

Winds of change

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By Melanie Lenart

As pipes burst around the Old Pueblo, flooding homes and leaving restaurants and coffee shops without running water, questions about climate change surfaced with the gurgling water.

At 17 degrees Fahrenheit before blasts of Arctic wind on the coldest Feb. 3 in the city's history, Tucson was only a few degrees warmer than my hometown of Chicago, buried under two feet of snow. And both were more frigid than Anchorage, Alaska, which reached a high above freezing.

Did the sudden shift in the weather have anything to do with climate change? I checked in with a few local climatologists to see what they thought of the hatchling ideas tying these outbursts of Arctic cold to the warming poles or melting sea ice.

"I think it's actually been a big surprise," said Christopher Castro, a University of Arizona assistant professor in Atmospheric Sciences who specializes in climate. In his mind, the surprise is that a climate pattern known to some as the Arctic Oscillation seems to be shifting into a different phase.

While cold air had been circling the Arctic, in recent years it has been cutting loose to carry frigid air down south in icy waves.

One might be tempted to speculate that an exporting of cold air would help explain how, in past warm periods, the Arctic temperature rose more than 30 degrees Fahrenheit while the globe as a whole registered an increase of only about 5 degrees (Walking on Earth, July 2010). But that would be nothing more than speculation at this point.

As Castro notes, it's far too soon to know if any of the ideas linking the Arctic's export of polar winds to the region's ongoing warming will stand the test of time. Even those proposing these hypotheses acknowledge they are in the testing phase, and not really ready for prime time.

The blast of cold air should remind us of three things. First, we can always expect surprises from daily weather within the context of decades-long climate.

Second, we have a long way to go before we can definitively connect the dots between weather and climate change. Waves of variability within the overall climate will always be part of the picture.

Even as climatologists struggle to decipher the patterns loosely guiding weather, the patterns could be morphing into something entirely different as the world continues to warm.

That brings us to the third and most important things to remember: while it's challenging to predict some of the specific events falling between climate and weather, climate change operates on another scale altogether.

The connection between high greenhouse gas levels and high global temperatures does stand the test of time, based on evidence from hundreds of millions of years of Earth history.

But remember – these ancient records of past ice ages and hothouses give us a coarse picture of climate. It overlooks the vagaries of weather.

And weather is fickle.

Say what you will about the blast of cold, but we all should take a cue from New York when hoping that the widespread winter freeze means a mild summer ahead. Last year, residents of the Big Apple fought Arctic cold during winter, then sweated through their hottest summer on record.

And 2010 – a year that began with snow in almost every state of the union – still ended up as one of the hottest years on record globally.

We simply do not know enough about climate to say exactly what it's doing and why at every turn – much less exactly what it will do as we continue to change it by adding more greenhouse gases to the air.

Another climatologist, Wallace Broecker of Columbia University, compares our releasing of greenhouse gases to prodding a sleeping dragon – climate.

Still, if push comes to shove and the dragon wakes up, you can bet that blast will feel like a change in the weather.

Author: Melanie Lenart is an environmental scientist and writer. Her 2010 book, Life in the Hothouse: How a Living Planet Survives Climate Change, focuses on climate and vegetation changes during the past 100 million years of Earth history.