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Morphological development of a proglacial river valley: Mittivakkat in south-east Greenland

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The Mittivakkat landscape system in the Tasiilaq region in south-east Greenland, comprising the Mittivakkat Glacier, the proglacial river valley and the delta prograding into the Sermilik Fjord, has a long history of scientific investigations; a summary was published in the Danish Journal of Geography (2008) as part of the 75 years research anniversary. The Mittivakkat Glacier was investigated as far back as in 1933 (Hasholt et al., 2016), and today a full-year monitoring program is running at the Sermilik Research Station situated close to the delta and fjord. The prime focus has so far been on the ice ablation rates of the glacier and the related river discharge and transport of sediment. Less effort has been dedicated to the morphological development of the proglacial river valley during the retreat of the glacier. Here we present an investigation of the morphological development of the proglacial river valley based on available field photos, ortho photos and satellite images. We relate the development to measured and estimated time series of river discharge and sediment transport as well as to the available climate data of the region.

References

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