

How Cold Is It?

As of Nov. 1, 2001, the National Weather Service (NWS) and the Canadian government have changed the way they measure Wind Chill Temperature (WCT). This new method will be used throughout all of North America and will produce much more realistic numbers and is designed to calculate how the cold feels to human skin.

Under the new method, the calculated wind chill will actually be “warmer.” The new measurement was designed to help people plan better for going outdoors —knowing how to properly gear up for the cold. The new method also is the first time a frostbite danger index has been included as a part of the equation.

Here’s an example:

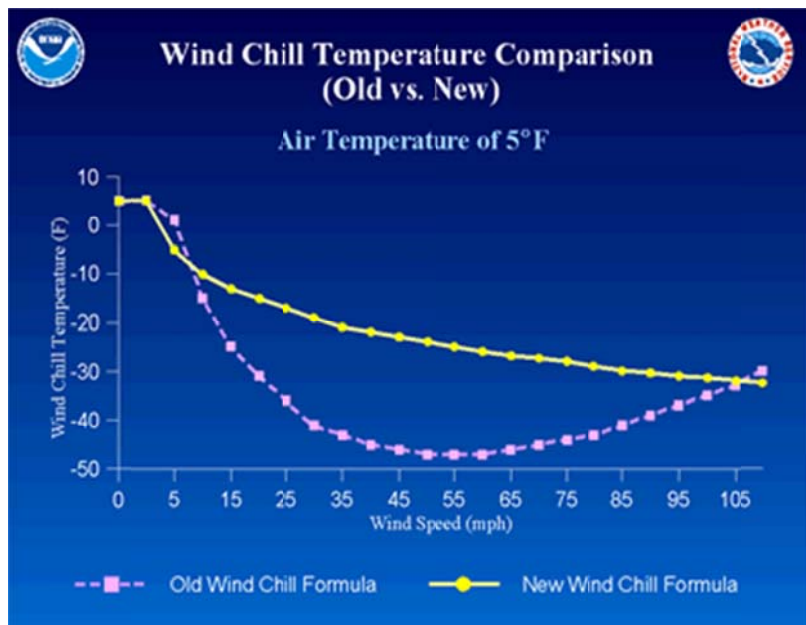
At 11°F with a wind speed of 20 mph, the WCT would be -23°F under the old index. Using the new measurement method, the same conditions would provide a WCT of only -8°F .

Why the difference? The new index accounts for wind speed at human face level and uses a new formula for calculating body heat loss. The National Weather Service had used the outdated Siple and Passel index since 1945. This index relied on measuring wind speed at 33 feet above the ground and focused on how long it took to freeze water at that wind speed and temperature.

In 2000, the Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM) formed a group called the Joint Action Group for Temperature Indices (JAG/TI). The goal of the group was to internationally upgrade and standardize the index for temperature extremes (Wind Chill) for North America. Standardizing the wind chill index among the meteorological community will provide accurate and consistent measure to help assure public safety during the cold seasons.

The new index is based on:

- Wind speed measured at average face height of 5 feet off the ground, where the face is the most likely part of the



- body to be exposed to the wind
- A consistent standard for skin tissue resistance
- Updated heat transfer theory (heat loss from the body to surroundings during cold windy periods)
- Assumes no heat impact from the sun (clear night sky conditions)

This latest wind chill index, now used in the U.S. and Canada, was developed after extensive analysis of the factors that impact wind chill. It was developed using the latest advances in science, computer modeling and technology.

In 2002, adjustments based on possible impact of the sun may be added to the calculation. The new Wind Chill Index will, for the first time, show specific wind chill threshold values identifying frostbite danger at given periods of time.

The new WCI has been incorporated into the latest software installed on the NWS's Advanced Weather Interactive Prediction System and is available online at:
<http://www.weather.gov/os/windchill/index.shtml>

Commonly Asked Questions

Q. *What is the wind chill temperature?*

A. Wind chill temp is the temperature that it feels like outside to people and animals. Wind chill is based on the rate of heat loss from exposed skin caused by combined effects of wind and cold.

Q. *What is frostbite?*

A. Frostbite is the result of the body tissue freezing and most frequently affects the extremities such as fingers, nose and toes. Symptoms include a pale white appearance and loss of feeling in these extremities.

Q. *What is an anemometer?*

A. An anemometer is a device for measuring wind speed.

Q. *What is hypothermia?*

A. Hypothermia occurs when the body temperature falls below 95°F. Hypothermia is caused by exposure to cold and is aggravated by wet, wind and exhaustion. Warning signs include uncontrollable shivering, disorientation, memory loss, slurred speech, incoherence, drowsiness and exhaustion.



Wind Chill Chart

