



Media kit: Tip Sheet | [Wildfire Animation \(Scientific Simulation\)](#)

Tip Sheet: NCAR Scientists Available to Discuss Wildfire Impacts and Behavior

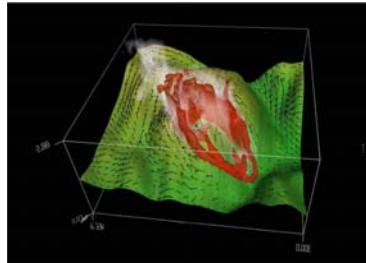
Scientists use computer models, satellite observations, and other tools to learn more about fire emissions and why wildfires behave in seemingly unpredictable ways.

October 24, 2007

BOULDER—As this week's wildfires in California demonstrate, fires pose a grave threat to cities and ecosystems. They also can affect air quality for thousands of miles.

Scientists at the National Center for Atmospheric Research (NCAR) use computer models, satellite observations, and other tools to study fires. Experts are available to explain how

- smoke from a major blaze can significantly degrade air quality far downwind;
- high levels of mercury are released during wildfires;
- the erratic behavior of wildfires can be better understood with the aid of sophisticated, 3-D computer models; and
- post-wildfire runoff and erosion affect streams, reservoirs, and other water resources.



This animation visualizes computer modeling of Colorado's Big Elk Fire. During the animation, the fire moves up a south slope of ponderosa pine, displaying crowning and torching. Click [here](#) or on the image to to open a Web page where the animation can be launched. (Visualization courtesy NCAR. [News media terms of use*](#))

Fire emissions and air quality/climate impacts

[David Edwards](#), NCAR Scientist
303-497-1857

Edwards is project leader for a satellite instrument that provides unprecedented detail about atmospheric levels of carbon monoxide, a potentially harmful gas emitted by both wildfires and industrial activities. The instrument (called Measurements of Pollution in the Troposphere, or MOPITT) has provided evidence that wildfires and agricultural burning are responsible for about half the world's carbon monoxide.

[Hans Friedli](#), NCAR Scientist
303-497-1395

Friedli specializes in measuring the amount of mercury released into the atmosphere during wildfires. With Christine Wiedinmyer (see below), he recently estimated state-by-state emissions of mercury from fires. Mercury, a toxic metal, is stored in foliage and ground litter until those substances burn. Friedli's research, which relies on both fieldwork and lab experiments, is providing insights into the global movement of mercury and the extent to which the toxin enters the food chain.

[Gabriele Pfister](#), NCAR Scientist
303-497-2915

Pfister specializes in forest fires at high latitudes and their impacts on pollution and climate. Her research has shown that wildfires in Alaska and Canada can significantly increase levels of ground-level ozone as far away as the U.S. East Coast and Europe. Pfister also has studied the impacts of carbon dioxide, other greenhouse gases, and airborne particles from the Alaskan fires, finding that fire emissions can have short-term cooling and long-term warming effects on regional climate.

[Christine Wiedinmyer](#), NCAR Scientist
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Wiedinmyer has developed a computer model that uses satellite observations to

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generate daily estimates of emissions of carbon dioxide, carbon monoxide, particles, mercury, and other gases from fires in North America. She also studies the impacts of particles and trace gases from fires on local air quality. Her estimates are used by environmental officials who work on strategies to minimize air pollution.

Fire behavior and safety

[Janice Coen](#), NCAR Scientist
303-497-8986

Coen creates computer models that incorporate the interplay between fire and weather to simulate the movements of wildfires. The simulations help researchers understand why fires act in ways that may appear unpredictable, and they reveal aspects of fire behavior that can make firefighting safer.

Fire and water

[Kathleen Miller](#), NCAR Scientist
303-497-8115

An expert on water issues, Miller studies the impacts of wildfires on drinking water. Major blazes can affect runoff patterns and send large amounts of sediment into streams and reservoirs, potentially contaminating drinking water. Miller also conducts research into people's decision-making processes when they buy homes in areas with a high fire risk.

Related sites on the World Wide Web

Fire basics

What kind of vegetation will ignite most readily? How does weather influence fire development? What are the most dangerous pollutants in wildfire smoke? Find wildfire basics and a research roundup with numerous links to resources within and beyond NCAR:

[Backgrounder: Wildfires](#)

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