Abstract

One of the largest sources of air pollutants is from the transportation sector. The development of this technology will indirectly increase the amount of waste in the form of compounds one of which carbon dioxide (CO$_2$), which could potentially cause global warming.

This research will discuss the influence of the number of vehicles on the increase of carbon dioxide (CO$_2$) in the ITS region. The first thing to do is doing the survey the number and type of vehicles that go through the four entrances ITS then determining the strength of motor vehicle emissions based on emission factors for energy consumption and different types of fuel. The distribution of carbon dioxide (CO$_2$) is determined based on The Gaussian Dispersion Model Type Line Source. The dispersion data of carbon dioxide (CO$_2$) is mapped as the concentration of carbon dioxide (CO$_2$).

It can be concluded that the emission strength (Q) of carbon dioxide (CO$_2$) from vehicles at the peak hour entrance is 84.03 grams/sec and at the peak hour exit is 79.01 grams/second. From the map, it can be seen the largest concentration of carbon dioxide (CO$_2$) is at coordinates x= 112° 47’ 26.66“ E and y = 7° 17’ 1.46“ - 7° 16’ 48.98“ S or at the block III with an average concentration of carbon dioxide (CO$_2$) equal to 1.30 x10$^{-3}$ grams CO$_2$/m$^3$

Keyword: air pollution, carbon dioxide, emission factor, motor vehicle, greenhouse effect