

The role of repositories and data journals for Open Science

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Outline

- Why are journals asking for your data and code?
- The role and benefit of domain repositories
- What is a data paper and what makes it different to research papers?



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/>

Publisher/Journal requirements for Open Science

SPRINGER NATURE

Reporting standards and availability of data, materials, code and protocols

An inherent principle of publication is that others should be able to replicate and build upon the authors' published claims. A condition of publication in a Nature Portfolio journal is that **authors are required to make materials, data, code, and associated protocols promptly available to readers without undue qualifications**. Any restrictions on the availability of materials or information must be disclosed to the editors at the time of submission. Any **restrictions must also be disclosed** in the submitted manuscript.

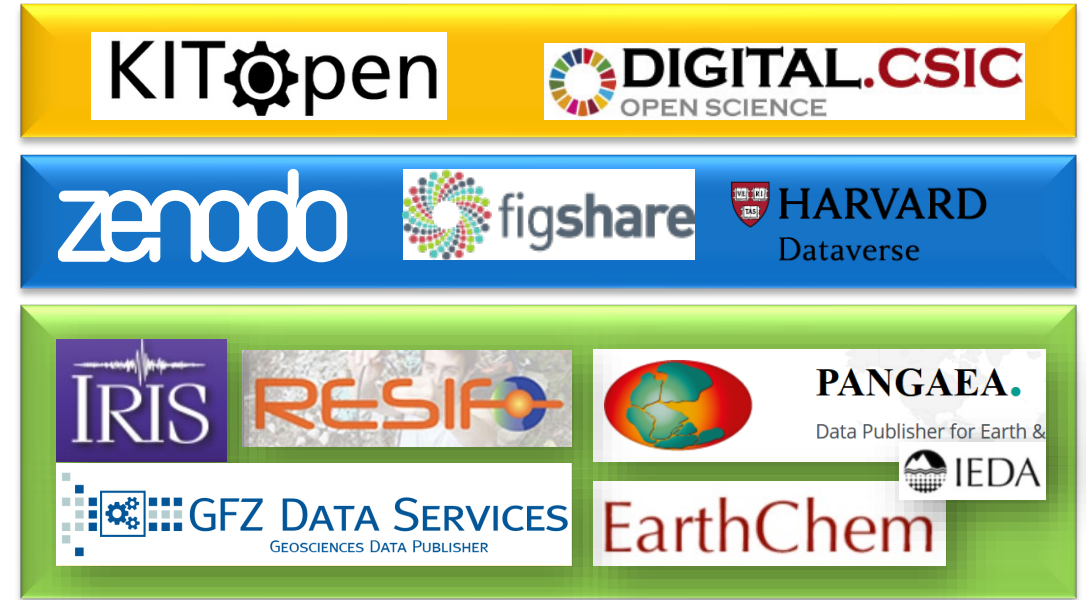


AGU requires that the **underlying data** needed to understand, evaluate, and build upon the reported research **be available at the time of peer review and publication**. Additionally, authors should make available **software** that has a significant impact on the research. This entails:

1. Depositing the data and software in a **community accepted, trusted repository**, as appropriate, and **preferably with a DOI**
2. Including an Availability Statement as a separate paragraph in the Open Research section explaining to the reader where and how to access the data and software
3. And including **citation(s)** to the deposited data and software, in the Reference Section.

Research Data Repositories

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



“Domain 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.” Hanson et al.(2015) Eos, 96, <https://doi.org/10.1029/2015EO022207>

Find your repository in:

re3data.org

Registry of Research
Data Repositories

Data Publications – best practice for FAIR sharing data

Publication of datasets as individual publications (with assigned persistent Identifier; DOI) through **domain 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)

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).

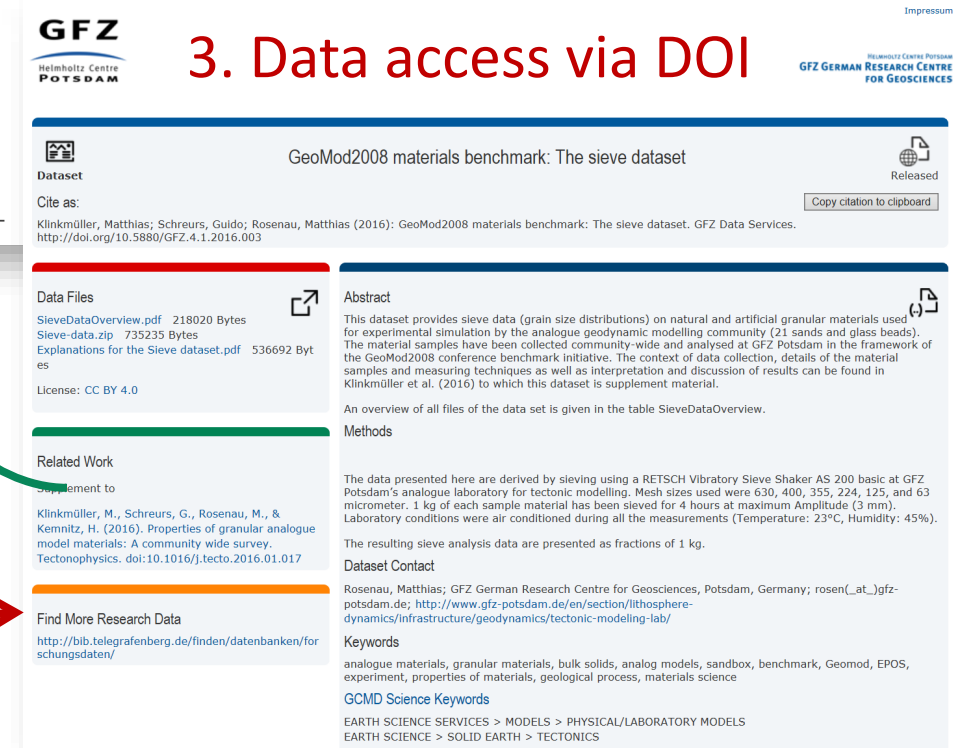
References

- 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

Persistent Identifier (PID) in data and code publications



for data, software,
cross-references to
related work

<https://doi.org/10.5880/fidgeo.2021.049> (Data)



PID for physical samples,
cross references to
samples underlying
measurements

<https://igsn.org/GFFJH00AD> (Rock sample)



uniquely identifying
persons

<https://orcid.org/0000-0001-5140-8602> (Kirsten Elger)



List of funders with DOIs

<http://doi.org/10.13039/501100001659> (DFG)



New PID for Institutions

<https://ror.org/04z8jg394> (GFZ)

→ PIDs ARE RESOLVABLE AND MACHINE-ACTIONABLE

PIDs and the provenance of research outcome

data

Table S3. Sierra Nevada analyses of plant samples			Element concentrations (µg/g)					
sample ID	IGSN	brief sample description	Al	Fe	Mn	Mg	Ca	
Table SN1. Sierra Nevada analyses of soil, saprolite, rock, bedload sediment and			Major element oxides (wt%) (continued)					
sample ID	IGSN	sample type	XRF lab	depth (cm)	SiO ₂	TiO ₂	Al ₂ O ₃	Fe ₂ O ₃
MW1								
MW2								
MW3								
MW4								
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
SN04	* 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	15.3	6.95



papers



sample

Sample description


Data publication

PIDs connect everything → FAIR



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, ...
- Online metadata editor
- Data description templates
- Data curation by domain scientists
- Partner of: 



<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

DOI Landing Page

title citation

download data

key paper

related work

DOI Landing Pages:
central access
points for data and
their description

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: <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

Dataset Description
Supplement to
Lipus, M. P., Reinsch, T., Weisenberger, T. B., Kragset, S., Stefánsson, A., & Bogason, S. G. (2021). Monitoring of a reverse cement job in a high-temperature geothermal environment. *Geothermal Energy*, 9(1), 5. <https://doi.org/10.1186/s40517-021-00187-y>

Related Work
References
Eggertsson, G. H., & Stefánsson, A. (2020). *Temperature and pressure data from permanently installed sensors behind production casing in well RN-15/DEEPEGS/IDDP-2, Iceland* [Data set]. GFZ Data Services. <https://doi.org/10.5880/GFZ.4.8.20.20.004>

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/control-
led vocabularies

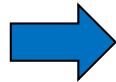
XML metadata

spatial coverage

Tool for metadata generation: GFZ Metadata Editor

Input:

provided by researchers



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

- 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: 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):**

Lastname	Firstname	Role	Author ID Type	Author Identifi...	Affiliation	Affiliation2	Affiliation3
Falchi	Fabio		ORCID	0000-0002-3706-...	ISTIL - Istituto di...		
Cinzano	Pierantonio				ISTIL - Istituto di...		
Duriscoe	Dan				National Park S...		
Kyba	Christopher C. M.		ORCID	0000-0001-7014-...	GFZ German Re...		
Ehidge	Christopher D.		ORCID	0000-0003-0584-...	Earth Observatio...		
Baugh	Kimberly		ORCID	0000-0002-3548-...	Cooperative Insti...		
Portnov	Boris		ORCID	0000-0003-1537-...	Department of N...		
Rybnikova	Nataliya A.		ORCID	0000-0002-3135-...	Department of N...		
Furgoni	Riccardo				ISTIL - Istituto di...		
- 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...
- Interactive Map:** A map showing a selected region in Central Europe, with labels for countries like Deutschland, Polen, Österreich, etc.

„Special“ Features:

- Interactive map
- Searchable vocabulary lists

Output:

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



DOI Landing Pages



Data Catalogue



Standardised API



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

Tool for data documentation: 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://gfzpublic.gfz-potsdam.de/pubman/item/item_5007103

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

Special Features: „Data in Review“ Links

- Link: <https://dataservices.gfz-potsdam.de/panmetaworks/review/9c5de649b6b30c588f9fecad56a1c71dd56d1fb4f68ada89b9340002ff84abb7/>
- 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



JOURNAL REQUIREMENTS

GFZ DATA SERVICES
GEOSCIENCES DATA PUBLISHER

Dataset Chemical (EPMA) and boron isotope (SIMS) analyses on tourmaline breccias from the Río Blanco-Los Bronces porphyry copper district, Chile Released

Status
IN REVIEW: Hohf, Michael; Trumbull, Robert (2022): Chemical (EPMA) and boron isotope (SIMS) analyses on tourmaline breccias from the Río Blanco-Los Bronces porphyry copper district, Chile. GFZ Data Services. <https://doi.org/10.5880/GFZ.3.1.2022.002>

Files 
[Download data and description](#)
License: CC BY 4.0

Abstract 
Tourmaline-cemented magmatic-hydrothermal breccias are a major host to sulphide mineralization in the supergiant Río Blanco-Los Bronces (RB-LB) porphyry Cu-Mo district in central Chile. We made an extensive study of the chemical and boron isotopic composition of tourmaline from this district to shed light on the composition and origin of mineralizing fluids and to test the utility of tourmaline as an indicator mineral by comparing compositions from mineralized and barren breccias. Río Blanco-Los Bronces is a world-class porphyry-type Cu-Mo district of late Miocene age hosted in a granodioritic batholith and related porphyry intrusions in central Chile (33°9' S latitude, 70°17'W longitude). The porphyry intrusions and related orebodies are distributed along a structurally-controlled NW-SE zone. Mineralization comprises quartz-sulfide veins, disseminated sulfide mineralization in altered porphyry host rocks and disseminated sulfides in hydrothermal breccias. See Toro et al. (2012) for an overview of the geology, geochronology and mineralization in the district. Descriptions of the mineralized tourmaline breccias are given by Frikken et al. (2005) and Skewes et al. (2003). The data set provided here comprises in-situ chemical analyses of tourmaline by electron microprobe (EPMA) as well as in-situ boron-isotope analyses of tourmaline in the same samples by SIMS. Tourmaline was analysed in 12 samples including 8 from mineralized breccia bodies (Sur-Sur: 4, La Americana: 4), and 2 samples each from barren breccia and nearby granite-hosted tourmaline nodules in the Diamante area.

Related Work
Cites
Catanzaro, E.J., Champion, C.E., Garner E. L., Marienko, O., Sappenfield, K.M., and Shields, W.R., 1970, Boric acid: isotopic and assay standard reference materials: US NBS Special Publication 216-17, 70pp. <https://nvlpubs.nist.gov/nistpubs/Legacy/SP/nbsspecialpublication260-17.pdf>
Dyar, M. D., Wiedenbeck, M., Robertson, D.,

Additional Information
Table 1 – List of all chemical analyses of tourmaline (MS Excel) Table 2 – Summary of tourmaline electron microprobe (MS Excel) Table 3 – List of all SIMS boron isotope analyses of tourmaline (MS Excel)

Make Data FAIR
AGU100
Findable
Accessible
Interoperable
Reusable

Data Journals

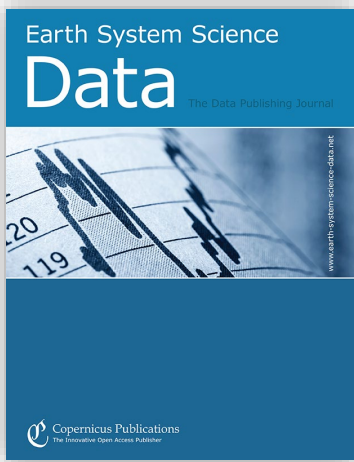


“An ESSD ‘product’ consists of a detailed description published in ESSD, linked to a dataset archived by a reliable data repository.”

Expectations on ESSD data papers

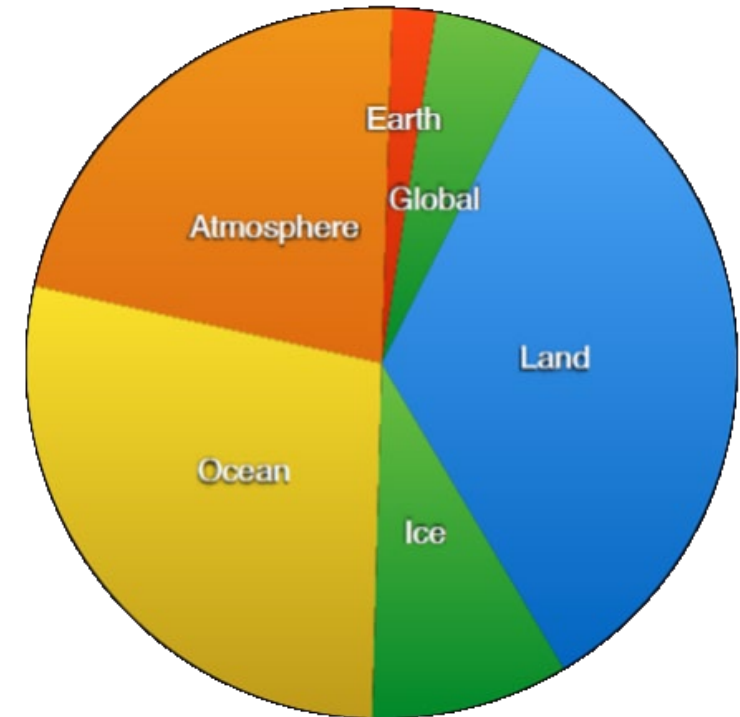
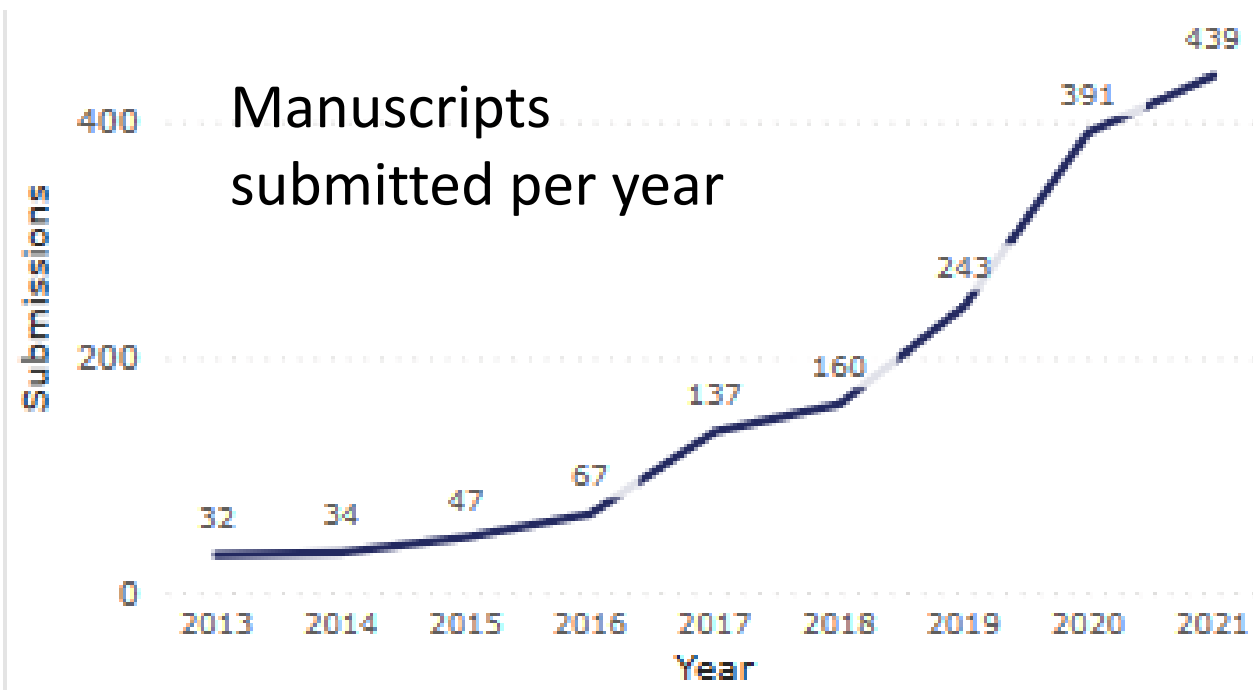


- Peer-reviewed descriptions of data sets, data products, data compilations since 2009
- Open Access, public peer review
- Data are included in the review (no barriers allowed)
- Quality assessment of the data described
- No interpretation of the data!



ESSD - some statistics (May 2022)

1780 submissions and 1051 manuscripts published in total



Read more about the ESSD story in our preprint: <https://doi.org/10.31219/osf.io/cq9rz>

Thank you for your attention!

Contact: kirsten.elger@gfz-potsdam.de

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

The screenshot shows the homepage of the GFZ Data Services website. At the top, there is a blue header with the text "GFZ Data Services" and the GFZ logo (Helmholtz Zentrum Potsdam). Below the header is a navigation menu with links for Home, Find, Publish Data, Support, and About Us. The main content area features a "Welcome to GFZ Data Services" message, followed by a brief description of the service as a research data repository. A search bar is present with the placeholder text "Search for datacenters, science keywords" and a "SUBMIT METADATA" button. Below the search bar is a large hexagonal grid of images representing various scientific fields. At the bottom, there are three columns of links: "Services" (Portal / Data Catalogue, Data Centres, GFZ Metadata Editor), "Guides (for download)" (Data Description Templates, Publication Instructions, Quick Start Guide for Data Publications, File Instructions, Metadata Editor HowTo?, Metadata Field Definitions), and "External Links to our data" (EPOS MSL Portal, B2Find (EUDAT), DataCite Search, DataCite Commons, ScholeXplorer (OpenAIRE), Google Dataset Search).

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

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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

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End of moratorium: /2017-03-01

(R) Restricted data

The screenshot displays the ICDP Data Portal interface for the COSC-1 operational report. At the top, it features the ICDP and GFZ logos. The main content area is titled 'COSC-1 operational report - Operational data sets' and includes a 'Released' status. A 'Data Files' section lists various data types with their sizes, such as 'All Data' (2427 Bytes) and 'Core Runs' (85575 Bytes). A 'Data Description' section provides a detailed overview of the project, mentioning the collisional orogeny in the Scandinavian Caledonides. A 'Related Work' section lists other publications. A 'References' section includes the IGSN identifiers for the data sets. A map of the study area in Sweden is shown at the bottom right.

DOIs for Software

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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 seimology, V. 0.4.0, GFZ Data Services. http://GFZ.5.1.2018.001

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

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Contact

Link to CRAN

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documentation

paper

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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](#), [fftw](#), [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 at gfz-potsdam.de>
License: [GPL-3](#)
NeedsCompilation: yes
SystemRequirements: giptools datasetselect
Materials: [NEWS](#)
CRAN checks: [eseis results](#)

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

coffeemugger LazyData = TRUE issue included for example data Latest commit b4a4715 on 17 Dec 2019

File	Description	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