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# New exposure ages for the Last Glacial Cycle in the Sanabria Lake region (northwestern Spain)

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The Sanabria Lake region is located in the Trevinca Massif, a mid-latitude mountain area up to 2128 m asl in the northwest corner of the Iberian Peninsula (42$^o$N 6$^o$W). An ice cap glaciation took place during the Last Glacial Cycle in this massif, with an equilibrium line altitude of 1687 m for the Tera glacial outlet at its local maximum (Cowton et al., 2009). A well preserved glacial sequence occurs on an area of 45 km$^2$ around the present Sanabria Lake (1000 m asl) and is composed by lateral and end moraines in close relationship with glaciolacustrine deposits. This sequence shows the ice snout oscillations of the former Tera glacier during the Last Glacial Cycle and offers a good opportunity to compare radiocarbon and OSL- based chronological models with new cosmogenic isotope dates.

The new dataset of $^{10}$Be exposure ages presented here for the Sanabria Lake moraines is based on measurements conducted on 23 boulders and is compared with previous radiocarbon and OSL data conducted on ice related deposits (Pérez-Alberti et al., 2011; Rodríguez-Rodríguez et al., 2011). Our results are coherent with the available deglaciation radiocarbon chronology, and support a last deglaciation origin for the whole set of end moraines that are downstream the Sanabria Lake (19.2 - 15.7 $^{10}$Be ka). Discrepancies between results of the different dating methods concern the timing of the local glacial maximum, with the cosmogenic exposure method always yielding the youngest minimum ages. As proposed to explain similar observations made elsewhere (Palacios et al., 2012), reconciling the ages from different dating methods would imply the occurrence of two glacial advances close enough in extent to generate an overlapping polygenic moraine.

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