

Spatio-temporal assessment of the influence of urban change on land surface temperature

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Key words: Climate Resilience; Land Surface Temperature; Urban Heat Island and Management; Disaster Risks; Urban growth

SUMMARY

The rate of urban growth in most Nigeria's communities is alarming, which has led to the conversion of farmlands and forest lands into built-up areas and an increase in urban heat. This study assesses the urban heat in Suleja LGA of Niger State, Nigeria. The specific objectives of this study were to analyse both the trend of urban change and the average land surface temperature (LST) for the study area between 1987 and 2019 to assess the influence of urban change on land surface temperature. The relationship between the Normalised Difference Built-up Index (NDBI), Normalised Difference Vegetation Index (NDVI), and LST was further ascertained to achieve the aim of the study. Remote sensing techniques were employed to analyse the data downloaded from United States Geological Survey archives. The study reveals that farmlands were significantly converted to urban land, which contributes to the effects of urban heat in the study area. The rapid urban change in the study area also increased Suleja's land surface temperature within the study epochs. The mean land surface temperature of the study area increased from 13.24oC in 1987 to 36.39oC in 2019. To reduce the increasing land surface temperature of Suleja, the study recommends the conservation of forest land and encourages urban landscape planning in Suleja LGA.

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FIG Working Week 2024

Your World, Our World: Resilient Environment and Sustainable Resource Management for all
Accra, Ghana, 19–24 May 2024