Practical guide for FAIR and Open data publishing in PANGAEA

KüNO Online Workshop ‘Data sharing in marine research’, 29 Sep 2021

Dr. Flavia Höring – Data manager at DAM/PANGAEA
Research data life cycle

Plan

Collect

Process

Analyse

Preserve

Share

Reuse
Step 1: Prepare the data

- Preferred format for data tables is **TAB-delimited text files** (UTF-8 encoding) or Excel-format
- **Position(s) (latitude/longitude in decimal degree)** must be provided for every sample, observation and measurement carried out anywhere on earth
- **Date/Time** must be provided in the ISO-format (e.g. 1954-04-07T13:34:11) as coordinated universal time (UTC)
- Parameters are always accompanied by a **unit**
- **Event/station ID** as first column
- Explain **abbreviations**
- Read guidelines at: [https://wiki.pangaea.de/wiki/Data_submission](https://wiki.pangaea.de/wiki/Data_submission)
Step 1: Prepare the data

Expeditions

This page contains an overview of selected ships and projects hosted at PANGAEA.

Cruise inventory and cruise data of german research vessels

Below you can find links to campaign lists of large and medium-sized German research vessels. The lists contain current and past campaign schedules, information on the chief scientist, links to station lists, cruise reports, and links to cruise data if available in PANGAEA. Some lists contain additional information such as research area, start and end harbour or cruise tracks. A link to the respective cruise summary report of the German Oceanographic Datacentre is also given.

Large Research Vessels
- Polarstern (DBU, 1982)
- Sonne (DBBE, 2014)
- Meteor (DBU, 1966)

Medium-sized Research Vessels
- Alkor (DBND, 1990)
- Elisabeth Mann Borgese (DBKR)
- Heincke (DBCK, 1990)
- Maria S. Merian (DBBT, 2005)

Aircrafts
- POLAR 5
- POLAR 6

Decommissioned Research Vessels
- Meteor (1964-1985)
- Meteor (1923-1939)
- Poseidon (DBK, 1976)
- Sonne (DFCG, 1969-2014)
- Valdivia (CGQZ, 1961-1999)

Please also visit the Data Portal German Marine Research for detailed expedition/cruise information.

Event information at: https://pangaea.de/expeditions/
Step 1: Prepare the data

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**Date/Time is missing!**

**Abbreviation not explained!**
Step 1: Prepare the data

![Image of data table]

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Normal text file length: 19 560 956 lines: 348 768 Ln: 1 Col: 1 Pos: 1 Windows (CR LF) UTF-8 INS
Step 2: Prepare the metadata

What?
Parameter [unit]

Who?
Author(s), PI, Article

Where?
Latitude/Longitude
Depth in ice/water/sediment; Altitude...

When?
Date, Age...

How?
Method

Credits: Janine Felden (AWI)
Step 2: Prepare the metadata

- **Titles and abstracts** for each dataset (≠ paper, see https://wiki.pangaea.de/wiki/Abstract)
- (Preliminary) paper citation & other references
- **Projects/awards**
- A separate metadata table can be added (e.g. multiple abstracts, parameter information)
Step 2: Prepare the metadata

Example for metadata file

Title: Elemental composition of sediment core EPS_123
In Supplement to: Hagen, Thomas; Müller, Lydia; Potter, Dan. A Climate study of the Late Holocene. Submitted to P
Authors: Hagen, Thomas; Müller, Lydia; Potter, Dan
Core name: EPS_123
Latitude: -20.56660
Longitude: -12.318733
Sampling Date: March, 20th 2018
Elevation: -512.0 m
Location: South Atlantic Ocean
Device: Gravity corer

Properties:
Depth, sediment/rock: [m]
Age: [ka BP]
In-Potassium/Aluminium ratio: [] *METHOD/DEVICE: X-ray fluorescence (XRF)
Step 3: Data submission

- Data prepared ✓
- Metadata prepared ✓
- Ready for submission 😊

Please submit your data as early as possible!
Step 3: Data submission

Welcome to PANGAEA® Data Publisher

Our services are generally open for archiving, publishing, and re-usage of data. The World Data Center PANGAEA is member of the World Data System.
Step 3: Data submission

Basic Information

**Title**
Title max length: 200 chars
The title should ideally reflect what has been measured, observed, or calculated, when, where, and how.

**Authors**
Höring
Flavia
Email
Website

Add author

Please, enter the author(s) (the principal investigators) for the data set(s) you want to submit.

**Keywords**
diatom; ice core; Antarctica; south westerly wind;
Press 'Enter' to create a keyword.

Abstract/Describe your Data
Step 4: Data curation

1. Author → Data Submission
2. Editorial Review
   Acceptance/Rejection
3. 2nd Editorial Review/
    Data Import
4. Author → Dataset Proof
5. Corrections
6. Publication
   (DOI & Citation)
7. PANGAEA Editor
   (for Correction)
8. PANGAEA Editor
   (for Data Import)
9. PANGAEA Editor-in-Chief
   (for Acceptance/Rejection)

Credits: PANGAEA Team
Jira Ticket system

Data submission 2021-05-18T13:14:03Z (Franziska Nehring)

Details
- Type: Data Submission
- Status: RESOLVED
- Priority: Major
- Resolution: Done
- Author(s): Nehring, Franziska
- Title: Physical oceanography during HEINEXE cruise HE575
- License: CC-BY: Creative Commons Attribution 4.0 International
- DOI: https://doi.pangaea.de/10.1594/PANGAEA.934145

Description
To edit any metadata information (e.g. abstract, authors...) of your data submission, please use the above button. You can also use it to upload more or updated file versions.

Attachments
- HE575.zip: 41 KB, 2021-05-18 13:18
- Campaign_imp.txt: 0.0 KB
- Data.txt: 100 KB
- Event_imp.txt: 0.6 KB
- HE575.txt: 118 KB
- Meta_imp.txt: 0.3 KB
- Download Zip
- metadata.json: 1 KB, 2021-05-18 13:18

People
- Assignee: Flavia Höring
- Reporter: Franziska Nehring
- Contributors / Reviewers: Gerd Rohardt, Sandra Tippenhauer
- Watchers: 1 Start watching this issue

Dates
- Created: 2021-05-18 13:18
- Updated: 2021-06-17 07:34
- Resolved: 2021-06-12 15:15
## Jira Ticket system

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29.09.2021 KüNO Online Workshop - Flavia Höring
Jira Ticket system

Data submission 2021-05-18T13:14:03Z (Franziska Nehring)

Type: Data Submission
Priority: Major
Status: "checked"
Resolution: None
Labels: Nehring, Franziska

Physical oceanography during HEINCKE cruise HES75

https://doi.pangaea.de/10.1594/PANGAEA.934145

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**Summary:**
"Data submission 2021-05-18T13:14:03Z (Franziska Nehring)"

**Abstract:**
"Conductivity-temperature-depth profiles were measured using a Seabird SBE 911 plus CTD during RV Heincke cruise HES75 between 18.04.2021 and 03.05.2021. Additional sensors included a WET Labs C-Star transmissometer and a WET Labs ECO-AFL fluorometer. Data were connected to the station book of the specific cruise as available in the DSHF database. Processing of the data including removing of obvious outliers followed the procedures described in CTD Processing Logbook of RV Heincke (Hdl: 10012/epic.47427). A detailed report on the CTD data of HES75 is available at https://hdl.handle.net/10013/epic.c7d9939e-457d-4fe2-80ed-a60270766395."

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  - id: "0"
- **2:**
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  - id: "0"

**License:**
- title: "CC-BY: Creative Commons Attribution 4.0 International"
- id: "todo"

**References:**
- **0:**

**Staffs:**
- **0:**
  - name_last: "Nehring"
  - name_first: "Franziska"
  - email: """website: ""
  - title: "Physical oceanography during HEINCKE cruise HES75"
Dear Franziska,
Please proofread your data and metadata at https://doi.pangaea.de/10.1594/PANGAEA.934145. Best regards, Flavia

Dear Flavia,
Thank you for the archiving. Everything looks okay. You can publish the data now. Best regards, Franziska
Step 5: FAIR data publishing in PANGAEA

**Citation:** Bijma, Jelle; Rohardt, Gerd (2021): Physical oceanography during HEINCKE cruise HE575. Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Bremerhaven, PANGAEA. ![https://doi.org/10.1594/PANGAEA.934145](https://doi.org/10.1594/PANGAEA.934145)

**Abstract:** Conductivity-temperature-depth profiles were measured using a Seabird SBE 911 plus CTD during RV Heincke cruise HE575 between 18.04.2021 and 01.05.2021. Additional sensors included a WET Labs C-Star transmissometer and a WET Labs ECO-AFL fluorometer. Data were connected to the station book of the specific cruise as available in the DSHIP database. Processing of the data including removal of obvious outliers followed the procedures described in CTD Processing Logbook of RV Heincke (hdl:10013/epic.47427). A detailed report on the CTD data of HE575 is available at https://hdl.handle.net/10013/epic.c7d9939e-4d7d-4fa2-80ad-a0627a766195.

**Keywords:** CTD; HE575; Heincke

**Further details:**
- Rohardt, Gerd (2021): CTD Processing Report of RV Heincke HE575. hdl:10013/epic.c7d9939e-4d7d-4fa2-80ad-a0627a766195

**Project:** Physical Oceanography @ AWI (AWI_Phyoce)


**Date/Time Start:** 2021-04-19T07:59:47 * Date/Time End:** 2021-04-25T13:25:54

**Minimum DEPTH, water:** 1.4 m * Maximum DEPTH, water: 35.1 m
## Step 5: FAIR data publishing in PANGAEA

**Project:** Physical Oceanography @ AWI (AWI_PhysOce)

**Coverage:**
- Median Latitude: 53.950018
- Median Longitude: 7.959461
- South-bound Latitude: 53.843040
- West-bound Longitude: 7.904090
- North-bound Latitude: 54.057020
- East-bound Longitude: 8.100930

**Date/Time Start:** 2021-04-19T07:59:47
**Date/Time End:** 2021-04-25T13:25:54

**Minimum DEPTH, water:** 1.4 m  
**Maximum DEPTH, water:** 25.1 m

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  - **Campaign:** HE575  
  - **Basis:** Heideke  
  - **Method/Device:** CTD/Rosette (CTD-RO)  

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**Size:** 8943 data points

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Step 5: FAIR data publishing in PANGAEA

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Benefits of data publishing

• Citation – appropriate attribution and credit
• Reusability – Data sharing and collaboration
• Reproducibility of findings
• Increasing the efficiency of research

Questions?