

EARTH OBSERVATION SYMPOSIUM (B1)
Dual Use Earth Observation (6)

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A DUAL COORDINATED DATA ACCESS TO GMES-SECURITY SYSTEM OF SYSTEMS

Abstract

Security and safety have an increasing importance in a multi-polar world. Since 2005, the EU made the strategic choice of developing an independent European Earth observation capacity to deliver services in the environmental and security fields, called Global Monitoring for Environment and Security –GMES-. To develop the “S” of security, ESA has (i) pondered a security observation needs technology roadmap, based on existing assets and gaps, (ii) assessed options for a combined EO non-EO data access infrastructure in supply of EU security needs, (iii) explored the relevant concepts of operation of such system of systems for security purposes and (iv) defined relevant architectures and detailed observation requirements and means. This paper presents the security EO requirements envisaged by GMV in support of EU external actions, law enforcement and Schengen surveillance, together with the technical solution for a dual coordinated data access in the short, medium and long term (2015, 2020, 2025). The concluding technical solution for the GMES-S dual data access system is conceived to deliver EO information for security applications to a wide range of European, National, and Regional organizations across the EU. Security products are increasingly demanding in terms of resolution -better than 1m-, responsiveness -better than several hours from request to delivery-, and frequency. The most demanding needs originate in joint operations for crisis response, which require the fastest responsiveness. Fulfillment of required capabilities is reached through the deployment of dedicated assets (e.g. bespoke security EO satellites). The proposed ground segment includes the necessary elements to support these missions and achieve the necessary performances. It combines all present and future European ground or space missions. Combination of these assets is the key driver, shaping the GMES-S system of systems concept, since the present gap analysis shows that standalone satellite missions are far from providing the necessary performances for security purposes. The solution focuses on interoperability and scalability, enabling the highest level of cooperation in terms of committed assets versus obtained products/services. GMES-S dual data access system should be motivating for Countries hosting valuable/strategical assets, providing a gain for their National interests while building up a European security satellites service system with high performances, without the fear of losing strategic advantage. Finally, the proposed ground segment includes the necessary elements to allow the wide-spread geographical access to system capabilities at the European, National, and Regional level, whilst ensuring data/systems security, confidentiality, and integrity.