Data-Literature Interlinking (DLI) a universal service

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

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

Data Citation Index (DCI)

Motivation

- Citability of data??

Diagram:

- Data
- Article
- Data
- Article
- Data
- Article

Time line:

- Article
- Data
Collaboration between data archives & science journals

- linking editorial workflows
- linking services
Concept
Use Cases
Architecture

Frontends

- Search APIs
- OAI-PMH
- Web Portal
- OAI-PMH intersection

DLI Core

- Information Space
  - PID resolving
  - De-duplicating
  - Harmonizing

Links collection

Data Sources (authoritative)

Examples:
- Pairs of DOIs
- DataCite records
- PANGAEA records
Metadata content

- **PID**s: 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**
  - CO$_2$ 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
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 andopal and CaCO3 contents in bulk sediment. doi:10.1594/PANGAEA.733340.


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 differs 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 SW monsoon (December-March) or annual average conditions. The δ18O values of N. dutertrei show a stronger interbasinal variation between 1.8 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:

Event(s):
GeoB10008-4 * Latitude: -0.015914 * Longitude: 98.004331 * Date/Time: 2005-08-06T04:29:00 * Elevation: -934.0 m * Campaign: SO184/1 (PABESIA) * Basis: Sonne * Device: MultiCorer * Comment: 6/6/4/4
GeoB10014-1 * Latitude: 1.011308 * Longitude: 96.016350 * Date/Time: 2005-08-06T01:30:00 * Elevation: -1158.0 m * Campaign: SO184/1 (PABESIA) * Basis: Sonne * Device: MultiCorer * Comment: 6/6/4/4
Modern environmental conditions recorded in surface sediment samples off W and SW Indonesia: Planktonic foraminifera and biogenic compounds analyses

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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 (N globulosa dawsoni) 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...
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 isotope temperatures warmer than today. We find until today, although the undisturbed sections of the Northern Hemisphere's long-term temperatures that marred the initiation of the last glacial by an abrupt climate warming about 115,000 years ago to have an immediate Antarctic counterpart as dominated the last glacial period, 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 Hemispheric; paleo climate; Quaternary
EMTREE medical terms: Antarctica; article; chronology; climate change; cold climate; document examination; geographic elevation; global mass balance; information retrieval; last glacial maximum; latitude; low temperature; priority; journal

References (80) View in table layout

STM Innovation Seminar 2015, London
Data editorial
Linked editorial

DATA CENTER

- Data production / processing
  - Submission
    - Editorial / technical review
      - accepted?
        - no
        - yes
          - scientific review
            - accepted?
              - no
              - yes
                - Archiving
                  - Registration (PID)
                  - Publication

JOURNAL

- Writing article
  - Submission
    - Editorial
      - Data curator / Editor
      - Editor
      - Reviewer
        - accepted?
          - no
          - yes
            - scientific review (incl. data)
              - accepted?
                - no
                - yes
                  - Registration (PID)
                  - Publication