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Warming threatens California wine

California will get hotter and drier by the end of the century, threatening its valuable wine and dairy industries, US researchers have announced.



California's wine industry is estimated to be worth around \$3.2bn

Computer models suggest that this will be worse if only weak action is taken to cut greenhouse gas emissions.

They predict the snowpack in the Sierra Nevada mountains will melt, heat waves will hit Los Angeles more frequently and crop irrigation will be disrupted.

The study appears in Proceedings of the National Academy of Sciences.

"We are already in a situation where we have seen some warming and we have seen some impacts," said lead

author Christopher Field, director of the Carnegie Institution's Department of Global Ecology in Stanford, California.

“ Even if California were to aggressively adopt emissions controls, global climate wouldn't respond to that directly ”

Christopher Field, Carnegie Institution

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"If we stay on a higher emissions trajectory, there will be consequences over the coming decades that are truly, truly serious and something I think reasonable people would be doing whatever they could to avoid."

Professor Field and his colleagues described the impact based on scenarios devised by the Intergovernmental Panel on Climate Change (IPCC).

One forecast, the so-called high emissions trajectory, is described by Professor Field as: "high economic growth, high globalization and a strong emphasis on fossil fuels."

The low-emissions trajectory has slightly lower economic growth with industries shifted from factories toward service industries and information technology.

Best-case scenario

Under the highest-emissions forecast, carbon emissions by the end of the century will be 28 billion tonnes of carbon per year - about four times the current rate of six billion to seven billion tonnes per year.

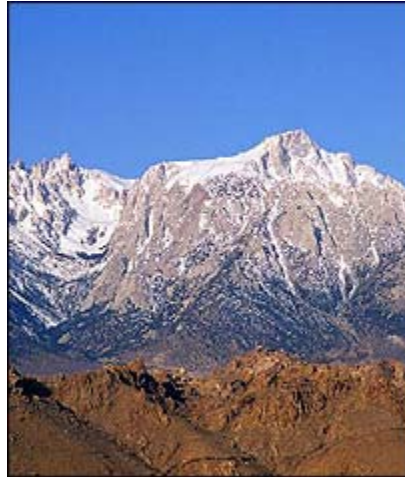
The low-emission scenario forecasts that the emissions would stay at the current level.

In the best case scenario, heat waves and extreme heat in Los Angeles quadruple in frequency while heat-related mortality increases two to three times.

In addition, alpine and subalpine forests are

reduced by 50% to 75% and the Sierra Nevada snowpack is reduced 30% to 70%.

Under the worst scenario, heat waves in Los Angeles are six to eight times more frequent, with up to seven times as many heat-related deaths as now. The Sierra Nevada snowpack will shrink by 90%.



Global warming could melt the Sierra Nevada's snowpack

This could "fundamentally disrupt California's water rights system", the researchers write in their research paper.

The scientists estimate that California's dairy industry, which is estimated to be worth around \$3.8bn per year, and the grape industry, thought to be worth around \$3.2bn per year, are especially vulnerable.

The US state, which has taken stronger action than other states to reduce emissions, for example with strict requirements for vehicles, cannot save itself, Field said.

"California has something like 2% of the world's total global greenhouse emissions," he noted.

"Even if California were to aggressively adopt emissions controls, global climate wouldn't respond to that directly.

"But if [the state] is proactive, that could inspire the rest of the US to be proactive,

which could inspire the rest of the world,
and you would see a domino effect."

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