Productivity and carbon transformations on the Greenland Ice Sheet

Fact Sheet

Project Information

PROGRIS

Grant agreement ID: 249171

Project closed

Start date
1 October 2009

End date
30 September 2011

Funded under
Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Total cost
€ 30 000,00

EU contribution
€ 30 000,00

Coordinated by
UNIVERSITY OF BRISTOL
United Kingdom

Objective

Glaciers cover 10% of the Earth's land surface and represent an important, yet very little studied, ecosystem. The biogeochemical cycling of carbon in the glacial ecosystem is largely influenced by microbial communities on glacier surfaces that mainly consist of heterotrophic and photoautotrophic bacteria. They have the potential to play a significant role in regional carbon budgets by means of primary and secondary production and respiration, and it is very important to evaluate their contribution on a large scale. However, to provide a credible supraglacial carbon

budget, a study is needed in which C concentration and transformation rates in the supraglacial environment are related to the limiting factors, including the source of microbes and nutrients. Quantification of such a relationship will provide a powerful tool for global carbon budget models. The underlying hypothesis of the proposed research is that the productivity of the supraglacial ecosystem is constrained primarily by the source of microbial cells, and secondarily by rock-derived nutrients. The principal source of microbes and rock-derived nutrients is wind-borne debris originating in deglaciated areas close to the glacier margin. Thus, the main hypothesis to be tested in this study is that there is a relationship between the distance of a site on the glacier surface from the glacier margin and the abundance and activity of the local microbial community. The objectives of this study are to quantify the spatial distribution of surface debris on the Greenland Ice Sheet along a gradient from the glacier edge to the equilibrium line, to determine the quantity and quality of C and the abundance of microbes on the surface, to measure primary and secondary production and respiration of the supraglacial microbial community and to derive a relationship between the position along the gradient and the quantity and quality of C and its transformation rates.

Fields of science (EuroSciVoc)

natural sciences > biological sciences > microbiology > **bacteriology**

social sciences > economics and business > economics > production economics > **productivity**

natural sciences > biological sciences > ecology > **ecosystems**

Programme(s)

FP7-PEOPLE - Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Topic(s)

FP7-PEOPLE-2009-RG - Marie Curie Action: "Reintegration Grants"

Call for proposal

FP7-PEOPLE-2009-RG
See other projects for this call

Funding Scheme

MC-ERG - European Re-integration Grants (ERG)

Coordinator

UNIVERSITY OF BRISTOL

EU contribution

€ 30 000,00

Total cost

No data

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Region

South West (England) > Gloucestershire, Wiltshire and Bristol/Bath area > Bristol, City of

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Last update: 16 July 2019

Permalink: https://cordis.europa.eu/project/id/249171