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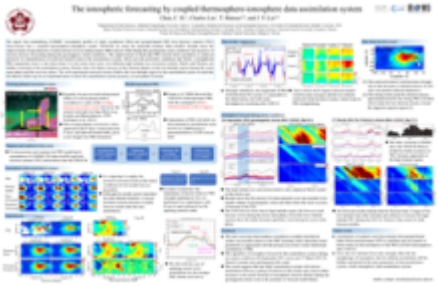
Poster
We report that assimilating COSMIC ionospheric profile of radio occultation (RO) and ground-based GPS total electron content (TEC) observations into a coupled thermosphere-ionosphere model, TIEGCM, by using the ensemble Kalman filter (EnKF). Results show the improvement of specification of eastward pre-reversal enhancement (PRE) electric field during the geomagnetic quiet conditions and accuracy of electron density forecasting during the geomagnetic storm conditions. The improvement of dusk-side PRE electric field calculation is achieved primarily by intensification of eastward neutral wind in the assimilation system, which provide preferable conditions and obtain a strengthened PRE magnitude closer to the observation. For the storm time cases, two different high-latitude ion convection models, Heelis and Weimer, are further evaluated in the assimilation system. Results show the better forecast in the electron density at the low-latitude region during the storm main phase and the recovery phase. The well reproduced eastward electric field at the low-latitude region by the assimilation system reveals that the electric fields may be an important factor to have the contributions on the accuracy of ionospheric forecast.

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