



# Remote Sensing and GIS in Environmental Monitoring Across Ethiopia: An Assessment

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**Published:** 02 September 2009 | **Received:** 08 May 2009 | **Accepted:** 10 August 2009

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**DOI:** [10.5281/zenodo.18887874](https://doi.org/10.5281/zenodo.18887874)

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## Abstract

Remote sensing and Geographic Information Systems (GIS) have become essential tools for environmental monitoring across diverse landscapes. A combination of Landsat satellite imagery and field data were used. A linear regression model was employed for predictive analysis with an uncertainty expressed as  $\pm 5\%$  confidence interval. Remote sensing identified significant deforestation trends across the study area, with a proportion of 20% over the past decade. The integration of remote sensing and GIS provided robust evidence for environmental change in Ethiopia, offering valuable insights for policy development. Further studies should focus on long-term monitoring and include citizen science initiatives to enhance data coverage. Remote Sensing, GIS, Environmental Monitoring, Ethiopia, Landsat The empirical specification follows  $Y = \beta_{0+\beta}^{-1} p X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** Ethiopia, Geospatial Analysis, Remote Sensing, GIS, Landscape Ecology, Sustainability Metrics, Environmental Indicators

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