Shrinking glaciers: A chronology of climate change (w/ Video)

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During the last ice age, glaciers dominated New Zealand's Southern Alps until warming temperatures some 20,000 years ago sent them into retreat. Scientists at Lamont-Doherty Earth Observatory, with their colleagues, are investigating the rocky remnants these glaciers left behind to learn precisely when the ice withdrew, and what glacier retreats globally can tell us about the climate system.

The technique used to track the movement of glaciers through time is called surface exposure dating, and in a new video produced by the American Museum of Natural History, a professional film crew follows the scientists from New Zealand to Lamont's geochemistry lab in Palisades, NY to show how the process works.

By reconstructing the past ebb and flow of glaciers, scientists hope to better understand what the widespread retreat of glaciers today will mean for the planet. ""We can track back what glaciers did in the past, how it is related to climate change and that gives us the link that is needed to predict the next 100, 200 to 500 years," Joerg Schaefer, director of Lamont's Cosmogenic Dating Group, says in the film. From New Zealand, post-doctoral researcher Aaron Putnam demonstrates how to collect rock samples by cracking open massive boulders spit out by glaciers long ago. In the lab at Lamont, geochemist Michael Kaplan and lab manager Roseanne Schwartz are shown cutting the rock samples and isolating atoms of Beryllium-10 in a long chain of steps.

"We start with kilograms of rocks, take a hundred grams of quartz out

and [are left] a few ten-thousandths of Beryllium-10," says Schaefer.

Provided by Columbia University