

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

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SI-200 MINI-SATELLITE PLATFORM FOR EARTH OBSERVATION MISSIONS

**Abstract**

SI-200 is a 200 kg mini-satellite, designed to be compatible with optical imaging payload of 2.5 m Ground Sampling Distance (GSD) on a low earth orbit. RazakSAT of Malaysia and DubaiSat-1 of UAE have been built based on the SI-200 platform. The common mission objective is to demonstrate the capability of medium-high resolution remote sensing using a cost effective mini-satellite platform and a multi-channel linear push-broom electro-optical instrument. RazakSAT program has unique advantages for monitoring the environmental changes and mitigating disasters over equatorial regions due to short revisit characteristics from the baseline circular orbit of 685 km of altitude and 7 degrees of inclination. In the other hand, DubaiSat-1 is designed for 680 km circular sun-synchronous orbit. These missions have complementary characteristics in terms of observation opportunities for equatorial and higher latitude regions. SI-200 platform is optimized to accommodate the mission payload,  $\phi$ 300 mm-sized optical camera, which is a push-broom type camera with swath width of 20 km. The platform has +/-45 degrees of tilting and 30 Mbps X-band downlink capability. This paper describes the overview of the RazakSAT and DubaiSat-1 programs, focusing on the key technical and operational aspects of the mission. One of the primary mission objectives of these programs is to develop and validate technologies for developing countries. Multi-national engineering teams are formed for the effective implementation of the program. An integrated team approach is adopted for the joint satellite development. Lessons learned from these international space programs between emerging space countries are also discussed and an update is provided for the status of the mission as of October 2009.