

## **ABSTRACT**

Riau is one of the areas on the island of Sumatra, which has the largest peatlands, around 55.76% of the total number in Sumatra. This makes Riau vulnerable to forest and land fires due to land misuse. This study aims to analyze an area for installing air quality equipment in Riau Province using weather data and the distribution of hotspots. The data used were forest fires in 2015 and 2019 obtained from the Meteorology, Climatology and Geophysics Agency (BMKG), the Ministry of Environment and Forestry (KLHK), and the Malaysia Department of Environment (DOE) through Air Quality Historical Data. The method used in this research is descriptive method, namely an event is investigated, collects data, processes data, and analyzes data. From this data, the weather affects forest and land fires and reduces the distribution of hotspots. The forest fires that occur cause transboundary pollution which increases PM<sub>10</sub> concentrations and degrades air quality in Malaysia. Pollutants from forest fires are fresh combustions and aged combustion. From the analysis, it was found that several recommended areas were Bengkalis Regency, Rokan Hilir Regency, Pelalawan Regency, Siak Regency, Kepulauan Meranti Regency, Indragiri Hilir Regency, dan Indragiri Hulu Regency. Measuring parameters that can be used are temperature, humidity, wind direction and speed, particulate meters, gas sensors, and fire sensors with a wireless sensor network (WNS) system.

Keywords: Weather, hotspot, forest fire, PM10, wireless sensor network (WNS).