

UNIVERSITI TEKNOLOGI MARA

*ASSESSMENT OF SATELLITE
DERIVED BATHYMETRY FROM SPOT 7
SATELLITE IMAGERY*

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

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AUTHOR'S DECLARATION

I declare that the work in this dissertation 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

Bathymetry is the measurement of water depth in oceans, rivers, or lakes. Nowadays, the measurement of water depth also can be estimated by using remotely sensed satellite imagery which is known as Satellite Derived Bathymetry (SDB). Water depth from SDB estimation is based on in-Situ data and can be used to make navigation. Thus, the aim of this study is to assess the estimated near-shore water depth using Spot 7 satellite imagery with In-Situ measurement at Sungai Dinding, Lumut Perak. The objectives are (1) to estimate water depth from Spot 7 satellite image using Ratio Transformation Algorithm and (2) to assess estimated water depth with In-Situ data measurement. In this study, Ratio Algorithm was applied on spectral band blue, green and NIR to estimate SDB and the in-Situ data of hydrgraphic work of Sungai Dinding was used to assess the estimated water depth from SDB. The strong correlation was found between SDB and in situ measurement from 1.0 to 12.0 meters with the value of 0.768. The assessments of SDB were determined from Root Mean Square Error (RMSE) and Mean Absolute Error (MAE) with the value of 0.6573 and 0.5884 respectively. Based on the finding, the ratio method can be used to estimate water depth from SPOT 7 ranging from 1.0 to 9.0m at Sungai Dinding. Overall the finding of this research shown that high spatial resolution of a remotely sensed image such as Spot-7 can potentially be used to estimate water depth in SDB approach.

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