Assessing Planet Imagery for the Arctic-Boreal Vulnerability Experiment (ABoVE)

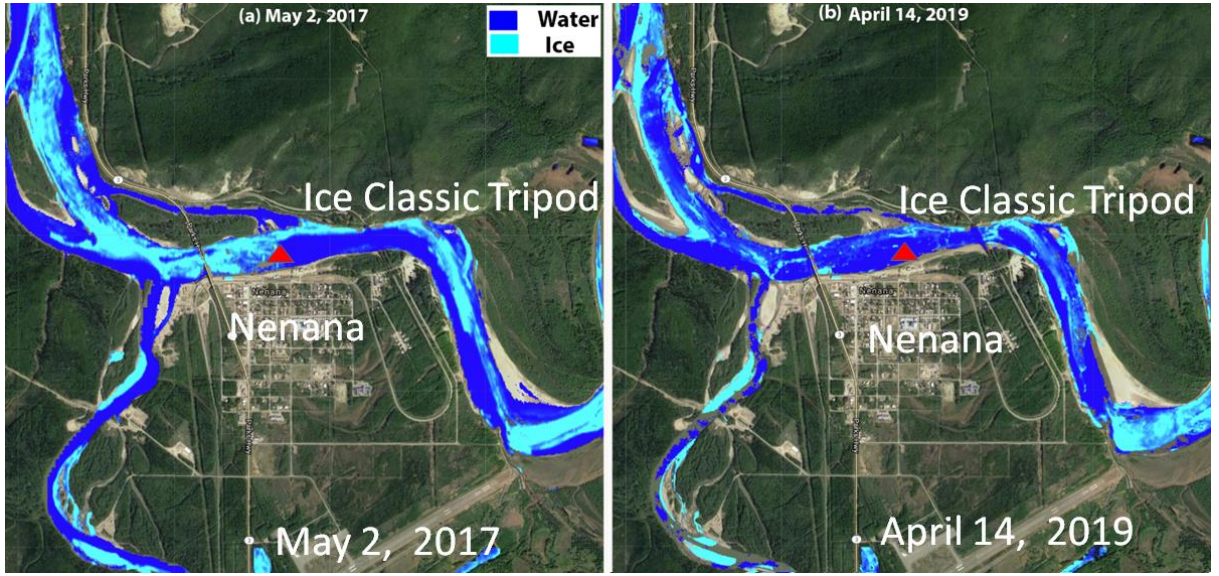
Elizabeth Hoy, Global Science and Technology; and
Peter Griffith, Science Systems and Applications Inc.

Purpose: Understand the Carbon Cycle in the Boreal region

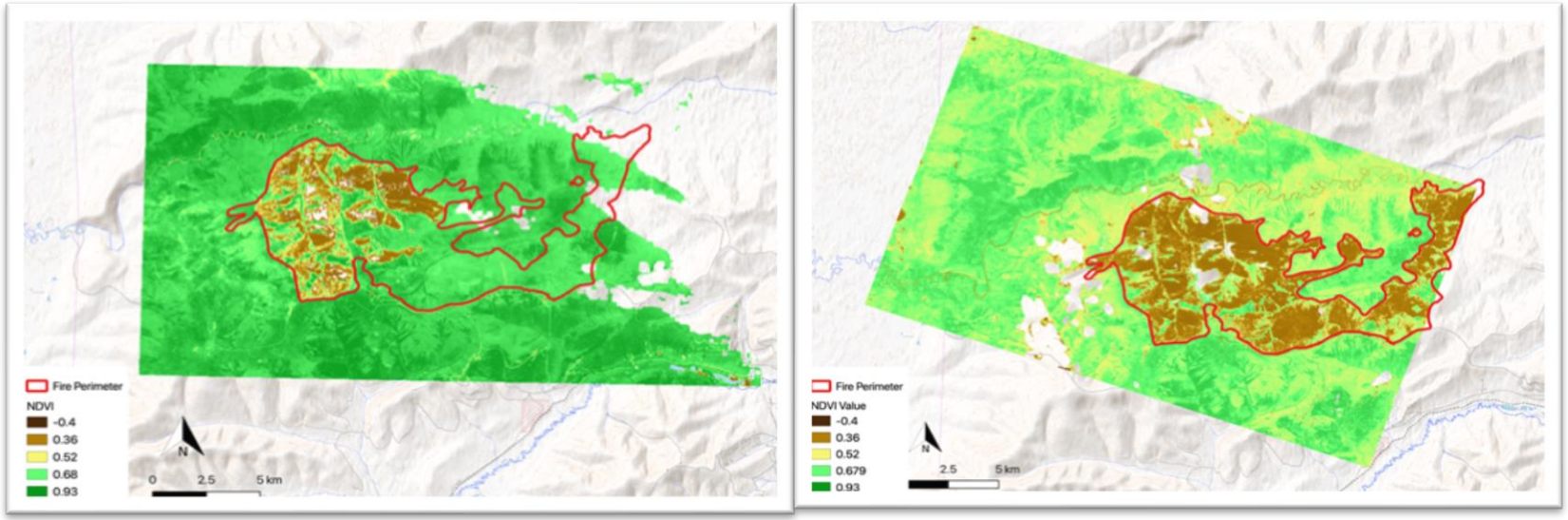
Study Objective: Assess the usefulness of PlanetScope imagery for understanding the vulnerability of permafrost; determine how interactions among vegetation, soil characteristics, hydrology, and disturbances influence surface energy exchange; and quantify how changes in the spatial and temporal distribution of snow impact ecosystem structure and function.

Imagery: PlanetScope

Findings: The Planet imagery was effective towards tracking seasonal changes in lake extent, improved understanding of lake dynamics and estimates of methane flux, mapping of river and lake ice, and for analyzing burned and unburned areas in the boreal region. Improvement in data accessibility, accuracy of the cloud mask, and better radiometric resolution will further enhance the usefulness of the imagery.



PlanetScope imagery showed earlier ice breakup of Tanana river near Nenana, AK in 2019 than 2017, consistent (± 4 days) with the observations from the Ice Classic Tripod. *(J. Du & J. Kimball)*



At left: NDVI calculated from a Landsat image on 7/5/2019 (top) and from a Planet image on 7/15/2019 (bottom) of the Shovel Creek Fire in Alaska. Planet imagery shows a higher level of detail than the Landsat-derived product. (D. Levin & E.Hoy)

ABoVE
ARCTIC – BOREAL VULNERABILITY EXPERIMENT