

FAIR and Open Research Data Practices in the Earth Sciences

Dr. Andreas Hübner | University Library

Geo-colloquium | 17 July 2025

The FAIR principles



- 15 principles
- to guide the actions of data publishers, data stewards and researchers
- the 'FAIR Guiding Principles for scientific data management and stewardship' were published 2016 in *Scientific Data*.
<https://doi.org/10.1038/sdata.2016.18>

The FAIR principles

To be **F**indable

- F1. (meta)data are assigned a globally unique and eternally persistent identifier.
- F2. data are described with rich metadata.
- F3. (meta)data are registered or indexed in a searchable resource.
- F4. metadata specify the data identifier.

To be **A**ccessible

- A1 (meta)data are retrievable by their identifier using a standardized communications protocol.
- A1.1 the protocol is open, free, and universally implementable.
- A1.2 the protocol allows for an authentication and authorization procedure, where necessary.
- A2 metadata are accessible, even when the data are no longer available.

To be **I**nteroperable

- I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
- I2. (meta)data use vocabularies that follow FAIR principles.
- I3. (meta)data include qualified references to other (meta)data.

To be **R**e-usable

- R1. meta(data) have a plurality of accurate and relevant attributes.
- R1.1. (meta)data are released with a clear and accessible data usage license.
- R1.2. (meta)data are associated with their provenance.
- R1.3. (meta)data meet domain-relevant community standards.

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The greatest potential for re-use comes when data are both FAIR and Open

**Findable
Accessible
Interoperable
Re-usable**

**FAIR
+
Open**

**Data should be as
open as possible,
as closed as
necessary**

FAIR and Open Research Data Practices

1. Deposit research outputs (e.g., data, software, physical sample information, etc.) in trustworthy, community-accepted, FAIR-aligned repositories.
2. Describe your data completely.
3. License your data to be as open as possible.
4. Cite data, software, physical samples, and other products created or reused for your research in your publications.
5. Include a data availability statement in your publication to make it clear where the data can be accessed.
6. Develop and implement data management plans.

Supplementary material vs. data repository



Supplementary material of a journal article.



Independent publication in a **data repository**.

Supplementary material vs. data repository



Supplementary material of a journal article.

- has usually no own ID (e.g., DOI), can not be found or cited independently of the article.
- Access to the data may be restricted by the terms of use of the journal.
- Often as PDF with limited re-use options.



Independent publication in a **data repository**.

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- Access to the data may be restricted by the terms of use of the journal.
- Often as PDF with limited re-use options.



Independent publication in a **data repository**.

- Data set is findable and independently citable.
- Author(s) can decide on open licence.
- Data publication adds to the publication list of authors.
- File formats variable and often better for re-use.

Data, software, physical sample information in repositories

More than
3300
data repositories

re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES

<https://www.re3data.org/>

Data publisher



<https://www.pangaea.de/>

GFZ Data Services

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



<https://www.wdc-climate.de>

Data tables

Data curation checklist (in Python and R)

helps you to check and resolve some common problems and issues with data tables, before submitting them to a data repository like PANGAEA.

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Data structure

- One cell = one entry
- Columns = Variable/Parameters
- Rows = Single observation
- Single header row
- No mix of numeric values and strings

Data types

- Are data types as expected?

Numeric data

- Columns must contain numbers only
- Fields without data should be left empty

Date formatting

- Date/Time in the ISO-format (UTC)

Convert from degrees to decimal format

- decimal degree, projection WGS84

Spell out abbreviations

Correct species names

Parameter (header) naming

Convert units

URLs

Events

Software

You can use third-party tools to cite and reference content on GitHub.

<https://docs.github.com/en/repositories/archiving-a-github-repository/referencing-and-citing-content>

zenodo Search Upload Communities sstall@agu.org

December 3, 2019 **Software** **Open Access**

kvos/CoastSat: CoastSat v1.0.1

Kilian Vos; Kristen Splinter; Chris Leaman; ianItturner

CoastSat is an open-source software toolkit written in Python that enables users to obtain time-series of shoreline position at any coastline worldwide from 30+ years (and growing) of publicly available satellite imagery. There are three main functionalities:

- assisted retrieval from Google Earth Engine of all available satellite images spanning the user-defined region of interest and time period
- automated extraction of shorelines from all the selected images using a sub-pixel resolution technique
- intersection of the 2D shorelines with user-defined shore-normal transect

Changes from previous release

- new functions to label images and train your own image classifier

Preview

CoastSat-v1.0.1.zip

kvos-CoastSat-fbea537

- .gitignore 94 Bytes
- LICENSE 35.1 kB
- README.md 17.8 kB
- classification
- models

153 views 29 downloads See more details...

Available in **GitHub**

Indexed in **OpenAIRE**

Publication date: December 3, 2019

Kilian Vos, Kristen Splinter, Chris Leaman, & ianItturner. (2019, December 3). kvos/CoastSat: CoastSat v1.0.1 (Version v1.0.1). Zenodo. <http://doi.org/10.5281/zenodo.3560436>

Physical sample information



International Generic
Sample Number (IGSN)

GFZ Data Services offers an
IGSN Registration Service.

General Identifiers

Project:	GEOFERN Expedition 7002
Campaign:	N/A
Type:	Individual Sample
Name:	7002_1_A_002_1_WR_50-52
IGSN:	GFBNO7002EXZ0001 (Open)
Parent IGSN:	GFBNO7002ECAG101
Request:	GEOFERN_5_JG
Request by:	Julia Gravendyck
Purpose:	Palynological Study
Release Date:	N/A

Sampling Location

Latitude:	N/A
Longitude:	N/A
Coordinate System:	N/A
Elevation:	N/A
Location Type:	N/A
Location Name:	N/A
Location Description:	N/A
Country:	Germany
Province:	N/A
County:	N/A
City:	Berlin

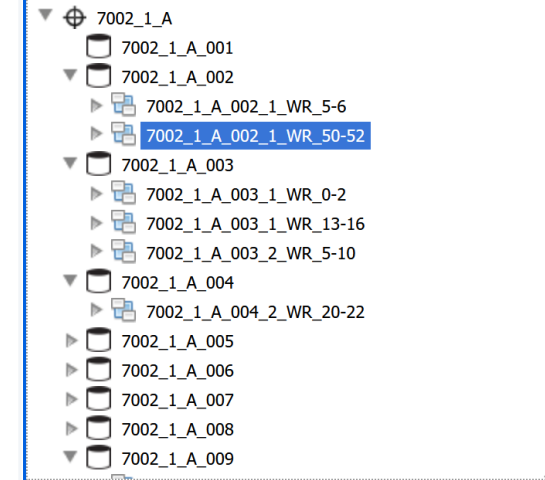
Acquisition

Material:	Rock
Rock Classification:	N/A
Collection Method:	
Funding Agency:	
Comments:	N/A
Chief Scientist:	Norden, Ben
Start Date:	2022-01-13
End Date:	2022-01-13

Repositories

Current Repository:	BGR
Current Repository Contact:	Tina.Kollaske@bgr.de
Original Repository:	BGR
Original Repository Contact:	Tina.Kollaske@bgr.de

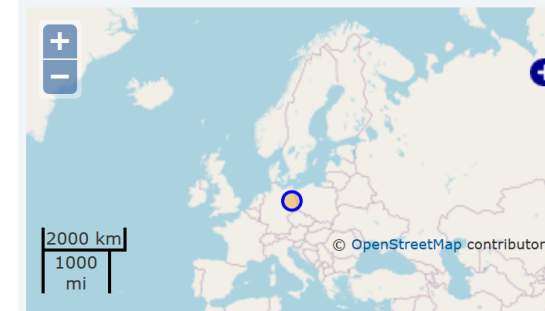
Sample Family



= Specimen

The Sample Family shows a sub-sampling graph. Select entries to navigate samples.

Location Map



Drilling Start/End: 2021-11-15 07:30+01:00 /
2021-12-09 11:30+01:00 *
Latitude: 52.42710 * Longitude: 13.52862 *

<https://dataservices.gfz-potsdam.de/igsngfz/index.php?igsngfz=GFBNO7002EHG0001>

Sample Family

- ▼ ⊕ 7002_1_A
 - 7002_1_A_001
 - ▼ 7002_1_A_002
 - ▶ 7002_1_A_002_1_WR_5-6
 - ▶ 7002_1_A_002_1_WR_50-52
 - ▼ 7002_1_A_003
 - ▶ 7002_1_A_003_1_WR_0-2
 - ▶ 7002_1_A_003_1_WR_13-16
 - ▶ 7002_1_A_003_2_WR_5-10
 - ▼ 7002_1_A_004
 - ▶ 7002_1_A_004_2_WR_20-22
 - ▶ 7002_1_A_005
 - ▶ 7002_1_A_006
 - ▶ 7002_1_A_007
 - ▶ 7002_1_A_008
 - ▼ 7002_1_A_009

Hole

Core

Individual sample

 = Specimen

The Sample Family shows a sub-sampling graph. Select entries to navigate samples.

<https://dataservices.gfz-potsdam.de/igsn/igsngfz/index.php?igsn=GFBNO7002EHG0001>

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4. Cite data, software, physical samples, and other products created or reused for your research in your publications.
5. Include a data availability statement in your publication to make it clear where the data can be accessed.
6. Develop and implement data management plans.

Describe your data completely



Ensuring that data is
„independently understandable“
is crucial.



Dataset

3D-URG: 3D gravity constrained structural model of the Upper Rhine Graben



Released

Cite as:

Freymark, Jessica; Bott, Judith; Scheck-Wenderoth, Magdalena; Bär, Kristian; Stiller, Manfred; Fritsche, Johann-Gerhard; Kracht, Matthias; Gomez Dacal, Maria Laura (2020): 3D-URG: 3D gravity constrained structural model of the Upper Rhine Graben. GFZ Data Services. <https://doi.org/10.5880/GFZ.4.5.2020.004>

[Copy citation to clipboard](#)

Files

[Download data \(zip, 37.3 MB\)](#)

[Data description](#)

License: CC BY 4.0



Abstract

We provide a set of grid files that collectively allow recreating a 3D geological model which covers the Upper Rhine Graben and its adjacent tectonic domains, such as portions of the Swiss Alps, the Black Forest, the Black Forest and Vosges Mountains, the Rhenish Massif and the Lower Rhine Graben. This publication is a complement to the publication of Freymark et al. (2017).

Accordingly, the provided structural model consists of (i) 14 sedimentary and volcanic units, (ii) a crystalline crust composed of seven upper crustal units and a lower crustal unit; and (iii) 14 tectonic units. The files provided here include information on the regional variation of the units in terms of their depth and thickness, both attributes being allocated to regularly spaced grids with a horizontal spacing of 1 km.

The model has originally been developed to obtain a basis for numerical simulations of heat and fluid flow in the lithosphere to calculate the lithospheric-scale conductive thermal field and assess the related geothermal potential (e.g., in particular for the Upper Rhine Graben (a region especially well-suited for geothermal energy exploitation)). Since such simulations require the subsurface variation of physical rock properties to be defined, the 3D model differentiates units of contrasting materials, i.e. rock types. On that account, a large number of geological and geophysical data have been analysed (see Related Work) and we shortly describe here how they have been integrated into a consistent 3D model (Methods). For further information on the data usage and the characteristics of the units (e.g., lithology, density, thermal properties), the reader is referred to the original article (Freymark et al., 2017). The contents and structure of the grid files provided here-with are described in the Technical Info section.

Additional Information

We acknowledge Landesamt für Geologie, Rohstoffe und Bergbau (LGRB; Baden-Wuerttemberg) for kindly allocating the digital datasets of the GeORG model and the geological 3D model of Baden-Wuerttemberg.

Methods

The presented 3D structural model is the result of an extensive data integration process. In a first step, we visualized and collectively analysed geological maps, smaller-scale 3D structural models, depth and thickness maps, drilled formation tops and interpreted seismic horizons (See Related Works) using the software Petrel (©Schlumberger). After identifying the main lithological units to be differentiated by the intended 3D model and correcting for inconsistencies between the layers, the scattered information on the top surface elevation of the units was interpolated to obtain regular grids with a horizontal element spacing of 1 km (Convergent Interpolation algorithm of Petrel). More details about the original datasets (e.g., their regional extents, sources etc.) used to model the topology of the structural horizons are listed in the Supplementary Material 1 of Freymark et al. (2017).

In order to mitigate insufficient coverage of the region with deep seismic profiles revealing the internal structure of the sub-sedimentary crystalline crust, we have performed 3D gravity modelling, in particular

file

link

abstract

Please provide tabular data as tab separated text. When using a standard community format, if possible please cite it.

4.1. File inventory

Description of the provided files and folder structure (see Figure 1). For complex folder structures we recommend a tabular form that may be provided in this data description file or as separate pdf table e.g. (Figure 2)

2. File inventory

Explanation of folder structure from rotary shear experiment Project (phases 1A and 1B). The zip-file contains the Appendix of this document (Table 1-Niemciuk). Each folder contains 5 convention: the letter

- **datasheet.pdf** on the project
- **u101AF_300** headers and the columns
- **u101AF_30** data processed github [https://github.com/](#)

Figure 1: Example for a file inventory table

File Name	Folder Name
script1	u101AF_300
script2	u101AF_300
script3	u101AF_300
script4	u101AF_300
script5	u101AF_300
script6	u101AF_300
script7	u101AF_300
script8	u101AF_300
script9	u101AF_300
script10	u101AF_300
script11	u101AF_300
script12	u101AF_300
script13	u101AF_300
script14	u101AF_300
script15	u101AF_300
script16	u101AF_300
script17	u101AF_300
script18	u101AF_300
script19	u101AF_300
script20	u101AF_300
script21	u101AF_300
script22	u101AF_300
script23	u101AF_300
script24	u101AF_300
script25	u101AF_300
script26	u101AF_300
script27	u101AF_300
script28	u101AF_300
script29	u101AF_300
script30	u101AF_300
script31	u101AF_300
script32	u101AF_300
script33	u101AF_300
script34	u101AF_300
script35	u101AF_300
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script38	u101AF_300
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script40	u101AF_300
script41	u101AF_300
script42	u101AF_300
script43	u101AF_300
script44	u101AF_300
script45	u101AF_300
script46	u101AF_300
script47	u101AF_300
script48	u101AF_300
script49	u101AF_300
script50	u101AF_300
script51	u101AF_300
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script57	u101AF_300
script58	u101AF_300
script59	u101AF_300
script60	u101AF_300
script61	u101AF_300
script62	u101AF_300
script63	u101AF_300
script64	u101AF_300
script65	u101AF_300
script66	u101AF_300
script67	u101AF_300
script68	u101AF_300
script69	u101AF_300
script70	u101AF_300
script71	u101AF_300
script72	u101AF_300
script73	u101AF_300
script74	u101AF_300
script75	u101AF_300
script76	u101AF_300
script77	u101AF_300
script78	u101AF_300
script79	u101AF_300
script80	u101AF_300
script81	u101AF_300
script82	u101AF_300
script83	u101AF_300
script84	u101AF_300
script85	u101AF_300
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script87	u101AF_300
script88	u101AF_300
script89	u101AF_300
script90	u101AF_300
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script93	u101AF_300
script94	u101AF_300
script95	u101AF_300
script96	u101AF_300
script97	u101AF_300
script98	u101AF_300
script99	u101AF_300
script100	u101AF_300

Figure 2: Example for a file inventory table

This document will accompany your data as a PDF description.

Descriptive Title of Dataset

(<https://doi.org/will be provided>)

Provide a descriptive title that addresses the content of the dataset. Titles like "Supplement to: title of the paper" are not recommended.

Author-1¹, Author-2² ...

1. Affiliation1, City, Country
2. Affiliation2, City, Country

1. Licence

Creative Commons Attribution 4.0 International License (CC BY 4.0)



2. Citation

When using the data please cite:

Derrien, Allan (2019): Rare optical DSLR camera- and unique drone footage of the extremely remote Mount Michael Volcano, Saunders Island (South Sandwich Islands). GFZ Data Services. <http://doi.org/10.5880/figeo.2019.020>

The data are supplementary material to: (if applicable)

Enter reference with DOI to the article or URL PhD thesis here, you may also add references to more than one article. If the article is not yet published, please add a "submitted" or simply a note "citation of article XX when available". Ideally highlighted in yellow

Table of contents

(optional, recommended for more than 2 pages)

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3. Data Description

The text in the following paragraph usually also appears as the Abstract of your data publication on the GFZ Data Services landing page (e.g. <http://doi.org/10.5880/GFZ.4.3.2019.001>).

1

https://gfzpublic.gfz-potsdam.de/pubman/item/item_5007103 (2021)

template [v1.0] -- Connolly & Hueholt, Burt (2025): doi.org/10.1175/BAMS-D-24-0203.1

3. DISTRIBUTION AND MAINTENANCE

A. How was the data generated or collected (e.g., model runs, observational measurements)? Please provide a description if none exist, describe why.

Provide a description of the data generation and collection process, including any relevant information about the data source, collection method, and any relevant uncertainties.

B. What is the data? (e.g., file format, dimensionality, variables, metadata, spatiotemporal coverage). Is there important metadata in the data filenames? If so, document this here.

Provide a description of the data format, dimensionality, variables, metadata, and spatiotemporal coverage. If there is important metadata in the data filenames, document it here.

C. Is this dataset derived from a preexisting dataset? (e.g., variable[s] drawn from a modeling experiment). If so, please describe the process or link to the relevant paper.

Provide a description of the process or link to the relevant paper if the dataset is derived from a preexisting dataset.

D. What processing, if any, has been applied to this data? Is any code used to process the data available? If so, please provide a stable link or other method of access.

Provide a description of the processing applied to the data and any code used to process the data. If a stable link or other method of access is available, provide it.

E. Is any unprocessed data available? If so, please provide a stable link.

Provide a description of the unprocessed data and a stable link if available.

F. Are there relevant known technical issues (e.g., redundancies, errors, missing data)? If so, please provide a description.

Provide a description of any relevant technical issues, such as redundancies, errors, or missing data.

G. Are external resources required to access or use the dataset? If so, please describe them.

Provide a description of any external resources required to access or use the dataset.

H. Any other comments?

Provide any other relevant information about the dataset.

Datasheet for an Earth Science Dataset

Released:
Last updated:

Author One
Affiliation
email

Author Two
Affiliation
email

1. PURPOSE

A. For what purpose was the dataset created?

Motivation: Describe the reason for the creation of the dataset (e.g., to provide insight on a knowledge gap, or to carry out some specific task).

B. Who created the dataset (e.g., which individual or team), on behalf of which entity (e.g., institution or company), and under what funding (e.g., grantor[s] and grant number[s])?

Motivation: Provide clarity about the authorship and funding source of the dataset.

C. Was the author of the datasheet involved in creating the dataset? If not, please describe their relation to the dataset.

Motivation: Document the authorship of the datasheet, which may be different than the creator of the dataset.

D. What task(s) has the dataset been used for? Please provide a description and/or citation(s); if there is a repository that archives uses of the dataset, provide a link.

Motivation: Document use cases of the dataset.

E. Any other comments?

Motivation: Space for any other relevant information about the creation of the dataset.

2. STRUCTURE AND PROCESSING

This section concerns technical aspects of the dataset. If documented elsewhere, provide a brief description and stable link (permanent reference, e.g., a DOI) in the relevant question(s).

Motivation: Space for any other relevant information about the structure and processing of the dataset.

1

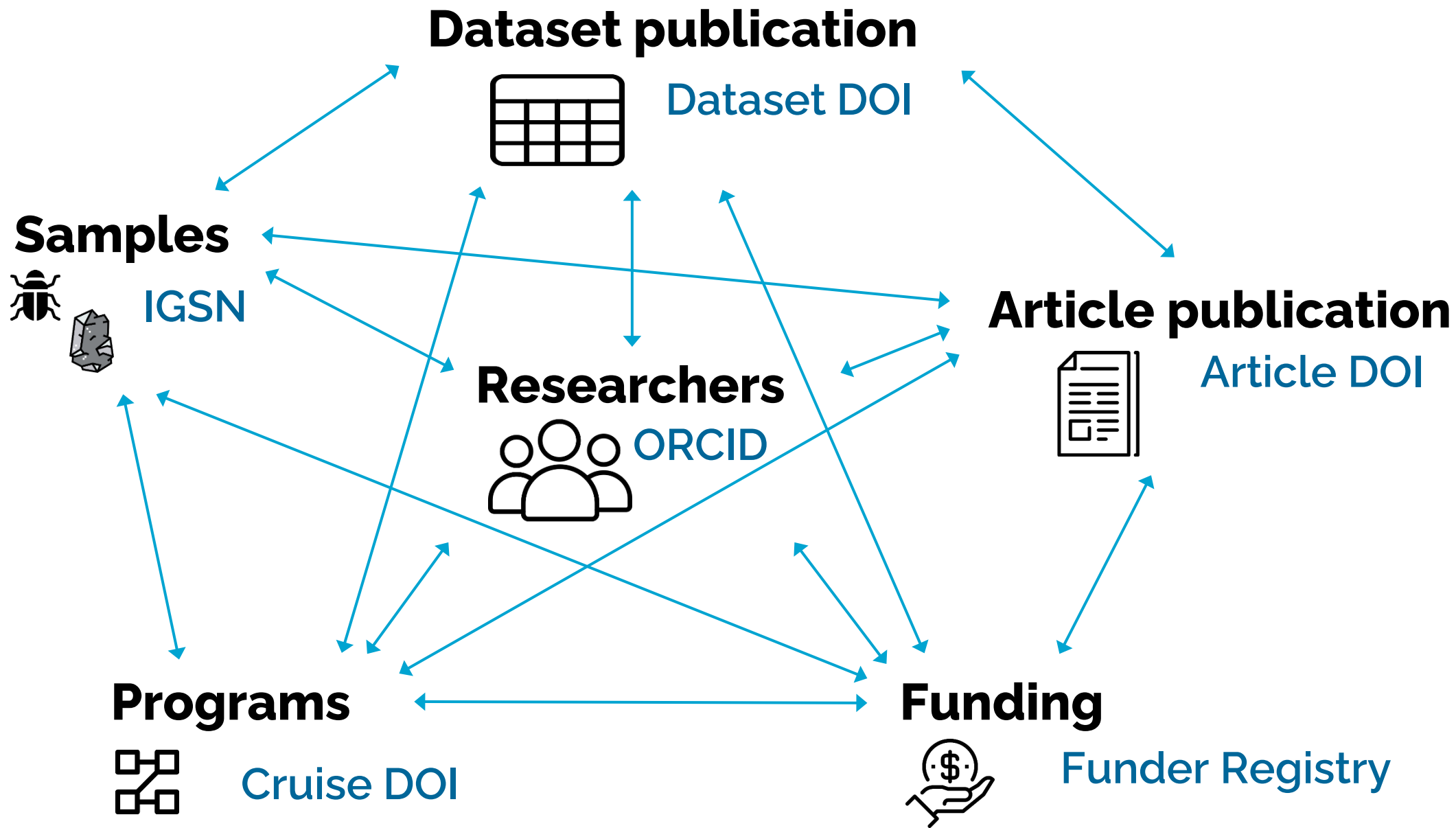
Datasheets for Earth Science Datasets (more info in the article [Datasheets for Earth Science Datasets](#), 2025).



Data Journals

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

No Interpretation!

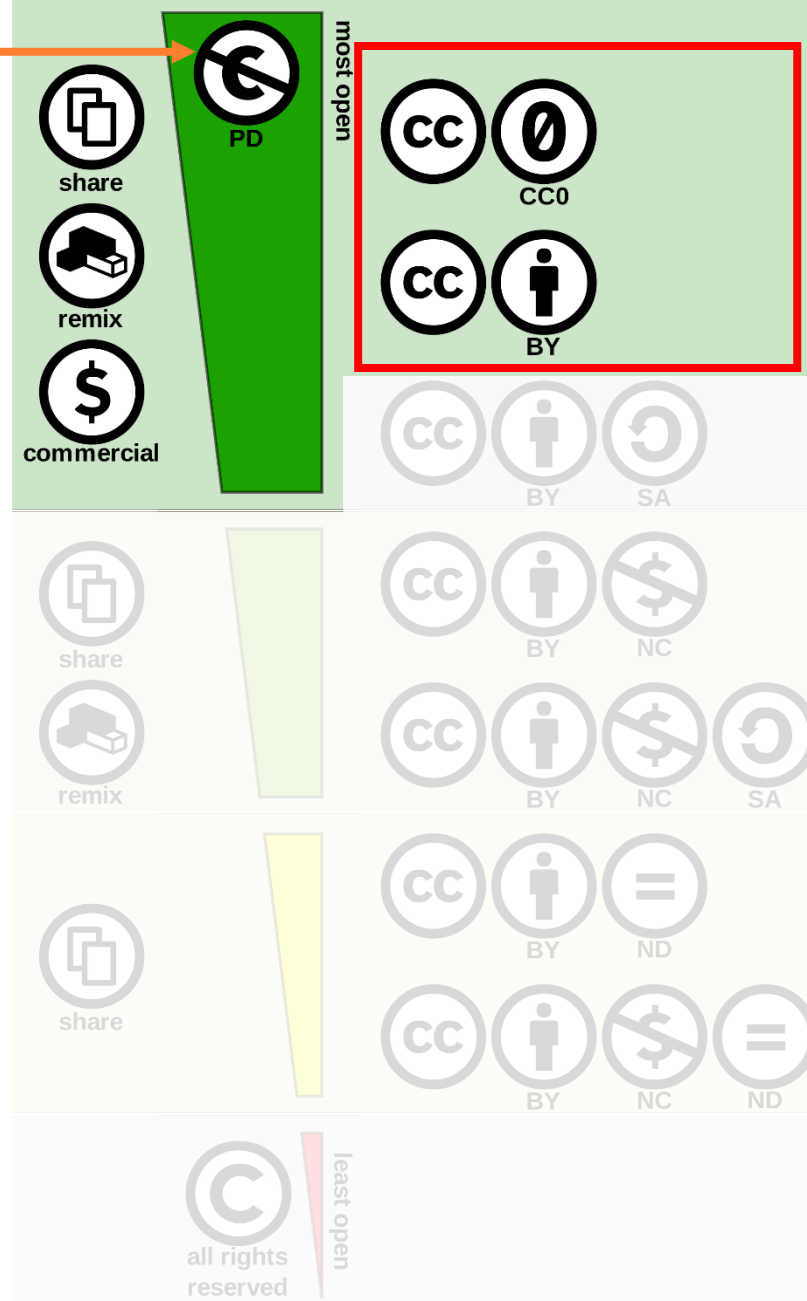


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3. License your data to be as open as possible.
4. Cite data, software, physical samples, and other products created or reused for your research in your publications.
5. Include a data availability statement in your publication to make it clear where the data can be accessed.
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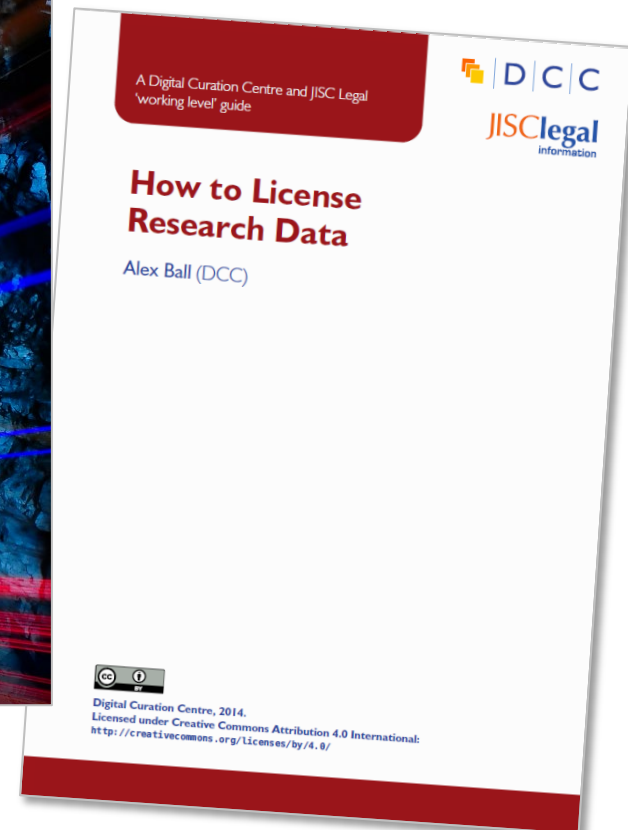
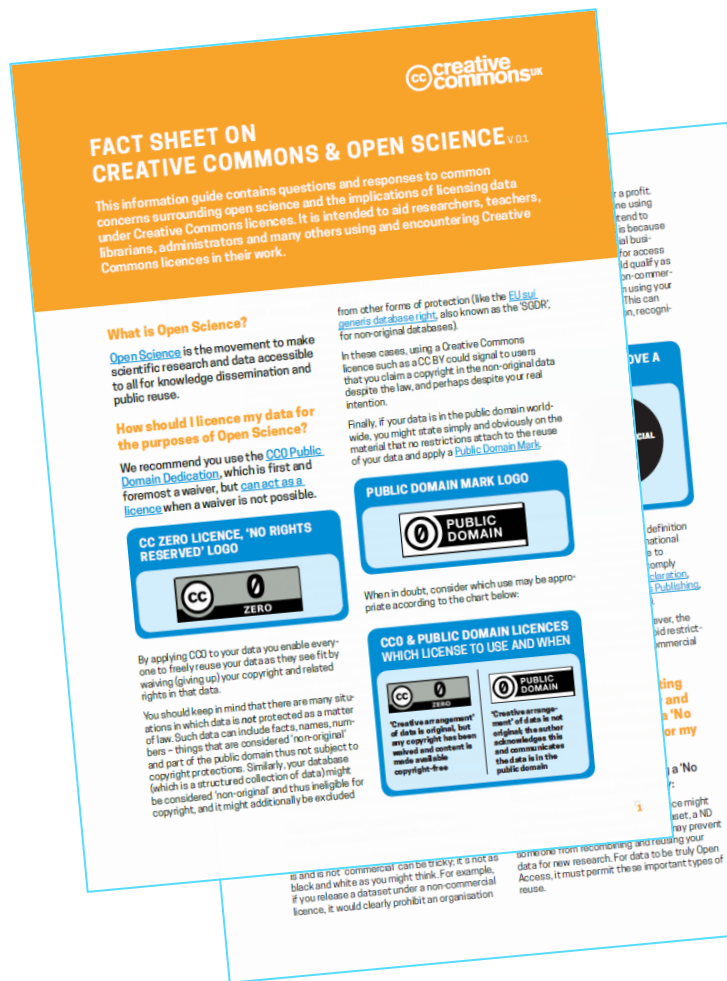
License your data to be as open as possible

... Freie Universität Berlin therefore recommends granting open licenses for use when data (including their metadata) are published, e.g., **CC0** or **CC BY** ^[21] for data, **GNU General Public License** ^[22] or **MIT License** ^[23] for source code. ...



Use CC0 and simply ask for credit (rather than require attribution), and provide a citation for the dataset that others can copy and paste with ease.

Such requests are consistent with scholarly norms for citing source materials.



Creative Commons UK. (2017). Fact Sheet on Creative Commons & Open Science. Zenodo. [10.5281/zenodo.840651](https://doi.org/10.5281/zenodo.840651)

https://rights.info/wp-content/uploads/2025/01/Open-Content_final_web.pdf

http://www.dcc.ac.uk/sites/default/files/documents/publications/reports/guides/How_To_License_Research_Data.pdf

Types of Open Source Software Licenses

Permissive Licenses

- Allows modification and sharing of the software
- Publishing source code is not required

Benefit: Simple and flexible licenses that are very compatible with other licenses

Copyleft Licenses

- Allows modification and sharing of the software
- Source code must be published
- Derivative works must be licensed under the same license than the original work
- Weak Copyleft: When modified work is incorporated in a larger software, only the derivative work must be licensed under the original license
- Strong Copyleft: Any derived work must be licensed under the original license

Benefit: Licenses ensure that derivative software remains open source

From: Riedel, C. (2024) Licensing Research Data and Software.

OSI Approved Licenses

Open source licenses are licenses that comply with the Open Source Definition – in brief, they allow software to be freely used, modified, and shared. To be approved by the Open Source Initiative (also known as the OSI) a license must go through the Open Source Initiative's [license review process](#).



SEARCH LICENSES ▾

Search for:

Search

CATEGORIES ▾

INTERNATIONAL

NON-REUSABLE

OTHER/MISCELLANEOUS

POPULAR / STRONG COMMUNITY

REDUNDANT WITH MORE POPULAR

SPECIAL PURPOSE

SUPERSEDED

UNCATEGORIZED

VOLUNTARILY RETIRED

License Name	SPDX ID	Category
1-clause BSD License	BSD-1-Clause	Other/Miscellaneous
Academic Free License v. 3.0	AFL-3.0	Redundant with more popular
Adaptive Public License 1.0	APL-1.0	Other/Miscellaneous

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Data and software citation

Standard data citation

Template

Creator (Publication Year): Title. Publisher. (resourceTypeGeneral). Identifier

Example

Hanigan, Ivan (2012): Monthly drought data for Australia 1890-2008 using the Hutchinson Drought Index. The Australian National University Australian Data Archive. (Dataset) <http://doi.org/10.4225/13/50BBFD7E6727A>

Standard software citation

Template

Creator (Publication Year): Title. Version No. Publisher. [resourceTypeGeneral]. Identifier.

Example

Xu, C., & Christoffersen, B. (2017). The Functionally-Assembled Terrestrial Ecosystem Simulator Version 1. Los Alamos National Laboratory (LANL), Los Alamos, NM (United States). [Software]. <https://doi.org/10.11578/dc.20171025.1962>

Data citation

Tectonics

RESEARCH ARTICLE

10.1029/2020TC006425

Key Points:

- Seismic reflection profiles in the

Active Fold-Thrust Belt to Foreland Transition in Northern Adria, Italy, Tracked by Seismic Reflection Profiles and GPS Offshore Data

3. Data and Methods

3.1. Seismic Reflection Profiles and Borehole Composite Logs

seismic reflection profiles from the ViDEPI project organized in a 3-D environment by Move software are available in the **GFZ Data Services Repository: <http://doi.org/10.5880/fidgeo.2020.027>** (Maffucci et al., 2020). Furthermore, we collected seismic profiles, structural geologic

Data Availability Statement

All data needed to evaluate the conclusions in the paper are present in the paper itself and/or the associated supporting information. All these data are also freely available in external repositories and previous articles. In particular, the geodetic data are available in Palano et al. (2020) (<https://doi.pangaea.de/10.1594/PANGAEA.914358>). The seismic reflection profiles organized in a 3-D Move® file/project are available in Maffucci et al. (2020) (<http://pmd.gfz-potsdam.de/panmetaworks/review/aaf30ce1d97be14e03c64b5a638334ed0c40007bc91f6029b83a149727f47c5f>). Supporting figures (Figures S1 and S2) and tables are available online (ftp://ftp.ingv.it/pub/giuseppe.pezzo/TECT_2020TC006425/). In the data repository, we make available the subsurface geophysical data set used to classify the tectonic domains of the studied CGPS stations (i.e., fold-thrust belt, proto-thrust domain, and foreland). The data set is organized into the Move® software (Midland Valley) environment, version 2016.2 and includes 60 public 2-D multichannel seismic reflection profiles deriving from the ViDEPI database (<http://www.videpi.com>). The dataset and its full description is available on the following link: <http://doi.org/10.5880/fidgeo.2020.027> (Maffucci et al., 2020); CGPS data and its full description is available on the following link: <https://doi.org/10.1594/PANGAEA.914358> (Palano et al., 2020).

GFZ DATA SERVICES
GEOSCIENCES DATA PUBLISHER

Dataset Seismic reflection profile dataset in a 3D environment of the Northern Adriatic area (Italy) Released

Cite as: Maffucci, Roberta; Petracchini, Lorenzo; Livani, Michele; Billi, Andrea; Carminati, Eugenio; Cuffaro, Marco; Petricca, Patrizio; Doglioni, Carlo (2020): Seismic reflection profile dataset in a 3D environment of the Northern Adriatic area (Italy). GFZ Data Services. <https://doi.org/10.5880/fidgeo.2020.027>

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Files

- download data (.zip, 1.2 GB)
- Data content
- Data description

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Dataset Description

Supplement to

Pezzo, G., Petracchini, L., Devoti, R., Maffucci, R., Anderlini, L., Antonucci, I., Billi, A., Carminati, E., Cicone, F., Cuffaro, M., Livani, M., Palano, M., Petricca, P., Pietrantonio, G., Riguzzi, F., Rossi, G., Sparacino, F., & Doglioni, C. (2020). Active Fold-Thrust Belt to Foreland Transition in Northern Adria, Italy, Tracked by Seismic Reflection Profiles and GPS Offshore Data. *Tectonics*, 39(11). <http://doi.org/10.1029/2020tc006425>

Abstract

This dataset contains subsurface geophysical data from the Northern Adriatic area (Italy) organized in a 3D environment. In particular, it includes 60 (2-D) multichannel seismic reflection profiles made public by the Italian Ministry of the Economic Development in the framework of the ViDEPI project (Visibility of petroleum exploration data in Italy), georeferenced and organized into the Move® software (Midland Valley) environment. The full description of the data and methods is provided in the data description file.

This collection represents the basis of a paper (Pezzo et al., 2020) devoted to the characterization of potentially active thrusts in the Northern Adriatic area, through the integration of seismic reflection profiles, offshore cGPS data from hydrocarbon platforms, and numerical modeling.

The ViDEPI project is a public database of technical documentation concerning Italian oil exploration. The documentation concerns expired mining permits and concessions dating since 1957 until today, and includes, in particular, well logs and numerous seismic profiles (available as PDF files) acquired in the different Italian commercial "Zones". The documentation and material of the ViDEPI project is freely available online at <http://www.videpi.com/>. Seismic reflection profiles reported in the present dataset comes mainly from the "A" Italian commercial zone (northern Adriatic area) which extends between the city of Venezia to the north and the city of Pesaro to the south.

This dataset consists of a regular network of inlines and crosslines, generally between 4 - 5 seconds (tw) deep, acquired by the Italian AGIP Oil Company (Azienda Generale Italiana Petroli) and processed by Western Geophysical Co.

Additional Information

This work was conducted in the framework of an agreement between Sapienza University of Rome and the Italian Ministry of Economic Development, Direzione Generale per la Sicurezza anche Ambientale delle Attività Minerarie ed Energetiche - Ufficio Nazionale Minerario per gli Idrocarburi e le Georisorse. We thank Gilberto Dialuce (General Director of DG ISSEG of the Italian Economic Development Ministry) and Franco Terlizze (former Director of DGS UNMIG of the Italian Economic Development Ministry) who designed and encouraged this agreement. The Move® software was provided by Midland Valley Exploration Ltd. to the University of Sapienza (Rome) as part of the software licensing.

Related Work

Authors

References

- Maesano, F. E., Toscani, G., Burrato, P., Mirabella, F., D'Ambrogi, C., & Basili, R. (2012). Deriving thrust fault slip rates from geological modeling: Examples from the Marche coastal and offshore contraction belt, Northern Apennines, Italy. *Marine and Petroleum Geology*, 42, 122–134. <https://doi.org/10.1016/j.marpetgeo.2012.10.008>
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- Malinverno, A., & Ryan, W. B. (1986). Extension in the Tyrrhenian Sea and shortening in the Apennines as result of arc migration driven by sinking of the lithosphere. *Tectonics*, 5(2), 227–245. <https://doi.org/10.1029/TC005i002p00227>

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5. Include a data availability statement in your publication to make it clear where the data can be accessed.
6. Develop and implement data management plans.

Data citation

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All data needed to evaluate the conclusions in the paper are present in the paper itself and/or the associated supporting information. All these data are also freely available in external repositories and previous articles. In particular, the geodetic data are available in Palano et al. (2020) (<https://doi.pangaea.de/10.1594/PANGAEA.914358>). The seismic reflection profiles organized in a 3-D Move[®] file/project are available in Maffucci et al. (2020) (<http://pmd.gfz-potsdam.de/panmetaworks/review/aaf30ce1d97be14e03c64b5a638334ed0c40007bc91f6029b83a149727f47c5f>). Supporting figures (Figures S1 and S2) and tables are available online (ftp://ftp.ingv.it/pub/giuseppe.pezzo/TECT_2020TC006425/). In the data repository, we make available the subsurface geophysical data set used to classify the tectonic domains of the studied CGPS stations (i.e., fold-thrust belt, proto-thrust domain, and foreland). The data set is organized into the Move[®] software (Midland Valley) environment, version 2016.2 and includes 60 public 2-D multichannel seismic reflection profiles deriving from the ViDEPI database (<http://www.videpi.com>). The dataset and its full description is available on the following link: <http://doi.org/10.5880/fidgeo.2020.027> (Maffucci et al., 2020); CGPS data and its full description is available on the following link: <https://doi.org/10.1594/PANGAEA.914358> (Palano et al., 2020).

<https://doi.org/10.1029/2020TC006425>

Data availability statement

Availability of data

Data openly available in a public repository that issues datasets with DOIs

Data openly available in a public repository that does not issue DOIs

Data derived from public domain resources

Embargo on data due to commercial restrictions

Data available on request due to privacy/ethical restrictions

Data subject to third party restrictions

Data available on request from the authors

Author elects to not share data

Data available in article supplementary material

Data sharing not applicable

Well done!

Acceptable

Much less acceptable

Data availability statement

“We also find an association between articles that include statements that link to data in a repository and up to 25.36% ($\pm 1.07\%$) higher citation impact on average...”

The citation advantage of linking publications
to research data (2020)
<https://doi.org/10.1371/journal.pone.0230416>

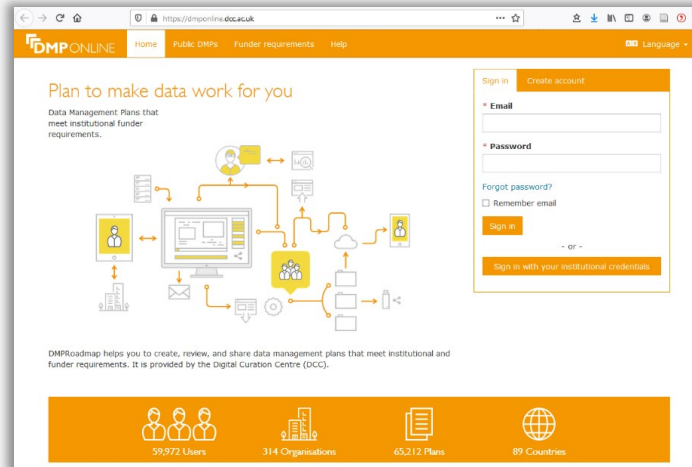
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4. Cite data, software, physical samples, and other products created or reused for your research in your publications.
5. Include a data availability statement in your publication to make it clear where the data can be accessed.
6. Develop and implement data management plans.

Data management plan

- Structured documentation of all aspects of the research data and the handling of the research data of a project.
- Encompasses the entire course of the project as well as data storage after project completion
- Tool to plan all aspects of research data management at an early stage and/or as a team

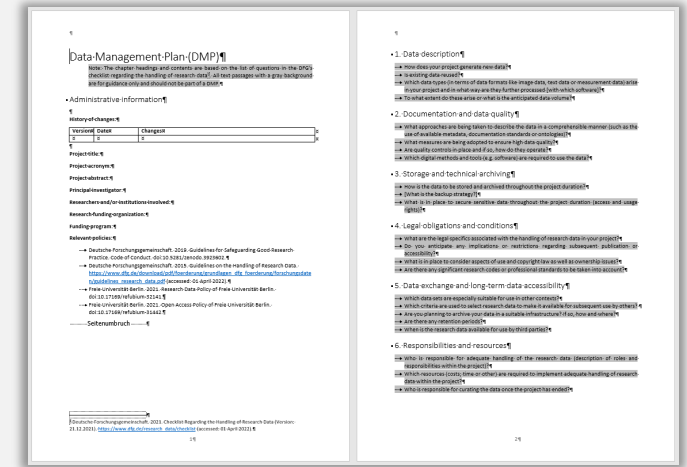
Data management plan



DMPonline



TUB-DMP



Template Freie Universität
Berlin

Data management plan

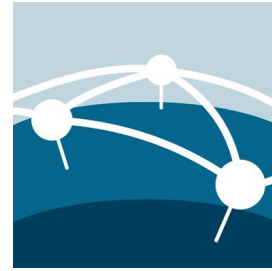
FU Resources

- Guide to Data management plans ([Link](#))
- Upcoming: workshop 'DMP step-by-step'

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NFDI4Earth Consortium. 2024. *NFDI4Earth FAIRness and Openness Commitment (NFDI4EarthDeliverable D4.2.1)*. NFDI4Earth Community on Zenodo. <https://doi.org/10.5281/zenodo.10123880>.

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We offer advise on all aspects of research data management