

Roth: U.S. Freeze Fuels Global Warming Debate

Record-breaking cold winter temperatures for the new year have raised many questions about climate change.

As the word “selfie” became the buzzword of 2013, “polar vortex” may be the new hot phrase for 2014.

It has brought arctic chill to the continental United States and disrupted industries, cities and thousands of individual lives.

According to some climate-change researchers, global warming may be contributing to the polar vortex and actually causing the recent frigid temperatures across most of the nation.

While it seems contradictory, research argues that plunging temperatures could come from changes in the jet stream caused by climate change.

Rutgers University climate scientist Jennifer A. Francis has released a number of papers on the subject.

Her conclusions suggest that warming arctic air caused by greenhouse gas emissions has caused the jet stream to change in a way that is pushing colder air farther south.

Francis said the jet stream shift has sent frigid air across the central part of the country, and deeper into the South than normal. Alaska, meanwhile, is being hit by unusually warm conditions and California is facing record-breaking drought. Strange weather is becoming more likely because of climate change, she said.

A 2010 NASA analysis tied colder temperatures in 2009 to an event similar to a vacillating pressure system over the North Pole call Arctic Oscillation. That oscillation pushed cold air

to the south.

The NASA analysis also said that despite cold snaps and other weather changes being a part of naturally occurring patterns, they are still in line with a globally warming world.

Francis said big fluctuations in the jet stream cause extreme weather conditions to hang around longer, and greenhouse gas emissions are a key factor.

Massachusetts Institute of Technology atmospheric scientist Kerry Emanuel said long-term climate change can only be seen by looking at detailed statistics.

"It's plausible, at least for a while that a changing jet stream may cause colder winters," she said.

A new video posted on the White House website is aimed at climate change naysayers' claims that the polar vortex is a sign global warming doesn't exist. John Holdren, science adviser to President Barack Obama, said no single weather event can disprove climate change.

"If you've been hearing that extreme cold spells like the one that we've been having in the United States now disprove global warming, don't believe it," Holdren said.

Holdren said the U.S. should expect more instances of arctic-like weather in the future as the polar vortex weakens its centralized hold due to global warming.

He also contends the Arctic is warming roughly twice as rapidly as the mid-latitude regions of the globe, such as the U.S. His conclusion is the temperature difference between the mid-latitudes and the Arctic is shrinking. Those events cause the polar vortex to become less stable, meaning there will be more frequent cold snaps headed farther south.

The administration's group called We the Geeks recently hosted a conversation on the polar vortex and extreme weather with

meteorologists, climate scientists and weather experts. Cristin Dorgelo and Brendan Kelly from the White House Office of Science and Technology Policy moderated the live event.

Most scientific research finds that climate change is still real and very serious. The IPCC Intergovernmental Panel of Climate Change has said it's extremely likely that humans are the dominant cause.