

Seismo-ionospheric precursors of the total electron content associated with M_{6.0} earthquakes in Japan

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This paper reports statistical results of seismo-ionospheric precursors (SIPs) of the total electron content (TEC) in the global ionosphere map (GIM) associated with 132 earthquakes with magnitude 6 and/or greater in Japan during 1 May 1998 ? 10 March 2011. To detect SIP, a quartile-based (i.e. median-based) process is performed. The earthquakes without being led by magnetic storms are further isolated and investigated to confirm the SIP existence. Results show that the SIP mainly is the TEC significantly increase in the afternoon period 1-5 days before the earthquakes in Japan. Finally, the SIP of the GPS TEC associated with the 11 March 2011 M_{9.0} Tohoku earthquake is presented and discussed.

Keywords: seismo-ionospheric precursors, GPS, total electron content, M_{9.0} Tohoku earthquake