**Assessment of Urban Temperature Spatial Distribution Based on Effective Indices Using Satellite Imagery and Ground Truth Data  
( A case Study Tehran city)**

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**Abstract:**

The spatial distribution of urban temperature is a concept that demonstrates inequality of temperature on the city. This inequality caused by various factors such as land use and land cover type, form and geometry of buildings, building density and its spatial distribution, geographic position, green space as well as population density and energy consumption. Studies show that urban temperature spatial distribution a little considered in terms of urban planning and urban management. Because previous studies respectively about heat islands and temperature difference between urban and rural environments.

This paper has been tried to assessment the urban elements impacts on urban temperature spatial distribution. For this purpose, Landsat 8 images and other ground data such as urban land use and population density maps, also NDVI, NDBI and NBI indices has been used in this study.

The results of this study show that the temperature distribution pattern in Tehran were affected by land use and population density. So that in the west and southwest regions of Tehran due to nearby Mehrabad International Airport and industrial land use allocation as well as open and barren land with relatively higher temperature in compared to other urban areas.

**Keywords:** Urban temperature, Landsat 8, Tehran, NDBI, Thermal image