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Traces of a Maximum Ice Extent in the south-eastern European Alps

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The south-eastern European Alps provided a good archive for the Last Glacial Maximum in term of chronology and sedimentary evolution. The Tagliamento end-moraine system is almost entirely made of glacigenic deposits of the last glaciation. Deposits ascribable to the MIS6 were recognized and indicate an ice extent similar to the LGM. However, the detailed geological survey in the fore-Alpine sectors shows scattered traces of a larger glacial expansion in the catchment. These deposits are strongly weathered and located far above the elevation reconstructed for LGM and MIS6 ice advances. These deposits are also marked by the abundance of crystalline pebbles and boulders coming from the Carnian Alps (quartz conglomerate and sandstones) and exotics (amphibolite and gneiss) from the Austroalpine domain. Many of these pebbles can be also found in the accumulation areas of the LGM glaciers such as the headwall of the Resia Valley in the Canin Mount. These traces suggest a glacial expansion that was largely fed by glacier transfluence from the north and likely favored by a smaller elevation of the Carnian-Julian Alpine sector. The smaller fore-Alpine catchments, which were almost ice-free during the LGM, also contains remnants of a large ice expansion.