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Title: *Variability of measured bedload flux in a small glacial river catchment (Scott River, Svalbard SW)*

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Studies on sedimentary fluxes dynamics conducted so far in Polar regions document relatively low contribution of bedload. The paper presents results of 43 days continuously measurements of bedload flux, performed during the main part of ablation season 2012 in the small glacial catchment (Scott River, Svalbard). The applied method of continuous and simultaneous measurement in the designated sections of the channel cross-profile by means of stabilised RBT (River Bedload Trap) samplers permits the determination of the reasons for the spatial and temporal changeability and mechanisms of bedload transport. The field research on the variability of bedload transport rate and was conducted in two cross-profiles: upper (above the alluvial fan) and lower (below the alluvial fan), located in the lower part of valley. The catchment studied, with an area of approx. 10 km², drains the NW part of the Wedel-Jarlsberg Land (Spitsbergen). The measurements by means of RBT revealed temporal and spatial variability of bedload flux. It varied from 0.02 to 47.2 kg m⁻¹ d⁻¹. Channel-mean bedload transport rate (q_a) amounted respectively 5.6 and 4.4 kg m⁻¹ d⁻¹ for a 24-hour interval. In the period analysed, the river discharged a total of approx. 2171 kg of bedload, with mean daily bedload transport rate (Q_b) of approx. 50.5 kg day⁻¹ (upper cross-profile) and respectively 1741 kg and (Q_b) of approx. 40.5 kg day⁻¹. This spatial diversity of bedload flux indicates a strong tendency to channel aggradation of an alluvial fan zone. The bedload flux variability were dependent on hydro-meteorological conditions and Scott Glacier retreat. It responds to changes in the tempo and magnitude of processes in a glacial catchment quite rapidly, and therefore can be treated as a good indicator of transformations occurring in the arctic zone.

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