SnowEx-ABoVE Synergies for Airborne Science

SnowEx Goal: Fill key gaps in snow retrieval performance

Need to quantify retrievals of SWE, albedo, and depth and to a lesser extent, snow properties such as density and melt status

It is important to be able to do this across all snow climates including the Arctic boreal region

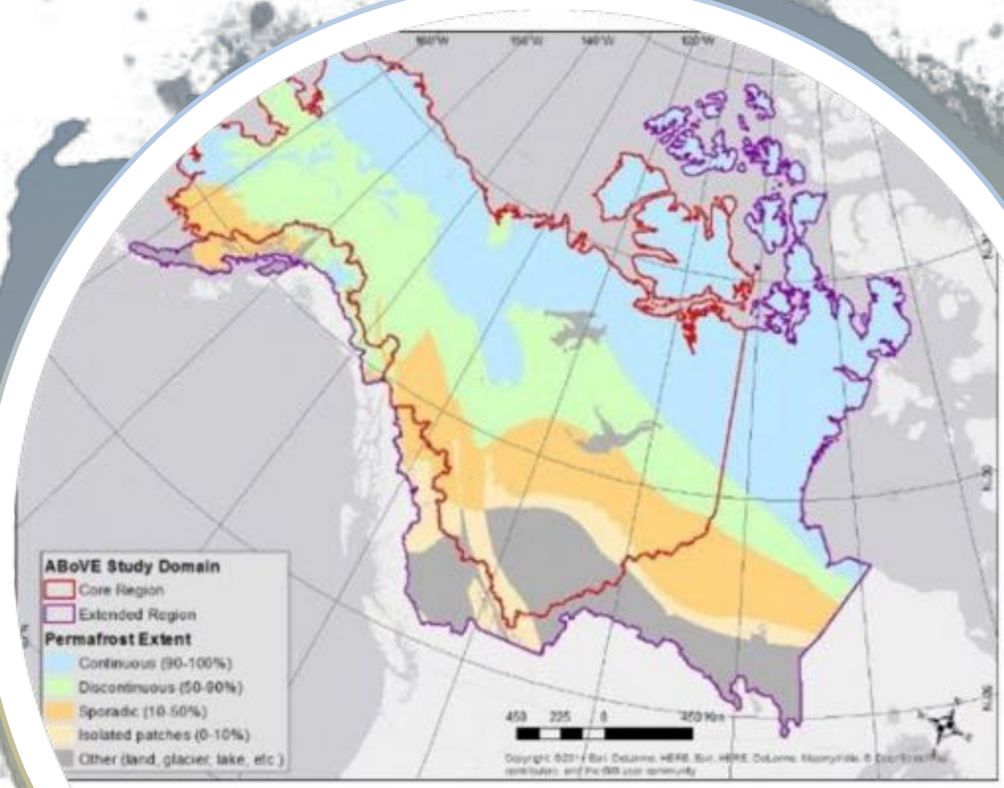
The Arctic boreal region has declining snowpacks, extensive forest and disturbance, melting permafrost, shrub expansion, iconic wildlife, vulnerable rural communities

Arctic Boreal Vulnerability Experiment (ABoVE)

NASA Terrestrial Ecology Program

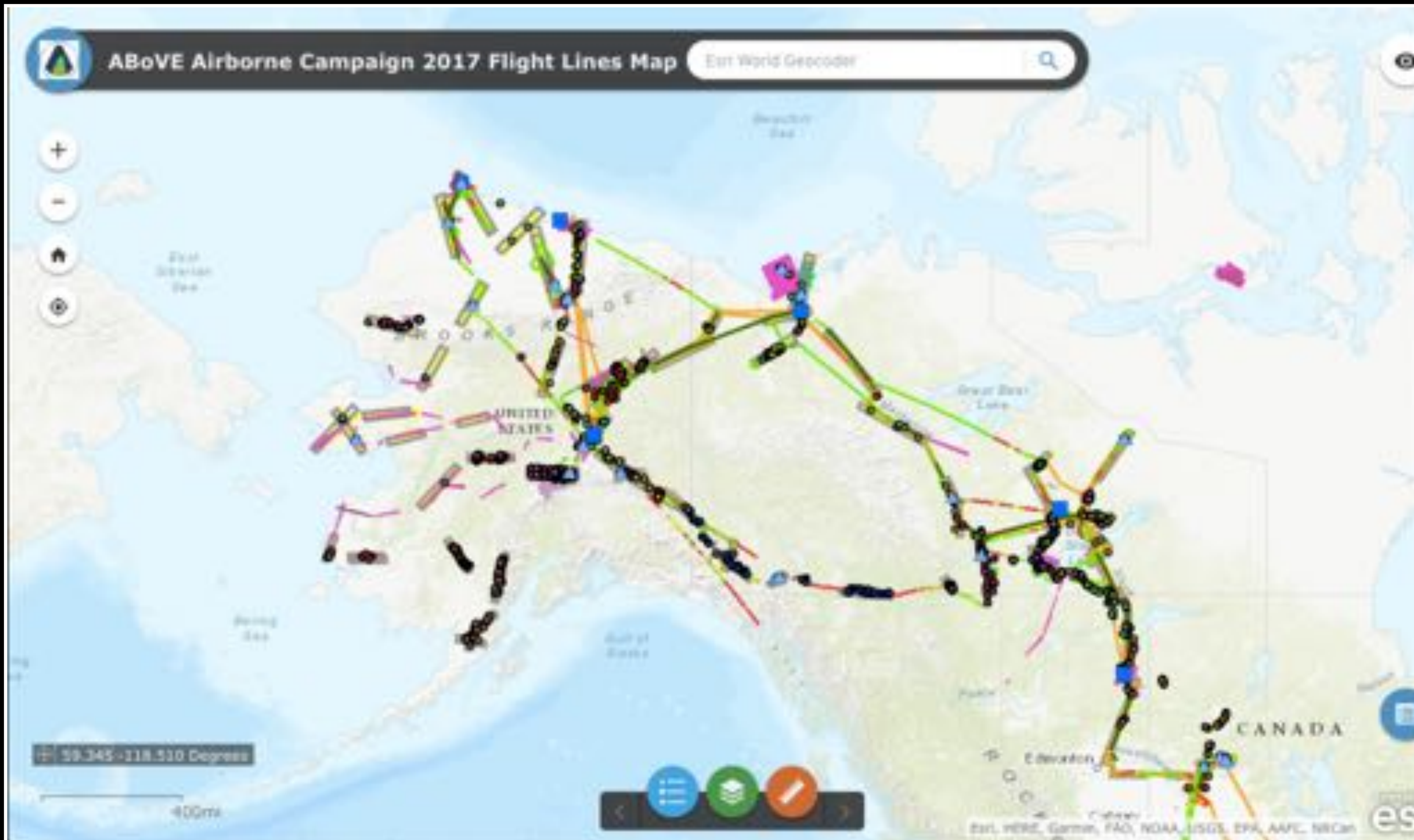
- Focus on vulnerability/resilience of Arctic boreal region
- Extensive field/airborne campaigns during snow-off seasons of 2017 and 2018 with UAVSAR, AVIRIS-NG, Lidar, etc.

https://above.nasa.gov/index.html

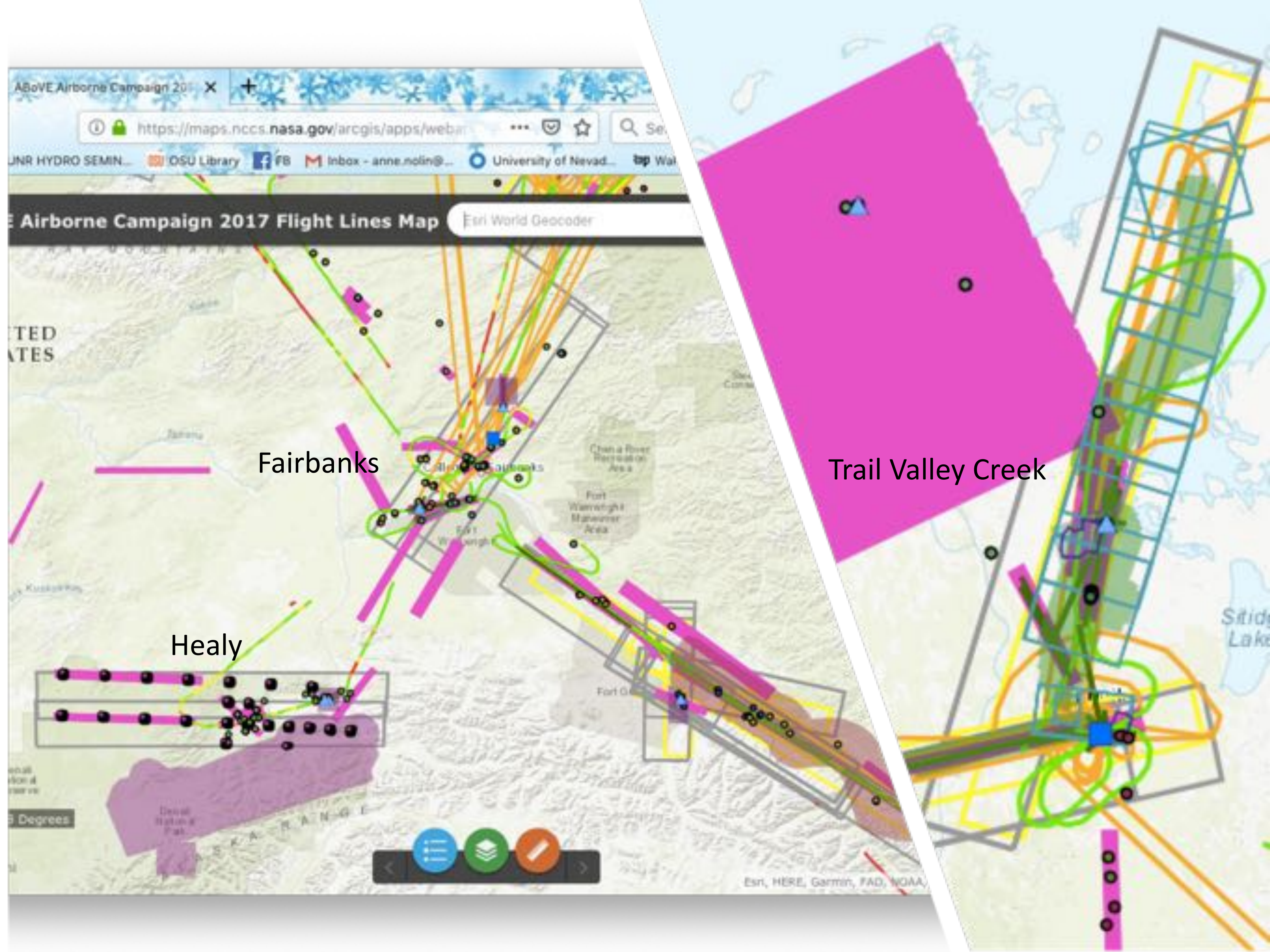


Leveraging and Synergies

- SnowEx can leverage snow-off data that ABoVE has already acquired including extensive airborne and ground based data
- ABoVE researchers desire a deeper understanding of the role of snow in Arctic terrestrial ecology questions
- ABoVE will have it's last major field/airborne campaign in 2020 so this is a key opportunity for such a collaboration
- Snow community will expand by including Arctic terrestrial ecology researchers
- ABoVE researchers have immense experience to share
- ABoVE leadership strongly supports the idea of a coordinated airborne campaign in winter/spring 2020
- ABoVE Fairbanks logistics office is an excellent resource



ABoVE Domain and Flight Lines


ABoVE Airborne Campaign 20
https://maps.nccs.nasa.gov/arcgis/apps/webar
UNR HYDRO SEMIN...
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Inbox - anne.nolin@...
University of Nevad...
E Airborne Campaign 2017 Flight Lines Map
Esri World Geocoder
Fairbanks
Healy
Trail Valley Creek
Esri, HERE, Garmin, FAO, NOAA

Options to consider

- Pre-2020 – work with ABoVE to coordinate flight lines for snow-off measurements (leverage planned data acquisitions)
- March-to-melt 2020
  - SnowEx airborne campaign pre-melt and early melt season
  - ABoVE continues airborne campaign from melt through snow-off time frame
- Fall 2020
  - ABoVE may want to acquire additional airborne data during early snow season