DMP title

Project Name DMP FWO G084922N - DMP title
Project Identifier KUL u0017670
Grant Title G084922N
Principal Investigator / Researcher Erik Toorman
Institution KU Leuven

1. General Information

Name applicant
Erik Toorman

FWO Project Number & Title
G084922N: Quantification of hydrodynamic energy losses by particle transport in the inner boundary layer of suspension flows with high particle concentrations

Affiliation

- KU Leuven

2. Data description

Will you generate/collect new data and/or make use of existing data?

- Generate new data
- Reuse existing data

Describe in detail the origin, type and format of the data (per dataset) and its (estimated) volume. This may be easiest in a table (see example) or as a data flow and per WP or objective of the project. If you reuse existing data, specify the source of these data. Distinguish data types (the kind of content) from data formats (the technical format).

Type of data	Format	Volume	How created
Experimental data	.xlsx; .csv	<10GB	Experimental data of flume exeriments on sediment transport, published in the literature
Model set-up data	steering files; shape files	< 10GB	Steering files to run the testcases with CFD software Mixt3SedFOAM (OpenFOAM) and TELEMAC-TOMAWAC-GAIA
Numerical model results	.txt; .csv	< 2TB	Results from runs with (open-source) CFD software Mixt3SedFOAM (OpenFOAM) and TELEMAC-TOMAWAC-GAIA

3. Legal and ethical issues

Will you use personal data? If so, shortly describe the kind of personal data you will use. Add the reference to your file in KU Leuven's Register of Data Processing for Research and Public Service Purposes (PRET application). Be aware that registering the fact that you process personal data is a legal obligation.

- No

Privacy Registry Reference:
Short description of the kind of personal data that will be used:
N.A.

Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? If so, add the reference to the formal approval by the relevant ethical review committee(s)

- No

Does your work possibly result in research data with potential for tech transfer and valorisation? Will IP restrictions be claimed for the data you created? If so, for what data and which restrictions will be asserted?

- No

Do existing 3rd party agreements restrict dissemination or exploitation of the data you (re)use? If so, to what data do they relate and what restrictions are in place?

- No

4. Documentation and metadata

What documentation will be provided to enable reuse of the data collected/generated in this project?

- For the processed experimental data the original data will be included, with reference to the original source(s), all variables will be named and their proper units given (column title) and a readme.txt file wil be added referrring to the corresponding publications where the data processing calcalulations are explained.
- Raw numerical simulation data will be collected per simulation test, including a txt file with a clear description of what the data represent and how they were generated. The input files used for the simulation will be kept in the same folder. The name of the folder will contain the testcase title.

Will a metadata standard be used? If so, describe in detail which standard will be used. If no, state in detail which metadata will be created to make the data easy/easier to find and reuse.

- No

However, when making use of the VLIZ Marine Data Archive, their formats will be followed.

For the experimental data, the data creating institute and year of data publication will be mentioned in the title. The metadata will contain the publication reference, a short description of the data set and contact details of the data owners.

For the numerical data, for each testcase, the name and version of the used software will be given, and a brief list of the different types of files in the folder (set-up files, steering files, model output)

5. Data storage and backup during the FWO project

Where will the data be stored?

Temporary and intermediate data will be stored on personal PCs and shared drives within the research groups.

For the final data we will use either the KUL SET-IT datastorage service or the VLIZ Marine Data Archive (or both), ensuring storage and access for at least 5 years.

How is backup of the data provided?

The data stored on the university's central servers and VLIZ MDA have automatic frequent back-up procedures.

Is there currently sufficient storage & backup capacity during the project? If yes, specify concisely. If no or insufficient storage or backup capacities are available then explain how this will be taken care of.

- Yes

Most data do not require much space and can also be stored locally. Large data requirements can be expected for HPC computing in the final stage of the project. Most of these data do not need to be preserved after processing of these results, as they can be reproduced by rerunning the models.

What are the expected costs for data storage and back up during the project? How will these costs be covered?

The project's budget is foreseen to allow the necessary storage, in particular the temporary HPC memory storage.

Data security: how will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?

The majority of data will be open-access. However, the data cannot be accessed directly by external users, but they will have to request a copy of the data to the project collaborators.

External experimental data will not be disclosed, as we do not have the owners rights. The contact details in the metadata of these data refers interested persons directly to the data owners.

6. Data preservation after the FWO project

Which data will be retained for the expected 5 year period after the end of the project? In case only a selection of the data can/will be preserved, clearly state the reasons for this (legal or contractual restrictions, physical preservation issues, ...).

All data necessary to reproduce the results will be retained for the expected 5 year period after the end of the project.

Large data files with model results may not be stored for such a long period, as they can be reproduced with the instructions given in the folders for the model runs which contain the necessary start-up files and instructions how to run the models.

Where will the data be archived (= stored for the longer term)?

The data will be stored on the university's central servers (with automatic back-up procedures) for at least 10 years, conform the KU Leuven RDM policy, and/or the VLIZ Marine Data Archive (MDA).

What are the expected costs for data preservation during the retention period of 5 years? How will the costs be covered?

The basic data, necessary to reproduce the results, are expected to require a small storage space of < 1TB. Storage at VLIZ MDA is free as member of VLIZ.

7. Data sharing and reuse

Are there any factors restricting or preventing the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)?

- Yes. Specify:

External experimental data will not be shared to any partner external to project and any request will be redirected to the proper data owners.

Which data will be made available after the end of the project?

The processed data will be made available in graphical form. Depending on the license of the data owner of original experimental data, the numerical data itself can also be made available.

All data necessary to run the numerical models for the testcases will be uploaded in their proper format, allowing to reproduce the results.

Where/how will the data be made available for reuse?

- Other (specify):

The source code of MixtSedFOAM will be released on GitHub.

The source code of TELEMAC is available from its website. Modifications not yet merged with the last release can be provided upon request by email.

All other data can be obtained upon request by mail.

When will the data be made available?

- Upon publication of the research results

Who will be able to access the data and under what conditions?

Only collaborators on the project will have direct access. External people can only receive copies of data upon request by mail.

What are the expected costs for data sharing? How will the costs be covered?

Since the data sets to be shared are small, no costs are expected for sharing. (Large data sets

are typically sent by BELNET filesender).

8. Responsibilities

Who will be responsible for data documentation & metadata?

The project collaborators (PhD students) and supervisor(s) are responsable. The PI will take care of a final quality check.

Who will be responsible for data storage & back up during the project?

The project collaborators, with help of the data storage system managers.

Who will be responsible for ensuring data preservation and reuse ?

The project coordinator.

Who bears the end responsibility for updating & implementing this DMP?

The PI bears the end responsibility of updating & implementing this DMP.