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TRACKING CLIMATIC UNCERTAINTIES AND EMERGING URBAN FOOTPRINTS IN NIGERIA
WITH GEOSPATIAL TECHNOLOGIES

Abstract

Emergence and growth of contemporary cities in Nigeria neither follow defined pattern nor statutes. Several cities, old and new, in different regions, came into existence for diverse reasons and functions. But, in each case, it manifests public and private sector participations in landscape transformations. This approach gives contemporary uncoordinated, parallel physical development and growth. This style of urban centers transformations and development comes with its apparent distortions which adversely affect the city, reduces its functionality and livability, mainly through rise in the overall mean annual temperature and thermal stress. This study, armed with multidecadate high resolution Landsat and SPOT imagery and meteorological variables, examined the spatio-temporal style and implications of the transformations and development, in five cities in Nigeria, and correlated it with center – periphery migration of residents. Geospatial data, housing patterns, orientations and styles, as well as infrastructural facilities and relevant meteorological variables were obtained and analyzed using statistical methods. The resultant scenario reflects, and explains that observed thermal conditions of urban centers, urban heat wave regime and rise in the spatio-temporal migration of city residents to the city outskirts were high. Applied geospatial tools and maps showed the direction, pattern and spatio-temporal migration from the city center. Overall results showed mild swings in urban climate, whereby heat islands are common, and cases are rising, and cold islands are emerging, in response to prevalent seasonal conditions. It was evident that rising pavement of surfaces is contributory to the scenario, just as other practices of browning these cities, such as removal of trees, encroachment on peri-urban areas and age of the cities. A projection of the values obtained shows that rising thermal condition in the area will climax in the years ahead. These may further accentuate out migration, worsen livability in the cities and accelerate breakage of cities and advance encroachment of the cities on the hinter- landscape.