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Title: *Digital geomorphological map in modeling of environmental processes in Arctic*

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Most of environmental analysis based on a geoprocessing in GIS software use information about relief only from digital elevation models and basic land-surface parameters. Although the geomorphometry can be used to extract some terrain forms, automatic procedures are mainly based on their shapes and relative positions. Without an introduction of additional data it is impossible to solve a problem of sculptures polymorphism, genetic diversity and age of relief forms. Therefore, in many cases, raw DEM can not provide all information about the relief and in some cases can bring in inaccurate or even wrong signal into models. Its addition should be a geomorphological map.

The aim of this study is to present opportunities provided by geomorphological map in modeling of environmental processes in the Arctic. An example is the geomorphological map of the Werenskioldbreen glacier surroundings, created for the TOPOCLIM research project. This map has been made from scratch in GIS software (QGIS, ArcGIS) based on DEM, orthophotomap, older stereographic aerial photographs, maps and results of own field mapping. Authors give an interpretation of each group of map elements for modeling of topoclimatic and biological processes. Using of this interpretation is illustrated by examples, which were made taking reclassify of objects attributes and algebra of GIS layers.