



Sediments of ice-cored moraine landsystem, Ragnar glacier, Central Spitsbergen

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Ice-cored moraines are common features at marginal zones of many mountain glaciers. They have been described for glaciers on Svalbard and other high-arctic areas. The aim of this study is to show the diversity of sediments of ice-cored moraines in connection with the landforms and processes in the marginal zone of one of Svalbard outlet glacier - Ragnar.

Ragnar glacier is located in the Billefjorden area in the central Spitsbergen. The distance between the current clear ice margin and the outer moraine ridge (Little Ice Age maximum) is about 1,5 km. This area has been divided into two parts: zone of ice-cored moraine ridges and zone of ice-dammed lake with islands. This study concerns with sediments in zone of ice-cored moraine ridges. Field works included: detailed geomorphological mapping with GPS receiver, sedimentological research in several outcrops and pits and recognizing of distribution of the different types of sediments.

The zone of ice-cored moraines can be divided into three parts: (1) outer moraine ridge, (2) middle one - with the highest culmination of moraine ridges and (3) inner subzone -consisting of small ridges and ponds. Mass movement and fluvio-glacial transport are two main processes observed in the marginal zone of Ragnar glacier. The results of our studies show that there is a huge diversity of sediments. In relatively small area different types of surface sediments were found: well-sorted sediments (silt, sand and gravel) as well as clast-rich diamictons or concentration of boulders.

Although there is a huge mosaic of sediments in the marginal zone of Ragnar glacier, it is possible to recognize some kind of order in the distribution of lithofacies, connected

with the distance from contemporary glacier margin.