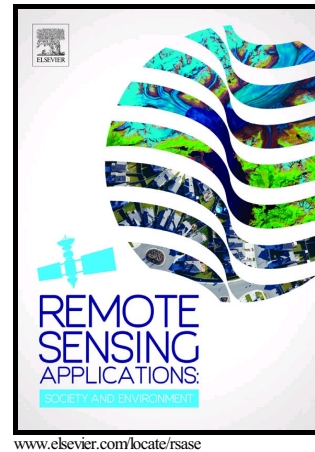


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An appraisal on the progress of remote sensing applications in soil erosion mapping and monitoring

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An appraisal on the progress of remote sensing applications in soil erosion mapping and monitoring

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Abstract

Satellite remote sensing applications in soil erosion mapping and modelling has gathered considerable momentum in the last decade, globally. Most importantly, the latest advancements in remote sensing technology and the availability of this data in various resolutions and the immediate demand for up-to date information on levels of soil loss, soil erosion mapping and modelling has received renewed attention, particularly to ensure that productive agricultural land remains intact to ensure food security. The work details an overview on the advancements of remote sensing in soil erosion. The study also for the first time highlights the strengths and limitations of satellite data in mapping and monitoring soil erosion at various scales. The mostly recommended remotely sensed data in soil erosion modeling were multispectral sensors, such as Landsat data imagery while high spectral resolution information remained limited. Despite many efforts made to quantify the extent of soil erosion, most of the focus was at a localized extent, such as at catchment or municipal level. There is therefore a need for a more detailed and extensive work to assess the spatial variability and extent of soil erosion at regional scales.

Keywords: erosion modeling; food security; global changes, land degradation; land-based ecosystems; land management practices; satellite data; soil conservation.

1. Introduction

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