



THE CONNECTION BETWEEN CLIMATE CHANGE AND RECENT EXTREME WEATHER EVENTS

BY JAMES BRADBURY AND CHRISTINA DECONCINI

ABOUT THE AUTHORS

For more information, please contact James Bradbury at jbradbury@wri.org or Christina DeConcini at cdeconcini@wri.org.

What do we know about the connection between climate change and recent extreme weather events, such as the heat waves, drought, and fires?

- *Scientists agree that climate change has already primed the pump for extreme weather events.¹*
- *A recent report by National Oceanic and Atmospheric Administration (NOAA) scientists compared the rising risk of extreme weather events to a baseball player's improved performance after taking steroids.²*
 - "For any one of his home runs... you would not know for sure whether it was caused by steroids or not.... But you might be able to attribute his increased number to the steroids."
- *Recent climate science assessment reports by the U.S. National Academy of Sciences³ and the U.S. Global Change Research Program⁴ find that several types of extreme weather are on the rise, that man-made climate change is likely responsible, and that these trends are expected to continue.*
- *Jonathan Overpeck, a professor of geosciences and atmospheric sciences at the University of Arizona, said, "This is certainly what I and many other climate scientists have been warning about.... This is what global warming looks like at the regional or personal level."⁵*

EXTREME HEAT

- Government scientists at NOAA are saying that man-made climate change has increased the probability of longer and more intense heat waves.⁶
- This year the U.S. has been breaking high temperature records at a ratio of 10-to-1 over cold temperature records (in the 1950s, '60s, and '70s, the typical ratio was 1-to-1).⁷
- The U.S. has just experienced the warmest 12-month period since record-keeping began in 1895.⁸
- More than 26,000 new record temperature highs have been set this year (2012) alone in the United States.⁹
- According to NOAA, June 2012 marks the 36th consecutive June and 328th consecutive month with a global temperature above the 20th century average.¹⁰
 - Thomas Karl, Director of NOAA's climate office said, "We believe there is an important human component explaining these record-breaking temperatures, and that's the increase of greenhouse gases in the atmosphere."¹¹

DROUGHTS

- The recent study by NOAA scientists found that the conditions leading to the 2011 Texas drought are 20 times more likely to occur now, in a world warmed by greenhouse gas emissions, than in the 1960s.¹²
 - The head of NOAA's climate office, Tom Karl, stated, "What we're seeing, not only in Texas but in other phenomena in other parts of the world, where we can't explain these events by natural variability alone. They're just too rare, too uncommon."¹³
- Nearly two-thirds of the contiguous U.S. is currently suffering from drought.¹⁴
- Agriculture Secretary Tom Vilsack has designated 1,297 counties across 29 states as disaster areas¹⁵ – this is the largest natural disaster area declaration in U.S. history.

- U.S. government research shows¹⁶ that global warming intensifies both drought and heat, making drought events even dryer and heat waves even warmer than they otherwise would have been.¹⁷
 - Kevin Trenberth, a senior scientist at the National Center for Atmospheric Research, said man-made global warming "...creates stronger, more intense, and longer-lasting drought. No doubt about it."¹⁸
- The U.S. Global Change Research Program has projected¹⁹ more frequent and severe droughts across much of the United States in the coming decades. For the Great Plains region,²⁰ 70 percent of which is farmland, their projection is dire: increasing temperatures and evaporation rates and more sustained drought, further stressing already overstrained water resources.²¹

FIRES

- This summer's wildfires in Colorado were promoted by hot and extremely dry conditions²² and below-normal snowfall during the recent winter. Early summer statewide snowpack in Colorado was at 2 percent of its historic average.²³
 - According to the USDA Undersecretary, Harris Sherman, who oversees the U.S. Forest Service, whose firefighters are on the front lines, "The climate is changing, and these fires are a very strong indicator of that."²⁴
- According to the U.S. National Academy of Sciences, climate change has likely contributed to a significant increase in big forest fires in the West.²⁵
 - Over the past 30 years, large and long-duration forest fires in the American West have increased fourfold, the length of the fire season has expanded by 2.5 months, and the size of wildfires has increased several-fold.²⁶

NOTES AND REFERENCES

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