

**SEPARATING SUBGLACIAL AND PROGLACIAL INPUTS
TO THE SEDIMENT FLUX FROM A GLACIATED ALPINE CATCHMENT:
CASE OF THE BOSSONS CATCHMENT (MONT-BLANC MASSIF, FRANCE)**

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Detrital flux in high alpine catchment befalls to subglacial abrasion and both peri and paraglacial erosion processes occurring in the proglacial area. In such catchment, stream load measurements and discharge gauging are commonly used to estimate sediment yield but do not discriminate sediment origin. However, combining precipitation events identification and silt concentrations measurements at two different locations within the catchment gives venues to estimate detrital flux coming from beneath the glacier, from proglacial hillslopes and from the active bed of the proglacial stream. Relative contribution of each source to the exiting flux of fine particles may be evaluated as well. Bossons glacier (Mont-Blanc massif, France) is partially drained by Bossons stream of which subglacial and proglacial catchment area are ~ 0.38 and 0.44 km², respectively. High resolution ($T = 2$ min) measurements of discharge and suspended load has been performed during summer 2013 at 1.15 and 1.5 km from glacial snout, upstream and downstream from a proglacial alluvial area : the Plan des Eaux (PdE). Flux estimation for each source was carried out using precipitation data with a simple rational rainfall-runoff model. The total exported mass measured from late June to mid October 2013 is 24 t and 81% of the export occurred outside of precipitation events. At least 10 t of silts were provided by the subglacial stream, whereas 13 t came from proglacial hillslopes and stream bed reworking. The latter accounts for a minimum of 9 t of exported material. Although the cumulative exported mass exhibits a steady rise throughout the ablation season, the mid and late ablation season detrital fluxes are dominated by material provided by the subglacial and proglacial systems, respectively. This season-scale evolution is thought to be linked to the response of the PdE to short sediment export pulse from a precipitation event. To cope with such disequilibrium, the PdE acts as a sediment sink to reconstitutes its sediment stock then gradually comes back to being a source. The PdE may thus acts as a dynamic buffer in the sediment system of the Bossons catchment and the discrepancies of its behaviour could be linked to variation in the frequency of precipitation events throughout the ablation season.