

Climate change boosts odds of extreme weather: study

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Mexican farmer Ever Mendoza walks next to a carcass in Satevo, Chihuahua state in 2011. 2011 saw historic droughts in East Africa, the southern US and northern Mexico.

Severe droughts, floods and heat waves rocked the world last year as greenhouse gas levels climbed, boosting the odds of some extreme weather events, international scientists said Tuesday.

The details are contained in the annual State of the Climate report, compiled by nearly 400 scientists from 48 countries and published in the peer-reviewed *Bulletin of the American Meteorological Society*.

The report itself remains "consciously conservative" when it comes to attributing the causes of certain weather events to climate change, and instead refers only to widely understood phenomena such as La Nina.

However, it is accompanied for the first time by a separate analysis that explains how climate change may have influenced certain key events, from droughts in the US and Africa to extreme cold and warm spells in Britain.

"2011 was notable for many extreme weather and climate events. La Nina played a key role in many, but certainly not all of them," said Tom Karl, director of the National Oceanic and Atmospheric Administration (NOAA)'s National Climatic Center.

Last year was among the 15 warmest since records began in the late 1800s, and the Arctic warmed at about twice the rate of lower latitudes with sea ice at below average levels, according to the report.

Greenhouse gases from human pollution sources like coal and gas reached a new high, with carbon dioxide emissions exceeding 390 parts per million -- up 2.10 parts per million from 2010 -- for the first time since modern records began.

Despite the natural cooling trend brought by back-to-back La Nina effects, which chill waters in the eastern equatorial Pacific Ocean, 2011 was among the 12 highest years on record for global sea surface temperatures.

The double La Nina punch influenced many of the world's significant weather events, like historic droughts in East Africa, the southern US and northern Mexico, said the report.

La Nina trends also were associated with the wettest two years on record in Australia.

An accompanying analysis in the same journal, titled "Explaining Extreme Events," examined the links between human-driven climate

change and six selected weather crises in 2011, including the Texas drought that lasted half the year.

The authors found that "such a heat wave is now around 20 times more likely during a La Nina year than it was during the 1960s," said Peter Stott, climate monitoring and attribution team leader at the UK Met Office.

"We have shown that climate change has indeed altered the odds of some of the events that have occurred," he told reporters. "What we are saying here is we can actually quantify those changing odds."

Looking at Britain's unusually warm November 2011 and the cold snap of December 2010, scientists found that frigid Decembers are half as likely to occur now compared to 50 years ago, and hot Novembers are 62 times more likely.

However, a close look at the floods along the Chao Phraya River that swamped Thailand last year showed that climate change was not to blame, but rather human activities increased construction along the flood plain.

The damage caused by the floods was unprecedented, but the amount of rain that actually fell "was not very unusual," said the analysis by experts from NOAA and Britain's Met Office along with international colleagues.

While it remains hard to link single events to human-caused climate change, "scientific thinking has moved on and now it is widely accepted that attribution statements about individual weather or climate events are possible," the report added.

The key is analyzing to what extent climate change may be boosting the

odds of extreme weather, said the report, likening the phenomenon to a baseball player who takes steroids and then starts getting 20 percent more hits than before.

Scientists can consider steroids as the likely cause for the increase in hits, but must still take care to account for natural variability in the player's swing.

More information: Paper: www1.ncdc.noaa.gov/pub/data/cm ... 1-peterson-et-al.pdf

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