

Chia Hung

Chen

Department of Earth Sciences, National Cheng Kung University, Taiwan

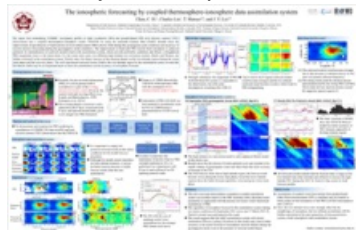
Charles Lin, Department of Earth Sciences, National Cheng Kung University, Taiwan

Tomoko Matsuo, Cooperative Institute for Research in Environmental Sciences, University of Colorado Boulder, USA

JannYenq Liu, Institute of Space Science, National Central University, Taiwan

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.



Poster PDF

[Poster_Koichi-min.pdf](#)

Abstract file

[chen-chiahung-abstract.pdf](#)

[Download to PDF](#)