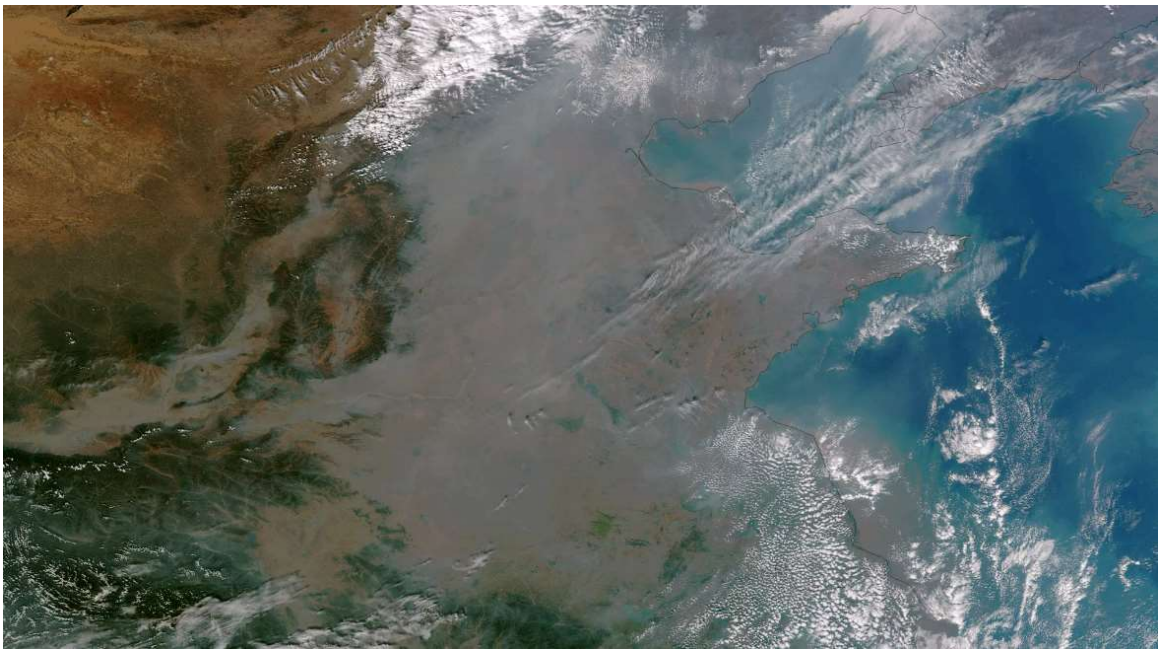

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CONTENT

ASSESSMENT OF SOIL EROSION IN THREE SUB-BASINS IN KOPAONIK NATIONAL PARK (SERBIA), EMPLOYING SWAT AND REMOTE SENSING

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Abstract

Soil erosion is one of the main environmental problems nowadays, mainly related to land-use changes, such as agricultural intensification and deforestation. In Serbia, despite the estimation that 86% of the total country's territory is potentially at soil erosion risk, during the last decades the rate of soil erosion has been in decline. This is related to demographic and economic processes: depopulation, population migrations from rural to urban areas, demographic ageing, and decrease in agricultural activities. Despite this tendency, several mountain areas are being exposed to continuous land degradation, mainly caused by winter tourism development. The largest and most developed ski resort in Serbia is located within the area of Kopaonik National Park, situated on Kopaonik Mountain, where major threats to landscape and natural ecosystems are deforestation, increasing soil erosion, construction of ski slopes and urbanisation accompanied by illegal construction, etc. In this research, we employed remote sensing techniques for data collection and utilized the Soil and Water Assessment Tool (SWAT) to assess sedimentation and surface runoff. The focus was on three sub-basins situated in the Kopaonik ski resort region, with data spanning the years 1984 and 2018. The obtained results show a decrease in surface runoff and sediment yield in sub-basin 2, and an increase in sub-basins 1 and 3. Additional analysis of land-cover changes in the given area indicates an enlargement of evergreen forest cover, reduction of pastures and mixed forest cover, and appearance of deciduous forests, barren soil, and urban areas. Results indicate that the main processes affecting soil erosion are the development of winter tourism and recovery of vegetation due to a decrease in agricultural activities.