

Analysis of Total Electron Content (TEC) Variation Related with Large Earthquakes in Sumatra - Indonesia

ABSTRACT ANALYSIS OF (TEC) TOTAL ELECTRON CONTENT VARIATION RELATED WITH LARGE EARTHQUAKES IN SUMATRA-INDONESIA By : (Hendri Subakti , Indonesia) Satellite enables to measure the number of Total Electron Content (TEC). It exists along ionosphere between the signal beam and GPS receiver. The calculation of TEC differential (dTEC) and slant TEC use the Sumatra GPS Array network data. It is done by utilizing the GAMIT algorithm software. The distribution of variation and vertical TEC are processed by using Matlab Software. The result of the analysis shows the existence of TEC value both the decrease and the increase of electrons number. From December 2004 until April 2005, ten earthquakes occurred in Sumatra with the magnitude $M > 6.0$. Nine of them appeared the TEC anomaly (the decrease of TEC value is below the lower bound) in 1 up to 6 days before the earthquakes stroke. The TEC anomaly is considered as the precursory signal that occurs before the earthquake strikes. Keywords : TEC, GAMIT, SUGAR, Sumatra, Earthquake, Electron, Anomaly, Precursory, Signal.

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