

UNIVERSITITEKNOLOGIMARA

COMPARING SEABED ROUGHNESS RESULT FROM QPS FLEDRMAUS
SOFTWARE, BENTHIC TERRAIN MODELER (BTM) AND DEVELOPED
MODEL DERIVED FOM SLOPE VARIABILITY ALGORITHM FOR HARD
CORAL REEF DETECTION

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

Faculty of Education

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AUTHOR'S DECLARATION

I declare that the work in this thesis/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

Benthic habitat complexity can be explained as habitat species that lives in the bottom of seafloor which play an important role in marine biodiversity. Therefore, the existence of benthic habitats can affect the surface complexity such as coral reefs habitats. Rugosity measurement is one of the ways that can be used to understand the complexity of the seafloor. For example, marine biologists using rugosity measurement in order to understand the growth and pattern of the coral reefs and to identify the existing of coral reefs. There are several methods that can be used in determine the rugosity which are using virtual area based rugosity and virtual chain tape rugosity. As for this study, virtual area based is been used which applied to bathymetry data set that has been collected by using R2 Sonic 2020. In this study, several models has been created which are from QPS Fledermaus model, BTM model and Slope Variability model. Slope variability model is an algorithm that is being used for detecting terrain roughness. Thus, focus of this study is to determine the best model that can be used to detect coral reefs area and to know the capabilities of slope variability model. In this study, rugosity is been developed by using QPS Fledermaus software. In ArcGIS software, DEM data will be process by using terrain roughness model that has been derived by using Slope Variability algorithm. Slope surface is been created in BTM by using same of DEM data. Then, accuracy assessment has been done by comparing the model from Fledermaus and BTM with slope variability model as to know the capabilities of those models in detecting the corals reefs area. Results shows in a percentage values which are 92% of similarity for QPS Fledermaus and slope variability model result and lastly 90% of similarity for BTM and slope variability model result.

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