

**CORRELATION ANALYSIS OF GEOMAGNETIC PARAMETERS DUE TO
HEMISPHERIC ASYMMETRY**

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



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MAY 2010

This thesis is forwarded to Faculty of Electrical Engineering

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 deep sense of gratitude and appreciation to my project supervisor, Mr. Muhammad Adib Bin Haron for the consistent help and guidance as well as provision of his valuable time, encourage and patient in finishing this project.

Thanks also goes to Mr. Mohamad Huzaimy Bin Jusoh and Ms. Noor Hafizah Bt. Abdul Aziz for being my co-supervisor and helping me in understanding more on MAGDAS and other topics related to it.

Last but not least, my sincere appreciation also extends to all students under supervision of Mr. Mohamad Huzaimy Bin Jusoh, roommate at UiTM and others who have provided assistance at various occasions. Their views, comments and tips are very helpful. Finally, I am also very grateful to all my family members for their continuous encouragement and support.

Thank you.

ABSTRACT

The SERC, Kyushu University was deploying MAGDAS in the CPMN region. MAGDAS can be defined as MAGnetic Data Acquisition System which monitors global electromagnetic and plasma environment change in geospace. The correlation analysis of geomagnetic parameters due to hemispheric asymmetry was discussed in this paper. In this project, the MAGDAS data is used to determine the geomagnetic disturbances at three different stations where at Manado, Indonesia (1.44°N, 128.84°E) for equatorial region, Cooktown, Australia (15.48°S, 145.25°E) for Southern region, and Amami-Oh-Shima, Japan (28.17°N, 129.33°E) for Northern region. To distinguish the amplitude variations at these stations, four geomagnetic parameters were considered which H, D, Z, and F components. Three different months were deliberated for Manado, Cooktown, and Amami-Oh-Shima on March, April, and January, respectively. The MAGDAS data was simulated by using MATLAB GUI and from this project; the H component at all regions is shows the earth's activities most affected by and the largest effects are at the equatorial part, Manado, Indonesia.

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CHAPTER 1

INTRODUCTION

1.1 MAGDAS (MAGNETIC DATA ACQUISITION SYSTEM)

MAGDAS can be defined as MAGnetic Data Acquisition System and its data can be used to monitor global electromagnetic and plasma environment change in geospace and then to bring about a better understanding of the complex and compound Sun-Earth system. [1]

It was designed from accumulated know how from huge field experience around the world over many years and all the partners must provide something to show that they support these MAGDAS activities such as:

- i. One IP (Internet protocol) connection and the load are small (80kbps).
- ii. A location away from electromagnetic noise sources such as gasoline and electric motors of all kinds and also the vehicular traffic should be more than 200m away.
- iii. A small amount of maintenance (average would be about one hour per week).
- iv. Electricity (60W or so).
- v. Security because theft of any component of MAGDAS is not desirable.
- vi. Lastly, a ten year commitment as a partner.