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Spatial Distribution of Potential Erosion Rates at Hillslope scale in Prespa Lake Basin (Albania) using Shuttle Radar Topography Mission (SRTM) elevation data

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Albania experiences high soil erosion rates (between 20-30 tons ha-1 year-1) due to its mountainous terrain, rainfall patterns related to its Mediterranean climate, and land use practices such as deforestation and over-grazing. Over the last two decades, land degradation has become a major problem, including soil degradation, soil loss, and accelerated soil erosion of up to 150 tons ha-1 year-1 due to land management decisions, salinization, water logging and pollution. Previous studies on erosion rates based on the hydrology, vegetation and topography of Albania have generated maps of potential erosion rates at 1km2 resolution. Based on Universal Soil Loss Equation it is estimated that soil erosion rates for Prespa Lake Basin (PLB) is about 27 tons ha-1 year-1. Currently, Albania has a predicted annual and monthly erosion rate map a national soil map and more detailed soil maps for limited coastal areas at scales 1:1,600,000, 1:250,000, and 1:50,000, respectively. However, the relatively small farm size in Albania (0.01-0.05 km2) and the hillslope scale at which the erosion rates can be measured and mitigated require erosion rates assessments at finer scales. The average farm size in PLB is only 1.3 ha. The mountainous terrain in Albania and in particular PLB is ideal for assessing potential soil erosion rates based on terrain attributes derived from elevation data. The objective of this research was to develop a new approach for generating a more detailed potential soil erosion rate map for PLB (0.0081 km2 resolution) based on landscape models using terrain attributes and landform classification schemes derived from Shuttle Radar Topography Mission (SRTM) elevation data and Climate Models.