Geophysical Research Abstracts, Vol. 9, 02635, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-02635
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Comparison of FORMOSAT-3/COSMIC Data with Ionosonde Measurements in the Mid-latitude

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The higher accuracy ionospheric model is needed on the navigation system and radio communication based on radio wave propagation in the condition of the unusual electron density variation. Vertical variation of electron density is the main error source of ionospheric single layer models using total electron density which is estimated on the ground. However, measurements for ionospheric vertical structure are sparse and limited until now. On April 15, 2006, six FORMOSAT-3/COSMIC satellites were successfully launched into a circular, low-Earth orbit. The FORMOSAT-3/COSMIC mission has provided the global ionospheric radio occultation (RO) data, giving vertical profiles of electron density between 90 and 800 km. In this presentation, we will compare the electron density from the FORMOSAT-3/COSMIC RO with ionosonde measurements and IRI model prediction. The results will be discussed with solar (F10.7 cm) and geomagnetic variation (Kp and Dst indices). We will also introduce the mission of KOMPSAT-5 ionospheric radio occultation with space-born GPS receiver. All of these observed data will be combined in KASI ionospheric model for GNSS.