



Beaufort scale




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The **Beaufort scale** is a scale for measuring wind speeds. It is based on observation rather than accurate measurement. It is the most widely used system to measure wind speed today. The scale was developed in 1805 by Sir Francis Beaufort.

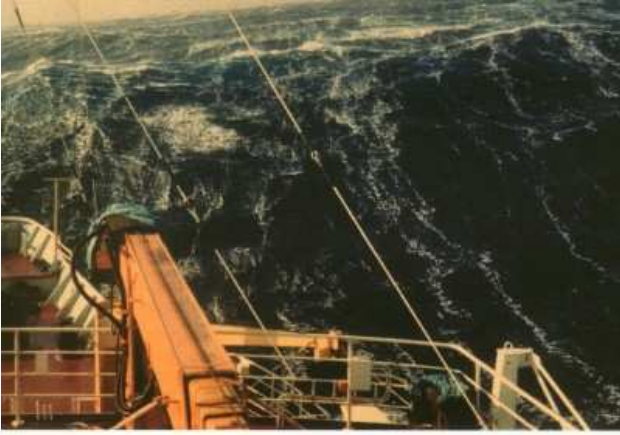


The wave heights given are for waves on the open ocean, not near the shore.

The scale

Beaufort number	Wind speed				Description	Wave height		What the sea looks like	What it looks like on land	Sea state photo
	km/h	mph	kts	m/s		m	ft			
0	<1	<1	<1	<0.3	Calm	0	0	Flat.	Calm. Smoke rises vertically.	
1	1-5	1-3	1-2	0.3-1.5	Light air	0.1	0.33	Ripples without crests.	Wind motion visible in smoke.	 <p>BEAUFORT FORCE 1 WIND SPEED: 1-3 KNOTS</p> <p>SEA: WAVE HEIGHT .1M (.25FT), RIPPLES WITH THE APPEARANCE OF SCALES, BUT WITHOUT FOAM CRESTS</p>
2	6-11	3-7	3-6	1.5-3.3	Light breeze	0.2	0.66	Small wavelets. Crests of glassy appearance, not breaking	Wind felt on exposed skin. Leaves rustle.	 <p>BEAUFORT FORCE 2 WIND SPEED: 4-6 KNOTS</p> <p>SEA: WAVE HEIGHT .2-3M (.5-1FT), SMALL WAVELETS, CRESTS HAVE A GLASSY APPEARANCE AND DO NOT BREAK</p>

3	12-19	8-12	7-10	3.3-5.5	Gentle breeze	0.6	2	<p>Large wavelets. Crests begin to break; scattered whitecaps</p>	<p>Leaves and smaller twigs in constant motion.</p>	 <p>BEAUFORT FORCE 3 WIND SPEED: 7-10 KNOTS</p> <p>SEA: WAVE HEIGHT .6-1M (2-3FT), LARGE WAVELETS, CRESTS BEGIN TO BREAK, ANY FOAM HAS GLASSY APPEARANCE, SCATTERED WHITECAPS</p>
4	20-28	13-17	11-15	5.5-8.0	Moderate breeze	1	3.3	<p>Small waves.</p>	<p>Dust and loose paper raised. Small branches begin to move.</p>	 <p>BEAUFORT FORCE 4 WIND SPEED: 11-16 KNOTS</p> <p>SEA: WAVE HEIGHT 1-1.5M (3.5-5FT), SMALL WAVES BECOMING LONGER, FAIRLY FREQUENT WHITE HORSES</p>
5	29-38	18-24	16-20	8.0-10.8	Fresh breeze	2	6.6	<p>Moderate (1.2 m) longer waves. Some foam and spray.</p>	<p>Branches of a moderate size move. Small trees begin to sway.</p>	 <p>BEAUFORT FORCE 5 WIND SPEED: 17-21 KNOTS</p> <p>SEA: WAVE HEIGHT 2-2.5M (6-8FT), MODERATE WAVES TAKING MORE PRONOUNCED LONG FORM, MANY WHITE HORSES, CHANCE OF SOME SPRAY</p>

6	39-49	25-30	21-26	10.8-13.9	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. Empty plastic garbage cans tip over.	 <p>BEAUFORT FORCE 6 WIND SPEED: 22-27 KNOTS</p> <p>SEA: WAVE HEIGHT 3-4M (9.5-13 FT), LARGER WAVES BEGIN TO FORM, SPRAY IS PRESENT, WHITE FOAM CRESTS ARE EVERYWHERE</p>
7	50-61	31-38	27-33	13.9-17.2	High wind, Moderate Gale, Near Gale	4	13.1	Sea heaps up and foam begins to streak.	Whole trees in motion. Effort needed to walk against the wind. Swaying of skyscrapers may be felt, especially by people on upper floors.	 <p>BEAUFORT FORCE 7 WIND SPEED: 28-33 KNOTS</p> <p>SEA: WAVE HEIGHT 4-5.5M (13.5-19 FT), SEA HEAPS UP, WHITE FOAM FROM BREAKING WAVES BEGINS TO BE BLOWN IN STREAKS ALONG THE WIND DIRECTION</p>
8	62-74	39-46	34-40	17.2-20.7	Fresh Gale	5.5	18	Moderately high waves with breaking crests forming spindrift. Streaks of foam.	Twigs broken from trees. Cars veer on road.	 <p>BEAUFORT FORCE 8 WIND SPEED: 34-40 KNOTS</p> <p>SEA: WAVE HEIGHT 5.5-7.5M (18-25FT), MODERATELY HIGH WAVES OF GREATER LENGTH, EDGES OF CREST BEGIN TO BREAK INTO THE SPINDRIFT, FOAM BLOWN IN WELL MARKED STREAKS ALONG WIND DIRECTION.</p>

9	75-88	47-54	41-47	20.7-24.5	Strong Gale	7	23	<p>High waves (6-7 m) with dense foam. Wave crests start to roll over. Considerable spray.</p>	<p>Larger branches break off trees, and some small trees blow over. Construction/temporary signs and barricades blow over. Damage to circus tents and canopies.</p>	 <p>BEAUFORT FORCE 9 WIND SPEED: 41-47 KNOTS</p> <p>SEA: WAVE HEIGHT 7-10M (23-32FT), HIGH WAVES, DENSE STREAKS OF FOAM ALONG DIRECTION OF THE WIND, WAVE CRESTS BEGIN TO TOPPLE, TUMBLE, AND ROLL OVER. SPRAY MAY AFFECT VISIBILITY.</p>
10	89-102	55-63	48-55	24.5-28.4	Whole Gale/Storm	9	29.5	<p>Very high waves. Large patches of foam from wave crests give the sea a white appearance. Considerable tumbling of waves with heavy impact. Large amounts of airborne spray reduce visibility.</p>	<p>Trees are broken off or uprooted, saplings bent and deformed, poorly attached asphalt shingles and shingles in poor condition peel off roofs.</p>	 <p>BEAUFORT FORCE 10 WIND SPEED: 48-55 KNOTS</p> <p>SEA: WAVE HEIGHT 9-12.5M (29-41FT), VERY HIGH WAVES WITH LONG OVERHANGING CRESTS, THE RESULTING FOAM, IN GREAT PATCHES, IS BLOWN IN DENSE WHITE STREAKS ALONG WIND DIRECTION. ON THE WHOLE, SEA SURFACE TAKES A WHITE APPEARANCE, TUMBLING OF THE SEA IS HEAVY AND SHOCK-LIKE, VISIBILITY AFFECTED.</p>
11	103-117	64-72	56-63	28.4-32.6	Violent storm	11.5	37.7	<p>Exceptionally high waves. Very large patches of foam, driven before the wind, cover much of the sea surface. Very large amounts of airborne spray severely reduce visibility.</p>	<p>Widespread vegetation damage. More damage to most roofing surfaces, asphalt tiles that have curled up and/or fractured due to age may break away completely.</p>	 <p>BEAUFORT FORCE 11 WIND SPEED: 56-63 KNOTS</p> <p>SEA: WAVE HEIGHT 11.5-16M (37-52FT), EXCEPTIONALLY HIGH WAVES, SMALL-MEDIUM SIZED SHIPS MAY BE LOST TO VIEW BEHIND THE WAVES. SEA COMPLETELY COVERED WITH LONG WHITE PATCHES OF FOAM LYING ALONG WIND DIRECTION. EVERYWHERE, THE EDGES OF WAVE CRESTS ARE BLOWN INTO FROTH.</p>

12

≥118

≥73

≥64

≥32.6

Hurricane-force

≥14

≥46

Huge waves. Sea is completely white with foam and spray. Air is filled with driving spray, greatly reducing visibility.

Considerable and widespread damage to vegetation, a few windows broken, structural damage to mobile homes and poorly constructed sheds and barns. Debris may be hurled about.



BEAUFORT FORCE 12
WIND SPEED: 64 KNOTS

SEA: SEA COMPLETELY WHITE WITH DRIVING SPRAY, VISIBILITY VERY SERIOUSLY AFFECTED. THE AIR IS FILLED WITH FOAM AND SPRAY



BEAUFORT FORCE 8
WIND SPEED: 34-40 KNOTS

SEA: WAVE HEIGHT 5.5-7.5M (18-25FT), MODERATELY HIGH WAVES OF GREATER LENGTH, EDGES OF CREST BEGIN TO BREAK INTO THE SPINDRIFT, FOAM BLOWN IN WELL MARKED STREAKS ALONG WIND DIRECTION.



BEAUFORT FORCE 10
WIND SPEED: 48-55 KNOTS

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