



Slope instabilities in the Asturian coast (N of Iberian Peninsula): a preliminary overview

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The Principality of Asturias is a region located in the North of Iberia (SW of Europe) with the Cantabrian Sea as its norther boundary. The Asturian coast presents a general E-W trend along ca. 200 km. It is eminently rocky and abrupt, with a predominance of north-facing cliffs dotted with small coves and beaches. The littoral belt constitutes one of the most populated areas in the region, which is linked to the presence of industrial activity (fishing, factories and harbors) and the touristic exploitation of the natural resources, which attracts every year hundreds of thousands of visitors. The coexistence of the most densely populated municipalities of Asturias together with scattered rural settlements results in a very dense infrastructure network running along the coast.

From a geological point of view, the Asturian rocky coast shows a wide range of lithologies (siliciclastic metamorphic rocks in the West, calcareous in the East and mixed bedrock in the centre) and different structural patterns. Currently, slope instabilities play a relevant role in the Asturian rocky cliffs modelling. Instability phenomena in coastal cliff areas are linked to different natural agents, including gravity, marine dynamics and karst processes.

Slope instability processes are widespread throughout the Asturian coastal belt. Due to the variety of geological conditions, the coastal cliffs constitute a natural landslide catalogue where a wide range of typologies and sizes are present. During the period 1980-2016, a total of 224 individual landslides affecting rocky coast areas have been recorded in the BAPA database, a landslide inventory developed for the Asturian territory (www.geol.uniovi.es/BAPA/) (Valenzuela et al., 2017). The recorded events include all landslide types, with a predominance of rockfall (50%) over flows (14%) and slides (13%). The remaining type of landslides, are undetermined (23%).

The population and infrastructures settled in the coastal belt of Asturias are exposed to relevant levels of landslide risk. At least 74% of the landslides recorded between 1980 and 2016 has produced some kind of damage. Due to the social affection and the scientific interest of the aforementioned problem, this preliminary overview of the slope instability processes that occur in the Asturian coast is proposed. It is relevant to develop further detailed studies concerning with the evaluation of the degree of exposure to landsliding and the implementation of protection measures, especially in populated areas, roads and port facilities, which implies major investment.

Valenzuela P, Domínguez-Cuesta MJ, Mora García MA, Jiménez-Sánchez M (2017) A spatio-temporal landslide inventory for the NW of Spain: BAPA database. *Geomorphology* 293: 11-23.