

## Rising Temperatures Could Mean More Wildfires

From VOA Learning English, welcome to As It Is! I'm Mario Ritter. On our show today, we hear from two weather experts. We hear from one scientist who gets close to tornadoes to learn more about the destructive storms.

"I invented the Doppler on Wheels back in the 1990s because I was frustrated that we couldn't see enough detail inside tornados and hurricanes.

But first we hear how climate change may affect wildfires. One, soon-to-be-released report says huge fires may become more common in the future.

### Bigger Fires Could Also Reverse Air Quality Gains

Powerful, intense fires have been burning out of control in parts of the western United States.

In a new report, scientists are predicting more and bigger wildfires over bigger areas and for longer periods in the western United States. But, some people say rising temperatures on our planet could be partly to blame for the severity of wildfires.

Steve Ember has more from a report by VOA's Rosanne Skirble.

Fires in the United States have gotten worse since the 1970s. Scientists at Harvard University in Massachusetts looked at past weather conditions and wildfires to find out why. Atmospheric chemist Loretta Mickley is a researcher and helped to organize a new study. She says high temperatures and rainfall in other years can create the conditions for large fires.

"In some regions, like the Rocky Mountains, really, temperature is the driving force, but elsewhere variables like relative humidity can play a role. If one year is particularly moist, for example, in the Great Basin, Nevada, Utah area, then that will foster a lot of vegetation growth and then the following year all that vegetation can feed wildfires and their spread."

She and other researchers examined 15 climate models from the Intergovernmental Panel on Climate Change. The panel is the leading international organization that measures climate change. The models predicted average temperature increases of between two and 2.5 degrees Celsius by 2050.

Loretta Mickley says her team's research suggests that rising temperatures are linked to fire activity.

"So we found, as in the past, temperature is really driving the changes that we predict for the future."

She says the measurements suggest that the chance of large wildfires will increase by two or three times. Currently, the fire season, the period when most fires take place, is a little over four months. Loretta Mickley says that, by 2050, it will be three weeks longer. She says in the Rocky Mountains, the area burned by fires could increase by as much as four times.

Fires do more than burn forests. Air quality is also harmed by the huge amounts of smoke produced. In the past 20 years, air quality in many parts of the United States has improved greatly because of federal laws and better technologies. But, Loretta Mickley says, air pollution is an unexpected result of longer lasting, widespread wildfires.

"But these increases in wildfires could totally disrupt our efforts to clean the air. Last weekend there was an area the size of some states in the eastern U.S. blanketed with unhealthy air over California and Nevada. And, we call this increase in smoke an important climate penalty on air quality."

That penalty would be air that is two times as smoky as it is today. Ms. Mickley says these estimates suggest the need for better forest management. And, she adds, they send a warning sign to lawmakers and the public to reduce fossil fuel emissions that many scientists believe are warming the planet.

A report on the study will appear next month in the journal Atmospheric Environment. I'm Steve Ember.

## **A Scientist Who Gets Very, Very Close to a Tornado**

Weather experts are able to predict bad weather better than ever before thanks to satellites, high-altitude balloons and radar stations. But for many years these experts have incorrectly predicted tornado formation giving false warnings about 75 percent of the time.

So, scientists are working to improve their tornado predictions. June Simms reports.

Doppler is a type of radar that identifies weather conditions based on the flow and speed of objects through the air.

Scientist Joshua Wurman was the first to put Doppler radar equipment on a vehicle and drive it into the path of a tornado.

"I invented the Doppler on Wheels back in the 1990s because I was frustrated that we couldn't see enough detail inside tornados and hurricanes. We had blurry images of all these things and in order to really understand the physics -- the math of what is going on inside a tornado, how exactly are they forming, how strong are the winds right at the surface are -- we need to get up very, very, close."

Mr. Wurman heads the Center for Severe Weather Research in Boulder, a city in the western state of Colorado. He has put his Doppler radar equipment on large trucks. The high-powered antennas continuously turn in circles. They send out radio waves that hit objects in the air -- like raindrops, and birds. Mr. Wurman and his colleagues sit inside the truck and study the computer images formed by the signals that return.

"I'm seeing it through the computers and through the radar screens, which are making three-dimensional images of the wind and the debris and the rain and hail, flowing around the storm."

Using information from satellites, stationary radar networks, and computer models, the team finds a storm that could become a tornado and drives the truck right into that area. Doppler on Wheels has been close to over 200 tornados so far.

“When we get up close to a storm while it’s in the process of making a tornado, we can look at the evolution of the winds near the surface, how that relates to the winds aloft, how the precipitation, the rain and the hail influences whether the air is going up or down, whether it’s cold or warm and how that is causing or not causing a tornado to form.”

The examination combines the Doppler-created images, 3-D maps and information gathered by measuring instruments on the ground in the path of a storm.

Information gathered by the instruments could help builders design stronger homes in areas where such dangerous storms are common.

Scientists are learning more about which storms develop into tornados by studying them from start to end. Mr. Wurman says that radar information has taught them that a “wind surge” could be what causes a storm to turn into a tornado.

I’m June Simms.

Finally, September 11<sup>th</sup> is Patriot Day in the United States. It is the day when Americans remember the over 3,000 people killed and the thousands injured during the September 11<sup>th</sup>, 2001 terrorist attacks against the United States.

And that’s our show for today. Join us tomorrow for another As It Is program from VOA Learning English.