



Excursion of the Swiss Young Geomorphologists (SGmS)

Changing alpine landscapes and its effects on the evolution of mountaineering

16-17 September 2021

After almost a year with limited activities and gatherings, the Young Geomorphologists representatives felt the need to create an opportunity to meet, enjoy the autumn light in the mountains and discuss about geomorphology!

The excursion started in Arolla where the 10 participants met with our two guest-speakers, Dr. Christophe Lambiel and Dr. Jacques Mourey who accompanied us throughout the excursion.

The first part of the excursion was dedicated to glacial and periglacial geomorphology. From the Little Ice Age moraine of the Tsijiore Nouve glacier (Fig. 1), Christophe Lambiel gave through his explanations a very clear overview of the landscape from a geomorphological perspective. We discussed about the influence of glacial processes on the landscape, marked by the succession of well-preserved moraines on the orographic left side of the Tsijiore Nouve glacier – dating back to the Lateglacial (Younger Dryas) and the Little Ice Age.

We then hiked to the foot of the Petit Mont Rouge talus slope whose base is occupied by a protalus rampart. Since the early 2000s, field investigations such as geophysical, geodetic, ground surface temperature and ground temperature (borehole) measurements were carried out on this site (some are still ongoing) to assess the distribution and evolution of permafrost within the landform. We discussed about the role of air circulation in talus slopes for the occurrence of permafrost.

After this enlightening first day, the group continued towards the Pas de Chèvres and the Cheilon glacier under the rain (Fig. 2) to reach the Dix hut, where we spent the night. The evening was animated by a phone call from a journalist from the RTS radio-show *Vacarme*, who interviewed a Young Geomorphologists representative and Jacques Mourey about our activities and how a changing landscape affects the practice of mountaineering.

The second day of the excursion was dedicated to discussions led by Jacques Mourey on the effects of climate change on the evolution of mountaineering routes in the Alps (Fig. 3). We started the day on the terrace of the hut from which we had an astounding view on the north-face of the Mont Blanc de Cheilon, in which some mountaineering routes are no longer feasible due to the thinning of the glacio-nival cover. We then hiked to the Lurette glacier from which we had a nice overview of the Cheilon drainage basin.

We continued the day towards the Pas du Chat, where we discussed about the Dix dam lake and the role of hydropower in the Alps and its impact on the landscape (Fig. 4).

The excursion ended at the Grande Dixence dam where we took the bus to return to Sion.



Figure 1: Explanations from the Little Ice Age moraine of the Tsijiore Nouve glacier (Welty, E., 2021).



Figure 2: Crossing of the Cheilon glacier under the rain (Bayens, M., 2021).



Figure 3: Discussion about the effects of a changing alpine landscape on the practice of mountaineering (Welty, E., 2021).



Figure 4: Hiking path on the Little Ice Age moraine of the Cheilon glacier and view on the Dix lake (Bussard, J., 2021).

Organisers

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