CHANGE DETECTION OF MANGROVE VEGETATION USING REMOTE SENSING IN KELANTAN DELTA, KELANTAN

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MALAYSIA
2004

Lihat sebelah

CHANGE DETECTION OF MANGROVE VEGETATION USING REMOTE SENSING IN KELANTAN DELTA, KELANTAN

BY

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This project report is submitted in partial fulfillment of the requirement for the degree of Bachelor of Science (Marine Science)

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2004

This project report should be cited as:

Khairani A. 2004. Change Detection of Mangrove Vegetation Using Remote Sensing in Kelantan Delta, Kelantan Undegraduate thesis, Bachelor of Science (Marine Science), Faculty of Science and Technology, Kolej Universiti Sains dan Teknologi Malaysia, Terengganu Darul Iman. 81p.

JABATAN SAINS SAMUDERA
FAKULTI SAINS DAN TEKNOLOGI
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI
MALAYSIA

PENGAKUAN DAN PENGESAHAN LAPORAN PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk :

Change detection of mangrove vegetation in Kelantan Delta using remote sensing oleh Khairani binti Ahmad No matrik UK6212 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Samudera sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains- Sains Samudera Fakulti Sains dan Teknologi Kolej Universiti Sains dan Teknologi Malaysia.

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ACKNOWLEDGEMENTS

Alhamdulillah, praise to Allah for His blessing which enabled me to finish this project. I would like to take this opportunity to express my sincere gratitude and appreciation to those who had helped me to make this project running smoothly.

First of all, I would like to express my greatest appreciation to my supervisor, En. Sulong bin Ibrahim for his help, encouragement, advice and patience in my entire disposition throughout this study.

I am indebted to En. Suffian and En. Kasawani for their guidance, assistance, constructive critics and suggestion during the data analysis and processing is working. I am also grateful to the staff of INOS, En. Habir, Miss Lim Chia Kia and Mr. Karthik who are always assisted me throughout the period of the project.

Special appreciation is dedicated to my final year project team, Normuheidin, Norhafiza, Ruzalizam, Mohd. Yunus and Mohd. Nazri for their undivided support and unselfish sacrifice of time and effort. Thanks to my housemates, Arni Adleena and Nurhafizah Idris who are very supportive to me. Also not forget to Ana, Ani, Zia, Irece, Lyn, Mira,

Rini, Nat, Janet, Abang Li, Pak Ya and especially Norzila Ishak for their moral support. I am truly grateful and wish all of you the best in your endeavor.

Lastly, I would like to express my deep thanks to my beloved family for their prayers and motivation throughout my study at Kolej Universiti Teknologi Malaysia (KUSTEM). Thank you very much and may Allah bless all of you.

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Ac-Ny	- Acanthus-Nypa
Ac-Sn	-Acanthus-Sonneratia
Arc-Hi	- Acrostichum-Hibiscus
Av	- Avicennia
Av-Sn	- Avicennia-Sonneratia
DN	- Digital Number
GCP	- Geometric Correction Point
GCPs	- Ground Control Points
IR	- Infra-red
MACRES	- Malaysian Center of Remote Sensing
MMS	- Multi-Spectral Scanner System
MSL	- Mean Sea Level
Mx-Ac	- Mix-Acanthus
Mx-Acr	- Mix-Acrostichum
Mx-Man	- Mix-Mangrove
Mx-Sn	- Mix-Sonneratia
RMS	- Root Mean Square
RSO	- Rectified Skew Orthomorphic
Sn	- Sonneratia
TM	-Thematic Mapper

ABSTRACT

Remote Sensing is a modern technology that has the ability to do mapping and classifying work for an area. This project involves the implementation of Remote Sensing methodologies to analyze the classification and changes of mangrove vegetation in Tumpat, Kelantan. This study area consists of 16 islands, which covered an area of approximately 1200 ha. For mangrove classification analysis, satellite image (Landsat TM) dated on 28th May 2000 was used. This image was processed using ERDAS version 8.5 software with band combination 4, 5, 3. There are about 10 classes of mangrove forest identified in the Kelantan Delta. These are, Avicennia (class 1), Sonneratia (class 2), Acanthus-Nypa (class 3), Acanthus-Sonneratia (class 4), Avicennia-Sonneratia (class 5), Hibiscus-Acrostichum (class 6), Mix-Acanthus (class 7), Mix-Acrostichum (class 8), Mix-Sonneratia (class 9) and Mix-Mangrove (class 10). The accuracy of the map produced is 82.93%. To determine the vegetations changes, a Landsat TM image dated on 7th August 1988 was used as a comparison with the 28th May 2000 image. Generally, the changes and classification analysis of mangrove vegetation was correctly detected by using remote sensing method.

ABSTRAK

Sistem Penderian Jarak Jauh merupakan satu teknologi moden yang mempunyai kemampuan dalam kerja-kerja pemetaan dan klasifikasi kawasan. Projek ini melibatkan implementasi methodologi Sistem Penderiaan Jarak Jauh dalam mengkelaskan jenis-jenis hutan dan mengesan perubahan vegetasi yang berlaku di hutan paya bakau Tumpat, Kelantan. Kajian ini melibatkan 16 buah pulau dengan keseluruhan kawasan kira-kira 1200 hektar. Dalam menentukan kelas-kelas hutan paya bakau ini, imej satelit (Landsat TM) yang bertarikh 28 Mei 2000 telah digunakan. Imej ini diproses dengan menggunakan perisian ERDAS versi 8.5 melalui kombinasi 'band' 4, 5, 3. Sebanyak 10 kelas hutan paya bakau telah dikenal pasti di Delta Kelantan. Kelas-kelas tersebut ialah Avicennia (Kelas 1), Sonneratia (kelas 2), Acanthus-Nypa (kelas 3), Acanthus-Sonneratia (kelas 4), Avicennia-Sonneratia (kelas 5), Hibiscus-Acrostichum (kelas 6), Mix-Acanthus (kelas 7), Mix-Acrostichum kelas 8), Mix-Sonneratia (kelas 9) and Mix-Mangrove (kelas 10). Ketepatan peta yang diperolehi ialah 82.93% . Bagi mengesan perubahan vegetasi pula, imej Landsat TM yang bertarikh 7 Ogos 1988 telah digunakan untuk dibandingkan dengan imej yang bertarikh 28 Mei 2000. Secara keseluruhannya, proses mengesan perubahan vegetasi hutan paya bakau serta klasifikasinya melalui Sistem Penderiaan Jarak Jauh berjaya dilakukan dalam kajian ini.