

The Southeast's raging wildfires could be a glimpse into the future

By Chelsea Harvey, Washington Post on 12.05.16

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Assistant Chief Brent Masey, of the Highway 58 Fire Department in Harrison, Tenn., looks up as a helicopter carrying fire retardant flies over as Masey keeps watch on a wildfire Thursday in Soddy-Daisy, Tenn. Federal authorities say warmer-than-average temperatures and no rainfall are deepening a drought that's sparking forest fires across the Southeastern U.S. Photo: AP Photo/Mark Humphrey

On Monday night, thousands of people in Gatlinburg and Pigeon Forge, Tennessee, were forced to evacuate as a raging wildfire exploded on nearby Chimney Tops mountain and spread into the towns. It's the most recent incident in a weeks-long string of wildfires throughout the Southeastern U.S., and perhaps a sign of what's to come in a steadily warming region.

"I think it's pretty clear that one of the driving factors of these fires is the pretty intense drought conditions right now in the Southeastern U.S.," said Jeff Prestemon, a research forester with the U.S. Forest Service based in North Carolina.

In recent weeks, the Southeast has seen some of its driest conditions in the past decade. Across the region, some research stations went record-breaking periods without rain during the past few months, according to Charles Konrad, director of the Southeast Regional Climate Center, based at the University of North Carolina Chapel Hill.

"It's been incredibly dry, and that dryness unfortunately has occurred over the period in which the leaves turn and they fall off the trees," Konrad said. "So of course you've got all the leaf litter on the ground."

These conditions helped prime the region for an unusually intense fire season. So far, around 100,000 acres have burned from Alabama to states as far north as Virginia and Kentucky. What's less clear-cut is the reason for these unusually dry conditions in the first place.

"There is not a smoking gun," Konrad said.

Currently, the U.S. is in the midst of a mild La Niña event, a phenomenon in which an influx of cool water in the Pacific causes global changes in weather patterns, including across the United States. But while La Niñas are often associated with higher temperatures and lower precipitation in the southern U.S., Konrad noted that these effects tend to be most pronounced in the winter, rather than the fall. Also, this year's effect has been notably weak, meaning the phenomenon likely has not had a significant effect on the region's fire season.

The relentless progression of climate change, on the other hand, has likely contributed to a pattern of warming temperatures in the Southeast in recent years – and this season's conditions are "absolutely no exception," according to Konrad.

"In the areas experiencing the drought, the temperatures have been well above normal," he said, adding that high temperatures can also lead to more water evaporation from plants and soil, making conditions even drier.

That said, Prestemon cautioned, it's difficult to attribute any isolated event – like a single drought or wildfire – solely to climate change. Weather events and natural disasters are generally the combination of a complex set of factors, which might include long-term patterns of climate change, but also chance and natural variability in climate and weather systems.

Even so, the ongoing events in the Southeast might provide some insight into the region's future.

"It's pretty clear that over time, temperatures (are rising) in the region and are expected to continue to rise as greenhouse gases accumulate," Prestemon said. "What's less clear is how precipitation patterns will change due to climate change."

According to Konrad, many experts expect that variability in precipitation will increase in the future. The amount of total rain the region sees on an annual basis might not change much, but the dry and wet periods throughout the year could become more intense, leading to greater likelihoods of both floods and droughts at different times.

This means that dry periods – when they do happen – might be even more intense as temperatures continue to climb into the future. And when those conditions occur, they could come with a greater likelihood of the kinds of intense and widespread wildfires that have plagued the Southeast this fall.

Prestemon and a group of colleagues published a set of projections earlier this year, accounting for predicted changes in both the climate and human populations, suggesting that the total area burned by wildfires in the Southeastern U.S. will slightly increase by the year 2060 compared to today.

Prestemon also added that, regardless of the way wildfire patterns change in the future, human populations will almost certainly continue to increase, meaning that "there will be more and more people exposed to the fires that occur."

For now, welcome downpours on Monday night and Tuesday helped break the dry streak in parts of the Southeast, including the Gatlinburg area, and helped suppress some of the fires. However, firefighters are still working to contain blazes throughout the region, and experts expect overall drought conditions will continue to persist or even expand in the next couple of months.

Quiz

- 1 Read the paragraph from the article.

The relentless progression of climate change, on the other hand, has likely contributed to a pattern of warming temperatures in the Southeast in recent years – and this season's conditions are "absolutely no exception," according to Konrad.

Which of the following conclusions can be drawn from the paragraph above?

- (A) The Southeast is the worst example of the kind of rising temperatures that are a result of climate change.
- (B) The Southeast is the only region that has shown these kinds of effects from advancing climate change.
- (C) This year's conditions in the Southeast are an extreme example of an effect from climate change that is unlikely to happen again.
- (D) This year's conditions in the Southeast are just one example of a larger climate trend that might continue to affect the region.

- 2 Which of the following aspects of the article is NOT explored?

- (A) what role La Niña has played in the conditions causing wildfires this season
- (B) what factors Konrad thinks have impacted the wildfires happening this season
- (C) how to prevent wildfires from affecting human populations in the future
- (D) how climate change is likely to affect weather and temperatures in the future

- 3 The article develops the idea that more wildfires are likely in the future in each of the following ways EXCEPT:

- (A) by suggesting that this season has been unusual
- (B) by predicting that precipitation will fluctuate widely
- (C) by explaining that greenhouse gases are expected to cause temperatures to rise
- (D) by citing a study about the likely impact of wildfires on populations in the future

- 4 Which of the following BEST represents Konrad's and Prestemon's approach toward the wildfires described in the article?
- (A) They believe the wildfires were directly caused by high temperatures in the area that are related to climate change.
 - (B) They believe a number of factors including climate change make the wildfires a predictor of conditions in the region.
 - (C) They believe that if there were no La Niña event this season the conditions would not have been right for wildfires.
 - (D) They believe that people should consider moving out of the Southeast to avoid experiencing future wildfires.

Answer Key

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