

The impact of FORMOSAT-7/COSMIC-2 in-situ plasma drift observations on the space weather forecasting system

*陳 佳宏¹、Lin Charles¹、Matsuo Tomoko²、Ching-Hua Shen¹

*Chia-Hung Chen¹, Charles Lin¹, Tomoko Matsuo², Ching-Hua Shen¹

1. 台湾国立成功大学地球科学学科、2. Ann and H. J. Smead Department of Aerospace Engineering Sciences, University of Colorado, Boulder, CO 80309-0429, USA

1. Department of Earth Sciences, National Cheng Kung University, 2. Ann and H. J. Smead Department of Aerospace Engineering Sciences, University of Colorado, Boulder, CO 80309-0429, USA

FORMOSAT-7/COSMIC-2 mission provides the in-situ ionospheric observations, such as the plasma density and the plasma drift velocity around 550 km altitude, which are very important for the accuracy of ionospheric forecasting. The model boundary condition is a bit issue for the current ionospheric data assimilation model. Although the model forecast results can be well modified by assimilating the ionospheric observations, the accuracy of forecasting get worse at the higher altitude region due to the fixed boundary condition in the model. In this study, we use the DART/TIEGCM model which is an ionospheric forecasting system. We try to modify the upper boundary of TIEGCM and further getting the better forecasting results by assimilating the in-situ FORMOSAT-7/COSMIC-2 ionospheric observations and further evaluate its improvement by employing the method of Observation System Simulation Experiment (OSSE).

キーワード : FORMOSAT-7/COSMIC-2、データ同化、現地電離圏観測

Keywords: FORMOSAT-7/COSMIC-2, Data assimilation, in-situ ionospheric observations