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ENABLING EARTH OBSERVATION FOR PROTECTED AREAS

>>> A few years later

Since 2018, the Earth Observation Data for Ecosystem Monitoring (EODESM) has been developed to allow application as a stand-alone system but also within the framework of the open data cube, with the classifications of land cover generated from environmental descriptors retrieved from EO data. New methods for detecting and describing change based on evidence have been developed.

Richard Lucas, Aberystwyth University



BENEFICIARIES	ECOPOENTIAL Consortium; Aberystwyth University	15 large national parks in Europe	Park managers; Nature conservationists; Ecologists	Citizens and Society
	TIER 1: SERVICE PROVIDER	TIER 2 PRIMARY USER	TIER 3 SECONDARY USER	TIER 4 END USER BENEFICIARIES
SERVICES	Sentinel-2	Tool "EO Data for EcoSystem Monitoring - EODESM"; Classification of land covers; Environmental descriptors such as: vegetation canopy cover and height, water turbidity, sea	LULC maps; Aid in more rapid change detection and alert system; Improved planning strategies	Reverse loss trend of biodiversity and degradation of landscapes, in Europe and beyond

Value chain definition following SeBS Methodology - <https://earsc.org/sebs>

The space-based solution

This Copernicus-based solution produced by a scientific entity for a Public Administration and for other users such as companies, professionals, agencies, associations, single citizens. From technical perspective, additional information has been generated.

The Usage Maturity Level

Since 2018, the solution has transitioned to a higher level reaching UML 5. The main reason for this was found in an increased recognition about the effectiveness of the solution at decision-making level based on the achieved results and return-of-experience.

Thematic Area



BIODIVERSITY AND ENVIRONMENTAL PROTECTION

Region of Application



EUROPEAN MARITIME AREAS

Sentinel mission used



S2

Copernicus Service used



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Usage Maturity Level



5

Overall benefits

ECONOMIC



- Capital expenditure has been reduced or avoided
- Efficiency gains have been registered
- Employment increase
- The replicability of the solution was achieved

ENVIRONMENTAL



- Reduced impact on biodiversity
- Reduced depletion of natural resources

INNOVATION



- The solution has helped to introduce some innovation in the functioning of the public administration (e.g. adopted more efficient or effective business practice)
- The solution has helped to create some new business

REGULATORY



- The solution has helped to inform the design/ review of policy parameters

SCIENCE



- The solution has helped to improve understanding about a specific topic of interest traditionally not related to EO
- The solution has enabled some technological advancement
- There was an increase in technical/scientific expertise related to Copernicus/EO at the service provider
- There was an increase in the research budget share

SOCIETAL



- Improved coordination and governance has been registered
- Sense of trust/community for the involved actors has increased
- Strategic added value was registered for the involved actors
- Strategic added value was registered for society as a whole
- There has been an increased access to public

Benefits classification following SeBS Methodology - <https://earsc.org/sebs>

Interesting facts...

Relevant funding from ESA Climate Change Initiative, Geoscience Australia, Welsh Government and Wetlands International were functional for the technical advancement of the solution described. EODESM has been developed for national application across Wales (see geoportal <https://wales.livingearth.online>) and Australia with the framework of the open data cube. This capacity is being fed back into the protected area network in Europe. EODESM experience contributed to an establishment of permanent exhibition at the Centre for Alternative Technology.

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Outlook to the future

in future years, we are focusing on development of the change framework, prediction of future landscapes from environmental descriptors determined through modelling, and monitoring progress towards goals and ambitions (e.g., biodiversity restoration, sustainable management of resources, mitigation of climate change, carbon sequestration) using EO data primarily.

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