Plan Overview

A Data Management Plan created using DMPonline

Title: Vattenutbytet mellan oceanerna genom både atmosfären och havet i ett varmare klimat.

Creator: Kristofer Döös

Principal Investigator: Kristofer Döös

Data Manager: Kristofer Döös, Aitor Aldama Campino

Project Administrator: Kristofer Döös

Affiliation: Stockholm University

Funder: Swedish Research Council

Template: Swedish Research Council Template

ORCID iD: 0000-0002-1309-5921

Project abstract:

The main purpose of this project is to use a new method I have developed in order to study the inter-ocean exchange of freshwater and heat through both the ocean and the atmosphere. The method, based on atmospheric water-mass conservation, makes it possible to trace the water though the atmosphere from regions of evaporation to regions of precipitation independently whether it is vapour, solid or liquid. This will hence make it possible to trace and close the entire hydrological cycle in the coupled ocean-atmosphere system, which has not been rigorously possible in any study so far. We will, e.g. be able to trace freshwater transport from the Atlantic to the Pacific through the atmosphere and how this creates a salinity difference between these ocean basins, which in turn drives the Conveyor Belt and the net freshwater transport back to the Atlantic through the world ocean. Preliminary results have already revealed a number of water overturning cells in the atmosphere, which are completely different to the well know air cells such as the Hadley, Ferrel and Walker Cells. These water cells can in fact be interpreted as an extension of the oceanic overturning cells, which are otherwise open at the surface due to the evaporation and precipitation. Particular emphasis will be on how the warmer climate will according to the Clausius-Clayperon relationship lead to a more humid atmosphere and an intensified hydrological cycle in the atmosphere and increased the salinity gradients.

ID: 75968

Start date: 01-01-2020

End date: 31-12-2024

Last modified: 04-06-2021

Copyright information:

The above plan creator(s) have agreed that others may use as much of the text of this plan as they would like in their own plans, and customise it as necessary. You do not need to credit the creator(s) as the source of the language used, but using any of the plan's text does not imply that the creator(s) endorse, or have any relationship to, your project or proposal

Vattenutbytet mellan oceanerna genom både atmosfären och havet i ett varmare klimat.

General Information

Project Title

Inter-ocean exchange of freshwater and heat through both the ocean and the atmosphere in a warmer climate

Project Leader

Kristofer Döös

Registration number at the Swedish Research Council

swecris.se/betasearch/details/project/201903574VR

Version

There is no data version apart from the TRACMASS code, which has presently version 7.0

Date

19 April 2021

Description of data – reuse of existing data and/or production of new data

How will data be collected, created or reused?

The data is computed by our TRACMASS trajectory model.
https://www.tracmass.org

What types of data will be created and/or collected, in terms of data format and amount/volume of data?

The data consist of Lagrangian trajectories, where the longitudes, latitudes, depth or heights are stored together with tracers such as temperature, salinity and humidity.
The computation of the trajectory is made by TRACMASS, which uses data from Earth-System models such as Ocean and Atmospheric General Circulation models.

The formats are csv, netcdf.
We have chosen these two formats because they are widely used and easy to use.
The data volumes is vary in size from 1 MB up to 10 GB.

Documentation and data quality

How will the material be documented and described, with associated metadata relating to structure, standards and format for descriptions of the content, collection method, etc.?

The data will be stored on zenodo.org, where the metadata information will be attached.

How will data quality be safeguarded and documented (for example repeated measurements, validation of data input, etc.)?

The TRACMASS code is publicly available and can be rerun.
https://www.tracmass.org

Storage and backup

How is storage and backup of data and metadata safeguarded during the research process?

The data will be stored on zenodo.org
One can always search for TRACMASS or the our VR project number on zenodo.org in order to find the data for different.

How is data security and controlled access to data safeguarded, in relation to the handling of sensitive data and personal data, for example?

There is no sensitive data.

Legal and ethical aspects

How is data handling according to legal requirements safeguarded, e.g. in terms of handling of personal data, confidentiality and intellectual property rights?

There is no personal data or anything confidential. Everything is open access.
The license for the output data is "Creative Commons Attribution 4.0 International".
Except for the main code , which is under the license "MIT license".

How is correct data handling according to ethical aspects safeguarded?

No ethics involved.

Accessibility and long-term storage

How, when and where will research data or information about data (metadata) be made accessible? Are there any conditions, embargoes and limitations on the access to and reuse of data to be considered?

The data is stored on zenodo.org
The data will also be archived on https://bolin.su.se/data/

In what way is long-term storage safeguarded, and by whom? How will the selection of data for long-term storage be made?

The data is stored on zenodo.org

Will specific systems, software, source code or other types of services be necessary in order to understand, partake of or use/analyse data in the long term?

The TRACMASS code and documentation is available on https://github.com/TRACMASS/tracmass and on https://www.tracmass.org
The advantage of using a repository like GitHub is that it is version controlled.

How will the use of unique and persistent identifiers, such as a Digital Object Identifier (DOI), be safeguarded?

The DOI is generated by zenodo.org

Responsibility and resources

Who is responsible for data management and (possibly) supports the work with this while the research project is in progress? Who is responsible for data management, ongoing management and long-term storage after the research project has ended?

Kristofer Döös

What resources (costs, labour input or other) will be required for data management (including storage, back-up, provision of access and processing for long-term storage)? What resources will be needed to ensure that data fulfil the FAIR principles?

The data will be accessible on https://zenodo.org/ with corresponding description of the metadata we upload. We will make sure that all the uploaded data will have the appropriate descriptions.