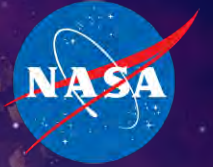


National Aeronautics and  
Space Administration



# EXPLORE SOLAR SYSTEM & BEYOND

**Dr. Delia Santiago-Materese**

Director, Planetary Research Programs

PAC Meeting

November 14, 2023

# Overview

- Planetary Research Staffing Update
- Research & Analysis (R & A) by the Numbers
- R & A General Updates
- Data Tidbits
- Upcoming ROSES-2024 changes, then **Discussion**



# Planetary Research Leadership Changes

Stephen Rinehart is on a one-year detail to the White House Office of the National Cyber Director.

Delia Santiago-Materese and Kathleen Vander Kaaden will serve as Director and Deputy Director of Planetary Research, respectively, for the first six months and then swap roles for the next six months.

Meagan Thompson continues as the **Program Executive** and manages the budgetary aspect of the portfolio as well as serving in the PDE and on PSD's DEIA initiatives.

**Director:** Leads selection meetings, R & A general leadership, public-facing R & A representative.

**Deputy:** Supports Director efforts, leading ROSES-2024 development.



# Welcome to new PSD R & A team members



**Majd Mayyasi, IPA**  
Boston University



**Julie Ziffer, IPA**  
University of Southern Maine





# R & A by the Numbers



# PSD ROSES-2022 Programs with Due Dates

PROGRAM	Step-1 Due Date	Step-2 Due Date	Panels Held	Selections/ Proposals	Selection Dates	Days from Step-2 to Select
Exoplanets Research Program	03/31/2022	05/26/2022	Yes	30/173 (17%)	08/30/22	96
Maturation of Instruments for Solar System Exploration	04/06/2022	07/14/2022	Yes	5/37 (14%)	10/20/22	98
Planetary Science Enabling Facilities	04/08/2022	06/03/2022	Yes	10/25 (40%)	10/31/22	150
Development and Advancement of Lunar Instrumentation	04/13/2022	06/15/2022	Yes	5/33 (15%)	2/28/23	258
Yearly Opportunities for Research in Planetary Defense	04/21/2022	06/16/2022	Yes	8/17 (47%)	12/2/22	169
Cassini Data Analysis Program	05/05/2022	07/07/2022	Yes	8/27 (30%)	0/26/22	81
Martian Moons eXploration Participating Scientist Program	06/16/2022	08/16/2022	Yes	10/49 (20%)	4/12/23	239
Planetary Protection Research	06/21/2022	07/20/2022	Yes	5/15 (33%)	12/20/22	153
Discovery Data Analysis	09/06/2022	11/01/2022	Yes	9/16 (56%)	5/22/23	202
New Frontiers Data Analysis Program	09/07/22	11/3/2022	Yes	9/22 (41%)	2/13/23	102
Mars Data Analysis	09/07/2022	11/15/2022	Yes	15/55 (27%)	5/9/23	175
Analog Activities to Support Artemis Lunar Operations	N/A	12/06/2022	Yes	13/33 (39%)	2/24/23	80
Planetary Science Early Career Award	N/A	12/08/2022	Yes	5/33 (15%)	5/16/23	159
Apollo Next Generation Sample Analysis Program	10/17/2022	01/19/2023	Yes	3/7 (43%)	5/23/23	124
Precursor Science Investigations for Europa	11/01/2022	12/16/2022	Yes	5/28 (18%)	7/14/2023	210
Interdisciplinary Consortia for Astrobiology Research	09/15/2022	01/20/2023	Yes	9/28 (32%)	7/11/2023	182
Habitable Worlds	11/08/2022	02/03/2023	Yes	11/39 (28%)	7/26/2023	173
Lunar Data Analysis	12/1/2022	02/23/2023	Yes	8/34 (24%)	7/7/2023	134
Artemis III Geology Team	2/24/23	4/25/23	Yes	1/9 (11%)	9/6/2023	134
Future Investigators in NASA Earth and Space Science and Technology	N/A	2/21/23	Yes	39/216 (18%)	7/13/2023	142
PSTAR	Not solicited this year					

# PSD ROSES-2023 Programs with Due Dates

PROGRAM	Step-1 Due Date	Step-2 Due Date	Panels Held	Selections/Proposals	Selection Dates	Days from Step-2 to Select
Exoplanets Research	3/28/2023	6/1/2023	Yes	26/116 (24%)	8/14/2023	74
Yearly Opportunities for Research in Planetary Defense	4/20/2023	6/14/2023	Yes	11/34 (32%)	11/3/2023	142
Development and Advancement of Lunar Instrumentation	4/13/2023	6/22/2023	Yes	xx/32	TBD	TBD
Cassini Data Analysis Program	5/4/2023	7/13/2023	Yes	xx/44	TBD	TBD
Planetary Protection Research	6/21/2023	7/20/2023	Yes	4/8 (50%)	11/6/2023	110
Planetary Science and Technology Through Analog Research	8/16/2023	10/24/2023	No	xx/45	TBD	TBD
Discovery Data Analysis	9/6/2023	11/2/2023	No	xx/21	TBD	TBD
New Frontiers Data Analysis Program	9/14/2023	11/9/2023	No	TBD	TBD	TBD
Mars Data Analysis	9/7/2023	11/16/2023				
Hera Participating Scientist Program	10/3/2023	11/30/2023				
Planetary Science Early Career Award	N/A	12/7/2023				
Habitable Worlds	11/8/2023	2/1/2024				
Lunar Data Analysis	3/1/2024	4/30/2024				
Future Investigators in NASA Earth and Space Science and Technology	N/A	2/6/2024				
Maturation of Instruments for Solar System Exploration	Not Solicited This Year					
Planetary Science Enabling Facilities	Not Solicited This Year					
Interdisciplinary Consortia for Astrobiology Research	Not Solicited This Year					
Precursor Science Investigations for Europa	Not Solicited This Year					
Analog Activities to Support Artemis Lunar Operations	Not Solicited This Year					



# The No Due Date, or "NoDD" trial period continues

- Year 1: ROSES-2021 was the first year of NoDD (complete)
- Year 2: ROSES-2022 (complete)
- Year 3: ROSES-2023 reviews are on-going, with proposals eligible for submission until March 29, 2024
  - The full extent of the three-year trial period will not be complete until Fall 2024
- Proposal pressure continues to be down
  - This is not unique to Planetary Science
  - This is not unique to NoDD, though more apparent with NoDD



# NoDD programs

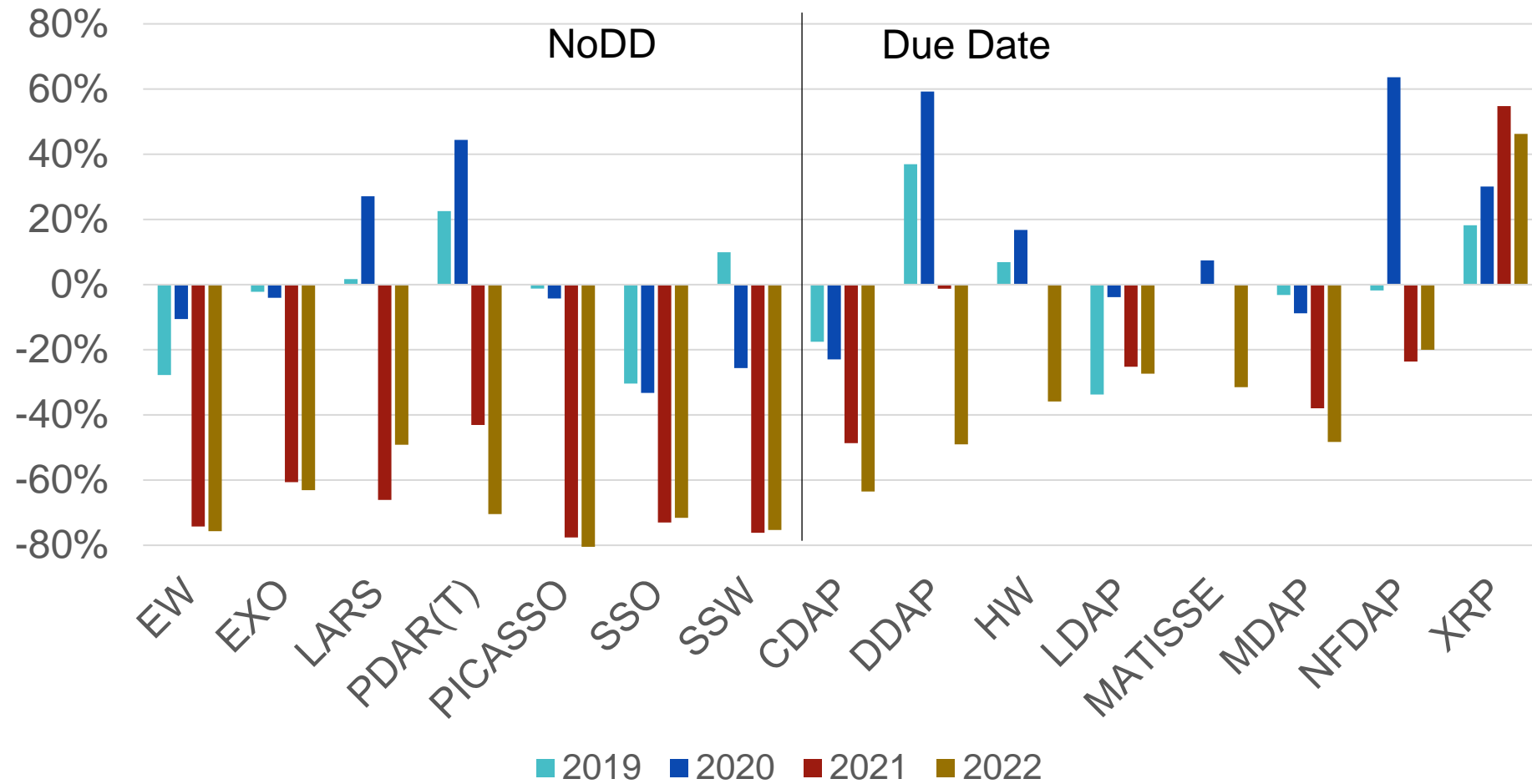
We will be reporting NoDD statistics, in general, for the year ending 6 months ago (the last year to pass the nominal notification goal of 180 days)

Data for proposals submitted 5/1/2022 - 4/30/2023

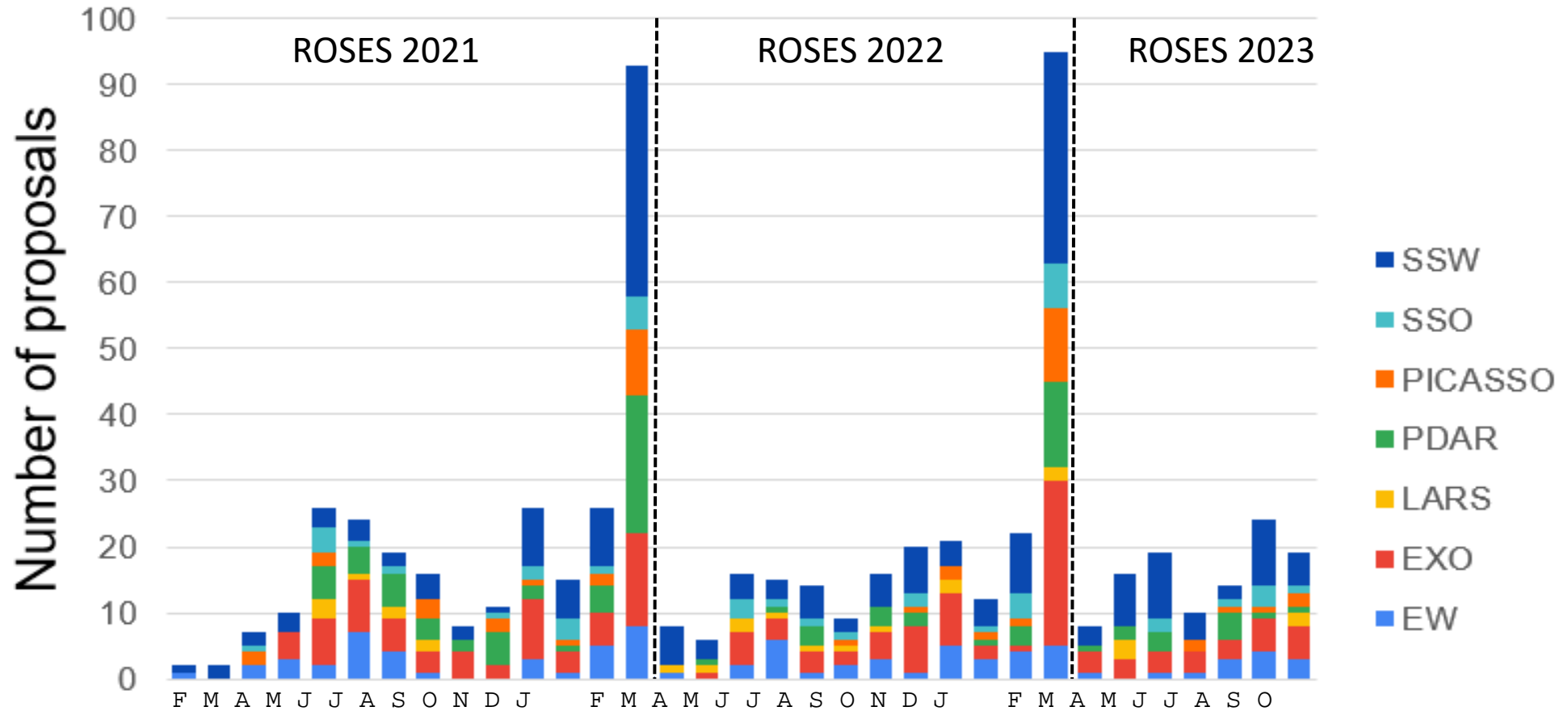
	Program	Submitted	Pending	Declined	Selected	Selectable	Selection Rate	Still Pending
C.2	EW	33	0	16	17	0	52%	0%
C.3	SSW	82	4	42	36	0	44%	5%
C.4	PDAR(T)	28	0	20	8	0	29%	0%
C.5	EXO	64	1	48	15	0	23%	2%
C.6	SSO	20	0	12	8	0	40%	0%
C.12	PICASSO	17	0	9	8	0	47%	0%
C.16	LARS	10	0	4	6	0	60%	0%

These numbers will change as any pending proposals get reviewed.

# Change in Proposal Pressure from 2014-2018 average

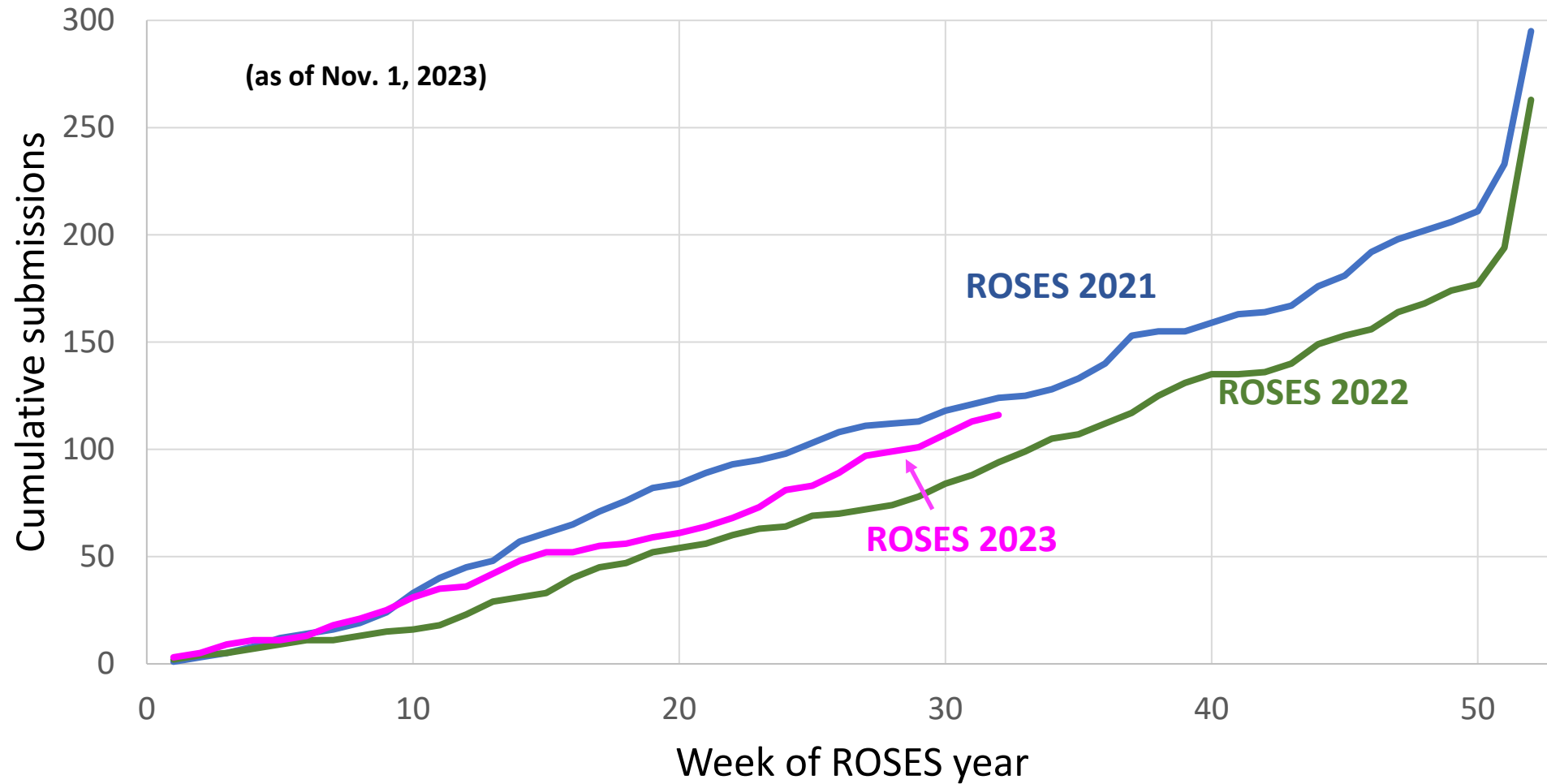


# NoDD Proposal Submissions by Month

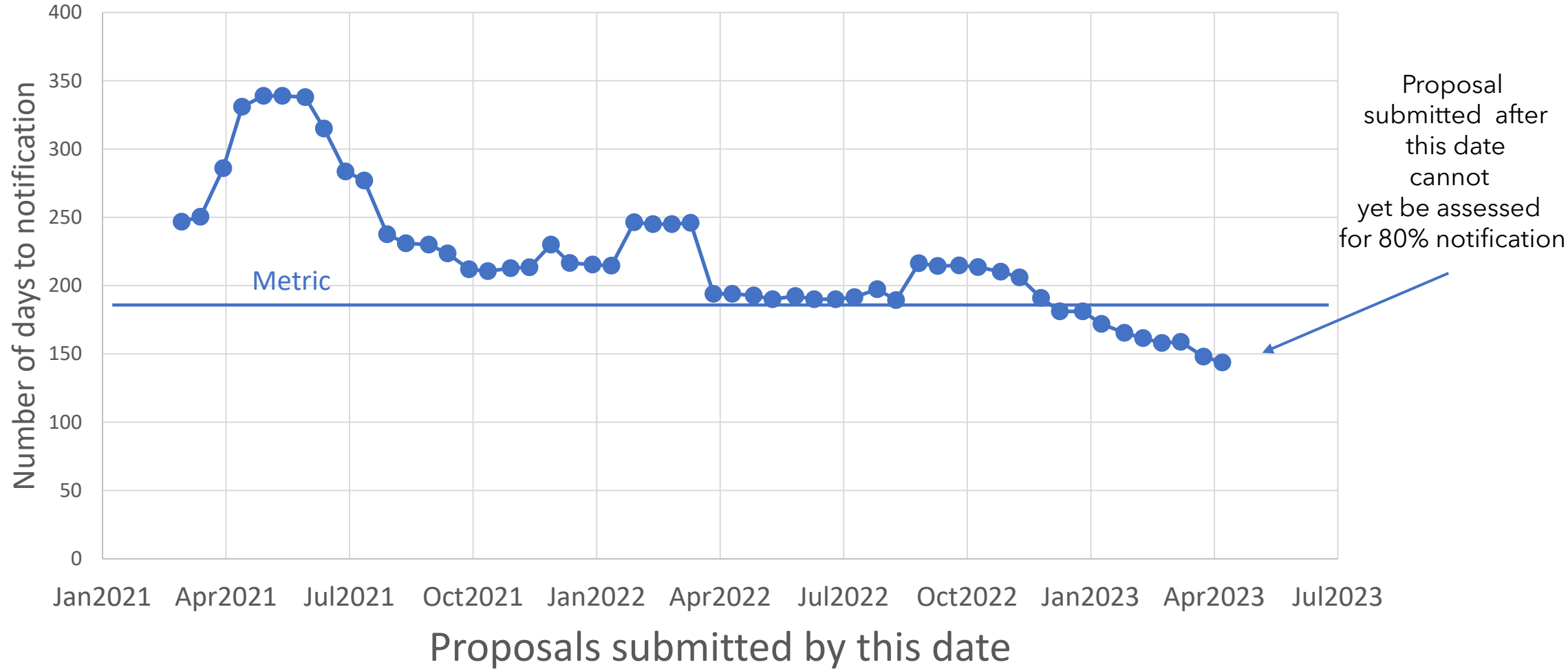




# NoDD Submission rates - all programs

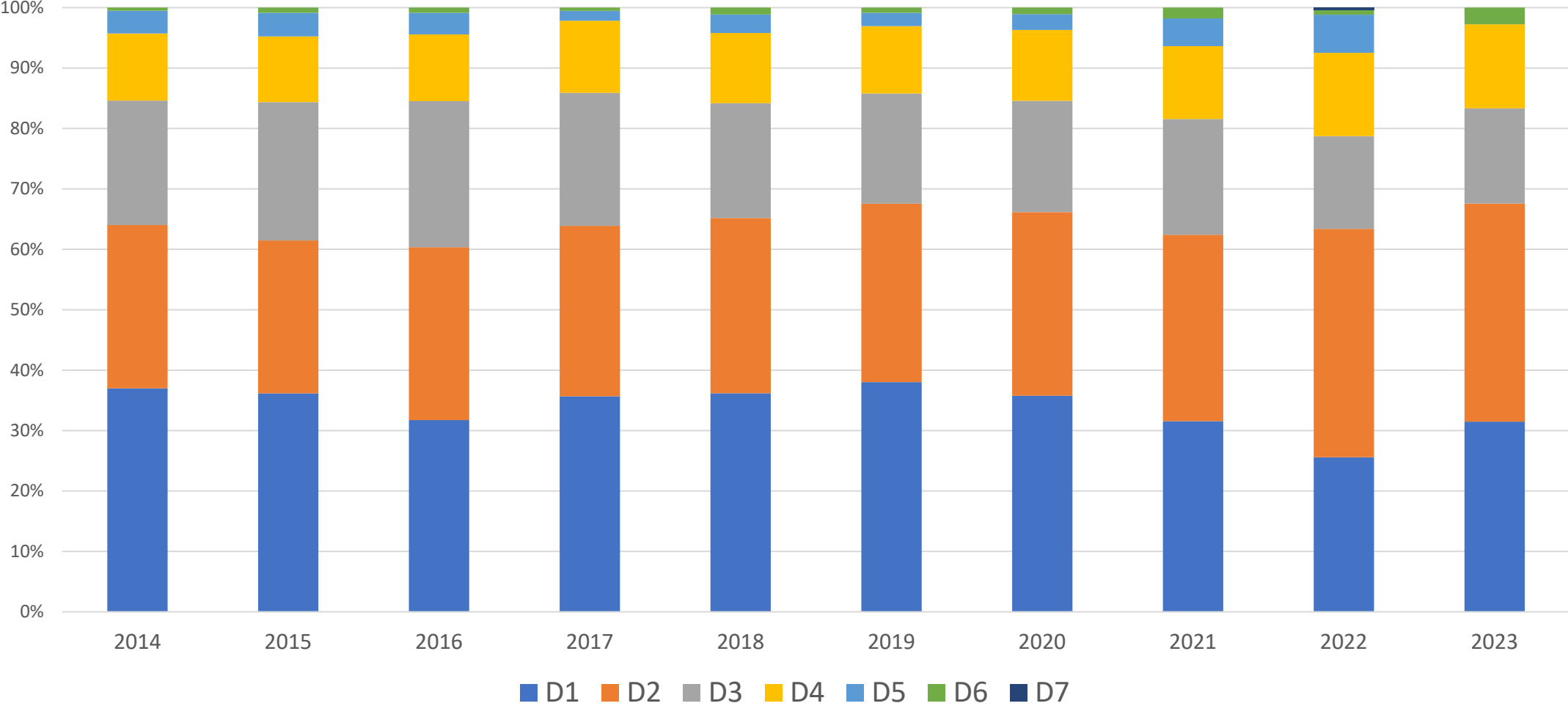


# Metric: 80% of Proposals will have a notification time of 180 days or less



# Career stage of proposers (decade past terminal degree) - all NoDD programs

Normalized to 100%. ROSES 2023 data as of 1 Nov 2023

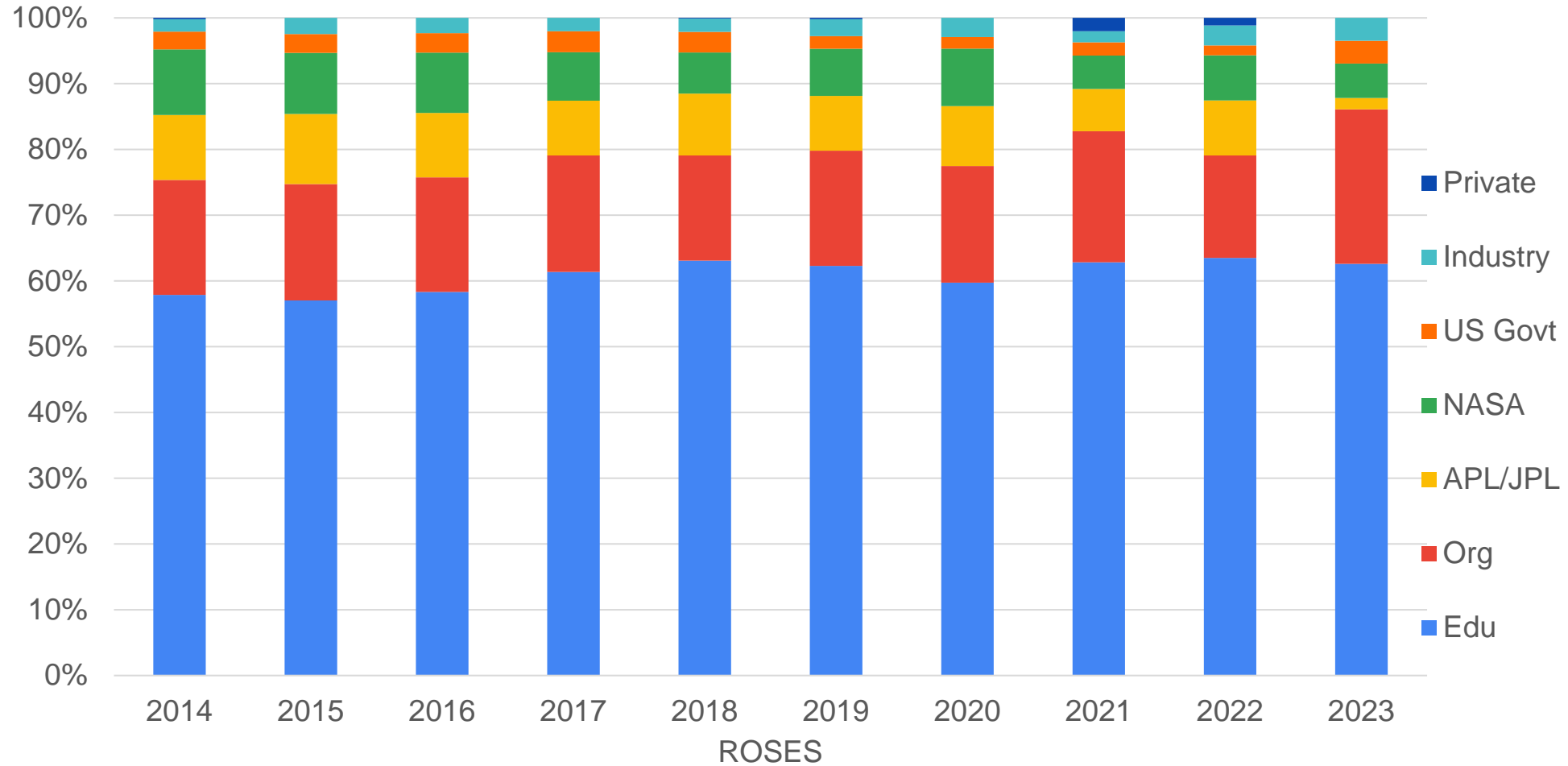


(e.g., D3= third decade, or 21-30 years past terminal degree)



# Institution type of proposers - all NoDD programs

Normalized to 100%. ROSES 2023 data as of 1 Nov 2023



# Internal Scientist Funding Model (ISFM) Work Packages

Center	ISFM	FY23 (\$)	FY24 (\$)	Duration	Last Review	Next Review	Other Div
ARC	Mars Climate Modeling Center (MCMC)	1,280,000	1,280,000	10/21-9/24	6/23	9/24	
ARC	Habitable Environments and Biosignatures / Center for Life Detection (HEB/CLD)	1,602,303	1,599,780	10/21-9/24	6/23	9/24	BPSD
ARC	Evolutionary Processes that Drove the Emergence and Early Distribution of Life (EPDEL)	782,000	782,000	10/21-9/24	6/23	9/24	BPSD
ARC	NASA Center for Optical Constants (NCOC)	297,200	297,200	10/21-9/24	6/23	9/24	
ARC	Astrobiologically Important Organics during Early Planetary System Formation and Evolution	300,000	300,000	10/21-9/24	6/23	9/24	
GSFC	Planetary Geodesy	545,000	545,000	10/21-9/26	9/22	4/24	
GSFC	Fundamental Laboratory Research (FLaRe)	4,100,000	4,299,423	10/21-9/26	9/22	4/24	
GSFC	The Goddard Instrument Field Team (GIFT)	778,989	778,989	10/21-9/26	9/22	4/24	
GSFC	Sellers Exoplanet Environments Collaboration (SEEC)	2,454,177	2,458,000	10/21-9/26	9/22	4/24	APD/HSD
GSFC	Exosphere-Ionosphere-Magnetosphere Modeling (EIMM)	1,125,000	1,125,000	10/21-9/26	9/22	4/24	HSD
GSFC	(R3D) Resolving Orbital and Climate Keys of Earth and Extraterrestrial Environments with Dynamics	199,423	N/A	10/21-9/23	9/22	N/A	
JSC	Coordinated Analysis (CA)	1,950,000	1,950,000	10/21-9/25	11/23	9/25	
JSC	Geo-Cosmochemistry (GC)	2,199,938	2,199,938	10/21-9/25	11/23	9/25	
JSC	Planetary Process Simulation (PPS)	1,320,657	1,320,657	10/21-9/25	11/23	9/25	
JSC	Organic Geochemistry (OG)	500,862	500,862	10/21-9/25	11/23	9/25	
JSC	Mission Enabling (ME)	1,092,143	1,092,143	10/21-9/25	11/23	9/25	
MSFC	Marshall Interdisciplinary Planetary Science (MIPS)	630,000	630,000	10/21-9/25	11/23	9/25	



# R & A General Updates





# Reminders to the community

- Remember rules on duplicate and resubmitted proposals (see C.1).
- Compliance checking scripts are now available to all at:  
<https://github.com/nasa/ROSES-Compliance-Checking-Tools/blob/main/README.md>
  - The scripts come with no guarantee!
- Please turn in your progress reports.
- Reviewers wanted!  
<https://science.nasa.gov/researchers/volunteer-review-panels>



# Effective immediately: New TWSC solicitation

## Topical Workshops, Symposiums, and Conferences (TWSC-24) in Space and Earth Sciences and Technology

TWSC is no longer in ROSES!

- Listed in the ROSES-2023 Appendix tables, and will be for future ROSES years as well.
- 3-year open period reduces the administrative burden both for internally for SMD and for the public
  - TWSC does not change year-to-year
  - As its own, stand-alone NRA, all the information for proposers can be put into one place
  - Reduces the burden on repeat proposers as well as the SMD staff managing the elements

# FYI: Research Initiation Awards (RIA)

Debuted in ROSES-2023 under [F.22 Research Initiation Awards](#)

RIA aims to broaden the base of investigators involved in the SMD ecosystem

→ Still under review, but be on the look out for it under ROSES-2024

- An RIA award, including indirect costs, must not exceed \$300,000 for a duration of 24 months.
- Funding for undergraduate students is a required element of the proposed project.
- RIA awardees may in the future propose for an additional two-year RIA award for a total of four years of support. No further proposals will be accepted.
- Institutional teaching and service commitments at non-R1s may be high, and therefore RIA program encourages proposers to include requests for funding for teaching buy-outs (to include sabbaticals) and/or summer salary.
- Proposals are short (6 pages) and contain two sections: a high-level Research Description and a Statement of the Impacts of the RIA.

# Updates on New Programs presented at last PAC

As previously discussed, the growth in R & A is an opportunity to broaden participation and create a more diverse and inclusive community.

## Proposed New Programs:

- Mission Concept Studies FY25 Delayed 1-2 years
- Postdoctoral Fellowship Program FY25 Delayed indefinitely
- Mission: IDEA (next slide) FY25

# Mission: IDEEA update

Goal: Create conditions necessary for effecting cultural change and developing the vibrant, equitable, inclusive community we seek.

Achievements to date: NASA began a partnership with the National Science Foundation (NSF) exploring an Ideas Lab to enhance collaborative discussions and broaden participation in achieving common research goals. We have a small, cross-agency working group identified.

Plans for the next year: NASA and NSF kick off the collaboration in early 2024 (calendar) and develop an Ideas Lab solicitation and a communication plan for making sure the solicitation is communicated widely. Solicitation anticipated late Spring/early Summer.



**IDEAS LAB**  
on the Origins of Life

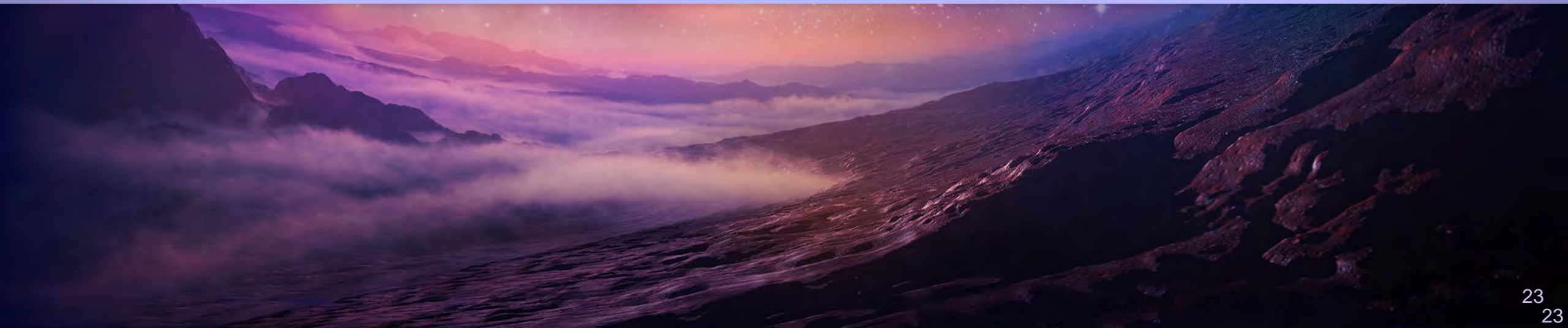


*NASA has previously collaborated with the NSF on Ideas Labs*





# Data Tidbits





# SMD Yearbook

Yearbook release pending! Yearbook will contain demographic and programmatic information about the R & A Programs (both Directorate- and Division-level).



# Complete NASA's open science course!

Open Science 101: A community-developed introduction to **core open science skills**

- Know how to write a NASA open science and data management plan
- Learn about tools and best practices
- Increase the impact & visibility of your science
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Self-Paced  
Online  
Course



Online & In-person  
Workshops



# Additional Resources

## SMD Open-Source Science Guidance

Narrative guidance for researchers on SPD-41a Includes:

- Open Science and Data Management Plan
- Sharing Publications
- Data Management and Sharing
- Software Management and Sharing
- Persistent Identifiers for Investigators
- Sharing Materials for Science Events
- Glossary

Available on [GitHub](#) and in [PDF](#); all versions linked on [Scientific Information Policy Website](#)

**See also:**

[SPD-41a FAQ](#) and the [ROSES OSDMP page](#)

The screenshot shows a web browser displaying a GitHub repository page for NASA's SMD Open-Source Science Guidelines. The page title is "Where to Share Data" and it contains the following text:

**Where to Share Data**

Data must be shared and archived in locations that ensure the accessibility and preservation of the data. Repositories should meet the guidelines for SMD-acceptable data repositories in Appendix D of [SPD-41a](#), which are based upon the [Desirable Characteristics of Data Repositories for Federally Funded Research](#). The method for sharing the data must be described as part of the data management plan.

**NASA Science Data Archives**

SMD-funded researchers should follow any guidance for how to share data provided in their solicitation or in [SMD division policies](#). Examples of these repositories include [GeneLab](#), [NExSci Science Data Archives](#), and [HLSP Data Collections](#). If no repository is specified by the funding solicitation or SMD division, researchers are encouraged to select an appropriate [NASA Science Data Archive](#) whenever possible.

**Generalist Repositories**

While SMD encourages the use of domain-specific data repositories when possible, such repositories are not available for all data sets. In this case, researchers may select a generalist data repository that is already in use by the scientific community and follows the characteristics of acceptable data repositories in Appendix D of SPD-41a. Generalist repositories include [data.nasa.gov](#), as well as others provided by other federal agencies and by nongovernmental institutions.

SMD does not recommend any specific generalist repositories at this time. Following the examples of the [NIH](#) and [USGS](#), the non-exhaustive list below is provided as a starting point for locating commonly used generalist repositories that may be suitable for archiving SMD-funded research data.

- [Zenodo](#)
- [Open Science Framework](#)
- [Dryad](#)
- [Figshare](#)
- [Dataverse](#)

The USGS provides a helpful list of [criteria to consider when selecting an external repository](#).

**Journal Supplementary Material**

For some scientific data, such as small data sets or individual tables that accompany a journal article, the



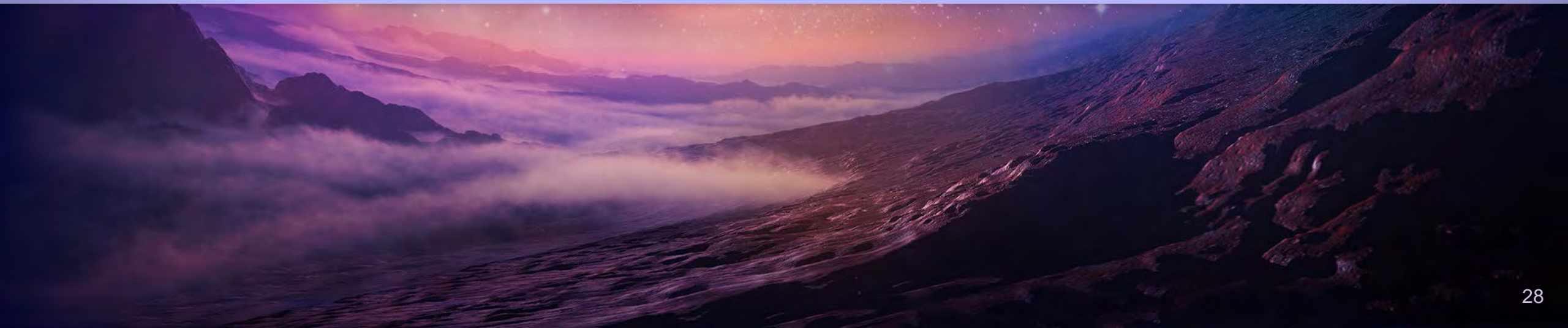


# Planetary Science Open Science Highlights

- Open Science Community Shout-out! - <https://moonlidar.com/>
  - USGS Astrogeology Science Center and Hobu team completed a beta release (with the AWS Registry of Open Data) of a cloud native, streamable LOLA point cloud. Product is freely and publicly available.
  - A browser visualization of the entire [NASA LOLA LiDAR data](#) archive that utilizes the Hobu [Eptium](#) application to visualize a single [Cloud Optimized Point Cloud](#).
- Discussions within NASA (ESDMD, SOMD, ESSIO, SMD) and with NGA regarding Lunar reference frames to support a sustained human presence on the moon. This is a long-term effort.
- ExMAG-LEAG Specific Action Team is being formed to examine 3 main topics: (1) Volatile Samples and Cold Curation, (2) Nominal Samples, and (3) Sample Data Infrastructure.
  - Community applications to serve on the SAT have been accepted and are being reviewed.



# Upcoming Changes for ROSES-2024



# PSD R&A ROSES-2024 Overview

- Maintain same programs reviewed under DAPR and NoDD
  - DAPR: CDAP, DDAP, LDAP, MDAP, "NFDAP", PPR, PSIE
    - Also HW, XRP
    - **Reminder: DAPR will be the default under ROSES-2025**
  - NoDD: EW/SSW/SSO, Exobiology, PDART, PICASSO, LARS, H2O
- Removed substantial duplicate information from individual program elements into C.1, including information on DAPR submission process. Added this text to the top of each individual program element:

**In an effort to increase the clarity and accessibility of information for programs within Appendix C, we have moved information that pertains to the majority of the programs into Appendix C.1 Planetary Science Research Program Overview. Proposers are advised to read C.1 in its entirety to ensure that they have the necessary information to be compliant with their proposal submission.**

- All C appendices (except for C.01) have been restructured to include the following sections:
  1. Scope of Program
  2. Program Specific Information
  3. Proposal Submission (and Evaluation) Process
  4. Summary of Key Information

# PSD R&A ROSES-2024 Changes (1/2)

- For ROSES-2024, we will be merging C.02 EW, C.03 SSW, and C.06 SSO into a single program element (Solar System Science). (see additional slides)
- C.20 ICAR will be solicited in ROSES-24. However, a full program element will not be available with the full ROSES roll out so a placeholder will be added and likely updated in Summer of 2024.
- Adding Artemis Geologic Mapping Campaign. This is an ESSIO call but it's in Appendix C. A placeholder will be added for release of ROSES-2024.
- Modifying all DAPR calls under C.1 to also require an anonymized NOI/Step-1.



# PSD R&A ROSES-2024 Changes (2/2)

- C.4 PDART and C.11 DDAP will pull the OSDMP out of the 15-page STM and will now allot 2 additional pages like other program elements
- Pending available funding, C.7 NFDAP may be becoming NFPRDAP: NEW FRONTIERS PRECURSOR RESEARCH AND DATA ANALYSIS PROGRAM to allow proposers to include tasks that relate to precursor planning, in addition to data analysis. This would include, for instance, ground-based work performed now to study organic chemistry processes on Titan, which would enable rapid science analysis from Dragonfly once mission data is acquired.
- Discussions underway for C.12 PICASSO, C.13 MatISSE, C.19 DALI to potentially require OSDMPs for the first time.
- Reporting requirements were moved out of several program elements and will be included in award letters instead.

# Merging EW-SSW-SSO into single element

- C.2 Emerging Worlds  
The Emerging Worlds program solicits research proposals to conduct scientific investigations related to understanding the formation of our Solar System and/or the early evolution of our Solar System
- C.3 Solar System Workings  
This program seeks to understand processes that occur throughout the Solar System, as well as those specific to individual objects and systems which inform our understanding of the fundamental processes at work.
- C.6 Solar System Observations  
Solar System Observations (SSO) supports primarily Earth-based observations, including ground-, airborne- and space-based astronomical observations, of bodies in our Solar System.
- Concerns:
  - Have created unnecessary barriers for the community for both proposal submission and reviews
  - Doesn't foster ability for interdisciplinary science that spans the formation and evolution of the SS
  - Low proposal pressure (Total proposals for R-21:136 ; R-22:138)

# Merging EW-SSW-SSO into single element (cont.)

- Solution: C.25 Solar System Science
  - This program solicits research proposals to conduct scientific investigations that address the formation and evolution of our solar system from the collapse of the molecular cloud, through planetary accretion and differentiation, and up to present day processes.
- Rationale:
  - Decrease barriers for the community for both proposal submission and reviews
  - Foster the ability for interdisciplinary science that spans the formation and evolution of our solar system
  - Even if proposal pressure increases, still are not likely to see pre-2020 SSW levels (300+). But even if we do, we know we can handle that number of proposals in a single program
  - Provides more flexibility in what is funded
- Maintaining Clarity of Research being funded for the community
  - Current funding lines for EW, SSW, and SSO would be maintained
  - Those funding lines would be maintained at the currently planned levels

# Discussion Questions

## **What metrics would instill community trust in a merger program?**

- Tracking original funding line data over time
- "What programs the proposal would previously have been submitted to?"
- Continued assessment of portfolio balance (target? process?)

## **Any other questions related to the upcoming changes?**

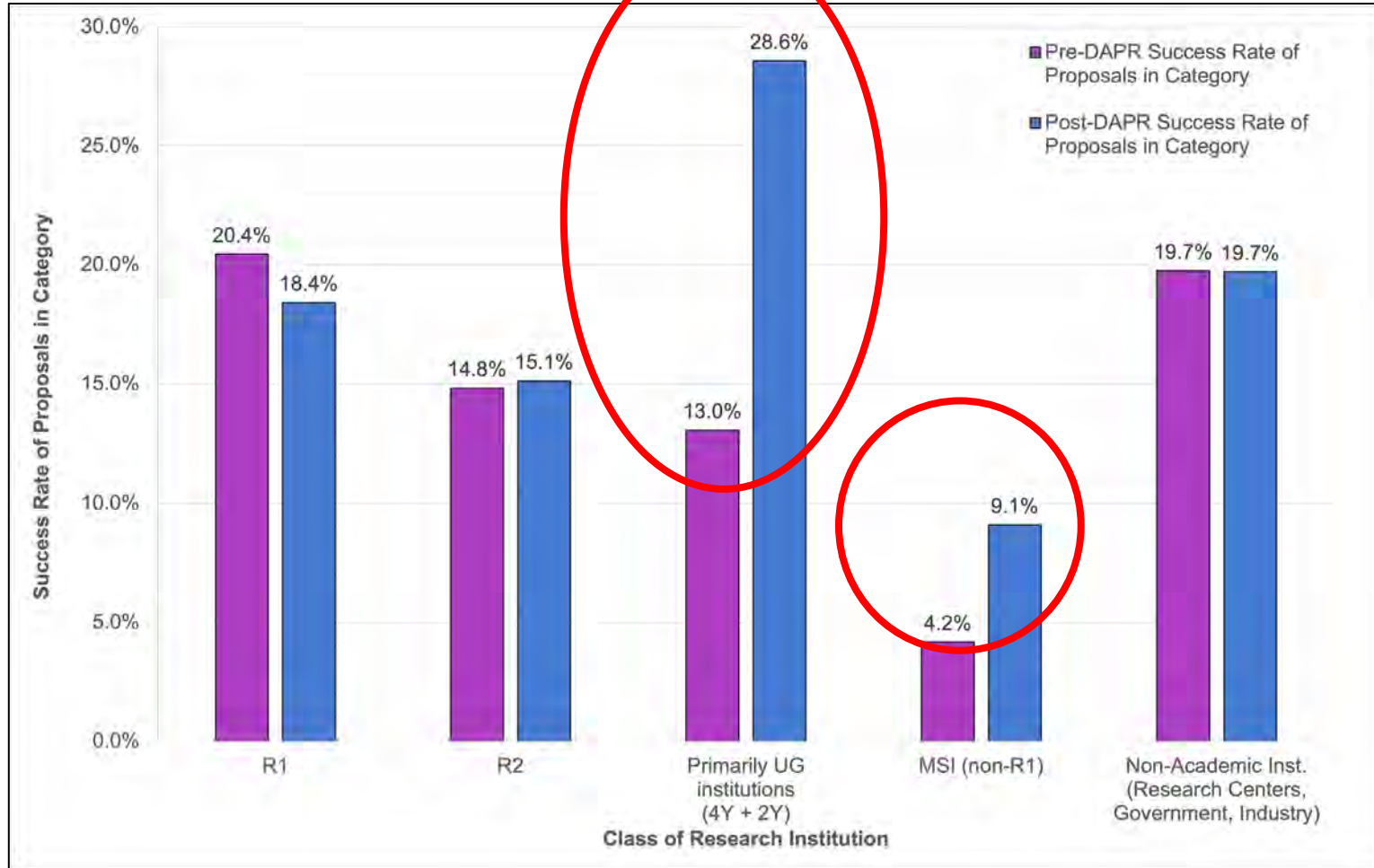




# Backup Slides



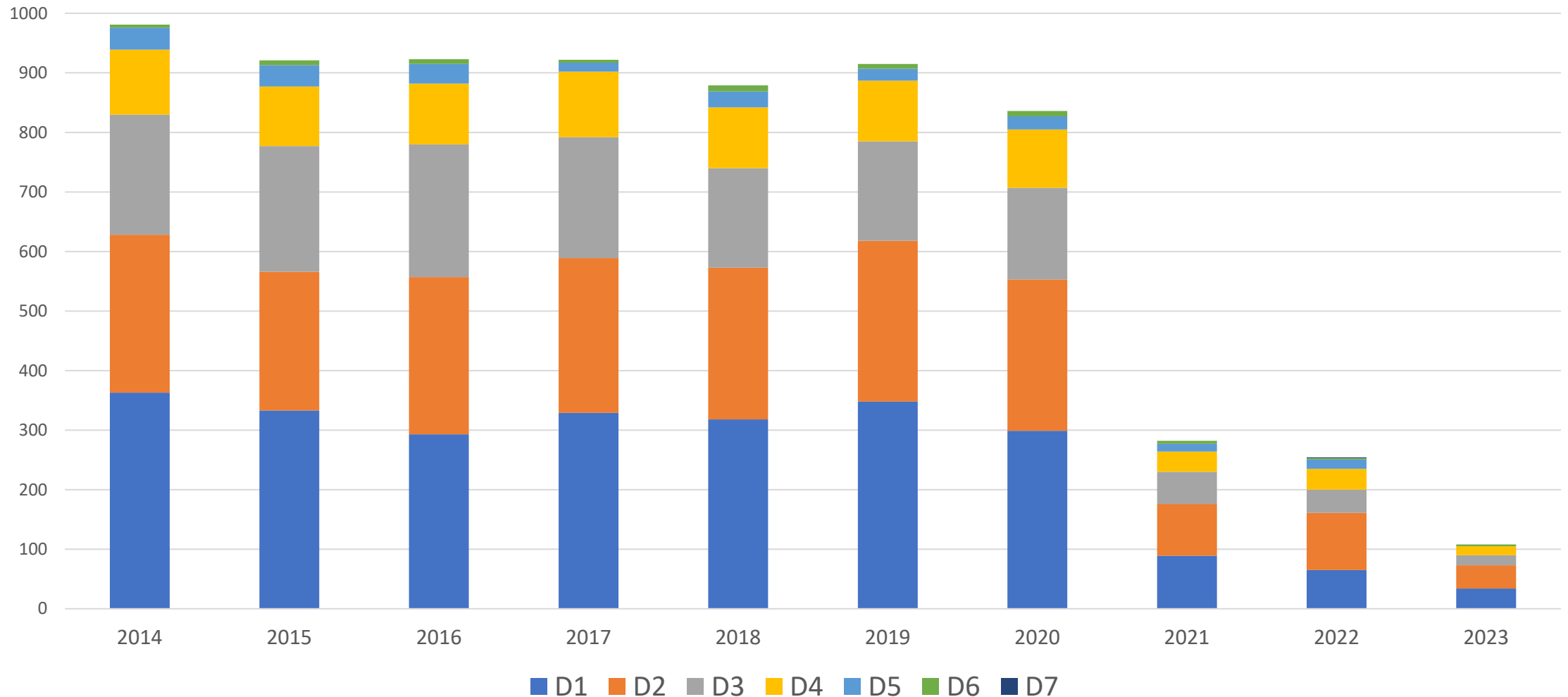
# DAPR Updates (SMD)



- ◆ The data come from the ADAP, ATP, and XRP.
- ◆ Overall selection rates pre- and post-DAPR are basically the same.
- ◆ Most of the differences shown may not be significant but the factor of 2 changes in selection rates for Primarily UG and non-R1 MSIs look to be.
- ◆ These changes are precisely one of the expected benefits of DAPR.

# Career stage of proposers (decade past terminal degree) - all NoDD programs

Raw number of proposals. ROSES 2023 data as of 1 Nov 2023



(e.g., D3= third decade, or 21-30 years past terminal degree)

# Institution type of proposers - all NoDD programs

Raw number of proposals. ROSES 2023 data as of 1 Nov 2023

