

UTILIZATION OF NOAA DATA FOR SOUTHWEST MONSOON
CLOUD DETECTION

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BY

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FAKULTI SAINS DAN TEKNOLOGI
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**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:
Utilization of NOAA Data for Southwest Monsoon Cloud Detection
oleh Muhammad Shahiffuden bin Shamsudin, No. Matrik UK 6716
telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini
dikemukakan kepada Jabatan Sains Samudera sebagai memenuhi sebahagian daripada
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LIST OF ABBREVIATIONS

| | | |
|---------|---|---|
| NOAA | – | National Oceanic and Atmospheric Administration |
| AVHRR | – | Advanced Very High Resolution Radiometer |
| TIROS | – | Television and Infrared Observation Satellite |
| POES | – | Polar Orbiting Environmental Satellite |
| HRPT | – | High Resolution Picture Transmission |
| LAC | – | Local Area Coverage |
| GAC | – | Global Area Coverage |
| APT | – | Automatic Picture Transmission |
| ISCCP | – | International Satellite Cloud Climatology Project |
| ESSA | – | Environmental Science Services Administration |
| SEAFDEC | – | South East Asian Fishery Development Centre |
| NE | – | Northeast Monsoon |
| SW | – | Southwest Monsoon |
| h | – | Hour |
| m | – | Metre |
| a.m | – | ante meridian |
| p.m | – | post meridian |

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ABSTRAK

Malaysia merupakan sebuah negara maritime yang terletak 7 darjah ke utara khatulistiwa di kawasan Asia Tenggara. Cuaca di Malaysia adalah panas dan lembap sepanjang tahun. Dewasa ini, awan memainkan peranan yang penting dalam cuaca sejagat. Hasil daripada kepentingan ini kelajuan dan pergerakan awan adalah penting dalam amaran cuaca. Tujuan projek ini adalah untuk mengkaji tentang bentuk geomorfologi dan pergerakan awan semasa monsun barat daya di kawasan semenanjung Malaysia. Kelajuan dan pergerakan awan dikaji dengan menggunakan gambar satellite NOAA (National Oceanic and atmospheric administration). Berdasarkan kajian yang dijalankan, halaju awan adalah berbeza bagi kedua-dua bulan pada monsun barat daya. Awan bergerak dengan kelajuan yang lebih tinggi pada 15 dan 16 Mei 2001 jika dibandingkan dengan kelajuan awan pada 27 dan 28 Ogos 2001. Kajian juga menunjukkan kehadiran awan cumulonimbus yang bergerak berhampiran dengan daratan melintasi kawasan pantai di pantai barat semenanjung Malaysia pada penghujung musim monsun barat daya. Apabila ketidakstabilan awan mencecah pada ketinggian tertentu, awan akan membawa hujan yang lebat beserta kilat di kawasan yang terlibat.

ABSTRACT

Malaysia is a maritime country and situated 7 degrees north of the equator in Southeast Asia. The weather in Malaysia is generally hot, sunny and humid throughout the year. Today clouds play important roles in the world climate. As a result, clouds movement and velocity were considered as an important part in weather forecasting. This project aims to investigate the cloud movements and velocity during Southwest monsoon period in Malaysia. The cloud movements and velocity were determined by using the NOAA (National Oceanic and Atmospheric Administration) satellite AVHRR images. Based on the study, the cloud speed was significant difference for this two month in Southwest monsoon seasons. The cloud speed is higher on 15 and 16 May 2001 compare with the cloud speed on 27 and 28 August 2001. From the study shows that the cumulonimbus clouds very often move inland across the coastal areas of the west coast of Peninsular Malaysia during the later part of the Southwest Monsoon. When the instability of the atmosphere reaches greater heights these clouds bring heavy rains and thunderstorms to the affected areas.