

Accelerating Glacial Retreat Threatens Communities, Fresh Drinking Water (图)

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[摘要] 16 February 2007,The worldwide retreat of mountain glaciers threatens local communities by endangering a key source of fresh water that comes from glacial runoff, according to researchers at a 15 February press conference at the AAAS Annual Meeting in San Francisco.

[关键词] mountain glaciers;climate change



16 February 2007,The worldwide retreat of mountain glaciers threatens local communities by endangering a key source of fresh water that comes from glacial runoff, according to researchers at a 15 February press conference at the AAAS Annual Meeting in San Francisco. Lonnie Thompson, who has achieved global recognition for studying ice cores to learn about climate change, warned that Quelccaya, the world's largest ice cap found in Peru, has lost about 22% of its glacial mass over the past 20 years and is expected to disappear by 2030. Thompson stressed that in Peru, many tropical glaciers like Quelccaya store essential fresh water that communities depend upon during the dry months. With about two

thirds of Peruvians living in areas that produces very little water, these glaciers provide indispensable lifelines to water for consumption and agriculture.

"These Peruvian glaciers affect water in many ways," said Thompson, distinguished University Professor in the Department of Geological Sciences at Ohio State University.

"In addition to drinking water, they affect the hydroelectric plants that provide electricity."

Glacial melt also endangers communities through avalanches and floods. With the increased glacial melt, Thompson said, there is an increased risk of dam breach and floods.

Mountain climates are considered indicators of climate change and are among the most sensitive and depended upon ecosystems on earth.

"The flora and fauna of mountain climates are very sensitive," said John David All, professor at Western Kentucky University, "both for the organisms that live in them, and the communities that depend on them."

All, who holds a Ph.D. in geography and global climate change and a law degree in International Environmental Law, said that communities around mountains must adapt to the changing climate.

"In California, the increase in glacial melt changes the runoff season. In some places, it occurs in February or March—

too early for the growing season," said All, organizer and moderator of a related symposium with the other speakers entitled "Canary in the Coal Mine: Mountains and Climate Change."

"When you get hooked on high water runoff, and then it dries, it is bad if you have not prepared."

All added that melting snow pack on Mount Kilimanjaro in Africa has the potential to affect Tanzanian tourism, the nation's largest industry. "Would you invest in hotels if you know the snow was melting?" All asked.

Earlier this month, the Intergovernmental Panel on Climate Change, an international panel of climate experts, concluded that global climate change is a significant risk, the effects are accelerating, and has about a 90% certainty of being caused by human activities.

Although the dangers of climate change are documented, Henry Diaz, climate researcher with the U.S. National Oceanic and Atmospheric Administration, is concerned that its human implications are not widely understood.

"The issue is ignored, but demands on mountains are high and snow pack have clear economic and social impacts," said Diaz. "The message is not getting out because mountains are under

research and the information is scattered among different experts." Through his research, Diaz has recorded a two-

degree Fahrenheit rise in temperature since the mid-

1970s in Western mountains of the United States. This has caused snowmelt and flowering of trees to occur about two weeks earlier than 50 years ago.

Citing shrinking tropical glaciers on mountains in the Andes, Himalayas, and on Kilimanjaro, Thompson warned that many show evidence of more than 5,000 years of glacial mass disappearing.

Thompson dated the glacial retreat by carbon-

14 dating small "cushion plants" revealed by the retreating glacial edge. These plants, he explained, were captured by the rapidly forming glacier, only to be exposed by rising global temperatures.

While the three speakers agreed that the dangers of global warming were slowly being disseminated, they were pessimistic about solutions.

"The IPCC says that the rate of glacial retreat is accelerating," said Thompson. "I think 2007 is going to be a bad year for glaciers, especially when you combine El Nino with warming [caused by humans]."

Thompson added that even if we stopped producing greenhouse gases immediately, we would not see an immediate benefit because "there are still some gases and energy stored in the system."

"If you are living at the base of one of these mountains," Thompson said, "it doesn't matter why they are disappearing—only that they are."

