

S220-018

Room: 303

Time: May 21 10:15-10:30

GPS Derivative Ionospheric Electron Density Variations Associate with Major Seismic Events of 2006 at Taiwan

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In the last several decades there has been a tremendous wave of interest in studying the relationship between ionosphere variations to the occurrence of great earthquakes. A growing number of research studies are now available of shed some light on the ionospheric variations before great earthquakes. In this paper three major sets of case studies were observed and analyzed. The ionospheric total electron content (TEC) can be derived from the signal of dual-band Global Positioning System (GPS). Furthermore, the daily TEC variations and normalized TEC maps were used to explore the time and spatial changes of ionospheric TEC in this study. Results of this study showed the TEC variations may increase and decrease in days before great earthquakes (M⁷6). Moreover, the concentrations of TEC around the epicenter in local time 14:00-16:00 before great earthquakes were observed in this study. To conclude, this study may be of importance in realizing dynamic relationship between ionosphere and great earthquakes.

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