THE
ATMOSPHERICRESERVOIR
Examining the Atmosphere and Atmospheric Resource Management

"Fahrenheit vs. Celsius"

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Ever wonder why most thermometers have both Fahrenheit and Celsius scales? Meteorologists in the United States and Belize are sometimes as confused by this as anyone because these two countries are the only ones in the world that still use the Fahrenheit scale. In the US, we generally use Fahrenheit for surface temperatures and Celsius for anything above. The official temperature reports from the National Weather Services' Automated Surface Observing System (ASOS) are given in Celsius; however, these temperatures are converted to Fahrenheit for official reporting purposes including daily weather archives and climate data. An international standard code (that uses the Celsius scale) was adopted on July 1, 1996 so that scientists from around the world could compare data without having to convert units of measure.

With North Dakota's close proximity to Canada (where the Celsius scale is used), weather broadcasts generally report only one type of temperature unit. Occasionally, both units are reported because broadcasters' viewing and listening markets cross international borders. Fortunately, the normal reportable temperature values on each of the two scales are distinguishable from each other. A common example would be temperatures of zero Celsius and thirty-two Fahrenheit being equal, but numerically separated enough to alleviate confusion about which scale is being used. Let's look at the history behind each scale and see why there's such a difference in the numbers.

Celsius/°C	Fahrenheit/ °F	Celsius/°C	Fahrenheit/ °F
-50°	-58°	5°	41°
-45°	-49°	10°	50°
-40°	-40°	15°	59°
-35°	-31°	20°	68°
-30°	-22°	25°	77°
-25°	-13°	30°	86°
-20°	-4°	35°	95°
-15°	5°	40°	104°
-10°	14°	45°	113°
-5°	23°	50°	122°
0°	32°	55°	131°

Through experimentation, German physicist Gabriel Daniel Fahrenheit created the Fahrenheit scale in the early 1700s and used the melting point of ice (32°F), human body temperature (thought to be 96°F at that time), and the boiling point of water (212°F) as reference points. Years later when the accuracy of thermometers improved, the average human body temperature was revised to 98.6°F. Shortly thereafter, Swedish astronomer Anders Celsius devised the Celsius scale, also using the melting point of ice and boiling point of water; however his scale defined these temperatures at 0°C and 100°C.

A third temperature scale requires mentioning here because of its importance to the scientific community. You've maybe heard chemists discussing the Kelvin scale, which begins at a value called *absolute zero* where all molecular motion is presumed to cease. The Kelvin and Celsius scales both have one hundred, one-degree increments separating the melting point of ice and the boiling point of water and for this reason temperature conversions are very simple. When converting from Kelvin to Celsius subtract 273 and when converting from Celsius to Kelvin add 273.

If you need to convert between Celsius and Fahrenheit, just remember that one degree Celsius equals 1.8 degrees Fahrenheit. Multiply the Celsius value by 1.8 (or 9/5) and then add thirty-two (32) to get the value in Fahrenheit. When converting from Fahrenheit to Celsius, subtract thirty-two and then divide that value by 1.8 (or 9/5). Because these conversions are relatively difficult to do in your head without using a calculator, most meteorologists memorize the Fahrenheit conversion values for every five degrees Celsius and then interpolate between these numbers.

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