

# Greenland's undercut glaciers melting faster than thought

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Glaciologists from the University of California, Irvine, and JPL mapped remote Greenland fjords by ship in 2014. Their findings show that Greenland's glaciers are likely to be melting faster than previously thought. Credit: UCI/Maria Stenzel

Greenland's glaciers flowing into the ocean are grounded deeper below

sea level than previously measured, allowing intruding ocean water to badly undercut the glacier faces. That process will raise sea levels around the world much faster than currently estimated, according to a team of researchers led by Eric Rignot of the University of California, Irvine (UCI), and NASA's Jet Propulsion Laboratory, Pasadena, California.

The researchers battled rough waters and an onslaught of icebergs for three summers to map the remote channels below Greenland's marine-terminating glaciers for the first time. Their results have been accepted for publication in the journal *Geophysical Research Letters*.

"Measurements are challenging to obtain beneath hundreds of meters of seawater in poorly charted, ice-infested fjords," Rignot wrote. He and co-authors Ian Fenty of JPL, Cilan Cai and Yun Xu of UCI, and Chris Kemp of Terrasond Ltd., Seattle, obtained and analyzed around-the-clock measurements of the depth, salinity and temperature of channel waters and their intersection with the coastal edge of Greenland's ice sheet.

The team found some glaciers perched on giant earthen sills, protecting them from the punishing salt waters for now, while others were being severely eroded out of sight beneath the surface, meaning they could collapse and melt much sooner. "Numerical ice sheet models do not take into account these interactions and as a result underestimate how fast the glaciers will respond to climate warming," said Rignot.

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**More information:** "Undercutting of marine-terminating glaciers in West Greenland." [DOI: 10.1002/2015GL064236](https://doi.org/10.1002/2015GL064236)

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