the wind will increase can be done by watching the barometer. How many small-craft powerboaters use one? Sailors depend on it. The faster the barometer falls, the harder the wind will blow. Likewise, the faster the temperature drops, the harder the wind will blow.

Weather is only predictable to a degree; even the weather man is wrong sometimes. We can learn to predict short-term weather changes and be better boaters for it.

Poseidon riles the seas, Thor brings on the thunder-showers and Aeolus brings forth the winds. To each god we must pay respect. The best we can do to enjoy our life on the water is learn to recognize their whims and remember that “No one conquers the sea. We only survive it.”

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects	
			On the Water	On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft. taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger waves 8-13 ft., whitecaps common, more spray	Large tree branches moving, whistling in wires
7	28-33	Near Gale	Sea heaps up, waves 13-20 ft., white foam streaks off breakers	Whole trees moving, resistance felt walking against wind
8	34-40	Gale	Moderately high 13-20 ft. waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Whole trees moving, resistance felt walking against wind
9	41-47	Strong Gale	High waves (20 ft.), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Very high waves (20-30ft) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, “considerable structural damage”
11	56-63	Violent Storm	Exceptionally high (30-45 ft) waves, foam patches cover sea, visibility more reduced	
12	64+	Hurricane	Air filled with foam, waves over 45 ft., sea completely white with driving spray, visibility greatly reduced	

Chart 2

Force			
0	Calm		
1	Light Air	Or just sufficient to give steerage way.	
2	Light Breeze	Or that in which a man-of-war, with all sail set, and clean full, would go in smooth water from	
3	Gentle Breeze		1 to 2 knots
4	Moderate Breeze		3 to 4 knots
5	Fresh Breeze	Or that to which a well-conditioned man-of-war could carry in chase, full and by	
6	Strong Breeze		5 to 6 knots
7	Moderate Gale		Royals, etc.
8	Fresh Gale		Single-reefed topsails and top-gallant sails
9	Strong Gale	Or that which she could scarcely bear close-reefed main-topsail and reefed foresail	
10	Whole Gale		Double-reefed topsails, jibs, etc.
11	Storm	Or that which would reduce her to storm staysails.	
12	Hurricane		Triple-reefed topsails, etc.
		Close-reefed topsails and courses	

Chart 1

Deep Down

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