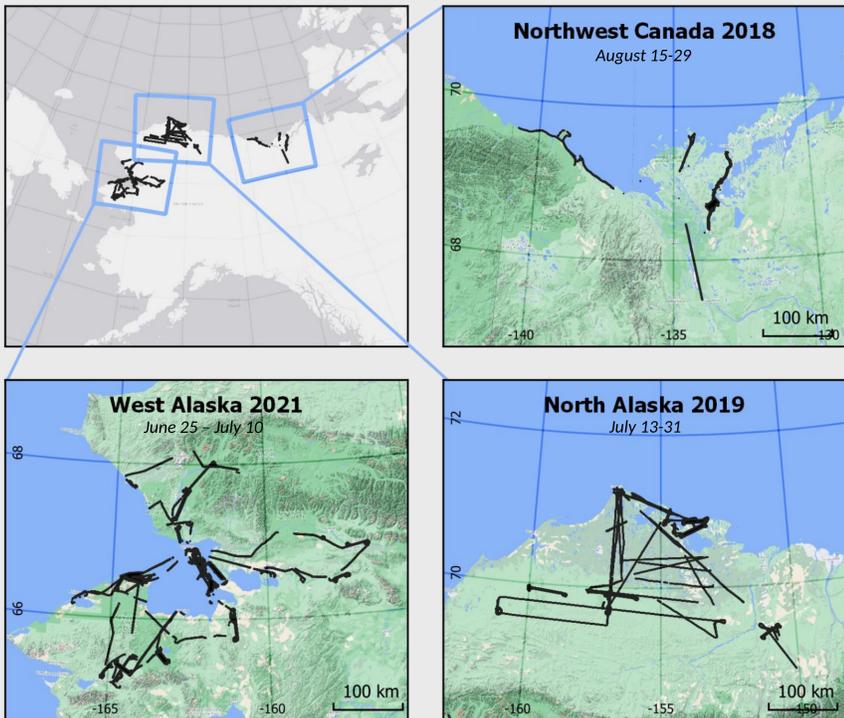# Super-high-resolution Earth observation *datasets* of North American permafrost landscapes

Tabea Rettelbach, Ingmar Nitze, Simon Schäffler, **Sophia Barth**, Inge Grünberg, Jennika Hammar, Matthias Gessner, Tilman Bucher, Jörg Brauchle, Torsten Sachs, Julia Boike, and **Guido Grosse**
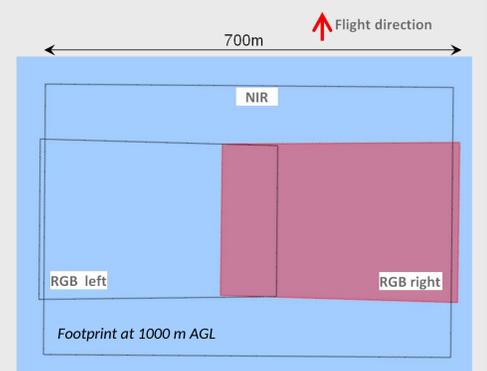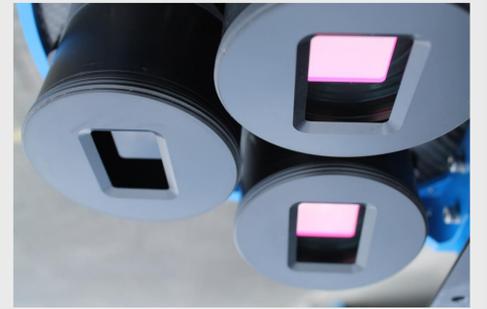
Aerial Campaigns

Northwest Canada 2018
August 15-29

100 km

West Alaska 2021
June 25 – July 10

100 km

North Alaska 2019
July 13-31

100 km

Sensor

Modular Aerial Camera System

- Developed by DLR
  (German Aerospace Center)
- 2 RGB + 1 NIR camera
- Super-high resolution (up to 7 cm)
- Can cope with Polar conditions

Flight direction

700m

NIR

RGB left

RGB right

Footprint at 1000 m AGL

AWI's Polar 5

POLAR 5

C-GAWI

Scientific Aim

Capture permafrost landscapes affected by disturbances

Output
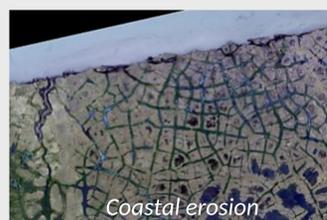
Our targets include:
- *Retrogressive thaw slumps*
- *Coastal erosion*
- *Drained thermokarst lakes*
- *Settlements and infrastructure*
- *Ice-wedge degradation*
- *Thaw subsidence*
- *Fire scars*
- *Pingos*
- *Methane seeps*
- *Beaver activities*
- *...*

Coastal thaw slumps

Ice-wedge degradation

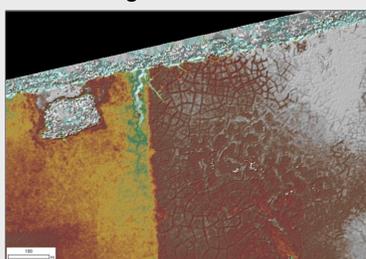*Coastal erosion*

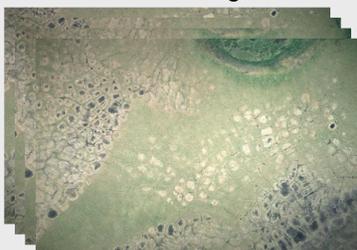*Coastal thaw slumps*

Beaver activities

Coastal erosion

Selawik village

Processed mosaics (B-G-R-NIR)

Photogrammetric DSMs

Individual images

But do we have data for your study site??

Find out here

So how do you get the data?

Follow us on Twitter & be among the first to find out once it's published!

@Permafrost_RS

Thank you!

AWI | DLR | UNIVERSITY OF ALASKA FAIRBANKS | Kenn Borek Air | GFZ Helmholtz Centre Potsdam | MOSES Modular Observation Solutions for Earth Systems | FISH & WILDLIFE SERVICE | NATIONAL PARK SERVICE