



## Operational Sensing Life Technologies for Marine Ecosystems

**Milestone M18 – Candidate ANERIS  
technologies, datasets and training  
resources ready to be shared in open  
repositories**

Lead Beneficiary: CSIC

Author/s: Berta Companys, Xavier Salvador, Sebastian  
Luna-Valero, Smitesh Jain & Rubén Díez

April 2025



Funded by  
the European Union

Views and opinions expressed are those of the author(s) only and do not  
necessarily reflect those of the European Union or the European Commission.  
Neither the EU nor the EC can be held responsible for them.

## Prepared under contract from the European Commission

Grant agreement No. 101094924

EU Horizon Europe Research and Innovation action

Project acronym: **ANERIS**  
Project full title: **operAtional seNsing lifE technologies for maRIne ecosystemS**  
Start of the project: January 2023  
Duration: 48 months  
Project coordinator: Jaume Piera

Milestone title: Candidate ANERIS technologies, datasets and training resources ready to be shared in open repositories.

Milestone n°: M18  
Dissemination level: Public

WP responsible: WP5  
Lead beneficiary: CSIC

Citation: Companys, B., Salvador, X., Luna-Valero, S., Smitesh, J. and Díez, R. (2025). Candidate ANERIS technologies, datasets and training resources ready to be shared in open repositories. Milestone 18. EU Horizon Europe, ANERIS Project, Grant agreement No. 101094924

Due date of deliverable: Month n° 20  
Actual submission date: Month n° 30

Deliverable status:

Version	Status	Date	Author(s)
1.0	Draft	15 12 2024	Berta Companys, Xavier Salvador
1.1	Review	05 03 2025	Sebastian Luna-Valero, Jain Smitesh & Ruben Díez
1.2	Final	12 06 2025	Berta Companys, Xavier Salvador, Sebastian Luna-Valero, Jain Smitesh & Ruben Díez

The content of this deliverable does not necessarily reflect the official opinions of the European Commission or other institutions of the European Union

## Table of Contents

Preface.....	4
Summary.....	4
List of Abbreviations.....	5
<b>1. ANERIS Technologies.....</b>	<b>6</b>
<b>2. ANERIS Datasets.....</b>	<b>8</b>
2.1 BioImaging datasets.....	8
2.2 Genetic datasets.....	8
2.3 Participatory datasets.....	8
<b>3. ANERIS Training resources.....</b>	<b>9</b>
Acknowledgements.....	9
References.....	10
<b>Operational Sensing Life Technologies for Marine Ecosystems.....</b>	<b>1</b>

## Preface

This document is a milestone for the ANERIS project, funded under the European Union's Horizon Europe Research and Innovation Action under grant agreement No. 101094924.

It was originally scheduled for August 30th, 2024 under the name: “*ANERIS Services, datasets and training resources shared in EOSC Marketplace*”. Since EOSC Marketplace<sup>1</sup> is no longer available, and its subsequent European Open Science Cloud EU Node was planned to be launched in October 2024<sup>2</sup>; this milestone has been postponed to find a suitable and stable solution for ANERIS resources to be uploaded.

## Summary

ANERIS believes in Open Science and Open Data as mechanisms to optimise the societal return on investment in our research. Hence making accessible services, data and training content is a priority within the project ensuring that the FAIR (Findable, Accessible, Interoperable, Reusable) principles have been followed.

The consortium ensures compliance with Responsible Research and Innovation (RRI) policy on Open Access (OA). Nonetheless, having identified exploitable results suitable for patenting or commercial confidentiality protection to enhance business competitiveness, the consortium might need to apply OA restrictions derived from IP protection measures or in order to ensure GDPR and ePrivacy compliance.

Since the EOSC Marketplace is no longer available, a new solution has been defined to ensure accessibility of ANERIS services, datasets and training resources beyond the lifetime of the project. The suitable solution includes the usage of different open repositories (Zenodo, OpenAIRE, GBIF, etc.) some of which are indexed to the [European Open Science Cloud - EU Node](#).

---

<sup>1</sup> EOSC Marketplace - <https://marketplace.eosc-portal.eu/>

<sup>2</sup> EOSC EU Node commission announcement  
<https://open-science-cloud.ec.europa.eu/news/commission-announces-eosc-eu-nodes-web-presence>

## List of Abbreviations

DOI - Digital Object Identifier

EMODnet - European Marine Observation and Data Network

ENA - European Nucleotide Archive

EOSC - European Open Science Cloud

EurOBIS - European Node of the international Ocean Biodiversity Information System

FAIR - Findable, Accessible, Interoperable, Reusable

GBIF - Global Biodiversity Information Facilities

GDPR - General Data Protection Regulation

OA - Open Access

OBIS - Ocean Biodiversity Information System

OMB - Operational Marine Biology

RI - Research Infrastructure

RRI - Responsible Research and Innovation

## 1. ANERIS Technologies

ANERIS is developing several technologies as a main pillar of the project. Some of these ANERIS technologies are software products that are publicly available for anyone to download and reuse, whereas some of these software products are deployed and operated as an IT Service in a way that legitimate users can request access and make use of it.

Technology	Owner	Code repository	Accessible	License
<b>SLIM 2.0</b>	Norce	The code is available via: <a href="https://github.com/trtcrd/SLIM">https://github.com/trtcrd/SLIM</a>		License: GNU AFFERO GENERAL PUBLIC LICENSE
<b>MARGENODAT</b>	VLIZ	Will be made accessible on github upon completion.	Will be made accessible on github upon completion.	CC BY
<b>NANOMICS</b>	HCMR	Nanopore sequencing protocol for different taxonomic groups.	Not yet, it will be made available at the end of the project	This protocol will be available under the licence CC BY 4.0.
<b>EMUAS</b>	OsloMet	Available on Github, <a href="https://github.com/OsloMet-OceanLab/aneris-3">https://github.com/OsloMet-OceanLab/aneris-3</a> <a href="https://github.com/OsloMet-OceanLab/aneris-documentation">https://github.com/OsloMet-OceanLab/aneris-documentation</a> <a href="https://github.com/OsloMet-OceanLab/deathray">https://github.com/OsloMet-OceanLab/deathray</a> <a href="https://github.com/OsloMet-OceanLab/nightlight">https://github.com/OsloMet-OceanLab/nightlight</a> <a href="https://github.com/OsloMet-OceanLab/aneris">https://github.com/OsloMet-OceanLab/aneris</a>	Yes. There is no installation, deployment or maintenance offered.	To be advised
<b>AIES-PHY</b>	VLIZ	The trained classifier source code for extraction can be found via Gitlab: <a href="https://gitlab.vliz.be/research/flowcyto meter_utils">https://gitlab.vliz.be/research/flowcyto meter_utils</a> repository AIES PHY code available on Github: <a href="https://github.com/lifewatch/flowcyto meter_utils/tree/main">https://github.com/lifewatch/flowcyto meter_utils/tree/main</a>	Parts of the code with general applicability will be made public openly.	To be advised

<b>AIES-ZOO</b>	SU	ECOPart Backend/API Code: <a href="https://github.com/ecotaxa/ecopart_backend">https://github.com/ecotaxa/ecopart_backend</a>		License: GNU GENERAL PUBLIC LICENSE
		ANERIS AIES-ZOO Image Segmentation C Code: <a href="https://zenodo.org/records/14533917">https://zenodo.org/records/14533917</a>		License: CC-BY 4.0
		Code related to ECOPart Frontend, Dashboard for visualising the data, UVP6 deep learning classifiers, Processing Particles Data is yet to be developed.		To be advised
<b>AIES-MAC</b>	CNRS	AIES-MAC code is currently available via Gitlab: <a href="https://gitlab.univ-nantes.fr/paul-gilloteaux-p/aneris_aies-mac">https://gitlab.univ-nantes.fr/paul-gilloteaux-p/aneris_aies-mac</a> The code is open source available on <a href="https://gitlab.univ-nantes.fr/paul-gilloteaux-p/aneris_aies-mac/-/releases/v1.0.0">https://gitlab.univ-nantes.fr/paul-gilloteaux-p/aneris_aies-mac/-/releases/v1.0.0</a> and the associated DOI to the source code of this release is: <a href="https://zenodo.org/records/14329537">https://zenodo.org/records/14329537</a> under the license GPLv3.	Yes, open source	License: GPLv3.
<b>ATIRES</b>	UH	ATIRES Code is accessible on Github: <a href="https://github.com/WISEAON-Lab/neris_enhance">https://github.com/WISEAON-Lab/neris_enhance</a>	No	All Rights Reserved
<b>AMAMER</b>	Marsbased	<a href="https://github.com/minka-sdg/minka-sdg">https://github.com/minka-sdg/minka-sdg</a>	Not yet, will be made available at the end of ANERIS project	To be advised
<b>AWIMAR</b>	Dribba	<a href="https://github.com/minka-sdg/minka-sdg">https://github.com/minka-sdg/minka-sdg</a>	Not yet, will be made available at the end of ANERIS project	To be advised
<b>AMOVALIH</b>	CSIC	<a href="https://github.com/minka-sdg/ai_models_api">github.com/minka-sdg/ai_models_api</a> <a href="https://github.com/minka-sdg/ai_segmentation">github.com/minka-sdg/ai_segmentation</a> <a href="https://github.com/minka-sdg/aneris_ai_agent">github.com/minka-sdg/aneris_ai_agent</a>	Not yet, will be made available at the end of ANERIS project	License: Apache 2.0

## 2. ANERIS Datasets

### 2.1 Biolmaging datasets

Biolmaging datasets

#### **AIES-PHY**

The labelled Cytosense dataset will be published as open source near the end of the project.

Finally, fully labeled images and metadata for open-access archiving (e.g., EMODnet Biology/EurOBIS), completing the end-to-end workflow from raw plankton samples to publicly shareable scientific data. Data publishing: Through EcoTaxa in global and EU data aggregators such as OBIS and EUROBIS

Data publishing: Through EcoTaxa in global and EU data aggregators such as OBIS and EUROBIS

#### **AIES-ZOO**

Classified and validated data will also be published on OBIS and GBIF.

### 2.2 Genetic datasets

Genetic raw datasets will be deposited in the European Nucleotide Archive (ENA) available under the licence CC BY 4.0.

### 2.3 Participatory datasets

Participatory science as one of the three main pillars in ANERIS has compiled a large amount of coastal and marine observations, improving the spatial and temporal knowledge of these species distribution. The datasets generated with this information will be uploaded in open biodiversity repositories as GBIF and EMODnet. Currently, research is being conducted with these biodiversity datasets to produce academic publications, and thus the datasets will not be made public until these papers are published.

Other datasets will be uploaded in Zenodo.



### 3. ANERIS Training resources

To ensure accessibility, ANERIS was set to use the EOSC Marketplace to offer online training material for the 11 technologies developed on the project. However as EOSC Marketplace is no longer available, another open access repository has been chosen: [Zenodo](#) to secure the sustainability of these materials beyond the project lifespan. At the beginning of the project, a dedicated [ANERIS community](#) was created in Zenodo to upload training materials, including book chapters, workshops, conference presentations as well as other dissemination material. See **Table 1** for examples. The [ANERIS Community](#) is part of the [EU Open Research Repository](#) which provides significant visibility and accessibility to ANERIS material. Zenodo is indexed in [EOSC EU Node Resource Hub](#), and thus the selection of this option.

**Table 1:** *Example of training resources (training material, workshop and conference presentation) uploaded into ANERIS Community in Zenodo. Accessed on 21th May 2025.*

Name	DOI	Views	Downloads
MINKA platform infrastructure User Guide	<a href="https://doi.org/10.5281/zenodo.10371697">10.5281/zenodo. 10371697</a>	242	160
Detecting and characterizing macro-organisms in underwater images	<a href="https://doi.org/10.5281/zenodo.14501768">10.5281/zenodo. 14501768</a>	40	52
The ANERIS project: How citizen science participation and BioMARathons can reduce the marine biodiversity gap of knowledge	<a href="https://doi.org/10.5281/zenodo.14282246">10.5281/zenodo. 14282246</a>	58	73

### Acknowledgements

We want to acknowledge the assistance from all ANERIS consortium partners for providing insightful information for this milestone.

## References

EMODnet - European Marine Observation and Data Network - <https://emodnet.ec.europa.eu/>

ENA - European Nucleotide Archive - <https://www.ebi.ac.uk/ena/browser/home>

EOSC Marketplace - <https://marketplace.eosc-portal.eu/?tour=overview>

EOSC EU Node commission announcement  
<https://open-science-cloud.ec.europa.eu/news/commission-announces-eosc-eu-nodes-web-presence>

EOSC EU Node - Policies - Open Science Cloud -  
<https://digital-strategy.ec.europa.eu/en/policies/open-science-cloud>

GBIF - <https://www.gbif.org/>

Github - <https://github.com/>

MINKA Citation guideline - [MINKA Citation Guidelines](#)

MINKA Citizen Observatory. EMBIMOS research group, Institut de Ciències del Mar (ICM-CSIC). Barcelona, Spain. Available: <https://minka-sdg.org/>

OBIS - <https://obis.org/>

Zenodo - <https://zenodo.org/>