



Direct Bearing Network Resource

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The Direct Bearing Network



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Wind and Wind Chill

BEAUFORT SCALE

Force	Wind Speed		Description	Effects observed at sea	Effects observed on land
	Km/h	Knots			
0	Less than 1	Less than 1	Calm	Sea surface like a mirror, but not necessarily flat.	Smoke rises vertically.
1	1 - 5	1 - 5	Light air	Ripples with the appearance of scales are formed, but without foam crests.	Direction of wind shown by smoke drift but not wind vanes.
2	6 - 11	4 - 6	Light breeze	Small wavelets, still short but more pronounced. Crests do not break. When visibility good, horizon line always very clear.	Wind felt on face. Leaves rustle. Ordinary vane moved by wind.
3	12 - 19	7 - 10	Gentle breeze	Large wavelets. Crests begin to break. Foam of glassy appearance. Perhaps scattered whitecaps.	Leaves and small twigs in constant motion. Wind extends light flag.
4	20 - 28	11 - 16	Moderate breeze	Small waves, becoming longer. Fairly frequent whitecaps.	Raises dust and loose paper. Small branches are moved.
5	29 - 38	17 - 21	Fresh breeze	Moderate waves, taking a more pronounced long form. Many whitecaps are formed. Chance of some spray.	Small trees in leaf begin to sway. Crested wavelets form on inland waters.
6	39 - 49	22 - 27	Near gale	Large waves begin to form. The white foam crests are more extensive everywhere. Probably some spray.	Large branches in motion. Whistling heard in telephone wires. Umbrellas used with difficulty.
7	50 - 61	28 - 33	Near gale	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind.	Whole trees in motion. Inconvenience felt in walking against wind.
8	62 - 74	34 - 40	Gale	Moderately high waves of greater length. Edges of crests begin to break into the spindrift. The foam is blown in well-marked streaks along the direction of the wind.	Breaks twigs off trees. Generally impedes progress. Walking into wind almost impossible.
9	75 - 88	41 - 47	Strong Gale	High waves. Dense streaks of foam along the direction of the wind. Crests of waves begin to topple, tumble and roll over. Spray may affect visibility.	Slight structural damage occurs, eg. roofing shingles.
10	89- 102	48 - 55	Storm	Very high waves with long overhanging crests. Dense white streaks of foam. Surface of the sea takes a white appearance. The tumbling of the sea becomes heavy and shock-like. Visibility affected.	Trees uprooted. Considerable structural damage occurs.
11	103- 117	56 - 63	Violent storm	Exceptionally high waves. Sea completely covered with long white patches of foam. Visibility affected.	Widespread damage. .
12	118- 133	64 - 71	Hurricane	Air filled with foam and spray. Sea entirely white with foam. Visibility seriously impaired.	Rare.

Source for weather information: Environment Canada

CALCULATING WIND CHILL

If you know the temperature outside, you can estimate the wind speed by observing the movement of trees and flags (refer to Beaufort Scale), and then finding the wind chill on the chart.

	0 °C	-5 °C	-10 °C	-15 °C	-20 °C	-25 °C	-30 °C	-35 °C	-40 °C
10 Km/hr	-3	-9	-15	-21	-27	-33	-39	-45	-51
20 Km/hr	-5	-12	-18	-24	-31	-37	-43	-49	-56
30 Km/hr	-7	-13	-20	-26	-33	-39	-46	-52	-59
40 Km/hr	-7	-14	-21	-27	-34	-41	-48	-54	-61
50 Km/hr	-8	-15	-22	-29	-35	-42	-49	-56	-63
60 Km/hr	-9	-16	-23	-30	-37	-43	-50	-57	-64

Wind Chill	Risk of Frostbite	Health Concerns	Additional Notes
0 to -9	Low	Slight increase in discomfort.	* In sustained winds over 50 km/h, frostbite can occur faster than indicated. **In parts of the country with a milder climate (such as southern Ontario and the Atlantic provinces except Labrador), a wind chill warning is issued at about -35. Further north, people have grown more accustomed to the cold, and have adapted to the more severe conditions. Because of this, Environment Canada issues warnings at progressively colder wind chill values as you move north. Most of Canada hears a warning at about -45. Residents of the Arctic, northern Manitoba and northern Quebec are warned at about -50, and those of the high Arctic, at about -55. Source: Environment Canada
-10 to -27	Low	Uncomfortable. Risk of hypothermia is outside for extended periods without adequate protection.	
-28 to -39 **	Increasing risk : Skin can freeze in 10-30 mins	Check face and extremities for numbness or whiteness. Risk of hypothermia if outside for long periods without adequate protection.	
-40 to -47	High risk: Skin can freeze in 5-10 mins	Check face and extremities for numbness or whiteness. Risk of hypothermia if outside for long periods without adequate protection.	
-48 to -54 *	High risk: Skin can freeze in 2-5 mins	Check face and extremities frequently for numbness or whiteness. Serious risk of hypothermia if outside for long periods.	
-55 & colder	High risk: Skin can freeze in less than 2 mins	Danger! Outdoor conditions are hazardous.	
<p>For a given combination of temperature and wind speed, the wind chill index corresponds roughly to the temperature that one would feel in a very light wind. For example, a temperature of -25°C and a wind speed of 20 km/h give a wind chill index of -37. This means that, with a wind of 20 km/h and a temperature of -25°C, one would feel as if it were -37°C in a very light wind.</p> <p>Wind chill does not affect objects and does not lower the actual temperature. It only describe how a human being would feel in the wind at the ambient temperature.</p> <p>The wind chill index does not take into account the effect of sunshine. Bright sunshine may reduce the effect of wind chill (make it feel warmer) by 6 to 10 units.</p>			