

Source contribution of PM-10 concentrations in the Na Phra Lan pollution control zone, Saraburi, Thailand / Tipawan Phetrawech, Sarawut Thepanondh

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20470958&lokasi=lokal>

Abstrak

ABSTRACT

Re-suspended road dust is an important contributor to ambient particulate matter (PM) particularly in an area where fugitive dust is a dominant emission source. This study evaluated PM-10 emissions as fugitive re-suspended dust from the road network in the Na Phra Lan pollution control zone, Saraburi, Thailand. Emissions of road dust were determined by using the analysis of silt loading and physical characteristics of the roads located in the study area. These data were used together with those emissions from point and area sources in the study area to predict the ambient concentrations of PM-10. AERMOD model was applied to predict PM at various receptor points. Source contribution of each emission group to PM-10 ambient concentrations at each receptor were evaluated. Predicted 24 hours PM-10 concentrations at 8 sites from the total of 23 receptors were higher than the PM-10 ambient air quality standard ($> 120 \mu\text{g}/\text{m}^3$). Results revealed that line sources played an important role in contributing to the PM-10 concentrations in this pollution control zone. The highest predicted PM-10 concentration at the receptor was evaluated to have about 71% contribution from mobile source emissions. Therefore, the effort to manage and control emissions of re-suspended road dust could be strengthened for further success of the air pollution control in this area.