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Last Glacial Maximum and deglaciation of the Iberian Central System.

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The Central System runs E-W across the centre of the Iberian Peninsula and is composed mainly of crystalline rocks. A glacial morphology is well preserved on many of its most important summit areas especially towards the Atlantic. Research has recently been carried out in three of the sierras of this mountain system, with the aim of establishing the absolute chronology of the maximum glacial advance and of the deglaciation in the whole system. The method used is cosmogenic 36Cl surface exposure dating of moraine boulders and glacially polished outcrops. The selected areas are the Sierra de Guadarrama (Palacios et al. 2012) close to Peñalara Peak (40º51'N, 3º57'W; 2428 m), the Sierra de Gredos (Palacios et al. 2011) close to Almanzor Peak (40º14'N, 5º17'W; 2592 m), and the Sierra de la Estrela (Vieira and Palacios, 2010) close to Alto de la Torre summit (40º20'N, 7º34'W; 1993 m). These areas are representative of the whole Central System from west to east. The results are highly homogeneous. Moraines dating from earlier than the last glaciation were not found in any of the sierras. On the contrary, in all cases the oldest moraines from the last glaciation rest on intensely weathered crystalline surfaces. The oldest moraines date from between 31 and 26 ka. In most cases, the deposition of these moraine ridges was followed by minor advances and retreats which left a sequence of ridges very close together, lasting until 18-16 ka. A fast retreat occurred after 16-15 ka, when glaciers completely abandoned the valleys, disappearing in most cases by 13-14 ka. The ice lasted until 11-10 ka, but only in small cirques found on sheltered rock-walls below the highest peaks.

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