



## **Assessment of Urban Heat Island Intensity over Metropolitan Cities of India for summer and winter seasons: Change in Climate**

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The extreme changes observed in regional climatic conditions are driven largely by the rapid growth of human population in cities. Half of the global population living in the cities are hence significantly modifying the surface and atmospheric conditions and leading to rapid change in regional climatic conditions in urban areas. In the present study an attempt has been made to quantifying spatial relationship of Land Use and Land Cover (LULC) changes and land surface temperature (LST) using remote sensing techniques over major metropolitan cities of India. For this purpose, Landsat 7 ETM+ images (mostly daytime) during summer and winter period from 2001 to 2013 are used. Based on the LULC classification and estimated LST using the satellite imageries reveals the presence of prominent urban heat islands (UHI) in constructed areas in all cities. Significant increases in built up/urban areas are noticed at the expense of vegetated lands and/or barren lands over these cities. Higher surface UHI intensity in the range of 10.5 to 14°C is noticed for summer season whereas for the winter season it is observed to be between 6 to 10.3°C. Higher temperature zones (hotspots) are found to be increasing in the built-up area as well as in barren lands for both the seasons, but for summer season the hotspot temperature observed to be higher compared to that of winter seasons.