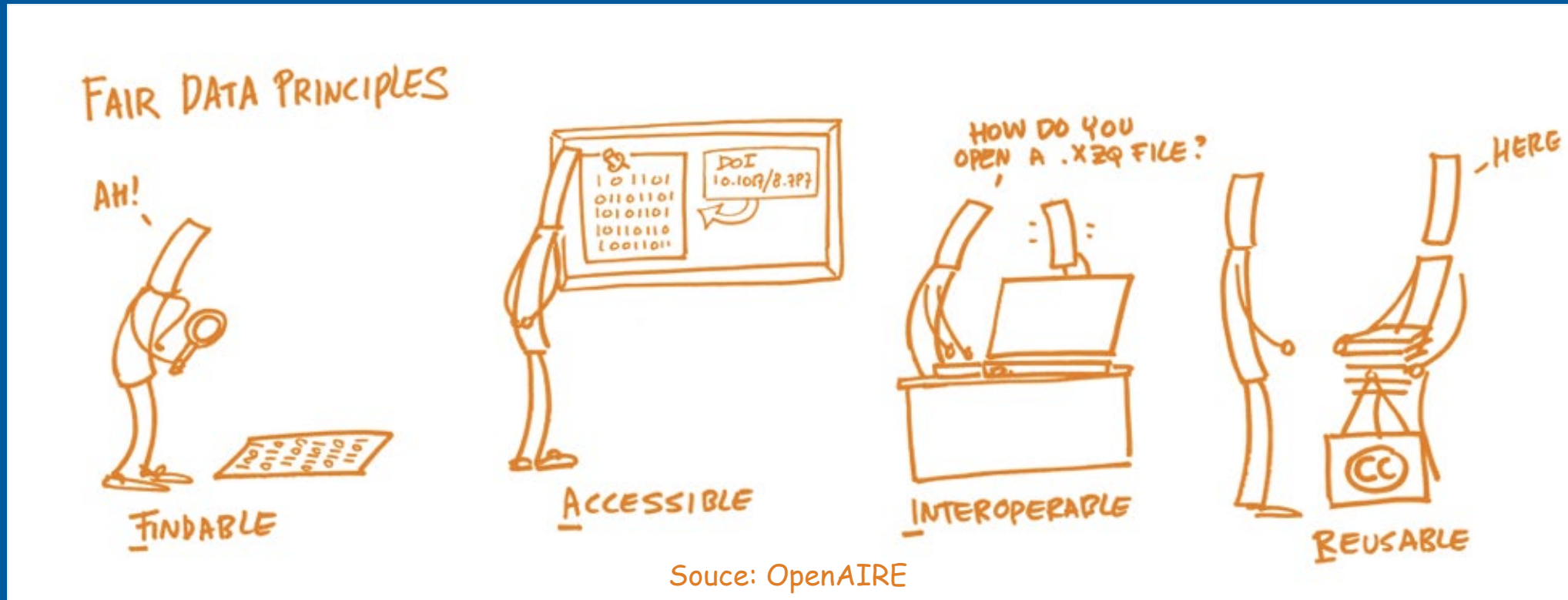


Introduction to data publications



Kirsten Elger



Specialised Information Service for Geosciences

promoting Open Science in Geosciences



E-Publishing

Electronic publishing of institutional literature not released in publishing houses as well as pre- and postprints of research articles.



Research Data

Electronic publishing of curated research data via a domain repository for the Geosciences.

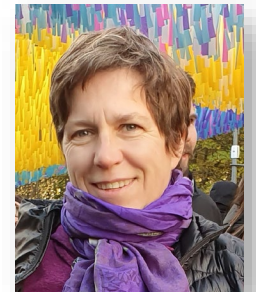


Digitisation

Digitisation on demand of literature and maps in the public domain, out of print, or on behalf of the publishing institutions or societies.



Melanie Lorenz



Kirsten Elger



Marcel Meistring

Poll

- Have you already published data?
 - Yes
 - No
- How did you publish data?
 - Data repository
 - Journal supplement
 - In the paper
- Which data repository did you choose?
 - PANGAEA
 - GFZ Data Services
 - Zenodo
 - Institutional repository
 - other

Outline: Introduction to data publications

1. Open data and policies
2. Data Repositories
3. What do I need for a data publication
4. GFZ Data Services – profile of a domain repository
5. Persistent Identifier in data publications

Why are we speaking open data at all?



<https://www.youtube.com/watch?v=N2zK3sAtr-4>

Open data – an international request

G8 UK
UNITED KINGDOM 2013

G8 OPEN DATA CHARTER

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003): „*Open access contributions include original scientific research results, raw data and metadata, source materials, digital representations of pictorial and graphical materials and scholarly multimedia materials.*”

→ following the **FAIR Principles*** for Research Data Management

FAIR Principles

Findable



Accessible



Interoperable



Reusable



Tsukuba Communiqué

G7 Science and Technology Ministers' Meeting in



Government of Canada

Gouvernement du Canada

Jobs

Immigration

Travel

Business

Benefits

Home → Open Government → About Open Government → G8 Open Data Charter – Canada's Action Plan

G8 Open Data Charter – Canada's Action Plan

H2020 Programme



Guidelines on

FAIR Data Management in Horizon 2020



Deutsche Forschungsgemeinschaft

Guidelines on handling of research data

FAIR Principles - Guiding Principles for Findable, Accessible, Interoperable and Re-usable Data

Findable – Data Discovery	Accessible	Interoperable	Reusable
Metadata for data discovery in public domain	Data is accessible by humans and machines	Open formats	Data rights and licences
Metadata catalogues of data repositories	Standard protocols	Machine executable metadata standards	Full record on data provenance
Metadata harvesting by data portals	Authorisation	Consistent vocabulary/ontology	rich metadata enabling to link data with other sources
Persistent Identifier		Documented workflows	
Data citation			

FAIR for Machines as well as for People

Open Research Data @ GFZ



GFZ
Helmholtz Centre
POTSDAM

HELMHOLTZ CENTRE POTSDAM
**GFZ GERMAN RESEARCH CENTRE
FOR GEOSCIENCES**

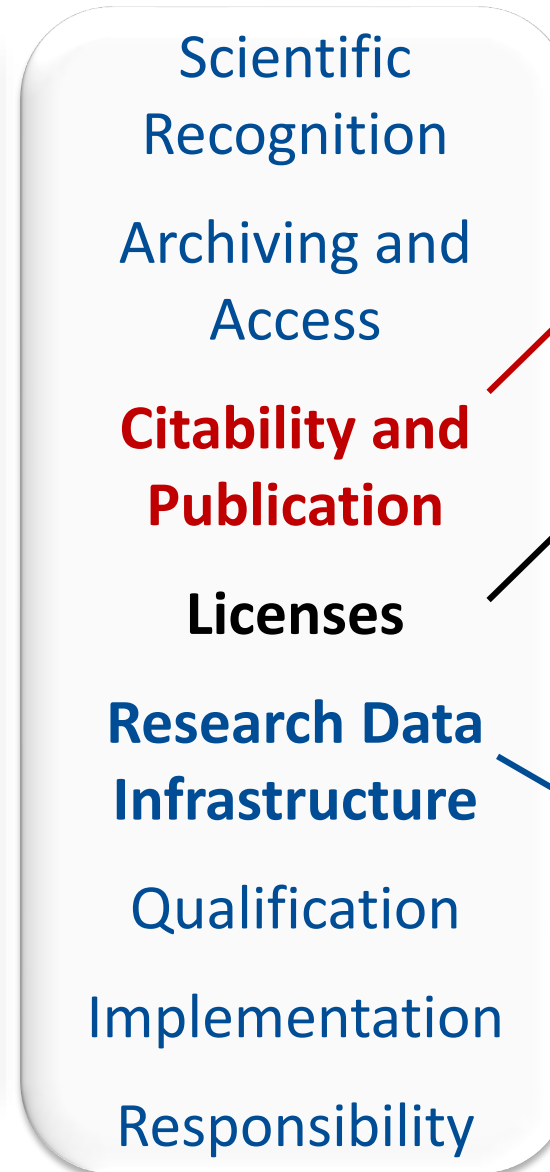
Guidelines on Research Data at the GFZ German Research Centre for Geosciences

- We acknowledge the principles of open access to knowledge, results and technology.
- We uphold the guidelines and rules of good scientific practice.
- We provide our infrastructure to the geoscientific community and contribute to national and international services.
- We initiate and coordinate national and international geoscientific networks.

(Extract, Mission Statements – Strategy Paper GFZ 2014)

Quality-assured research data form a basic pillar of scientific knowledge and - regardless of the actual original purpose of the research - the data obtained can often provide the basis for the initiation of further research. The sustainable protection of and access to research data, thus, not only serves the assessment of previous research results but, to a large extent, also the achievement of future results, with the objective of enhancing the quality, productivity and competitiveness and, in this way, forms an elementary basis for knowledge transfer.

(March 2016)



Scientific
Recognition

Archiving and
Access

**Citability and
Publication**

Licenses

Research Data
Infrastructure

Qualification

Implementation

Responsibility

**Recommendation:
data/software
publications with DOI**

Recommendation:
Open Licences
(CC, Open Source)





COPDESS

Coalition for Publishing Data in the Earth and Space Sciences

COPDESS Statement of Commitment 2015

Statement of Commitment from Earth and Space Science Publishers and Data Facilities



COPDESS @ AGU 2014

“Scholarly publication is a key high-value entry point in making data available, open, discoverable, and usable. Most publishers have statements related to the inclusion or release of data as part of publication, recognizing that inclusion of the full data enhances the value and is part of the integrity of the research. **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.**”

Hanson et al. (2015, <https://doi.org/10.1029/2015EO022207>) and www.copdess.org

Coalition on Publishing Data in the Earth and Space Sciences

2015: **Data Publications are citable in research articles** (COPDESS Statement of Commitment)



STATEMENT OF COMMITMENT

(January 2015)

- data should be stored in **appropriate domain repositories**.
- **citations of data sets** should be included within **reference lists**.
- include in research papers concise **data availability statements**.
- links to data sets in publications and corresponding links to journals in data facilities

<http://www.copdess.org/statement-of-commitment/>

Follow-on COPDESS: the „Enabling FAIR Data project“



The Enabling FAIR Data project has brought together a broad spectrum of Earth, space, and environmental science leaders to ensure that data are findable, accessible, interoperable, and reusable.

From the Enabling FAIR Data Commitment Statement:

- **Direct all core research outputs** (data, software, samples and sample metadata) to **trusted repositories**.
 - **Supplements will no longer be primary “archive” for data.**
 - **Data are cited via persistent identifier**

“By leveraging the FAIR principles this emerging community is working together to ensure that data, physical samples, and software are treated as first-class research products to open new opportunities for ESES research.” (Stall, et. al., 2018)

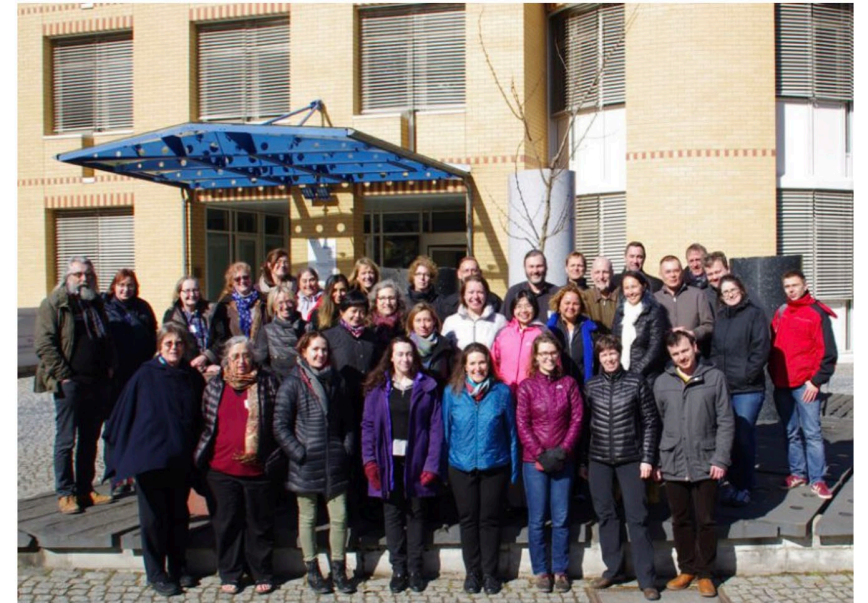
GEOLOGY & GEOPHYSICS

AGU News



Advancing FAIR Data in Earth, Space, and Environmental Science

The Enabling FAIR Data project has brought together a broad spectrum of Earth, space, and environmental science leaders to ensure that data are findable, accessible, interoperable, and reusable.



How do I cite a dataset?

Properties of granular analogue model materials: A community wide survey

M. Klinkmüller^a, 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 size is plotted against cumulative weight percentage (Fig. 2).

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

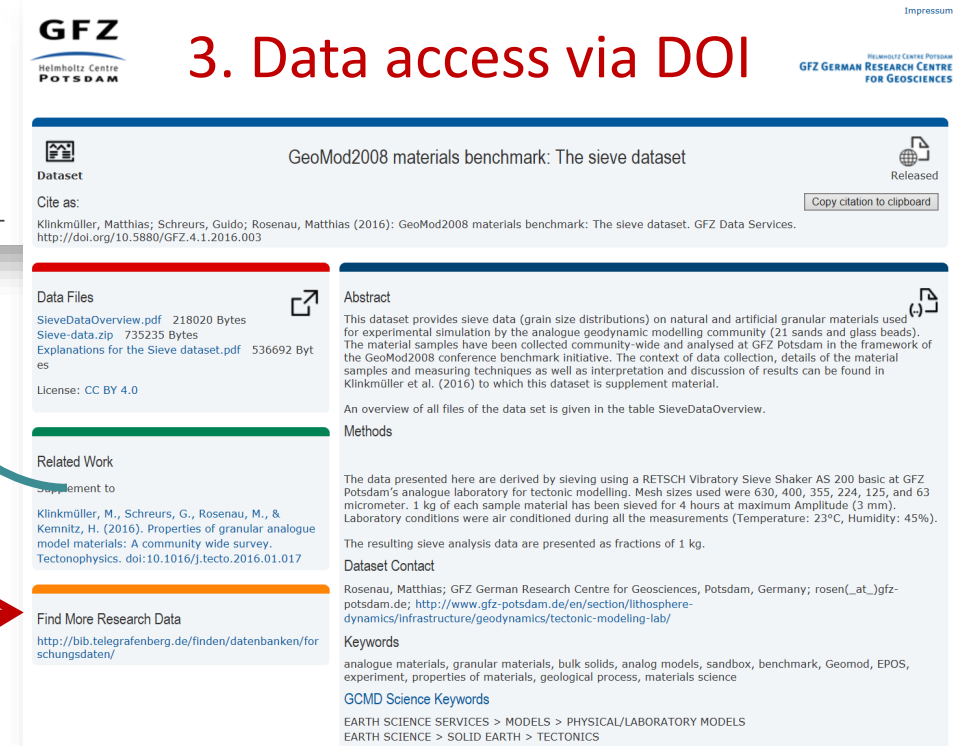
References

- Heilbronner, R., Keulen, N., 2006. Grain size and grain shape analysis of fault rocks. *Tectonophysics* 427, 199–216.
- Hubbert, M.K., 1951. Mechanical basis for certain familiar geologic structures. *Geol. Soc. 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>.

Link to paper

1. Citation in the text

3. Data access via DOI



GFZ
Helmholtz Centre
POTSDAM

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
Explanations 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 samples and measuring techniques as well as interpretation and discussion of results can be found in Klinkmüller et al. (2016) to 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(at)_gfz-potsdam.de); <http://www.gfz-potsdam.de/en/section/lithosphere-dynamics/infrastructure/geodynamics/tectonic-modelling-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

2. Full reference with DOI in the References

How and where can I publish my data?

Data Publications – best practice for FAIR sharing data

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

Research Data Repositories

- Permanent archives and access points to research data
- **institutional**, **general**, **domain**
- Ideally open access
- persistent identifier (ideally DOI)



“**Domain repositories**: These repositories **provide quality and standards** [for their domain], **enriching and organizing data** from multiple sources **to facilitate new discoveries**. They are in many ways the **best stewards of the data** but are not currently well connected with most publishers, and many data are thus not finding their proper home.”

Data Publications – best practice for FAIR sharing data

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

- **Findable:** integration of standardised machine readable metadata in external data portals (e.g. DataCite, B2Find, Google Dataset Search)
- **Accessible:** via DOI, persistent data storage and access guaranteed by the publisher (= data repository)
- **Documented:** with metadata for discovery and reuse → curation
- **Citable:** DOI-referenced datasets are citable just as journal articles (→ credit for researcher and institution)

What do I need for a data publication?

- Data
- Metadata

Contextual Metadata

highly variable
between the
disciplines but key
information for
data reuse

README

Datei Bearbeiten Format Ansicht ?
AVERTISSEMENT / WARNING
 Même si des efforts sont déployés pour
 Although efforts are made to ensure th
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 CITATI
 CEN 2014. Données environnemental
 CEN 2014. Environmental data from
SITE(S)
 Nom / Name
 Ellesmere Parks Canada (ELLEPAR)
DESCRIPTION
 SITE: Ellesmere Parks Canada (ELLEPAR)
 Profondeurs des / températures de sol (m) / Ground temperature depth range (m): 0.20
MESURE(S) / MEASUREMENT(S)
 TYPE: Température moyenne du sol (Degré celsius (°C)) / Average ground temperature (Degree Celsius (°C))

Definition of data labels

Metadata of the Data Tables

Sites

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

Data Articles/ Reports



Metadata for data discovery: example DOI Landing Page

title citation

download data

key paper

related work

GFZ DATA SERVICES
GEOSCIENCES DATA PUBLISHER

Dataset Data from distributed temperature sensing (DTS) measured along a fiber optic cable permanently installed behind casing in well RN-15/DEEPEGS/IDDP-2, Iceland

Cite as:
Lipus, Martin Peter; Reinsch, Thomas (2021): Data from distributed temperature sensing (DTS) measured along a fiber optic cable permanently installed behind casing in well RN-15/DEEPEGS/IDDP-2, Iceland. GFZ Data Services. <https://doi.org/10.5880/GFZ.6.2.2018.0>

Files
Download data and description
License: CC BY 4.0
End of moratorium: 2020-06-31

Abstract
The fiber optic cable was installed down to 832 m behind the production casing of a 9 5/8" (445-2932 m) and 9 7/8" (0 - 445 m) production casing in well RN-15/DEEPEGS/IDDP-2 in the Reykjanes geothermal field, SW Iceland (depth reference: surface). Fiber optic distributed temperature data was acquired (campaign based) during cementation (09/2016) of the production casing, at the end of the cold fluid injection (09/2018) as well during the onset of well stimulation (10/2019-04/2020).

Authors
Lipus, Martin Peter; GFZ German Research Centre for Geosciences, Potsdam, Germany
Reinsch, Thomas; GFZ German Research Centre for Geosciences, Potsdam, Germany; Fraunhofer IEG, Fraunhofer Research Institution for Energy Infrastructures and Geothermal Systems IEG, Bochum, Germany

Contact
Lipus, Martin (Researcher) : GFZ German Research Centre for Geosciences, Potsdam, Germany; →

Contributors
Cunow, Christian; Raab, Tobias; Lipus, Martin

Keywords
permanent temperature monitoring, cementation, energy > energy source > renewable energy source, industrial process > drilling
GCMD Science Keywords
EARTH SCIENCE > SOLID EARTH > GEOTHERMAL DYNAMICS > GEOTHERMAL ENERGY
EARTH SCIENCE > SOLID EARTH > GEOTHERMAL DYNAMICS > GEOTHERMAL TEMPERATURE
EARTH SCIENCE > SOLID EARTH > GEOTHERMAL DYNAMICS > GEOTHERMAL TEMPERATURE > TEMPERATURE PROFILES

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

description/abstract

authors/ ORCID

keywords/controlled vocabularies

spatial coverage

Essential for data discovery, DOI registration, etc: international standards across all disciplines

Typical metadata standards for data discovery:
DataCite, ISO19115, Dublin Core

Tools for data publications by GFZ Data Services

1. Discovery Metadata: via GFZ Metadata Editor

The screenshot displays the GFZ Metadata Editor interface. At the top, there are tabs for 'Discovery Metadata', 'ISO19115 Metadata', 'Files', and 'Related Publications'. The 'Discovery Metadata' tab is active.

Resource Information

DOI will be generated in the publishing process	Publisher	Year
115681942 - 4.2/13/17	GFZ DATA SERVICES	2017
Resource Type	Title	Language of Subject
Dataset	Supplement to: The New World Atlas of Artificial Night Sky Brightness	eng

License and Rights

License

Please contact the authors for a license agreement.

Authors (Persons and/or Institutions)

Author (Lastname, Firstname)	Role	Author ID Type	Author Identifier (ID)	Affiliation
Di Lorenzo, Mariateresa				ISTIT - Istituto di Scienze e Tecnologia ...
Durkin, Dan				National Park Service, U.S. Department ...
Kubi, Christopher C. M.				GFZ German Research Centre for Geo ...
Prada, Christopher D.				Earth Observation Unit, NOAA NESDIS ...
Beauf, Kimberly				Cooperatives Institute for Research in B...
Porter, Beala				Department of Natural Resources & En...
Rytkovska, Natalya Z.				Department of Natural Resources & En...
Furzer, Ricardo				ISTIT - Istituto di Scienze e Tecnologia ...

Contact Person(s) / Point of Contact

GFZ Metadata Editor (Java Script „translator“)

Input: provided by researchers

Output: XML (Extensible Markup Language): Metadata exchange format

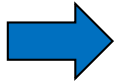
The screenshot displays the GFZ Metadata Editor interface. On the left, the 'Input' section shows various metadata fields: 'Resource Information' (DOI: 10.5880/GFZ.1.4.2016.001, Resource Type: Dataset, Title: Supplement to: The New World Atlas of Artificial Night Sky Brightness), 'Licenses and Rights' (Licence: Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)), 'Authors (Persons and/or Institutions)' (a table with columns Lastname, Firstname, Role, Author ID Type), 'Contact Person(s) / Point of Contact' (night, radiative transfer, Suomi NPP, Sky Quality Meter), and 'Temporal and Spatial Coverage' (a table with columns Latitude Min/Max and Longitude Min/Max). On the right, the 'Output' section shows the generated XML metadata in a tree view, including fields like fileIdentifier (doi:10.5880/igets.po.11.001), language (eng), characterSet (utf8), hierarchyLevel (MD_ScopeCode), hierarchyLevelName (GFZ German Research Center for Geosciences), contact (CI_OnlineResource with URL http://www.gfz-potsdam.de/), role (pointOfContact), dateStamp (2017-01-06), referenceSystemInfo (EPSG:4326), and identificationInfo.

Access via: <https://dataservices.gfz-potsdam.de/portal/> → Submit Metadata

GFZ Metadata Editor (Java Script „translator“)

Input:

provided by researchers

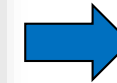


The screenshot shows the GFZ Metadata Editor interface with the following sections:

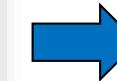
- DataCite Metadata** (selected tab)
- Resource Information**: DOI (will be generated in the publishing process), Publisher (GFZ Data Services), Year (2016), Resource Type (Dataset), Title (Supplement to: The New World Atlas of Artificial Night Sky Brightness), Language of dataset (eng).
- Licenses and Rights**: Licence (Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)), Rights URI (https://creativecommons.org/licenses/by-nc/4.0/).
- Authors (Persons and/or Institutions)**: Table with columns: Lastname, Firstname, Role, Author ID Type, Author Identifi..., Affiliation, Affiliation2, Affiliation3. Authors listed include Falchi, Cinzano, Duriscoe, Kyba, Ehidge, Baugh, Portnov, Rybnikova, and Furgoni.
- Contact Person(s) / Point of Contact**: night, radiative transfer, Suomi NPP, Sky Quality Meter.
- Temporal and Spatial Coverage**: Table with columns: Latitude (Min, Max), Longitude (Min, Max). Values: 44.045486..., 55.842428..., 2.8710901..., 43.124996....
- Map**: Interactive map showing a selected region in Central Europe (Germany, Poland, etc.).

Output:

Standardised XML files (Datacite, ISO 19115, Dublin Core)



DOI Landing Pages



Data Catalogue



Standardised API



„Special“ Features:

- Interactive map
- Searchable vocabulary lists

Tools for data publications by GFZ Data Services

1. Discovery Metadata: via GFZ Metadata Editor
2. Contextual Metadata: via [Data Description Templates](#)
(or [data reports](#))

Paleosol-derived data used for the reconstruction of environmental conditions during the Holocene in the upper part of the Kali Gandaki valley, Central Nepal
(<http://doi.org/10.5880/GFZ.4.6.2019.001>)

Johanna Menges¹, Niels Hovius², Christoff Andermann¹, Michael Dietze¹, Charlie Swoboda¹, Kristen Cook¹, Basanta Adhikari², Andrea Vieth-Hillebrand¹, Stephane Bonnet³, Tony Reimann⁴, Andreas Koutsodendris³, Dirk Sachse¹

1. *GFZ German Research Centre For Geosciences, Telegrafenberg, 14473 Potsdam, Germany*
2. *Department of Civil Engineering, Pulchowk Campus, Institute of Engineering, Tribhuvan University, Nepal*
3. *GET CNRS Univ Toulouse, UMR 5563, Toulouse, France*
4. *Soil Geography and Landscape group & Netherlands Centre for Luminescence dating, Wageningen University, The Netherlands*
5. *Heidelberg University Institute of Earth Sciences, Heidelberg, Germany*

Data Description Templates

- Many users are unaware of what a data publication represents and what to include in description
- Increase the quality of metadata
- Reduces curation workload
- Uniform format aids comprehension

➤ Template via
<https://dataservices.gfz-potsdam.de/about>

Paleosol-derived data used for the reconstruction of environmental conditions during the Holocene in the upper part of the Kali Gandaki valley, Central Nepal
(<http://doi.org/10.5880/GFZ.4.6.2019.001>)

Johanna Menges¹, Niels Hovius¹, Christoff Andermann¹, Michael Dietze¹, Charlie Swoboda¹, Kristen Cook¹, Basanta Adhikari², Andrea Vieth-Hillebrand², Stephane Bonnet³, Tony Reimann⁴, Andreas Koutsodendris⁵, Dirk Sachse¹

1. GFZ German Research Centre For Geosciences, Telegrafenberg, 14473 Potsdam, Germany
2. Department of Civil Engineering, Pulchowk Campus, Institute of Engineering, Tribhuvan University, Nepal
3. GET CNRS Univ Toulouse, UMR 5563, Toulouse, France
4. Soil Geography and Landscape group & Netherlands Centre for Luminescence dating, Wageningen University, The Netherlands
5. Heidelberg University Institute of Earth Sciences, Heidelberg, Germany

1. Licence

Creative Commons Attribution 4.0 International License (CC BY 4.0)



2. Citation

These data are freely available under the Creative Commons Attribution 4.0 International License (CC BY 4.0).

When using the data please cite:

Menges, J.; Hovius, N.; Andermann, C.; Dietze, M.; Swoboda, C.; Cook, K.; Adhikari, B.; Vieth-Hillebrand, A.; Bonnet, S.; Reimann, T.; K., Andreas; Sachse, D. (2019): Paleosol-derived data used for the reconstruction of Holocene environmental conditions during in the upper Kali Gandaki valley, Central Nepal. GFZ Data Services. <http://doi.org/10.5880/GFZ.4.6.2019.001>

The data are supplementary to:

Menges, J., Hovius, N., Andermann, C., Dietze, M., Swoboda, C., Cook, K. L., ... Sachse, D. (2019). Late

1. Licence
2. Citation
3. Data Description
 - Sampling method
 - Analytical procedure
 - Data processing
4. File description
 - File inventory
 - File naming convention
 - Description of data tables
5. References

Example Data Description: Before (= without template)

Data Description

Stimulation data for each of the analyzed EGS projects.

The are provided in tabular form (CSV). The file names indiate the project.

Definition of columns in the data tables (also in the header of the data):

- V = Cumulative injected volume (m³) - Ehyd = Applied hydraulic energy (J) - MaxM0 = Maximum observed seismic moment (Nm) - CumM0 = Cumulative seismic moment (Nm) - IE = Injection efficiency (-)

Example Data Description: After (= with the template)

1. Licence
2. Citation
3. Data Description

The here provided data are part of a broader analysis of past and present stimulation projects, revealing that the temporal evolution and growth of maximum observed moment magnitudes may be linked directly to the injected fluid volume and hydraulic energy. Analyzed projects include the most prominent European Enhanced Geothermal System (EGS) projects in Basel, Switzerland (BAS) and Soultz-sous-Forêts (STZ), France. In Soultz, three different stimulations over the course of 10 years were performed in different wells and different depths. Therefore, we differentiate between the injections in 1993 (STZ93), 2000 (STZ00), and in 2003 (STZ03). We also included the deepest EGS Project to date (St1), located in Helsinki, Finland [...]

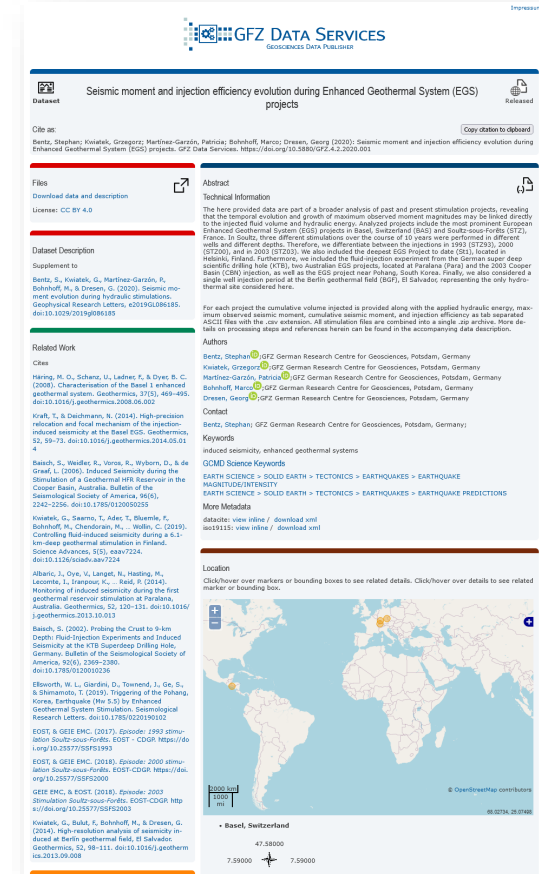
For each project the cumulative volume injected is provided along with the applied hydraulic energy, maximum observed seismic moment, cumulative seismic moment, and injection efficiency as tab separated ASCII files with the .csv extension. All stimulation files are combined into a single .zip archive. More details on processing steps and references herein can be found in the accompanying data description.

3.1 Data Processing

4. File Description

4.1 File inventory 4.2. File naming convention 4.3 Description of data tables

5. References

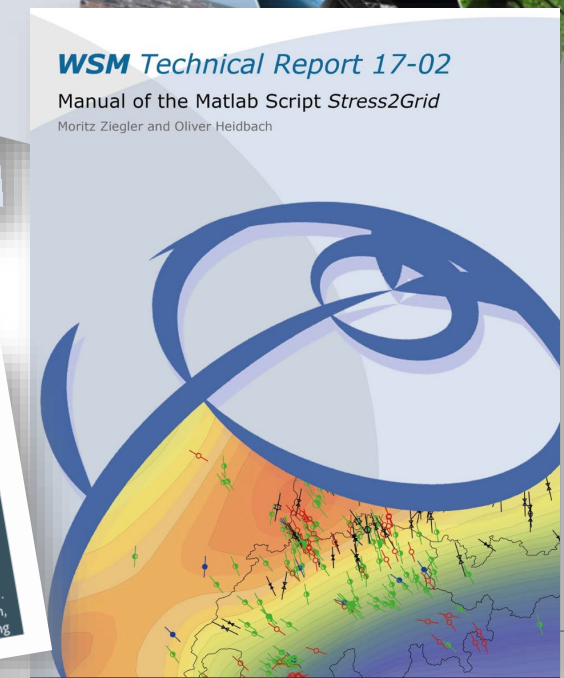


GFZ Data Reports/ Technical Reports

First Data Report published in 2011:
persistently online accessible and citable
with DOI

GFZ Data Reports/ Technical Reports:

- Flexible format for: “enhanced” data or software description, field guides
- standardised templates for each discipline/ project (ICDP, EnMAP)
- internal review by domain experts
- Project-specific design if required



Tools for data publications by GFZ Data Services

1. Discovery Metadata: via GFZ Metadata Editor
2. Contextual Metadata: via Data Description Templates (or data reports)

3. Data Discovery and access via the Data Portal

<https://dataservices.gfz-potsdam.de>

The screenshot displays the GFZ Data Services Data Portal. At the top, the GFZ logo and 'GFZ DATA SERVICES' are visible. Below the header, there is a search bar and a spatial filter section with a map showing a selected area in Europe. The main content area lists search results, including:

- Found 598 datasets.**
- ESA's Release 6 GOCE gravity field model by means of the direct approach based on improved filtering of the reprocessed gradients of the entire mission (GO_CONS_GCF_2_DIR_R6)**
Authors: Forste, Christoph; Abrisosov, Oleh; Briunisma, Sean et al.
Abstract: "ESA's Release 6 GOCE gravity field model by means of the direct approach based on improved filtering of the reprocessed gradients of the entire mission (GO_CONS_GCF_2_DIR_R6)" is a static gravitational model available via ICGEM (Ince et al., 2019) Model more
- Revised dataset of known faults in Italy**
Authors: Petricca, Patrizio; Trippetta, Fabio; Billi, Andrea et al.
Abstract: This data publication includes a grid composed by contiguous 25 x 25 km square elements covering the Italian area and each parameterized by 1) the maximum length of faults included within the cell, 2) the maximum magnitude from instrumental seismic data, 3) the maximum magnitude from historical more
- Temporary passive seismic data acquired at Rittershoffen geothermal field Alsace, France, 2013-2014 (TOPASE) - Datasets**
Authors: Gaucher1, Emmanuel; Maurer, Vincent; Grunberg, Marc
Abstract: This report describes the passive seismic data acquired by the TOPASE network deployed over Rittershoffen geothermal field (Alsace, France). The monitoring period extends from March 2013 to November 2014, which includes the stimulation of the first well of the doublet, the drilling of the second more

Break – do you have any question so far?

GFZ Data Services: Research Data Repository

Profile

- Domain repository for the Geosciences since 2006
- DOIs for Data and Software
- Data: real-time data streams, tables, maps, model data, ...
- Data description templates and reports
- Online metadata editor

GFZ Data Services

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

Search (press ESC to close suggestions)

Spatial Filter Close Map

68.9531320

57.6562499 51.328125

02.0515438

Current Selection (Link)

http://12.05154387641204,-57.6562499999999...

Datacenters

ESHAP
FID GEO
GEOFON Seismic Networks
GFZ German Research Centre for Geosciences
GIPF Geophysical Instrument Pool Potsdam
ICGEM International Centre for Global Earth Mo.
IGETS International Geodynamics and Earth Tid. Internatmagat
PIK Potsdam Institute for Climate Impact Resea.
SDDB Scientific Drilling Database
SFB06 and CRC06-Database
TERENO
TR3208 CRC/Transregio 32 Database
WDS World Stress Map

Categories

earth science
earth science services

Top Subjects

agriculture
air pressure
air temperature
calculation
date of sampling
dammin
density
durable environmental multidisciplinary monitor.
german continental deep drilling program
icgem
land based
precipitation
remote sensing
strontium
tereno

Found 598 datasets.

ESA's Release 6 GOCE gravity field model by means of the direct approach based on improved filtering of the reprocessed gradients of the entire mission (GO_CONS_GCF_2_DIR_R6)

Authors: Förste, Christoph; Abrykosov, Oleh; Bruinsma, Sean et al.
Abstract: "ESA's Release 6 GOCE gravity field model by means of the direct approach based on improved filtering of the reprocessed gradients of the entire mission (GO_CONS_GCF_2_DIR_R6)" is a static gravitational model available via ICGEM (Ince et al., 2019) Model more

Revised dataset of known faults in Italy

Authors: Petricca, Patrizio; Trippetta, Fabio; Billi, Andrea et al.
Abstract: This data publication includes a grid composed by contiguous 25 x 25 km square elements covering the Italian area and each parameterized by 1) the maximum length of faults included within the cell, 2) the maximum magnitude from instrumental seismic data, 3) the maximum magnitude from historical more






Temporary passive seismic data acquired at Rittershoffen geothermal field Alsace, France, 2013-2014 (TOPASE) - Datasets

Authors: Gaucher1, Emmanuel; Maurer, Vincent; Grunberg, Marc
Abstract: This report describes the passive seismic data acquired by the TOPASE network deployed over Rittershoffen geothermal field (Alsace, France). The monitoring period extends from March 2013 to November 2014, which includes the stimulation of the first well of the doublet, the drilling of the second more

<https://dataservices.gfz-potsdam.de>

FAIR data

- International metadata standards (human & machine readable)
- Controlled vocabularies for „rich“ metadata

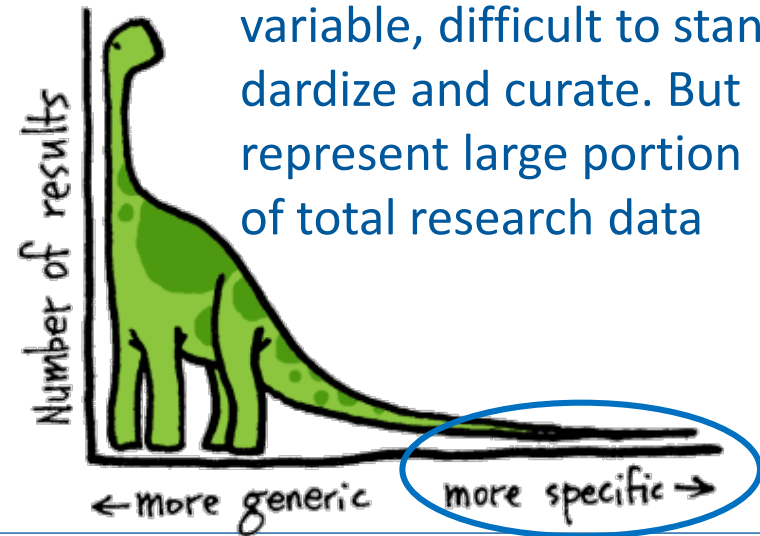
- PIDs     Connecting Research and Researchers  in prep
- Open Licences for data and software
- OAI-PMH interface
- schema.org → Google Dataset Search

GFZ Data Services: Profile

Focus:

1. curation of long-tail data

long-tail data: small in size, highly variable, difficult to standardize and curate. But represent large portion of total research data

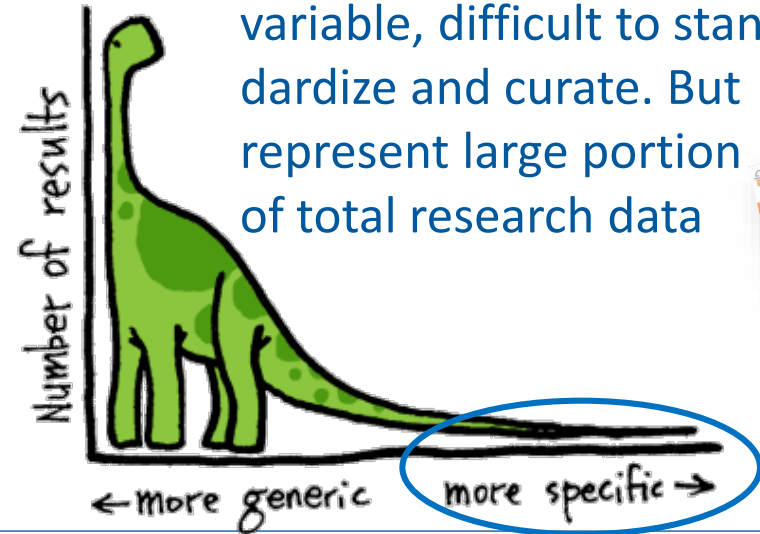


GFZ Data Services: Profile

Focus:

1. curation of long-tail data
2. DOI minting services for global monitoring networks/observatories in geodesy and geophysics and collaborative projects.

long-tail data: small in size, highly variable, difficult to standardize and curate. But represent large portion of total research data



Different layouts for DOI Landing Pages

Special Features: „Data in Review“ Links

- Link: <http://pmd.gfz-potsdam.de/panmetaworks/review/d5e90191aeefd0632ed35813dd442e186ad1187ad892f3d3ff968bd4716eb472/>
- Allows access to still unregistered data (for review purposes)
- DOI is reserved and citable
- Data can still be changed
- DOI registration when paper is accepted



The screenshot shows a dataset page for 'Geochemical Data Used to Trace Variations of Organic Carbon Sourcing Along a Trans-Himalayan River, Central Nepal'. The status is 'IN REVIEW'. A red callout box with white text says: 'Please inform GFZ Data Services when a paper is accepted and send the DOI of the paper once known.' The page includes sections for Files, License, Dataset Description, and Abstract.



ENABLING FAIR DATA PROJECT



Required by publishers that signed the Enabling FAIR Data Commitment Statement

Special Features: Versioning

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

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

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; Rudenko, Sergiy; Abrikosov, Oleh; 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. GFZ Data Services. <http://doi.org/10.5880/icgem.2016.004>

Data Files ↗

ICGEM Model Visualisation (EIGEN-6S4, V.2.0)
ICGEM Calculation Service (EIGEN-6S4, V.2.0)

Download Model Data: EIGEN-6S4.zip

License: CC BY 4.0

Data Description

Foerste C., Bruinsma S.L., Rudenko S., Abrikosov O., Lemoine J.-M., Marty J.-C., Hans Neumayer K. H. and Richard Biancale, R. (2015), 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, Geophysical Research Abstracts Vol. 17, EGU2015-3608-1, 2015, EGU General Assembly 2015

Related Work

Previous Version of

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)

Abstract ↗

There is a new version of this dataset:

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

Input 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 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 between 20120801 - 20131020. The GOCE polar gaps were stabilized by the Spherical Cap Regularization (Metzler and Pail 2005) using an internal LAGEOS/GRACE solution to degree/order 130 + zero coefficients to degree/order 300

Parameters

format	icgem2.0
product_type	gravity_field
modelname	EIGEN-6S4

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 Spherical Cap Regularization (Metzler and Pail 2005). That means this model is a combination of LAGEOS/GRACE with GO_CONS_GCF_2_DIR_R5 (Bruinsma et al. 2013).

Data Description

Foerste C., Bruinsma S.L., Rudenko S., Abrikosov O., Lemoine J.-M., Marty J.-C., Hans Neumayer K. H. and Richard Biancale, R. (2015), 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, Geophysical Research Abstracts Vol. 17, EGU2015-3608-1, 2015, EGU General Assembly 2015

Version History:

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

- 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 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 between 20120801 - 20131020. The GOCE polar gaps were stabilized by the Spherical Cap Regularization (Metzler and Pail 2005) using an internal LAGEOS/GRACE solution to degree/order 130 + zero coefficients to degree/order 300

Parameters

format	icgem2.0
product_type	gravity_field
modelname	EIGEN-6S4v2
earth_gravity_constant	0.3986004415E+15
radius	0.6378136460E+07
max_degree	300
errors	calibrated (sigma calibration factor = 2.00)

old version

new version

Special Features: Moratorium Period

- Data discovery and citation possible: DOI is registered and metadata online
- Data access restricted during moratorium period
- Free data access after the end of the moratorium period

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 Helmholtz Centre POTSDAM

COSC-1 operational report - Operational data sets

Released

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

Lorenz, Henning; Rosberg, Jan-Erik; Juhlin, Christopher; Bjelm, Leif; Almquist, Bjørne; Berthet, Théo; Conze, Ronald; Gee, David G.; Klonowska, Iwona; Pascal, Christophe; Pedersen, Karsten; Roberts, Nick; Tsang, ChinFu, ChinFu (2015): COSC-1 operational report - Operational data sets. GFZ Data Services. <https://doi.org/10.1594/GFZ.SDOB.ICDR.5054.2015>

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) 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/ICDR.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/ICDR.2015.001>

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. *Sg. Dril.*, 19, 1-11. doi:10.5194/sd-19-1-2015

References

IGSN:ICDP5054EHX1001 (5054_1_A)
IGSN:ICDP5054EHX1001 (5054_1_B)
IGSN:ICDP5054EH02001 (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 high-grade 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 Fröå 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 2495.8 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.

Dataset Contact

Lorenz, Henning; Uppsala University, Department of Earth Sciences, Geophysics; henning.lorenz_at_ugeo.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, scandenes, 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
datecite: view inline / download xml
dfl: view inline / download xml
esdocid: 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.

(R) Restricted data

DOIs for Software

Download static version

GFZ DATA SERVICES
GEOSCIENCES DATA PUBLISHER

'eseis' - a comprehensive R software toolbox for environmental seismology

Software

Cite as:
Dietze, Michael (2018): 'eseis' - a comprehensive R software toolbox for environmental seismology. V. 0.4.0. GFZ Data Services. <http://www.gfz-potsdam.de/GFZ.5.1.2018.001>

eseis: Environmental Seismology Toolbox

Environmental seismology is a scientific field that studies the seismic signals, emitted by Earth surface processes. data files, prepare, analyse and visualise seismic data, and generate reports of the processing history.

Version: 0.5.0
Depends: R (≥ 3.6.0)
Imports: [sp](#), [multitaper](#), [raster](#), [rgdal](#), [caTools](#), [signal](#), [ftw](#), [matrixStats](#), [methods](#), [IRISseismic](#), [XML](#)
LinkingTo: [Rcpp](#) (≥ 0.12.5)
Suggests: [plot3D](#), [rgl](#)
Published: 2019-12-17
Author: Michael Dietze [cre, aut, trl], Christoph Burow [ctb], Sophie Lagarde [ctb, trl]
Maintainer: Michael Dietze <mdietze@gfz-potsdam.de>
License: [GPL-3](#)
NeedsCompilation: yes
SystemRequirements: [gipptools](#) [dataselect](#)
Materials: [NEWS](#)
CRAN checks: [eseis results](#)

- [eseis_0.4.0.tar.gz](#) 0.6 Mb
 - [Link to eseis on CRAN](#)
 - [Link to eseis project page on github](#)
 - [eseis-supplementary_material.zip](#) 4.6 Mb
 - [eseis Reference Manual](#) 215.1 Kb
 - [README](#) 1.2 Kb
 - [LICENCE](#) 32.0 Kb
- License
GNU General Public License, Version 3, 29 June 2007, Copyright Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences

Abstract

Environmental seismology is a scientific field that studies the seismic signals, emitted by Earth surface processes. This R package eseis provides all relevant functions to read/write seismic data, analyse and visualise seismic data, and generate reports of the processing history of the workflow of environmental seismology, i.e., the seismic signals that are emitted by Earth surface processes. The package provides functions to handle the complete workflow of environmental seismology, i.e., the seismic signals that are emitted by Earth surface processes. The package provides functions to handle the complete workflow of environmental seismology, i.e., the seismic signals that are emitted by Earth surface processes. The package provides functions to handle the complete workflow of environmental seismology, i.e., the seismic signals that are emitted by Earth surface processes.

Contact
German Research Centre for Geosciences, Potsdam

Open source licence

documentation

paper

coffeemugger / eseis

R-package

79 commits 6 branches 0 packages 0 releases 2 contributors GPL-3.0

Branch: master New pull request Find file Clone or download

File	Commit Message	Time
R	LazyData = TRUE issue included for example data	3 months ago
data	manual update of master branch	3 months ago
inst	manual update of master branch	3 months ago

IGSN – International Geo Sample Number

- Globally unique identifier for physical samples and materials
- Closing the last gap for the full provenance of research results
- IGSN links to the online sample description (link, QR Code)
- For individual and hierarchical samples (e.g. drilling projects)
- IGSN are citable in papers and data publications



GFZ Helmholtz Centre POTSDAM

IGSN

icdp

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

Legend: ⊕=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. Dril.*, 19, 1–11. doi:10.5194/sd-19-1-2015

Lorenz, Henning; Rosberg, Jan-Erik; Juhlin, Christopher; Bjelm, Leif; Almqvist, 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://dx.doi.org/10.1594/GFZ.SDDB.ICDP.5054.2015>

Persistent Identifier in data publications



for data, software,
cross-references to
related work



PID for physical samples,
cross references to
samples underlying
measurements



uniquely identifying
persons



List of funders
with DOIs



New PID for
Institutions

PIDs and the provenance of research outcome

data

Table S3. Sierra Nevada analyses of plant samples

sample ID	IGSN	brief sample description	Element concentrations (µg/g)						
			Al	Fe	Mn	Mg	Ca		
MW1									
MW2									
MW3									
MW4									
mean (2SE)									

Table SN1. Sierra Nevada analyses of soil, saprolite, rock, bedload sediment and

sample ID	IGSN	sample type	XRF lab	depth (cm)	Major element oxides (wt%) (C)			
					SiO ₂	TiO ₂	Al ₂ O ₃	Fe ₂ O ₃
<i>P301 regolith depth profile</i>								
SN01 *	GFFB1002T	bulk soil	GFZ	7	36.2	0.55	11.4	3.88
SN02 *	GFFB1002U	bulk soil	GFZ	20	49.3	0.71	14.9	4.84
SN02c *	GFFB1002U	exchangeable soil	-	20	n.a.	<lod	0.00	0.00
SN02r *	GFFB1002U	residuum soil	-	20	n.a.	0.84	14.3	5.68
SN03 *	GFFB1002V	bulk soil	GFZ	30	57.5	0.88	17.6	6.44
SN01 *	GFFB1002R	bulk soil	GFZ	39	56.6	0.93	17.7	6.85
SN04e *	GFFB1002R	exchangeable soil	-	39	n.a.	<lod	0.00	0.00
SN04r *	GFFB1002R	residuum soil	-	39	n.a.	0.91	15.1	6.95



sample

Sample description

Data publication

papers

PIDs connect everything → FAIR

Linking papers, data, samples, ...

DataCite related Identifier

IsCitedBy	indicates that B (discovery).
Cites	indicates that A (discovery).
IsSupplementTo	indicates that A (discovery).
IsSupplementTo	indicates that A (discovery).
IsContinuedBy	
Continues	
HasMetadata	
IsMetadataFrom	
IsNewVersionOf	
IsPreviousVersionOf	
IsPartOf	
HasPart	
IsReferencedBy	
References	
IsDocumentedIn	
Documents	
IsCompiledBy	
Compiles	
IsVariantFormOf	
IsOriginalFormOf	
IsIdenticalTo	

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)

ICDP Data Set Report
 10.2312/ICDP.2015.001

COSC-1 operational report
 Explanatory remarks on the operational data sets

H. Lorenz, J.E. Rosberg, C. Juhlin, L. Bjelm, B.S.G. Almquist, T. Berthet, R. Conze, D. Gee, I. Klonowska, K. Pedersen, N. Roberts, C.-F. Tsang

Abstract
 The Collisional Orogeny in the Scandinavian Caledonides (COSC) scientific drilling project focuses on mountain building processes in a major mid-Palaeozoic 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 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.

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

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

References

Lorenz, H., Rosberg, J.E., Juhlin, C., Bjelm, L., Almquist, B.S.G., Berthet, T., Conze, R., Gee, D.G., Klonowska, I., Pascal, C., Pedersen, K., Roberts, N.M.W. and Tsang, C.F. (2015): COSC-1 – Drilling of a subduction-related Allochthon in the Palaeozoic Caledonide Orogen of Scandinavia. *Scientific Drilling*, doi: 10.5194/sd-19-1-2015

Lorenz, H., Rosberg, J.E., Juhlin, C., Bjelm, L., Almquist, B.S.G., Berthet, T., Conze, R., Gee, D.G., Klonowska, I., Pascal, C., Pedersen, K., Roberts, N.M.W. and Tsang, C.F. (2015): COSC-1 operational report – Operational data sets. *GFZ German Research Centre for Geosciences*, doi: [10.1594/GFZ.SDDB.ICDP.5054.2015](https://doi.org/10.1594/GFZ.SDDB.ICDP.5054.2015)

Scientific Drilling
 The open-access ICDP and IODP journal

Submit a manuscript | Manuscript tracking

Sci. Dril., 19, 1–11, 2015
<https://doi.org/10.5194/sd-19-1-2015>
 © Author(s) 2015. This work is distributed under the Creative Commons Attribution 3.0 License.

COSC-1 – drilling of a subduction-related allochthon in the Palaeozoic Caledonide orogen of Scandinavia

H. Lorenz¹, J.-E. Rosberg², C. Juhlin¹, L. Bjelm², B. S. G. Almquist¹, T. Berthet¹, R. Conze³, D. G. Gee¹, I. Klonowska¹, C. Pascal⁴, K. Pedersen⁵, N. M. W. Roberts⁶, and C.-F. Tsang^{1,7}

¹Department of Earth Sciences, Uppsala University, Villavägen 16, 752 36 Uppsala, Sweden
²Engineering Geology, Lund University, John Ericssons väg 1, 221 00 Lund, Sweden
³GFZ German Research Centre for Geosciences, Telegrafenberg, 14473 Potsdam, Germany
⁴Institute of Geology, Mineralogy and Geophysics, Ruhr-University Bochum, Universitätsstraße 150, 44780 Bochum, Germany
⁵Department of Civil and Environmental Engineering, Chalmers University of Technology, 412 96 Gothenburg, Sweden
⁶NERC Isotope Geosciences Laboratory, British Geological Survey, Nottingham, NG12 5GG, UK
⁷Lawrence Berkeley National Laboratory, Earth Sciences Division, 1 Cyclotron Road, MS74R316C, Berkeley, CA 94720, USA

Data

Data Report

Sample

IGSN
 IGSN:ICDP5054EHW1001

General Identifiers
 Program: ICDP
 Expedition: ICDP 5054
 Type: Core
 Name: 5054_1_A_3_2
 IGSN: ICDP5054EHX001 (Open)
 Parent IGSN: ICDP5054EHW1001
 Release Date: 2017-3-1

Sampling Location
 Latitude: 63.4063
 Longitude: 13.202057
 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 Frisk mine
 Country: Sweden
 Province: Jämtlands län
 Country: N/A
 City: Åre
 Geology: N/A
 Material: Rock

Sample Family
 The Sample Family shows a sub-sampling graph. Select entries to receive samples. Core Samples are listed to appear in the report. The naming convention for a Core Sample is: Expedition_Site_Name_Core_Section_From-To(m). Hole, Core, and Core-Section are following the same schema respectively.

Publications & Datasets

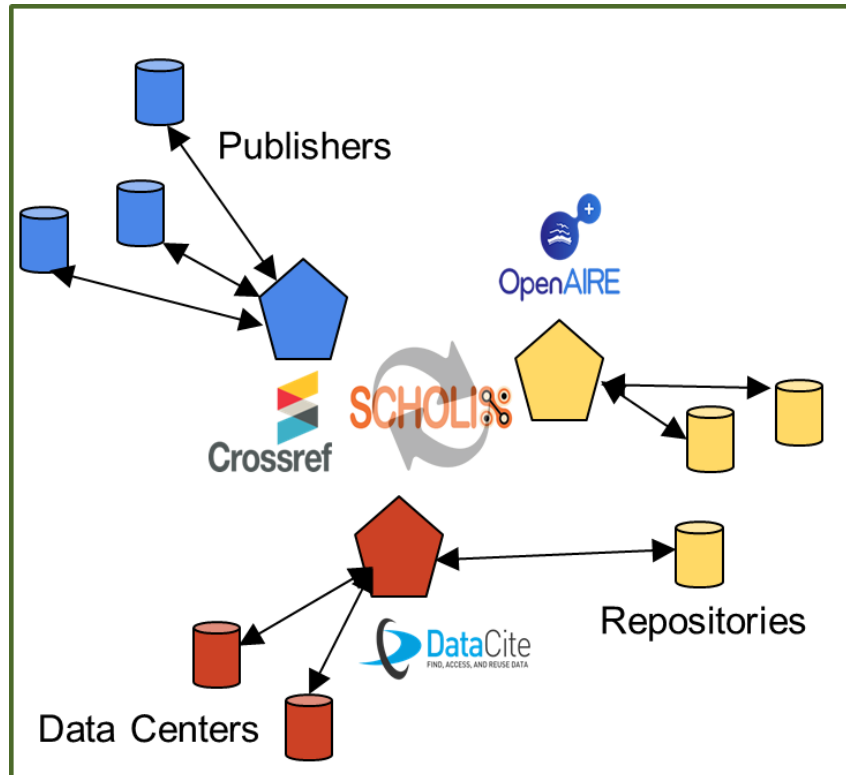
Lorenz, H., Rosberg, J.-E., Juhlin, C., Bjelm, L., Almquist, B. S. G., Berthet, T., ... Tsang, C.-F. (2015). COSC-1 – drilling of a subduction-related allochthon in the Palaeozoic Caledonide orogen of Scandinavia. *Sci. Dril.*, 19, 1–11. doi:10.5194/sd-19-1-2015

Lorenz, Henning; Rosberg, Jan-Erik; Juhlin, Christopher; Bjelm, Leif; Almquist, Bjärne; 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://dx.doi.org/10.1594/GFZ.SDDB.ICDP.5054.2015>

Scientific Paper

Lorenz, H., Rosberg, J.-E., Juhlin, C., Bjelm, L., Almquist, B. S. G., Berthet, T., Conze, R., Gee, D. G., Klonowska, I., Pascal, C., Pedersen, K., Roberts, N. M. W., and Tsang, C.-F.: COSC-1 operational report – Scientific data sets, *GFZ German Research Centre for Geosciences*, doi:10.1594/GFZ.SDDB.ICDP.5054.2015, 2015b.

Majka, J., Rosén, A., Janák, M., Froitzeim, N., Klonowska, I., Mancecki, M., Sasinková, V., and Yoshida, K.: Microdiamond dis-



Credit: Wouter Haak, Elsevier

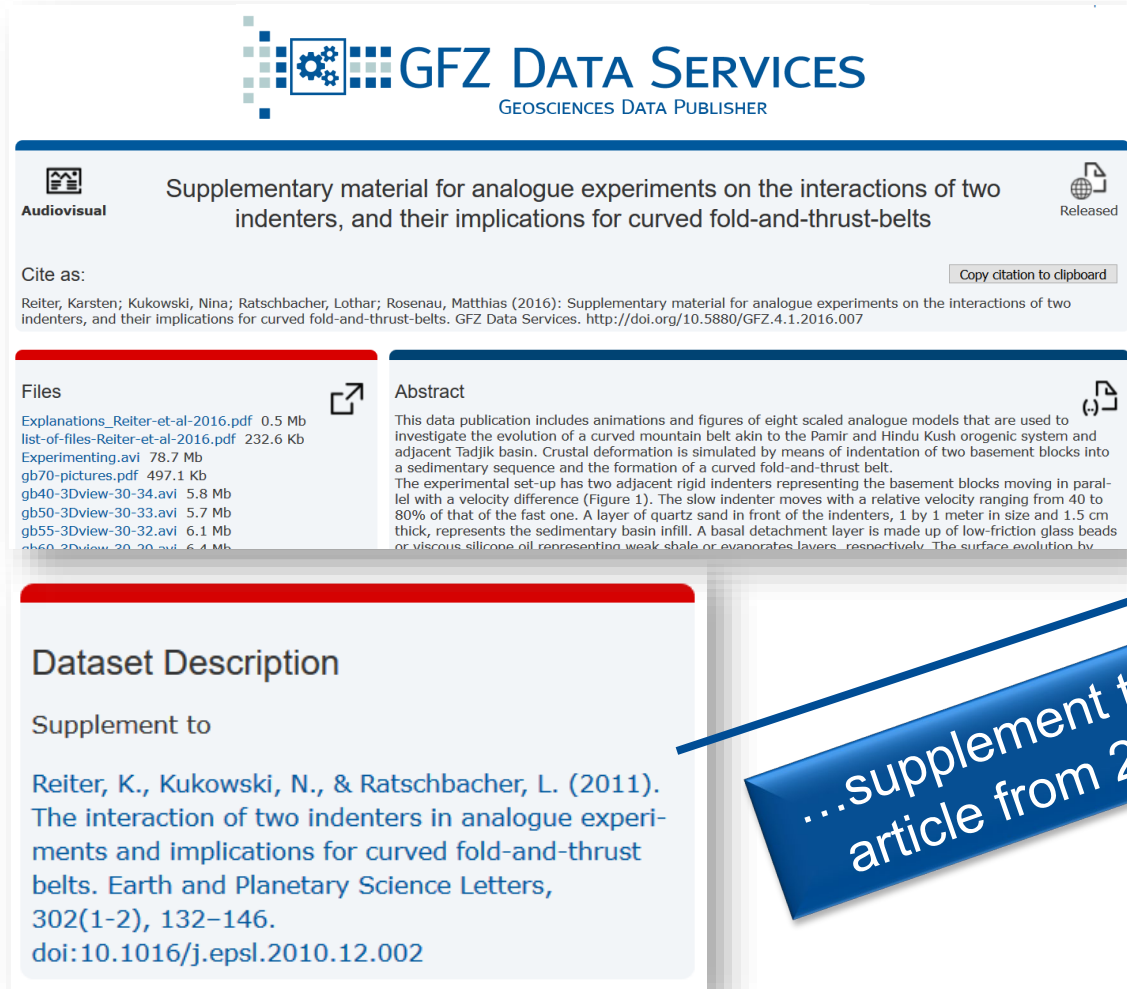
SCHOLIX

“interoperability framework for exchanging information about the links between scholarly literature and data”

Scholar Explorer

The Data Literature Interlinking Service

The classical approach (before Scholix)



GFZ DATA SERVICES
GEOSCIENCES DATA PUBLISHER

Supplementary material for analogue experiments on the interactions of two indenters, and their implications for curved fold-and-thrust belts

Cite as:
Reiter, Karsten; Kukowski, Nina; Ratschbacher, Lothar; Rosenau, Matthias (2016): Supplementary material for analogue experiments on the interactions of two indenters, and their implications for curved fold-and-thrust-belts. GFZ Data Services. <http://doi.org/10.5880/GFZ.4.1.2016.007>

Files

- Explanations_Reiter-et-al-2016.pdf 0.5 Mb
- list-of-files-Reiter-et-al-2016.pdf 232.6 Kb
- Experimenting.avi 78.7 Mb
- gb70-pictures.pdf 497.1 Kb
- gb40-3Dview-30-34.avi 5.8 Mb
- gb50-3Dview-30-33.avi 5.7 Mb
- gb55-3Dview-30-32.avi 6.1 Mb
- gb60-3Dview-30-30.avi 6.4 Mb

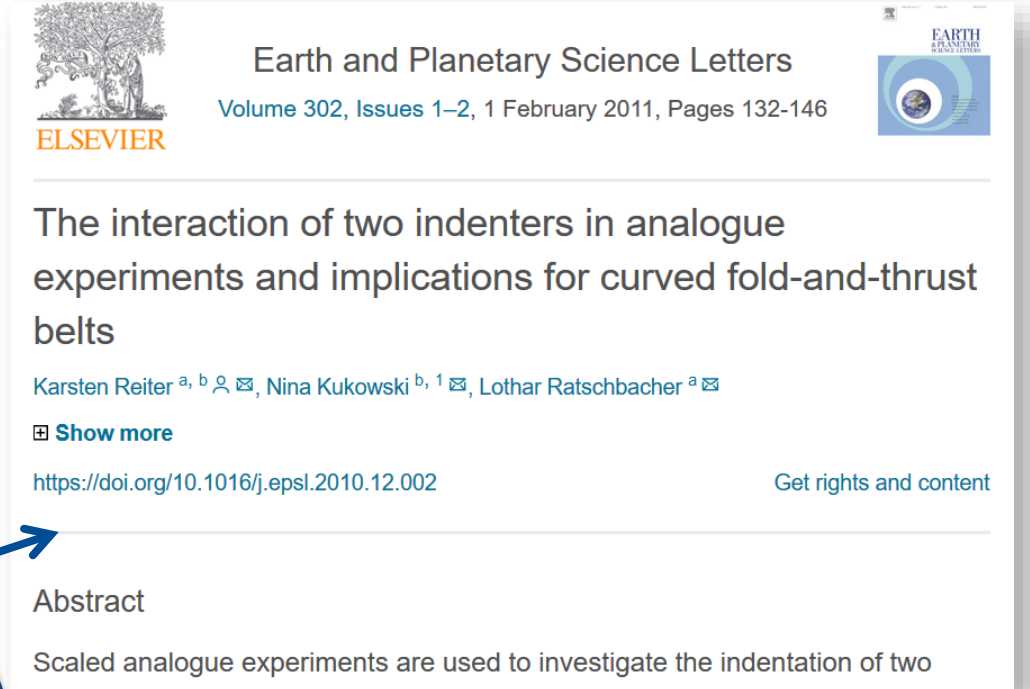
Abstract

This data publication includes animations and figures of eight scaled analogue models that are used to investigate the evolution of a curved mountain belt akin to the Pamir and Hindu Kush orogenic system and adjacent Tadjik basin. Crustal deformation is simulated by means of indentation of two basement blocks into a sedimentary sequence and the formation of a curved fold-and-thrust belt. The experimental set-up has two adjacent rigid indenters representing the basement blocks moving in parallel with a velocity difference (Figure 1). The slow indenter moves with a relative velocity ranging from 40 to 80% of that of the fast one. A layer of quartz sand in front of the indenters, 1 by 1 meter in size and 1.5 cm thick, represents the sedimentary basin infill. A basal detachment layer is made up of low-friction glass beads or viscous silicone oil representing weak shale or evaporates layers, respectively. The surface evolution by

Dataset Description

Supplement to

Reiter, K., Kukowski, N., & Ratschbacher, L. (2011). The interaction of two indenters in analogue experiments and implications for curved fold-and-thrust belts. *Earth and Planetary Science Letters*, 302(1-2), 132–146.
[doi:10.1016/j.epsl.2010.12.002](https://doi.org/10.1016/j.epsl.2010.12.002)



ELSEVIER

Earth and Planetary Science Letters
Volume 302, Issues 1–2, 1 February 2011, Pages 132–146

The interaction of two indenters in analogue experiments and implications for curved fold-and-thrust belts

Karsten Reiter ^{a, b} ✉, Nina Kukowski ^{b, 1} ✉, Lothar Ratschbacher ^a ✉

[Show more](#)

<https://doi.org/10.1016/j.epsl.2010.12.002> [Get rights and content](#)

Abstract

Scaled analogue experiments are used to investigate the indentation of two

...supplement to an article from 2011

Data: <http://doi.org/10.5880/GFZ.4.1.2016.007>, Paper: <https://doi.org/10.1016/j.epsl.2010.12.002>

The classical approach (before Scholix)

GFZ DATA SERVICES
GEOSCIENCES DATA PUBLISHER

Supplementary material for analogue experiments on the interactions of two indenters, and their implications for curved fold-and-thrust belts

Cite as:
Reiter, Karsten; Kukowski, Nina; Ratschbacher, Lothar; Rosenau, Matthias (2016): Supplementary material for analogue experiments on the interactions of two indenters, and their implications for curved fold-and-thrust belts. GFZ Data Services. <http://doi.org/10.5880/GFZ.4.1.2016.007>

Files

- Explanations_Reiter-et-al-2016.pdf 0.5 Mb
- list-of-files-Reiter-et-al-2016.pdf 232.6 Kb
- Experimenting.avi 78.7 Mb
- gb70-pictures.pdf 497.1 Kb
- gb40-3Dview-30-34.avi 5.8 Mb
- gb50-3Dview-30-33.avi 5.7 Mb
- gb55-3Dview-30-32.avi 6.1 Mb
- gb60-3Dview-30-30.avi 6.4 Mb

Abstract
This data publication includes animations and figures of eight scaled analogue models that are used to...

data publication in 2016

ELSEVIER

Earth and Planetary Science Letters
Volume 302, Issues 1–2, 1 February 2011, Pages 132–146

The interaction of two indenters in analogue experiments and implications for curved fold-and-thrust belts

Karsten Reiter ^{a, b}, Nina Kukowski ^{b, 1}, Lothar Ratschbacher ^a

Show more

<https://doi.org/10.1016/j.epsl.2010.12.002>

Get rights and content

Abstract

paper published in 2011

Link to paper in the metadata of the data publication

Is **not** possible to add the citation of the dataset to the paper 5 years after publishing

Data: <http://doi.org/10.5880/GFZ.4.1.2016.007>, Paper: <https://doi.org/10.1016/j.epsl.2010.12.002>

New possibilities for cross-linking data and papers

GFZ DATA SERVICES
GEOSCIENCES DATA PUBLISHER

Supplementary material for analogue experiments on the interactions of two indenters, and their implications for curved fold-and-thrust belts

Cite as:
Reiter, Karsten; Kukowski, Nina; Ratschbacher, Lothar; Rosenau, Matthias (2016): Supplementary material for analogue experiments on the interactions of two indenters, and their implications for curved fold-and-thrust belts. GFZ Data Services. <http://doi.org/10.5880/GFZ.4.1.2016.007>

Files

- Explanations_Reiter-et-al-2016.pdf 0.5 Mb
- list-of-files-Reiter-et-al-2016.pdf 232.6 Kb
- Experimenting.avi 78.7 Mb
- gb70-pictures.pdf 497.1 Kb
- gb40-3Dview-30-34.avi 5.8 Mb
- gb50-3Dview-30-33.avi 5.7 Mb
- gb55-3Dview-30-32.avi 6.1 Mb
- gb60-3Dview-30-30.avi 6.4 Mb

Abstract

This data publication includes animations and figures of eight scaled analogue models that are used to ...

80% of that of the fast one. A layer of quartz sand in front of the indenters, 1 by 1 meter in size and 1.5 cm thick, represents the sedimentary basin infill. A basal detachment layer is made up of low-friction glass beads or viscous silicone oil representing weak shale or evaporates layers, respectively. The surface evolution by

data publication in 2016

Dataset Description

Supplement to

Reiter, K., Kukowski, N., & Ratschbacher, L. (2011). The interaction of two indenters in analogue experiments and implications for curved fold-and-thrust belts. *Earth and Planetary Science Letters*, 302(1-2), 132–146. doi:10.1016/j.epsl.2010.12.002

SCHOLIX

Link to data on the paper landing page

ELSEVIER Earth and Planetary Science Letters
Volume 302, Issues 1–2, 1 February 2011, Pages 132-146

The interaction of two indenters in analogue experiments and implications for curved fold-and-thrust belts

Karsten Reiter ^{a, b}, Nina Kukowski ^{b, 1}, Lothar Ratschbacher ^a

Show more

<https://doi.org/10.1016/j.epsl.2010.12.002> Get rights and content

Abstract

paper published in 2011

Scaled analogue experiments are used to investigate the indentation of two

Research data for this article



GFZ Data Services
Geosciences data

Data associated with the article:

Supplementary material for analogue experiments on the interactions of two indenters, and their implications for curved fold-and-thrust belts



GFZ
Helmholtz Centre
POTSDAM