



BioEOS Workshop

Using Imagery to Track Coastal Biodiversity Changes From Space



Brest and La Réunion – January 23-25, 2024

CONTEXTE

Biodiversity is linked to ecosystem functioning and is a natural capital delivering key services and benefits to humanity. However, evidence of a rapid global decline of biodiversity was formally recognized at the 2010 Convention on Biological Biodiversity. Multiple challenges arise, from maintaining ecosystems function to ensuring its economic viability, taking into account alterations of ecosystems that are in some cases not easily reversible (e.g. climate change). However, our current knowledge of spatiotemporal biodiversity dynamic remains limited in several areas, especially in overseas territories. The international GEOBON community developed framework and standards, proposing the concept of EBVs (Essential Biodiversity Variables). Nevertheless, their operational application in French waters still needs to progress. Therefore, there is a real need for simple, integrative, and operable biodiversity monitoring systems reducing dependence on in situ data and ensuring wide-scale applicability, including in inaccessible places. BioEOS project¹ proposes to provide reliable and relevant operational observation tools that accounts for the spatiotemporal variability of biodiversity at large-scale, using mainly remote sensing satellite time series.

SCOPE & OBJECTIVES

In order to enhance the ability to produce relevant information needed by both the scientific community and managers, particularly in areas with a lack of data such as overseas territories, the BioEOS workshop aims to bring together a multidisciplinary attendee with expertise in remote sensing, artificial intelligence, ecology, field observations, and modelling, along with conservation managers. By involving GEOBON Experts, we ensure that biodiversity standards are considered by integrating the concept of EBVs (Essential Biodiversity Variables). The main objectives are:

- (i) To gather information on the needs of managers in terms of coastal biodiversity knowledge (required data, availability, uses, update frequency, etc.) needed as input for their various governance tools.
- (ii) To identify key biodiversity indicators and to categorize them based on the ability to extract required information for their estimation from imagery.

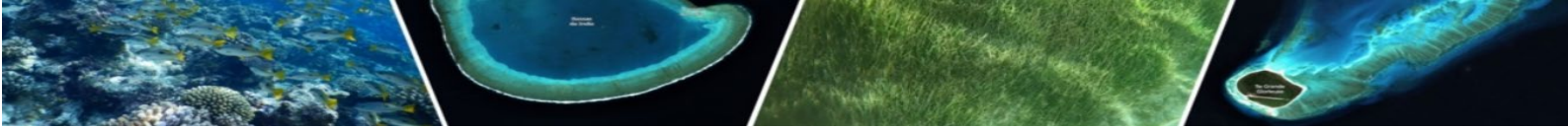
EXPECTED OUTPUT

The workshop will result in the following deliverables:

- A list of coastal biodiversity indicators and their categorization based on their level of estimation (core vs ecosystem specific).
- A list of methods for estimating the required indicator metrics, along with an assessment of their strengths and weaknesses in terms of robustness and implementation cost.
- A report with (i) summary of the discussions, specifically addressing the needs and gaps in biodiversity knowledge in the coastal zone, including from management and conservation stakeholders and (ii) a roadmap outlining the tasks to be implemented and their associated data workflows for producing identified indicators, incorporating feedback from the workshop.

¹ <https://www.spaceclimateobservatory.org/bioeos>





EXPECTED AGENDA

Tuesday 23/01/2024 - Plenary hybrid session

13H30-16H30 Brest local time (+3H for La Réunion site)

Session chair: Touria Bajjouk

Plenary Introductory session with presentations of feedback from national, European and international initiatives.

- 13H30-13H45** Introduction to the Workshop by **Touria BAJJOUK (Ifremer)**
- 13H45-14H05** **Nicolas GASNIER (CNES)**
The CNES & Space for Climate Observatory Programme
- 14H05-14H30** **Joana SOARES (AIR Centre)**
The Marine Biodiversity Observation Network (MBON): coordinating marine life observations to support conservation, restoration, and equitable development
- 14H30-14H55** **Adriano LIMA (AIR Centre)**
Marine biodiversity indicators, progress and gaps
- 14H55-15H10** Coffee break
- 15H10-15H35** **Willem KLAJBOR (NOAA)**
Feedback from NOAA experiences on biodiversity monitoring
- 15H35-16H00** **Valeria MOBILIA (DELTARES)**
Obama Next EU Project, toolbox for biodiversity products
- 16H00-16H25** **Yvan LE BRAS, (MNHN/PNDB)**
Galaxy for Ecology, a biodiversity and environmental data processing platform for Essential Biodiversity Variables (EBVs) operationalization
- 16H25-16H30** Closing of the session

Wednesday 24/01/2024

Management interactive session

09H00-12H00 (Brest site local time), 09H00-11H30 (La Réunion site local time)

Session chair:

Isabelle Gailhard-Rocher & Florence Cayocca (Brest site)

Mathieu Pineault & Karine Pothin (La Réunion site)

- Introductory presentation (**Fabrice AUSCHER / Mathieu PINEAULT**)
- In-person interactive sessions at Brest and La Reunion sites focused on biodiversity management

Biodiversity indicators interactive session

14H00-17H00 local time (Brest site), 13H00-16H00 local time (La Réunion site)

Session chair :

Adriano Lima & Touria Bajjouk (Brest site)

Lionel Bigot & Rodolphe Devillers (La Réunion site)

- Introductory presentation (**Touria BAJJOUK**)
- In-person interactive sessions at Brest and La Reunion sites dedicated to identifying key biodiversity metrics/indicators for large-scale monitoring

Thursday 25/01/2024 - Online restitution

10H30-12H30 Brest local time (+3H for La Réunion site)

Session chair: Touria Bajjouk

- Jointed restitutions from Brest and La Reunion interactive session groups
- General discussion