

UNIVERSITI TEKNOLOGI MARA

**ESTIMATION OF SURFACE MOISTURE
USING SOIL WETNESS INDEX BASED
ON LST AND NDVI**

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Thesis submitted in fulfillment
of the requirements for the degree of
**Bachelor of Surveying Science and Geomatics
(Hons)**

Faculty of Architecture, Planning and Surveying

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis 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 Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Surface soil wetness determines moisture availability that controls the response and feedback mechanisms between land surface and atmospheric processes. The purpose of this research is to estimate the soil moisture at Kuala Krai. The estimation of surface soil moisture is important for the agricultural safety. Soil wetness index has been used to estimate the soil moisture for this study. Therefore, mathematical model has been used to calculate the soil wetness index. Moreover, this research has used Normalized Differential Vegetation Index (NDVI) and Land Surface Temperature (LST) as the parameters to calculate soil wetness index. Results of this study have showed three types of maps which is land surface temperature, NDVI and soil wetness index maps. Other than that, the scatter plot to show relationship between the results have been done. In conclusion, this study will give beneficial to the agricultural activities to determine the good condition of soil for plantation.

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