09:05 [III-2-3]
Low- and mid-latitude ionosphere as observed by the Swarm constellation

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The Swarm constellation is the European Space Agency's mission for the Earth's magnetic field, which consists of the three satellites equipped identically. The constellation was launched in November 2013 into a polar (inclination angle~87.3o) circular orbit. During the first two months of the commissioning phase all the three satellites were at the same altitude (~500 km) in a pearls-on-a-string configuration. Afterwards, the satellites conducted orbit maneuver to be placed into separate orbits. Since April 2014 the two lower satellites (Swarm-Alpha and Swarm-Charlie) have been flying side-by-side with a longitude separation of about 1.5o. The upper satellite, Swarm-Bravo orbiting on a higher altitude (~50 km higher than that of the lower pair) has a slightly different orbit inclination angle (~87.75o), by which the local time of the orbital plane is separated gradually from those of the lower pair. The constellation frequently encounters plasma ensity irregularities in the low- and mid-latitude topside nosphere. In this presentation we investigate selected ents in the low-/mid-latitude ionosphere (plasma density pletion or enhancement), as observed by the Swarm nstellation during its first-year mission.

:20 [III-2-4]
ospheric space weather monitoring by RMOSAT-3/COSMIC and following RMOSAT-7/COSMIC-2

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he past decade, the paucity of ionospheric tions has made it almost impossible to reconstruct ee-dimensional structures of global ionospheric density. The FORMOSAT-3/COSMIC (F3/C) consists of six microsatellites, which has proven a powerful tool in probing global high-resolution eric vertical electron density profiles by radio on techniques. By accumulating F3/C ons, the three-dimensional structures of global ric electron density can possible be retrieved. n the success of F3/C mission for atmospheric ospheric researches, the National Space ion in Taiwan has proposed a follow-on mission ormosa Satellite-7/Constellation Observing System eteorology, Ionosphere and Climate-2 AT-7/COSMIC-2, hereafter shortened to F7/C2),

which deploys an operational constellation system of twelve satellites to receive US GPS, Russian GLONASS and European Galileo system signals to perform occultation observations. Slated for deployment starting in 2016, F7/C2 constellation will further provide more than four times the number of the F3/C occultation soundings for weather forecasting and space weather monitoring. More detail results and a major advance in ionospheric weather monitoring for the future mission will be presented in this paper.

09:40 [III-2-5]
Evaluation of IRI-2012 by comparison with JASON-1 TEC and incoherent scatter radar observations during the 2008-2009 solar minimum period

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The 2008-2009 solar minimum period was unprecedentedly deep and extended and therefore it should be difficult to expect for the data-driven model like the International Reference Ionosphere (IRI) to reasonably well reproduce the ionospheric parameters during this period. In this study, we compare the IRI-2012 with global TEC data from JASON-1 satellite and electron density profiles observed from Millstone Hill Incoherent Scatter Radar (ISR) and EISCAT at middle and high latitudes, respectively. For the global mean ionosphere, daily mean TECs calculated from the model and data are compared with each other during the two-year period and it is found that IRI underestimates TEC by about 34%. Global TEC maps for two TECs are produced in the magnetic latitude and magnetic local time coordinate, which shows the overall underestimation of IRI except for the region around the equatorial anomaly only during the daytime, regardless of season. In the daytime equatorial region, IRI slightly overestimates TEC and this aspect of IRI for low solar activity was also reported in the previous study (e.g. see Jee et al., 2005). In order to further investigate the differences at middle and high latitudes, which are responsible for the overall underestimation in the global mean ionosphere, we compared the electron density profiles between IRI and ISRs at Millstone Hill and EISCAT for the middle and high latitudes. During the daytime, however, it is not very clear that IRI underestimates TEC. In particular, the density profiles show large discrepancy in the topside ionosphere, which requires further investigation since the ISR data may not be reliable in the topside ionosphere for low solar activity.

제3발표장 (육백)

■ III-3 달과학 I
좌장: 최영준 (천문연)

08:30 [III-3-1]
Lunar dust environment using LDEX data onboard LADEE