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The Last Glacial Maximum around Lago d'Orta, Northern Italy; a multi method reconstruction

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During the Quaternary multiple ice-ages saw the ice reaching the low Alpine forelands. Glacial erosion helped creating overdeepenings and during stable glacier positions moraines could be built up. Today we can recognize these landforms in the research area as a lake basin which accomodates Lago d'Orta and sets of moraines surrounding the southern lake tip, referred to as the amphitheatre. The glacier that used to fill the overdeepening during the Last Glacial Maximum (LGM) was a small branch of the Toce Glacier, which originated from the Simplon and Monte Rosa areas and which saw a bigger branch flowing down the Lago Maggiore area. However, which moraines can be attributed to the LGM is variously discussed in the literature. To determine which ice-ages have formed the different moraines in the amphitheatre, we used cosmogenic nuclide exposure dating on the erratic boulders found on the frontal and lateral moraines.
On a nearby outcropping section of a Ticino River terrace in Castelnovate we applied radiocarbon dating over a profile depth of 5 meters to find ages of deposition. Whilst using multiple preparation methods on the radiocarbon samples we found large variations in the resulting ages. Possible reasons for these variations will be discussed.
Combining results of both these dating methods, conventional geomorphological mapping and ArcGIS landscape analysis, we have constructed a spatial and temporal reconstruction of the LGM around Lago d'Orta. This research adds to our understanding of the termination of the LGM on the Southern side of the Alps.