

FROM THE Director



NEWS & OBSERVER

DEGREES OF DIFFERENCE

Driven by curiosity and need, tracking the weather is a daily habit for most of us. Will I need a coat, an umbrella or sunscreen? What is the forecast for my vacation or business destination? Is there an approaching storm? Online, on radio or television, detailed answers to such questions are instantly available. From elsewhere in our region and around the world, we are typically riveted to breaking news about weather and weather-related catastrophes — floods, mudslides, wildfires, droughts — and the questions they raise about averages, extremes and trends.

Of all the variables that define the weather, temperature is most relevant. In this country, at least in public circles, temperature is talked about on the Fahrenheit scale. Daniel Fahrenheit (1686–1736) was a Dutch-German-Polish physicist, inventor and scientific instrument maker. On this scale, water freezes at 32° and boils at 212°. The United States is the only major industrialized country not using the metric Celsius (or Centigrade, its older name) temperature measurement system. On this scale, named after the Swedish astronomer Anders Celsius (1701–1744), water freezes at 0° and boils at 100°.

I used to reside in the Canadian province of Saskatchewan where the thermometer can plummet to a frigid -40°C/-40°F. And in Egypt's Suez Canal Zone where I was born, the surrounding desert can reach a scorching +45°C/+113°F. Having lived with both Celsius and Fahrenheit scales, I can readily switch between them. Not so evidently for the captain of a recent flight from the US to the UK. On the approach to Manchester — where, ironically, I was about to speak at an international symposium on climate change and museums — the cockpit announced that the ground temperature was “55°F or 7°C”. Wrong! 55°F is 12.8°C and 7°C is 44.6°F.

The 2016 Climate Agreement of the United Nations in Paris thrust “1.5 degrees” into worldwide attention. Often quoted without its scale, it was stated in Celsius units: 1.5°C is the same as 2.7°F. In geological terms, even a one-degree shift in average global temperature is a big deal. Over recent decades, warming climates have caused glaciers to retreat, Arctic summer sea ice to shrink, and some coral reefs to die. The tiny degree difference of 1.5°C/2.7°F pales in comparison to normal daily and seasonal temperature variations. Raleigh provides an instructive example: January's average overnight temperature is 29.6°F (-1.3°C) and July's average daytime high is 89.1°F (31.7°C). Raleigh's record high was 105°F (40.6°C) during June 2012 and record low was -9°F (-22.8°C) during January 1985. Across North Carolina, the all-time high and low were 110°F (43.3°C) in Fayetteville on August 21, 1983 and -34°F (-36.7°C) on Mount Mitchell on January 21, 1985.

With temperature, we see that context matters a great deal. Paradoxically, it is the smallest numbers in this column — 1.5°C (2.7°F) — which are the most significant ones to understand. For their part, museums are helping to popularize the UN's 17 Sustainable Development Goals (SDGs), number 13 of which is focused on Climate Action. In partnership with WRAL-TV, the NC Museum of Natural Sciences has held an initial series of public townhalls about the SDGs. For the UN's Framework Convention on Climate Change in Bonn, Germany on May 1, I was invited to contribute a video presentation for its closing session about the growing educational role of museums. It is the mission of this institution to illuminate the natural world and inspire its conservation that propels these steps.

Emlyn Koster, PhD
Museum Director

A scientist

Ra

in his laboratory

is not a mere technician:

he is also a child

confronting natural phenomena

that impress him

as though they were fairy tales.

— Marie Curie

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ON THE COVER

An Eastern box turtle, *Terrapene carolina*, pokes its head up, trying to decide if I am friend or foe. This well-known species is named for its ability to close itself inside its shell. It is the state reptile of North Carolina and can be found across the state, usually in or near wooded habitats. Scientists believe that box turtle populations are declining in many areas due to habitat fragmentation and mortality associated with turtles crossing roads. We can all help by staying alert for them crossing highways, especially after rainy weather.

— Photo: Mike Dunn