## Beyond record hot, February was 'strange'

## By Seth Borenstein, AP

WASHINGTON — Earth got so hot last month that federal scientists struggled to find words, describing temperatures as "astronomical," "staggering" and "strange." They warned that the climate may have moved into a new and hotter neighborhood.

This was not just another of the drumbeat of 10 straight broken monthly global heat records, triggered by a super El Nino and man-made global warming. February 2016 obliterated old marks by such a margin that it was the most above-normal month since meteorologists started keeping track in 1880, according to the National Oceanic and Atmospheric Administration.

The old record was set just last December and the last three months have been the most above-normal months on record, said NOAA climate scientist Jessica Blunden. And it's not just NOAA. NASA, which uses different statistical techniques, as well as a University of Alabama Huntsville team and the private Remote Sensing System team, which measure using satellites, also said February 2016 had the biggest departure from normal on record.

NOAA said Earth averaged 56.08 degrees (13.38 degrees Celsius) in February, 2.18 degrees (1.21 degrees Celsius) above average, beating the old record for February set in 2015 by nearly six-tenths of a degree (one-third of a degree Celsius). These were figures that had federal scientists grasping for superlatives.

"The departures are what we would consider astronomical," Blunden said. "It's on land. It's in the oceans. It's in the upper atmosphere. It's in the lower atmosphere. The Arctic had

record low sea ice."

"Everything everywhere is a record this month, except Antarctica," Blunden said. "It's insane."

In the Arctic, where sea ice reached a record low for February, land temperatures averaged 8 degrees above normal (4.5 degrees Celsius), Blunden said. That's after January, when Arctic land temperatures were 10.4 degrees above normal (5.8 degrees Celsius).

Worldwide, February 2016 was warmer than about 125 of the last 136 Marches.

It was also the warmest winter — December through February — on record, beating the previous year's record by more than half a degree (0.29 degrees Celsius).

Georgia Tech climate scientist Kim Cobb said she normally doesn't concern herself much with the new high temperature records that are broken regularly.

"However," she added in an email," when I look at the new February 2016 temperatures, I feel like I'm looking at something out of a sci-fi movie. In a way we are: it's like someone plucked a value off a graph from 2030 and stuck it on a graph of present temperatures. It is a portent of things to come, and it is sobering that such temperature extremes are already on our doorstep."

Scientists at NOAA's National Centers for Environmental Information in Asheville, N.C., were astonished by the "staggering" numbers, said Deke Arndt, the centers' global monitoring chief.

"Usually these are monthly reminders that things are changing," Arndt said. "The last six months have been more than a reminder, it's been like a punch in the nose."

NASA's chief climate scientist Gavin Schmidt usually discounts

the importance of individual record hot months, but said this month was different, calling it "obviously strange."

This was due to the long-term warming from heat-trapping gases and the powerful El Nino, so these types of records will continue for a few more months, but probably will not be a permanent situation, Schmidt said in an email.

But other were not so sure, including Arndt, who compared it to moving into a new hotter neighborhood.

"We are in a new era," Arndt said. "We have started a new piece of modern history for this climate."

Jason Furtado, a meteorology professor at the University of Oklahoma who wasn't part of any of the government teams, simply wrote in an email: "Welcome to the new normal."