

EXPERIMENTAL CHRONOLOGY (2007) AND HISTORICAL
EVIDENCE FROM THE SOUTH CHINA SEA

CHRONOLOGY OF THE SOUTH CHINA SEA

CHRONOLOGY OF THE SOUTH CHINA SEA
AND THE SOUTH CHINA SEA

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Perpustakaan
Kolej Universiti Sains Dan Teknologi Malaysia (KUSTEM)

LP 26 FST 4 2006



1100042333

The sediment chronology (210Pb) and geochemical proxy on
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**THE SEDIMENT CHRONOLOGY (^{210}Pb)
AND GEOCHEMICAL PROXY IN PAHANG SOUTH CHINA SEA**

**By
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**This project report is submitted in partial fulfillment of the
requirement for the Degree of Bachelor of Science (Marine Sciences)**

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2006**

1100042333

This project report should be cited as:

Nor Suhaili, M.Z. 2006. The sediment Chronology (^{210}Pb) and geochemical proxy in Pahang South China Sea. Undergraduate thesis, Bachelor of Science (Marine Science), Faculty of Science and Technology, Kolej Universiti Sains dan Teknologi Malaysia.

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ACKNOWLEDGEMENTS

Firstly, Alhamdulillah, thanks to Allah that provides His beautiful blessings for all the work done. I would like to thank Assoc. Prof. Dr. Kamaruzzaman bin Yunus as supervisor of my final year project thesis for being generous in sharing his knowledge and guidance in the conduct of this research. Thanks also for his help, suggestions, and constructive comments during writing my thesis. Secondly I would like to thank Dr. Antonina Abdullah for her advice and opinion for my research project.

A greatly appreciate to Institute of Oceanography (INOS) and Faculty of Science and Technology especially the laboratory assistants for allowing me to use the facilities at the laboratory. I would also like to express my deep appreciation and thankful to Master students, Ong , Willy, Hizam and Wak for their help and suggestions in analysis my data.

I'm grateful to thanks to my family for their supported and understand. Thanks also to my friends especially Hada, Ayen, Sumitha, Malini, Chek, and Maznah for extended their help in my research. Last but not least, thank you to all who were involved directly or indirectly during the completion of my project.

ABSTRACT

Two cores with 25 cm depth in Pahang South China Sea sediments were collected on October 2003 at Pahang 26 (2°55.0' N; 103° 32.1'E) and Pahang AD16 (2° 55.0' N; 103° 30.4'E). The sediment samples were analyzed for organic carbon content, heavy metals, sedimentation rate and sediment age. Lead-210 (half-life of 22.3 years) dating technique is used for an estimation of recent sedimentation rate in Pahang 26 using α -spectrometer and denoted the sedimentation rate 0.21 cm/yr. The sediment's age is 105 years at depth of 22 cm. The average concentration of Al, Pb, Cu, Cd and Zn in Pahang 26 were 1.37 $\mu\text{g/g}$ dry weights, 8.06 $\mu\text{g/g}$ dry weights, 23.76 $\mu\text{g/g}$ dry weights, 0.32 $\mu\text{g/g}$ dry weights, and 59.66 $\mu\text{g/g}$ dry weights, respectively while in Pahang AD16 were 1.43 $\mu\text{g/g}$ dry weights, 14.03 $\mu\text{g/g}$ dry weights, 15.71 $\mu\text{g/g}$ dry weights, 0.1 $\mu\text{g/g}$ dry weights and 87.47 $\mu\text{g/g}$ dry weights, respectively. The percentage of organic carbon in Pahang 26 range from 0.72 % to 1.56 % and for Pahang AD16 varies from 0.84 % to 2.28 %. Correlation between Total Organic Carbon (TOC) and heavy metal in Pahang AD16 showed good correlation in binding fractions while in Pahang 26 showed negatively correlated except for Cu. The obtained results imply that these two cores of sediments are not from anthropogenic sources.

ABSTRAK

Dua teras sedimen dengan kedalaman 25 sm telah diambil di Perairan Pantai Pahang (Laut China Selatan) pada bulan Oktober 2003 bersama di Pahang 26 (2°55.0' U; 103° 32.1'T) dan Pahang AD16 (2° 55.0' U; 103° 30.4'T). Kaedah teknik penemuan Pb-210 (22.3 tahun dan setengah-hayatnya) adalah untuk menjangka kadar sedimentasi untuk Pahang 26 dengan menggunakan α -spektrometer dan telah menunjukkan kadar sedimentasi 0.21 sm/tahun. Usia sediment yang ditentukan adalah 105 tahun pada kedalaman 22. Kepekatan purata yang dikira bagi element Al, Pb, Cu, Cd dan Zn dalam Pahang 26 ialah 1.37 $\mu\text{g/g}$ berat kering , 8.06 $\mu\text{g/g}$ berat kering, 23.76 $\mu\text{g/g}$ berat kering , 0.32 $\mu\text{g/g}$ berat kering, dan 59.66 berat kering masing-masing. Manakala kepekatan purata bagi elemen-elemen tersebut dalam Pahang AD16 ialah 1.43 $\mu\text{g/g}$ berat kering, 14.03 $\mu\text{g/g}$ berat kering , 15.71 $\mu\text{g/g}$ berat kering , 0.1 $\mu\text{g/g}$ berat kering and 87.47 $\mu\text{g/g}$ berat kering, masing-masing. Julat organic karbon dalam Pahang 26 yang ditentukan ialah 0.72 % hingga 2.28 % manakala dalam Pahang AD16 nilai yang diperolehi ialah 0.84 % hingga 2.28 %. Korelasi antara Jumlah Karbon Organic (TOC) dan logam berat dalam Pahang AD16 menunjukkan korelasi yang baik dalam bahagian pengikatan manakala dalam Pahang 26 menunjukkan korelasi yang lemah kecuali Cu. Hasil yang telah didapati ini menunjukkan bahawa kedua-dua teras sedimen ini bukan dari sumber antropogenik.