Data Management Plan

D12.7

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Executive Summary

This deliverable provides the Data Management Plan, which details how data will be stored, tagged and archived throughout and after the project. The Data Management Plan deals with how data will be stored in a secure and privacy-safeguarding way, and how reuse and sharing after the project will be ensured. The deliverable also provides governance arrangements on how to carry out the Data Management Plan in practice. The deliverable is considered a living document that will be updated over the course of the project, when necessary from law or changes in policies by the EU Commission or one of the partners.

1.   Introduction

The purpose of this deliverable is to provide a Data Management Plan for Space@Sea. The Data Management Plan describes how data is being collected, stored, documented and shared and reused during and after the project.

Various types of data will be collected in Space@Sea, such as case studies, model test results and simulation results. We consider the Data Management Plan to be a living document that is going to be updated over the course of the project. Some decisions in this document are tentative since they require further specification of the tools and platforms, along with the research in the Work Packages. We will evaluate the content of the Data Management Plan in M18 or earlier if applicable. The General Assembly is the body to decide on changes.

2.   Data Collection per Work Package

In this chapter we describe the means of data collection for each Work Package, as indicated by the Work Package leaders. For each WP we describe the following items (as far as applicable):

- What type of data will be collected? (measurements, observations, models, software….)
- In what file formats?
- How will the data be documented?
- Will it be reproducible?
- What is the estimated size of the data?
- Which tools or software are needed to create/process/visualize the data?
- Will you also use pre-existing data? From where?

Next to that, each WP describes the way the type of data is managed and how long it needs to be preserved. We use the following four main types of research data:

- Observational data: captured in real time, typically cannot be reproduced exactly

- Experimental data: from test, can often be reproduced but may be expensive to do so

- Simulation data: from models, can typically be reproduced if the input data is known

- Derived or compiled data: after data mining or statistical analysis has been done, can be reproduced if analysis is documented

Data types include text, numbers, images, models, software, reports, surveys.

In the following sections, the above points are described per WP, as far as applicable.

2.1   WP1 Business Case and Market Uptake

WP 1 will create and present the Business Cases of EnergyHub@Sea, Living@Sea, Farming@Sea and Transport&Logistics@Sea separately and in combinations towards an integrated multiuse Space@Sea business case. The business cases will describe the strategic benefit of Space@Sea concept in comparison to existing infrastructure of related industries.

What is the purpose of the data collection/generation and its relation to the objectives of the project?	The purpose of the data gathered or generated is the creation of Business Cases for EnergyHub@Sea, Living@Sea, Farming@Sea and Transport&Logistics@Sea. Business Cases will be built for each function separately and for combinations of functions towards a multiuse offshore floating island unit.
What types and formats of data will the project generate/collect?	Technical data will be gathered regarding the available applications (WP 6-9) and design specifications (WP 1-5). The technical data will define the implementation options of the business cases. The generated data will have the form of a business plan, including value proposition statement, feasibility study, profitability assessment and risk registering and response plans.
Will you re-use any existing data and how?	Older related research projects will be used as references. Business cases of competitive existing technologies will be used references for estimating the added value of the Space@Sea concept.
What is the origin of the data?	Public documents published by related research projects. Accessible business case reports of competitive existing technologies.
What is the expected size of the data?	A few MB.
To whom might it be useful?	To entrepreneurs and organizations willing to explore the business opportunities of expanding an industry operation field to offshore locations.
What naming conventions do you follow? Do you provide clear version number?	Within the project we agreed to follow the naming conventions as described in section 4, starting with the date and providing a version no.
Specify which data will be made openly available. If some data is kept closed, provide the rationale.	All deliverables (D1.1-5) will be made publicly available.
What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?	Well established business metrics (NPV, ROI etc.) will be used to assess the potential of the proposed business cases. Well established analysis tools (PESTLE, SWOT etc) will be used to analyze, organize and present information.
In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?	To be determined in case applicable.
How will the data be licensed to permit the widest re-use possible?	Not applicable.
When will the data be made available for re-use?	With the publication of the deliverables on the scheduled dates.
Are the data produced and/or used in the project useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why	To be determined in case applicable.

How long is it intended that the data remains re-usable? Are data quality assurance processes described?	To be determined in case applicable.
Main contributors to the data collection within this Work Package	MOCEAN, GICON, UROS, Deltasync, WR, TU Delft and GOC.

2.2   WP2 Health, Safety and Environmental Impact

This WP will identify potential risks of the application of floating island constructions with regard to health, safety and environmental aspects. Special attention will be paid to food and feed quality issues. Results of inventories will be laid down in Excel tables and procedures will be described in a report. Based on the results, guidelines (reports) will be produced for issues to consider when developing (planning and applying) floating islands for different functions.

What is the purpose of the data collection/generation and its relation to the objectives of the project?	Data will provide a systematic overview of potential risk factors that are needed to assess the potential impact of different types of applications of floating islands and (especially) their interactions on health, Safety and environmental issues.
What types and formats of data will the project generate/collect?	Spreadsheet files will be generated for the inventory of potential risk factors and the selection of indicators that can be applied to measure these. Text files will describe the procedures used, and for explanation of results.
Will you re-use any existing data and how?	Results from former (EU funded and other) projects will be used as framework for the assessments of potential risk, and for identifying potential risk factors.
What is the origin of the data?	Former (EU) projects, inventories on regulations, expert knowledge (provided by project members).
What is the expected size of the data?	Not identified yet. MB, not GB.
To whom might it be useful?	The WPs on applications of floating islands (WP 6, 7, 8, 9) and WP 10 on integration. Future developers and applicants of offshore floating constructions, including offshore aquaculture industries.
What naming conventions do you follow? Do you provide clear version number?	Within the project we agreed to follow the naming conventions as described in section 4, starting with the date and providing a version no.
Specify which data will be made openly available. If some data is kept closed, provide the rationale.	Reports will be openly available. Only summarizing information from Tables (as provided in spreadsheets) will be included in the reports.
What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?	Not identified yet.
In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?	Yes (although very unlikely).

How will the data be licensed to permit the widest re-use possible?	Not applicable.
When will the data be made available for re-use?	Depending on the time of the actual data collection either within the of the project duration or after the end of the project..
Are the data produced and/or used in the project useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why	No restrictions on re-use.
How long is it intended that the data remains re-usable? Are data quality assurance processes described?	Not identified yet.
Main contributors to the data collection within this Work Package	WUR, GICON, MARIN

2.3   WP3 Station Keeping

The work to be completed in this work package deals firstly with the extension of the MARIN aNySIM simulation tool and the UDE simulation tool to be able to model the system as required for this project; and secondly, to use the extended tools to design the mooring system (module-to-module, and island-to-seabed) using the hydrodynamic models of the islands. The data expected relates to 1) the validation of the tools from the model test results performed in WP4, and 2) the model output, which will be the motion behavior of the system in various sea states.

What is the purpose of the data collection/generation and its relation to the objectives of the project?	1) Tool validation: the model tests performed in WP4 will generate data, which will be used to help validate the tools extended within this work package.
	2) Mooring: The generated data from the modelled islands and their mooring systems aids in the design of the complete mooring system (module-to-module, and island-to-seabed); which must be designed to meet certain criteria, e.g. motion restrictions and survivability.
What types and formats of data will the project generate/collect?	Existing model test data: time traces in ASCII (.ascii) format
	Diffrac: Hydrodynamic database of added mass, damping and excitation "hyd files" (.hyd) in ASCII format
	aNySIM: "Report files" (.rep); "Windows Resources Files," (.res)
	RANS tool: "Foam Files"; "Comma-separated value" files (.csv)
Will you re-use any existing data and how?	Data from the model tests performed at MARIN prior to the start of the project may be used to help validate the tools.
What is the origin of the data?	From hydrodynamic modelling tools: aNySIM (MARIN), UDE's RANS code, and perhaps panMARE (TUHH; extended within WP4)
What is the expected size of the data?	Existing model test data: 1 GB
	aNySIM: hyd-files ~700MB each, rep-files ~1MB each, res-files ~400MB each. The total amount of data generated depends on factors such as the number of runs performed.
	RANS tool: Depending on the type of results, between several MB and GB's.

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To whom might it be useful?	The motion behavior could be useful for the project partners in WP4 and WP6 who are responsible for the basic and detailed designs of the modules and potentially the wave energy converters.
What naming conventions do you follow? Do you provide clear version number?	Within the project we agreed to follow the naming conventions as described in section 4, starting with the date and providing a version no.
Specify which data will be made openly available. If some data is kept closed, provide the rationale.	Mooring system design data: Numerous cases will be run in order to iteratively size and design the mooring system for up to 4 different island designs. The model output data will be analysed and the useful values will be included in a summary report (D3.3) which will be made openly available. The data files used to design the mooring systems will not be made openly available since it is the analysed and summarized data that is useful.
What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?	aNySIM: The ASCII file format makes the data readable to anyone. The vocabulary is consistent to the Offshore Engineering Industry standards. The sign convention according to OCIMF standards. This should guarantee interoperable data. UDE: The RANS solver is based on interFoam from the open source library OpenFOAM.
In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?	To be determined in case applicable
How will the data be licensed to permit the widest re-use possible?	Not applicable
When will the data be made available for re-use?	To be determined in case applicable
Are the data produced and/or used in the project useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why	Mooring system model outputs: How Bluewater Energy Services models mooring systems is considered confidential and is an important advantage to the company. The actual models including the mooring system(s) and their outputs will not be shared for this reason. However, the mooring report (D3.3), which will outline the conceptual mooring design, will provide the useful values and summarized results of the design and its behavior.
How long is it intended that the data remains re-usable? Are data quality assurance processes described?	The mooring report (D3.3) will be made available following the guidelines of this project.
Main contributors to the data collection within this Work Package	Extension and validation of (respective) tools: MARIN and UDE. Data related to the mooring system modelling work: Bluewater Energy Services B.V.

2.4   WP4 Shape, hull Forces and Kinematics

In order to reduce the costs of offshore operations and the demand on the space, it is proposed to develop a standardized and costs efficient modular island with low ecological impact. The objective of this WP is to design and optimized standard modular concept for a floating island and to determine the limiting criteria under which different setups of these modules can be used.

What is the purpose of the data collection/generation and its relation to the objectives of the project?	Data collected and generated will serve for validation of the numerical tools from MARIN, TUHH and UDE and the design of the modules and island configurations. As such it directly relates to the primary goal of the project.
What types and formats of data will the project generate/collect?	The primary source of data will come from model tests (typically binary, TU Delft) and data from numerical simulations (typically ascii, MARIN, TUHH and UDE).
Will you re-use any existing data and how?	Internally MARIN performed model tests prior to the project with an island configuration of 80 modules. This data will be made available for validation of the numerical tools used within the project by MARIN, TUHH and UDE.
What is the origin of the data?	The primary origin of the data will be model tests (TU Delft) and numerical simulations (MARIN, TUHH and UDE).
What is the expected size of the data?	The expected size of the data will likely be in the order of some Gb's. Particularly for the numerical simulations this, however, very much depends on the amount of conditions that are necessary to investigate.
To whom might it be useful?	Model tests validation material will be useful for those with a numerical tool for simulating the structures we are investigating. The numerical results should be useful for those involved in the design of the modules and the island configuration.
What naming conventions do you follow? Do you provide clear version number?	Within the project we agreed to follow the naming conventions as described in section 4, starting with the date and providing a version no.
Specify which data will be made openly available. If some data is kept closed, provide the rationale.	Analyzed results of model tests and numerical simulations will be made available through specific publications in open literature.
What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?	Typical analysis procedures with common tools like Matlab and Python will be used. When reporting results from model tests or numerical simulations procedures and conditions as well as the background for the numerical tools will be included in the report.
In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?	Where relevant and necessary this will be done.
How will the data be licensed to permit the widest re-use possible?	If data is made available this will be done without a licence.
When will the data be made available for re-use?	After the actual data collection is done it will be analyzed and reported. Data suitable for publication will be published after this time at a suitable conference or in a suitable journal. For these publications data from different sources might be combined.

Are the data produced and/or used in the project useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why	Data that is made available is made available unrestricted.
How long is it intended that the data remains re-usable? Are data quality assurance processes described?	Data that is made available is made available unrestricted.
Main contributors to the data collection within this Work Package	The primary contributors to the data collection are MARIN, TUHH, UDE and TU Delft.

2.5 WP5 Installation, Monitoring, O&M

This WP addresses the practical requirements of building, installing, monitoring and maintaining a floating island under the assumption that the basic engineering challenges of the structure itself can be sorted.

What is the purpose of the data collection/generation and its relation to the objectives of the project?	Goal is to collect data to allow writing of the Transportation & Installation Manual, Operation & Maintenance procedures and data-collection, -processing and status monitoring manual.
What types and formats of data will the project generate/collect?	**.docx,**.xlsx, **.ppt, **.csv, **.m, **.xmf
Will you re-use any existing data and how?	Not foreseen.
What is the origin of the data?	Our work within the project, public data bases, Journal papers, Conference Papers.
What is the expected size of the data?	5 GB
To whom might it be useful?	WP 1-2-3-4
What naming conventions do you follow? Do you provide clear version number?	Within the project we agreed to follow the naming conventions as described in paragraph 4, starting with the date and providing a version no.
Specify which data will be made openly available. If some data is kept closed, provide the rationale.	The results data will be openly available; calculation models will be kept closed as it is only the results that are really useful for the project.
What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?	Not identified yet.
In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?	To be determined in case applicable.
How will the data be licensed to permit the widest re-use possible?	To be determined in case applicable.
When will the data be made available for re-use?	To be determined in case applicable.

Are the data produced and/or used in the project useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why	Transportation and Installation Manual: GeoSea models, software, calculations, etc. are considered confidential (competitive advantage to the company). The manual itself can be used after the project.
How long is it intended that the data remains re-usable? Are data quality assurance processes described?	The manuals and procedures will be made available following the guidelines of this project.
Main contributors to the data collection within this Work Package	MARIN, GICON, TUHH, MOCEAN, UDE

2.6   WP6 Energyhub@Sea

The aim of WP6 is to provide an economically viable as well ecologically maintenance hub for e.g. renewable offshore wind. The possibilities for harvesting and storing energy for a self-sufficient maintenance hub will be investigated, the entire Energyhub@Sea will produce power for Space@Sea to be self-sufficient, whereas for safety reasons etc. a grid connection to shore is planned. In addition, risk and safety issues have to be addressed.

What is the purpose of the data collection/generation and its relation to the objectives of the project?	Mechanical design of the Energyhub@Sea, Energy management for the hub and coupled hubs, Design of Renewable Energy devices for the hub, design of the housing, storage concept design, modular design applicable for all needs
What types and formats of data will the project generate/collect?	**.docx, **.pdf, **.step, **.iges
Will you re-use any existing data and how?	no
What is the origin of the data?	Our work within the project, public data bases, Journal papers, Conference Papers,
What is the expected size of the data?	5GB
To whom might it be useful?	For the consortium and interested stakeholders from the EU
What naming conventions do you follow? Do you provide clear version number?	Within the project we agreed to follow the naming conventions as described in section 4, starting with the date and providing a version no.
Specify which data will be made openly available. If some data is kept closed, provide the rationale.	The basic design will be openly. Detail designs will be kept closed deduced from commercialization.
What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?	We will use SolidWorks for the design and some other commercial energy management tools. The design data can be used by any other CAD tool. The energy management tool date will be provided as an report in a pdf file.
In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?	Where relevant and necessary this will be done.
How will the data be licensed to permit the widest re-use possible?	If data is made available this will be done without a licence.

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When will the data be made available for re-use?	M20-M24
Are the data produced and/or used in the project useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why	The data can be used partly by third parties based on the expected publications.
How long is it intended that the data remains re-usable? Are data quality assurance processes described?	At least 3 years or longer if required.
Main contributors to the data collection within this Work Package	WP participants and project partners.

2.7   WP7 Living@Sea

WP7 will investigate the potential of housing people on the sea. This will be approached from two perspectives: on the one hand, a workers island which will grow into a larger structure like a village or a city over the years and on the other hand a city close to the shore, which will mainly have a living function as component. A combination of both is also foreseen, where the workers island and the coastal city are slowly growing towards each other. The results will amongst others consist of urban design and visualization of the integration of all the functions from WP6, 7, 8 and 9. Data required will mainly be focused on design requirements for on top of the platforms.

What is the purpose of the data collection/generation and its relation to the objectives of the project?	It will feed into the conceptualization of the floating island intended for human habitation. One concept will be designed for the high seas (as an offshore accommodation) and one as an extension of an existing city.
What types and formats of data will the project generate/collect?	**.docx,**.xlsx, **.pptx, **.pdf, **.ai **.eps, **.psd, **skp, **dwg, **.blend, **3dm, **.avi, **.mov **.mpeg, **.mp4, **.webm, .**gh
Will you re-use any existing data and how?	Data from projects like Tropos are used as inspiration
What is the origin of the data?	Our work within the project, public data bases, Journal papers, Conference Papers,
What is the expected size of the data?	500 GB – 1 TB
To whom might it be useful?	For the consortium, especially WP1 (Business case), WP10 (Integration), and also WP4 (Platform shape and design) and WP6, 8 and 9 (Visualization), interested stakeholders from the EU (Marine spatial planning and regulations).
What naming conventions do you follow? Do you provide clear version number?	Within the project we agreed to follow the naming conventions as described in section 4, starting with the date and providing a version no.
Specify which data will be made openly available. If some data is kept closed, provide the rationale.	Reports and images from concept designs, will be made publically available.
What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?	For 2D and 3D models, interoperable standard file types will be used. Data files (text, csv) will contain header information. Scripts and software will be commented, if applicable.

In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?	Yes, If needed, however not expected.
How will the data be licensed to permit the widest re-use possible?	No licensing expected.
When will the data be made available for re-use?	Depending on the time of the actual data collection either within the project duration or after the end of the project.
Are the data produced and/or used in the project useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why	No restrictions on re-use.
How long is it intended that the data remains re-usable? Are data quality assurance processes described?	No restrictions.
Main contributors to the data collection within this Work Package	All parties

2.8   WP8 Farming@Sea

This WP identifies the opportunities of floating islands for applications in aquaculture. Concepts will be developed of different types of aquaculture that could potentially be applied. These concepts will be described in factsheets, and published in a report including guidance on the procedures used. For selected options, numerical simulations will be performed and validated/supported by towing tests to determine drag loadings and hydro elastic behavior. Input will be provided for integrating aquaculture options in the demonstration scale model.

What is the purpose of the data collection/generation and its relation to the objectives of the project?	Identify and describe options for aquaculture in relation to floating islands, describe selected options in more detail and test numerically and experimentally (scale model towing tests) their drag loadings and hydro elastic behaviour.
What types and formats of data will the project generate/collect?	**.docx,**.xlsx, **.ppt, **.csv, **.m, **.xmf
Will you re-use any existing data and how?	Information publically available from other (EU funded and other) projects
What is the origin of the data?	Our work within the project, public data bases, Journal papers, Conference Papers
What is the expected size of the data?	500GB -1TB
To whom might it be useful?	Especially WP1 (Business case), WP10 (Integration), and also other WPs within the project. Future developers and applicants of offshore floating constructions, including offshore aquaculture industries.
What naming conventions do you follow? Do you provide clear version number?	Within the project we agreed to follow the naming conventions as described in section 4, starting with the date and providing a version no.

Specify which data will be made openly available. If some data is kept closed, provide the rationale.	Reports will be made publically available. Analyzed results of model tests and numerical simulations will be made available through specific publications in open literature.
What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?	For 2D and 3D models, interoperable standard filetypes will be used. Data files (text, csv) will contain header information. Scripts and software will be commented, if applicable.
In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?	If necessary, yes.
How will the data be licensed to permit the widest re-use possible?	Without any license.
When will the data be made available for re-use?	Depending on the time of the actual data collection either within the of the project duration or after the end of the project.
Are the data produced and/or used in the project useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why	No restrictions on re-use.
How long is it intended that the data remains re-usable? Are data quality assurance processes described?	No restrictions.
Main contributors to the data collection within this Work Package	Numerical simulations: MARIN Reports and other data: WUR, GICON, VALFoU, MARIN

2.9   WP9 Transport&Logistics@Sea

This WP unlocks the potential of floating platforms for flexible, modular and enlargeable offshore ports by establishing regular offshore port service-transport chain integration and coordinated platform supply and service logistics at strategic and operational levels.

What is the purpose of the data collection/generation and its relation to the objectives of the project?	Identify locations, cargo streams and layout of superstructure for the transport and logistics hub as well as for service logistics.
What types and formats of data will the project generate/collect?	**.docx, **.pdf, **.step, **.iges, **.xlsx, **.ppt, **.csv, **.m
Will you re-use any existing data and how?	Information publicly available from other (EU or national) projects.
What is the origin of the data?	Public databases, websites, Port Statistics, Journal and Conference Papers, Background knowledge of the partners. Generated data will come from calculations and simulation models.
What is the expected size of the data?	500GB -1TB

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To whom might it be useful?	Especially WP1 (Business case), WP10 (Integration), WP4 (shape of floater) and also other WPs within the project. Future developers and applicants of offshore floating constructions, including logistic industries.
What naming conventions do you follow? Do you provide clear version number?	Within the project we agreed to follow the naming conventions as described in section 4, starting with the date and providing a version no.
Specify which data will be made openly available. If some data is kept closed, provide the rationale.	Location selection criteria and results are made available through D9.1 which is public. Analyzed data following from models and simulations will be published through journal and conference publications.
What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?	For models, interoperable standard filetypes will be used. Data files (text, csv) will contain header information. Scripts and software will be commented, if applicable.
In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?	If necessary.
How will the data be licensed to permit the widest re-use possible?	Without any license.
When will the data be made available for re-use?	Depending on the time of the actual data collection either within the of the project duration or after the end of the project.
Are the data produced and/or used in the project useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why	No restrictions on re-use.
How long is it intended that the data remains re-usable? Are data quality assurance processes described?	Data that is made available is made available unrestricted.
Main contributors to the data collection within this Work Package	DST, NEMOS, TU Delft, DST and ICE

2.10 WP10 Integration and Demonstration

Results from WP1 through WP9 shall be integrated and demonstrated. Therefore, a common specification sheet will be set up, the integration capability will be investigated and finally an integrated model will be realized and demonstrated in relevant environmental conditions. In order to bring technologies and their interactions to a higher level, a two stage development process will be chosen.

What is the purpose of the data collection/generation and its relation to the objectives of the project?	The collected and generated data will be used to share and distribute information between the work packages in order to develop solutions within the work packages in order to build an integrated model as a project demonstrator. During the tests of the project demonstrator and its components, data will be collected in order to measure its behavior.
What types and formats of data will the project generate/collect?	Measurement data from model tests during component and demonstrator tests (textfiles, csv), postprocessed data, construction plans for demonstrator (2D / 3D drawings), reports
Will you re-use any existing data and how?	Metocean data will be provided by MARIN and possibly other partners.
What is the origin of the data?	Generated data will come from model tests.
What is the expected size of the data?	Some GigaBytes
To whom might it be useful?	The data from tank testing can be used to verify numerical models
What naming conventions do you follow? Do you provide clear version number?	Within the project we agreed to follow the naming conventions as described in section 4, starting with the date and providing a version no.
Specify which data will be made openly available. If some data is kept closed, provide the rationale.	Analyzed results of model tests and numerical simulations will be made available through specific publications in open literature.
What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?	For 2D and 3D models, interoperable standard filetypes will be used. Data files (text, csv) will contain header information. Scripts and software will be commented, if applicable.
In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?	If necessary, yes.
How will the data be licensed to permit the widest re-use possible?	Without any license.
When will the data be made available for re-use?	Depending on the time of the actual data collection either within the of the project duration or after the end of the project.
Are the data produced and/or used in the project useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why	The distributed data will be available without restriction.
How long is it intended that the data remains re-usable? Are data quality assurance processes described?	There are no plans to restrict the data usage at any time in the future.
Main contributors to the data collection within this Work Package	Data in this Work Package will be contributed by MARIN, DST, NEMOS, TU Delft, DST and ICE

2.11   WP11 Management and Coordination

WP11 is responsible for the coordination and management of the project. Data is collected from the partners and only available for the project consortium partners; mainly regarding financial, legal and administrative matters for instance meetings, reports, events. Also the planning is handled in WP11. The format of the data will mainly be in Word, Excel, Powerpoint, MS Project or pdf. The data is saved on the project server at MARIN and at the server of TU Delft.

Confidential files to be shared amongst the project participants and specific project templates are managed through the back system of the website https://spaceatsea-project.eu/. The estimated size of the data will be 5 GB, growing mainly towards the end of the Space@Sea project.

The formal project deliverables and progress reports are also uploaded to the EU portal.

Main contributors to the data collection within WP11: MARIN and TU Delft.

2.12   WP12 Dissemination, Implementation and Exploitation

In the context of Data Management WP12 is responsible for maintaining the website, publishing public content, social media content, and any related interesting, informative and relevant stories describing the progress of the project.

The type of data include website, texts, social media, interviews by consortium members. The material is also filed on the back system of the project website. Material is reproducible, for the simple reason that the main body of the material consist of public material.

The estimated size of the data will be 1 TB, growing mainly towards the end of the Space@Sea project.
Main contributors to the data collection within WP12: MARIN, TU Delft and all partners

3.   **Data Storage and Back-up**

During research, design and other activities, all data are stored securely and backed up regularly through basically the following two means:

Networked drives: university and/or company fileservers. As these are secure and backed-up regularly, they form the ideal place for working (and draft) versions of Space@Sea data.

Back system of project website: this storage facility is used for sharing documents amongst the partners. The website is secured using SSL-certificates. An unexpected issue with these certificates, would be notified by any (modern) browser/computer.

The back-up process runs automatically via cron-jobs. Currently, the complete website this is saved once a week. The back-up is safeguarded in Dropbox (latest 5 back-ups are kept) and is tested regularly.

The web access is secured using a digital login requiring an individual password. The server databases and its files are backed up regularly.

The files are uploaded in a clear directory structure and according to a specific versioning manner.

Other storage facilities do not fall under the surveillance of this data management plan, such as:

Local drives (such as pc's and laptops): these are convenient for short-term storage and data processing, but should not be relied upon for storing master copies, unless backed-up via networked drives regularly.

Remote or Cloud storage: commonly used services, such as Dropbox and Google Drive, will not be appropriate for sensitive data, and their service level agreements should be studied before using them to store your research data.

External portable storage devices: external hard drives, USB drives, DVDs and CDs. These are very convenient, being cheap and portable, but not recommended for long-term storage as their longevity is uncertain and they can be easily damaged.

	Type of Data	File Format	Storage & Back-up	Channel to share	Share with whom?
WP1	Reports	doc, pdf, txt	Back system project website, MOCEAN Offshore server	Email, Back system project website	Consortium members
WP2	Spreadsheets, text files	.doc, pdf, txt	Back system project website, WUR server	Email, Back system project website	Consortium members
WP3	Test data, reports, text files, etc	.ascii, .hyd, .rep, .res, .csv, txt	Servers WP partners, back system project website	Email, Back system project website	Consortium members
WP4	Test data, simulations, reports	.ascii, binary	Servers WP partners, back system project website	Email, Back system project website	Consortium members
WP5	Reports, 2D and 3D drawings, text files, speeadsheets	.doc, pdf, txt, .ascii, .hyd, .rep, .res, .csv, txt, .docx, .xlsx, .ppt, .csv, .m, .xmf	Back system project website, MARIN server, GeoSea server	Email, Back system project website	Consortium members
WP6	Test data, reports, text files	.docx. pdf, step, iges	Back system project website, GICON/UROS server	Email, Back system project website	Consortium members
WP7	Test data, reports, text files	**.docx,**.xlsx, **.pptx, **.pdf, **.ai **.eps, **.psd, **skp, **dwg, **.blend, **3dm, **.avi, **.mov **.mpeg, **.mp4, **.webm, .**gh	Back system project website, servers WP partners	Email, Back system project website	Consortium members
WP8	Test data, reports, text files	.docx, .xlsx, .ppt, .csv, .m, .xmf	Servers WP partners, back system project website	Email, Back system project website	Consortium members
WP9	Test data, simulations, 2D and 3D drawings, reports	**.docx, **.pdf, **.step, **.iges, **.xlsx, **.ppt, **.csv, **.m	Servers WP partners, back system project website	Email, Back system project website	Consortium members
WP10	Reports, measurement data, 2D 3D drawings	.doc, pdf, csv, .txt, dxf,	Back system project website, MARIN server, NEMOS server	Email, Back system project website	Consortium members
WP11	Reports, web content	.doc, .pdf, .excel, .ppt	Back system website, MARIN server, TU Delft university server	Back system project website, Email	Consortium members, European Commission

WP12	Web content, social media, publications	html at the front, .doc, .pdf, .ppt	External hosting and extension beyond the life of the project, and the back system of the website	Public, Project website, Back system project website, Email	Consortium members, public, stakeholders, targeted audience

4.   **Data Documentation**

In this section we describe how data will be documented to help future users to understand and reuse it. We use a simple file identification system to upload files to the back system of the project website and to communicate on files amongst consortium partners. We also intend to use this identification for files that are uploaded to the EU network.

For usage of public files there are more options for documentation. First of all public deliverables will be accessible through the EU system. Presentations and publications on conferences (and other public media used for dissemination) will be made public through the system of the organisers of the event or the medium that is publishing it. In that case also the university systems will publish the data, using Digital Object Identifiers (DOIs), to make retrieval for potential users even more easier. Public data is also available through the Space@Sea website.

Public data describes the types of documentation that accompanies the data to help secondary users to understand and reuse it. This should at least include basic details that will help people to find the data, including who created or contributed to the data, its title, date of creation and under what conditions it can be accessed.

Documentation may also include details on the methodology used, analytical and procedural information, definitions of variables, vocabularies, units of measurement, any assumptions made, and the format and file type of the data. Consider how you will capture this information and where it will be recorded.

We are using the following methodology for uploading the documents:

NAMING and UPLOADING FILES

Please save your documents in the relevant category. Always start the name of your document with the date yyyymmdd, and use a version number. As a document may be changed a number of times before it's agreed on and even afterwards, you can differentiate by naming the draft version of documents always with a 'zero' and final documents with a 'number'. For example, a first draft could be saved as "20171114-ReportM1-V0.1". Once this document is final the name would change to: "20171121-ReportM1-V1.0". In case the agreed version is later updated it would become V2.0.

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5.   Data Access and Preservation

5.1   Copyright and Intellectual Property Rights Issues

Copyright and Intellectual property of the data will be considered in 2 ways – firstly, each organisation will follow the appropriate and ethical process in line with their own guidelines and (national) standards. Secondly, the initial IP and copyright issues have been discussed in the Consortium Agreement which was signed at the start of the project. Any revisions to this agreement will be made through discussions within the Space@Sea General Assembly.

5.2   Limitations on the access of data

Where data is confidential, i.e. external owned data that Space@Sea members are allowed to use, will be stored in the secure facilities of the organisation responsible for collecting the data. These will be retained for at least seven years or longer if required by individual institutions. If the responsible investigator is no longer able to maintain the data storage, a second person will be nominated to take over this responsibility.

The data can be shared with other consortium members if requested. Public data (deliverables) of Space@Sea will have no limitations in publication and usage.

5.3   Data access control

The individual organisations involved in conducting the research data collection will have full responsibility and control over who can access the information. Data intended to be shared with project partners will be placed in the back system of the project website.

Please note that data is being disseminated to the wider public via deliverables, internal reports, scientific journals, conferences, articles, workshops, publications, web site and social media etc.

5.4   User access to the back system of the project website

The back system of the project website installation requires manual activation of a new account from one of the administrators. This enables full control of the users accessing the Space@Sea project and ensures the correct access for each user. During the kick-off meeting the General Assembly decided that all users will have access to all files. If needed, though, the functionality exists to define user-groups with more refines access rights. In this way access can be granted to specific users in the Space@Sea community

5.5   Data preservation and re-use

All data will be kept in secured storage for at least seven years after the end of the project. The data will be used by the Space@Sea consortium to support the design, development and evaluation of the Space@Sea breakthroughs.

Beyond the consortium, it is envisaged that other stakeholders may express an interest in re-using the data to support further research projects or products and services. For public deliverables, this re-use is easy, the information is public. For research data and data that is used for input for the deliverables, we will deal with on a case by case basis, depending on the aims of the stakeholder (with the data), de role of the stakeholder in the data collection. In doing so, we shall follow the guidelines described above.

6.   Responsibility within consortium

To safeguard compliance with all aforementioned data management decisions, the following governance measures are applied. WP leaders are responsible for adhering to the above specifications for their respective Work Package. For the overall project, the Project Office will be responsible for complying with the Data Management Plan. All consortium partners are responsible for making sure personnel working on the project have read the Data Management Plan and internalized the principles.

The costs for making data FAIR in this project are unknown at this moment. Budget has been allocated for open access publications at the relevant partners. At each 6-monthly project meeting it will be discussed whether this covers the foreseen needs for data management.

At this moment there are no indications that Space@Sea will collect data with ethical or legal issues. The project will not collect user data requiring informed consent.

Data Management will be on the agenda in the 6-monthly Management Committee meetings. The Data Management Plan is considered a living document. If necessary, updates to the Data Management Plan are to be circulated within the consortium before a General Assembly meeting, so that decisions can be taken. Changes in the Data Management Plan cannot overrule the general principals. To evaluate the efficiency of the Data Management Plan, we will conduct an evaluation in M18.