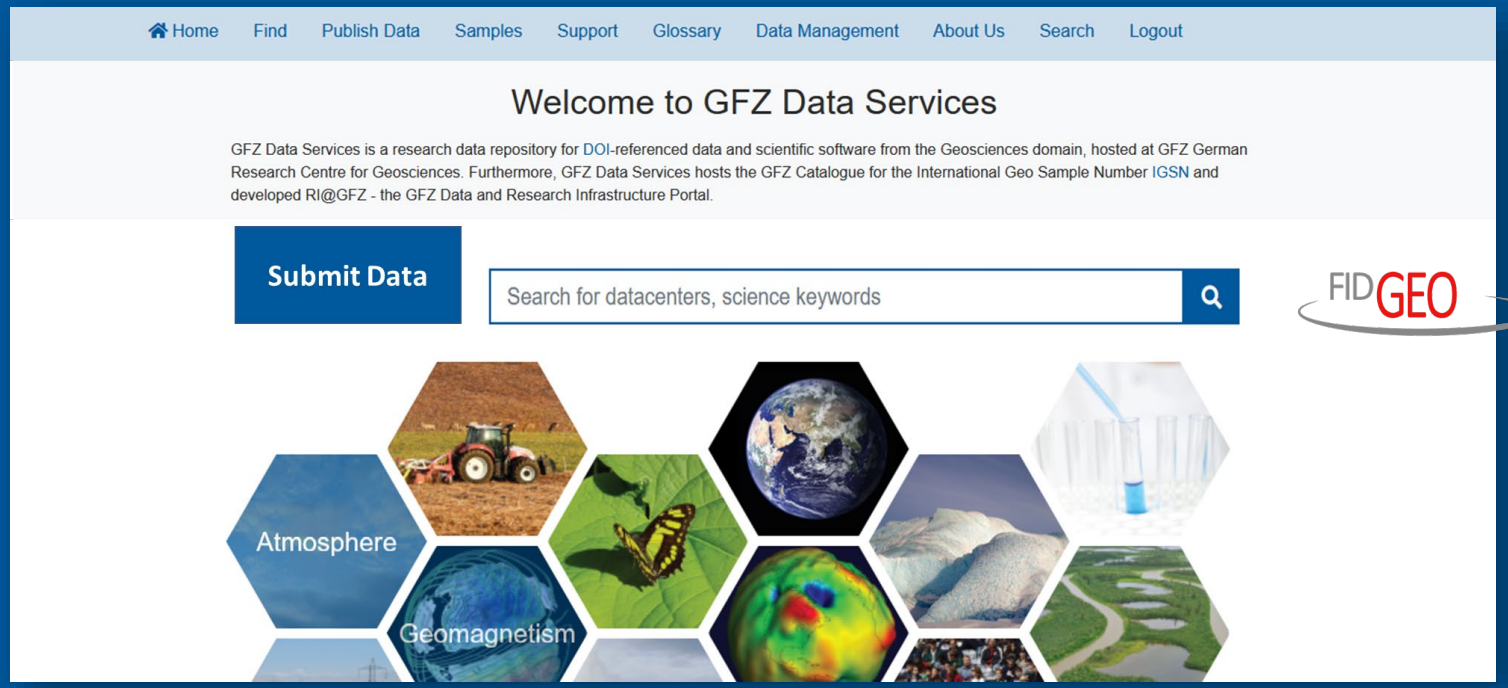
GFZ Data Services – A domain repository for geosciences data



Florian Ott, Kirsten Elger, Simone Frenzel
GFZ German Research Centre for Geosciences, Potsdam, Germany

Data Publications – best practice for FAIR sharing data

Publication of datasets as individual publications (with assigned persistent Identifier, e.g., DOI) **through domain 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)

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 curation by domain scientists**
- Partner of: FIDGEO

https://dataservices.gfz-potsdam.de

FAIR data

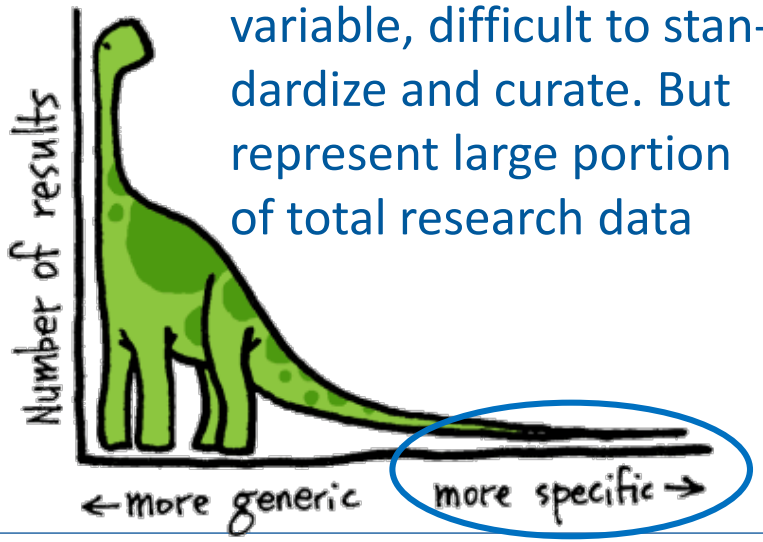
- International metadata standards (human & machine readable)
- Controlled vocabularies for „rich“ metadata
- PIDs ORCID Connecting Research and Researchers, IGSN, Crossref Funder Registry, doi, ROR in prep
- Open Licences for data and software
- OAI-PMH interface
- schema.org → Google Dataset Search

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

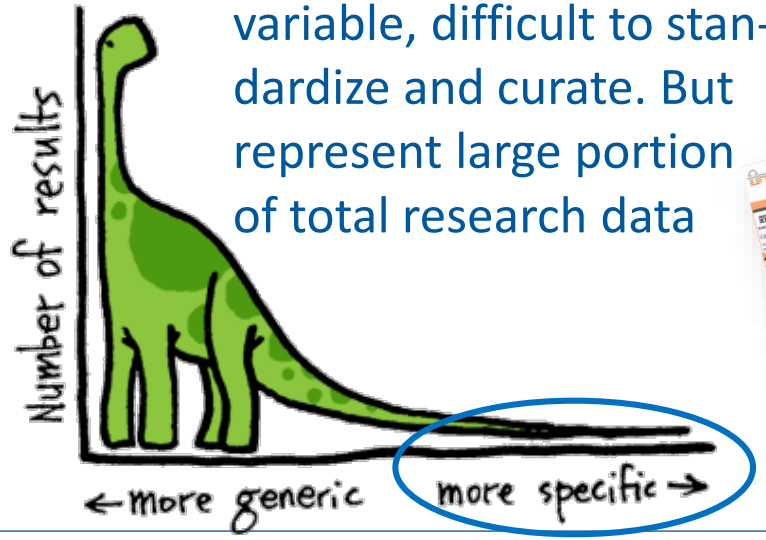


GFZ Data Services: Profile

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

What do I need for a data publication?

- Data
- Metadata

Contextual Metadata

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

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 Nordi

CITATION DES DONNÉES / DATA CITATI

CEN 2014. Données environnementale

CEN 2014. Environmental data from

SITE(S)

Nom / Name

Ellesmere Parks Canada (ELLEPAR)

83.09396

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))

Data Articles/ Reports

highly variable between the disciplines but key information for data reuse

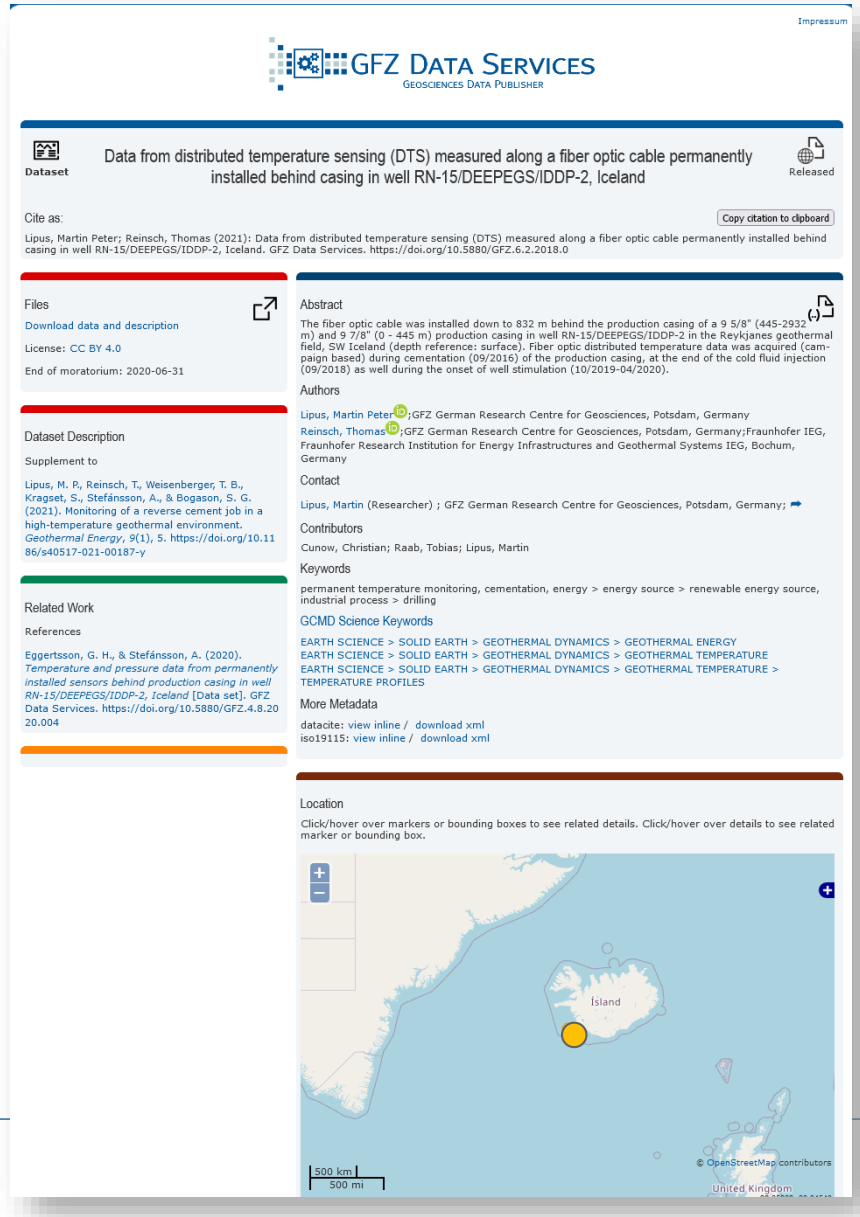
Metadata for data discovery: example DOI Landing Page

title citation

download data

key paper

related work



description/abstract

authors/ ORCID

keywords/control-led vocabularies

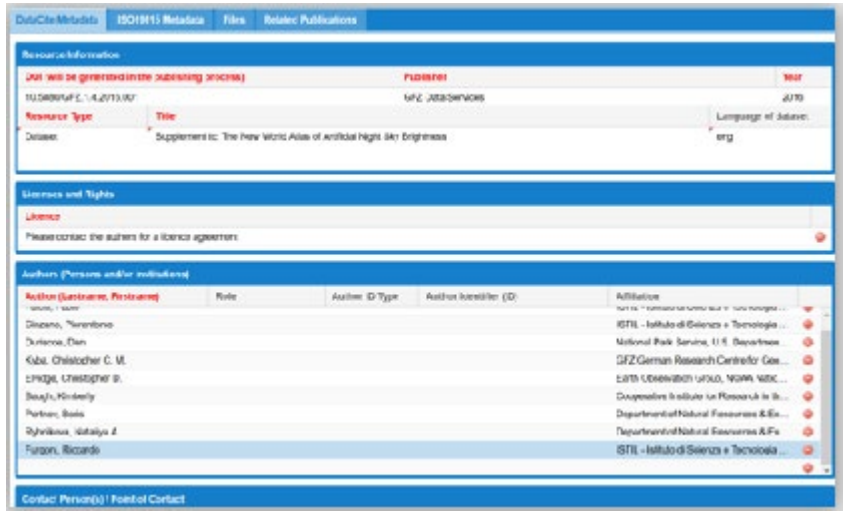
spatial coverage

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

Typical metdata standards for data discovery: **DataCite, ISO19115, Dublin Core**

Tools for data publications by GFZ Data Services

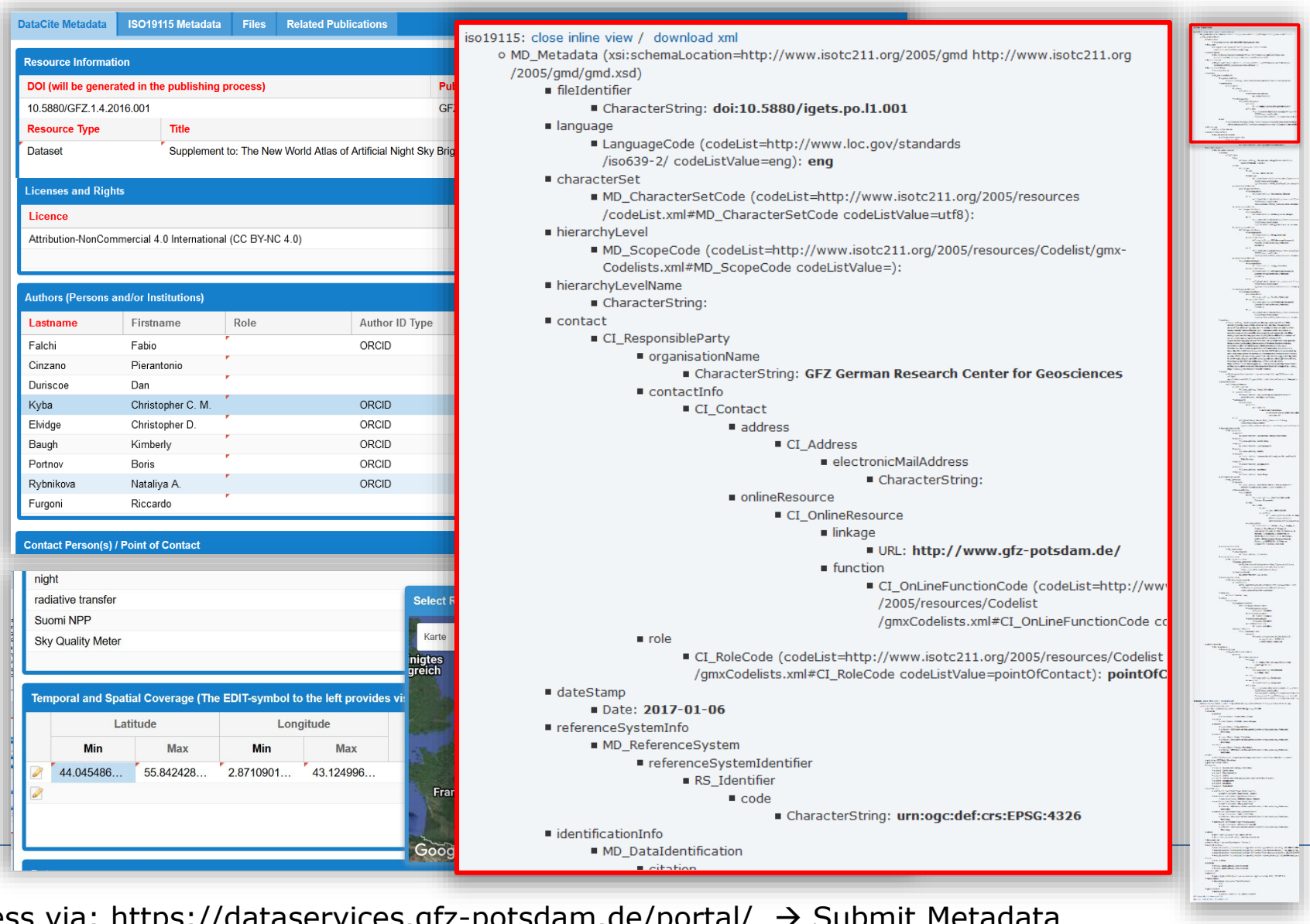
1. Discovery Metadata: via GFZ Metadata Editor



GFZ Metadata Editor (Java Script „translator“)

Input: provided by researchers

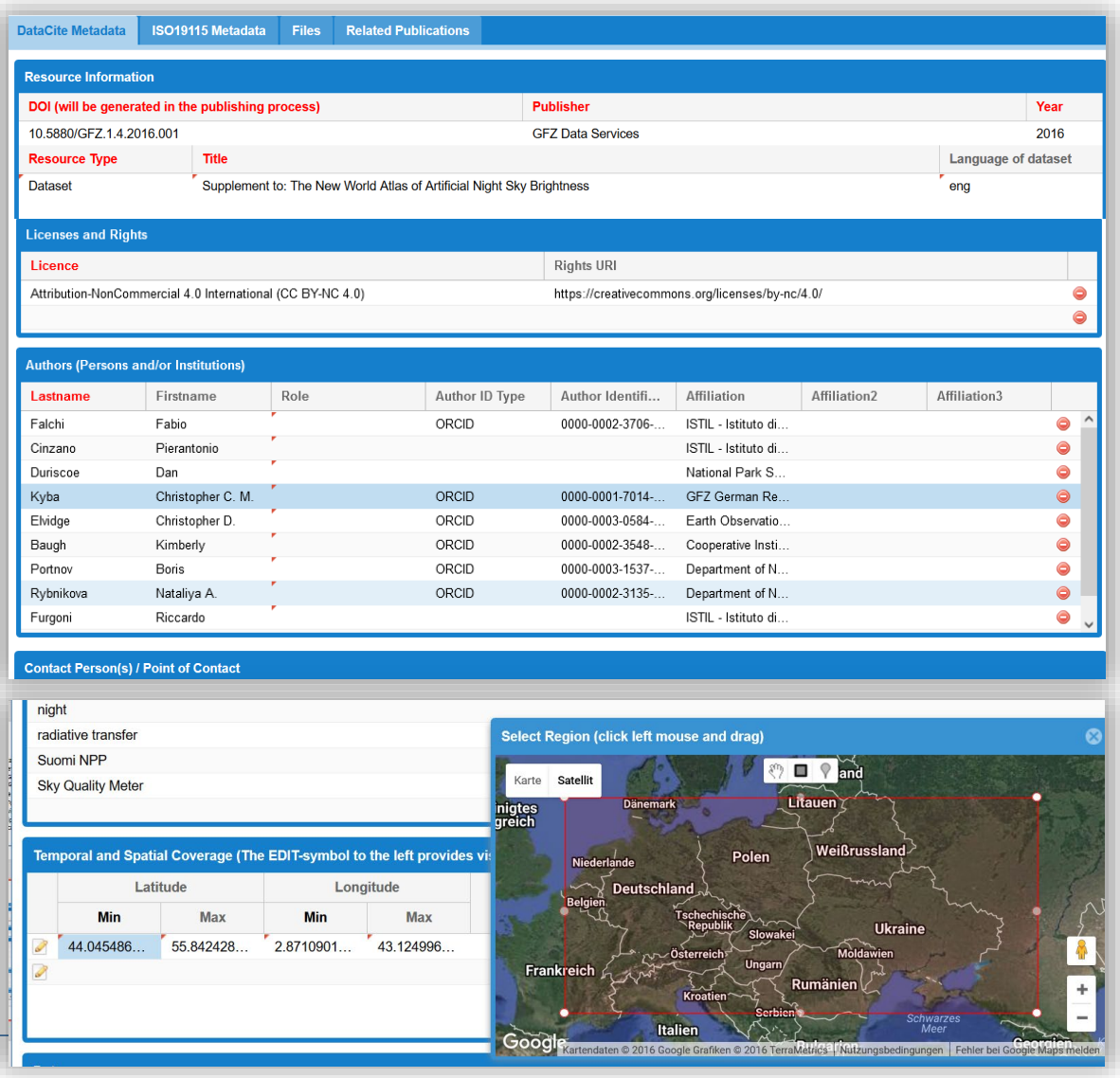
Output: XML (Extensible Markup Language): Metadata exchange format



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

GFZ Metadata Editor (Java Script „translator“)

Input:
provided by researchers



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

DOI Landing Pages

Data Catalogue

Standardised API

„Special“ Features:

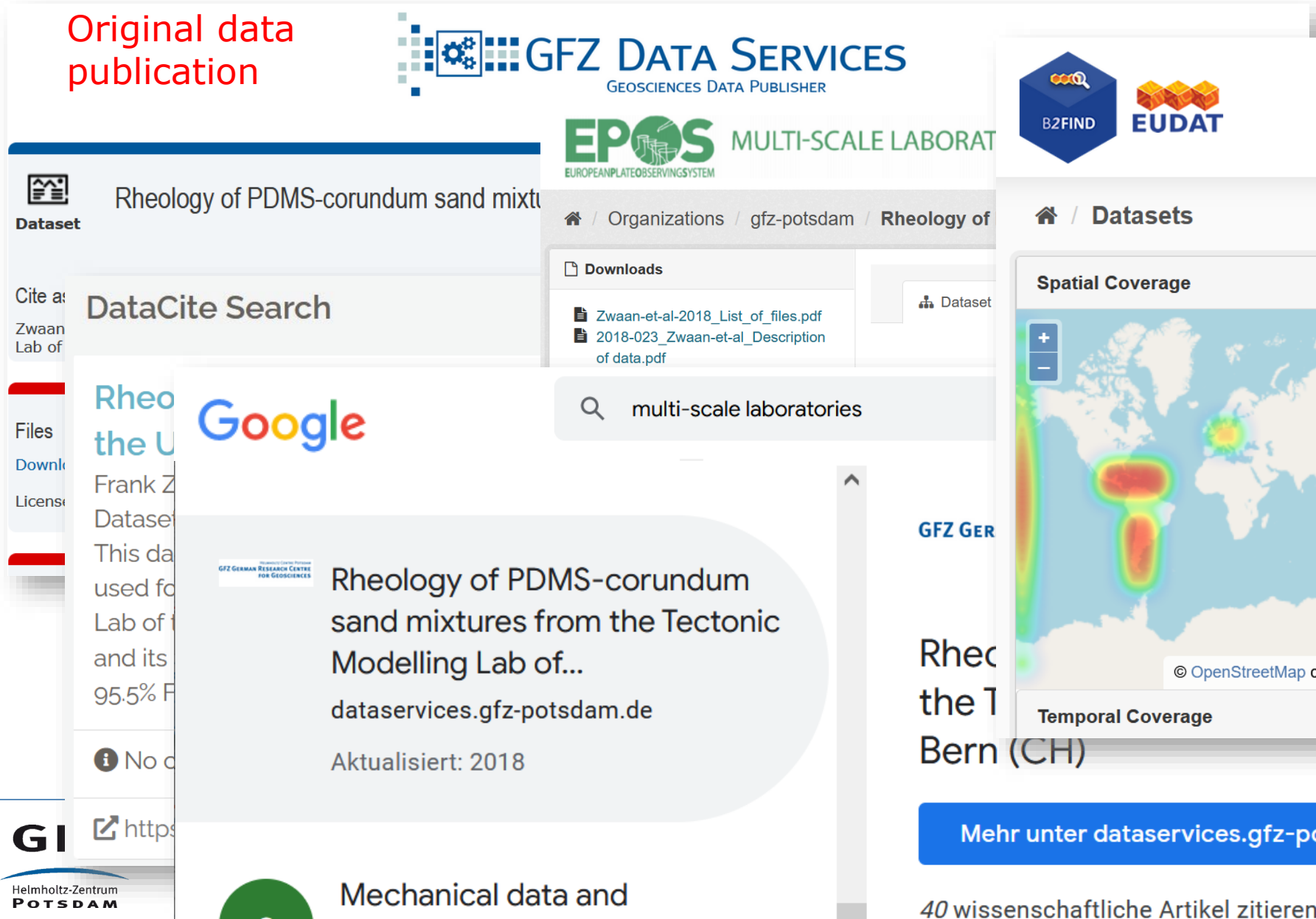
- Interactive map
- Searchable vocabulary lists

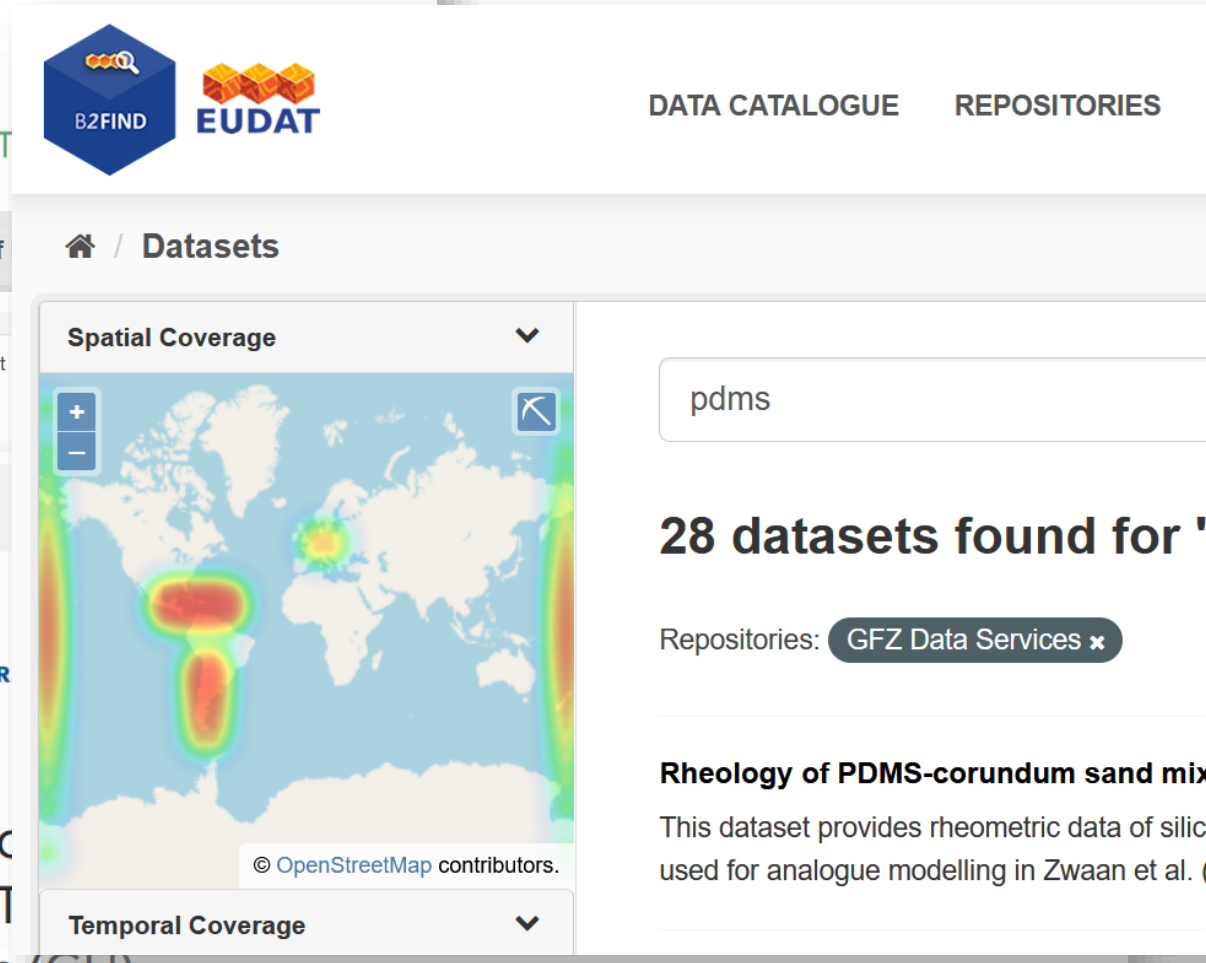
GFZ Helmholtz-Zentrum Potsdam

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

Metadata harvesting to other portals

Original data publication



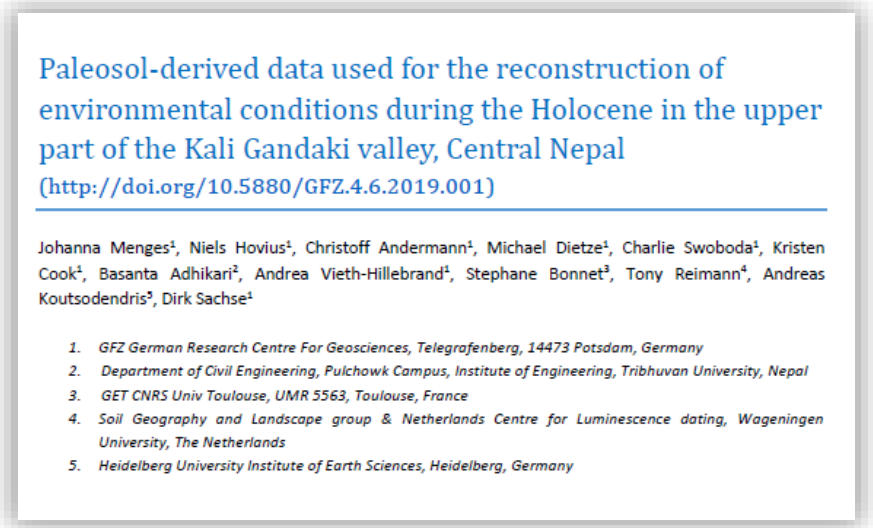


Helmholtz-Zentrum Potsdam

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 Menges[1], Niels Hovius[1], Christoff Andermann[1], Michael Dietze[1], Charlie Swoboda[1], Kristen Cook[1], Basanta Adhikari[2], Andrea Vieth-Hillebrand[1], Stephane Bonnet[3], Tony Reimann[4], Andreas Koutsodendris[5], Dirk Sachse[1]

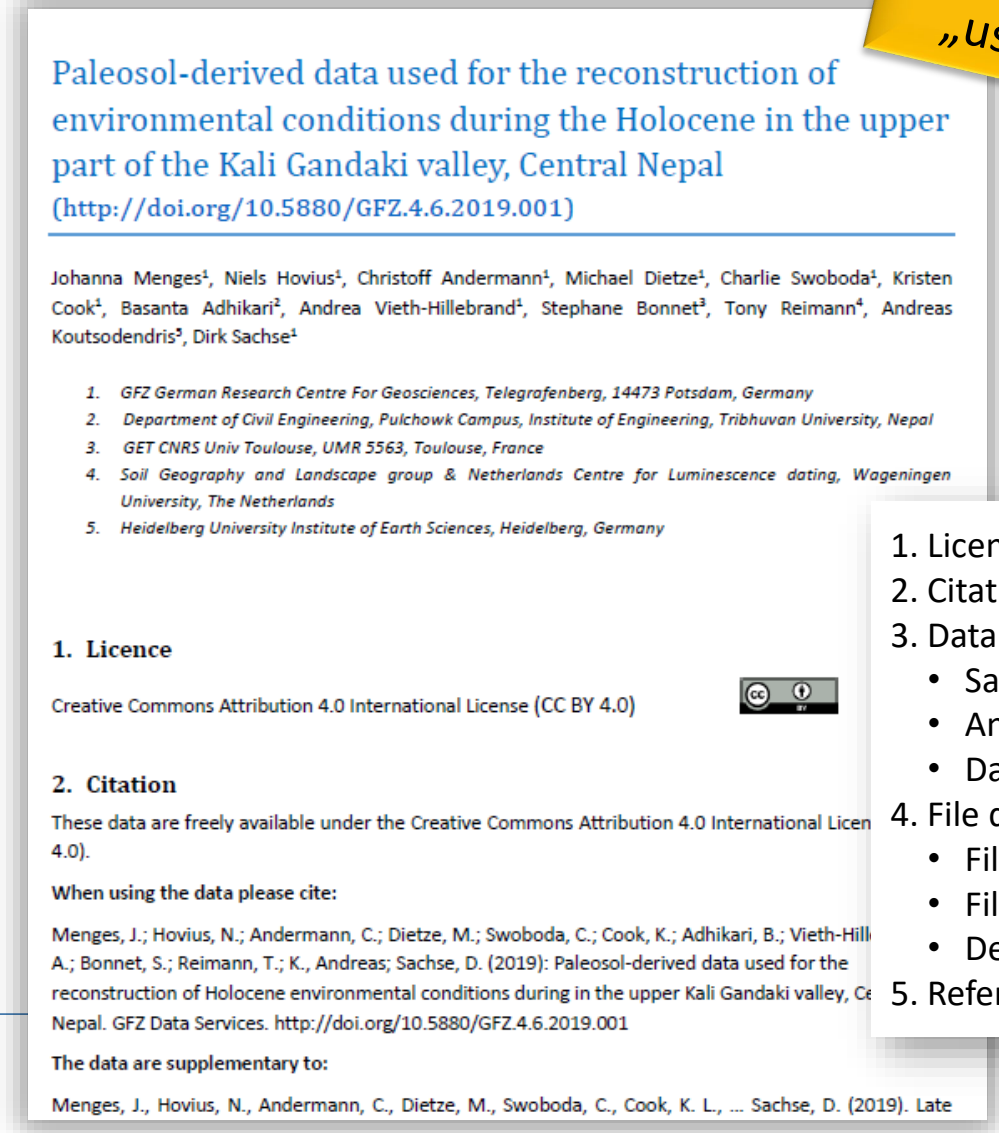
1. *GFZ German Research Centre For Geosciences, Telegrafenberg, 14473 Potsdam, Germany*
2. *Department of Civil Engineering, Pulchowk Campus, Institute of Engineering, Tribhuvan University, Nepal*
3. *GET CNRS Univ Toulouse, UMR 5563, Toulouse, France*
4. *Soil Geography and Landscape group & Netherlands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

Data Description Templates

Available in „commented“ and „usable“ form

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



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1. Licence

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2. Citation

These data are freely available under the Creative Commons Attribution 4.0 International Licen 4.0).

When using the data please cite:

Menges, J.; Hovius, N.; Andermann, C.; Dietze, M.; Swoboda, C.; Cook, K.; Adhikari, B.; Vieth-Hill 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, Ce 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

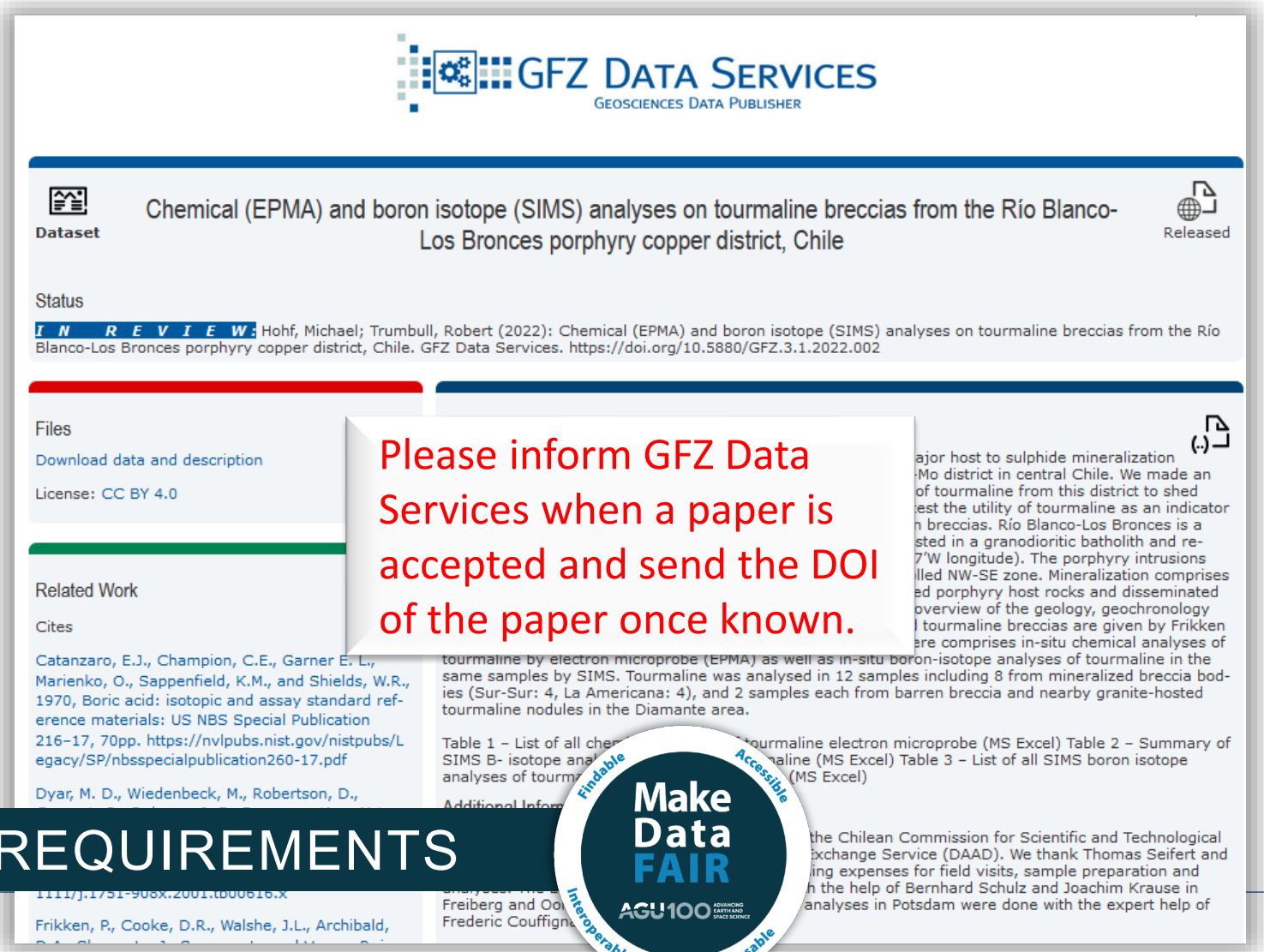
Tools for data publications by GFZ Data Services

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

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

Special Features: DOIs for software

Resource type →

Download static version →

Link to GitHub project page →

Open Source Software License →

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Resource type →

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Manual published as data report →

New Website launched in April 2022

- Responsive design
- Thematic search options
- Comprehensive **Publication instructions** (quick start guide, data file instructions, data description templates, …)
- **Portals**:
  - GFZ Data Services catalogue: DOI-referenced data
  - RI@GFZ: discovery portal for data and research infrastructure at GFZ
  - GFZ Sample Catalogue (IGSN)