

Statistical Analysis of Electron Density Anomalies during Strong Earthquakes ($M \geq 5.9$) in the Indonesian Region Using Demeter Data

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Data recorded by French satellite DEMETER has been used to statistically analyse the electron density perturbations associated with earthquakes of different magnitudes in the Indonesian region. The seasonal variations of electron density for daytime and nighttime are first studied to determine the normal variation. Statistical analysis of electron density data during local daytime and nighttime show significant variations associated with different earthquakes. The Langmuir probe experiment onboard DEMETER has been used for the present study. The statistics shows anomalous deviations during the earthquakes have the same sign and that their amplitude depends on the magnitude of the earthquake. Appearance of positive anomalies has been found for all the earthquakes. It has been found that electron density increases few days before the occurrence of the main shock for the tracks, which are near to the epicenter.