

Greenland glacier calves island four times the size of Manhattan

August 6 2010



This is Greenland's Petermann Glacier in 2009. Credit: Photo courtesy of Prof. Andreas Muenchow, University of Delaware

A University of Delaware researcher reports that an "ice island" four times the size of Manhattan has calved from Greenland's Petermann Glacier. The last time the Arctic lost such a large chunk of ice was in 1962.

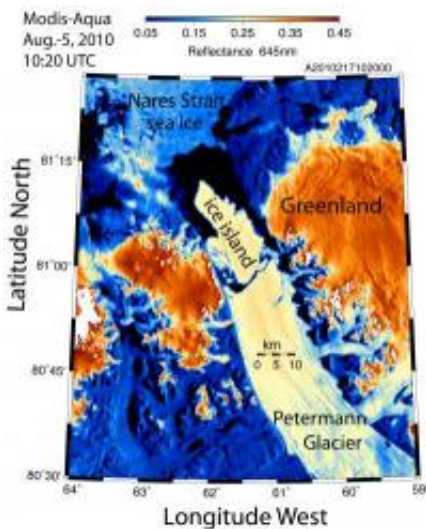
"In the early morning hours of August 5, 2010, an ice island four times the size of Manhattan was born in northern [Greenland](#)," said Andreas Muenchow, associate professor of physical ocean science and engineering at the University of Delaware's College of Earth, Ocean, and Environment. Muenchow's research in Nares Strait, between Greenland and Canada, is supported by the National Science Foundation (NSF).

[Satellite imagery](#) of this remote area at 81 degrees N latitude and 61 degrees W longitude, about 620 miles [1,000 km] south of the North Pole, reveals that Petermann Glacier lost about one-quarter of its 43-mile long [70 km] floating ice-shelf.

Trudy Wohlleben of the Canadian Ice Service discovered the ice island within hours after NASA's MODIS-Aqua satellite took the data on Aug. 5, at 8:40 UTC (4:40 EDT), Muenchow said. These raw data were downloaded, processed, and analyzed at the University of Delaware in near real-time as part of Muenchow's NSF research.

Petermann Glacier, the parent of the new ice island, is one of the two largest remaining [glaciers](#) in Greenland that terminate in floating shelves. The glacier connects the great [Greenland ice sheet](#) directly with the ocean.

The new ice island has an area of at least 100 square miles and a thickness up to half the height of the Empire State Building.



This satellite image from August 5, 2010, shows the huge ice island broken off from Greenland's Petermann Glacier. Credit: Prof. Andreas Muenchow,

University of Delaware

"The freshwater stored in this ice island could keep the Delaware or Hudson rivers flowing for more than two years. It could also keep all U.S. public tap water flowing for 120 days," Muenchow said.

The island will enter Nares Strait, a deep waterway between northern Greenland and Canada where, since 2003, a University of Delaware ocean and ice observing array has been maintained by Muenchow with collaborators in Oregon (Prof. Kelly Falkner), British Columbia (Prof. Humfrey Melling), and England (Prof. Helen Johnson).

"In Nares Strait, the ice island will encounter real islands that are all much smaller in size," Muenchow said. "The newly born ice-island may become land-fast, block the channel, or it may break into smaller pieces as it is propelled south by the prevailing ocean currents. From there, it will likely follow along the coasts of Baffin Island and Labrador, to reach the Atlantic within the next two years."

The last time such a massive ice island formed was in 1962 when Ward Hunt Ice Shelf calved a 230 square-mile island, smaller pieces of which became lodged between real islands inside Nares Strait. Petermann Glacier spawned smaller ice islands in 2001 (34 square miles) and 2008 (10 square miles). In 2005, the Ayles Ice Shelf disintegrated and became an ice island (34 square miles) about 60 miles to the west of Petermann Fjord.

Provided by University of Delaware

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