

Analysis of Extreme Case of Urban Heat Island Effect and Correlation with Global Warming

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Abstract : Global warming and environmental degradation are at their peak today, with the years after 2000A.D. giving way to 15 hottest years in terms of average temperatures. In India, much of the standard temperature measuring equipment are located in 'developed' urban areas, hence showing us an incomplete picture in terms of the climate across many rural areas, which comprises most of the landmass. This study showcases data studied by the author since 3 years at Vatsalya's Children's village, in outskirts of Jaipur, Rajasthan, India; in the midst of semi-arid topography, where consistently huge temperature differences of up to 15.8 degrees Celsius from local Jaipur weather only 30 kilometers away, are stunning yet scary at the same time, encouraging analysis of where the natural climatic pattern is heading due to rapid unrestricted urbanization. Record-breaking data presented in this project enforces the need to discuss causes and recovery techniques. This research further explores how and to what extent we are causing phenomenal disturbances in the natural meteorological pattern by urban growth. Detailed data observations using a standardized ambient weather station at study site and comparing it with closest airport weather data, evaluating the patterns and differences, show striking differences in temperatures, wind patterns and even rainfall quantity, especially during high-pressure zone days. Winter-time lows dip to 8 degrees below freezing with heavy frost and ice, while only 30 kms away minimum figures barely touch single-digit temperatures. Human activity is having an unprecedented effect on climatic patterns in record-breaking trends, which is a warning of what may follow in the next 15-25 years for the next generation living in cities, and a serious exploration into possible solutions is a must.

Keywords : climate change, meteorology, urban heat island, urbanization

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