

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

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THE SOCIOECONOMIC BENEFITS OF EARTH OBSERVATION APPLICATIONS IN THE NEW
SPACE ERA

Abstract

The Earth Observation (EO) space economy is undeniably undergoing a heavy paradigm shift. This is the effect of the New Space era, where the industrial scenarios of several new-born ESA missions are fast evolving. Changes apply to the Projects implementation programmatic perimeter (e. g: Primes not being Large System Integrators, lower budget, different approach to risk exposure, and compressed development schedules) and to the technical one (e. g: using commercial components, and simplified processes). This leads to a real space industrial revolution, which also implies commercialization of services, and which de-facto represents a shift of responsibilities in terms of data acquisition, access and distribution to users, where Projects industrial contract will also include tasks on Ground Segment (GS) and Operations. In addition, opening up to commercialization frontiers on data access is very realistic nowadays.

The new scenarios will encourage unprecedented involvement of newcomers' industrial partners and a real acceleration of the tasks, including generation of data information. The commercialization of EO applications will translate into the creation of a new marketplace and the development of small start-up companies and several associated societal benefits. This paper aims to provide factual analyses of the socioeconomic factors of the following ESA EO new space initiatives for Climate Change.

CubeMAP will provide measurements of Earth's atmosphere change, and consequently its Upper Troposphere and Stratosphere (UTS). The CubeMAP Industrial Consortium will also cover Routine Operations, Maintenance and Data Science such as data quality control and dissemination.

The HydroGNSS mission will address challenges such as water resources, droughts, flooding, and impacts on food security. The HydroGNSS Industrial Consortium will be delivering the Ground Segment including Payload Data Ground Segment (PDGS), mission planning, spacecraft/mission operations elements, the Science Advisory Group (SAG), assessment of Level 2 products, and the interface to the scientific community.

AWS is the prototype for a future constellation of small, polar orbiting satellites providing global microwave soundings of the atmosphere. The AWS Industrial Consortium will be responsible for GS and Operations.

The Copernicus Space Component (CSC) Data Access Service will support long-term user operations and development of new initiatives like Destination Earth.

This paper will analyze the socioeconomic impact of these ESA EO initiatives on the generation of a New Space market, with a focus on the estimate of the number of jobs, specific apportionment to SMEs, and their respective support to the UN Sustainable Development Goals (SDGs).