

Correlation of Building Density toward Land Surface Temperature 2018 in Medan City

Authors : Andi Syahputra, R. H. Jatmiko, D. R. Hizbaron

Abstract : Land surface temperature (LST) in an area is influenced by conditions of vegetation density, building density, and the number of inhabitants who live in the area. Medan City is one of the largest cities in Indonesia, with a high rate of change from vegetation to developed land. This study aims to identify the relationship between the percentage of building density and land surface temperature in Medan City. Pixel image analysis method is carried out to obtain the value of building density in pixel images of Landsat 8 images with the help of WorldView-2 satellite imagery. The results showed the highest land surface temperature in 2018 of 35, 4°C was found in Medan Perjuangan District, and the lowest was 22.5°C in Medan Belawan District. Building density samples with a density level of 889.17 m were also found in Medan Perjuangan District, while the lowest building density sample was found in Medan Timur District. Linear regression analysis of the effect of building density with land surface temperature obtained a correlation (R) was 0.64, and a coefficient of determination (R²) was 0.411 and modeling of building density based on the LST has a correlation (R), and a coefficient of determination (R²) was 0.72 with The RMSE obtained 0.853.

Keywords : land surface temperature, Landsat, imagery, building density, vegetation, density

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