

# **Study of the Impact of Heatwaves on Meteorology in Delhi using the Weather Research and Forecasting (WRF) Model**

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## **Abstract**

Delhi faces significant environmental challenges that impact public health and environmental sustainability. This research focuses on numerically modeling the heatwaves using the Weather Research and Forecasting (WRF) model. We conducted WRF numerical simulations at a 1 km resolution over ten days during the summer of 2023 using the WRF model. A sensitivity study was performed to analyze the impact of urban land use on heatwave modeling through three experiments. The first experiment utilized a slab urban model, the second employed standard urban land use classification, and the third used local climate zone classification. Comparative results will demonstrate the effects of different land use on capturing the spread, intensity, and magnitude of heatwaves. All sensitivity experiments were compared against observations, and the findings will be discussed.