

S. COLE MORITZ



## Wildfires ignite debate on global warming

As temperatures soar, forests blaze and houses burn, the media and public may be forced to face up to the reality of a changing climate, says **Max A. Moritz**.

I published an academic paper on climate change and global fire predictions last month, and I have been in my own media storm ever since. The huge wildfires that have broken out in the western United States had prompted dozens of enquiries from the press, nearly all asking the same question: “Are these fires due to climate change?”

For me, that marks a significant shift from previous years. During the conflagrations in southern California in 2003 and 2007, and the Black Saturday fires in the state of Victoria, Australia, in 2009, the question most reporters asked was: “Who is to blame here?”

This fresh curiosity about the link between fire and climate change is an important opportunity, of sorts. The media and the public seem to be searching for the evidence they need to take climate change more seriously. It is sad that it seems to take disasters to shift perspective, but perhaps they will also lead to a more science-based discussion of policy and planning. The term ‘tipping point’ gets thrown about too much, but I wonder if the United States is near one in terms of public perception about climate change.

The start of this year’s fire season has been unusually fierce. Much of the western United States is extremely dry, and there are many reports of temperatures and forest fires that have broken records. The number of buildings destroyed — nearly 1,000 in a recent count — is staggering. Even if the fire season does not continue at the same a terrifying pace, these events could help to make climate change more real for many people. Is there a link with global warming? We have good reason to think so, and not taking the link seriously could have disastrous repercussions.

Climate change is not the only explanation. As usual, the conservative end of the political spectrum (including climate-change deniers) tends to blame environmental groups for opposing projects to thin forests, arguing that harvesting timber could have averted the devastating fires or mitigated their effects. Another argument focuses on the fact that we increasingly build homes in fire-prone ecosystems, including those that experience high-intensity fires as a natural event.

The latest fires in the interior west leave several open questions, and sometimes ‘all of the above’ is the best scientific explanation. Fire hazard can increase sharply after suppression of natural fires in dry forests of ponderosa pine, so the lack of active forest management (including prescribed fires) is indeed a potential culprit there. The picture is less clear for other forest types, and only further examination of fire-severity patterns will determine the role that forest management could have.

However, even if objections from environmentalists have contributed to more severe fires in some places, it does not follow that they

contributed to the destruction of homes. Typically, structures ignite in exceptionally windy conditions, and this greatly offsets the effectiveness of forest thinning. Embers can be carried on the wind for kilometres until they find their way into a vulnerable spot, such as an unscreened vent or dry leaves under exterior decking. Poor planning decisions regarding building development and land use are at the heart of the structure-loss problem.

Most scientists avoid drawing conclusions about the contribution that climate change has made to forest fires on the basis of individual years or events. That said, the fires of this year and last seem to fit a documented pattern. Research shows a trend towards warmer spring and summer temperatures in many forests of the western United States, which leads to earlier melting of snow and a longer, more severe fire season.

The latest fires in the western United States are also consistent with models of fire activity expected from global-climate-change projections over the next few decades, including models that my lab helped to develop. The links to anthropogenic climate change are thus based on established relationships, operating at different scales of space and time, between climate and fire activity in various environments.

After reporters ask about wildfires and global warming, the next question is: “If these fires are related to climate change, what can we do about it?”. Some people may cry “reduce greenhouse-gas emissions”, but that is not what this question is about. Instead, these enquiries reveal a growing anxiety over how humanity can adapt to the fire-related impacts of climate change, rather than how to mitigate climate change itself.

To co-exist with fire will require extending our approach to living with environmental risks. Mapping other natural hazards, such as flood and earthquake zones, has taught us to avoid building on the most dangerous parts of the landscape or to engineer solutions into the built environment when we do. Encouraging the ‘right kind of fire’ — with frequencies, sizes and intensities appropriate to the ecosystem in question — will be necessary, where possible, so that ‘record-breaking’ fires are less likely to occur during ‘record-breaking’ heat or drought.

For some, climate change will become a fact only when its effects hit close to home. For this reason, perhaps we should expect an awareness of the need to adapt to climate change to precede a wider commitment to mitigating climate change itself. If that is the case, reporters are, finally, asking the right questions. ■

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