

# Report of the NASA Science Explorer (SciX) Advisory Board

**In-Person Meeting - June 11-12, 2025**

Link to the [Meeting agenda](#).

**Advisory Board members (in person):** Amy Smith, Chase Million, D. Sarah Stamps, Danie Kinkade, Ilya Zaslavsky, Louis Moresi, Matt Mayernik, Matthew Graham

**SciXplorer team members (in person):** Suze Kundu, Alberto Accomazzi, Carolyn Grant, Kelly Lockhart, Michael Kurtz, Anna Kelbert, Stephanie Jarmak

**Advisory Board members (online):** Antti Pulkkinen, Alex Young, Emily Shroyer

This report is broken down into sections organised by topic based areas for which the ADS team requested advice and feedback:

- [Progress highlights](#)
- [Prioritization of planned work](#)
- [Technical recommendations](#)
- [Community engagement and outreach](#)
- [Conclusions and next steps](#)

## Introduction

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The Science Explorer (SciXplorer; [SciX](#)) Advisory Board convened in a hybrid format at the Center for Astrophysics | Harvard & Smithsonian in Cambridge, MA, on June 11-12, 2025

The [advisory board membership](#) was chosen to provide a broad range of complementary expertise to the development team. The purpose of the meeting was to share project updates, solicit feedback on strategy and implementation, and develop priorities for the upcoming phases of SciX, particularly focusing on the public launch in the last quarter of 2025.

This report summarizes the key progress updates, insights from the advisory board, and actionable recommendations across content development, community engagement, platform enhancement, and technical infrastructure. The report follows the

format of previous advisory group documentation, particularly the ADSUG Report (2023), for continuity and clarity.

## Executive Summary

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SciX is preparing for its public launch in late 2025, extending the proven success of ADS into a powerful cross-disciplinary platform for NASA science. With more than 28 million records (including over 11 million in Earth science), SciX offers advanced discovery tools such as concept clouds, author networks, dataset and software linking, AI-driven tagging, and hybrid semantic search. Community engagement is strong through the Ambassador Program, collaborations with societies, and outreach shaping the platform's design. The Advisory Board emphasized priorities such as lowering barriers for new users, highlighting core features, integrating with research workflows, and ensuring fast, reliable performance. Looking ahead, expanding adoption in Earth sciences, curating heliophysics content, and smoothly migrating the ADS community are the next key steps that will broaden SciX's adoption and impact on the Earth and space science community. With its technical strengths, community partnerships, and clear roadmap, the board is confident that SciX will become a transformative and trusted resource across all NASA science domains.

## Why NASA needs SciX

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SciX serves as a comprehensive digital library and portal that significantly enhances research efficiency across the NASA core scientific disciplines including astronomy, physics, Earth science, and planetary science. SciX builds on the proven success of the Astrophysics Data Service (ADS), which increased astronomer research efficiency by at least 6% over 25 years,

SciX expands the ADS portal to serve the broader research domains supported by NASA while fostering cross-disciplinary discovery. The platform maintains over 28 million records with 99% coverage of refereed astrophysics literature and rapidly expanding Earth science collections, providing researchers with searchable abstracts, full-text publications, preprints, conference abstracts, and indexed software and data from NASA and NSF-funded projects.

## Discussion & Recommendations

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The SciX team has made commendable progress towards the goal of expanding the coverage of the Astrophysics Data System (ADS), which is a critical backbone

of NASA science capabilities. With a scheduled hard launch before December 2025, significant milestones include the expansion of content ingestion pipelines, integration with ORCID and institutional systems, and enhancements to the platform's Explore tools and metrics dashboards. Feedback from the Board emphasized, in addition to criticality of the system in general, the importance of ensuring relevance across all NASA SMD domains, advancing data and software citation technical capabilities, strengthening user engagement strategies, and ensuring resilience and sustainability amidst funding uncertainties.

Board members praised SciX's curated content that makes it a trusted source; its versatility and usability, particularly in comparison to tools like Google Scholar and Semantic Scholar. There was consensus on the need to maintain high-speed access for core functionalities while improving semantic search capabilities, cross-disciplinary relevance, and platform transparency.

The advisory board identified several opportunities for growth as SciX expands its reach. The success of the Astrophysical Data System provides a strong foundation: astronomers migrating to SciX will benefit from an improved UI, better user experience, and additional features while maintaining the trusted service they value. For Earth scientists, SciX represents a valuable discovery that many will come to love—a comprehensive platform tailored to their research needs. In heliophysics, the team is working closely with NASA's Heliophysics Division on multiple projects, including integrating HDRL records into SciX's data holdings. The primary opportunity ahead is effectively communicating these benefits and getting the word out to these new communities, leveraging the expertise and connections of the advisory board members.

An important achievement to date has been the creation of a curated and coherent FAIR platform for the Earth and space sciences with a well-documented, powerful programmatic access point (an API). This curated content positions SciX to be featured in future AI developments supporting research in these disciplines, placing the project and team in a unique position to contribute to NASA's AI efforts and serve as a trusted resource for the research communities.

In planning for the formal launch this year, the advisory board recommends that the team concentrate on preparing the SciX portal for an influx of inexperienced users. The board has complete confidence in the technical capabilities of the team and see the next step being to engage in careful “market research” to remove any barriers to adoption and to highlight the compelling reasons to make use of SciX. In particular, SciX needs a solid core of engaged users (those who see the benefits of creating an account on the platform) and it is important, therefore, to ask the question: *“what is the benefit to an individual to create and maintain an account, and how do we convey that message ?”*

The SciX web interface is an enhancement of the legacy ADS interface, both built upon the same underlying database of research products. As SciX moves out of the *beta* phase, the AB advises deprecating the ADS entry-point and migrating the ADS community to SciX. The ADS url can be diverted to SciX pre-populated with options to closely recreate the ADS landing page.

The team should also consider making the landing page “stateful” (i.e. remembering that a user has visited before) so that a returning user does not need to navigate the introductory material in the carousel. The domain-specific options in the navigation should be remembered and should also activate changes in the search options that reflect the needs of the different user cohorts.

## Progress Highlights

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### 1. Platform Enhancements:

- Updated tools: concept clouds, author networks, and dataset linking.
- Improvements in citation metrics and visual analytics.
- Focus on formal data/software citations and inline mention tracking.
- Advances in building tools for linking publications to datasets and funding.
- Efforts underway for improved ORCID integration with bi-directional syncing, full-text coverage, and user metrics tracking.
- Implemented automated tagging pipelines using AI/ML (astroBERT, INDUS).
- Improved search relevance with hybrid ranking (BM25 + vector models).

### 2. Content Expansion:

- Extended coverage in the oceanography and hydrology disciplines.
- Over 11 million Earth Science records now indexed.
- Ingested 12,399 NASA DAAC datasets and over 400K NSF funded proposal abstracts.
- Added full-text and citations from major publishers (Springer, Wiley, IEEE, T&F).

### 3. Community Integration:

- Coordination with learned societies and institutional repositories.
- Launched Ambassador Program with 11 leads and more joining with an onboarding workshop in August 2024.

- Feedback from Ambassadors directly informed UI, search filters, and outreach materials.
- Outreach expanded via workshops, blog posts, social media, and targeted content.

#### **4. User Feedback Mechanisms:**

- Pre-meeting surveys highlighted both strengths and growing pains (e.g., semantic expansion accuracy, mobile usability).
- Board members suggested integrating shared libraries and Zotero features.

## **Prioritization of Planned Work**

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The advisory board identified the following short term (in the run-up to the hard launch) and medium-term priorities for SciX:

#### **Short-Term Priorities:**

- Identify the immediate pain-points for new users that will discourage them from adopting the platform (e.g. it doesn't have all my papers, I can't figure out how this thing works).
- Improve dataset and software linking capabilities for publications and funded proposals.
- Identify key features (3 or 4) that all users will find valuable and implement them as 1 button clicks in the UI.
- Increase visibility and marketing of new capabilities through academic networks and conferences.
- Create tutorials for several useful searches that are highly visible on the platform.
- Connect with Heliophysics Digital Library (HDRL) to ensure connectivity to heliophysics data archivals.

#### **Medium-Term Priorities:**

- Establish working groups in conjunction with the advisory board to address discipline-specific challenges.
- Integrate with research workflows (e.g. Zotero, individual and group dashboards, embedding of visualizations in 3rd party sites).
- Maintain a watching brief for opportunities and threats associated with AI. Share the AI/ML planning document with AB for feedback and comments.

## Technical Recommendations

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- Implement performance standards for speed and reliability of common search tasks.
- Consider lead-time from publication appearing online to it having been ingested in SciX as a metric for the system performance. Timeliness of the information in SciX is important for NASA mission reporting activities.
- Develop a thesaurus or controlled vocabulary structure, similar to the Unified Astronomy Thesaurus, for non-astronomy disciplines.
- Resolve disambiguation issues in author identity resolution, possibly through machine learning and affiliation matching.
- Address User Interface /User Experience concerns, particularly for mobile and lower-bandwidth users.

## Community Engagement & Outreach

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- Work with publishers, repositories, and learned societies (for example, the American Geophysical Union, Geological Society of America) to amplify SciX visibility.
- Identify and highlight unique strengths (e.g., ORCID integration)
- Expand toolkit offerings and training guides
- Leverage community champions and strategic partnerships (e.g., OpenScapes).

## Conclusions and Next Steps

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SciX continues to show strong progress toward a transformative tool for research discovery and collaboration across NASA's science divisions. The advisory board commends the team for its progress and strategic direction while urging a focus on resilience, interdisciplinarity, and user trust-building. The Board looks forward to participating in the December launch and will continue to support refinement and growth of the platform.