

Holy Wind Chill That's Cold!

How many times have you looked outside on a cold winter day, and thought it looked beautiful outside, only to walk outside and have the wind blow and make it feel colder than you anticipated. This apparent temperature difference is called the wind chill and it has sparked much debate among scientists.

The first question in everyone's minds should be, what exactly *is* wind chill? According to the National Weather Service, wind chill is "the term used to describe the rate of heat loss on the human body resulting from the combined effect of low temperature and wind". Basically what this means is that the wind carries the heat that radiates off exposed skin. This causes the temperature of your skin to cool and in time, this phenomenon can your internal body temperature to cool as well, but it can also cause frostbite.

Scientists have tried for years to try and accurately quantify this feeling into an understandable number. The first research was done in the mid 1940's in Antarctica by Paul Siple and Charles Passel. They put a bottle of water outside on a tall pole and measured the rate at which it froze. In the 1960's Canadian scientists tried to use a measurement of the heat loss, watts/square meter. However the public found this very difficult to interpret. What did it mean that today's wind chill was 1400 watts/square meter? Then, the Americans, on a quest to solve everything, attempted to create a formula that would quantify wind chill into a form of temperature. But this has seemingly only caused more problems.

Meteorologists debate the effectiveness of this number called wind chill, because it tends to cause hype among TV meteorologists and journalists. This hype causes the public to not take these numbers seriously. News headlines such as "Sub-Zero Temperatures with -30 degree Wind Chills Expected" and "Cold to Freeze East with Unbearable Wind Chills" only accentuate this distrust in the weather forecaster.

If the public doesn't take the numbers seriously then we have a problem. The entire purpose of this number was to help protect people from the dangerous effects of the wind. If they don't heed our warnings then it no longer serves a purpose.

An attempt to fix this equation was made in 2001. They tried to incorporate more variables including height above the ground, average walking speed as well as focusing on heat loss properties of human skin, versus water or another material. However, they still make some

very crude assumptions like being outside in the dead of night or having to interpolate surface winds from upper air winds. This system is better but wind chills still tend to be over exaggerated by members of the media.

Because there is no perfect system, there will always be debate about the best way to convey the variability of the *feeling* while maintaining as much accuracy as possible and preventing the media from hyping every statement made by a meteorologist. Until there is a formal way to establish this, we will continue interpolate wind chills for ourselves. And even then, inevitably someone will find something wrong with it. So until that day, bundle up and don't let the frostbite bite.