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Geodiversity as a key component for the evaluation of urban biodiversity

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Ecodiversity stems from the interaction between the biosphere and the geosphere, and it is one of the necessary conditions for achieving a sustainable planet. Thus, the relationship between geodiversity and biodiversity should be clearly defined. The relationship between climate and topography in roughened mountain areas at low-latitudes, as constrains for the high values of biodiversity, has already been established. As a consequence, topography is the first and most important input parameter for investigating the connections between abiotic and biotic variety. Spatial analysis in a GIS framework is the key approach to better understand the role of topographic and hydrographic variables in evaluating geodiversity (geomorphodiversity) .

In this paper we focused on analyzing urban areas, where in 2030 60% of the world's population is expected to live. A science of cities is the future challenge for Earth Sciences: urban geomorphology could be the key to have a complete overview on the abiotic and biotic parameters in sustainable cities. To achieve this aim, the conservation of urban biodiversity is fundamental. Analysing the correlation between substantial geodiversity and biodiversity may be a guideline for science of cities and for designing and managing sustainable urban areas.

These ideas, if transposed in an urban context, should go beyond morphometric analysis of topography and take into account anthropogenic features and natural landforms modified by humans in time. To this end, geomorphological mapping is fundamental to calibrate the quantitative models in a truly multidisciplinary approach to a science of cities and urban biodiversity. We consider our contribution as a new model for the analysis of geodiversity in urban areas.