

UNIVERSITI TEKNOLOGI MARA

**SOIL ORGANIC CARBON USING REMOTE
SENSING TECHNIQUE AND MULTIVARIATE
REGRESSION METHOD**

**MOHAMAD ARIFF BIN
MOHAMAD ASRI**

Thesis submitted in fulfillment
of the requirements for the degree of
Surveying Science and Geomatics

Faculty of Architecture, Planning and Surveying

July 2019

AUTHOR'S DECLARATION

I declare that the work in this thesis 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.

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Name of Student : Mohamad Ariff bin Mohamad Asri

Student I.D. No. : 2016490402

Programme : Bachelor of Surveying Science and Geomatics–
AP220

Faculty : Architecture, Planning and Surveying

Thesis : Soil Organic Mapping using Remote Sensing
Technique and Multivariate Regression Method

Signature of Student :

Date : July 2019

ABSTRACT

Organic is the term use to represent the materials that combined with or derived from living organisms. The quantity of organic matter in soil is frequently used as an indicator of the possible sustainability in a soil system. Soil organic matter was significant part in nutrient cycle and fixing soil structure. Organic carbon in soil was important to build up good health in soil environment and vital in supplying the needs of the ecosystem. This project aims to identify the Soil Organic Carbon (SOC) distribution based on multivariate regression model. This project was used Landsat 8 (OLI) satellite imagery to estimate SOC distribution using remote sensing technique and soil sampling in the District of Arau, Perlis. There were 20 soil sampling collected randomly using a handheld Global Positioning System (GPS) unit to the location the of the soil sampling points. The satellite data extract spectral indices, NDVI and BSI. All the values will used to assess spatial distribution of SOC at the study area by testing in the multivariate regression model. The result of regression analysis between the observed and predicted SOC using $R^2 = 0.54$ value was showed 54% variance of observed SOC can be explained by predicted SOC and it is shows the value is in level of moderate strength of relationship. This information of this study can gave advanced understanding by using the remote sensing approach which had many advantages regarding conventional approach before would be important technique thus increase the effectivity of the soil management method.

TABLE OF CONTENTS

	Page
CONFIRMATION BY PANEL OF EXAMINERS	ii
AUTHORS DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
CHAPTER ONE: INTRODUCTION	1
1.1 RESEARCH BACKGROUND	1
1.2 PROBLEM STATEMENT	2
1.3 RESEARCH AIM AND OBJECTIVES	3
1.4 SIGNIFICANCE OF STUDY	3
1.5 SCOPE AND LIMITATION OF RESEARCH	3
1.5.1 Scope of Work	4
1.5.2 Limitations and Challenges	5
1.5.3 Study Area	6
1.6 CHAPTER OUTLINE	6
CHAPTER TWO: LITERATURE REVIEW	8
2.1 INTRODUCTION	8
2.2 SOIL ORGANIC CARBON (SOC)	8
2.3 REMOTE SENSING TECHNIQUE IN SOIL MAPPING	13
2.4 SOIL ORGANIC CARBON MAPPING	14
2.4.1 Predictive Soil Mapping	14
2.4.2 Bare Soil Index (BSI)	15

2.4.3 Normalized Difference Vegetation Index (NDVI)	15
2.4.4 Regression Analysis	16
2.4.5 Correlation Analysis	17
2.5 SATELLITE IMAGERY	18
2.5.1 Landsat 8	18
2.6 SOFTWARE	20
2.6.1 ERDAS Imagine	20
2.6.2 ArcGIS	20
2.6.3 Microsoft Excel	21
CHAPTER THREE: RESEARCH METHODOLOGY	22
3.1 INTRODUCTION	22
3.2 METHODOLOGY	22
3.2.1 Data Collection	24
3.2.2 Data Processing	25
3.2.3 Data Analysis	28
CHAPTER FOUR: RESULT AND ANALYSIS	29
4.1 INTRODUCTION	29
4.2 NDVI and BSI	29
4.3 DESCRIPTIVE STATISTICS OF SOC, NDVI AND BSI	30
4.4 CORRELATION ANALYSIS	31
4.4.1 Linear Regression between observed SOC and NDVI	31
4.4.2 Linear Regression between SOC and BSI	32
4.4.3 Linear Regression between BSI and NDVI	33
4.4 MULTIVARIATE REGRESSION MODEL	34
4.5 SOC PREDICTION VALUE OF SOIL SAMPLING POINTS	35
4.6 VALIDATION OF MODEL	36