

Roth: Can you feel the heat?

By [Jim Roth](#), Director and Chair of the Firm's Clean Energy Practice Group. This column was [originally published in The Journal Record](#) on April 25, 2016.



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Can you feel the heat?

Although the spring season officially began one month ago, the temperature of spring was far ahead of the calendar this year. Did you feel the heat of 70-degree days in January and the warmest March in recorded history?

The combined average temperature over global land and ocean surfaces for March 2016 was the highest in the 1880–2016 record, at 1.22 degrees Celsius (2.20 degrees Fahrenheit) above the 20th-century average of 12.7 degrees Celsius (54.9 degrees Fahrenheit). In fact, March was the 11th consecutive month of historically warm records for the entire globe.

Average global temperatures have been rising for many years, and scientists have been watching closely to observe the effects of the warming climate. Temperatures began to rise during the industrial revolution in the early 20th century.

Scientists credit the burning of fossil fuels, as well as the cutting down and burning of forests, for causing this warming trend. The average global temperature has already risen 1 degree Celsius since 1900, and experts fear that if the average temperature rises an additional 1 degree there will be catastrophic effects.

The rising temperatures have caused natural disasters, including flooding, drought and wildfires. Over the past few days, an estimated 240 billion gallons of rainwater has fallen in and around Houston. Flooding there has claimed at least seven lives and caused at least \$5 billion in property damage.

While south Texas has been bombarded with rain, other parts of the country are in desperate need of moisture. A wildfire that started in Oklahoma last month burned more than 400,000 acres of land in Oklahoma and Kansas. This was the largest wildfire the state of Kansas has ever experienced. On the other side of the globe, Ethiopia is experiencing its worst drought in over 30 years. The United States sent disaster relief teams to Ethiopia last month to help them deal with the lack of food and fresh water.

Fresh drinking water is also at risk in Peru. There, glaciers have melted and reduced in surface area by 40 percent over the past 40 years. The runoff from all of this melting has carried acidic metals downstream and contaminated water sources.

Global warming has caused sea levels to rise an average of 7 inches over the past century, due to both glacial melting and the expansion of water as its temperature has increased. Elevated sea levels have caused coastal erosion, flooding, and aquifer contamination. In 2014, the Research Service in Wales

estimated that 23 percent of its coastline experienced erosion, costing the country more than 287 million U.S. dollars.

Climate change has not only affected humans, it has also had detrimental effects on other ecosystems and habitats. Penguin populations in Antarctica have plummeted due to rising temperatures. Warmer, longer summers have caused beetle populations in Alaska to skyrocket, and they have chewed through millions of acres of spruce trees. The severe reduction of sea ice platforms has caused polar bear size and population to decrease dramatically.

In the Hudson Bay area, the ice-free summers have grown longer, shortening the polar bears' hunting season. As a result, polar bear weight has dropped approximately 15 percent, and the population has declined by more than 20 percent.

While some may say we shouldn't be alarmed by the loss or decline of these many species, I submit to you that the erratic nature of climate change is cause for concern for all species along the food chain, including humans at the top. A world out of balance, with crop failures, famine and massive human migration will cost the Earth inhabitants more in many ways not even fathomable today. While I am a curious person by nature, this risky future is something I would rather not learn firsthand.

Jim Roth, a former Oklahoma corporation commissioner, is an attorney with [Phillips Murrah PC](#) in Oklahoma City, where his practice focuses on clean, green energy for Oklahoma.