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## Greenlandic fjord ecosystems in a changing climate: Socio-cultural and environmental interactions



*Credit: Lionel Favre, Narsaq, Greenland*



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## *Greenlandic Fjord ecosystems in a changing climate: Socio-cultural and environmental interactions*

Greenlandic fjord systems are emblematic landscapes at the heart of the socio-economic and cultural environments of local communities. Accelerated climate change impacts fjord ecosystems and livelihoods in southern Greenland profoundly: atmospheric warming and changing precipitation patterns cause enhanced glacier melt and alter local vegetation. Increasing meltwater fluxes in turn affect water and nutrient circulation with cascading effects on the marine food-web and biodiversity. Within the GreenFjord project, we explore the socio-cultural and environmental interactions by investigating two different fjord systems, one dominated by an ocean-terminating glacier (Eqalorutsit Kangilliit Sermiat in Nordre Sermilik Fjord) and one that receives meltwater only from a land-terminating glacier (Jespersen Bræ in Igalikup Kangerlua Fjord). Our research is organized in six clusters that focus on the the following topics:



The cryosphere cluster investigates processes of glacier calving and iceberg export, as well as the resulting water movement in the fjord.



The biodiversity cluster studies how biodiversity is affected by the rapid changes in fjord ecosystems using environmental DNA.



The land cluster investigates factors that influence soil formation and the delivery of sediment, nutrients and carbon to the fjord by rivers and streams.



The ocean cluster studies the consequences of glacial retreat and climate change on sediment burial, nutrient dynamics and biological productivity in the fjords.



The atmosphere cluster investigates the impact of fjord microbial life and human emissions on atmospheric composition and cloud formation.



The human cluster works with Greenlanders to understand ways of dwelling with fjords, effects of environmental changes on livelihoods and perceptions of change using art-based methods.

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à Cryosphere

à Land

à Ocean

à Biodiversity

à Human

à Atmosphere

GreenFjord is a Swiss Polar Institute Flagship Initiative and takes place from 2022 to 2026.

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