

UNIVERSITI TEKNOLOGI MARA

**GEOID MODELLING OVER SABAH
REGION USING KTH METHOD**

JAZMIERA TASHA BINTI JAMALUDIN

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of the requirements for the degree of
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(Hons)**

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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 result of my own 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, Universiti Teknologi MARA, regulating the conduct of my study.

Name of Student : Jazmiera Tasha binti Jamaludin

Student I.D. No. : 2017800052

Programme : Bachelor of Surveying Science and Geomatics (Hons)
– AP220

Faculty : Faculty of Architecture, Planning and Surveying

Thesis Title : Geoid Modelling Over Sabah Region using KTH
Method

Signature of Student : *Jazmiera*

Date : August 2020

ABSTRACT

Sabah have a rough topography and many rivers that cause conventional levelling difficult to be carried out. GPS levelling technique is alternative that have be used to performing levelling through rugged and mountainous areas. GPS levelling requires an accurate geoid model to transform geometric height to physical height. This research aims to establish high precision hybrid geoid over Sabah state. While the objectives for this research is to evaluate the most accurate Global Geopotential Model (GGM). There are six different type of model that used to be tested in this research and it contain data satellite-only. Terrestrial gravity data and GNSS levelling data has been used as an input data that compute for RMSE of GGM. Based on the selected GGM that already be choose, next objective which are compute gravimetric geoid using KTH method will be run. KTH method one of the important part that want to study in this research because in the previous, there have no study that generated geoid model using this method at Sabah region. This research also highlights the purpose of integrate hybrid geoid using different approach, which are by fitting used Gravsoft software and by offset to tide gauge to produce the fitted geoid. However, the first approach which are fitting of gravimetric geoid to selected benchmark is most suitable method to be used in order produce new hybrid geoid. However, this research contain lack because the RMSE value that produce by new hybrid geoid model not receive an improvement from the MyGEOID that used nowadays in East Malaysia. MyGEOID has used the adding new data in marine area, it becomes one of the main reasons why this geoid model is more accurate compare to new hybrid geoid.

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