

## Quaternary glacial geomorphosites from the Redes Natural Reservation and Picos de Europa Regional Park (Cantabrian Mountains, Iberian Peninsula)

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The Cantabrian Mountains is a mountain range 480 km-long with a max altitude of 2648 m (Torre Cerredo Peak) which is disposed parallel to the Cantabrian Coastline from Pyrenees to northwest Iberian Peninsula (~43°N 5°W). It is an interesting region to research the climatic patterns across South Europe during the Quaternary glaciations due to i) the presence of glacial features that evidence the occurrence of former mountain glaciations and ii) the climate transition from maritime to Mediterranean type across the mountain. The available studies in the Cantabrian Mountains stand that the recorded regional glacial maximum here is prior to ca 38 cal ka BP, and that glaciers were in some locations remarkably retreated by the time of the global Last Glacial Maximum (Jiménez-Sánchez et al., in press).

This study is focused on an area about 220 km<sup>2</sup> partially covering the Redes Natural Reservation and Picos de Europa Regional Park. A geomorphologic database in ArcGIS was produced for this area to reconstruct in detail the extent, flow pattern and chronology of the former glaciers (PhD under progress). Here we present a selection of 11 geomorphosites as examples of well-preserved glacial landforms and deposits that prove the occurrence of glacial and paraglacial processes in this region during the Quaternary glaciations.

Jiménez-Sánchez, M., Rodríguez-Rodríguez, L., García-Ruiz, J.M., Domínguez-Cuesta, M.J., Farias, P., Valero-Garcés, B., Moreno, A., Rico, M., Valcárcel, M., in press. A review of glacial geomorphology and chronology in northern Spain: timing and regional variability during the last glacial cycle. *Geomorphology*, doi: 10.1016/j.geomorph.2012.06.009.

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## Geomorphosites within the inventory of geosites with national and international relevance in Portugal

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146 geomorphosites with international or national relevance have been inventoried under the scope of the scientific research project "Identification, characterisation and conservation of geological heritage: a geoconservation strategy for Portugal", financed by the Portuguese Foundation for Science and Technology (PTDC/CTE-GEX/64966/2006). The inventory procedures were based on the ProGEO guidelines with definition of geological frameworks followed by the identification of representative geosites with national and international relevance for each framework. Overall, 322 geosites were selected exclusively based on their scientific value with about seventy geoscientists supporting geosites selection in 27 frameworks. The 146 geomorphosites were inventoried in the frameworks "Landforms and river network of the Portuguese Iberian Massif"(39), "Karst systems"(38), "Active and fossil coastal cliffs"(6), "Low coasts"(6), "Vestiges of Pleistocene glaciations"(16), "Volcanism of the Azores Archipelago"(29), and "Volcanism of the Madeira Archipelago"(10). That selection was based on the criteria representativeness, rareness, diversity, integrity, and scientific knowledge. Their protection and adequate management is essential because of specificities like large size, aesthetics and dynamics, and due to their high geotourism potential. In that scope a quantitative assessment of their scientific value and vulnerability was performed. This constitutes the first systematic inventory of geosites at national level and is now important raw data to support nature conservation initiatives. The inventory is being integrated in the natural heritage database (SIPNAT) under the responsibility of the Institute of Nature Conservation and Forestry (ICNF) as expected in the Portuguese legislation for nature conservation (DL 142/2008).