

Mapping pre-fire burn severity and post fire regeneration of wildfire using satellite imageries of Chitwan District

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Key words: Geoinformation/GI; Low cost technology; Remote sensing; Risk management; Spatial planning; Burn Severity; Forest Fire; Satellite Imageries

SUMMARY

The present study focuses on assessing wildfires on the forests of Chitwan district, Nepal, utilizing remote sensing techniques to analyze burn severity and post-fire vegetation regeneration. By employing indices such as dNBR, NDVI, and SAVI, the research evaluates fire damage extent and vegetation recovery trajectories. The findings reveal a significant increase in forest fires, NDVI indicated that the vegetation density post-fire in year 2021, with sparse vegetation increasing from 503 km² in 2020 to 1081km² in 2021, and dense vegetation dropping from 565km² to 56km². Post-2021, the vegetation gradually recovered, with sparse vegetation decreasing to 542km² by 2023 and dense vegetation increasing to 153km². Burn severity mapping highlights the vulnerability of dense and dry vegetation areas. Furthermore, the study explores the relationship between burn severity and topographic features, offering insights into fire behavior and environmental impact. These findings emphasize the necessity of ongoing monitoring and effective management strategies to mitigate wildfire impacts and support ecosystem recovery.

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