

The Emission and The Dispersion Characteristics of Air Pollutants: A Case Study of a Pulp and Paper Mill in Sipitang, Sabah

ABSTRACT

Pulp and paper is one of the highly polluting industries, most depicted energy and water exhaustive industrial sector in the world. This study aims to simulate the emission and the dispersion characteristics of SO₂ and NO_x from a pulp and paper mill in Sipitang using AERMOD under the complex terrain. The meteorological data has been simulated using WRF due to the absence of complete data as the AERMOD input. Both pollutants found to be dispersed in the area between Sindumin and Lawas with almost all results showed the emission were below the Malaysia Ambient Standards except for All Sources - 1 Hour average (NO_x, SO₂, and Worst Case Scenario), Power Boiler - 1 Hour average (Worst Case Scenario), and the Recovery Boiler - 1 Hour average (NO_x and Worse case scenario). The model underestimated the pollutants concentration compared with previous studies done on the same site. It should be noted that the model only simulated the pollutants concentration from these sources and not counting other sources in the area. In order to reduce the emission, it is suggested that the emission to be treated before being released to the environment. Future study should be done to evaluate the impact of the emission in the area shown in this study result.