

**Table S1: List and description of sites sampled during the three campaigns between June 2022 and August 2023, with dates and times of sampling. Samples are categorized into four distinct types: glacial outlets from the G-B1 glacier snout (S-GL#), ice-debris complex streams in the proglacial area between the glacier tongue and rock glaciers (S-IDC#), Shár Shaw Tagà River (S-R#), and springs from RG-A1 rock glacier front and opposite talus (S-RG#). Sites were not all sampled for every campaign, due to diverse reasons (access and safety issues, no flow, campaign dedicated to a specific area, etc.). When possible, sites were sampled several times to trace potential fluctuations in their physico-chemical signature. When not sampled, the comment “NV” stands for “not visited.” The comment “NF,” for “no flow,” indicates a site not sampled as it was dry when visited.**



**Table S2: Physico-hydrochemical values of samples and measurements at sampling sites from June 2022 to June 2023.**