

## Wind Chill

From the user, we are given an air temperature ( $T$ ) and a wind speed ( $Wind_{sfc}$ ).

In order to calculate the Wind Chill, the temperature must be converted to degrees Fahrenheit ( $^{\circ}F$ ).

To find out how to convert the temperature, see the link below:

[Temperature Conversion](#)

Also, in order to calculate the Wind Chill, the wind speed must be converted to miles per hour ( $mph$ ).

To find out how to convert the wind speed, see the link below:

[Wind Speed Conversion](#)

Then, the Wind Chill can be calculated using this formula:

$$\begin{aligned} WindChill = & 35.74 + (0.6215 \times T) - \left(35.75 \times Wind_{sfc}^{0.16}\right) \\ & + \left(0.4275 \times T \times Wind_{sfc}^{0.16}\right) \end{aligned}$$

Because the user might need the Wind Chill in Watts per meter squared ( $\frac{W}{m^2}$ ), it can be calculated using an air temperature in degrees Celsius ( $^{\circ}C$ ) and a wind speed in meters per second ( $\frac{m}{s}$ ):

$$WindChill = \left(12.1452 + 11.6222 \times \sqrt{Wind_{sfc}} - 1.16222 \times Wind_{sfc}\right) \times (33 - T)$$