Application of Remote Sensing to Monitor Thermal Emission: A Case Study of Accra Metropolitan Area

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SUMMARY

ABSTRACT

The predicted rise in surface temperatures due to climate change is exacerbated in urban area by the heat island effect, which has also been predicted to increase if the necessary precautions are not put in place. This model attempts to simulate urban absorption of solar radiation within the Accra Metropolitan Area of Ghana, a vibrant urban centre in the country, and its resultant effect on the changes in surface temperature over a twenty-five (25) year period. It examines the thermal characteristic component and the land use/ land cover change detection of the region with the use of an integrated remote sensing approach from the years 1991, 2002, 2013 and 2016. The change in land use is attributed to factors such as the conversion of forest and agriculture lands to pave way for the rapid increase in urban growth and the tarring of the surface by impervious materials.

Local climate change was also monitored using temperature data analysis. The results showed that there has been a significant increase in surface temperatures in the urbanized areas within the metropolis therefore leading to its resultant effects on climate change. Thermal infrared remote

sensing technology has therefore been demonstrated to be an effective and efficient approach of studying the thermal characteristic of the land surface

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