

## **The Detection of Urban Heat Island in Jakarta, Indonesia Using the Landsat 8 Satellite Data**

Prita Ayu Permatasari (1), Arif Kurnia Wijayanto (1), Luisa Febrina Amalo (1)

<sup>1</sup> Environmental Research Center, IPB University, Bogor, West Java, Indonesia, 16680  
Email: [pritaapermatasari@gmail.com](mailto:pritaapermatasari@gmail.com); [akwijayanto@gmail.com](mailto:akwijayanto@gmail.com);  
[luisafebrina@gmail.com](mailto:luisafebrina@gmail.com)

**Abstract:** The high level of population in urban area led to high levels of human activity on land use/cover change and decrease urban green open space. This causes high temperature in the urban and environmental discomfort. Urban area is significantly warmer than its surrounding rural areas due to human activities. This condition known as urban heat island (UHI). Urban Heat Island (UHI) is well recognized in large cities around the world including Jakarta, Indonesia. Jakarta is the largest cities in Indonesia that located in Java Island, the most populated island in Indonesia. In this study, the effect of UHI is analyzed using Landsat 8 data in the period of 2013–2017 as a case study in Jakarta, Indonesia. Air temperature data from Meteorological, Climatological, and Geophysical Agency also used for comparison. The results indicated that the effect surface temperature in Jakarta for the last four years has been increased. This study also showed the specific location of urban heat island in Jakarta.

**Keywords:** urban heat island, urban area, Jakarta, temperature