

July 7-22, 2014

Summer field campaign: from Toolik Lake to Dead Horse, AK.

This summer's field campaign to the North Slope of Alaska focused on soils from Imnavait Creek near Toolik Lake, in the Arctic Foothills north of the Brooks Range, plus high-center and flat-center polygons from Happy Valley to Deadhorse (just south of Prudhoe Bay). Imnavait Creek sampling methods varied depending on slope position and rock contents. At the ridge top we dug and sampled one central deep pit and two shallower pits NW and SE of the deep one. The large amount of rocks at this site prevented us from going much deeper than a meter (picture 1). At mid slope, we opened five pits, a deep central pit and four shallower pits NW, NE, SW and SE from the central one. We collected and described soil from all pits (picture 2) and used the SIPRE auger to reach deeper soil from the bottom of the central pit. At the valley bottom, heavy rainfall made it impossible to dig deep pits, so we opened five shallow pits to the depth of frozen soil, and used the SIPRE to reach depths of up to 1.7 meters (picture 3).



Picture 1



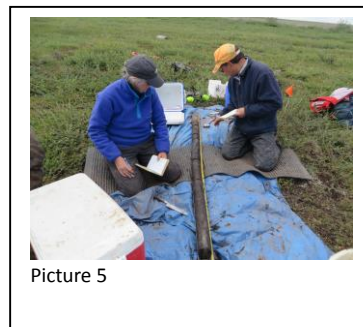
Picture 2



Picture 3



Picture 4



Picture 5



Picture 6

We sampled high-center and flat-center polygons located between miles 275 to 414 of the Dalton Highway. In the high-center polygons several pits were opened to sample soil from the center, rim and trough of each polygon. Deep soils (up to 3 meters) were collected using the SIPRE auger at the bottom of these pits (picture 4). Flat-center polygons were extremely wet due to the persistent rain we experienced this year, so we dug pits in the drier areas and used the SIPRE auger in the wet areas (picture 5).

We also found an exciting vertical ice exposure on the margins of a thermokarst lake near Happy Valley. At this site, high-center polygons occurred on higher ground above the lake and they are slowly sliding down into the lake, exposing the face of what looked like two ice wedges, a modern one growing on top of an older one (picture 6). Later in the year, our collaborators Chien-Lu Ping and Gary Michaelson from UAF explored this exposure further and determined that the face included one ice wedge and two different types of ground ice.