

# Content & Curation

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ADS Users Group Meeting, 16-17 Nov. 2023



# Content & Curation

- Content & Curation Roadmap Update (Edwin)
- Content update 2023 (Carolyn/Daniel)
  - Introducing the Earth Science collection
  - Journals update (selection & agreements)
  - Data links & citations (Edwin)
- Integration of NASA bibliographies (Jenny)
- Journals Database & Completion Statistics and Affiliations (Matthew)



# Content & Curation Roadmap

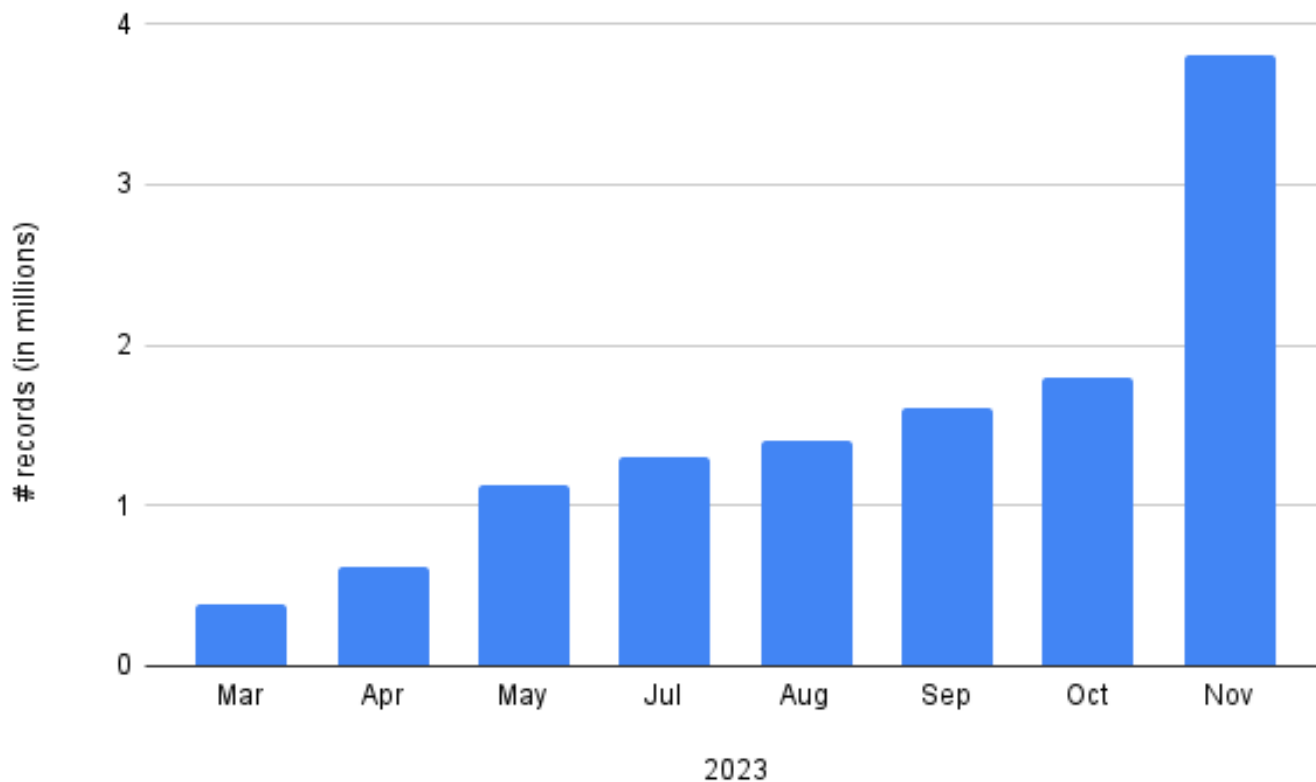
- Identify missing content (citation analysis, internal reporting tools, external bibliography databases)
- Harvest data from external bibliography databases to create ADS bibliographic groups (bibgroups) - e.g. NASA PubSpace
- Testing of the new Reference Pipeline (replacement for Classic reference matching workflow)
- Mining of full text for data links in Data Availability sections
- Use OpenAlex to improve our metadata coverage, like Open Access and licensing information
- New sources of preprints (ESSOAr, EarthArXiv)
- New preprint/journal article matching workflow
- Improve gray literature coverage by harvesting Harvard library catalog
- RFC writing and discussions for replacement of the ADS bibliographic identifier (bibcode)
- The ADS Journals Database

# 2023 Content update

- 10% growth in abstracts (20.3m) and citations (181m); 1.28m new fulltext records
- Weekly updates
  - 2,500 abstracts/week (AST) (up from 2100)
  - 12,000 abstracts/week (PHY) (up from 10,000)
  - 380,000 citations/week (up from 250,000)
- Software and Curated Datasets (PDS and JAXA)
  - ~3400 software records; < 100 dataset records
- Planetary/Heliophysics additions
  - MPEC weekly updates, EMAC collaboration, Heliophysics decadal papers
  - Updates to existing records (references and fulltext)
  - Planetary Feature Names Project
- Earth Science collection
  - 3.8 million since March 2023
  - ~2000 new journals



# Earth Science Collection





# Earth Science Collection - Journal Identification

- Initially, over 25,000 earth science journals were identified.
- Many challenges faced (e.g., messy data).
  - To address these issues, a new methodology was implemented:
    - Direct identification of journals from publisher data sources.
    - Verifying journal metadata via databases and indices.
    - Reliance on Elsevier's Scopus for bibliometric data and subject prioritization.



# Subject Category Identification & ASJC Codes

- New earth science ontology created.
- All Science Journal Classification (ASJC) codes used to classify journals in earth science and related fields:
  - **Minimum Scope:** Basic earth and planetary sciences categories.
  - **Median Scope:** Expands to include agricultural, biological sciences.
  - **Maximum Scope:** Broadens further to encompass engineering, materials science, physics, chemistry, and other related categories.



# Earth Science Collection - Journals Update

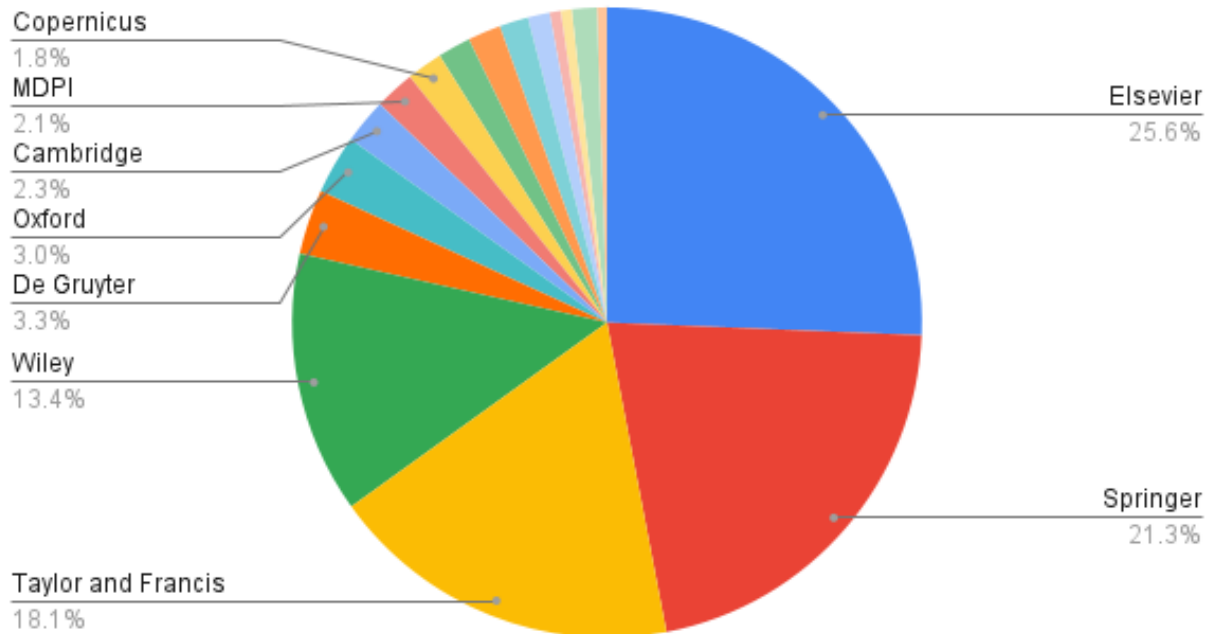
- Journals classified as “minimum scope” from all major and minor publishers are set for curation.
  - The curation process included verification and error-checking of the automatically identified journals.
  - Newly curated “minimum-minimum” scope lists are enhanced with additional metadata and categories.
- 
- New “Minimum-Minimum” Scope Categories:
    - Environmental Science
    - Environmental Studies
    - Energy / Sustainability / Green Technologies
    - Ecology



# Journals Update (cont.)

- ~2000 journals identified as minimum scope

Earth Science Content by Publisher



# Earth Science Collection - Ingesting the Data

- Publisher liaison reworking existing agreements and generating new agreements
  - Fulltext indexing legalities very fluid with surge in AI/ML
  - Some publishers asking for fee per journal
- CrossRef feed for journals not covered by those agreements
- Some new publisher feeds, especially from open source publishers (MDPI, IUCr, Pensoft)
- CrossRef data as placeholder until publisher content delivered



# Earth Science Collection - next steps

- Update content with publisher data, including full text
- Review additional journals (earth scientist)
- Classify existing content (multi-disciplinary)
- Identify and acquire grey literature
- Use citation analysis to identify additional missing content
- Metadata enrichment (linking out to data, software, etc.)
- GeoRef comparison/analysis

# Data links & citations

The screenshot shows the ADS interface for the paper "Jupiter's Great Red Spot: Strong Interactions With Incoming Anticyclones in 2019". The search bar contains the ID "2021JGRE..12606686S". The left sidebar shows navigation options like "Abstract", "Citations (9)", "References (43)", etc. The main content area displays the abstract text and a metadata table.

**Publication:** Journal of Geophysical Research: Planets, Volume 126, Issue 4, article id. e06686

**Pub Date:** April 2021

**DOI:** [10.1029/2020JE006686](https://doi.org/10.1029/2020JE006686)

**Bibcode:** [2021JGRE..12606686S](https://ui.adsabs.org/abs/2021JGRE..12606686S)

**Keywords:** Atmosphere; dynamics; Jupiter

We are currently scanning the Data Availability Statement sections for 50 journals (e.g. all AGU, AAS and AMS journals). So far, 80k data links have been extracted.

The screenshot shows the "Open Research" section of the ADS interface. It contains a "Data Availability Statement" for the paper "Jupiter Great Red Spot flakes". The statement lists the sources of the data and provides links to the original data and software used in the study.

**Data Availability Statement**

Sánchez-Lavega, (2021): Jupiter Great Red Spot flakes. figshare. Collection. <https://doi.org/10.6084/m9.figshare.c.5226206.v2>

The ground-based images included in the above repository have been downloaded from the following sources:

- Association of Lunar and Planetary Observers ALPO – Japan: <http://alpo-j.sakura.ne.jp/Latest/jupiter.htm>
- PV02 database: <http://pv02.ehu.es/pv02/>
- Images from the HST-OPAL program are available at: <https://archive.stsci.edu/prepds/opal/>
- Juno/Junocam images are available at NASA PDS (Planetary Data System): <https://pds-imaging.jpl.nasa.gov/data/juno/>
- The image navigation software WinJupos is available at: <http://jupos.org/gh/download.htm>
- Hueso (2020). Particle Image Correlation Velocimetry Software PiCV3: <http://doi.org/10.5281/zenodo.4312675>
- Irwin, P (2020). NEMESIS/Radiative transfer code software: <https://doi.org/10.5281/zenodo.4303976>
- Soria, M., García-Melendo, E., Prat, A (2020). Shallow Water Model, Shallow Worlds 2. <https://doi.org/10.5281/zenodo.4312681>

The EPIC numerical model is an open-code funded by NASA, available in the Atmospheres Node of the PDS: [https://atmos.nmsu.edu/data\\_and\\_services/software/epic/epic.htm](https://atmos.nmsu.edu/data_and_services/software/epic/epic.htm)

# Data links & citations

ads

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

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2023ApJS...267...29A

- VIEW
- Abstract
- Citations (53)
- References (86)
- Co-Reads
- Similar Papers
- Volume Content
- Graphics
- Metrics
- Export Citation
- FEEDBACK

## Open Data from the Third Observing Run of LIGO, Virgo, KAGRA, and GEO

Show affiliations Show all authors

Abbott, R. ; Abe, H. ; Acernese, F. ; Ackley, K. ; Adhicary, S. ; Adhikari, N. ; Adhikari, R. X. ; Adkins, V. K. ; Aday, V. B. ; Affeldt, C. ; Agarwal, D. ; Agathos, M. ; Aguiar, O. D. ; Aiello, L. ; Ain, A. ; Ajith, P. ; Akutsu, T. ; Albanesi, S. ; Alford, R. A. ; Al-Jodah, A. ; ...

The global network of gravitational-wave observatories now includes five detectors, namely LIGO Hanford, LIGO Livingston, Virgo, KAGRA, and GEO 600. These detectors collected data during their third observing run, O3, composed of three phases: O3a starting in 2019 April and lasting six months, O3b starting in 2019 November and lasting five months, and O3GK starting in 2020 April and lasting two weeks. In this paper we describe these data and various other science products that are accessed through the Gravitational Wave Open Science Center at <https://gwosc.org>. The new set, consisting of the gravitational-wave strain time series that contains the astrophysical signals released together with supporting data useful for their analysis and documentation, tutorial, and analysis software packages.

**Publication:** The Astrophysical Journal Supplement Series, Volume 267, Issue 28 pp.

**Pub Date:** August 2023

**DOI:** [10.3847/1538-4365/acdc9f](https://doi.org/10.3847/1538-4365/acdc9f) [10.48550/arXiv.2302.03676](https://arxiv.org/abs/10.48550/arXiv.2302.03676)

**arXiv:** [arXiv:2302.03676](https://arxiv.org/abs/2302.03676)

**Bibcode:** [2023ApJS...267...29A](https://ui.adsabs.org/abs/2023ApJS...267...29A)

**Keywords:** Gravitational wave astronomy; Experimental data; 675; 230; General Relativity and Quantum Cosmology

### FULL TEXT SOURCES

- My Institution
- Publisher
- arXiv

Add paper to library

### GRAPHICS

THE ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES, 267:29 (28pp), 2023 August

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LIGO Scientific Collaboration, Virgo Collaboration, KAGRA Collaboration 2021f, Data Distribution of Constraints on the Cosmic Expansion History from the GWTC-3, v1, Zenodo, doi:10.5281/zenodo.8645777

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Tse, M., Yu, H., Kijbunchoo, N., et al. 2019, *PhRvL*, 123, 231107

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# Acceptance criteria for dataset indexing

## Acceptance criteria for dataset indexing

General decision tree:

1. Publication contains a link to a dataset in reference section
  - a. ADS already has a record? → create data link & assign citation
  - b. No existing record in ADS:
    - i. Is it a high-level/curated dataset? → **create record**\* & create data link & assign citation
    - ii. Otherwise ("reuse" criterion):
      1. Has the dataset been cited 2 times? → create/link/cite
      2. Record citation & link

\* Descriptive metadata for a dataset has to meet criteria laid down by the ADS curation team. For one, descriptive metadata (title, abstract, keywords) must be sufficiently descriptive to be similar to basic metadata found in scholarly publications.

- We don't want to overwhelm our index with records for data sets
- This is something we need to collaborate on with Kaylin Bugbee's team (Science Discovery Engine), at least for NASA data

# NASA Bibliographies

## Goals:

- Establish collaborative relationships with NASA stakeholders to support increased use of ADS/SciX
- Connect NASA data products with ADS/SciX; learn what publications contain use of NASA data



Bibliography Source	Status
NASA Ames Space Science & Astrobiology ( <a href="#">ARC/SS</a> )	Complete/Maintenance
NASA PubSpace ( <a href="#">STI/NTRS</a> )	Ingest
NASA Socioeconomic Data and Applications Center ( <a href="#">SEDAC</a> )	Curation
NASA Goddard Earth Sciences Data and Information Services Center ( <a href="#">GES DISC</a> )	Curation
NASA Astromaterials Data System ( <a href="#">Astromat</a> )	Planning/Prep
National Snow & Ice Data Center ( <a href="#">NSIDC</a> )	Planning/Prep
ORNL Distributed Active Archive Center ( <a href="#">ORNL DAAC</a> )	Planning/Prep
NASA Goddard Sciences and Exploration Directorate ( <a href="#">SED</a> )	Communications

# Journals Database

Primary data store for journals data in ADS, to better enable us to interface with and collect metadata from a variety of sources

- Public API available since early 2023.
- Journals API integrated into backoffice data processing and analysis (indexing, completeness reporting, journal- and publisher-specific parsing pipelines)
- Curation is an ongoing process (CSG + curators)



# Completeness data

- ADS holdings versus Crossref data
- 367 journals currently tracked, > 6.5M records
- Majority of ref journals are > 95% complete; astro typically > 98%
- Missing content: multidisciplinary (*Science*, *Nature*) some historical (e.g. *Nachrichten*)
- By-journal / by-volume statistics available from API (when we have it)

# Affiliations

We assign identifiers to publisher-supplied affiliation strings  
=> **facet searches on institutions**

- Refereed Astronomy > 95% matched
- Refereed Physics > 90% matched
- Refereed Earth Science > 70% matched (*without having done any new assignments*)

# Backup slides

# Data links - top 10

Source	Count
Geophysical Research Letters	15367
Nature	8817
JGR Atmospheres	7064
JGR Space Phys.	6179
JGR Solid Earth	4801
JGR Oceans	4580
Water Resources Research	3981
Journal of Climate	2745

# Data citations - top 10

Source	Count
arXiv	24092
Nature Communications	4915
Geoscientific Model Development	3582
Scientific Data	3580
Atmospheric Chemistry & Physics	3494
The Astrophysical Journal	3210
Geophysical Research Letters	2831
Earth System Science Data	2751

# Related to Very Early Earth - Recent, Refereed Literature with Associated Data Different Perspectives

## Astronomy Centric

## Earth Science Centric

similar("very early earth") property:refereed year:2020-2023 -collection:earthscience collection:astronomy

Your search returned **90,626** results

IF Score - Export - Explore -

Show highlights Show abstracts Hide Sidebars Go To Bottom

Add papers to library

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■ refereed ■ non refereed

Limit results to papers from 2020 to 2023 Apply

- 1 2023AAA...671A.76J 2023/03 cited: 4  
**Anatomy of rocky planets formed by rapid pebble accretion. III. Partitioning of volatiles between planetary core, mantle, and atmosphere**  
Johansen, Anders; Ronnet, Thomas; Schiller, Martin *and 2 more*
- 2 2021SSRv...217...22G 2021/02 cited: 22  
**The Diverse Planetary Ingressing/Outgassing Paths Produced over Billions of Years of Magmatic Activity**  
Gallard, F.; Bouhifd, M. A.; Fûri, E. *and 6 more*
- 3 2022E&PSL5951772P 2022/10 cited: 3  
**A primordial atmospheric origin of hydrospheric deuterium enrichment on Mars**  
Pahlevan, Kaveh; Schaefer, Laura; Elkins-Tanton, Linda T. *and 2 more*
- 4 2021NatSR...1120894S 2021/10 cited: 10  
**Numerous chondritic impactors and oxidized magma ocean set Earth's volatile depletion**  
Sakuraba, Haruka; Kurokawa, Hiroyuki; Genda, Hidenori *and 1 more*
- 5 2023AAA...674A.224C 2023/06  
**The effect of a small amount of hydrogen in the atmosphere of ultrahot magma-ocean planets: Atmospheric composition and escape**  
Charnoz, Sébastien; Falco, Aurélien; Tremblin, Pascal *and 3 more*
- 6 2022PSJ...3...93B 2022/04 cited: 23  
**Retention of Water in Terrestrial Magma Oceans and Carbon-rich Early Atmospheres**  
Bower, Dan J.; Hakim, Kaustubh; Sossi, Paolo A. *and 1 more*
- 7 2022E&PSL5717255G 2022/01 cited: 24  
**Redox controls during magma ocean degassing**  
Gallard, Fabrice; Bernadou, Fabien; Roskosz, Mathieu *and 6 more*
- 8 2022ApJ...933.115K 2022/07 cited: 13  
**Predictions for Observable Atmospheres of Trappist-1 Planets from a Fully Coupled Atmosphere-Interior Evolution Model**  
Krisanssen-Totton, J.; Fortney, J. J.
- 9 2023SRv...218...17W 2023/03 cited: 3  
**The Habitability of Venus**  
Westall, F.; Høning, D.; Avic, G. *and 6 more*
- 10 2020SSRv...216...31S 2020/03 cited: 12  
**Mission to Planet Earth: The First Two Billion Years**  
Stüeken, E. E.; Som, S. M.; Claire, M. *and 6 more*
- 11 2020SSRv...216...74L 2020/06 cited: 33  
**Loss and Fractionation of Noble Gas Isotopes and Moderately Volatile Elements from Planetary Embryos and Early Venus, Earth and Mars**

similar("very early earth") property:refereed year:2020-2023 collection:earthscience -collection:astronomy

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- 1 2022ESRv...23404219G 2022/11 cited: 4  
**Formation and evolution of Archean continental crust: A thermodynamic - geochemical perspective of granulites from the Tarim Craton, NW China**  
Ge, Rongfeng; Wilde, Simon A.; Zhu, Wenbin *and 2 more*
- 2 2022ESRv...22703968K 2022/04 cited: 9  
**Vestiges of early Earth's deep subduction and CHONSP cycle recorded in Archean ophiolitic podiform chromitites**  
Kusky, Timothy; Huang, Yang; Wang, Lu *and 4 more*
- 3 2022AGU...300520D 2022/04 cited: 8  
**Destabilization of Long-Lived Hadean Protocrust and the Onset of Pervasive Hydrrous Melting at 3.8 Ga**  
Drabon, Nadja; Byerly, Benjamin L.; Byerly, Gary R. *and 6 more*
- 4 2020JGeo...13301675G 2020/01 cited: 4  
**Geochemistry and mineral chemistry of gabbroic rocks from Horjand of Kerman province, Southeast of Iran: Implications for rifting along the northeastern margin of Gondwana**  
Ghasempour, Mohammad Reza; Davoudian, Ali Reza; Shabanian, Nahid *and 2 more*
- 5 2020GChP...9...135M 2020/10 cited: 4  
**Origins and Early Evolution of the Atmosphere and the Oceans**  
Marty, Bernard
- 6 2020GGG...2108734K 2020/01 cited: 20  
**Probable Cold and Alkaline Surface Environment of the Hadean Earth Caused by Impact Ejecta Weathering**  
Kasuya, Shintaro; Krisanssen-Totton, Joshua; Catling, David C.
- 7 2021InGeo...5900599Z 2021/09 cited: 18  
**Origin, Accretion, and Reworking of Continents**  
Zhu, Rixiang; Zhao, Guochun; Xiao, Wenjiao *and 2 more*
- 8 2022GGG...2209865O 2022/03 cited: 6  
**Primordial Helium-3 Exchange Between Earth's Core and Mantle**  
Olson, Peter L.; Sharp, Zachary D.
- 9 2023ComEE...4...38S 2023/12 cited: 2  
**Earth's volatile depletion trend is consistent with a high-energy Moon-forming impact**  
Solomtova, Natalya V.; Caracas, Razvan
- 10 2020NatGe...13...453L 2020/05 cited: 37  
**The Earth's core as a reservoir of water**  
Li, Yunguo; Vočadlo, Lidunka; Sun, Tao *and 1 more*
- 11 2023NH...4...19H 2023/01 cited: 2  
**The accretion of planet Earth**