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Greenland's Ice Sheet Meltdown Accelerates

Melt could change North Atlantic current, Western European temperatures

A section of the ice sheet covering much of Greenland is seen in this Aug. 17, 2005 file photo. (©AP/WWP)

Washington – The meltdown of Greenland's ice sheet, a reservoir for 10 percent of the world's fresh water, is speeding up, according to data gathered in a joint U.S.-German scientific collaboration.

The latest findings from the Gravity Recovery and Climate Experiment (GRACE) mission indicate that the shrinking of the ice sheet is occurring along Greenland's southeastern shoreline, where it might have the potential to affect weather in Western Europe.

The GRACE project, using twin satellites flying in formation over Earth, documented changes in the glaciers from 2002 to 2005, tracking acceleration in the speed of the melting in the last two years of that period.

GRACE is funded by NASA and the German Aerospace Center, and managed by the Jet Propulsion Laboratory and the University of Texas Center for Space Research.

"Our latest GRACE findings are the most complete measurement of ice mass loss for Greenland," said University of Texas aerospace engineering professor Byron Tapley in a university press release. "The sobering thing to see is that the whole process of glacial melting is stepping up much more rapidly than before."

Greenland's ice sheet contains about 10 percent of the world's fresh water, and this study suggests that the amount of fresh water flowing from its meltdown could add 0.56 millimeters annually to a global increase in sea levels.

That additional amount of fresh water flowing into the sea could have consequences. The increased melt water, more buoyant than the salt water of the North Atlantic, could affect the flow of the Norwegian Current

"If enough fresh water enters the Norwegian Current," Tapley said, "then there could be climate effects in Europe."

Launched in March 2002, GRACE tracks changes in Earth's gravity field. GRACE senses minute variations in gravitational pull from local changes in Earth's mass. GRACE maps these variations from month to month, following changes imposed by the seasons, weather patterns and short-term climate change.

Understanding how Earth's mass varies over time is important for studying changes in global sea level, polar ice mass, deep ocean currents and depletion

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and recharge of continental aquifers.

GRACE maps are up to 100 times more accurate than existing maps, substantially improving the accuracy of many techniques that oceanographers, hydrologists, glaciologists, geologists and other scientists use to study climate-influencing phenomena.

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