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Water circulation pattern of Kuala Terengganu / Maged Mahmoud Marghany.

PERPUSTAKAAN
PERTANIAN MALAYSIA

TERENGGANU

15 OCT 1995

Alan Amerlygo

To Mr. ...

*Thank you so much
just for your
memory*

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MASTER OF SCIENCE
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1994

HADIAH

HAK MILIK
PERPUSTAKAAN KUSTEM

**WATER CIRCULATION PATTERN
OF KUALA TERENGGNU**

The author would like to thank Allah for letting him the first Arabian, to do research on physical oceanography in this part of the South China Sea. This part of the world has been ignored by scientists. Everything was done has been by the action of Allah. He has given him the drive and the patience to continue this study. He is the author.

By

MAGED MAHMOUD MARGHANY

The author expresses his grateful appreciation to his supervisors Dr. Mohd. Nasir Samsud, Dr. Ismail Hussain and Professor Dr. Mohd. Ibrahim S.M. Mohamed who generously shared their expertise and time. They contributed the fruits of their great experiences and offered valuable suggestions to aid him in making this thesis.

The author extends his thanks to the staff of UNIPERTAMA I and UNIPERTAMA III boats especially Encik Mohamed Fahmy and Captain Rahman Muda who helped him

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TABLE OF CONTENTS

		Page
	Data Collection	33
	Field Work and Observational Procedure	33
	Temperature Measurements	33
	Salinity Measurements	37
	Sampling Methods	41
	Temperature and Salinity Data	xiii
ACKNOWLEDGMENTS	.....	ii
LIST OF TABLES	.....	viii
LIST OF FIGURES	.....	ix
LIST OF PLATES	.....	xiii
ABSTRACT	.....	xiv
ABSTRAK	.....	xvi
CHAPTER		
	Tidal Data	52
IV	RESULTS AND ANALYSIS	53
I	INTRODUCTION	1
	Factors Inducing Water Circulation ...	1
	Water Circulation in South China Sea ...	3
	Problem and Importance of Water Circulation in Kuala Terengganu	10
	Objectives	12
II	LITERATURE REVIEW	14
	Previous Work in the Study Area	14
	Features of Water Circulation	21
	Upwelling	23
	Front	23
	Tidal Current	24
	Residual Current	25
III	MATERIALS AND METHODS	27
	Study Area	27
	Sampling Design	30

	Data Collection	33
	Field Work and Observational Procedure	33
	Temperature Measurements	33
	Salinity Measurements	37
	Sampling Methods	41
	Temperature and Salinity Distributions	43
	Current Measurements	43
	Meteorological Data	51
	Tidal Data	52
IV	RESULTS AND ANALYSIS	53
	Temperature and Salinity	53
	Temperature Distribution	54
	Salinity Distribution	62
	Surface Current	65
	South-west Monsoon	65
	Transition Period	69
	Subsurface Current	71
	Scattered Plots	73
	Progressive Vector Plots	79
	Component of Current Velocity	83
	Tidal Current Ellipses	89
	Residual Current	89
V	DISCUSSION	101
	Temperature Differences	101
	Temperature Stratification	104

	Salinity Differences	106
	Water Salinity Distribution	113
	Upwelling and Downwelling	113
	Surface Current	124
	Surface Water Flow	124
	Meander and Eddies	125
	Subsurface Current	126
	Subsurface Water Flow	126
	Tidal Current	127
VI	SUMMARY AND CONCLUSION	130
	Temperature and Salinity Distribution	131
	Temperature Differences	131
	Salinity Differences	132
	Water Stratification	132
	Upwelling and Downwelling	133
	Surface Current	134
	Surface Current Flow	134
	Meander and Eddies	134
	Subsurface Current	135
	Subsurface Current Flow	135
	Tidal Current	136
	BIBLIOGRAPHY	138
	APPENDIX	
	A Basic Computer Programs Used to Calculate True Temperature and Salinity	145

B	Fortran Computer Program Used to Draw Isothermal and Isohaline Contours	150
C	Fortran Computer Program Used to Draw Progressive Vector Plots	157
BIOGRAPHICAL SKETCH		162
1.	Maximum Current Speed during the Rising and Falling Tide for Each Observation Period	77
2.	Summary of Average Major Axis Speed and Minor Axis Speed for Each Observation Period	77
3.	Average Range of Residual Flow in the South-west and North-east Monsoon Periods	100
4.	Temperature Differences ($^{\circ}\text{C}$) and their Average Value ($^{\circ}\text{C}$) for Each Transect	102
5.	Salinity Differences (ppt) and their Average Value (ppt) for Each Transect	108

LIST OF FIGURES

Figure	Page
1. Geographical locations of South China Sea	A
LIST OF TABLES	
Table	Page
1. Maximum Current Speed during the Rising and Falling Tide for Each Observation Period	77
2. Summary of Average Major Axis Speed and Minor Axis Speed for Each Observation Period	97
3. Average Range of Residual Flow in the South-west and North-east Monsoon Periods	100
4. Temperature Differences ($^{\circ}\text{C}$) and their Average Value ($^{\circ}\text{C}$) for Each Transect	102
5. Salinity Differences (ppt) and their Average Value (ppt) for Each Transect	108
6. A Study Areas Showing the Bottom Topography in Kuala Terengganu Water	28
7. The Location of Stations in Phase 1 for Collection of Temperature, Salinity, Current Meter and Drogue Deployment from May 1997 to February 1998	31
8. The Location of Stations Phase 2 for Temperature, Salinity and Current Measurements in the Month of March 1998	32
9. Current Meter Deployment System	49
10. Drogue Deployment System	50
11. Temperature and Salinity Profiles in Transect 1 for Each Observation	54
12. Temperature and Salinity Profiles in Transect 2 for Each Observation	55
13. Temperature and Salinity Profiles in Transect 3 for Each Observation	56
14. Temperature and Salinity Profiles in Transect 4 for Each Observation	57

Figure	Description	Page
	LIST OF FIGURES	
	The Track of a Drifting Drogue Released on 20th June 1992	85
1.	Geographical Location of South China Sea (From Pohlmann, 1987).	4
2.	Wind Stress Distribution in January (From Hellerman, 1968).	6
3.	Wind Stress Distribution in July (From Hellerman, 1968).	7
4.	Surface Current in the South China Sea in the Month of February (From Morgan and Valencia, 1983)	8
5.	Surface Current in the South China Sea in the Month of August (From Morgan and Valencia, 1983).	9
6.	A Study Areas Showing the Bottom Topography in Kuala Terengganu Water	28
7.	The Location of Stations in Phase 1 for Collection of Temperature, Salinity, Current Meter and Drogue Deployment from May 1992 to February 1993	31
8.	The Location of Stations Phase 2 for Temperature, Salinity and Current Measurements in the Month of March 1993	32
9.	Current Meter Deployment System	46
10.	Drogue Deployment System	50
11.	Temperature and Salinity Profiles in Transect 1 for Each Observation	54
12.	Temperature and Salinity Profiles in Transect 2 for Each Observation	55
13.	Temperature and Salinity Profiles in Transect 3 for Each Observation	56
14.	Temperature and Salinity Profiles in Transect 4 for Each Observation	57

15.	Temperature and Salinity Profiles in Transect 5 for Each Observation	58
16.	The Track of a Drifting Drogue Released on 20th June 1992	66
17.	The Track of a Drifting Drogue Released on 21th June 1992	67
18.	The Track of a Drifting Drogue Released on 19th September 1992	68
19.	The Track of a Drifting Drogue Released at Station 3 from 4th to 6th April 1993	70
20.	The track of a drifting drogue released at Station 5 from 7th to 9th April 1993	72
21.	Scattered Plots of Current Speed against Direction during South-west Monsoon Period ...	74
22.	Scattered Plots of Current Speed against Direction during North-east Monsoon Period ...	75
23.	A Plot of Maximum Current Speed against Tidal Height during the Rising Tide	78
24.	A Plot of Maximum Current Speed against Tidal Height during the Falling Tide	78
25.	Scattered Plots of Wind Stress during the South-west Monsoon Season	80
26.	Scattered Plots of Wind Stress during the North-east Monsoon Season	81
27.	Progressives Vector Plots during the South-west Monsoon Season	83
28.	Progressives Vectors Plots during the North-east Monsoon Season	84
29.	U and V Current Speeds Components during the South-west Monsoon Season	86
30.	U and V Current Speeds Components during the North - east Monsoon Season	87
31.	A Plot of Variance U Component against the Variance of Tidal Elevation	88

32.	A Plot of Variance V Component against the Variance of Tidal Elevation	88
33.	Tidal Current Ellipses in the Month of May 1992	90
34.	Tidal Current Ellipses in the Month of June 1992	91
35.	Tidal Current Ellipses in the Month of July 1992	92
36.	Tidal Current Ellipses in the Month of August 1992	93
37.	Tidal Current Ellipses in the Month of October 1992	94
38.	Tidal Current Ellipses in the Month of March 1993	95
39.	Tidal Current Ellipses in the Month of April 1993	96
40.	Residual Currents for Each Observational Period	98
41.	The Net residual Current Flow for Each Observation	100
42.	Temperature Distribution during the South-west Monsoon	105
43.	Rainfall Distribution for Each Observational Period	109
44.	(a) Temperature and (b) Salinity Distribution of Transect 1 in February 1993	110
45.	Temperature Distribution in Transect 5 Through August and October	112
46.	Upwelling Observation from (a) Isotherm and (b) Isohaline Contours During South-west Monsoon	115
47.	Temperature and Salinity Distribution in the Month of May 1992	118

48.	Downwelling observation from (a) Isotherm and (b) Isohaline Contours During North-east Monsoon	119
49.	Temperature and Salinity Distribution in August 1992	122
50.	Temperature Distribution in the Month of February 1993	123
1.	Reversing Thermometer	34
2.	Nansen Bottle	35
3.	Inductively Coupled Salinometer Model 601 MkV	39
4.	UNIPERTAMA III	42
5.	OMO Self Recording Current Meter	44
6.	Drogue Used in this Study	48

Abstract of thesis submitted to the Senate of Universiti
Pertanian Malaysia in fulfillment of the requirements for
the degree of Master of Science

LIST OF PLATES

Plate	page
1. The River Mouth of Kuala Terengganu Viewed from the North	29
2. Reversing Thermometer	34
3. Nansen Bottle	35
4. Inductively Coupled Salinometer Model 601 Mkv	39
5. UNIPERTAMA III	42
6. ONO Self Recording Current Meter	44
7. Drogue Used in this Study	48

Faculty : Faculty of Fisheries and Marine Science

The aim of this study was to determine the type of the current patterns in the coastal water of Kuala Terengganu. This study was divided in two parts. The first one was to determine the pattern of thermohaline circulation. This was done by sampling of 25 stations along the coastal water of Kuala Terengganu. The second one was to measure the subsurface current by ONO-self recording current meter and drogue. The current meter was deployed at Station 1 while the drogue was deployed at Stations 3 and 5.

The thermohaline circulation was dominated by mixing during the north-east monsoon period (October

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By

MAGED MAHMOUD MARGHANY

JULY 1994

Chairman : Mohd. Nasir Saadon

Faculty : Faculty of Fisheries and Marine Science

The aim of this study was to determine the type of the current patterns in the coastal water of Kuala Terengganu. This study was divided in two parts. The first one was to determine the pattern of thermohaline circulation. This was done by sampling of 25 stations along the coastal water of Kuala Terengganu. The second one was to measure the subsurface current by ONO-self recording current meter and drogue. The current meter was deployed at Station 1 while the drogue was deployed at Stations 3 and 5.

The thermohaline circulation was dominated by mixing during the north-east monsoon period (October

1992, February and March 1993) due to the turbulence resulting from the action of wind and tide. A dominant feature of this study was the occurring of lighter upwelling during the south-west monsoon period (May to August 1992). The downwelling occurrences are in the north-east monsoon.

The study showed that the subsurface current in the coastal waters of Kuala Terengganu were influenced by the tide. The current speed throughout this study varied from 0.012 to 2.6 m/s. The tide throughout this study was a diurnal tide. Tidal current was a dominating feature through this study, while the wind acted as a modifier to the water movement shaped by tide. Finally the data of surface current illustrated that the water meanders in the month of April 1993. Meander rotated in clockwise direction with an average current speed of about 0.4 m/s.

Abstrak tesis yang dikemukakan kepada Senat Universiti Pertanian Malaysia sebagai memenuhi keperluan untuk Ijazah Master Sains.

CORAK PUSINGAN AIR DI KUALA TERENGGANU

Oleh

MAGED MAHMOUD MARGHANY

JULAI 1994

Pengerusi : Mohd. Nasir Saadon

Faculti : Faculti Perikanan dan Sains Samudera

Tujuan kajian ini adalah untuk menentukan jenis corak-corak arus di perairan pantai Kuala Terengganu. Kajian ini dibahagikan kepada dua bahagian. Bahagian pertama adalah mengenai Kitaran Termohalin. Ini dilakukan ke atas 25 buah stesen kajian sepanjang perairan pantai Kuala Terengganu. Bahagian kedua pula adalah untuk mengukur arus sub-permukaan menggunakan meter arus "ONO self recording" dan "drogue". Meter arus telah dipasang di stesen 1 manakala drogue telah dipasang secara di stesen 3 dan 5.

Kitaran Termohalin telah didominasi percampuran

khasnya semasa tempoh Monsun Timur Laut (Oktober, 1992; Februari dan Mac, 1993) akibat daripada penggeloraan hasil dari tindakan angin dan pasang surut. Satu ciri dominan dalam kajian ini adalah kejadian upwelling yang tinggi semasa berlakunya Monsun Barat Daya (Mei hingga Ogos, 1992) berbanding dalam tempoh Monsun Timur Laut (Oktober, 1992; Februari dan Mac, 1993). Tetapi, kejadian downwelling adalah lebih kerap pada Monsun Barat Daya berbanding Monsun Timur Laut.

Kajian ini menunjukkan bahawa arus sub-permukaan di perairan pantai Kuala Terengganu adalah dipengaruhi oleh pasang-surut. Kelajuan arus sepanjang kajian adalah berubah-ubah dari 0.012 hingga 2.6 m/s. Pasang-surut sepanjang kajian adalah diurnal. Arus pasang-surut adalah ciri yang dominan sepanjang kajian, sementara angin bertindak sebagai pengubah kepada pergerakan air yang dibentuk oleh pasang-surut. Akhirnya, data bagi arus permukaan yang diperolehi menggambarkan bahawa pembelokan air berlaku pada bulan April 1993. Pembelokan berlaku mengikut arah jam dengan kelajuan purata arus lebihkurang 0.4 m/s.