

Report of the ADS Users Group (ADSUG)

Nov 16-17, 2023

[Meeting Agenda](#)

Attendance: All members of the ADSUG were in attendance as well as a number of ADS members.

This report is broken in topics sections based areas in which the ADS team requested advice and feedback:

- [Prioritization of planned work](#)
- [Future of oversight and advisory groups](#)
- [Feedback on new user interface](#)
- [Value of the expansion for the Astronomy Community](#)
- [Community outreach and education](#)
- [Community feedback](#)

Introduction

The ADS Users Group (ADSUG) advises the ADS on the operations of the project and recommends changes and improvements to both its services and procedures in order to maximize the scientific productivity of the community it serves. The ADSUG will advocate for the user community and provide suggestions regarding content curation, technical infrastructure, management, and priority setting.

The report below is broken into sections outlined above but we begin the report with a summary.

Summary

The NASA ADS continues to serve the astronomical community with excellence on a daily basis and the ADSUG congratulates the ADS team on their commitment to high standards during a time of transition to SciX. The User survey, although a little limited in the diversity of participants, provided insight that indicates the ADS is doing an excellent job of serving the core users. The user survey provided very positive feedback from the community of people who use the service, the user community likes what they are getting. Bringing more users to ADS will likely provide more diverse feedback on how ADS/SciX can improve.

The uniform interface that ADS provides to the scholarly literature provides a powerful opportunity for the advancement of AI in science research. Providing that common infrastructure is the core of the ADS.

The ADS service continues to be a core part of the astronomy research workflow. One can not overstate the impact that this service has on improving the efficiency of the researchers' day. In addition, the generic search capacity of ADS can't help but improve the diversity of voices in the research community. Most of the community is dependent on this tool and its continued support and development will be critical to the future success of astronomy research.

Prioritization of currently planned work

The ADSUG was impressed with the robustness of the service as presented at the meeting. The presentation, however, did not provide a prioritized work plan. The presentation itself contained considerable and specific details on work flow of harvesting and that may have obscured some understanding of the exact planned work. Are there things in the ADS that are currently broken, appears that no is the answer! The user experience survey suggests that there are not many 'broken' items.

The UG would like to see a list of standard requirements that govern the ADS service.

- For the highest use cases, are there benchmarks for query time?
- What are the primary requirements and highest value use cases?
- What are the most common parameterized search requirements? Have a requirement that the page loads in Y seconds and the most common search returns within X seconds, etc.

Having some performance standards during transition to SciX is critical.

The ADSUG was very interested in the presentation on SciX Brian. SciX Brain was presented as the sandbox for future AI developments but it was unclear what the process will be for translating these into production features and how priorities will be

set. It is also unclear how much effort is being put into SciX Brain in comparison to other ML-based work. What is the priority of this work compared to other activities at ADS? Setting clear priorities will help in finding a balance between new adventures in AI and keeping the primary services tip-top.

The ADSUG felt that continued effort on Back Office migration (migrating from perl and older Python to modern python environment) should be a priority over AI activities within ADS. Hiring obstacles has slowed this effort and the ADSUG appreciates that migrating to a common modern language and infrastructure needs to be a priority task. But don't fix what isn't broken.

Getting the UAT work closed off so that the terms can be fully used will be a strong benefit to the community. UAT should be a priority. Having the UAT uniformly working will help with many keyword searches. This effort will likely also feed into further advances for SciX Brain in astronomy. It was not clear to the ADSUG if there are similar 'thesaurus' in other fields that will become part of SciX?

User Group Composition

As ADS expands into SciX to cover more disciplines and serve different communities the UG should adapt to represent their needs, remaining representative of the full SciX community and without losing institutional memory.

Different communities will have different cultures, expectations, which should be respected and included, and needs, which should be met, but will all use the same SciX platform.

One possibility is to expand the UG during a transition period to ensure representation from the newly added areas, then possibly reducing the number of UG members again after the transition.

To make the work of an extended committee more efficient and manageable such a unified UG could be divided into discipline-specific sub-committees that feed into the global UG.

At the beginning, while SciX rolls out and starts serving new communities, the meetings of the discipline-specific sub-committees should happen more often than once a year. On occasion of these intermediate meetings, sub-committees may update the full committee. After the transition period, when expansion is done and the UG reduced again, the cadence can go back to once a year.

To make UG meetings even more efficient in the future, one possibility is to pre-record technical talks and presentations whenever possible and circulate these to the

committee as pre-meeting material. This can help maximize the (live) time for interaction between ADS and UG.

[I liked Julianne's suggestion of pre-recording the talks so that there is more time for interaction between ADS and the UG. Maybe mentioning it just as food for thoughts?]

New User Interface

Speed is a concern, not just in the search but in the initial page load time (the landing page is 1.5MB of data and requires 5s or more to load). Simple, very frequent use should be fast. Complex less frequent requests can be slower.

Speed for 80% of the use cases. What are the modes of use that are most common? Make those modes super fast. Change needs to happen in a way that keeps things stable while improving the efficiency of the workflow. The barriers to understanding new processes need to be very low.

Some minor UI suggestions:

- For the new SciX interface, "Help pages" added more visibly among the 4 tabs on the top right
- Among discipline-specific features, include e.g. last author search

Value of expansion to the astronomy community.

ADS is experiencing growth that can add significant value to an already high-impact tool. However, with the expansion of both scope & team, the increase of remote work & distance from user communities, the expected growth in user communities (in both field and job description), and the increasing capabilities in machine learning and large language models, there is great risk of ADS/SciX's effort diffusing in the absence of clear guidelines. At the same time, developing common infrastructure and processes that can support a broad science community may enable the advancement of new technologies for all researchers and that opportunity is very exciting.

The ADSUG thinks that to navigate this transition, the ADS team needs to develop an *extremely* clear statement of principles to help them guide the increasingly complex choices they are going to be forced to make. These design principles should be developed with a clear focus on core capabilities and user experience, with specific "user types" in mind. When decisions are made about allocation of resources and development time, managers & staff should return repeatedly to these principles and

evaluate what is truly the priority and the goal. Activities that will provide the best experience for the most number of users and/or the largest proportion of searches should be prioritized¹, both for improving the existing service and for planning expanded capabilities. As mentioned above, having clear metrics will aid in determining if new features have been added successfully.

Examples of core users: PhD-level research scientists & engineers; “research path” students; librarians; scientific or project leadership (chairs, mission PI’s, directors)

Examples of core use cases: find a paper that you know exists; find important papers in a subfield; literature review for introductions or proposals; find work by a person you know exists; maintain a personal or institutional “CV”; assess impact (personal, project, institution); keep abreast of newly published papers on a topic of interest; learn history of an idea or subfield; find potential referees.

Examples of possible design principles: “Speed is a priority for simple searches (author, year, title/abstract)”; “Current literature must be ingested within X time period”; “Ease of use is more important than visual style”; “Stability of UI and features builds user loyalty and trust”; “Don’t break what works”, etc.

Is the ML LLM work being done in collaboration with the AI/ML research community? Not clear that ADS is the place where an AI-guided exploration of a science area should happen. Better classification based on keywords is an area where LLMs are likely to be helpful. What is the guiding principle that is guiding the user of AI technologies, and how do those guides align with the mission and vision?

The most common searches likely represent 95% of use and should be optimized for speed of page load and results.

¹ As just one example, the continuing difficulty with disaggregating common names is something that would be naturally prioritized with appropriate design principles.

Community outreach and education

The common experience of asking questions like “Can ADS be searched for X?” appears to nearly always be yes. But how? The richness and capabilities of the system are, unfortunately, a hidden gem. One of the primary ways ADS differs from a more generic tool like ‘Google Scholar’ is in its ability to be used to answer questions about content, not just deliver the content. Searches like ‘similar’ and ‘reference’ are part of that scope, but there are a variety of user types (Professors, Junior Researchers, Librarians, Administrators, Editors, Reviewers) that have different needs. Making training and toolkits or cookbooks easy to find and understand would be a very positive development.

At the same time, SciX will bring a large sample of new users and use cases. The ADS will need to continue to be present at society meetings (AGU, AAS, DPS, EPSC, SF2, etc.) to be sure users are being served. Clearly, the staff of ADS can not attend all these meetings and an Ambassador program that enables that is needed. The more relevant the reward to the ambassador, the more likely high-quality ambassadors will be found. Funding for travel, access to resources, partial salary support for PDF, engagement in research projects, access to ADS staff, and others are things that could enhance the ambassador's career while making ADS better known. Consider answers to the question: What can ADS offer to a junior scientist that is of high value and that only ADS can provide? Having an Ambassadors program is likely critical to SciX uptake.

Many people now learn via video. Short (3-5 minute) ‘YouTube’ videos that explain some capability of ADS would be useful to provide. Perhaps having the Ambassadors make these videos would be a way of getting the labor and also providing those individuals with a platform for exposure.

Community Feedback

The user survey recently laid out in Nov 2023 was a great initiative. We suggest running it periodically, e.g. yearly, to monitor user satisfaction and needs as well as status of the service. For next implementations, we suggest to advertise such a user survey more broadly, as broadly as possible, and with more extensive reminders. Moreover, next survey implementations could explicitly ask case usages and whether the needs are met, in addition to inputs on e.g. career level, field, institutional location of the respondents, etc.

As a part of the community, the ADSUG group also has a series of practical suggestions for features and added functionalities:

- For the new SciX interface, “Help pages” added more visibly among the 4 tabs on the top right
- A new “Explore” feature that weights # citations and other metrics by e.g. keywords to account for the sector an author belongs to, i.e. metrics that are aware of the context
- A new “Explore” feature that provides different ways to collect the influence of authors/papers/research products beyond citations.
- A series of tutorials/cookbook queries for different users and use cases, e.g.
 - How do I prepare an annual report using ADS?
 - How do I keep an up-to-date library for my institution/group?
 - How can I find referees/reviewers for a paper as an editor or referees/reviewers for proposals?
 - How do I compute the impact of a researcher/institution/paper?
 - How do I get references in a format for..... Major grants/calls/funders etc. recall the user community is international and developing tools and standards at an international level would be very much appreciated.
 - How do I measure the impact of research products other than papers (data, software)?
 - How can I stay abreast of current results in my field?
 - How can I “clean” my search results to focus on what I actually wanted?
- Documentation (and the above cookbooks) arranged so that it is compact, easy to search, and all in one place;
- Perhaps, a chatbot/virtual assistant on the landing page that sends a user to the right part of the website (as a nice to have but low priority)
- The possibility to allow authors to provide cross links to ADS of e.g. related papers, related datasets, related presentations (e.g. the now very popular short video summaries of papers), if e.g. these are archived within e.g. Zenodo