



## **Supraglacial lake drainage and englacial channels at 79°N Glacier, Greenland**

Angelika Humbert (1,2), Niklas Neckel (1), Tobias Binder (1), and Sebastian Beyer (1)

(1) Alfred Wegener Institute, Helmholtz-Centre for Polar and Marine Research, Bremerhaven, Germany, (2) University of Bremen, Bremen, Germany

Supraglacial lake drainage is contributing to lubrication of glaciers and delivers fresh water into fjords, influencing basal melt at floating tongues of glaciers. Both effects are governed by the amount of water drained from supraglacial lakes and its routes to the base of glaciers or fjords respectively. Here we aim to determine a time series of supraglacial lake drainage at 79°N Glacier (79NG) in north-eastern Greenland. For this purpose, we present changes in lake volume based on TanDEM-X data and constrain the timing of drainage events. Additionally, we show evidence for persistent englacial channels of 79NG linked to the drainage events revealed by airborne radio echo sounding using AWIs new ultrawideband radar. Furthermore, we present simulated subglacial pathways to the fjord using the CUAS model, which represents the evolution of channels in a confined-unconfined aquifer system as response to supraglacial lake drainage.