

Relative Humidity

Relative humidity is the percent of water vapor in the air compared to what would be present if the air were saturated. Fully saturated air is fog. Relative humidity is always expressed as a percentage.

Relative humidity can be determined by measuring the dry bulb and wet bulb temperatures in the field. Using these measured values, the dew point and relative humidity can be determined with the use of tables. These psychrometric tables are valid for specific elevation ranges because relative humidity and dewpoint change with atmospheric pressure, which varies with elevation.

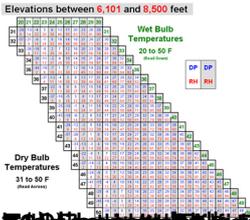
Relative humidity also changes with temperature. Dewpoint, however, remains nearly the same as long as the moisture content of the air is not changing. This fact can be used to help estimate the minimum relative humidity for the afternoon, using the predicted high temperature for the day and the observed dewpoint. On a typical sunny day, temperatures in the lower atmosphere will decrease about 5.5 degrees F for every 1,000 feet in elevation. As temperatures approach the dewpoint, the same amount of water vapor will result in a higher relative humidity.

Psychrometric tables are provided in belt weather kits. You must use the chart for the elevation at which you are taking the observation because relative humidity and dewpoint change with atmospheric pressure, which varies with elevation.

Psychrometric tables relate dry bulb, wet bulb, dewpoint, and relative humidity.

Click on the graphic below to view a multimedia version of the psychrometric table lesson (includes audio), or read the text version of the steps involved below:

7.4 Relative Humidity



~~Wet Bulb Temperature (WB) is the temperature of a mass of air and water droplets suspended in air. The droplets evaporate, cooling the air until it reaches saturation. The temperature at which this occurs is the wet bulb temperature. It is a measure of the air's moisture content and is used in many applications, including weather forecasting and industrial processes.~~