

Greenland ice sheet larger contributor to sea-level rise

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Melting water from a glacier in Greenland runs into the ocean. Credit: Photo by Sebastian Mernild

The Greenland ice sheet is melting faster than expected according to a new study led by a University of Alaska Fairbanks researcher and published in the journal *Hydrological Processes*.

Study results indicate that the [ice sheet](#) may be responsible for nearly 25 percent of global sea rise in the past 13 years. The study also shows that seas now are rising by more than 3 millimeters a year—more than 50 percent faster than the average for the 20th century.

UAF researcher Sebastian H. Mernild and colleagues from the United States, United Kingdom and Denmark discovered that from 1995 to 2007, overall precipitation on the ice sheet decreased while surface

ablation—the combination of evaporation, melting and calving of the ice sheet—increased. According to Mernild's new data, since 1995 the ice sheet lost an average of 265 cubic kilometers per year, which has contributed to about 0.7 millimeters per year in global [sea level](#) rise. These figures do not include thermal expansion—the expansion of the ice volume in response to heat—so the contribution could be up to twice that.

The Greenland ice sheet has been of considerable interest to researchers over the last few years as one of the major indicators of [climate change](#). In late 2000/early 2001 and in 2007, major glacier calving events sent up to 44 square miles of ice into the sea at a time. Researchers are studying these major events as well as the less dramatic ongoing melting of the ice sheet through runoff and surface processes.

Ice melt from a warming Arctic has two major effects on the ocean. First, increased water contributes to global sea-level rise, which in turn affects coastlines across the globe. Second, fresh water from melting ice changes the salinity of the world's oceans, which can affect ocean ecosystems and deep water mixing.

"Increasing sea level rise will be a problem in the future for people living in coastal regions around the globe," said Mernild. "Even a small sea level rise can be a problem for these communities. It is our hope that this research can provide people with accurate information needed to plan for protecting people and communities."

Source: University of Alaska Fairbanks ([news](#) : [web](#))

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