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## Glacial evolution in the Asturian area of the Puerto de Ventana (Cantabrian Mountains, NW Spain) based on $^{10}\text{Be}$ Cosmic-Ray Exposure dating

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Scientific knowledge of the glacial evolution of the Cantabrian Mountains (NW Spain) has experienced important advances in the last four decades. There are numerous works focused on the description and mapping of glacial landforms, as well as on the application of age models based on relative chronologies and correlations with other Iberian mountain areas. However, the application of dating techniques to obtain absolute ages is very recent here, and has focused mainly on the highest altitude mountain ranges. In contrast, areas such as the Central-Western Asturian Mountains, with lower altitudes and less evident glacial footprints, have received scarce scientific attention. With the aim of establishing a solid geochronological framework of the deglaciation pattern, this study is focused on the northern slope of Puerto de Ventana. It is a paradigmatic example of the glacial evolution that occurred during the Last Glacial Cycle in the Central-Western Asturian Mountains due to its altimetric and lithostatigraphic characteristics: moderate altitudes (Ferreirúa Peak, 1977 m a.s.l.) and predominance of quartzites, sandstones and slates of Paleozoic age. During the summer of 2021 we carried out an exhaustive fieldwork campaign, from which a detailed geomorphological mapping was carried out, and a total of 17 samples for  $^{10}\text{Be}$  Cosmic-Ray Exposure dating purposes were collected. Sampling strategy has been based on the *in situ* evaluation of each of the glacial landforms identified, and the search for the most suitable glacial boulders and surfaces. Specifically, two moraines belonging to the outermost moraine complex have been dated, obtaining age ranges from 64 to 34 ky (MIS 4-3). This shows that there is an asynchrony between the Maximum Ice Extend (MIE) of the Ventana Glacier and the global Last Glacial Maximum (gLGM), as has been confirmed in other Cantabrian and Iberian Mountain areas. In the internal moraine complexes, eight samples have been obtained, which provide ages of 25-18 ky, indicating their correlation with the gLGM (MIS 2). Therefore, it would be the second glacial stage in the evolution of the Ventana Glacier. Regarding the moraine complexes located at the foot of glacial cirques, two blocks belonging to a frontal moraine arch were dated, as well as three belonging to a rock glacier. Both the chronologies of the above-mentioned moraine complex and the rock glacier, seem to indicate that they are contemporary to the interstadial warm period known as Bølling-Allerød, in which the last stages of glacial retreat would take place, as well as the stabilization of the rock glacier.

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