Project acronym: InColdWood

Project title: Intra-annual wood formation in cold forests under climate change

Project leader: Jan Tumajer, Charles University, Czech Republic

Discipline: Earth Sciences & Environment: Ecosystems & Biodiversity

Station(s): Abisko Scientific Research Station (Sweden)

Intra-annual dynamics of wood formation respond sensitively to climate change with significant consequences for climate-ecosystem feedback. Precise monitoring of wood formation dynamics from species distribution margins is essential to properly assess the effects of shifting growth phenology and dynamics over time. With this proposal, we supported xylogenesis monitoring (i.e., continuous microsampling of wood formation cores in an interval of 7-14 days) from Pinus sylvestris trees in Abisko, Northern Sweden during the 2023 growing season. By doing this, we complemented the already established monitoring plot equipped with dendrometers and climatic loggers, initiated during our 2022 visit to Abisko in close collaboration with Håkan Grudd (Swedish Polar Research Secretariat). The RA project applied the established sampling protocol of xylogenesis monitoring. All necessary equipment - including Trephor (a “puncher” used to extract microcores from the tree), epruvets, fixative, and packing material - were shipped from our lab in Prague to Abisko before the start of growing season 2023. Microcores of wood formation dynamics were extracted from 7 selected trees using Trephor at an interval of 7-14 days from the late-April to the start of September by the staff of the Abisko research station. Samples were placed into epruvets and submerged into fixatives. All samples were (first half of growing season) or will be (second half of growing season) shipped to Prague and processed by our laboratory technicians. We intend to publish at least two collaborative scientific papers involving authors from both Charles University, Prague and the Swedish Polar Research Secretariat.