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Geomorphological map of glaciated gorges in a granitic massif (Gredos range, Central Spain).

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A detailed geomorphological map on a 1:10,000 scale is presented for a high mountain area in Gredos range (Iberian Central System), this area is located in a granitic massif 160 km West of Madrid and comprises three gorges : La Vega, Taheña-Honda and La Nava. Only few detailed geomorphological maps of the Gredos range are available despite the wide diversity of landforms, in order to improve the understanding of this zone, this geomorphological map of the area has been produced, showing in detail the geomorphologic diversity of these gorges.

The map was created with the aid of 25 cm resolution aerial photographs, 25 cm resolution satellite images, Iberpix 3D images provided by the Spanish National Geographic Institute and verified with field work. The landforms were delimitated with a stereoscope and satellite image pairs and digitized using GIS and CAD software, in some areas 3D glasses has been used with 3D images and the software Esri ArcScene. The landforms resulting from interpretation of aerial photographs and satellite images were classified using the IGUL (Institute of Geography, University of Lausanne) legend system (developed at the end of the 1980s) combined with the legend proposed by Peña et al. (1997) and some personal adaptations.

The map legend includes 45 landforms divided into seven sections: structural, hydrography, fluvial, gravitative, glacial, nival and anthropic landforms. The use of both legend systems allows us to represent the landform types distributed over an area of 40 km^2 and to identify the geomorphic processes involved in their morphogenesis, this variety of processes and landforms identified demonstrated that geomorphological cartography obtained by combining traditional image interpretation and GIS technology facilitates the production of geomorphological maps and the obtaining of valuable data for identify and understand surface processes and landforms.

References:

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