

Geological Heritage inventory of La Rioja (Spain). A small territory with a great geological diversity

A. Salazar^{1,*}, A. Cabrera¹, R. Jiménez¹, J. Luengo¹, J.J. Moratalla¹ and J. Vegas¹

¹IGME, CSIC. Madrid, Spain

*Corresp. Autor. C/Ríos Rosas 23, 28003 Madrid, Spain. a.salazar@igme.es

Abstract

In 2021, the General Directorate of Environmental Quality and Water Resources (Government of La Rioja) commissioned the Geological and Mining Institute of Spain (IGME, CSIC) to carry out a new inventory of geological heritage of La Rioja. The inventory has been performed with the methodology of the Spanish Inventory of Sites of Geological Interest (IELIG) and has been integrated into its database (<https://info.igme.es/ielig/>). The antecedents of this task was the inventory carried out in 2007 by the GEOMARE consultancy for La Rioja and the inventory of the Iberian Range carried out in 2013 for IELIG. The new inventory of La Rioja include 65 sites of geological interest or geosites (19 new ones), which represents 1.6% of the geosites currently present in IELIG. Considering the small area of La Rioja (5,045 km²; 1% of Spain), that represents a relatively high number of geosites compared to the entire country (4,089 geosites in 505,990 km²).

This accumulation of sites of geological interest is the result of several key facts. Although La Rioja is relatively small, its geological diversity is quite remarkable, since it has three different geological regions (Basque-Cantabrian Basin, Ebro Basin and Iberian Range), includes an extensive geological record (Cambrian to Quaternary), a great variety of rocks, minerals and fossils, Alpine and Variscan tectonic structures and, due to a high relief energy (more than 2,000 m) and a transitional climate between Oceanic and Mediterranean types, a wide spectrum of geomorphological environments, from glacial to semi-arid.

Among the places added or revised, the following stand out for their high scientific value. 18 geosites belonging to the geological framework of international relevance (Global Geosites for Spain) "*Fossils and ichnofossils of the continental Mesozoic of the Iberian Peninsula*" (IB200 – IB200r), deposits of the Berriasian tidal plain of Cervera-Valdemadera (IB241), mammal site and Pliocene - Quaternary succession of Villarroya depression (IB245, IB236), the fossil trunk of Igea (IB240), glacial valleys, cirques and periglacialism of Picos de Urbión (IB018) and Navajún and Ambasaguas pyrite deposits (IB121), all of them in the Iberian Range; the Miocene paleontological site of Autol (EB005), Cenozoic evaporite deposits of Alcanadre and Agoncillo (EB002) and the fluvial bars and meanders in Sotos de Alfaro (EB008), all three in the Ebro Basin; and the Cretaceous section and gorge of Hoz in Foncea (CV025) in the Basque-Cantabrian Basin.