

## Poster #8

### Soil Property Comparisons from the Seward Peninsula

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The Next-Generation Ecosystem Experiments in the Arctic (NGEE-Arctic) project in Phase 2 has added new field sites, including tundra sites with discontinuous permafrost on the Alaskan Seward Peninsula that complement ongoing research in Barrow, AK. One site on the Teller Road (near mile marker 27) comprises a watershed with a peat plateau underlain by permafrost at the top of the hillslope, willow shrubs, mosses, lichens and sedges on drier hillslopes, and a saturated, peaty lowland at the base. We sampled soils at eight intensive sites in this watershed during a coordinated campaign in Sept. 2016. The team dug a soil pit at each site, described soil horizons, and collected thermal and hydrological measurements with depth. We also removed samples from the face of the pit for laboratory analyses of water content, total C and N, and metal content. Macrorhizon samplers inserted into wet horizons extracted water that was analyzed for ions and isotopes, reported separately. Finally, screened piezometers were used to collect soil water samples at wet sites, for field analyses of pH and Fe(II) concentration, as well as laboratory gas chromatography, ion chromatography and ICP-MS analyses of dissolved gases, inorganic ions and organic acids. Substantial differences in thaw depth and water content, dissolved Fe(II) and CH<sub>4</sub>, organic acids, soil C and pH among sites illustrated the importance of lateral water flow on controlling oxygenation and SOM accumulation through the watershed. Similar measurements from a flat, peaty tundra site with extensive thermokarsts near Council, AK provide an important comparison with Teller peat plateau and Barrow locations for simulating SOM turnover in carbon-rich sites. This comprehensive data set is being curated and deposited into the NGEE-Arctic Data Portal (DOI:10.5440/1342956) to parameterize initial models of the sites and facilitate planning future fieldwork.