

Letters: Climate forecasting beyond our capabilities

The Sun-News recently described an Arctic air mass which invaded the eastern two-thirds of the country following an East Coast storm. The storm's pressure dropped very rapidly; this is the explosive cyclogenesis we call an East Coast "Bomb," because it blows up so rapidly. Days of warning prior to this storm are a tribute to advances in numerical weather prediction which delights us operational weather forecasters.

The Weather Channel lists the first week of January 2018 "coldest on record" for New York City, Pittsburgh, Detroit, Baltimore, Charleston and Tallahassee. This belies the notion of anthropogenic CO₂ "trapping heat."

There's another teachable moment in this story: On 23 October 2017 the Climate Prediction Center, CPC, issued the official forecast for winter 2017-18, and except for a small below-normal temperature sliver from North Dakota to Washington State, forecast a huge swath of "warmer than normal" for wide areas of the country from Maine to Florida to Utah, Nevada and much of California.

This climate outlook now appears in great peril, because the jet stream pattern has changed drastically from what the CPC estimated a few short months ago.

The reason for this apparent forecast failure may not be obvious to those with great faith in climate predictions, but the reason is this: there are no exact solutions for the equations of motion of the atmosphere. Mathematicians have been able to write down the detailed equations for a couple hundred years, but since then no one has been able to solve them exactly.

So, while humanity can secure great benefits from operational forecasts which take advantage of short-term predictive capabilities, climate forecasting is clearly beyond the state of the art and is likely to remain so for the foreseeable future.

Robert W. Endlich

Las Cruces