

Lecture 23 – Repositories

Advanced Data Management

Data Science & Scientific Computing / UniTS – DMG
Scientific and Data-intensive Computing / UniTS – DMG

Repository – What is it?



- Data storage / Data base entity/ies into which data has been specifically partitioned for an analytical or reporting purpose
 - Data warehouse
 - a large data repository that aggregates data
 - usually from multiple sources or segments of a business
 - without the data being necessarily related
 - Data lake (needs disambiguation)
 - a large data repository that stores unstructured data
 - classified and tagged with metadata
 - Data mart
 - subsets of the data repository
 - more targeted to what the data user needs and easier to use
 - Data library
 - Data archive
- Particular kind of setup within an overall IT structure, such as a group of databases, where an enterprise or organization has chosen to keep various kinds of data
- Metadata repositories store data about data and data bases
 - Where the data source is, how it was captured, and what it represents

Repository – Some disambiguation



- Repository has additional functionalities compared with registry
 - Registries stores metadata
 - Repositories add relationships with related metadata types
 - Distinction is really loose / hardly enforced
- Disambigua to collections
 - Grouping of digital objects, within a scope
 - Collections are themselves resources in repositories

Repository – Goals



- FAIR principles: Findable
 - *“F4. (meta) data are registered or indexed in a searchable resource.”*
- Keep a certain population of data isolated so that it can be mined
 - isolated: living in its one fragmented/distributed source
 - For greater insight
 - For business intelligence
 - To be used for a specific (reporting) need
- Isolation allows for easier and faster data reporting or analysis because the data is clustered together
 - Not necessarily by location
- Data is preserved and archived

Metadata Repository



- Data repositories
 - Index data
 - Provide access to
 - Data collections
 - Datasets
 - (usually) keep meta information dedicated to filtering
- Metadata repositories
 - (usually) don't provide storage space
 - Use linking solutions to point or access data
 - Provide rich metadata documents
 - (usually) standardized
 - More general in scope
 - discovery/filtering
 - relationships

Repository – Usage




- There are more and more data open and available through data repositories: it becomes ever more challenging for researchers to find relevant data.
- Example
 - The Open Access Directory (OAD) is a compendium of simple factual lists about open access (OA) to science and scholarship, maintained by the OA community at large. By bringing many OA-related lists together in one place, OAD makes it easier for everyone to discover them, use them for reference, and update them.

Repository – Usage



● There are more and more data open and available through data

Data repositories

 This list is part of the [Open Access Directory](#).

- This is a list of repositories and databases for open data.
- Please annotate the entries to indicate the hosting organization, scope, licensing, and usage restrictions (if any). If a repository is open in some respects but not others, please include it with an annotation rather than exclude it.
- If you're not sure whether a given dataset or data collection is open, post your query to [Is It Open Data?](#)
- Related lists in OAD: [Disciplinary repositories](#) (primarily for texts, not data).
- For news about data repositories, including some newly launched repositories not yet listed here, follow the [oa.repositories.data](#) tag of the [Open Access Tracking Project](#).
- See also: [re3data.org](#). The re3data.org project intends to create a global registry of research data repositories.

Archaeology

- *Also see* Social sciences.
- [Archaeology Data Service](#).
- [Fasti Online](#). Subdivided in Excavation, Restauration and Survey.
- [Open Context](#). From the [Alexandria Archive Institute](#).
- the [Digital Archaeological Record](#). From [Digital Antiquity](#).

Astronomy

- *Also see* Physics.
- [Astronomical Data Archives Center](#). From the [National Astronomical Observatory of Japan](#).
- [Astrophysics Data System](#). From the [Smithsonian Astrophysical Observatory](#) (SAO) and [National Aeronautics and Space Administration](#) (NASA).
- [The Canadian Astronomy Data Centre](#). From the [National Research Council Canada](#).
- [National Space Science Data Center](#). From the US [National Aeronautics and Space Administration](#) (NASA).

Biology

- *Also see* BCO-DMO, Marine Biology data, listed with Marine Sciences repositories.
- *Also see* DataONE, Entrez databases, KNB, and PANGAEA, listed under Multidisciplinary repositories.
- [The Arabidopsis Information Resource](#) - The Arabidopsis Information Resource (TAIR) maintains a [database](#) of genetic and [molecular biology data](#) for the model higher plant [Arabidopsis thaliana](#).
- [BOND](#) (Biomolecular Object Network Databank). From [Unleashed Informatics](#).
- [The Cell: An Image Library](#) Images of all cell types from all organisms, including intracellular structures and movies or animations demonstrating functions. This project relies upon the cell biology community to populate the library. The Cell: An Image Library™ is a freely accessible, easy-to-search, public repository of reviewed and annotated images, videos, and animations of cells from a variety of organisms, showcasing cell architecture, intracellular functionalities, and both normal and abnormal processes. The purpose of this

Contents [\[hide\]](#)

- 1 Archaeology
- 2 Astronomy
- 3 Biology
- 4 Chemistry
- 5 Computer Science
- 6 Energy
- 7 Environmental sciences
- 8 Geology
- 9 Geosciences and geospatial data
- 10 Linguistics
- 11 Marine sciences
- 12 Medicine
- 13 Multidisciplinary repositories
- 14 Physics
- 15 Social sciences

Repository – Usage



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- Where to start from?
 - Use Google?
 - Use a specific “global” research index?
 - Find your domain starting point?



- Data Discovery Paradigms (IG)
 - User Requirements and Recommendations for Data Repositories
 - <https://www.rd-alliance.org/group/data-discovery-paradigms-ig/outcomes/data-discovery-paradigms-user-requirements-and>
- Purpose
 - Help data repositories improve the findability of data in their repository
- Approach
 - Collected use cases describing users' needs, and the contexts of these needs, when searching for data
- Outcome
 - Identified requirements for data discovery in repositories
 - Proposed a set of recommendations

RDA – DDP-IG (2) – Rationale

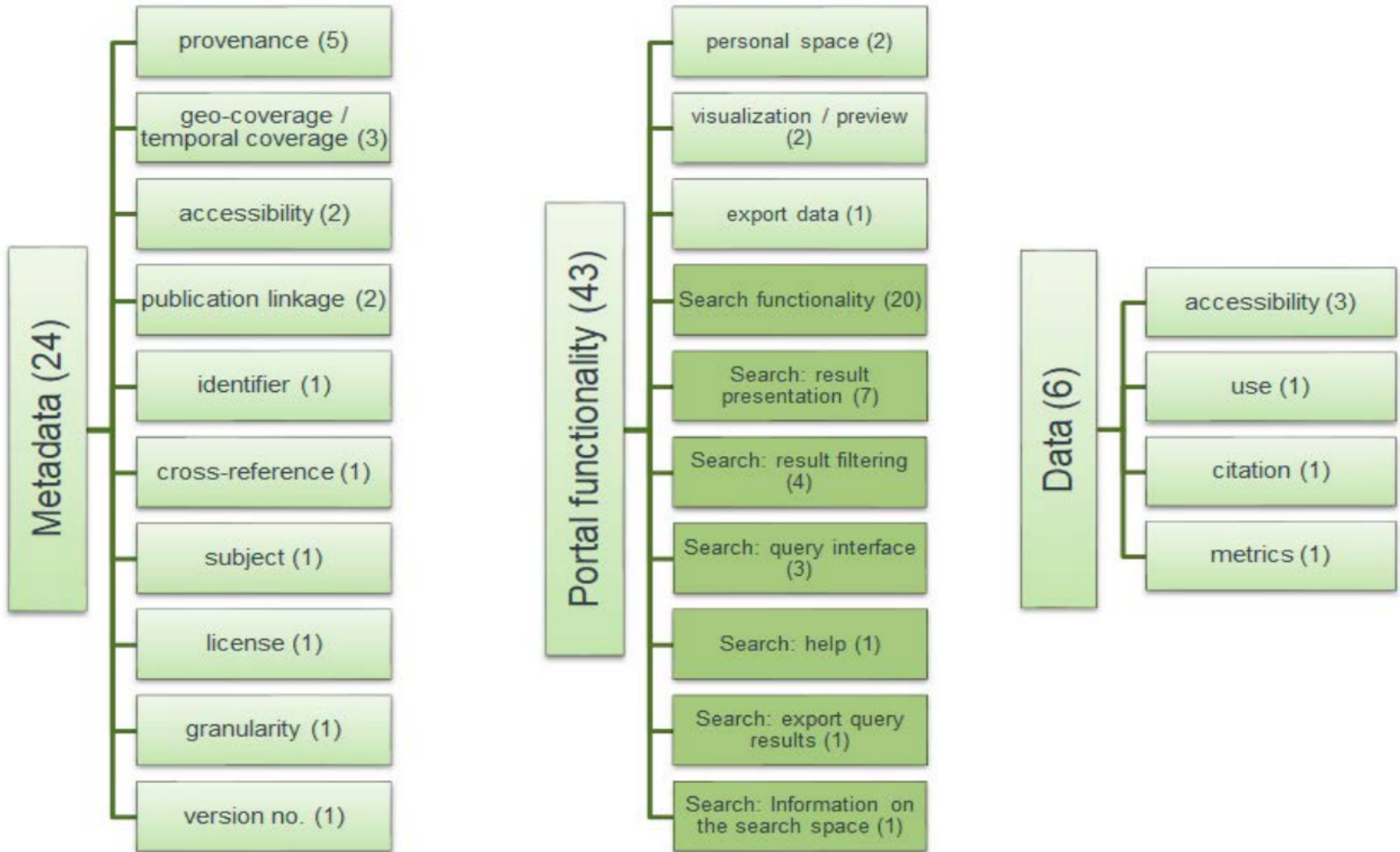


- Data repositories can adapt methodologies and learnt experiences from the design of web-based information systems, and digital library in particular
- Some data repositories have been following the path of user-centred system design principle gathering use cases and requirements
- Some design and evaluation criteria may apply only to a specific repository
- Some trans-repository criteria can be generalised and may serve as guidelines for other data repositories
- DDP-IG study attempts to identify which criteria are of common relevance

RDA – DDP-IG (3) – Use cases



classification scheme summary



RDA – DDP-IG (4) – Requirements



- 1) Indication of data availability
 - Search usually dropped if no clear indication of data availability
- 2) Connection of data with person / institution / paper / citations / grants
 - allows for ranking of datasets, comparative studies, manuscript direct connection
- 3) Fully annotated data (including granularity, origin, licensing, provenance, ...)
 - validate the use of a dataset in a particular study
- 4) Filtering of data based on specific criteria on multiple fields at the same time
 - Support targeted studies
- 5) Cross-referencing of data (same or different repositories)
 - avoid duplication, maximise efficiency and access
- 6) Visual analytics / inspection of data / thumbnail preview
 - quick visual filtering from a results set to validate dataset use
- 7) Sharing data (whole dataset/particular records/bibliographic information) in a collaborative environment
 - common space of keeping both data and their versions across time
 - quick check on latest changes
 - share bibliographic information
- 8) Accompanying educational / training material
- 9) Portal functionality similar to other established academic portals
 - subject/visual search, free text search, build query functionality, subscription, ...

RDA – DDP-IG (5) – Recommendations



- 1) Provide a range of query interfaces to accommodate various data search behaviours
- 2) Provide multiple access points to find data
- 3) Make it easier to judge relevance, accessibility and reusability of a data collection
- 4) Make Individual metadata records readable and analysable
- 5) Be able to share and output bibliographic references
- 6) Provide feedback about data usage statistics
- 7) Be consistent with other repositories
- 8) Identify and aggregate metadata records that describe the same data object
- 9) Make metadata records easily indexed and searchable by major web search engines
- 10) Follow API search standards and community adopted vocabularies for interoperability

RDA – DDP-IG (6) – Recommendations



	REQ1: Data availability	REQ2: Connection of data	REQ3: Annotations	REQ4: Filtering	REQ5: Cross-referencing	REQ6: Inspection of data	REQ7: Collaborative environment	REQ9: Similarity across portals	REQ8: Training material
REC 1: Query interfaces			✓		✓		✓		
REC 2: Multiple access points		✓		✓		✓		✓	
REC 3: Summarize search results	✓		✓			✓			
REC 4: Metadata records readable		✓	✓						
REC 5: Bibliographic references							✓		
REC 6: Usage statistics			✓						
REC 7: Consistency								✓	
REC 8: Identify duplicates		✓			✓				
REC 9: Findability from web SEs	Support data searches from web search engines								
REC 10: Interoperability	The Fair Data Principles								

Ten simple rules for finding data

Repositories - examples



- Repositories can be
 - Domain specific
 - General purpose
- Following slides will show examples of
 - Community driven efforts
 - Project based solutions
 - Super-national driven entities
 - Document based repositories
 - Linked data solutions

- REgistry of REsearch REpositories (re3data.org)
- “By offering detailed information on more than 2,000 research data repositories, re3data has become the most comprehensive source of reference for research data infrastructures globally”

Search Browse Suggest Resources Contact DataCite

re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES

Search... Search

Suggest Resources

- Schema 3.0
- Schema 2.2
- API
- Metrics
- FAQ
- About

Search Browse Su

- Browse by subject
- Browse by content type
- Browse by country

Filter

[Reset all](#)

Subjects

- Natural Sciences (1)
 - Physics (1)
 - Astrophysics and Astronomy (1)

Content Types

Countries

API

OAI-PMH (1)

[other \(1\)](#)

Data access

Database access

Database licenses

Data licenses

Data upload

Data upload restrictions

Enhanced publication

Institution responsibility type

Institution type

Keywords

PID systems

DOI (1)

[other \(1\)](#)

Provider types

Quality management

Repository languages

Syndications

Repository types

Search...

Search

[Toggle short help](#)

Sort by ▾

← Previous **1** Next →

Found 1 result(s)

GAVO Data Center

German Astrophysical Virtual Observatory Data Center

Subject(s)

Physics Astrophysics and Astronomy Natural Sciences

Content type(s)

Standard office documents Images Scientific and statistical data formats Structured graphics Databases Raw data Software applications

Country

Germany

The GAVO data center at Zentrum für Astronomie der Universität Heidelberg

Repository details

GAVO Data Center

[General](#) [Institutions](#) [Terms](#) [Standards](#)

Persistent identifier system(s) other
DOI

Data citation guideline <http://dc.g-vo.org/hsol/q/q/howtocite>

Enhanced Publication yes

Quality management unknown

Application programming interfaces (3)

API type other

URL http://dc.zah.uni-heidelberg.de/_system_/adql/query/form

API type other

URL <http://dc.zah.uni-heidelberg.de/tap>

API type OAI-PMH

URL <http://dc.zah.uni-heidelberg.de/oai.xml>

Alerting services (1)

Type of alerting service RSS

Alerting service <http://dc.g-vo.org/regrss>

The screenshot shows the OpenAIRE website interface. At the top, there is a navigation bar with a home icon and the following menu items: EXPLORE, PROVIDE, CONNECT, MONITOR, and DEVELOP. Below this, a secondary navigation bar includes SERVICES, SUPPORT, OPEN SCIENCE IN EUROPE, and ABOUT, along with a search icon. The main content area features the OpenAIRE logo and the word 'EXPLORE' in orange. To the right of the logo are links for SEARCH, SHARE, LINK, and CONTENT PROVIDERS.

Publications	Funder	Project	Publication Date
Research Data	European Commissi... (294,518)	Programs on Critical ... (1,813)	2015 (1,792,868)
Software	National Institutes of... (203,439)	ASIA (1,401)	2014 (1,763,781)
Other Research Products	National Science Fou... (178,206)	COLLMOT (1,128)	2016 (1,756,358)
Projects	Wellcome Trust (65,458)	XSEDE: eXtreme Scie... (1,055)	2017 (1,581,232)
Content Providers	Research Council UK (52,793)	HIPEAC (1,047)	2013 (1,580,518)
Organizations	View more	View more	View more
	Access Mode	Type	Language
	Open Access (23,583,069)	Article (12,395,853)	English (12,226,453)
	Restricted (279,004)	Other literature type (3,712,093)	Undetermined (1,954,593)
	Closed Access (207,158)	Preprint (1,960,594)	Russian (1,564,268)
	not available (24,387)	Doctoral thesis (1,421,576)	Japanese (1,442,111)
	Embargo (7,518)	Research (1,357,914)	Portuguese (1,155,990)
		View more	View more
	Community	Content Provider	
	EGI Federation (18,047)	Europe PubMed Cen... (4,971,143)	
	FET FP7 (9,098)	JAIRO (1,896,451)	
	FET H2020 (2,104)	arXiv.org e-Print Arc... (1,438,640)	
	Research Data Allian... (28)	LAReferencia - Red F... (1,268,782)	
		CyberLeninka - Russl... (1,254,605)	
		View more	

- (openaire.eu)
- EOSC-related initiative
- Multi-faceted
- Includes a Repository
 - And APIs



- (eudat.eu)
- EU funded initiative
 - Connected to EOSC

➤ Data discovery



B2FIND

Service Area: Data discovery

B2FIND is a **discovery service based on metadata steadily harvested from research data collections from EUDAT data centres and other community repositories**. The service offers faceted browsing and it allows in particular to discover data that is stored through the B2SAFE and

B2SHARE services.

👤 *User, Repository Manager, Community Manager*

Filter by location Clear

Map data © OpenStreetMap contributors
Tiles by Stamen Design (CC BY 3.0)

Filter by time Clear

Start:

End:

Publication Year Clear

to

Communities ▼

Tags ▼

Creator ▼

Discipline ▼

Language ▼

Publisher ▼

693,600 datasets found Order by: Relevance ▼

Alpine3D simulations of future climate scenarios CH2014

Overview The CH2014-Impacts initiative is a concerted national effort to describe impacts of climate change in Switzerland quantitatively, drawing on the scientific resources...

Fatal avalanche accidents in Switzerland since 1995-1996

This data collection contains information concerning all accidents by snow avalanches causing at least one fatality in Switzerland. The data set commences on 01/10/1995. After...

Number of avalanche fatalities per hydrological year in Switzerland since 193...

This dataset contains the statistics on the number of avalanche fatalities per hydrological year in Switzerland. The data set commences with the beginning of the hydrological...

Precipitation Scaling Data Set (Vögeli et al., Frontiers)

Dataset (Model input, snow distribution and validation) for the precipitation scaling paper, which should be cited along with the data set citation. This data is useful for...

DISCHMEX - Impact of extreme land-surface heterogeneity on micrometeorology o...

This dataset contains eddy-covariance measurements in the ablation period of 2014-2016. Measurements were taken from two turbulence towers over a long-lasting snow patch, which...

DISCHMEX - High-resolution daily snow ablation rates in an Alpine environment...

We recorded snow ablation maps with a terrestrial laser scanner (TLS, Riegl-VZ6000) at the Gletschboden area. The TLS position is located approximately 30 vertical meters above...

Forest Access Roads 2013 Walderschliessungsstrassen LFI3

In 2013–2014, a survey was conducted in Switzerland to update the Forest Access Roads geo-dataset within the framework of the Swiss National Forest Inventory (NFI). The...

A curated, informative and educational resource on data and metadata *standards*, inter-related to *databases* and data *policies*.

(fairsharing.org)

View as Table | View as Grid

Sort by
Best Match

Recommended Records

Associated Publication?
No Publication | Has Publication

Claimed?
No Maintainer | Has Maintainer

Record Status
Uncertain | Deprecated | In develop | Ready

Standard Type

- Model/Format: 21
- Reporting Guideline: 19
- Terminology Artifact: 3
- Identifier Schema: 1

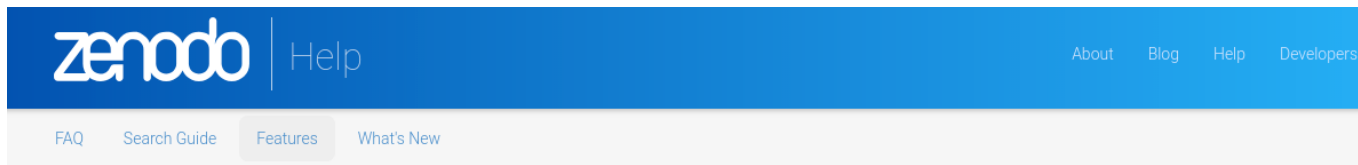
Domains

- Web Service: 10
- Data Model: 7
- Report: 4
- Resource Metadata: 4

44 records in view

Registry	Name	Abbreviation	Type	Subject	Domain	Taxonomy	Related Database	Related Standard	Related Policy	In Collection/Recommendation	Status
	IVOA Identifier	IVOA Identifier	Standard	Astrophysics And Astronomy	Centrally Registered Identifier	Not applicable	None	IVOA Registry Interfaces StandardsRegExt VOResource VODataService RegTAP Plus 2 more...	None	International Virtual Observatory Alliance (IVOA)	R
	IVOA Registry Interfaces	IVOA Registry Interfaces	Standard	Astrophysics And Astronomy	None	Not applicable	None	StandardsRegExt VOResource IVOA RM SimpleDALRegExt VODataService Plus 2 more...	None	International Virtual Observatory Alliance (IVOA)	R
	IVOA Standard for Unified Content Descriptors	IVOA UCD	Standard	Astrophysics And Astronomy	None	Not applicable	None	UCD1+ Vocabulary Vocabularies in the Virtual Observatory VOUnits	None	International Virtual Observatory Alliance (IVOA)	R
	IVOA Credential Delegation Protocol	IVOA Credential Delegation Protocol	Standard	Astrophysics And Astronomy	Web Service	Not applicable	None	IVOA Web Services Basic Profile VOSI PDL VOSpace UWS Plus 1 more...	None	International Virtual Observatory Alliance (IVOA)	R
	IVQA-Web Services-Basic Profile	IVQA-Web Services-Basic Profile	Standard	Astrophysics And Astronomy	Web Service	Not applicable	None	PDL SSO - Authentication VOSpace IVOA Credential Delegation Protocol UWS Plus 1 more...	None	International Virtual Observatory Alliance (IVOA)	D
	IVOA Support Interfaces	VOSI	Standard	Astrophysics And Astronomy	Web Service	Not applicable	None	PDL VOSpace UWS IVOA Web Services Basic Profile SimpleDALRegExt Plus 2 more...	None	International Virtual Observatory Alliance (IVOA)	R

- (zenodo.org)
 - CERN based
 - OpenAIRE connected
 - General content repository, mainly papers/proceedings/presentations...



Introducing Zenodo!

(All) Research.
Shared.

– your one stop research shop!

all research outputs from across all fields of research are welcome! Zenodo accepts any file format as well as both positive and negative results. We choose to promote peer-reviewed openly accessible research, and we curate the uploads posted on the front-page.

Citeable.
Discoverable.

– be found!

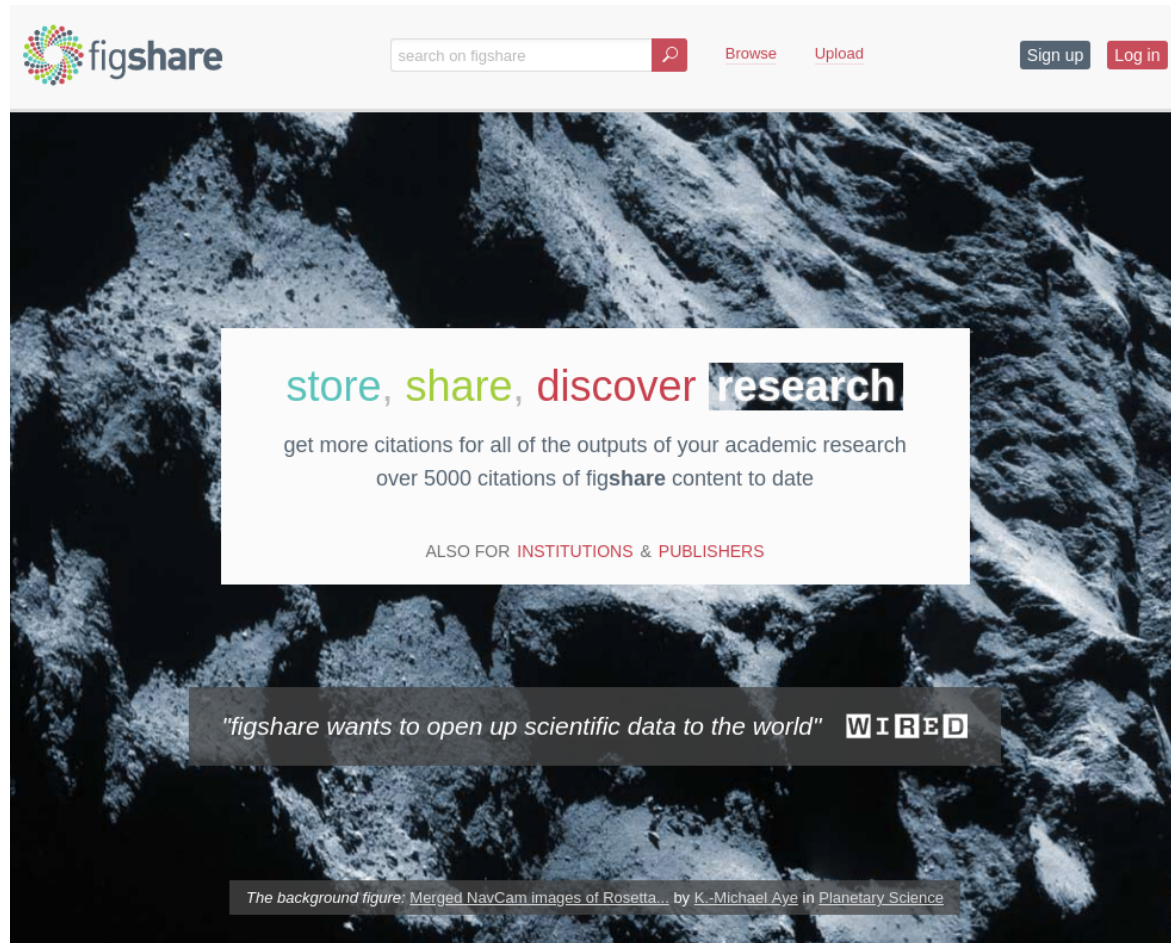
Zenodo assigns all publicly available uploads a Digital Object Identifier (DOI) to make the upload easily and uniquely citeable. Zenodo further supports harvesting of all content via the OAI-PMH protocol.

Communities

– create your own repository

Zenodo allows you to create your own collection and accept or reject uploads submitted to it. Creating a space for your next workshop or project has never been easier. Plus, everything is citeable and discoverable!

- (figshare.com)
- Publication driven
- Support service
- [upload limits]



store, share, discover **research**

get more citations for all of the outputs of your academic research
over 5000 citations of figshare content to date

ALSO FOR INSTITUTIONS & PUBLISHERS

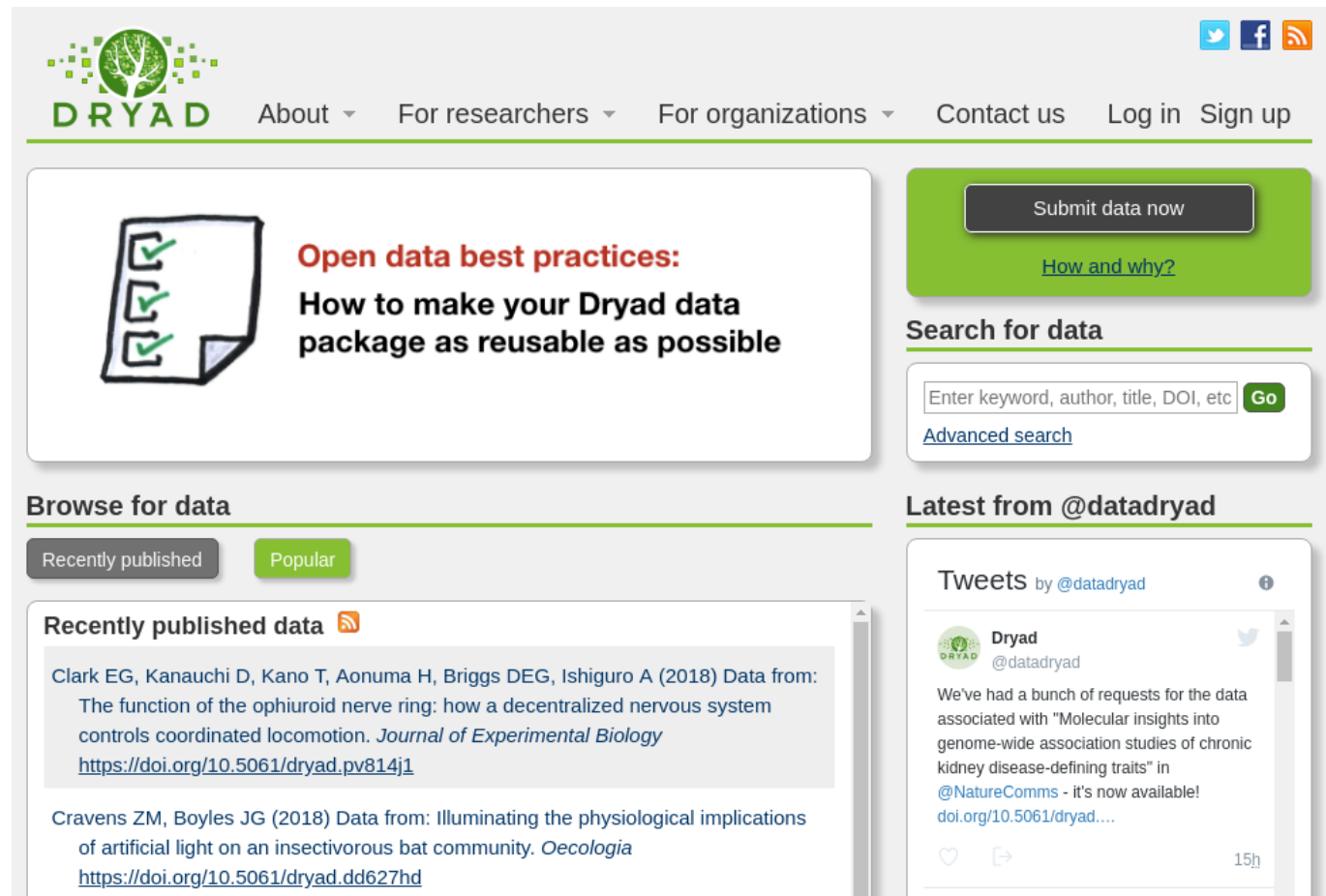
"figshare wants to open up scientific data to the world" **WIRED**

The background figure: Merged NavCam images of Rosetta... by K.-Michael Aye in Planetary Science

simplifying your research workflow

Upload > Manage > Share > Publish

- (datadryad.org)
 - The Dryad Digital Repository is a curated resource that makes the data underlying scientific publications discoverable, freely reusable, and citable. Dryad provides a general-purpose home for a wide diversity of datatypes.
 - Nonprofit



The screenshot shows the Dryad website homepage. At the top, there is a navigation bar with the Dryad logo and links for 'About', 'For researchers', 'For organizations', 'Contact us', 'Log in', and 'Sign up'. Social media icons for Twitter, Facebook, and RSS are also present. A prominent green button says 'Submit data now' with a link to 'How and why?'. Below this is a search bar with the text 'Enter keyword, author, title, DOI, etc.' and a 'Go' button, along with a link to 'Advanced search'. The main content area features a 'Browse for data' section with 'Recently published' and 'Popular' tabs. Under 'Recently published data', two entries are listed: one by Clark EG et al. (2018) on the function of the ophiuroid nerve ring, and another by Cravens ZM and Boyles JG (2018) on the physiological implications of artificial light on an insectivorous bat community. On the right side, there is a 'Latest from @datadryad' section showing a tweet from Dryad (@datadryad) about molecular insights into chronic kidney disease.

- Directory of Open Access Journals
 - (doaj.org)
 - Journals as primary records
 - Articles out of them

DOAJ DIRECTORY OF
OPEN ACCESS
JOURNALS

SUPPORT
DOAJ

Home Search Browse Subjects Apply News About For Publishers API

Login

Search DOAJ



journals articles

[\[Advanced Search\]](#)

12,372 Journals
9,415 searchable at Article level
129 Countries
3,566,892 Articles

 Seleziona lingua ▼

[FAQs](#)

[OAI-PMH, XML, Widgets](#)

[Open Access Resources](#)

[Transparency & Best Practice](#)

[Download metadata](#)

[Journals Added/Removed](#)

 [New Journals Feed](#)

DOAJ (Directory of Open Access Journals)

DOAJ is a community-curated online directory that indexes and provides access to high quality, open access, peer-reviewed journals. DOAJ is independent. All funding is via donations, 40% of which comes from [sponsors](#) and 60% from [members and publisher members](#). All DOAJ services are free of charge including being indexed in DOAJ. All data is freely available.

DOAJ operates an education and outreach program across the globe, focussing on improving the quality of applications submitted.

- Open access to 1,475,672 e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance, Statistics, Electrical Engineering and Systems Science, and Economics
 - (arxiv.org)
- User driven repository
- Used mainly for pre-prints and ongoing work
 - Author-paper relationship “limited”



Cornell University Library

We gratefully acknowledge support from the Simons Foundation and member institutions

arXiv.org

Search or Article ID All fields

[Login](#)
[Help](#) | [Advanced search](#)

Open access to 1,475,672 e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance, Statistics, Electrical Engineering and Systems Science, and Economics

Subject search and browse:

6 Nov 2018: [December 2018, January 2019 holiday schedule announced](#)

5 Sept 2018: [arXiv looks to the future with move to Cornell CIS](#)

See cumulative "[What's New](#)" pages. Read [robots beware](#) before attempting any automated download

- The SAO/NASA Astrophysics Data System
- (adsabs.harvard.edu)



The SAO/NASA Astrophysics Data System

Search

[Search](#) [Browse](#) [Help](#)

Welcome to the Digital Library for Physics and Astronomy



This site is hosted by the
[High Energy Astrophysics Division](#) at the
[Harvard-Smithsonian Center for Astrophysics](#)



Authors: (Last, First M, one per line) SIMBAD NED ADS [Objects](#)

Exact name matching

Object name/position search

Require author for selection

Require object for selection

(OR AND simple logic)

(Combine with: OR AND)

Publication Date between and
 (MM) (YYYY) (MM) (YYYY)

Enter [Title Words](#) Require title for selection
 (Combine with: OR AND simple logic boolean logic)

Enter [Abstract Words/Keywords](#) Require text for selection
 (Combine with: OR AND simple logic boolean logic)

Return items starting with number

ads Feedback ORCID About Account

QUICK FIELD: Author First Author Abstract Year Fulltext All Search Terms

author:"huchra, john" Search

Your search returned 127 results

127 selected

Show highlights Show abstracts Hide Sidebars Go To Bottom

Rank	Year	Title	Author(s)	Cited
1	2012/06	VizieR Online Data Catalog: The 2MASS Redshift Survey (2MRS) (Huchra+, 2012)	Huchra, J. P.; Macri, L. M.; Masters, K. L. and 17 more	
2	2012/04	The 2MASS Redshift Survey—Description and Data Release	Huchra, John P.; Macri, Lucas M.; Masters, Karen L. and 17 more	284
3	2011	Astronomical Publishing: Yesterday, Today and Tomorrow	Huchra, John	
4	2009/01	The International Year of Astronomy 2009 Overview	Huchra, John; Isbell, D.; Deustua, S. E. and 1 more	
5	2007/10	Keynote Address: Science Libraries in the Information Age	Huchra, J. P.	1
6	2006/01	The State of the Universe Report	Huchra, J.	
7	2005/06	The 2MASS Redshift Survey and Low Galactic Latitude Large-Scale Structure	Huchra, J.; Jarrett, T.; Skrutskie, M. and 7 more	46
8	2005/01	2MASS and the Nearby Universe	Huchra, J.; Martimbeau, N.; Jarrett, T. and 7 more	20

1972-1975 1976-1979 1980-1983 1984-1987 1988-1991 1992-1995 1996-1999 2000-2003 2004-2007 2008-2011 2012

Limit results to papers from 1972 to 2012 Apply

RofR (IVOA)



- Registry of Registries
 - (rofr.ivoa.net)
- Distributed
- Domain driven
- API based
 - GUI exist
 - Limited

International Virtual Observatory Alliance
IVOA Registry of Registries



[Register/Validate a Registry](#) | [Guide for Registry Providers](#) | [Registry Specifications](#) | [IVOA Registry Working Group](#)

Welcome to the Registry of Registries

The Registry of Registries (RofR, pronounced *rover*) is a web portal provided on behalf of the International Virtual Observatory Alliance (IVOA) and overseen by the IVOA Registry Working Group. It is targeted to VO registry providers and VO application developers that wish to interact with registries.

The key service provide by the RofR is an IVOA publishing registry that lists all publishing registries known to the IVOA. When a resource metadata harvester harvests from these publishing registries, they can discover all published VO resources around the world. The design and recommend uses of the RofR is documented in the IVOA Note, The Registry of Registries.

If you maintain a publishing registry and you are ready to let it be known to the outside world, you can register it here. Before you are allowed to register, you must demonstrate that it conforms to the IVOA Registry Interfaces standard. Note, that you can use the registry validator to check your registry without actually registering it.

Looking for Registries?

Click on [+] below to see the corresponding list.

[+] Full Searchable Registries

These registries claim to harvest from publishers regularly and therefore should have records for all resources known in the VO. This list is generated from a cached list that is updated every four hours by a query to a full searchable registry.

WFAU Publishing Registry

IVOA Identifier: <ivo://wfau.roe.ac.uk/org.astrogrid.registry.RegistryService>

Search service endpoint: http://publishing-registry.roe.ac.uk:80/astrogrid-registry_v1_0/services/RegistryQueryv1_0

STScI Searchable Registry

IVOA Identifier: <ivo://archive.stsci.edu/nvregistry>

Search service endpoint: <http://vao.stsci.edu/directory/ristandardservice.asmx?>

EURO-VO Full Harvestable Registry

IVOA Identifier: <ivo://esavo/registry>

Search service endpoint: <http://registry.euro-vo.org/services/RegistrySearch>

RegTAP service endpoint: <http://registry.euro-vo.org/regtap/tap>

[+] Currently Registered Publishing Registries

These publishing registries have successfully register with the RofR after a full validation. These are the registries that the full searchable registries are pulling records from. This list is generated on-the-fly via a query to the RofR's harvesting interface.

For support, please contact ivoa-rofr@cfa.harvard.edu

Do still exist single “archives”?



- A lot
 - Domain specific
 - Custom based
 - Some trying to reach open interoperation
 - Depending on the domain (usually)
- They're usually listed as items inside more general repositories
- They can provide quite powerful analysis/discovery interfaces
 - Because of the specific scenario they expose
- Some astrophysics VO examples
 - ESA (<http://sky.esa.int/>)
 - ESO (<http://archive.eso.org/scienceportal/home>)
 - MAST (<https://archive.stsci.edu/>)
 - CADC (<http://www.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/en/>)

Repository Certification



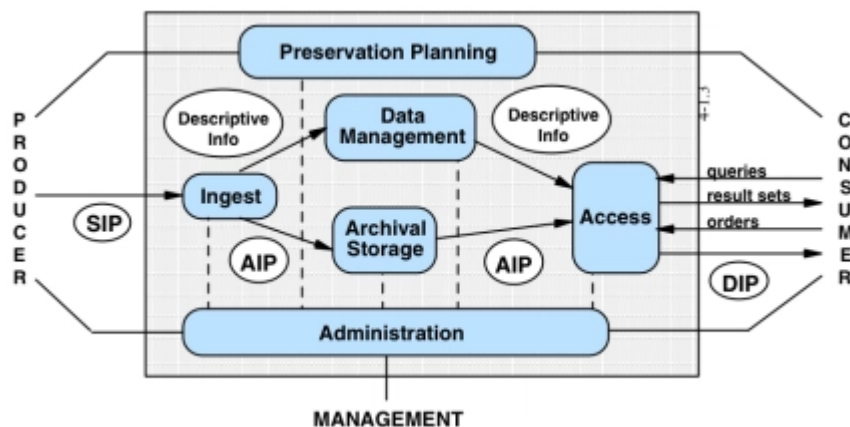
- National and international funders will (likely) mandate
 - Open data
 - Data management policies for the long-term storage and accessibility of data
 - Access to funded data products and proper data management plans (DMP)
- Need to store shared data in a trustworthy data repository
 - managed, curated, and archived to preserve the initial investment in collecting them
- Sustainability of repositories raises a number of challenging issues in different areas
 - Organizational, technical, financial, legal, etc.
- Certification can be an important contribution to ensuring the reliability and durability of data repositories
- By becoming certified, repositories can demonstrate to both their users and their funders that an independent authority has endorsed their trustworthiness.



Core Trust Seal



- (www.coretrustseal.org)
 - Core certification involves a minimally intensive process whereby data repositories supply evidence that they are sustainable and trustworthy
 - A repository first conducts an internal self-assessment, which is then reviewed by community peers
 - Such assessments help data communities to improve the quality and transparency of their processes, and to increase awareness of and compliance with established standards
 - This community approach guarantees an inclusive atmosphere in which the candidate repository and the reviewers closely interact
- https://www.coretrustseal.org/wp-content/uploads/2017/01/Core_Trustworthy_Data_Repositories_Requirements_01_00.pdf



Open
Archive
Information
System