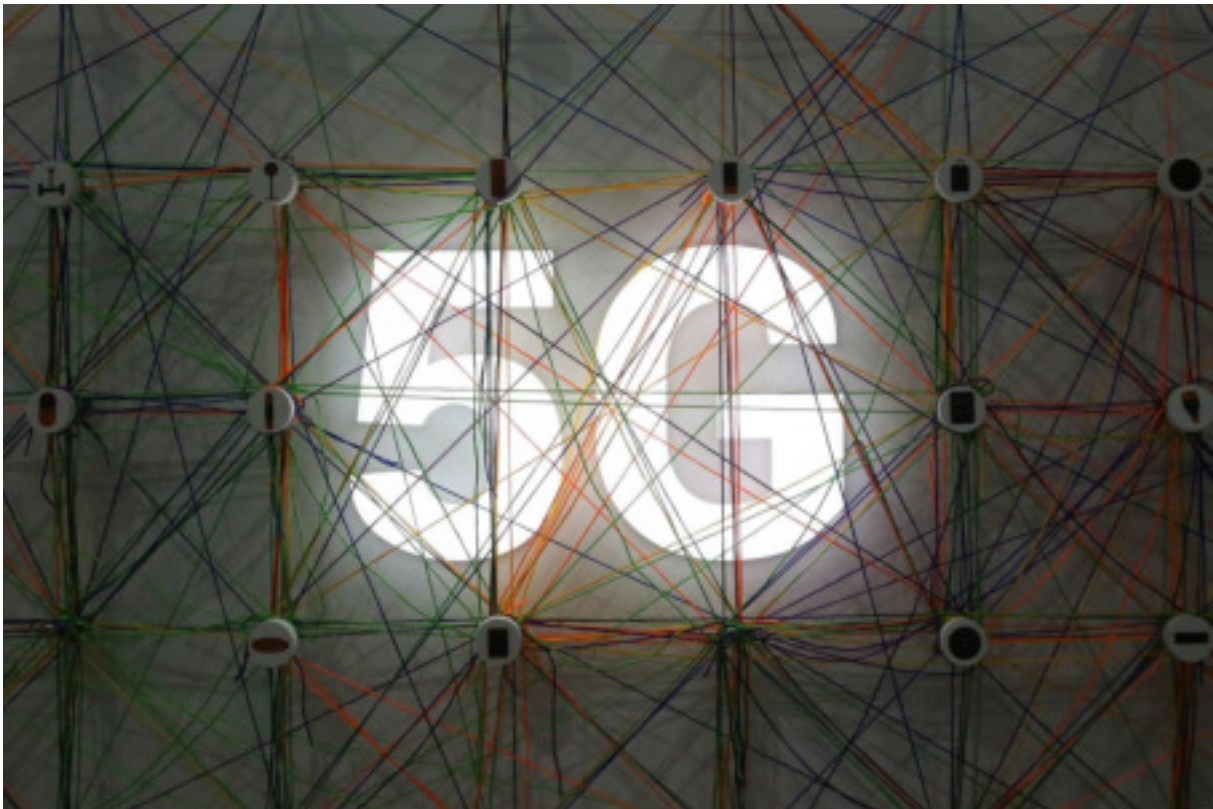


<https://www.washingtonpost.com/weather/2019/05/23/head-noaa-says-g-deployment-could-set-weather-forecasts-back-years-wireless-industry-denies-it/>

Head of NOAA says 5G deployment could set weather forecasts back 40 years. The wireless industry denies it.

Government agencies are at an impasse on how to proceed.



(Angel Garcia/Bloomberg News)

By [Jason Samenow](#)

May 23

What if, suddenly, decades of progress in weather prediction was reversed and monster storms that we currently see coming for days were no longer foreseeable? The toll on life, property and the economy would be enormous. Yet the government's science agencies say such a loss in forecast accuracy could happen if the Federal Communications Commission and the U.S. wireless industry get their way.

Both the FCC and the wireless industry are racing to deploy 5G technology, which will deliver information at speeds 100 times faster than today's mobile networks. But scientists have found this technology could interfere with critical satellite data used in weather forecasting, pitting the interests of science and safety against a pressing national priority.

The FCC and the government's science agencies, National Oceanic and Atmospheric Administration and NASA, [have battled](#) over this issue for several years.

Both sides agree that American advancement and leadership in 5G is critical, but talks break down when it comes to how much the technology might affect weather data and the acceptable level of any interference.

Last week, Neil Jacobs, the acting head of the National Oceanic and Atmospheric Administration, told Congress that 5G interference could set the accuracy of weather forecasts back 40 years.

Yet on Tuesday, CTIA, the trade group representing the U.S. wireless communications industry, unleashed a scathing rebuttal of the Jacobs' assertion.

"It's an absurd claim with no science behind it," wrote Brad Gillen, CTIA's executive vice president, [in a blog post](#).

Gillen maintained that the NOAA claim relies on the study of a [microwave sensor](#) "that never went into use." (The study, a collaborative effort between NOAA, NASA and the FCC, still under deliberation, is not public. CTIA said in an email it reviewed a draft copy that was posted on NASA's website but has since been removed.)

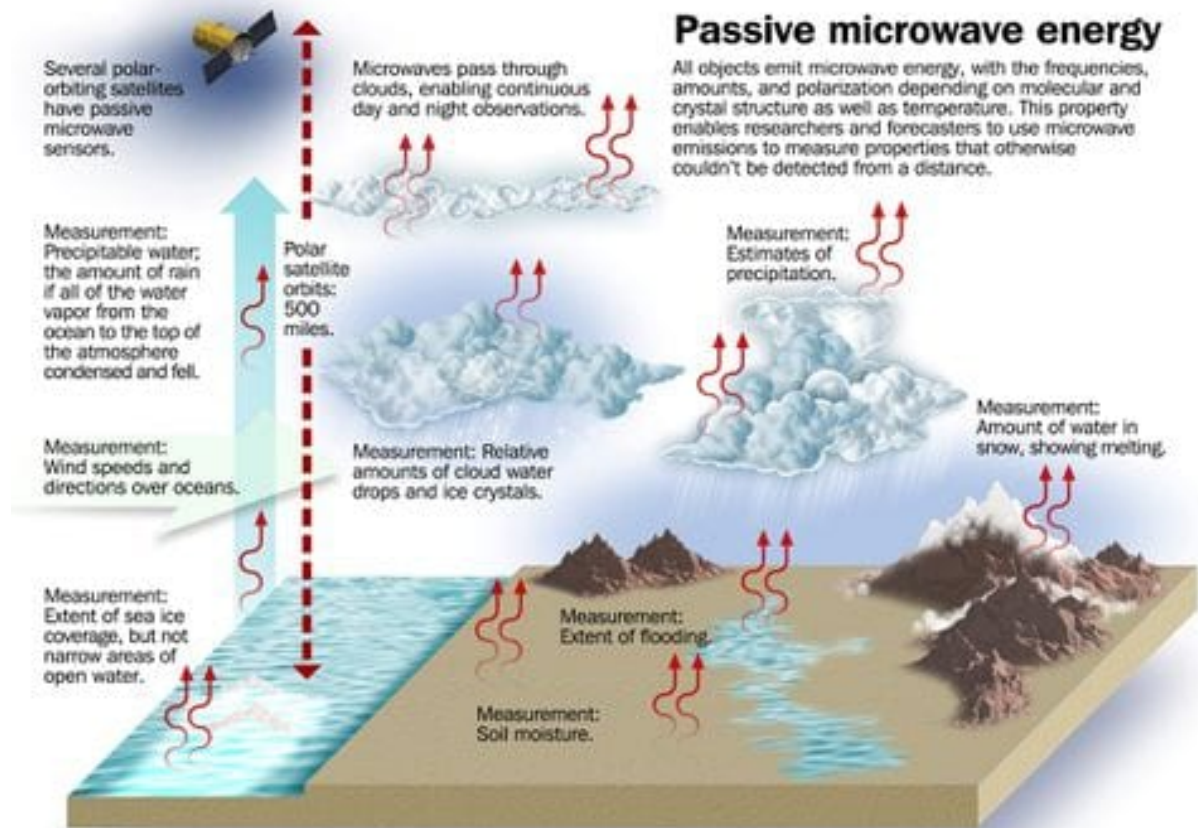
The [never-used sensor](#) was slated to fly on satellites that were part of a government program (called NPOESS) dissolved in 2010.

"[W]e are risking our 5G leadership over protecting mothballed decade-old government systems," Gillen wrote.

Jordan Gerth, an atmospheric scientist at the University of Wisconsin at Madison, called CTIA's blog post both "misleading" and "misinformed." He noted that the canceled sensor was replaced by [a similar one](#) currently flown on two NOAA satellites while international agencies also fly such instruments.

These microwave sensors, Gerth wrote in an email, transmit important water vapor data at a frequency of 23.8 gigahertz, where they are potentially vulnerable to interference. In March, [FCC auctioned off](#) spectrum for wireless transmission in the adjacent 24 gigahertz band.

The proximity of the two bands could expose the water vapor data to out-of-band emissions deeming them unreliable. Gerth said "it is undisputed" that this water vapor data is necessary for weather prediction models "to produce the most accurate forecast."



(AMS Weather Book)

In an email, CTIA countered that the newer sensors are “far less susceptible to interference” than the sensor evaluated in the study.

But, testifying before the House Science Committee on May 16, Jacobs told members of Congress that the interference could result in a 30 percent reduction in forecast accuracy. “If you look back in time to see when our forecast skill was roughly 30 percent less than it was today, it’s somewhere around 1980,” he said.

With this reduced forecast skill, the European model [would not have predicted 2012's Superstorm Sandy hitting the Northeast coast](#) several days in advance, Jacobs said. Instead, the model would have steered the storm out to sea. Lead time to prepare for the storm would have been cut short.

Jacobs added that if the data loss from interference reaches even 2 percent, NOAA would likely have to “stop work” on its \$11 billion polar-orbiting satellite program, important for not just weather forecasting but also for climate monitoring and many other applications.

Gillen wrote NOAA’s predictions about 5G interference “are wrong on the merits, on the facts, and on the process,” but both NASA and the Department of Defense support NOAA’s conclusions and have expressed concerns about their potential consequences.

“[T]he assessments that NASA has done in conjunction with NOAA have determined that ... there is a very high probability that we are going to lose a lot of data,” NASA’s administrator, Jim Bridenstine, told the House Science Committee.

In March, the [Navy wrote a memo](#) stating the data interference would lead to “a probable degradation of weather and ocean models” resulting in “increased risk of ... degraded battlespace awareness for tactical/operational advantage.”

The sweeping implications of the data loss and effects on forecasting have drawn the attention of both Republicans and Democrats in Congress.

“NASA took us to the moon, and NOAA helped us explore the depths of the ocean,” said Sen. Maria Cantwell (D-Wash.) in a statement to The Washington Post. “We rely on these agencies for scientific expertise, and they have warned us about the dire impact of this spectrum sale on weather forecasting capabilities — we should listen.”

Comments from Rep. Frank D. Lucas (R-Okla.), the top Republican on the House Science Committee, struck a similar chord.

“There is only one frequency we can use to observe water vapor in the atmosphere and auctioning off nearby frequencies could interfere with our predictions,” said Heather Vaughan, a spokeswoman for Lucas. “We all support the faster and more reliable connections we’ll get from 5G, but we need to deploy it in a way that doesn’t diminish critical weather forecasting.”

A major meeting of the world’s spectrum regulators is set for this fall, during which limits on out-of-band emissions will be negotiated. The State Department is currently trying to build a consensus U.S. position between NOAA and NASA on one side and the FCC on the other. All indications are that the sides remain far apart.