CHARACTERIZING THE TRANSPORT AND METEOROLOGICAL FACTORS IN LEADING TO THE 2019 SOUTHEAST ASIAN TRANSBOUNDARY HAZE IN THE SOUTHERN PHILIPPINES

ABSTRACT

Since the beginning of time, there have been Forest Fires occurrences that have been happening on Earth. A great example of a Forest Fire event occurred in 2019 in Indonesia. These major forest fire incidents, such as in Indonesia, had a severe impact through the cross-border haze, also known as the Southeast Asia Transboundary Haze. Due to the massive forest fire, the cross-border smoke emerged from the four areas: Jambi, Riau, Central, and Western Kalimantan in Indonesia. It reached Singapore, Malaysia, and Philippines during September 2019, resulting in worsening measured air quality. The study would cover August to November of 2019 to fully understand how the other countries forest fires affect the Philippines through the transboundary haze event. Therefore, it is vital to have some knowledge of the current atmospheric activities at that time. The flow and impact of the Southeast Asian Transboundary Haze due to the 2019 Indonesian Forest Fire will be analyzed using the PM (Particulate Matter), AOD (Aerosols Optical Depth), Wind Trajectory, Fire Emissions Data, and Chemical Compositions. By analyzing previously mentioned parameters, the researcher aimed to evaluate significant drivers that have caused the Indonesian Forest Fire's Southeast Transboundary Haze Event. Based on the preliminary results, the wind trajectory from Indonesia to the Philippines is positively affected by the prevailing Southwest Monsoon or Habagat. Simultaneously, there is a spike of PM 2.5 and PM 10 in the ground station readings during September and early October. Lastly, this paper's content may help people understand how a particular Forest fire can affect not only one country but its surroundings and could serve as a guide for decision-making toward preventing further fire expansion and reducing its adverse effects in the forests.

KEYWORDS: Transboundary Haze, Emission Burning, Southeast Asia, Indonesia, Philippines, Air Quality