

# Wind Chill Temperature Index

National Weather Service  
Alaska Region

[www.arh.noaa.gov](http://www.arh.noaa.gov)



## What is frostbite?

Frostbite is damage to body tissue caused by being frozen. It causes a loss of feeling and a pale appearance in extremities, such as fingers, toes, ear lobes, or the tip of the nose. If symptoms are detected, get medical help immediately! If you must wait for help, slowly re-warm affected areas. However, if the person also has signs of *hypothermia*, warm the body core first.

## What is hypothermia?

Hypothermia is the lowering of the internal body temperature. Warning signs include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and exhaustion. If symptoms are present, seek medical care immediately! Get the victim into dry clothing, and wrap them in a warm blanket covering the head and neck. Do not give alcohol, drugs, or hot beverages; warm broth is better. Warm the body core first – not the extremities (arms and legs). This drives cold blood to the heart and can lead to heart failure.

## How should I dress during cold weather?

- ✓ Wear layers of loose fitting, lightweight, warm clothing. Trapped air between the layers will insulate you. Outer garments should be tightly woven, water repellent, and hooded.
- ✓ Wear a hat, because 40% of your body heat can be lost from your head.
- ✓ Cover your mouth to protect your lungs from extreme cold.
- ✓ Mittens, snug at the wrist, are better than gloves.
- ✓ Try to stay dry and out of the wind.

## What else do I need to know?

Remember, the index is based on the actual impact of cold and wind on your skin. *Knowing the time to frostbite is the key.*

For more information on the wind chill index, including an on-line wind chill calculator, go to <http://www.nws.noaa.gov/om/windchill/>.

## Wind Chill Temperature Index

On November 1, 2001, the National Weather Service (NWS) implemented a new Wind Chill Temperature index designed to more accurately represent how cold air feels on human skin. The former index was based on 1945 research that involved the freezing of water. Since water freezes faster than flesh, this index was flawed; it underestimated the time to freezing and overestimated the chilling effect of the wind.

## How does the index work?

The new index was developed using the latest advances in science and technology. It is based on the impacts of cold temperatures and wind on human skin, and it provides an accurate calculation of frostbite danger.

## What is wind chill?

Wind chill is the temperature it “feels like” outside to people and animals, due to heat loss from exposed skin caused by the effects of wind and cold. As the wind increases, the body is cooled at a faster rate causing the skin temperature to drop.

## What does this mean to me?

The NWS will inform you when conditions reach critical thresholds. A **Wind Chill Advisory** is issued when wind chill temperatures are potentially hazardous. When wind chill temperatures reach life threatening levels, a **Wind Chill Warning** will be issued. Warnings contain information about how to protect yourself from frostbite and hypothermia.

Area/Region	Advisory	Warning
North Slope	-50°F	-60°F
Southeast Panhandle	-30°F	-55°F
Rest of AK	-40°F	-60°F

# Wind Chill Chart

		Temperature (°F)																	
		30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55
W I N D (mph)	Calm	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55
	5	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63	-69	-75
	10	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72	-78	-84
	15	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77	-83	-90
	20	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81	-88	-94
	25	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84	-91	-98
	30	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87	-94	-101
	35	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89	-96	-103
	40	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91	-98	-105
	45	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93	-100	-107
	50	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95	-102	-109
	55	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97	-104	-111
60	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98	-105	-113	

*Frostbite occurs in 30 minutes or less*

*Frostbite occurs in 15 minutes or less*

*Frostbite occurs in 10 minutes or less*

*Frostbite occurs in 5 minutes or less*

*Frostbite occurs in 2 minutes or less*