

# **Relationship between landscape and meteorological parameters on COVID-19 risk in a small-complex region of Yogyakarta**

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## **ABSTRACT**

Until the beginning of September 2021, the COVID-19 outbreak has lasted for more than 1.5 years in Indonesia, especially on Java and Bali islands. Yogyakarta Province, Indonesia, is one of the areas that still imposes restrictions on community activities at the highest level till that period. This is due to the high rate of COVID-19 spread in this region. In this paper, the influence of landscape and meteorological parameters on the spread of COVID-19 risk in Yogyakarta Province is investigated. This study utilizes primary and secondary data obtained from observation, remote sensing image interpretation, literature study, and documentation of data from several agencies. The data were analyzed by employing statistical analysis using simple linear regression and Geographic Information System (GIS) analysis utilizing the average nearest neighbor. The results show that the variation of the landscape and meteorology in the Yogyakarta area do not have a significant impact on the spread of COVID-19. Ease of accessibility in various areas of Yogyakarta is able to overcome landscape barriers. This affects the random distribution pattern of COVID-19, clustering in plain areas that facilitate population mobility rather than in mountainous, volcanic, or karst areas. Also, meteorological conditions with small variations do not impact the spread of COVID-19. In summary, this study shows that the ease of mobility in a medium-wide area can encourage the spread of COVID-19 in various regions even though there are variations in its terrain and climate.

**Kata Kunci:** *COVID-19 outbreak, landscape, climate, Yogyakarta*