DATA MANAGEMENT PLAN
of the consortium [AIMS³/ASMASYS/GEOSTOR/RETAKE/sea4soCiety/Test-ArtUp]

Administrative Details

Name of the consortium	[AIMS³ / ASMASYS / GEOSTOR / RETAKE / sea4soCiety / Test-ArtUp]
Duration	01.08.2021 – 31.07.2024
Project coordinator / PI	[name], [address], Contact: [phone number, email address], ID: [ORCID]
Consortium partners	[Names] ([Institute(s)/Office(s)/Company(s)])
Research program	Research Mission „Marine Carbon Sinks in Decarbonization Pathways" (in short: „CDRmare") of the German Federal Ministry of Education and Research (BMBF, Bundesministerium für Bildung und Forschung) [1,2,3]
Data manager of the consortium	[name], [institute], Contact: [phone number, email address], ID: [ORCID]
Contact for data supply / data delivery	**Contact person(s) of the Work Packages (WPs):** [WP1.1] [Title or description]: [Institute/Office/Company] [Name(s)] [WP1.2] [Title or description]: [Institute/Office/Company] [Name(s)] [WP1.3] [Title or description]: [Institute/Office/Company] [Name(s)] [...]
Consortium Description	[Short summary text]

Relevant guidelines for handling research data	- German Research Foundation (DFG, Deutsche Forschungsgemeinschaft) Code of Conduct *Guidelines for Safeguarding Good Research Practice* [4]
	- Research Data Policy at the German Marine Research Alliance (DAM) [5]
	- Data Policy of the DAM Research Mission CDRmare [6]
	- [Project-specific data policy, if available]
	- [Institute-specific data policy, if available]
	- [Data Policies of partners? ...]
	- The data are affected by legal requirements and conventions:
	  - GeolDG: Data fall under the Geological Data Act (https://www.bgr.bund.de/EN/Themen/Geodatenmanagement/GeolDG/geolDG_node_en.html) and must be verified and published.
	  - Nagoya protocol
	  - [...]

Date of First Version	Version 1 from [DD.MM.YYYY]
Date of Last Update	Version [1.x] from [DD.MM.YYYY]

[1] https://www.ptj.de/projektfoerderung/mare-n/dam-dekarbonisierung

[2] https://www.bmbf.de/bmbf/shareddocs/bekanntmachungen/de/2020/05/3017_bekanntmachung

[3] https://www.allianz-meeresforschung.de/app/uploads/2020/02/researchmissionmarinecarbonsinksindecarbonizationpathways_feb2020.pdf

[4] https://www.dfg.de/download/pdf/foerderung/rechtliche_rahmenbedingungen/gute_wissenschaftliche_praxis/kodex_gwp_en.pdf

[5] https://www.allianz-meeresforschung.de/app/uploads/2021/06/dam-forschungsdatenleitlinie-stand-210520-2.pdf (German version; English version will be available soon)

[6] https://oceanrep.geomar.de/id/eprint/55563/

Data overview / infrastructure

- **Basics / Organizational Aspects for data handling**

- Environmental data must always be stored with their associated metadata
- Model (run) data must always be stored with details of the model and with the output parameters
- If an estimate of the data volume does not seem to be possible, this has to be plausibly justified!
- Please enumerate the data according to work package (WP) numbers (e.g. 1.1.n, for the nth data set from WP 1.1)
  - *– for further specific details see attachment! –*

- **General information about expeditions, experiments, numerical models**

WP No.	Expedition name	Platform	Start/End Date	Start/End Location	Research Area	Principal Investigator / Chief Scientist	Organizing Institution

WP No.	Experiment name	Subject/ Theme	Start/End Data	Location / Laboratory	Description	Principal Investigator	Organizing Institution

WP No.	Numerical model name	Subject/ Theme	Time period (start/end) of model simulation	Date/Time of model run	Description	Principal Investigator	Organizing Institution

- **Data used/gathered during the Research Mission period**

– Description of the type of data expected, contact person, data access –

WP No.	Data description (e.g., expedition, measuring device, sample, method, analysis, model, survey, …)	Parameter(s)	Responsible person	Internal data availability (planned due date)	Data format, estimated size and number of files	Data publication		Optional: Archiving of used software (planned due date, repository, label)
						Planned due date	Planned repository (with URL), DOI, label, licensing, if applicable: embargoes and moratoria, …)	
1.1.n		(*) (**)						
…								

(*) Examples for natural sciences: temperature, salinity, pH, current velocity, …

(**) Examples for social sciences: Location, Date, Gender, Language, Event label, Pseudonym, Mode of collection, Data collection methodology, Keywords, …

Example formulations within the above table:								
	Survey	Location, Date, Language, Data collection methodology	Name Person	yyyy-mm-dd	five .xlsx files, in total ≤ 10 MB	yyyy-mm-dd	Publication of the evaluated data at Qualiservice no later than 2 years after the data acquisition, CDRmare, [ConsortiumName], DOI: …, Creative Commons CC-BY	

	CTD	Temperature, Salinity	Name Person	yyyy-mm-dd	csv, ≤ 20 MB	yyyy-mm-dd	Publication of the evaluated data at PANGAEA no later than 2 years after the data acquisition, CDRmare, [*ConsortiumName*], DOI: …, Creative Commons CC-BY	Publication at the time of data publication via git.geomar.de, CDRmare, [*ConsortiumName*]
	Storage potential calculation		Name Person	yyyy-mm-dd	Shape files up to a maximum of 200 MB	yyyy-mm-dd	BGR database	Publication at the time of data publication at Zenodo
	Storage horizons (Upper Cretaceous)		Name Person	yyyy-mm-dd	xlsx, with calculations of Monte Carlo simulations, up to a maximum of 1 GB	yyyy-mm-dd		

Attachment „Specific Details concerning Basics / Organizational Aspects for data handling"

– This table is filled in as applicable to the respective consortium and supplemented, if necessary, by consortium-specific additions. –

Data collection	- Data formats and software are used that allow data exchange and long-term data use within the consortia, within the Research Mission, and later also with external users. - Preferred data formats are [txt, csv, xlsx, docx, netCDF, PDF]. - [Already existing data from [project/institute/…] are (re)used.] - [Statistical analyses are carried out by use of the software [R/Python/…].] - [if applicable, explain standards, methods, vocabularies, versioning, quality assurance processes] - [Data collections from surveys are stored [as follows]. Survey data is representative as it is a full survey.] - [Focus groups are organized and interviewed throughout [region/place/time]. The answers are saved as video recordings and are subsequently transcribed. The evaluation of the answers will be done using [the following software]. Excerpts of the videos will also be used for teaching and further education.]
Data storage and backup	- During the Research Mission period, the data is stored on the infrastructures of the participating research institutions and backups will be created [regularly / specify in time] by [responsible person(s)]. - [e.g., cloud-based (ownCloud, ...), "in-house" (storage, database, ...), data portal with access control] - Only authorized employees have access. - File names must not contain spaces, special characters or hyphens! - [Use a common label for quality-controlled data stored in long-time repositories, e.g. PANGAEA, label: [*ConsortiumName*], CDRmare.]
Data documentation	- Metadata is gathered according to ISO19115 and INSPIRE. - Metadata can be provided via the information system OSIS (**O**cean **S**cience **I**nformation **S**ystem, https://osis.geomar.de) which is accessible for all scientists of the Research Mission. Thus, OSIS enables optimal planning of data sets which is particularly important for Work Packages that build on each other during the Mission period. Alternatively this information is given in the project plan /DMP and is updated regularly. The DMPs are available for all scientists via the internal portal (https://spaces.awi.de/display/CDRmare/DATA+MANAGEMENT). - Data is labeled with uniform, internationally used variables and SI-units. Standard vocabularies are used. Assumptions made are clearly stated. - [if applicable, explain details of experimental and/or survey data] - [Additional documentation of the research data is planned. The following documents will be created: transcription manuals, focus group guides, consent forms, anonymization measures, ... Keywords are assigned according to the subject-specific thesaurus TheSoz.]
Data exchange	- Data exchange is ensured within the consortium as well as across the consortia in the Research Mission already before final data publication.

	- Metadata for planning purposes will be collected and shared by the scientists, e.g., via OSIS at GEOMAR or via links to repositories or responsible persons specified in the above table. These responsible persons can be contacted for detailed questions and for data exchange. - [(Preliminary) data collected by BGR within the consortium GEOSTOR will be made available [as follows].]
Data preservation	- The final research data will be archived in open access in the data center PANGAEA [or another qualified data center XYZ] with persistent identifiers (DOI) or alternative persistent identifier (e.g., handle). - [The following software(-environment) is used: [please specify]. This software can be obtained [as follows].] - [The data XYZ can only be read/processed by use of the software [...].]
Responsibilities and resources	- The data management plan of each consortium is regularly reviewed and updated by the respective data manager in cooperation with the scientists and is made available to all Mission members via the exchange platform Confluence. - Each institution is responsible for secure data storage and long-term archiving of the generated digital research data and is supported by the [*ConsortiumName*] data manager and by the central CDRmare data manager.
Legal and ethical aspects	- The digital research data obtained will be published Open Access under a Creative Commons CC-BY license - if it is uncritical regarding data protection law(s). - [The data is treated and made available in conformity with the law.] - [Data from surveys are made available in an anonymized form. Participants of surveys are provided with an informative consent form prior to the survey. Videos will be alienated or made available unanonymized only upon request.] - [Handling of social science data] - [other data protection]