Metadata Schema for the Description of Research Data Repositories

Version 3.1, August 2021

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1. Introduction

1.1.   re3data

Research data are valuable and ubiquitous. The permanent access to research data is a challenge for all stakeholders in the research community. However, the long-term preservation of and open access to research data offer broad opportunities for the research community worldwide. A growing number of universities and other research institutions have been building and are maintaining research data repositories that provide permanent access to data sets in a trustworthy environment. Due to disciplinary requirements and characteristics of specific types of services, the landscape of research data repositories is very heterogeneous. Thus it is difficult for researchers, funding bodies, publishers, and scholarly institutions to select appropriate repositories for finding, storing, and publishing research data.

re3data is a global registry of research data repositories (RDR) that covers RDR from all academic disciplines. It presents repositories for the permanent storage of and access to research data sets for researchers, funding bodies, publishers, and scholarly institutions. re3data promotes a culture of sharing, increased access to, and better visibility of research data and other research outputs. re3data is a partner service of DataCite[1], a global not-for-profit organisation that is actively involved in several initiatives to improve the availability and citation of research output.

The registry re3data was developed within a research project of the same name funded by the German Research Foundation (DFG)[2] and went online in the fall of 2012. Project partners were the Berlin School of Library and Information Science at the Humboldt-Universität zu Berlin[3], the Helmholtz Open Science Office of the Helmholtz Association[4], the Library and Information Services department (LIS) of the GFZ German Research Centre for Geosciences[5], and the KIT Library at the Karlsruhe Institute of Technology (KIT)[6]. In March 2014, re3data merged with Databib, a similar initiative at

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[1] https://datacite.org/
[2] https://www.dfg.de/
[3] https://www.ibi.hu-berlin.de/
[4] https://os.helmholtz.de/
[5] https://bib.telegrafenberg.de/
[6] https://www.bibliothek.kit.edu/

Purdue University[7], into one service managed under the auspices of DataCite since the end of 2015. The aim of this cooperation was to serve the research community with a single, sustainable registry of RDR that incorporates the best features of both initiatives.

Further information on re3data and related initiatives can be found in the following publications:

Kindling, M., Pampel, H., van de Sandt, S., Rücknagel, J., Vierkant, P., Kloska, G., Witt, M., Schirmbacher, P., Bertelmann, R., Scholze, F.. (2017). The Landscape of Research Data Repositories in 2015: A re3data Analysis. D-Lib Magazine, 23(3/4). https://doi.org/10.1045/march2017-kindling

von der Heyde, M. (2019). Open Research Data: Landscape and cost analysis of data repositories currently used by the Swiss research community, and requirements for the future. Zenodo. https://doi.org/10.5281/zenodo.2643460

Witt, M., Stall, S., Duerr, R., Plante, R., Fenner, M., Dasler, R., Cruse, P., Hou, S., Ulrich, R., & Kinkade, D. (2019). Connecting Researchers to Data Repositories in the Earth, Space, and Environmental Sciences. In P. Manghi, L. Candela, & G. Silvello (Eds.), Digital Libraries: Supporting Open Science (pp. 86–96). Springer. https://doi.org/10.1007/978-3-030-11226-4_7

1.2. The Metadata Schema

The re3data Metadata Schema contains metadata properties describing an RDR, such as its general scope, content, and infrastructure as well as its compliance with technical, quality, and metadata standards. The schema includes required metadata properties and optional properties providing additional information. The schema serves the purpose of:

- recommending a standard for describing an RDR;
- providing the basis for interoperability between RDRs, re3data and other infrastructures;
- helping RDRs move towards shared standards and common practices.

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[7] https://www.lib.purdue.edu/

To facilitate refining search results of appropriate RDRs, re3data developed a set of icons. These icons are displayed for a respective entry if an RDR provides important information concerning the repository, e.g., if it acquired a certificate or supports the provision of persistent identifiers.

The initial version 1.0 of the schema (formerly called vocabulary) was developed and tested based on a small sample of RDRs. After version 1.0 of the schema was published in July 2012, the re3data project team issued a public request for comments. Version 2.0 of the schema considered all responses as well as current developments in the area of RDRs, resulting in substantial changes in the structure of the schema. Versions 2.1 and 2.2 introduced minor changes, as well as an outline of the re3data Registration Policy. Version 3.0 included changes of the re3data Registration Policy as well as structural adjustments to better reflect changes within the landscape of RDRs. Following another public request for comments, the current version 3.1 includes a differentiation of certification information as well as the option to create profiles, in addition to minor changes. An overview on the version history is provided in table 1. Version 3.1 of the re3data Metadata Schema was released in 2021 in the context of the DFG-funded project re3data COREF[8].

Future developments of the schema will also rely on the feedback of the RDR community. This open and transparent development process ensures a strong basis for a future standard for describing RDRs that is supported by and rooted in the community. re3data appreciates this continuous feedback from the community and invites interested persons and organisations to share ideas for future developments of re3data.

1.3.   re3data Registration Policy

The major purpose of the registry is to improve the discoverability of RDRs. An RDR is a subtype of a sustainable information infrastructure providing long-term storage of and access to research data. Research data are information objects generated in scholarly contexts, for example through experiments, measurements, surveys or interviews.

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[8] https://gepris.dfg.de/gepris/projekt/422587133

An RDR listed in re3data is either:

- a data provider if it offers research data and its metadata (ideally exposing metadata via interfaces),

  or
- a service provider (e.g., a portal) if it harvests the metadata of research data from data providers as a basis for building value-added services,

  or
- both.

To be registered in re3data an RDR must comply with the following minimum requirements:

A repository must

- have a focus on research data;

- be operated by a legal entity with an organisational framework that provides sustainability (e.g., library, university);

- clarify access conditions to the repository and research data;

- and provide terms of use.

1.4.   Research Data Repository Registration Workflow

Anyone can suggest RDRs to be listed in re3data via an application form providing information such as the name and URL of the RDR.[9] This information is reviewed and enhanced by an editorial board.[10] Members of the editorial board analyze the RDR's website and describe it based on an indexing handbook. The re3data international editorial board indexes, reviews and updates the metadata of all RDR registered in re3data. Researchers, research data specialists and librarians from various countries are members of the international editorial board. A repository is indexed if the minimum requirements of the re3data Registration Policy are met. Before a new record of an RDR is published in re3data, all gathered information is reviewed by a second editor.

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[9] https://www.re3data.org/suggest/

[10] https://www.re3data.org/editorialboard

To update a re3data entry, a user can use the web form suggesting additions and/or changes concerning the entry. After a review by the re3data editorial board, the entry will be updated. The complete workflow is shown in figure 1.
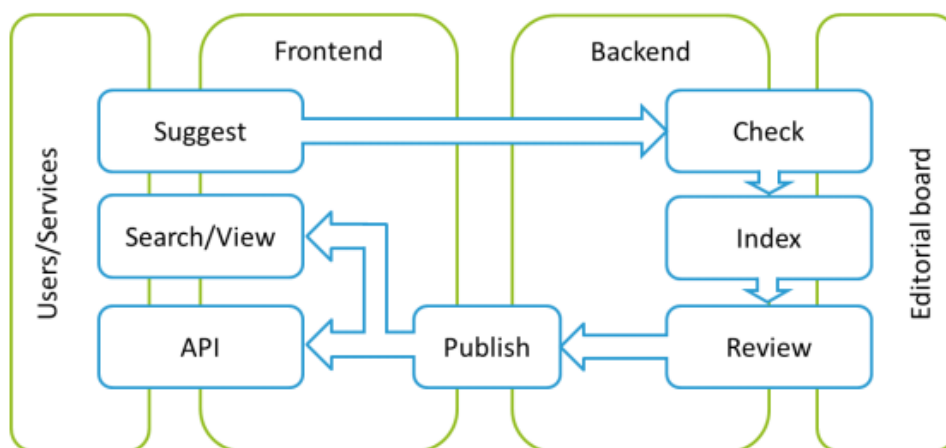

Figure 1: Research Data Repository Registration Workflow of re3data

1.5.   Version History

Version	Date of publication	Summary of changes to prior versions
1.0	July 2012	Initial Document (See: https://doi.org/10.2312/re3.001)
2.0	December 2012	Structural changes, including addition of language attributes, addition of definitions of controlled vocabularies, changes in occurrences (See: https://doi.org/10.2312/re3.002)
2.1	December 2013	Addition and deletion of properties, addition of controlled vocabularies, changes in occurrences and definitions, addition of definitions, change of title (See: https://doi.org/10.2312/re3.004)
2.2	December 2014	Addition of properties, addition of controlled vocabularies, changes and additions of definitions (See: https://doi.org/10.2312/re3.006)
3.0	December 2015	Structural changes, including addition and deletion of controlled vocabularies, changes in occurrences and definitions, addition of new properties, change of title (See: https://doi.org/10.2312/re3.008)
3.1	August 2021	Structural changes, including addition of new properties; changes in occurrences; changes of controlled vocabularies / allowed values (this document)

Table 1: Version Update of the re3data Metadata Schema

1.6.   Authors of Previous Versions

Version	Authors
1.0	Paul Vierkant, Shaked Spier, Jessika Rücknagel, Jens Gundlach, David Fichtmüller, Heinz Pampel, Maxi Kindling, Agnes Kirchhoff, Hans-Jürgen Göbelbecker, Jens Klump, Roland Bertelmann, Peter Schirmbacher, Frank Scholze
2.0	Paul Vierkant, Shaked Spier, Jessika Rücknagel, Jens Gundlach, David Fichtmüller, Heinz Pampel, Maxi Kindling, Agnes Kirchhoff, Hans-Jürgen Göbelbecker, Jens Klump, Roland Bertelmann, Peter Schirmbacher, Frank Scholze
2.1	Paul Vierkant, Shaked Spier, Jessika Rücknagel, Heinz Pampel, Jens Gundlach, David Fichtmüller, Maxi Kindling, Agnes Kirchhoff, Hans-Jürgen Goebelbecker, Jens Klump, Gabriele Kloska, Evelyn Reuter, Angelika Semrau, Edeltraud Schnepf, Michael Skarupianski, Roland Bertelmann, Peter Schirmbacher, Frank Scholze, Claudia Kramer
2.2	Paul Vierkant, Shaked Spier, Jessika Rücknagel, Heinz Pampel, Florian Fritze, Jens Gundlach, David Fichtmüller, Maxi Kindling, Agnes Kirchhoff, Hans-Jürgen Goebelbecker, Jens Klump, Gabriele Kloska, Evelyn Reuter, Angelika Semrau, Edeltraut Schnepf, Michael Skarupianski, Roland Bertelmann, Peter Schirmbacher, Frank Scholze, Claudia Kramer, Michael Witt, Claudio Fuchs, Robert Ulrich
3.0	Jessika Rücknagel, Paul Vierkant, Robert Ulrich, Gabriele Kloska, Edeltraud Schnepf, David Fichtmüller, Evelyn Reuter, Angelika Semrau, Maxi Kindling, Heinz Pampel, Michael Witt, Florian Fritze, Stephanie van de Sandt, Jens Klump, Hans-Jürgen Goebelbecker, Michael Skarupianski, Roland Bertelmann, Peter Schirmbacher, Frank Scholze, Claudia Kramer, Claudio Fuchs, Shaked Spier, Agnes Kirchhoff

1. re3data Metadata Properties

The table below provides a detailed description of the re3data properties that describe an RDR registered in re3data.

A naming convention has been used for all properties and attributes as follows: properties, attributes, and child properties begin with a lowercase letter. If the name of the element consists of more than one word, subsequent words begin with capital letters. The indicator A/C shows whether the property being described is an Attribute (A) or a Child (C) of the corresponding property that has preceded it.

The attribute Occurrence (Occ) explains if a property can have multiple instances, which is indicated by the notation: Occ. 1-n, meaning that a property must occur once (1), and may occur multiple times (n). "Req" indicates that an attribute is required if the corresponding property is applied. The terms of the "Controlled Vocabulary" are regulated by the re3data team. The values of the controlled vocabularies are explained

and defined in the appendix (4.1). The primary language for all metadata is English. Other language descriptions can be added as additional information.

ID	re3data property	Definition	A/C	Occ	Allowed values, examples, other constraints
1	identifiers	The RDR identifiers provided by re3data (wrapper element).		1	-
1.1	re3data	A unique string to identify the RDR metadata entry. This internal identifier is assigned by re3data.	C	1	Auto-Value Example: r3d100010134
1.2	doi	The Digital Object Identifier (DOI) assigned to the re3data metadata entry of the RDR to make the metadata entries citable.	C	1	Auto-Value Example: https://doi.org/10.17616/R3X S37
2	repositoryName	The full name of the RDR.		1	The format is open. Example: Access to Archival Databases
2.1	language	The language of the RDR name.	A	Req	Controlled vocabulary Allowed values from: ISO-639-3. Example: eng, deu, fra
3	additionalName	The alternative name or acronym for the RDR.		0-n	The format is open. Example: AAD
3.1	language	The language of the RDR additional name.	A	Req	Controlled vocabulary Allowed values from: ISO-639-3. Example: eng, deu, fra
4	repositoryUrl	The URL of the RDR.		1	URL Example: https://www.pangaea.de/
5	repositoryIdentifier	An identifier that refers to the RDR or a record describing the RDR (wrapper element).		0-n	-

ID	re3data property	Definition	A/C	Occ	Allowed values, examples, other constraints
5.1	repositoryIdentifierType	The provider of the identifier (e.g., DOI, RRID, handle).	C	1	Example: RRID
5.2	repositoryIdentifierValue	A globally unique identifier that refers to the RDR or a record describing the RDR (e.g., DOI, RRID, handle).	C	1	Example: SCR_002760
6	description	A textual description providing additional information about the RDR (first description must be provided in English, descriptions in other languages are optional).		0-n	The format is open (max. 1000 characters).
6.1	language	The language of the RDR description.	A	Req	Controlled vocabulary Allowed values from: ISO-639-3. Example: eng, deu, fra
7	repositoryContact	Contact information for the RDR (wrapper element).		0-n	-
7.1	repositoryContactInformation	Email address of the contact or an URL of an online contact form of the RDR.	C	1	The format is open. Example: info@researchdata.com
7.2	repositoryContactType	Type of contact information.	C	0-1	Example: administrative, support
8	type	The type of the RDR.		1-n	Controlled vocabulary Allowed values: disciplinary governmental institutional multidisciplinary project-related other
9	size	The number of items contained in the RDR.		0-1	The format is open. Example: 5.000 datasets; 30 studies

ID	re3data property	Definition	A/C	Occ	Allowed values, examples, other constraints
9.1	updated	The date of the last update of the RDR size.	A	Req	YYYY or YYYY-MM-DD or any other format described in W3C-DTF (ISO-8601)
10	startDate	The date the RDR was released.		0-1	YYYY or YYYY-MM-DD or any other format described in W3C-DTF (ISO-8601)
11	endDate	The date the RDR ended its service of ingesting new research data and/or providing it (wrapper element).		0-1	-
11.1	closed	The date the RDR stopped ingesting new research data to its database. The database and its research data are still available.	C	0-1	YYYY or YYYY-MM-DD or any other format described in W3C-DTF (ISO-8601) or empty value with attribute xsi:nil set to "true"
11.2	offline	The date the RDR went offline. The database and/or the website are no longer available.	C	0-1	YYYY or YYYY-MM-DD or any other format described in W3C-DTF (ISO-8601) or empty value with attribute xsi:nil set to "true"
12	repositoryLanguage	The language of the user interface of the RDR.		1-n	Controlled vocabulary Allowed values from: ISO-639-3. Example: eng, deu, fra
13	subject	The disciplinary focus of the RDR (wrapper element).		1-n	-
13.1	subjectScheme	The subject scheme according to which the subject of the RDR is described.	A	Req	Controlled vocabulary Allowed values from: DFG
13.2	subjectId	The ID/notation of the subject classification.	C	1	The format is dependent on the scheme. Example: 11 10101
13.3	subjectName	The subject(s) of the RDR.	C	1	The format is dependent on the scheme. Example:

ID	re3data property	Definition	A/C	Occ	Allowed values, examples, other constraints
					Humanities Prehistory
14	missionStatementUrl	The URL of a mission statement describing the designated community of the RDR.		0-1	URL Example: https://ess-dive.lbl.gov/about /
15	contentType	All types of resources available in the RDR.		0-n	The format is dependent on the scheme. Example: Raw data, Images
15.1	contentTypeScheme	The name and/or URL of the subject scheme or classification code.	A	Req	Controlled vocabulary Allowed values from: parse
16	providerType	The type of provider.		1-2	Controlled vocabulary Allowed values: dataProvider serviceProvider
17	keyword	English keyword(s) describing the subject focus of the RDR.		0-n	Example: environmental science computer science
18	institution	All institutions being responsible for funding, creating and/or running the RDR (wrapper element).		1-n	-
18.1	institutionName	The name of the responsible institution.	C	1	Example: National Institute of General Medical Sciences, U.S. National Institutes of Health
18.1.1	language	The language of the institution name.	A	Req	Controlled vocabulary Allowed values from: ISO-639-3. Example: eng, deu, fra
18.2	institutionAdditionalName	The alternative name or acronym for the responsible institution.	C	0-n	Example: NIGMS NIH
18.2.1	language	The language of the institution's additional name.	A	Req	Controlled vocabulary Allowed values from: ISO-639-3. Example: eng, deu, fra

ID	re3data property	Definition	A/C	Occ	Allowed values, examples, other constraints
18.3	institutionCountry	The location of the responsible institution.	C	1	Controlled vocabulary Allowed values from: ISO-3166-1 alpha-3. Example: DEU, GBR, USA
18.4	responsibilityType	The type of responsibility for each responsible institution.	C	0-n	Controlled vocabulary Allowed values: funding general main sponsoring technical
18.5	institutionType	The type of responsible institution.	C	0-1	Controlled vocabulary Allowed values: commercial non-profit
18.6	institutionUrl	The URL of the responsible institution.	C	0-1	URL Example: http://www.nigms.nih.gov/
18.7	institutionIdentifier	The identifier for the responsible institution (wrapper element).	C	0-n	-
18.7.1	institutionIdentifierType	The provider name of the identifier for the responsible institution.	C	1	Example: ROR ISNI VIAF FundRef
18.7.2	institutionIdentifierUrl	A globally unique identifier that refers to the responsible institution.	C	1	URL Example: https://ror.org/01hcx6992 https://isni.org/isni/0000000100755874
18.8	responsibilityStartDate	The start date of the period of responsibility.	C	0-1	YYYY or YYYY-MM-DD or any other format described in W3C-DTF (ISO-8601)
18.9	responsibilityEndDate	The end date of the period of responsibility.	C	0-1	YYYY or YYYY-MM-DD or any other format described in W3C-DTF (ISO-8601)
18.10	institutionContact	The email address of the contact or an URL of an online contact form of the responsible institution.	C	0-n	The format is open. Example: john.doe@researchdata.com

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ID	re3data property	Definition	A/C	Occ	Allowed values, examples, other constraints
19	policy	Policies providing information concerning the usage of the RDR (wrapper element).		0-n	-
19.1	policyType	The type of the policy.	C	1-n	Controlled vocabulary Allowed values from: Access policy Collection policy Data policy Metadata policy Preservation policy Submission policy Terms of use Usage policy Quality policy
19.2	policyName	The name of the policy.	C	1	The format is open. Example: Data policy of the information system PANGAEA
19.3	policyUrl	The URL of the policy.	C	1	URL Example: https://www.pangaea.de/curator/files/pangaea-data-policy.pdf
20	databaseAccess	The access regulation to the RDR (wrapper element).		1	-
20.1	databaseAccessType	The type of access to the RDR.	C	1	Controlled vocabulary Allowed values: open embargoed restricted closed
20.2	databaseAccessRestriction	All existing access restrictions to the RDR (required if restricted is chosen).	C	0-n	Controlled vocabulary Allowed values: feeRequired registration other
21	databaseLicense	The database license of the RDR (wrapper element).		0-n	-
21.1	databaseLicenseName	The name of the database license.	C	1	Example: CC

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ID	re3data property	Definition	A/C	Occ	Allowed values, examples, other constraints
21.2	databaseLicenseUrl	The database license URL.	C	1	URL Example: https://creativecommons.org/licenses/
22	dataAccess	The access regulation to the research data sets provided by the RDR (wrapper element).		1-n	-
22.1	dataAccessType	The type of access to research data sets.	C	1	Controlled vocabulary Allowed values: open restricted closed
22.2	dataAccessRestriction	All existing access restrictions to the research data sets (required if restricted is chosen).	C	0-n	Controlled vocabulary Allowed values: feeRequired institutional membership registration other
23	dataLicense	The license or licensing scheme the RDR offers for research data (wrapper element).		1-n	-
23.1	dataLicenseName	The name of the data license.	C	1	Example: CC
23.2	dataLicenseUrl	The data license URL.	C	1	URL Example: https://creativecommons.org
24	dataUpload	The regulation for submitting research data to the RDR (wrapper element).		1-n	-
24.1	dataUploadType	The type of the data upload.	C	1	Controlled vocabulary Allowed values: open restricted closed
24.2	dataUploadRestriction	All existing restrictions to the data upload (required if restricted is chosen).	C	0-n	Controlled vocabulary Allowed values: feeRequired

ID	re3data property	Definition	A/C	Occ	Allowed values, examples, other constraints
					institutional membership registration other
25	dataUploadLicense	The license for data upload (wrapper element).		0-n	-
25.1	dataUploadLicenseName	The name of the data upload license.	C	1	Example: Data Submission
25.2	dataUploadLicenseUrl	Data upload license URL.	C	1	URL Example: https://www.pangaea.de/submit/
26	software	The name of the software that is used to run the RDR.		0-n	Example: DSpace
27	versioning	The RDR supports versioning of research data.		1	Controlled vocabulary Allowed values: yes no unknown
28	api	The API supported by the RDR (wrapper element).		0-n	-
28.1	apiType	The type of the API.	C	1	Example: REST, SPARQL, OAI-PMH
28.2	apiUrl	The URL of the API for machine processing of data or metadata.	C	1	Example: https://datadryad.org/api/v2/
28.3	apiDocumentation	A link referring to the API documentation, a website that states its availability and other information for using the API.	C	1	Example: https://datadryad.org/api/v2/docs/
29	pidSystem	The persistent identifier system that is used/provided by the RDR for research data.		0-n	Example: DOI
30	citationReference	The citation database covering the RDR.		0-n	Controlled vocabulary Allowed values: Data citation index

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ID	re3data property	Definition	A/C	Occ	Allowed values, examples, other constraints
					SCOPUS
31	metrics	Any service, tool, etc. that is used by the RDR to track, measure, and visualise the usage of provided research data.		0-n	Example: usage statistics Altmetric
32	citationGuidelineUrl	The URL outlining how to cite research data provided by the RDR.		0-1	Example: https://wiki.pangaea.de/wiki/Citation
33	aidSystem	The author identifier system that is used by the RDR.		0-n	Example: ORCID
34	enhancedPublication	The RDR offers the interlinking between publications and data.		1	Controlled vocabulary Allowed values: yes no unknown
35	qualityManagement	Any form of quality management concerning the research data or metadata of the RDR.		1	Controlled vocabulary Allowed values: yes no unknown
36	certificate	The certificate, accreditation or standard the RDR complies with (wrapper element).		0-n	-
36.1	certificateName	The name of the certificate.	C	1	Example: CoreTrustSeal
36.2	certificateStartDate	The start date of the certification period or the date the certificate was issued, in case certification does not expire.	C	0-1	YYYY or YYYY-MM-DD or any other format described in W3C-DTF (ISO-8601)
36.3	certificateEndDate	The end date of the certification period.	C	0-1	YYYY or YYYY-MM-DD or any other format described in W3C-DTF (ISO-8601)
36.4	certificateUrl	The URL to a source outlining details of the certification.	C	1	URL Example: https://doi.org/10.5281/zenodo.3638211

ID	re3data property	Definition	A/C	Occ	Allowed values, examples, other constraints
36.5	certificateWidget	The URL supporting the display of widgets/badges.	C	0-1	URL Example: https://www.cert.example/badge.jpg
37	profile	The selection of repositories based on a set of community-developed criteria (wrapper element).		0-n	-
37.1	profileName	The name of the profile the RDR is associated with.	C	1	Example: Enabling FAIR Data (COPDESS/AGU) WDS Regular Members
37.2	profileUrl	The URL to a source naming the entity creating the profile and outlining the profile / describing the selection criteria.	C	1	URL Example: http://www.copdess.org/enabling-fair-data-project/enabling-fair-data-faqs/ https://www.worlddatasystem.org/community/membership/regular-members
38	metadataStandard	The metadata standard the RDR complies with (wrapper element).		0-n	-
38.1	metadataStandardName	The name of the metadata standard.	C	1	Example: DDI - Data Documentation Initiative
38.2	metadataStandardUrl	The URL of the metadata standard.	C	1	URL Example: https://www.ddialliance.org/Specification/
39	syndication	The alerting service the RDR offers (wrapper element).		0-n	-
39.1	syndicationType	The type of the alerting service	C	1	Example: RSS
39.2	syndicationUrl	The URL of the alerting service provided by the RDR.	C	1	Example: https://depositonce.tu-berlin.de/feed/rss_2.0/site
40	remarks	Additional remarks.		0-1	The format is open.

ID	re3data property	Definition	A/C	Occ	Allowed values, examples, other constraints
41	entryDate	The date the RDR was indexed in re3data.		1	YYYY-MM-DD (ISO-8601)
42	lastUpdate	The date the metadata of the RDR was updated.		1	YYYY-MM-DD (ISO-8601)

3. XML Example

This is an XML example (of a fictional research data repository) illustrating how the re3data.org schema can be used to describe research data repositories.

```xml
<?xml version="1.0" encoding="utf-8"?>
<!-- re3data.org Metadata Schema for the Description of Research Data Repositories. Version 3.1, August 2021. https://doi.org/10.48440/re3.010 -->
<r3d:re3data                    xmlns:r3d="http://www.re3data.org/schema/3-1"                    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.re3data.org/schema/3-1 http://schema.re3data.org/3-1/re3dataV3-1.xsd">
  <r3d:repository>
    <r3d:identifiers>
      <r3d:re3data>r3d100000001</r3d:re3data>
      <r3d:doi>https://doi.org/10.17616/R34S33</r3d:doi>
    </r3d:identifiers>
    <r3d:repositoryName language="eng">Global Research Data Repository</r3d:repositoryName>
    <r3d:additionalName language="eng">GReDaR</r3d:additionalName> <!-- optional --> <!-- multiple -->
    <r3d:additionalName language="deu">Globales Forschungsdatenrepositorium</r3d:additionalName> <!-- optional --> <!-- multiple -->
    <r3d:repositoryUrl>https://www.globalresearchdatarepository.org</r3d:repositoryUrl>
    <r3d:repositoryIdentifier> <!-- optional --> <!-- multiple -->
      <r3d:repositoryIdentifierType>DOI</r3d:repositoryIdentifierType>
      <r3d:repositoryIdentifierValue>https://doi.org/0123456789/gredar</r3d:repositoryIdentifierValue>
    </r3d:repositoryIdentifier>
    <r3d:description language="eng">The Global Research Data Repository (GReDaR) is the place where researchers from all academic disciplines can put
their research data.</r3d:description> <!-- optional --> <!-- multiple -->
    <r3d:description language="deu">Das Global Research Data Repository (GReDaR) ist der Ort, an dem Forschende aller akademischen Disziplinen ihre
Forschungsdaten ablegen können.</r3d:description> <!-- optional --> <!-- multiple -->
    <r3d:repositoryContact>
      <r3d:repositoryContactInformation>info@greadar.org</r3d:repositoryContactInformation>
      <r3d:repositoryContactType>administrative</r3d:repositoryContactType> <!-- optional -->
    </r3d:repositoryContact>
    <r3d:type>disciplinary</r3d:type> <!-- multiple -->
    <r3d:size updated="2012-11-23">10.000 datasets; 323 studies</r3d:size> <!-- optional -->
    <r3d:startDate>2011-01-01</r3d:startDate> <!-- optional -->
    <r3d:endDate> <!-- optional -->
      <r3d:closed>2013-07-31</r3d:closed>
      <r3d:offline>2014-11-26</r3d:offline>
    </r3d:endDate>
    <r3d:repositoryLanguage>eng</r3d:repositoryLanguage> <!-- multiple -->
    <r3d:repositoryLanguage>deu</r3d:repositoryLanguage> <!-- multiple -->
    <r3d:repositoryLanguage>fra</r3d:repositoryLanguage> <!-- multiple -->
    <r3d:subject subjectScheme="DFG"> <!-- multiple -->
      <r3d:subjectId>31302</r3d:subjectId>
      <r3d:subjectName>Oceanography</r3d:subjectName>
    </r3d:subject>
```

```xml
<r3d:subject subjectScheme="DFG"> <!-- multiple -->
  <r3d:subjectId>111</r3d:subjectId>
  <r3d:subjectName>Social Sciences</r3d:subjectName>
</r3d:subject>
<r3d:subject subjectScheme="DFG"> <!-- multiple -->
  <r3d:subjectId>20103</r3d:subjectId>
  <r3d:subjectName>Cell Biology</r3d:subjectName>
</r3d:subject>
<r3d:missionStatementUrl>https://www.globalresearchdatarepository.org/mission_statement</r3d:missionStatementUrl> <!-- optional -->
<r3d:contentType contentTypeScheme="parse">Structured text</r3d:contentType> <!-- optional --> <!-- multiple -->
<r3d:contentType contentTypeScheme="parse">Images</r3d:contentType> <!-- optional --> <!-- multiple -->
<r3d:providerType>dataProvider</r3d:providerType> <!-- multiple -->
<r3d:keyword>Earth Science</r3d:keyword> <!-- optional --> <!-- multiple -->
<r3d:keyword>Measure Data</r3d:keyword> <!-- optional --> <!-- multiple -->
<r3d:keyword>Social Science</r3d:keyword> <!-- optional --> <!-- multiple -->
<r3d:keyword>Maps</r3d:r3d:keyword> <!-- optional --> <!-- multiple -->
<r3d:institution> <!-- multiple -->
  <r3d:institutionName language="eng">Institute for Research Data</r3d:institutionName>
  <r3d:institutionAdditionalName language="eng">IRD</r3d:institutionAdditionalName> <!-- optional --> <!-- multiple -->
  <r3d:institutionAdditionalName language="deu">Institut für Forschungsdaten</r3d:institutionAdditionalName> <!-- optional --> <!-- multiple -->
  <r3d:institutionCountry>DEU</r3d:institutionCountry>
  <r3d:responsibilityType>general</r3d:responsibilityType> <!-- optional --> <!-- multiple -->
  <r3d:responsibilityType>technical</r3d:responsibilityType> <!-- optional --> <!-- multiple -->
  <r3d:institutionType>non-profit</r3d:institutionType> <!-- optional -->
  <r3d:institutionUrl>https://www.ird.org</r3d:institutionUrl> <!-- optional -->
  <r3d:institutionIdentifier> <!-- optional --> <!-- multiple -->
    <r3d:institutionIdentifierType>URN</r3d:institutionIdentifierType>
    <r3d:institutionIdentifierUrl>urn:47110815/ird</r3d:institutionIdentifierUrl>
  </r3d:institutionIdentifier>
  <r3d:responsibilityStartDate>2011-01-01</r3d:responsibilityStartDate> <!-- optional -->
  <r3d:responsibilityEndDate>2014-07-31</r3d:responsibilityEndDate> <!-- optional -->
  <r3d:institutionContact>John Doe, Institut für Forschungsdaten, Unter den Linden 6, 10099 Berlin, Germany</r3d:institutionContact> <!-- optional --> <!-- multiple -->
  <r3d:institutionContact>johndoe@globalresearchdatarepository.org</r3d:institutionContact> <!-- optional --> <!-- multiple -->
  <r3d:institutionContact>https://www.globalresearchdatarepository.org/contactform/</r3d:institutionContact> <!-- optional --> <!-- multiple -->
</r3d:institution>
<r3d:policy> <!-- optional --> <!-- multiple -->
  <r3d:policyType>Data policy</r3d:policyType> <!-- multiple -->
  <r3d:policyName>Data Management Policy</r3d:policyName>
  <r3d:policyUrl>https://www.globalresearchdatarepository.org/policy.html</r3d:policyUrl>
</r3d:policy>
<r3d:databaseAccess>
  <r3d:databaseAccessType>restricted</r3d:databaseAccessType>
  <r3d:databaseAccessRestriction>registration</r3d:databaseAccessRestriction> <!-- optional --> <!-- multiple -->
</r3d:databaseAccess>
<r3d:databaseLicense> <!-- optional --> <!-- multiple -->
  <r3d:databaseLicenseName>CC0</r3d:databaseLicenseName>
  <r3d:databaseLicenseUrl>https://creativecommons.org/publicdomain/zero/1.0/</r3d:databaseLicenseUrl>
</r3d:databaseLicense>
```

```xml
<r3d:databaseLicense> <!-- optional --> <!-- multiple -->
  <r3d:databaseLicenseName>other</r3d:databaseLicenseName>
  <r3d:databaseLicenseUrl>https://example.org/dataLicense</r3d:databaseLicenseUrl>
</r3d:databaseLicense>
<r3d:dataAccess> <!-- multiple -->
  <r3d:dataAccessType>embargoed</r3d:dataAccessType>
</r3d:dataAccess>
<r3d:dataAccess> <!-- multiple -->
  <r3d:dataAccessType>restricted</r3d:dataAccessType>
  <r3d:dataAccessRestriction>registration</r3d:dataAccessRestriction> <!-- optional --> <!-- multiple -->
</r3d:dataAccess>
<r3d:dataAccess> <!-- multiple -->
  <r3d:dataAccessType>closed</r3d:dataAccessType>
</r3d:dataAccess>
<r3d:dataLicense> <!-- multiple -->
  <r3d:dataLicenseName>Creative Commons</r3d:dataLicenseName>
  <r3d:dataLicenseUrl>https://creativecommons.org/</r3d:dataLicenseUrl>
</r3d:dataLicense>
<r3d:dataLicense> <!-- multiple -->
  <r3d:dataLicenseName>Copyrights</r3d:dataLicenseName>
  <r3d:dataLicenseUrl>https://www.globalresearchdatarepository.org/copyrights/dataset1234</r3d:dataLicenseUrl>
</r3d:dataLicense>
<r3d:dataUpload> <!-- multiple -->
  <r3d:dataUploadType>restricted</r3d:dataUploadType>
  <r3d:dataUploadRestriction>registration</r3d:dataUploadRestriction> <!-- optional --> <!-- multiple -->
</r3d:dataUpload>
<r3d:dataUploadLicense> <!-- optional --> <!-- multiple -->
  <r3d:dataUploadLicenseName>GReDaR Data Deposit License</r3d:dataUploadLicenseName>
  <r3d:dataUploadLicenseUrl>https://www.globalresearchdatarepository.org/deposit_license/</r3d:dataUploadLicenseUrl>
</r3d:dataUploadLicense>
<r3d:software>EPrints</r3d:software> <!-- optional --> <!-- multiple -->
<r3d:versioning>yes</r3d:versioning>
<r3d:api> <!-- optional --> <!-- multiple -->
  <r3d:apiType>OAI-PMH</r3d:apiType>
  <r3d:apiUrl>https://www.globalresearchdatarepository.org/oai</r3d:apiUrl>
  <r3d:apiDocumentation>https://www.globalresearchdatarepository.org/oai/documentation</r3d:apiDocumentation>
</r3d:api>
<r3d:api> <!-- optional --> <!-- multiple -->
  <r3d:apiType>REST</r3d:apiType>
  <r3d:apiUrl>https://www.globalresearchdatarepository.org/rest</r3d:apiUrl>
  <r3d:apiDocumentation>https://www.globalresearchdatarepository.org/rest/documentation</r3d:apiDocumentation>
</r3d:api>
<r3d:pidSystem>DOI</r3d:pidSystem> <!-- optional --> <!-- multiple -->
<r3d:citationReference>SCOPUS</r3d:citationReference> <!-- optional --> <!-- multiple -->
<r3d:metrics>usage statistics</r3d:metrics> <!-- optional --> <!-- multiple -->
<r3d:citationGuidelineUrl>https://www.globalresearchdatarepository.org/how-to-cite.html</r3d:citationGuidelineUrl> <!-- optional -->
<r3d:aidSystem>ORCID</r3d:aidSystem> <!-- optional --> <!-- multiple -->
<r3d:enhancedPublication>yes</r3d:enhancedPublication>
<r3d:qualityManagement>yes</r3d:qualityManagement>
```

```xml
    <r3d:certificate> <!-- optional --> <!-- multiple -->
      <r3d:certificateName>ISO 16363</r3d:certificateName>
      <r3d:certificateStartDate>2020-01-01</r3d:certificateStartDate> <!-- optional -->
      <r3d:certificateEndDate>2023-01-01</r3d:certificateEndDate> <!-- optional -->
      <r3d:certificateUrl>https://www.globalresearchdatarepository.org/certification</r3d:certificateUrl>
      <r3d:certificateWidget>https://www.cert.example/badge.jpg</r3d:certificateWidget> <!-- optional -->
    </r3d:certificate>
    <r3d:profile> <!-- optional --> <!-- multiple -->
      <r3d:profileName>Repositories recommended by the Fictional Research Society</r3d:profileName>
      <r3d:profileUrl>https://www.fictionalresearchsociety.org/research-data-repositories</r3d:profileUrl>
    </r3d:profile>
    <r3d:metadataStandard> <!-- optional --> <!-- multiple -->
      <r3d:metadataStandardName>DataCite Metadata Schema</r3d:metadataStandardName>
   <r3d:metadataStandardUrl>https://www.dcc.ac.uk/resources/metadata-standards/datacite-metadata-schema</r3d:metadataStandardUrl>
    </r3d:metadataStandard>
    <r3d:syndication> <!-- optional --> <!-- multiple -->
      <r3d:syndicationType>RSS</r3d:syndicationType>
      <r3d:syndicationUrl>https://www.globalresearchdatarepository.org/news.rss</r3d:syndicationUrl>
    </r3d:syndication>
    <r3d:remarks>This is additional information on the research data repository visible to all users.</r3d:remarks> <!-- optional -->
    <r3d:entryDate>2012-11-15</r3d:entryDate>
    <r3d:lastUpdate>2012-12-21</r3d:lastUpdate>
  </r3d:repository>
</r3d:re3data>
```

4. Appendix

4.1. Attribute Values and Controlled Vocabularies

The following tables describe and define the allowed attribute values as well as the controlled vocabularies of the re3data metadata properties.

2.1; 3.1; 6.1;18.1.1; 18.2.1 language

Value	Definition
Example: eng, deu, fra	ISO-639-3; http://www.iso.org/iso/catalogue_detail?csnumber=39534

8 type

Value	Definition
disciplinary	Disciplinary repository (Subject repository): "This is a collection of research outputs with a common link to a particular subject discipline. Subject repositories are likely to cover one broad-based discipline, with contributors from many different institutions supported by a variety of funders; the repositories themselves are likely to be funded from one or more sources within the subject community. Although for some subject repositories the funding may be fragile, if they are of enough importance to the community then funding crises are usually weathered."[11]
governmental	Governmental Repository: This is a collection of outputs from projects and programmes related to governmental institutions. These repositories are likely closed for external contributions. In general the repository is state supported to make governmental output accessible.
multidisciplinary	Multidisciplinary Repository: This is a collection of research outputs serving multidisciplinary needs. These repositories cover several research disciplines. Contributors from many different institutions and communities are likely accepted.

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[11] Jones, C et al. "Report of the Subject and Institutional Repositories Interactions Study." (2008): p. 5. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.140.7316&rep=rep1&type=pdf retrieved 5 July. 2021.

institutional	Institutional Repository: "This is a collection of research outputs with a common link to a particular institution, usually by authorship. These repositories are likely to cover more than one research discipline, to have funders in many if not all the Research Councils and support communities who have different approaches to research dissemination. Whether deposit of content is mandatory is a decision that will be made by each institution. The institutions may have many requirements for the content of the repository, from open access dissemination, through metrics, marketing to strategic planning. It is likely that many of these processes in the past were undertaken through collection of bibliographic information."[12]
project-related	Project-related Repository: This is a collection of research outputs with a specific focus on the research data resulting from particular research projects. All contributions must be linked to the particular project, its mission, etc.
other	Other (Repository Type): An RDR that is neither institutional nor disciplinary, e.g., a funder repository: "This is a collection of research outputs with a common link to one (or more) funder(s). These are likely to cover the funder's remit, which is usually subject-based but can become indistinct at subject boundaries, and will have authors from many institutions. Deposit of content is usually mandatory and can include project-related material, such as completion project reports. The funders will have requirements for the content of the repository, from metrics through to strategic planning."[13]

9.1 updated; 10 startDate; 11.1 closed; 11.2 offline; 18.8responsibilityStartDate; 18.9 responsibilityEndDate; 36.2 certificateStartDate; 36.3 certificateEndDate 41 entryDate; 42 lastUpdate

Value	Definition
YYYY or YYYY-MM-DD	ISO-8601; http://www.w3.org/TR/NOTE-datetime

12 repositoryLanguage

Value	Definition
Example: eng, deu, fra	ISO-639-3; http://www.iso.org/iso/catalogue_detail?csnumber=39534

---

[12] Jones, C et al. "Report of the Subject and Institutional Repositories Interactions Study." (2008): p. 5

[13] Jones, C et al. "Report of the Subject and Institutional Repositories Interactions Study." (2008): p. 5

13.1 subjectScheme

Value	Definition
DFG	DFG Classification of Subject Area, Review Board, Research Area and Scientific Discipline (using Level 1-4). https://web.archive.org/web/20140901204254/http://dfg.de/en/dfg_profile/statutory_bodies/review_boards/subject_areas/index.jsp (retrieved July 5th, 2021)

15 contentType

Value	Definition
Standard office documents	text documents, spreadsheets, presentations
Networkbased data	websites, email, chat history, etc.
Databases	DBASE, MS Access, Oracle, MySQL, etc.
Images	JPEG, JPEG2000, GIF, TIF, PNG, SVG, etc.
Structured graphics	CAD, CAM, 3D, VRML, etc.
Audiovisual data	WAVE, MP3, MP4, Flash, etc.
Scientific and statistical data formats	SPSS, FITS, GIS, etc.
Raw data	device specific output
Plain text	TXT in various encodings
Structured text	XML, SGML, etc.
Archived data	ZIP, RAR, JAR, etc.
Software applications	modelling tools, editors, IDE, compilers, etc.
Source code	scripting, Java, C, C++, Fortran, etc.
Configuration data	parameter settings, logs, library files
Other	-

15.1 contentTypeScheme

Value	Definition
parse	For the values of parse see the PARSE.Insight types in contentType 14. For the source see page 5 in https://web.archive.org/web/20151011134846/http://www.parse-insight.eu/downloads/PARSE-insight_survey_questions_research.pdf

16 providerType

Value	Definition
dataProvider	An RDR is a data provider if it stores or offers research data and its metadata (ideally exposing metadata via interfaces).
serviceProvider	An RDR is a service provider if it harvests and aggregates the metadata of research data from data providers.

18.3 institutionCountry

Value	Definition
Example: DEU, GBR, USA	ISO-3166-1 Alpha-3 code; https://en.wikipedia.org/wiki/ISO_3166-1#Current_codes
AAA	international institutions
EEC	European Union

18.4 responsibilityType

Value	Definition
funding	Funding responsibility refers to the institution that funds / funded the setup or running of the RDR.
general	General responsibility refers to the institution that is generally responsible for providing services and content of the RDR.
main	Main responsibility refers to the leading institution operating and maintaining the RDR.
sponsoring	Sponsoring responsibility (in contrast to funding responsibility) refers to financial support of an RDR in return for e.g., advertising on the website.
technical	Technical responsibility refers to the institution that is responsible for the technical matters of the RDR, e.g., hosting.

18.5 institutionType

Value	Definition
commercial	A commercial institution is an institution that distributes surplus revenues as profit or dividends.
non-profit	The institution does not aim at economic profits but at non-profit (e.g., social, cultural and academic) goals of its members.

19.1 policyType

Value	Definition
Access Policy	This policy describes access regulations for the collection.
Collection Policy	This policy provides a framework for the collection of research output. It describes the scope of the collection as well as the content's type and origin.
Data Policy	This policy provides a framework for the management of the collection. General principles, aims and responsibilities must be clarified. Several aspects are likely described such as access, usage or submission regulations as well as the collection's scope.
Metadata Policy	This policy describes access and usage regulations for the provided metadata.
Preservation Policy	This policy provides a framework for the long term preservation of the collection. Principles, aims, and responsibilities must be clarified. An important aspect is the description of preservation concepts to ensure the technical and conceptual utility of the content.
Submission Policy	This policy provides a framework for the contribution of research data. Criteria for submitting content to the repository as well as data preparation guidelines can be stated. Concepts for the quality assurance may be provided.
Terms of Use	This policy describes the terms and conditions under which services of the repository and the collection can be accessed and used.
Usage Policy	This policy describes access and/or usage regulations for the collection.
Quality Policy	This policy provides a framework for the quality management of the repository. Concepts and responsibilities are described to assure the quality of the collection.
other	A policy type that is not explicitly listed.

20.1 databaseAccessType

Value	Definition
open	There are no access barriers.
restricted	External users can overcome access barriers.
closed	External users cannot overcome access barriers.

20.2 databaseAccessRestriction

Value	Definition
feeRequired	A single or regular payment is required.
registration	A free registration is required.
other	Other restrictions beside registration or payment such as a written consent are required.

22.1 dataAccessType

Value	Definition
open	There are no access barriers.
embargoed	External users cannot overcome access barriers until the data are released for open access.
restricted	External users can overcome access barriers.
closed	External users cannot overcome access barriers.

22.2 dataAccessRestriction

Value	Definition
feeRequired	A single or regular payment is required.
institutional membership	Only people associated with a member institution can access the data.
registration	A free registration is required.
other	Other restrictions beside registration or payment such as a written consent are required.

24.1 dataUploadType

Value	Definition
open	There are no barriers to upload.
restricted	External users can overcome upload barriers.
closed	External users cannot overcome upload barriers.

24.2 dataUploadRestriction

Value	Definition
feeRequired	A single or regular payment is required.
institutional membership	Only people associated with a member institution can access the data.
registration	A free registration is required.
other	Other restrictions beside registration or payment such as a written consent are required.

30 citationReference

Value	Definition
Data Citation Index	The RDR is covered by the Data Citation Index.
SCOPUS	The RDR is covered by SCOPUS.

4.2. Explanation of re3data Access Types

The policies and access control measures of an RDR regulate a number of issues, particularly: Who can access the RDR? Who can download research data and how can the user reuse these research data from the repository? And who is permitted to deposit research data? To describe such access regulations of an RDR, re3data differentiates between three categories representing different levels of access. First, there is the access to the RDR defining who can access the database in general, e.g., searching the repository requires a membership. Second, there is the access to the research data sets in the RDR in particular, e.g., being able to download data from the

repository. Third, there is the access to upload and deposit research data sets to the RDR. The access to each level can be open, restricted, and/or closed. Open means that there are no access barriers. Restricted means that external users can overcome access barriers, e.g., by creating a user account. Closed means external users cannot overcome access barriers. Embargoed access means that external users cannot overcome access barriers until the research data are released for open or restricted access. The last stated access type applies only to the level of access to the research data sets.

As shown in the matrix below the access to the RDR is the basic level to define the general framework of access to the actual research data sets, e.g., a research data set in an RDR that is restricted through registration cannot be open but just restricted or even closed; a research data set in a closed RDR which underlies access restrictions that cannot be overcome by external users is neither open nor restricted but only closed. Thus to define the general accessibility of an RDR, the values highlighted in orange are needed (values in braces can occur).

Access (property)	Open Access		Restricted Access		Closed Access
Access to Repository (20.1 databaseAccessType)	open		open or restricted		closed
Access to Data (22.1 dataAccessType)	open (embargoed, restricted, closed)		restricted (embargoed, closed)		closed
Data Upload (24.1 dataUploadType)	open or restricted	closed	open or restricted	closed	-

4.3. Recommendations on Citing Data

Some RDRs offer guidelines on how to cite the research data they provide. If available, a URL to a web page outlining the recommended citation format can be found in the property citationGuidelineUrl. If a repository or journal does not offer specific data citation guidelines, the re3data team recommends using the DataCite citation format.[14] When stating the name of an RDR in a reference, the re3data team recommends referring to the RDR using repositoryName.

---

[14] https://datacite.org/cite-your-data.html

4.4. DFG Classification of Subject Areas

1 Humanities and Social Sciences
    11 Humanities
        101 Ancient Cultures
            10101 Prehistory
            10102 Classical Philology
            10103 Ancient History
            10104 Classical Archaeology
            10105 Egyptology and Ancient Near Eastern Studies
        102 History
            10201 Medieval History
            10202 Early Modern History
            10203 Modern and Current History
            10204 History of Science
        103 Fine Arts, Music, Theatre and Media Studies
            10301 Art History
            10302 Musicology
            10303 Theatre and Media Studies
        104 Linguistics
            10401 General and Applied Linguistics
            10402 Individual Linguistics
            10403 Typology, Non-European Languages, Historical Linguistics
        105 Literary Studies
            10501 Medieval German Literature
            10502 Modern German Literature
            10503 European and American Literature
            10504 General and Comparative Literature and Cultural Studies
        106 Non-European Languages and Cultures, Social and Cultural Anthropology, Jewish Studies and Religious Studies
            10601 Social and Cultural Anthropology and Ethnology/Folklore
            10602 Asian Studies
            10603 African, American and Oceania Studies
            10604 Islamic Studies, Arabian Studies, Semitic Studies
            10605 Religious Studies and Jewish Studies
        107 Theology
            10701 Protestant Theology
            10702 Roman Catholic Theology
         108 Philosophy
            10801 History of Philosophy
            10802 Theoretical Philosophy
            10803 Practical Philosophy
    12 Social and Behavioural Sciences
        109 Education Sciences
            10901 General Education and History of Education
            10902 Research on Teaching, Learning and Training
            10903 Research on Socialization and Educational Institutions and Professions
        110 Psychology
            11001 General, Biological and Mathematical Psychology
            11002 Developmental and Educational Psychology
            11003 Social Psychology, Industrial and Organisational Psychology
            11004 Differential Psychology, Clinical Psychology, Medical Psychology, Methodology
        111 Social Sciences

11101 Sociological Theory

11102 Empirical Social Research

11103 Communication Sciences

11104 Political Science

112 Economics

11201 Economic Theory

11202 Economic and Social Policy

11203 Public Finance

11204 Business Administration

11205 Statistics and Econometrics

11206 Economic and Social History

113 Jurisprudence

11301 Legal and Political Philosophy, Legal History, Legal Theory

11302 Private Law

11303 Public Law

11304 Criminal Law and Law of Criminal Procedure

11305 Criminology

2 Life Sciences

21 Biology

201 Basic Biological and Medical Research

20101 Biochemistry

20102 Biophysics

20103 Cell Biology

20104 Structural Biology

20105 General Genetics

20106 Developmental Biology

20107 Bioinformatics and Theoretical Biology

20108 Anatomy

202 Plant Sciences

20201 Plant Systematics and Evolution

20202 Plant Ecology and Ecosystem Analysis

20203 Inter-organismic Interactions of Plants

20204 Plant Physiology

20205 Plant Biochemistry and Biophysics

20206 Plant Cell and Developmental Biology

20207 Plant Genetics

203 Zoology

20301 Systematics and Morphology

20302 Evolution, Anthropology

20303 Animal Ecology, Biodiversity and Ecosystem Research

20304 Sensory and Behavioural Biology

20305 Biochemistry and Animal Physiology

20306 Animal Genetics, Cell and Developmental Biology

22 Medicine

204 Microbiology, Virology and Immunology

20401 Metabolism, Biochemistry and Genetics of Microorganisms

20402 Microbial Ecology and Applied Microbiology

20403 Medical Microbiology, Molecular Infection Biology

20404 Virology

20405 Immunology

205 Medicine

20501 Epidemiology, Medical Biometry, Medical Informatics

20502 Public Health, Health Services Research, Social Medicine
20503 Human Genetics
20504 Physiology
20505 Nutritional Sciences
20506 Pathology and Forensic Medicine
20507 Clinical Chemistry and Pathobiochemistry
20508 Pharmacy
20509 Pharmacology
20510 Toxicology and Occupational Medicine
20511 Anaesthesiology
20512 Cardiology, Angiology
20513 Pneumology, Clinical Infectiology, Intensive Care Medicine
20514 Hematology, Oncology, Transfusion Medicine
20515 Gastroenterology, Metabolism
20516 Nephrology
20517 Endocrinology, Diabetology
20518 Rheumatology, Clinical Immunology, Allergology
20519 Dermatology
20520 Pediatric and Adolescent Medicine
20521 Gynaecology and Obstetrics
20522 Reproductive Medicine/Biology
20523 Urology
20524 Gerontology and Geriatric Medicine
20525 Vascular and Visceral Surgery
20526 Cardiothoracic Surgery
20527 Traumatology and Orthopaedics
20528 Dentistry, Oral Surgery
20529 Otolaryngology
20530 Radiology and Nuclear Medicine
20531 Radiation Oncology and Radiobiology
20532 Biomedical Technology and Medical Physics
206 Neurosciences
20601 Molecular Neuroscience and Neurogenetics
20602 Cellular Neuroscience
20603 Developmental Neurobiology
20604 Systemic Neuroscience, Computational Neuroscience, Behaviour
20605 Comparative Neurobiology
20606 Cognitive Neuroscience and Neuroimaging
20607 Molecular Neurology
20608 Clinical Neurosciences I - Neurology, Neurosurgery
20609 Biological Psychiatry
20610 Clinical Neurosciences II - Psychiatry, Psychotherapy, Psychosomatic Medicine
20611 Clinical Neurosciences III - Ophthalmology
23 Agriculture, Forestry, Horticulture and Veterinary Medicine
207 Agriculture, Forestry, Horticulture and Veterinary Medicine
20701 Soil Sciences
20702 Plant Cultivation
20703 Plant Nutrition
20704 Ecology of Agricultural Landscapes
20705 Plant Breeding
20706 Phytomedicine
20707 Agricultural and Food Process Engineering
20708 Agricultural Economics and Sociology

20709 Inventory, Control and Use of Forest Resources
20710 Basic Forest Research
20711 Animal Husbandry, Breeding and Hygiene
20712 Animal Nutrition and Nutrition Physiology
20713 Basic Veterinary Medical Science
20714 Basic Research on Pathogenesis, Diagnostics and Therapy and Clinical Veterinary Medicine

3 Natural Sciences
   31 Chemistry
      301 Molecular Chemistry
         30101 Inorganic Molecular Chemistry
         30102 Organic Molecular Chemistry
      302 Chemical Solid State and Surface Research
         30201 Solid State and Surface Chemistry, Material Synthesis
         30202 Physical Chemistry of Solids and Surfaces, Material Characterisation
         30203 Theory and Modelling
      303 Physical and Theoretical Chemistry
         30301 Physical Chemistry of Molecules, Interfaces and Liquids - Spectroscopy, Kinetics
         30302 General Theoretical Chemistry
      304 Analytical Chemistry, Method Development (Chemistry)
         30401 Analytical Chemistry, Method Development (Chemistry)
      305 Biological Chemistry and Food Chemistry
         30501 Biological and Biomimetic Chemistry
         30502 Food Chemistry
      306 Polymer Research
         30601 Preparatory and Physical Chemistry of Polymers
         30602 Experimental and Theoretical Physics of Polymers
         30603 Polymer Materials
   32 Physics
      307 Condensed Matter Physics
         30701 Experimental Condensed Matter Physics
         30702 Theoretical Condensed Matter Physics
      308 Optics, Quantum Optics and Physics of Atoms, Molecules and Plasmas
         30801 Optics, Quantum Optics, Atoms, Molecules, Plasmas
      309 Particles, Nuclei and Fields
         30901 Particles, Nuclei and Fields
      310 Statistical Physics, Soft Matter, Biological Physics, Nonlinear Dynamics
         31001 Statistical Physics, Soft Matter, Biological Physics, Nonlinear Dynamics
      311 Astrophysics and Astronomy
         31101 Astrophysics and Astronomy
   33 Mathematics
      312 Mathematics
         31201 Mathematics
   34 Geosciences (including Geography)
      313 Atmospheric Science and Oceanography
         31301 Atmospheric Science
         31302 Oceanography
      314 Geology and Palaeontology
         31401 Geology and Palaeontology
      315 Geophysics and Geodesy
         31501 Geophysics
         31502 Geodesy, Photogrammetry, Remote Sensing, Geoinformatics, Cartography
      316 Geochemistry, Mineralogy and Crystallography

31601 Geochemistry, Mineralogy and Crystallography

317 Geography

31701 Physical Geography

31702 Human Geography

318 Water Research

31801 Hydrogeology, Hydrology, Limnology, Urban Water Management, Water Chemistry, Integrated Water Resources Management

4 Engineering Sciences

41 Mechanical and industrial Engineering

401 Production Technology

40101 Metal-Cutting Manufacturing Engineering

40102 Primary Shaping and Reshaping Technology

40103 Micro-, Precision, Mounting, Joining, Separation Technology

40104 Plastics Engineering

40105 Production Automation, Factory Operation, Operations Management

402 Mechanics and Constructive Mechanical Engineering

40201 Construction, Machine Elements

40202 Mechanics

40203 Lightweight Construction, Textile Technology

40204 Acoustics

42 Thermal Engineering/Process Engineering

403 Process Engineering, Technical Chemistry

40301 Chemical and Thermal Process Engineering

40302 Technical Chemistry

40303 Mechanical Process Engineering

40304 Biological Process Engineering

404 Heat Energy Technology, Thermal Machines, Fluid Mechanics

40401 Energy Process Engineering

40402 Technical Thermodynamics

40403 Fluid Mechanics

40404 Hydraulic and Turbo Engines and Piston Engines

43 Materials Science and Engineering

405 Materials Engineering

40501 Metallurgical and Thermal Processes, Thermomechanical Treatment of Materials

40502 Sintered Metallic and Ceramic Materials

40503 Composite Materials

40504 Mechanical Behaviour of Construction Materials

40505 Coating and Surface Technology

406 Materials Science

40601 Thermodynamics and Kinetics of Materials

40602 Synthesis and Properties of Functional Materials

40603 Microstructural Mechanical Properties of Materials

40604 Structuring and Functionalisation

40605 Biomaterials

44 Computer Science, Electrical and System Engineering

407 Systems Engineering

40701 Automation, Control Systems, Robotics, Mechatronics

40702 Measurement Systems

40703 Microsystems

40704 Traffic and Transport Systems, Logistics

40705 Human Factors, Ergonomics, Human-Machine Systems

408 Electrical Engineering

40801 Electronic Semiconductors, Components, Circuits, Systems
40802 Communications, High-Frequency and Network Technology, Theoretical Electrical Engineering
40803 Electrical Energy Generation, Distribution, Application
409 Computer Science
40901 Theoretical Computer Science
40902 Software Technology
40903 Operating, Communication and Information Systems
40904 Artificial Intelligence, Image and Language Processing
40905 Computer Architecture and Embedded Systems
45 Construction Engineering and Architecture
410 Construction Engineering and Architecture
41001 Architecture, Building and Construction History, Sustainable Building Technology, Building Design
41002 Urbanism, Spatial Planning, Transportation and Infrastructure Planning, Landscape Planning
41003 Construction Material Sciences, Chemistry, Building Physics
41004 Structural Engineering, Building Informatics, Construction Operation
41005 Applied Mechanics, Statics and Dynamics
41006 Geotechnics, Hydraulic Engineering