

2007 SMILE Winter Activity Satellite Winds

The Beaufort Scale of Wind Velocity

Originally devised in 1806 by Commander Francis Beaufort as a technique for estimating the force, or speed, of winds at sea, the Beaufort Scale has subsequently been adapted for use on land. The value lies in its ability to estimate wind speed using common objects as the reference point, without the aid of weather instruments.

Beaufort number	Wind speed				Mean wind speed (kt / km/h / mph)	Description	Wave height		Sea conditions	Land conditions
	kt	km/h	mph	m/s			m	ft		
0	0	0	0	0-0.2	0 / 0 / 0	Calm	0	0	Flat.	Calm. Smoke rises vertically.
1	1-3	1-6	1-3	0.3-1.5	2 / 4 / 2	Light air	0.1	0.33	Ripples without crests.	Wind motion visible in smoke.
2	4-6	7-11	4-7	1.6-3.3	5 / 9 / 6	Light breeze	0.2	0.66	Small wavelets. Crests of glassy appearance, not breaking	Wind felt on exposed skin. Leaves rustle.
3	7-10	12-19	8-12	3.4-5.4	9 / 17 / 11	Gentle breeze	0.6	2	Large wavelets. Crests begin to break; scattered whitecaps	Leaves and smaller twigs in constant motion.
4	11-16	20-29	13-18	5.5-7.9	13 / 24 / 15	Moderate breeze	1	3.3	Small waves.	Dust and loose paper raised. Small branches begin to move.
5	17-21	30-39	19-24	8.0-10.7	19 / 35 / 22	Fresh breeze	2	6.6	Moderate (1.2 m) longer waves. Some foam and spray.	Smaller trees sway.
6	22-27	40-50	25-31	10.8-13.8	24 / 44 / 27	Strong breeze	3	9.9	Large waves with foam crests and some spray.	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult.
7	28-33	51-62	32-38	13.9-17.1	30 / 56 / 35	Near gale	4	13.1	Sea heaps up and foam begins to streak.	Whole trees in motion. Effort needed to walk against the wind.
8	34-40	63-75	39-46	17.2-20.7	37 / 68 / 42	Gale	5.5	18	Moderately high waves with breaking crests forming spindrift. Streaks of foam.	Twigs broken from trees. Cars veer on road.
9	41-47	76-87	47-54	20.8-24.4	44 / 81 / 50	Strong gale	7	23	High waves (2.75 m) with dense foam. Wave crests start to roll over. Considerable spray.	Light structure damage.
10	48-55	88-102	55-63	24.5-28.4	52 / 96 / 60	Storm	9	29.5	Very high waves. The sea surface is white and there is considerable tumbling. Visibility is reduced.	Trees uprooted. Considerable structural damage.
11	56-63	103-117	64-72	28.5-32.6	60 / 111 / 69	Violent storm	11.5	37.7	Exceptionally high waves.	Widespread structural damage.
12	>63	>117	>72	>32.7	N/A	Hurricane	14+	46+	Huge waves. Air filled with foam and spray. Sea completely white with driving spray. Visibility very greatly reduced.	Considerable and widespread damage to structures.

Adapted from Bigelow Marine Lab activity: <http://www.bigelow.org/virtual/handson/beaufort.html>, Wikipedia