

A statistical investigation of z test on seismo-ionospheric anomalies in TEC associated earthquakes in Japan during 1999-2014

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Statistical analysis on seismo-ionospheric precursors (SIP) by using global ionosphere map (GIM) of the total electron content (TEC) in associated with 188  $M \geq 6.0$  earthquakes in Japan during 1999-2014. Various references days of -15,  $\pm 7$ ,  $\pm 15$ ,  $\pm 30$  days to the earthquake are employed to find characteristics of SIP. Results show that both decrease (or negative) and increase (or positive) anomalies in the GIM TEC before the earthquakes are further examined by z test. The receiver operating characteristic curve is also applied to see whether the SIPs exist in Japan.

Keywords: earthquake, ionosphere