

ANALISIS VARIASI SPASIAL DAN TEMPORAL SUHU UDARA BERDASARKAN JENIS TUTUPAN LAHAN KECAMATAN GROGOL, SUKOHARJO

Oleh
Afanin Fatkha Azahra
18/426804/GE/08740

INTISARI

Perkembangan Kota Surakarta telah mendorong terbentuknya fenomena *Urban Heat Island* (UHI). Terbentuknya UHI di Kota Surakarta disebabkan tingginya aktivitas penduduk serta konversi lahan vegetasi menjadi lahan terbangun. Kecamatan Grogol yang terletak di sebelah selatan Kota Surakarta dipengaruhi sifat kekotaan dari Kota Surakarta. Perkembangan Kecamatan Grogol dapat diamati dari dibangunnya pusat perbelanjaan, hotel serta apartemen pada beberapa tahun terakhir. Perkembangan ini mendorong terjadinya konversi lahan bervegetasi menjadi lahan terbangun. Penutup lahan, dalam beberapa penelitian sebelumnya, dapat mempengaruhi suhu udara. Oleh karena itu, penelitian ini mengkaji mengenai suhu udara dan penutup lahan. Lebih lanjut, tujuan dilakukannya penelitian ini adalah untuk mengetahui variasi spasial dan temporal suhu udara pada Kecamatan Grogol berdasarkan jenis tutupan lahan serta mengetahui perbedaan suhu udara antara penutup lahan terbangun dan penutup lahan persawahan.

Metode penelitian yang digunakan yaitu interpretasi penutup lahan menggunakan citra Sentinel 2A, pengukuran suhu udara di lapangan menggunakan logger suhu udara, serta analisis statistik deskriptif dan inferensial. Analisis statistik deskriptif dilakukan dengan menghitung nilai rata-rata, minimum, dan maksimum. Analisis statistik inferensial dengan uji T dan Mann-Whitney, digunakan untuk mengetahui adanya perbedaan suhu udara antara penutup lahan terbangun dan sawah.

Kecamatan Grogol didominasi oleh penutup lahan permukiman dan sawah. Variasi spasial suhu udara menunjukkan suhu udara yang lebih tinggi tersebar di bagian utara Kecamatan Grogol. Bagian utara Kecamatan Grogol didominasi penutup lahan permukiman. Suhu udara yang lebih rendah tersebar di bagian selatan Kecamatan Grogol. Bagian selatan Kecamatan Grogol didominasi penutup lahan sawah. Variasi temporal suhu udara menunjukkan tren penurunan pada suhu udara rata-rata harian. Variasi suhu udara harian berdasarkan jam menunjukkan suhu udara minimum tercapai sesaat sebelum matahari terbit sedangkan waktu puncak maksimumnya tercapai dua hingga empat jam setelah tengah hari. Variasi temporal suhu udara pada keempat titik sampel menunjukkan pola yang hampir sama. Namun, suhu udara pada penutup lahan terbangun lebih tinggi daripada persawahan. Rata-rata suhu udara pada lahan terbangun yaitu permukiman sebesar 31,38°C sedangkan pada lahan persawahan sebesar 28,45°C. Hasil uji beda secara statistik dengan uji T atau uji Mann-Whitney juga menunjukkan terdapat perbedaan antara kedua penutup lahan.

Kata Kunci: suhu udara, penutup lahan, variasi spasio-temporal, uji T

ANALYSIS OF SPATIAL AND TEMPORAL VARIATION OF AIR TEMPERATURE BASED ON LAND COVER TYPE GROGOL SUB-DISTRICT, SUKOHARJO

By

Afanin Fatkha Azahra
18/426804/GE/08740

ABSTRACT

The development of Surakarta City has encouraged the Urban Heat Island (UHI) phenomenon. The UHI phenomenon in Surakarta City is caused by high population activity and the conversion of vegetated land into built-up land. Grogol sub-district, which is located in the south of Surakarta City, is influenced by Surakarta City. The development of Grogol sub-district can be observed from the construction of shopping centers, hotels and apartments in recent years. The development encourages the conversion of vegetated land into built-up land. Land cover, in several previous studies, can affect air temperature. Therefore, this study examines air temperature and land cover. Furthermore, the purpose of this study was to determine the spatial and temporal variations of air temperature in Grogol sub-district based on the type of land cover and to determine the difference in air temperature between the built-up land cover and the paddy field cover.

This research uses the land cover interpretation method using Sentinel 2A imagery, measurement of air temperature in the field using an air temperature logger, as well as descriptive and inferential statistical analysis. Descriptive statistical analysis was carried out by calculating the average, minimum, and maximum values. Inferential statistical analysis with T test and Mann-Whitney, was used to determine the difference in air temperature between built-up land cover and rice fields.

Grogol sub-district is dominated by settlements area and rice fields. The spatial variation of air temperature shows that the higher air temperature is spread in the northern part of Grogol sub-district. The northern part of Grogol sub-district is dominated by settlements. Lower air temperatures are spread in the southern part of Grogol sub-district. The southern part of Grogol sub-district is dominated by paddy fields. Temporal variations in air temperature show a downward trend in the daily average air temperature. Daily variations in air temperature by hour indicate that the minimum air temperature is reached just before sunrise while the maximum peak time is reached two to four hours after noon. Temporal variations of air temperature on the four sample points showed almost the same pattern. However, the air temperature was higher in the built-up land cover than in the rice fields. The average of air temperature in the built-up land cover is 31,38°C while in the rice field is 28,45°C. The results of the statistically different test with the T test or the Mann-Whitney test also showed that there were differences between the two land covers.

Keywords: air temperature, land cover, spasio-temporal variation, T-test