EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Data Management Systems (4)

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COMS LRIT/HRIT SERVICE CHARACTERISTICS

Abstract

The Communication, Ocean and Meteorological Satellite (COMS), the first meteorological satellite in Korea, plans to provide user dissemination services, distribution of ground-processed image data and additional data to end-users via the spacecraft in near real-time. The meteorological/ocean image data and additional data are formated in the Low Rate Information Transmission (LRIT) /High Rate Information Transmission (HRIT), the end-user data format recommended internationally by Coordination Group for Meteorloogical Satellites (CGMS). Two types of services are classifed by data rates which differ contents and resolution of disseminated data and LRIT/HRIT files will be uploaded to the satellite using different RF channels.

The planned contents of HRIT services is 10-bit full resolution of meteorlogical images in 5 all channels for the users of Medium-scaled Data User Utilization Station (MDUS) like major meteorlogcal centers. The LRIT services will cover reduced 8-bit resolution of meteorological images in sub-sets of channels for the users of Small-scaled Data User Utilization Station (SDUS) with smaller reception equiment. Besides meteorological image data, additional data will be disseminated regularly in LRIT channels such as typhoon, numerical weather predication (NWP) model, Level 2 meteorological products (fog, cloud, sea surface temperature and so on) generated by MSC (Meteorological Satellite Center) and GOCI image data prepared by KOSC(Korea Ocean Satellite Center) 8 times a day. Administrative messages including dissemination schedule/newsletter and encryption key messages will be disseminated via both LRIT/HRIT channels to support COMS LRIT/HRIT services. All image data in LRIT/HRIT services are geometrically and radiometrically pre-processed images. Both LRIT/HRIT services will contain the full earth's disk and three regional meteorological images in the geostationary. Meanwhile, wpecial observation such as local area image with the size of 1,000 km x 1,000 km for specifica KMA uses will not be disseminated to end-users.

In COMS ground systems, the LRIT/HRIT Generation Subsystem (LHGS) performs the LRIT/HRIT formatting and transmission from received data stream via external systems. It was developed to selectively apply encryption and image compression (lossy/lossless) according to the configuration files from KMA policies. KARI (Korea Aerospace Research Institute) is responsible for LHGS software and core software for MDUS/SDUS users. LHGS were verified using MTSAT-1R HRIT data and its functional/operational validation was successfully achieved through the integration with external systems. The LHGSs are being under tests at COMS system level before the launch and COMS LRIT/HRIT services will be started to end-users after six months of in-orbit operations.