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Destabilization of the Northeast Greenland Ice Stream

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Total number of authors:
12

Publication date:
2013

Document Version
Publisher's PDF, also known as Version of record

Link back to DTU Orbit

Citation (APA):
Korsgaard, N. J., Khan, S. A., Kjaer, K. H., Bevis, M. G., Bamber, J. L., Kjeldsen, K. K., Bjork, A. A., Wahr, J. M., Sterns, L. A., van den Broeke, M. R., Muresan, I. S., & Larsen, N. K. (2013). *Destabilization of the Northeast Greenland Ice Stream*. Abstract from AGU Fall Meeting 2013, San Francisco, United States.

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CONTROL ID: 1808805

TITLE: Destabilization of the Northeast Greenland Ice Stream

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ABSTRACT BODY: The Greenland Ice Sheet (GrIS) has been one of the largest contributors to global sea level rise over the last 20 years, accounting for c. 0.5 of a total of c. 3.2 mm yr-1. A significant portion of this contribution is associated with the speed up of glaciers in southeast and northwest Greenland.

Here, we reveal that the Northeast Greenland Ice Stream (NEGIS), which extends more than 600 km into the interior of the ice sheet, is now undergoing dynamic thinning after more than a quarter of a century of stability. This sector of the GrIS is of particular interest in sea level projections, because the glacier flows into a large submarine basin with a negative bed slope near the grounding line.

Our findings unfold the next step in mass loss of the GrIS as we show a heightened risk of rapid sustained loss from Northeast Greenland on top of the thinning in Southeast and Northwestern Greenland.

KEYWORDS: 0700 CRYOSPHERE, 0726 CRYOSPHERE Ice sheets, 0758 CRYOSPHERE Remote sensing, 0762 CRYOSPHERE Mass balance 0764 Energy balance.

(No Image Selected)

(No Table Selected)

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