

Breakout 1 Report (1/21/16): 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.

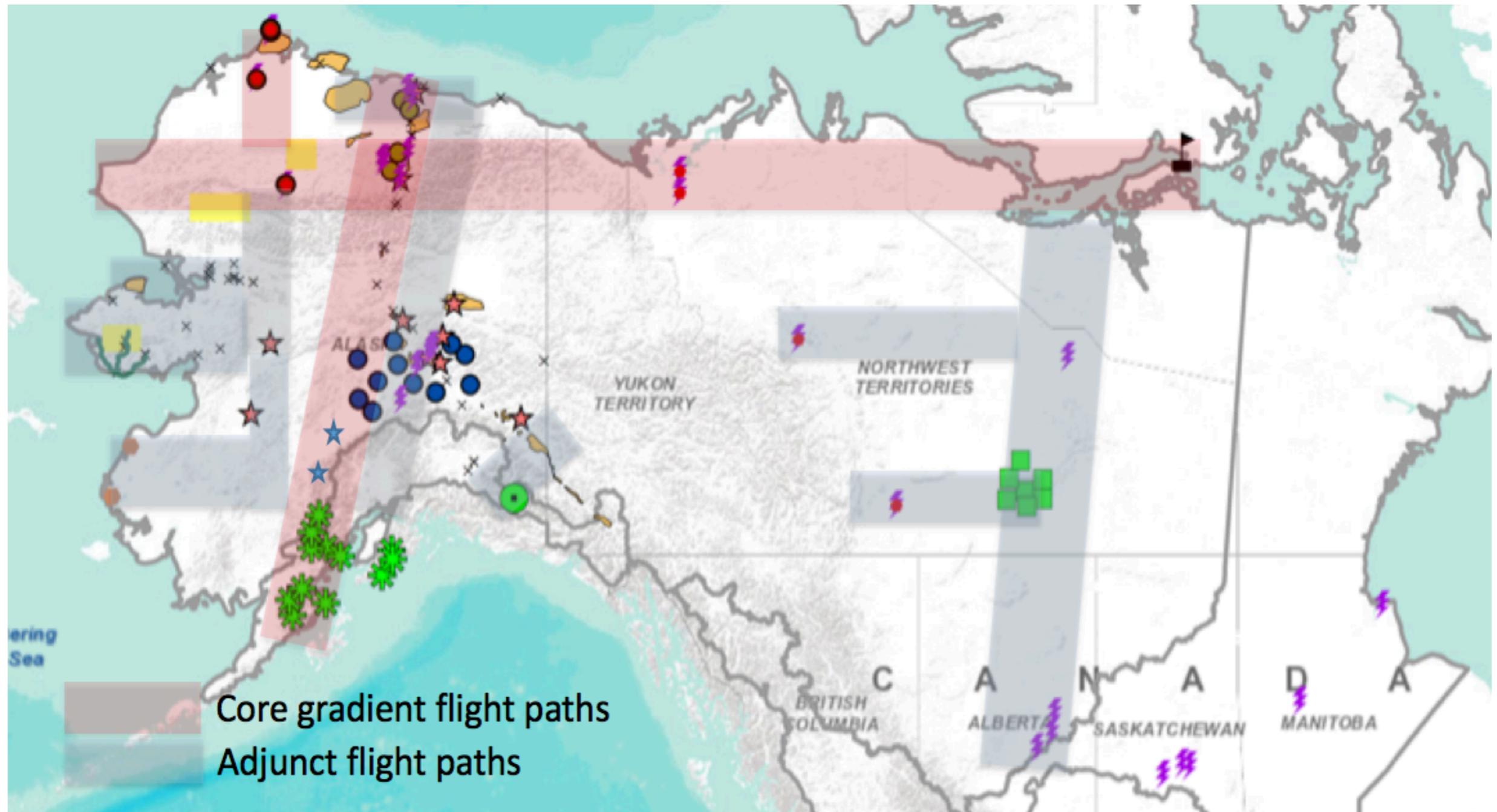
1. In Situ Data Collection (cont.)

- **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 & ELVIS for integrated, high impact PF & Hydro research (1 yr intensive)



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

Breakout 2 Report (1/22/16): Hydrology & Permafrost

Overview of recent WG activities:

- **The HPWG SI draft** is well underway. We will work to transfer text from our WG document to the primary ABoVE SI doc.
- To do list for Project PIs. **Please fill out the following tables** located in the ABoVE Hydrology & Permafrost dropbox folder (“WG_Tables”):
 - Project models list .xlsx worksheet
 - Expected data products list .xlsx worksheetAlso, please add an additional .xlsx worksheet to this folder that lists the location(s) of your expected field sites and the variables to be measured. The “Field_Data_List_Moghaddam03.xlsx” file provides a nice example for this.
- The **HPWG will discuss with Liz Hoy** the feasibility of adding custom features to the **ABoVE on-line Sites & Measurement Tool**. This would include options for modified metadata table formats and a central data catalog table that would link to shapefiles & map information.
- The HPWG will coordinate with the **Carbon/Biogeochem. WG** to create a **standard table format** for project field site info, model details, data products, etc.

- The HPWG will work with Liz Hoy to identify a **standard metadata format** (for project site related details).
- The HP group will **identify datasets** from federal, state & local agencies that will benefit ABoVE permafrost & hydrology related project research. From this we will generate a "data wants" list for Liz Hoy & Peter Griffith, who will approach the agencies to obtain the data & post to ABoVE Science Cloud.
- Ideally, a **future ABoVE intern or post-doc** would be available to help WGs collect and pre-process data (to standard or requested formats) prior to posting on the Science Cloud, as some of these datasets may be "messy" and "fragmented" in various stages of quality control.
- The HPWG will **strengthen dialog** with the **Fire, BGC, Vegetation and Fauna WGs** to better identify commonalities and possibilities for collaboration and "big picture" integrated science.
- The HP group will discuss coordinating & securing funding for a **NASA ABoVE snow workshop** (covering in situ data collection, spatial scaling, modeling and air/space remote sensing methods that can be used during Phase I/II activities).