

UNIVERSITI TEKNOLOGI MARA

**SPATIAL CONCENTRATION OF
PARTICULAR MATTER 2.5 OVER
PENINSULAR MALAYSIA USING
GIS OPEN SOURCES SOFTWARE
AND SATELLITE BASED AEROSOL
OPTICAL DEPTH**

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Thesis Submitted in Fulfilment
Of the requirement for Degree of
**Bachelor of Surveying Science and Geomatics
(Hons.)**

Faculty of Architecture, Planning & Surveying

AUTHOR'S DECLARATION

I declare that the work in this report was carried out by the regulations of University Technology MARA. It is original and is the result of my work unless otherwise indicated or acknowledged a referenced work. This report has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Undergraduate, University Technology MARA, regulating the conduct of my study.

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ABSTRACT

Nowadays, particularly matter (PM2.5) is one of the parameters that contribute to air pollution. PM2.5 is a small particle in the air that reduces visibility and causes air to fade when raised. There are few causes of air pollution is come by solid and liquid particles and certain gases that are suspended in the air. However, this can give a large negative impact on human health. Thus, this study aims to determine the spatial concentration of PM2.5 over Peninsular Malaysia using GIS open-source software. To achieve the aim, the objectives of this study is to map PM2.5 with the IDW interpolation method using QGIS software in Peninsular Malaysia. The second objective is to identify the relationship between PM2.5 and Aerosol Optical Depth (AOD). The study area is carried out around Peninsular Malaysia. For this research, the data that available is tabular data of PM2.5 from the department of the environment and satellite image MODIS from the NASA website. The methodology of the study is divided into four (4) main phases such as planning, data acquisition, data processing, data analysis. A correlation test was performing to establish the relationship between PM2.5 and MODIS AOD to identify the value of AOD that will affect the value of PM2.5. Then by using GIS open-source software, QGIS was used to run the Inverse Distance Weighting (IDW) technique and mapping a concentration of PM2.5 pollutant distribution. After that by using the data of the Air Pollution index and the value of Aerosol Optical Depth, this study can identify the values that influence the pollutants by studying the relationship between PM2.5 and AOD using satellite images MODIS.

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