

Ionospheric Anomaly as an Earthquake Precursor : Statistical Study during 1998-2012 around Japan

KUNIMITSU, Mayuka^{2*} ; HATTORI, Katsumi³ ; HAN, Peng³ ; LIU, Jann-yenq¹

¹Faculty of science, Chiba University, ²Graduate School of Science, Chiba University, ³Institute of Space Science, National Central University, Taiwan

Many anomalous electromagnetic phenomena possibly associated with large earthquakes have been reported. TEC (Total Electron Contents) anomaly is one of the most promising phenomena preceding large earthquakes. We investigated statistically TEC anomalies before large earthquakes around Japan region during 1998-2012. In this study, superposed epoch analysis (SEA) and Molchan's error diagram (MED) analysis have been taken to investigate correlation and predictability in the statistical manner. The results of SEA show that positive anomaly 1-5 days before the large earthquake ($M \geq 6.0$ and depth ≤ 40 km) is significant. The results of MED analysis indicate the some gain against the random estimation (Poisson model). That is, the prediction using TEC anomaly around Japan is not random and has an information. The details will be given in the presentation.