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Anomaly Of Total Electron Content Associated With Earthquakes And Tsunami Observed From GPS Data in Indonesia

We conducted research to study the main characteristic features of the seismo-ionospheric variations derived from GPS data called Total electron content (TEC). TEC is quantity for the ionosphere of the Earth, TEC is the total number of electrons integrated between two points, along a tube of one meter squared cross section. We have analyzed some earthquakes (M>5) that occurred within 2018 to study the changes in TEC associated with these earthquakes. A monthly standar deviation of the TEC and spatial variation are utilized for identifying anomaly signals before an earthquakes.The results show anomalous in the TEC before some big erathquake (Lombok, Palu, and Krakatau eruption). The total electron content (TEC) derived from the global positioning system (GPS) at Balikapapan (latitude 25.38 N, longitude 82.998 E), Indonesia has been observed during Palu's earthquake 2018. These pre-earthquake ionospheric anomalies appear within about 2-5 weeks prior to earthquakes. A possible mechanism responsible for ionospheric anomalies before big earthquakes is proposed. Key words: TEC, anomaly, ionosphere

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