

# The Seattle Times

Tuesday, May 12, 2009 - Page updated at 10:16 PM

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## Climate change cutting Wash. Cascade snowpack

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*Associated Press Writer*

Climate change appears to be cutting the winter snowpack in Washington's Cascade Range by at least 20 percent, according to a researcher at the University of Washington.

Rising temperatures mean more of the snow falls with a high water content, and melts and washes away long before it is needed by users in spring and summer months, the research found.

"All things being equal, if you make it one degree Celsius warmer, then 20 percent of the snowpack goes away for the central Puget Sound basin, the area we looked at," said Joseph Casola, a UW doctoral student in atmospheric sciences.

His research looked at records from the annual April 1 measurement of the winter snowpack, and then used different methods to try and estimate how water content might have changed as a result of climate change.

Average temperatures in Washington rose about 1.5 degrees during the past century, according to the UW's Climate Impacts Group. That meant more winter precipitation fell as rain or melted more quickly.

Ideally, snow that falls in the winter melts slowly in the spring and summer months, filling reservoirs in the Cascades. The water is released gradually to supply drinking water, water for fisheries and hydropower and irrigation water for farms.

Precipitation that falls as rain or as snow with a high water content tends to wash down rivers or into the ground during winter months, when it is not needed.

Variables in annual snowfall and in winter temperatures make it difficult to plot a trend in the April 1 snowpack reports, Casola said.

"If you assume precipitation is the same every year and look at the effects of temperature alone, all the ways we examined the data converge at about a 20 percent decline in snowpack for each degree Celsius of temperature increase," Casola said.

Casola predicted the region will see lower spring snowpack more frequently in the future. His work was funded by the National Science Foundation and UW.

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