

## Project Summary

**INTRODUCTION:** Since 2010, Stephane Dube, an Instructor in the Natural Resource and Forest Technology Department at the College of New Caledonia has been conducting a multi-year (2010-current) soil monitoring project examining the impacts of climate change and corresponding drought conditions on native tree species in British Columbia.

**OBJECTIVES:** Data obtained from this study, in partnership with CanWel Building Materials Group Ltd, will facilitate the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) in updating the Biogeoclimatic Ecosystem Classification (BEC) system and allowing for increased accuracy in model predications of BEC zones as a result of climate change, facilitate effective landscape stewardship, support impact/vulnerability assessments and assist in the adaptation of climate change strategies at various levels of government including local, regional and provincial.

**METHODS:** Six soil monitoring sites have been established since implementation in 2010, including 2 within the Cranbrook area occupying both a PPdh2 and IDFdm2 BEC subzone variant, two within the Bear Lake area (SBSmk1), and one within the Tumbler Ridge area (BWBSwk1). In late 2019, an additional site, located with CNC Research Forest Unit A (SBSwk1), was established. Data obtained at the aforementioned sites include:

- Soil moisture content, water potential and soil temperature measured at depths 5, 10, 20, 40 and 60 cm utilizing both the 10HS soil moisture smart sensors and the TETROS21 water potential sensor (includes temperature)
- All probes were connected to an Em50 data logger to allow for continuous monitoring and long term storage for data recorded
- Solar-powered weather stations equipped with a rain gauge, temperature, relative humidity and anemometer were installed at both the Cranbrook (2 sites) and Tumbler Ridge sites.
- Weather data obtained from both the FLNRORD and UBC monitoring sites was utilized to obtain accurate information at the Bear Lake study sites
- Soil texturing and calibration of probes for the corresponding soil texture occurred for all sites within the study areas



Typical climate monitoring installation, Miolsness 2019.



Soil pit sampling from Tumbler Ridge area, BC, Dube2019 Dube 2019.