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## Study links extended wildfire seasons to global warming

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By Patrick O'Driscoll, USA TODAY

DENVER — The number and size of large forest fires in the West have grown "suddenly and dramatically" in the past two decades in part because of global warming, a study released Thursday says.

The scientific paper, posted online by the journal *Science*, says wildfire season in Western states has grown up to  $2\frac{1}{2}$  months longer since 1987 because of warmer spring temperatures and earlier, faster melting of mountain snow. The timing of that annual snowmelt, a key source of the West's water, also helps gauge the severity of wildfire season.

The study by scientists at the University of California-San Diego and the University of Arizona does not address the cause of climate warming, only the effect it has had on forest fires here. Climate change is caused by gases that trap heat in the Earth's atmosphere. Scientists and politicians debate how much of that heating is made worse by humans and the burning of fossil fuels.

"We didn't set out to make a climate-change argument," says co-author Anthony Westerling, a researcher at UC-San Diego's Scripps Institution of Oceanography. "But it's easier to see how a further (rise) in temperature under climate change would result in more frequent (wildfires) in these severe years. You get early snowmelt, the soil and vegetation dry out sooner, and you get a lot more fires, burning longer and getting bigger."

The paper analyzes 1,166 large forest fires (at least 1,000 acres each) from 1970 to 2004 on national forest and park land in the West. In the second half of that period, 1987-2004, there were four times as many forest fires, and 61/2 times as much land burned.

Co-author Tom Swetnam of Arizona's Laboratory of Tree-Ring Research says the key shift was after 1987. Infrequent large fires that lasted a week or so gave way to more frequent infernos that averaged five weeks. One of the worst years was 1988, when almost one-third of Yellowstone National Park burned until autumn. The climate effect is most dramatic in the northern Rockies, which includes Yellowstone. The number of large fires in Idaho, Montana and Wyoming has risen 60% since 1987.

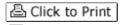
Climate is the principal reason, Swetnam says. Forests in the northern Rockies have not been as heavily managed to stop fires as most other places in the West. Putting out more fires can lead to worse fires by leaving unburned debris and unthinned groves. So human intervention is a factor, along with warming, in the worsening of wildfires in many areas. But the rising temperatures and dryness due to warming are the main factor in the northern Rockies, Swetnam says.



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