

Subproject: Drone- and functional ecological investigations of Tundra change

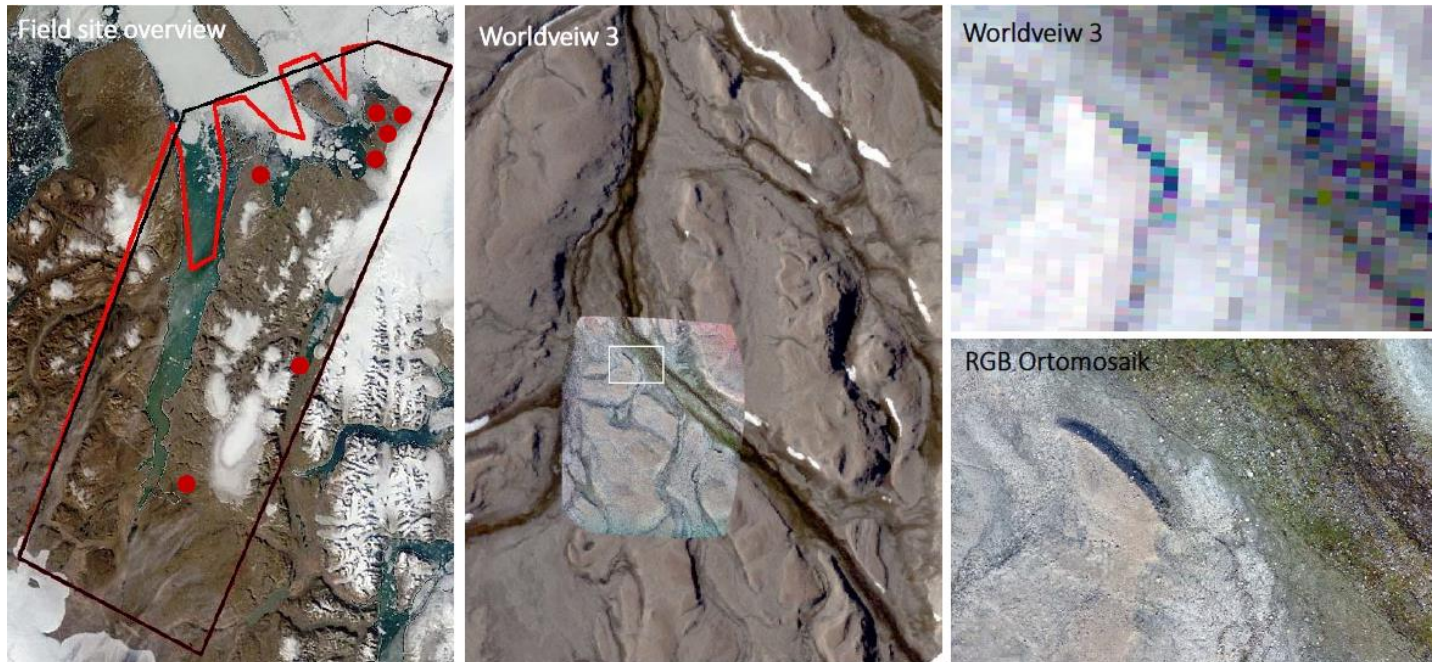


Photo 1

Actual field dates: 21. July - 12. August 2016

Field site: Prinsesse Ingeborg Halvø, Camp i side dal tæt ved Rømersø, fieldsite nær enden af Danmarks Fjord (see Photo 1)

Number of man-days in the field: 100

Summary:

The 2016 field campaign at sites close to Station Nord focused on collecting data at different scales; ranging from local field-based observations and samples to larger scale drone-based and satellite-based approaches.

At the smaller scale four plots were established to collect wood and leaf samples for analyses of variation in recruitment, growth, and functional traits, as well as genetic analyses. Sampling were performed for four plant species with a total number of 175 individuals. Furthermore, 90 permanent plots (2-m circles) established in 2015 were examined for floristic composition and additional 2-meter circles were established at new sites. A subset of these plots, were simultaneous photographed for vegetation cover estimation. In total, 74 2-m circles were photographed simultaneous by a normal consumer-grade camera (RGB) and a near-infrared modified camera (NIR). Furthermore, 1496 spectral samples were measured with a handheld spectrometer covering different substrates and plant species.

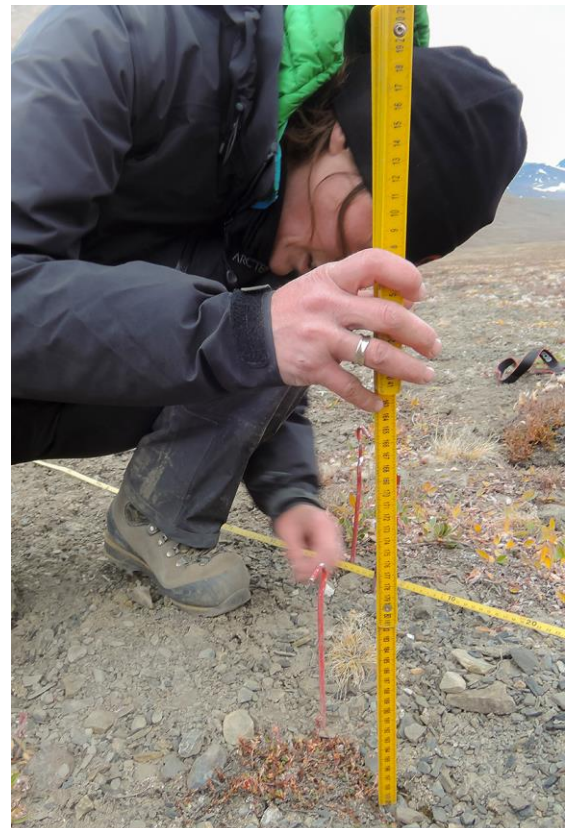


Photo 2

At the larger scale, drone images were acquired from eight sites using a rotor-winged drone (Mikrokopter) and a fixed-wing (eBee rtk), which flew at a lower and higher height, respectively. The Mikrokopter were used for four of the sites and were flown with three different sensors (RGB, NIR and multispectral). The eBee rtk were used at all 8 sites and flown with a RGB, multispectral and thermal sensor. Lastly, high-resolution satellite imagery was obtained for the area within which fieldwork were conducted and facilitates up-scaling of the local observations.

Photos:

Photo 1: Signe Normand; Urs Treier
Caption: Field sites within the area (delineated by red polygons) for which high resolution satellite data (Worldview 3) data were obtained during July-august 2016. The red dots indicate the areas where field work was conducted. At several of these sites ultra-high resolution imagery from drones were collected. Example of comparison of the drone and satellite collected data are provide for the field sites closest to the bottom of the Danmark Fiord.

Photo 2: Credit: Sigrid Nielsen
Caption: Signe Normand doing measurements

Photo 3: Credit: Normand-Treier
Caption: Mapping by drone on field site



Photo 3

Participants:

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