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Digital Twin Earth Intelligence for Climate Changes DTEClimate, ctr. nr. 760008/30.12.2022

Conference report

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1. Introduction

Biodiversity loss and ecosystem degradation represent some of the most pressing environmental challenges of the 21st century, with impact on climate resilience, economic sustainability, and human well-being. The reaction to these challenges, is the growing need for harmonized, and data-driven approaches to assess, monitor, and manage natural capital. Earth Observation (EO) technologies, combined with advances in data analytics, and environmental accounting, are recognized as essential tools for supporting evidence-based biodiversity policies and decision-making.

Within this context, the **EO4NATURE Conference – “Challenges and Opportunities for Biodiversity Assessment”**, organized by the Romanian Space Agency (ROSA), together with its industrial partner MULTIDIMENSION SRL, and held online on 24 November 2025, brings together representatives from public authorities, academia, research institutes and non-governmental organizations. The event aims to facilitate dialogue on the integration of EO data into biodiversity assessment frameworks, environmental policies, and natural capital accounting, with a particular focus on national and European-level implementation.

The conference agenda reflects a comprehensive and multidisciplinary approach to biodiversity management. It begins by emphasising biodiversity within the broader framework of environmental governance and policy. Discussions on biodiversity management and environmental accounts highlight the increasing relevance of ecosystem services valuation and the alignment with the System of Environmental-Economic Accounting (SEEA). In this context, the MAES (Mapping and Assessment of Ecosystems and their Services) process in Romania is presented as a key national mechanism for operationalizing ecosystem assessments and supporting policy coherence.

EO4NATURE project demonstrates how Earth Observation data can be effectively used for natural capital accounting and biodiversity management, contributing to improved monitoring of ecosystems, supporting policy-relevant indicators, and enhancing transparency and comparability in biodiversity assessments. The project also illustrates how EO-based solutions can complement traditional field-based approaches, offering scalable and cost-effective tools for national and regional authorities.

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2. Objectives of the conference

The main objective of the event was the interaction between environmental policies, current conservation priorities, and scientific knowledge, as illustrated by contributions from environmental organizations and research institutions. These perspectives underline the need for coordinated actions that bridge policy objectives with practical conservation measures, particularly in the face of accelerating climate change impacts on biodiversity. The agenda further explores ongoing research and implementation projects that address the relation between climate and biodiversity interlinkages, ecological reconstruction, and ecosystem restoration, highlighting Romania's scientific capacity and institutional experience in these domains.

The EO4NATURE conference aimed to strengthen the understanding of biodiversity management by showcasing the MAES (Mapping and Assessment of Ecosystems and their Services) process in Romania. The event managed to illustrate current methodologies, institutional roles, and implementation challenges in ecosystem and biodiversity assessment at the national level.

A core objective was to promote the use of EO data and geospatial technologies as reliable, scalable, and cost-effective tools for biodiversity assessment, ecosystem monitoring, and environmental reporting, with particular emphasis on the EO4NATURE project.

By exploring the interlinkages between climate change and biodiversity the conference aimed to enhance awareness of how climate change impacts ecosystems and biodiversity, and to present ongoing research projects and implementation actions that address climate and biodiversity interactions in Romania.

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3. Conference agenda - “Challenges and Opportunities for Biodiversity Assessment”

10:00-10:10	Welcome	DG ROSA
10:10-10:20	MAES process in <u>România</u>	Roxana Stoian – National Environmental Agency
10:20-10:30	Environmental policies and actual priorities	Monia Martini – WWF România
10:30-10:40	<u>DTEClimate</u> Competence Center	Mihai Datcu - UPB
10:40-10:50	Exploitation of Satellite Earth Observation data for Natural Capital Accounting and Biodiversity Management – EO4NATURE project	Alina <u>Răduțu</u> - ROSA
10:50-11:10	<u>Pauză</u>	
11:10-11:25	Climatic changes and biodiversity – projects in implementation	Cristian <u>Lojă</u> – University of Bucharest
11:25-11:40	Ecological reconstruction and biodiversity management	Sorin <u>Stefănuț</u> – Biology Institute of Bucharest
11:40-11:55	Awareness and opportunities	Florina Neagu – WWF <u>România</u>
11:55-12:10	Solutions and recommendations – EO4NATURE	ROSA, <u>Multidimension</u>
12:10-12:25	Synergies AI4DTE – EO4NATURE	Corina <u>Văduva</u> - UPB
12:25-13:00	<u>Discussions</u> and conclusions	All



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4. Participants and general discussions

The meeting was attended by a total of 45 participants.

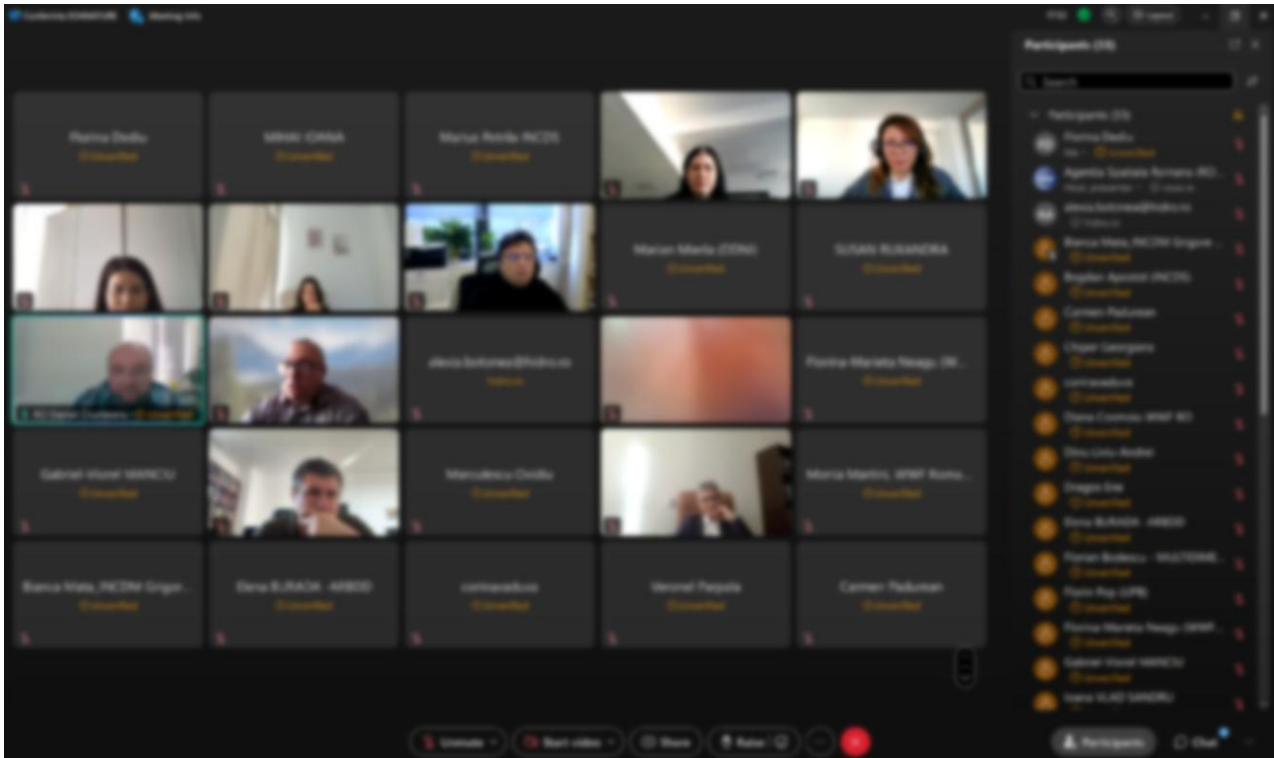


Figure 1. Online conference EO4NATURE- Welcome of the ROSA DG

Besides the representatives of the institutions that were included in the programme:

- ROSA,
- The Ministry of Environment, Water and Forests- through National Agency for Environment and Protected Areas, University of Bucharest,
- Biology Institute of Bucharest,
- University Politehnica of Bucharest,
- Multidimension SRL,
- World Wide Fund for Nature,

the conference was attended by representatives of

- Research institutes from Romania:
 - o Danube Delta National Institute for Research and Development,
 - o The National Institute for Marine Research and Development “Grigore Antipa” Constanta,
 - o The National Research and Development Institute for Industrial Ecology,
 - o The National Institute for Research and Development in Forestry (INCDS) “Marin Drăcea”,
 - o The National Research - Development Institute For Earth Physics,

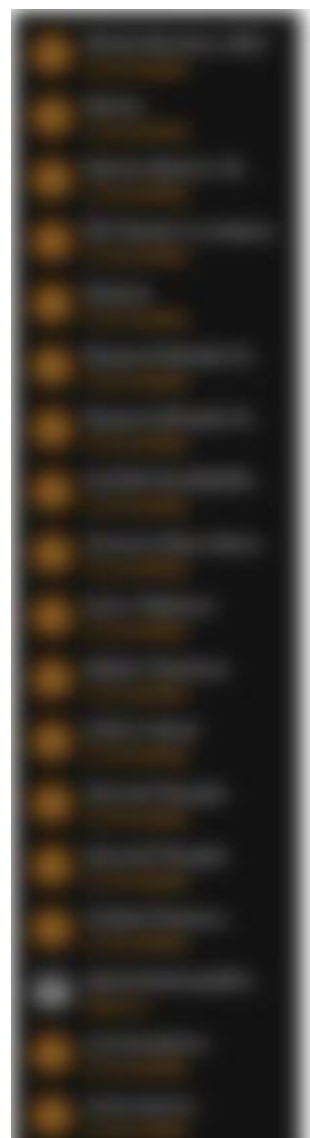
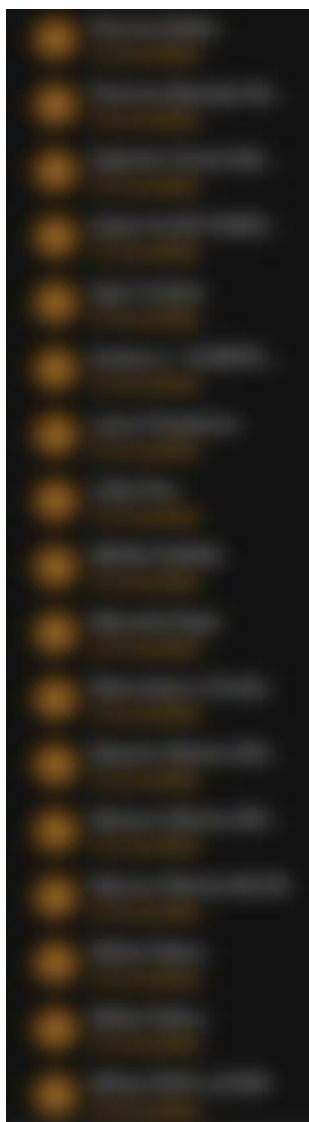
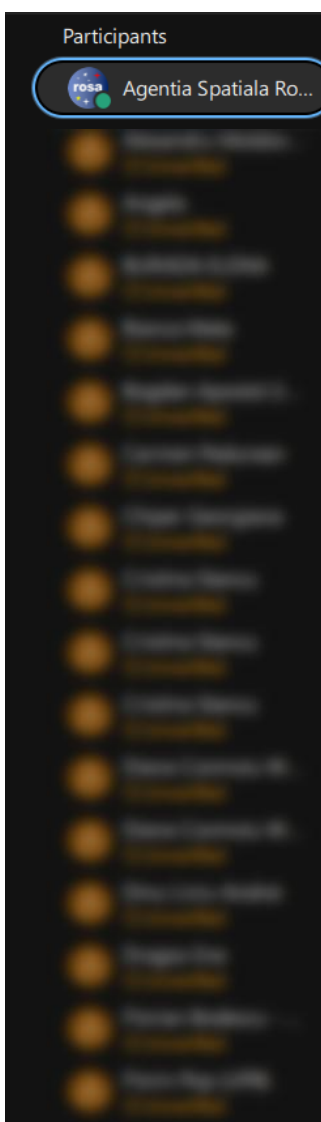
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- The National Research and Development Institute for Food Bioresources – IBA Bucharest,
- The National Institute of Hydrology and Water Management
- Administrations:
 - Administration of the Danube Delta Biosphere Reserve
- And industrial actors:
 - EUROPLASTIC SRL.

The screen shots with participants are listed below:



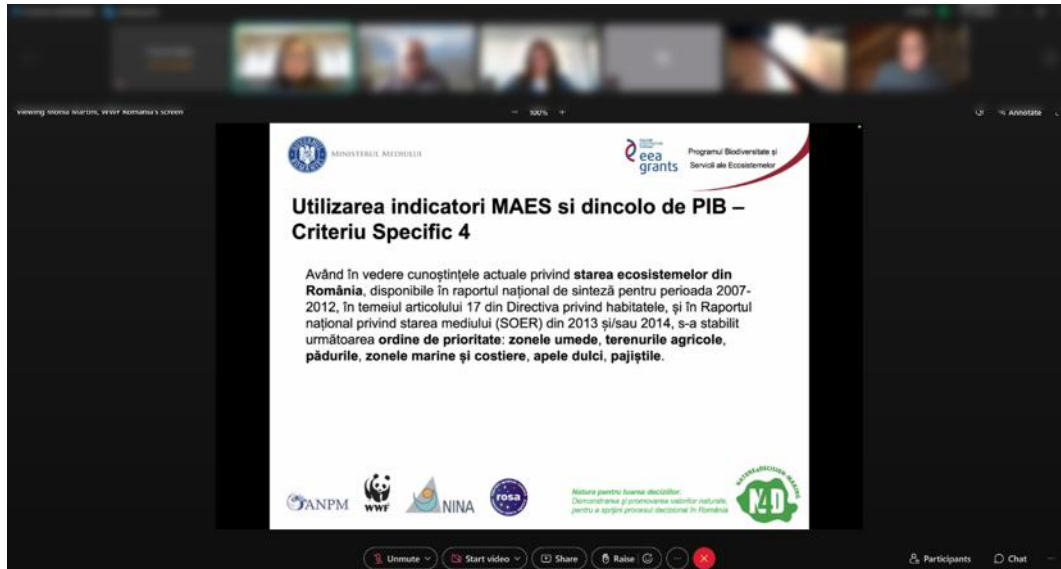
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The presentations included aspects related to

- MAES process in Romania



- Environment politics and actual priorities

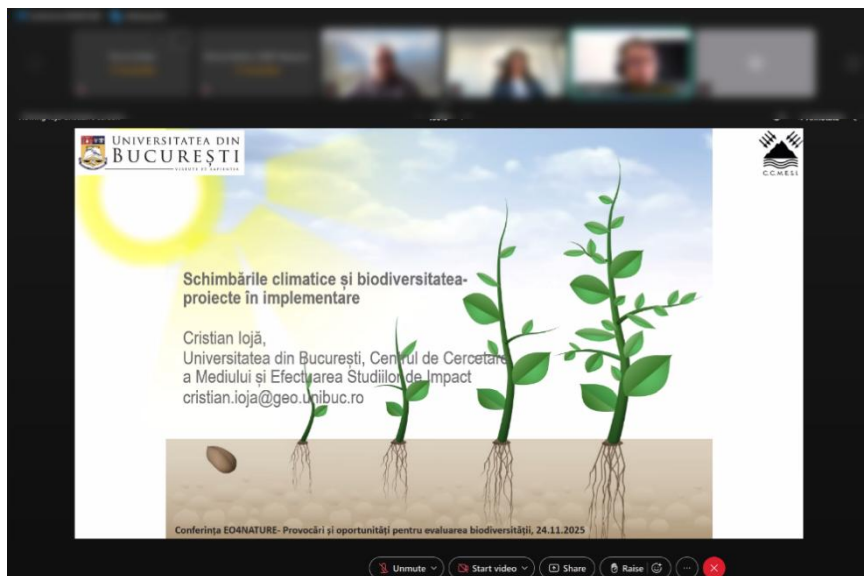


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- Usage of Earth Observation data for the environment



- Climate change and biodiversity



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- Ecological reconstruction and biodiversity management



The conference provided also a section for open discussions, encouraging participants to identify common challenges, share best practices, and formulate recommendations for future actions. These discussions are intended to support stronger collaboration between institutions, improve policy uptake of scientific results, and guide the further development of EO-based tools for biodiversity monitoring and natural capital management.

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5. Conclusions

The conference agenda brought together public authorities, research institutions, NGOs, and technology providers, demonstrating that cross-sector collaboration is relevant for advancing biodiversity assessment and management.

Presentations from the Ministry of Environment- ANMAP, WWF, and academic institutions indicate that biodiversity policies, MAES processes, and environmental accounting require strong scientific and technological support to be effective and measurable.

The solutions and recommendations session shows that pilot projects exist, yet broader implementation, institutional adoption, and long term funding are needed to maximize their impact. The concluding discussions underline the need for sustained cooperation, follow-up actions, and alignment between policy objectives, research outcomes, and operational tools.

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