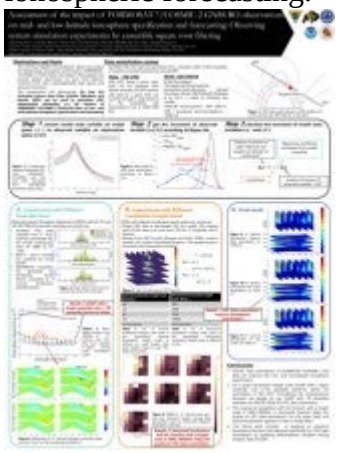
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Poster
The Formosa Satellite-7/Constellation Observing System for Meteorology, Ionosphere and Climate-2 (FORMOSAT-7/COSMIC-2) GNSS Radio Occultation (RO) payload can provide global observations of slant Total Electron Content (sTEC) with unprecedentedly high spatial and temporal resolution. For this purpose, a coupled model of thermosphere, ionosphere, and plasmasphere, the Global Ionosphere Plasmasphere/Thermosphere Ionosphere Electrodynamics General Circulation Model (GIP/TIEGCM), is incorporated into the NOAA ensemble Square Root filter (EnSRF) data assimilation system. The combination of the EnSRF and GIP/TIEGCM allows a self-consistent treatment of coupling of thermosphere, ionosphere, and plasmasphere in the data assimilation and forecast. This presentation will demonstrate (a) how the NOAA ensemble Kalman filter data assimilation system can be used to assimilate sTEC observations effectively, (b) impacts of FORMOSAT-7/COSMIC-2 GNSS RO phase 1 data on low- and mid-latitude ionospheric specification and forecasting, and (c) how a coupled model of thermosphere and ionosphere benefit the ionospheric forecasting.

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