

The NASA Science Explorer (SciX) as a Platform for Open Science



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Abstract

The new NASA Science Explorer (SciX) is a literature-based, open digital information system covering and unifying the fields of Astrophysics, Planetary Science, Heliophysics, and Earth Science. Built on the success of the NASA Astrophysics Data System (ADS), SciX provides significant expansion of content into earth science while leveraging the infrastructure of ADS which enables cross-linking between the published literature and preprints, data products, and software packages. We are indexing NASA's PubSpace, hundreds of Earth Science journals (including all AGU and EGU journals), preprints (including ArXiv, ESSOAR, and Earth ArXiv), meeting abstracts, theses and other gray literature; and we are continually expanding our coverage of citations and full text to improve search and discoverability. SciX is freely available and actively seeking collaborations within the earth and space science community.

Open Source Content

NASA's Science Mission Directorate in 2019 called for the creation of interdisciplinary literature portal spanning across SMD in support of Open Science and selected the existing ADS Abstract Service for its support of open science goals: facilitating discovery and dissemination of OA publications, data, and software by aggregating and linking them. ADS has been expanded to include all relevant NASA SMD content and rebranded as the NASA Science Explorer (SciX). We currently have almost 5 million open access records, including about 50% of records in the most recent years. These can be found by adding "**property:open access**" to any search.

Indexing of Preprints

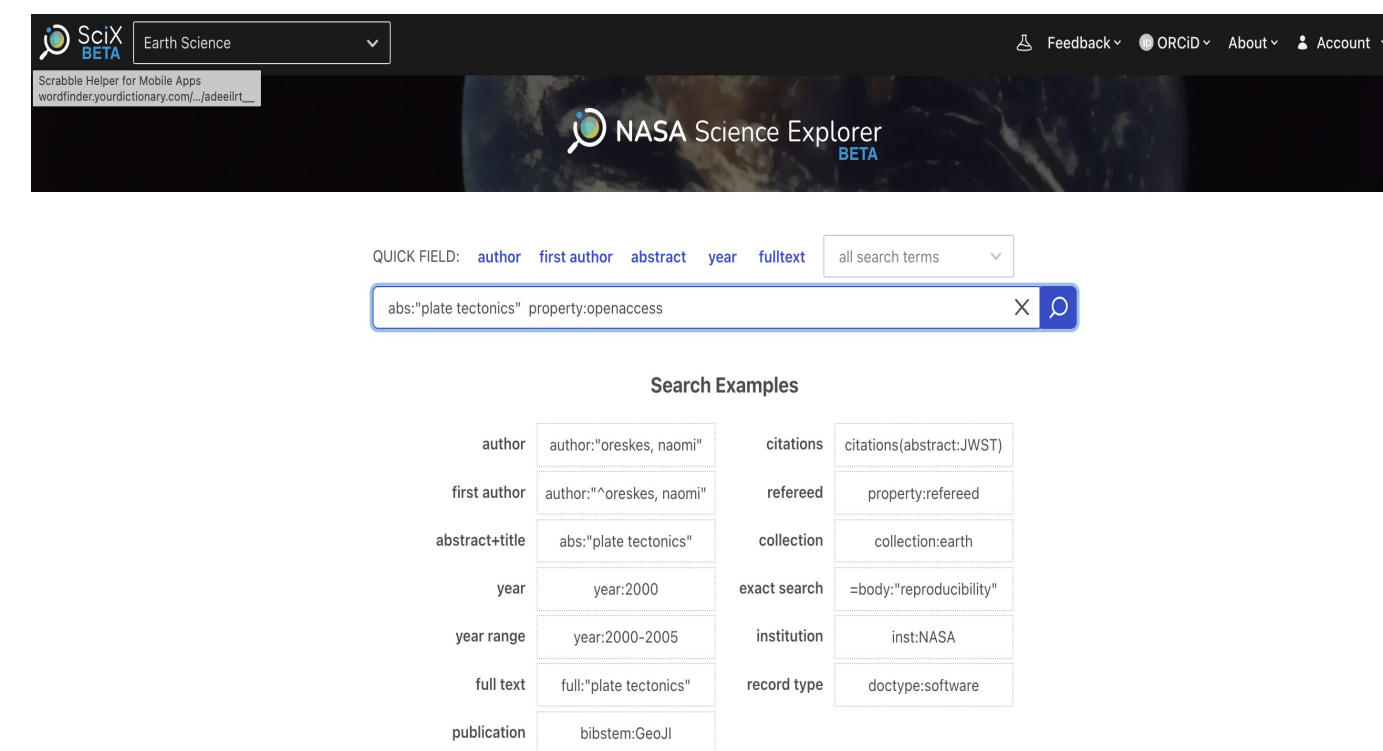
SciX currently indexes three preprint servers: ArXiv, Earth ArXiv and ESSOAR. Preprints are matched to their published versions when possible which enables users to access the open preprint version if they do not have access to the published version. In addition, citations to either the preprint or published papers are captured and assigned to the published version. This gives a more accurate citation count, as either version may be cited and will only be counted once. These can be searched for using "**bibstem:arXiv**", "**bibstem:EaArx**" or "**bibstem:esoar**".

Powerful Search Options

SciX indexes the fulltext of more than 8 million articles, providing a powerful search and discovery tool for a significant portion of our holdings. By using the syntax "**full:**", users can delve deep into the context of a paper to find content beyond the abstract. We also have search operators which perform second-order operations on the original search, allowing discovery of **similar** papers, **trending** papers, **useful** papers, and **review** papers. Detailed explanations are given in the help text.

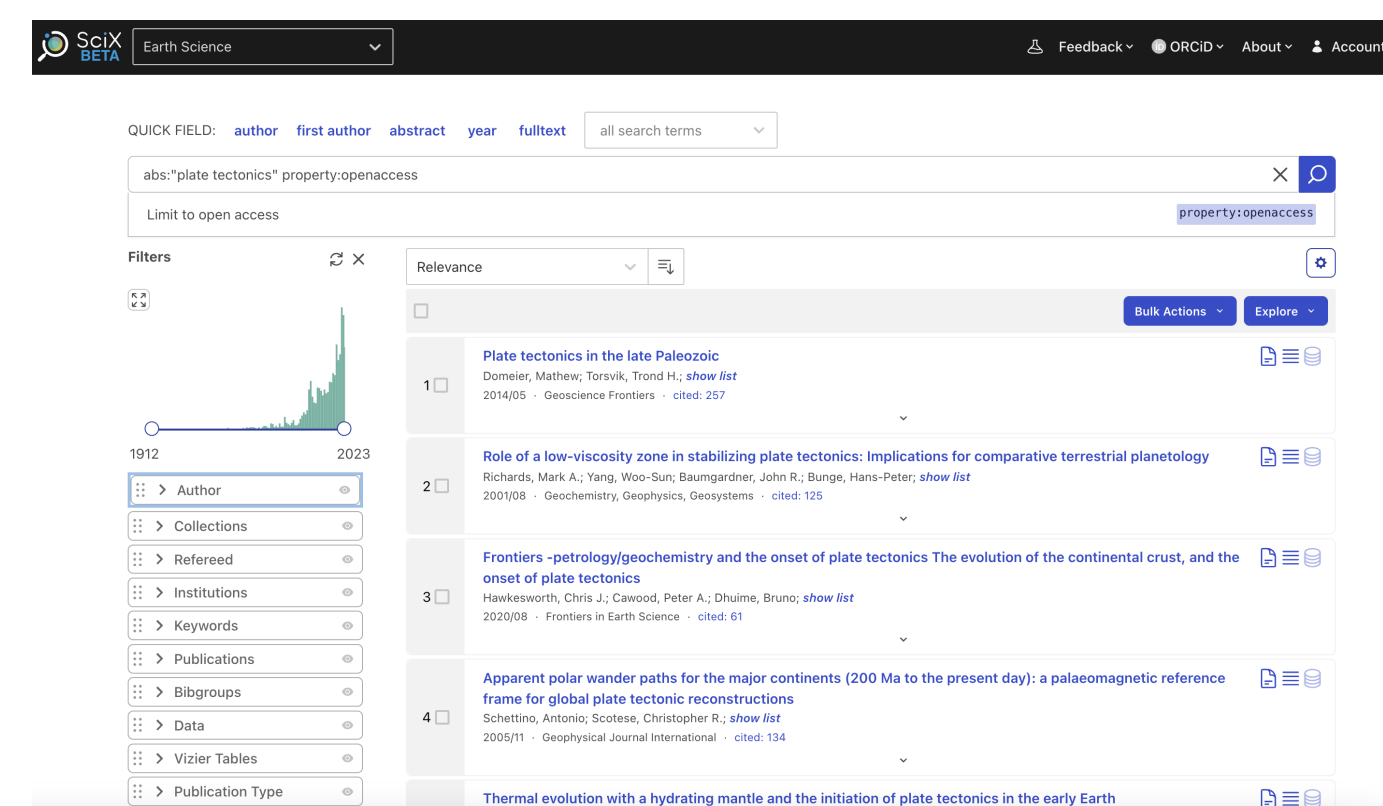
Powerful Search

- Search by author, title, abstract, institution, full text and more
- Select by properties such as open access, refereed status, document type



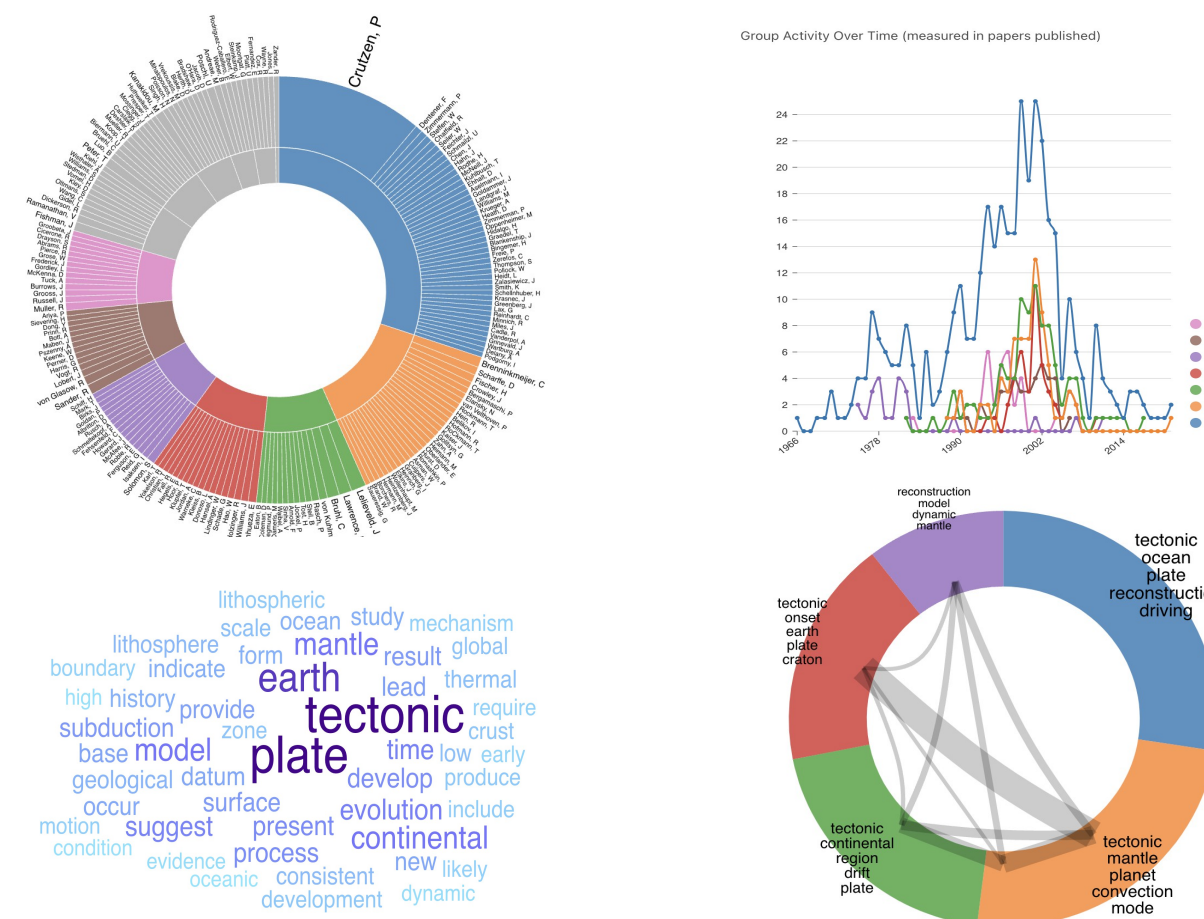
Filter Results

- Refine search by author, year, publication and more
- Find articles which have associated data or software products



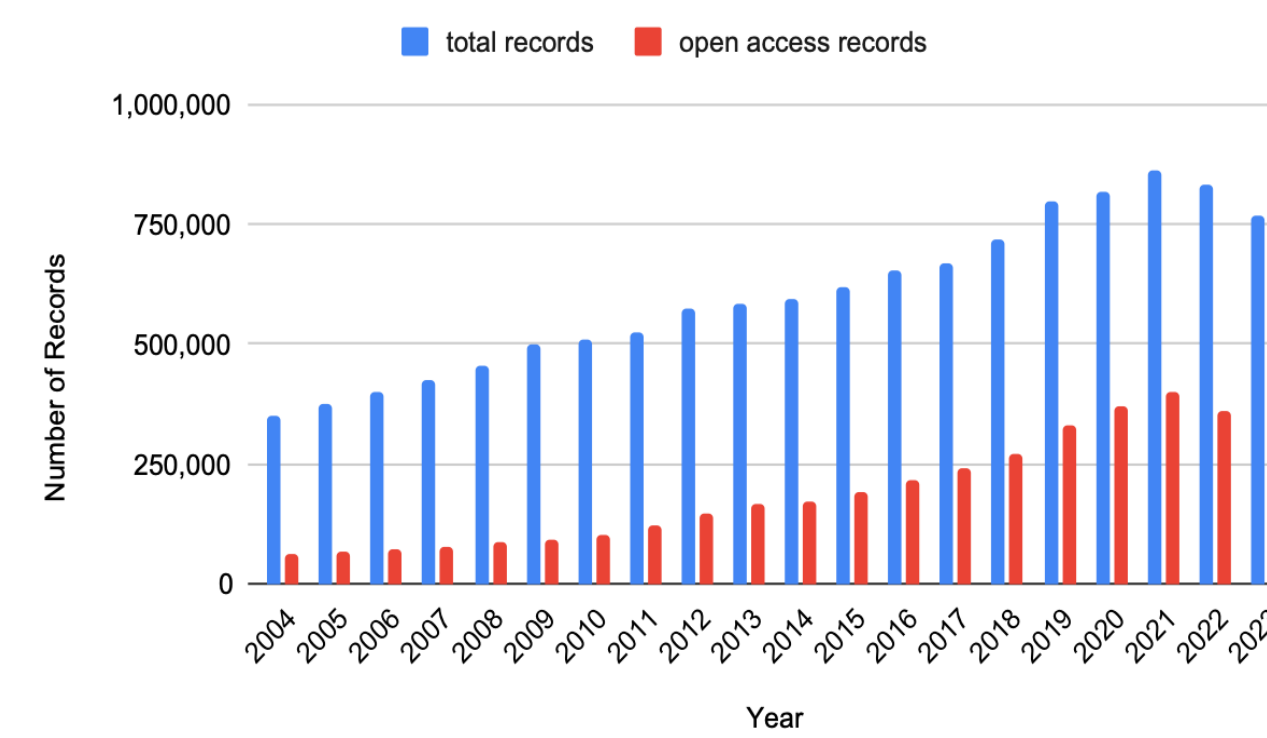
Metrics and Citation Analysis

- Visualize author networks, paper networks, word clouds and more



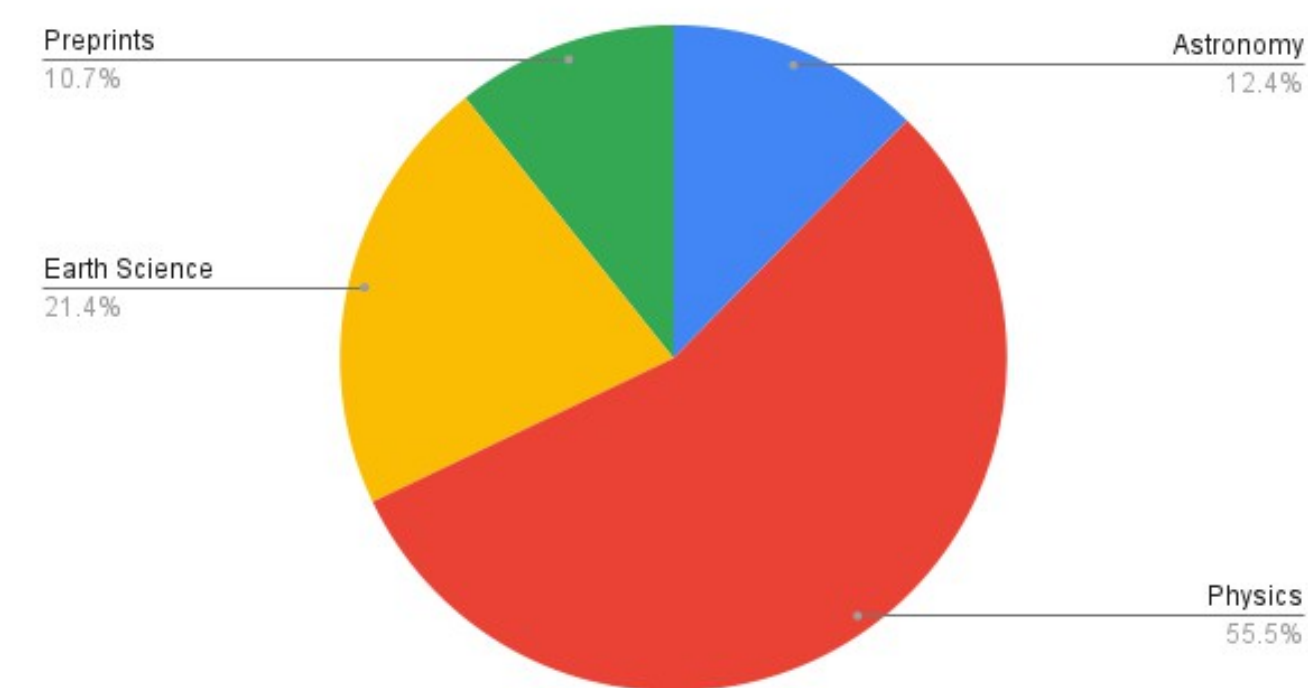
An increasing percentage of open access papers

Records in SciX for the last 20 years



An increasing percentage of earth science content

20 Million SciX Records



Linking to Data and Software

SciX tracks data products and software packages referenced in the literature and generates records and connections accordingly. For data products, we rely on publisher input to alert us when there is an online representation to the data used in producing an article and we generate a link from the article to that data. These can be searched for by using "**property:data**" in your search. For software packages, our automated Citation Capture pipeline generates a record for software packages registered at Zenodo (<https://zenodo.org>) that have been cited more than once in the literature. These can be searched for by using "**doctype:software**" in your search. We currently have almost 500K data links and almost 25K software links.

API Access

In support of open science, we provide an Application Programming Interface (API) so that users may programmatically search SciX. Access to SciX holdings is provided through a number of endpoints, giving users the ability to generate queries for searching, metrics, reference resolving, journal holdings, visualizations and more. We provide a number of example Jupyter notebooks and example applications in our help text.

Collaborative Libraries

Users of SciX can create and share libraries of papers that they use in their research. By default all libraries are private, but users can generate a public link to any library. This is useful for linking to a list of your own papers or maintaining an institutional bibliography. In addition, users have the option of adding collaborators to a library to allow other users to view, edit, and/or administer their libraries.

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<https://SciXplorer.org>

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