

Drought Monitoring Using Integrated Satellite Imagery, Weather Data, And Geographic Information Systems

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ABSTRACT

Drought, intensified by climate change, poses a significant threat, especially to agricultural regions, necessitating effective monitoring and adaptation strategies (Netshimbupfe et al., 2022; Raksapatcharawong, 2019). This paper explores the integration of satellite imagery, weather data, and Geographic Information Systems to improve drought monitoring accuracy and effectiveness. By combining diverse data sources, a comprehensive approach to drought assessment can be created, facilitating timely interventions and mitigation planning (Łągiewska & Bartold, 2025). The study reviews existing methodologies, examines the potential of advanced remote sensing techniques, and emphasizes the role of GIS in spatial analysis and visualization of drought-related information. The focus is on developing a robust framework that can provide detailed insights into drought conditions, supporting sustainable water resource management and agricultural resilience.

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