OBSERVATION OF EQUATORIAL PLASMA BUBBLE IONOSPHERE DUE TO GEOMAGNETIC STORM EVENT IN MALAYSIA

This thesis is submitted in partial fulfillment for the degree of the Bachelor of Engineering (Honours) in Electronic (Communication)
UNIVERSITI TEKNOLOGI MARA (UiTM)

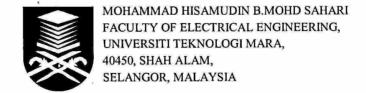


Table of Contents

Declaration			i
Acknowledgement			
Abstract			
List	of Figure	es	iv
List	of Table		v
List	of Abbre	eviations	vi
1		duction	1
	1.1	Background of Study	1
	1.2	Problem Statement	3
	1.3	3	4
	1.4	•	4
	1.5	Thesis outline	5
2	Literature Review		6
	2.1	Introduction	6
	2.2	Global Positioning System (GPS)	6
	2.3	Ionospheric Layer	8
		2.3.1 D Layer	9
		2.3.2 E Layer	10
		2.3.3 F Layer	11
	2.4	Total Electron Content (TEC)	11
		2.4.1 Ionospheric Delay and TEC	12
		2.4.2 Calculation of Slant and Vertical TEC	13
	2.5	Geomagnetic Storm	15
	2.6	Plasma Bubble	16
	27	Cummory	17

3	Methodology		18	
	3.1	Introduction	18	
	3.2	Material	18	
		3.2.1 Data Source	19	
		3.2.2 Software Development	20	
		3.2.3 Procedure Process	21	
	3.3	Data Collection	24	
	3.4	Summary	27	
4	Result and Discussion		28	
	4.1	Introduction	28	
	4.2	Observation of the variation of TEC	29	
		4.2.1 TEC variation of all visible satellite	29	
		4.2.2 Analysis for satellite PRN 20	31	
		4.2.3 Analysis for satellite PRN 2	34	
	4.3	Summary	37	
5	Conclusion and Future Recommendations		38	
	5.1	Conclusion	38	
	5.2	Future Recommendations	39	
6	References		40	
7	Appe	Appendix		

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Abstract

Global Positioning System (GPS) is the space based navigation satellite system (GNNS) to be widely used around the world and provide alternative way to investigate the ionosphere irregularities. These irregularities give impact to performance of certain equipment such as GPS. The irregularities or depletion exits in an ionosphere layer called plasma bubbles. The main objective is to observe occurrence of equatorial plasma bubbles (EPBs) ionosphere at Malaysia due to Geomagnetic Storm. Several techniques can be implementing such as ionosonde, radar and Global Positioning System (GPS)-receiver. This project, focused on data taken by GPS receiver. This determination is made for satellites in Malaysia on 3th April 2010 until 7th April 2010. In this research data used taken from GPS Ionospheric Scintillation and TEC Monitoring (GISTM) monitored by University Kebangsaan Malaysia (UKM) station. The important parameter for detect occurrence of Equatorial Plasma Bubble (EPBs) in this research is the value of TEC depletion. Magnetic activity appears to suppress Equatorial Plasma Bubble (EPBs) with time delay of more than 3 hours and may last for 9 hours. It is shown that most equatorial plasmabubble events commence at 10:00 UT – 22:00 UT on 5th April 2010.