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Anomalous TEC and Atmospheric Refractivity prior to Very Strong China Earthquakes of May 2008

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A dual frequency GPS receiving set up at Guwahati(26.11ºN, 91.45ºE) is in continuous operation for the last one and half years providing TEC and scintillation data we input to understanding pre-earthquake contributions to the low-latitude atmospheric dynamics. The Major China earthquake of May 12th 2008, with magnitude 8.0 and epicenter at 31.397ºN, 103.97ºE is a rare event to facilitate extracting earthquake- features on the TECs and hence low latitude system dynamics. The paper starting with a brief discussion on the methods adopted by the group in identifying an impending earthquake from ionospheric data, presents results of analysis of the event of May12. By looking into the features on temporal enhancements and depletion of TEC a prediction for an earthquake on May 11-12th 2008, was made. Next, TEC magnitudes with latitude /longitude and elevation of satellites for every pass are associated with pre-earthquake TEC features and are used as inputs to identify epicenter position. Role of seismic time refractive index variations are examined to explain the observed TEC features.