

Flight Dynamics Support for the KOMPSAT in Launch and Early Orbit Phase Operation

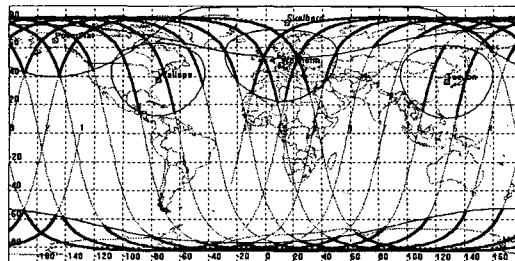
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Korea Multi-Purpose SATellite(KOMPSAT) is scheduled to be launched by TAURUS launch vehicle in November, 1999. Tracking, telemetry and command(TT&C) operation and the flight dynamics support should be performed for the successful launch and early orbit phase(LEOP) operation. After the first contact of the KOMPSAT, initial orbit determination using ground based tracking data should be performed for the acquisition of the orbit. Although the KOMPSAT is planned to be directly inserted into the Sun-synchronous orbit of 685 km altitude, the orbit maneuvers are required for correcting of the launch vehicle dispersion.

Flight dynamics support such as orbit determination and maneuver planning will be performed by using KOMPSAT Mission Analysis and Planning Subsystem(MAPS) in KOMPSAT Mission Control Element(MCE). The KOMPSAT MAPS have been jointly developed by Electronics and Telecommunications Research Institute(ETRI) and Hyundai Space & Aircraft Company(HYSA). The KOMPSAT MCE is installed in Korea Aerospace Research Institute(KARI) site for the KOMPSAT operation.

In this study, the orbit determination and maneuver planning are introduced and simulated for the KOMPSAT in LEOP operation. Initial orbit determination using short arc tracking data and definitive orbit determination using multiple passes tracking data are performed. Orbit maneuvers for the altitude correction and inclination correction are planned for achieving the final mission orbit of the KOMPSAT.



KOMPSAT ground track and LEOP tracking station coverage