African Ocean Chemistry (Earth Science)

Remote Sensing and GIS in Environmental Monitoring: An Intervention Study in Ethiopia

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Abstract

Remote sensing and Geographic Information Systems (GIS) have been increasingly utilised in environmental monitoring across various regions. In Ethiopia, these technologies offer a means to assess and manage natural resources more effectively. The methodology involves collecting high-resolution satellite imagery and ground-based data, which are processed using advanced GIS software. A mixed-method approach combining qualitative and quantitative analysis is employed to validate findings. Significant variations in water quality parameters were observed across different regions of Ethiopia, with a notable increase in turbidity levels during the dry season compared to the wet season (direction: higher turbidity). The integration of remote sensing and GIS demonstrated promising results for environmental monitoring in rural settings of Ethiopia. The study highlights the potential benefits of these technologies for resource management and policy development. Further research should focus on expanding the application of these tools to include additional variables such as soil health indicators and biodiversity assessment. Remote Sensing, GIS, Environmental Monitoring, Water Quality, Land Use Mapping The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African Geography, GIS, Remote Sensing, Environmental Monitoring, Spatial Analysis, Geographic Information Systems, Satellite Imagery*

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