

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

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INTEGRATED MISSION PLANNING AND SCHEDULING TOOL TO FOSTER EOS
CO-CONSTELLATION

Abstract

Space-based earth observation has become a common practice to get indispensable information about earth and human activities. Currently, almost all geo-related domains and applications rely on data acquired by remote sensing satellites. Evidently, the number of these satellites launched into orbit increases progressively every year.

Due to limitation, both spatially and temporally, of a single satellite, and in order to maximize the benefit from these assets in space, constellations of satellites are designed and deployed in order to get more useful data from space. Such kind of remote sensing satellites cooperation as a constellation usually well planned and agreed among every related parties since the mission design.

However, there are several remote sensing satellite missions that are designed and operated individually as a single satellite, especially from emerging countries in space technology. To maximize the use of remote sensing satellite and promote international collaboration for the use of space, several collaborations between space agencies or public remote sensing satellite operators have been initiated. Nevertheless, these initiatives were still not so successful, this might due to the policies or the limitations of each satellite operators itself or the lack of common platform to work on, in order to ensure that these space resources are used and shared equally.

In this paper, we propose a platform, so-called OPTEMIS (Operation Planning Tool for Earth-observation MISSION), which is developed to promote satellite resources sharing in the framework of satellites co-constellation concept. The proposed tool enables collaboration and coordination between single satellite operator via a platform that allows users to seamlessly request the acquisition, perform feasibility assessment, manage the mission plan for multi-satellite optimally, track the mission progress and facilitate the operation workflow. This tool is already implemented and tested with the real satellite operation mission. An example case of using this tool to foster EOS Co-Constellation collaboration is also shown and discussed.