

Capacity Building on Small Automatic Tracking Antenna Development for Thailand Space Sustainability

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Abstract : The communication system between the ground station and the satellite is very important to guarantee contact between both sides. Thailand, led by Geo-Informatics and Space Technology Development Agency (GISTDA), has received satellite images from other nation's satellites for a number of years. In 2008, Thailand Earth Observation Satellite (THEOS) was the first Earth observation satellite owned by Thailand. The mission was monitoring our country with affordable access to space-based Earth imagery. At this time, the control ground station was initially used to control the THEOS satellite by our Thai engineers. The Tele-commands were sent to the satellite according to requests from government and private sectors. Since then, GISTDA's engineers have gained their skill and experience to operate the satellite. Recently the desire to use satellite data is increasing rapidly due to space technology moving fast and giving us more benefits. It is essential to ensure that Thailand remains competitive in space technology. Thai Engineers have started to improve the performance of the control ground station in many different sections, also developing skills and knowledge in areas of satellite communication. Human resource skills are being enforced with development projects through capacity building. This paper focuses on the hands-on capacity building of GISTDA's engineers to develop a small automatic tracking antenna. The final achievement of the project is the first phase prototype of a small automatic tracking antenna to support the new technology of the satellites. There are two main subsystems that have been developed and tested; the tracking system and the monitoring and control software. The prototype first phase functions testing has been performed with Two Line Element (TLE) and the mission planning plan (MPP) file calculated from THEOS satellite by GISTDA.

Keywords : capacity building, small tracking antenna, automatic tracking system, project development procedure

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