



How do we
Protect Ourselves

Against Wind Chill?

Basically, the answer is to stay dry, and remove the wind component using shelter or clothing. Cover exposed areas and minimize the time that bare skin is open to the elements by wearing gloves, mitts, scarves, and hoods. Incidentally, the fur around the hood of your parka is not there for looks. It creates a large boundary layer around the face to help reduce the effect of cold and wind.

Wind Chill Information

- 
Hypothermia — results when body temperature falls below 35°C. Symptoms include drowsiness, impaired coordination, weakness, and feeling chilled. It can be fatal.
- 
Frostnip — is a condition where ice crystals form under the skin.
- 
Frostbite — is the actual freezing of the skin. It causes swelling, redness, tingling, and burning. Skin turns white and waxy as the frostbite progresses, and loss of extremities and infection can result. Alcohol, nicotine, and caffeine can also influence your susceptibility to frostnip and frostbite. Alcohol can increase heat loss by increasing surface blood flow. Caffeine causes water loss and can speed dehydration. Nicotine can decrease the blood flow to peripheral body parts and increase your chances of getting frostnip or frostbite.
- 
Chilblains — are small, red, swollen spots on the skin, which can be very itchy and gradually become very painful. They usually occur on the smaller toes, but can appear on the finger, face, and the nose. They occur when bare skin is exposed to cold water, or when wet skin cools. Chilblains can lead to gangrene.

Approximate Threshold of Frostbite Danger

Severity of frostbite	Wind chill	Factors to Consider
Risk of frostbite in prolonged exposure:	-25°C	
Frostbite possible in ten minutes or:	-35°C	Warm skin, suddenly exposed. Shorter time if skin is cool at the start.
Frostbite possible in less than two minutes or:	-60°C	Warm skin, suddenly exposed. Shorter time if skin is cool at the start.

Wind Chill Calculation Chart

Observed wind speed (in km/h) at face height	Air Temperature in ° Celsius											
	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50
5	4	-2	-7	-13	-19	-24	-30	-36	-41	-47	-53	-58
10	3	-3	-9	-15	-21	-27	-33	-39	-45	-51	-57	-63
15	2	-4	-11	-17	-23	-29	-35	-41	-48	-54	-60	-66
20	1	-5	-12	-18	-24	-30	-37	-43	-49	-56	-62	-68
25	1	-6	-12	-19	-25	-32	-38	-45	-51	-57	-64	-70
30	0	-7	-13	-20	-26	-33	-39	-46	-52	-59	-65	-72
35	0	-7	-14	-20	-27	-33	-40	-47	-53	-60	-66	-73
40	-1	-7	-14	-21	-27	-34	-41	-48	-54	-61	-68	-74
45	-1	-8	-15	-21	-28	-35	-42	-48	-55	-62	-69	-75
50	-1	-8	-15	-22	-29	-35	-42	-49	-56	-63	-70	-76
55	-2	-9	-15	-22	-29	-36	-43	-50	-57	-63	-70	-77
60	-2	-9	-16	-23	-30	-37	-43	-50	-57	-64	-71	-78
65	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79
70	-2	-9	-16	-23	-30	-37	-44	-51	-59	-66	-73	-80
75	-3	-10	-17	-24	-31	-38	-45	-52	-59	-66	-73	-80
80	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81

Minutes to Frostbite (for the 5% most susceptible segment of the population)

Observed wind speed (in km/h) at face height	Air Temperature in ° Celsius						Frostbite unlikely	
	-15	-20	-25	-30	-35	-40		
10	•	•	22	15	11	8	7	6
20	•	•	18	10	7	6	5	4
30	•	18	11	8	6	4	4	3
40	47	14	9	6	5	4	3	2
50	27	12	8	5	4	3	2	2
60	22	10	7	5	3	3	2	2
70	18	9	6	4	3	2	2	2
80	16	8	5	4	3	2	2	1

•	Frostbite unlikely
•	Frostbite possible in two minutes or less
•	Frostbite possible in three to five minutes
•	Frostbite possible in six to ten minutes