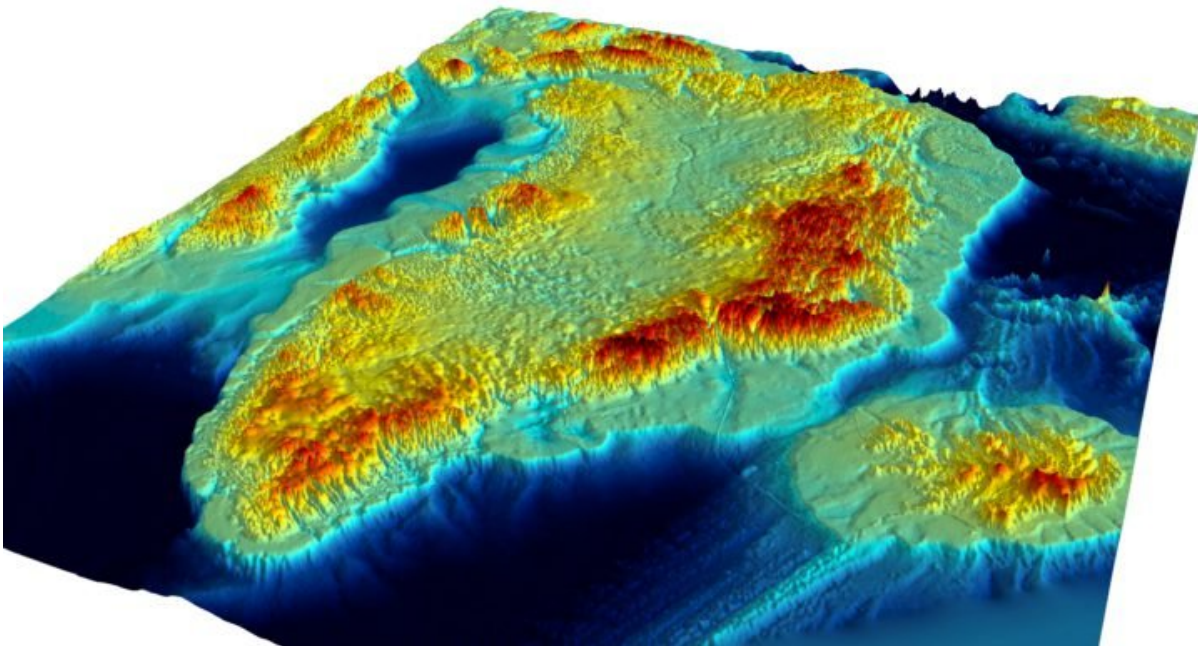


New map reveals landscape beneath Greenland's ice sheet

December 14 2017



Greenland Basal Topography BedMachine v3 is published by British Antarctic Survey. Credit: British Antarctic Survey

A new map of what lies beneath the Greenland Ice Sheet is published this week (Thursday 14 December 2017). By providing scientists with the most comprehensive, high resolution and accurate picture of the bedrock and coastal seafloor, it reveals how the glaciers that drain from the Greenland Ice Sheet will contribute to future sea-level rise.

Produced by researchers at British Antarctic Survey (BAS), University of Bristol and University of California at Irvine (UCI), the printed map is unveiled this week at the American Geophysical Union meeting in New Orleans.

"Greenland Basal Topography BedMachine v3" is the new 1:3,500,000 scale map created from data collected by over 30 institutions.

BAS cartographer Dr Peter Fretwell, who was involved in producing the printed map, says:

"This new compilation of the 3-D landscape beneath the Greenland Ice Sheet provides the first seamless transition between the landmass and its adjoining seabed, and this gives scientists a bird's eye view of the fringes of Greenland which are experiencing the most changes.

"What's also surprising is that there is more ice and the bed is deeper in some places than previous maps suggest, so this means the total contribution from the ice sheet to [global sea level](#) rise would be 7.42 metres if it were to melt completely, slightly higher than previously calculated."

The data required to compile the map was collected from many sources – from satellite, airborne and ground-based radar and seabed mapping from research ships.

Dr Mathieu Morlighem from UCI, who was funded by NASA and the National Science Foundation (NSF) and who was lead author on a recent paper that presented the data behind this map, says:

"It's great to see our data being visualised in this way and being available to share it with other researchers. Ultimately, we hope this new map will help reduce the uncertainty in the predictions of the contribution of

Greenland to [sea level rise](#), as the bed topography controls how the glaciers retreat. There are still some areas such as fjords for which we need more measurements, so we will keep improving this map as more data become available."

Glaciologist Prof Jonathan Bamber at University of Bristol who had a NERC-funded project to develop the printed map and data set says:

"It reveals that many glaciers that drain the Greenland ice sheet are thicker than previously estimated – up to 100 metres in places – it also shows they have complex fjord geometries that will control how they react to changes from the effects of warmer ocean currents. This map will improve our understanding of the ice-ocean interactions and how the ice [sheet](#) will evolve in a changing climate."

Provided by British Antarctic Survey

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