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Geodiversity in the Liguria region: a preliminary GIS-based quantitative assessment

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Geodiversity is an important natural resource that must be considered in developing an effective land management strategy. In recent times there has been a great impulse on the research on geodiversity topics; particular attention has been given to geodiversity assessment methodologies, both qualitative and quantitative. The Liguria region in Northern Italy, despite its small geographic scale, encompasses a great variety of natural and cultural features of international significance. This wide variety is due to its particular geographical, geological and geomorphological conditions. In this work a first preliminary assessment of geodiversity in the Liguria region has been carried out, according to the quantitative method proposed by Melelli et al (2017). This GIS-based method uses spatial analysis techniques, taking into account five parameters: a geological index (lithology) and four morphometric indices (drainage density, roughness, slope position index and landform category), combined to obtain a total Geodiversity Index. The results show that the Liguria region is characterized by many areas with high geodiversity. The most important examples are the western Ligurian Alps, the Finalese, the Sestri-Voltaggio Zone and its surroundings, the eastern Ligurian Apennines, the Cinque Terre, which are in fact the areas with the greatest morphological and lithological variety. Most of these areas are well known by geoscientists for their significant geological and geomorphological heritage, and by the general public for their impressive landscapes. There is a correspondence between the most geodiverse areas, the main natural parks and the Natura 2000 network of protected areas, established to protect and enhance biodiversity. This suggest a link between geodiversity and biodiversity, that may be subject to further research.