

**CHARACTERIZATION OF GEOMAGNETIC PARAMETERS AT
THE DIFFERENT REGION**

**This is presented in partial fulfillment for the award of the
Bachelor of Electrical Engineering (Hons.)
UNIVERSITI TEKNOLOGI MARA (UiTM)**



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NOV 2009

ACKNOWLEDGEMENT

First and foremost, I would like to state my greatest gratitude to ALLAH S.W.T that gives me an opportunity to be able to complete my final year project and thesis.

I would like to express my deeply sense of gratitude and appreciation to my project supervisor, Ms.Noor Hafizah Bt Abdul Aziz for the consistent help and guidance as well as prevision of her valuable time, encourage and patient in completing this project.

Thousand thanks to Mr. Hilmi from National Space Agency, Malaysia for the technical support, sharing knowledge and information with me. Also thanks to Space Environment Research Centre (SERC), Kyushu University Japan for supply MAGDAS data and to Research Management Institute UiTM (RMI) for the financial support for MAGDAS training.

Besides that, thanks to Mrs. Faizatul Noor Bt Abd.Bakar from Universiti Kebangsaan Malaysia for giving guidance and information to complete this project.

Thanks to Mrs. Norfishah Bt Abd Wahab and Ms.Wan Norsyafizan Bt Wan Muhamad for their willingness to evaluate my project presentation.

Last but not least, thanks to my family, friends and anybody who involved directly or in directly for their support, understanding, help and advice.

Thank you.

ABSTRACT

Geographical factors theoretically affect geomagnetic field variation due to the exposure to the sun's activities. Previous scientist says that the region that being exposed to the sun light for a period of time will experienced to the high ultraviolet light. Earth's magnetic field is approximately a magnetic dipole, with the magnetic field S pole near the earth's geographic North Pole and the other magnetic field N pole near the earth's geographic South Pole. Earth magnetic data can be measured by magnetometer, Magnetic Data Acquisition System (MAGDAS) and by certain measurement. For this project, earth magnetic field from 3 different regions; Manado (Indonesia) for equatorial region, Onagawa (Japan) for northern region and Cooktown (Australia) for southern region are chosen to be analyzed. The analysis is based on the different parameters of MAGDAS data focusing H, and Z parameters. From the analysis, the earth magnetic polar at different region can be mapped and defined. The results are useful to give the regional magnetic data and also give a significant contribution of a new knowledge on our earth magnetic activities that are closely related to the space activities. The data are supplied by Space Environment Research Centre (SERC), Kyushu University Japan. Both parameters are monitored for one month on January and April 2006. This factor also should be considered in designing the radio communication and propagation technologies.

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CHAPTER 1

INTRODUCTION

1.1 PROJECT OVERVIEW

Space weather is an emerging field of space science focused on understanding societal and technology impacts of the solar terrestrial relationship. Within our own solar system, space weather is greatly influenced by the speed and density of the solar wind and the interplanetary magnetic field carried by the solar wind plasma. A variety of physical phenomena are associated with space weather, including geomagnetic storms and sub storms ionosphere disturbances and scintillation, aurora and geomagnetically induced at earth's surface. Space weather exerts a profound influence in several areas related to space exploration and development. Changing geomagnetic conditions can induce changes in atmospheric density causing the rapid degradation of spacecraft altitude in low earth orbit. Geomagnetic storms due to increased solar activity can potentially blind sensors aboard spacecraft, or interfere with on board electronics.

An understanding of space environmental conditions is also important in designing shielding and life support systems for manned spacecraft. There is also some concern that geomagnetic storms may also expose conventional aircraft flying at high latitudes to increased amounts of radiation. Geographical factors theoretically affect geomagnetic field variation due to the exposure to the sun's activities. Previous scientist says that the region that being exposed to the sun light for a period of time will experienced to the high ultraviolet light. Earth's magnetic field is approximately a magnetic dipole, with the magnetic field S pole near the earth's geographic North Pole and the other magnetic field N pole near the earth's geographic South Pole. Earth magnetic data can be measured by magnetometer, Magnetic Data Acquisition System (MAGDAS) and by certain measurement.