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Source-to-mainstem: spatial pattern of geochemistry and hydrochemistry of surface deposits and waters, respectively; Brøggerdalen, NW Spitsbergen

Zbigniew Zwoliński (1), Małgorzata Mazurek (1), Joanna Gudowicz (1), and Przemysław Niedzielski (2)

(1) Adam Mickiewicz University in Poznań, Institute of Geoecology and Geoinformation, Department of Geoinformation, Poznań, Poland (zbzw@amu.edu.pl), (2) Adam Mickiewicz University in Poznań, Department of Analytical Chemistry, Poznań, Poland

Present-day paraglacial areas arising in the High Arctic during the Holocene are evidence of large changes in relief and deposits of polar regions. Geosuccession, thus the change of the morphogenetic domain from subglacial to subaerial one implies changes of morphogenetic factors and processes in areas recently exposed to the ice covers. The effect of changes in the morphogenetic domain is the constitution of a new set of landforms. Among the dominant processes that transform contemporary areas freed from the glaciers are slope and fluvial processes expanded in periglacial conditions. During the summer campaign of the project "Late-glacial and present landscape evolution following deglaciation in a climate-sensitive High-Arctic region" we made three field mapping, namely geomorphological, sedimentological and hydrogeochemical in the area left by the retreating glacier Brøgger in the valley Brøggerdalen west of Ny-Ålesund on Brøggerhaløvya (NW Spitsbergen). Intensive glacier recession since the Little Ice Age has created a new set of landforms, for which we examined the chemical properties of sediments and water flowing down the slopes of the valley to the valley floor, i.e. main stem of Brøggerelva. Geochemical properties of deposits and hydrochemical transformations of fresh waters flowing in paraglacial watercourses became the main objective of the study. On the poster we present the results of field studies, i.e. the spatial distribution of geochemical properties of slope deposits and hydrochemical properties of surface water, and chemical transition from the slope system to a fluvial one. It was found that despite the major relief changes in the valley of the Brøggerbreen contemporary geochemical and hydrochemical transformations of deposits and fresh waters do not stand up now too great diversity. These processes taking place under the influence of environmental changes affect the course and rate of denudation processes in the polar zone.