



Urban Heat Island Effect over National Capital Region of India: A Study using the Temperature Trends

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ABSTRACT

The local temperature is one of the major climatic elements to record the changes in the atmospheric environment brought about by industrialization, increasing population and massive urbanization. The present study deals with the annual and seasonal temperature trends and anomalies for maximum, minimum and mean temperatures of the four meteorological stations of the National Capital Region (NCR) of India namely Safdarjung, Palam, Gurgaon and Rohtak for the past few decades and their association with the development through urbanization processes. The annual mean maximum temperature did not show any specific trend; however a consistent increasing trend was seen in the annual mean minimum temperatures indicating an overall warming trend over the NCR especially after 1990. This warming trend is contrary to the cooling trend observed by earlier studies till 1980' s in various other cities of India including Delhi. However, the temperature trends in annual mean minimum temperatures reported in various countries (USA, Turkey, Italy, etc.) across the world showed warming trends to be associated to the urbanization process of the cities also. The current warming trends in temperature in the NCR Delhi based on the annual mean minimum temperatures have thus been supported by the trends in other parts of the world and could be utilized to infer the development process in this region. The urbanization pattern within Delhi is reflected by the trends of differences in annual mean minimum temperature of the two stations within the city namely Safdarjung and Palam. The significance of the warming trends of the annual minimum temperature for the urban heat island effect is also discussed.

KEYWORDS

Urban Heat Island, Temperature Trends, Urbanization, National Capital Region Delhi

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