The Relation of Land Surface Temperature And Vegetation Indices Based on Landsat Imagery

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Abstract: Global warming events and high global temperatures are the one of global concern that must be studied. The effects of global warming are felt, especially in the region of big cities in Indonesia, it might be caused by the high growth of the number of the population in big cities such as Bandung city, Indonesia. It might be caused by the increasing of demand for land, where the natural land is transformed into a building function. So, Global warming is triggered by many factors that support the occurrence of such events such as low vegetation rates, high surface temperatures, high population density, air pollution, and so on. The adverse effect of the reduction of natural land in an urban area is the increase in surface temperature in the area. With remote sensing technology, it can be identified the vegetation complexity using the Normalized Difference Vegetation Index (NDVI) method in different study was to analyze the relationship between vegetation density and land surface temperature (LST) of Bandung City using Landsat satellite imagery in 1990 and 2019. The results of this study showed the indicate a reduction in vegetation density which resulted in increased surface temperatures in 2019 around 5 degrees celsius. The correlation value between vegetation density and surface temperature is r = 0.7, that means if the value of vegetation density gets higher than the temperature will increase, whereas if the vegetation density value gets lower than the surface temperature will rise.

Keywords: NDVI, LST, Landsat, Bandung.