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Geochemistry and isotopic composition of a rock glacier outflow in the Dolomites, Eastern Italian Alps

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We present some preliminary results of the geochemical and isotopic characterization of the outflow of the Piz Boè rock glacier, located in the Bellunesi Dolomites, Eastern Italian Alps. Fresh water samples from a small shallow lake down the rock glacier and from the inlet springs were collected from the beginning of snow melt to the start of the following snow accumulation season. The seasonal snowpack was also sampled and analysed. In June and July, the geochemical content of rock glacier outflows and lake water does not appear to differ substantially from that of other surface waters in the Dolomitic area during the snow melt period. The electric conductivity values as well as the major ions and trace elements concentrations progressively increase from June to October reaching levels up to one order of magnitude higher. From these preliminary results, snow appears the dominant water source during the melt period, while during late summer and autumn, the water budget is mainly derived from groundwater and ice melting.

Future work will involve monitoring continuously the lake and springs water temperature, the rock glacier surface temperature and continuing the chemical analysis of fresh water and deposition samples. Results will be compared with the geochemical composition of sediment and debris samples collected in the area around the rock glacier, which will allow a specific and highly resolved characterization of the catchment basin. All the data will be discussed to evaluate the extent of the different hydrographic components.

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