Observations in ice-rich permafrost systems, Prudhoe Bay Alaska, 2020-2021

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The National Science Foundation's Navigating the New Arctic (NNA) project" "Landscape evolution and adapting to change in Ice-Rich Permafrost Systems (NNA-IRPS)" is focused on ice-rich permafrost systems. This data report covers field seasons in 2020 and 2021 at the NNA-IRPS field sites in the Prudhoe Bay Oilfield (PBO). The 2020 field season was abbreviated because of the Covid restrictions on travel and access to hotel facilities in the PBO.The primary goals were to (1) conduct a reconnaissance of a new Natural Ice-Rich Permafrost Observatory (NIRPO), (2) monitor late-season thaw depths, water-depths, ice-wedge polygon microrelief contrasts, and vegetation distribution along six previously established transects in the PBO, and (3) provide training and field-site overview for a new graduate student and post doc.The 2021 field season focused on baseline information for the NIRPO site. An overview of the tasks, field team, schedule, and logistics is followed by sections devoted to summaries of (1) remote sensing activities (Daanen and Jones), (2) observations along transects at the NIRPO and other PBO transects (Walker et al.), (3) observations from the NIRPO terrestrial plots (Walker and Breen), (4) thermokarst-pond vegetation and environments (Watson-Cook), (5) trace-gas fluxes (Kade), (6) basal-peat dating (Bergstedt), (7) permafrost borehole temperature stations (Nicolsky and Romanovsky), and (8) studies of permafrost cryostructure (Kanevskiy and Shur). Results of some preliminary analyses are presented with these summaries. Tables containing several of the datasets are in the appendices with instructions on where to access the data in the Arctic Data Center.

ice-rich permafrost | arctic vegetation | prudhoe bay, alaska

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Fig. 1. Placeholder image of a frog with a long example caption to show justification setting.

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