sliding mode control of spacecraft attitude tracking with actuator, especially reaction wheel, is presented. The sliding mode controller is derived based on quaternion parameterization for the kinematic equations of motion. The reaction wheel dynamics is modeled as a first-order system and the pitch and yaw dynamics are modeled as second-order systems. The global asymptotic stability is shown using a Lyapunov analysis. In addition the robustness analysis is taken for nonlinear system with parameter variations and disturbances. It is shown that the controller ensures control objectives for the spacecraft with reaction wheels.

This paper is concerned with robust attitude control of large space structures with colocated sensors and actuators. Since the transfer function matrices of such systems are symmetric, it seems suitable to employ symmetric controllers. This paper shows that it is true if no constraint is imposed on the orders of the controllers, but it is not true if the orders of the controllers are specified to be lower than that of the system to be controlled.

The KOMPSAT-1(Korea Multi-Purpose Satellite-1) is the first multi-purpose satellite funded by Korean government for the purpose of remote sensing and scientific data gathering in KOREA. It has successfully achieved its own mission since Dec. 21, 1999. This paper provides an overview of the KOMPSAT-1 missions and addresses the nominal mission planning and operation flow. This paper also describes the routine operational orbit determination and orbit prediction process using GPS navigation solution data. Meanwhile, some problems due to inexperience of the multiple mission operations during LEOP(Launch & Early Orbit Phase) and early normal mission were investigated. Then, resolutions that include the development of new mission planning tool are addressed. The KOMPSAT-1's missions become more complicated rather than its initially designed ones. In order to accomplish ...

MSC is being developed to be installed on KOMPSAT(Korea Multi-Purpose Satellite)-II and to provide high resolution multi-spectral. MSC consists of three main subsystems. One is EOS(Electro-Optics Subsystem), another is PMU(Payload Management Unit) and the other is PDTS(Payload Data Transmission Subsystem). There is an SBC(Single Board Computer) in the PMU to control all MSC subsystems. SBC incorporates Intel 80486 as a main processor and VxWorks as a real-time operating system. SBC software consists of four main tasks and several modules to deal with all control information for imaging and all the state of health telemetry data, and to perform interface with another MSC units. SBC software also has to handle a lot of commands in order for MSC to perform his mission. One mission command consists of a series of related commands, which are to be executed in the designated sequence, with a specified time ...