

Metagenomic binning of high latitude (79°N), mineral permafrost active layer

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Svalbard active layer permafrost is at risk of permanent thaw as the climate warms. In order to study as many organisms as possible in this diminishing environment we sequenced five locations in the Bayelva monitoring site in Ny Ålesund Svalbard (79°N). Using the novel technology of Novaseq (Illumina), we produced 1 Tb of metagenomic data from 56 active layer soil samples, rivalling the amount of data produced by the TARA Oceans project. We assembled these metagenomes separately and binned them to make metagenomic assembled genomes. We present preliminary information on over 1,000 taxonomically identified MAGs in this active layer. As this investigation continues, we will employ the super-computing facilities at Oak Ridge National Laboratory to investigate the metabolic annotations and functional pathways of these organisms that are at the forefront of the effects of climate change.