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Vegetation and soil dynamics in Greenland under climate change

Context:

The world is currently experiencing a period of rapid and unprecedented climate warming and high-elevation and high-latitude regions are particularly affected, with rates of temperature increase two to three times higher than on global average (IPCC 2018). In line with climate warming, Arctic vegetation cover and biodiversity have responded rapidly over the last decades (Hannah et al. 2016; Kapfer & Grytnes 2017). However, long-term monitoring data from high-arctic areas are rare. Three summits of the GLORIA project (www.gloria.ac.at), an international project for monitoring alpine vegetation (Pauli et al. 2015), were inventoried in 2008 in eastern Greenland, next to the Zackenberg research station. Basic soil descriptions, plant inventories along transects, and a study of the seed bank complemented this first inventory. It is planned to revisit these field sites in summer 2021 to repeat the previous inventories.

Goals:

Different directions can be developed according to the interests of the student: changes of vegetation, soil characteristics and evolution of the seed bank.

Knowledge and skill required:

A good health and good physical and mental condition for a 4-week stay in the Arctic; good communication skills in English; experience in floristic and/or soil sciences. Caution: the realisation of the project is conditioned to obtaining the necessary funding (two grant applications are underway).

Collaboration:

Field work will be in collaboration with S. Heiðmarsson (Icelandic Institute of Natural History) and N. Chardon (WSL, Birmensdorf).

Keywords: climate change, Arctic vegetation, soil characteristics, seed bank.

Working place:

Field work in Greenland between mid-July and end of August; laboratory analyses in Lausanne.

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