# Sediment production in warming Arctic environments; a potential problem?

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The Arctic is rapidly warming up; this statement has been confirmed in an ever growing body of scientific literature. This shift from a glaciated environment to a paraglacial environment bring with it challenges to ecosystems as well as human habitats. One, often overlooked, consequence is a change in rock weathering patterns from subglacial to subaerial/paraglacial. We need to quantify the impact of this shift on sediment production and subsequent release to downstream environments.

This research uses a combination of soil analysis, rock weathering and water chemistry to investigate sediment influx into the aquatic system at Endalen, in the Svalbard archipelago (78˚N). Grain size, BET and simple dissolution experiments were used to characterise sediment flux through a glacial to paraglacial valley. The results show that weathering patterns and sediment production change along the path of the retreating Bogerbreen glacier from fine sediment to much coarser outputs, even though water velocity and turbidity in the braided meltwater stream decrease down-valley. The increasing presence of sediments generated on the exposed slopes, and their decreased ability to release ions and anions into the stream, could be an indication of sediment characteristics that will dominate as glaciers retreat further. This has the potential to alter sediment flux in the Arctic ecosystem.