

Constellation Observing System for Meteorology Ionosphere and Climate (COSMIC) - Mission status and real-time data processing

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Formosat3 / COSMIC is a joint Taiwan - US mission for weather, climate, space weather, and geodetic research. The COSMIC mission was successfully launched into a circular ~ 500 km low-Earth orbit (LEO) from Vandenberg Air Force Base, California, at 0140 UTC on 15 April 2006. Six identical microsatellites, each carrying an advanced GPS radio occultation receiver and two other ionospheric instruments, were deployed successfully about 20 minutes after launch. The satellites and payloads are now going through check-out and testing. After the check-out period operational processing of the data from the constellation will begin. One of the main goals of COSMIC is to demonstrate the value of radio occultation data for operational weather forecasting. To achieve this goal near-real time processing is required to deliver atmospheric profiles as quickly as possible to operational weather centers world-wide. Satellite data will be dumped from LEO once every 100-minute orbit. These data will be received within a few minutes of the orbit-to-ground dump at the COSMIC Data Analysis and Archive Center (CDAAC) and at the Taiwan Analysis Center for COSMIC (TACC). There they are processed together with ground-based fiducial data, IGS orbit products, predicted weather models, and the 50-Hz GPS data bits. This presentation will provide a status update of the mission, discuss the data analysis plans with emphasis on the importance of real-time data and IGS products, describe how the data and products will be made available to the community, and present some early mission example results.