

## Wildfire Activity in the Western United States

Studies suggest that over the past few decades, the number and size of wildfires have increased throughout the western United States. The average length of wildfire season has increased significantly as well in some areas. According to the Union of Concerned Scientists (UCS), every state in the western US has experienced an increase in the average annual number of large wildfires (greater than 1,000 acres) over the past few decades. The Pacific Northwest, including Washington, Oregon, Idaho, and the western half of Montana have had particularly challenging wildfire seasons in recent years. (StudyArea.csv)

The 2017 wildfire season shattered records and cost the U.S. Forest Service an unprecedented \$2 billion. From the Oregon wildfires to late season fires in Montana, and the highly unusual timing of the California fires in December, it was a busy year in the western United States. While 2017 was a particularly notable wildfire season, this trend is nothing new and research suggests we can expect this unfortunate trend to continue due to climate change and other factors. A recent study suggests that over the next two decades, as many as 11 states are predicted to see the average annual area burned increase by 500 percent.

Extensive studies have found that large forest fires in the western US have been occurring nearly five times more often since the 1970s and 80s. Such fires are burning more than six times the land area as before and lasting almost five times longer.

Climate change is thought to be the primary cause of the increase in large wildfires with rising temperatures leading to earlier and decreased volume of snow melts, decreased precipitation, and forest conditions that are drier for longer periods of time. An increase in forest tree disease from insect disturbance has also been associated with climate change and can lead to large areas of highly flammable dead or dying forests. Other potential causes of increased wildfire activity include forest management practices, and an increase in human caused wildfires due to accidents or arson.

In this case study you will use the skills you have gained in this course along with wildfire data from the Federal Wildland Fire Occurrence Database, (<https://wildfire.cr.usgs.gov/firehistory/data.html>), provided by the U.S. Geological Survey (USGS) to visualize the change in wildfire activity from 1980 to 2016. Analysis will be limited to the western United States including California, Arizona, New Mexico, Colorado, Utah, Nevada, Utah, Oregon, Washington, Idaho, Montana, and Wyoming. We were particularly interested in the surge of large wildland fires, categorized as fires that burn greater than 1,000 acres.

So, has wildfire activity and size actually increased, or does it just seem that way because we're tuned in more to bad news and social media? In this final Project you'll answer those questions.

- Have the number of wildfires increased or decreased in the past few decades?
- Has the acreage burned increased over time?
- Is the size of individual wildfires increasing over time?
- Has the length of the fire season increased over time?
- Does the acreage burned differ by federal organization?