

Glaciers a canary in the coal mine of global warming

* Story Highlights

- * A 50-year government study found world's glaciers melting at rapid, alarming rate
- * Study is latest in series that found glaciers melting faster than anyone predicted
- * Study shows accelerating climate change and warming earth, say authors

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CNN Radio

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(CNN) -- U.S. scientists monitoring shrinking glaciers in Washington State and Alaska reported this week that a major meltdown is under way.



The Gulcana glacier in Alaska is one of three glaciers considered a benchmark by the U.S. Geological Survey.

A 50-year government study found that the world's glaciers are melting at a rapid and alarming rate. The ongoing study is the latest in a series of reports that found glaciers worldwide are melting faster than anyone had predicted they would just a few years ago. It offers a clear indication of an accelerating climate change and warming earth, according to the authors.

Since 1959, the U.S. Geological Survey, which published the study on its Web site, has been tracking the movements of the South Cascade glacier in Washington State and the Wolverine and Gulcana glaciers in Alaska. The three glaciers are considered "benchmarks" for the conditions of thousands of other glaciers because they're in different climate zones and at various elevations.

"These changes are taking place in Washington State and Alaska in three different climate regimes," said Edward Josberger, the lead researcher on the study with the USGS Washington Water Science Center in Tacoma, Washington. "So we feel it's definitely something going on, probably on a global scale, and of course, if you look at other such measurements around the world and put it all together, yes, glaciers are retreating and retreating rapidly."

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In a telephone interview with CNN, Josberger called the unprecedented glacial melt the "canary in the coal mine."

The half-century record contains measurements of the amount of snow that has fallen on the glaciers each winter and on how much ice has melted off each summer. The data give scientists a sense of whether the glacier is getting more "healthy" or losing mass, Josberger said. They also indicate what's happening to mountain glaciers in other parts of the world, the scientist said.

"We feel it's definitely the signature of global change and climate warming," Josberger said.

The melt of glaciers is resulting in higher sea levels and affecting ecosystems and the rivers that emanate from these glaciers, Josberger said. "In terms of water supply available for people, Anchorage is fed by two glacially fed lakes. There are some very strong impacts that could happen."

The rate at which a glacier melts depends on its thickness and mass and, of course, on the temperature. Even small changes in temperature of only one to two degrees can have a significant impact on the environment, according to the National Weather Service.

"We've been using this 50-year record to interpret the changes or the response of glaciers to climate change," Josberger said. "Basically, in the past 10, 15 or 20 years these three glaciers are wasting away. The melting has far exceeded the amount of snow that falls on them in the winter, so they're retreating far up valley. And this retreat is taking place all over the Pacific Northwest and Alaska."

For example, Washington's South Cascade glacier has lost half its volume since 1960 and is predicted to lose half its current volume in 100 years.

And, if the canary analogy proves true, the ice retreat is likely occurring all over the world, too, he said.

Glacier melt will likely continue and, as it does, sea levels around the world are expected to continue rising. And that could affect people in low-lying coastal communities, forcing them from their homes and further inland, experts say.