NURULL SYAMIMIEY BACHELOR OF SURVEYING SCIENCE AND GEOMATICS (HONOURS) JULY 2024

THE RELIANCE OF WEATHER VARIATION TOWARDS INSOLATION PATTERN IN PERLIS, MALAYSIA

NURULL SYAMIMIEY BINTI MOHD ROZALI
2022838914

SCHOOL OF GEOMATICS SCIENCE AND NATURAL RESOURCES
COLLEGE OF BUILT ENVIRONMENT
UNIVERSITI TEKNOLOGI MARA MALAYSIA

JULY 2024

THE RELIANCE OF WEATHER VARIATION TOWARDS INSOLATION PATTERN IN PERLIS, MALAYSIA

NURULL SYAMIMIEY BINTI MOHD ROZALI

2022838914

Thesis submitted to the Universiti Teknologi MARA Malaysia
in partial fulfilment for the award of the degree of the
Bachelor of Surveying Science and Geomatics (Honours)

JULY 2024

DECLARATION

I declare that the work on this project/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA (UiTM). This project/dissertation is original, and it is the result of my work, unless otherwise indicated or acknowledged as referenced work.

In the event that my project/dissertation be found to violate the conditions mentioned above, I voluntarily waive the right of conferment of my degree of the Bachelor of Surveying Science and Geomatics (Honours) and agree be subjected to the disciplinary rules and regulations of Universiti Teknologi MARA.

Name of Student	: Nurull Syamimiey Binti Mohd Rozali
Student's ID No	: 2022838914
Project/Dissertation Title	: The Reliance of Weather Variation Towards Insolation Pattern in Perlis, Malaysia
Signature and Date	:

Approved by:
I certify that I have examined the student's work and found that they are in accordance with the rules and regulations of the School and University and fulfils the requirements for the award of the degree of Bachelor of Surveying Science and Geomatics (Honours).

Name of Supervisor	: Madam Nurhafiza binti Md Saad
Signature and Date	:

ABSTRACT

Incoming solar radiation constitutes the Earth's primary energy source. Perlis, Malaysia, undergoes significant weather variations throughout the year, influencing the region's insolation patterns. Given the imperative of climate change and evolving weather patterns, adaptive strategies are essential for effective environmental management. This research aims to investigate the interdependence of weather variations and insolation patterns in Perlis, Malaysia. To achieve this goal, the study's objectives are to determine weather variation and insolation pattern throughout the year 2022 in Perlis and to evaluate the relationship of weather variation and insolation pattern throughout the year 2022 in Perlis. The research initiates with comprehensive data collection, utilizing meteorological data to understand seasonal trends and fluctuations in weather conditions. Concurrently, solar radiation data is meticulously generated using DTM. Statistical analyses, including correlation studies, are then applied to discern potential relationships between meteorological factors and insolation. Anticipated outcomes include understanding seasonal weather patterns and their impact on solar radiation, identifying specific relationships between weather factors and insolation across the region. Temperature and rainfall have a moderate correlation with insolation pattern, with R^2= 0.5549 and 0. 5458. The correlation between wind speed and insolation pattern is weak, with R^2 = 0.0537. The obtained data will be utilized to generate spatial maps employing Geographic Information System (GIS) methodologies, depicting changes in the weather across distinct regions in Perlis. These maps will facilitate localized planning and decision-making processes.

Keywords: Insolation, weather, meteorological, Northeast Monsoon, Southwest Monsoon, Geographic Information System (GIS)

TABLE OF CONTENTS