

Wetter, Wilder Times

INTENSIFYING EXTREME PRECIPITATION EVENTS
INCREASE FLOOD POTENTIAL IN CALIFORNIA

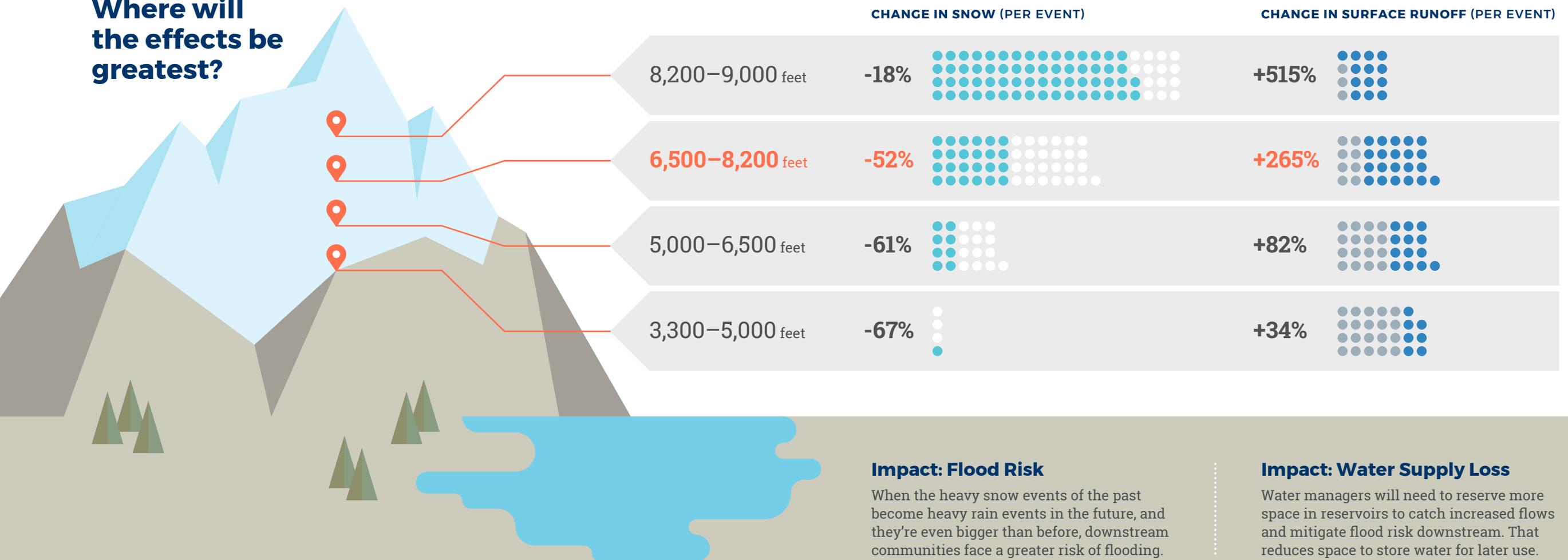
What is the potential for severe floods in California's Sierra Nevada under climate change? To find out, the UCLA Center for Climate Science used sophisticated climate modeling to investigate the impacts of future extreme storms. We assessed how much warmer these storms get, how much rain and snow falls, how much water flows over mountain surfaces—and what all this means for our water future.

Could future extreme storms increase flooding?

Using a scenario of rapidly increasing emissions of heat-trapping gases, we compared the most extreme precipitation events of 2071–2080 with those of 1996–2005. In the future, total precipitation during extreme events substantially increases. Meanwhile, it's warmer, so more precipitation falls as rain instead of snow. The one-two punch of more precipitation and a shift from snow to rain greatly increases the flow of water into mountain streams. The numbers at right reflect the average changes over the Sierra Nevada—but as shown below, different elevation levels are affected very differently.



Where will the effects be greatest?



Impact: Flood Risk

When the heavy snow events of the past become heavy rain events in the future, and they're even bigger than before, downstream communities face a greater risk of flooding.

Impact: Water Supply Loss

Water managers will need to reserve more space in reservoirs to catch increased flows and mitigate flood risk downstream. That reduces space to store water for later use.