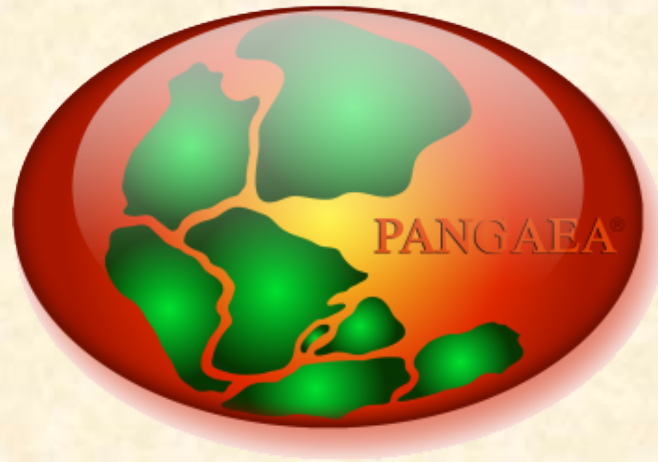


An introduction to the Data Library

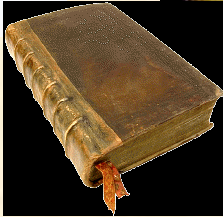
PANGAEA®



Stefanie Schumacher & Rainer Sieger



Data publishing and archiving



5000 years of libraries



Data publishing and archiving



50 years of World Data Center



Data publishing and archiving



Airglow, Astronomy, **Atmospheric**, Trace Gases, Aurora, **Biodiversity**, **Climate**, Cosmic Rays, Earth Tides, **Geology**, Geomagnetism, **Glaciology**, Human Interactions in the Environment, Ionosphere, Land Cover Data, **Marine Environmental Sciences**, **Marine Geology and Geophysics**, **Meteorology**, Nuclear Radiation, **Oceanography**, **Paleoclimatology**, Remotely Sensed Data, Renewable Resources and Environment, Rockets and Satellites, Rotation of the Earth, **Seismology**, Soils, Solar Activity, Solar Radio Emissions, Solar Terrestrial Physics, Solid Earth Geophysics, Space Science, Sunspot Index

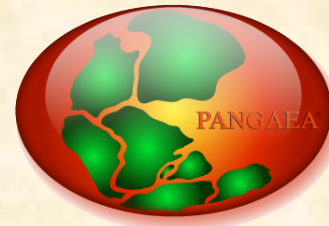
Leg related data base for all shipboard and some post-cruis data



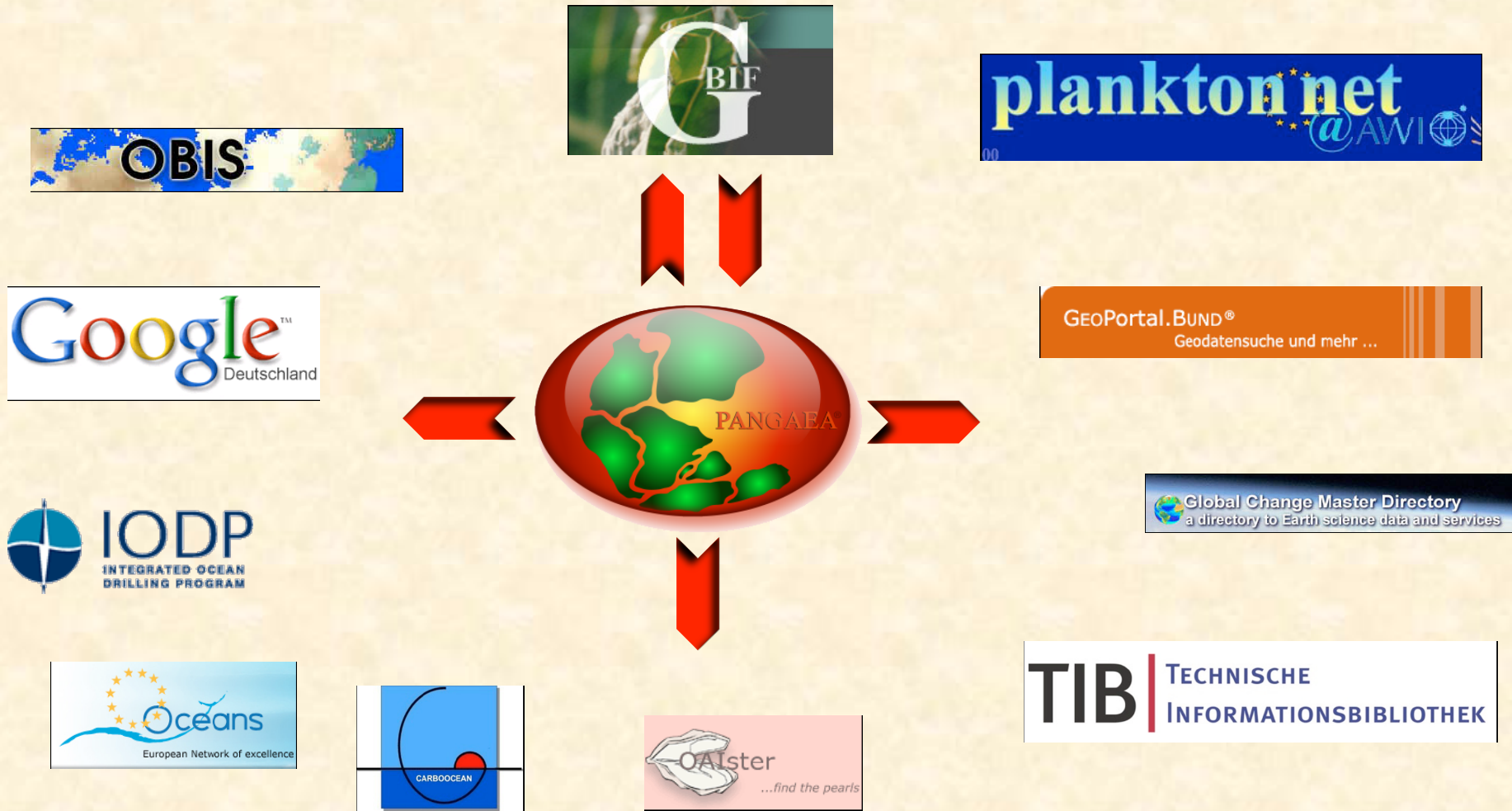
Taxonomy and ecology of plankton

⋮

Earth and Environmental data



Dissemination of data and metadata via search engines, library catalogs and portals



Why should I archive my data?



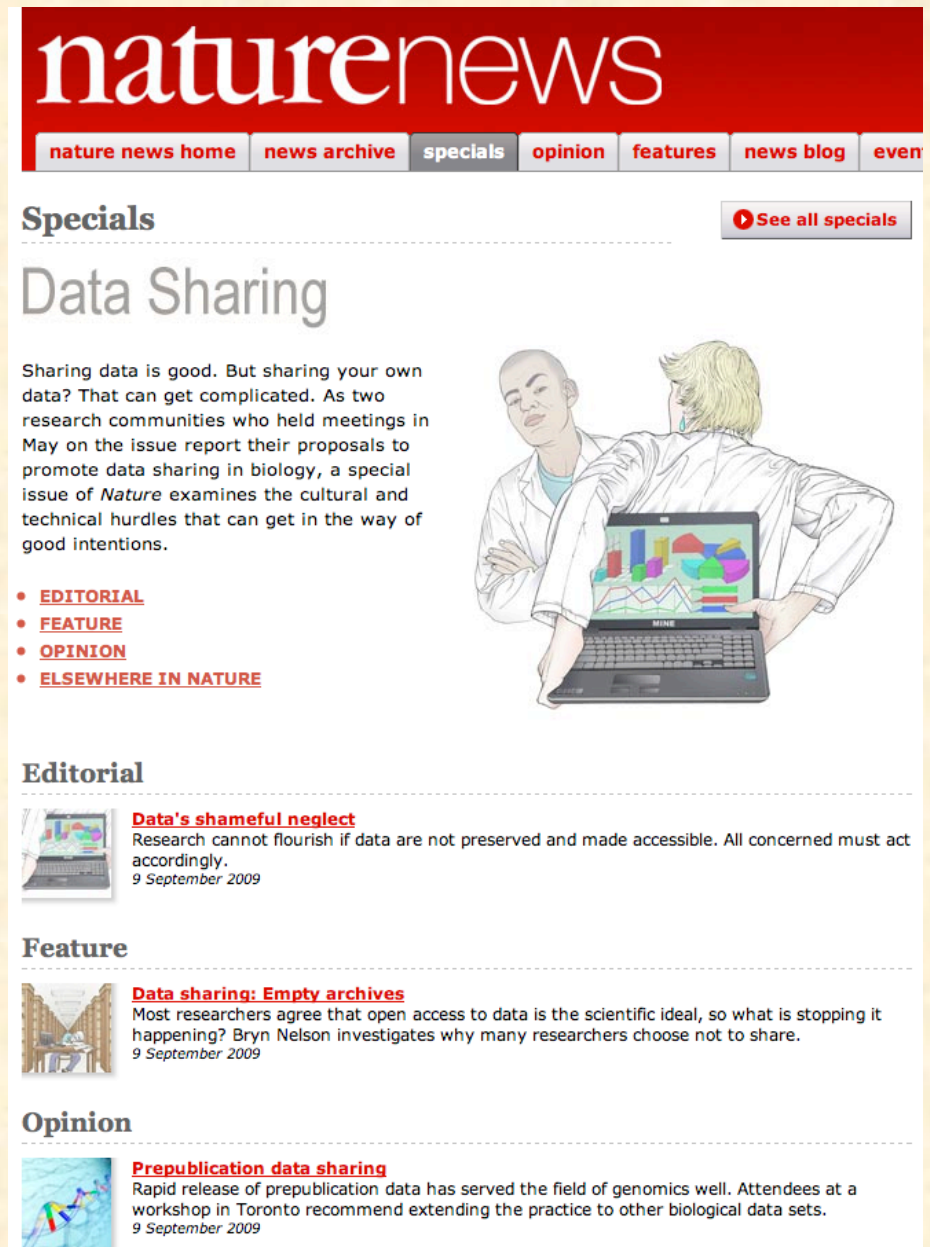
The image is a screenshot of a news article from Spiegel Online. The header features the 'SPIEGEL ONLINE' logo in a red and black box, followed by the word 'WISSENSCHAFT' in white on a green background. Below this is a navigation bar with links for 'NACHRICHTEN', 'VIDEO', 'ENGLISH', 'EINESTAGES', 'FORUM', and 'SPIEGEL WISSEN'. A secondary navigation bar lists categories like 'Home', 'Politik', 'Wirtschaft', 'Panorama', 'Sport', 'Kultur', 'Netzwelt', and 'Wissenschaft'. The article's breadcrumb trail is 'Nachrichten > Wissenschaft > Weltall'. The date '15. August 2006' is shown on the left, and action links 'Drucken', 'Senden', 'Bookmark', and 'Merken' are on the right. The article title is 'PEINLICHE PANNE' in bold black text, with a font size control 'Schrift: - +' to its right. The main headline is 'Nasa hat Mondlandungs-Videos verbummelt' in large green font. The lead paragraph reads: 'Es klingt wie in einem schlechten Film: Die Kassetten mit den Bildern der ersten Mondlandung sind weg. Nasa-Mitarbeiter haben über ein Jahr nach den Videos gesucht - und sie nicht gefunden.'



Data sharing and archiving

Nature:
Vol 461, 10 September 2009

[doi:10.1038/461145a](https://doi.org/10.1038/461145a)



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Specials

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Data Sharing

Sharing data is good. But sharing your own data? That can get complicated. As two research communities who held meetings in May on the issue report their proposals to promote data sharing in biology, a special issue of *Nature* examines the cultural and technical hurdles that can get in the way of good intentions.

- [EDITORIAL](#)
- [FEATURE](#)
- [OPINION](#)
- [ELSEWHERE IN NATURE](#)




Editorial




Data's shameful neglect
Research cannot flourish if data are not preserved and made accessible. All concerned must act accordingly.
9 September 2009

Feature



Data sharing: Empty archives
Most researchers agree that open access to data is the scientific ideal, so what is stopping it happening? Bryn Nelson investigates why many researchers choose not to share.
9 September 2009

Opinion



Prepublication data sharing
Rapid release of prepublication data has served the field of genomics well. Attendees at a workshop in Toronto recommend extending the practice to other biological data sets.
9 September 2009



Good scientific practice in research and scholarship

European Science Foundation (ESF), 2000

Data accumulation, handling, and storage

36. Data are produced at all stages in experimental research and in scholarship. Data sets are an important resource, which enable later verification of scientific interpretations and conclusions. They may also be the starting point for further studies. It is vital, therefore, that all primary and secondary data are stored in a secure and accessible form.

37. **Institutions may pay particular attention to documenting and archiving original research and scholarship data. Several codes of good practice recommend a minimum period of 10 years, longer in the case of especially significant or sensitive data.** National or regional discipline-based archives should be considered where there are practical or other problems in storing data at the institution where the research was conducted.



DFG Recommendations for *Good Scientific Practice*

DFG

Empfehlungen der Kommission "Selbstkontrolle in der Wissenschaft"

Vorschläge zur Sicherung guter wissenschaftlicher Praxis
Januar 1998

Empfehlung 7

Primärdaten als Grundlagen für Veröffentlichungen sollen auf haltbaren und gesicherten Trägern in der Institution, wo sie entstanden sind, für zehn Jahre aufbewahrt werden.



Open Access

Budapest Open Access Initiative

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Budapest Open Access Initiative

The Budapest Open Access Initiative arises from a small but lively meeting convened in Budapest by the Open Society Institute (OSI) on December 1-2, 2001. The purpose of the meeting was to accelerate progress in the international effort to make research articles in all academic fields freely available on the

September 29, 2004
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MAX-PLANCK-GESELLSCHAFT

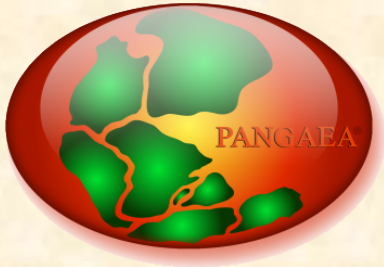
Program	OA Conference Program Committee ECHO Meeting
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Conference on
Open Access to Knowledge in the Sciences and Humanities
20 - 22 Oct 2003, Berlin

Berlin Declaration

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities





What is PANGAEA[®] ?

PANGAEA is an **open access data library** for **earth system research**. Data are stored **georeferenced** in space and time in a relational database and a tape archive.

The data content is accessible on the internet via a search engine, a data warehouse and web services.

The system is open to any scientist or project to archive and publish data.



History & Milestones

1987 Core repository database

1989 SEDI/SEDAT proprietary predecessor

1994 SEDAN/SEPAN relation predecessor

1996 PANGAEA

1998 www.pangaea.de

2001 WDC-MARE

2004 OAI and DOI



each dataset can be identified, shared, published and cited by using a Digital Object Identifier (DOI)

2006 Data citation, portal software

2008 Data warehouse

2009 Elsevier-Partnership

...



Digital Object Identifier - DOI



[doi:10.1016/S0098-3004\(02\)00039-0](https://doi.org/10.1016/S0098-3004(02)00039-0)

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results list < previous

Computers & Geosciences
Volume 28, Issue 10, December 2002, Pages 1201-1210

DOI: 10.1016/S0098-3004(02)00039-0

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PANGAEA—an information system for environmental sciences

Michael Diepenbroek¹, Hannes Grobe², Manfred Reinke², Uwe Schindler³, Reiner Schlitzer², Rainer Sieger² and Gerold Wefer¹

^a Center for Marine Environmental Sciences (MARUM), University Bremen, Bremen 28334, Germany
^b Alfred Wegener Institute for Polar and Marine Research, Bremerhaven 27515, Germany
^c Physics Department, University of Erlangen-Nuremberg, Erlangen 91058, Germany

Received 23 March 2001; revised 20 April 2001; accepted 5 May 2001. Available online 20 September 2002.

Abstract

PANGAEA is an information system for processing, long-term storage, and publication of georeferenced data related to earth science fields.



DOI – Digital Object Identifier

Is a character string used to uniquely identify an electronic document or object.

The DOI of a document is permanent, whereas its location and other metadata may change

Is resolved by a doi-resolver: <http://dx.doi.org/>

Example:

doi:10.1594/PANGAEA.737668



<http://dx.doi.org/10.1594/PANGAEA.737668>



Who are the hosts of PANGAEA ?



Alfred Wegener Institute for Polar and
Marine Research, Bremerhaven



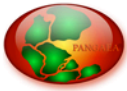
Center for Marine Environmental
Sciences, Bremen



Both institutions have committed to long-term operate PANGAEA



Relational database – machine-readable



PANGAEA®
Data Publisher for Earth & Environmental Science

Data Description

Citation: Koizumi, Itaru; Yamamoto, Hirofumi

MD01-2421. Dataset #775547 (DOI:10.1594/PANGAEA.775547)

Reference(s): Koizumi, Itaru; Yamamoto, Hirofumi (2010)

Japan during the past 150,000 years. *Journal of Marine Research*, 68, 1-15.

doi:10.1016/j.jmres.2010.01.003

Coverage: Latitude: 36.023500 * Longitude: 141.780000

Minimum Age: 0.240 ka BP * Maximum Age: 7.84 ka BP

Minimum DEPTH, sediment: 0.0 m * Maximum DEPTH, sediment: 7.84 m

Event(s): MD01-2421 (MD012421) * Latitude: 36.023500

* Elevation: -2286.0 m * Recovery: 45.00 %

WEPAMA) * Basis: Marion Dufresne

Comment: Total count of 200 specimens per sample

Parameter(s):

#	Name	Short Name
1	DEPTH, sediment	Depth
2	AGE	Age
3	Diatoms, total abundance per unit sediment mass	TDA
4	Diatoms, oceanic	Diatom
5	Actinocyclus ellipticus	A. ellipticus
6	Actinocyclus elongatus	A. elongatus
7	Alveus marinus	A. marinus

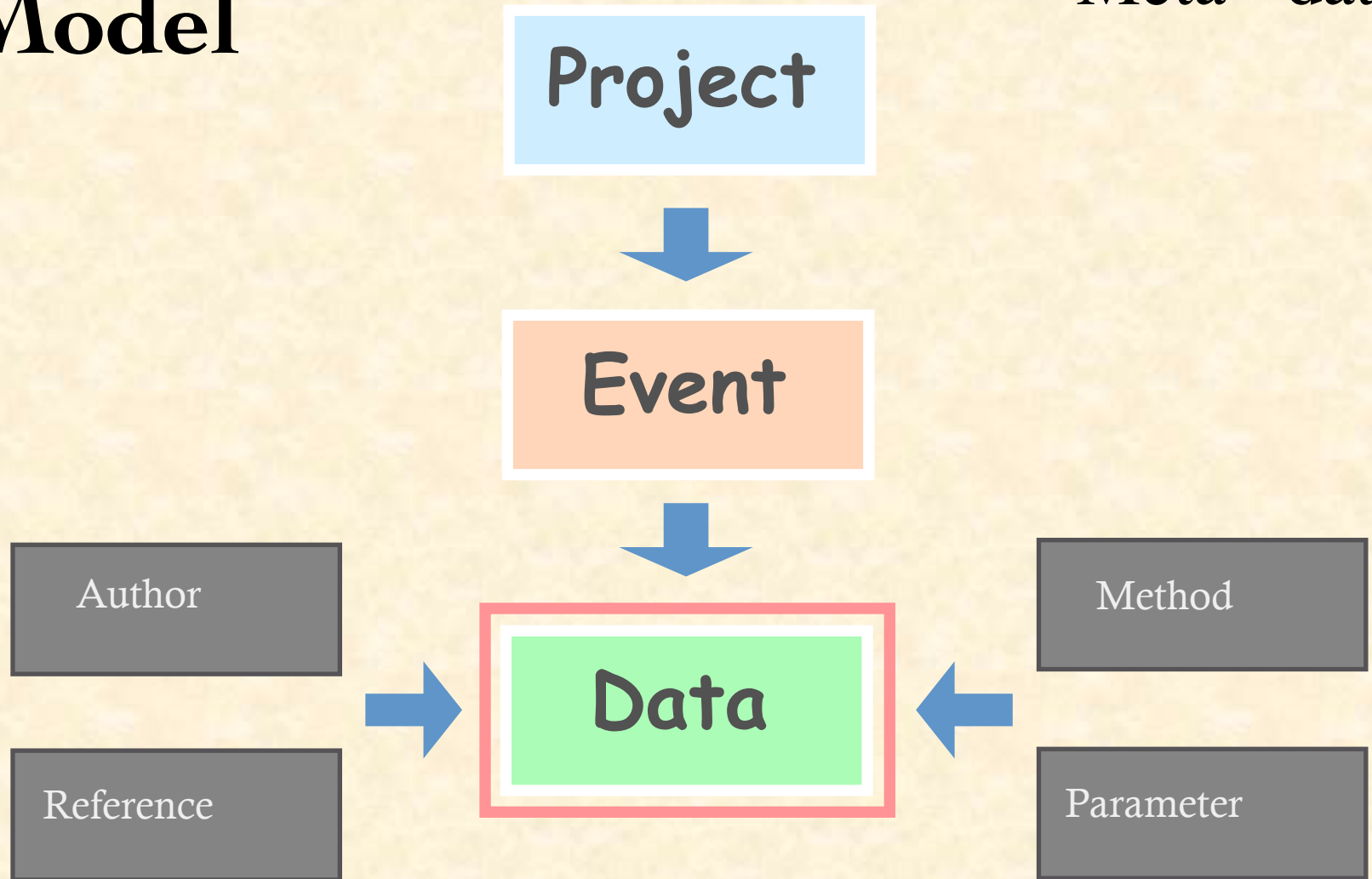
POS1	Layout	Tabellen	Diagramme	SmartArt	Formeln	Daten	Überprüfen	Zahl	Format						
MD01-2421_diatom.tab															
Schriftart: Calibri (Textkör... 12															
Ausrichtung: Standard															
Zahl: Standard															
Format: Bedingte Formatierung, Formatvorlagen															
F183															
187	Size:	42525 data points													
188	*/														
189	Depth [m]	Age [ka BP]	TDA [10**6#	Diatoms, oce	A. ellipticus [A. elongatus	A. marinus [A. marylandi	A. arachne [A. flabellatus	A. sarcophag	A. africana [A. nodulifer	A. tabularis [F. dolio
190	0.01	0.24	31.6	23.9	0	0	1	0	0	0	0	0	2	3	
191	0.06	0.29	31.5	22	0	0	1	0	0	1	0	0	0	1	
192	0.16	0.38	23.6	15.7	0	0	2	0	0	0	0	0	0	0	
193	0.35	0.58	31.5	22.8	0	0	2	0	0	0	0	0	1	2	
194	0.55	0.77	23.6	14.6	0	0	2	0	0	1	0	0	0	0	
195	0.75	0.96	31.5	21.3	0	0	1	0	0	0	0	0	0	1	
196	0.94	1.16	27.7	20.7	0	0	0	0	0	1	0	0	0	1	
197	1.14	1.35	28.3	18.8	0	0	0	0	0	0	0	0	2	1	
198	1.34	1.55	29.9	96.8	0	0	1	0	0	0	0	0	1	2	
199	1.56	1.77	31.5	22.7	0	0	0	0	0	1	0	0	1	3	
200	1.65	1.88	35.4	22.4	0	0	1	0	0	0	0	0	1	1	
201	1.85	2.12	71.4	22.3	0	0	1	0	0	0	0	0	1	1	
202	2.05	2.37	31.5	22.6	0	0	1	0	0	1	0	0	1	1	
203	2.25	2.61	39.3	19.3	0	0	1	0	0	0	0	0	0	0	
204	2.45	2.86	27.7	14.5	0	0	1	0	0	0	0	0	1	1	
205	2.66	3.1	25.2	16.3	0	0	3	0	0	0	0	0	1	0	
206	2.85	3.34	25.8	15.3	0	0	0	0	0	1	0	0	1	0	
207	3.05	3.59	33.5	15.8	0	0	2	0	0	0	0	0	0	3	
208	3.15	3.72	31.5	17.7	0	0	1	0	0	0	0	0	1	1	
209	3.36	3.98	25.8	15.3	0	0	1	0	0	0	0	0	0	0	
210	3.56	4.25	21.8	13.4	0	0	3	0	0	0	0	0	2	0	
211	3.76	4.51	31.5	18.2	0	0	2	0	0	2	0	0	0	1	
212	3.95	4.77	75.5	15.1	0	0	0	0	0	1	0	0	0	1	
213	4.16	5.04	21.8	11.6	1	0	2	0	0	2	0	0	1	2	
214	4.31	5.24	28.3	18.1	0	0	1	0	0	0	0	0	1	0	
215	4.53	5.53	28.7	16.2	0	0	0	0	0	0	0	0	5	1	
216	4.63	5.67	17.7	9	0	0	0	0	0	0	0	0	1	1	
217	4.84	5.94	9.8	5.2	0	0	2	0	0	2	0	0	1	1	
218	5.04	6.2	20.2	11.9	0	0	2	0	0	0	0	0	3	1	
219	5.24	6.48	28.7	16.6	0	0	3	0	0	2	0	0	1	2	
220	5.44	6.75	11.3	6.9	0	0	1	0	0	2	0	0	0	3	
221	5.64	7.01	14.5	6.8	0	0	1	0	0	3	0	0	1	0	
222	5.84	7.28	18.9	9.1	0	0	1	0	0	1	0	1	0	2	
223	6.03	7.53	23.6	13.8	0	0	2	0	1	1	0	0	1	0	
224	6.14	7.74	20.2	12.8	0	0	3	0	0	0	0	0	0	5	
225	6.34	8.19	15.8	9.5	0	0	0	0	0	0	0	0	1	2	
226	6.54	8.64	11.3	6.7	0	0	0	0	0	0	0	1	1	1	
227	6.75	9.09	21	16	0	0	2	0	0	1	0	0	4	1	
228	6.95	9.54	17.7	11.5	0	0	2	1	0	1	0	0	1	2	
229	7.15	9.99	13.5	9.6	0	0	0	0	0	0	0	0	1	2	
230	7.35	10.43	12.3	8.6	0	0	1	0	0	0	0	1	0	1	
231	7.53	10.83	21	16.3	0	0	1	0	0	2	0	0	0	2	
232	7.63	11.06	12.3	8.4	0	0	0	0	0	0	0	0	1	1	
233	7.84	11.51	16.7	13.2	0	0	1	0	0	0	0	0	1	2	

doi:10.1594/PANGAEA



Data Model

Meta - data



Geo-code & meta-data

when ?



date/time or age

what ?



parameter [unit]

how ?



method

123.4 text



where ?



latitude
longitude

ice, water, air,
sediment, object...



who ?



investigator
reference



!

... no data without metadata

no metadata without data ...

!



Data-Publication with PANGAEA





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Marine Micropaleontology Volume 76, Issues 3-4, September 2010, Pages 92-103

doi:10.1016/j.marmicro.2010.06.002 | How to Cite or Link Using DOI Copyright © 2010 Elsevier B.V. All rights reserved. Permissions & Reprints

Research paper

Ontogenetic effects on stable carbon and oxygen isotopes in tests of live (Rose Bengal stained) benthic foraminifera from the Pakistan continental margin

Stefanie Schumacher, Frans J. Jorissen, Andreas Mackensen, Andrew J. Gooday and Olivier Pays

- a Laboratory of Recent and Fossil Bio-Indicators (BIAF), Angers University, 2 Bd Lavoisier, 49045 Angers Cedex 01, France
b Laboratory of Marine Bio-Indicators (LEBIM), Ile d'Yeu, Ker Chalon, France
c Alfred Wegener Institute for Polar and Marine Research, Am Alten Hafen 26, 27568 Bremerhaven, Germany
d National Oceanography Centre, Southampton, European Way, Southampton SO14 3ZH, United Kingdom
e LEESA, Ecology and Conservation Biology group, Angers University, 2 Bd Lavoisier, 49045 Angers Cedex 01, France

Received 11 December 2008; revised 10 June 2010; accepted 17 June 2010. Available online 25 June 2010.

Abstract

PANGAEA - Supplementary Data Stable carbon and oxygen isotope ratios for different test sizes of live benthic forami... Hybrid map of the Pakistan continental margin showing sampling locations.

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Distribution of rose bengal stained deep-sea benthic fo... Deep Sea Research Part A: Oceanographic Research Papers
Vertical distributions and stable isotopic compositions... Deep Sea Research Part I: Oceanographic Research Papers
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of the Vendée, France. The Pakistan margin project was supported by UK Natural Environment Research Council Grant NER/A/S/2000/01383. For supplementary data see: doi:10.1594/PANGAEA.707882.

PANGAEA is a designated archive for the journal Earth System Science Data (ESSD)

[doi:10.1594/PANGAEA.547983](https://doi.org/10.1594/PANGAEA.547983)

Earth Syst. Sci. Data, 1, 1–5, 2009
www.earth-syst-sci-data.net/1/1/2009/
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the Creative Commons Attribution 3.0 License.



Compilation of ozonesonde profiles from the Antarctic Georg-Forster-Station from 1985 to 1992

G. König-Langlo and H. Gernandt

Alfred Wegener Institute for Polar and Marine Research, Bussestraße 24, 27570 Bremerhaven, Germany

Received: 29 July 2008 – Published in Earth Syst. Sci. Data Discuss.: 22 September 2008
Revised: 1 December 2008 – Accepted: 23 December 2008 – Published: 12 January 2009

Abstract. On 22 May 1985 the first balloon-borne ozonesonde was successfully launched by the staff of Georg-Forster-Station (70°46′ S, 11°41′ E). The subsequent weekly ozone soundings mark the beginning of a continuous investigation of the vertical ozone distribution in the southern hemisphere by Germany.

The measurements began the year the ozone hole was discovered. They significantly contribute to other measurements made prior to and following 1985 at other stations. The regular ozone soundings from 1985 until 1992 are a valuable reference data set since the chemical ozone loss became a significant feature in the southern polar stratosphere.

The balloon-borne soundings were performed at the upper air sounding facility of the neighbouring station Novolazarevskaya, just 2 km from Georg-Forster-Station. Until 1992, ozone soundings were taken without interruption. Thereafter, the ozone sounding program was moved to Neumayer-Station (70°39′ S, 8°15′ W) 750 km further west.

Data coverage and parameter measured

Repository-Reference: [doi:10.1594/PANGAEA.547983](https://doi.org/10.1594/PANGAEA.547983)

Coverage: East: 11.8300; South: -70.7700;

Location Name: Georg-Forster-Station, Antarctica

Date/Time Start: 1985-05-22T05:19:00

Date/Time End: 1992-01-29T01:19:00

Parameter	Short Name	Unit	Comment
Altitude	Altitude	m	height above mean sea level
Date/Time	Date/Time		universal time code (UTC)
Longitude	Longitude		at launching point
Latitude	Latitude		at launching point
Ozone, partial pressure	O ₃	mPa	
Pressure, at given altitude	PPPP	hPa	
Temperature, air	TTT	degC	
Wind direction	dd	deg	
Wind speed	ff	m/sec	

1 Introduction

The first permanently operated German research base – later named Georg-Forster-Station – was established in 1976 in the Schirmacher Oasis at 70°46′ S, 11°41′ E. The station was permanently used and operated as an annex to the Russian station Novolazarevskaya until 1987, and then as a German Antarctic station named after the German natural scientists, author and revolutionary Georg Forster (1754–1794) until 1993.

Long-term studies of magnetospheric-ionospheric processes, geophysical investigations, biological studies and sea ice observations using satellite imaging were performed.

The station became known to the international scientific community when the vertical extent of the “ozone hole” in the southern polar stratosphere was firstly recorded by regular balloon-borne ozone observations in 1985 (Gernandt, 1987a, b).

The ozone sounding programme was a major contribution of the Meteorological Service to the Antarctic research of the German Democratic Republic (GDR). The station was established as a long-term ozone-sonde observatory in cooperation with the Russian Arctic and Antarctic Research Institute (AARI) and the Aerological Observatory Lindenberg (AOL) in order to study the climatology of the ozone layer in



Correspondence to: G. König-Langlo
(gert.koenig-langlo@awi.de)

Published by Copernicus Publications.



Final data report
for projects

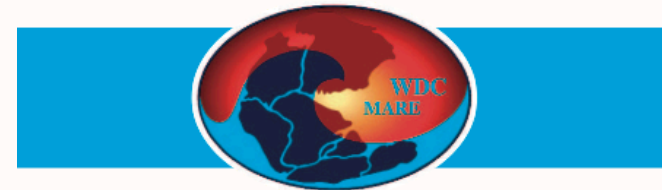
CD/DVD with data and local
search engine

Description and further
information in a booklet

Distribution through 270
libraries with focus on marine
research

WDC-MARE
Reports

0001
2004



Integrated Data Sets of the DFG Research Project SFB 313

Environmental Change: The Northern North Atlantic
(Veränderungen der Umwelt: Der nördliche Nordatlantik)

Hannes Grobe, Michael Diepenbrock,
Priska Schäfer, Jörn Thiede & Gerold Wefer

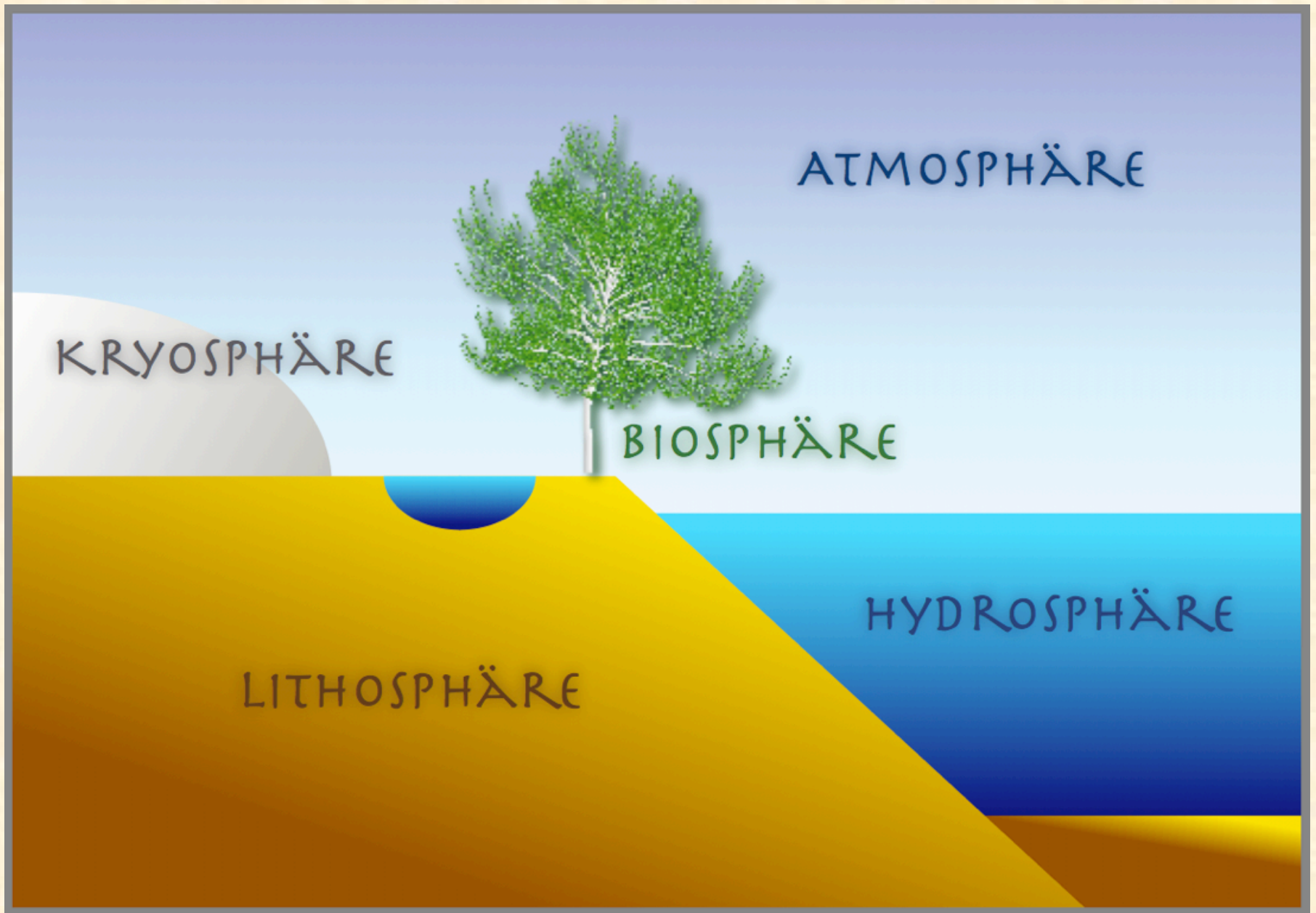
WORLD DATA CENTER FOR MARINE ENVIRONMENTAL SCIENCES

Alfred Wegener Institute for Polar and Marine Research, Bremerhaven
MARUM Center for Marine Environmental Sciences, Bremen



What kind of data can I find -
what kind of data can be published/archived
in PANGAEA





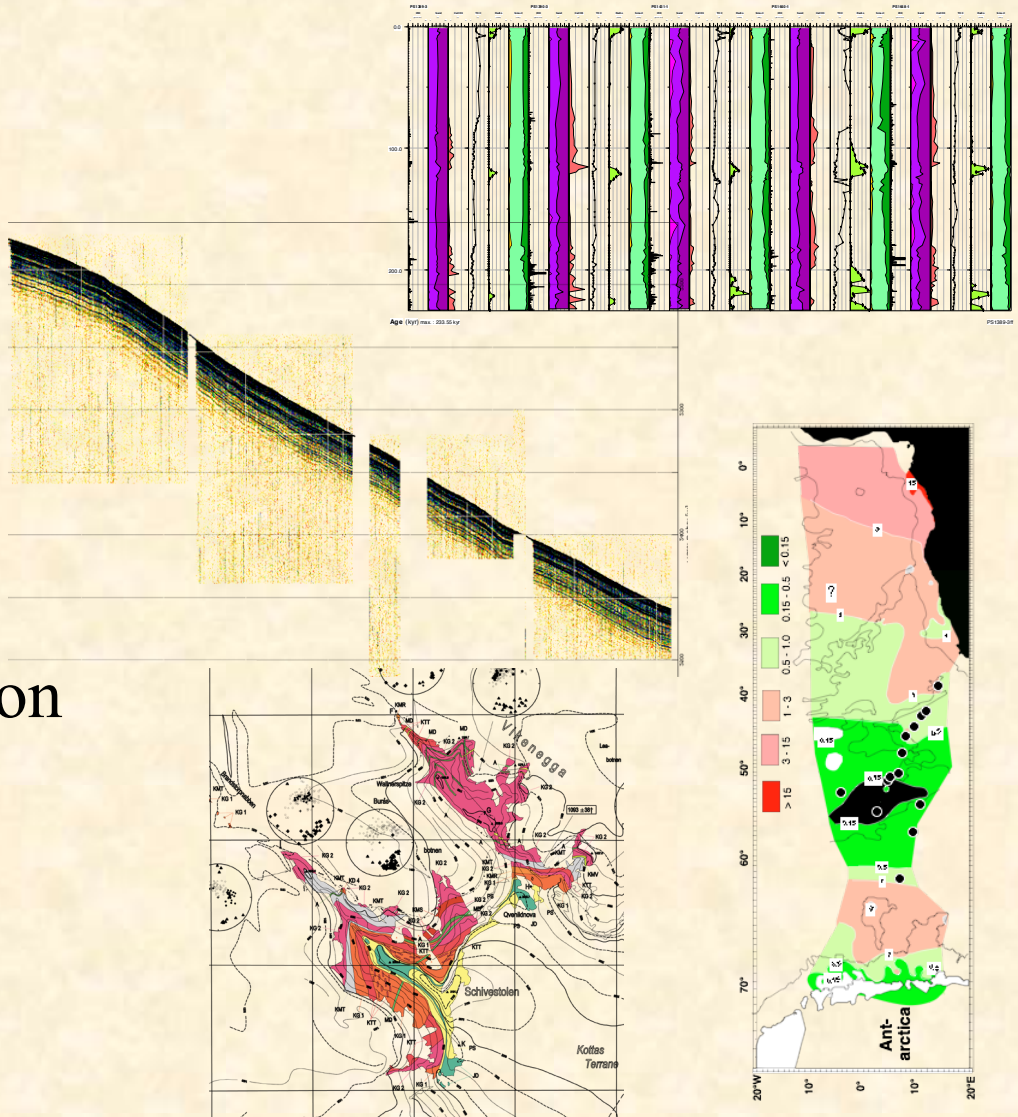
Major Projects

<u>International</u>	<u>EU</u>	<u>National</u>
Radiation ICPN	Pollen ONARC	Marine environment Green
JGOFS	CarboOcean	Tree rings SIRPO
Oceanography WOCF	Ocean acidification Oceans	HISTRA
Ice cores EPTCA	HERMES/Hermione	Data archaeology ARCOD
Marine geology IGDP	EPOCA	DFG/BMBF



Examples from Geoscientific Research

- ◇ Sediment profile
- ◇ Seismic profile
- ◇ Mineral distribution
- ◇ Geological map

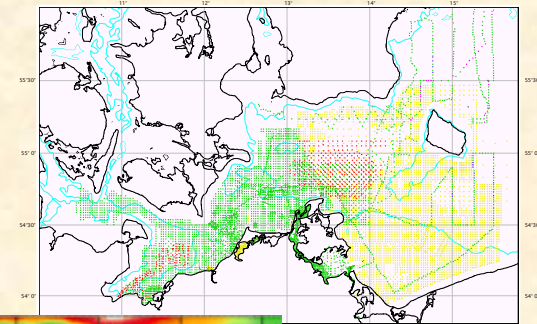


Examples from Environmental Research

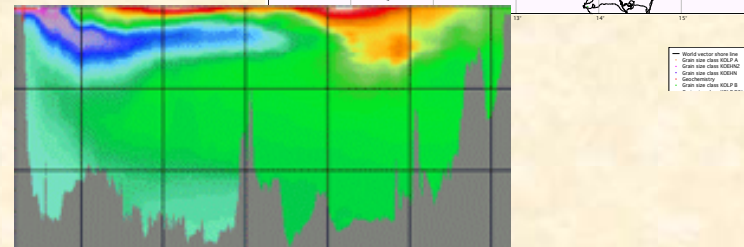
◆ Images



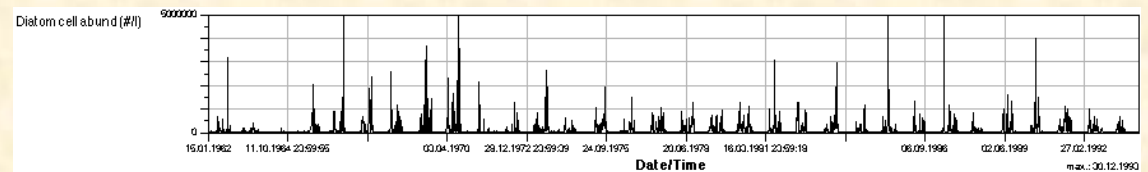
◆ Distributed samples



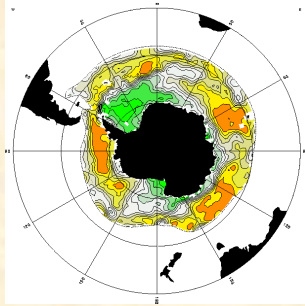
◆ Hydrographic profiles



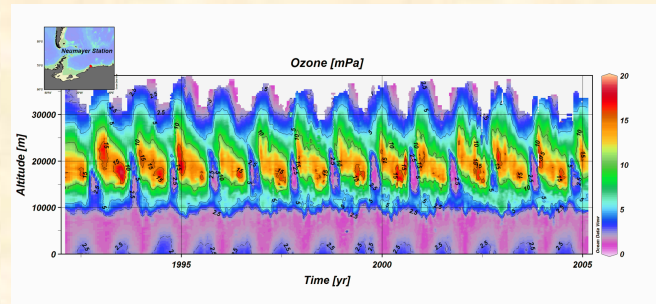
◆ Times Series



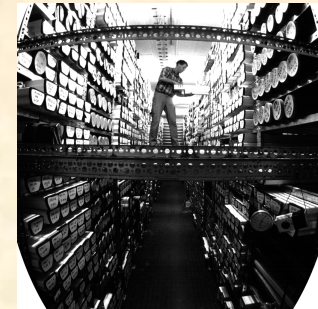
Examples from Antarctic Research



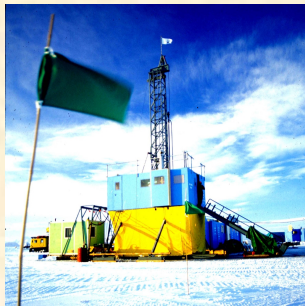
Southern Ocean Atlas



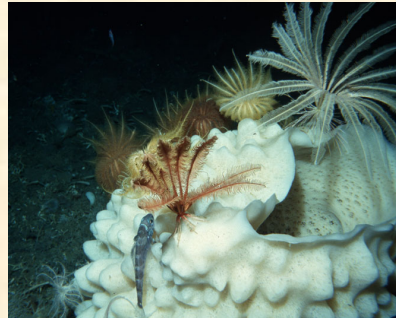
Ozone profiles



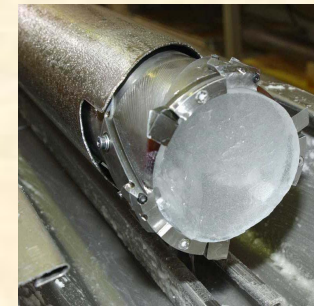
Sediments and Rocks



CRP
Cape Roberts Project



Archive of
Underwater Imaging

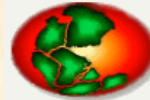


EPICA
European Project for
Ice Coring in Antarctica



JGOFS

Joint Global Ocean Flux Studies



PANGAEA

Please quote reference and citation when using data!

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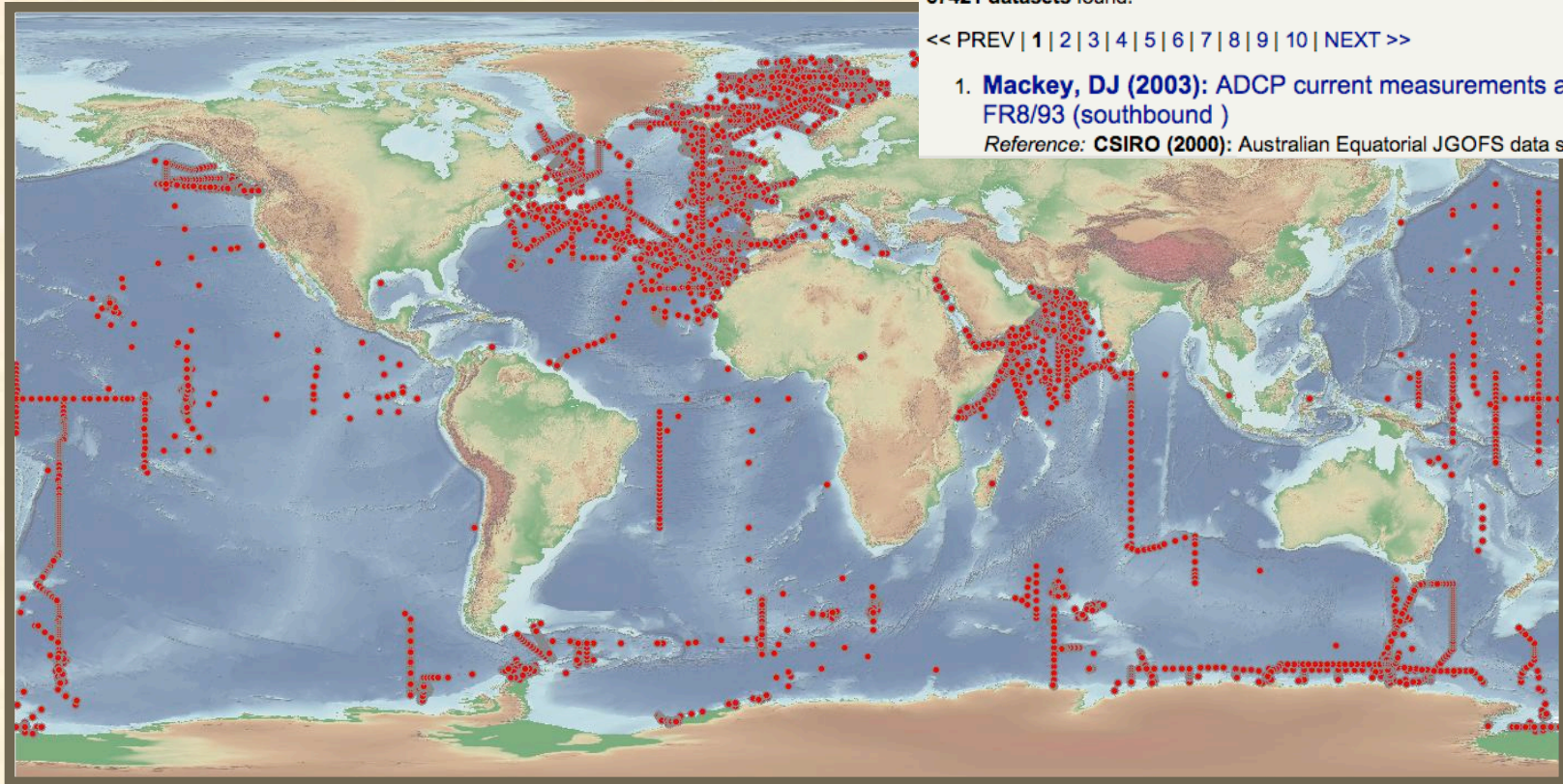
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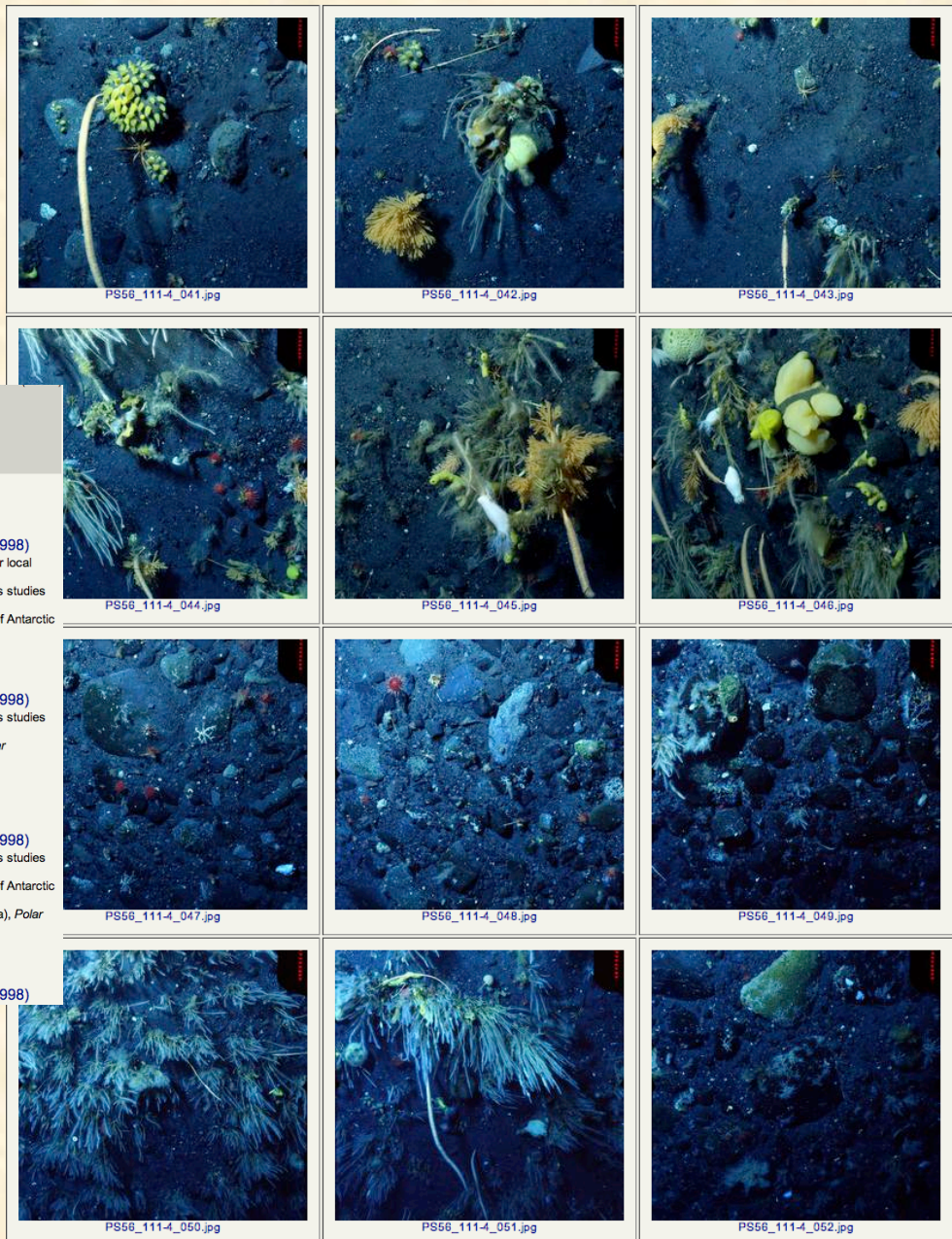
<< PREV | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | NEXT >>

1. **Mackey, DJ (2003):** ADCP current measurements at cruise FR8/93 (southbound)

Reference: **CSIRO (2000):** Australian Equatorial JGOFS data set,



Sea-bed photos



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- Gutt, J (2004):** Sea-bed photographs (benthos) from the Weddell Sea along ROV profile PS48/281 (©AWI, Gutt 1998)
Reference: Raguá-Gil, JM; Gutt, J; Clarke, A et al. (2004): Antarctic shallow-water mega-epibenthos: shaped by circumpolar dispersion or local conditions?, *Marine Biology*
Gutt, J; Arntz, WE; Balguerías, E et al. (2003): Diverse approaches to questions of diversity: German contributions to benthos studies around South American and Antarctica, *Gayana*
Gutt, J; Piepenburg, D (2003): Scale-dependent impacts of catastrophic disturbances by grounding icebergs on the diversity of Antarctic benthos, *Marine Ecology Progress Series* (and more)
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- Gutt, J (2004):** Sea-bed photographs (benthos) from the Weddell Sea along ROV profile PS48/238 (©AWI, Gutt 1998)
Reference: Gutt, J; Arntz, WE; Balguerías, E et al. (2003): Diverse approaches to questions of diversity: German contributions to benthos studies around South American and Antarctica, *Gayana*
Gutt, J (2001): High latitude antarctic benthos: a coevolution of nature conservation and ecosystem research?, *Ocean and Polar Research*
Gutt, J (2001): On the direct impact of ice on marine benthic communities, a review, *Polar Biology* (and more)
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doi:10.1594/PANGAEA.198685 - Score: 80% - Similar datasets
- Gutt, J (2004):** Sea-bed photographs (benthos) from the Weddell Sea along ROV profile PS48/219 (©AWI, Gutt 1998)
Reference: Gutt, J; Arntz, WE; Balguerías, E et al. (2003): Diverse approaches to questions of diversity: German contributions to benthos studies around South American and Antarctica, *Gayana*
Gutt, J; Piepenburg, D (2003): Scale-dependent impacts of catastrophic disturbances by grounding icebergs on the diversity of Antarctic benthos, *Marine Ecology Progress Series*
Gutt, J; Starmans, A (2001): Quantification of iceberg impact and benthic recolonisation patterns in the Weddell Sea (Antarctica), *Polar Biology* (and more)
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doi:10.1594/PANGAEA.198684 - Score: 80% - Similar datasets
- Gutt, J (2004):** Sea-bed photographs (benthos) from the Weddell Sea along ROV profile PS48/213 (©AWI, Gutt 1998)

[doi:10.1594/PANGAEA.319877](https://doi.org/10.1594/PANGAEA.319877)

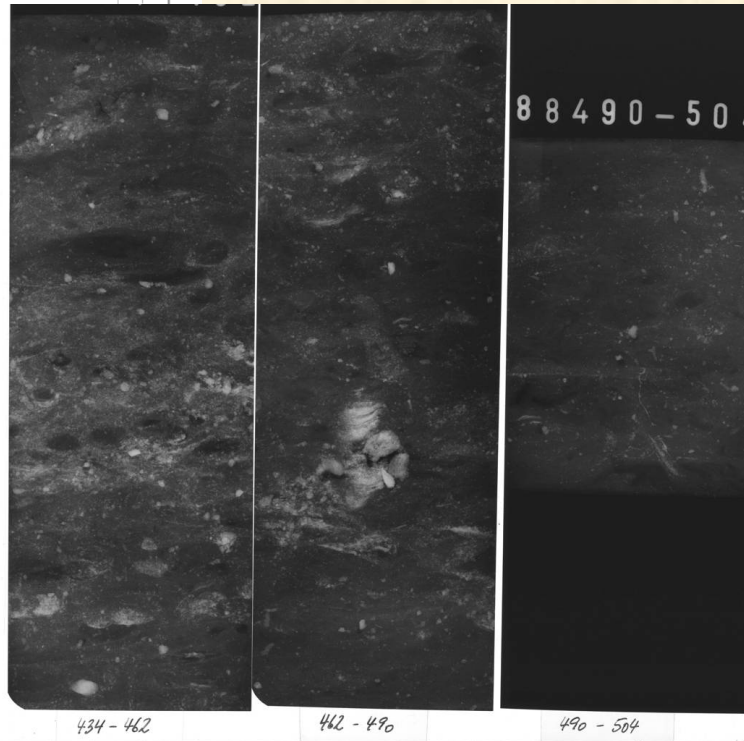


PS1768-8 (SL) North of SW Indian Ridge ANT VIII/3
 Recovery: 8.96 m 52° 35.6' S, 4° 28.5' E Water depth: 3270 m

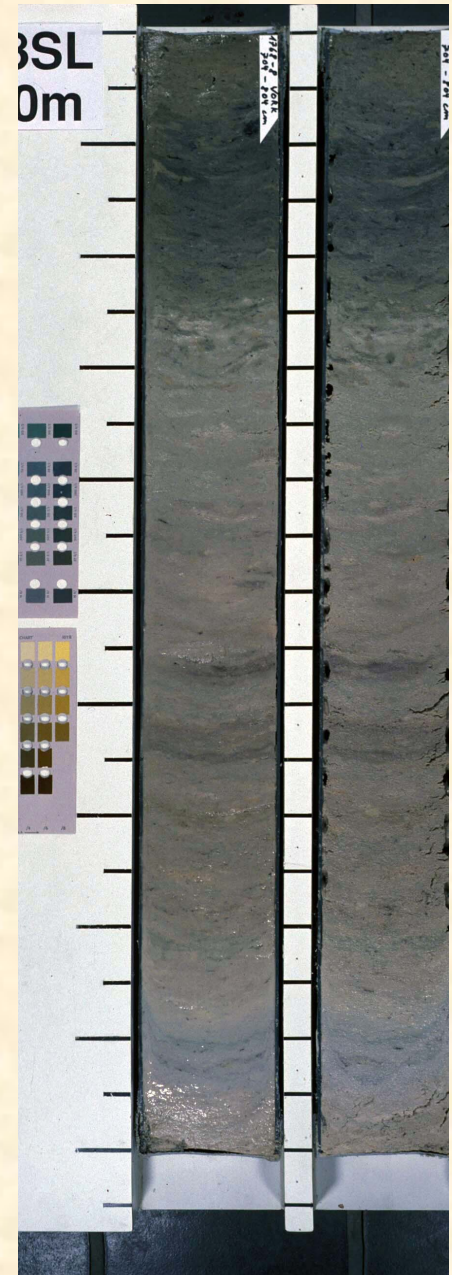
Lithology	Struct.	Colour	Description	Age
10YR 7/3			0-35 cm: diatomaceous ooze, very pale brown (0-13 cm), light yellowish brown (13-35 cm)	
10YR 6/4			35-62 cm: diatomaceous ooze, very pale brown (35-53 cm), pale brown (53-62 cm)	
10YR 7/3			62-70 cm: diatomaceous ooze, very pale brown, two light gray layers (62-64 cm and 66-68 cm)	
10YR 6/2			70-94 cm: diatomaceous ooze, very pale brown, darker spots	1
10YR 7/5			94-139 cm: diatomaceous ooze, light yellowish brown (94-96 cm), dark brown (96-99 cm), pale yellow (99-139 cm)	
2.5Y 7/4			106-170 cm: partly core deformation	
5Y 5/3			139-230 cm: diatomaceous mud, homogeneous, olive	
5Y 4/2			230-240 cm: diatomaceous mud, h	
5Y 5/3			240-440 cm: diatomaceous mud, o occur throughout, 290-306 cm: some thi black (S) 350-375 cm: alternati scatterer diatomax 386-387 cm: diatomax 395 cm: large burrow	
5Y 4/2			440-453 cm: diatomaceous mud, o	
5Y 4/2			453-486 cm: diatomaceous mud, gi 453-458 cm: some bu 474-478 cm: yellowish 480-483 cm: ash-rich 485-486 cm: olive (SY	
2.5Y 5/2				
5Y 5/3				

TOP

 BOTTOM



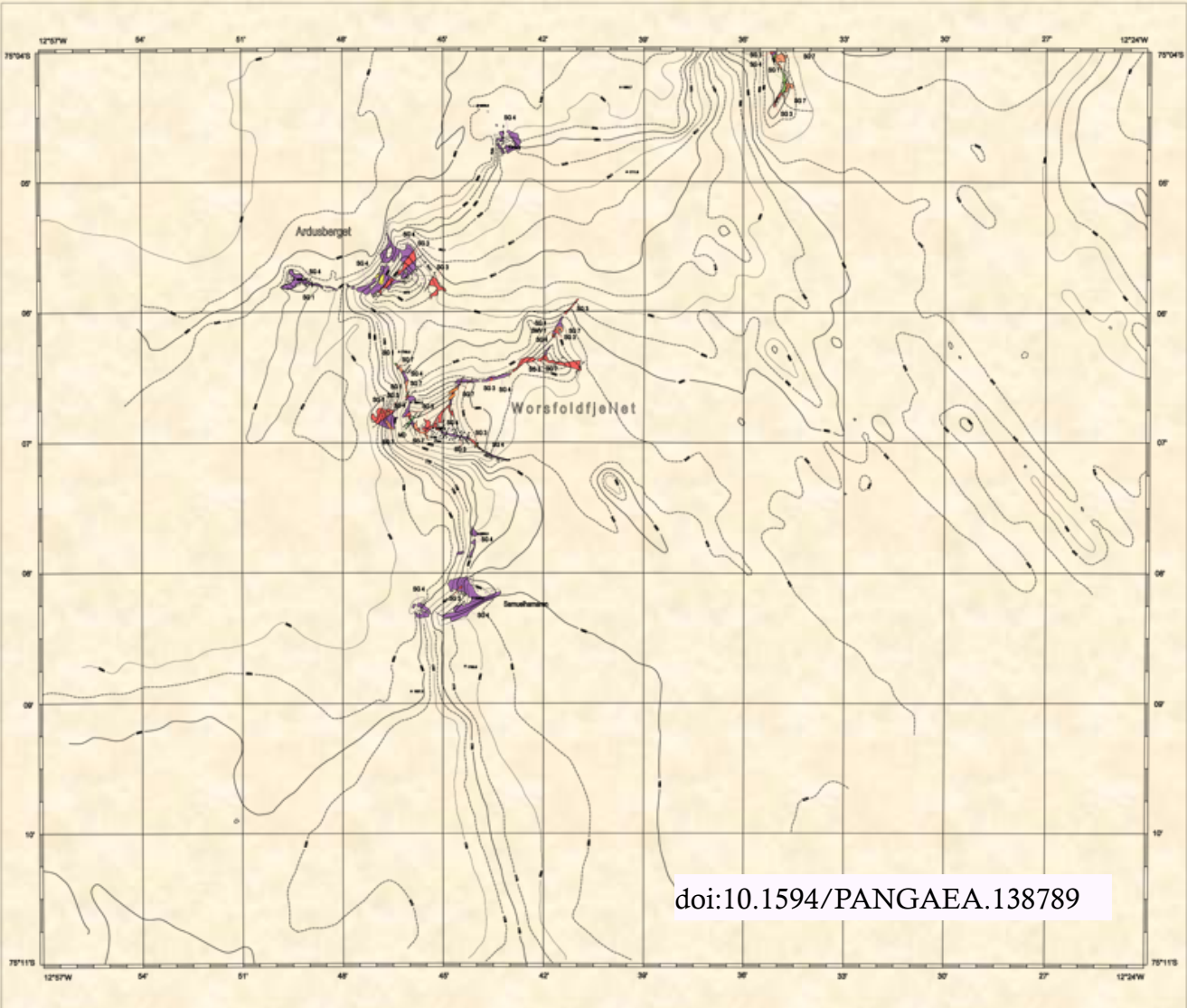
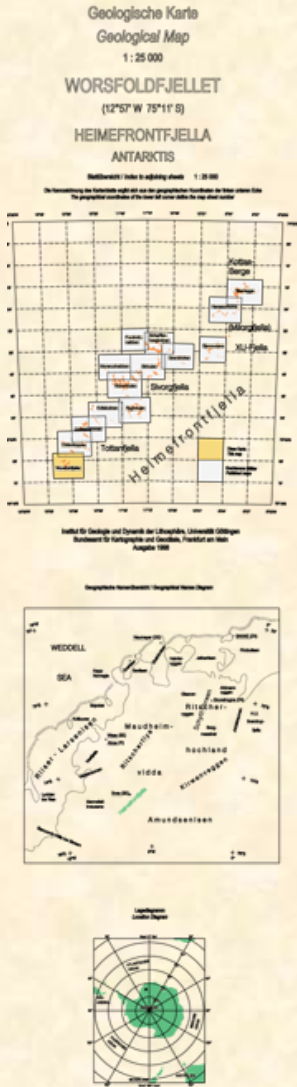
Sediment core documentation



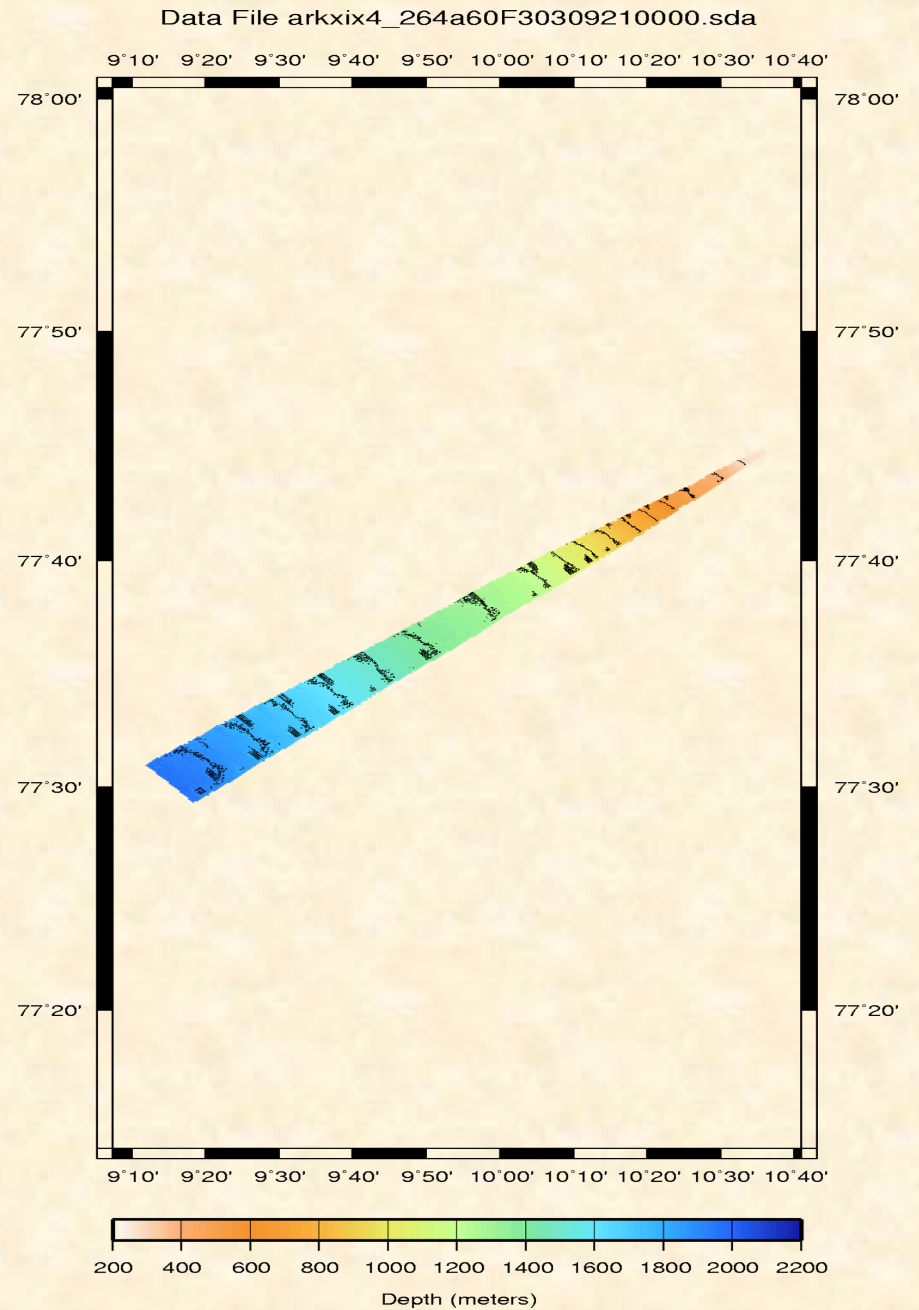
[doi:10.1594/PANGAEA.108079](https://doi.org/10.1594/PANGAEA.108079)



Geological map



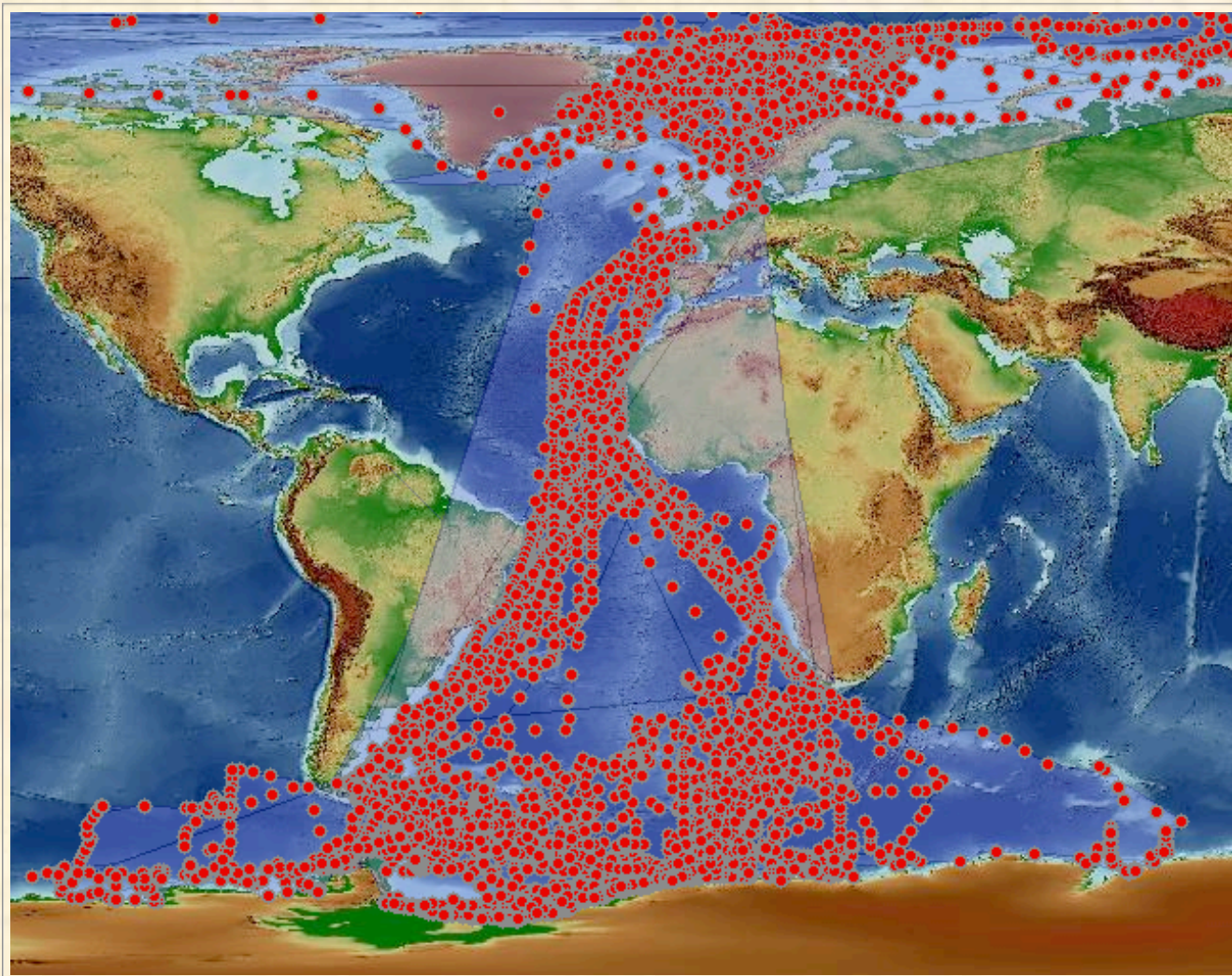
Bathymetry



[doi:10.1594/PANGAEA.351142](https://doi.org/10.1594/PANGAEA.351142)

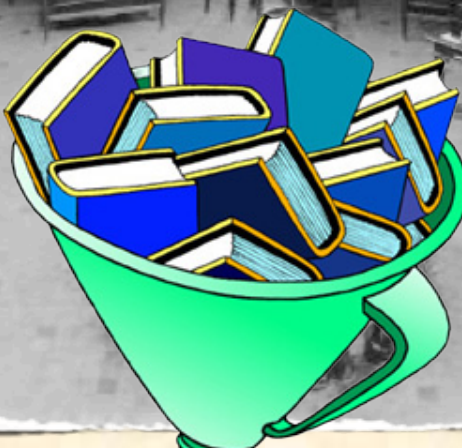


Meteorological observations



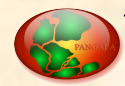
[doi:10.1594/PANGAEA.269619](https://doi.org/10.1594/PANGAEA.269619)



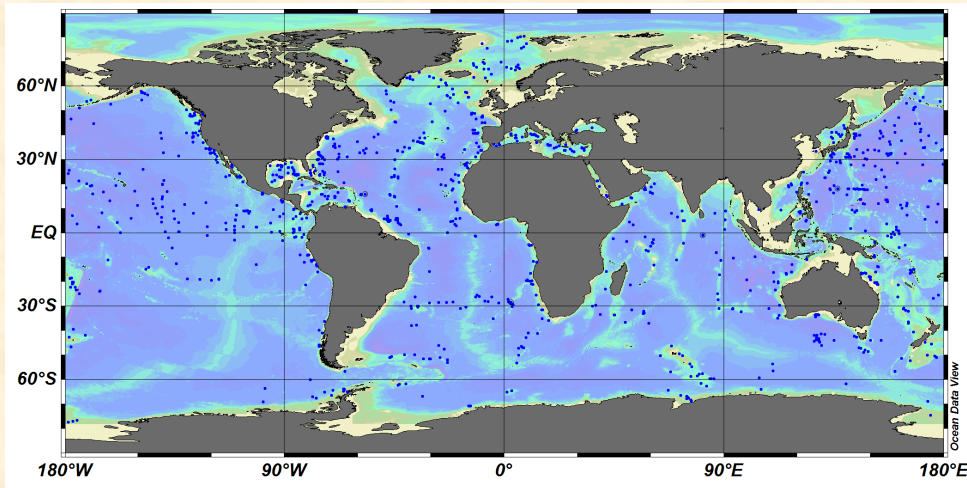


Data

Archeology

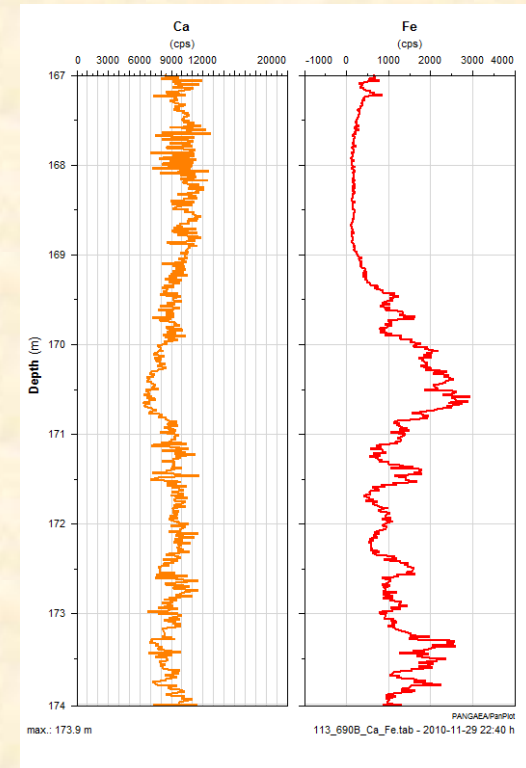


DSDP / ODP / IODP



The PANGAEA web server operates the Mirror Site for the Ocean Drilling Program (ODP) in Europe.

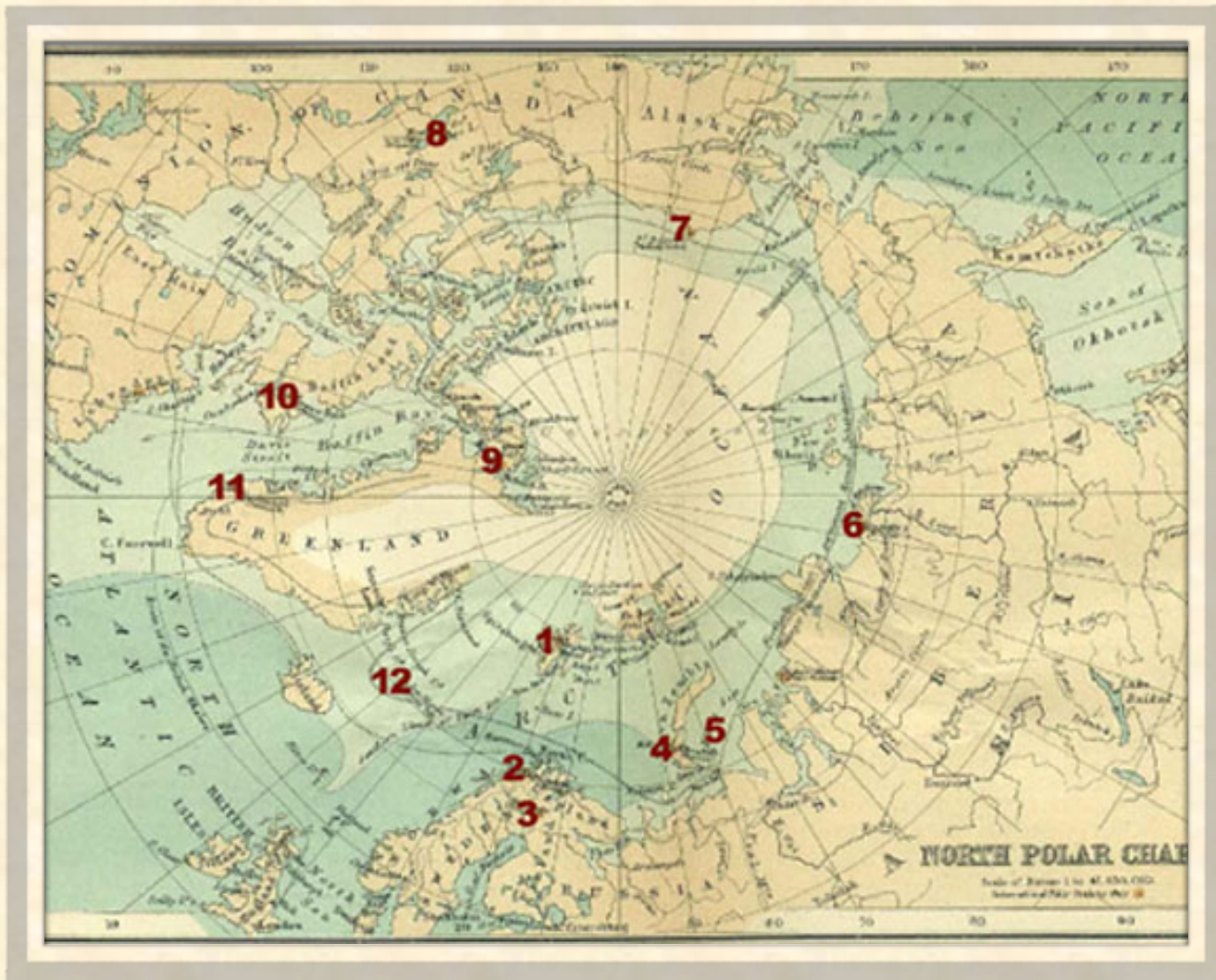
<http://odp.pangaea.de>



Röhl et al. 2000

[doi:10.1594/PANGAEA.57539](https://doi.org/10.1594/PANGAEA.57539)





International Polar Year (1882-1883)



Data Access

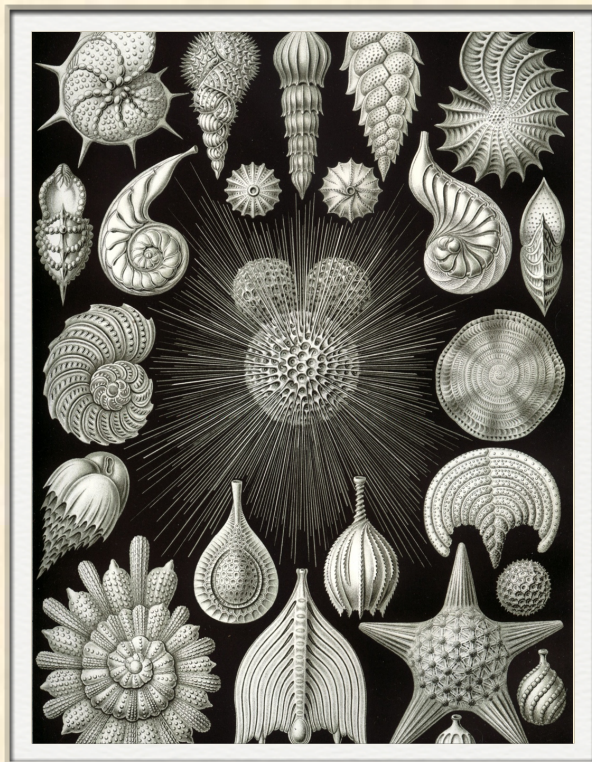
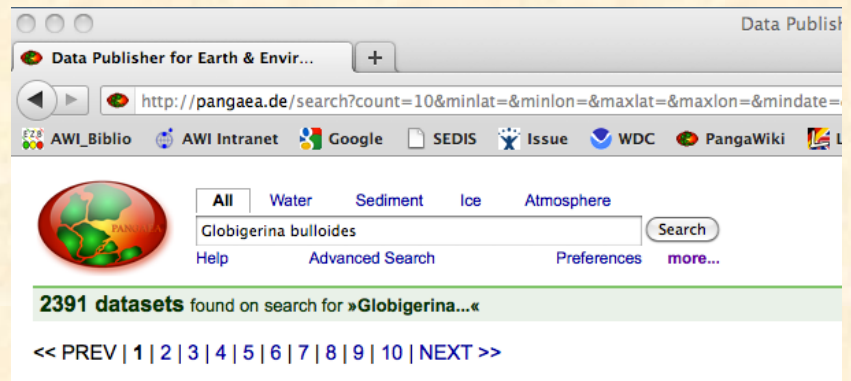
Search engine > works like Google



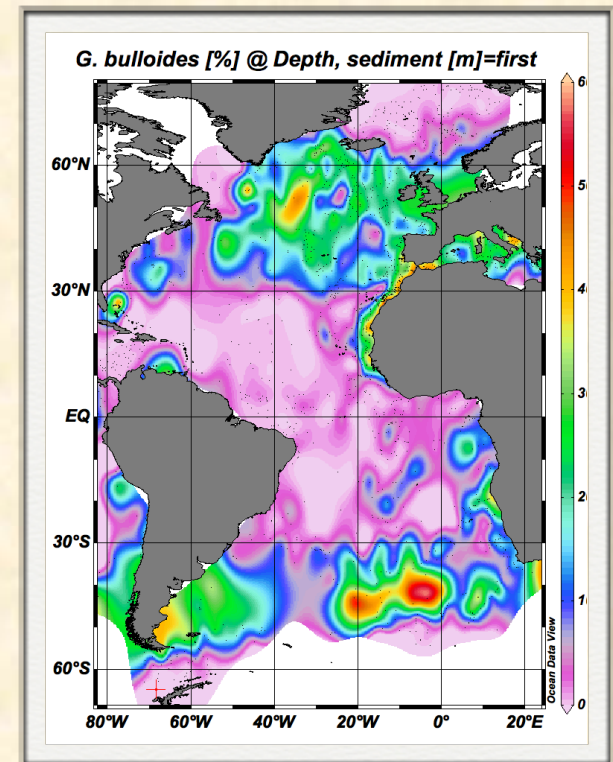
Web service > exchange with portals



Data-Warehouse > retrieval & compilation



Globigerina bulloides



Distribution map (ODV)



Empty archives

Most researchers agree that open access to data is the scientific ideal, so what is stopping it happening? **Bryn Nelson** investigates why many researchers choose not to share.



In 2003, the University of Rochester in New York launched a digital archive designed to preserve and share dissertations, preprints, working papers, photographs, music scores — just about any kind of digital data the university's investigators could produce. Six months of research and marketing had convinced the university that a publicly accessible online archive would be well received. At the time of the launch, the university librarians were worried that a flood of uploaded data might swamp the available storage space.

Six years later, the US\$200,000 repository lies mostly empty.

or didn't understand how to use the archive, or lamented that they just didn't have any more hours left in the day to spend on this business.

As Gibbons and anthropologist Nancy Fried Foster observed in their 2005 postmortem¹, "The phrase 'if you build it, they will come' does not yet apply to IRs [institutional repositories]."

A similar reality check has greeted other data-sharing efforts. Most researchers happily embrace the idea of sharing. It opens up observations to independent scrutiny, fosters

data. Physicists, mathematicians and computer scientists use arXiv.org, operated by Cornell University in Ithaca, New York; the International Council for Science's World Data System holds data for fields such as geophysics and biodiversity; and molecular biologists use the Protein Data Bank, GenBank and dozens of other sites. The astronomy community has the International Virtual Observatory Alliance, geo-

scientists and environmental researchers have Germany's Publishing Network for Geoscientific & Environmental Data (PANGAEA),

"We got the software up and running and said 'Give us your stuff'. That's

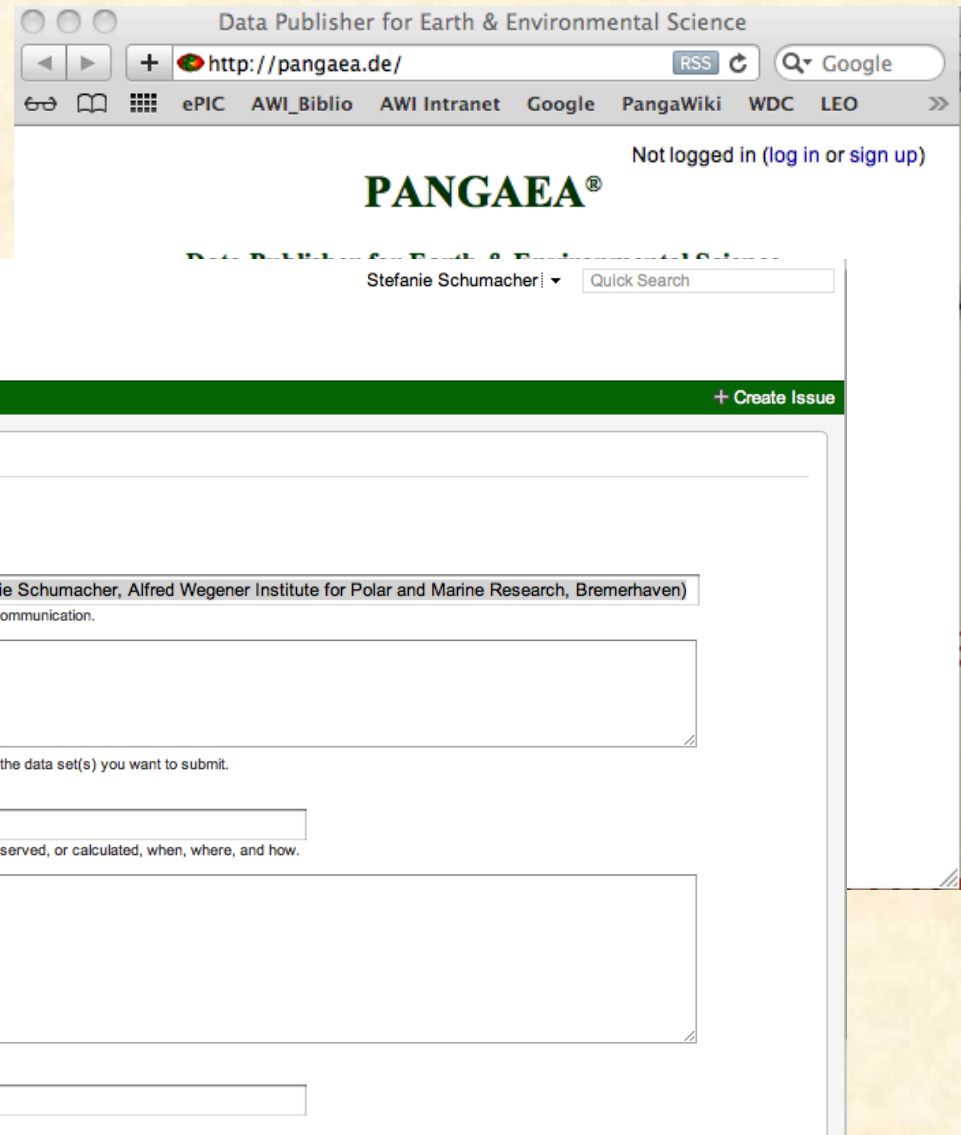
Submit data

Provision of data

Data provided by author/
principle investigator

During
submission

data can
paper p



The screenshot shows a web browser window with the URL <http://pangaea.de/>. The page title is "Data Publisher for Earth & Environmental Science". The user is logged in as "Stefanie Schumacher". The main navigation bar includes "Dashboards", "Projects", and "Issues", with a "+ Create Issue" button on the right. The "Create Issue" form is displayed, showing the following fields and values:

- Project:** PANGAEA Data Archiving & Publication
- Issue Type:** Data Submission
- Summary:** Data submission 2012-02-09T13:01:39Z (Stefanie Schumacher, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven)
The summary (subject) is used as identifier in the further communication.
- Author(s):** Schumacher, Stefanie
Please, enter the author(s) (the principal investigators) for the data set(s) you want to submit.
One author per line; example: *Smith, Joe Peter*
- Title:** [Empty field]
The title should ideally reflect what has been measured, observed, or calculated, when, where, and how.
- Description:** [Empty text area]
ABSTRACT and/or further details describing the data.
- Keywords:** [Empty field]
Separate keywords by comma or semicolon.



Workflow in data publishing

- Provision of data (PI)
- Import to PANGAEA (curator)

Editorial

- Proof-Read (PI)



Review

- Corrections (curator/editor)
- Peer review (reviewer ?)
- Publication with DOI & citation



Practical application

-

On-the-job training

