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

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DATA PROCESSING SYSTEMS OF EUMETSAT'S METEOSAT THIRD GENERATION (MTG)

Abstract

Europe's first imaging meteorological satellite (800kg) was launched in 1977 with just three spectral channels. Today's second generation Meteosat imager has 12 spectral channels and it is a 2-tonne class spacecraft. The planned Meteosat Third Generation imaging capability will be a 3-tonne satellite with 16 nominal channels. MTG adds a second platform, a sounding satellite to observe the different layers within the atmosphere. The sounder will be one of the key innovations in the new programme, allowing Meteosat satellites, for the first time, to not just image weather systems but to analyse the atmosphere layer-by-layer and perform far more detailed chemical composition studies.

The EUMETSAT ground segment team is currently establishing the architecture of the ground segment facilities. The development of the facilities will be mostly contracted to European industry. EUMETSAT will integrate the new MTG developments with the existing multi-mission ground segment infrastructure, which is common to the first and second generation Meteosat, Metop and Jason missions.

This presentation will briefly describe the MTG system including the GMES Sentinel 4 UVN instrument and the overall ground segment design; then it will focus on the two data processing facilities for the Level-1 and Level-2 ground processing. It will describe the different technical challenges that the MTG team is facing on two ground processing facilities including the challenges introduced by the development a common data-processing platform for two distinct programmes: MTG and GMES.

The Instrument Data Processing Facility (IDPF) will implement the Level-0 and Level-1 processing of the instrument data. The main technical challenge at this level is to achieve the required timeliness from data-reception to data-distribution given the significant raw-data bit-rate and high processing needs imposed by the four instruments.

The Level-2 Processing Facility (L2PF) will implement the Level-2 processing for the extraction of numerous meteorological and climatological products and parameters. The main technical challenge at this level is to achieve the capability of handling the massive data-processing needs of the combined instruments both for near-real-time and re-processing.

Finally, the presentation will briefly outline the programme schedule and the planned approach for the procurement, integration and verification of the ground segment facilities.