

## ABSTRACT

*Global climate change has significant impacts at the local scale, including urban areas such as Semarang City, which is vulnerable to floods, droughts, and the Urban Heat Island (UHI) phenomenon. Therefore, it is necessary to conduct a study to project future rainfall and temperature conditions. This research aims to project the rainfall and temperature trends in Semarang City for the 2025–2050 period using the ARIMA (AutoRegressive Integrated Moving Average) method based on bias-corrected historical data from 2001–2024 and to present the results in spatial map form. The analysis was carried out using data from three BMKG stations (Central Java, Tanjung Emas, and Ahmad Yani). The results show that rainfall tends to increase with a more evenly distributed spatial pattern, while air temperature also increases in both maximum and minimum values across the region. The spatial maps indicate that the southern areas remain relatively warmer and wetter compared to the northern and eastern parts, which are hotter and more humid, with a tendency of class shifts in rainfall and temperature over time. These findings indicate the influence of local climate change that should be considered in water resource management and urban adaptation planning.*

**Keywords:** *ARIMA, climate projection, rainfall, temperature.*