

SMALL SATELLITE MISSIONS SYMPOSIUM (B4)
Small Satellite Operations (3)

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METHODOLOGY OF OPERATION A REMOTE SENSING SYSTEM FOR EARTH IMAGES BASED
ON THE MICROSATELLITE "CONDOR UNAM-MAI"

Abstract

Mexico is working on developing space technology again, in response to the needs of global society. Therefore, technical collaboration has been agreed with the Russian Federation and Poland for an initial project of a microsatellite called "CONDOR UNAM-MAI", with research goals. The international collaboration project is led by UNAM (National Autonomous University of Mexico) and MAI (Moscow Aviation Institute). A part of the missions for the satellite is capturing and transmitting to ground in Mexico in real time Earth images through an X-band radio channel. The paper presents the operation plan for the remote sensing system based in Mexican territory for communicating with the satellite. The plan shows the operation logistics providing solutions for some requirements of information from the scientific and educational community. We present the technical and logistical analysis to perform real-time coverage using existing ground infrastructure in Mexico and the possible growth of the same under the best cost-benefit relation. The methodology for conducting the technical analysis of the operation program is focused to optimize operation variants according to the required remote sensing task. We present a methodology that can be helpful for the analysis and generation of an operation plan for other countries working on the development of ground infrastructure for remote sensing based on similar microsatellite characteristics. Low cost is relevant criteria for the decision making in the methodology, in order to help the development of projects involving remote sensing services. The development of a remote sensing system in real time based on a microsatellite of the characteristics of the "CONDOR UNAM-MAI" provides a new perspective for the use of low-cost microsatellites with sufficient technical capabilities to cover research, and educational tasks required by a wide variety of sectors. The analysis of the plan of operation for the Mexican case sets a precedent for the development of programs for real-time remote sensing in developing countries with limited terrestrial infrastructure.