Santa Ana winds and power line failures found to be behind autumn and winter fires in Southern California

July 22 2021, by Bob Yirka

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A team of researchers affiliated with multiple institutions in the U.S. and one in Canada has found that the increasing number of large fires in

Southern California during the autumn and winter months are mostly due to the Santa Ana winds and power line failures, rather than rising temperatures. In their paper published in the journal *Science Advances*, the group describes their study of fires in Southern California going back to 1948.

Large wildfires in California regularly make the news because of their magnitude and ferocity. Some studies have shown that they are increasing in frequency and intensity as the planet grows warmer. In this new effort, the researchers note that there are two fire seasons in California, but only one of them is growing worse due to climate change.

In California, the two fire seasons are summer and autumn through winter. Prior research has shown that most summer fires are ignited by lightning in remote locations. Autumn and winter fires, on the other hand, are almost always ignited by humans via arson and power line failures.

Power lines can start a fire in several ways, including downed lines, vegetation contact and equipment failures that lead to arcing. And because power lines are strung in places where people live and work, such fires tend to be closer to towns and cities. Power line failures can occur at any time during the year, but autumn and winter season have the worst fires because they are pushed by the speed and strength of the Santa Ana winds.

To learn more about autumn and winter fires, the researchers pored over data describing wildfires in Southern California from 1948 to 2018 along with associated weather data. In so doing, they found no link between rising temperatures or decreases in rainfall to account for the increase in fires. Instead, they found it was mostly due to increases in the size of power grids and encroachment by humans onto forested lands. They suggest that the way to reduce the number of such fires is to put

more resources into maintaining power lines and put new ones underground.

More information: Jon E. Keeley et al, Ignitions explain more than temperature or precipitation in driving Santa Ana wind fires, *Science Advances* (2021). DOI: 10.1126/sciadv.abh2262