

ABSTRACT

Along the Malioboro street stands many buildings in various. Variation in the building's height (H) and the streets width (W) causing the urban heat island phenomenon. H/W ratio is used as the reference in determining urban heat island effect. Yet, H/W values from this research area were not ideal, therefore the sky view factor was used as the reference. The purpose of this research were 1). to detect the spatial and temporal distribution of air temperature, air relative humidity, wind velocity, and the concentration of carbon monoxide in the air along the Malioboro street, 2) to investigate the connection between the sky view factor and urban heat island intensity (ΔT_{u-r}), 3). to investigate the connection between the sky view factor and the carbon monoxide concentration (CO) in the air.

Using purposive sampling method, which is based on the sky view factor value, fieldwork sampling was done. Spatial analysis is presented in the form of maps; consisting the map of temperature, air relative humidity, CO concentration in the air, and wind velocity. Statistical analysis using boxplot method was conducted to examine the interactions between sky view factor, the urban heat island intensity (ΔT_{u-r}), and CO concentration in the air.

The spatial and temporal result of this research shows that the highest air temperature were at 13.00 in the all point of measurement. Where as the air relative humidity at that time shows the lowest value. The distribution of CO concentration was at Malioboro Mall followed by Ramai Mall, Mutiara Hotel, Beringharjo Market, Vredenburg Fort, and the North Town Square. The highest wing velocity was at the North Town Square with velocity of 4 m/s. The boxplot analysis shows the pattern that the higher sky view factor's value would result to lower temperature. Similarly to CO ambient degree, the higher value of the sky view factor would result to the lower CO concentration in the air.

INTISARI

Di sepanjang Jalan Malioboro banyak berdiri bangunan gedung dengan tinggi bervariasi. Variasi tinggi gedung (H) dan lebar jalan (W) menyebabkan fenomena pulau bahang. Rasio H/W dijadikan sebagai dasar dalam penentuan efek pulau bahang. Namun karena nilai H/W di daerah penelitian ini tidak ideal maka faktor pandang langit (*sky view factor*) digunakan sebagai acuan. Penelitian ini bertujuan 1) mengetahui distribusi spasial dan temporal suhu udara kelembaban udara relatif, kecepatan angin dan konsentrasi karbon monoksida di udara di sepanjang Jalan Malioboro, 2) mengkaji hubungan antara *sky view factor* dengan intensitas pulau bahang (ΔT_{u-r}), 3) mengkaji hubungan antara *sky view factor* dengan konsentrasi karbon monoksida (CO) di udara.

Pengambilan sampel lapangan dilakukan secara *purposive sampling* yaitu berdasarkan nilai *sky view factor*. Analisis spasial disajikan dalam bentuk peta yang meliputi peta suhu udara, kelembaban relatif, konsentrasi CO di udara, dan kecepatan angin. Sedangkan analisis temporal berupa grafik hubungan antara waktu pengukuran dengan data pengukuran lapangan yang meliputi suhu udara, kelembaban udara relatif, konsentrasi CO di udara, dan kecepatan angin. Analisis statistik dengan metode *boxplot* digunakan untuk mengetahui hubungan *sky view factor* dengan intensitas pulau bahang (ΔT_{u-r}) dan konsentrasi CO di udara.

Hasil penelitian secara spasial dan temporal di sepanjang Jalan Malioboro menunjukkan bahwa suhu udara tertinggi pada saat jam 13.00 di semua titik pengukuran. Sedangkan kelembaban udara relatif pada jam tersebut menunjukkan nilai paling rendah. Distribusi konsentrasi CO di udara dari keenam lokasi pengukuran menunjukkan pola yang berbeda-beda, namun konsentrasi tertinggi terdapat di Malioboro Mall, disusul Ramai Mall, Hotel Mutiara, Pasar Beringharjo, Benteng Vredebrug, dan Alun-alun Utara. Kecepatan angin terbesar terdapat di Alun-alun Utara dengan kecepatan (4 m/s). Analisis *boxplot* menunjukkan pola bahwa semakin tinggi nilai *sky view factor* maka nilai suhu udara (ΔT_{u-r}) semakin rendah. Begitu pula semakin tinggi nilai *sky view factor* maka konsentrasi CO di udara semakin rendah