UNIVERSITI TEKNOLOGI MARA

GRAVITY FIELD AND STEADY-STATE OCEAN CIRCULATION EXPLORER GLOBAL GEOPOTENTIAL MODEL EVALUATION OVER PENINSULAR MALAYSIA

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Dissertation submitted in
fulfillment of the requirements for
the degree of
Bachelor of Surveying Science and Geomatics

Faculty of Architecture. Planning, and Surveying

August 2020

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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Code Programme	: AP220
Project Title	: Gravity Field and Steady-State Ocean Circulation Explorer Global Geopotential Model Evaluation Over Peninsular Malaysia
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ABSTRACT

Generally, geodesy is well defined as a science of accurately measuring and understanding the Earth's geometric shape, orientation in space, and gravity as well as the changes of these properties with time. Nowadays, GPS is used in increasingly and widely in all areas. However, the height information in GPS is not the actual height and they need to do the corrections (Abidin, 2007). In that case, the research study was carried out with the aim to evaluate a Gravity Field and Steady-State Ocean Circulation Explorer (GOCE) Global Geopotential Model (GGM) over Peninsular Malaysia. While the objective is to evaluate the most accurate Gravity Field and Steady-State Ocean Circulations Explorer (GOCE) Global Geopotential Model (GGM). In order to achieve this research aim, sixteen of GOCE GGM was been used and it contain data satellite-only. Therefore, GNSS levelling also have been used as an input data to calculate the RMSE of the GGM. Based on the selected GOCE GGM that had been choose in previous objective, the second objective is to improve the accuracy of the best Gravity Field and Steady-State Ocean Circulations Explorer (GOCE) Global Geopotential Model (GGM) had been done. The data was analysed to evaluate and determine the GO CON SPW R2 is the most accurate GOCE GGM among the others GOCE GGM. This was been proved by computing the accuracy of the model by doing fitting geoid as the correction for the gravimetric geoid model.

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