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ENHANCING DISASTER MANAGEMENT WITH SPACE ASSETS

Abstract

The escalating frequency and intensity of natural disasters, particularly floods in South Asia, underscore the urgent need for advanced technologies to mitigate their impact. This session explores the pivotal role of space assets, such as satellite remote sensing and Geographic Information Systems (GIS), in revolutionizing disaster management and emergency response strategies. This paper delves into innovative approaches that harness cloud-free multitemporal satellite imagery, Synthetic Aperture Radar (SAR) data, and Digital Elevation Models (DEMs) integrated with GIS waterflow data for flood hazard mapping. Through case studies and empirical findings, it is found that these technologies enable precise identification of flood-prone regions, real-time monitoring, and timely dissemination of critical information for early warning systems. Moreover, we address the challenges and limitations inherent in utilizing space assets, emphasizing the importance of interdisciplinary collaboration and data integration. By elucidating the effectiveness of space-based solutions in shortening response times and mitigating the adverse effects on affected populations, the research contributes to the advancement of resilient disaster management frameworks in the face of evolving climate dynamics.