

## ABSTRACT

*Acid rain is caused by the emission of SO<sub>2</sub> and NO<sub>x</sub> gases when these emissions are oxidized by sunlight and assisted by air and mixed with water vapor in the atmosphere, it will form H<sub>2</sub>SO<sub>4</sub> and HNO<sub>3</sub> compounds. Therefore, observations of acid rain were carried out at Telkom University and LAPAN in the period March-December 2019 using an observatory-type manual rainfall gauge and rainwater quality parameters (pH, conductivity, and ion) and identifying sources of pollutants in the measurement area. The measurement results show that the correlation between the parameters of rainwater quality and rainfall has a significant effect on the acidity of rainwater. This is because high rainfall can reduce the value of conductivity and ion levels, this is because high rainfall can clean pollutants in the atmosphere, while during the dry season the value of conductivity and ionic content is high because the compounds are not dissolved in rainwater. For conductivity and pH values are influenced by ion levels, this is because the conductivity value functions to determine the ion content in a solution, while the pH value is due to factors of acid and base compounds, if the acidic compound is dominant then the pH value decreases, if the base compound is dominant it can neutralize acid in rainwater. The neutralizing factors for Na<sup>+</sup>, NH<sub>4</sub><sup>+</sup>, and Ca<sup>2+</sup> acids have the strongest correlation with the pH value compared to other basic compounds. The ion distribution pathways during the measurement period can come from local emissions, such as anthropogenic, namely transportation, industry, agriculture, and burning fossil fuels and waste as well as long-distance emissions from the earth's crust, oceans, the coast of the Australian continent, marine activity, and anthropogenic in the continent of Australia and forest fires in Australia from June 2019 to January 2020.*

**Keywords:** *Conductivity, Degree of Acidity (pH), Ions, Rainwater,*