



## **Seismo-ionospheric Precursors of the 11 March 2011 M9.0 Tohoku Earthquake**

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In this paper, the total electron content (TEC) of the global ionosphere map (GIM) is used to observe seismo-ionospheric anomalies associated the 11 March 2011 M9.0 Tohoku earthquake, while the Thermosphere Ionosphere Electrodynamics General Circulation Model (TIEGCM) is applied to simulate the observed anomalies. The observation shows that the TEC over the epicenter significantly enhances on 6-8 March 2011, 4-2 days before the earthquake. The spatial analysis further demonstrates that the enhancement anomaly specifically and persistently appears in the northern epicenter area. Simulation results well agree with the observations, which suggest that the electric potential around the epicenter has been distorted and significantly affect the TEC during the earthquake preparation period.