

Project acronym: CRYPTOGRAM

Project title: The importance of cryptogams in the primary succession process on glacier forelands in Svalbard

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Discipline: Earth Sciences & Environment

Station(s): Sverdrup Research Station (Svalbard)

The project focuses on the importance of cryptogams – lichens and bryophytes in the primary succession process on glacier moraines in Svalbard. The results will make a significant contribution to knowledge in the following areas: the abundance and distribution of cryptogams on moraines; the participation of specific taxa and groups of organisms in certain primary succession stages; the initial stages in the development of tundra communities; the environmental factors affecting cryptogamic vegetation and resulting in differences in the abundance and composition of species across various moraines. Fieldwork will be conducted in selected glacier forelands located near the Sverdrup Research Station (NW Svalbard) and the Czech Arctic Research Station (central Svalbard).

Data collection will be divided into two parts: [1] Cryptogam diversity: 20 1m² sampling plots will be randomly located in each foreland. The percentage coverage of lichen, bryophyte and vascular plant species will be recorded in each plot; [2] Determination of the succession stages and factors influencing cryptogam distribution on the moraines: A series of 1m² plots in a regular square grid will be established on the two selected forelands. A total of 200 plots will be done with the aim of determining species percentage coverage. Moreover, 50 soil samples will be collected in selected plots. The soil samples will help determine the physicochemical soil variables of plots. Other environmental data will be obtained from open access GIS data layers as well as in the field using a drone. Further data analyses will be performed at the Jagiellonian University in Cracow.