

Integrated data-management in two EU-Projects

From ship-born data to scientific
publications



HERMES / HERMIONE



Objectives:

- To investigate the dimensions, distribution and interconnection of deep-sea ecosystems;
- To understand changes in deep-sea ecosystems related to key factors including climate change, human impacts and the impact of large-scale episodic events;
- To understand the biological capacities and specific adaptations of deep-sea organisms, and investigate the importance of biodiversity in the functioning of deep-water ecosystems;
- To provide stakeholders and policymakers with scientific knowledge to support deep-sea governance aimed at the sustainable management of resources and the conservation of ecosystems.

Management of cruise-data

the first bottle-neck

large data sets are generated during cruises:

- ship station lists including sample positions and depths
- ROV, AUV and other tool's station lists
- some data (e.g. seismics) are processed during the cruises

access to cruise data:

- personal documentation (even best systems sometimes fail, does not include data of co-workers)
- preliminary data in cruise reports

How are metadata and data organized ?

Data Model
(simplified)

Campaign

Event

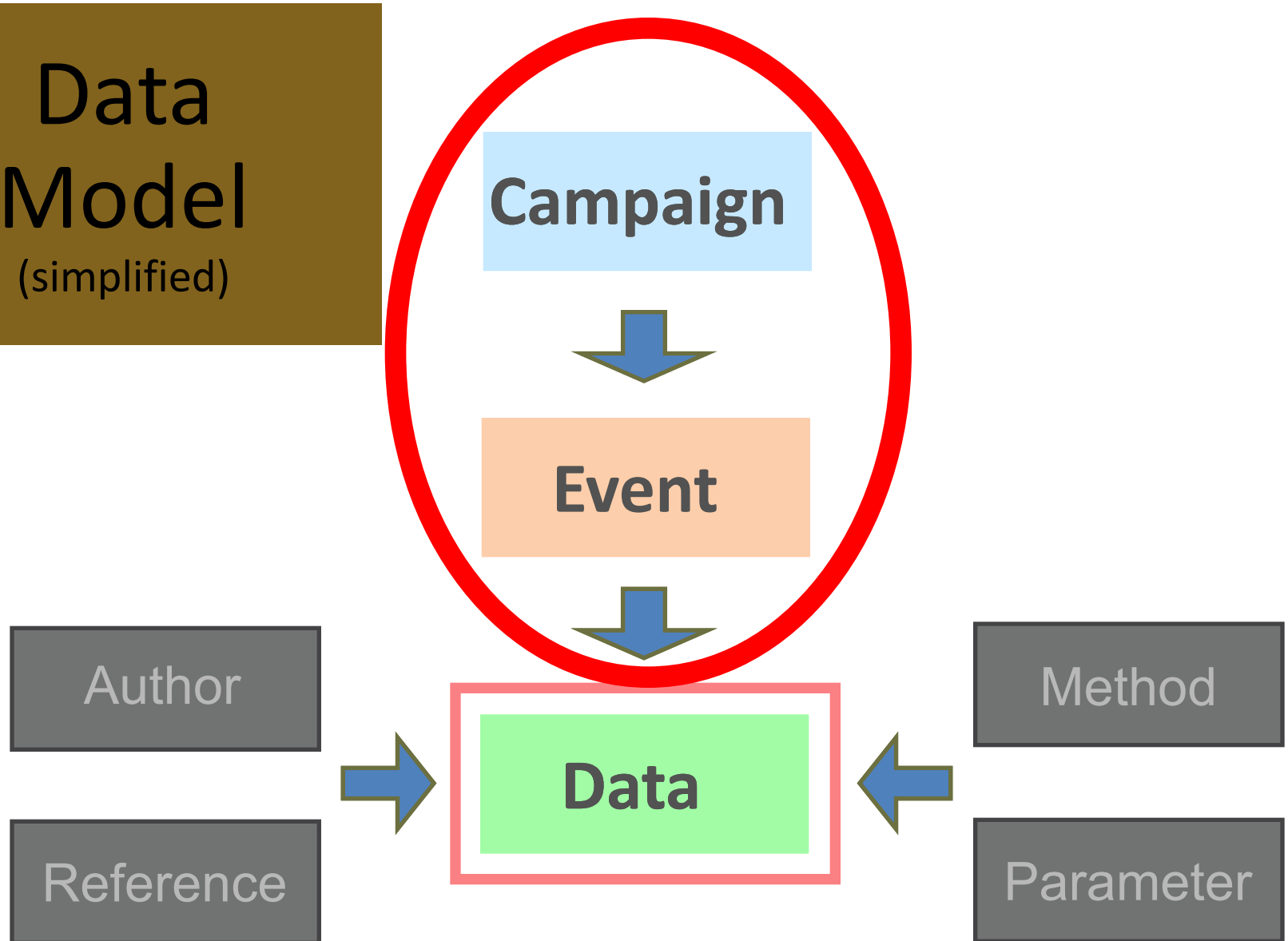
Data

Author

Reference

Method

Parameter



Cruise List



PANGAEA®
Data Publisher for Earth & Environmental Science

Station list of cruise MSM13/4

| Event label | Event, optional label | Device | Date/Time | Latitude | Longitude | Elevation | Comment |
|---------------------|-----------------------|------------------------------------|------------------|----------|-----------|-----------|---|
| MSM13/4-track | | Underway cruise track measurements | 2009-11-21T15:00 | 35.25623 | 31.60968 | | |
| MSM13/4_1000-1 | | Gravity corer | 2009-11-27T07:41 | 35.33192 | 30.26795 | -2024 | SL max. 2031 m |
| MSM13/4_1001-1 | | Gravity corer | 2009-11-27T08:55 | 35.33192 | 30.26791 | -2024 | SL max. 2034 m |
| MSM13/4_1002-1 | | Remote operated vehicle | 2009-11-27T10:45 | 35.33483 | 30.27100 | -2029 | Beg. Aussetzen - Zugtest in Oberfläche |
| MSM13/4_1002_CMA4 | | Current meter, Aanderaa | 2009-11-27T22:21 | 35.33196 | 30.26809 | -2026 | RCM |
| MSM13/4_1002_FLS1 | | Fish finder echolot, 20 kHz | 2009-11-27T17:04 | | | -2027 | Sonar 1 recording on B: 17:04:00 - E: 17:05:14 |
| MSM13/4_1002_FLS2 | | Fish finder echolot, 20 kHz | 2009-11-27T18:30 | 35.33475 | 30.26865 | -2029 | screenshot and record of sonar 2 B: 18:30:11 - E: 18:31:00 |
| MSM13/4_1002_MCAM1 | | MPI-Megacam | 2009-11-27T14:31 | 35.33482 | 30.27161 | -2029 | MegaCam fotos of crustaceans |
| MSM13/4_1002_MCAM2 | | MPI-Megacam | 2009-11-27T15:40 | 35.33492 | 30.27120 | -2029 | MegaCam beautiful tube worm images |
| MSM13/4_1002_VIDEO1 | | Video camera | 2009-11-27T14:51 | 35.33490 | 30.27123 | -2029 | HDTV 1 Marker K living tubeworm B: 14:51:00 - E: 14:59:19 |
| MSM13/4_1002_VIDEO2 | | Video camera | 2009-11-27T17:21 | 35.33465 | 30.26869 | -2029 | HDTV2 at M6 /Homer 13 on black spot B: 17:21:17 - E: 17:25:01 |
| MSM13/4_1002_VIDEO3 | | Video camera | 2009-11-27T18:43 | 35.33480 | 30.26851 | -2029 | HDTV3 on bubbles M6 B: 18:43:11 - E: 18:47:34 |
| MSM13/4_1002_VIDEO4 | | Video camera | 2009-11-27T18:53 | 35.33482 | 30.26851 | -2029 | Hd 4 on on gas bubbles north of M6 B: 18:53:45 - E: 18:58:32 |
| MSM13/4_1002_VIDEO5 | | Video camera | 2009-11-27T19:30 | 35.33482 | 30.26845 | -2029 | HDTV 5 on on gas bubbles B: 19:30:11 - E: 19:34:12 |
| MSM13/4_1002_VIDEO6 | | Video camera | 2009-11-27T19:54 | 35.33482 | 30.26846 | -2029 | Hdtv 6 on on gas bubbles M6 with Mega Cam B: 19:54:30 - E: 20:02:37 |
| MSM13/4_1002_VIDEO7 | | Video camera | 2009-11-27T23:42 | 35.33217 | 30.26807 | -2028 | HD 7 on crab, reduced sed D255 B: 23:42:29 - E: 23:42:53 |
| MSM13/4_1003-1 | | Autonomous underwater vehicle | 2009-11-28T04:13 | 35.33267 | 30.26567 | 0 | AUV in water |
| MSM13/4_1004-1 | | Large lift Colossos | 2009-11-29T07:34 | 35.33300 | 30.26717 | -2026 | |
| MSM13/4_1005-1 | | Remote operated vehicle | 2009-11-28T14:44 | 35.33267 | 30.26650 | 0 | |
| MSM13/4_1006-1 | | Heat-Flow probe | 2009-11-28T19:58 | 35.33525 | 30.26847 | -2031 | SL max. 2028 m |
| MSM13/4_1006-10 | | Heat-Flow probe | 2009-11-29T00:36 | 35.33203 | 30.26865 | -2037 | SI max. 2024m |
| MSM13/4_1006-11 | | Heat-Flow probe | 2009-11-29T00:58 | 35.33188 | 30.26870 | -2028 | SI max. 2024m |
| MSM13/4_1006-12 | | Heat-Flow probe | 2009-11-29T01:30 | 35.33150 | 30.26867 | -2025 | keine Messung - verholen |
| MSM13/4_1006-13 | | Heat-Flow probe | 2009-11-29T01:38 | 35.33122 | 30.26867 | -2025 | SI max. 2026m |
| MSM13/4_1006-14 | | Heat-Flow probe | 2009-11-29T02:03 | 35.33073 | 30.26870 | -2024 | SI max. 2024m |
| MSM13/4_1006-15 | | Heat-Flow probe | 2009-11-29T02:25 | 35.33038 | 30.26867 | -2025 | SI max. 2025m |
| MSM13/4_1006-16 | | Heat-Flow probe | 2009-11-29T02:53 | 35.32982 | 30.26870 | -2025 | SI max. 2025m |
| MSM13/4_1006-2 | | Heat-Flow probe | 2009-11-28T20:31 | 35.33463 | 30.26848 | -2026 | SL max. 2026 m |
| MSM13/4_1006-3 | | Heat-Flow probe | 2009-11-28T21:20 | 35.33473 | 30.27162 | -2025 | SL max. 2026 m |
| MSM13/4_1006-4 | | Heat-Flow probe | 2009-11-28T22:07 | 35.33373 | 30.26952 | -2025 | SI max. 2026m |
| MSM13/4_1006-5 | | Heat-Flow probe | 2009-11-28T22:39 | 35.33380 | 30.26855 | -2025 | SI max. 2025m |
| MSM13/4_1006-6 | | Heat-Flow probe | 2009-11-28T23:03 | 35.33322 | 30.26857 | -2025 | SI max. 2025m |
| MSM13/4_1006-7 | | Heat-Flow probe | 2009-11-28T23:31 | 35.33267 | 30.26862 | -2023 | SI max. 2025m |
| MSM13/4_1006-8 | | Heat-Flow probe | 2009-11-28T23:55 | 35.33245 | 30.26860 | -2024 | SI max. 2026m |
| MSM13/4_1006-9 | | Heat-Flow probe | 2009-11-29T00:16 | 35.33223 | 30.26860 | -2025 | SI max. 2027m |

HERMIONE Website



HOME NEWS SCIENCE EXPEDITIONS LEARNING GALLERY POLICY PARTNERS' AREA CONTACT US

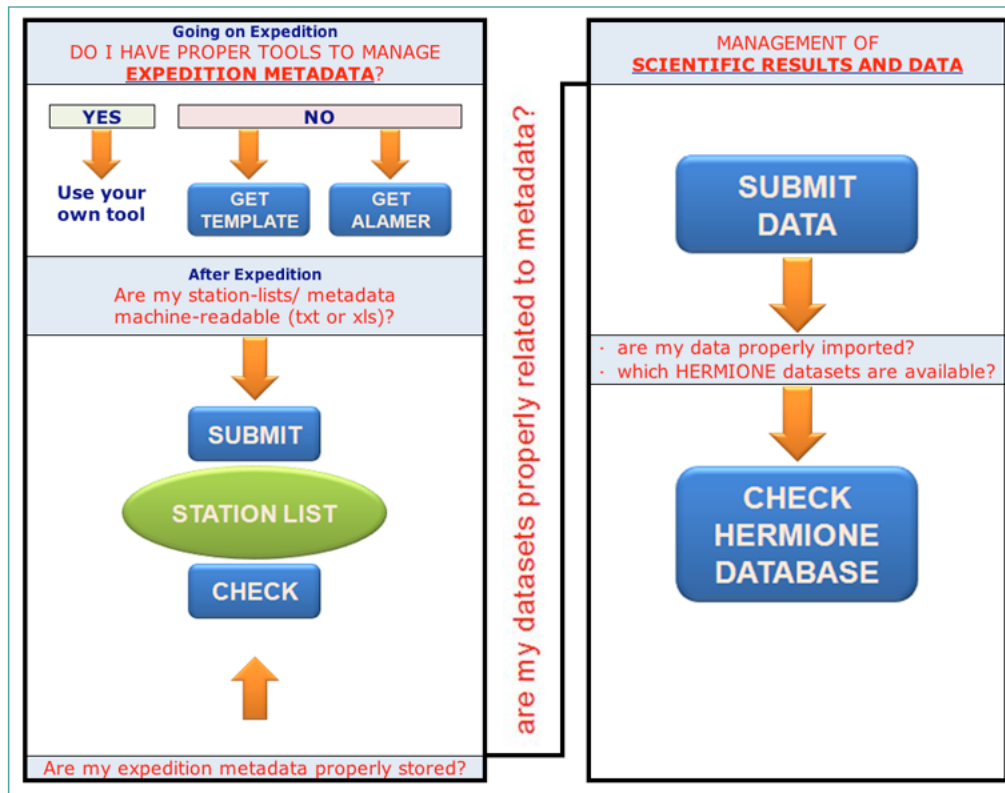
Hotspot Ecosystem Research and Man's Impact On European Seas

Data management and archiving

Search HERMIONE

search...

Schematic data flow within HERMIONE



Ecosystem studies require interdisciplinary work

- bathymetry/seismics/video mosaicking (e.g. precise mapping of habitats)
- physics and geochemistry (e.g. temperature, pH, O₂, H₂S, SO₄²⁻, CH₄)
- microbiology (e.g. identification, distribution, abundance)
- zoology (e.g. taxonomic identification, physiological studies)
- etc.

From where to take contextual data?

- cooperation
 - publications:
 - take very long before data become available
 - do not always contain primary data; not all data sets of research cruises are published
 - old data set often not available electronically
- PANGAEA: useful tools to access rapidly contextual data from specific ecosystems (unpublished data are under moratorium)



PANGAEA[®]

Data Publisher for Earth & Environmental Science

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Always quote citation when using data!

Data Warehouse Download (BETA) on query for »project:hermes...«

To start a data warehouse download, add geocodes (color first choose a vertical geocode (colored red) to further re-changed by dragging rows in the configuration list. For b geocode! Depending on size of result set, the query may rely on its functionality! When using the data, be sure to

Öffnen von project_hermes_ctd.tab

Sie möchten folgende Datei herunterladen:

project_hermes_ctd.tab
Vom Typ: TAB-Datei
Von: http://ws.pangaea.de

Wie soll Firefox mit dieser Datei verfahren?

Öffnen mit

FlashGot

Datei speichern

Für Dateien dieses Typs immer diese Aktion ausführen

ing them. It is recommended to download matrix may be trix is ordered by the primary nly and not yet finished, do not b-delimited text file).

Available Parameters and Geocodes

Page 1 of 1 < prev 1 next >

| Score | Parameter/Geocode | |
|--------|--|---|
| | DEPTH, water [m] | + |
| | LATITUDE | + |
| | LONGITUDE | + |
| 100.0% | Temperature, water [deg C] | + |
| 99.2% | Salinity | + |
| 57.8% | Density, sigma-theta (0) [kg/m³] | + |
| 49.4% | Pressure, water [dbar] | + |
| 44.2% | Oxygen [µmol/l] | + |
| 42.3% | Conductivity [mS/cm] | + |
| 34.9% | Temperature, water, potential [deg C] | + |
| 31.2% | Turbidity [arbitrary units] | + |
| 26.8% | Fluorescence [arbitrary units] | + |
| 22.7% | Density, sigma2000 [kg/m³] | + |
| 21.7% | Velocity, compressional wave [m/s] | + |

- Implicit averaging
- Calculate standard deviation of averaged values

Download data in the following character encoding:

[Contact](#)

Digital Object Identifier



Durrieu de Madron, X (2008): Physical oceanography at CTD station HERM3_03 - Mozilla Firefox

http://doi.pangaea.de/10.1594/PANGAEA.683645

AWI Intranet Google Hermes HERMIONE Campaigns Pangaea GIS Google Scholar Calendar Scirus LEO GNC Babel Fish

Durrieu de Madron, X (2008): Phy...

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 **PANGAEA**[®]
Publishing Network for Geoscientific & Environmental Data

Always quote citation when using data!

Data Description

Citation: Durrieu de Madron, Xavier (2008): Physical oceanography at CTD station HERM3_03, *Centre de Formation et de Recherche sur l'Environnement Marin, Université de Perpignan*, unpublished dataset #683645

Reference(s): Durrieu de Madron, Xavier (2006): Hydrographical and Coring-Results from the Hermes 3 Cruise in the Gulf of Lion (NW Mediterranean) Aug. 6-25, 2006, *Centre de Formation et de Recherche sur l'Environnement Marin, CNRS - Université de Perpignan, France; CoNISMa - Polytechnic University of Marche, Italy*, 7 pp, [hdl:10013/epic.30080.d001](https://doi.org/10.10013/epic.30080.d001)

Project(s): **Hotspot Ecosystem Research on the Margins of European Seas** (HERMES)

Coverage: West: 3.0307 * East: 3.0307 * South: 40.4985 * North: 40.4985
Minimum DEPTH, water: 0.0 m * Maximum DEPTH, water: 2393.1 m

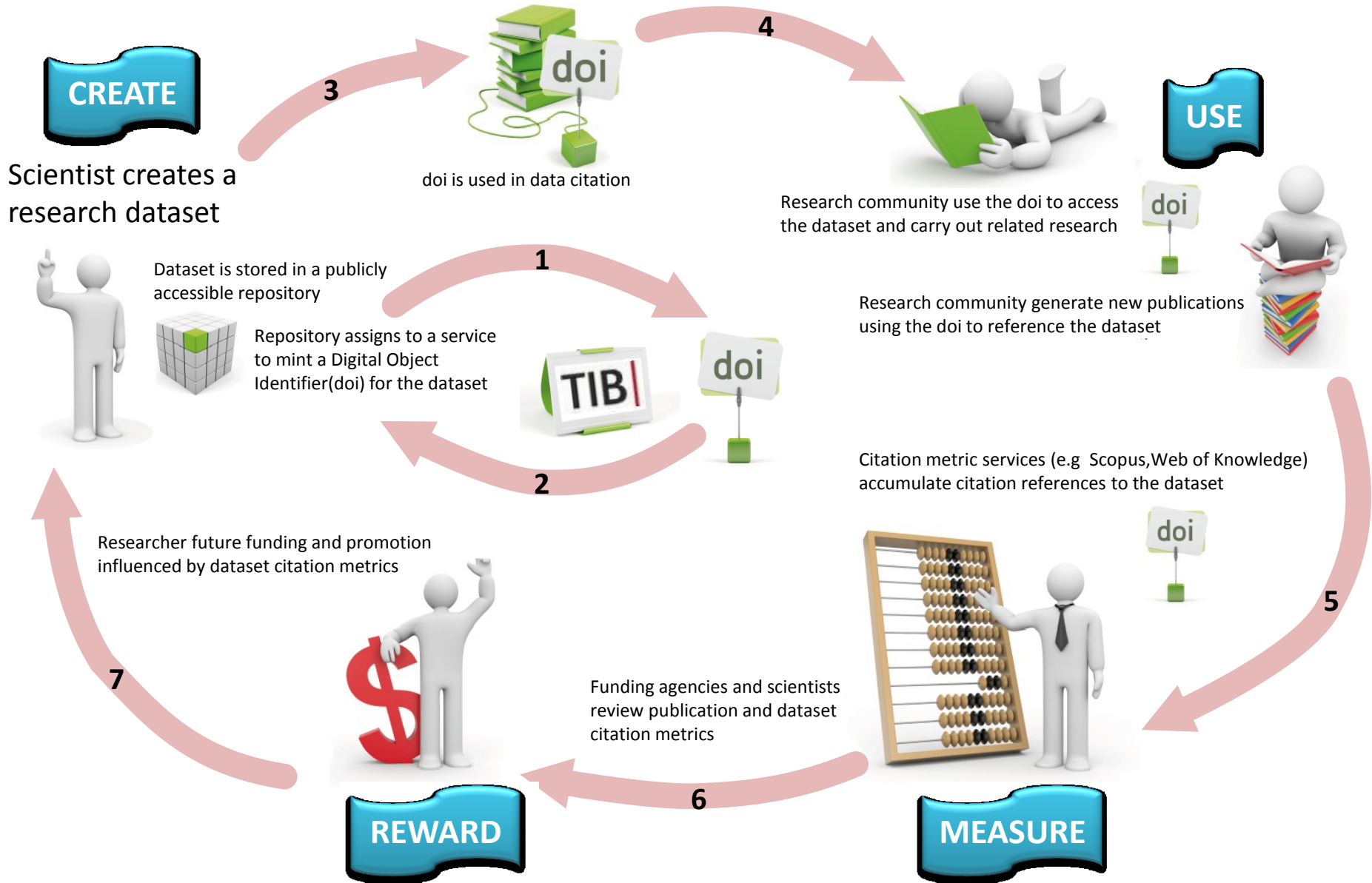
Event(s): **HERM3_03** (MIN2400) * Latitude: 40.4985 * Longitude: 3.0307 * Elevation: -2394.0 m * Date/Time: 2006-08-19T04:35:00
* Campaign: HERM3 * Basis: Thetys II * Device: CTD/Rosette * Comment: Distance above bottom: 1 m

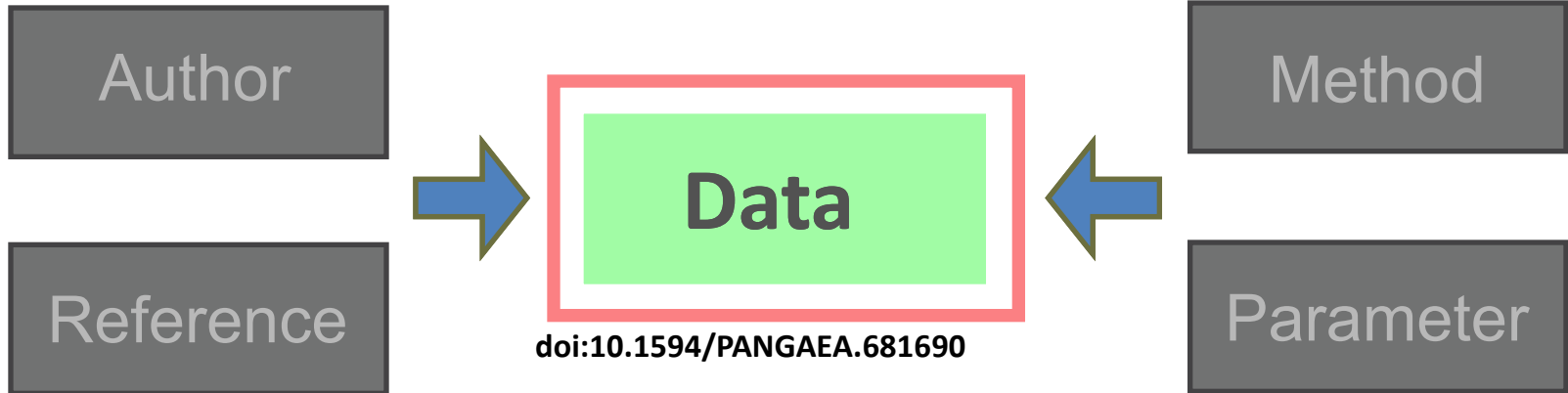


second bottle-neck

**SCIENTISTS RETICENCE TO PUBLISH
THEIR DATA IN AN EARLY PHASE**

Building a Culture of Data Citation





Klages, M et al. (2008): Swath sonar bathymetry during Polarstern cruise ARK-XXII/1 (PS70) with links to multibeam raw d...

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

file:///C:/Users/Admin/Documents/Institut/Hermione/Kick-off mee

Meistbesuchte Seiten Google Kalender PANGAEA Cruises HERMES HERMIONE Bank GMX LEO 1&1

Klages, M et al. (2008): S... x

69.6795 * Longitude 2: 18.9966 * Date/Time 2: 2007-06-21T00:00:00 * Location: Norwegian Sea * Campaign: ARK-XXII/1 (PS70 - sublegs a,b,c) * Basis: Polarstern * Device: Measurements along cruise track

Further details: hdl:10013/epic.28559.d001

Comment: Multibeam data were collected to extend the global database of seafloor topography and to provide high resolution bathymetry for the expedition's scientific program. The raw multibeam sonar data in SURF format are compressed as TAR archive with GZIP. One dataset contains a measurement period not exceeding twelve hours. SURF data files can be processed i. e. using the software packages CARIS HIPS/SIPS (<http://www.caris.com/products/hips-sips>) or with the open source software package MB-System (http://www.mbari.org/data/mbsystem/MB-System_index.html). The source code for an application programming interface (API) to read and write SURF data is released by the Hydrosweep manufacturer Atlas Hydrographic, Bremen.

Parameter(s):

| # | Name | Short Name | Unit | Principal Investigator | Method | Comment |
|---|--|------------|------|------------------------|--------------------------------------|-------------------------|
| 1 | DATE/TIME | Date/Time | | | | Geocode |
| 2 | LATITUDE | Latitude | | | | Geocode |
| 3 | LONGITUDE | Longitude | | | | Geocode |
| 4 | Universal resource locator/link to raw data file | URL raw | | Schenke, Hans-Werner | Hydrosweep DS (Atlas Hydrographic) | |
| 5 | Universal resource locator/link to metadata file | URL meta | | Schenke, Hans-Werner | Standard for Geospatial Metadata V.2 | |
| 6 | Universal resource locator/link to image | URL image | | Schenke, Hans-Werner | | preview in png-format |

Size: 14451 data points

Fertig

Author

Method

Reference

Parameter



doi:10.1594/PANGAEA.681690

Klages, M et al. (2008): Swath sonar bathymetry during Polarstern cruise AR...

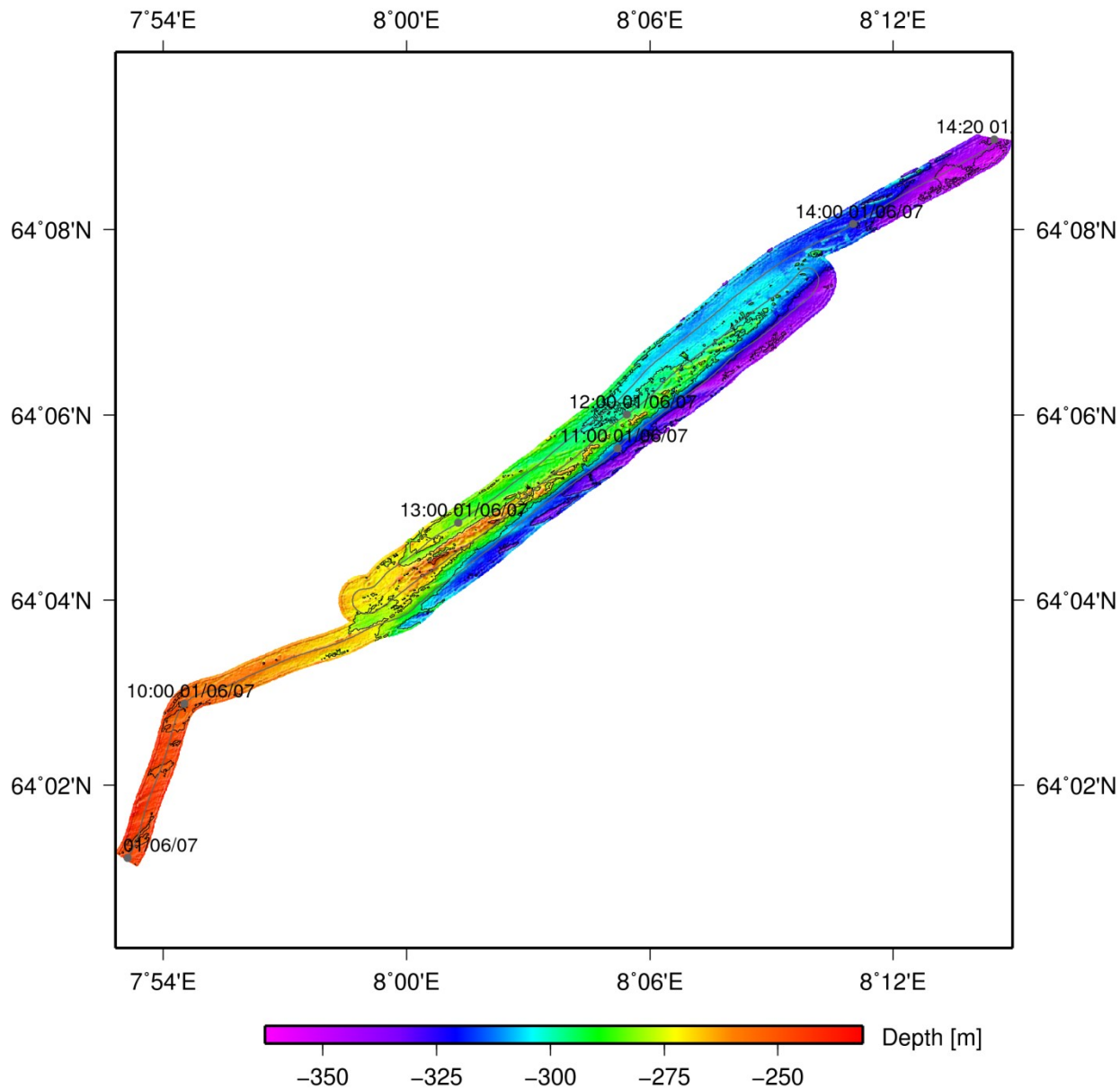
Download dataset as tab-delimited text (use the following character encoding: ISO-8859-1: ISO Western (PANGAEA default))

| 1 Date/Time | 2 Latitude | 3 Longitude | 4 URL raw | 5 URL meta | 6 URL image |
|------------------|---------------|----------------|----------------------|----------------------|----------------------|
| 2007-06-01T09:50 | 64.0343 | 7.8974 | Link | Link | Link |
| 2007-06-01T10:00 | 64.0480 | 7.9088 | Link | Link | Link |
| 2007-06-01T10:10 | 64.0536 | 7.9383 | Link | Link | Link |
| 2007-06-01T10:20 | 64.0585 | 7.9693 | Link | Link | Link |
| 2007-06-01T10:30 | 64.0643 | 8.0007 | Link | Link | Link |
| 2007-06-01T10:40 | 64.0742 | 8.0290 | Link | Link | Link |
| 2007-06-01T10:50 | 64.0841 | 8.0572 | Link | Link | Link |
| 2007-06-01T11:00 | 64.0940 | 8.0868 | Link | Link | Link |
| 2007-06-01T11:10 | 64.1036 | 8.1152 | Link | Link | Link |
| 2007-06-01T11:20 | 64.1132 | 8.1430 | Link | Link | Link |
| 2007-06-01T11:30 | 64.1238 | 8.1692 | Link | Link | Link |
| 2007-06-01T11:40 | 64.1189 | 8.1434 | Link | Link | Link |
| 2007-06-01T11:50 | 64.1097 | 8.1164 | Link | Link | Link |
| 2007-06-01T12:00 | 64.1000 | 8.0904 | Link | Link | Link |
| 2007-06-01T12:10 | 64.0906 | 8.0641 | Link | Link | Link |
| 2007-06-01T12:20 | 64.0811 | 8.0387 | Link | Link | Link |

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data sources

survey platform: **R. V. POLARSTERN**
sonar system: **Atlas Hydrographics Hydrosweep DS2**
data set name: **152_ark22-1_60F30706010940.xyz**
data set info: **length: 25.3 nm, time: 4.7 h, speed: 5.4 kn**



Sum up....

- not all data will be published
 - but in PANGAEA they are still available for new approaches or questions
- information about available data for the different ecosystems
 - establishing of new co-operations or co-authorships
- time record (e.g. climate change)
- model and budget estimations

Sum up....

- Bottleneck: scientific data-provision
- Scientists fear that:
 - it is very time consuming to enter data
 - wrong data cannot be corrected
 - it is difficult to retrieve data
 - data are not protected and will be abused by colleagues