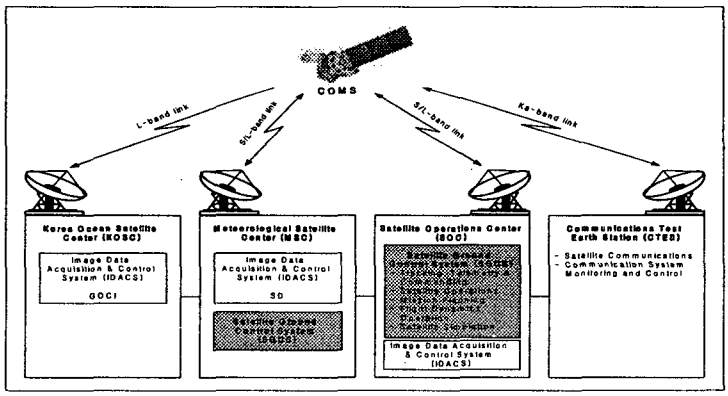
Functional Design of COMS Satellite Ground Control System

Byoung-Sun Lee, Sanguk Lee, Jeom-Hun Lee,
Won Chan Jung, and Jaehoon Kim
Satellite Control Technology Team, ETRI, Daejeon

As a multi-mission geostationary orbit satellite, COMS (Communication, Ocean, and Meteorological Satellite) is planned to be launched in the year 2008. The COMS ground segment comprises Satellite Operations Center (SOC) with S/L-band link, Korea Ocean Satellite Center (KOSC) with L-band link, Meteorological Satellite Center (MSC) with S/L-band link, and Communciations Test Earth Station (CTES) with Ka-band link. SOC comprise Satellite Ground Control System (SGCS) for satellite control operations and Image Data Acquisition System (IDACS) for Meteorological Imager (MI) and geostationary ocean color imager (GOCI) data processing. SGCS and IDACS will be installed in SOC and MSC as cross backup for higher availability. The SGCS performs the following functions: reception and processing of telemetry data by S-band link, transmission of telecommand by S-band link, tracking and ranging, control and monitoring of SGCS equipment, analysis and simulation of COMS, processing and analysis of flight dynamics data, and mission scheduling and telecommand planning. In order to fulfil the above functions, the SGCS consists of five subsystems: TTC (Tracking, Telemetry and Command Subsystem), ROS (Real-time Operations Subsystem), MPS (Mission Planning Subsystem), FDS (Flight Dynamics Subsystem), and CSS (COMS Simulator Subsystem).



COMS Ground Segment Architecture