

EARTH OBSERVATION SYMPOSIUM (B1)  
International Cooperation in Earth Observation Missions (1)

Author: Mr. Ravit Sachasiri

Geo-Informatics and Space Technology Development Agency (GISTDA), Thailand, ravit@eoc.gistda.or.th

COOPERATION FOR INTER-OPERATION OF GROUND STATIONS BETWEEN EARTH  
OBSERVATION SATELLITE OPERATORS

**Abstract**

Small non-commercial Earth Observation Satellite operators such as small government agencies, scientific institutes or universities are usually limited in resources as they depend on external funding and are non-profit. They may also distribute the acquired images to offset cost but most of the time, images are provided at a much reduced price or sometime, free of charge. Therefore, these organizations must minimize operational cost. One of the main operating costs is the maintenance and upkeep of the Control Ground Station - the satellite control system and the antenna systems. Downtime is undesirable and during repair and maintenance, services of commercial Ground Station operators must be employed. The fee for using the satellite-pass at commercial Ground Stations as well as the initial setup fee is an unnecessary but unavoidable expenditure. Most of the small Earth Observation Satellite operators may have mission control of only a few satellites. Earth Observation Satellite has more or less four passes over the Ground Stations in the Tropical zones (between 23.5 N and 23.5 S latitude) and maybe, few more for Ground Stations in the temperate zones (between 23.5 to 66.5 N and 23.5 to 66.5 S latitude), thus allowing remaining time to be used for communication with other satellites. The Earth Observation Satellite operators may not have a redundant antenna system or parts and in time of failure, the satellite operator has to resort to the services of the commercial Ground Station operators in order to assure the continuous operation of the satellite. By entering into cooperation with other operators, satellite operators may employ the Ground Station facility of their partners while they perform maintenance on their own antenna system or if their antenna system is not functioning. Inter-connections can be set up on the spot over secure communication channel at minimal cost and taken down as quickly. If several Earth Observation satellite operators all over the world were to actively share their resources, the available resource pool would be sufficient for all the operators and through this cooperation, unforeseen operating costs can be drastically reduced. Moreover, the cooperation can also leads to other knowledge sharing programs, problem solving and personnel training which is beneficial to all partner organizations. The paper shall also discuss the cooperation to share ground station resources between Geo-Informatics and Space Development Agency (GISTDA), Thailand and National Space Organization (NSPO), Taiwan in order to reduce dependence on commercial ground stations.