

**THE INVESTIGATION ON IONOSPHERIC RESPONSE
TO THE ANNUAL SOLAR ECLIPSE BY USING TOTAL
ELECTRON CONTENT MEASUREMENTS**

**This thesis is presented in partial fulfillment for the award of the
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ABSTRACT

This research investigates the ionosphere response to the annual solar eclipse on 26th January 2009 over Indonesia and Singapore. During solar eclipse, ionosphere will be affected due to the partial or complete obstruction of solar emission. It makes the number of electrons and ions decrease. There are several factors that will contribute to the ionosphere response which are the level of solar and geomagnetic disturbances, geographical latitude and longitude and local time. There are some methods that use to determine the behaviour of ionosphere response during solar eclipse. It includes ionosonde measurements, incoherent scatter radar (ISR) and Global Positioning System (GPS) satellite. In this research, GPS satellite is used in order to investigate the ionosphere response. This method is used because the result can easily be taken out from GPS station. This research focuses on the measurement of Total Electron Content (TEC) obtained from three GPS stations which are Bako and Coco stations in Indonesia and Ntus station in Singapore. The location of these three GPS stations from the path of solar eclipse is different. The data is obtained a day before and during solar eclipse. The variation level of TEC is analyzed by using Matlab software to compare the TEC level on a day before and during solar eclipse phenomena. From the data observation it shows that TEC level will reduce during solar eclipse due to the declining of ionizing radiation.

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