

RECONSTRUCTIONS OF MANGROVES GEOMETRIES  
PROXIES FOR COASTAL RESILIENCE PROXIMITY AGAINST  
MEAN SEALEVEL RISE

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## **AUTHOR'S DECLARATION**

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non- academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Postgraduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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## **ABSTRACT**

The issue of rampant cutting down of mangroves in Malaysia's mangrove forests is an urgent matter that requires immediate attention. However, the lack of precise information on the spatial distribution of mangroves has impeded the efforts of authorities to manage these forests effectively. To bridge this gap, a study was conducted to map the geographical distribution of Malaysian mangroves between 2001 and 2021 and estimate the changes in mangrove geometry as a result of land use and land cover change. The study also spatially intersects Mean Sea Level rise data from Permanent Service for Mean Sea Level website with the deforested area of mangroves at the district level. By reconstructing the geometries of Malaysian mangroves, experts can use the spatial distribution of these mangroves to gauge coastal resilience against mean sea level rise in Malaysia. This involved integrating the sea region with the position of tide gauges and computing the deforested area in accordance with the sea regions. Correlation matrices and regression analysis had been conducted to learn the significances between the relationship between mean sea level, mangroves area and also the population on the district tide gauge in Malaysia. The study's findings suggest that the deforestation of mangroves and the rise in mean sea level have significantly increased between 2001-2021, which undermines the capacity of mangroves to function as a bio shield for the coast and safeguard coastal populations.

## TABLE OF CONTENT

<b>AUTHOR'S DECLARATION</b> .....	<b>ii</b>
<b>SUPERVISOR'S DECLARATION</b> .....	<b>iii</b>
<b>ABSTRACT</b> .....	<b>iv</b>
<b>ACKNOWLEDGEMENT</b> .....	<b>v</b>
<b>TABLE OF CONTENT</b> .....	<b>vi</b>
<b>LIST OF FIGURES</b> .....	<b>ix</b>
<b>LIST OF TABLES</b> .....	<b>x</b>
<b>LIST OF GRAPHS</b> .....	<b>xi</b>
<b>LIST OF ABBREVIATION</b> .....	<b>xii</b>
<b>CHAPTER ONE</b> .....	<b>1</b>
<b>INTRODUCTION</b> .....	<b>1</b>
1.1 Research Background.....	1
1.2 Problem Statement .....	3
1.3 Research Questions .....	5
1.4 Aim.....	5
1.5 Objectives .....	5
1.6 Significance of the Study .....	6
<b>CHAPTER TWO</b> .....	<b>7</b>
<b>LITERATURE REVIEW</b> .....	<b>7</b>
2.1 Introduction .....	7
2.2 Detection of Mangrove Forest.....	7
2.2.1 ALOS PALSAR.....	8
2.2.2 Landsat Composite.....	9
2.3 Area Quantification of Mangrove Forest .....	10
2.4 Mangrove Forest Loss from Deforestation .....	11
<b>CHAPTER THREE</b> .....	<b>13</b>