



Project acronym: THARCPEAT2

Project title: Understanding the impacts of permafrost THawing on ARctic PEATlands

Project leader: Oriol Grau, University of Antwerpen, Belgium

Discipline: Earth Sciences & Environment: Global change & Climate observation

Station(s): Toolik Field Station (USA)

The THARCPEAT-2 project aims to complete the objectives of the former project THARCPEAT at Toolik Field Station (USA). This former project was funded both for Transnational and Remote Access in 2019-2020 INTERACT call, but unfortunately, it could not be completed in 2020 nor 2021 due to the mobility restrictions related to Covid19 pandemics over this period. Only the Remote Access objectives were partly accomplished in summer 2021. In this occasion we plan to finish the research that was initiated but remained unfinished. We plan to complete the drone imagery collection that was initiated in summer 2021 through Remote Access by surveying three additional polygon mires near Toolik Research Station to build high-resolution DEM and NDVI maps of this landscape. With these data, added to the two sites for which these data have already been collected, we aim to identify and classify geomorphic features related to permafrost aggradation or degradation occurring in this ecosystem with continuous permafrost. As formerly planned, we aim to validate this image-based classification in the field through physical Transnational Access to Toolik Research Station, that could not be conducted due to Covid-19 restrictions. With this ground verification we will validate the area occupied by degraded vs. non degraded permafrost features across the study sites. This information will then be used to upscale the area occupied by each feature at regional scale, and estimate the stocks of C and nutrients in the active layer and in the upper permafrost layer across the landscape covered by polygon mires in northern Alaska. Biogeochemistry data for this upscaling are available from the previous INTERACT-funded project P-PEAT2 (2018-19 call, led by Dr. Margalef, also member of the THARCPEAT-2 team).