

Preface

Soil erosion is a major concern that impacts soil health, agricultural production, and natural resource management. Soil particle dissociation, transport, and deposition are a complex process. The Upper Godavari Basin in eastern India suffers from substantial soil erosion. The region's considerable rainfall and varied topography make it susceptible to soil erosion. This research presents geospatial data and machine learning algorithms for predicting Soil Erosion Susceptible Zones in the Upper Godavari Basin, India. Cat Boost and Xg Boost are effective machine learning approaches for predicting soil erosion-prone zones. The model considers elements that impact soil erosion, including rainfall, soil type, slope, and land use. The approach integrates remote sensing and GIS data. This research presents a geospatial and machine learning technique that can help policymakers and land managers identify sensitive locations for soil erosion and take preventative measures. This research emphasises the usefulness of geospatial tools in tackling complicated environmental issues and offers valuable insights on soil conservation in the Upper Godavari Basin.