



Ocean-based Negative Emission Technologies



Deliverable Title	D8.4 Periodic report on available data
Lead	GEOMAR Helmholtz Center for Ocean Research Kiel
Related Work Package	WP 8: Data Management
Related Task	Tasks 8.1 and 8.2
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Prieto Dissemination Level	Public
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Project Number	869357
Start Date of Project	01. July 2020
Duration	60 months
Abstract: This document is the second of three periodic reports on available data. To present we can report on the deposition of one database, one supplementary dataset with code, one supplementary code repository, one preliminary dataset and 33 individual data files for internal use only marked as work in progress towards data publication. All web based links are listed in Part A of WP8's 2nd periodic Report.	



Document History

Date	Version	Description	Name/Affiliation
22.12.2022	1.0	First submitted version, reviewed and validated by Judith Meyer and David Keller	Carsten Schirnack / GEOMAR
30.09.2023	2.0	Resubmission after project review with specific information on potential threat resolution and updates on data availability with URLs added in this report.	Carsten Schirnack / GEOMAR

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List of abbreviations, acronyms and definitions (if applicable)

FAIR: **F**indable, **A**ccessible, **I**nteroperable, **R**eusable

List of figures (if applicable)

List of tables (if applicable)

Table 1: Links to overviews of data files or datasets in state of ongoing research which are accessible yet only for project partners

Table 2: Published datasets in 2022 and their respective work package, milestone and/or deliverable addressed

1. Introduction

1.1 Context

OceanNETs is a European Union project funded by the Commission's Horizon 2020 program under the topic of Negative emissions and land-use based mitigation assessment (LC-CLA-02-2019), coordinated by GEOMAR | Helmholtz Center for Ocean Research Kiel (GEOMAR), Germany.

OceanNETs responds to the societal need to rapidly provide a scientifically rigorous and comprehensive assessment of negative emission technologies (NETs). The project focuses on analyzing and quantifying the environmental, social, and political feasibility and impacts of ocean-based NETs. OceanNETs will close fundamental knowledge gaps on specific ocean-based NETs and provide more in-depth investigations of NETs that have already been suggested to have a high CDR potential, levels of sustainability, or potential co-benefits. It will identify to what extent, and how, ocean-based NETs can play a role in keeping climate change within the limits set by the Paris Agreement.

1.2 Purpose and scope of the deliverable

WP 8 supports all researchers in the OceanNETs project in order to achieve publication of their research data on which their scientific results and output is based. This deliverable is a report on the status quo of published datasets, software code supplementing any datasets and usage of the web based internal sharing platform for research data during ongoing research.

1.3 Relation to other deliverables

This deliverable reports on the achievements of data submissions fulfilling deliverables or provisioning of declarations regarding the management of sensitive data which are thus stored locally at the institutions of the respective investigators in order to comply with privacy regulations.

2. Technical part of the deliverable

2.1 Data Management Plan

The data management plan for OceanNETs has been updated and submitted in mid 2022. Its current version is 3 and available via DOI:10.3289/oceannets_d8.1 and lists already published and open accessible datasets as well as those yet publicly discoverable but only for project partners accessible due to ongoing research.

2.2 Research data - management and handling

WP 8 is actively guiding researchers on how to prepare and where to store or submit their datasets and/or supplementary code in order to achieve FAIR compliance and open access for their research output at the end. During the project term WP 8 supports researchers to make their research

results and data discoverable and accessible for project partners prior to final publication via GEOMAR's ocean science information system (OSIS) and the project website.

Preparation of a large volume dataset resulting from numerical simulation in WP 4 and aiming to fulfill deliverable 4.2 in 2022 has been delayed due to an unexpected shortage of storage capacity at the targeted Norwegian data center. This was due to global supply chain interruptions preventing the expansion of storage space which has been resolved in 2023. This threat has been reported in the previous version but is now omitted as this dataset "Idealized ocean alkalinity enhancement experiments simulated with NorESM2-LM" will become accessible later in 2023 by the principal investigator.

2.3 Research data and code generated and availability

During the report period 2022 the research data and in some cases complementary code has been generated and is made accessible for project partners via the internal sharing platform OSIS hosted at GEOMAR (<https://osis.geomar.de/app>), the internal website (<https://internal.oceannets.eu>) or when already published they are accessible in re3data-listed data repositories.

Table 1 lists links to overviews of data files or datasets in state of ongoing research which are accessible yet only for project partners. Preparation of these data files and datasets for final publication in a World Data Center or an appropriate data repository listed in re3data is pending and supported by WP 8 data management.

Work Package	Description	Link to overview	Data files
WP4	Numerical Simulations	OSIS / Simulations	see Files / Code in overview
WP5	KOSMOS 2021 Gran Canaria experiment	OSIS / Experiments	Files - work in progress

Table 2 lists published datasets in 2022 and their respective work package, milestone and/or deliverable addressed. Refer to reference section (4.) for human readable URLs.

WP/MS/D	Description	Access
WP5 / MS7 / D4.5	New / improved model parameterizations for responses in phytoplankton growth and calcification to changes in alkalinity implemented	Code Data
WP1 / MS14	Software developed to assess carbon accounting schemes for ocean-based NETs	Code
WP1 / D1.8	Database and report on currently already existing or announced ocean NETs projects, including a world map of projects	Data
WP4 / MS25 / D4.3	High-resolution modelling results available to inform other modelling tasks	Data

WP5 / MS35 / D4.5	New / improved model parameterizations for responses in phytoplankton growth and calcification to changes in alkalinity implemented	Code Data implemented
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3. Conclusion

Research data and code made accessible during reporting period January 2022 thru December 2022 for project partners or published in repositories listed by re3data.org has been updated and URLs have been added.

4. References / Full URLs used in Tables

OSIS / Simulations overview:

URL: osis.geomar.de/app/simulations?contextId=1406503

OSIS / Experiments overview:

URL: osis.geomar.de/app/experiments

KOSMOS/Gran Canaria 2021 Files - work in progress:

URL: osis.geomar.de/app/expeditions/360427/files

WP5 / MS7 / D4.5:

Code: https://github.com/mseifert93/Seifert_et_al_2022_REcoM_code/tree/v1.0.0

Data: doi.org/10.5281/zenodo.6674793

WP1 / MS14:

Code: git.geomar.de/open-source/carbon-accounting-caps

WP1 / D1.8:

Data: dx.doi.org/10.22000/734

WP4 / MS25 / D4.3:

Data: hdl.handle.net/20.500.12085/514b741d-48b6-48dd-a087-34858cfa7a20

WP5 / MS35 / D4.5:

Code: github.com/mseifert93/Seifert_et_al_2022_REcoM_code/tree/v1.0.0

Data: doi.org/10.5281/zenodo.6674793