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Three decades of elevation change of the Geikie Plateau ice cap, East Greenland

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TITLE: Three decades of elevation change of the Geikie Plateau ice cap, East Greenland

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ABSTRACT BODY: The Geikie Plateau is a major marine-terminating local ice cap located in central East Greenland just south of Scoresby Sund, covering approx. 7,500 sqkm. South of this region, the Greenland ice sheet has experienced dramatic ice loss over the recent decade, whereas the response has been less prominent north of the region. For the Geikie Plateau itself, ICESat elevation measurements show a thinning of the ice margin and a slight thickening of the interior over the period 2002-2009 (Bolch et al., 2013). However, a longer time span is required to evaluate volume change in the context of climate change.

In this work we will compare remotely sensed elevation data collected over more than three decades from the Geikie Ice Cap to evaluate volume change. Elevation data was obtained from aerial stereophotogrammetry based on orthophotos from 1981, spaceborne laser altimetry from ICESat over the period 2002-2009, aerial laser altimetry by the NASA IceBridge campaign 2010-2012 and aerial laser altimetry by the Technical University of Denmark and the Danish Geodata Agency covering 1996-2012. The comparison will facilitate an enhanced understanding of recent mass loss from ice caps and glaciers in East Greenland which is home to nearly half the local ice masses in Greenland.

KEYWORDS: 0758 CRYOSPHERE Remote sensing, 0720 CRYOSPHERE Glaciers.

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Additional Details

Previously Presented Material: ICESat data constitutes part of this study estimated to maybe 15% of the material. The ICESat data used has been previously presented in: Bolch et al., 2013, Geophys. Res. Lett., Vol 40, 875-881.

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