

Agenda

Hintergrund

- Voraussetzungen für die Publikation von Forschungsdaten
 - Digital Curation Lifecycle
- Raum und Zeitpunkt der Datenpublikation
- Hindernisse bei der Datenpublikation

Praxis

- Publikation von Forschungsdaten: Datenbanken, Supplements
- Publikation von Forschungsdaten: Eigenständige Publikationsform

Zusammenfassung und Ausblick

“Publikation” von Forschungsdaten - Voraussetzungen

Ziel: Nachnutzung &
Nachvollziehbarkeit (GwP)

Publikation

Qualitätssicherung

Persistenter (und
Offener) Zugang,
Lizensierung

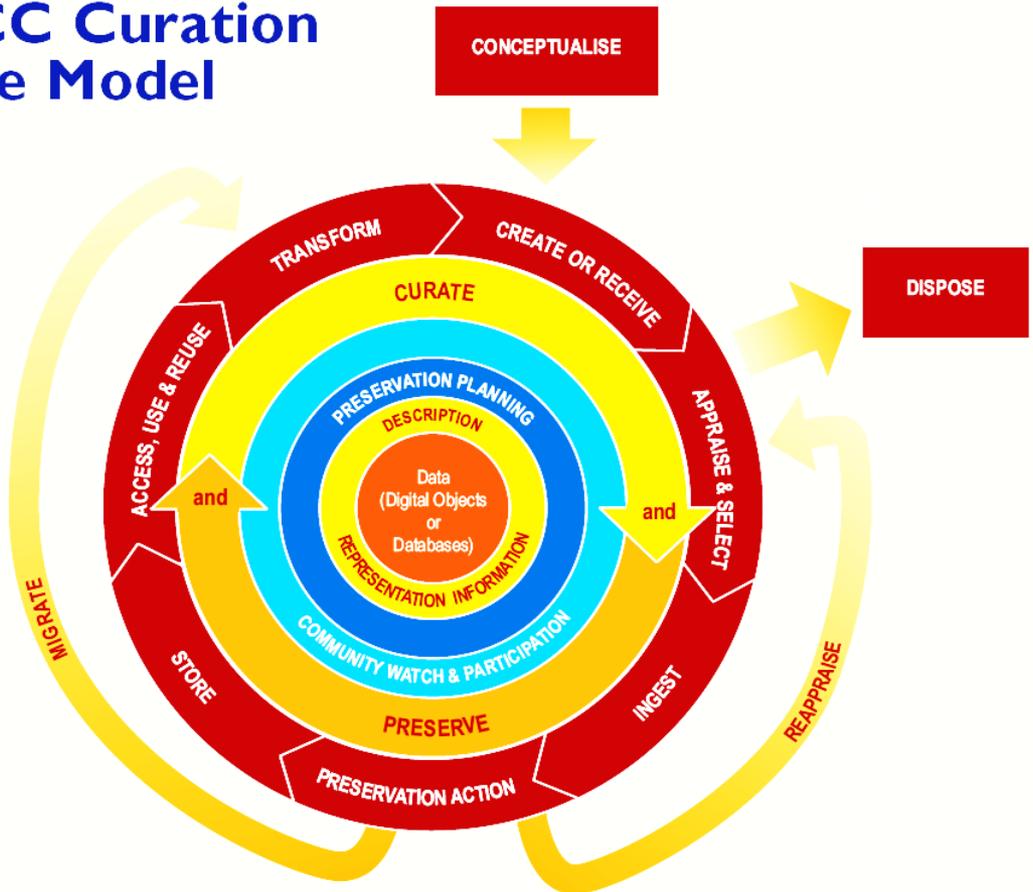
Sicherung, Digitale
Langzeitarchivierung

Daten und Dokumentation von
Wissenschaftlern bereitgestellt

Infrastruktur zur Bereitstellung
von Forschungsdaten

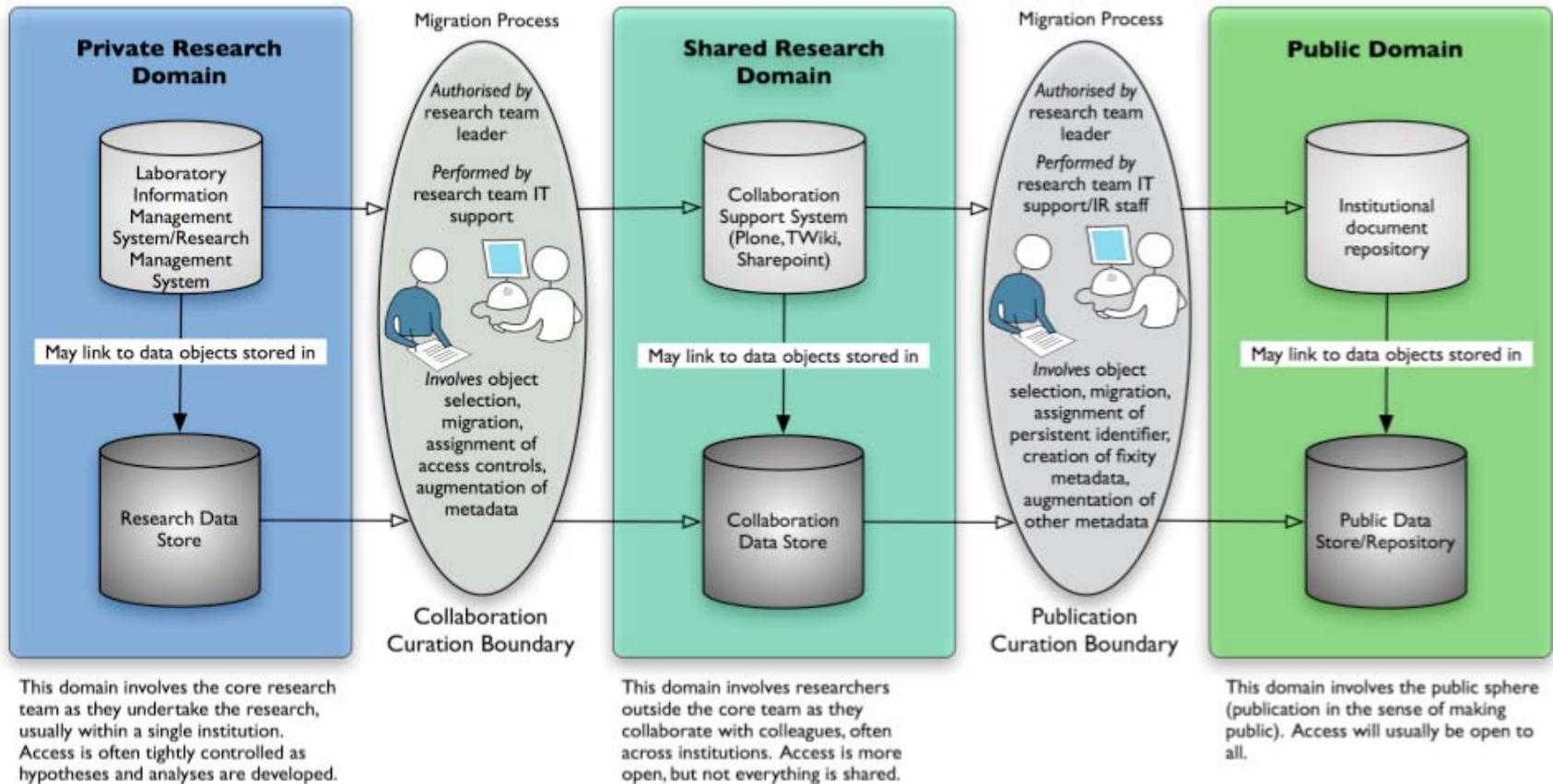
DCC Curation Lifecycle Model

The DCC Curation Lifecycle Model



www.dcc.ac.uk/docs/publications/DCCLifecycle.pdf

Speicherung und Publikation – private, shared and public:



Zeitpunkt der Datenpublikation

- Direkt nach Datenproduktion/Vor der Interpretation (Pre-)
- Mit der Analyse/Interpretation (with publication)
- Nach der Publikation der Interpretation (Post-)

→ vielfältige Gründe
für die Wahl des
Zeitpunktes

Nature 461, 10. Sept. 2009:

Datenpublikation
parallel zur. tradit.
Diskussionpubl.

„Toronto-Statement“

Datenpublikation
vor d. tradit.
Diskussionpubl.

Traditionelle
Publikation der
Interpretation
und Diskussion

„Rom-Agenda“

Datenpublikation
nach d. tradit.
Diskussionpubl.

Zeit



Bestandsaufnahme: Publikation von Forschungsdaten ...oder warum werden viele Forschungsdaten in der Schreibtischschublade “vergessen”?

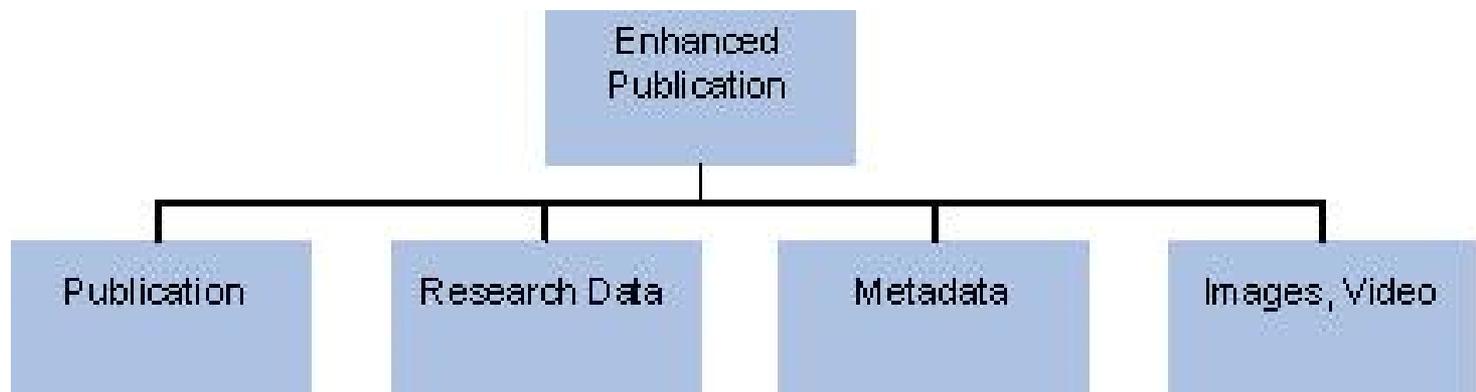
- Fehlende Anreize für WissenschaftlerInnen
 - Z.B. Wertung als Publikation
- Angst vor “Misuse” and “Misinterpretation”: Fehlende “eingängige” Zitiermöglichkeiten für Forschungsdaten
- Keine Mandate/Vorgaben
 - Von Forschungsförderern
 - Von Zeitschriften/Editoren
 - Von disziplinspezifischen Gremien
- Tlw. fehlende (vertrauenswürdige) Infrastrukturen für die gewünschte Publikationsform
- Rechtliche Vorgaben, z.B. Datenschutz, medizin. Daten



Publikation von Forschungsdaten (public) – Beispiele: Supplements, Datenbanken

Publikationsmodell

- Enhanced Publications (DRIVER II, SURF):
“publication of articles along with supplementary data, including the underlying research data, visualisations, public reviews, simulations, and multimedia files.”



Quelle: SURF

Supplement

 [nature.com](#) ▶ [Publications A-Z index](#) ▶ [Browse by subject](#)

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nature

International weekly journal of science



[Journal home](#) > [Archive](#) > [Brief Communications](#) > [Full text](#) > [Supplementary information](#)

Supplementary information

From the following article:

[Language evolution: Semantic combinations in primate calls](#)

Kate Arnold & Klaus Zuberbühler

Nature **441**, 303(18 May 2006)

doi:10.1038/441303a

▼ [Download plugins and applications](#)

Supplementary Methods

This file contains Supplementary Figures S1-S5

 [Download PDF file \(402KB\)](#)

Audio clip 1

A series of 'pyow' calls: these can function as an alarm in response to a nearby leopard, but are also used in other contexts.

 [Download Audio file \(2MB\)](#)

Audio clip 2

A series of 'hack' calls: mostly functions as an alarm in response to a nearby eagle.

 [Download Audio file \(385KB\)](#)

Quelle: Nature 2006

Publikation von Forschungsdaten in Datenbanken

- (Disziplinspezifische) Datenbanken, diverse Strukturen
- Erfolg stark abhängig von Erfahrung und Mandatierung innerhalb der Community, z.B. Bermuda Principles; Publikation von Forschungsdaten in best. Datenbanken wird vorausgesetzt
- Vertrauenswürdige Archive: z.B. Data Seal of Approval (DANS), NESTOR



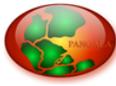
International Nucleotide Sequence Database Collaboration

DDBJ EMBL NCBI



Weltdatenzentrum: Pangaea

- Publishing Network for Geoscientific and Environmental Data



PANGAEA®
Publishing Network for Geoscientific & Environmental Data

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Always quote citation when using data!

Data Description

Citation: Spieß, V; Grobe, H (1996): Paleomagnetic measurements on sediment core PS1387-3, doi:10.1594/PANGAEA.51316, *In Supplement to: Grobe, Hannes; Mackensen, Andreas; Hubberten, Hans-Wolfgang; Spieß, Volkhard; Fütterer, Dieter K (1990): Stable isotope record and late quaternary sedimentation rates at the Antarctic continental margin, in: Bjell, U & Thiede, J (eds.), Geological History of the Polar Oceans - Arctic versus Antarctic, NATO ASI Series, Kluwer Academic Publishers, Dordrecht, Boston, London, 539-571, hdl:10013/epic.11660.d001*

Project(s): [Paleoenvironmental Reconstructions from Marine Sediments @ AWI](#) (AWI_Paleo)

Coverage: West: -5.8667 * East: -5.8667 * South: -68.7333 * North: -68.7333
Date/Time Start: 1985-12-28T15:48:00 * Date/Time End: 1985-12-28T15:48:00
Minimum DEPTH, sediment: 0.1 m * Maximum DEPTH, sediment: 10.0 m

Event(s): **PS1387-3** (PS08/365) * Latitude: -68.7333 * Longitude: -5.8667 * Elevation: -2416.0 m * Date/Time: 1985-12-28T15:48:00 * Recovery: 10.0 m * Penetration: 11.2 m * Location: Atka Bay * Campaign: ANT-IV/3 (PS08) * Basis: Polarstern * Device: Gravity corer (Kiel type) * Comment: upper 30 cm lost in weight, parallel station PS1506

Parameter(s):

#	Name	Short Name	Unit	Principal Investigator	Method	Comment
1	DEPTH, sediment	Depth	m			Geocode
2	Susceptibility	Susceptibility	sensor units	Spieß, Volkhard	Susceptibility unit AWI, MS2C, 145 mm	

Size: 100 data points

Data

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

doi = digital object identifier

1	2
Depth [m]	Susceptibility [sensor units]
0.06000	0.83
0.15000	1.04
0.25000	1.00
0.35000	1.00
0.45000	1.28
0.55000	0.90
0.65000	0.89
0.75000	0.86
.....

Hintergrund: DataCite

International Initiative to Facilitate Access to Research Data

- Aufbauend auf den Arbeiten der TIB
- Gegenwärtige Partner: Technische Informationsbibliothek (TIB), die British Library, die Bibliothek der ETH Zurich, das französische Institut für wissenschaftl. und technische Informationen (INIST), das Zentrum für techn. Informationen von Dänemark, die Bibliothek der TU Delft in den Niederlanden und das kanadische Institute for Scientific and Technical Information (CISTI)

„The goal of this cooperation is to establish a not-for-profit agency that enables organisations to register research datasets and assign **persistent identifiers** to them, so that research datasets can be handled as **independent, citable, unique scientific objects.**”

www.datacite.org

Vorteil:

- Persistent Identifier, doi
- Forschungsdaten können zitiert werden

Elsevier – vom Artikel zum Datensatz

- Zusammenarbeit mit Pangaea-WDC/Mare

Abstract

For the investigation of organic carbon fluxes reaching the seafloor, oxygen microprofiles were measured at 145 sites in different sub-regions of the Southern Ocean. At 11 sites, an *in situ* oxygen microprofiler was deployed for the measurement of oxygen profiles and the calculation of organic carbon fluxes. At four sites, both *in situ* and *ex situ* data were determined for high latitudes. Based on this data set as well as on previous published data, a relationship was established for the estimation of fluxes derived by *ex situ* measured O₂ profiles. The fluxes of labile organic matter range from 0.5 to 37.1 mg C m⁻² d⁻¹. The high values determined by *in situ* measurements were observed in the Polar Front region (water depth of more than 4290 m) and are comparable to organic matter fluxes observed for high-productivity, upwelling areas like off West Africa. The oxygen penetration depth, which reflects the long-term organic matter flux to the sediment, was correlated with assemblages of key diatom species. In the Scotia Sea (~3000 m water depth), oxygen penetration depths of less than 15 cm were observed, indicating high benthic organic carbon fluxes. In contrast, the oxic zone extends down to several decimeters in abyssal sediments of the Weddell Sea and the southeastern South Atlantic. The regional pattern of organic carbon fluxes derived from microsensor data suggests that episodic and seasonal sedimentation pulses are important for the carbon supply to the seafloor of the deep Southern Ocean.

Keywords: Benthic organic carbon fluxes; Labile organic matter; Deep-sea sediments; Southern Ocean; Microsensors; Oxygen penetration depth

Article Outline

1. Introduction
2. Materials and methods
3. Results and discussion
 - 3.1. Relationship between *ex situ* and *in situ* flux measurements
 - 3.2. Organic carbon fluxes and oxygen penetration depths
 - 3.3. Relationship between diatom provinces and benthic organic carbon fluxes
 - 3.3.1. Region A: The *Chaetoceros* spp. province
 - 3.3.2. Region B: The open-ocean *Fragilariopsis kerquelenensis* province

[pigment](#)

[regionalization](#)

Scientific data by NextBio

[What is this?](#)

Supplementary Content within this Article

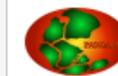
◀ 1 ▶



Online supplementary Table 1

[View within Article](#)
[Download this File](#)

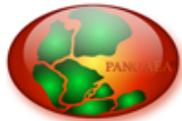
Related Articles in ScienceDirect



Supplementary Data

[View Record in Scopus](#)

Elsevier – Pangaea



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Data Description

[RIS](#) [BIBTeX](#)

Citation: Sachs, O et al. (2009): Benthic organic carbon flux and oxygen penetration depth in the Souther Ocean.
doi:10.1594/PANGAEA.663056,

Supplement to: **Sachs, Oliver; Sauter, Eberhard J; Schlüter, Michael; Rutgers van der Loeff, Michiel M; Jerosch, Kerstin; Holby, Ola (2009):** Benthic organic carbon flux and oxygen penetration reflect different plankton provinces in the Southern Ocean. *Deep Sea Research I*, doi:10.1016/j.dsr.2009.02.003

Parameter(s):

#	Name	Short Name	Unit	Principal Investigator	Method	Comment
1	Event label	Event				Metadata
2	LATITUDE	Latitude				Geocode
3	LONGITUDE	Longitude				Geocode
4	DATE/TIME	Date/Time				Geocode
5	DEPTH, sediment	Depth	m			Geocode
6	Depth, bathymetric	Bathy depth	m	Schlüter, Michael		
7	Gear	Gear		Schlüter, Michael		
8	Sample Method	Sample Method		Schlüter, Michael		
9	Season	Season		Schlüter, Michael		

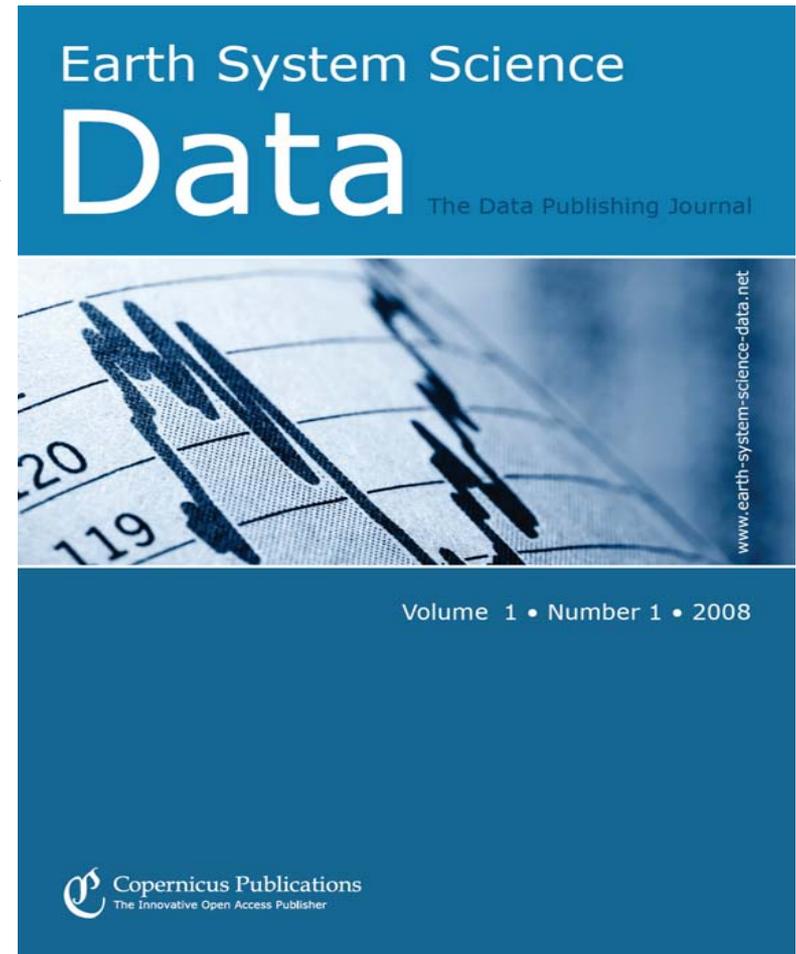
Data Journal

Eigenständige Datenpublikation inkl.
Dokumentation – qualitätsgesichert durch Peer
Review

Anreiz durch Extra-Publikation

Verlag

Copernicus Publications – OA Publisher, EGU



Diskussions-Artikel (Open Peer Review)

Earth Syst. Sci. Data Discuss., 1, 1–13, 2008
www.earth-syst-sci-data-discuss.net/1/1/2008/
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Earth System Science Data Discussions is the access reviewed
discussion forum of *Earth System Science Data*

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

G. König-Langlo and H. Gernandt

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Bremerhaven, Germany

Received: 29 July 2008 – Accepted: 5 September 2008 – Published: 22 September 2008

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

Published by Copernicus Publications.



ESDD
1, 1–13, 2008

Antarctic
ozonesonde profiles

G. König-Langlo and
H. Gernandt

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Data Provenance & Structure

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Printer-friendly Version

Interactive Discussion



Repository Reference

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 following weekly ozone soundings mark the beginning of the continuous investigation of Germany to study the vertical ozone distribution in the southern hemisphere.

In 1985 these ozone soundings have been the only record showing the change of vertical ozone distribution in the southern polar stratosphere in September and October. 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 apart from Georg-Forster-Station. Till 1992, ozone soundings were taken without interruption. Afterwards, 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
Available at: <http://dx.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

Pangaea!

ESSDD
1, 1–13, 2008

**Antarctic
ozonesonde profiles**

G. König-Langlo and
H. Gernandt

Title Page

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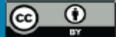
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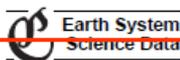
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Interactive Discussion



ESSD – Akzeptierter finaler Artikel

Earth Syst. Sci. Data, 1, 1–5, 2009
 www.earth-syst-sci-data.net/1/1/2009/
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Datensatz auf bekannte Art und Weise zitierbar

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
 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

Datensatz nachnutzbar:

Daten qualitätsgesichert und online abrufbar

! Anreiz: Publikation des Datensatzes als eigenständiger Artikel !



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 (gert.koenig-langlo@awi.de)

Published by Copernicus Publications.

<http://www.earth-system-science-data.net/>

AGU



- American Geophysical Union: EJournal
- AGU Article Type: Data Briefs
 - kurze Artikel über „unpublished datasets“
- AGU – Geochemical Data Reporting:
 - “All data that are used in a publication needs to be either referenced to an accessible, persistent, and citable source, or in a data table associated with the publication. “ (<http://www.agu.org/journals/gc/author-info.shtml>)
 - strikte Vorgaben zur Dokumentation der Datenqualität

Bestandsaufnahme: Publikation von Forschungsdaten (revisited)

- Fehlende Anreize für WissenschaftlerInnen
 - Z.B. Wertung als Publikation
- Angst vor “Misuse” and “Misinterpretation”:
Fehlende “eingängige” Zitiermöglichkeiten
für Forschungsdaten
- Tlw. fehlende (vertrauenswürdige)
Infrastrukturen für die gewünschte
Publikationsform
- Keine Mandate/Vorgaben
 - Von Forschungsförderern
 - Von Zeitschriften/Editoren
 - Von disziplinspezifischen Gremien

Beispiel: Data Journal

Beispiel: Data Cite

Beispiel:
Data Seal of Approval

Beispiel:
Disziplinspezif. Vorgaben

Ausblick – Initiativen im Bereich Forschungsdaten

- Alliance for Permanent Access to the Records of Science, EU-Projekt:
Parse.Insight
www.alliancepermanentaccess.eu
- Allianz der deutschen Wissenschaftsorganisationen, Schwerpunktinitiative
Digitale Information: Handlungsfeld Forschungsdaten
www.allianz-initiative.de
- Knowledge Exchange Initiative, Arbeitsgruppe: Forschungsdaten
www.knowledge-exchange.info

Zusammenfassung

- Publikation von Forschungsdaten mit technischen und organisatorischen Voraussetzungen
- Unterschiedliche Zeitpunkte und Räume für die Publikation von Forschungsdaten
- Verschiedene Initiativen im Bereich Forschungsdatenpublikation: von disziplinspezifischen Lösungen und Umsetzungen zu generellen Modellen

Vielen Dank für Ihre Aufmerksamkeit!

Referenzen

- American Geophysical Union, AGU, [ww.agu.org](http://www.agu.org)
- AGU – Journal Geochemistry, Geophysics, Geosystems:
www.agu.org/journals/gc/
- DANS, [www. http://www.dans.knaw.nl/nl/](http://www.dans.knaw.nl/nl/)
- DCC Curation Lifecycle: www.dcc.ac.uk/docs/publications/DCCLifecycle.pdf
- Earth System Science Data (Journal): <http://www.earth-system-science-data.net/>
- Genbank: <http://www.ncbi.nlm.nih.gov/Genbank/>
- Nature 461, 10.09.2009 – Special Data Sharing: <http://tinyurl.com/dataspecial>
- Pangaea: www.pangaea.de
- SURF: www.suffoundation.nl
- Treloar, A.: Data management and the curation continuum: how the Monash experience is informing repository relationships. Vala Conference 2008
http://www.valaconf.org.au/vala2008/papers2008/111_Treloar_Final.pdf