

The disturbed-time ionospheric modeling by coupled thermosphere-ionosphere data assimilation system

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Data assimilation system is a powerful tool to modeling the ionosphere during quiet and disturbed conditions in more realizations. Recently, we have developed a coupled thermosphere-ionosphere data assimilation system and discussed its capability in the ionospheric forecasting and the scientific issues in the ionosphere. In the first of this presentation, I will introduce the data assimilation system developed in this study by assimilating total electron content (TEC) into a coupled thermosphere-ionosphere model. Then I will show the capability of this system on the geomagnetic storm-time ionospheric forecasting, evening eastward pre-reversal enhancement (PRE) electric field, and the neutral atmosphere adjustments (neutral winds, neutral temperatures, and neutral compositions) during 21 August 2017 solar eclipse event.

Keywords: ionospheric data assimilation model, ionospheric responses on the solar eclipse, ionospheric forecasting during geomagnetic storm