

IAF SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)
Integrated Applications End-to-End Solutions (2)

Author: Ms. Roberta Mugellesi-Dow
European Space Agency (ESA), United Kingdom, Roberta.Mugellesi.Dow@esa.int

Dr. Stefano Ferretti
European Space Agency (ESA), Italy, stefano.ferretti@esa.int
Mr. Piero Messina
European Space Agency (ESA), France, piero.messina@esa.int
Dr. Paolo Corradi
ESA, The Netherlands, Paolo.Corradi@esa.int
Mrs. Alessandra Vernile
EURISY, France, alessandra.vernile@eurisy.org

THE ATLANTIC OCEAN AND SPACE APPLICATIONS

Abstract

The Atlantic and its resources are recognized as essential for addressing the multiple challenges that will be faced in the next decades being a key source of food, energy, minerals, etc. Emerging Atlantic industries are characterized in their operations by cutting-edge science and technologies, moving increasingly to high level of automation and benefiting from satellite technology, tracking and imaging. AI techniques can contribute in important ways to a more effective enforcement and conservation of Atlantic ecosystem by making possible to extract valuable information from the huge data volumes and allowing to monitor, model, and manage the environmental systems. ESA has recently launched an Earth Observation Atlantic Regional Initiative, based on an analysis of the existing policy frameworks and connected with the needs of the most relevant stakeholders, represented at the “Atlantic from Space” workshop in Jan 2019, and is developing a framework for the Atlantic Region, encompassing scientific, applications and data management aspects, in integrated approach across the Agency. Our key recommendations target all the countries bordering the wider Atlantic. The focus of the paper is to demonstrate the value of satellite data for the development of activities and services within emerging ocean industries while managing the Atlantic in a responsible and sustainable way. Examples of these applications are monitoring and expanding global maritime traffic, ports activities and their evolution towards the digital age, production of renewable energy from wind and waves, fishing, etc. Atlantic Ocean science can greatly benefit of innovative Earth Observation applications to study fresh water inflows and the global ocean conveyor belt transporting heat to the poles; atmospheric dynamics and air-sea exchanges impacting global biogeochemical cycles; climate change pressures, e.g. ocean oxygen deficiency, affecting the marine ecosystem. Current status of the studies related to (plastic) marine litter, which is a global challenge dramatically impacting all marine ecosystems, and the role that space data may have to protect seas and freshwater systems from plastics will be also presented. In addition, the project initiated by Eurisy, an NGO linking Space and society, on the integration of space for the maritime sectors, looking at national, regional and local strategies for a sustainable blue economy across Europe will be also discussed providing concrete examples. As conclusion, Earth Observation data combined with the other space assets and ground based data, can address most of these topics, acting as a potential catalyser for innovation and socio-economic growth in the Atlantic region.