UNIVERSITI TEKNOLOGI MARA

EFFECT OF GLOBAL DIGITAL ELEVATION MODEL (GDEM) IN GEOID MODELLING USING KTH METHOD

AFIQAH BINTI ZOL

2013536617

Thesis submitted in fulfilment of
the requirements for the degree of
Bachelor of Surveing Science and Geomatics

(Honours)

Faculty of Architecture, Planning and Surveying

July 2017

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 Under Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student	:	Afiqah binti Zol
Student I.D. No.	:	2013536617
Programme	:	Bachelor of Science and Geomatics
Faculty	:	Faculty of Architecture, Planning and Surveying
Thesis	:	Effect Of Global Digital Elevation Model (GDEM) In Geoid Modelling Using KTH Method
Programme Code	:	AP220
Signature of Student		....
Date	:	9 August 2017

Approved By:

I certify that I had examined this student's work and found that they were in accordance by the rules and regulations of the department and university thus fulfils the requirements for the awards of the degree of Bachelor in Surveying Science and Geomatics (Honours).

Name of Supervisor's: Sir Muhammad Faiz bin Pa'suya

Signature and Date : 14/8/2017.

iv

ABSTRACT

Geoid model gave information in determination of orthometric height by knowing the ellipsoidal height. This ellipsoidal height using Global Navigation Satellite System (GNSS) technology. The main objective is to determine precise geoid models. There are several of method in determine geoid at any country such as Remove- Compute-Restore (RCR) method. In this study, the Least Square Modification Stokes' (LSMS) approach by Royal Institute of Technology, (KTH) had been the aim for the evaluated in determine gravimetric geoid model in Johor region. In order to increase the accuracy of geoid model, Global Geopotential Model (GGM) along with Digital Elevation Model (DEM) are need. So that it achieved in study focus which is evaluation of DEM and GGM. The result of this study is one of three GGM were evaluate and ITU_GGC16 is the most precise global model that produce Root Mean Square Error (RMSE) with 0.22m over 3367 gravity points. In additional, in DEM evaluation, the SRTM30 show the RMSE with 7.12m. Furthermore, the precise gravimetric geoid model show that Aster using ITU_GGC16 show precise than SRTM30 and SRTM90 with 1.365m. The comparison between RCR method where JUPEM used and KTH approach show that the LSMS method is better in determine precise geoid model for Johor region.

TABLE OF CONTENT