Monitoring Extreme Climate and Hydrometeorological Events: The MECHE Observatory

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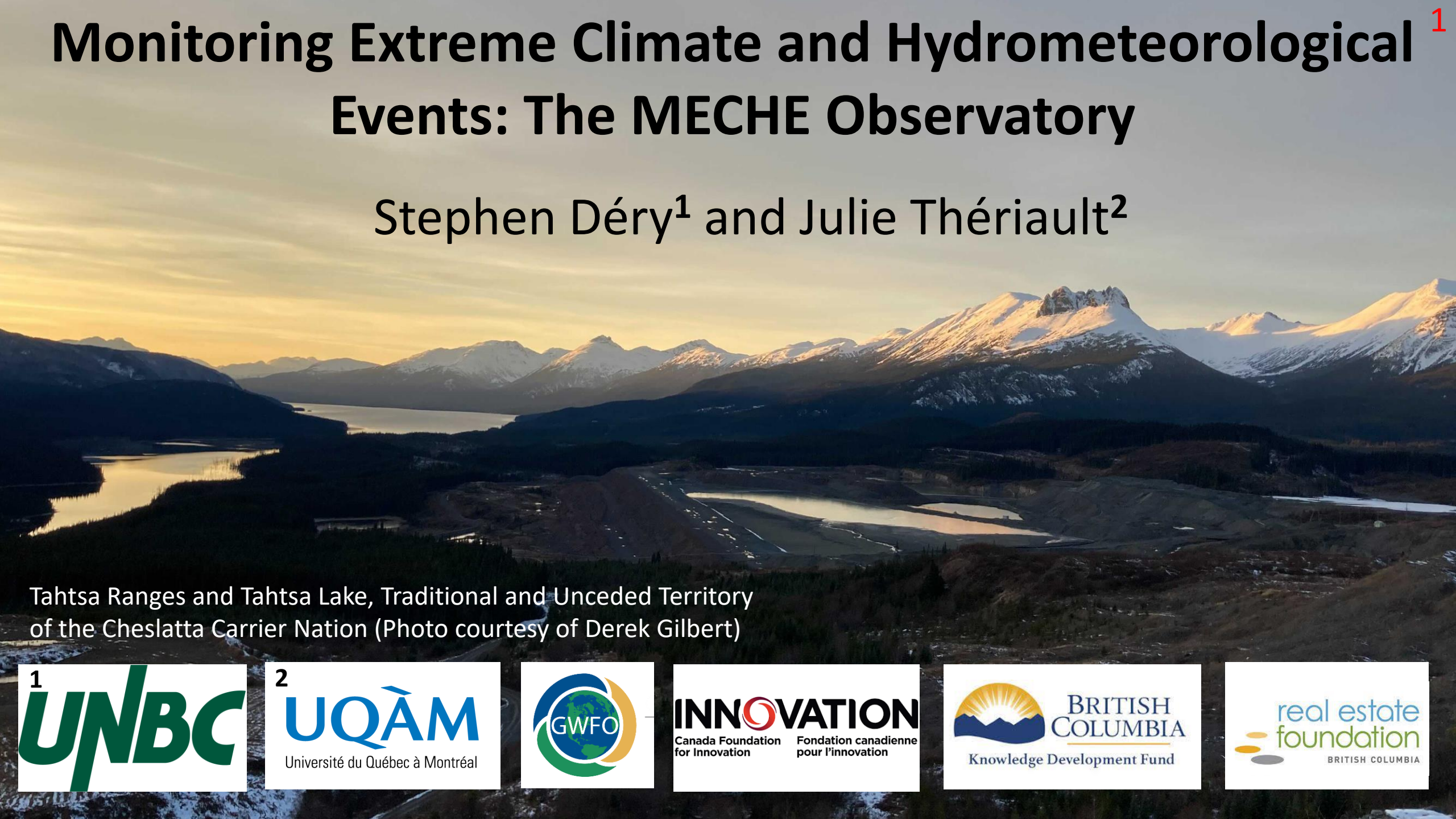

Tahtsa Ranges and Tahtsa Lake, Traditional and Unceded Territory of the Cheslatta Carrier Nation (Photo courtesy of Derek Gilbert)

1 UNBC

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Monitoring Extreme Climate and Hydrometeorological Events (MECHE) Observatory

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Rio Tinto

Imperial Metals

Huckleberry MINES LTD.

Goal: To better quantify and comprehend extreme climate and weather events in western Canada.

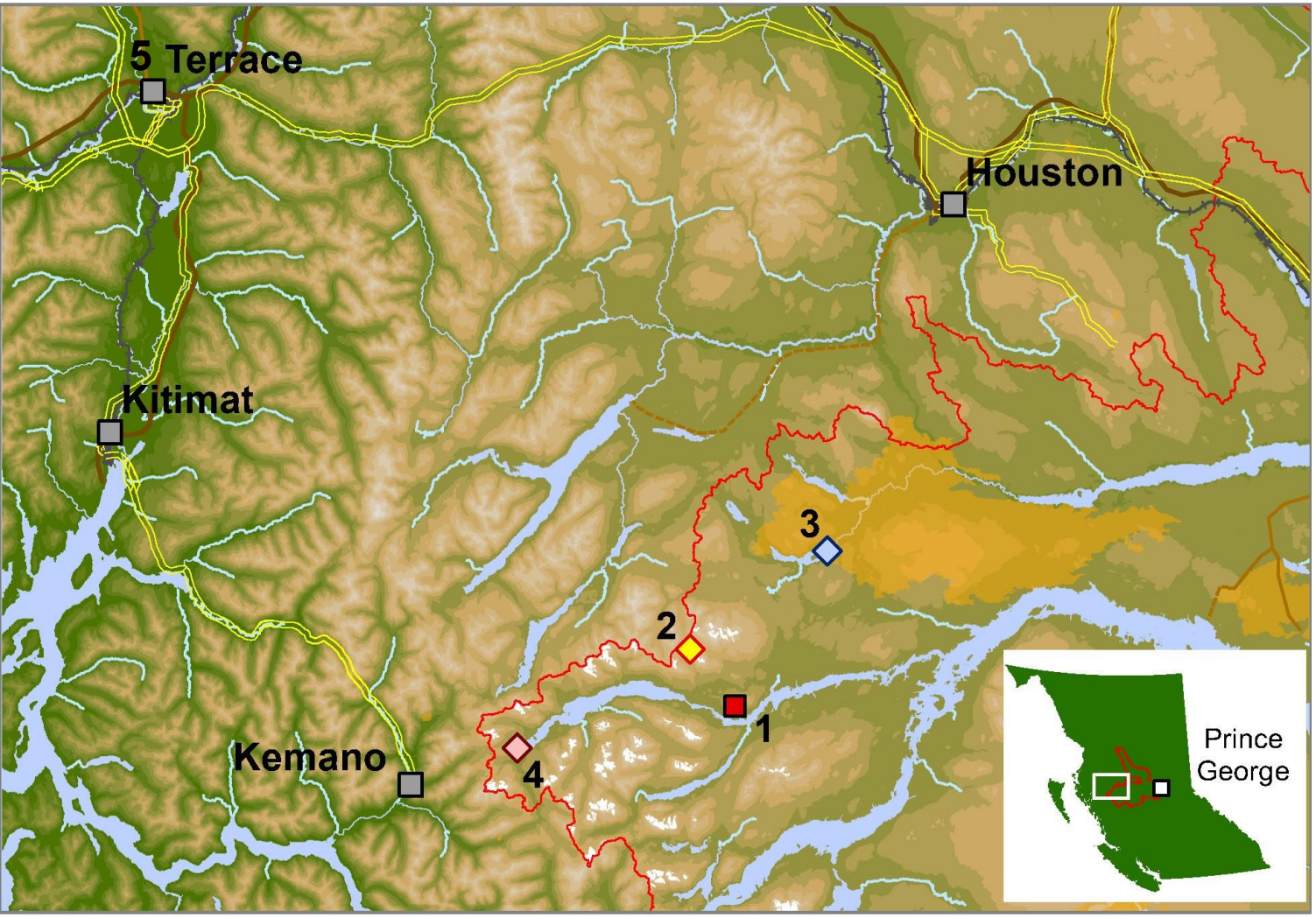
https://web.unbc.ca/~sdery/rtrc/meche.html

MECHE study area

Primary Sites: 1) Imperial Metals' Huckleberry Mine in the upper Nechako Watershed, and **5**) UNBC's Northwest campus in Terrace in the lower Skeena Watershed.

Secondary Sites: 2) Mount Sweeney (Rhine and Whiting creeks) and **3**) DFO's Nadina River Spawning Channel

Secondary sites in upper Nechako include 10 water temperature loggers, a weather station, 3 tipping bucket rain gauges, etc.



Huckleberry Mine

Equipment:

1) METEK micro rain radar (MRR-2)
2) OTT Parsivel^2 laser-optical disdrometer
3) 3-m Campbell Scientific weather station
4) Snowfox SWE sensor (Rio Tinto)

Variables: Air temperature, humidity, atmospheric pressure, wind speed/direction, snow depth, precipitation, radiative fluxes, soil and near surface temperature, SWE, hydrometeor size distribution and fall velocity, precipitation reflectivity, etc.

Sampling rate: Data logger programs run at 10 s intervals with data averaged/integrated to 1 and 15 minutes.

Operation: Site commissioned August 2023.

Terrace

Equipment:

1) METEK micro rain radar (MRR-2)
2) OTT Parsivel^2 laser-optical disdrometer
3) 6-m Campbell Scientific weather station
4) K63 hotplate precip. gauge (inactive)
5) Goodrich icing detector (0872F1)
6) Hyquest tipping bucket rain gauge (TB7)

Operation: Site also commissioned August 2023.

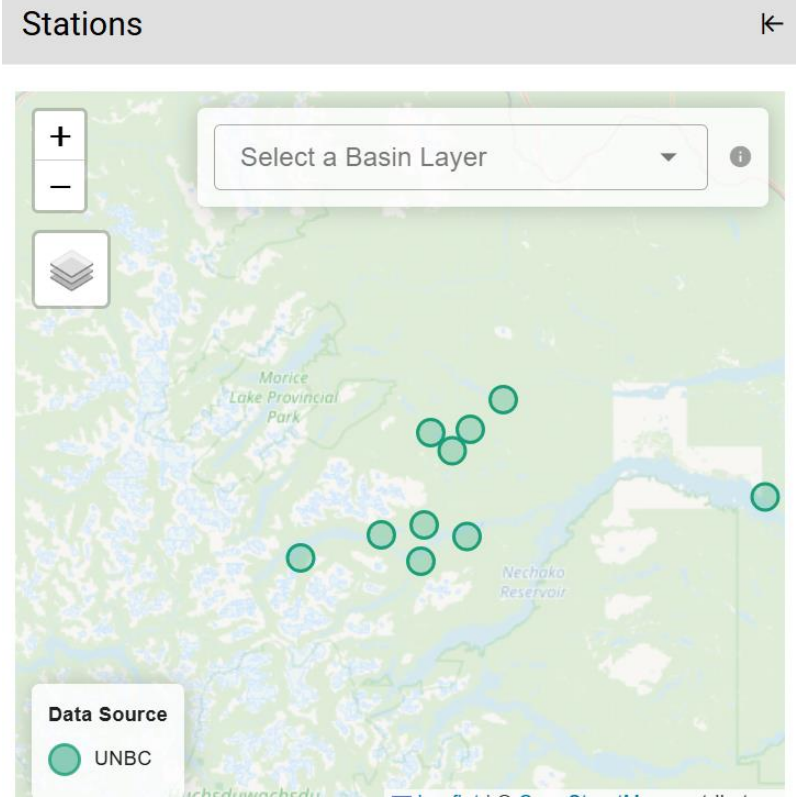
Variables: Air temperature, humidity, wind speed/direction,icing, atmospheric pressure, precipitation, radiative fluxes, hydrometeor size distribution and fall velocity, precipitation reflectivity, etc.

Sampling rate: Data logger programs run at 10 s intervals with data averaged/integrated to 1 and 15 minutes.

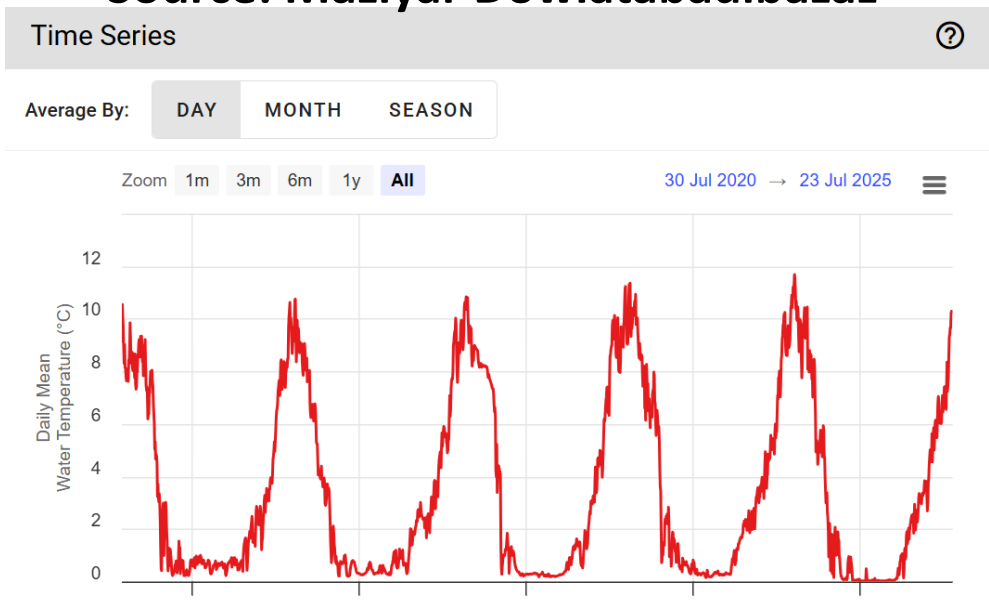
https://julie-theriault.uqam.ca/terrace/

Data Management and Sharing

- Data first saved on data loggers as raw data files
- Both sites have wifi with links to UQAM servers
- Regular data backups done at UQAM and UNBC
- Disdrometer data shared with DISDRODB network (based in Italy)
- Real-time data available on UQAM websites
- QAQC underway by a UNBC Data Manager for meteorological data with water temperature database completed and posted online: https://nhgwatertemp.unbc.ca/
- Several “data papers” (ESSD, DiB) describing the development of datasets (not MECHE yet).
- Next step: pushing data to GWFO



Source: Maziyar Dowlatabadibazaz



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Questions?

Nechako Reservoir, Traditional and Unceded Territory of the Cheslatta Carrier Nation (Photo courtesy of Dr. Phil Owens)

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