

Greenland glaciers dumping ice into Atlantic at faster pace

Thursday, February 16, 2006



Many bergs are calved each year from the Kangerdlussuaq glacier in east Greenland.

ST. LOUIS, Missouri (AP) -- Greenland's southern glaciers have accelerated their march to the Atlantic Ocean over the past decade and now contribute more to the global rise in sea levels than previously estimated, researchers say.

Those faster-moving glaciers, along with increased melting, could account for nearly 17 percent of the estimated one-tenth of an inch annual rise in global sea levels, or twice what was previously believed, said Eric Rignot of NASA's Jet Propulsion Laboratory in Pasadena, California.

An increase in surface air temperatures appears to be causing the glaciers to flow faster, albeit at the still-glacial pace of eight miles to nine miles a year at their fastest clip, and dump increased volumes of ice into the Atlantic.

That stepped-up flow accounted for about two-thirds of the net 54 cubic miles of ice Greenland lost in 2005. That compares with 22 cubic miles in 1996, Rignot said.

Rignot and his study co-author, Pannir Kanagaratnam of the University of Kansas, said their report is the first to include measurements of recent changes in glacier velocity in the estimates of how much ice most of Greenland is losing.

"The behavior of the glaciers that dump ice into the sea is the most important aspect of understanding how an ice sheet will evolve in a changing climate," Rignot said.

"It takes a long time to build and melt an ice sheet, but glaciers can react quickly to temperature changes."

Details of the study were being presented Thursday at the annual meeting of the American Association for the Advancement of Science. The study appears Friday in the journal *Science*.

The researchers believe warmer temperatures boost the amount of melt water that reaches where the glaciers flow over rock.

That extra water lubricates the rivers of ice and eases their downhill movement toward the Atlantic. They tracked the speeds of the glaciers from space, using satellite data collected between 1996 and 2005.

If warmer temperatures spread to northern Greenland, the glaciers there too should pick up their pace, Rignot and Kanagaratnam wrote.

The only way to stem the loss of ice would be for Greenland to receive increased amounts of snowfall, according to Julian Dowdeswell of the University of Cambridge, who wrote an accompanying article.