

CU experts concerned about climate change

'It's a current threat,' ecologist says

BY JUSTIN LEE CAMPBELL
THE JOURNAL

SENECA — Environmental Protection Agency chief Scott Pruitt told reporters recently carbon dioxide is not “a primary contributor” to climate change.

Clemson University professor Robert Lund was in disbelief when he heard the quote.

“He really said that?” the mathematical statistician asked.

Lund examines historical records to “legitimately infer” how global warming has changed the weather. He describes himself as a “mathematical junkie” who looks at data for changes in temperatures, snowfalls and the strength of storms, such as hurricanes.

“My job is to narrate the controversy of climate change from the historical record and place margins of certainty on those changes,” Lund said. “The confidence the planet is warming is extremely, extremely high. I don’t think anyone is debating whether the Earth is warming.”

In statistical terms, Lund is 95 percent confident the planet is warming at a rate between 0.9 and 1.6 degrees Fahrenheit per century. Although the rate sounds low, it is “problematic” in the context of human history, according to Lund.

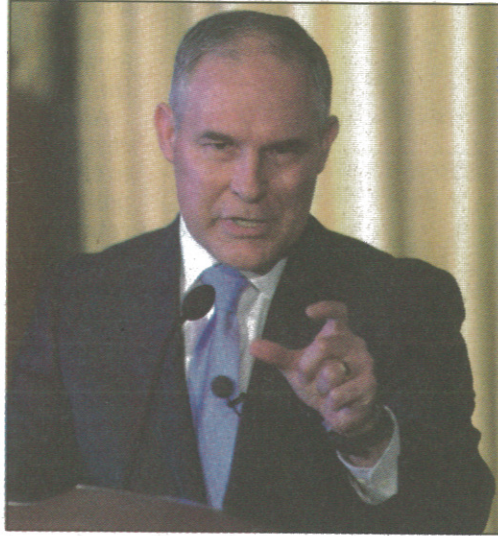
“Every time carbon dioxide goes up, we can also estimate historical temperatures and see this coherence that every time CO₂ goes up in the past, the temperature of Earth goes up,” Lund said. “What’s problematic about this is man is increasing CO₂. That’s the whole premise behind man-induced climate change.”

Lund refuted Pruitt’s claim that CO₂ isn’t a primary contributor to global warming.

The climate change debate heated up last week when President Donald Trump signed an executive order that will halt, repeal or flag for review regulations in an effort to increase U.S. energy production with fossil fuels. A target of the order is the Obama administration’s Clean Power Plan, which reduces greenhouse gas emissions like CO₂ at coal-fired power plants. The Trump administration wants a review of the plan.

Lund said a rollback of regulations like the Clean Power Plan leads to the same thing that’s been happening for decades.

“Digging up fossil fuels and burning coal creates CO₂ and makes the problem worse,” he told The Journal.



ASSOCIATED PRESS

Environmental Protection Agency chief Scott Pruitt speaks in Washington, D.C. in February. Pruitt told reporters in March that carbon dioxide is not “a primary contributor” to climate change.

But the cause of climate change, whether manmade or not, is a controversy in American politics, according to Lund.

“Unfortunately, our fingerprint is carbon dioxide,” he said. “As much as people don’t want to hear that, we’re getting almost definitive proof now CO₂ is the primary culprit of this warming. That last statement tends to be politically inflammatory, but it shouldn’t be.”

Trump, whose view on climate change has varied, called global warming “a hoax” the Chinese invented in a 2012 tweet from his verified Twitter account. Lund said 97 percent of climate scientists believe climate change is manmade.

“I heard that statement, and that’s when I knew I could never vote for Trump, because it’s blatantly false,” he said.

And there are ways scientists seek to prove climate change is not a hoax.

Data from today or last year alone can’t tell the story of global warming. Peering into the past gives science a more complete picture.

Lund said that paleoclimatology, which is just more than a decade old as a discipline, is the study of past climates. Paleoclimatologists drill down into glaciers, examine pollen at the bottom of lakes or in mud, slice open a tree or look at cave stalagmites “to reconstruct the climate of the past.”

“Just like geologists look at rocks to study the earth, paleoclimatologists look back at traces of CO₂ forensically and analyze gas levels in ice,” Lund said. “From this, people can actually infer what’s happened climatologically from a long time ago.”

Clemson University ecologist Kyle Barrett

researches the ways different species respond to large-scale stressors, like a changing climate. Barrett wants to understand which animals are most vulnerable to climate change’s effects.

“We learned a couple of years ago some amphibian species in the Southeastern U.S. in the mountains may be a little more resistant to climate change because of a variety of habitats,” Barrett told The Journal.

Barrett called habitats allowing organisms to thrive despite stressors “refugia.”

“The amphibians in the Southeast are more resilient to climate change than ones in the Lowcountry of South Carolina, where we have really flat landscapes,” he said. “They may face more challenges from climate change.”

Although scientists have predicted long-term consequences like sea-level rise stemming from global warming, Barrett said climate change isn’t just a long-term problem — “it’s happening right now.”

“Each of the last several decades have been warmer than the previous decade, and each of the last few years have been warmer than the previous year,” Barrett said.

“People in the Upstate should care, because the cost to cool homes will go up, extreme weather events are becoming more common and drought may be more likely.”

Barrett stressed that tying a single event like a strong hurricane or extended drought to climate change is impossible. But looking back at “a series of patterns” makes climate change more evident.

“All these things strung together are evidence that we’re in the middle of climate change right now,” Barrett said. “It’s not some future threat. It’s a current threat.”

Lund, the self-described “mathematical junkie,” told The Journal he’s concerned about the future. Lund said humans themselves may be able to survive weather a few degrees warmer, but that doesn’t mean humans won’t be affected.

“A lot of life forms that we’ve grown dependent on may not be there any more,” he said.

Lund pointed to farmers in the South who raise cattle and black walnut trees in more mountainous regions. If cattle or those walnut trees can’t survive, farmers could lose their livelihood.

“The No. 1 reason why we want to fight climate change for me is I’d like to leave Earth a better place than when I found it,” Lund said. “And that’s just common sense for future generations.”

The Associated Press contributed to this report.

justin@upstatetoday.com | (864) 973-6685

Follow on Twitter @jlcampbell90