

Open Data, Data Publication and Citation



GFZ Data Services

Kirsten Elger

GFZ Data Services,
GFZ German Research Centre for Geosciences, Potsdam

Outline

- Why sharing data?
- Best practice: Data Publications
- Metadata
- GFZ Metadata Editor
- Formats for Data Publications
- Citation and Discovery
- Dynamic Data and DOI Versioning
- PID for physical samples: IGSN

Why sharing data?

Sharing research data...

- encourages **scientific enquiry and** debate
- promotes innovation and **potential new data uses**
- leads to **new collaborations** between data users and data creators
- maximises **transparency** and accountability
- enables **scrutiny** of research findings
- encourages the improvement and **validation** of research methods
- **reduces the cost** of duplicating data collection
- increases the **impact** and **visibility** of research
- provides **credit** to the researcher as a research output in its own right
- provides great resources for education and training

(source: UK Data Archive, <http://www.data-archive.ac.uk/create-manage/planning-for-sharing/why-share-data>)

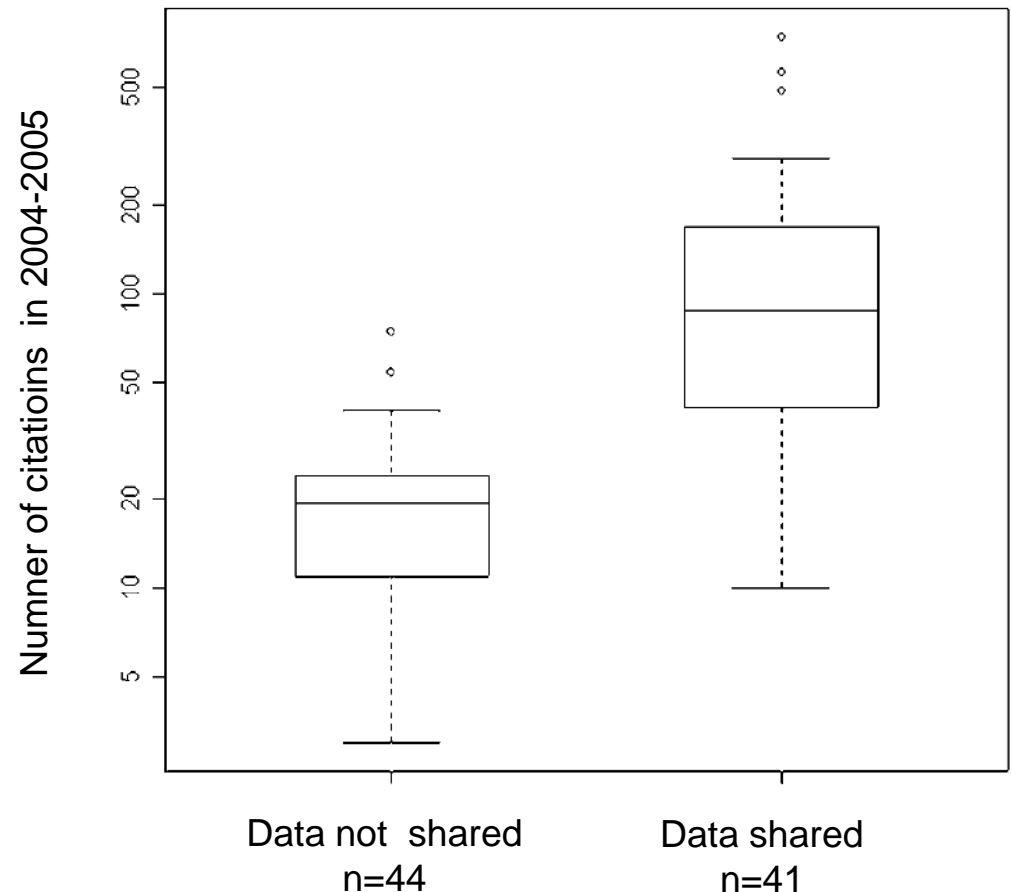
Sharing Detailed Research Data Is Associated with Increased Citation Rate

Heather A. Piwowar*, Roger S. Day, Douglas B. Fridsma

Department of Biomedical Informatics, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania, United States of America

*“We examined the citation history of 85 cancer microarray clinical trial publications with respect to the availability of their data. The 48% of trials with publicly available microarray data received 85% of the aggregate citations. **Publicly available data was significantly ($p = 0.006$) associated with a 69% increase in citations, independently of journal impact factor, date of publication, and author country of origin using linear regression.**”*

doi:10.1371/journal.pone.0000308




Open Research Data – an international request



G8 UK
UNITED KINGDOM 2013

G8 OPEN DATA CHARTER



H2020 Programme

Guidelines on
FAIR Data Management in Horizon 2020



Government of Canada / Gouvernement du Canada

Jobs ▾ Immigration ▾ Travel ▾ Business ▾ Benefits ▾ He

[Home](#) → [Open Government](#) → [About Open Government](#) → [G8 Open Data Charter – Canada's Action Plan](#)

G8 Open Data Charter – Canada's Action Plan



National Science Foundation
WHERE DISCOVERIES BEGIN


HOME Research Areas Funding Awards

National Science Foundation (NSF) Home


About Open Data at NSF



G7 Science and Technology Ministers' Meeting
Tsukuba, Ibaraki



DFG Deutsche Forschungsgemeinschaft



Handling of Research Data

Tsukuba Communiqué
G7 Science and Technology Ministers' Meeting in Tsukuba, Ibaraki
15-17 May 2016

.....and many more

Things to keep in mind when sharing data

A Painful (but True-to-life) Look at Data Availability and Reuse

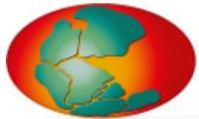


Best Practice: Data Publication

Publication of datasets as individual publications (with assigned persistent Identifier; DOI) through data repositories

re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES

GFZ Data Services



PANGAEA.

Data Publisher for Earth and Environmental Sciences

Spatial Filter



Open Research Data



Data Repositories:

- permanent archives for research data
- Open Access
- disciplinary, institutional, general
- persistent identifier (ideally DOI)
- re3data.org helps to find repositories

Best Practice: Data Publication

Publication of datasets as individual publications (with assigned persistent Identifier; DOI) through data repositories

- **Findable:** integration of standardised metadata in external data portals (e.g. DataCite, EUDAT)
- **Accessible:** persistent data storage and access guaranteed by the publisher (= data repository)
- **Documented:** with metadata for discovery and reuse
- **Citable:** DOI-referenced datasets are citable just as journal articles (→ credit for the researcher)

Coalition on Publishing Data in the Earth and Space Sciences

COPDESS

GOAL

**OPEN DATA in the EARTH
and SPACE SCIENCES**

STATEMENT OF COMMITMENT

SITUATION TODAY

1. Scholarly publication is a key high value entry point in making data available, open, discoverable, and usable.
2. Unfortunately, the vast majority of data submitted along with publications are in formats and forms of storage that makes discovery and reuse difficult or impossible.

42 SIGNATURES (October 2016)

COPDESS



www.copdess.org/statementofcommitment

Coalition on Publishing Data in the Earth and Space Sciences

COPDESS

GOAL

**OPEN DATA in the EARTH
and SPACE SCIENCES**

SITUATION TODAY

1. Scholarly publication is a key high value entry point in making data available, open, discoverable, and usable.
2. Unfortunately, the vast majority of data submitted along with publications are in formats and forms of storage that makes discovery and reuse difficult or impossible.

STATEMENT OF COMMITMENT

- To promote metadata information and domain standards, [...], to help simplify and standardize deposition and reuse.
- To promote referencing of data sets using the **Joint Declaration of Data Citation Principles**, in which **citations of data sets should be included within reference lists**.
- To include in research papers concise statements indicating where data reside and **clarifying availability**.
- To promote and **implement links to data sets in publications** and corresponding links to journals in data facilities via persistent identifiers.

(January 2015)

New Journal Policies 2016

SPRINGER NATURE

RESEARCH DATA POLICY:

“The journal encourages authors, where possible and applicable, to **deposit data** that support the findings of their research **in a public repository** [...] **Datasets that are assigned** digital object identifiers (DOIs) by a data repository **may be cited in the reference list.**”



Copernicus Publications recommends **depositing data** that correspond to journal articles **in reliable (public) data repositories**, assigning digital object identifiers, and properly **citing data sets as individual contributions.**

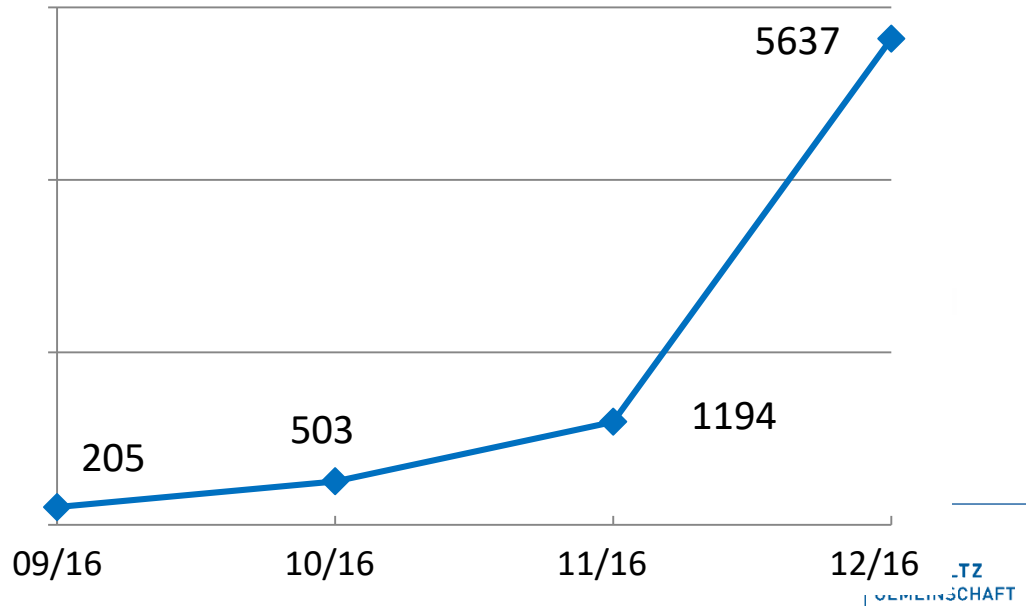
Tracking Data Publications



DataCite Statistics

Datacentre	DOI Registrations				Metadata			
	Total	This Year	Last 30 Days	Last 7 Days	Searchable	Hidden	Missing	Ratio
TIB.ADLNET - Romania ADL Association	1 193	0	0	0	998	195	0	100%
TIB.AIP - Leibniz-Institut für Astrophysik Potsdam (AIP)	85 288	0	0	0	85 288	0	0	100%
TIB.AMA - AMA Service GmbH	1 893	0	0	0	1 889	4	0	100%
TIB.ASTONE - Institut für Wirtschaftsinformatik, Westfälische Wilhelms-Universität Münster	213	0	0	0	213	0	0	100%
TIB.AWI - Alfred-Wegener-Institut								
TIB.BAFG - Bundesanstalt für Gewässerkunde								
TIB.BAUA-DOI - Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA)								
TIB.BAW - Bundesanstalt für Wasserbau								
TIB.BEILST - Beilstein-Institut zur Förderung der Chemischen Wissenschaften								
TIB.BIKF - Biodiversity and Climate Research Centre								
TIB.CASIMIR - Stiftung Schloss Friedenstein, Gotha								
TIB.CTT - Cellular Therapy and Transplantation								
TIB.DAGST - Dagstuhl								
TIB.DESY - DESY - Deutsches Elektronen-Synchrotron								

DOI hits for GFZ Datasets of the World Stress Map



What do I need for a data publication/ What is important when I want to share my data?

1. Data
2. Metadata

Metadata and Metadata

1. Structural metadata (disciplinary data description)

Header of sensor data

```
ENVI
description = {
  Create New File Result [Tue Jan 05 17:34:54 2016]}
samples = 70
lines = 393
bands = 1
header offset = 0
file type = ENVI Classification
data type = 1
interleave = bsq
sensor type = Unknown
classes = 62
class lookup = {
  0, 0, 0, 20, 75, 0, 40, 105, 10, 113, 160,
188, 185, 115, 220, 185, 255, 205, 25, 255, 165, 20,
225, 25, 0, 225, 25, 0, 225, 25, 0, 250, 150,
250, 150, 0, 250, 150, 0, 230, 120, 0, 230, 120,
25, 85, 245, 40, 145, 255, 40, 145, 255, 40, 145,
40, 145, 255, 40, 145, 255, 130, 210, 255, 130, 210, 2,
250, 160, 185, 255, 195, 195, 255, 195, 195, 145, 25,
218, 112, 214, 218, 112, 214, 218, 112, 214, 30, 30, 18,
255, 210, 0, 160, 215, 50, 160, 215, 50, 160, 215, 5,
176, 131, 255, 100, 40, 180, 255, 255, 75, 255, 255, 4,
225, 205, 170, 225, 205, 170, 147, 115, 48, 147, 115, 4,
147, 115, 48, 80, 0, 115, 80, 0, 115, 180, 180, 18,
180, 180, 180, 60, 60, 60}
class names = {
  Not_Classified, calcite_abundant, calcite, calcite.7+muscovite,
  calcite.8+montmorillonite_Ca.2, calcite.8+montmorillonite_Mg,
  carbonate_Fe_bearing, dolomite, dolomite.5+montmorillonite,
  dolomite.25+calcite.25+mont_Na.5, epidote, chlorite_lowFe,
  chlorite+muscovite, muscovite_lowAl, muscovite_medAl, muscovite_highAl,
  muscovite_Fe-rich, illite, illite_gds4, kaolinite_wx1, kaolinite_px1,
```

ReadMe

ds_000011593_mn_ReadMe - Editor

Datei Bearbeiten Format Ansicht ?

AVERTISSEMENT / WARNING

Même si des efforts sont déployés pour assurer la qualité des données et des métadonnées, nous ne pouvons garantir que les données sont exactes. Bien que des efforts ont été faits pour assurer la qualité des données et des métadonnées, nous ne pouvons garantir que les données sont exactes.

Although efforts are made to ensure the quality of the data and metadata, we cannot guarantee that they contain accurate information.

AUTEUR(S) / AUTHOR(S)

Centre d'études nordiques

RÉSUMÉ / SUMMARY

Les données de ce numéro de Nordica

The datasets in this issue of Nordica

CITATION DES DONNÉES / DATA CITATION

CEN 2014. Données environnementales

CEN 2014. Environmental data from

SITE(S)

Nom / Name

7 Ellesmere Parks Canada (ELL)

DESCRIPTION

SITE: Ellesmere Parks Canada (ELL)

Profondeurs des / Temperature

MEASURE(S) / MEASUREMENT(S)

TYPE: Température moyenne

Metadata of the Data Tables

Sites

Column Name	Data Type	Description	Validation Text	Unit
EXPEDITION	Numeric	expedition number	integer value	#
SITE	Numeric	site number	integer value	#
NAME	Text	site name or locality	text string of max. 40 characters	#
PLATFORM	Text	platform identifier, C=Chikyu, J=Joides, M=Mission Specific, R=Drill Rig	text string of max. 1 character	#
LATITUDE_DEG	Integer	decimal degrees of site latitude (latitude of hole 'A')	integer value between 0 and 90	deg.
LATITUDE_MIN	Double	decimal minutes of site latitude (latitude of hole 'A')	real value	min.
LATITUDE_DIR	Text	direction latitude	text string of max. 1 character	#
LONGITUDE_DEG	Integer	decimal degrees of site longitude (longitude of hole 'A')	integer value between 0 and 180	deg.
LONGITUDE_MIN	Double	decimal minutes of site longitude	real value	min.
LONGITUDE_DIR	Text	direction site longitude	text string of max. 1 character	m
DATE_START	Date	date of site start	date in UTC	dd-mmm-yyyy
DATE_END	Date	date of site end	date in UTC	dd-mmm-yyyy

Definition of data labels

Metadata and Metadata

2. Metadata for data discovery: human readable form

title
citation

GFZ
Helmholtz Centre
POTSDAM

DOI LANDING PAGE

GFZ GERMAN RESEARCH CENTRE
FOR GEOSCIENCES

Dataset
COSC-1 operational report - Operational data sets

Released

Cite as:
Lorenz, Henning; Rosberg, Jan-Erik; Juhlin, Christopher; Bjelm, Leif; Almqvist, Bjarne; Berthet, Théo; Conze, Ronald; Gee, David G.; Klonowska, Iwona; Paschal, Christophe; Pedersen, Karsten; Roberts, Nick; Tsang, Ciliifu. (2015): COSC-1 operational report - Operational data sets. GFZ German Research Centre for Geosciences. <http://dx.doi.org/10.1594/GFZ.SDDB.ICDP.5054.2015>

Data Files
This dataset contains files with restricted (R) access. You may download or apply for access at the following contacts:

- Lorenz, Henning**
Uppsala University, Department of Earth Sciences, Geophysics
henning.lorenz@geo.uu.se
- COSC Consortium**
<http://cosc.icdp-online.org>

Supporting Information: Lorenz, H.; Rosberg, J. E.; et al. (2015): COSC-1 operational report Explanatory remarks on the operational data sets. Deutsches GeoForschungsZentrum GFZ doi:10.2312/ICDP.2015.001

(R) All Data
Sites 2427 Bytes
Holes 15133 Bytes
Core Runs 85575 Bytes
Core Sections 300426 Bytes
Core Boxes 59763 Bytes
Core Overviews 61279327 Bytes
(R) Lithological Descriptions
(R) Sample Request
(R) Core Samples taken
Mud Samples taken 20781 Bytes
(R) Multi Sensor Core Logging
(R) XRF logging
Borehole Measurement Campaigns 4966 Bytes
Borehole Measurement Runs 12358 Bytes
(R) Borehole Measurement Files
(R) Composite Borehole Log Plots
Drilling Time Breakdown per Day 11110 Bytes
Drilling Time Breakdown of Tasks 102353 Bytes
Drilling Technical Parameter 35538 Bytes
Used Drill Bits 2981 Bytes

License: CC BY 4.0
End of moratorium: /2017-03-01

Abstract
The Collisional Orogeny in the Scandinavian Caledonides (COSC) scientific drilling project focuses on mountain building processes in a major mid-Paleozoic orogen in western Scandinavia and its comparison with modern analogues. The transport and emplacement of subduction-related highgrade continent-ocean transition (COT) complexes onto the Baltoscandian platform and their influence on the underlying allochthons and basement will be studied in a section provided by two fully cored 2.5 km deep drill holes. This operational report concerns the first drill hole, COSC-1 (ICDP 5054-1-A), drilled from early May to late August 2014.

COSC-1 is located in the vicinity of the abandoned Fråå mine, close to the town of Åre in Jämtland, Sweden and was planned to sample a thick section of the Sveve Nappe and to penetrate its basal thrust zone into the underlying lower grade metamorphosed allochthon. Despite substantial technical problems, the drill hole reached 2502.8 m driller's depth and nearly 100 % core recovery was achieved. Surprising was the homogeneity of the Sveve Nappe rocks, the unexpected thickness of its basal thrust zone (> 500 m) and that the drill hole, therefore, did not penetrate the bottom of the thrust zone. However, lower grade metasedimentary rocks were encountered in the lowermost part of the drill hole together with tens of metres thick mylonites that are, unexpectedly, rich in large garnets.

The drill core was documented on-site and XRF scanned off site. During various stages of the drilling, the borehole was documented by comprehensive downhole logging. This operational report provides an overview over the COSC-1 operations from drilling preparations to the sampling party and describes the available datasets and sample material.

Keywords
SOLID EARTH, ROCKS/MINERALS/CRYSTALS, geoscientificInformation, caledonides, COSC, deep hydrosphere, dynamics, europe, heat flow, himalaya, ICDP-2011/03, microbiology, norway, orogen, scandens, scandinavia, seismic, sweden, earth science

GCMD Science Keywords
EARTH SCIENCE > SOLID EARTH > ROCKS/MINERALS/CRYSTALS > METAMORPHIC ROCKS > METAMORPHIC ROCK FORMATION

More Metadata
iso19115: view inline / download xml
datacite: view inline / download xml
dif: view inline / download xml
escidoc: view inline / download xml

Location
Latitude: 63.4063 Longitude: 13.203057

Related Work
IsReferencedBy
Lorenz, H.; Rosberg, J. E.; et al. (2015): Operational report about phase 1 of the collisional orogeny in the scandinavian caledonides scientific drilling project (COSC-1). Deutsches GeoForschungsZentrum GFZ doi:10.2312/ICDP.2015.002

Supplement to
Lorenz, H.; Rosberg, J.-E.; et al. (2015): COSC-1 - drilling of a subduction-related allochthon in the Palaeozoic Caledonide orogen of Scandinavia. Scientific Drilling doi:10.1594/sd-19-1-2015

References

Who did what, when
where and why?

description/
abstract

Keywords

spatial
coverage

download
data files

related
work

Metadata and Metadata

2. Metadata for data discovery: machine-readable form

title
citation

GFZ
Helmholtz Centre
POTSDAM

Dataset
COSC-1 operational report - Operational data sets

Cite as
Lorenz, Henning; Rosberg, Jan-Erik; Juhlin, Christopher; Bjelm, Leif; Almqvist, Bjarne; Berthet, Théo; Conze, Ronald; Ges, David G.; Klonowska, Justyna; Pedersen, Karsten; Roberts, Nick; Tsang, Chinfu (2015): COSC-1 operational report - Operational data sets. GFZ German Research Centre for Geosciences. <http://dx.doi.org/10.1594/GFZ.SDDB.ICDP.5054.2015>

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Uppsala University, Department of Earth Sciences, Geophysics
henning.lorenz@geo.uu.se
- COSC Consortium
<http://csc.icdp-online.org>

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More Metadata
iso19115: [view inline](#) / [download xml](#)
datacite: [view inline](#) / [download xml](#)
dif: [view inline](#) / [download xml](#)
escidoc: [view inline](#) / [download xml](#)

Standardised metadata:
machine to machine
communication

Related Work
IsReferencedBy
Lorenz, H.; Rosberg, J.-E.; Juhlin, C.; Bjelm, L.; Almqvist, B.; Berthet, T.; Conze, R.; Ges, D.G.; Klonowska, J.; Pedersen, K.; Roberts, N.; Tsang, C. (2015): COSC-1 - Operational report - Operational data sets. Geosciences in the Scandinavian Caledonides scientific drilling project (COSC-1). Deutsches GeoForschungsZentrum GFZ doi:10.2312/ICDP.2015.002

Supplement to
Lorenz, H.; Rosberg, J.-E.; et al. (2015): COSC-1 - drilling of a subduction-related allochthon in the Palaeozoic Caledonide orogen of Scandinavia. Scientific Drilling doi:10.1594/sd-19-1-2015

References

download
data files

related
work

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- <default:affiliation>
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XML
(Extensible Markup Language)
Metadata exchange format

Replay: What do I need for a data publication?

1. Research data
2. Structural/ contextual metadata for data documentation and re-use
3. Metadata for data discovery (standardised, readable for humans and for machines)

→ **Digital object identifier (DOI)**

Challenges for Metadata Generation : Translation between Scientists and Computers

DataCite Metadata | ISO19115 Metadata | Files

Resource Information

DOI (will be generated in the publishing process)	Publis
10.5880/igets.po.l1.001	GFZ D
Resource Type	Title
Dataset	Superconducting Gravimeter Data fr

Licenses and Rights

Licence
CC BY 4.0

Authors (Persons and/or Institutions)

Author (La...	Role	Author ID Type
Neumeyer, J...	DataCollector	
Dittfeld, Han...	DataCollector	

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    ■ CharacterString: doi:10.5880/igets.po.l1.001
  ■ language
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  ■ characterSet
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  ■ hierarchyLevel
    ■ MD_ScopeCode (codeList=http://www.isotc211.org/2005/resources/Codelist/gmx-Codelists.xml#MD_ScopeCode codeListValue=):
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    ■ CharacterString:
  ■ contact
    ■ CI_ResponsibleParty
      ■ organisationName
        ■ CharacterString: GFZ German Research Center for Geosciences
      ■ contactInfo
        ■ CI_Contact
          ■ address
            ■ CI_Address
              ■ electronicMailAddress
                ■ CharacterString:
          ■ onlineResource
            ■ CI_OnlineResource
              ■ linkage
                ■ URL: http://www.gfz-potsdam.de/
              ■ function
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            ■ role
              ■ CI_RoleCode (codeList=http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#CI_RoleCode codeListValue=pointOfContact): pointOfC
    ■ dateStamp
      ■ Date: 2017-01-06
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    ■ identificationInfo
      ■ MD_DataIdentification
        ■ citation
```



XML (Extensible Markup Language): Metadata exchange format

GFZ Metadata Editor

DataCite Metadata Schema 3.1 (→ 4.0): mandatory + recommended for discovery fields, optional as appropriate

- **Ressource Information:** DOI, publisher, title, version, publication year, language, ressource type (dataset, text, software,...)
- **Licences and rights:** CC and Open Source Software licence
- **People/Institutions involved:** authors (creators), point of contact, contributors
- **Description** (abstract, methods, other)
- **Keywords:** thesaurus and free keywords (NASA GCMD Science Keywords)
- **Spatial and temporal domain** (interactive map)

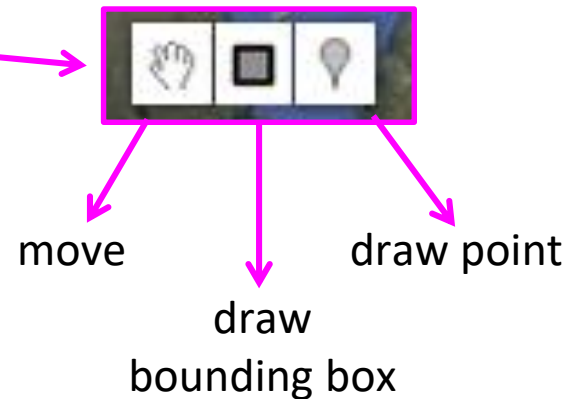
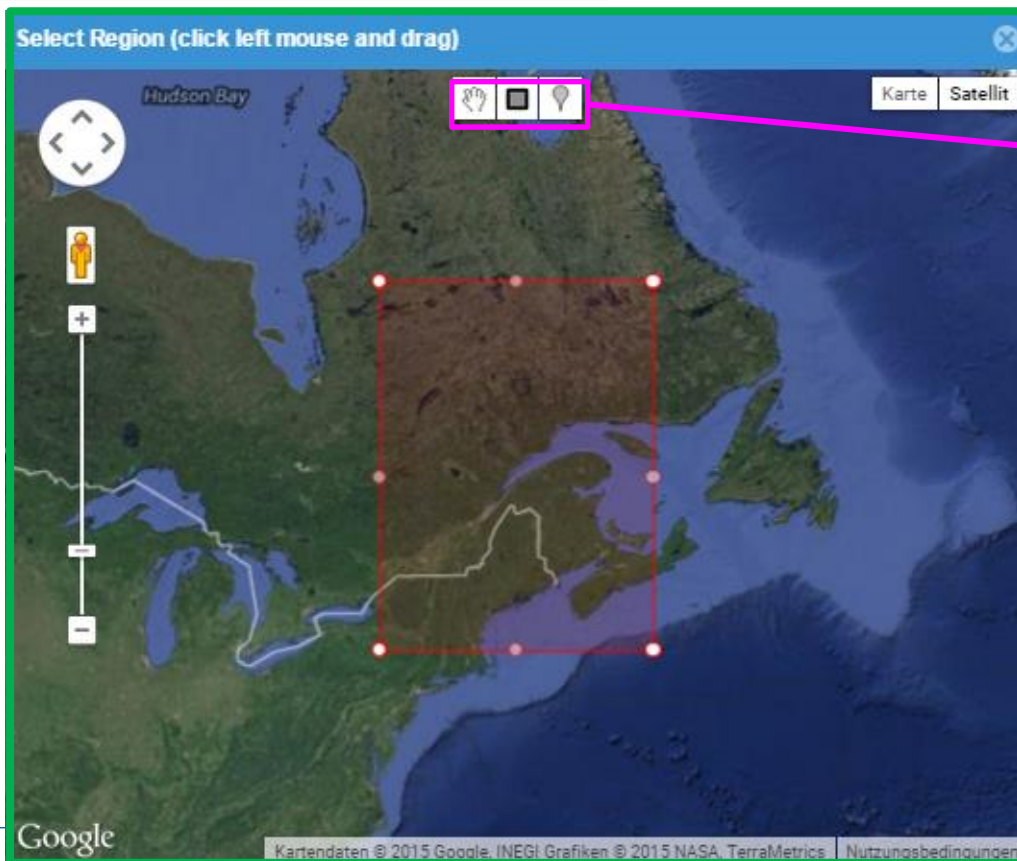
Spatial Domain – visual control via map

Spatial Coverage (The EDIT-symbol to the left provides visual se

	Min Latit...	Max Lati...	Min Long...	Max Lon...
	42.21993...	54.61626...	-75.8386...	-61.9519...

Enter coordinates manually (decimal degree with at least 4 decimal digits, DD.dddd)

or **Select from map**



Manual changes of coordinates are immediately displayed in the bounding box and vice versa

GFZ Metadata Editor

DataCite Metadata Schema 3.1 (→ 4.0): mandatory + recommended for discovery fields, optional as appropriate

- **Ressource Information:** DOI, publisher, title, version, publication year, language, ressource type (dataset, text, software,...)
- **Licences and rights:** CC and Open Source Software licence
- **People/Institutions involved:** authors (creators), point of contact, contributors
- Description (abstract, methods, other)
- **Keywords:** thesaurus and free keywords (NASA GCMD Science Keywords)
- **Spatial and temporal domain** (interactive map)
- **Dates:** created, embargoed until, valid....

Embargo period

(R) Restricted

....until:

Embargo Period:

- Data discovery and citation possible
- Data access restricted during
- Free data access after

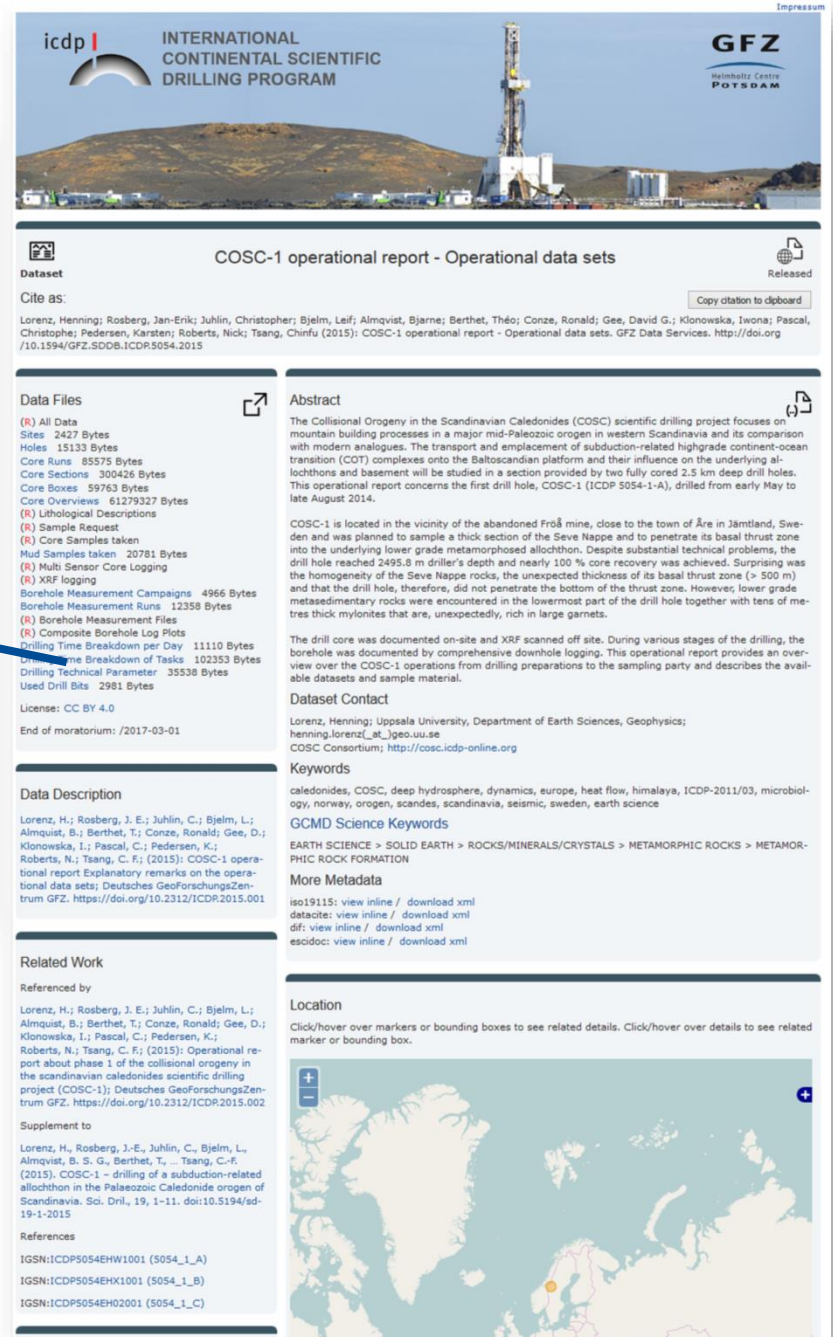


Data Files

- (R) All Data
- Sites 2427 Bytes
- Holes 15133 Bytes
- Core Runs 85575 Bytes
- Core Sections 300426 Bytes
- Core Boxes 59763 Bytes
- Core Overviews 61279327 Bytes
- (R) Lithological Descriptions
- (R) Sample Request
- (R) Core Samples taken
- Mud Samples taken 20781 Bytes
- (R) Multi Sensor Core Logging
- (R) XRF logging
- Borehole Measurement Campaigns 4966 Bytes
- Borehole Measurement Runs 12358 Bytes
- (R) Borehole Measurement Files
- (R) Composite Borehole Log Plots
- Drilling Time Breakdown per Day 11110 Bytes
- Drilling Time Breakdown of Tasks 102353 Bytes
- Drilling Technical Parameter 35538 Bytes
- Used Drill Bits 2981 Bytes

License: CC BY 4.0

End of moratorium: /2017-03-01



icdp | INTERNATIONAL CONTINENTAL SCIENTIFIC DRILLING PROGRAM

GFZ
Heinrich-List Centre
POTSDAM

COSC-1 operational report - Operational data sets

Released

Cite as:

Lorenz, Henning; Rosberg, Jan-Erik; Juhlin, Christopher; Bjelm, Leif; Almquist, Bjarne; Berthet, Théo; Conze, Ronald; Gee, David G.; Klonowska, Iwona; Pascal, Christophe; Pedersen, Karsten; Roberts, Nick; Tsang, ChinFu (2015): COSC-1 operational report - Operational data sets. GFZ Data Services. <http://doi.org/10.1594/GFZ.SDOB.ICDP.S054.2015>

Data Files

- (R) All Data
- Sites 2427 Bytes
- Holes 15133 Bytes
- Core Runs 85575 Bytes
- Core Sections 300426 Bytes
- Core Boxes 59763 Bytes
- Core Overviews 61279327 Bytes
- (R) Lithological Descriptions
- (R) Sample Request
- (R) Core Samples taken
- Mud Samples taken 20781 Bytes
- (R) Multi Sensor Core Logging
- (R) XRF logging
- Borehole Measurement Campaigns 4966 Bytes
- Borehole Measurement Runs 12358 Bytes
- (R) Borehole Measurement Files
- (R) Composite Borehole Log Plots
- Drilling Time Breakdown per Day 11110 Bytes
- Drilling Time Breakdown of Tasks 102353 Bytes
- Drilling Technical Parameter 35538 Bytes
- Used Drill Bits 2981 Bytes

License: CC BY 4.0

End of moratorium: /2017-03-01

Data Description

Lorenz, H.; Rosberg, J. E.; Juhlin, C.; Bjelm, L.; Almquist, B.; Berthet, T.; Conze, Ronald; Gee, D.; Klonowska, I.; Pascal, C.; Pedersen, K.; Roberts, N.; Tsang, C. F.; (2015): COSC-1 operational report Explanatory remarks on the operational data sets; Deutsches GeoForschungsZentrum GFZ. <https://doi.org/10.2312/ICDP.2015.002>

Related Work

Referenced by

Lorenz, H.; Rosberg, J. E.; Juhlin, C.; Bjelm, L.; Almquist, B.; Berthet, T.; Conze, Ronald; Gee, D.; Klonowska, I.; Pascal, C.; Pedersen, K.; Roberts, N.; Tsang, C. F.; (2015): Operational report about phase 1 of the collisional orogeny in the scandinavian caledonides scientific drilling project (COSC-1); Deutsches GeoForschungsZentrum GFZ. <https://doi.org/10.2312/ICDP.2015.002>

Supplement to

Lorenz, H., Rosberg, J.-E., Juhlin, C., Bjelm, L., Almquist, B. S. G., Berthet, T., ... Tsang, C.-F. (2015). COSC-1 - drilling of a subduction-related allochthon in the Palaeozoic Caledonide orogen of Scandinavia. *Soc. Drill.*, 19, 1-11. doi:10.5194/sd-19-1-2015

References

IGSN:ICDP5054EHW1001 (5054_1_A)

IGSN:ICDP5054EHX1001 (5054_1_B)

IGSN:ICDP5054EHZ001 (5054_1_C)

Abstract

The Collisional Orogeny in the Scandinavian Caledonides (COSC) scientific drilling project focuses on mountain building processes in a major mid-Paleozoic orogen in western Scandinavia and its comparison with modern analogues. The transport and emplacement of subduction-related highgrade continent-ocean transition (COT) complexes onto the Baltoscandian platform and their influence on the underlying allochthons and basement will be studied in a section provided by two fully cored 2.5 km deep drill holes. This operational report concerns the first drill hole, COSC-1 (ICDP 5054-1-A), drilled from early May to late August 2014.

COSC-1 is located in the vicinity of the abandoned Fröls mine, close to the town of Åre in Jämtland, Sweden and was planned to sample a thick section of the Sveve Nappe and to penetrate its basal thrust zone into the underlying lower grade metamorphosed allochthon. Despite substantial technical problems, the drill hole reached 2495.6 m driller's depth and nearly 100 % core recovery was achieved. Surprising was the homogeneity of the Sveve Nappe rocks, the unexpected thickness of its basal thrust zone (> 500 m) and that the drill hole, therefore, did not penetrate the bottom of the thrust zone. However, lower grade metasedimentary rocks were encountered in the lowermost part of the drill hole together with tens of metres thick mylonites that are, unexpectedly, rich in large garnets.

The drill core was documented on-site and XRF scanned off site. During various stages of the drilling, the borehole was documented by comprehensive downhole logging. This operational report provides an overview over the COSC-1 operations from drilling preparations to the sampling party and describes the available datasets and sample material.

Dataset Contact

Lorenz, Henning; Uppsala University, Department of Earth Sciences, Geophysics; henning.lorenz_at_geo.uu.se

COSC Consortium; <http://cosc.icdp-online.org>

Keywords

caledonides, COSC, deep hydrosphere, dynamics, europe, heat flow, himalaya, ICDP-2011/03, microbiology, norway, orogen, scandes, scandinavia, seismic, sweden, earth science

GCMD Science Keywords

EARTH SCIENCE > SOLID EARTH > ROCKS/MINERALS/CRYSTALS > METAMORPHIC ROCKS > METAMORPHIC ROCK FORMATION

More Metadata

iso19115: [view inline](#) / [download xml](#)

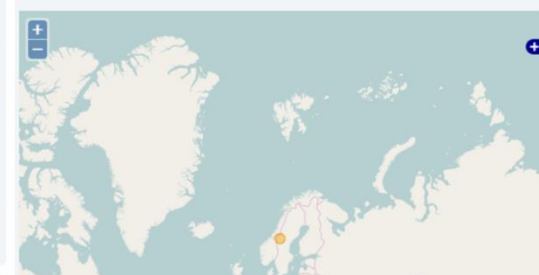
datacite: [view inline](#) / [download xml](#)

df: [view inline](#) / [download xml](#)

esidoc: [view inline](#) / [download xml](#)

Location

Click/hover over markers or bounding boxes to see related details. Click/hover over details to see related marker or bounding box.



GFZ Metadata Editor

DataCite Metadata Schema 3.1 (→ 4.0): mandatory + recommended for discovery fields, optional as appropriate

- **Ressource Information:** DOI, publisher, title, version, publication year, language, ressource type (dataset, text, software,...)
- **Licences and rights:** CC and Open Source Software licence
- **People/Institutions involved:** authors (creators), point of contact, contributors
- Description (abstract, methods, other)
- **Keywords:** thesaurus and free keywords (NASA GCMD Science Keywords)
- **Spatial and temporal domain** (interactive map)
- **Dates:** created, embargoed until, valid....
- **Related references:** links to papers, datasets, samples

Cross-references

DataCite related Identifier

IsCitedBy	indicates that B includes A in a citation (recommended for discovery).
Cites	indicates that A includes B in a citation (recommended for discovery).
IsSupplementTo	indicates that A is a supplement to B (recommended for discovery).
IsSupplementedBy	indicates that B is a supplement to A (recommended for discovery).
IsContinuedBy	indicates A is continued by the work B
Continues	indicates A is a continuation of the work B
HasMetadata	indicates resource A has additional metadata B
IsMetadataFor	indicates additional metadata A for a resource B
IsNewVersionOf	indicates A is a new edition of B, where the new edition has been modified or updated
IsPreviousVersionOf	indicates A is a previous edition of B
IsPartOf	indicates A is a portion of B; may be used for elements in a series (recommended for discovery).
HasPart	indicates A includes the part B (recommended for discovery).
IsReferencedBy	indicates A is used as a source of information by B
References	indicates B is used as a source of information for A
IsDocumentedBy	indicates B is documentation about/ explaining A
Documents	indicates A is documentation about/B
IsCompiledBy	indicates B is used to compile or create A
Compiles	indicates B is the result of a compile or creation event using A
IsVariantFormOf	indicates A is a variant or different form of B, e.g. calculated or calibrated form or different packaging
IsOriginalFormOf	indicates A is the original form of B
IsIdenticalTo	indicates that A is identical to B, for use when there is a

Data Description

Lorenz, H.; Rosberg, J. E.; Juhlin, C.; Bjelm, L.; Almquist, B.; Berthet, T.; Conze, Ronald; Gee, D.; Klonowska, I.; Pascal, C.; Pedersen, K.; Roberts, N.; Tsang, C. F.; (2015): COSC-1 operational report Explanatory remarks on the operational data sets; Deutsches GeoForschungsZentrum GFZ. <https://doi.org/10.2312/ICDP.2015.001>

Related Work

Referenced by

Lorenz, H.; Rosberg, J. E.; Juhlin, C.; Bjelm, L.; Almquist, B.; Berthet, T.; Conze, Ronald; Gee, D.; Klonowska, I.; Pascal, C.; Pedersen, K.; Roberts, N.; Tsang, C. F.; (2015): Operational report about phase 1 of the collisional orogeny in the scandinavian caledonides scientific drilling project (COSC-1); Deutsches GeoForschungsZentrum GFZ. <https://doi.org/10.2312/ICDP.2015.002>

Supplement to

Lorenz, H., Rosberg, J.-E., Juhlin, C., Bjelm, L., Almquist, B. S. G., Berthet, T., ... Tsang, C.-F. (2015). COSC-1 – drilling of a subduction-related allochthon in the Palaeozoic Caledonide orogen of Scandinavia. *Sci. Dril.*, 19, 1–11. doi:10.5194/sd-19-1-2015

References

IGSN:ICDP5054EHW1001 (5054_1_A)
 IGSN:ICDP5054EHX1001 (5054_1_B)
 IGSN:ICDP5054EH02001 (5054_1_C)



COSC-1 operational report - Operational data sets

Juhlin, Christopher; Bjelm, L.; Almquist, Bjørn; Berthet, Théo; Conze, Ronald; Gee, David G.; Klonowska, Joanna; Pascal, Berna; Tsang, Chirufu (2015): COSC-1 operational report - Operational data sets. GFZ Data Services. <http://doi.org/10.2312/ICDP.2015.001>

Abstract

The Collisional Orogeny in the Scandinavian Caledonides (COSC) scientific drilling project focuses on mountain building processes in a major mid-Paleozoic orogen in western Scandinavia and its comparison with modern analogues. The transport and emplacement of subduction-related high-grade continent-ocean transition (COT) complexes onto the Baltoscandian platform and their influence on the underlying allochthone and basement will be studied in a section provided by two fully cored 2.5 km deep drill holes. This operational report concerns the first drill hole, COSC-1 (ICDP 5054-1-A), drilled from early May to late August 2014.

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Dataset Contact

Lorenz, Henning; Uppsala University, Department of Earth Sciences, Geophysics; henning.lorenz_at_igeo.uu.se
 COSC Consortium; <http://cosc.icdp-online.org>

Keywords

caledonides, COSC, deep hydrosphere, dynamics, europe, heat flow, himalaya, ICDP-2011/03, microbiology, norway, orogen, scandes, scandinavia, seismic, sweden, earth science

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EARTH SCIENCE > SOLID EARTH > ROCKS/MINERALS/CRYSTALS > METAMORPHIC ROCKS > METAMORPHIC ROCK FORMATION

More Metadata

iso15115: [view inline](#) / [download xml](#)
 datacite: [view inline](#) / [download xml](#)
 dfi: [view inline](#) / [download xml](#)
 esdocid: [view inline](#) / [download xml](#)

Related Work

Referenced by

Lorenz, H.; Rosberg, J. E.; Juhlin, C.; Bjelm, L.; Almquist, B.; Berthet, T.; Conze, Ronald; Gee, D.; Klonowska, I.; Pascal, C.; Pedersen, K.; Roberts, N.; Tsang, C. F.; (2015): Operational report about phase 1 of the collisional orogeny in the scandinavian caledonides scientific drilling project (COSC-1); Deutsches GeoForschungsZentrum GFZ. <https://doi.org/10.2312/ICDP.2015.002>

Supplement to

Lorenz, H., Rosberg, J.-E., Juhlin, C., Bjelm, L., Almquist, B. S. G., Berthet, T., ... Tsang, C.-F. (2015). COSC-1 – drilling of a subduction-related allochthon in the Palaeozoic Caledonide orogen of Scandinavia. *Sci. Dril.*, 19, 1–11. doi:10.5194/sd-19-1-2015

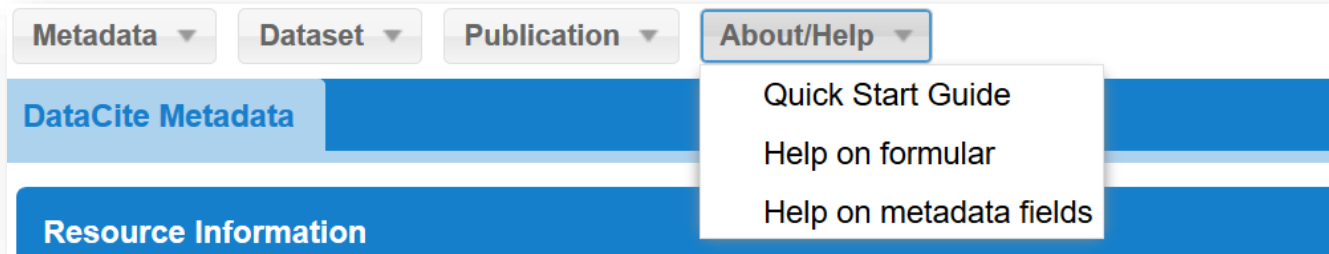
References

IGSN:ICDP5054EHW1001 (5054_1_A)
 IGSN:ICDP5054EHX1001 (5054_1_B)
 IGSN:ICDP5054EH02001 (5054_1_C)

Location

Click/hover over markers or bounding boxes to see related details. Click/hover over details to see related marker or bounding box.





Quick Start Guide for publishing data through GFZ Data Services

1. Please describe your data via the GFZ Metadata Editor (<http://pmd.gfz-potsdam.de/panmetaworks/metaedit/>).

Documentation

GFZ Metadata Editor

How to navigate through the form

Explanation for Metadata Fields used by GFZ Data Services

(modified after DataCite Metadata Schema for the Publication and Citation of Research Data, Version 3.1 October 2014, doi:10.5438/0010)

For comments and questions please contact Kirsten Elger (kelger@gfz-potsdam.de)

GFZ Metadata Editor

The screenshot displays the GFZ Metadata Editor interface with several sections:

- DataCite Metadata** (selected tab)
- Resource Information**:
 - DOI (will be generated in the publishing process): 10.5880/GFZ.1.4.2016.001
 - Publisher: GFZ Data Services
 - Year: 2016
 - Resource Type: Dataset
 - Title: Supplement to: The New World Atlas of Artificial Night Sky Brightness
 - Language of dataset: eng
- Licenses and Rights**:
 - Licence: Please contact the authors for a licence agreement
- Authors (Persons and/or Institutions)**:

Author (Lastname, Firstname)	Role	Author ID Type	Author Identifier (ID)	Affiliation
Cinzano, Pierantonio				ISTIL - Istituto di Scienza e Tecnologia ...
Duriscoe, Dan				National Park Service, U.S. Departmen...
Kyba, Christopher C. M.				GFZ German Research Centre for Geo...
Elvidge, Christopher D.				Earth Observation Group, NOAA Natio...
Baugh, Kimberly				Cooperative Institute for Research in th...
Portnov, Boris				Department of Natural Resources & En...
Rybnikova, Nataliya A.				Department of Natural Resources & En...
Furgoni, Riccardo				ISTIL - Istituto di Scienza e Tecnologia ...
- Contact Person(s) / Point of Contact**:
 - night
 - radiative transfer
 - Suomi NPP
 - Sky Quality Meter
- Temporal and Spatial Coverage (The EDIT-symbol to the left provides vi...)**:

Latitude		Longitude	
Min	Max	Min	Max
44.045486...	55.842428...	2.8710901...	43.124996...
- Map**: A Google Map showing a selected region in Europe with a red bounding box. The map includes labels for countries like Deutschland, Polen, Litauen, etc.



Output:
Standardised XML files:
Datacite, ISO 19115,
NASA GCMD DIF,
Dublin Core Standards



GFZ Data Services
Metadata Catalogue



EPOS, B2FIND.
ENVRIplus, D-GEO

Access via: <http://dataservices.gfz-potsdam.de/portal/about.html> „Publishing step by step“

Formats for data publication (and their description)

1. Data publication as „supplementary material“ to journal articles (data description in the article, additional README or explanatory file with the dataset if required)
2. Data publication together with an article in a Data Journal
3. Standalone data publication with Data Report or “README”

Exampe 1: Data Supplements

Links to datasets

Link to original article with data description

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**HELMHOLTZ
GEMEINSCHAFT**

We recommend...

- to publish data supplements in open access data repositories
- synchronous to the publication of the scientific article with cross-references between the article and the dataset

Example 2: Data Journals

Peer-reviewed articles with the description of datasets, data collections, data infrastructures, etc.



Example 3: GFZ Data Reports

2011: first Data Report published as a new series of the traditional Scientific Technical Report series of GFZ (persistently online accessible and citable with DOI)

GFZ Data Reports:

- Flexible format – “enhanced data description”
- standardised templates for each discipline
- internal review by domain experts
- Project-specific design if required



Citing a dataset

“A data citation in a publication should resemble a bibliographic citation and be located in the publication's reference list.”
(COPERNICUS Data Policy)

Properties of granular analogue model materials: A community wide survey

M. Klinkmüller^{a,1}, G. Schreurs^{a,1}, M. Rosenau^b, H. Kemnitz^b

^a Institute of Geological Sciences, University of Bern, Baltzerstrasse 1 +3, CH-3012 Bern, Switzerland

^b Helmholtz-Zentrum Potsdam, GFZ Deutsches GeoForschungsZentrum, Telegrafenberg, D-14473 Potsdam, Germany

sented as grain size distribution curves, in which particle grain plotted against cumulative weight percentage (Fig. 2).

The original sieve data have been published open access available in Klinkmüller et al. (2016b).

References

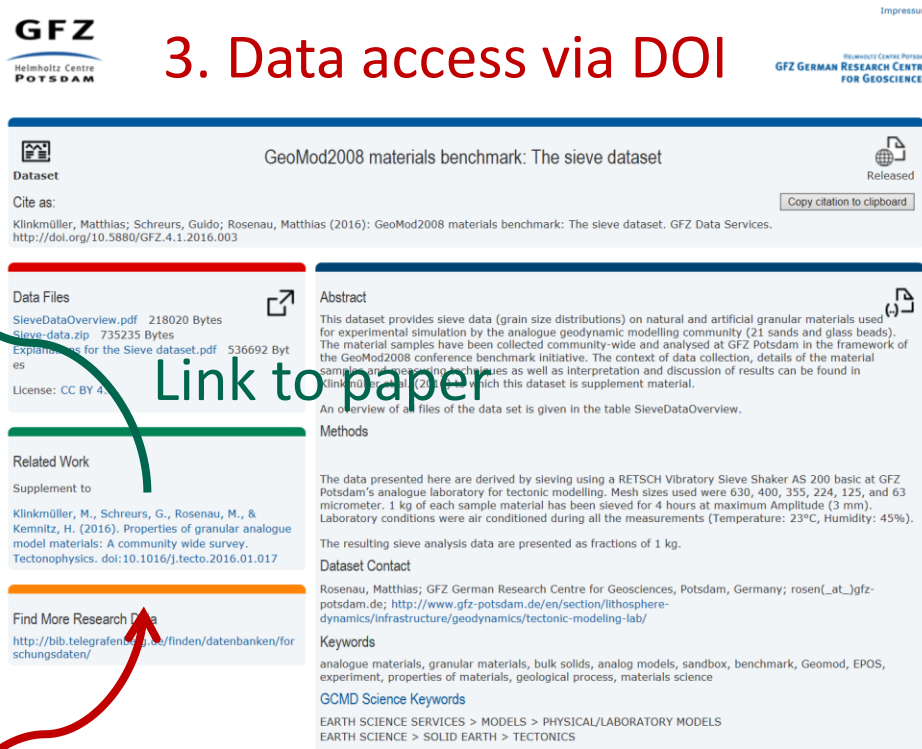
Heilbronner, R., Keulen, N., 2006. Grain size and grain shape analysis. *Tectonophysics* 427, 199–216.

Hubbert, M.K., 1951. Mechanical basis for certain familiar geologic structures. *Am. Bull.* 62, 1259–1273.

Klinkmüller, M., Schreurs, G., Rosenau, M., 2016a. GeoMod2008 materials benchmark: The ring shear test data set. GFZ Data Services. <http://dx.doi.org/10.5880/GFZ.4.1.2016.002>.

Klinkmüller, M., Schreurs, G., Rosenau, M., 2016b. GeoMod2008 materials benchmark: The sieve data set. GFZ Data Services. <http://dx.doi.org/10.5880/GFZ.4.1.2016.003>.

Klinkmüller, M., Kemnitz, H., Schreurs, G., Rosenau, M., 2016c. GeoMod2008 materials benchmark: The SEM image data set. GFZ Data Services. <http://dx.doi.org/10.5880/GFZ.4.1.2016.004>.



GFZ
Helmholtz Centre
POTSDAM

3. Data access via DOI

GeoMod2008 materials benchmark: The sieve dataset

Cite as:
Klinkmüller, Matthias; Schreurs, Guido; Rosenau, Matthias (2016): GeoMod2008 materials benchmark: The sieve dataset. GFZ Data Services. <http://doi.org/10.5880/GFZ.4.1.2016.003>

Data Files

SieveDataOverview.pdf	218020 Bytes
Sieve-data.zip	735235 Bytes
Explanation for the Sieve dataset.pdf	536692 Bytes

License: CC BY 4.0

Abstract

This dataset provides sieve data (grain size distributions) on natural and artificial granular materials used for experimental simulation by the analogue geodynamic modelling community (21 sands and glass beads). The material samples have been collected community-wide and analysed at GFZ Potsdam in the framework of the GeoMod2008 conference benchmark initiative. The context of data collection, details of the material sampling and sieving techniques as well as interpretation and discussion of results can be found in Klinkmüller et al. (2016b), which this dataset is supplement material.

An overview of all files of the data set is given in the table SieveDataOverview.

Methods

The data presented here are derived by sieving using a RETSCH Vibratory Sieve Shaker AS 200 basic at GFZ Potsdam's analogue laboratory for tectonic modelling. Mesh sizes used were 630, 400, 355, 224, 125, and 63 micrometer. 1 kg of each sample material has been sieved for 4 hours at maximum Amplitude (3 mm). Laboratory conditions were air conditioned during all the measurements (Temperature: 23°C, Humidity: 45%).

The resulting sieve analysis data are presented as fractions of 1 kg.

Dataset Contact

Rosenau, Matthias; GFZ German Research Centre for Geosciences, Potsdam, Germany; [rosen\[at\]gfz-potsdam.de](mailto:rosen[un]at_gfz-potsdam.de); <http://www.gfz-potsdam.de/en/section/lithosphere-dynamics/infrastructure/geodynamics/tectonic-modeling-lab/>

Keywords

analogue materials, granular materials, bulk solids, analog models, sandbox, benchmark, Geomod, EPOS, experiment, properties of materials, geological process, materials science

GCMD Science Keywords

EARTH SCIENCE SERVICES > MODELS > PHYSICAL/LABORATORY MODELS
EARTH SCIENCE > SOLID EARTH > TECTONICS

Link to paper

the References

Metadata Catalogue

- spatial search via map
- filter + faceted search
- basic information (title, authors, abstract)
- link to the DOI landing page

Search the Research Data Repository of GFZ Data Services below and read here how to publish data.

Search

(press ESC to close suggestions)

elge

- Andersen, Per Helge (1) - author
- Elgered, Gunnar (1) - author
- Elger, Kirsten (10) - contributor

46.07323062

Current Selection (Link)

geo:[46.07323062540835,0.87890625 TO 58... x

Datcenters

- EnMAP
- GEOFON Seismic Networks
- GFZ German Research Centre for Geosciences
- GIIP Geophysical Instrument Pool Potsdam
- ICGEM International Centre for Global Earth M...
- IGETS International Geodynamics and Earth Ti...
- PIK Potsdam Institute for Climate Impact Rese...
- SDDB Scientific Drilling Database
- SFB06 and CRC06-Database
- TERENO
- WDS World Stress Map

Top Categories

- agriculture
- atmosphere
- biosphere
- climate indicators
- data analysis and visualization
- data management/data handling
- human dimensions
- land surface
- models
- paleoclimate
- solid earth
- spectral/engineering
- terrestrial hydrosphere

Top Sub-Categories

- agricultural plant science
- atmospheric phenomena
- atmospheric pressure
- atmospheric radiation
- atmospheric temperature
- atmospheric water vapor
- atmospheric winds
- atmospheric/ocean indicators
- data search and retrieval
- deep drilling
- erosion/sedimentation
- geochemistry



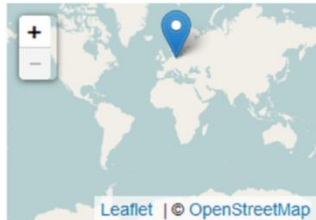
Found 275 datasets.

National Network of Seismic Stations of Slovakia



Authors: ESI SAS (Earth Science Institute of the Slovak Academy of Sciences)
Abstract: The Earth Sciences Institute of the Slovak Academy of Sciences (ESI SAS) operates the National Network of Seismic Stations (NNSS) and analyzes instrumental and macro-seismic data from earthquakes. The main purpose of the instrumental network is the continuous monitoring of the seismicity of Slovakia more

Superconducting Gravimeter Data from Potsdam - Level 1



Authors: Neumeyer, Jürgen; Dittfeld, Hans-Jürgen; Pflug, Hartmut et al.
Abstract: An International Geodynamics and Earth Tide Service (IGETS) was established in 2015 by the International Association of Geodesy IAG. IGETS continues the activities of the Global Geodynamics Project (GGP) between 1997 and 2015 to provide support to geodetic and geophysical research activities using more

Stress Map of the Mediterranean and Central Europe 2016



Authors: Heidbach, Oliver; Custodio, Susana; Kingdon, Andrew et al.
Abstract: The Stress Map of the Mediterranean and Central Europe 2016 displays 5011 A-C quality stress data records of the upper 40 km of the Earth's crust from the WSM database release 2016 (Heidbach et al. 2016, <http://doi.org/10.5880/WSM.2016.001>). Focal mechanism solutions determined as being potentially more

WSM WORLD STRESS MAP

Stress Map of the Mediterranean and Central Europe 2016

Abstract
The Stress Map of the Mediterranean and Central Europe 2016 displays 5011 A-C quality stress data records of the upper 40 km of the Earth's crust from the WSM database release 2016 (Heidbach et al. 2016, <http://doi.org/10.5880/WSM.2016.001>). Focal mechanism solutions determined as being potentially more reliable are labelled as Doublet (Blue Boundary Circles) on the Stress Map (not displayed). Further detailed information on the WSM quality rating scheme, a glossary for the various stress indicators, and software for stress map generation and the stress pattern analysis is available at www.world-stress-map.org.

Dataset Contact
Heidbach, Oliver; GPC German Research Centre for Geosciences, Potsdam, Germany; heidbach@geo.fz-potsdam.de; <http://www.world-stress-map.org>

Location
Click/hover over markers on bounding boxes to see related datasets. Click/over over circles to see related marker on bounding box.

Related Work
Derived From
Heidbach, O., Kingdon, A., Heller, R., et al. (2016): World Stress Map Database Release 2016.

Find More Research Data
<https://doi.org/10.5880/WSM.2016.001>

Project-specific DOI Landing Pages/ Datacentres

Datacenters

- EnMAP
- GEOFON Seismic Events
- GEOFON Seismic Networks
- GFZ German Research Centre for Geosciences
- GIPP Geophysical Instrument Pool Potsdam
- ICGEM International Centre for Global Earth M...
- IGETS International Geodynamics and Earth Ti...
- ISDC Information System and Data Center
- PIK Potsdam Institute for Climate Impact Rese...
- SDDB Scientific Drilling Database
- SFB806 and CRC806-Database
- TERENO
- TR32DB Transregio 32 Database
- WDS World Stress Map

The image displays a collage of several project-specific DOI landing pages from various datacenters. The pages shown include:

- ICGEM (International Centre for Global Earth Models)**: Landing page for "EIGEN-6C4 The latest combined global gravity field model including GOCE data to degree and order 2190 of GFZ Potsdam and GRGS Toulouse".
- EnMAP Hyperspectral Imager**: Landing page for "Dobertitzer Heide 2008/2009 - An EnMAP Preparatory Flight Campaign (Datasets)".
- TERENO (TERrestrial Environmental Observations)**: Landing page for "TERENO (Eifel-Rur), EC/Climate station Rollesbroich 3, Germany".
- PIK (Potsdam Institute for Climate Impact Research)**: Landing page for "The PRIMAP-hist national historical emissions time series (1850-2014)".
- WSM (World Stress Map)**: Landing page for "World Stress Map 2016".

Each page features a title, abstract, data files, and related work sections.

Dynamic data and DOI Versioning

A special note regarding citation of dynamic datasets:

For datasets that are continuously and rapidly updated, there are special challenges both in citation and preservation. For citation, three approaches are possible:

- a) **Cite a specific slice** (the set of updates to the dataset made during a particular period of time or to a particular area of the dataset);
- b) **Cite a specific snap - shot** (a copy of the entire dataset made at a specific time);
- c) **Cite the continuously updated dataset, but add an Access Date and Time** to the citation.

Note that a “**slice**” and “**snap - shot**” are versions of the dataset and require **unique identifiers**. The third option is controversial, because it necessarily means that following the citation does not result in observation of the resource as cited.


DataCite Metadata Scheme V 4.0

DOI for Seismic Networks: GEOFON




We hope that assigning seismic data networks a universal and easily cited digital identity will help bring data providers the recognition they deserve.

Example for dynamic data



Helmholtz-Zentrum
POTSDAM



GEOFON Program

Helmholtz-Zentrum
POTSDAM
DEUTSCHES
GEOFORSCHUNGSZENTRUM

Mission | Earthquake Info | Waveform Access
Software | Contribute | Contact | Home

The GE Seismic Network

Network code: GE

Restricted: No

Network XML file: [ES](#)

Seismic metadata: [fdsnws-station](#)

Institution(s): GFZ, partners

Creator(s): GEOFON Data Centre

Description: GEOFON Program, GFZ Potsdam, Germany

Type: Permanent

Archived at: GFZ

Time Range: 1993-

Identifier: [doi:10.14470/TR560404](#)

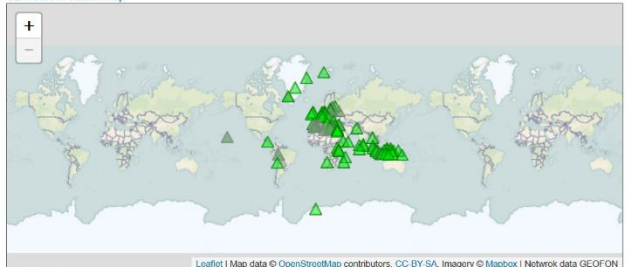
(Citation Information)

DataCite metadata: [HTML](#) | [JSON](#) | [XML](#)

Abstract: GEOFON (GEOForSchungNetz) is the global seismological broad-band network operated by the German GeoForschungsZentrum (GFZ). The GEOFON seismic network came into being in 1993 as one of the three pillars of the GEOFON program dedicated to Ernst von Rebeur-Paschwitz, proposer of a global earthquake monitoring system, who recorded the first teleseismic seismogram in Potsdam in 1889. The program and its seismic network were created to provide high quality broad-band data for scientific use and foster common standards in the seismological community. The network has evolved towards real-time data acquisition and distribution while keeping the high quality broad-band data in focus. Today the network plays a leading role in global real-time seismology providing valuable data for almost all fundamental and applied global/regional seismological research projects at GFZ and the wider seismological community. The GEOFON network is operated jointly with more than 50 international partners and in 2014 consists of about 80 active stations on all continents, but concentrated in Europe and the Mediterranean region as well as in the Indian Ocean. Station operation is mostly performed by local partners with GFZ guidance and logistic support, allowing the global network to be well-advanced technically while still extremely cost-effective. All stations are equipped with broad-band sensors (generally STS-2) that allow resolution of the complete seismic spectrum from small high-frequency local earthquakes to the largest global earthquakes. Data from all stations are freely redistributed in real-time for earthquake monitoring and tsunami warning centers immediately after acquisition at the GEOFON data centre via wired or satellite links. Archived data is also available. GEOFON is part of the Modular Earth Science Infrastructure (MESI) housed at GFZ. * Description is taken from seismic metadata, and may not match the preferred title for citations.

For instructions on retrieving waveform data and metadata (including instrument responses) for this and other seismic networks, see [here](#).

GE Network Station Map



Legend: Current stations: ▲ open access; ▲ restricted. Former stations: ▲ open access; ▲ restricted.

Extended Network Information for network GE

Show/hide additional network information.

Creator(s): GEOFON Data Centre

Title: GEOFON Seismic Network

Publisher: Deutsches GeoForschungsZentrum GFZ

Network DOI: [doi:10.14470/TR560404](#)

Citation example: GEOFON Data Centre (1993): GEOFON Seismic Network. Deutsches GeoForschungsZentrum GFZ. Other/Seismic Network. [doi:10.14470/TR560404](#).


Related Reference(s): 1. Hanka, W.; Kind, R., The GEOFON Program. *Annals of Geophysics* v. 37, n. 5, Nov. 1994. ISSN 2037-416X. [doi:10.4401/ag-4196](#)


[*]


Network Station List for Network Code GE

#	Code	Station description	Begin	End	Loc	Channels
<< return to network list						
1	APE	NOA/GEOFON Station Apeiranthos, Naxos, Greece	2000-200	2008-122	--	BHE BHN BHZ HHE HHN HHZ LHE LHN LHZ SHE SHN SHZ VHE VHN VHZ
			2008-123	--	--	BHE BHN BHZ HHE HHN HHZ LHE LHN LHZ SHE SHN SHZ VHE VHN VHZ
2	APEZ	GEOFON Station Moni Apeozanon, Greece	2000-099	2004-337	--	BHE BHN BHZ HHE HHN HHZ LHE LHN LHZ SHE SHN SHZ VHE VHN VHZ
3	ARPR	GEOFON/MedNet/KOERI Station Arapgir, Turkey	2014-023	--	--	BHE BHN BHZ BLE BLN BLZ LHE LHN LHZ LLE LLN LLZ SHE SHN SHZ SLE SLN SLZ VHE VHN VHZ

Old version („faulty“ data)

 Dataset

EIGEN-6S4 A time-variable satellite-only gravity field model to d/o 300 based on LAGEOS, GRACE and GOCE data from the collaboration of GFZ Potsdam and GRGS Toulouse. GFZ Data Services.  Released

 **GFZ**
Helmholtz Centre
POTSDAM

GFZ Data Services

HELMHOLTZ CENTRE POTSDAM
GFZ GERMAN RESEARCH CENTRE
FOR GEOSCIENCES

Impressum

Cite as:

Förste, Christ
EIGEN-6S4 A
Toulouse. GFZ

Dear user,

Thank you for your interest in gravity field model EIGEN-6S4. The authors decided to restrict the access to this dataset in favour of a newly published version that contains improved modelling of the time variable part, in particular C20. The old model is available upon request, please contact [Kirsten Elger](#), [Franz Barthelmes](#) and [Christoph Förste](#) to discuss details.

The improved model is available here:

Förste, Christoph; Bruinsma, Sean; Abrikosov, Oleh; Rudenko, Sergej; Lemoine, Jean-Michel; Marty, Jean-Charles; Neumayer, Karl Hans; Biancale, Richard (2016): EIGEN-6S4 A time-variable satellite-only gravity field model to d/o 300 based on LAGEOS, GRACE and GOCE data from the collaboration of GFZ Potsdam and GRGS Toulouse. V. 2.0. GFZ Data Services. <http://doi.org/10.5880/icgem.2016.008>

With kind regards

We recommend to use the updated version of this dataset (Förste et al. 2016, <http://doi.org/10.5880/icgem.2016.008>), that contains an improved modelling of the time variable part, in particular for C20.

Related Work

Previous Version of

Förste, C., Bruinsma, S., Abrikosov, O., Rudenko, S., Lemoine, J.-M., Marty, J.-C., ... Biancale, R. (2016). EIGEN-6S4 A time-variable satellite-only gravity field model to d/o 300 based on LAGEOS, GRACE and GOCE data from the collaboration of GFZ Potsdam and GRGS Toulouse (Version 2.0) [Data set]. GFZ Data Services. <https://doi.org/10.5880/icgem.2016.008>

Additional Information

Data:

LAGEOS (deg. 2 - 30): 1985 - 2014



GRACE RL03 GRGS (deg. 2 - 130): 12 years 200208 - 201407

GOCE-SGG data, processed by the direct approach (Pail et al. 2011, Bruinsma et al. 2014, to degree and order 300) incl. the gravity gradient components Txx, Tyy, Tzz and Txy out of the following time spans: 837 days out of the nominal mission time span 20091101 - 20120801 and 422 days out of the lower orbit phase between 20120801 - 20131020. The GOCE polar gaps were stabilized by the Spherical Cap Regularization (ScaLapS) (Pail and Pail 2005) using an internal LAGEOS/GRACE solution to degree/order 130 + zero coefficients to degree/order 300

Parameters

<http://doi.org/10.5880/icgem.2016.004>


New version (updated data)

 **Dataset**  Released

EIGEN-6S4 A time-variable satellite-only gravity field model to d/o 300 based on LAGEOS, GRACE and GOCE data from the collaboration of GFZ Potsdam and GRGS Toulouse

Cite as: [Copy citation to clipboard](#)


Förste, Christoph; Bruinsma, Sean; Abrikosov, Oleh; Rudenko, Sergiy; Lemoine, Jean-Michel; Marty, Jean-Charles; Neumayer, Karl Hans; Biancale, Richard (2016): EIGEN-6S4 A time-variable satellite-only gravity field model to d/o 300 based on LAGEOS, GRACE and GOCE data from the collaboration of GFZ Potsdam and GRGS Toulouse. V. 2.0. GFZ Data Services. <http://doi.org/10.5880/icgem.2016.008>

Data Files 

[ICGEM Model Visualisation](#)
[ICGEM Calculation Service](#)

Download Model Data: [EIGEN-6S4v2.zip](#) 8651697 Bytes

License: [CC BY 4.0](#)

Abstract 

EIGEN-6S4 (Version 2) is a satellite-only global gravity field model from the combination of LAGEOS, GRACE and GOCE data. All spherical harmonic coefficients up to degree/order 80 are time variable. Their time variable parameters consist of drifts as well as annual and semi-annual variations per year. The time series of the time variable spherical harmonic coefficients are based on the LAGEOS-1/2 solution (1985 to 2003) and the GRACE-LAGEOS monthly gravity fields RL03-v2 (August 2002 to July 2014) from GRGS/Toulouse (Bruinsma et al. 2009).

The herein included GRACE/LAGEOS data were combined with all GOCE data which have been processed via the direct numerical approach (Pail et al. 2011). The polar gap instability has been overcome using the Speri-

Version History:

This data set is an updated version of Förste et al. (2016, <http://doi.org/10.5880/icgem.2016.004>) Compared to the first version, EIGEN-6S4v2 contains an improved modelling of the time variable part, in particular for C20.

Additional Information:

Input Data:

- LAGEOS (deg. 2 - 30): 1985 - 2014
- GRACE RL03 GRGS (deg. 2 - 130): 12 years 200208 - 201407
- GOCE-SSG data, processed by the direct approach (Pail et al. 2011, Bruinsma et al. 2014, to degree and order 300) incl. the gravity gradient components Txx, Tyy, Tzz and Txz out of the following time spans: 837 days out of the nominal mission time span 20091101 - 20120801 and 422 days out of the lower orbit phase span 20120801 - 20131020. The GOCE polar gaps were stabilized by the Spherical Cap Regularization (Scaife and Pail 2005) using an internal LAGEOS/GRACE solution to degree/order 130 + zero coefficients to degree/order 300

Parameters

dataset	icgem2.0
product_type	gravity_field
product_name	EIGEN-6S4v2
normal_gravity_constant	0.3986004415E+15
scale	0.6378136460E+07

Related Work

New Version of

Förste, C., Bruinsma, S., Rudenko, S., Abrikosov, O., Lemoine, J.-M., Marty, J.-C., ... Biancale, R. (2016). EIGEN-6S4 A time-variable satellite-only gravity field model to d/o 300 based on LAGEOS, GRACE and GOCE data from the collaboration of GFZ Potsdam and GRGS Toulouse [Data set]. GFZ Data Services. <https://doi.org/10.5880/icgem.2016.004>

<http://doi.org/10.5880/icgem.2016.008>

And what about physical samples?



What is the IGSN?

International Geo Sample Number

- Globally unique identifier for physical samples and materials
- Central registration based on the Handle system
- QR Code on the sample



- Sample description online via IGSN Landing Pages/ IGSN Link <http://igsn.org/ICDP5054EX2Z501>
- IGSN citation in papers possible

General Identifiers

Program:	ICDP
Expedition:	ICDP 5054
Type:	Core
Name:	5054_1_A_3_Z
IGSN:	ICDP5054EC4Q001 (Open)
Parent IGSN:	ICDP5054EEW1001
Release Date:	2017-3-1

Sampling Location

Latitude:	63.4063
Longitude:	13.203057
Coordinate System:	WGS84
Elevation:	415.74
Final Depth:	412.61
Location Type:	N/A
Location Name:	Åre, Jämtlands län, Sweden
Location Description:	COSC-1 is located in the vicinity of the abandoned Fröå mine
Country:	Sweden
Province:	Jämtlands län
County:	N/A
City:	Åre

Geology

Material:	Rock
Rock Classification:	N/A
From Corrected Depth:	106.26
To Corrected Depth:	109.39
Depth Reference:	meter below ground level
Geological Age:	mid-paleozoic
Geological Unit:	N/A

Methods

MSCL	yes
XRF	yes
Lithological Description	yes
Core Overview	yes
Core Section Scan	yes
Core Catcher Scan	no

Drilling

Drilling Method:	Coring>RockCorer wireline diamond coring, HQ and NQ bit size
Operator:	Lund University, Engineering Geology Larsson Drilling Consulting AB
Funding Agency:	Swedish Research Council (Vetenskapsrådet)
Total Length:	2400.1m
Comments:	N/A
Platform Type:	drill rig


Sample Family

- 5054_1_A_1_Z
- 5054_1_A_2_Z
- 5054_1_A_3_Z
 - 5054_1_A_3_Z_1
 - 5054_1_A_3_Z_2
 - 5054_1_A_3_Z_3
 - 5054_1_A_3_Z_4

⊕=Hole, □=Core, ▭=Core-Section, ▭=Core-Sample

The Sample Family shows a sub-sampling graph. Select entries to navigate samples. Core-Samples are issued to scientists on request. The naming convention for a Core-Sample is: *Expedition_Site_Hole_Core-Section,from-to(cm)*. Hole, Core, and Core-Section are following the same schema respectively.

Location Map



Drilling Start/End: 2013-9-5 / 2014-8-26 *
Latitude: 63.40630 * Longitude: 13.20306 *
Åre, Jämtlands län, Sweden

Publications & Datasets

Lorenz, H., Rosberg, J.-E., Juhlin, C., Bjelm, L., Almqvist, B. S. G., Berthet, T., ... Tsang, C.-F. (2015). COSC-1 – drilling of a subduction-related allochthon in the Palaeozoic Caledonide orogen of Scandinavia. *Sci. Drill.*, 19, 1–11. doi:10.5194/sd-19-1-2015

Lorenz, Henning; Rosberg, Jan-Erik; Juhlin, Christopher; Bjelm, Leif; Almqvist, Bjørne; Berthet, Théo; Conze, Ronald; Gee, David G.; Klönowska, Iwona; Pascal, Christophe; Pedersen, Karsten; Roberts, Nick; Tsang, Chinfu; (2015): COSC-1 operational report - Operational data sets; GFZ Data Services. <http://dx.doi.org/10.1594/GFZ.SDDB.ICDP.5054.2015>



Climate dependence of feldspar weathering in shale soils along a latitudinal gradient

Ashlee L. Dere^a, Timothy S. White^{a, b}, Richard H. April^c, Brian Reynolds^d, Thomas E. Miller^e, Elizabeth P. Knapp^f, Larry D. McKay^g, Susan L. Brantley^{a, b}

Show more

<http://dx.doi.org/10.1016/j.gca.2013.08.001>

IGSN: Linking Samples, Data & Publications

IGSN: SSH000STR



IGSN: SSH000STR
Sample Name: ald-10-01
Other Name(s):
Sample Type: Individual Sample
Parent IGSN: Not Provided

Description

Material: Rock
Classification: Not Provided
Field Name: shale
Description: rock outcrop sample
Age (min): Not Provided
Age (max): Not Provided
Collection Method: rock hammer
Collection Method Description: Not Provided
Size: Not Provided
Geological Age: Not Provided
Geological Unit: Not Provided
Comment: Not Provided
Purpose: CZO Shale Transect

Geolocation

Latitude: 52.470683
Longitude: -3.69255
Elevation: 323.088
Nav Type: Not Provided
Physiographic Feature: stream bed
Name Of Physiographic Feature: Not Provided
Location Description: Plynlimon forest, Wales, shale Severn stream bed
Locality: Not Provided
Locality Description: Not Provided
Country: United Kingdom

Table 2.

Major elemental chemistry of shale collected across the transect and corresponding depth of sample (d) where applicable. All rock samples were collected at local outcrops with the exception of PlynQ-RF and ALD-10-158, which were recovered from the bottom of soil pits and ALD-10-158, which is a weathered shale chip recovered from the bottom of the augered core.

Site	Sample name	IGSN ^a	d (m)	Al (%)	Ca (%)	Fe (%)	K (%)	Mg (%)	Mn (%)	Na (%)	P (%)	Si (%)	Ti (%)	Zr (ppm)
Wales	PlynQ-RF	SSH000GG	0.35	12.0	0.04	6.77	3.15	1.41	0.43	0.57	0.04	25.1	0.82	164
	ALD-10-01	SSH000STR		11.8	0.03	6.40	2.96	1.3						
	ALD-10-02	SSH000STS		11.0	0.01	5.77	2.88	1.2						
	ALD-10-03	SSH000STT		11.8	0.01	6.73	2.87	1.47	0.23	0.62	0.05	24.4	0.90	175
	ALD-10-04	SSH000STU		11.6	0.05	6.45	2.66	1.63	0.13	0.77	0.06	25.9	0.83	215
	ALD-10-06	SSH000STW		11.9	0.05	6.17	2.91	1.53	0.21	0.76	0.06	24.8	0.85	186
	ALD-10-07	SSH000STX		11.7	0.01	6.45	2.93	1.33	0.29	0.62	0.05	24.3	0.90	210
	ALD-10-08	SSH000STY		11.9	0.02	6.82	2.94	1.50	0.62	0.62	0.06	24.9	0.89	185
	ALD-10-09	SSH000STZ		11.2	0.07	6.51	2.77	1.41	0.27	0.64	0.06	24.1	0.84	167
	ALD-10-33	SSH000SU0		11.7	0.04	6.32	2.97	1.41	0.21	0.64	0.06	24.1	0.85	165

Data table in article

Sample profile at IGSN metadata store

NanoSIMS results from olivine-hosted melt embayments: Magma ascent rate during explosive basaltic eruptions

Alexander S. Lloyd^a, Philipp Ruprecht^{a, 1}, Erik H. Hauri^{b, 2}, William Rose^{c, 3}, Helge M. Gonnermann^{d, 4}, Terry Plank^{a, 5}

3. Methods

<http://doi.org/10.1016/j.jvolgeores.2014.06.002>

3.1. Sample preparation

During sample preparation, special care was taken to consider the size of each pyroclast and the effect on post-eruptive cooling. Samples were divided into three sizes: volcanic ash (particles with a diameter < 2 mm); lapilli (diameter between 2 mm and 64 mm); and volcanic bombs (clasts with a diameter > 64 mm). The ash sample (VF-132 - IGSN: ASL000001) was sieved without crushing, and loose olivine grains were selected from 250-500 µm and from 500-1000 µm size fractions. The lapilli sample (VF-129 - IGSN: ASL000002) was collected as a mix of ash and lapilli ranging in size from 30 mm to less than 0.1 mm. Only pyroclasts greater than 20 mm in diameter were selected; and of this set, the five largest lapilli were chosen. The bomb sample (VF-137B - IGSN: ASL000003) was selected from a diverse collection for its uniform spherical shape and relatively large size (60-mm diameter). The bomb was cut so that the material sampled for olivine-hosted embayments was derived from the inner 20 × 20 × 20 mm³ of the bomb. The vesiculation in these pyroclasts was relatively uniform between clast types and ranged from 40% to 55% (estimated by bubble size distribution techniques, Gray A.L., pers comm, 2012); groundmass color was observed to be consistent among all the samples.

Questions?
Comments?

Thank you for you attention!