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Glacial evolution of La Seara Valley (Courel Mountains, NW Spain) based on 36Cl Cosmic-Ray Exposure dating

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The glacial history of the Iberian Peninsula, both glacial landforms and associated deposits, as well as the geochronology framework of the successive glacial stages within the Last Glaciation (LG), is now better understood. In turn, there is a growing body of evidence on glacial stages prior to LG. The increased use of absolute dating techniques has made these advances possible. However, some issues should be addressed to fully understand the extent and significance of past glacial processes in the Iberian Mountains. Those areas that were marginally affected by the ice during the LG (that is, located in low or moderate altitude sectors) remain unexamined in depth, with few geochronological contributions. These are more distant areas and often far from the main research focus. Moreover, the finding of glacial evidence (generally scarcer) is hindered by a dense vegetation cover. This is the case of A Seara Valley (Courel Mountains), located in the NW edge of the Iberian Peninsula, where several boulders and erosion surfaces of glacial origin were sampled for ^{36}Cl Cosmic-Ray Exposure (CRE) dating. Nine samples were collected during the spring2019 fieldwork campaign. Additionally, the paleoglacier was reconstructed and the associated landforms were mapped. Sampling strategy was challenging because only few moraines are well-preserved, and suitable boulders for CRE dating are scarce due to the predominant outcropping of slates. Only one moraine ridge was located at the bottom of A Seara Valley (1113 m a.s.l.), in which seven samples were collected. It is a polygenic moraine, dismantled by postglacial processes. Besides, the discrepant ages obtained in some boulders show that they were probably covered by sediments. The oldest geochronological data indicates that, at least, the glacier connected with this moraine at 21 ka (MIS-2). Additionally, two samples were collected on a glacial polished threshold located in an intermediate sector of the valley, at 1243 m a.s.l. Here, the result of 19 ka points to an accelerated retreat of this glacier to its headwater (as in other glaciated areas of NW Spain), i.e., a very quick deglaciation process.

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