Wildfire

About

Wildfire smoke is produced from burning organic matter, including trees and grass. It is composed of particulate matter, organic material (e.g. carbon dioxide, carbon monoxide, water vapor, and hydrocarbons), nitrogen oxides, and trace materials. These particulates and gases contribute to pollution in the environment.

In addition to damaging property and economy, wildfires can impact human health. Wildfire smoke has been associated with a range of poor health outcomes, from eye and respiratory tract irritation to reduced lung function, bronchitis, and in some cases, smoke inhalation and death.

In terms of general health, particulate matter (any mixture of solid particles and liquid droplets in the air) is the primary pollutant of concern from wildfire smoke. Small (2.5 µm or less in diameter), invisible particles pose a larger health concern than larger particles because they can reach low areas of the lungs and the bloodstream. Larger particles irritate the eyes, nose, and throat, but can be filtered by tiny hairs and are less likely to reach areas deep into the lungs. In general, gases produced by wildfires are usually rapidly diluted and rarely cause adverse human health effects. However, carbon monoxide concentrations related to wildfire smoke may pose significant harm to sensitive individuals and firefighters near the fire line.

Whether an individual may experience health problems related to wildfire smoke depends on a number of factors including the level and duration of exposure, individual susceptibility, and age, among other factors. Healthy children and adults are more likely to recover from exposure to wildfire smoke. Groups more vulnerable to the effects of wildfire smoke include individuals with asthma and other chronic respiratory conditions, individuals with cardiovascular disease, older persons, children, pregnant women, and smokers.

Sadly, some wildfires are deliberately set, termed “arson.” Arson is suspected for example in the major wildfire incident which occurred in Allen Parish, Louisiana (2000) which burned over 25,000 acres. As of 2019, the culprit was never found. Fires are also in-deliberately caused by humans through irresponsible actions or activities. Even though wildfire conditions play a role, as many as 85 percent of wildland fires in the United States are set by humans (US National Park Service) as a result of malfunctioning equipment, or even simple campfires left unattended, burning debris or discarded cigarettes.

Although wildfires occur naturally, **scientists have indicated that climate change has the potential to increase the frequency, extent, and severity of fires through increased temperatures and drought conditions. Additionally, wildfires themselves become a contributor to climate change.** For this reason, in addition to the associated health impacts described above, the tracking program has started looking at wildfire data. Collecting and working with these data will allow for:

- the display, analysis and possible trend analysis needed to provide a broader picture
- the exploration of the health impacts of environmental factors that may have a climate change component or aspect, and
- to build in the necessary data sets to determine, if there are in fact any connections, which may be proven by more in-depth study of one or more climate factors

An average of 72,000 wildfires occurred each year in the United States from 1983-2015, according to the National Interagency Fire Center (NIFC). The amount of acres burned by wildfires has increased since the 1980s, and notably, nine out of the ten years with the largest amount of acreage burned occurred since the year 2000. Overall, the amount of land area that is burned due to wildfires varies throughout the United States, with fires burning more land in the West. Western states have larger fires due to a combination of factors such as physical landscape (e.g., forest cover types), forest development/ management and mountain or desert winds (or coastal currents), which can create drier conditions (Hoover, K and Hanson, L (2019). *Wildfire statistics* (CRS Report No. IF10244) Retrieved from Congressional Research Service website: https://crsreports.congress.gov/product/pdf/IF/IF10244).

About the Measures

Available measures for wildfire currently include:

- Total count of suppressed wildfires by parish, by year (1998-2015)
- Total acres of suppressed wildfires by parish, by year (1998-2015)

Data were obtained from the Louisiana Department of Agriculture and Forestry (LDAF) for total fires and acres of suppressed fires in each parish.

The measure definition: "***Fire suppression efforts***" includes **all the work of extinguishing and containing a fire, including its discovery** (see also, data considerations). For more information on this definition and related terms, please refer to the National Park Service and US Department of Agriculture (USDA) Forest Service have fire terminology glossary: https://www.fs.fed.us/nwacfire/home/terminology.html.

About the Data

The following data limitations may exist for this dataset:

- The data are based on fire suppression efforts taken on by the Louisiana Department of Agriculture and Forestry. Data do not include fire suppression efforts undertaken by local fire departments.
- LDAF are not equipped to take direct suppression efforts for marsh fires that take place in coastal parishes. Therefore, these data do not represent coastal marsh fires.
- If a parish is not listed in the data, LDAF has not had any fire suppression efforts there. However, this doesn't necessarily indicate that no wildfires occurred.
- Parish data may be missing (not recorded) for some years

Disclaimer

Data are intended to spur further research and should be used only as a starting point to understanding how the environment and other contributing factors may be connected to disease. Datasets presented on this site are intended to answer some basic questions, but should ultimately lead to further inquiry and more detailed study. Data limitations should be noted if conducting exploratory ecological studies with these data. Limitations may include data gaps, reporting discrepancies (for example, a disruption of

reporting or instrument recording following hurricanes) and insufficient data on all potentially confounding factors. There are numerous additional factors which may contribute to disease onset. These include genetics, access to health care, existing health conditions, medicines, other chemical substances we come into contact with or ingest, nutrition, route and duration of exposure, level of activity, level of stress, and many others. Responsible use of this data therefore requires exercising caution when drawing conclusions based solely on views of the limited available data. Any perceived relationship, trend, or pattern apparent in the data should not be interpreted to imply causation; may in fact be unrelated; and should be regarded as preliminary, and potentially erroneous, until more in-depth study can be applied. The Louisiana Department of Health Center for Population Health Informatics and Environmental Public Health Tracking Programs cannot guarantee the completeness of the information contained in these datasets and expressly disclaim liability for errors and omissions in their content.

Data Sources

- Louisiana Department of Agriculture and Forestry

Additional Information

- Louisiana Department of Agriculture and Forestry - Protection
- Centers for Disease Control and Prevention – Protect Yourself from Wildfire Smoke
- National Interagency Fire Center – Forest Service Wildland Fire Morning Report

Questions

- Email: healthdata@la.gov.