



# Yukon Research Centre research and monitoring activities and needs related to ABoVE and POLAR activities

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May 16, 2016



YUKON RESEARCH CENTRE  
Yukon College

# Adapting to climate change in Yukon



Rob Cooke  
2013 Yukon Quest Veteran

Northern Climate ExChange  
is leading the pack.

Specializing in climate change  
assessments, information and planning.

[www.yukoncollege.yk.ca/research](http://www.yukoncollege.yk.ca/research)



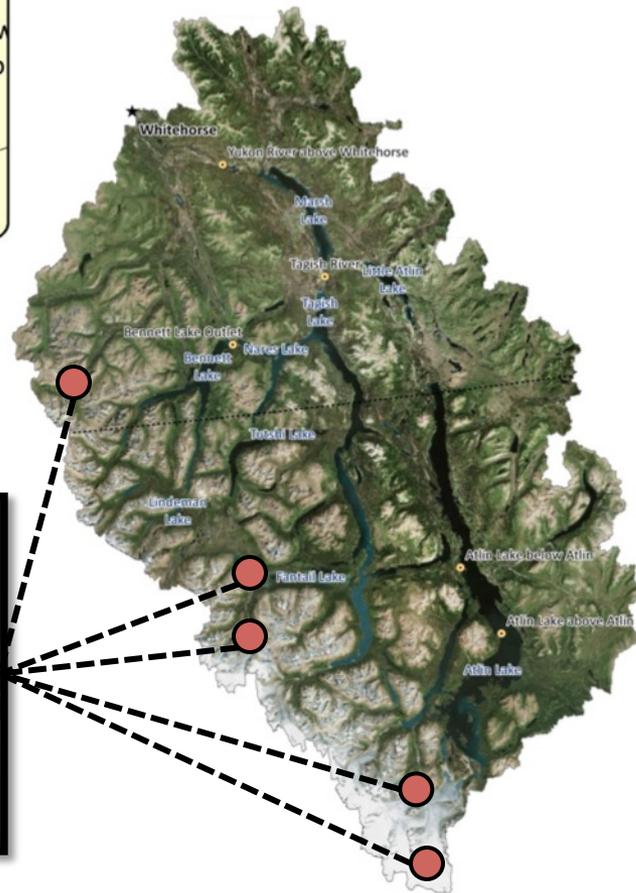
Photo: Mark & Glenn

# Ongoing research and monitoring *Related to ABoVe and POLAR activities*

- Yukon River headwaters – glaciers & river discharge
- Hazards mapping
- Permafrost research and monitoring projects
- Envirodata catalogue



# Yukon River headwaters met stations



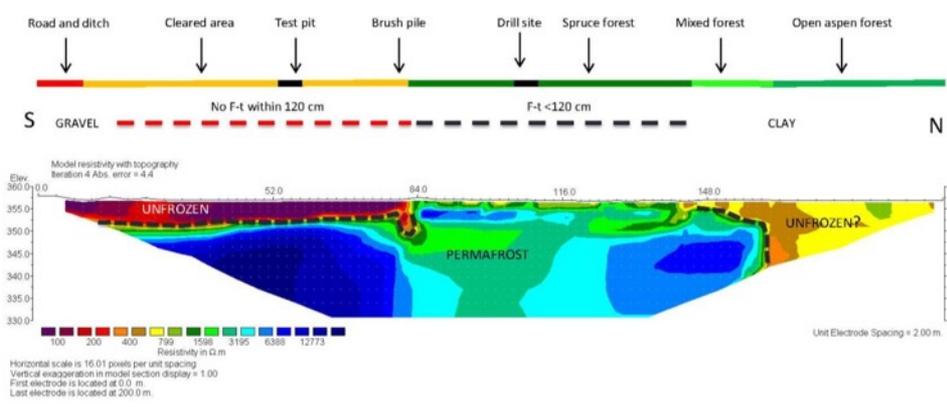
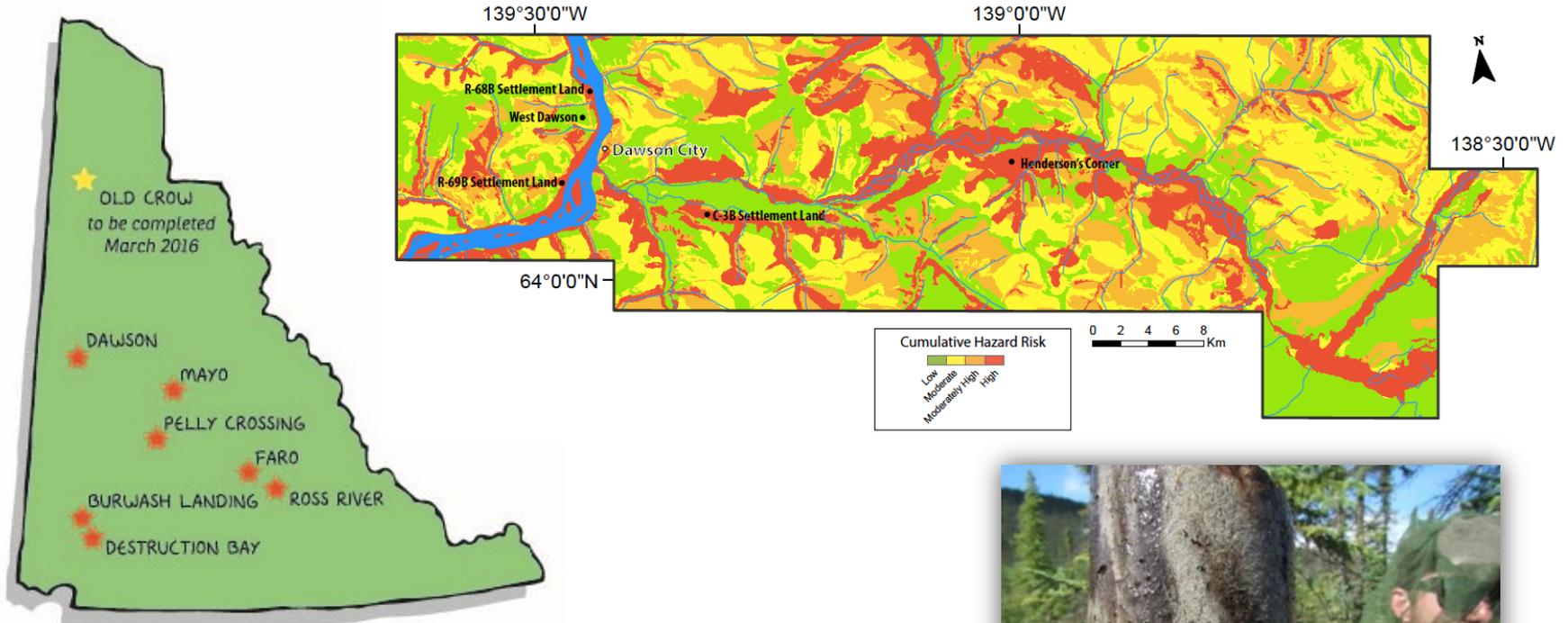
5 Stations installed 2012 & 2013

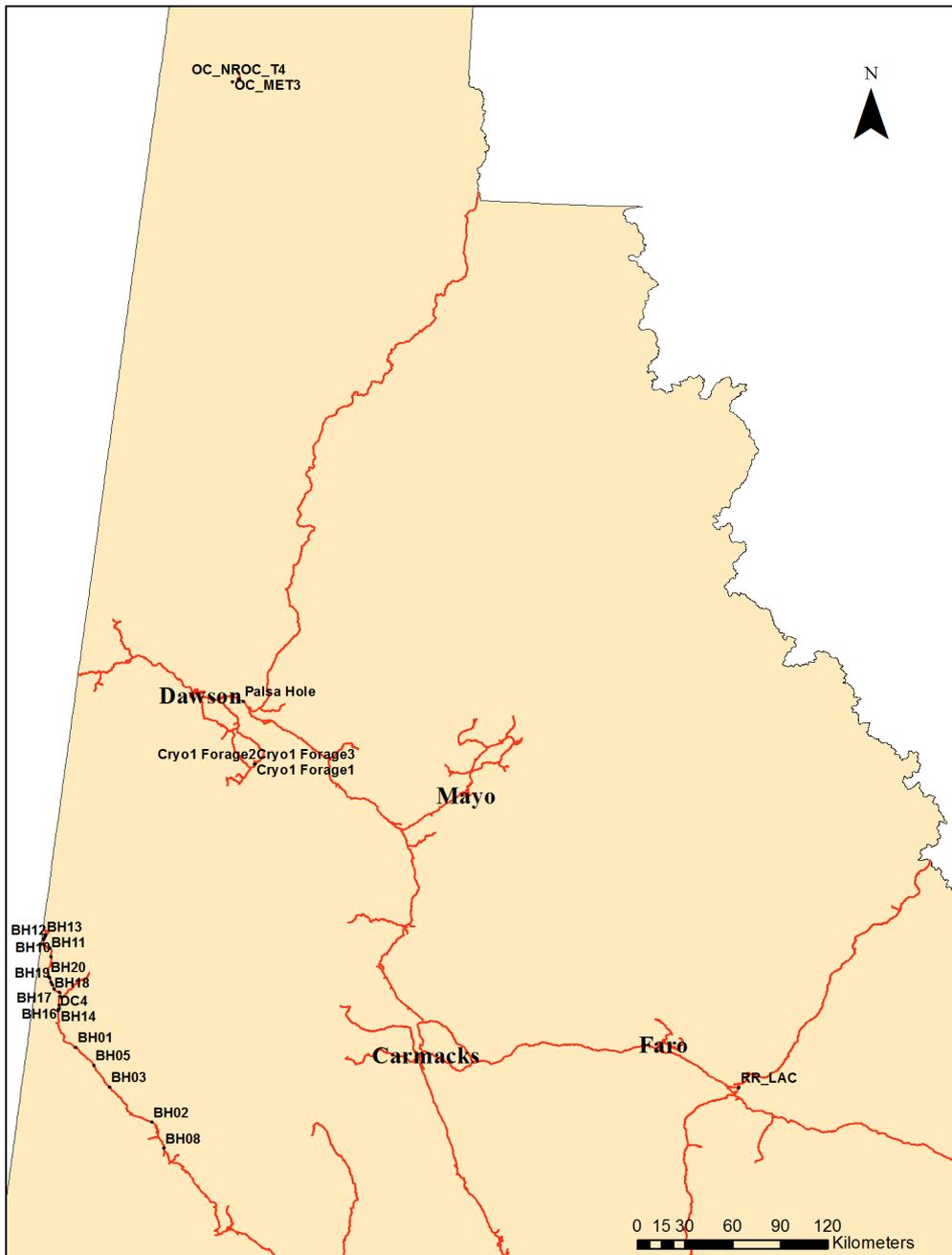
Hourly:

- Temp
  - Relative humidity
  - Wind speed & direction
  - Rainfall
  - Snow depth
  - SWE
  - Net radiation
- + component radiation on station closest to Llewellyn glacier



# Hazards mapping in Yukon communities





# Permafrost temperature monitoring

- 25 boreholes with ground temp at various depths
- Instrumented between 2013 and present
- Checked and downloaded when possible



## Find Weather Stations and Research Project Metadata

Filter by Location\*

Filter by Name

Filter by Parameters

Stations collecting Soil Temperature  
OR Soil Temperature 

Filter by Elevation

Filter by Date Range\*

 Display Selected

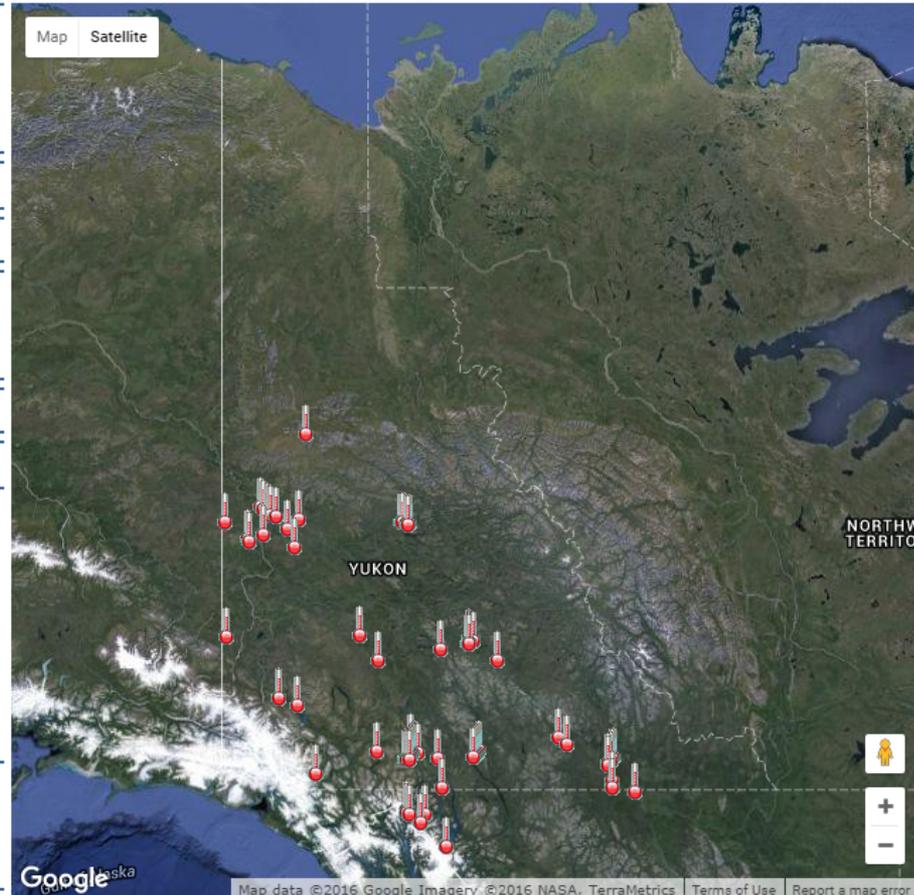
\* Also used to filter metadata searches.

 Display ALL

 Display ACTIVE

Displaying ALL or ACTIVE may take tens of seconds or longer depending on your connection speed.

[Jump to Research Project Metadata »](#)



Choose Report

Base Data 

[envirodata.yukoncollege.yk.ca](http://envirodata.yukoncollege.yk.ca)

# Planned research and monitoring

## *Related to ABoVe and POLAR activities*

- Continued permafrost projects
- Permafrost vulnerability mapping
  - Communities / infrastructure
  - Traditional territories / food security
- Mayo-Aishihik climate change impacts on flow and extreme events via modelling platforms
  - Manual snow surveys
  - Remote sensing potential
- Fire risk?



# YRC Research Capacity

- Structure of dedicated project coordinators and researchers
- YRC laboratory & cold storage facility
- Researcher residence
- Field experience & expertise
- Permafrost analytics – drilling, geophysics, lab analysis



- **STUDENTS**

- Research assistants
- Directed studies
- Graduate students
- Co-supervision with YRC experts

# Areas for continued attention

- *Permafrost*
- *Glaciers*
- *Water*
- *Fire*
- *Remote data acquisition*
  
- *Student involvement in research*
- *Northern-led research with supportive partnerships*
- *Application of natural science data to social science questions*



# Management-related research & monitoring needs

## *Related to ABoVe and POLAR activities*

- **CAPACITY**
- Infrastructure to support data storage & management
  - Databases
  - People to maintain databases
  - Structure to house databases
  - Development of QA/QC standards for data
  - Technology & IT backbone to support data management
- Support required to set up data management, but also maintain on an on-going basis
- Continued capacity to network, collaborate, be at meetings, communicate... all the work that happens around the research

