

Breakout 1 Report: Hydrology & Permafrost

1. In Situ Data Collection

- **ABoVE data priority wants list** for federal, state & local agency collaborators. Coordinate with all WG leads to generate/distribute.
- “**Advanced Options**” in ABoVE Sites & Measurements Tool for interactive WG mapping (search features; custom tables; addition of external agency collection sites). Include data wants/needs map. Mechanism for flagging sites with geospatial errors.
- **Field site/area plot coordinates** from agency collaborators (e.g. Landfire veg plots; UAF Imiq hydroclimate database; AK Online Aquatic Temperature Sites (AKOATs); UAF Geophysical Institute active layer & borehole thermal data; NRCS soil survey; LCC soil temp/moisture sites; NPS lake ice phenology, etc.).
- **ID/categorize Legacy Data** for ABoVE domain (opportunity for future ABoVE intern?).
- Use **Global Terrestrial Network for Permafrost** as agency & ABoVE active layer permafrost data repository (coordinate across-agency integration).
- **Data collection methodologies** (not protocols) created and available on-line for each ABoVE core variable. Concise descriptions & pictures? Sampling strategy, equipment use & documenting uncertainty. This would target needs of all WGs.

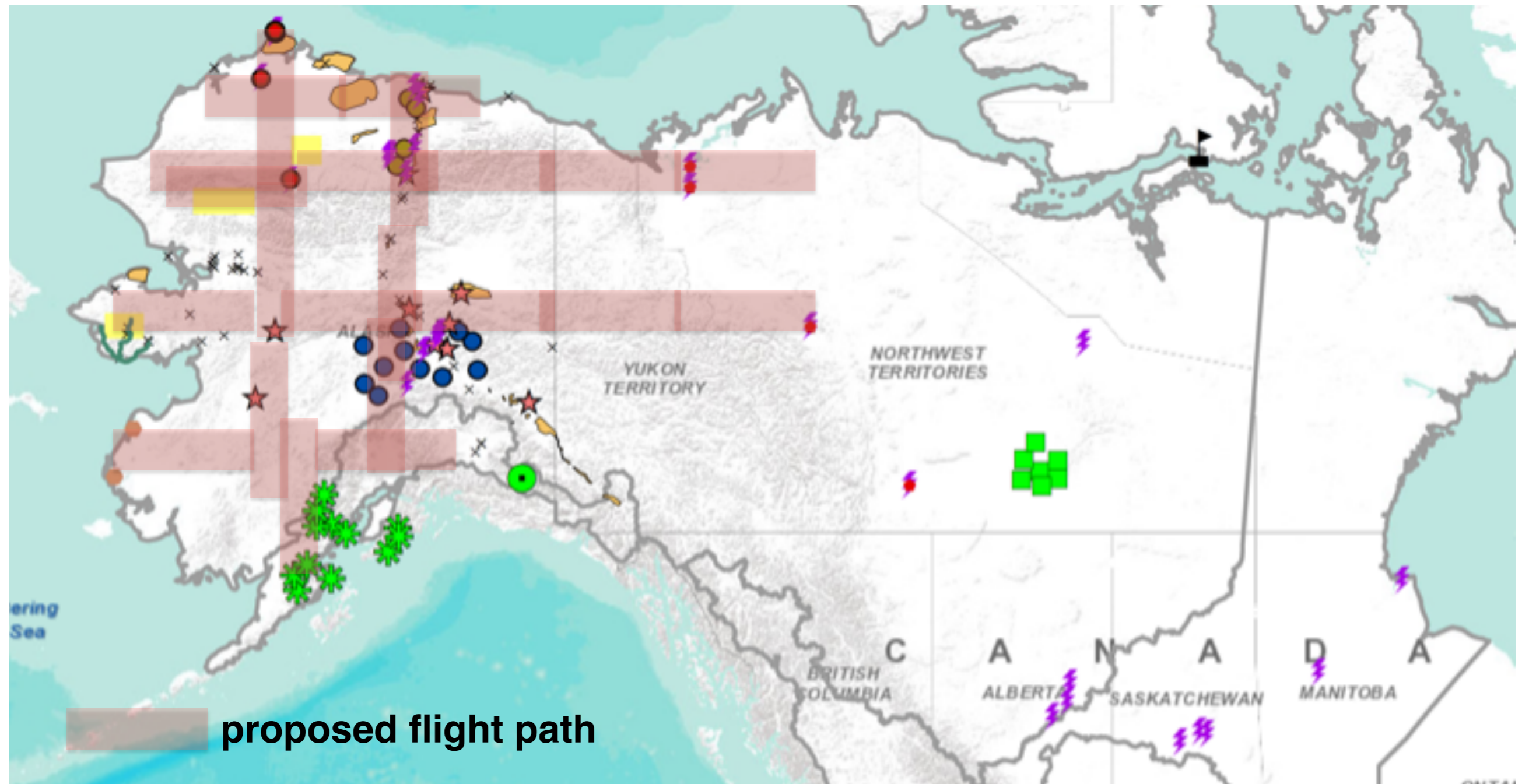
1. In Situ Data Collection (cont.)

- **ABoVE data collection “field-guide”** needed. Should include instructions for standard procedures and prioritized data core variable data sampling strategies.

2. What is missing? Data collection needs/wants

- **Hg** (creates problems for communities & food web), **N**, **CH₄**, **black carbon**, **etc.** Can we work with other agencies to meet these needs?
- **Regional Water/energy balance.** We need projects (Phase II) where this is primary focus. Requires in depth, multi-res. sampling & characterization of surface, sub-surface & groundwater bodies & transport (inc. lateral). Requires in situ collection, remote sensing, & modeling. *This is a high priority research need that ABoVE must address.*
- **Snow & Ice.** Boundary seasons snow/ice on/off. SAR data to look at inundation & flood frequency & effects on river system, fire season, human safety & health. This could focus on local community areas and should include historical records. SAR would provide way of linking terrestrial & aquatic.
- Extended (longer-term, 12-20+ yrs) **high res. (\leq 3-5 km) gridded surface meteorology** for ABoVE domain to drive models and support project analyses.

Data need: UAVSAR & AIRMOSS L-/P-band for integrated, high impact PF & Hydro research (1 yr intensive)



Flight paths cover N/S (*higher priority*) and E/W gradients of transitional permafrost, vegetation and surface water coverage. Include operating flux towers and in situ thermal/moisture monitoring.