



Data-Literature Interlinking (DLI) a universal service

Michael Diepenbroek

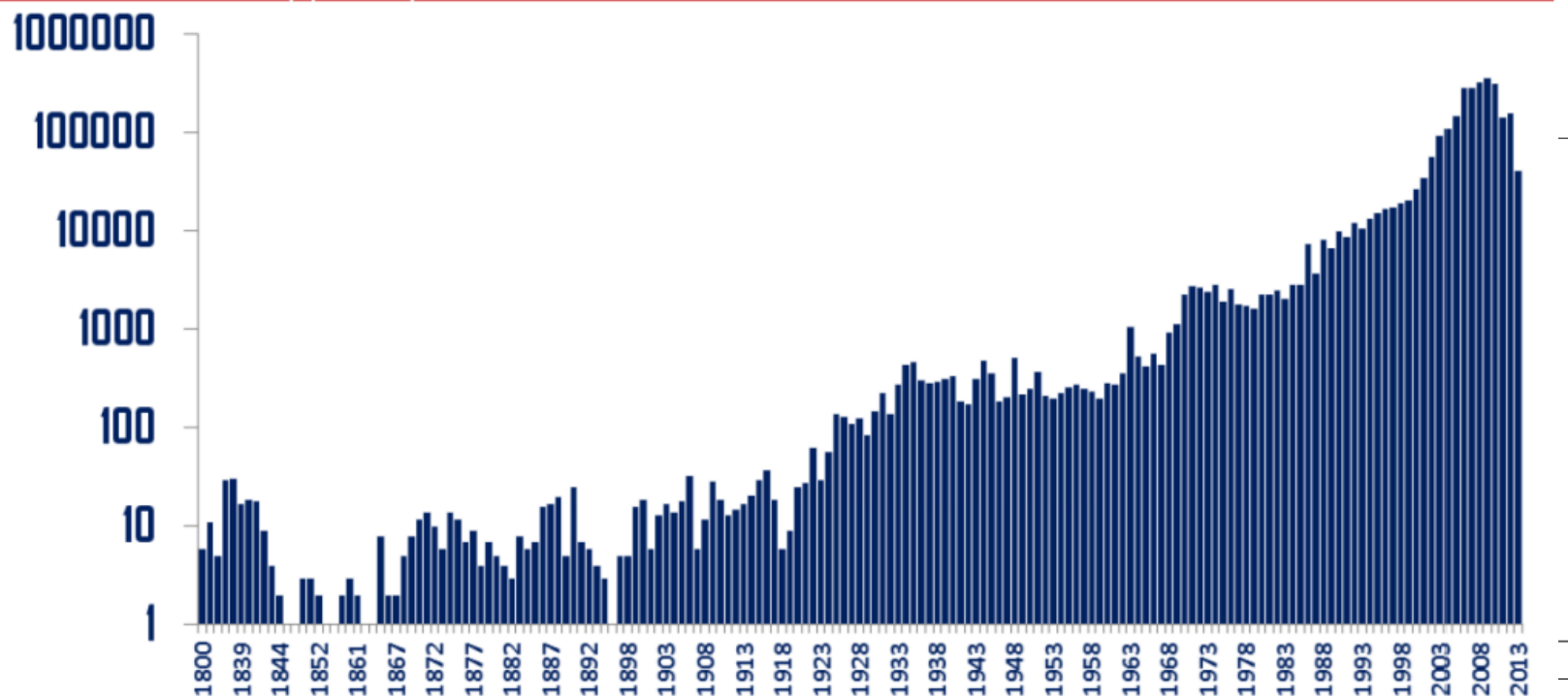
PANGAEA



- Motivation
- Concept
- Use cases, stakeholder
- Architecture
- Demo
- Next steps

Motivation

Figure 1
Record distribution by year of publication. 1800-2013.

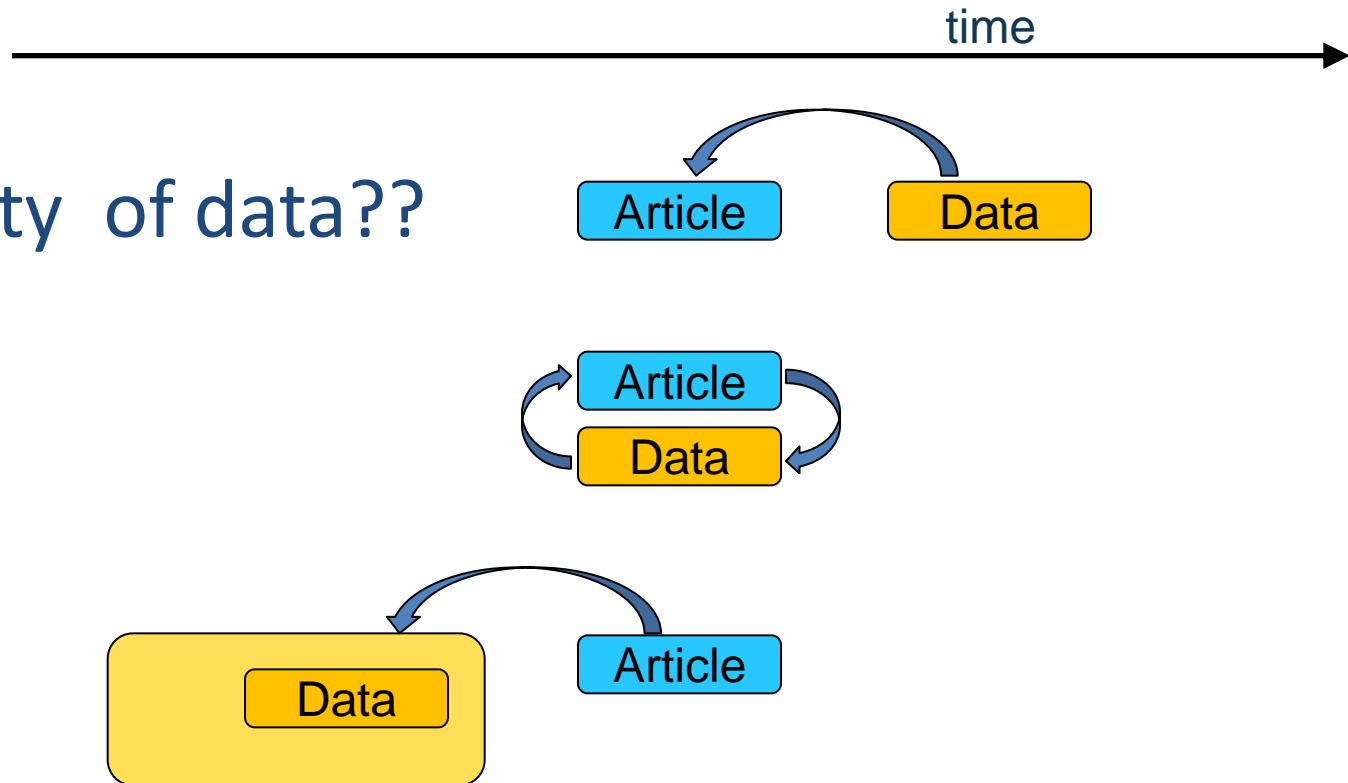


Data Citation Index (DCI)

Piowar HA, Day RS, Fridsma DB (2007) Sharing Detailed Research Data Is Associated with Increased Citation Rate. PLoS ONE 2(3): e308. doi:10.1371/journal.pone.0000308

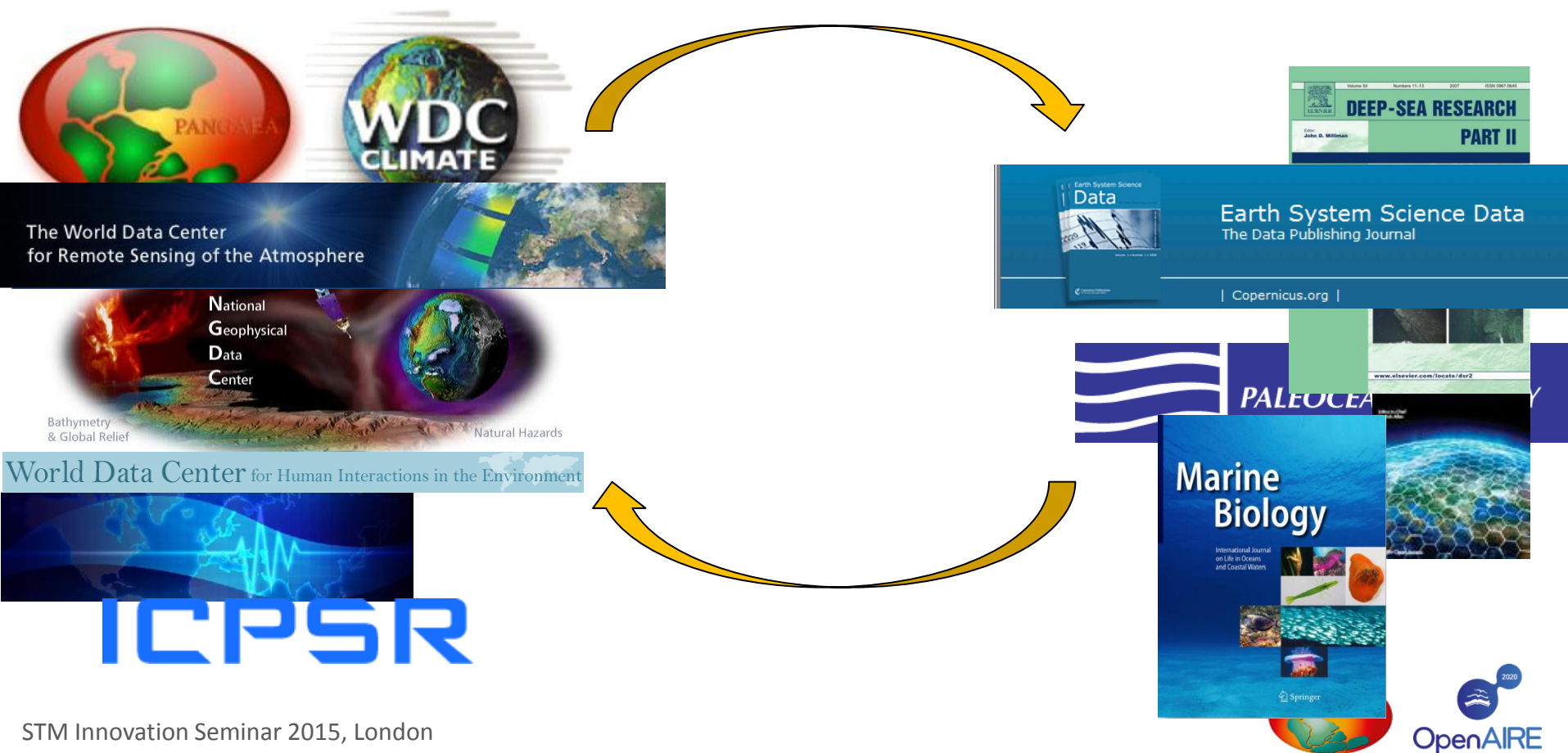
Motivation

- Citability of data??

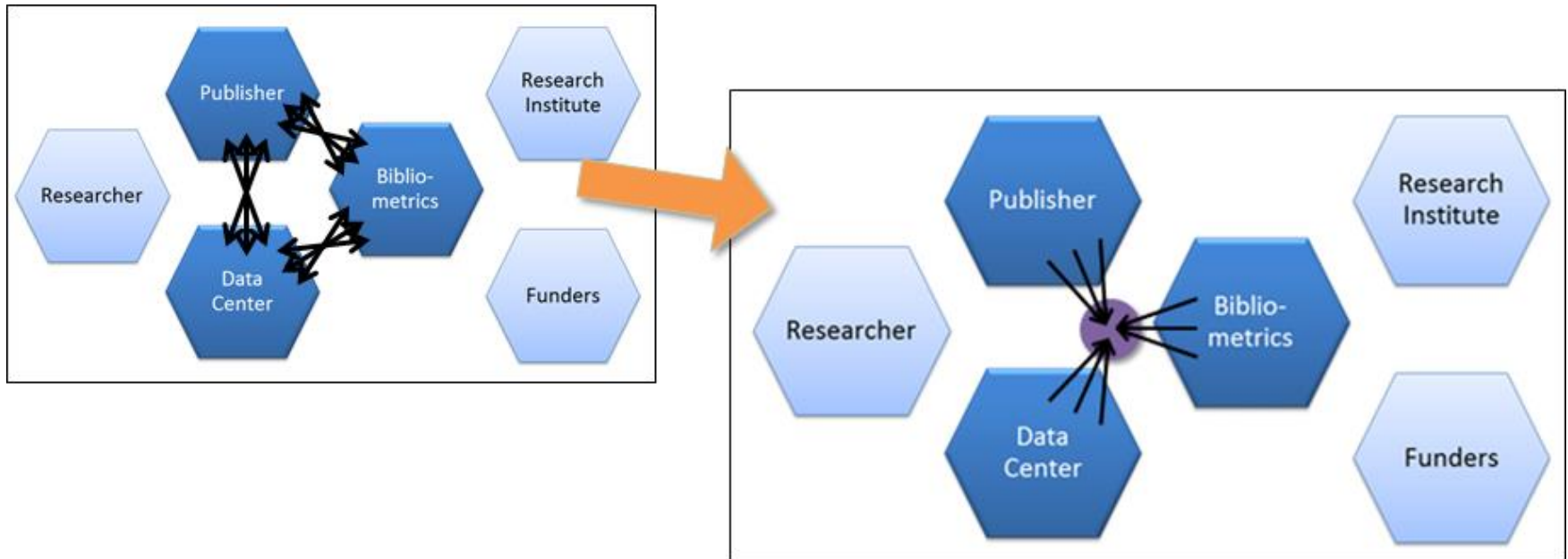


Collaboration between data archives & science journals

- ✓ linking editorial workflows
- ✓ linking services



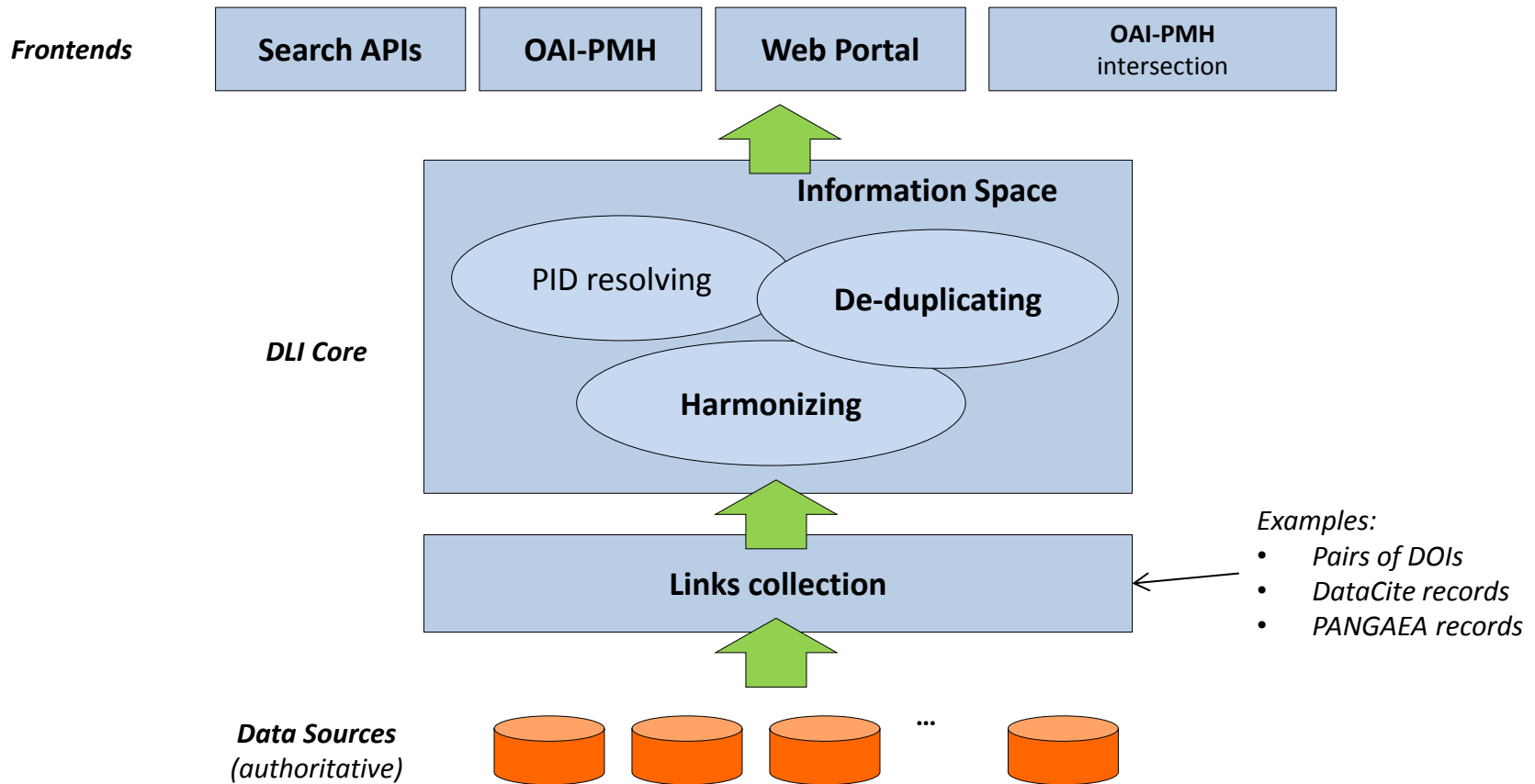
Concept



Use Cases



Architecture

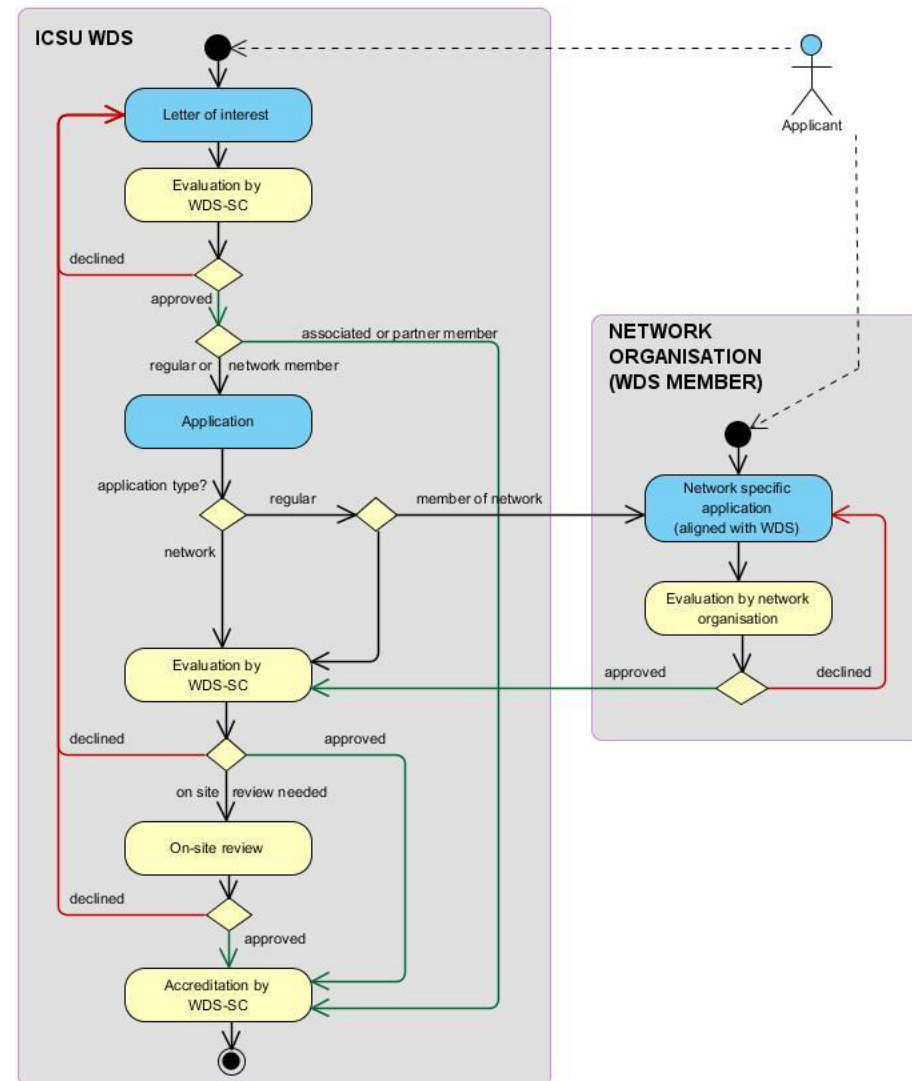


Metadata content

- PIDs: DOIs, Accession numbers, URLs
- Relationships: References, Supplements, Cites (DataCite schema)
- Provenance: Data source / provider, timestamp
- Citation: Author (ORCID), title etc.

Quality issues

- Quality levels
 - Records
 - Providers
- Certificates
 - ICSU-WDS, DSA
- Altmetrics
- Registry: re3data
- API allows filtering



Demo

- [Data Literature Interlinking \(DLI\)](#)
- Examples
 - [CO₂ query](#)
 - [Ocean acidification](#)
 - [Coccolithophores](#)

Contributors

Over 1M article/data links (2M objects) from:

- 3TU.Datacentrum
- Australian National Data Service (ANDS)
- Cambridge Crystallographic Data Center (CCDC)
- CrossRef
- DataCite
- Elsevier
- Interdisciplinary Earth Data Alliance (IEDA)
- Interuniversity Consortium for Political and Social Research (ICPSR)
- Institute of Electrical and Electronics Engineers (IEEE)
- OpenAire
- PANGAEA
- RCSB Protein Data Bank
- Springer Nature
- Thomson Reuters

WDS/RDA

Interest Group on Data Publishing

Consortium

- Research facilities
- Data repositories
- Universities
- Libraries
- Industry



Next steps

- Principles (openness etc.)
- Governance & maintenance 3/2016
- Implementation
 - Pin down key use cases
 - Develop tailored API's and services to meet use cases
 - Embed service in real-life situation
 - Powered by: OpenAIRE, PANGAEA, ANDS
 - Operational until 9/2016
- Adoption
 - RDA meeting, Tokyo, 3/2016
 - International Data Week, Denver, 9/2016
 - Early adopters & endorsers: STM, ICSU-WDS, Mendeley, PANGAEA

Data Publishing – Cross-referencing

ScienceDirect - Marine Microbiology | Mohtadi, M et al. (2010): Su

doi.pangaea.de/10.1594/PANGAEA.733340



PANGAEA®

Data Publisher for Earth & Environmental Science

Logged in as uschindler (log out, profile)

Always quote citation when using data!

Data Description

Show Map Google Earth RIS BibTeX

Citation: Mohtadi, M et al. (2010): Surface sediment samples from several fore-arc basins west and southwest of the Indonesian Archipelago, analyzed by planktonic foraminifera, stable oxygen and carbon isotopic signals and opal and CaCO₃ contents in bulk sediment.

doi:10.1594/PANGAEA.733340,

Supplement to: Mohtadi, Mahyar; Max, Lars; Hebbeln, Dierk; Baumgart, Anne; Krück, Nils; Jennerjahn, Tim C (2007): Modern environmental conditions recorded in surface sediment samples off W and SW Indonesia: Planktonic foraminifera and biogenic compounds analyses. *Marine Micropaleontology*, 65(1-2), 96-112, doi:10.1016/j.marmicro.2007.06.004

Abstract: A total of 69 surface sediment samples from several fore-arc basins located west and southwest of the Indonesian Archipelago was analyzed with respect to the faunal composition of planktonic foraminifera, the stable oxygen and carbon isotopic signal of a surface-dwelling (*Globigerinoides ruber*) and a thermocline-dwelling (*Neogloboquadrina dutertrei*) species, and the opal and CaCO₃ contents in bulk sediment. Our results show that the distribution pattern of opal in surface sediments corresponds well to the upwelling-induced chlorophyll concentration in the upper water column and thus, represents a reliable proxy for marine productivity in the coastal upwelling area off S and SW Indonesia. Present-day oceanography and marine productivity are also reflected in the tropical to subtropical and upwelling assemblages of planktonic foraminifera in the surface sediments, which in part differ from previous studies in this region probably due to different coring methods and dissolution effects. The average stable oxygen isotopic values (δ¹⁸O) of *G. ruber* in surface sediments vary between 2.9 per mill and 3.2 per mill from basin to basin and correspond to the oceanographic settings during the SE monsoon (July-October) off west Sumatra, whereas off southern Indonesia, they reflect the NW monsoon (December-March) or annual average conditions. The δ¹⁸O values of *N. dutertrei* show a stronger interbasinal variation between 1.6 per mill and 2.2 per mill and correspond to the upper thermocline hydrology in July-October. In addition, the difference between the shell carbon isotopic values (δ¹³C) of *G. ruber* and *N. dutertrei* (Delta δ¹³C) appears to be an appropriate productivity recorder only in the non-upwelling areas off west Sumatra. Consequently, joint interpretation of the isotopic values of these species is distinctive for different fore-arc basins W and SW of Indonesia and should be considered in paleoceanographic studies.

Project(s): [Center for Marine Environmental Sciences \(MARUM\)](#)

Coverage: *Median Latitude:* -2.448691 * *Median Longitude:* 102.924024 * *South-bound Latitude:* -9.012150 * *West-bound Longitude:* 95.331100 * *North-bound Latitude:* 3.874500 * *East-bound Longitude:* 121.002536

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GeoB10010-1 * *Latitude:* -1.002969 * *Longitude:* 97.016358 * *Date/Time:* 2005-08-06T11:14:00 * *Elevation:* -2937.0 m * *Campaign:* SO184/1 (PABESIA) * *Basis:* Sonne * *Device:* MultiCorer * *Comment:* 6/6 4/4

GeoB10014-1 * *Latitude:* 1.011308 * *Longitude:* 96.016350 * *Date/Time:* 2005-08-08T01:30:00 * *Elevation:* -1158.0 m * *Campaign:* SO184/1 (PABESIA) * *Basis:* Sonne * *Device:* MultiCorer * *Comment:* 6/6 4/4



Data Publishing – Cross-referencing

Modern environmental con x

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Abstract

Keywords

1. Introduction

2. Regional setting

3. Materials and methods

Table 1.

Table 2.

4. Results

Table 3.

5. Discussion

5.1. Effect of dissolution

Marine Micropaleontology
Volume 65, Issues 1–2, 29 October 2007, Pages 96–112

Modern environmental conditions recorded in surface sediment samples off W and SW Indonesia: Planktonic foraminifera and biogenic compounds analyses

Mahyar Mohtadi^{a, b}, Lars Max^b, Dierk Hebbeln^{a, b}, Anne Baumgart^c, Nils Krüick^c, Tim Jennerjahn^c

^a Center for Marine Environmental Sciences (MARUM), University of Bremen, 28359 Bremen, Germany
^b Geosciences Department, University of Bremen, 28359 Bremen, Germany
^c Center for Tropical Marine Ecology (ZMT), Fahrenheitstr. 6, 28359 Bremen, Germany

Received 23 April 2007. Revised 19 June 2007. Accepted 20 June 2007. Available online 6 July 2007.

<http://dx.doi.org/10.1016/j.marmicro.2007.06.004>, How to Cite or Link Using DOI

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Abstract

A total of 69 surface sediment samples from several fore-arc basins located west and southwest of the Indonesian Archipelago was analyzed with respect to the faunal composition of planktonic foraminifera, the stable oxygen and carbon isotopic signal of a surface-dwelling (*Globigerinoides ruber*) and a thermocline-dwelling (*Neogloboquadrina dutertrei*) species, and the opal and CaCO₃ contents in bulk sediment. Our results show that the distribution pattern of opal in surface sediments corresponds well to the upwelling-induced chlorophyll concentration in the upper water column and thus, represents a reliable proxy for marine productivity in the coastal upwelling area off S and SW Indonesia. Present-day oceanography and marine productivity are also reflected in the tropical to subtropical and upwelling assemblages of planktonic

PANGAEA® – Related Data
Surface sediment samples from several fore-arc basins off W and SW Indonesia. CaCO₃ contents in bulk sediment



Thailand, Vietnam, Philippines, Malaysia, Indonesia, Andaman Sea, Gulf of Thailand, Java Sea, Banda Sea, South China Sea

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- Stable isotopes of planktonic foraminifera from the Gulf of Thailand. *Marine Micropaleontology*
- Comparison of the Compositional, Microbiological and Geochemical Characteristics of Planktonic Foraminifera from the Gulf of Thailand. *Journal of Dairy Science*
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High-resolution record of Northern Hemisphere interglacial period

[No author name available]

Abstract

Two deep ice cores from central Greenland, drilled in the Northern Hemisphere, but the oldest sections of the cores were present an undisturbed climate record from a North Greenland within the last interglacial period. The oxygen isotopes with temperatures 5 °C warmer than today. We find northern Greenland and the undisturbed sections of the Northern Hemisphere modulated the latitudinal temperature temperatures that marked the initiation of the last glacial by an abrupt climate warming about 115,000 years ago appear to have an immediate Antarctic counterpart, suggesting that the climate see-saw between the hemispheres (which dominated the last glacial period) was not operating at this time.

Language of original document

English

Index Keywords

Engineering controlled terms: Geochronology; Glacial geology; Ice; Isotopes; Oxygen; Rocks
Engineering uncontrolled terms: Bedrock; Greenland; Northern hemisphere
Engineering main heading: Climate change
GEOBASE Subject Index: ice core; Last Interglacial; Northern Hemisphere; paleoclimate; Quaternary
EMTREE medical terms: Antarctica; article; chronology; climate change; cold climate; document examination; geographic elevation; glacial mass balance; information retrieval; last glacial maximum; latitude; low temperature; priority journal

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PANGAEA[®] - Supplementary Data 50 year means of oxygen isotope data from ice core NGRIP



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1 Johnsen, S.J., Clausen, H.B., Dansgaard, W., Fuhrer, K., Gundestrup, N., Hammer, C.U., Iversen, P., (...), Steffensen, J.P. Irregular glacial interstadials recorded in a new Greenland ice core (1992) *Nature*, 359 (6202), pp. 241-243. Cited 684 times

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- Lhomme, N., Clarke, G.K.C., Marshall, S.J. Tracer transport in the Greenland Ice Sheet: Constraints on ice cores and glacial history (2005) *Quaternary Science Reviews*

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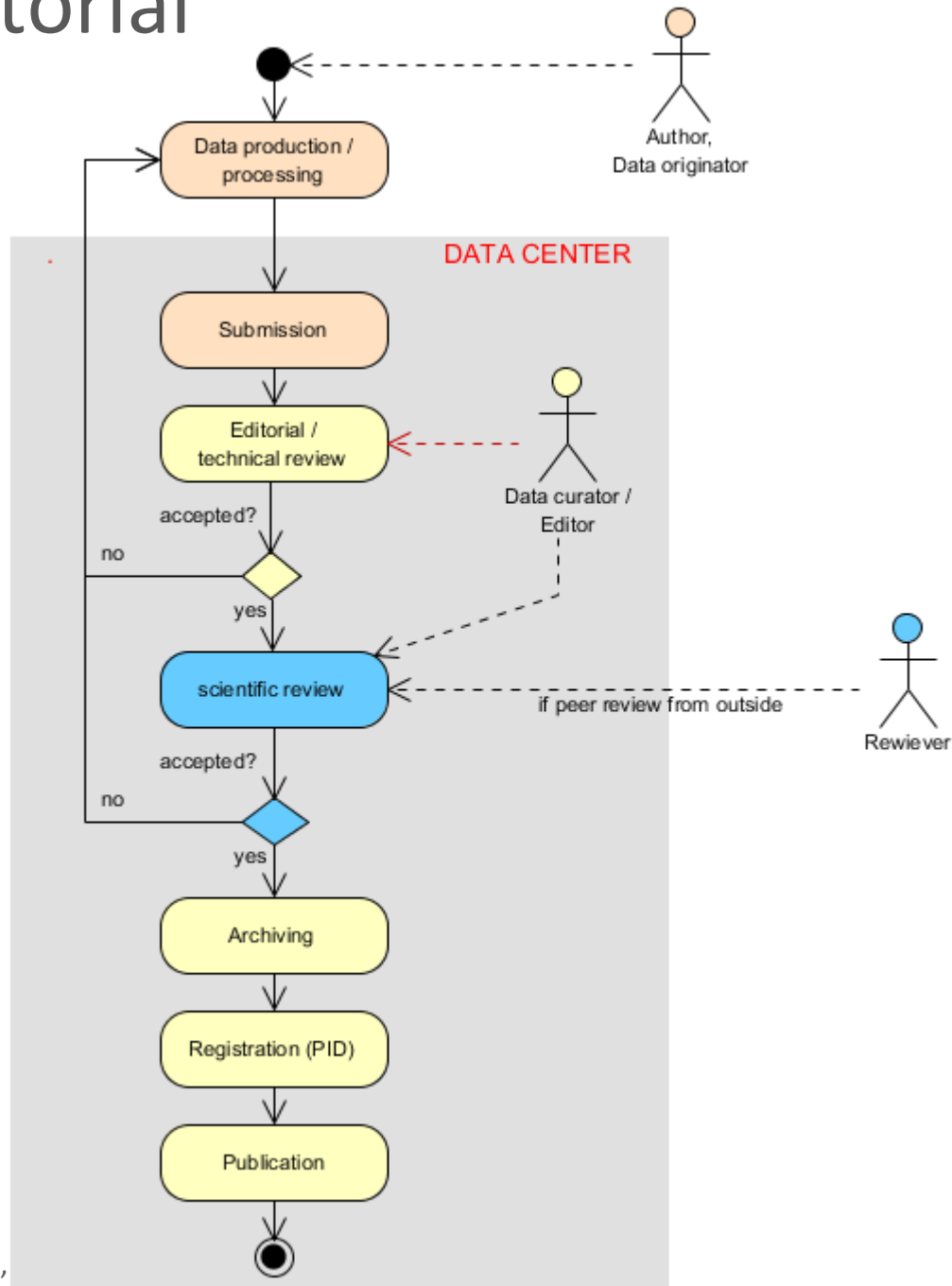
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