

3D VISUALIZATION FOR ESTUARY OF RIVER
KUALA TERENGGANU

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SCHOOL OF MARITIME STUDIES AND MARINE SCIENCE
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3D Visualization for Estuary of River Kuala Terengganu

By

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**Research Report submitted in partial fulfilment of the requirements for the
degree of Bachelor of Science (Marine Science)**

**Department of Marine Science
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**DEPARTMENT OF MARINE SCIENCE
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
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DECLARATION AND VERIFICATION FORM

FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled:

3D Visualization for Estuary of River Kuala Terengganu by Sim Eik Ee, Matric No. **UK20345** has been examined and all errors identified have been corrected. This report is submitted to the Department of Marine Science as partial fulfillment towards obtaining the Degree of **Bachelor of Science (Marine Science)**, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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LIST OF ABBREVIATIONS

0D	Zero Dimension
1D	One Dimension
2D	Two Dimension
3D	Three Dimension
CAD	Computer-aided Design
CCOM	Center for Coastal and Ocean Mapping
DEM	Digital Elevation Model
DSM	Digital Surface Model
DTM	Digital Terrain Model
GIS	Geographical Information System
IfSAR	Interferometric Synthetic Aperture Radar
LiDAR	Light Detection and Ranging
SPOT	System for Earth Observation (Satellite)

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ABSTRACT

The project is about 3D visualized the land terrain and bottom profile for estuaries of River Kuala Terengganu. With the advancement of technologies, new softwares are created by engineers to visualize the real world in 3D format. For this project, Fledermaus 3D was used to mimic the topography of estuary River Kuala Terengganu and also surrounding land area. Due to lack of 3D model in Kuala Terengganu, this project is to provide reference point for further application and monitoring in an effective and manageable way. There are several dataset included which are bathymetry data of estuary, Digital Surface Model and Digital Terrain Model of surrounding estuary as well as raster image. The raster image captured on 23th September 2009 by SPOT, and reproduced by MACRES. Besides, the bathymetry data was sampled at year 2009. The DSM and DTM was purchase from Intermap Technologies year 2011. These data was combined and integrated to become a 3D model for further analysis.

ABSTRAK

Projek 3D ini membayangkan rupa bumi tanah dan profil bawah untuk muara Sungai Kuala Terengganu. Dengan kemajuan teknologi, perisian baru telah dicipta oleh para jurutera untuk menggambarkan dunia sebenar dalam format 3D. Bagi projek ini, Fledermaus 3D digunakan untuk meniru topografi muara Sungai Kuala Terengganu dan juga di sekitar kawasan tanah. Disebabkan oleh kekurangan model 3D di Kuala Terengganu, projek ini adalah untuk menyediakan pusat rujukan bagi permohonan lanjut dan pemantauan dengan cara yang berkesan dan terurus. Terdapat beberapa dataset termasuk Data batimetri muara, Model Permukaan Digital dan Model Terrain Digital sekitar muara serta imej raster. Imej raster yang ditangkap pada 23hb September 2009 oleh SPOT, dan diterbitkan semula oleh MACRES. Selain itu, data batimetri telah disampel pada tahun 2009. DSM dan DTM adalah pembelian dari Intermap Technologies tahun 2011. Data-data ini telah digabungkan dan diintegrasikan untuk menjadikan 3D model untuk analisis seterusnya.