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IAF EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Societal and Economic Applications, Challenges and Benefits (5)

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AN ATTRACTIVE EUROPEAN EARTH OBSERVATION ECOSYSTEM OF SERVICES: FLEXIBLE, SCALABLE, AND COST-EFFECTIVE DATA SPACES EMPOWERING DOWNSTREAM BUSINESS OPPORTUNITIES

Abstract

The development of a wide and attractive European Earth Observation (EO) Ecosystem of services marks the next frontier in the evolution of Earth Observation data access. Orchestrated EO Ecosystems aim at gathering tools and resources to unlock the full potential of this data, to build a full, free, and open (FFO) expanding data environment, and to increase the impact of Earth Observation applications for a sustainable society. ESA, together with European partners, international organisations, and industries, is developing an ecosystem of Copernicus and DestinE, both headed by the European Commission (EC). The first is the most ambitious, operational long-term Earth observation programme to date, the largest accurate EO data provider of timely and easily accessible geoinformation for global monitoring and environmental security. The new Copernicus Data Space offers enhanced flexibility, scalability, and cost-effectiveness. The latter, also based on operational data, is a flagship initiative aiming at monitoring, modelling, and simulating the digital replica of Earth and human activities, so contributing to the European Green Deal (EGD) and Digital Strategy objectives. The European Earth Observation ecosystem of services is further deploying through an additional component in support to DestinE. ESA Digital Twin Earth (ESA DTE) aims at developing a comprehensive set of novel EO-based Digital Twins to demonstrate the potential of advanced EO capabilities, bringing the latest EO pre-operational science results. This work describes the main pillars and the strengths of this ecosystem of services: the avoidance of technical lock-in, the space downstream economy enlargement, and the harnessing of a European industrial reality in developing high-quality competitive operational services for socio-economic return. The advantages of this innovative concept of data space are also described, such as an agile access to commercial services from-to 3rd parties and expanding the perimeter of the European space downstream economy through vertical markets. Top level challenges of this ecosystem development, such as for example the management of Big Data, are also addressed in this paper. A representative example of a use-business-case idea will be outlined, by uncovering the potential of Sentinel data for the monitoring of the urban environment.