

Ionospheric Plasma Depletion Bay Observed by FORMOSAT-3/COSMIC

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The FORMOSAT-3/COSMIC (F3/C) constellation launched on 15 April 2007, which consists of six micro-satellites in the low-Earth orbit, is capable of monitoring the troposphere and ionosphere by using the powerful technique of radio occultation. With more than 2500 observations per day, it provides an excellent opportunity to monitor three-dimensional structures and dynamics in the ionosphere. A new nighttime feature of plasma depletion bays over oceanic areas near the geomagnetic equator can be observed by means of the electron density profiles derived from the F3C/GOX (GPS occultation experiment). The depletion bay becomes pronounced during the local midnight in the summer hemisphere. Model simulations have been conducting to have a better understanding on possible causal mechanisms. Results suggest that the transequator neutral wind in the thermosphere plays important role.