# Forschungsdaten-Repositorien

Vorlesung „Ausgewählte Aspekte digitaler Informationsversorgung “ (SS 14)

Humboldt-Universität zu Berlin, Institut für Bibliotheks- und Informationswissenschaft (IBI)

12.06.2014

Heinz Pampel, Deutsches GeoForschungsZentrum GFZ

GFZ Helmholtz-Zentrum POTSDAM

HELMHOLTZ GEMEINSCHAFT

# AGENDA

- Relevanz
- Rahmenbedingungen
- Typologie
- Definition
- Aspekte
- Verankerung in der Community
- re3data.org
- Ausblick

# AGENDA

- **Relevanz**
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# RELEVANZ


Demonstrators protest against gene patenting outside the US Supreme Court last April.

TOM WILLIAMS/CQ ROLL CALL/GETTY

GENETICS

## Cancer-gene data sharing boosted

*Efforts to get more breast-cancer gene variants into public databases are gaining ground.*

useful it becomes for interpreting the results of any individual gene test. Of the thousands of possible variations on the spelling of the DNA bases that make up the *BRCA* genes, only some will be linked to cancer. If a particular variant is significantly more frequent among those who develop cancer than in the general population, its contribution to disease risk can be calculated. Only by collecting data from many different people can scientists observe the same variants often enough to make these kinds of calculations with confidence.

"If Myriad holds the data hostage in a proprietary database, they're harming patients," says Sherri Bale, managing director of GeneDx in Gaithersburg, Maryland, one of several competitors being sued by Myriad for infringement of other patents associated with the *BRCA* tests. These companies have cut the price of *BRCA* tests to an average of $2,200 compared with Myriad's $4,040 — and are contributing an accelerating flow of *BRCA* data to ClinVar, which is held at the National Center for Biotechnology Information in Bethesda, Maryland.

"All of these companies seem much more willing to share data," says genetic epidemiologist David Goldgar of the University of Utah's Huntsman Cancer Institute in Salt Lake City.

Geneticists such as Rehm and Robert Nussbaum at the University of California, San Francisco, are urging patients, genetics professionals and insurance companies to use only *BRCA*-testing companies that share data.

Geneticists have long exhorted their colleagues to share, but have been blocked by practical and competitive barriers. Sharing takes time and money, and geneticists fear



Check Hayden, E. (2014). Cancer-gene data sharing boosted. Nature, 510(7504), 198–198. doi:10.1038/510198a

# RELEVANZ

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Nachrichten > Wissenschaft > Mensch > Genforschung > Myriad: Supreme Court untersagt Patente auf menschliche DNA

## Genforschung: Oberstes US-Gericht verbietet Patente auf menschliche DNA

Corbis

DNA (Illustration): Als "Produkt der Natur" nicht patentierbar

**Synthetische DNA kann patentiert werden, die natürliche DNA dagegen nicht: Das hat der US-amerikanische Supreme Court entschieden. Verhandelt wurde der Fall von Myriad Genetics, die Firma hatte sich zwei Brustkrebsgene patentieren lassen.**



http://www.spiegel.de/wissenschaft/mensch/myriad-supreme-court-untersagt-patente-auf-menschliche-dna-a-905616.html

# RELEVANZ

NCBI Resources How To Sign in to NCBI

ClinVar ClinVar Search

Advanced Help

Home | About | Data use and maintenance | Using the website | How to submit | Statistics | FTP site


## ClinVar

ClinVar aggregates information about sequence variation and its relationship to human health.

### Using ClinVar

- About ClinVar
- Data Dictionary
- Downloads/FTP site
- FAQ
- Contact Us
- RSS feed
- Factsheet

### Tools

- ACMG Recommendations for Reporting of Incidental Findings
- Clinical Remapping service
- RefSeqGene/LRG
- Variation Reporter
- Submissions

### Related Sites

- ClinGen
- GeneReviews®
- GTR®
- ICCG
- MedGen
- OMIM®
- Variation

# RELEVANZ

NCBI Resources How To Sign in to NCBI

ClinVar ClinVar Search

Advanced Help

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**Public versus private**

Myriad counters that public databases are unreliable, expensive and vulnerable to funding cuts that compromise their upkeep. "We have the highest-quality databases in the world," says company spokesman Ronald Rogers. "And that's important because when the patient is given a result, they're going to make a medical management decision based on that information." Rogers says that the firm spent US$500 million to develop its tests and database.

Downloads/FTP site
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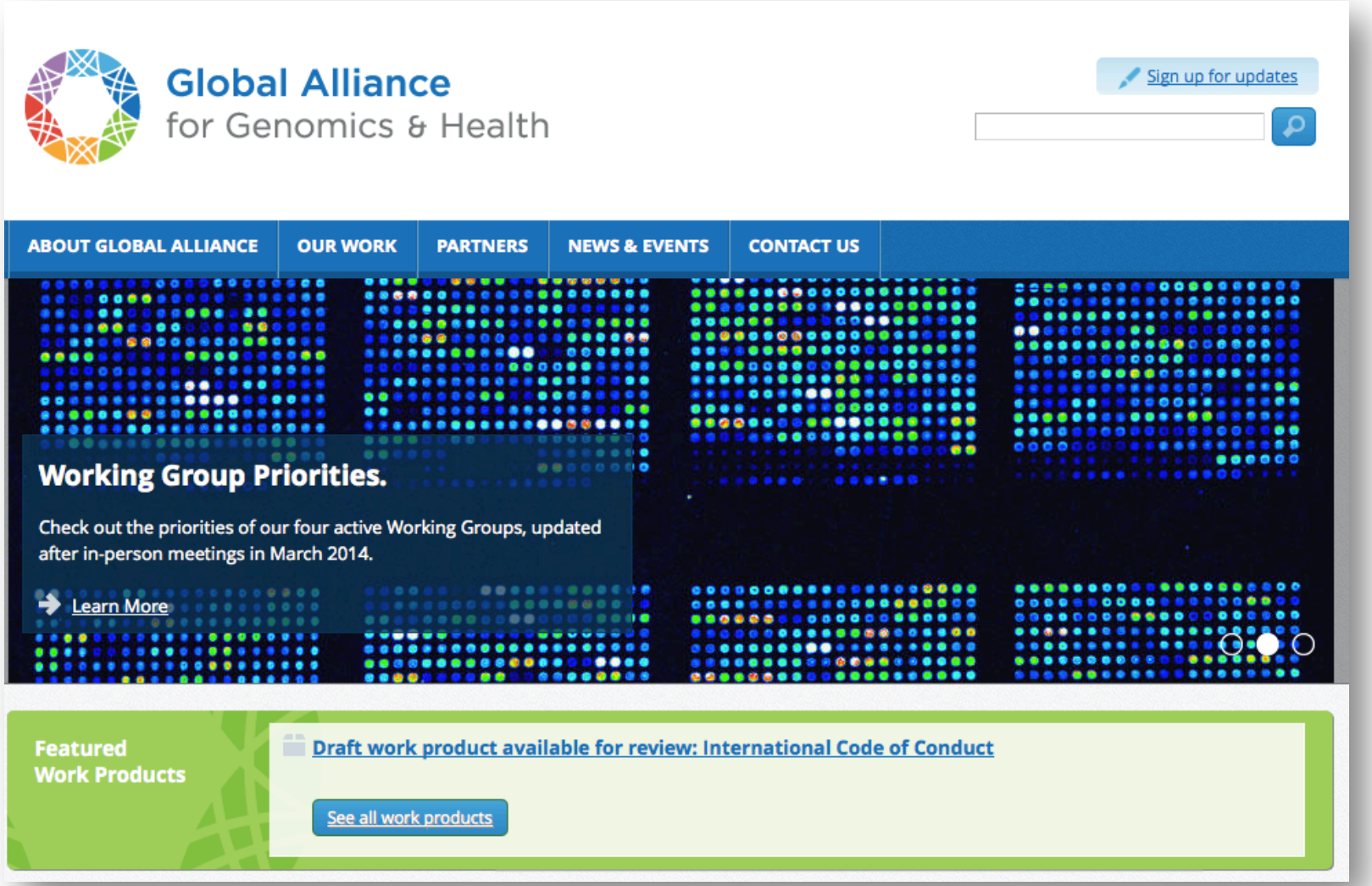
Factsheet

Clinical Remapping service
RefSeqGene/LRG
Variation Reporter
Submissions

GTR®
ICCG
MedGen
OMIM®
Variation

# RELEVANZ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Draft work product available for review: International Code of Conduct
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# RELEVANZ

- Diese Beispiel

  1. macht die Relevanz von öffentlichen Informationsinfrastrukturen (in diesem Fall eines Forschungsdaten-Repositoriums) deutlich;
  2. illustriert die Bedeutung von öffentlichen Informationsinfrastrukturen und offenen Daten für den wissenschaftlichen Fortschritt;
  3. beleuchtet zwei zentrale Herausforderungen: a) die Qualität der gespeicherten Daten und b) die Finanzierung der Informationsinfrastrukturen;
  4. zeigt, dass die Verankerung einer Informationsinfrastruktur in der Fachcommunity von zentraler Bedeutung ist

# RELEVANZ

- Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003)
  - „Open Access-Veröffentlichungen umfassen originäre wissenschaftliche Forschungsergebnisse ebenso wie Ursprungsdaten, Metadaten, Quellenmaterial, digitale Darstellungen von Bild- und Graphik-Material und wissenschaftliches Material in multimedialer Form."
- Einige Vorteile der Offenheit:
  - Transparenz der Forschung (Nachprüfbarkeit)
  - Effizienz der Forschung (Nachnutzung)
  - Steigerung der Wertschöpfung (Transfer)

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003). Retrieved from http://oa.mpg.de/lang/de/berlin-prozess/berliner-erklarung/

# RELEVANZ

- Grundsätze zum Umgang mit Forschungsdaten der Wissenschaftsorganisationen (2010)
  - Sicherung und Zugänglichkeit
  - Unterschiede der wissenschaftlichen Disziplinen
  - Wissenschaftliche Anerkennung
  - Lehre und Qualifizierung
  - Verwendung von Standards
  - **Entwicklung von Infrastrukturen**

Allianz der deutschen Wissenschaftsorganisationen. (2010). Grundsätze zum Umgang mit Forschungsdaten. Retrieved from http://www.allianzinitiative.de/de/handlungsfelder/forschungsdaten/grundsaetze/

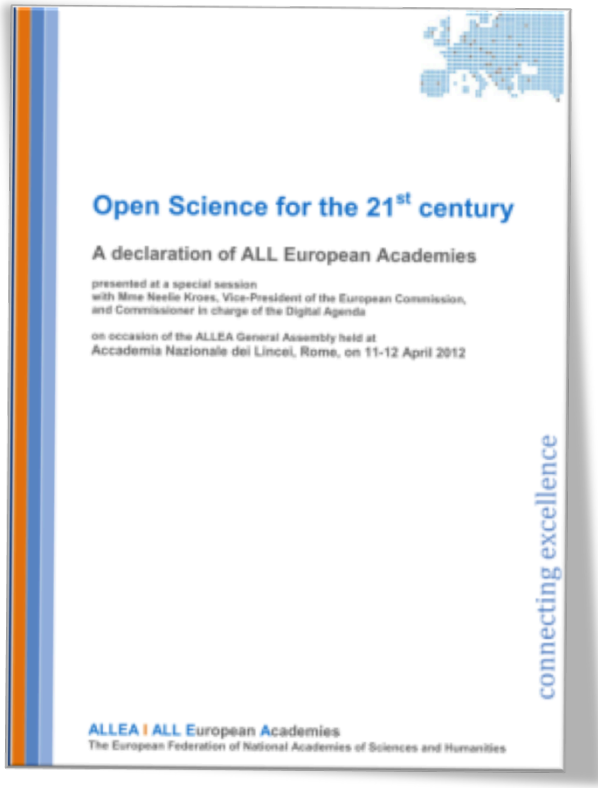
# RELEVANZ

- Royal Society (2012)
  - „Scientists should communicate the data they collect and the models they create, to allow free and open access, and in ways that are intelligible, assessable and usable for other specialists in the same or linked fields wherever they are in the world. **Where data justify it, scientists should make them available in an appropriate data repository.**"


The Royal Society. (2012). Science as an open enterprise. The Royal Society Science Policy Centre report 02/12. Retrieved from http://royalsociety.org/uploadedFiles/Royal_Society_Content/policy/projects/sape/2012-06-20-SAOE.pdf

# RELEVANZ

- All European Academies (2012)
  - „Encouraging scientific and research institutions in their countries and the supporting industries to innovate and **promote open science platforms, making research results discoverable and re-usable**, interacting also with publishers andlibraries/repositories to explore new business models for sustainable open science data management [..]"




All European Academies. (2012). Open Science for the 21st Century. Declaration of All European Academies. Retrieved from http://cordis.europa.eu/fp7/ict/e-infrastructure/docs/allea-declaration-1.pdf

# RELEVANZ

- Wissenschaftspolitisch: Deutschland

**Vernetzung von Datenbanken und Repositorien**

Die Enquete-Kommission empfiehlt, den Aufbau, den Ausbau und die koordinierte nationale, europäische und internationale Vernetzung von (Forschungs-)Datenbanken, Repositorien und Open Access-Zeitschriften der Forschungseinrichtungen und insbesondere der öffentlichen Hochschulen im Rahmen eines eigenen Programms zu fördern. In einem solchen Programm ist auch der Aufbau und die Vernetzung von Forschungsdatenrepositorien der öffentlichen Hochschulen und Forschungseinrichtungen zu unterstützen, die nach Open Access-Kriterien und im Rahmen standardisierter Langzeitarchivierung für die Nachnutzung bereitgestellt werden. Bei der Weiterentwicklung und Vernetzung der Forschungsinfrastrukturen sind die Empfehlungen des

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Wissenschaftsrates und der Kommission Zukunft der Informationsinfrastruktur im Auftrag der Gemeinsamen Wissenschaftskonferenz zu berücksichtigen.

Enquete-Kommission Internet und digitale Gesellschaft. (2012). Projektgruppe Bildung und Forschung. Handlungsempfehlungen. Ausschussdrucksache 17(24)052. Retrieved from http://www.bundestag.de/internetenquete/dokumentation/Sitzungen/20120625/A-Drs_17_24_052_-_PG_Bildung_und_Forschung_Handlungsempfehlungen.pdf

# RELEVANZ

- Wissenschaftspolitisch: Deutschland

Wir werden eine Strategie für den digitalen Wandel in der Wissenschaft initiieren, z. B. um Zugang und Nutzbarkeit von komplexen Forschungsdaten zu verbessern. Gemeinsam mit den Ländern werden wir einen Rat für Informationsinfrastrukturen gründen, in dem sich die Akteure des Wissenschaftssystems über die Erarbeitung disziplinen- und institutionenübergreifender Strategien und Standards verständigen. Zudem wollen wir virtuelle Forschungsumgebungen stärken, die es Forscherinnen

Deutschlands Zukunft gestalten. Koalitionsvertrag zwischen CDU, CSU und SPD. 18. Legislaturperiode. Retrieved from https://www.cdu.de/sites/default/files/media/dokumente/koalitionsvertrag.pdf

# RELEVANZ

- Wissenschaftspolitisch: Europa

*E-infrastructures*

Further develop e-infrastructures underpinning the system for disseminating scientific information by:

– Supporting scientific data infrastructures for dissemination of knowledge, research institutions and funding entities to address all stages of the data life cycle. These stages should include acquisition, curation, metadata, provenance, persistent identifiers, authorisation, authentication and data integrity. Approaches need to be developed to provide a common look and feel to data discovery across disciplines, thus reducing the learning curve required to achieve productivity;

– supporting the development and training of new cohorts of data-intensive

European Commission. (2012). Commission Recommendation on access to and preservation of scientific information. C(2012) 4890 final. Retrieved from http://ec.europa.eu/research/science-society/document_library/pdf_06/recommendation-access-and-preservation-scientific-information_en.pdf

# RELEVANZ

- Wissenschaftspolitisch: USA

b) Ensure that all extramural researchers receiving Federal grants and contracts for scientific research and intramural researchers develop data management plans, as appropriate, describing how they will provide for long-term preservation of, and access to, scientific data in digital formats resulting from federally funded research, or explaining why long-term preservation and access cannot be justified;

c) Allow the inclusion of appropriate costs for data management and access in proposals for Federal funding for scientific research;

d) Ensure appropriate evaluation of the merits of submitted data management plans;

e) Include mechanisms to ensure that intramural and extramural researchers comply with data management plans and policies;

f) Promote the deposit of data in publicly accessible databases, where appropriate and available;

Office of Science and Technology Policy. (2013). Increasing Access to the Results of Federally Funded Scientific Research. Retrieved from http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf

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# RAHMENBEDINGUNGEN

- Data Policies von Förderorganisationen
  - NIH, 2003
    - „**The NIH expects and supports the timely release and sharing of final research data from NIH-supported studies for use by other researchers.** Starting with the October 1, 2003 receipt date, investigators submitting an NIH application seeking $500,000 or more in direct costs in any single year are expected to include a **plan for data sharing** or state why data sharing is not possible.“

National Institutes of Health. (2003, April 12). Final NIH Statement on Sharing Research Data. Retrieved from http://grants.nih.gov/grants/guide/notice-files/NOT-OD-03-032.html

# RAHMENBEDINGUNGEN

- Data Policies von Förderorganisationen
  - DFG, 2010
    - „Wenn [..] systematisch (Mess-)Daten erhoben werden, die für die Nachnutzung geeignet sind, legen Sie bitte dar, welche Maßnahmen ergriffen wurden bzw. während der Laufzeit des Projektes getroffen werden, um die Daten nachhaltig zu sichern und ggf. für eine erneute Nutzung bereit zu stellen. **Bitte berücksichtigen Sie dabei auch - sofern vorhanden - die in Ihrer Fachdisziplin existierenden Standards und die Angebote bestehender Datenrepositorien**."

Deutsche Forschungsgemeinschaft. (2012). Leitfaden für die Antragstellung. DFG-Vordruck 54.01 - 1/12. Retrieved from http://www.dfg.de/formulare/54_01/54_01_de.pdf

Deutsche Forschungsgemeinschaft. (2012). Merkblatt Sonderforschungsbereiche. DFG-Vordruck 50.06 – 6/12. Retrieved from http://www.dfg.de/formulare/50_06/50_06_de.pdf

# RAHMENBEDINGUNGEN

- Data Policies von Förderorganisationen
  - Europäische Kommission: HORIZON 2020

**29.3 Open access to research data**

***[OPTION for actions participating in the open Research Data Pilot**: Regarding the digital research data generated in the action ('**data**'), the beneficiaries must:*

*(a) deposit in a research data repository and take measures to make it possible for third parties to access, mine, exploit, reproduce and disseminate — free of charge for any user — the following:*

*(i) the data, including associated metadata, needed to validate the results presented in scientific publications as soon as possible;*

*(ii) other data, including associated metadata, as specified and within the deadlines laid down in the '**data management plan**' (see Annex 1);*

*(b) provide information — via the repository — about tools and instruments at the disposal of the beneficiaries and necessary for validating the results (and — where possible — provide the tools and instruments themselves).*

Horizon 2020 Annotated Model Grant Agreements. Version 1.6. 2 May 2014. Retrieved from http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf

# Data management in Horizon 2020

- Data Management Plans (DMPs) mandatory for all projects participating in the pilot (deliverable within the first six months)
- Other projects invited to submit a DMP if relevant for their planned research
- DMP questions:
  - What data will be collected / generated?
  - What standards will be used / how will metadata be generated?
  - What data will be exploited? What data will be shared/made open?
  - How will data be curated and preserved?



Spichtinger, D & Ramjoué, C. (2014): Open Access and the Open Research Data Pilot in H2020. EC Seminar. Retrieved from http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?action=display&doc_id=4602

# RAHMENBEDINGUNGEN

- Data Policies von wissenschaftlichen Zeitschriften
  - Nature, 2013
    - „**Data sets must be made freely available to readers from the date of publication, and must be provided to editors and peer-reviewers at submission, for the purposes of evaluating the manuscript**. For the following types of data set, submission to a community-endorsed, public repository is mandatory. Accession numbers must be provided in the paper. Examples of **appropriate public repositories** are listed below.“

Nature. (2013). Availability of data and materials. Retrieved from http://www.nature.com/authors/policies/availability.html

# RAHMENBEDINGUNGEN

- Data Policies von wissenschaftlichen Zeitschriften

EDITORIAL

nature immunology

## Raising standards

**Nature journals' updated editorial policies aim to improve transparency and reproducibility**

Beginning in May, *Nature* and the Nature research journals are adopting editorial measures to improve the consistency and quality of reporting in the life-sciences articles they publish. To facilitate the interpretation and improve the reliability of published results, we will more systematically ensure the reporting of key methodological details, give more space to Methods sections, examine the statistics more closely and offer more ways for authors to be transparent about these matters.

To allow authors to describe their experimental designs and methods in enough detail for others to interpret and replicate them, the participating journals are removing length restrictions on Methods sections.

To further increase transparency, we now also encourage authors to provide, in tabular form, the data underlying the graphical representations used in figures. This is in addition to our well-established data-deposition policy for specific types of experiments and large

Nature.

Nature Immunology. (2013). Raising standards. Nature Immunology, 14(5), 415. doi:10.1038/ni.2603

# RAHMENBEDINGUNGEN

- Data Policies von wissenschaftlichen Zeitschriften
  - PLOS
    - „PLOS journals require authors to make all **data underlying the findings** described in their manuscript **fully available** without restriction, with rare exception [...].
    - „When submitting a manuscript online, authors must provide a **Data Availability Statement** describing compliance with PLOS's policy. If the article is accepted for publication, the data availability statement will be published as part of the final article."
    - „**Refusal** to share data and related metadata and methods in accordance with this policy **will be grounds for rejection**."

PLOS. (2014). PLOS Editorial and Publishing Policies. Retrieved from http://www.plosone.org/static/policies#sharing

# RAHMENBEDINGUNGEN

- Verankerung im Einreichungsprozess
  - Beispiel PLOS ONE

**Data Availability**

PLOS journals require authors to make all data underlying the findings described in their manuscript fully available, without restriction and from the time of publication, with only rare exceptions to address legal and ethical concerns (see the PLOS Data Policy and FAQ for further details). When submitting a manuscript, authors must provide a Data Availability Statement that describes where the data underlying their manuscript can be found.

Your answers to the following constitute your statement about data availability and will be included with the article in the event of publication. **Please note that simply stating 'data available on request from the author' is not acceptable. *If, however, your data are only available upon request from the author(s), you must answer "No" to the first question below, and explain your exceptional situation in the text box provided.***

Do the authors confirm that all data underlying the findings described in their manuscript are fully available without restriction?

Answer Required: Please select a response — Please select a response.

- Please select a response
- Yes – all data are fully available without restriction
- No – some restrictions will apply

Please describe where your data may be found, writing in full sentences. **Your answers should be entered into the box below and will be published in the form you provide them, if your manuscript is accepted.** If you are copying our sample text below, please ensure you replace any instances of XXX with the appropriate details.

Verlagsplattform

Öffentliches Repositorium

Sonstiges

- If your data are all contained within the paper and/or Supporting Information files, please state this in your answer below. For example, "All relevant data are within the paper and its Supporting Information files."
- If your data are held or will be held in a public repository, include URLs, accession numbers or DOIs. For example, "All XXX files are available from the XXX database (accession number(s) XXX, XXX)." If this information will only be available after acceptance, please indicate this by ticking the box below.
- If neither of these applies but you are able to provide details of access elsewhere, with or without limitations, please do so in the box below. For example:

  "Data are available from the XXX Institutional Data Access / Ethics Committee for researchers who meet the criteria for access to confidential data."
  "Data are from the XXX study whose authors may be contacted at XXX."

* typeset

Answer Required:

Character Count: 0

Limit 20000 characters

# RAHMENBEDINGUNGEN

- Welche Konsequenzen ergeben sich aus den genannten Policies für Betreiber von Forschungsdaten-Repositorien?

# RAHMENBEDINGUNGEN

- Welche Konsequenzen ergeben sich aus den genannten Policies für Betreiber von Forschungsdaten-Repositorien?

- Mögliches Vorgehen:

  1. Bestandsaufnahme der Policies auf Basis der Nutzergruppe
  2. Ableitung der Anforderungen an das Repositorium
  3. Umsetzung der Anforderung in Kooperation mit anderen relevanten Akteuren (z.B. Förderer und Journals)
  4. Reflexion mit Hilfe von Nutzerstudien und Monitoring

# RAHMENBEDINGUNGEN

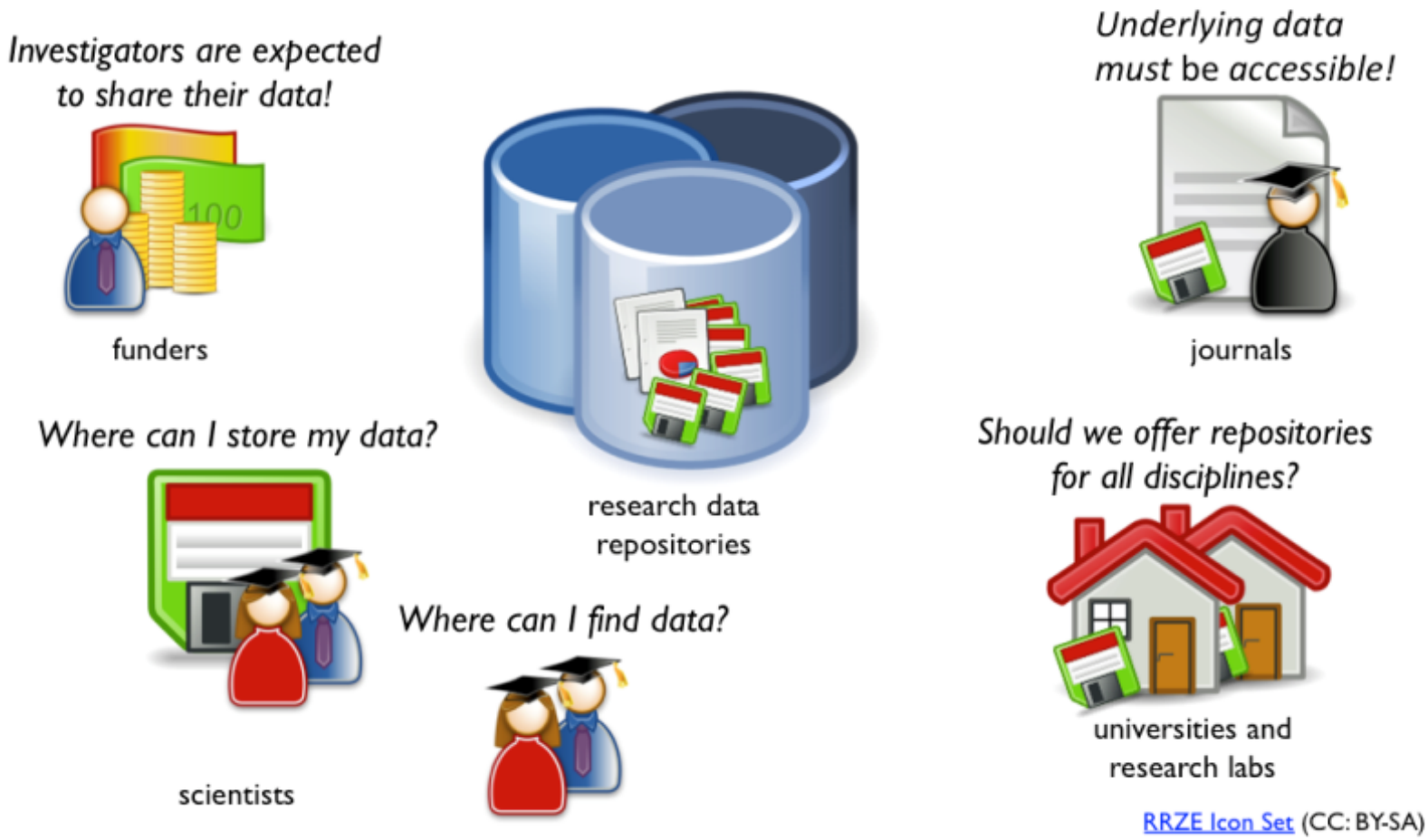
- Benötigt werden Informationsinfrastrukturen, die die dauerhafte Zugänglichkeit der Daten sicherstellen.
- Die Anforderungen an diese Infrastrukturen können je nach Disziplin (und Daten) variieren.

- Europäische Kommission (2009):
  - „The landscape of data repositories across Europe is **fairly heterogeneous**, but there is a solid basis to develop a coherent strategy to overcome the fragmentation and enable research communities to better manage, use, share and preserve data."

European Commission. (2009). ICT infrastructures for e-science. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. COM(2009) 108 final. Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0108:FIN:EN:PDF

# RAHMENBEDINGUNGEN

## The Research Data Repositories Landscape






Grafik: re3data.org

# INFRASTRUKTUR ALS ANREIZ

- **„Building a sou** **data sharing, prese** **challenge, but is in some** **nging a culture**. Subjec actually show that we are face . Researchers report many rea not available electronically to sons were insufficient time **ese are difficult to solv** **nake it quick and easy to sh** **may help.“**

OPEN ACCESS Freely available online PLoS one

## Data Sharing by Scientists: Practices and Perceptions

Carol Tenopir[1*], Suzie Allard[1], Kimberly Douglass[1], Arsev Umur Aydinoglu[1], Lei Wu[1], Eleanor Read[2], Maribeth Manoff[2], Mike Frame[3]

1 School of Information Sciences, University of Tennessee, Knoxville, Tennessee, United States of America, 2 University of Tennessee Libraries, University of Tennessee, Knoxville, Tennessee, United States of America, 3 Center for Biological Informatics, United States Geological Survey, Oak Ridge, Tennessee, United States of America

**Abstract**

***Background:*** Scientific research in the 21st century is more data intensive and collaborative than in the past. It is important to study the data practices of researchers – data accessibility, discovery, re-use, preservation and, particularly, data sharing. Data sharing is a valuable part of the scientific method allowing for verification of results and extending research from prior results.

***Methodology/Principal Findings:*** A total of 1329 scientists participated in this survey exploring current data sharing practices and perceptions of the barriers and enablers of data sharing. Scientists do not make their data electronically available to others for various reasons, including insufficient time and lack of funding. Most respondents are satisfied with their current processes for the initial and short-term parts of the data or research lifecycle (collecting their research data; searching for, describing or cataloging, analyzing, and short-term storage of their data) but are not satisfied with long-term data preservation. Many organizations do not provide support to their researchers for data management both in the short- and long-term. If certain conditions are met (such as formal citation and sharing reprints) respondents agree they are willing to share their data. There are also significant differences and approaches in data management practices based on primary funding agency, subject discipline, age, work focus, and world region.

***Conclusions/Significance:*** Barriers to effective data sharing and preservation are deeply rooted in the practices and culture of the research process as well as the researchers themselves. New mandates for data management plans from NSF and other federal agencies and world-wide attention to the need to share and preserve data could lead to changes. Large scale programs, such as the NSF-sponsored DataNET (including projects like DataONE) will both bring attention and resources to the issue and make it easier for scientists to apply sound data management principles.

**Citation:** Tenopir C, Allard S, Douglass K, Aydinoglu AU, Wu L, et al. (2011) Data Sharing by Scientists: Practices and Perceptions. PLoS ONE 6(6): e21101. doi:10.1371/journal.pone.0021101

**Editor:** Cameron Neylon, Science and Technology Facilities Council, United Kingdom

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**Competing Interests:** The authors have declared that no competing interests exist.

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**Introduction**

Data are the infrastructure of science. Sound data are critical as they form the basis for good scientific decisions, wise management and use of resources, and informed decision-making. Moreover, "science is becoming data intensive and collaborative" [1]. The amount of data collected, analyzed, re-analyzed, and stored has increased enormously due to developments in computational simulation and modeling, automated data acquisition, and communication technologies [2]. Following the previous research paradigms (experimental, theoretical, and computational), this new era has been called "the fourth paradigm: data-intensive scientific discovery" where "all of the science literature is online, all of the science data is online, and they interoperate with each other" [3]. Digital data are not only the outputs of research but provide inputs to new hypotheses, enabling new scientific insights and driving innovation [4].

As science becomes more data intensive and collaborative, data sharing becomes more important. Data sharing includes the deposition and preservation of data; however, it is primarily associated with providing access for use and reuse of data. Data sharing has many advantages, including:

- re-analysis of data helps verify results data, which is a key part of the scientific process;
- different interpretations or approaches to existing data contribute to scientific progress –especially in an interdisciplinary setting;
- well-managed, long-term preservation helps retain data integrity;
- when data is available, (re-)collection of data is minimized; thus, use of resources is optimized;
- data availability provides safeguards against misconduct related to data fabrication and falsification;
- replication studies serve as training tools for new generations of researchers [5][6][7]

Additionally, researchers, data managers and publishers in the PARSE survey overwhelmingly agreed that public funding was the

PLoS ONE | www.plosone.org 1 June 2011 | Volume 6 | Issue 6 | e21101

Tenopir, C. et al. (2011). Data Sharing by Scientists: Practices and Perceptions. PLoS ONE, 6(6), e21101. doi: 10.1371/journal.pone.0021101

# INFRASTRUKTUR ALS ANREIZ

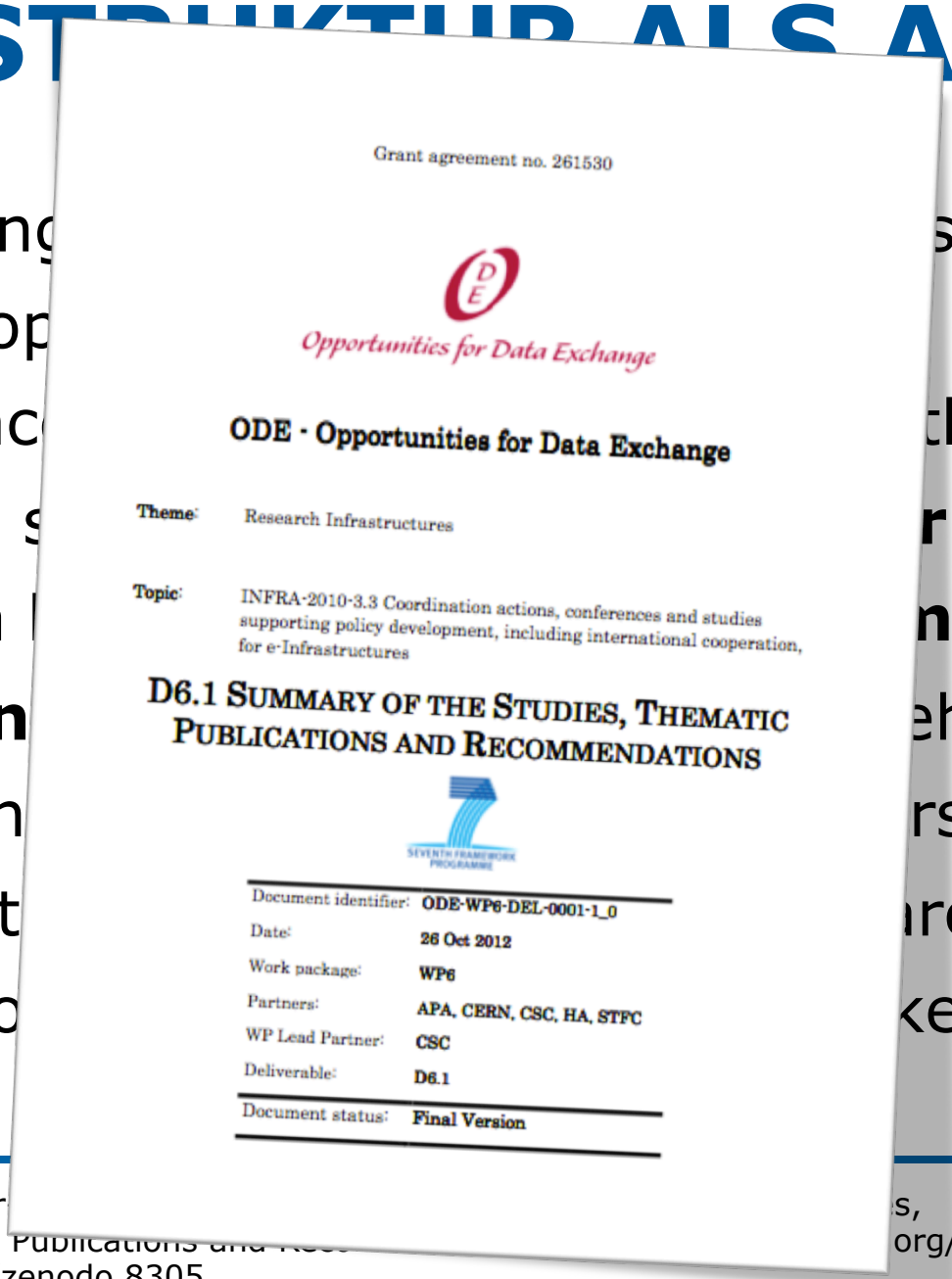
- „**Building a sound infrastructure for data sharing, preservation, and use is a challenge, but is in some ways easier than changing a culture**. Subject discipline differences actually show that we are faced with multiple cultures. Researchers report many reasons why their data is not available electronically to others. The leading reasons were insufficient time and lack of funding. **These are difficult to solve, but systems that make it quick and easy to share data without cost may help.**"



Tenopir, C. et al. (2011). Data Sharing by Scientists: Practices and Perceptions. PLoS ONE, 6(6), e21101. doi: 10.1371/journal.pone.0021101

# INFRASTRUKTUR ALS ANREIZ

- „A key finding sharing have to be develop to the academic inc the research assessment s **rriers to share data nplifying data sharin** eholders, from publish rs have to be involved in t rchers' hesitation to ke them available.



Grant agreement no. 261530

Opportunities for Data Exchange

**ODE - Opportunities for Data Exchange**

**Theme:** Research Infrastructures

**Topic:** INFRA-2010-3.3 Coordination actions, conferences and studies supporting policy development, including international cooperation, for e-Infrastructures

**D6.1 SUMMARY OF THE STUDIES, THEMATIC PUBLICATIONS AND RECOMMENDATIONS**

| | |
|---|---|
| Document identifier: | ODE-WP6-DEL-0001-1_0 |
| Date: | 26 Oct 2012 |
| Work package: | WP6 |
| Partners: | APA, CERN, CSC, HA, STFC |
| WP Lead Partner: | CSC |
| Deliverable: | D6.1 |
| Document status: | Final Version |

# INFRASTRUKTUR ALS ANREIZ

- „A key finding is that incentives for data sharing have to be developed. These have to be linked to the academic incentive system as well as to the research assessment schemes. **The technical barriers to share data have to be reduced by simplifying data sharing workflows.** Several stakeholders, from publishers or data centres to funders have to be involved in this process to address researchers' hesitation to manage their data and make them available.



Dallmeier-Tiessen, S.; et al. (2012): D6.1 Summary of the Studies, Thematic Publications and Recommendations. Retrieved from doi.org/10.5281/zenodo.8305

# AGENDA

- Relevanz
- Rahmenbedingungen
- **Typologie**
- Definition
- Aspekte
- Verankerung in der Community
- re3data.org
- Ausblick

# TYPOLOGIE

- Disziplinäre Forschungsdaten-Repositorien
- Institutionelle Forschungsdaten-Repositorien
- Projektspezifische Forschungsdaten-Repositorien
- Multidisziplinäre Forschungsdaten-Repositorien
- Portale, die verteile Datensammlungen zugänglich machen

Pampel, H., Goebelbecker, H.-J., & Vierkant, P. (2012). re3data.org: Aufbau eines Verzeichnisses von Forschungsdaten-Repositorien. Ein Werkstattbericht. In B. Mittermaier (Ed.), Vernetztes Wissen – Daten, Menschen, Systeme. WissKom 2012 (pp. 61–73). Jülich: Verlag des Forschungszentrums Jülich. Retrieved from http://hdl.handle.net/2128/4699

# TYPOLOGIE

- Disziplinäre Forschungsdaten-Repositorien
  - Beispiele:
    - PANGAEA – Data Publisher for Earth & Environmental Science, http://www.pangaea.de
    - Gene Expression Omnibus (GEO), http://www.ncbi.nlm.nih.gov/geo
    - GESIS – Datenarchiv für Sozialwissenschaften, http://www.gesis.org/unser-angebot/recherchieren/datenbestandskatalog/

# TYPOLOGIE

- PANGAEA

| | |
|---|---|
| **Betreiber:** | Alfred-Wegener-Institut (AWI) und MARUM – Zentrum für Marine Umweltwissenschaften der Universität Bremen |
| **Disziplin:** | Erd- und Umweltwissenschaften |
| **Mission:** | „The information system PANGAEA is operated as an Open Access library aimed at archiving, publishing and distributing georeferenced data from earth system research. The system guarantees long-term availability of its content through a commitment of the operating institutions.“ |
| **Zugangs-bedingungen:** | CC-BY |
| **Finanzierung:** | Betreiber und Drittmittelförderung (u.a. Datenmanagement) |
| **Zitations-vorschlag:** | Beispiel: http://doi.pangaea.de/10.1594/PANGAEA.738246 |

# TYPOLOGIE

- PANGAEA

**PANGAEA®**
**Data Publisher for Earth & Environmental Science**

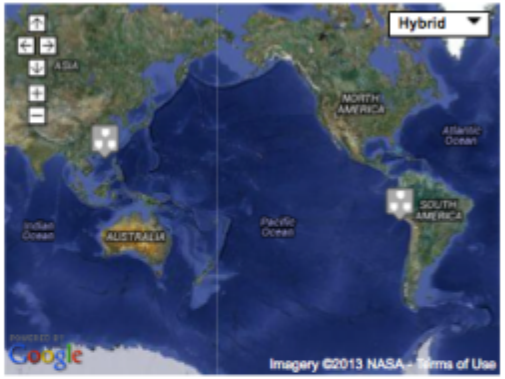
Not logged in (log in or sign up)

Always quote citation when using data!

**Data Description**

Show Map | Google Earth | RIS | BibTeX

*Citation:* Holbourn, AEL et al. (2005): Geochemistry and stable isotope record of benthic foraminifera of Miocene sediments. doi:10.1594/PANGAEA.738246,
*Supplement to:* **Holbourn, Ann E L; Kuhnt, Wolfgang; Schulz, Michael; Erlenkeuser, Helmut (2005):** Impacts of orbital forcing and atmospheric carbon dioxide on Miocene ice-sheet expansion. *Nature*, **438**, 483-487, doi:10.1038/nature04123




*Abstract:* The processes causing the middle Miocene global cooling, which marked the Earth's final transition into an 'icehouse' climate about 13.9 million years ago (Myr ago) (Flower and Kennett, 1993, doi:10.1029/93PA02196; 1995 doi:10.1029/95PA02022; Miller et al., 1991, doi:10.1029/90JB0201; Zachos et al., 2001, doi:10.1126/science.1059412), remain enigmatic. Tectonically driven circulation changes (Kennett, 1977, doi:10.1029/JC082i027p03843); Woodruff and Savin, 1991, doi:10.1029/91PA02561) and variations in atmospheric carbon dioxide levels (Raymo and Ruddimann, 1992, doi:10.1038/359117a0; Vincent and Berger, 1985) have been suggested as driving mechanisms, but the lack of adequately preserved sedimentary successions has made rigorous testing of these hypotheses difficult. Here we present high-resolution climate proxy records, covering the period from 14.7 to 12.7 million years ago, from two complete sediment cores from the northwest and southeast subtropical Pacific Ocean. Using new chronologies through the correlation to the latest orbital model (Laskar et al., 2004, doi:10.1051/0004-6361:20041335), we find relatively constant, low summer insolation over Antarctica coincident with declining atmospheric carbon dioxide levels at the time of Antarctic ice-sheet expansion and global cooling, suggesting a causal link. We surmise that the thermal isolation of Antarctica played a role in providing sustained long-term climatic boundary conditions propitious for ice-sheet formation. Our data document that Antarctic glaciation was rapid, taking place within two obliquity cycles, and coincided with a striking transition from obliquity to eccentricity as the drivers of climatic change.

*Project(s):* **Institute for Geosciences, Christian Albrechts University, Kiel** (GIK/IfG)
**Center for Marine Environmental Sciences** (MARUM)
**Ocean Drilling Program** (ODP)

*Coverage:* *Median Latitude:* -0.808281 * *Median Longitude:* -148.099083 * *South-bound Latitude:* -16.007017 * *West-bound Longitude:* 116.272917 * *North-bound Latitude:* 19.456700 * *East-bound Longitude:* -76.378083
*Date/Time Start:* 1999-03-21T00:00:00 * *Date/Time End:* 2002-04-26T00:00:00

*Event(s):* **184-1146** * *Latitude:* 19.456700 * *Longitude:* 116.272917 * *Date/Time Start:* 1999-03-21T00:00:00 * *Date/Time End:* 1999-03-29T00:00:00 * *Elevation:* -2091.5 m * *Recovery:* 1451.70 m * *Penetration:* 1455.60 m * *Location:* South China Sea * *Campaign:* Leg184 * *Basis:* Joides Resolution * *Device:* Composite Core * *Comment:* 153 cores; 1450.6 m cored; 5 m drilled; 100.1% recovery
**202-1237** * *Latitude:* -16.007017 * *Longitude:* -76.378083 * *Date/Time:* 2002-04-26T00:00:00 * *Elevation:* 3212.3 m * *Recovery:* 771.00 m * *Penetration:* 896.20 m * *Location:* South Pacific Ocean * *Campaign:* Leg202 * *Basis:* Joides Resolution * *Device:* Composite Core * *Comment:* 79 cores; 744.7 m cored; 151.5 m drilled; 103.5 % recovery

*License:* Creative Commons Attribution 3.0 Unported

*Size:* 7 datasets

**PANGAEA®**
**Data Publisher for Earth & Environmental Science**

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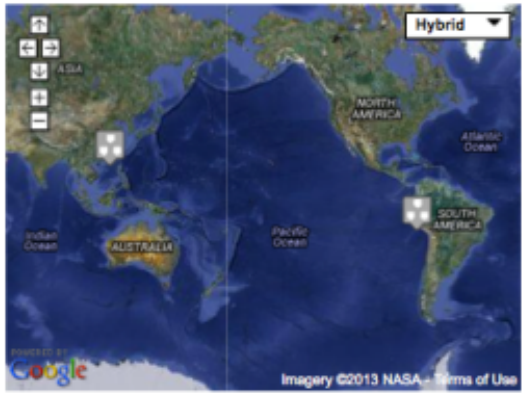
Always quote citation when using data!

**Data Description**

Show Map | Google Earth | RIS | BibTeX

*Citation:* Holbourn, AEL et al. (2005): Geochemistry and stable isotope record of benthic foraminifera of Miocene sediments. doi:10.1594/PANGAEA.738246,
*Supplement to:* **Holbourn, Ann E L; Kuhnt, Wolfgang; Schulz, Michael; Erlenkeuser, Helmut (2005):** Impacts of orbital forcing and atmospheric carbon dioxide on Miocene ice-sheet expansion. *Nature*, **438**, 483-487, doi:10.1038/nature04123




*Abstract:* The processes causing the middle Miocene global cooling, which marked the Earth's final transition into an 'icehouse' climate about 13.9 million years ago (Myr ago) (Flower and Kennett, 1993, doi:10.1029/93PA02196; 1995 doi:10.1029/95PA02022; Miller et al., 1991, doi:10.1029/90JB0201; Zachos et al., 2001, doi:10.1126/science.1059412), remain enigmatic. Tectonically driven circulation changes (Kennett, 1977, doi:10.1029/JC082i027p03843); Woodruff and Savin, 1991, doi:10.1029/91PA02561) and variations in atmospheric carbon dioxide levels (Raymo and Ruddimann, 1992, doi:10.1038/359117a0; Vincent and Berger, 1985) have been suggested as driving mechanisms, but the lack of adequately preserved sedimentary successions has made rigorous testing of these hypotheses difficult. Here we present high-resolution climate proxy records, covering the period from 14.7 to 12.7 million years ago, from two complete sediment cores from the northwest and southeast subtropical Pacific Ocean. Using new chronologies through the correlation to the latest orbital model (Laskar et al., 2004, doi:10.1051/0004-6361:20041335), we find relatively constant, low summer insolation over Antarctica coincident with declining atmospheric carbon dioxide levels at the time of Antarctic ice-sheet expansion and global cooling, suggesting a causal link. We surmise that the thermal isolation of Antarctica played a role in providing sustained long-term climatic boundary conditions propitious for ice-sheet formation. Our data document that Antarctic glaciation was rapid, taking place within two obliquity cycles, and coincided with a striking transition from obliquity to eccentricity as the drivers of climatic change.

*Project(s):* **Institute for Geosciences, Christian Albrechts University, Kiel** (GIK/IfG)
**Center for Marine Environmental Sciences** (MARUM)
**Ocean Drilling Program** (ODP)

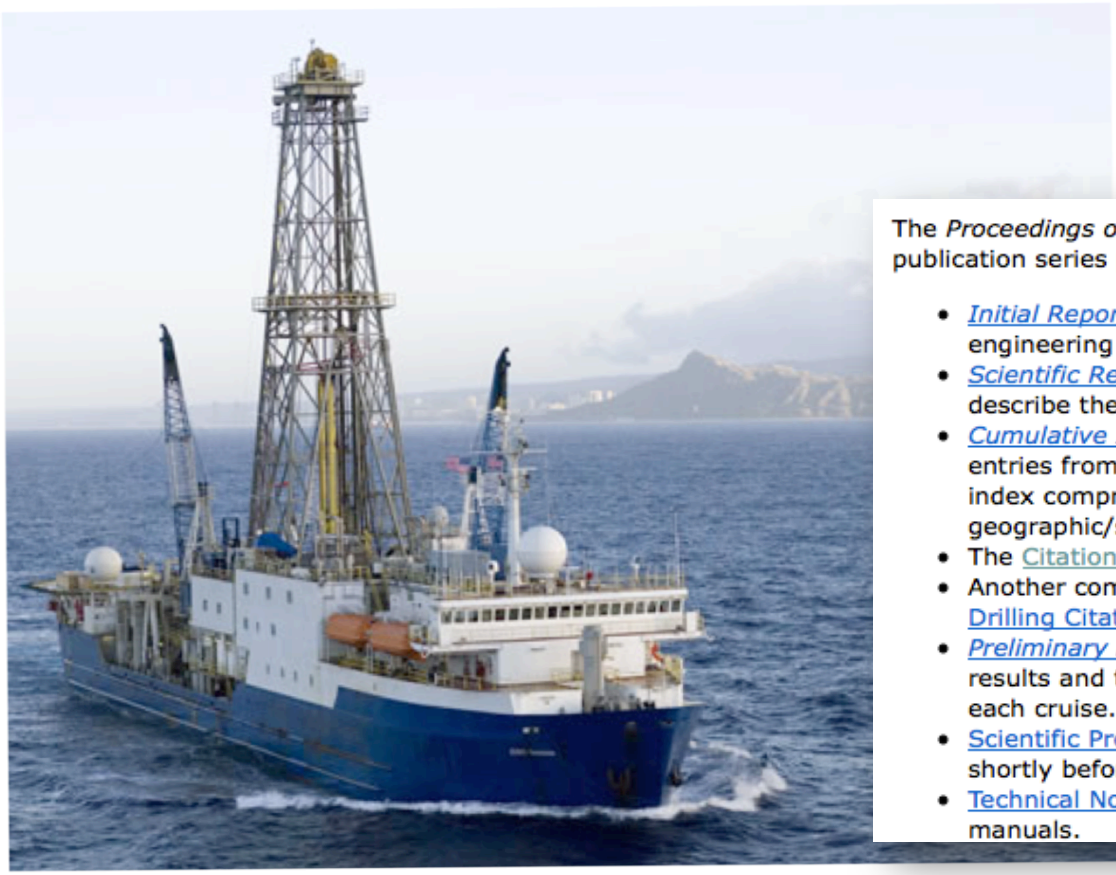
*Coverage:* *Median Latitude:* -0.808281 * *Median Longitude:* -148.099083 * *South-bound Latitude:* -16.007017 * *West-bound Longitude:* 116.272917 * *North-bound Latitude:* 19.456700 * *East-bound Longitude:* -76.378083
*Date/Time Start:* 1999-03-21T00:00:00 * *Date/Time End:* 2002-04-26T00:00:00

*Event(s):* **184-1146** * *Latitude:* 19.456700 * *Longitude:* 116.272917 * *Date/Time Start:* 1999-03-21T00:00:00 * *Date/Time End:* 1999-03-29T00:00:00 * *Elevation:* -2091.5 m * *Recovery:* 1451.70 m * *Penetration:* 1455.60 m * *Location:* South China Sea * *Campaign:* Leg184 * *Basis:* Joides Resolution * *Device:* Composite Core * *Comment:* 153 cores; 1450.6 m cored; 5 m drilled; 100.1% recovery
**202-1237** * *Latitude:* -16.007017 * *Longitude:* -76.378083 * *Date/Time:* 2002-04-26T00:00:00 * *Elevation:* 3212.3 m * *Recovery:* 771.00 m * *Penetration:* 896.20 m * *Location:* South Pacific Ocean * *Campaign:* Leg202 * *Basis:* Joides Resolution * *Device:* Composite Core * *Comment:* 79 cores; 744.7 m cored; 151.5 m drilled; 103.5 % recovery



*Size:* 7 datasets

http://doi.pangaea.de/10.1594/PANGAEA.738246



The *Proceedings of the Ocean Drilling Program* is a two-part publication series produced for each cruise comprised of:

- *Initial Reports:* A detailed summary of the scientific and engineering results from each leg.
- *Scientific Results:* A series of peer-reviewed papers that describe the results of shore-based studies related to a leg.
- *Cumulative Index:* A consolidated index that contains entries from all published ODP *Proceedings* indexes. This index comprises four separate indexes: subject, taxonomic, geographic/site, and author.
- The Citations include published or in press citations.
- Another comprehensive citation resource is the Ocean Drilling Citation Database.
- *Preliminary Reports* a summary of the shipboard scientific results and technical operations published shortly after each cruise.
- Scientific Prospectuses: a precruise plan that was published shortly before each cruise.
- Technical Notes: laboratory procedures and technical manuals.

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Always quote citation when using data!

Comment: 153 cores; 1450.6 m cored; 5 m drilled; 100.1% recovery

202-1237 * Latitude: -16.007017 * Longitude: -76.378083 * Date/Time: 2002-04-26T00:00:00 * Elevation: 3212.3 m * Recovery: 771.00 m * Penetration: 896.20 m * Location: South Pacific Ocean * Campaign: Leg202 * Basis: Joides Resolution * Device: Composite Core * Comment: 79 cores; 744.7 m cored; 151.5 m drilled; 103.5 % recovery

License: Creative Commons Attribution 3.0 Unported

Size: 7 datasets

http://doi.pangaea.de/10.1594/PANGAEA.738246



Photo credit: William Crawford, IODP/TAMU

# TYPOLOGIE

- Gene Expression Omnibus

| | |
|---|---|
| **Betreiber:** | National Center for Biotechnology Information (NCBI) der U.S. National Library of Medicine |
| **Disziplin:** | Biomedizin |
| **Mission:** | „a public functional genomics data repository supporting MIAME-compliant data submissions. Array- and sequence-based data are accepted. Tools are provided to help users query and download experiments and curated gene expression profiles.“ |
| **Zugangs-bedingungen:** | „Therefore, NCBI itself places no restrictions on the use or distribution of the data contained therein. Nor do we accept data when the submitter has requested restrictions on reuse or redistribution.“ |
| **Finanzierung:** | Betreiber |
| **Zitations-vorschlag:** | Beispiel: http://www.ncbi.nlm.nih.gov/geo/query/acc.cgi?acc=GSE33331 |

# TYPOLOGIE

- Gene Expression Omnibus

| | |
|---|---|
| **Betreibe** | ) der U.S. |
| **Disziplin** | |
| **Mission:** | ting<br>ence-based<br>uery and<br>profiles.“ |
| **Zugangs bedingu** | |
| **Finanzie** | |
| **Zitations vorschla** | =GSE33331 |

NCBI

GEO Gene Expression Omnibus

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NCBI > GEO > **Accession Display** Not logged in | Login

Scope: Self Format: HTML Amount: Quick GEO accession: GSE33331 GO

**Series GSE33331** Query DataSets for GSE33331

| | |
|---|---|
| Status | Public on Oct 31, 2011 |
| Title | Expression data from high grade astrocytoma surgical samples |
| Organism | Homo sapiens |
| Experiment type | Expression profiling by array |
| Summary | Survival in the majority of high grade astrocytoma (HGA) patients is very poor, with only a rare population of long-term survivors. A better understanding of the biological factors associated with long-term survival in HGA would aid development of more effective therapy and prognostication.<br>We used microarray gene expression profiling of 26 patient surgical samples with known clinical outcomes to discover novel prognostic markers. |
| Overall design | Gene expression profiles were generated from surgical tumor samples using Affymetrix HG-U133plus2 chips. All genes were correlated with survival as a continuous variable in order to identify ontologys associated with risk of recurrence. |
| Contributor(s) | Donson AM |
| Citation(s) | Donson AM, Birks DK, Schittone SA, Kleinschmidt-DeMasters BK et al. Increased immune gene expression and immune cell infiltration in high-grade astrocytoma distinguish long-term from short-term survivors. *J Immunol* 2012 Aug 15;189(4):1920-7. PMID: 22802421 |
| Submission date | Oct 30, 2011 |
| Last update date | May 17, 2013 |

# TYPOLOGIE

- Gene Expression Omnibus

**Betreibe** ) der U.S.

NCBI

GEO Gene Expression Omnibus

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NCBI > GEO > **Accession Display**

## Footnotes

This work was supported by the Morgan Adams Foundation and by National Institutes of Health Grant R01 CA140614-01A1.

The sequences presented in this article have been submitted to the Gene Expression Omnibus (http://www.ncbi.nlm.nih.gov/geo/) database under accession number GSE33331.

| | |
|---|---|
| Contributor(s) | Donson AM |
| Citation(s) | Donson AM, Birks DK, Schittone SA, Kleinschmidt-DeMasters BK et al. Increased immune gene expression and immune cell infiltration in high-grade astrocytoma distinguish long-term from short-term survivors. *J Immunol* 2012 Aug 15;189(4):1920-7. PMID: 22802421 |
| Submission date | Oct 30, 2011 |
| Last update date | May 17, 2013 |

# TYPOLOGIE

- GESIS – Datenarchiv für Sozialwissenschaften

| | |
|---|---|
| **Betreiber:** | GESIS - Leibniz-Institut für Sozialwissenschaften, Datenarchiv für Sozialwissenschaften |
| **Disziplin:** | Sozialwissenschaften |
| **Mission:** | „Die Abteilung „Datenarchiv für Sozialwissenschaften" bietet in erster Linie Datenservice zu nationalen und international-vergleichende Umfragen zu soziologischen und politikwissenschaftlichen Fragestellungen. Die Studien werden gemäß klar definierten methodisch-technischen Anforderungen akquiriert und sodann bedarfsorientiert gemäß international anerkannten Standards aufbereitet, archiviert und der wissenschaftlich interessierten Öffentlichkeit zugänglich gemacht." |
| **Zugangs-bedingungen:** | Diverse Zugangskategorien (0, A, B, C) |
| **Finanzierung:** | Betreiber und Drittmittelförderung (u.a. Datenmanagement) |
| **Zitations-vorschlag:** | Beispiel: http://dx.doi.org/doi:10.4232/1.0307 |

# TYPOLOGIE

- GE

## ZA0307: International Comparison of Taxation Mentality (Spain)

Bibliographic Citation | Content | Methodology | Data & Documents | Errata & Versions | Further Remarks | Publications

You have requested the DOI for the current version!

| | |
|---|---|
| Citation | *Schmölders, Günter (1965): International Comparison of Taxation Mentality (Spain). GESIS Data Archive, Cologne. ZA0307 Data file Version 1.0.0, doi:10.4232/1.0307* |
| Study No. | ZA0307 |
| Title | International Comparison of Taxation Mentality (Spain) |
| Current Version | 1.0.0, 2010-4-13, doi:10.4232/1.0307 (Publication Year 1965) |
| Date of Collection | 10.1965 - 11.1965 |
| Principal Investigator/ Authoring Entity, Institution | Schmölders, Günter - Forschungsstelle für empirische Sozialökonomik, Köln |
| Categories | Public Revenue |
| Topics | 8.2 Business / industrial management and organisation<br>17.5 Economic policy |

# TYPOLOGIE

- GE

**ZA0307: International Comparison of Taxation Mentality (Spain)**

Bibliographic Citation

Bibliographic Citation | Content | Methodology | Data & Documents | Errata & Versions | Further Remarks | Publications

| | |
|---|---|
| Dataset | Number of Units: 1024<br>Number of Variables: -<br>Data Type: Einfachlochung<br>Analysis System(s): - |
| Availability | C - Data and documents are only released for academic research and teaching after the data depositor's written authorization. For this purpose the Data Archive obtains a written permission with specification of the user and the analysis intention. |
| Download of Data and Documents | Questionnaires \| DDI Documents<br>Study Description in DDI format DDI-Codebook (2.5)<br>Study Description in DDI format DDI-Lifecycle (3.1) |

| | |
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| **Bet** | für |
| **Dis** | |
| **Mis** | n<br>n<br>cht." |
| **Zu bed** | |
| **Fin** | |
| **Zitations-vorschlag:** | Beispiel: http://dx.doi.org/doi:10.4232/1.0307 |

# TYPOLOGIE

- GESIS – Datenarchiv für Sozialwissenschaften

**ZA0307: International Comparison of Taxation Mentality (Spain)**

Bibliographic Citation | Content | Methodology | Data & Documents | Errata & Versions | Further Remarks | Publications

Publications

- Beichelt, Bernd; Biervert, Bernd; Daviter, Jürgen; Schmölders, Günter; Strümpel, Burkhard: Steuernorm und Steuerwirklichkeit, Bd.2: Steuermentalität und Steuerwirklichkeit in Großbritannien, Frankreich, Italien und Spanien. Köln: Westdeutscher Verlag 1969 (Forschungsberichte des Landes Nordrhein-Westfalen, No.2041)

| | |
|---|---|
| **Bet** | für |
| **Dis** | |
| **Mis** | akquiriert und sodann bedarfsorientiert gemäß international anerkannten Standards aufbereitet, archiviert und der wissenschaftlich interessierten Öffentlichkeit zugänglich gemacht.“ |
| **Zugangs-bedingungen:** | Diverse Zugangskategorien (0, A, B, C) |
| **Finanzierung:** | Betreiber |
| **Zitations-vorschlag:** | Beispiel: http://dx.doi.org/doi:10.4232/1.0307 |

# TYPOLOGIE

- Institutionelle Forschungsdaten-Repositorien
  - Beispiele:
    - Purdue University Research Repository (PURR), https://purr.purdue.edu
    - Open Data LMU, http://data.ub.uni-muenchen.de
    - MADATA – Mannheim Research Data Repository, http://madata.bib.uni-mannheim.de

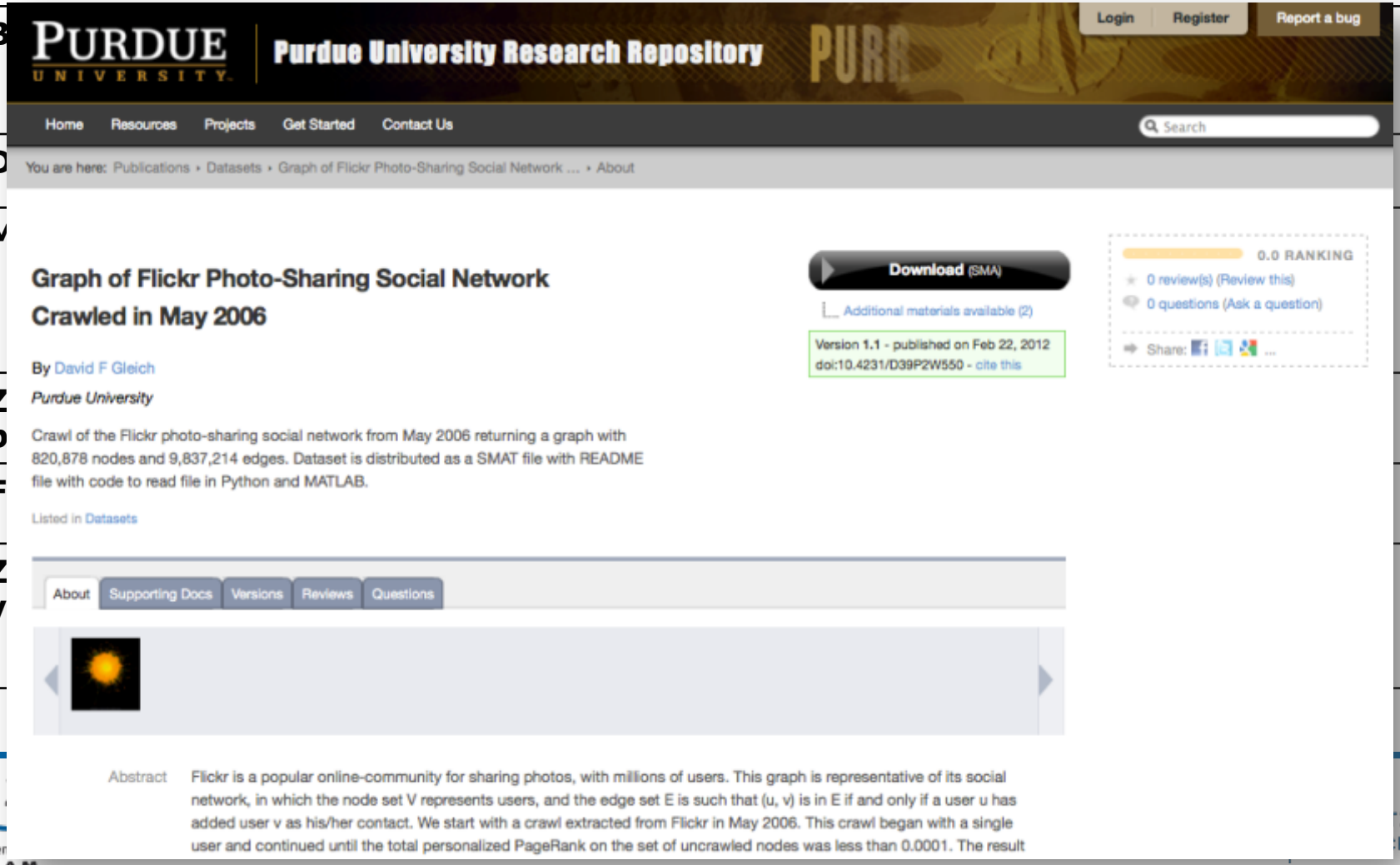
# TYPOLOGIE

- Purdue University Research Repository (PURR)

| | |
|---|---|
| **Betreiber:** | „PURR is a collaboration among the Purdue Libraries, the Office of the Vice President for Research, and Information Technology at Purdue (ITaP).“ |
| **Disziplin:** | Multidisziplinär (Fächer der Universität) |
| **Mission:** | „The Purdue University Research Repository (PURR) provides an online, collaborative working space and data-sharing platform to support the data management needs of Purdue researchers and their collaborators.“ |
| **Zugangs-bedingungen:** | CC0 |
| **Finanzierung:** | Institutionelle Förderung |
| **Zitations-vorschlag:** | Beispiel: http://dx.doi.org/10.4231/D39P2W550 |

# TYPOLOGIE

- Purdue University Research Repository (PURR)



# TYPOLOGIE

- Open Data LMU

| | |
|---|---|
| **Betreiber:** | Universitätsbibliothek der Ludwig-Maximilians-Universität München |
| **Disziplin:** | Multidisziplinär (Fächer der Universität) |
| **Mission:** | „Die Universitätsbibliothek stellt mit Open Data LMU eine Plattform für die Veröffentlichung von Forschungsdaten bereit. Wissenschaftler/innen aller Fakultäten der LMU sowie von Institutionen, die mit der LMU kooperieren, sind eingeladen, ihre Forschungsdaten auf dieser Plattform abzulegen, um sie [...] der Allgemeinheit zur Verfügung zu stellen.“ |
| **Zugangs-bedingungen:** | u.a. Public Domain Dedication and License (PDDL) |
| **Finanzierung:** | Institutionelle Förderung |
| **Zitations-vorschlag:** | Beispiel: http://dx.doi.org/10.5282/ubm/data.55 |

# TYPOLOGIE

- Open Data LMU

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN UNIVERSITÄTSBIBLIOTHEK UB

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Anmelden | Registrieren

**Zitation:** Open Data LMU: Nosenko, Tetyana; Schreiber, Fabian; Adamska, Maja; Adamski, Marcin; Eitel, Michael; Hammel, Jörg; Maldonado, Manuel; Müller, Werner; Nickel, Michael; Schierwater, Bernd; Vacelet, Jean; Wiens, Matthias und Wörheide, Gert (2013): *Additional data to: Deep metazoan phylogeny: When different genes tell different stories*, doi:10.5282/ubm/data.55

Anderes (Supermatrices)
449Kb

Anderes (Tree Files (Newick Format))
5Kb

Anderes (Information about Supermatrices)
3895b

DOI: http://dx.doi.org/10.5282/ubm/data.55

**Beschreibung**

Molecular phylogenetics resulted in a plethora of controversial hypotheses about the early diversification of non-bilaterian animals. To date, increasing the amount of DNA sequence data analyzed has been insufficient to resolve these relationships unequivocally. To unravel the causes for the patterns of extreme inconsistencies at the base of the metazoan tree of life, we constructed a novel supermatrix containing 122 genes, enriched with new non-bilaterian taxa. Comparative analyses of two non-overlapping multi-gene partitions of this dataset revealed conflicting phylogenetic signals. We show that gene sampling correlates with levels of saturation and

# TYPOLOGIE

- MADATA – Mannheim Research Data Repository

| | |
|---|---|
| **Betreiber:** | Universitätsbibliothek Mannheim |
| **Disziplin:** | Multidisziplinär (Fächer der Universität) |
| **Mission:** | „The Research Data Repository of the University of Mannheim invites all researchers and faculty of the University of Mannheim to archive their research data here in order to make it accessible through the Internet. All archived data sets receive DOIs ( Digital Object Identifier) to make them accessible and citable. Using this repository is free of charge.“ |
| **Zugangs-bedingungen:** | u.a. Creative Commons Lizenzen (Empfehlung CC-0) |
| **Finanzierung:** | Institutionelle Förderung |
| **Zitations-vorschlag:** | Beispiel: http://dx.doi.org/10.7801/28 |

# TYPOLOGIE

- MADATA – Mannheim Research Data Repository

**Benutzerumfrage der Universitätsbibliothek Mannheim 2012 - Fragebogen und Antwortdaten**

| | |
|---|---|
| **Item Type:** | Dataset |
| **Title:** | Benutzerumfrage der Universitätsbibliothek Mannheim 2012 - Fragebogen und Antwortdaten |
| **Alternative Title:** | Survey of the Mannheim University Library 2012 - questionnaire and results |
| **Creator :** | Schumm, Irene |
| **Divisions:** | Zentrale Einrichtungen > UB Universitätsbibliothek |

| | |
|---|---|
| **DDC Classification:** | 020 Library and information sciences<br>650 Management |
| **Keywords:** | library user survey, Benutzerumfrage, Universitätsbibliothek |
| **Abstract:** | Zwischen dem 12.3.2012 und dem 8.4.2012 führte die Universitätsbibliothek Mannheim eine Online-Benutzerumfrage durch. Der Umfragebogen wurde mit Hilfe der Software Limesurvey auf Deutsch und auf Englisch umgesetzt und im Internet frei zugänglich gemacht. Umfrageteilnehmer konnten an einem Gewinnspiel teilnehmen, bei dem Spirit-T-Shirts und Musik-CDs der Universität Mannheim aus dem Campus-Shop der Universität Mannheim, Eintrittskarten für die Reiss-Engelhorn-Museen, Eintrittskarten für das NATIONALTHEATER MANNHEIM, ein Tablet-PC als Hauptpreis sowie - in drei Zwischenverlosungen - Eintrittskarten für das TECHNOSEUM verlost wurden. Die Umfrage wurde beworben über das Blog und den Newsletter der Universitätsbibliothek, Fakultätsnewsletter, Newsletter an alle Studierende, Plakate, Flyer, Bibliotheksmitarbeiter sowie Quittungsausdrucke der UB. Der Fragebogen ist als PDF-Datei hinterlegt, aus der auch die bedingten Fragen ersichtlich werden. Der Antwortdatensatz ist als csv-Datei hinterlegt und enthält die Daten der 1.802 Teilnehmer, welche die Umfrage vollständig abgeschlossen haben. Vorgegebene, codierte Antworten sind sofort abrufbar. Die gestellten Fragen samt Antwortmöglichkeit sind spaltenweise hinterlegt. In den verschiedenen Zeilen schließlich sind die gegebenen Antworten dokumentiert, die als Skalenwerte vorgegeben waren. Bei Multiple-Choice-Fragen sind die ausgewählten Optionen mit "Ja" codiert, die nicht ausgewählten Optionen dagegen mit "keine Angabe". Bei kontextabhägen Fragen ist als Antwort stets "NA" hinterlegt, wenn diese dem Teilnehmer nicht angezeigt wurden. Freie Kommentare können dagegen nur eingeschränkt zugänglich gemacht werden, bei Interesse wenden Sie sich bitte an die angegebene Kontaktperson. |

| | |
|---|---|
| **URI:** | https://madata.bib.uni-mannheim.de/id/eprint/28 |
| **DOI:** | 10.7801/28 |

# TYPOLOGIE

- Projektspezifische Forschungsdaten-Repositorien
  - Beispiele:
    - Scientific Drilling Database, http://www.scientificdrilling.org
    - The Bern Digital Pantheon Project, http://www.digitalpantheon.ch/repository

# TYPOLOGIE

- Scientific Drilling Database (Version 1)

| | |
|---|---|
| **Betreiber:** | Helmholtz-Zentrum Potsdam, Deutsches GeoForschungsZentrum GFZ |
| **Disziplin:** | Erd- und Umweltwissenschaften |
| **Mission:** | „With the online Scientific Drilling Database (SDDB; http://www.scientificdrilling.org), ICDP and GeoForschungsZentrum Potsdam (GFZ), Germany created a platform for the public dissemination of drilling data. “ |
| **Zugangs-bedingungen:** | CC-BY |
| **Finanzierung:** | Betreiber und Drittmittelförderung |
| **Zitations-vorschlag:** | Beispiel: http://doi.pangaea.de/10.1594/PANGAEA.735745 |

# TYPOLOGIE

- Scientific Drilling Database (Version 1)

Scientific Drilling Database

Data from Deep Earth Sampling and Monitoring

Citation: Heim, Birgit; Oberhänsli, Hedi; Fietz, Susanne; Kaufmann, Hermann; (2006): The relationship between concentrations of chl-a calculated from SeaWiFS OC2 and chl-a calculated determined from ground truth measurements during field expeditions in Lake Baikal during 2001 and 2002. *Scientific Drilling Database*. doi:10.1594/GFZ.SDDB.1043

Download Citation (EndNote)

Related Publications:

- Birgit Heim, Hedi Oberhaensli, Susanne Fietz and Hermann Kaufmann, Variation in Lake Baikal's phytoplankton distribution and fluvial input assessed by SeaWiFS satellite data, Global and Planetary Change, Volume 46, Issues 1-4, Progress towards reconstruct doi:10.1016/j.gloplacha.2004.11.011

considerable chl-a overestimation caused by the influences of terrigenous input in case 2 waters.

Show in Google Earth

Related Publications:

- Birgit Heim, Hedi Oberhaensli, Susanne Fietz and Hermann Kaufmann, Variation in Lake Baikal's phytoplankton distribution and fluvial input assessed by SeaWiFS satellite data, Global and Planetary Change, Volume 46, Issues 1-4, Progress towards reconstruct doi:10.1016/j.gloplacha.2004.11.011

Activities: CON01-501-1

Latidude: 52.6667 °N

# TYPOLOGIE

- Scientific Drilling Database (Aktuelle Version)

| | |
|---|---|
| **Betreiber:** | Helmholtz-Zentrum Potsdam, Deutsches GeoForschungsZentrum GFZ |
| **Disziplin:** | Erd- und Umweltwissenschaften |
| **Mission:** | „DOIDB Metadata Search is an instance of the DataCite Metadata Search that allows to search the datasets registered at DataCite through DOIDB Service that is hosted at GFZ Potsdam.“ |
| **Zugangs-bedingungen:** | CC-BY |
| **Finanzierung:** | Betreiber und Drittmittelförderung |
| **Zitations-vorschlag:** | Beispiel: http://dx.doi.org/10.1594/GFZ.SDDB.1043 |

# TYPOLOGIE

GFZ
Helmholtz Centre
POTSDAM

Helmholtz Centre Potsdam
GFZ GERMAN RESEARCH CENTRE
FOR GEOSCIENCES

HELMHOLTZ
ASSOCIATION

**Dataset Description** Google Maps | Search Datasets

**Cite as** Fietz, Susanne; Heim, Birgit; Oberhänsli, Hedi; Kaufmann, Hermann (2006): The relationship between concentrations of chl-a calculated from SeaWiFS OC2 and chl-a calculated determined from ground truth measurements during field expeditions in Lake Baikal during 2001 and 2002. Deutsches GeoForschungsZentrum GFZ. http://dx.doi.org/10.1594/GFZ.SDDB.1043

**Abstract** Values of measured chlorophyll (HPLC=High Pressure Liquid Chromatography) are the mean concentrations of each sampling point from 5 to 30 m depth. For the OC2 chl-a calculations, the least clouded acquisitions in 2001 (2001/07/19) and 2002 (2002/07/20) were chosen. Note the considerable chl-a overestimation caused by the influences of terrigenous input in case 2 waters.

**Supplement to** Birgit Heim, Hedi Oberhaensli, Susanne Fietz and Hermann Kaufmann, Variation in Lake Baikal's phytoplankton distribution and fluvial input assessed by SeaWiFS satellite data, Global and Planetary Change, Volume 46, Issues 1-4, Progress towards reconstruct (http://dx.doi.org/10.1016/j.gloplacha.2004.11.011)

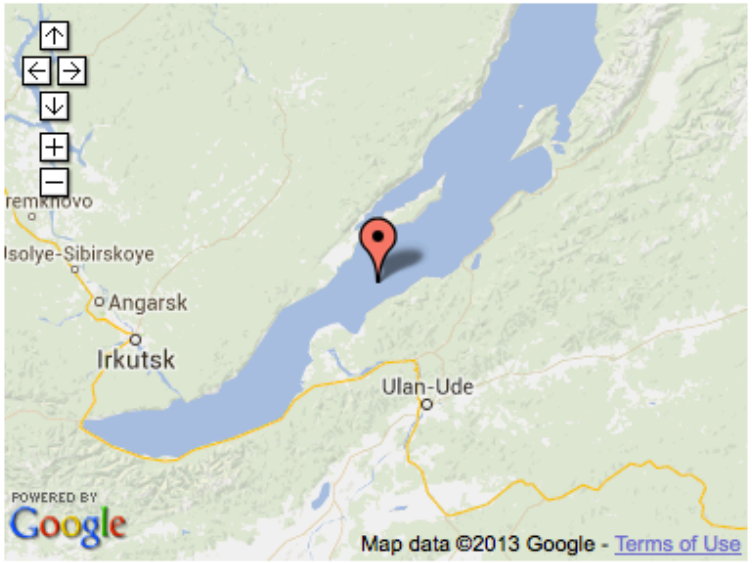
**Location** Latitude: 52.6667 Longitude: 107

**Keywords** Terrestrical Hydrosphere, Water Quality/Water Chemistry, Surface Water, HPLC chl-a concentration, OC2 chlorophyll-a concentration

**Licence** cc-by

**Data** data.csv 7160 Bytes

**Metadata** datacite
dif
escidoc



# TYPOLOGIE

- The Bern Digital Pantheon Project

| | |
|---|---|
| **Betreiber:** | Humboldt Universität zu Berlin, Lehrstuhl für Wissenschaftsgeschichte der Antike, Exzellenzcluster 264 TOPOI |
| **Disziplin:** | Archäologie, Architektur und Kunstgeschichte |
| **Mission:** | „The Bern Digital Pantheon Project was originally instigated in 2005 by Gerd Graßhoff as a pilot project of the Karman Center for Advanced Studies in the Humanities in Bern, Switzerland, hence its name. In October 2010 the project has moved to Berlin and is now continued within the cluster of excellence "Topoi" (www.topoi.org) which is devoted to the study of the formation and transformation of space and knowledge in ancient civilizations.“ |
| **Zugangs-bedingungen:** | Eigene Lizenz |
| **Finanzierung:** | Betreiber und Drittmittelförderung |
| **Zitations-vorschlag:** | Beispiel: http://www.digitalpantheon.ch/BDPP0009 |

# TYPOLOGIE

- The Bern Digital Pantheon Project

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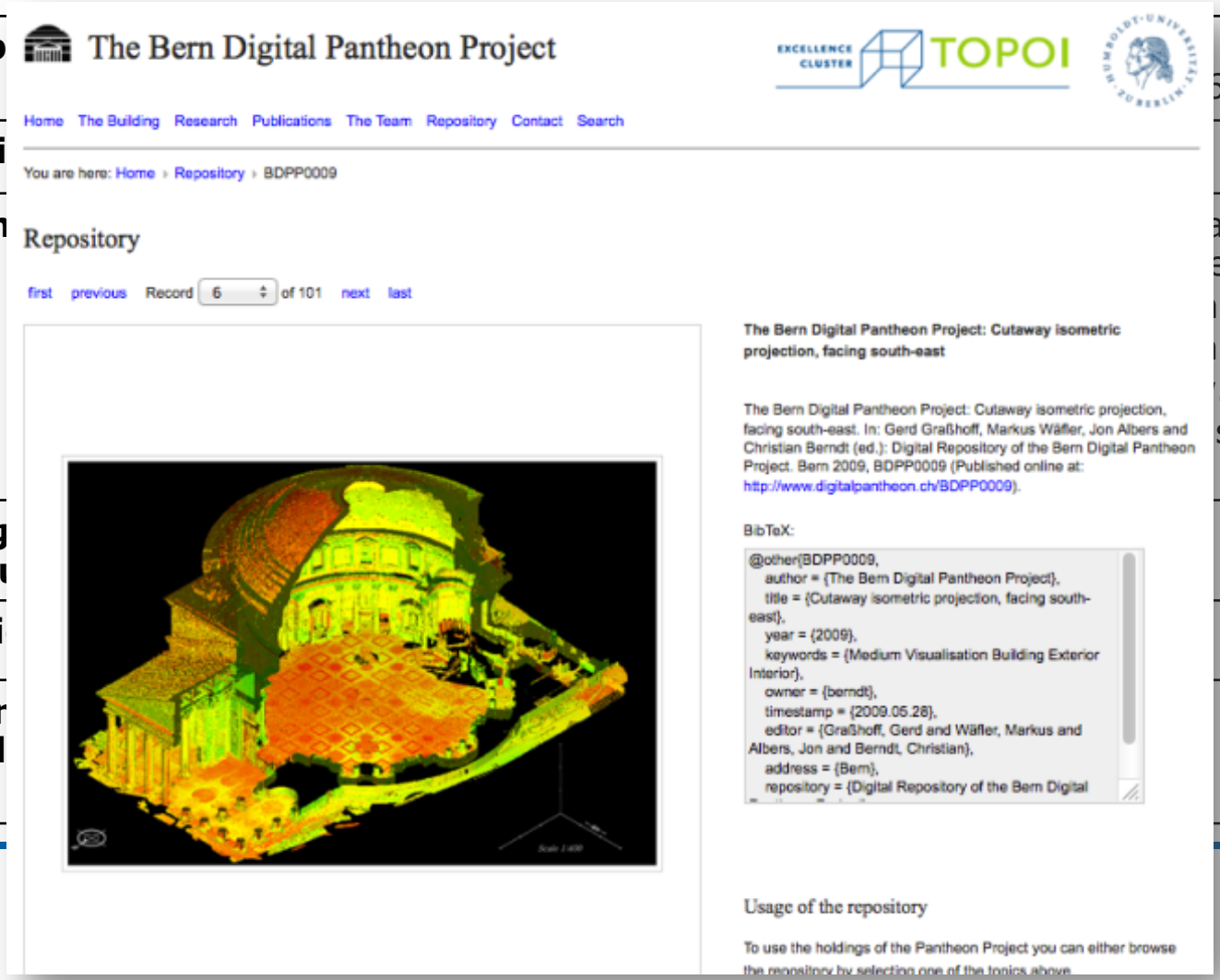
|---|---|
| **Betreib** | 54 TOPOI |
| **Diszipli** | |
| **Mission** | ated in 2005<br>er for<br>d, hence its<br>and is now<br>.topoi.org)<br>sformation |
| **Zugang bedingu** | |
| **Finanzi** | |
| **Zitation vorschl** | |



# TYPOLOGIE

- Multidisziplinäre (Forschungsdaten-)Repositorien
  - Beispiele:
    - Figshare, http://figshare.com
    - ZENODO, https://zenodo.org

# TYPOLOGIE

- Figshare

| | |
|---|---|
| **Betreiber:** | Digital Science (Macmillan Publishers) |
| **Disziplin:** | Multidisziplinär |
| **Mission:** | „figshare is a repository where users can make all of their research outputs available in a citable, sharable and discoverable manner.“ |
| **Zugangs-bedingungen:** | CC-BY (figures, media, posters, papers, filesets) und CC0 (datasets) |
| **Finanzierung:** | |
| **Zitations-vorschlag:** | Beispiel: http://dx.doi.org/10.6084/m9.figshare.701525 |

# TYPOLOGIE

- Figs

| | |
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| **Betre** | |
| **Diszi** | |
| **Missi** | esearch<br>nner.“ |
| **Zuga bedi** | |
| **Finar** | |
| **Zitati vors** | |

**Data accompanying PLOS ONE article: "The Predictive Nature of Pseudoneglect for Visual Neglect: Evidence from Parietal Theta Burst Stimulation", by Alice Varnava, Martynas Dervinis, and Christopher D. Chambers. School of Psychology, Cardiff University.**

| | A |
|---|---|
| 1 | NOTES AND LEGENDS FOR DATA AND ANALYSES |
| 2 | |
| 3 | The data and analyses layed out in this workbook are associated with the following |
| 4 | "The Predictive Nature of Pseudoneglect for Visual Neglect: Evidence from Parieta |
| 5 | DOI: 10.1371/journal.pone.0065851 |
| 6 | AUTHORS: Alice Varnava; Martynas Dervinis; Christopher Chambers. |
| 7 | CORRESPONDING AUTHOR: Alice Varnava. VarnavaA@Cardiff.ac.uk |
| 8 | |

Legend | Subject Details | Raw Data | Correlation - Fig.4a&b | Consis

Enlarge | Download

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Cite this: Data accompanying PLOS ONE article: "The Predictive Nature of Pseudoneglect for Visual Neglect: Evidence from Parietal Theta Burst Stimulation", by Alice Varnava, Martynas Dervinis, and Christopher D. Chambers. School of Psychology, Cardiff University.. Alice Varnava, Chris Chambers. figshare. http://dx.doi.org/10.6084/m9.figshare.701525

64 views | 4 shares | cites coming soon

Published on 13 May 2013 - 11:03 (GMT)
Filesize is 929.45 KB

**Categories**

- Mental Health
- Behavioral neuroscience

**Authors**

Alice Varnava
Chris Chambers

**Tags**

- pseudoneglect
- unilateral neglect
- selective attention
- parietal cortex
- transcranial magnetic stimulat...

**Export**

# TYPOLOGIE

- ZENODO

| | |
|---|---|
| **Betreiber:** | CERN – European Organization for Nuclear Research |
| **Disziplin:** | Multidisziplinär |
| **Mission:** | „ZENODO builds and operate a simple and innovative service that enables researchers, scientists, EU projects and institutions to share and showcase multidisciplinary research results (data and publications) that are not part of the existing institutional or subject-based repositories of the research communities.“ |
| **Zugangs-bedingungen:** | Diverse Lizenzen |
| **Finanzierung:** | EU (OpenAIREplus) |
| **Zitations-vorschlag:** | Beispiel: http://dx.doi.org/10.5281/ZENODO.1239 |

# TYPOLOGIE

- zenodo — Research. Shared.

Search | Communities | Browse | Upload | Get started | Email | Password | Sign in

Home / Datasets / Publication FP7 Funding Acknowledgment - PLOS OpenAIRE

03 April 2013 — Dataset — Open access

## Publication FP7 Funding Acknowledgment - PLOS OpenAIRE

Jahn, Najko ; Fenner, Martin ; Dimitropoulos, Harry ; Schirrwagen, Jochen

(show affiliations)

The dataset contains a sample of metadata describing papers published in PLOS and their identified grant agreement number of FP7 projects. A second file shows the frequency of FP7 grants. The sample was created in July 2012.

Files

| Name | Date | Size | |
|---|---|---|---|
| dataset_plosopenr.zip | 03 Apr 2013 | 624.45 KB | Download |

**Publication date:**
03 April 2013
**DOI:**
10.5281/ZENODO.1239
**Report number(s):**
OpenAIRE-OPENAIRE-2013-001
**Keyword(s):**
Article-Level Metrics, Data mining, Statistical Computing Language R, funded research publications
**Publisher:**
OpenAIRE Orphan Record Repository
**Grants:**
OPENAIRE - Open Access Infrastructure for Research in Europe (246686)
**Collections:**

# TYPOLOGIE

- Portale, die verteile Datensammlungen zugänglich machen
  - Beispiele:
    - Council of European Social Science Data Archives (CESSDA), http://www.cessda.org/accessing/catalogue/
    - CEH Information Gateway, http://www.ceh.ac.uk/CEHInformationGateway.html

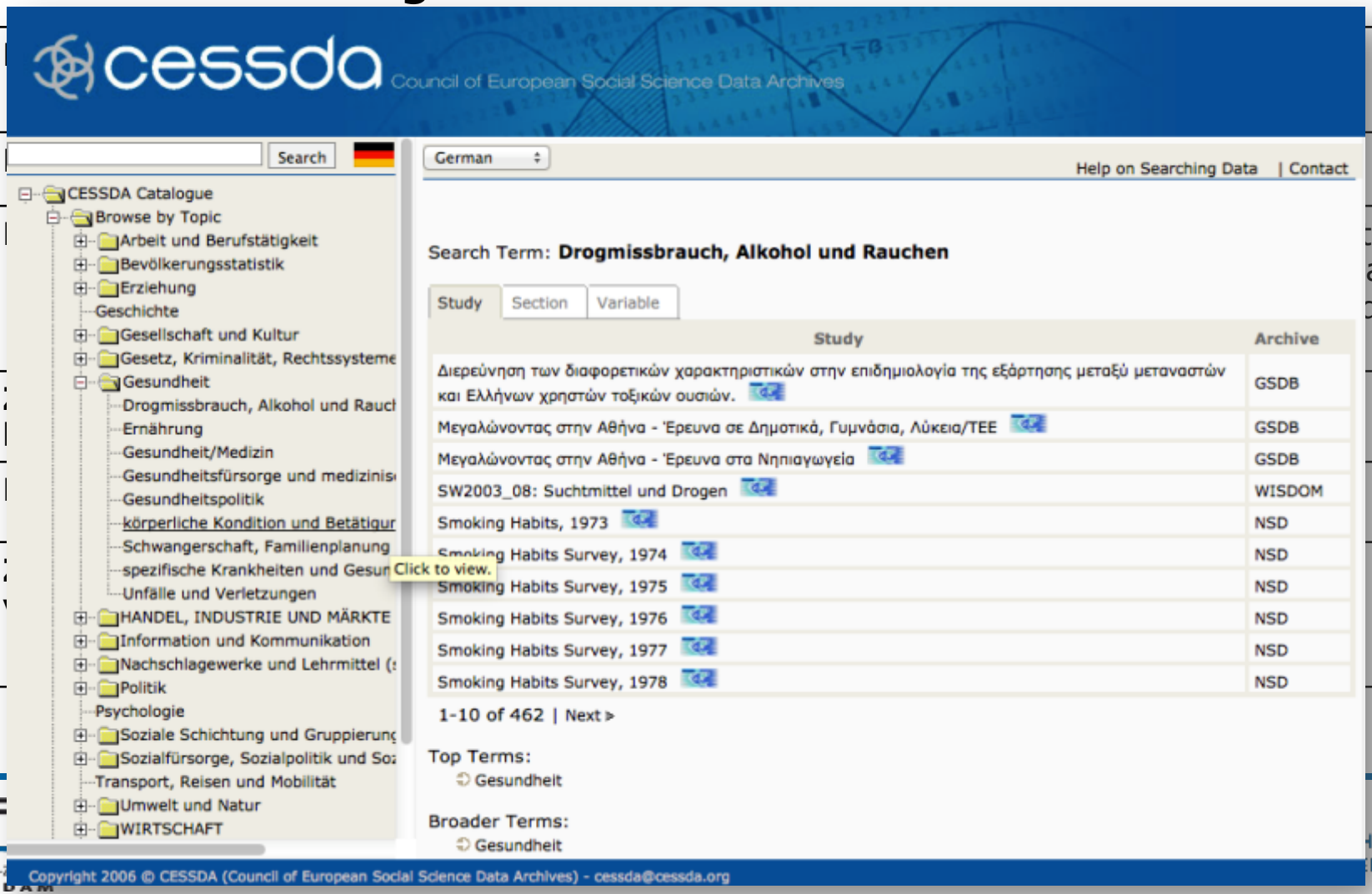
# TYPOLOGIE

- CESSDA Catalogue

| | |
|---|---|
| **Betreiber:** | CESSDA (Council of European Social Science Data Archives),<br>16 CESSDA Data Publishers (u.a. DANS, WISDOM, GESIS) |
| **Disziplin:** | Sozialwissenschaften |
| **Mission:** | „The CESSDA Catalogue provides a seamless interface to datasets and variables within a selection of datasets from social science data archives across Europe. Search instructions and tips are provided below.“ |
| **Zugangs-bedingungen:** | - |
| **Finanzierung:** | - |
| **Zitations-vorschlag:** | - |

# TYPOLOGIE

- CESSDA Catalogue



# TYPOLOGIE

- CEH Information Gateway

| | |
|---|---|
| **Betreiber:** | CEH's Environmental Information Data Centre und andere Datenzentren in Großbritannien |
| **Disziplin:** | Erd- und Umweltwissenschaften |
| **Mission:** | „The CEH Information Gateway provides researchers and the wider public with access to a wide range of environmental data. Created by CEH's Environmental Information Data Centre (EIDC), the CEH Information Gateway allows users to find, view and access data resources held by the EIDC and other data providers in the UK and beyond. “ |
| **Zugangs-bedingungen:** | - |
| **Finanzierung:** | - |
| **Zitations-vorschlag:** | - |

# TYPOLOGIE

- CEH Information Gateway

# TYPOLOGIE

- Frage: Auf welchem der vorgestellten Repositorien-Typen würden Sie Ihre Forschungsdaten zugänglich machen?
  - Disziplinäre Forschungsdaten-Repositorien
  - Institutionelle Forschungsdaten-Repositorien
  - Projektspezifische Forschungsdaten-Repositorien
  - Multidisziplinäre Forschungsdaten-Repositorien
  - Portale, die verteile Datensammlungen zugänglich machen

# AGENDA

- Relevanz
- Rahmenbedingungen
- Typologie
- **Definition**
- Aspekte
- Verankerung in der Community
- re3data.org
- Ausblick

# DEFINITION

- Spannungsfeld: Anspruch – Wirklichkeit

  - „Research Data Infrastructures can be defined as **managed networked environments for digital research data consisting of services and tools that support**: (i) the **whole research cycle**, (ii) the movement of research data **across scientific disciplines**, (iii) the creation of **open linked data spaces** by connecting data sets from diverse disciplines, (iv) the management of **scientific workflows**, (v) the **interoperation between** research **data** and **literature** and (vi) an integrated Science **Policy** Framework.“

GRDI2020. (2012). GRDI2020 Final Roadmap Report. Global Research Data Infrastructures: The Big Data Challenges. Retrieved from http://www.grdi2020.eu/Repository/FileScaricati/e2b03611-e58f-4242-946a-5b21f17d2947.pdf

# DEFINITION

- Zentrale Herausforderung:
  - „Research data infrastructures must provide some network-enabled **"support services"** in order to achieve the conditions needed to facilitate effective collaboration among spatially and institutionally separated communities of research." (GRDI2020, 2012)

GRDI2020. (2012). GRDI2020 Final Roadmap Report. Global Research Data Infrastructures: The Big Data Challenges. Retrieved from http://www.grdi2020.eu/Repository/FileScaricati/e2b03611-e58f-4242-946a-5b21f17d2947.pdf

# DEFINITION

- Zentrale Herausforderung:

- „The three main challenges in developing an **ecosystem of data repositories** are (1) **gaps** in the present data infrastructure and (2) **connectivity issues** (between the workflow of researchers and the institutional data infrastructure and between institutional and national data infrastructures) and (3) **long-term financial basis**."

Van der Graaf, M., & Waaijers, L. (2011). A Surfboard for Riding the Wave. Towards a four country action programme on research data. Retrieved from http://www.knowledge-exchange.info/Admin/Public/DWSDownload.aspx?File=/Files/Filer/downloads/Primary+Research+Data/Surfboard+for+Riding+the+Wave/KE_Surfboard_Riding_the_Wave_Screen.pdf

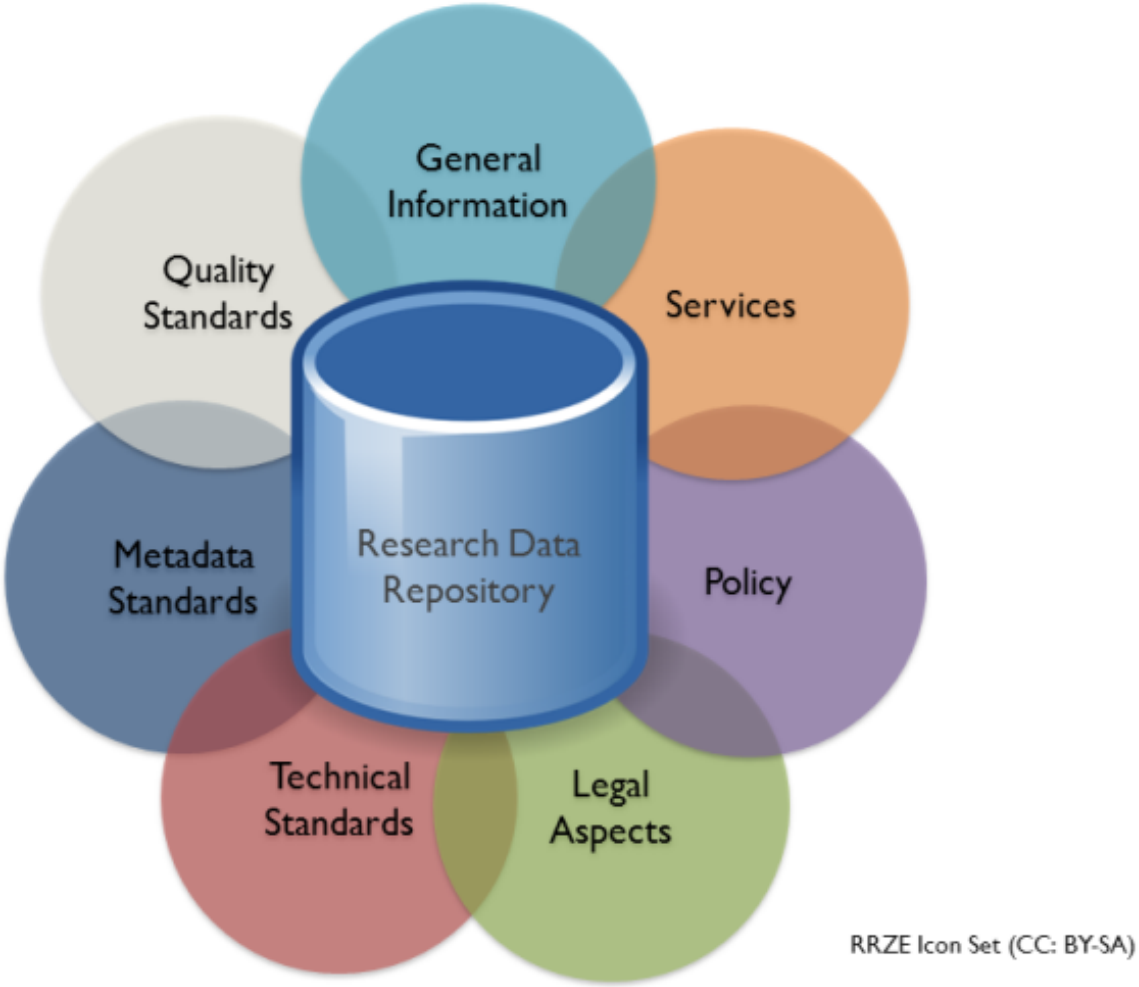
# DEFINITION

- Digitale Forschungsdaten-Repositorien sind Informationsinfrastrukturen, die digitale Forschungsdaten möglichst dauerhaft - anhand den Anforderungen der jeweiligen Nutzergruppe – speichern und organisieren um die Auffindbarkeit und Zugänglichkeit der Daten zu sichern.
- Forschungsdaten-Repositorien werden durch disziplinäre Anforderungen geprägt (z.B. Form und Format der Daten).
- Die Funktionalitäten und Dienstleistungen der Forschungsdaten-Repositorien variieren stark.
- Zu unterscheiden sind Small-Data- und Big-Data-Ansätze.
- Der Prozess der Standardisierung steht erst am Anfang.
- Die Schaffung einer vernetzten Forschungsdaten-Infrastruktur ist eine Herausforderung für das weltweite Wissenschaftssystem.
- Viele Fragen rund um den Betrieb sind ungelöst.

# AGENDA

- Relevanz
- Rahmenbedingungen
- Typologie
- Definition
- **Aspekte**
- Verankerung in der Community
- re3data.org
- Ausblick

# ASPEKTE






Pampel, H., Goebelbecker, H.-J., & Vierkant, P. (2012). re3data.org: Aufbau eines Verzeichnisses von Forschungsdaten-Repositorien. Ein Werkstattbericht. In B. Mittermaier (Ed.), Vernetztes Wissen – Daten, Menschen, Systeme. WissKom 2012 (pp. 61–73). Jülich: Verlag des Forschungszentrums Jülich. Retrieved from http://hdl.handle.net/2128/4699

# SERVICES

- Daten-Upload
  - Unterstützung bei der Metadaten-Vergabe
    - Import- und Export der Metadaten
    - Thesauri, Klassifikationen und Schlagwörter
  - Vergabe von persistenten Identifikatoren
  - Verknüpfungen zu Identifikatoren
    - z.B.: ORCID, FundRef, CrossRef, DataCite
  - Vergabe von disziplinären Akzessionsnummern
    - z.B. GenBank Accession numbers
  - Unterstützung institutioneller/disziplinärer Lösungen
    - z.B. LDAP-Unterstützung

# SERVICES

- Daten-Upload
  - Unterstützung bei der Metadaten-Vergabe
    - Import- und Export der Metadaten
    - Thesauri, Klassifikationen und Schlagwörter
  - Vergabe von persistenten Identifikatoren
  - **Verknüpfungen zu Identifikatoren**
    - z.B.: ORCID, FundRef, CrossRef, DataCite
  - Vergabe von disziplinären Akzessionsnummern
    - z.B. GenBank Accession numbers
  - Unterstützung institutioneller/disziplinärer Lösungen
    - z.B. LDAP-Unterstützung

# SERVICES

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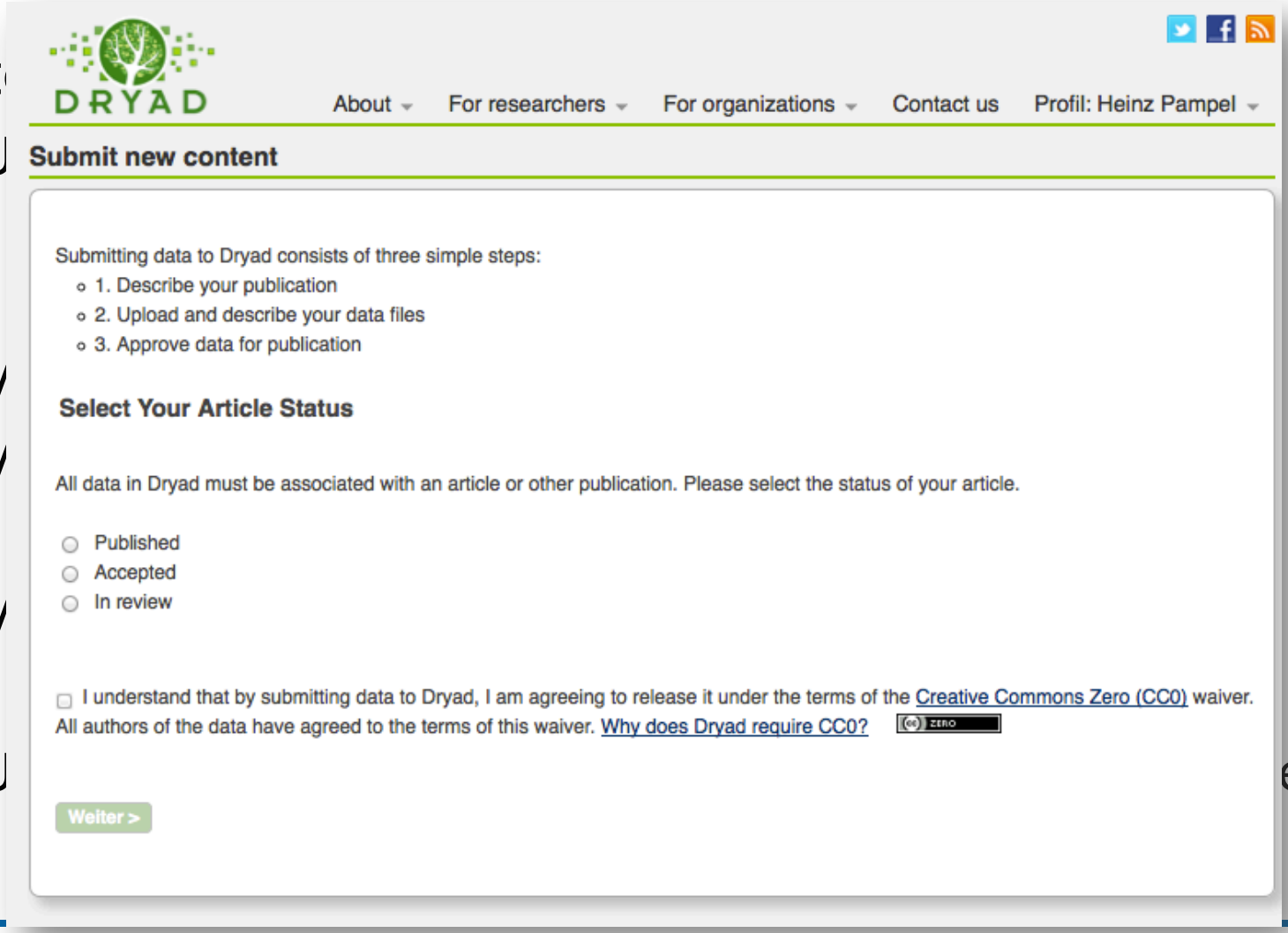


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# SERVICES

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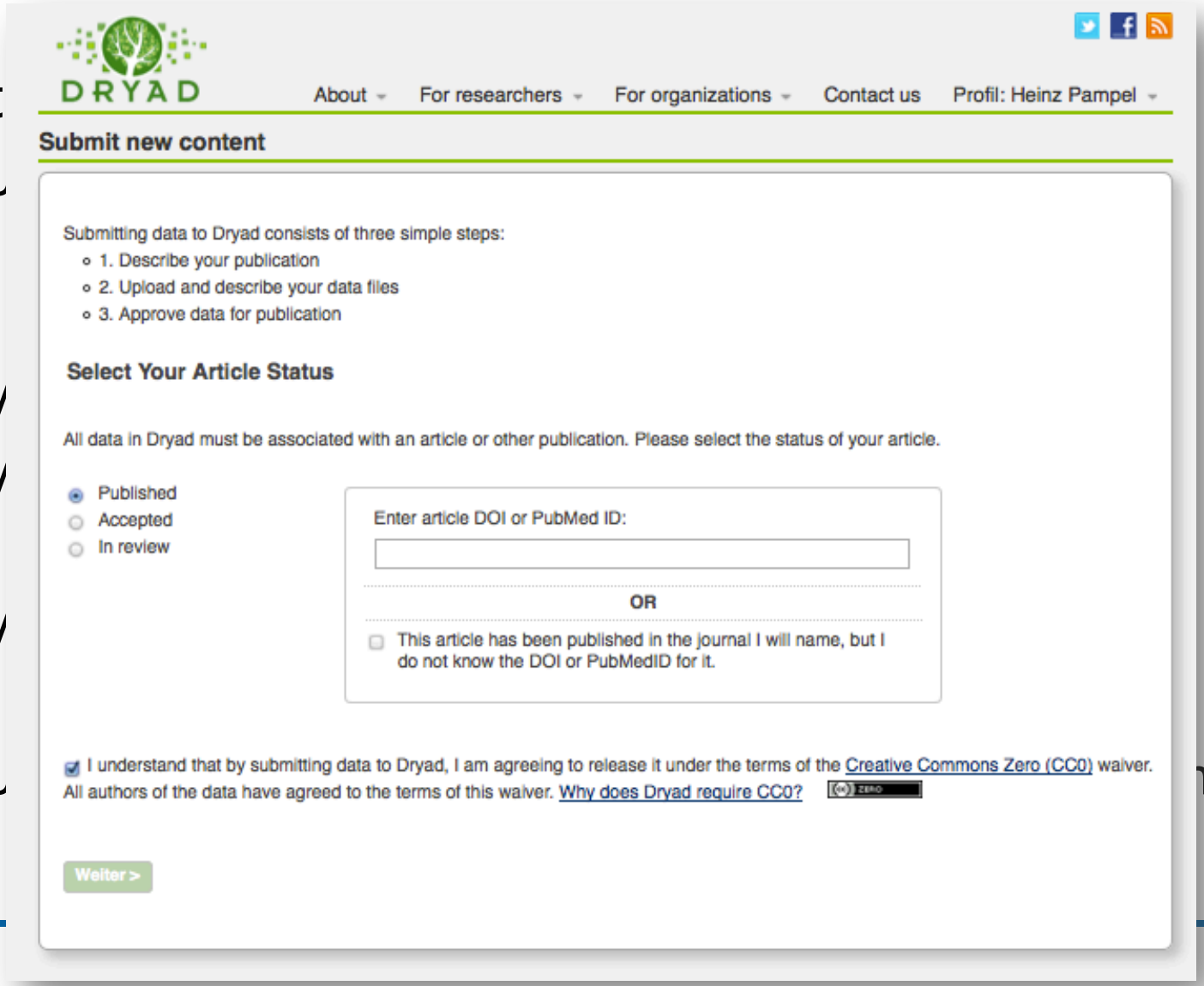


ngen

# SERVICES

- Daten-Download
  - Import- und Export der Metadaten
  - Zitationsvorschläge
- Referenz zu Text-Publikationen
- Kommentierungs- und Bewertungsfunktionen
- Metriken
- Social-Media-Funktionen
- Nachweis in Suchdiensten (z.B. Google Scholar)
- **Kooperationen mit Zeitschriften und Verlagen**
  - Cross-Referenzierung: Artikel und Daten

# SERVICES

- D
- R
- K
- M
- S
- N
- **K**

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# SERVICES

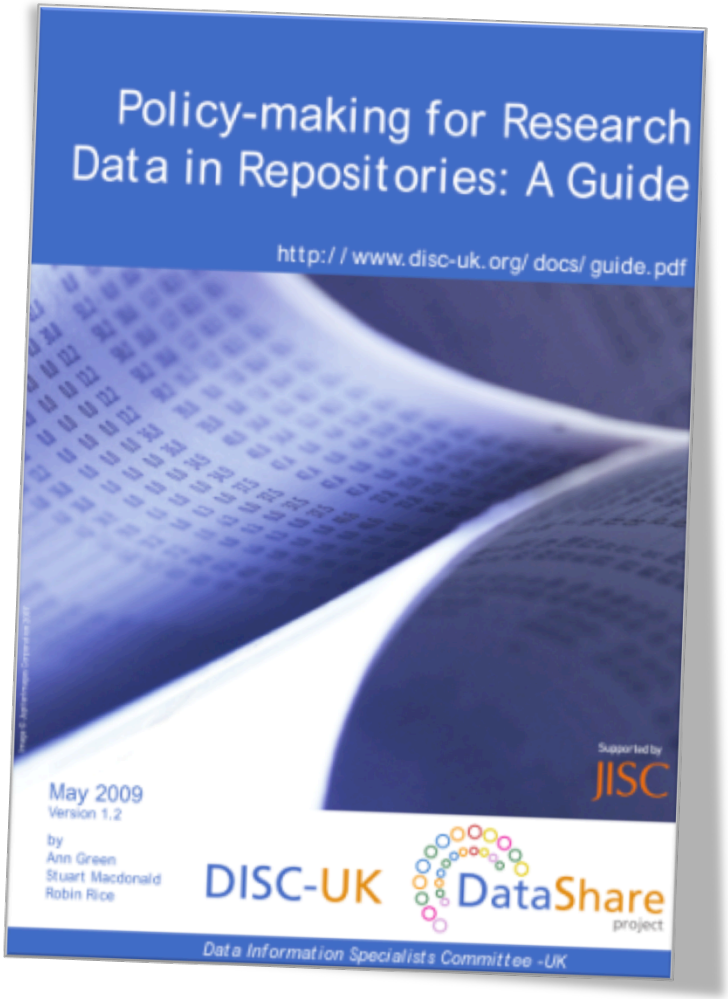
- Offenheit der Metadaten
- Versionsverwaltung
- Alerting-Dienste
- Kooperationen mit Förderorganisationen
- …

# POLICIES

- Leit- und Richtlinien zum Betrieb eines Repositoriums
- Aussagen zu rechtlichen, finanziellen, technischen und organisatorischen Funktionalitäten eines Repositoriums
- Dokumentation der Pflichten eines Daten-Produzenten und des Repositorien-Betreibers
- Sicherung der Transparenz
- Zusammenspiel mit weiteren Policies (z.B. von Förderorganisation und Zeitschriften)

# POLICIES

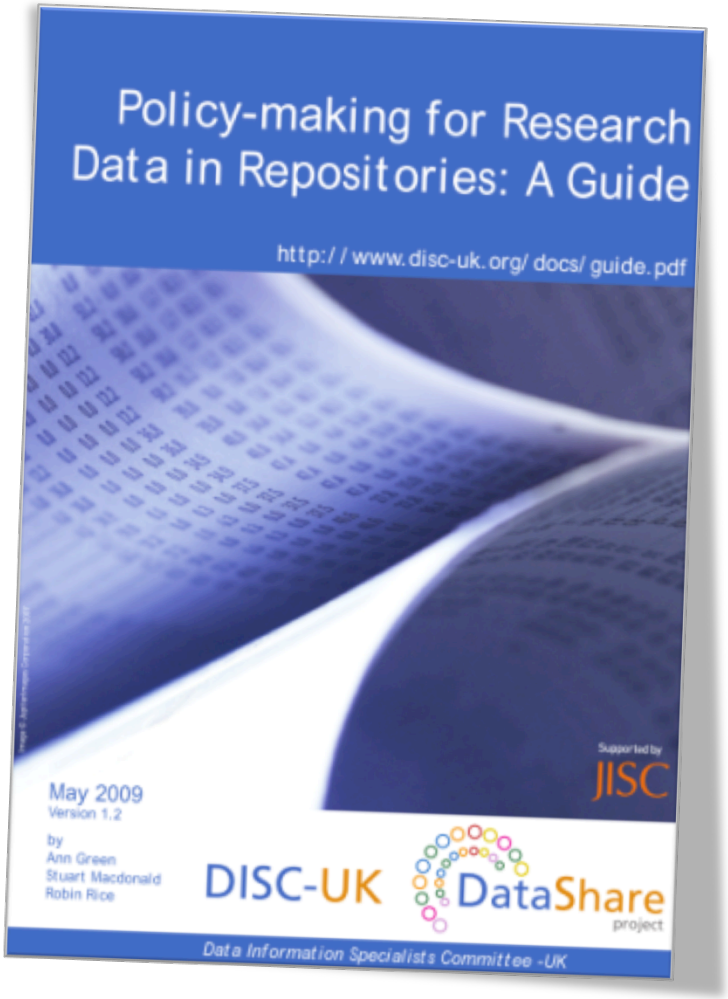
- Content Coverage
  - Scope: subjects and languages
  - Kinds of research data
  - Status of the research data
  - Versions
  - Data file formats
  - Volume and size limitations




Green, A., Macdonald, S., & Rice, R. (n.d.). Policy-making for Research Data in Repositories: A Guide Data Share. Version 1.2. Retrieved from www.disc-uk.org/docs/guide.pdf

# POLICIES

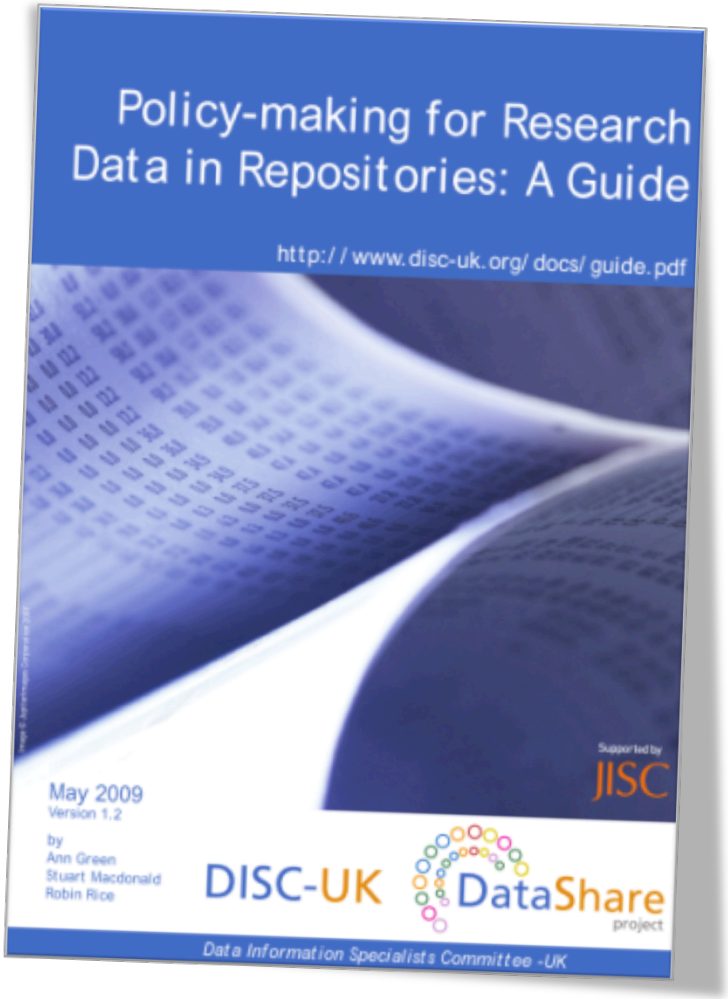
- Metadata
  - Access to metadata
  - Reuse of metadata
  - Metadata types and sources
  - Metadata schemas
- Submission of Data (Ingest)
  - Eligible depositors
  - Moderation by repository
  - Data quality requirements
  - Confidentiality and disclosure
  - Embargo status
  - Rights and ownership




Green, A., Macdonald, S., & Rice, R. (n.d.). Policy-making for Research Data in Repositories: A Guide Data Share. Version 1.2. Retrieved from www.disc-uk.org/docs/guide.pdf

# POLICIES

- Access and Reuse of Data
  - Access to data objects
  - Use and reuse of data objects
  - Tracking users and use statistics
- Preservation of Data
  - Retention period
  - Functional preservation
  - File preservationd
  - Fixity and authenticity




Green, A., Macdonald, S., & Rice, R. (n.d.). Policy-making for Research Data in Repositories: A Guide Data Share. Version 1.2. Retrieved from www.disc-uk.org/docs/guide.pdf

# POLICIES

- Beispiel: PANGAEA

Log in / Sign up

Page Discussion Read View source View history Go Search

Navigation

PangaWiki Home
Technical Docs

specials

Recent changes
Random page

Toolbox

What links here
Related changes
Special pages
Printable version
Permanent link

## Data policy

The aim of this **data policy** is to facilitate operation and use of the data library PANGAEA - Publisher for Earth & Environmental Data. The system is operated as **archive, publisher and library** for data from earth system research. This policy recognises the benefits of providing Open Access to documented data from earth and environmental sciences for future use by the scientific community.

**Contents** [hide]



## Principles

**The guiding principle of the data library PANGAEA is Open Access to its content for the scientific community.**

- The content is defined as **data from earth system research** which can be georeferenced in time and space.
- Data are distributed under a Creative Commons Attribution licence.
- Data might be password protected for a muratorium period; its definition is in the responsibility of the source project/institute.
- Format and description of data (metadata) must ensure its most widespread and easiest use.
- Data include a bibliographic citation. Users are urged to properly quote this citation when using data from the system.
- The reliable long-term access to the data is assured by using persistent identifier (DOI) which are part of each data set citation.
- The system is open to individual scientists, institutes or projects for data archiving and publication. Principally data can be submitted free of charge. However, financial contributions are appreciated. Costs are a matter of negotiation.

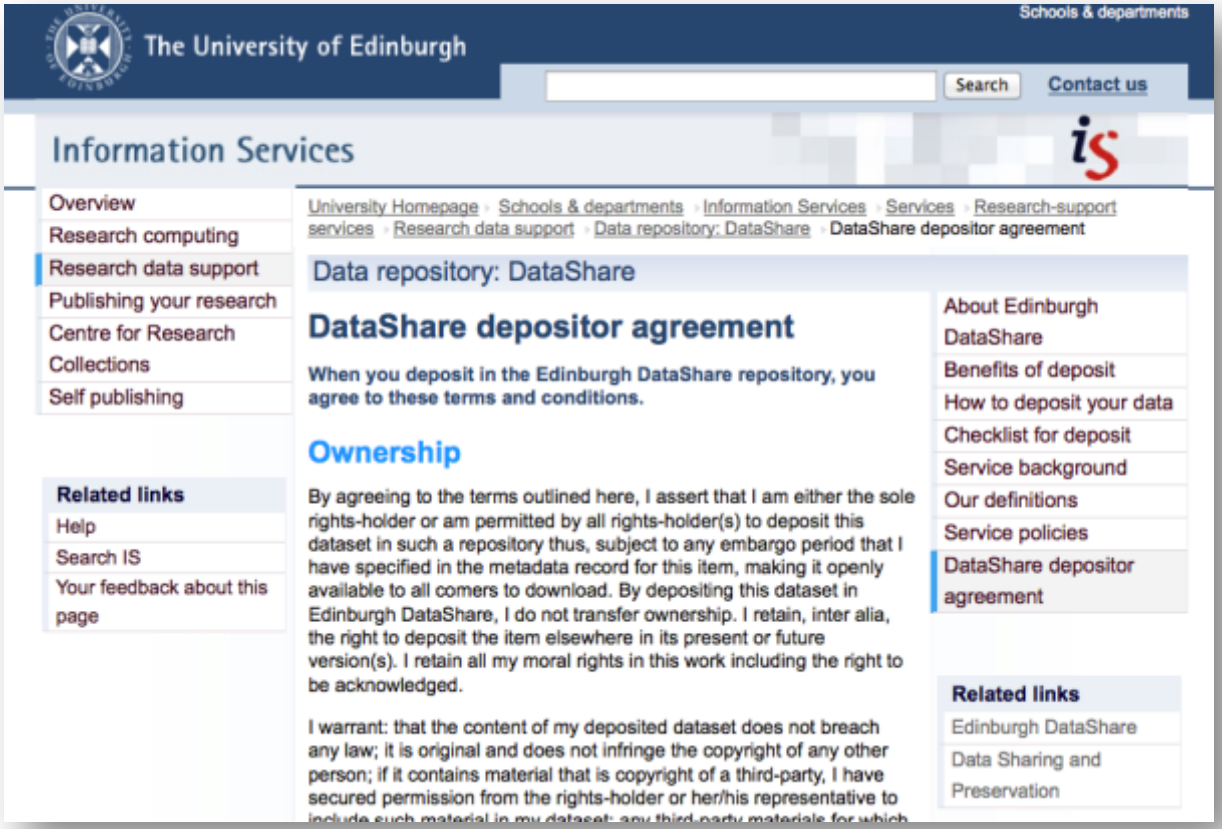
## Operation

Long-term availability (>10 years) of data in PANGAEA is assured through a commitment of the host institutes AWI and MARUM. The Pangaea department in both institutes is responsible for the technical quality, operation and consistency of the content. Persistent identification, data publication and widespread distribution is performed by the networking functionality and webservices on the Internet using international standards.

PANGAEA. (2011). Data policy. Retrieved from http://wiki.pangaea.de/wiki/Data_policy

# POLICIES

- Beispiel: DataShare (University of Edinburg)



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Data repository: DataShare

## DataShare depositor agreement

**When you deposit in the Edinburgh DataShare repository, you agree to these terms and conditions.**

### Ownership

By agreeing to the terms outlined here, I assert that I am either the sole rights-holder or am permitted by all rights-holder(s) to deposit this dataset in such a repository thus, subject to any embargo period that I have specified in the metadata record for this item, making it openly available to all comers to download. By depositing this dataset in Edinburgh DataShare, I do not transfer ownership. I retain, inter alia, the right to deposit the item elsewhere in its present or future version(s). I retain all my moral rights in this work including the right to be acknowledged.

I warrant: that the content of my deposited dataset does not breach any law; it is original and does not infringe the copyright of any other person; if it contains material that is copyright of a third-party, I have secured permission from the rights-holder or her/his representative to

About Edinburgh DataShare
Benefits of deposit
How to deposit your data
Checklist for deposit
Service background
Our definitions
Service policies
DataShare depositor agreement

Related links
Edinburgh DataShare
Data Sharing and Preservation

DataShare. (2013) DataShare depositor agreement. Retrieved from http://www.ed.ac.uk/schools-departments/information-services/services/research-support/data-library/data-repository/depositor-agreement

# RECHTLICHES

- Rechtliche Situation variiert nach nationaler Gesetzgebung
- Deutsches Urheberrecht (UrhR)
  - „Daten" sind mehrheitlich nicht schutzwürdig
  - UrhR greift in Abhängigkeit der Schöpfungshöhe
  - Jedoch:
    - „Sui-generis Datenbankenrecht" (SGDR). Beruht auf der europäischen Datenbankrichtlinie 96/9/EG und schützt die Investition des Datenbankherstellers
    - z.B. Datenschutz, Persönlichkeitsrechte, etc.
  - Creative-Commons-Lizenzen:
    - Knackpunkt: Datenbankherstellerrecht (bis Version 3.0)

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    - **z.B. Datenschutz, Persönlichkeitsrechte, etc.**
  - Creative-Commons-Lizenzen:
    - Knackpunkt: Datenbankherstellerrecht (bis Version 3.0)

# RECHTLICHES

**LEGEND:**

**Access categories**

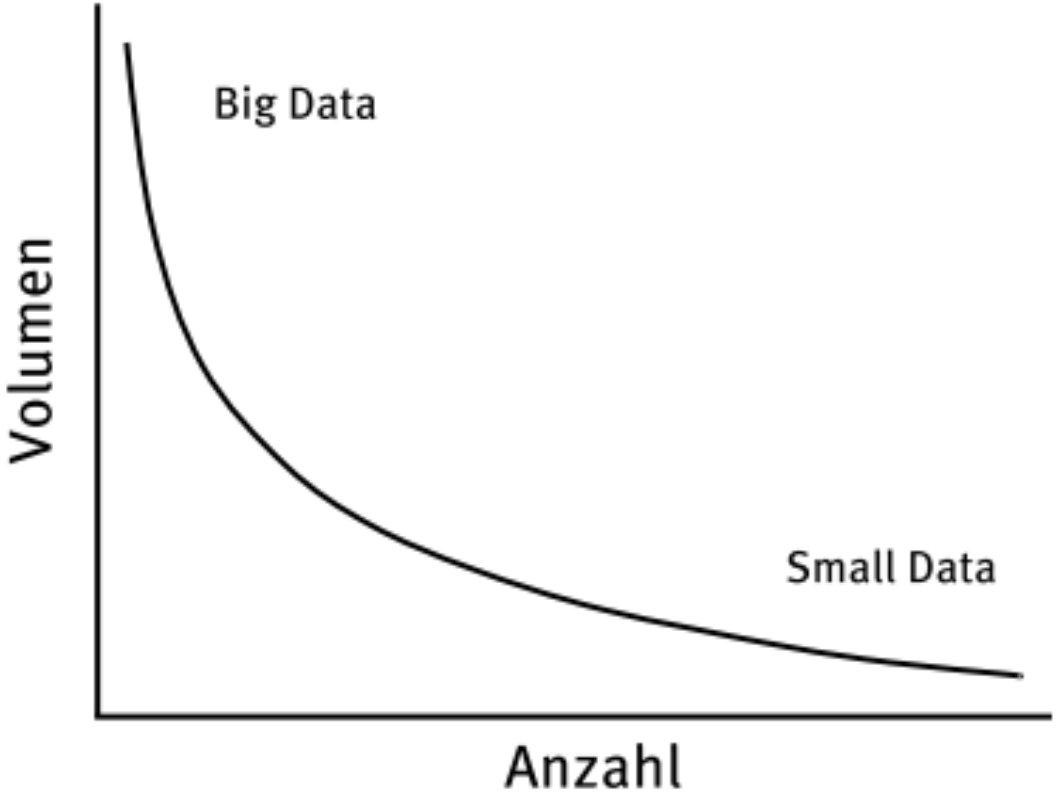
The provision of data and documents is regulated by the following access categories. They are indicated in the respective study description in the Data Catalogue.

**Access categories in the usage regulations**

| | |
|---|---|
| **Category 0** | Data and documents are released for everybody. |
| **Category A** | Data and documents are released for academic research and teaching. |
| **Category B** | Data and documents are released for academic research and teaching, if the results won't be published.<br><br>If any publications or any further work on the results is planned, permission must be obtained by the Data Archive. |
| **Category C** | Data and documents are only released for academic research and teaching after the data depositor's written authorization.<br><br>For this purpose the Data Archive obtains a written permission with specification of the user and the analysis intention. |

# TECHNOLOGIE

- Unterscheidung zwischen Small-Data und Big-Data-Ansätzen

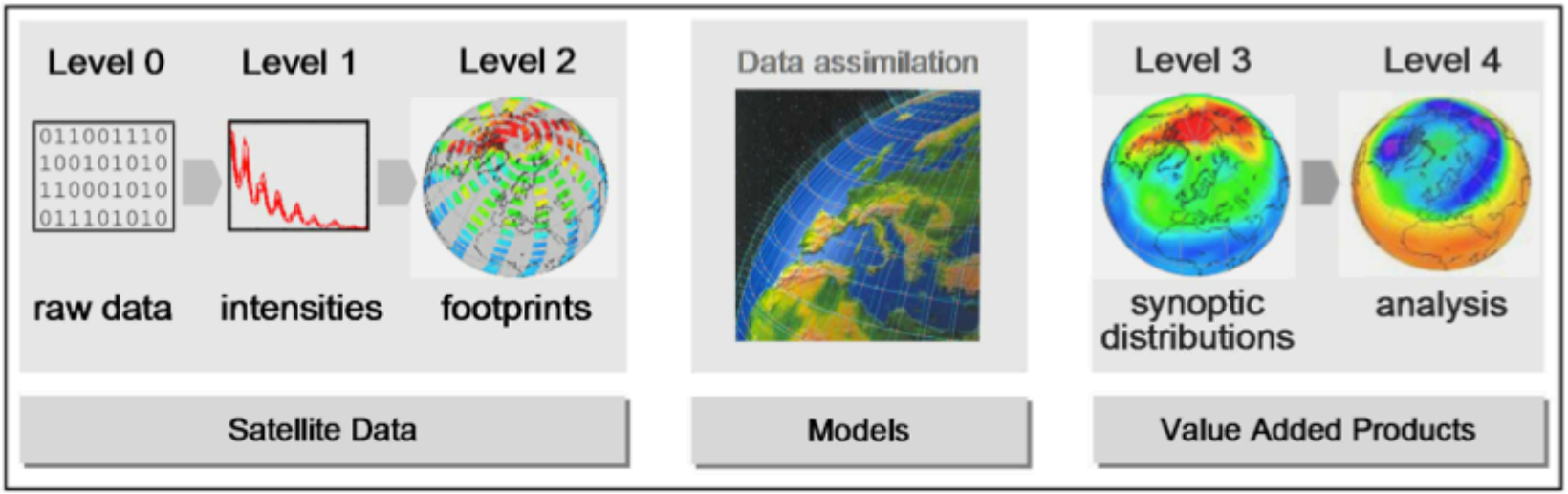





Klump, J., & Bertelmann, R. (2013). D 8 Forschungsdaten. In R. Kuhlen, W. Semar, & D. Strauch (Eds.), Grundlagen der praktischen Information und Dokumentation. Berlin: De Gruyter Saur. doi:10.1515/9783110258264.575

# TECHNOLOGIE

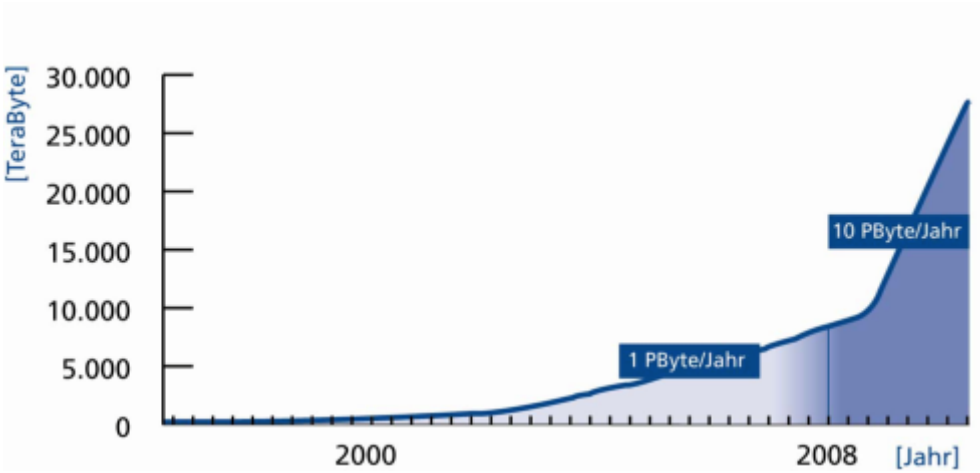
- Unterscheidung zwischen Small-Data und Big-Data-Ansätzen
- Big-Data-Beispiel: WDC-RSAT

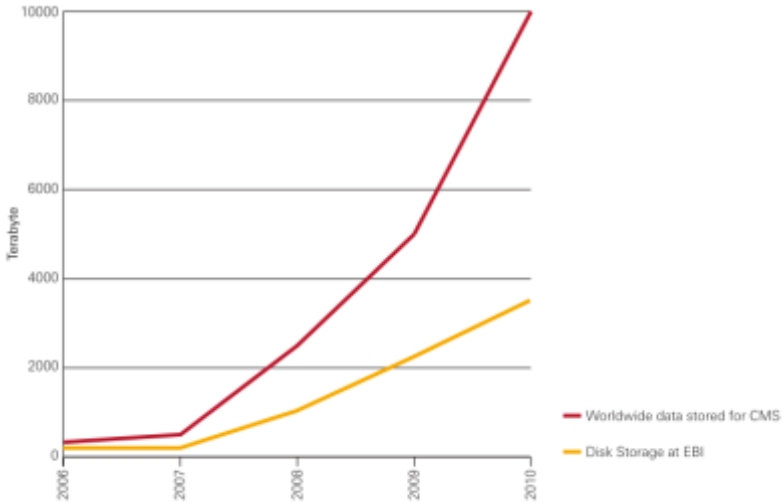



Michael, B. (2013). ICSU/WMO World Data Center for Remote Sensing of the Atmosphere (WDC-RSAT). GAW 2013 Symposium. Genf. Retrieved from http://www.wmo.int/pages/prog/arep/gaw/documents/GAW-2013-poster-Bittner-WDC-RSAT.pdf

# TECHNOLOGIE

- Unterscheidung zwischen Small-Data und Big-Data-Ansätzen
- Big-Data-Beispiel: DKRZ sowie EBI und CMS



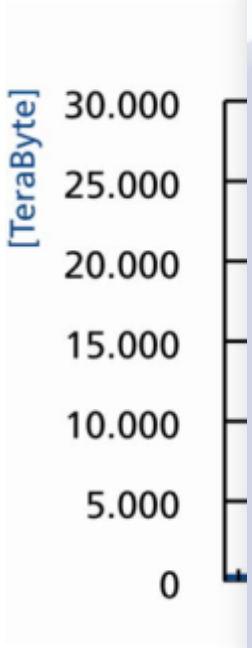


Luthardt, H. (2011). Langzeitarchivierung am DKRZ. Workshop Archivierung sozial- und wirtschaftswissenschaftlicher Datenbestände. Frankfurt am Main. Retrieved from ttp://files.dnb.de/nestor/praesentationen/Gesamt/luthardt.pdf

The Royal Society. (2012). Science as an open enterprise. The Royal Society Science Policy Centre report 02/12. Retrieved from http://royalsociety.org/uploadedFiles/Royal_Society_Content/policy/projects/sape/2012-06-20-SAOE.pdf

# TECHNOLOGIE

- Unterscheidung zwischen Small-Data und Big-Data-Ansätzen
- Big-Data




## Datenspeicher

- 7 automatische Sun StorageTek SL8500-Bandbibliotheken
- 8 Roboter je Bibliothek
- mehr als 67.000 Stellplätze für Bänder mit Gesamtkapazität von ca. 100 Petabyte
- 88 Bandlaufwerke
- bidirektionale Bandbreite von 5 GigaByte/s

Luthardt, H. (2011). Langz Datenbestände. Frankfurt am Main. Retrieved from tl

# TECHNOLOGIE

- Unterscheidung zwischen Small-Data und Big-Data-Ansätzen
- B

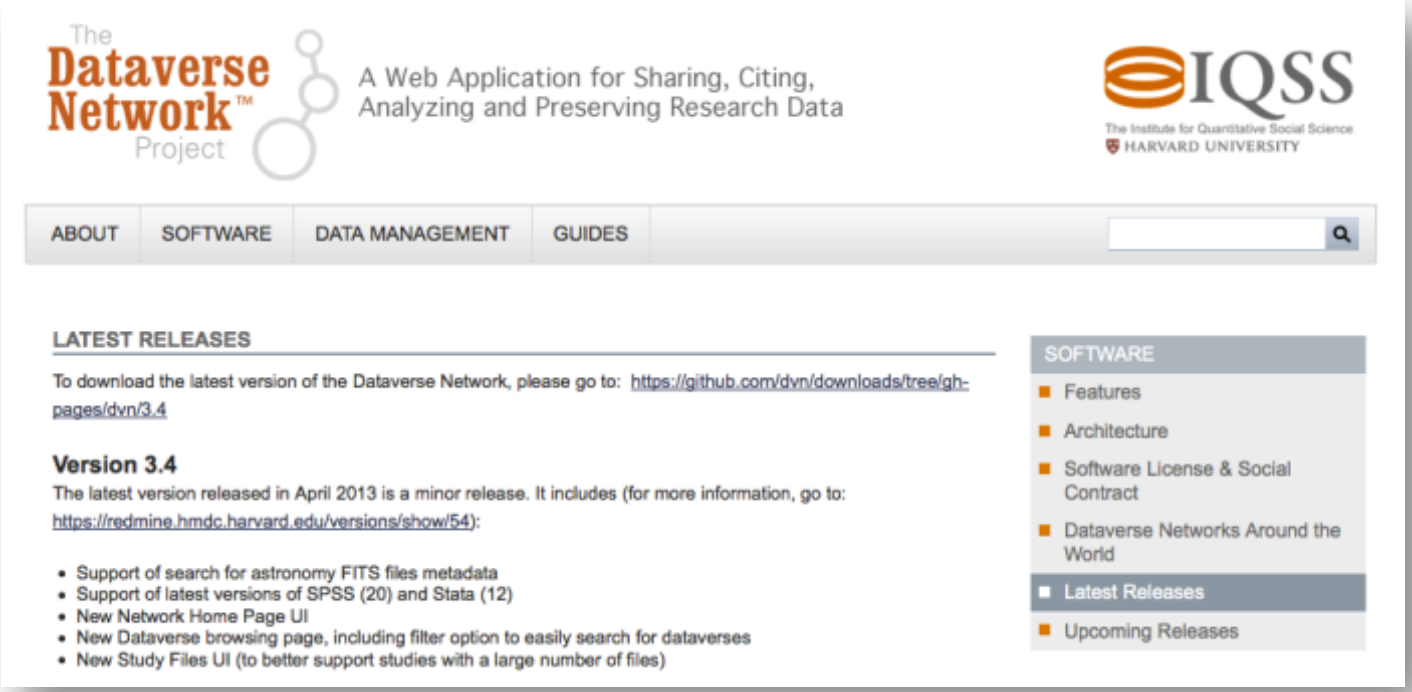
## WDCC – Word Data Center on Climate

- Approved in 2003
- Hosts several projects and Data Centres
- WDCC operates as a long-term data archive (10years +)
- WDCC is implemented within the CERA data and information system.
- Data are stored in conjunction with metadata.
- WDCC offers the publication service for primary data. (DOI)
- Approximately 5 person staff and 500 TB of data.
- Increase of a 1 PB/year starting in year 2011

**CERA: General Statistics at 01-09-2011 00:00:18**
**Internal data**
**Database Size (TByte): 434**
**Number of container: 183038**
**Number of blobs: 8586769505**

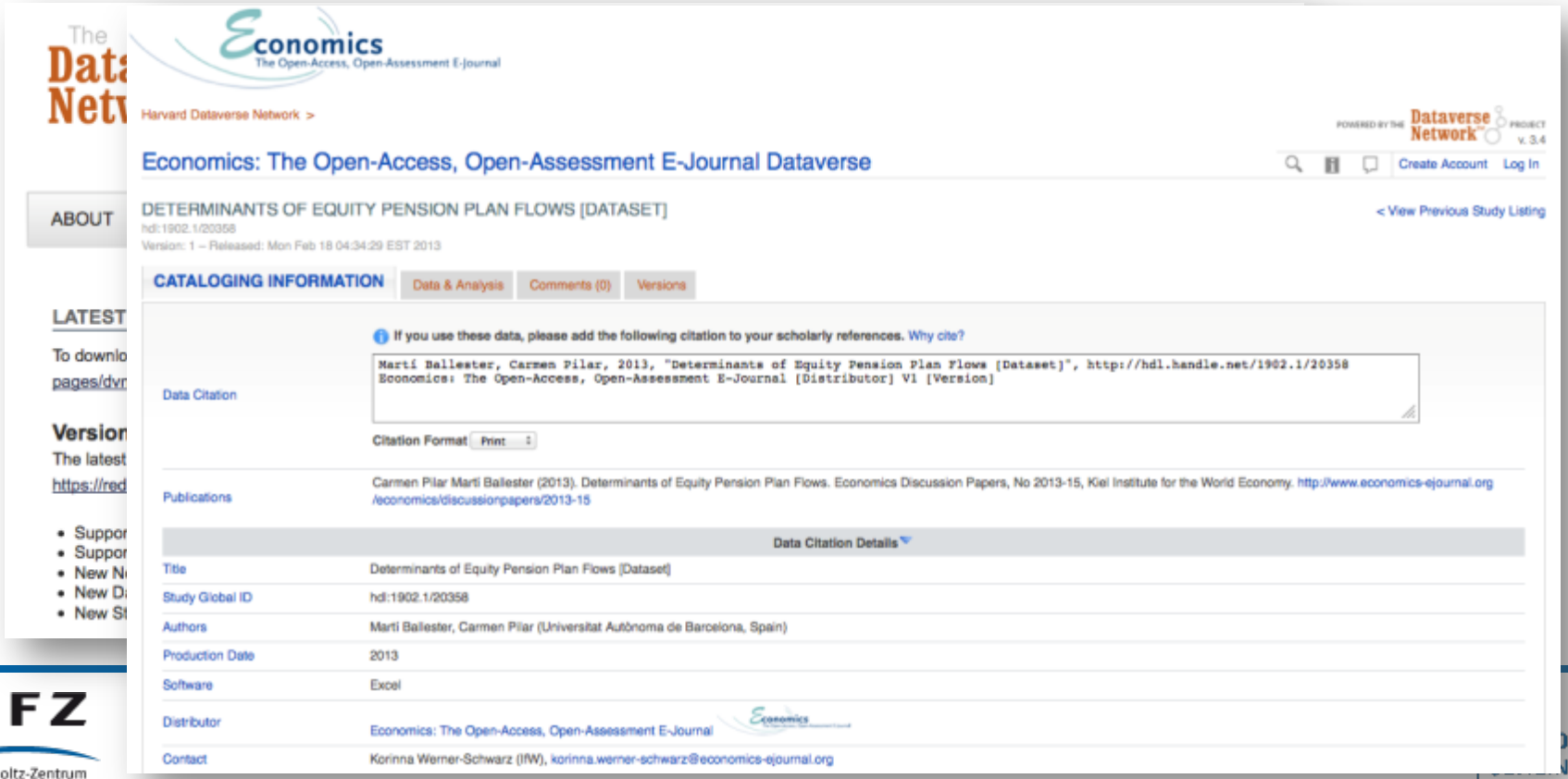
# TECHNOLOGIE

- Unterscheidung zwischen Small-Data und Big-Data-Ansätzen
- Small-Data-Beispiel: Dataverse



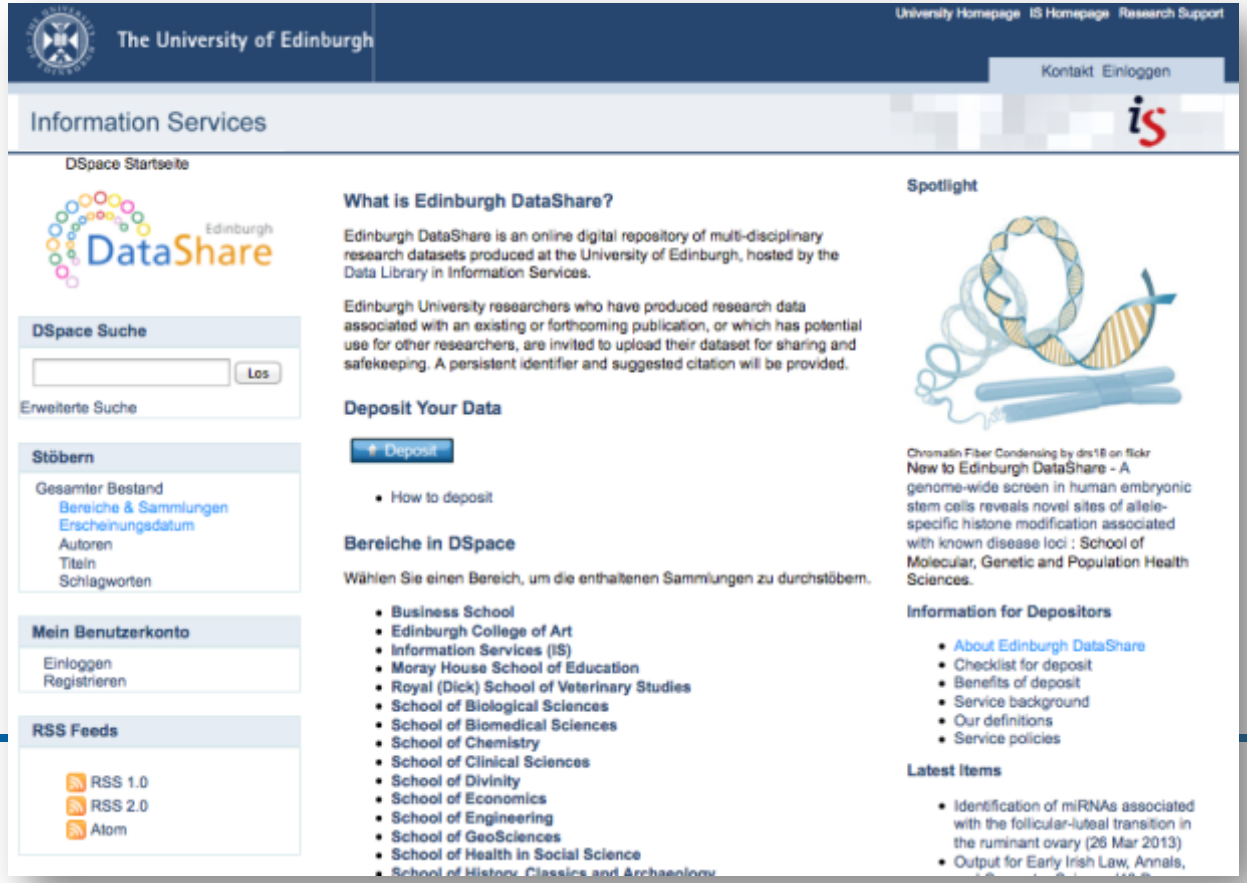
# TECHNOLOGIE

- Unterscheidung zwischen Small-Data und Big-Data-Ansätzen
- Small-Data-Beispiel: Dataverse



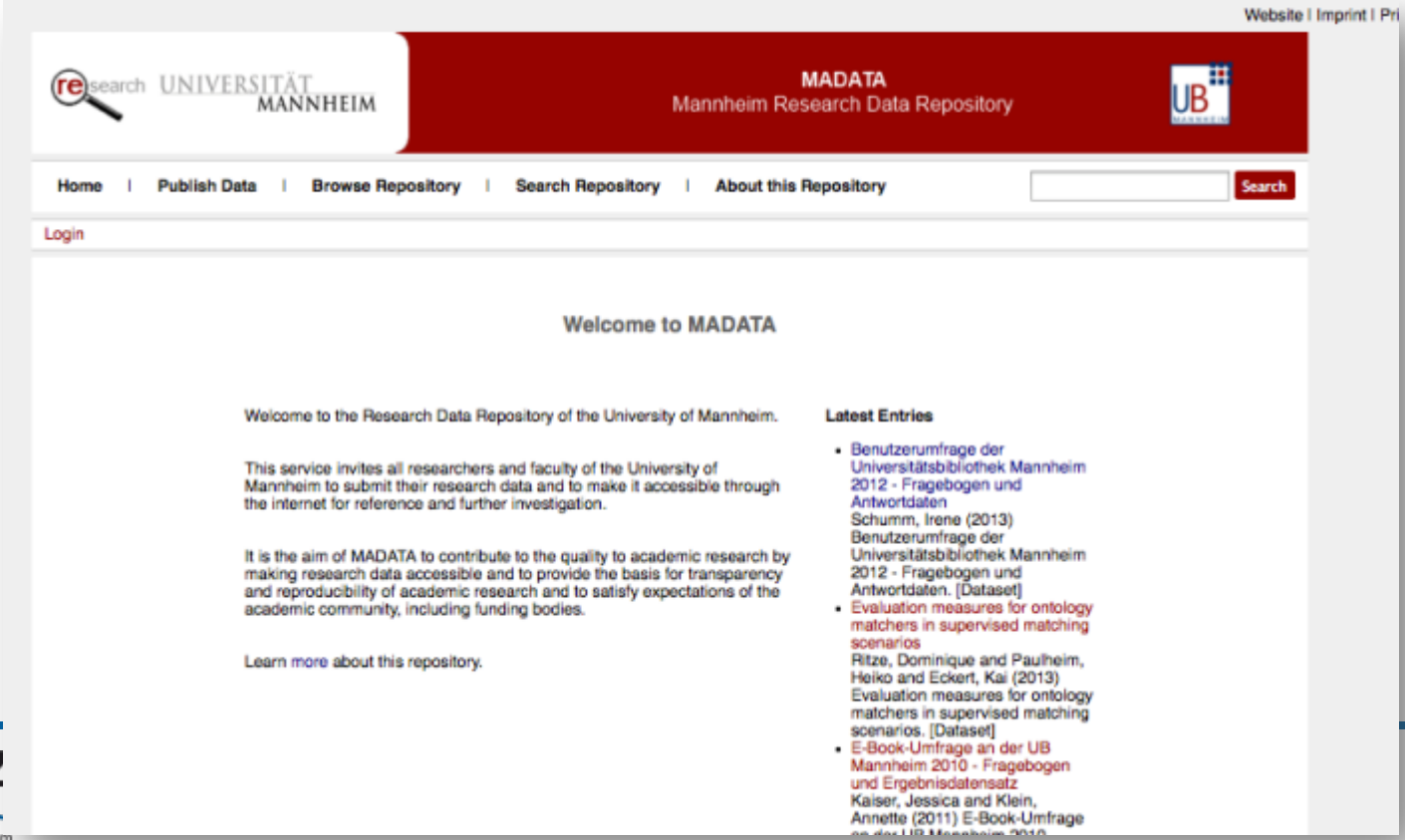
# TECHNOLOGIE

- Unterscheidung zwischen Small-Data und Big-Data-Ansätzen
- Small-Data-Beispiel: DSpace



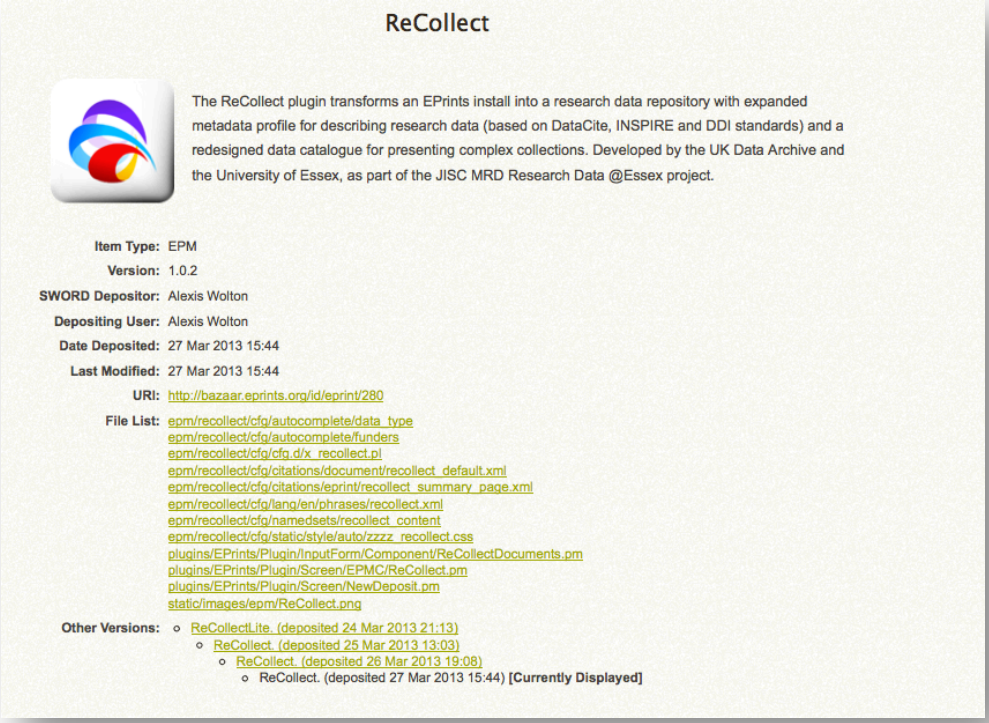
# TECHNOLOGIE

- Unterscheidung zwischen Small-Data und Big-Data-Ansätzen
- Small-Data-Beispiel: EPrints



# TECHNOLOGIE

- Unterscheidung zwischen Small-Data und Big-Data-Ansätzen
- Small-Data-Beispiel: EPrints



ReCollect

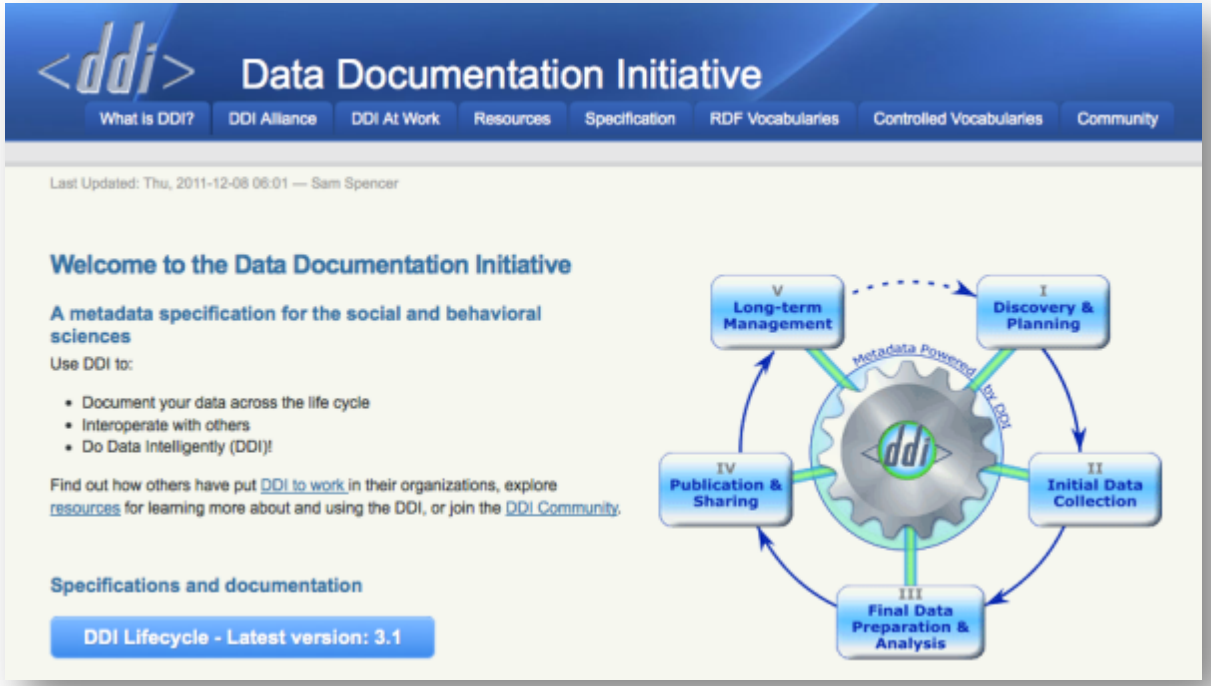
The ReCollect plugin transforms an EPrints install into a research data repository with expanded metadata profile for describing research data (based on DataCite, INSPIRE and DDI standards) and a redesigned data catalogue for presenting complex collections. Developed by the UK Data Archive and the University of Essex, as part of the JISC MRD Research Data @Essex project.

**Item Type:** EPM
**Version:** 1.0.2
**SWORD Depositor:** Alexis Wolton
**Depositing User:** Alexis Wolton
**Date Deposited:** 27 Mar 2013 15:44
**Last Modified:** 27 Mar 2013 15:44
**URI:** http://bazaar.eprints.org/id/eprint/280
**File List:** epm/recollect/cfg/autocomplete/data_type
epm/recollect/cfg/autocomplete/funders
epm/recollect/cfg/cfg.d/x_recollect.pl
epm/recollect/cfg/citations/document/recollect_default.xml
epm/recollect/cfg/citations/eprint/recollect_summary_page.xml
epm/recollect/cfg/lang/en/phrases/recollect.xml
epm/recollect/cfg/namedsets/recollect_content
epm/recollect/cfg/static/style/auto/zzzz_recollect.css
plugins/EPrints/Plugin/InputForm/Component/ReCollectDocuments.pm
plugins/EPrints/Plugin/Screen/EPMC/ReCollect.pm
plugins/EPrints/Plugin/Screen/NewDeposit.pm
static/images/epm/ReCollect.png
**Other Versions:**
- ReCollectLite. (deposited 24 Mar 2013 21:13)
  - ReCollect. (deposited 25 Mar 2013 13:03)
    - ReCollect. (deposited 26 Mar 2013 19:08)
      - ReCollect. (deposited 27 Mar 2013 15:44) **[Currently Displayed]**

http://bazaar.eprints.org/280/

# METADATEN

- Diverse disziplinäre Standards
- Beispiel: Data Documentation Initiative (DDI)
  - Sozial- und Wirtschaftswissenschaften




http://www.ddialliance.org

# METADATEN

- Diverse disziplinäre Standards
- Beispiel: MIAME
  - Molekularbiologie

## Minimum information about a microarray experiment (MIAME)—toward standards for microarray data

Alvis Brazma[1], Pascal Hingamp[2], John Quackenbush[3], Gavin Sherlock[4], Paul Spellman[5], Chris Stoeckert[6], John Aach[7], Wilhelm Ansorge[8], Catherine A. Ball[4], Helen C. Causton[9], Terry Gaasterland[10], Patrick Glenisson[11], Frank C.P. Holstege[12], Irene F. Kim[4], Victor Markowitz[13], John C. Matese[4], Helen Parkinson[1], Alan Robinson[1], Ugis Sarkans[1], Steffen Schulze-Kremer[14], Jason Stewart[15], Ronald Taylor[16], Jaak Vilo[1] & Martin Vingron[17]

Microarray analysis has become a widely used tool for the generation of gene expression data on a genomic scale. Although many significant results have been derived from microarray studies, one limitation has been the lack of standards for presenting and exchanging such data. Here we present a proposal, the Minimum Information About a Microarray Experiment (MIAME), that describes the minimum information required to ensure that microarray data can be easily interpreted and that results derived from its analysis can be independently verified. The ultimate goal of this work is to establish a standard for recording and reporting microarray-based gene expression data, which will in turn facilitate the establishment of databases and public repositories and enable the development of data analysis tools. With respect to MIAME, we concentrate on defining the content and structure of the necessary information rather than the technical format for capturing it.

### Introduction

After genome sequencing, DNA microarray analysis[1] has become

cult, because at present, microarrays do not measure gene expression levels in any objective units. In fact, most measurements report

Brazma, A., Hingamp, P., Quackenbush, J., Sherlock, G., Spellman, P., Stoeckert, C., Aach, J., et al. (2001). Minimum information about a microarray experiment (MIAME) - toward standards for microarray data. Nature Genetics, 29(4), 365–371. Retrieved from http://dx.doi.org/10.1038/ng1201-365

# METADATEN

- Diverse disziplinäre Standards
- Beispiel: ISO 19115
  - Erd- und Umweltwissenschaften

| | | | | | | |
|---|---|---|---|---|---|---|
| 26 | purpose | summary of the intentions with which the resource(s) was developed | Zweck | Zusammenfassung, für welchen Zweck oder mit welcher Absicht die Ressource erstellt wurde | 0..1 | Freitext |
| 27 | credit | recognition of those who contributed to the resource(s) | Beteiligte | Nennung von Beteiligten, die zur Ressource beigetragen haben | 0..* | Freitext |
| 28 | status | status of the resource(s) | Bearbeitungsstatus | Bearbeitungsstatus der Ressource | 0..* | MD_ProgressCode <<CodeList>> (B.5.23) |
| 29 | pointOfContact | identification of, and means of communication with, person(s) and organization(s) associated with the resource(s) | Kontakt | Kontaktinformation zu Person(en) und Organisation(en), welche im Bezug zur Ressource stehen | 0..* | CI_ResponsibleParty <<DataType>> (B.3.2) |
| 30 | *Role name:* resourceMaintenance | provides information about the frequency of resource updates, and the scope of those updates | Pflege der Ressource | Information über die Häufigkeit und den Umfang der Aktualisierung der Ressource | 0..* | MD_MaintenanceInformation (B.2.5) |
| 31 | *Role name:* graphicOverview | provides a graphic that illustrates the resource(s) (should include a legend for the graphic) | Grafische Darstellung | Grafik, die die Ressource darstellt (möglichst einschließlich Legende) | 0..* | MD_BrowseGraphic (B.2.2.2) |
| 32 | *Role name:* resourceFormat | provides a description of the format of the resource(s) | Format der Ressource | Formatbeschreibung der Ressource | 0..* | MD_Format (B.2.10.4) |
| 33 | Role name: descriptiveKeywords | provides category keywords, their type, and reference source | Schlüsselwörter | Schlüsselwörter, ihr Typ und Quellenangabe | 0..* | MD_Keywords (B.2.2.3) |
| 34 | *Role name:* resourceSpecificUsage | provides basic information about specific application(s) for which the resource(s) has/have been or is being used by different users | Nutzungsinformation | grundlegende Information über spezifische Anwendungen, für die die Ressource von Nutzern verwendet wurde oder wird | 0..* | MD_Usage (B.2.2.6) |
| 35 | *Role name:* resourceConstraints | provides information about constraints which apply to the resource(s) | Ressourceneinschränkungen | Einschränkungen bezüglich der Ressource | 0..* | MD_Constraints (B.2.3) |
| 35.1 | *Role name:* aggregationInfo | provides aggregate dataset information | Beziehungsinformation | Angaben über Beziehungen zu anderen Datenbeständen | 0..* | MD_AggregateInformation (B.2.2.7) |
| 36 | MD_DataIdentification | information required to identify a dataset | Basisinformation zum Datenbestand | Basisinformation zur eindeutigen Beschreibung des Datenbestands | vererbt vom übergeordneten Objekt | Zeile 37-46 und 24-35.1 |

Koordinierungsstelle GDI-DE. (2008). Deutsche Übersetzung der Metadatenfelder des ISO 19115 Geographic information – Metadata. Retrieved from http://www.gdi-de.org/download/AK/ISO19115_GermanTranslation_GDIDE.pdf

# METADATEN

- Diverse disziplinäre Standards
- Beispiel: ISO 19115

GFZ
Helmholtz Centre
POTSDAM

Helmholtz Centre Potsdam
GFZ GERMAN RESEARCH CENTRE
FOR GEOSCIENCES

HELMHOLTZ
ASSOCIATION

**Dataset Description** | Google Maps | Search Datasets

**Cite as** Fietz, Susanne; Heim, Birgit; Oberhänsli, Hedi; Kaufmann, Hermann (2006): The relationship between concentrations of chl-a calculated from SeaWiFS OC2 and chl-a calculated determined from ground truth measurements during field expeditions in Lake Baikal during 2001 and 2002. Deutsches GeoForschungsZentrum GFZ. http://dx.doi.org/10.1594/GFZ.SDDB.1043

**Abstract** Values of measured chlorophyll (HPLC=High Pressure Liquid Chromatography) are the mean concentrations of each sampling point from 5 to 30 m depth. For the OC2 chl-a calculations, the least clouded acquisitions in 2001 (2001/07/19) and 2002 (2002/07/20) were chosen. Note the considerable chl-a overestimation caused by the influences of terrigenous input in case 2 waters.

**Supplement to** Birgit Heim, Hedi Oberhaensli, Susanne Fietz and Hermann Kaufmann, Variation in Lake Baikal's phytoplankton distribution and fluvial input assessed by SeaWiFS satellite data, Global and Planetary Change, Volume 46, Issues 1-4, Progress towards reconstruct (http://dx.doi.org/10.1016/j.gloplacha.2004.11.011)

**Location** Latitude: 52.6667 Longitude: 107

**Keywords** Terrestrical Hydrosphere, Water Quality/Water Chemistry, Surface Water, HPLC chl-a concentration, OC2 chlorophyll-a concentration

**Licence** cc-by

**Data** data.csv 7160 Bytes

**Metadata** datacite, dif, escidoc


Imprint

# QUALITÄTSSTANDARDS


- Braun, K., Buddenbohm, S., Dobratz, S., Herb, U., Müller, U., Pampel, H., Schmidt, B., et al. (2011). DINI Certificate Document and Publication Services 2010 (3.0 ed.). Göttingen. doi:urn:nbn:de:kobv:11-100182800
- Data Seal of Approval. (2010). Data Seal of Approval. Guidelines version 1. Retrieved from http://assessment.datasealofapproval.org/documentation/
- DIN. (2012). Kriterien für vertrauenswürdige digitale Langzeitarchive. DIN 31644:2012-04. Retrieved from http://www.beuth.de/de/norm/din-31644/147058907
- ESF & EUROHORCs. (2011). Basic Requirements for Research Infrastructures in Europe. Retrieved from http://www.dfg.de/download/pdf/foerderung/programme/wgi/basic_requirements_research_infrastructures.pdf
- ICSU World Data System (WDS). (2011). Certification of WDS Members. Retrieved from http://icsu-wds.org/images/files/WDS_Certification_Summary_11_June_2012.pdf
- ISO. (2012). Space data and information transfer systems - Audit and certification of trustworthy digital repositories. ISO 16363:2012. Retrieved from http://www.iso.org/iso/catalogue_detail.htm?csnumber=56510

# QUALITÄTSSTANDARDS


- Braun, K., Buddenbohm, S., Dobratz, S., Herb, U., Müller, U., Pampel, H., Schmidt, B., et al. (2011). DINI Certificate Document and Publication Services 2010 (3.0 ed.). Göttingen. doi:urn:nbn:de:kobv:11-100182800
- **Data Seal of Approval. (2010). Data Seal of Approval. Guidelines version 1. Retrieved from http://assessment.datasealofapproval.org/documentation/**
- DIN. (2012). Kriterien für vertrauenswürdige digitale Langzeitarchive. DIN 31644:2012-04. Retrieved from http://www.beuth.de/de/norm/din-31644/147058907
- ESF & EUROHORCs. (2011). Basic Requirements for Research Infrastructures in Europe. Retrieved from http://www.dfg.de/download/pdf/foerderung/programme/wgi/basic_requirements_research_infrastructures.pdf
- ICSU World Data System (WDS). (2011). Certification of WDS Members. Retrieved from http://icsu-wds.org/images/files/WDS_Certification_Summary_11_June_2012.pdf
- ISO. (2012). Space data and information transfer systems - Audit and certification of trustworthy digital repositories. ISO 16363:2012. Retrieved from http://www.iso.org/iso/catalogue_detail.htm?csnumber=56510

# QUALITÄTSSTANDARDS

- Braun, K., Buddenbohm, S., Dobratz, S., Herb, U., Müller, U., Pampe
- 1.
- on/
- e/
- ed


## 2.1 Organization and processes

4. The *data repository* has an explicit mission in the area of digital archiving and promulgates it.
5. The *data repository* uses due diligence to ensure compliance with legal regulations and contracts.
6. The *data repository* applies documented processes and procedures for managing data storage.
7. The *data repository* has a plan for long-term preservation of its digital assets.
8. Archiving takes place according to explicit workflows across the data life cycle.
9. The *data repository* assumes responsibility from the data producers for access to and availability of the digital objects.
10. The *data repository* enables the users to utilize the research data and refer to them.
11. The *data repository* ensures the integrity of the digital objects and the meta-data.

# QUALITÄTSSTANDARDS


- Braun, K., Buddenbohm, S., Dobratz, S., Herb, U., Müller, U., Pampel, H., Schmidt, B., et al. (2011). DINI Certificate Document and Publication Services 2010 (3.0 ed.). Göttingen. doi:urn:nbn:de:kobv:11-100182800
- Data Seal of Approval. (2010). Data Seal of Approval. Guidelines version 1. Retrieved from http://assessment.datasealofapproval.org/documentation/
- DIN. (2012). Kriterien für vertrauenswürdige digitale Langzeitarchive. DIN 31644:2012-04. Retrieved from http://www.beuth.de/de/norm/din-31644/147058907
- ESF & EUROHORCs. (2011). Basic Requirements for Research Infrastructures in Europe. Retrieved from http://www.dfg.de/download/pdf/foerderung/programme/wgi/basic_requirements_research_infrastructures.pdf
- ICSU World Data System (WDS). (2011). Certification of WDS Members. Retrieved from http://icsu-wds.org/images/files/WDS_Certification_Summary_11_June_2012.pdf
- **ISO. (2012). Space data and information transfer systems - Audit and certification of trustworthy digital repositories. ISO 16363:2012. Retrieved from http://www.iso.org/iso/catalogue_detail.htm?csnumber=56510**

# QUALITÄTSSTANDARDS

- Bra… dt, B., … d.). Göt…
- Dat… eved from…
- DIN 316… din-…
- ESF Euro… wgi/…
- ICSU… d from… WDS…
- **ISO… certi… d from…**

**3.1.2.1 The repository shall have an appropriate succession plan, contingency plans, and/or escrow arrangements in place in case the repository ceases to operate or the governing or funding institution substantially changes its scope.**

**Supporting Text**

This is necessary in order to preserve the information content entrusted to the repository by handing it on to another custodian in the case that the repository ceases to operate.

**Examples of Ways the Repository Can Demonstrate It Is Meeting This Requirement**

Written and credible succession and contingency plan(s); explicit and specific statement documenting the intent to ensure continuity of the repository, and the steps taken and to be taken to ensure continuity; escrow of critical code, software, and metadata sufficient to enable reconstitution of the repository and its content in the event of repository failure; escrow and/or reserve funds set aside for contingencies; explicit agreements with successor organizations documenting the measures to be taken to ensure the complete and formal transfer of responsibility for the repository's digital content and related assets, and granting the requisite rights necessary to ensure continuity of the content and repository services.

**Discussion**

A repository's failure threatens the long-term sustainability of a repository's information content. It is not sufficient for the repository to have an informal plan or policy regarding where its data goes should a failure occur. A formal plan with identified procedures needs to be in place.

# QUALITÄTSSTANDARDS


- Braun, K., Buddenbohm, S., Dobratz, S., Herb, U., Müller, U., Pampel, H., Schmidt, B., et al. (2011). DINI Certificate Document and Publication Services 2010 (3.0 ed.). Göttingen. doi:urn:nbn:de:kobv:11-100182800
- **Data Seal of Approval. (2010). Data Seal of Approval. Guidelines version 1. Retrieved from http://assessment.datasealofapproval.org/documentation/**
- **DIN. (2012). Kriterien für vertrauenswürdige digitale Langzeitarchive. DIN 31644:2012-04. Retrieved from http://www.beuth.de/de/norm/din-31644/147058907**
- ESF & EUROHORCs. (2011). Basic Requirements for Research Infrastructures in Europe. Retrieved from http://www.dfg.de/download/pdf/foerderung/programme/wgi/basic_requirements_research_infrastructures.pdf
- ICSU World Data System (WDS). (2011). Certification of WDS Members. Retrieved from http://icsu-wds.org/images/files/WDS_Certification_Summary_11_June_2012.pdf
- **ISO. (2012). Space data and information transfer systems - Audit and certification of trustworthy digital repositories. ISO 16363:2012. Retrieved from http://www.iso.org/iso/catalogue_detail.htm?csnumber=56510**

# QUALITÄTSSTANDARDS

- Braun, K., Buddenbohm, S., Dobratz, S., Herb, U., Müller, U., Pampel, H., Schmidt, B., et al. (2011). DINI Certificate Document and Publication Services 2010 (3.0 ed.).

The framework will consist of a sequence of three levels, in increasing trustworthiness:

- **Basic Certification** is granted to repositories which obtain DSA certification;
- **Extended Certification** is granted to Basic Certification repositories which in addition perform a structured, externally reviewed and publicly available self-audit based on ISO 16363 or DIN 31644;
- **Formal Certification** is granted to repositories which in addition to Basic Certification obtain full external audit and certification based on ISO 16363 or equivalent DIN 31644.

Granting of these certificates will allow repositories to show one of three symbols (to be agreed) on their web pages and other documentation, in addition to any other DSA, DIN or ISO certification marks.

from http://www.iso.org/iso/catalogue_detail.htm?csnumber=56510



Klump, J. (2011). Criteria for the Trustworthiness of Data Centres. D-Lib Magazine, 17(1/2). doi:10.1045/january2011-klump

# FINANZIERUNGS- UND GESCHÄFTSMODELLE

- Häufig Anschubfinanzierung durch Drittmittel
- Herausforderung: Betriebskosten (und Investitionen)
- Beispiel: GESIS
  - ca. 3,8 Mio. Euro jährliche Betriebskosten
  - Gesamtkapazität: ca. 6.100 Studien
  - Neuzugänge: ca. 120 Studien pro Jahr
  - ca. 20.000 Nutzungsvorgänge (Bestellung/Download) pro Jahr
  - Personalkosten (inkl. Verwaltung und IT): 2.700 k€ pro Jahr
  - Sachausgaben 1.000 k€ pro Jahr
  - EDV-Investitionen 100 k€ pro Jahr



Kommission Zukunft der Informationsinfrastruktur. (2011). Gesamtkonzept für die Informationsinfrastruktur in Deutschland. Retrieved from http://www.allianz-initiative.de/fileadmin/user_upload/KII_Gesamtkonzept.pdf

# FINANZIERUNGS- UND GESCHÄFTSMODELLE

- Häufig Anschubfinanzierung durch Drittmittel
- Herausforderung: Betriebskosten (und Investitionen)
- Beispiel: Deutsches Fernerkundungsdatenzentrum
  - ca. 3,8 Mio. Euro jährliche Betriebskosten
  - Gesamtkapazität 2,7 Petabyte
  - Datenzuwachs: 300 Gigabyte/Tag
  - Prozessierte Produkte pro Monat: 100.000
  - Betriebsbereithaltung 690k€ pro Jahr
  - Systembetrieb 660 k€ Kosten pro Jahr
  - Softwareentwicklung 700 k€ pro Jahr
  - Datenzugang 420 k€ pro Jahr
  - Anwenderbetreuung 400 k€ pro Jahr
  - Anlagenerneuerung alle sechs Jahre 3.500 k€



Kommission Zukunft der Informationsinfrastruktur. (2011). Gesamtkonzept für die Informationsinfrastruktur in Deutschland. Retrieved from http://www.allianz-initiative.de/fileadmin/user_upload/KII_Gesamtkonzept.pdf

# FINANZIERUNGS- UND GESCHÄFTSMODELLE

- Sicherung der dauerhaften Finanzierung

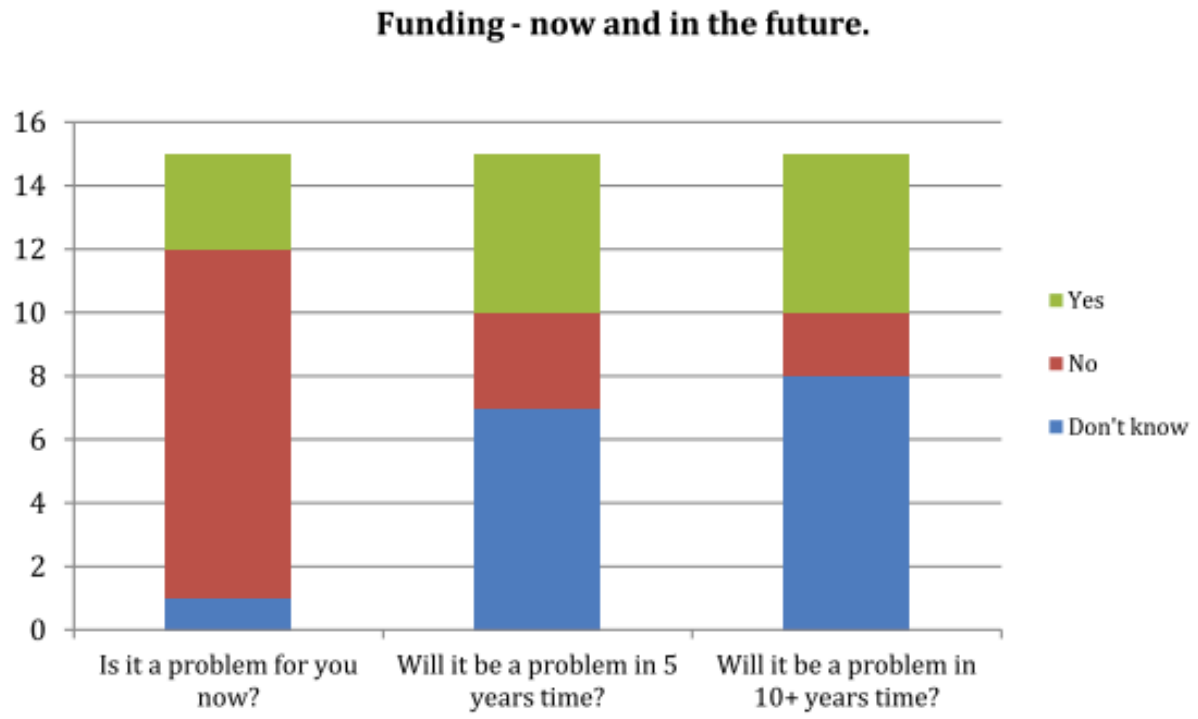



Figure 3 Funding of the repositories - now and in the future, n = 15

Pfeiffenberger, H., Pampel, H., Schäfer, A., Guidetti, V., Bruch, C., Tzitzikas, Y., Pröll, S., et al. (2012). Report and Strategy on Annotation, Reputation and Data Quality. Retrieved from http://www.alliancepermanentaccess.org/wp-content/plugins/download-monitor/download.php?id=D26.1+Report+and+Strategy+on+Annotation%2C+Reputation+and+Data+Quality

# FINANZIERUNGS- UND GESCHÄFTSMODELLE

- Sicherung der dauerhaften Finanzierung


nature Vol 435 23 June 2005

SPECIAL REPORT

Databases in peril

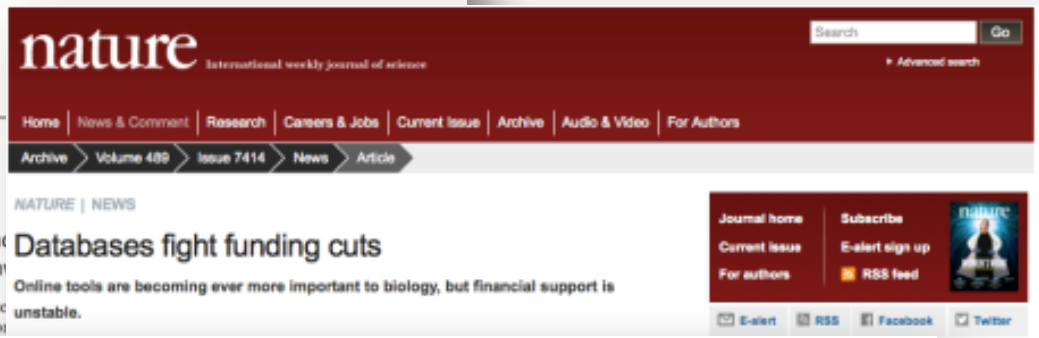
Life-sciences databases are in crisis, say their operators, as fun projects lose interest in maintaining existing services. *Nature* in

A lack of stable funding is threatening biology's core databases. Unless fund-ing agencies set aside dedicatec the fear is that researchers will lose a information vital to their work.

Several major international databa research centres, including the Eu Bioinformatics Institute (EBI) at Hinxt Cambridge, UK, face funding cuts. outlook for specialist databases is ever more than half of the operators conta *Nature* say their databases are updat

But databases in the United State feeling the pinch. The Alliance fo

Merali, Z., & Giles, J. (2005). Databases in peril. Nature, 435(7045), 1010–1. doi:10.1038/4351010a


nature International weekly journal of science

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NATURE | NEWS

Databases fight funding cuts

Online tools are becoming ever more important to biology, but financial support is unstable.

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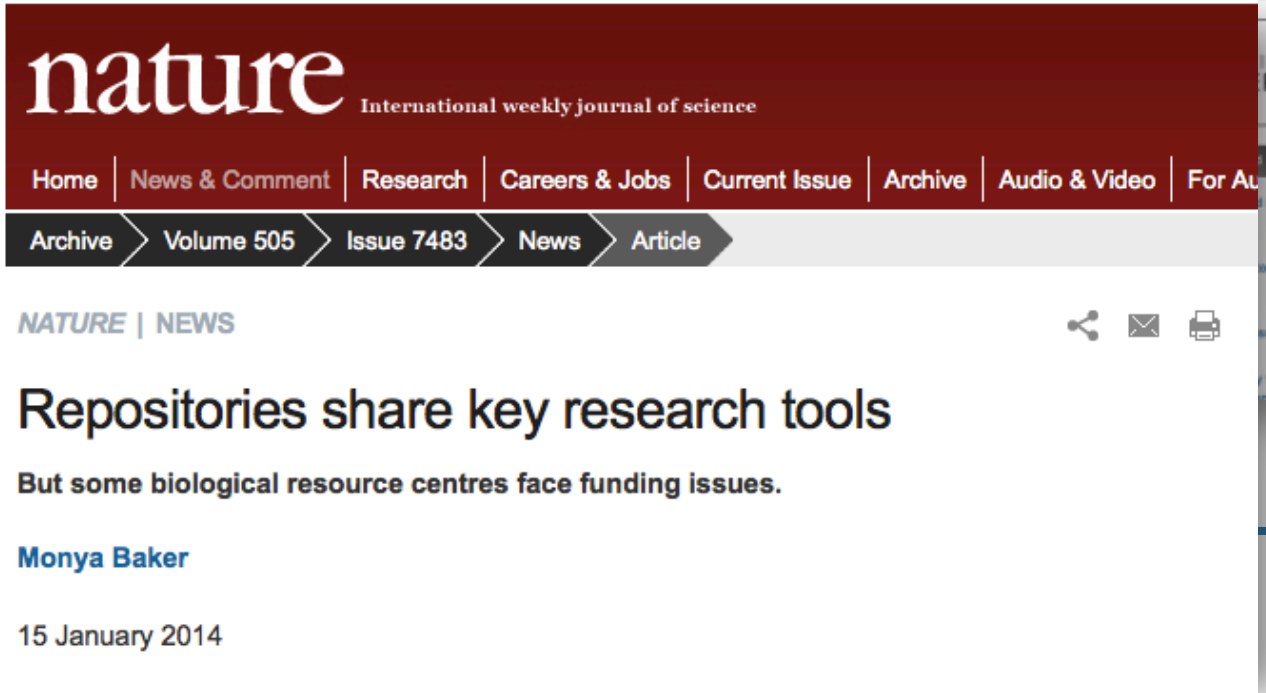
Baker, M. (2012). Databases fight funding cuts. Nature, 489(7414), 19–19. doi: 10.1038/489019a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Archive > Volume 505 > Issue 7483 > News > Article

NATURE | NEWS

Repositories share key research tools

But some biological resource centres face funding issues.

Monya Baker

15 January 2014

Baker, M. (2014). Repositories share key research tools. Nature, 505(7483), 272. doi: 10.1038/505272a

# FINANZIERUNGS- UND GESCHÄFTSMODELLE

- Sicherung der dauerhaften Finanzierung

Pathway Tools

**Information**

Pathway Tools Overview
Technical Datasheet
Download
Publications
Release Note History
Contributions
Pathway Tools Blog
Contact Us

**Technical Specs**

Web Services
Pathway Tools APIs
Installation Guide
Ontologies
Operations
File Formats

**Support**

Submitting Bug Reports
FAQ
User Group Meetings
Tutorial Slides

**ECOCYC FUNDING CRISIS -- DEADLINE MAY 26**

EcoCyc received a very unfavorable grant review in February 2014. We are in discussions with the NIH to resolve this situation.

EcoCyc's usage has steadily increased. We made very strong progress on our challenging aims from the current grant period, and the project has produced many publications. EcoCyc received excellent reviews on previous grant applications. Furthermore, the needs of the prokaryotic research community for the content and software tools offered by EcoCyc have never been higher.

In the worst case, we will lose all funding on July 1, 2014 and be forced to re-apply. Even in the best case, we may receive a crippling funding cut that causes us to fall behind in its manual literature curation effort, and requires us to lay off experienced curation staff until funding can be obtained.

These events could seriously undermine EcoCyc, end the project altogether, or force us to begin charging usage fees.

To maintain EcoCyc as the free, up to date, and high-quality resource that you depend on, please tell the NIH what EcoCyc means to your research. Please click the button below to submit a PDF letter of support on institutional letterhead, or a short support statement, explaining the importance of EcoCyc.

**We ask all regular users to submit; a short statement will take less than two minutes of your time. Students and post-docs, please ask your lab head to submit in addition to your submission.**

---

**5/16/14: We have received 54 letters/statements. We would like to receive hundreds. Your statements are more eloquent and effective than we could possibly produce. Please keep them coming.**

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http://brg.ai.sri.com/ptools/ecocyc-letters-of-support.shtml

# FINANZIERUNG UND QUELLE

- Sicherung

cyc-letters-of-support.shtml

# Keeping Research Data Safe Factsheet

## Cost issues in digital preservation of research data

This factsheet illustrates for institutions, researchers, and funders some of the key findings and recommendations from the JISC-funded Keeping Research Data Safe (KRDS1) and Keeping Research Data Safe 2 (KRDS2) projects. Further information on the research and findings can be found in the final reports and on the KRDS website.

### What Costs Most?

Acquisition and ingest costs most. The costs of archival storage and preservation activities are consistently a very small proportion of the overall costs and significantly lower than the costs of acquisition/ingest or access activities for all our case studies. Note we believe early preservation action during ingest or pre-ingest produces lower costs over the lifecycle as a whole. (KRDS1, p.25; KRDS2, pp.31-52)

Activity Costs for the Archaeology Data Service

| Outreach/ Acquisition/ Ingest | Archival Storage and Preservation | Access |
|---|---|---|
| c. 55% | c. 15% | c. 31% |

### Recommendation to Funders

From our research, it is likely that the largest potential cost efficiencies will come from future tool development supporting automation of ingest and access activities for curation and preservation. (KRDS2, p.83)

### Impact of Fixed Costs

- The costs of long-term data curation/preservation are dominated by fixed costs that do not vary with the size of the collections;
- Staff are the major cost component overall and there is a minimum base-level of staff cover, skills and equipment required for any service;
- Activities characterised by significant fixed costs can reduce the per-unit cost of long-term preservation by leveraging economies of scale.

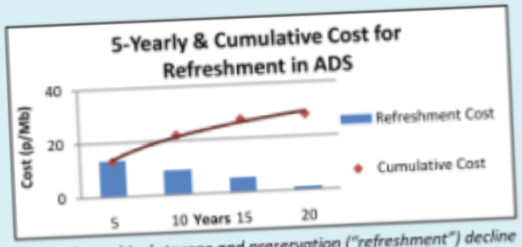
(KRDS2, pp.32-34, 79-80)

### Recommendation to Institutions

Repositories should take advantage of economies of scale, using multi-institutional collaboration and outsourcing as appropriate. Once core capacity is in place additional content can be added at increasing levels of efficiency and lower cost. (KRDS1, pp.77-78)

### Declining Costs over Time

We found a trend of relatively high preservation costs in the early years reducing substantially over time for data collections. An example is the preservation costs projected for the Archaeology Data Service (ADS) based on their experience of the first 10 years of operating the data service. (KRDS1, pp.4-6)




*Costs for archival storage and preservation ("refreshment") decline to a minimal level over 20 years*

### Recommendation to Funders and Institutions

The implications of these factors and projection for sustainability of data archives e.g. via archive charges to project budgets, are notable and worthy of more extensive study and testing. (KRDS1, pp.5-6)

Beagrie, C. (2011). Keeping Research Data Safe Factsheet. Cost issues in digital preservation of research data. Retrieved from http://www.beagrie.com/KRDS_Factsheet_0711.pdf

# FINANZIERUNG UND QUELLE

- Sicher rung

cyc-letters-of-support.shtml

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Acquisition and ingest costs most. The costs of archival storage and preservation activities are consistently a very small proportion of the overall costs and significantly lower than the costs of acquisition/ingest or access activities for all our case studies. Note we believe early preservation action produces lower costs over the lifecycle as a whole.

**Recommendation to Funders**

From our research, it is likely that the largest potential cost efficiencies will come from future tool development

### Activity Costs for the Archaeology Data Service

| Outreach/ Acquisition/ Ingest | Archival Storage and Preservation | Access |
|---|---|---|
| c. 55% | c. 15% | c. 31% |

(KRDS2, pp.32-34, 79-80)

pp.77-78)

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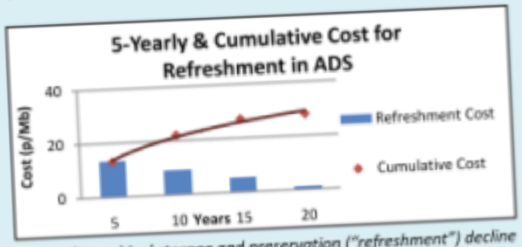


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# FINANZIERUNGS- UND GESCHÄFTSMODELLE

- Sicherung der dauerhaften Finanzierung

Unabhängig davon ist festzuhalten, dass der dauerhafte Betrieb von Forschungsdatenzentren als Teil der Forschungskosten etabliert werden muss und grob geschätzt einen dauerhaft zu finanzierenden Anteil von 5 % bis 10 % für den Bereich der „Datenpflege" an den Gesamtkosten für Forschung vorzusehen ist. Um international kompetitiv zu bleiben bedeutet dies, dass auch in Deutschland mittelfristig etwa 5 % bis 10 % der Forschungskosten zusätzlich für nachhaltige „Datenbereitstellung" aufgebracht werden müssen.

Kommission Zukunft der Informationsinfrastruktur. (2011). Gesamtkonzept für die Informationsinfrastruktur in Deutschland. Retrieved from http://www.allianz-initiative.de/fileadmin/user_upload/KII_Gesamtkonzept.pdf

# FINANZIERUNGS- UND GESCHÄFTSMODELLE

- S

DRYAD

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## Pricing plans and submission fees

***Dryad will begin charging submission fees on the 1st of September 2013.***

Dryad is a **nonprofit** organization that provides **long-term access** to its contents at **no cost** to researchers, educators or students, irrespective of nationality or institutional affiliation. Dryad is able to provide free access to data due to financial support from members and data submitters. Dryad's submission fees are designed to sustain its core functions by recovering the basic costs of curating and preserving data. New innovations are enabled by research and development grants and by support from donors.

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organization.

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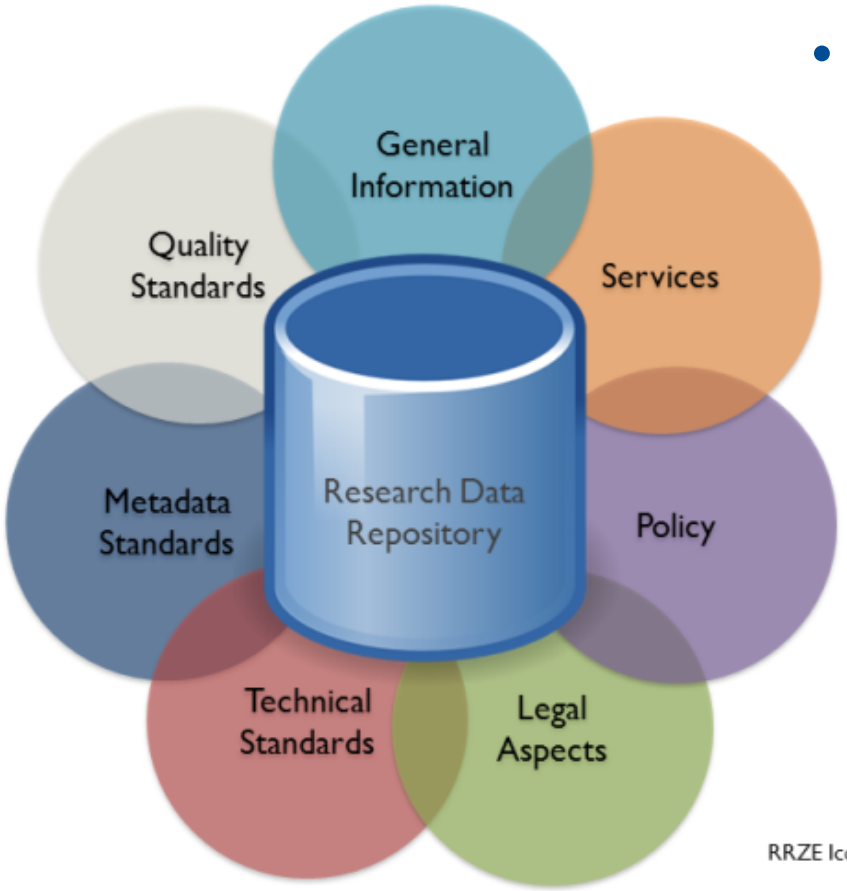
| 2. Deferred Payment Plan | €53 per data package | €56 per data package | 1 yr contract |
| 3. Subscription Plan | annual fee based on €19 per published research article | annual fee based on €23 per published research article | 2 yr contract |
| For individuals: Pay on submission | NA | €60 per data package, payable by the submitter | 1 data package |

# ASPEKTE




RRZE Icon Set (CC: BY-SA)

- Frage:
  - Welche Finanzierungs- und Geschäftsmodelle scheinen Ihnen für ein Forschungsdaten-Repositorium geeignet?

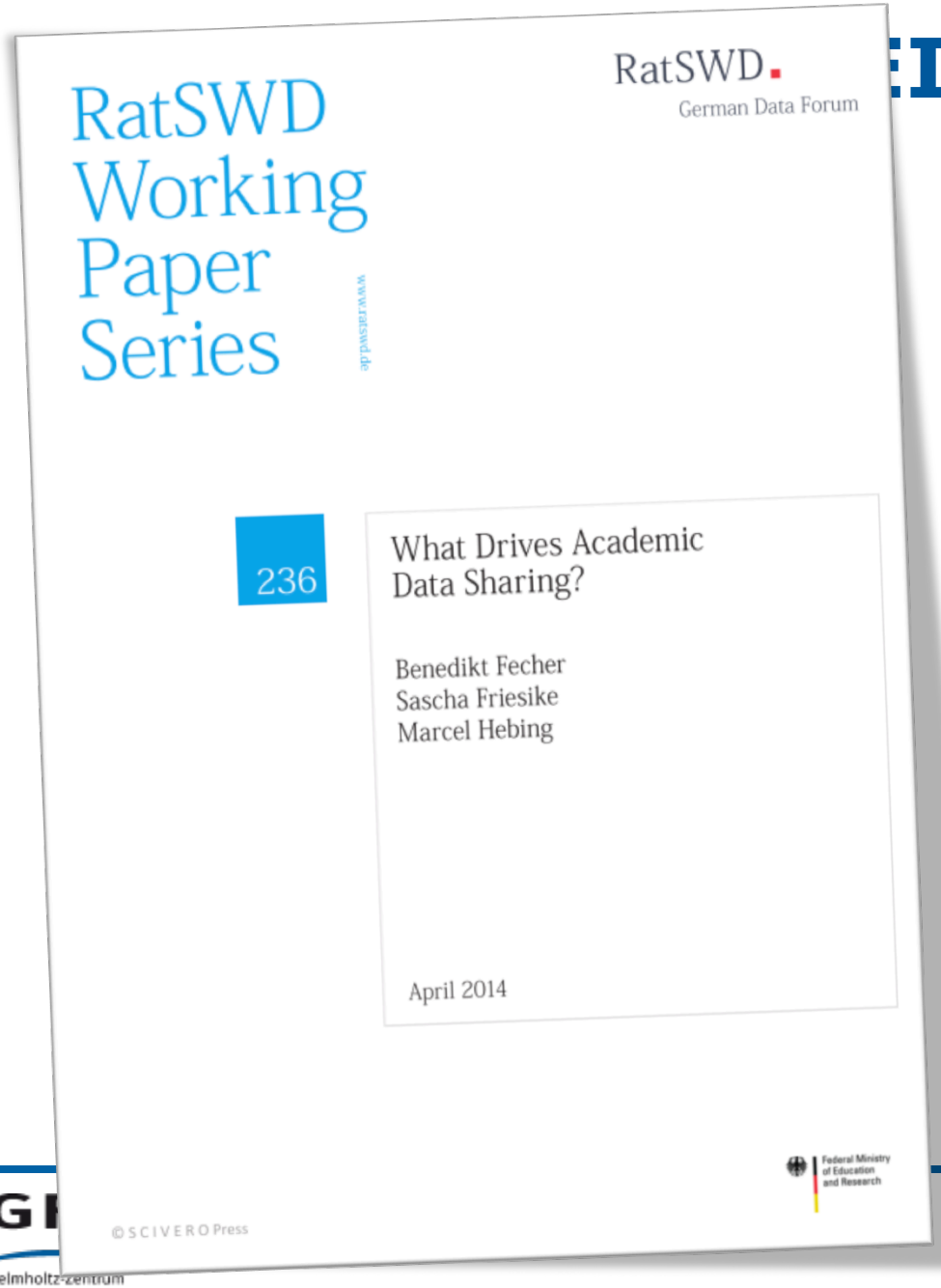
# AGENDA

- Relevanz
- Rahmenbedingungen
- Typologie
- Definition
- Aspekte
- **Verankerung in der Community**
- re3data.org
- Ausblick

# BARRIEREN ÜBERWINDEN


Grafik: Nature, http://www.nature.com/news/specials/datasharing/images/datasharing.jpg

# EIZE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236

What Drives Academic Data Sharing?

Benedikt Fecher
Sascha Friesike
Marcel Hebing

April 2014

Federal Ministry of Education and Research

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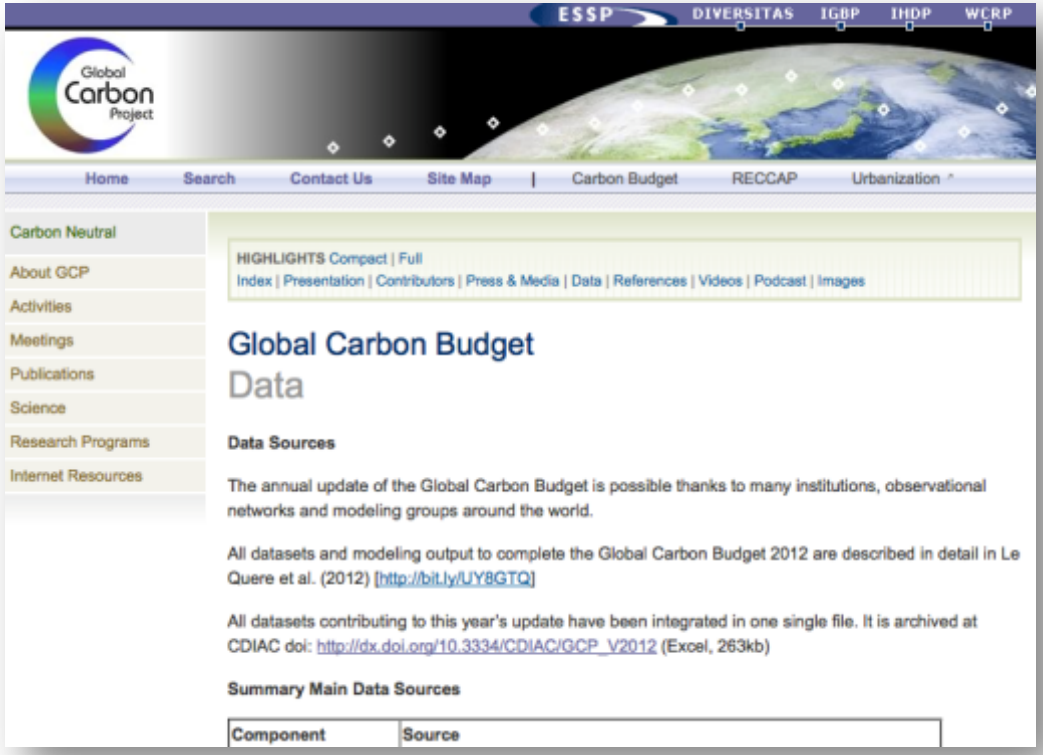
- Fechner, B., Friesike, S., & Hebing, M. (2014). What Drives Academic Data Sharing? (RatSWD Working Paper Series, No. 236). Retrieved from http://www.ratswd.de/dl/RatSWD_WP_236.pdf

# KOOPERATION ALS SCHLÜSSEL

ODE has learned that there are some conditions that can enable data sharing. Service providers like data centres and libraries for example are ready to play a certain role or expand their activities in data management and sharing. Publishers see the added value of data published alongside articles and foresee an adaption of their editorial policies or establish data journals. Researchers and funders view data as a research output in its own right and funding bodies require more and more data management plans specifying data preservation and access. A series of enablers can spread existing best practices, which thrive on collaborations within and across the individual groups. Successful data sharing needs to profit from synergies that arise from such collaborations where every stakeholder group contributes with its expertise, skills and experiences.

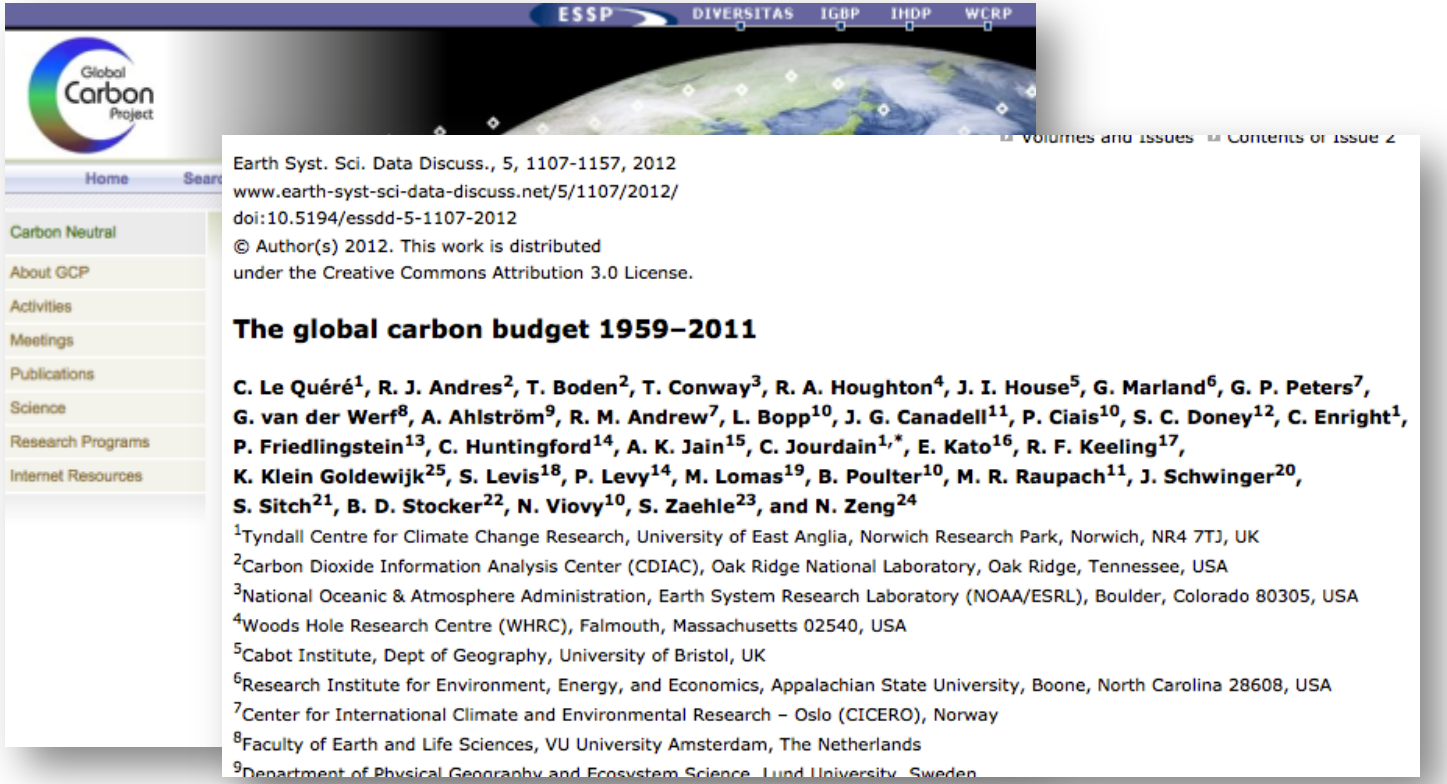
Dallmeier-Tiessen, S., Darby, R., Gitmans, K., Herterich, P., Lambert, S., Mele, S., Nordling, J., et al. (2012). Summary of the studies, thematic publications and recommendations. Retrieved from http://www.alliancepermanentaccess.org/wp-content/plugins/download-monitor/download.php?id=Summary+of+the+studies%2C+thematic+publications+and+recommendations

# KOOPERATION ALS SCHLÜSSEL




http://dx.doi.org/10.3334/CDIAC/GCP_V2012

# KOOPERATION ALS SCHLÜSSEL




Earth Syst. Sci. Data Discuss., 5, 1107-1157, 2012
www.earth-syst-sci-data-discuss.net/5/1107/2012/
doi:10.5194/essdd-5-1107-2012


**The global carbon budget 1959–2011**

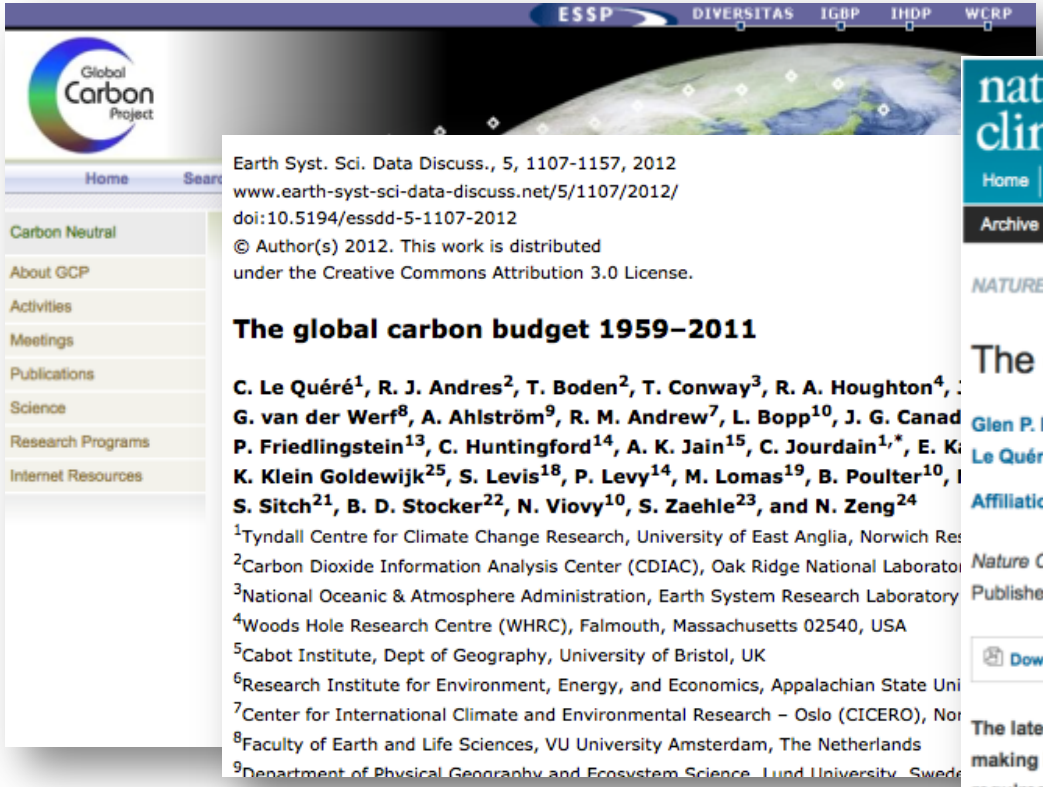
**C. Le Quéré[1], R. J. Andres[2], T. Boden[2], T. Conway[3], R. A. Houghton[4], J. I. House[5], G. Marland[6], G. P. Peters[7], G. van der Werf[8], A. Ahlström[9], R. M. Andrew[7], L. Bopp[10], J. G. Canadell[11], P. Ciais[10], S. C. Doney[12], C. Enright[1], P. Friedlingstein[13], C. Huntingford[14], A. K. Jain[15], C. Jourdain[1,*], E. Kato[16], R. F. Keeling[17], K. Klein Goldewijk[25], S. Levis[18], P. Levy[14], M. Lomas[19], B. Poulter[10], M. R. Raupach[11], J. Schwinger[20], S. Sitch[21], B. D. Stocker[22], N. Viovy[10], S. Zaehle[23], and N. Zeng[24]**

[1]Tyndall Centre for Climate Change Research, University of East Anglia, Norwich Research Park, Norwich, NR4 7TJ, UK
[2]Carbon Dioxide Information Analysis Center (CDIAC), Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA
[3]National Oceanic & Atmosphere Administration, Earth System Research Laboratory (NOAA/ESRL), Boulder, Colorado 80305, USA
[4]Woods Hole Research Centre (WHRC), Falmouth, Massachusetts 02540, USA
[5]Cabot Institute, Dept of Geography, University of Bristol, UK
[6]Research Institute for Environment, Energy, and Economics, Appalachian State University, Boone, North Carolina 28608, USA
[7]Center for International Climate and Environmental Research – Oslo (CICERO), Norway
[8]Faculty of Earth and Life Sciences, VU University Amsterdam, The Netherlands
[9]Department of Physical Geography and Ecosystem Science, Lund University, Sweden

http://dx.doi.org/10.3334/CDIAC/GCP_V2012

http://dx.doi.org/10.5194/essdd-5-1107-2012

# KOOPERATION ALS SCHLÜSSEL





http://dx.doi.org/10.3334/CDIAC/GCP_V2012

http://dx.doi.org/10.5194/essdd-5-1107-2012

http://dx.doi.org/10.1038/nclimate1783

# KOOPERATION ALS SCHLÜSSEL

Global Carbon Project

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Gesundheit | Umwelt | Geschichte

TOP-KLIMASÜNDER

**Die Welt pustet munter weiter CO2 in die Atmosphäre**

Besonders China, Indien und die USA heizen dem Klimawandel weiter kräftig ein. Nur radikale Klimaschutzziele würden helfen. Forscher fürchten eine Erwärmung um fünf Grad.

Während der CO2-Ausstoß in Europa und den USA im vergangenen Jahr zurückgegangen ist, legte er in Schwellenländern wie China und Indien deutlich zu. Das berichtet ein internationales Forscherteam in den Magazinen *Nature Climate Change* und *Earth System Science Data*. Global stiegen die Kohlenstoffdioxid-Emissionen 2011 demnach um drei Prozent auf 34,7 Milliarden Tonnen. Während China ein Plus von knapp zehn Prozent und Indien einen Zuwachs um 7,5 Prozent verzeichnete, pustete die EU 2,8 Prozent und in die USA 1,8 Prozent weniger CO2 in die Atmosphäre. Die neuen Werte wurden mit denen aus dem Jahr 2010 verglichen.

DATUM 03.12.2012
QUELLE ZEIT ONLI
KOMMENTARE 94
VERSENDEN E-Mail
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ARTIKEL DRUCKEN
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CDU | Peter Altmaie
CO2 | Entwicklungsl

NEU AUF ZEIT ONLINE
1. VENEZUELA Was ble
2. FOTOS DER TRAUER
3. WULFF-AFFÄRE Ank
4. SEXISMUS-DEBATTE kritisieren Gauck
5. DIETER PFAFF Haltu

NEU IM RESSORT
1. LABORSCHLIESSUN dürfen nicht Schule

For Authors & Referees | About the jou

warming below 2 °C

G. Canadell, Philippe Ciais, Corinne
rlie Wilson

climate1783

& permissions

k the high end of emission scenarios,
elow 2 °C. A shift to a 2 °C pathway
mitigation, with a probable reliance on

38/nclimate1783

# WISSENSCHAFTSKOMMUNIKATION

- Data Journals
  - Atomic Data and Nuclear Data Tables (Elsevier)
  - Biodiversity Data Journal (Pensoft Publishers)
  - Dataset Papers in Biology (Hindawi Publishing Corporation)
  - Dataset Papers in Chemistry (Hindawi Publishing Corporation)
  - Dataset Papers in Ecology (Hindawi Publishing Corporation)
  - Dataset Papers in Geosciences (Hindawi Publishing Corporation)
  - Dataset Papers in Materials Science (Hindawi Publishing Corporation)
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  - Dataset Papers in Nanotechnology (Hindawi Publishing Corporation)
  - Dataset Papers in Neuroscience (Hindawi Publishing Corporation)
  - Dataset Papers in Pharmacology (Hindawi Publishing Corporation)
  - Dataset Papers in Physics (Hindawi Publishing Corporation)
  - Earth System Science Data - ESSD (Copernicus Publications)
  - F1000Research (F1000 Research)
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# VERANKERUNG IN DER COMMUNITY

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Abstract
Keywords
1. Introduction
2. Oceanography
3. Materials and methods
4. Results
5. Discussion
6. Conclusions
Acknowledgements
References

Figures and tables

Table 1

Table 2

ELSEVIER

Marine Micropaleontology

Volume 66, Issues 3–4, 20 February 2008, Pages 192–207

**Organic matter rain rates, oxygen availability, and vital effects from benthic foraminiferal $\delta^{13}C$ in the historic Skagerrak, North Sea**

Sylvia Brückner, Andreas Mackensen

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DOI: 10.1016/j.marmicro.2007.09.002

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Abstract

The sediment cores 225514 and 225510 were recovered from 420 and 285 m water depth, respectively. They were investigated for their benthic foraminiferal $\delta^{13}C$ during the last 500 years. Both cores were recovered from the southern flank of the Skagerrak. The $\delta^{13}C$ values of *Uvigerina mediterranea* and other shallow infaunal species in both cores indicate that organic matter rain rates to the seafloor varied around a mean value until approximately AD 1950 after which they increased. This increase might result from changes in the North Atlantic Current System and a co-occurring persistently high North Atlantic Oscillation index state in the 1980s to 1990s, rather than from anthropogenic eutrophication. Using $\delta^{13}C$ mean values of multiple species, we reconstruct $\delta^{13}C$ gradients of dissolved inorganic carbon (DIC) within pore waters for the time periods AD 1500 to 1950 and AD 1950 to 2000. The calculated $\delta^{13}C_{DIC}$ ranges, interpreted as indicating total organic matter remineralization due to respiration, are generally bigger in Core 225514 than in Core 225510. Since mean $\delta^{13}C$ values of *U. mediterranea* suggest that organic matter rain rates were

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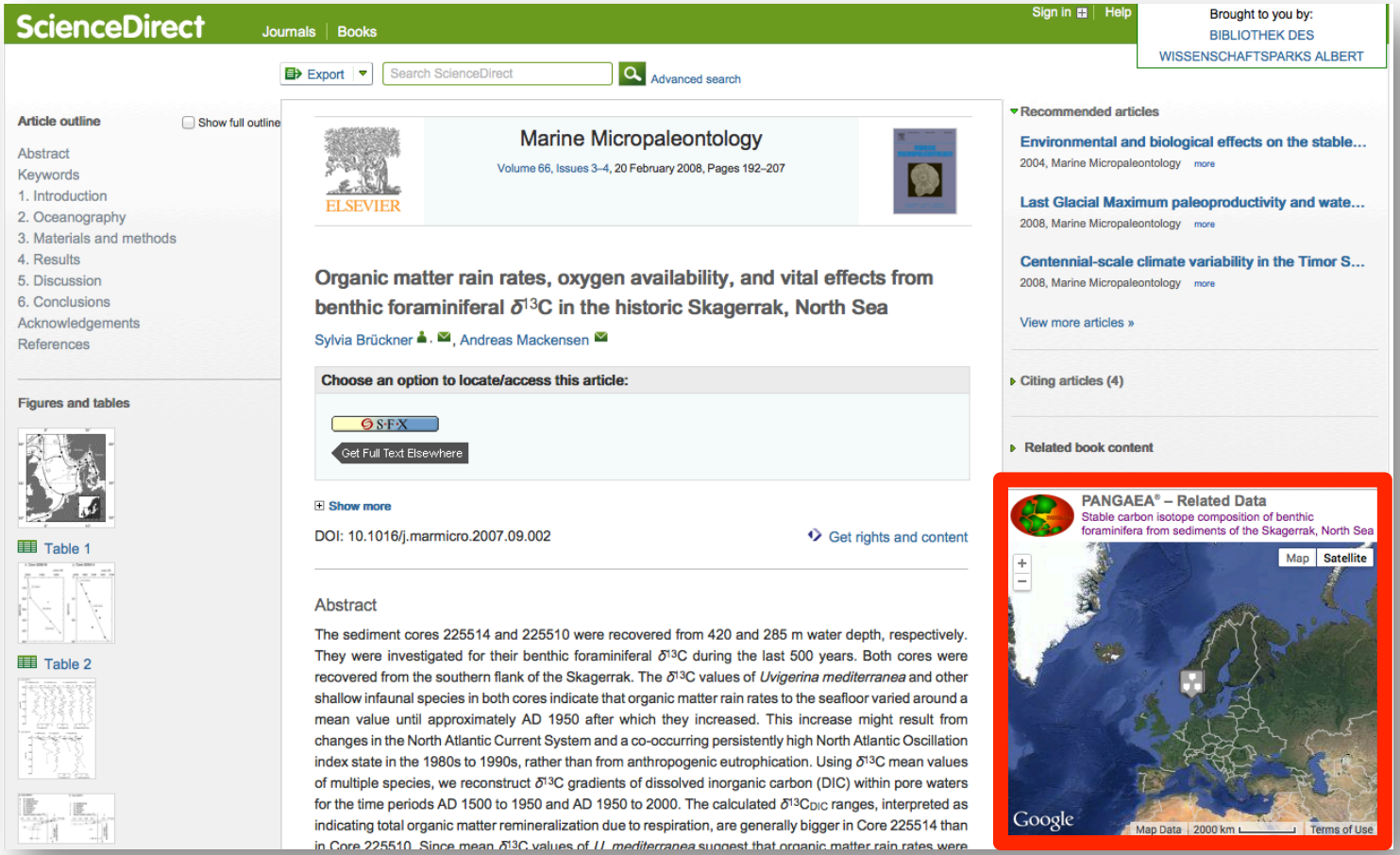
http://doi.org/10.1016/j.marmicro.2007.09.002
http://doi.org/10.1594/PANGAEA.676719

# VERANKERUNG IN DER COMMUNITY

- Beispiel: PANGAEA - ScienceDirect




http://doi.org/10.1016/j.marmicro.2007.09.002
http://doi.org/10.1594/PANGAEA.676719

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- Beispiel: PANGAEA - ScienceDirect

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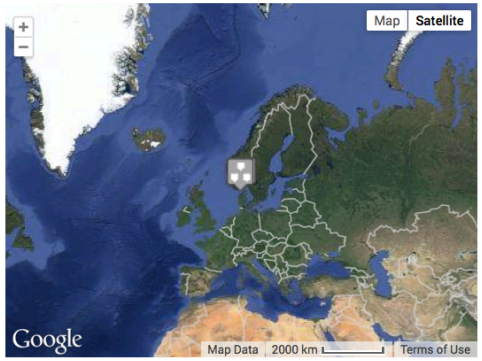
**Data Publisher for Earth & Environmental Science**

Always quote citation when using data!

**Data Description** Show Map | Google Earth | RIS | BibTeX

*Citation:* Brückner, S; Mackensen, A (2008): Stable carbon isotope composition of benthic foraminifera from sediments of the Skagerrak, North Sea. doi:10.1594/PANGAEA.676719, *Supplement to:* **Brückner, Sylvia; Mackensen, Andreas (2008):** Organic matter rain rates, oxygen availability, and vital effects from benthic foraminiferal d13C in the historic Skagerrak, North Sea. *Marine Micropaleontology*, **66(3-4)**, 192-207, doi:10.1016/j.marmicro.2007.09.002




*Abstract:* The sediment cores 225514 and 225510 were recovered from 420 and 285 m water depth, respectively. They were investigated for their benthic foraminiferal delta13C during the last 500 years. Both cores were recovered from the southern flank of the Skagerrak. The delta13C values of Uvigerina mediterranea and other shallow infaunal species in both cores indicate that organic matter rain rates to the seafloor varied around a mean value until approximately AD 1950 after which they increased. This increase might result from changes in the North Atlantic Current System and a co-occurring persistently high North Atlantic Oscillation index state in the 1980s to 1990s, rather than from anthropogenic eutrophication. Using delta13C mean values of multiple species, we reconstruct delta13C gradients of dissolved inorganic carbon (DIC) within pore waters for the time periods AD 1500 to 1950 and AD 1950 to 2000. The calculated delta13CDIC ranges, interpreted as indicating total organic matter remineralization due to respiration, are generally bigger in Core 225514 than in Core 225510. Since mean delta13C values of U. mediterranea suggest that organic matter rain rates were similar at both locations, differences in total organic matter remineralization are attributed to differing oxygen availability. However, oxygen concentrations in the overlying bottom water masses are not likely to have differed significantly. Thus, we suggest that organic matter remineralization was controlled by oxygen availability within the sediments, reflecting strong differences in sedimentation rates at the two investigated core sites. Based on the assumptions that tests of benthic foraminiferal species inhabiting the same microhabitat depth should show equal delta13C values unless they are affected by vital effects and that Globobulimina turgida records pore water delta13CDIC, we estimate microhabitat-corrected vital effects for several species with respect to G. turgida: >0.7 per mil for Cassidulina laevigata, >1.3 per mil for Hyalinea balthica, and >0.7 per mil for Melonis barleeanus. Melonis zaandami seems to closely record pore water delta13CDIC.

*Related to:* **Brückner, Sylvia (2008):** Climatic and hydrographic variability in the late Holocene Skagerrak as deduced from benthic foraminiferal proxies (Klimatische und hydrographische Variabilität im holozänen Sagerrak, abgeleitet aus benthischen Foraminiferen). *Berichte zur Polar- und Meeresforschung = Reports on Polar and Marine Research*, **572**, 139 pp, hdl:10013/epic.28879

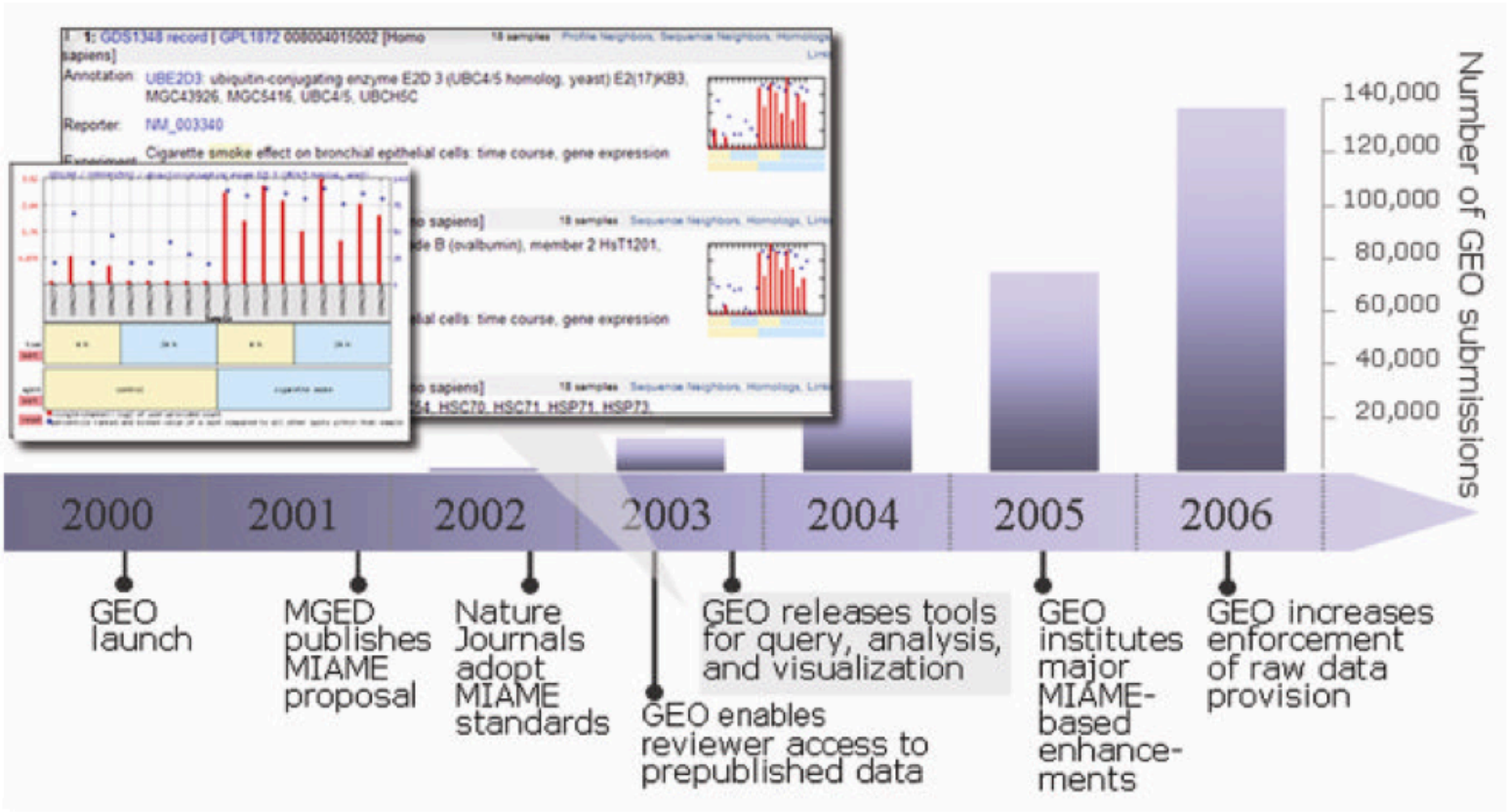
*Project(s):* **Paleoenvironmental Reconstructions from Marine Sediments @ AWI** (AWI_Paleo)

*Coverage:* *Median Latitude:* 57.961556 * *Median Longitude:* 9.256500 * *South-bound Latitude:* 57.840556 * *West-bound Longitude:* 8.709083 * *North-bound Latitude:* 58.042222 * *East-bound Longitude:* 9.621444

http://doi.org/10.1016/j.marmicro.2007.09.002
http://doi.org/10.1594/PANGAEA.676719

# VERANKERUNG IN DER COMMUNITY

- Beispiel: Gene Expression Omnibus (GEO)

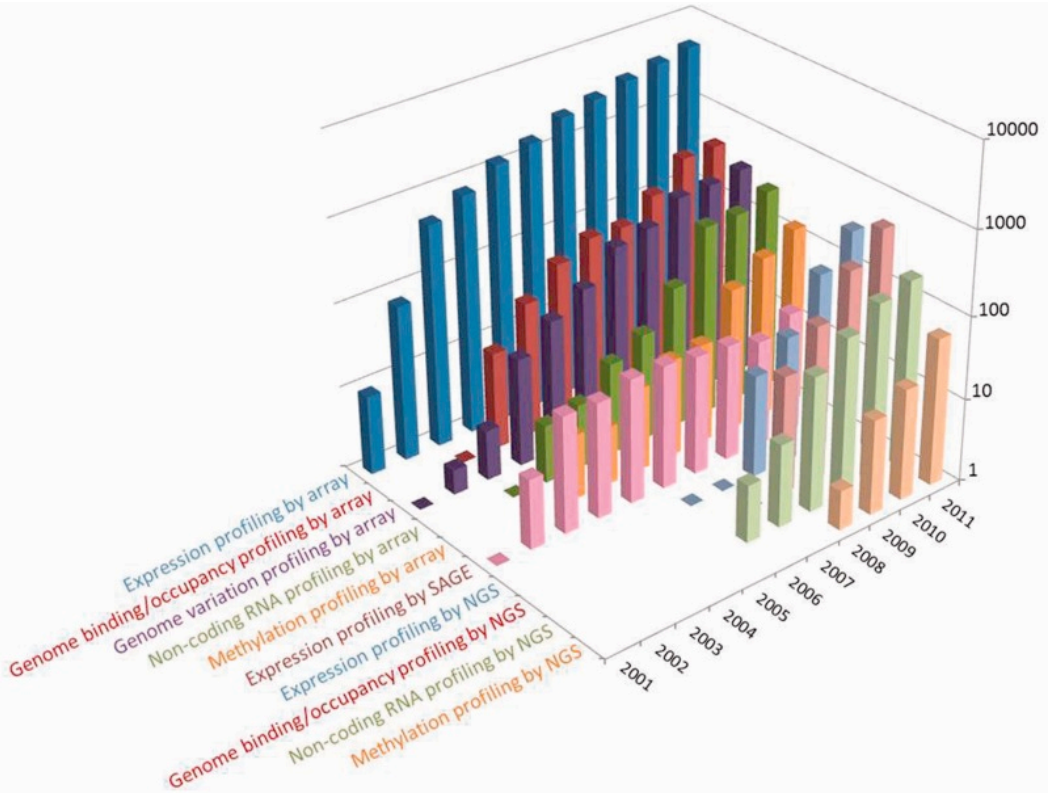


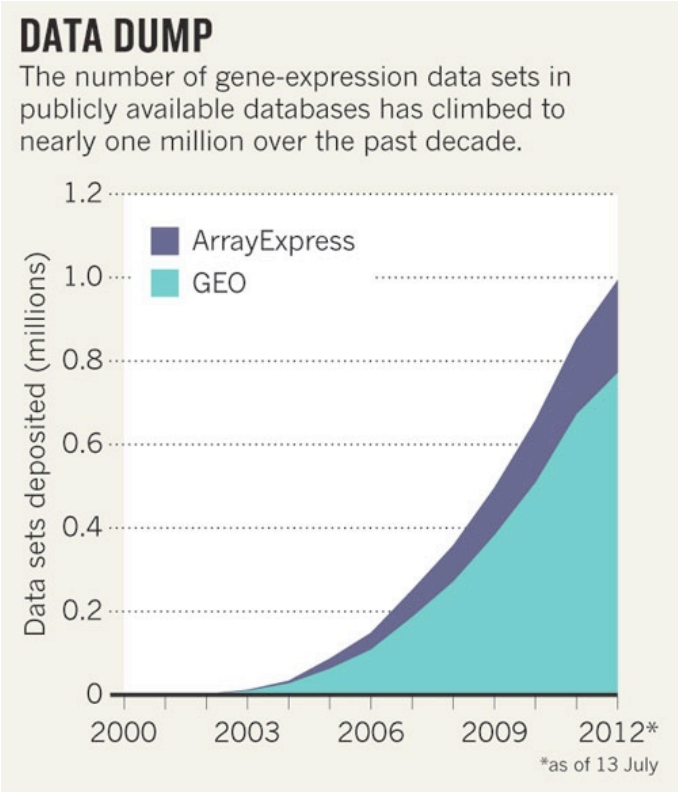



Edgar, R., & Barrett, T. (2006). NCBI GEO standards and services for microarray data. Nature Biotechnology, 24(12), 1471–2. doi:10.1038/nbt1206-1471

# VERANKERUNG IN DER COMMUNITY

- Beispiel: Gene Expression Omnibus (GEO)






Barrett, T.; et al. (2013). NCBI GEO: archive for functional genomics data sets--update. Nucleic Acids Research, 41(Database issue), D991–5. doi:10.1093/nar/gks1193

Baker, M. (2012). Gene data to hit milestone. Nature, 487(7407), 282–3. doi: 10.1038/487282a

# VERANKERUNG IN DER COMMUNITY

- Beispiel: Gene Expression Omnibus (GEO)

### Why should I submit my data to GEO?

There are several good reasons for submitting your data to us. The most likely reason is that the journal in which you are publishing your research requires deposit of microarray data to a MIAME-compliant public repository like GEO. We endeavor to make data deposit procedures as straightforward as possible and will provide as much assistance as you require to get your data

### When do I submit my data to GEO?

Many journals require accession numbers for microarray or sequence data before acceptance of a paper for publication. Also, reviewers and editors may need access to your data during the review process. Thus, data should be deposited in GEO before a manuscript describing the data is sent to a journal for review. GEO processing times is approximately 5 business days after completion of submission, so it is important to make your submission well in advance of when you require the accession numbers for your manuscript. Your records may remain private until your data are published. Once your submissions have been approved, you can cite the GEO accession number(s) in your manuscript and you can generate an access link by which editors and reviewers can access your private submissions.



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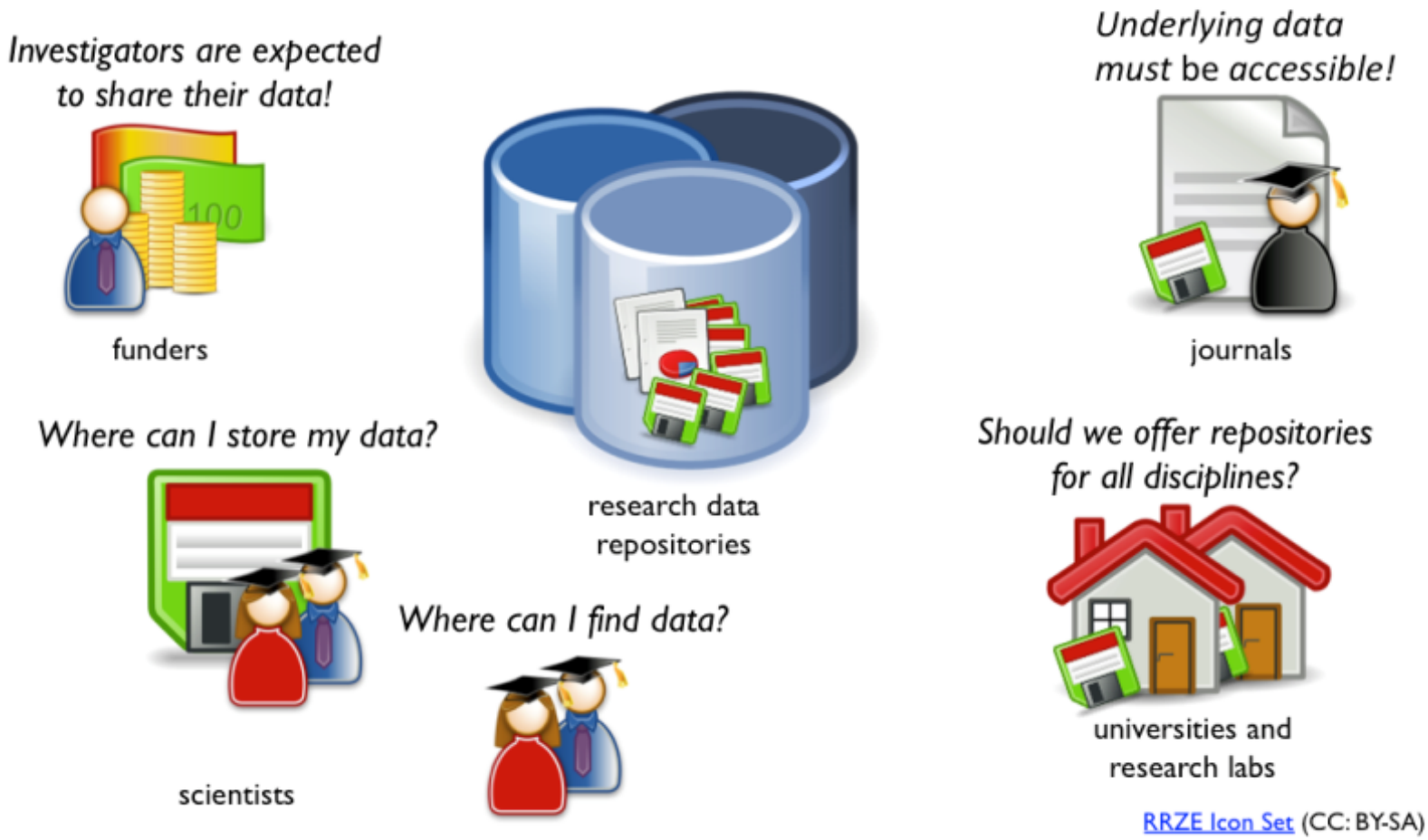
# AGENDA

- Relevanz
- Rahmenbedingungen
- Typologie
- Definition
- Aspekte
- Verankerung in der Community
- **re3data.org**
- Ausblick

# RAHMENBEDINGUNGEN

## The Research Data Repositories Landscape



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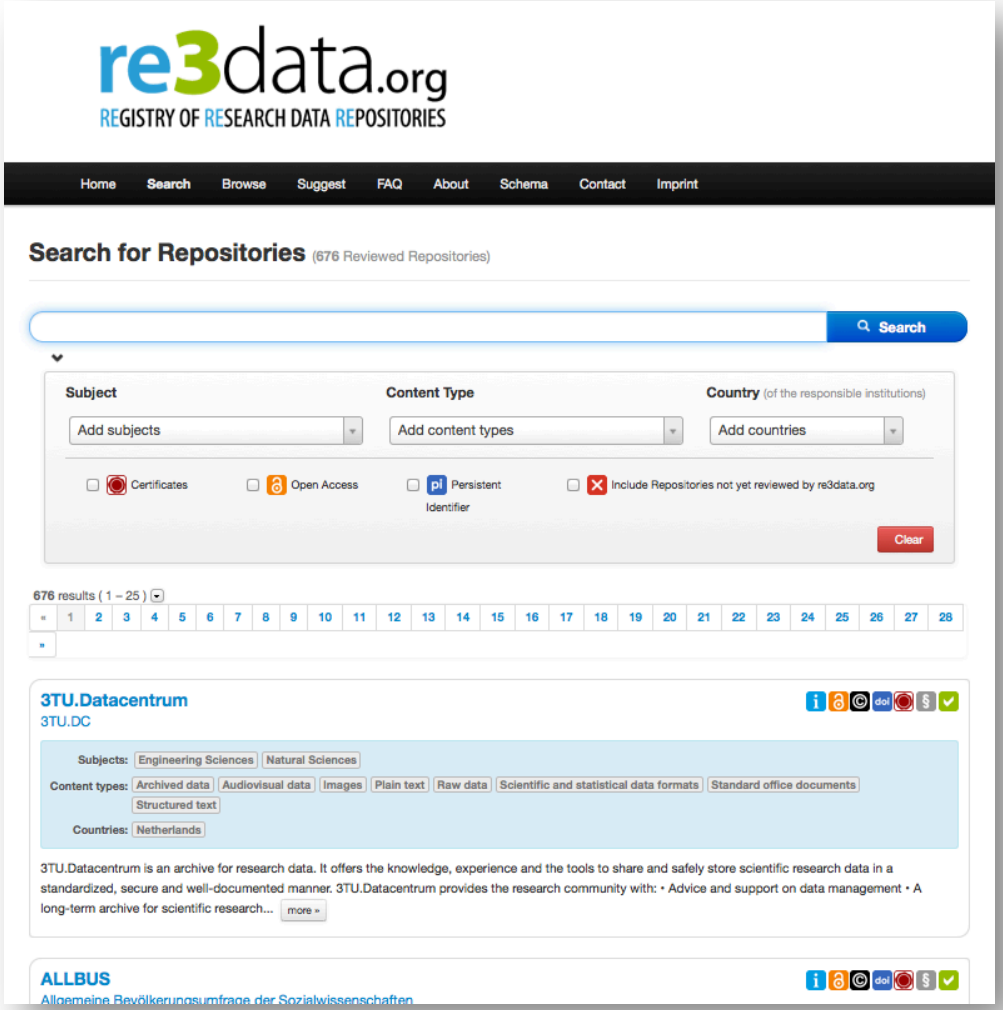
# re3data.org




- Projektpartner:
  - Deutsches GeoForschungsZentrum GFZ, Bibliothek und Informationsdienste (LIS)
  - Humboldt-Universität zu Berlin, Institut für Bibliotheks- und Informationswissenschaft (IBI)
  - Instituts für Technologie (KIT), KIT-Bibliothek
- Förderorganisation:
  - Deutsche Forschungsgemeinschaft
  - Phase 1: 2013-2014
  - Phase 2:2014-2015
- Diverse Kooperationspartner



Pampel, H. et al. (2013). Making Research Data Repositories Visible: The re3data.org Registry. PLOS ONE, 8(11), e78080. doi:10.1371/journal.pone.0078080

# re3data.org

- Aufbau eines Verzeichnisses zur Beschreibung von Forschungsdaten-Repositorien
- Unterstützung für Forschende, Förderorganisationen und Einrichtungen der Informationsinfrastruktur
- Beitrag zur Weiterentwicklung der Forschungsdaten-Repositorien (Standardisierung und Professionalisierung)
- Nationaler Beitrag zur weltweiten Diskussion über die Schaffung von offenen Forschungsdaten-Infrastrukturen

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- Version 1.0 (2012)
  - Resultat einer Bestandsaufnahme
  - http://doi.org/10.2312/re3.001
- Version 2.0 (2012)
  - Ergebnis einer öffentlichen Konsultation
  - http://doi.org/10.2312/re3.002
  - http://www.re3data.org/schema/2-0/
- Version 2.1 (2013)
  - Zusammenarbeit mit Kooperationspartnern
  - http://doi.org/10.2312/re3.004
  - http://www.re3data.org/schema/2-1/
- Neue Version in Arbeit (2014)

re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES

Schema for the Description of Research Data Repositories

Version 2.1
Dezember 2013
DOI: http://doi.org/10.2312/re3.004

Authors: Paul Vierkant [b], Shaked Spier [b], Jessika Rücknagel [b], Heinz Pampel [a], Jens Gundlach [c], David Fichtmüller [d], Maxi Kindling [b], Agnes Kirchhoff [d], Hans-Jürgen Goebelbecker [c], Jens Klump [a], Gabriele Kloska [c], Evelyn Reuter [c], Angelika Semrau [c], Edeltraud Schnepf [c], Michael Skarupianski [c], Roland Bertelmann [a], Peter Schirmbacher [b], Frank Scholze [c], Claudia Kramer [c]

[a] GFZ German Research Centre for Geosciences, Library and Information Services (LIS)
[b] Humboldt-Universität zu Berlin, Berlin School of Library and Information Science (BLIS)
[c] Karlsruhe Institute of Technology (KIT), KIT Library
[d] Botanic Garden and Botanical Museum Berlin-Dahlem, Freie Universität Berlin

Contact
info@re3data.org
http://www.re3data.org

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Vierkant, P., et al. (2013). Schema for the Description of Research Data Repositories. Version 2.1. doi:10.2312/re3.004

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results

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REGISTRY OF RESEARCH DATA REPOSITORIES

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## Search for Repositories (676 Reviewed Repositories)

geosciences [Search]

**Subject** Add subjects

**Content Type** Add content types

**Country** (of the responsible institutions) Add countries

Germany

Certificates | Open Access | Persistent Identifier | Include Repositories not yet reviewed by re3data.org

Clear

34 results (filtered) ( 1 – 25 )

« 1 2 »

### PANGAEA

Publishing Network for Geoscientific and Environmental Data

Subjects: Atmospheric Science and Oceanography | Biology | Geochemistry, Mineralogy and Crystallography | Geochemistry, Mineralogy and Crystallography | Geology and Palaeontology | Geology and Palaeontology | Geophysics | Geophysics and Geodesy | Geosciences (including Geography) | Life Sciences | Natural Sciences | Oceanography

Content types: Archived data | Audiovisual data | Images | Plain text | Standard office documents

Countries: Germany

The information system PANGAEA is operated as an Open Access library aimed at archiving, publishing and distributing georeferenced data from earth system research. The system guarantees long-term availability of its content through a commitment of the operating institutions.

GFZ Helmholtz-Zentrum Potsdam

Repository details

# PANGAEA

Back to results

General | Institutions | Terms | Standards

## General information

| | |
|---|---|
| Name of repository | **PANGAEA** |
| Additional name | Publishing Network for Geoscientific and Environmental Data |
| Repository URL | http://www.pangaea.de |
| Subjects | Atmospheric Science and Oceanography, Biology, Geochemistry, Mineralogy and Crystallography, Geochemistry, Mineralogy and Crystallography, Geology and Palaeontology, Geology and Palaeontology, Geophysics, Geophysics and Geodesy, Geosciences (including Geography), Life Sciences, Natural Sciences, Oceanography |
| Description | The information system PANGAEA is operated as an Open Access library aimed at archiving, publishing and distributing georeferenced data from earth system research. The system guarantees long-term availability of its content through a commitment of the operating institutions. |
| Content types | Archived data, Audiovisual data, Images, Plain text, Standard office documents |
| Keywords | Earth Science, Environmental Science |
| Repository type | disciplinary |
| Research data repository language(s) | eng |
| Data and/or service provider | dataProvider |

Back to results | Text Edit | GUI Edit

Repository details

# PANGAEA

Back to results

General | Institutions | Terms | Standards

## Responsible institutions (2)

| | |
|---|---|
| Institution name | **Alfred Wegener Institute for Polar and Marine Research** |
| Additional name | AWI<br>Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung |
| URL | http://www.awi.de/en/home/ |
| Contact | hgrobe@pangaea.de |
| Country | Germany |
| Type(s) of responsibility | general<br>technical |
| Type of institution | non-profit |

| | |
|---|---|
| Institution name | **Center for Marine Environmental Sciences (MARUM)** |
| URL | http://www.marum.de/ |
| Contact | mdiepenbroek@pangaea.de |
| Country | Germany |
| Type(s) of responsibility | general |
| Type of institution | non-profit |

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Repository details

# PANGAEA

Back to results

General | Institutions | Terms | Standards

## Terms (1)

| | |
|---|---|
| Policy name | **Data policy of the information system PANGAEA** |
| URL | http://www.pangaea.de/curator/files/pangaea-data-policy.pdf |

## Legal aspects

### Database access

| | |
|---|---|
| Type of access to research data repository | open |

### Data access

| | |
|---|---|
| Type of access to data | open |

### Data licences (1)

| | |
|---|---|
| License name | **CC** |
| License URL | http://wiki.pangaea.de/wiki/License |

### Data upload

| | |
|---|---|
| Type of data upload | restricted |
| Data upload restriction type | registration |
| Data upload license name | Data Submission |
| Data license URL | http://wiki.pangaea.de/wiki/Data_submission |

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Repository details

# PANGAEA

Back to results

General | Institutions | Terms | Standards

## Standards

| | |
|---|---|
| Name of the repository software | other |
| Versioning | yes |
| Persistent identifier system | DOI |
| Data citation guideline | http://wiki.pangaea.de/wiki/Citation |
| Quality management | yes |
| Certificates and Standards | WDS |

## Application programming interfaces (1)

| | |
|---|---|
| API type | OAI-PMH |
| URL | http://ws.pangaea.de/oai/ |

## Alerting services (1)

| | |
|---|---|
| Type of alerting service | RSS |
| Alerting service | http://www.pangaea.de/tools/latest-datasets.rss |

## Remarks

| | |
|---|---|
| Remarks | Data of World Data Center for Marine Environmental Sciences (WDC-MARE) are available via the data library PANGAEA which will be operated as a member of the new WDS (World Data System) |
| Entry date | 2012-07-16 |
| Last update | 2014-04-14 |

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- Requirements
  - be run by a legal entity, such as a sustainable institution (e.g. library, university)
  - clarify access conditions to the data and repository as well as the terms of use
  - have an English graphical user interface (GUI)
  - have focus on research data



Vierkant, P., et al. (2013). Schema for the Description of Research Data Repositories. Version 2.1. doi:10.2312/re3.004

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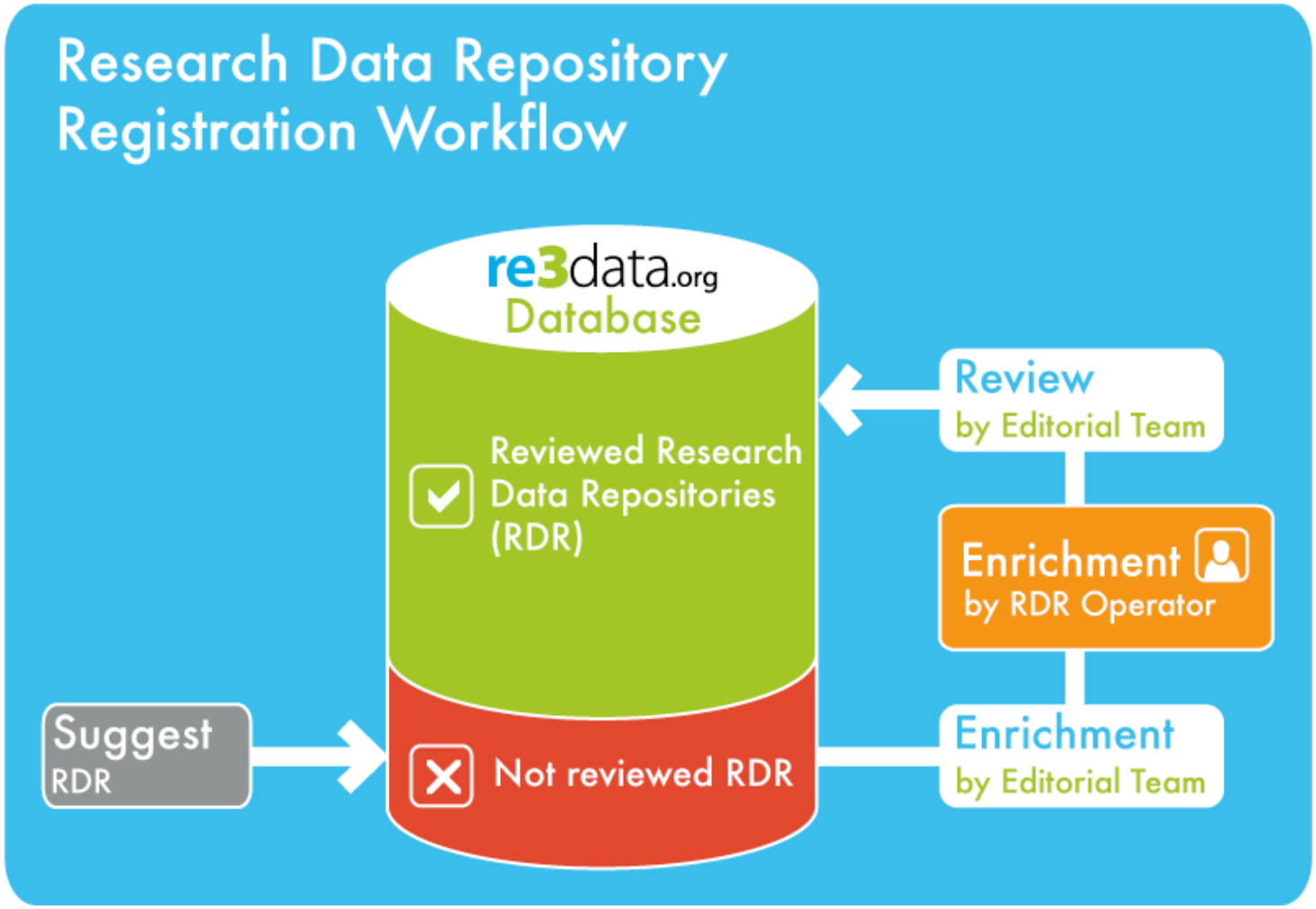




Vierkant, P., et al. (2013). Schema for the Description of Research Data Repositories. Version 2.1. doi:10.2312/re3.004

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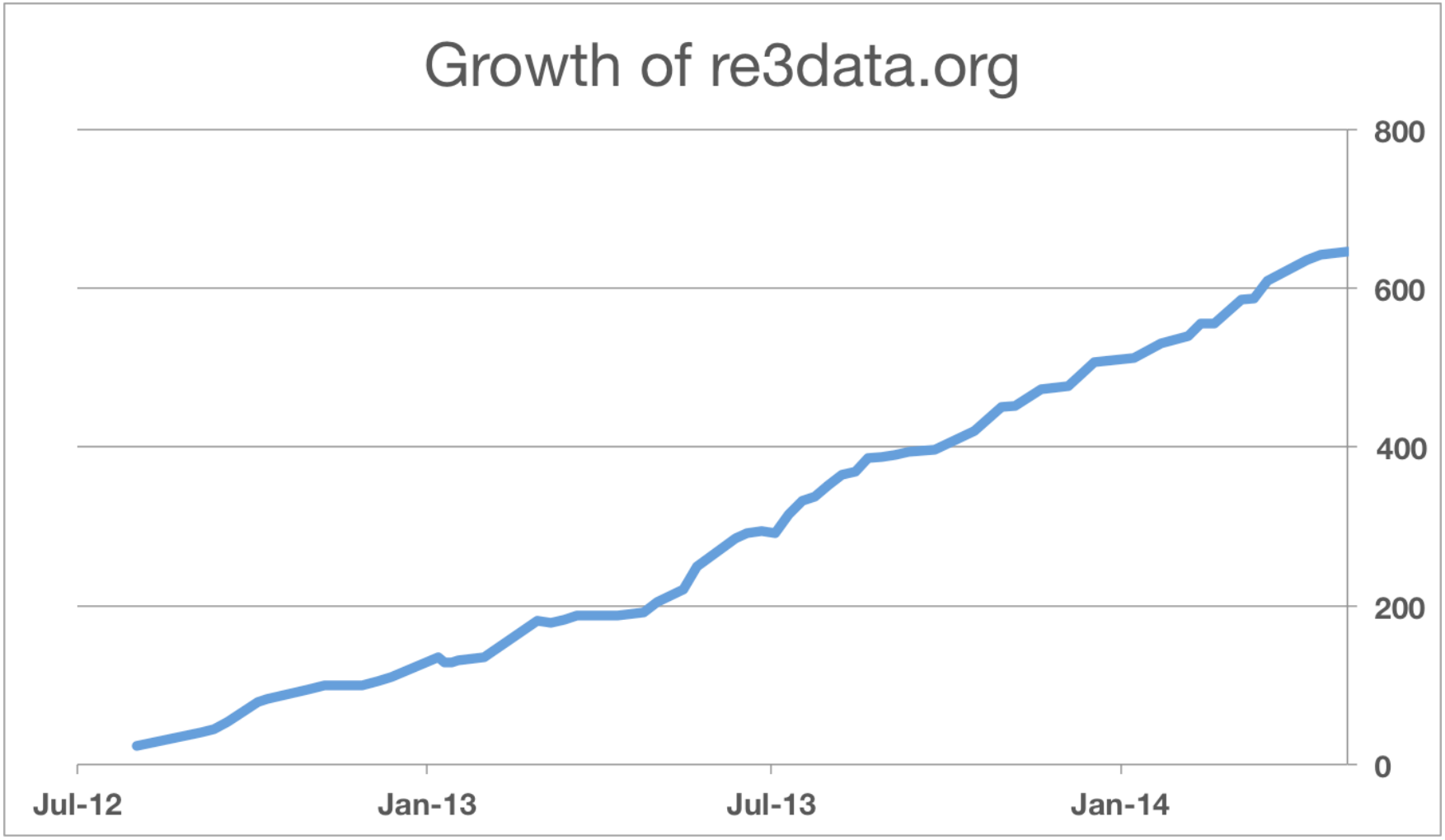


http://www.re3data.org/2014/06/wikipedia-entry-for-re3data-org/

# AGENDA

- Relevanz
- Rahmenbedingungen
- Typologie
- Definition
- Aspekte
- Verankerung in der Community
- re3data.org
- **Ausblick**

# AUSBLICK

- Mit der wissenschaftspolitischen Diskussion steigt die Forderung einer Forschungsdaten-Infrastruktur
- (Vernetze) Forschungsdaten-Repositorien bilden den Kern dieser Infrastruktur
- Die bestehende Landschaft der Daten-Repositorien ist sehr heterogen und durch disziplinäre Ansätze geprägt
- Standardisierung und Vernetzung stehen am Anfang
- Aktuell: Gründungswelle, die durch die LIS-Community geprägt ist
- Zentrale Herausforderung: Finanzierungs- und Geschäftsmodelle

# DANKE FÜR DIE AUFMERKSAMKEIT!

- Kontakt:
  - pampel@gfz-potsdam.de

- Mailingliste:
  - forschungsdaten@listserv.dfn.de
  - http://tinyurl.com/forschungsdaten

- Wiki:
  - http://forschungsdaten.org

# BACKUP

# 10 PUNKTE

handbuch.io

Handbuch CoScience/Publikation von Forschungsdaten

< Handbuch CoScience

Autoren: Heinz Pampel, Janna Neumann

Kontributoren: Martin Fenner, Marco Tullney

DOI: 10.2314/coscv1.53

Vermehrt wird in der Wissenschaft über den Umgang mit Forschungsdaten diskutiert. Dank der rasanten technologischen Entwicklung können Forschungsdaten über das Internet verfügbar und nachnutzbar gemacht werden. Verbunden damit ist insbesondere die Erwartung, dass Forschungsergebnisse besser überprüft werden können und dass bereits erhobenen und verwendeten Daten für weitere Forschungsvorhaben nachgenutzt werden können. Zusammengefasst:

- Nachnutzung: Im Zentrum steht hier die Erwartung, dass einzigartige Daten in anderen Kontexten wiederverwertet werden. Eng verbunden ist damit die Hoffnung, die Effizienz der Forschung zu steigern.[1]
- Nachprüfbarkeit: Anliegen ist hier, die Transparenz der Forschung zu erhöhen, indem jede und jeder die Daten überprüfen kann.

Der folgende Text beschreibt zehn Punkte, die beim Umgang mit Forschungsdaten bedacht werden sollten.

Inhaltsverzeichnis [Verbergen]



1. Was erwarten Förderorganisationen?
2. Welche Anforderungen haben Journals?
3. Wie organisiere ich meine Daten?
4. Wie sichere ich meine Daten?
5. Soll ich meine Daten veröffentlichen?
6. Welche Vorteile hat das Data Sharing?
7. Welche Nachteile hat das Data Sharing?
8. Wie finde ich ein Repositorium?
9. Welchen Vorteil bieten Data Journals?
10. Wo finde ich weitere Informationen?




Pampel, H., Neumann, J., Fenner, M., & Tullney, M. (2014). Publikation von Forschungsdaten. In Technischen Informationsbibliothek (TIB) (Ed.), CoScience – Gemeinsam forschen und publizieren mit dem Netz. (Version 1). Hannover. doi:10.2314/coscv1.53

# VERHÄLTNIS: TEXT- & DATEN-REPOSITORIUM

- Einige Punkte (keine vollständige Darstellung)

| | Text-Repositorium | Daten-Repositorium |
|---|---|---|
| **Betreiber:** | Bibliotheken und Rechenzenten | diverse Akteure |
| **Publikationstypen:** | Aufsätze, Berichte, Qualifikationsarbeite, etc. | diverse Forschungsdaten |
| **Datenformate:** | mehrheitlich PDF-Dateien | diverse |
| **Protokolle:** | OAI-PMH | diverse |
| **Software:** | diverse; großer Anteil an Dspace-, Eprints- und OPUS-Installationen | diverse; großer Anteil an Eigenentwicklungen |

# ANFORDERUNGEN

- Requirements for Data Centre Accreditation

1. **Enable access to the dataset**
    a. Ensure that data will be accessible (either as open data, or provide information on conditions of access and a clear point of contact).
    b. Have a policy in place allowing appropriate access for peer reviewers, as required as part of support for the data peer-review process.
        i. In the context of data, peer reviewers are experienced researchers who produce or use data in the same field as the data being published.



PREPARDER (2013): Report on requirements for data centre accreditation. Retrieved from http://proj.badc.rl.ac.uk/preparde/attachment/wiki/DeliverablesList/D5_1_Generic%20Repository%20Accreditation%20guidelines_v8.pdf

# ANFORDERUNGEN

2. **Ensure dataset persistence**
    a. Have a clear and public assertion of responsibility to preserve the data and provide access to the data over the long term.
    b. Have an appropriate, formal succession plan, contingency plans, and/or escrow arrangements in place in case the repository ceases to operate or the governing or funding institution substantially changes its scope.
    c. Repositories must develop and implement suitable quality control measures to ensure the metadata is correct and the data themselves are maintained and curated to avoid degradation.
        i. User feedback can and should be used to strengthen and correct the metadata as needed.
    d. Assign globally unique persistent IDs to the published datasets and maintain a repository-managed URI associated with each of those IDs. These URIs should also be associated with versions of the datasets.
    e. Permanent IDs for the dataset must resolve to a publicly accessible landing page which must:
        i. be open and human readable (and it would be preferred that they should also be provided in a format which is machine readable)
        ii. describe the data object and include appropriate metadata and the permanent identifier (used to identify the page in the first place)
        iii. be maintained, even if the data has been retracted.



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3. **Ensure dataset stability**
    a. Stability means that the exact same version of the dataset that was cited can be returned to when the citation is resolved.
    b. If dataset versioning is supported, new versions should be permanently identified and linked from the original, published dataset landing page, without overwriting the original version linked from the article). The database should provide time stamped versions of archival data.



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4. **Enable searching and retrieval of datasets**
   a. Allow users to easily determine whether a dataset has been peer reviewed or been subject to an equivalent level of scientific quality assurance.
   b. Provide appropriate metadata about the dataset in human readable form on the landing page (see point 2.e), and when possible standardized machine readable formats e.g. DataCite metadata schema http://schema.datacite.org
   c. Provide access to allow metadata for the datasets to be searched and retrieved through interfaces designed for both humans and computers.



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# ANFORDERUNGEN

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5. **Collect information about repository statistics**
   a. Publish statistics on the level of access to any deposited item that is publicly accessible, to contribute to metrics of the item's publication impact.
   b. Publish information to enable journals and depositors to assess its take-up in the community it aims to serve, e.g. about any operational agreement with a well-established journal, learned society or equivalent body.



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