OUTLOOK Ohio University News & Information

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Decoding clues buried in the ice

Noted scientist's work, lecture sound glaciers' warning

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By Jaclyn Lipp

At their core, glaciers reveal the Earth's climate history and can foretell its future.

Lonnie Thompson, one of the world's leading paleoclimatologists, will share what these frozen archives reveal about the past and future during an upcoming lecture at Ohio University.

The address at 7:30 p.m. Monday, March 9, in Ohio University's Baker University Center Ballroom is presented through the Frontiers in Science series. Following his address, expected to last about an hour, Thompson will take questions from the audience.

While on campus, Thompson also will speak with students in a meteorology course examining physical principles that explain weather change, meet with faculty and students in the departments of Geography and Geological Sciences, and interact with area high school students and teachers.

A leading scientist who for 30 years has traveled the world drilling ice cores -- in polar regions and tropical mountain ranges alike -- Thompson was among a select group of scientists and innovators included in *Time* magazine's Heroes of the Environment 2008. He has conducted 54 expeditions in 15 countries.

Thompson's research group was the first to examine high-altitude ice caps in such locations as Ecuador, Nepal and Tibet, and he has more drilling projects planned in New Guinea, the Andes and elsewhere.

"If you don't understand today's climate and how the past climate has varied, we will never understand what's possible going forward," Thompson said in a phone interview last week. "The Earth's climate has changed over thousands and millions of years, and we need that time perspective that the paleoclimate records provide. We believe the ice provides us with our best record."

The ice cores Thompson drills contribute to a collection at Ohio State University's Byrd Polar Research Center, where he serves as a senior research scientist. Thompson also is a distinguished university professor in OSU's School of Earth Sciences.

He compares looking at the layers in ice cores to examining tree rings. In addition to providing yearly temperature records and clues about climate change, such as dry seasons, ice cores reveal other events in the earth's history, including volcanic activity and variations in the sun's output.

"We can see when they put lead in the gasoline, and we can see when the laws were changed to take it out. Whatever's in the atmosphere, the glacier captures and records it," Thompson said. "They're just a wonderful archive of many different variables in the climate system. It's a very interdisciplinary type of study because we rely on many different types of fields to understand what we have in those ice cores."

As part of his Frontiers in Science lecture, Thompson will share how glaciers

Lonnie Thompson

Photographer: Tom Nash

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confirm global warming.

"I'll be showing photographs of these glaciers. They're probably the most telling story of global warming in that the response and changes around the world have just been phenomenal," Thompson said. "Down in the Andes, where I first started as a graduate student, I have watched that glacier retreat. In the first 15 years I was going down to Peru, it was retreating at 6 meters per year. And the last 15 years, it's been retreating over 60 meters per year -- 10 times faster.

"When you think about glaciers, you usually hear in our English culture things like 'speed of a glacier' and you think slow. But the rate at which these are retreating is changing that," he added. "The scale is way beyond any glaciologist's imagination of only 20 years ago. We just didn't realize that they could respond so fast to change."

The potential impact is huge, Thompson said, pointing out that as glaciers' melt and sea levels rise, much of the world's population and infrastructure will be affected.

"It's not that the climate hasn't changed in the past. It's that we've never had 6.7 billion people living on the planet, and so we've never had so many people dependant on stability of the climate and food resources and places to live. That is suddenly put at risk by the loss of glaciers from around the world."

Thompson said the data he and other researchers gather are important for policymakers.

"We try to be very apolitical. If we're asked by Democrats or Republicans to talk about this issue, we will. Our mission as scientists is to bring the best understanding of the information we have to them for making policy decisions," he said. "Glaciers have no political agenda. They just kind of sum up our climate system and then respond to it, and I think it would be foolish not to pay attention to them."

Former university trustee and alumna Jeanette Grasselli Brown and her husband, Glenn R. Brown, created the Frontiers in Science lecture series in 1991 to promote understanding of science and communication between scientists and non-scientists. The committee that organizes the series invites a leading scientist to campus each year to lecture and meet with faculty and students.

Related Links
Thompson's faculty page (following this link will take you outside Ohio University's Web site): http://cwc.osu.edu/contacts/bios/thompson.php
OSU Ice Core Paleoclimatology Research Group (following this link will take you outside Ohio University's Web site): http://bprc.osu.edu/Icecore/

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