

Slowing ice flows

By Stephen Ornes / May 29, 2012

Greenland's glaciers — giant, slow-moving rivers of ice — respond dramatically to changes in climate. As temperatures rise, glaciers melt, adding water to the sea. But in a new study, scientists say that meltwater may not be pouring into the seas as fast as earlier worst-case scenarios had predicted.

Understanding glacier melt rates is important because the water they release can contribute to rising ocean levels — changes that may eventually swamp beaches and wipe out oceanfront buildings around the world.



Twila Moon, a glaciologist at the University of



These icebergs in Greenland probably broke off the floating end of a glacier. Scientists study such ice formations to learn about climate change. Credit: Ian Joughin/University of Washington

Washington, worked on the new study. Glaciologists study the movement, makeup and impact of glaciers. Moon told *Science News* that the new study shows glaciers are reacting to climate change, but their impact might not be as bad as scientists had previously believed.

“We’re certainly looking at significant rises in sea level, but some of the worst-case scenarios that people have imagined don’t seem likely,” she told *Science News*.

In 2008, scientists reported that if every glacier in Greenland increased its speed tenfold, then global ocean levels might rise by about 150 centimeters (or about 1.6 feet) by the year 2100. If every glacier only doubled its speed, a more realistic change, then sea levels would rise 9 centimeters (about 3.5 inches) by 2100.

Most of Greenland lies under a giant sheet of ice. Outlet glaciers carry ice from the sheet to the ocean. Jakobshavn (YAH-kubs-hav' un) is a large glacier in Greenland that races toward the sea at just over 1.5 meters (roughly 5 feet) per hour. Moon and her colleagues studied satellite data collected between 2000 and 2010 on more than 200 outlet glaciers. The team found that most glaciers sped up during this time period. But other glaciers moved at a constant speed, while some slowed down, stopped or started their trek to the sea during the decade.

Forecasting the future is difficult, and Moon pointed out that even a 10-year study is pretty short when it comes to glaciers. She doesn't think the glaciers are on track to contribute 9 centimeters to the world's oceans by 2100, but told *Science News* that the slower-moving glaciers could pick up speed again.

Glaciologist Leigh Stearns from the University of Kansas in Lawrence, who did not work on the study, told *Science News* that scientists still have a lot to learn about glacier movement. "We don't know what caused the speed changes," she said. "Neighboring glaciers are behaving very differently, and that's confusing."

POWER WORDS

glacier A slowly moving mass or river of ice.

climate change A long-term, significant change in the climate of Earth, usually seen as resulting from human activity.

ice sheet A permanent layer of ice covering an extensive area of land.

glaciology The study of glaciers.