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ABSTRACT BOOK

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Glacial Lake Outburst Flood from the Central Alps (N-Italy): from the Last Glacial Maximum to the deglaciation

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In glacial amphitheatres, proglacial lakes formed between moraine ridges, small fluvioglacial plains, and glacier fronts, represent potential sensitive sedimentary archives of environmental variations, especially recording the evolution of glaciers during the Last Glacial Maximum (LGM). Shifts in facies associations in glaciolacustrine deposits are a useful tool to disentangle advance and retreat phases of glaciers and their effects on the landscape. The sedimentary record of the LGM deglaciation at the southern foothills of the Alps, regionally dated between 24 and 17 ka, suggests the transition to the Late Glacial was accompanied by dramatic events, including landslides, ice calving, and glacial lake outburst floods. The investigation of glaciolacustrine deposits from the Adige River Glacial Amphitheatre (ARGA), a LGM multi-moraine ridges system located at the end of the Adige Valley (N-Italy), revealed specific glacier dynamics in the deglaciation. Inside the ARGA innermost moraine arcs, the glacial topography acted as a dam originating two separated ice-contact lakes, collecting meltwaters. Analysis of facies associations suggests deposition of sands and gravelly sands in proximal settings (close to the glacier fronts), and thinly bedded mud-prone facies in distal settings. The proglacial lakes were likely enclosed by the glacier fronts, moraine ridges, and older glacial deposits that obstructed the pre-existent Adige River canyon; the two separated lakes eventually coalesced together during the last phase of retreat. The available stratigraphic framework suggests that the boulders cropping out in the Venetian Plain deposits to the South of ARGA, coeval to the deglaciation phase, may represent megaclasts transported by a glacial lake outburst flood formed after the catastrophic 'unclogging' of the Adige River canyon from the glacial deposit occluding it. Results presented in this contribution add to understanding of the ARGA deglaciation phases and to the wider picture of the LGM-Late Glacial transition in the South-Central Alps.