ABSTRACT

This research is motivated by the need to monitor the concentration and distribution of pollution in the Greater Bandung area, because its topology in the form of a basin makes it easier for pollution to be trapped. The pollutants observed in this study were $PM_{2.5}$ and CO_2. Measurements were carried out at 3 measuring station locations with different heights, namely the Deli building (~15m), GKU (~30m), and TULT (~70m). Each measuring station is equipped with 6 meteorological parameters, namely temperature, relative humidity, light intensity, air pressure, wind speed and wind direction. Online data is sent using ESP32. Data collection from all measuring stations in ESP32 connected by WIFI is then sent to the cloud server. From the data obtained, it can be seen that the CO_2 concentration at the TULT station is relatively in the concentration range of 450-500 ppm, lower than the other two measuring stations and remains stable during the day and night. Meanwhile, the concentration of $PM_{2.5}$ at the TULT measuring station tends to be low on weekends with a range of around 35-70 $\mu g/m^3$ and high on weekdays. In contrast to Deli and GKU measuring stations, which are higher on weekends than weekdays, even though the concentration of $PM_{2.5}$ at TULT measuring stations tends to be lower than the other two measuring stations. In addition, the concentration of $PM_{2.5}$ in TULT was also not affected by the decrease in PBL at night seen from the daily concentration. This indicates that the TULT measuring station is still influenced by the daily activities of the community which produces $PM_{2.5}$ without the influence of day and night changes.

Keywords**:** *CO_2, diurnal, season, $PM_{2.5}$, vertical*