

LOCAL

February 11, 2007

The Coming Storm

Call it 'global warming.' Call it 'climate change.' Semantics aside, those who project the impact of weather patterns on the Southern Oregon ecosystem forecast trouble on the horizon

By PAUL FATTIG
Mail Tribune

Climate scientists don't see Southern Oregon turning into a land of palm trees and sand because of global warming.

But they say residents here at the end of the century can expect twice as many days of sweltering heat, more and bigger wildfires, less snow in the mountains and less water in summer streams.

"The projections are that we will likely see warmer summers with higher maximum temperatures here," observed Southern Oregon University geography Professor Greg Jones, a climatologist and internationally known expert in viticulture and orchards.

"Right now, we are having 15 to 20 days each summer above 95 degrees," he said. "We are likely to double that in the next 50 years."

He said that while warmer temperatures could enhance some types of wine grapes, they likely would have a detrimental impact on pear crops, a multimillion industry in the Rogue Valley.

"The reason crops like cherries, pears and apricots do well in the northern climate is that winters are just cold enough to make the buds more viable," he explained. "If you warm up the winters and don't have sufficient chilling hours, the trees will become less fruitful."

Jones was one of the authors of the much anticipated report released Feb. 2 in Paris by the Intergovernmental Panel on Climate Change, which concluded that at least a 2-degree-Fahrenheit global temperature increase is likely by the end of the century. It said greenhouse gases — carbon dioxide, methane, nitrous oxide — produced by human activity are the likely culprit.

The IPCC report's worst-case scenario projects global temperatures rising as much as 10 or 11 degrees in the next 100 years, making it the warmest period in the past half million years. The projections are based on climate models, weather records and changes on the ground.

Solutions may come too late

A member of the state Climate Change Integration Group appointed by Gov. Ted Kulongoski last year, Jones supports efforts to reduce greenhouse gas emissions. But he cautioned that changes in human activity now to lessen those gasses won't have a measurable impact for a long time.

"Let's say you and I and the rest of humanity stopped using carbon-based fossil fuels right now," he said. "We would still be committed to 50 to 250 years' worth of climate change. The carbon in the atmosphere doesn't just fall out."



□ Scientists say the expected minimum increase in global temperature by the end of the century could rain out 40 percent of Ashland's ski seasons. (Mail Tribune / Jim Craven)

In his State of the Union address on Jan. 23, President Bush, who previously had been dubious about global warming projections, called climate change a "serious challenge." Although he did not endorse proposals for mandatory reductions of greenhouse gas emissions, he called for slowing the growth rate of those emissions nationwide, which averages 1 percent a year. Since 1990, U.S. greenhouse gas emissions have gone up 16 percent.

Climatologist George Taylor, head of OSU's Oregon Climate Service, questions whether human activity is the dominant factor in climate change. He believes natural climate cycles have the greatest impact on global warming.

However, he says it makes sense to try to reduce greenhouse gas emissions.

"The prudent path is really reducing emissions and adapting to weather extremes," he told the Oregonian newspaper last month.

But most scientists say the accelerated change in global warming is indicative of a human impact. Records demonstrate that the last half of the 20th century was dramatically warmer than the first half, corresponding with the increased use of fossil fuels along with increased deforestation and urbanization, scientists note.

"There is really nobody anymore that disputes there is global warming," said Anne Nolin, associate professor in the Geosciences Department at Oregon State University. "And there is a very high probability it is caused by people. Since we aren't changing those activities in a very large way, the projections are not unreasonable."

Skiers will see less snow

Nolin is an avid skier who looks forward to someday swooshing down the slopes of Mount Ashland.

But she is worried about the eventual impact climate change will have on the mountain and 20 other "at-risk" snow areas in the Pacific Northwest.

In a research paper she co-authored with fellow OSU scientist Christopher Daly that was printed last fall in the Journal of Hydrometeorology, they concluded that the expected minimum projected increase in global temperature could rain out 40 percent of Mount Ashland's ski seasons.

"That means with a two-degree temperature increase, four out of 10 winters — the core winter months of December, January and February — would have a significant number of rain events in the Mount Ashland area that are above the rain/snow threshold," she said in a telephone interview. "And that's very conservative."

Climate change is accelerating, said Phil Mote, a research scientist at the University of Washington and leader of the university's Climate Impacts Group. He was also the lead author of the IPCC report's chapter on snow, ice and frozen ground.

"In Southern Oregon, our best guess at this point is that warming by itself would cause the snow to shift to rain," he said. "But it's unclear whether annual precipitation would change as well."

He believes there likely would be a slight increase in rain in the Pacific Northwest.

But it is the increased temperatures that will have the greatest impact, he said.

Bigger wildfires, longer fire season

Mote observed that wildfire seasons in recent years routinely have been record breakers in the number of acres burned.

A case in point is the 2002 Biscuit fire in Southern Oregon, which burned nearly half a million acres, he said.

"The mantra from forest management is that we get big fires now because of past fire suppression," he said. "That did play a role in many forest fires, but climate change has also set the stage for large fires.

"The implication is that with continued warming, we will shift to an earlier snowmelt and longer fire season which adds up to a continued increase in area burned," he added.

Ron Neilson, a bioclimatologist with the U.S. Forest Service's Pacific Northwest Research Station in Corvallis, has been studying what global warming could do to forests in the region.

"What probably would happen is a kind of seesaw effect, a deep oscillation between wet and dry cycles," he said. "When it gets wet, it'll get really wet. And when it gets dry, it'll get really dry.

"When you have a whipsaw like that in the ecosystem, like the west side of the Cascades or in the Coastal Range, it'll add a lot of biomass," he added. "When it turns into the dry cycle, you will have a huge fuel load."

More fuels mean bigger fires, said Neilson, one of several scientists writing a book on the impact of global warming that will be released this week by the Oregon Forest Resources Institute. Neilson also has worked on past IPCC reports.

"What sometimes happens with these systems initially is that you get some benefits with an elevated CO2 level and more rainfall — things grow better," he said. "But with a lot of warming, it can cause a dieback of vegetation. When that happens, it acts as a magnet for infestation."

A shifting in climate cycles causes concern among fish biologists as well.

"Most folks are looking at lesser snowpack and earlier runoff," said Jack Williams of Medford, the senior scientist for Trout Unlimited nationally and former supervisor of the Rogue River-Siskiyou National Forest. "We would be shifting from a peak runoff in the winter as opposed to spring. We'll be looking at more problems at keeping stream flows later in the year.

"Trout and salmon are already close to their maximum thermal conditions," he added. "With warmer conditions and increased evaporation rates, their survival will be even more at risk."

Local wine growers will be affected

Over at SOU, Professor Jones has been studying the potential impact of climate change on grapes because, like many crops, they are very climate sensitive.

"There is also something about wine that makes people connect to the issue more than talking about icecaps melting or changes in small organisms living in an ecosystem," Jones said.

For viticulture, there would be some benefits from climate change, he said.

"Southern Oregon has largely been a cool-to-intermediate producing region. Any warming will make it easier for grapes to ripen."

The downside would be that species ideal for cooler climates would suffer, he said.

"This will cause us to think about how to manage vineyards differently," he said. "Out in the Illinois Valley, they have generally been growing cool-climate varieties. If we look at projected warming, the Illinois Valley would be more like the Applegate over time and the Applegate more like Bear Creek.

"I think we have a 25- to 50-year window," he added. "In agriculture, most people are tuned in to weather and the climate. We can do things to adapt."

At Oregon State University, snow hydrologist Nolin, whose study has indicated climate change is a threat to climate-vulnerable ski areas like Mount Ashland, said scientists also will be looking beyond the valleys.

"In the mountains, the ecosystem has evolved around the snowpack," she said. "We can't say what exactly will happen when the snowpack is no longer there."

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