

MODELING SOIL EROSION DYNAMICS FOR MOUNTAINOUS TERRAIN WITH APPLICATION TO ALBANIA

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Abstract

The combination of the mountainous terrain of Albania and a seasonally wet Mediterranean climate has led to some of the most extreme erosion in Europe. New methodologies are used to estimate soil erosion risk and provide a framework for soil conservation that can effectively and economically control soil loss. This work is an attempt to estimate soil erosion by using GIS and remote sensing methods. Annual and monthly erosion maps of Albania are developed in this work. A one-dimensional hydrology, vegetation and erosion model (RDI/CSEP) is used to calculate accumulative soil erosion. The estimation of erosion rate is at a resolution of 1 km. The model uses existing soil maps, land use maps, a digital elevation model, and interpolated climate data. The erosion maps clearly show that Albania is a country where erosion is a potentially severe. The annual erosion rates are estimated at 10 T ha⁻¹ y⁻¹ or more, especially in the south and centre of the country. In three areas the annual erosion rate is more than 100 t ha⁻¹ y⁻¹ in Gjirokaštër and Sarandë. Erosion rates are highest in October, November, February and December and lowest in June and July.

Key words: *soil erosion risk, mapping, land use, soil storage, interpolated climate data*