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

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INTERNATIONAL COOPERATION BASED ON COSMO-SKYMED SYSTEM

Abstract

For some years now the Italian Space Agency (ASI) and the Italian Ministry of Defence (It-MoD) have been jointly developing a plan to improve the next years Cooperation with International Partners in the Earth Observation (EO) field. At this aim, the main space asset that ASI and It-MoD have commissioned and funded is the COSMO-SkyMed System. COSMO-SkyMed is the largest Italian investment in Space Systems, consisting of a constellation of Low Earth Orbit mid-sized satellites, each carrying a multi-mode high resolution Synthetic Aperture Radar (SAR) operating at X-band, and a full featured Ground Segment to properly exploit space capabilities. Currently the constellation, operational since the first half of 2010, is composed of four satellites, launched in the timeframe 2007-2010. In the next years the operational life of the COSMO-SkyMed System will continue while significantly growing in terms of functionalities and performances, since ASI and It-MoD are developing a Second Generation of satellites (CSG) and an important Ground Segment Upgrade. CSG constellation will be composed of two additional satellites that, joining those of the first generation, will provide the International Users with new sensor modes, improved performances and new operative solutions. In addition to the Space Segment improvement, also the COSMO-SkyMed Ground Segment will experience significant enhancement aimed at enhancing the existing International Cooperation, by means of the Interoperability, Expandability and Multi-sensor capability (IEM) concept. The COSMO-SkyMed IEM is aimed at supporting cooperation scenarios between COSMO-SkyMed System and other Earth Observation systems by means of a twofold approach: Cooperation by Federation and Cooperation by Expansion. The first approach foresees that the International Cooperation is granted through exchange of services according to agreed interfaces/protocols, not requiring integration of physical components. It provides the possibility to access the catalogue of

Partner's EO systems, searching for given products, ordering them, and receiving the queried products. Reciprocally, COSMO-SkyMed allows the same type of access to Partner's EO systems. The Cooperation by Expansion, instead, is realized at two levels: the expansion within the COSMO-SkyMed boundaries, by scaling up the system, and the expansion by providing COSMO components/sub-systems to other EO systems or by integrating components/ sub-systems from other EO systems. Through these IEM functions, the COSMO-SkyMed System constitutes an essential Italian asset to establish the International Cooperation in the Earth Observation field. The final paper will provide an insight in the Cooperation already established, those being finalized and the way COSMO-SkyMed System enables them.