

Lateglacial glaciers in the southern Eastern Alps

(Proposers: Prof. Paolo Mozzi and Prof. Silvana Martin)

At the end of the Last Glacial Maximum at around 18 ka BP, Alpine glaciers experienced fast downwasting which led to the deglaciation of the piedmont terminal moraine systems as well as the main valleys. Nevertheless, local glaciers in the upper mountain catchments still remained oversized in respect to the present situation (benchmark Little Ice Age) for several millennia during the so-called Lateglacial period, leaving paramount geomorphological and sedimentary traces of recurrent glacial fluctuations. Such evidence, mostly in the form of suites of terminal and lateral moraines encased within the Alpine valley heads, has been observed and mapped by early scholars since the beginning of the 20th century, but their chronology has long remained undefined, mostly due to the difficulty of radiocarbon dating these deposits. In the last two decades, the consolidation of alternative dating methods of till and glaciofluvial succession, i.e., exposure dating with cosmogenic nuclides and luminescence methods, has allowed significant advances in the age assessment of the Lateglacial stadial moraines in the Swiss and Austrian Alps and in the Western and Central Alps. In the southern Eastern Alps, however, there is still a general lack of knowledge on the chronology of the Lateglacial glaciers' fluctuations.

The PhD project aims at reconstructing the variations of the Lateglacial glaciers and related equilibrium-line altitudes (ELAs) in the Dolomites and nearby mountain ranges, defining a robust chronological framework based on exposure and OSL dating that may integrate the available radiocarbon dates. Methods will span from detailed field mapping and sampling to the analysis of remote sensing images and LiDAR-derived DEMs, laboratory sample preparation and GIS-based ELA calculation.

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