

National Aeronautics and
Space Administration



EXPLORE SOLAR SYSTEM & BEYOND

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PAC Meeting
February 15, 2022



Coming Soon

Next month we expect to have two announcements out:

- Call for people interested in working at HQ either as an IPA or on a detail
- Call for nominations for new PAC members. We're particularly interested in members with expertise in planetary defense related science.

Reminders on ROSES 21

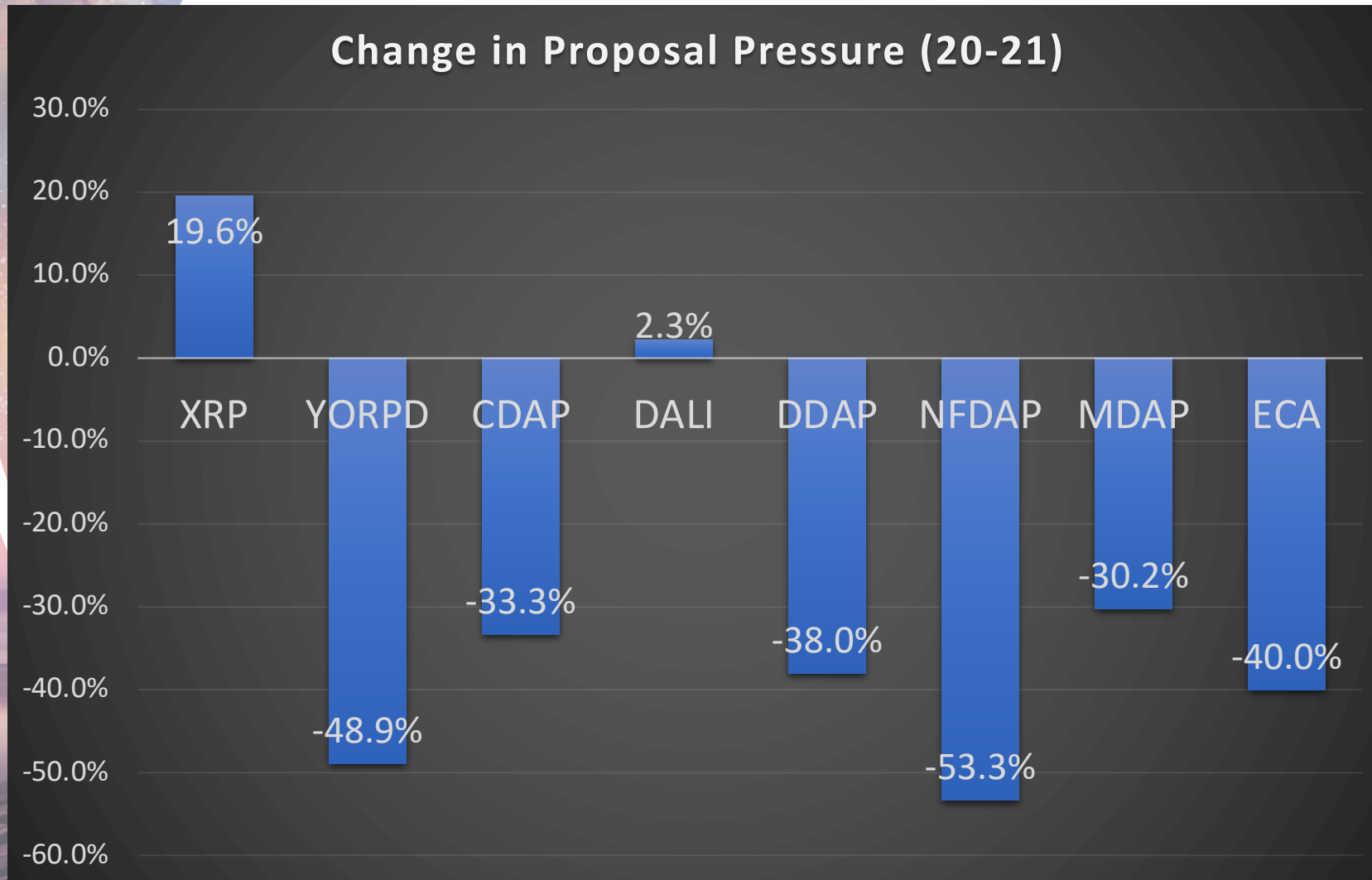
- No-Budget experiment with DDAP
- Dual-Anonymous Peer Review for all Data Analysis Programs (DAPs)
- No Due Date (NoDD) programs (open now!)
 - <https://science.nasa.gov/researchers/NoDD>
- Remember rules on duplicate proposals (see C.1)
- Compliance: We are checking and strictly enforcing compliance rules. Non-compliant proposals may be returned without review or be declined on this basis *regardless of intrinsic merit score from the panel.*

| Planetary Science Division ROSES 21 Program | Step-1 Due Date | Step-2 Due Date | Panels Held | Selections/Proposals | Selection Dates | Days from Step-2 to Select |
|--|--------------------|-----------------|-------------|----------------------|-----------------|----------------------------|
| Planetary Protection Research | 04/12/2021 | 05/13/2021 | Yes | 5/10 (50%) | 10/15/2021 | 155 |
| Exoplanets Research Program | 04/02/2021 | 05/27/2021 | Yes | 22/183 (12%) | 10/6/2021 | 132 |
| Development and Advancement of Lunar Instrumentation | 04/16/2021 | 06/16/2021 | Yes | 5/44 (11%0 | 1/21/2022 | 219 |
| Yearly Opportunities for Research in Planetary Defense | 04/22/2021 | 06/17/2021 | Yes | 12/23 (52%) | 10/19/2021 | 124 |
| Cassini Data Analysis Program ¹ | 05/07/2021 | 07/09/2021 | Yes | 15/38 (39%) | 10/8/2021 | 92 |
| Hot Operating Temperature Technology | 06/01/2021 | 08/03/2021 | Yes | 7/38 (18%) | 11/12/2021 | 101 |
| Juno Participating Scientist Program | 06/14/2021 | 08/13/2021 | Yes | 10/27 (37%) | 11/12/2021 | 91 |
| VIPER Mission Co-Investigator Program | 07/02/2021 | 08/31/2021 | Yes | 8/50 (16%) | 12/21/2021 | 112 |
| Planetary Science and Technology Through Analog Research | 07/23/2021 | 10/07/2021 | Yes | xx/49 | | |
| New Frontiers Data Analysis Program ¹ | 09/03/2021 | 11/04/2021 | Yes | 7/21 (33%) | 1/24/2022 | 81 |
| Mars Science Laboratory Participating Scientist Program ¹ | 09/15/2021 | 11/05/2021 | Yes | 25/50 (50%) | 1/21/2022 | 77 |
| Mars Data Analysis ¹ | 09/24/2021 | 11/18/2021 | No | xx/67 | | |
| Discovery Data Analysis ¹ | 09/28/2021 | 11/23/2021 | No | xx/31 | | |
| Planetary Science Early Career Award | N/A | 12/08/2021 | No | xx/27 | | |
| Planetary Major Equipment and Facilities (stand alone proposals) | 12/03/2021 | 02/03/2022 | No | | | |
| Lunar Data Analysis ¹ | 12/01/2021 | 02/24/2022 | No | | | |
| Martian Moons eXploration Participating Scientist Program | MOVING TO ROSES-22 | | | | | |
| Future Investigators in NASA Earth and Space Science and Technology | N/A | 02/11/2022 | No | | | |

1: DAPR Program

Highlighted in Yellow = Cross-Divisional
Not solicited this year: MatISSE, ICAR, Habitable Worlds

Proposal Pressure in ROSES-21



Proposal pressure is down significantly in ROSES-21.

6 out of 8 programs have at least a 30% reduction in submitted proposals

The exceptions:
XRP (up 20%)

DALI (flat)

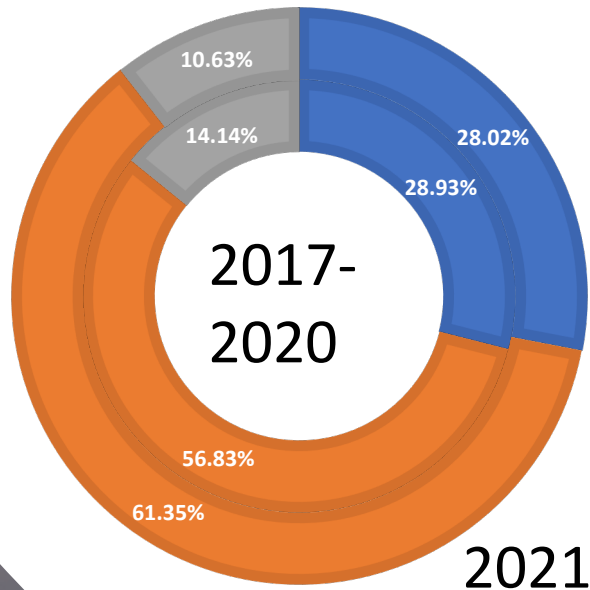
The Drop in Proposal Pressure

Who?

The SMD folks are helping us out with a demographic analysis to try to understand the “Who?” Are there specific groups that are not proposing?

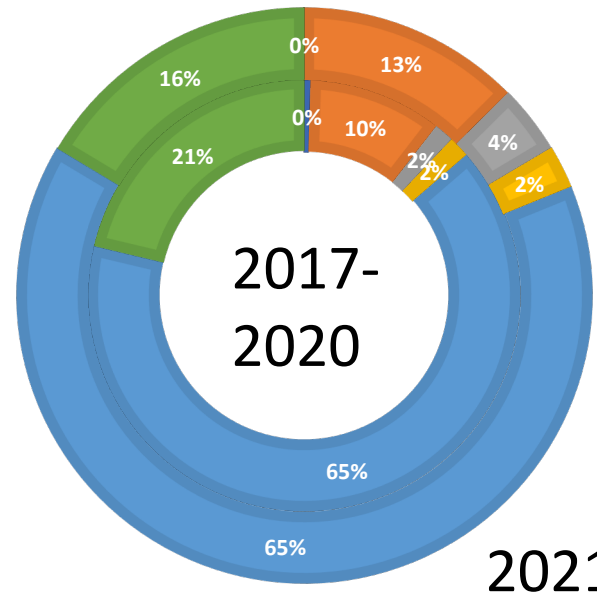
PI GENDER

Female Male No response



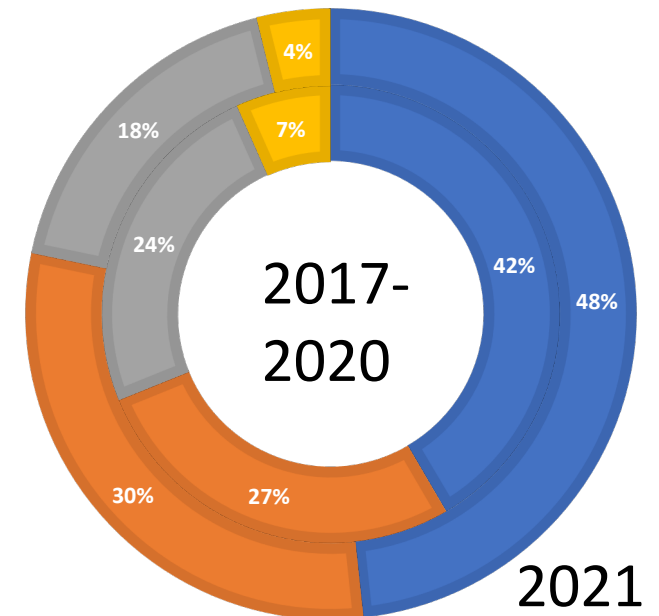
PI RACE

African American Asian Multiracial Other White No response



PI CAREER STAGE

Early Career Mid Career Late Career Unknown





The Drop in Proposal Pressure

Why?

Many theories, unsupported by evidence:

- COVID fatigue?
- The rise in uncostered (people don't need money)?
- Reduction in new ideas due to lack of in-person interactions (conferences)?
- Frustration at low selection rates?
- DAPR?

Is it even a problem?

Note: Similar things have been seen in other divisions: this is not a change unique to PSD.



A few other ROSES-21 items


- OSIRIS-REx Sample Analysis PSP open now (ORSA-PSP: Step-1 proposals due 2/28/22)
- Preparatory Science Investigations for Europa (PSI-E) draft solicitation is out and we are accepting comments until 3/18/22



NoDD programs

We are not yet reporting on individual programs, as we feel that would be premature:

- All programs have now passed their anniversary date
- 63% of all proposals received under NoDD have been reviewed as of 2/3/22 (more reviews will be completed by the time you see this).
- Average selection rate (so far): 25%
- Average notification time: 157 days (we expect that to go down significantly)
- Only one proposal has exceeded the targeted maximum time to notification (235 days).

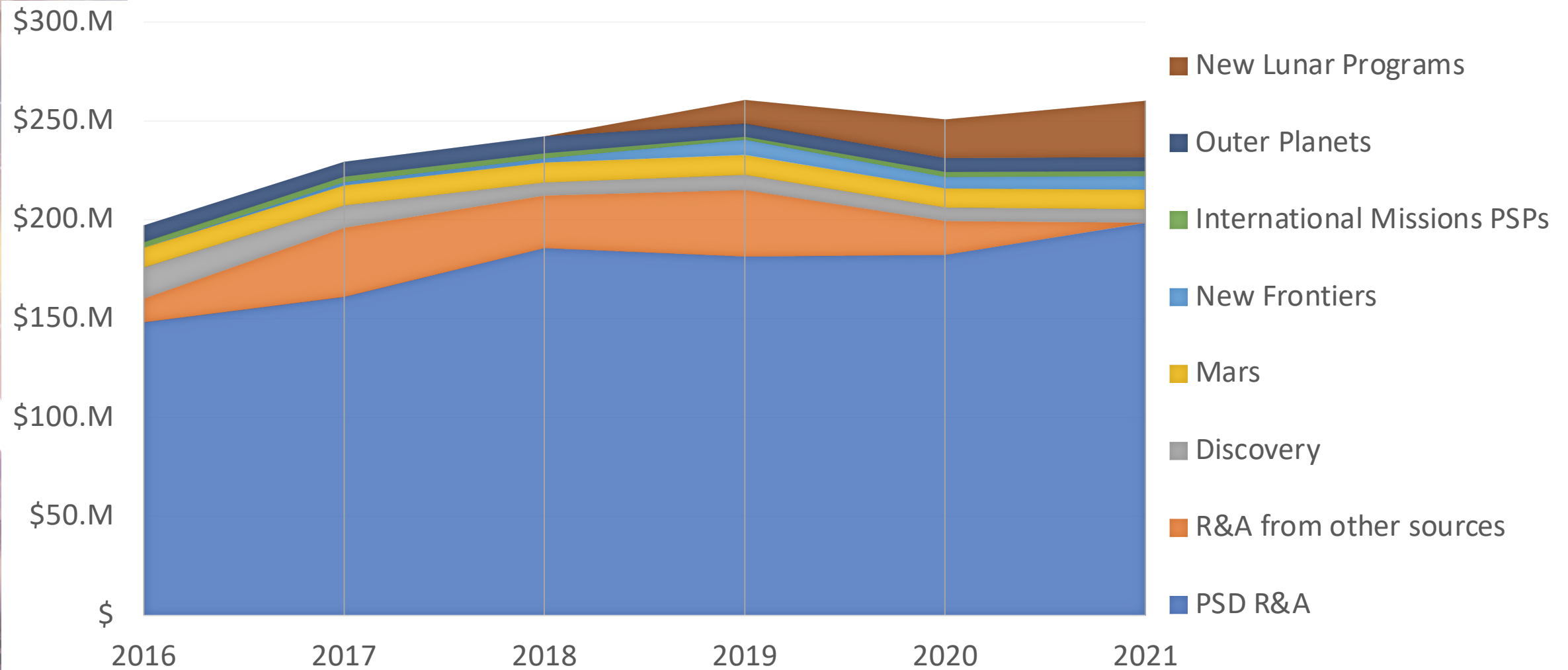


PMEF in ROSES21 and ROSES22

- Replacing the ROSES21 Planetary Major Equipment & Facilities (PMEF) call with the Planetary Science Enabling Facilities (PSEF) call
 - This is only the stand-alone part of PMEF, no change to “appended” PMEF proposals
 - PSEF is the broader Facilities program that we’ve talked about before.
- In ROSES22, PMEF will exist as a funding line but not as an appendix (PSEF will be there). “Appended” requests will be handled a bit differently.
 - More information in Aaron Burton’s talk from the last PAC

FY21 Budget

RESEARCH BUDGETS OVER TIME

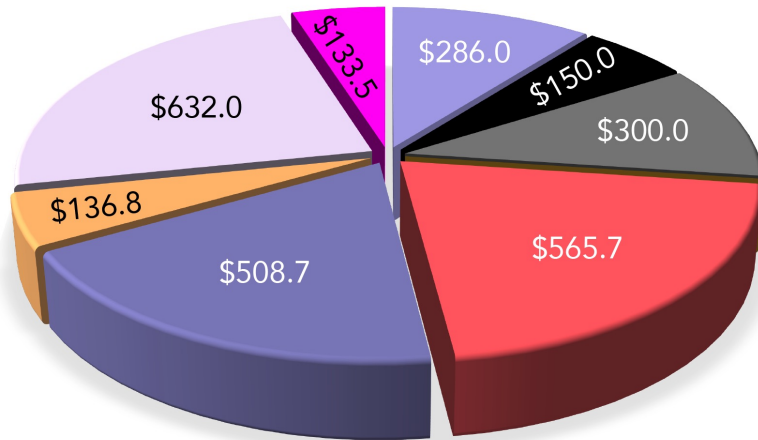


Repeat of slide from last PAC

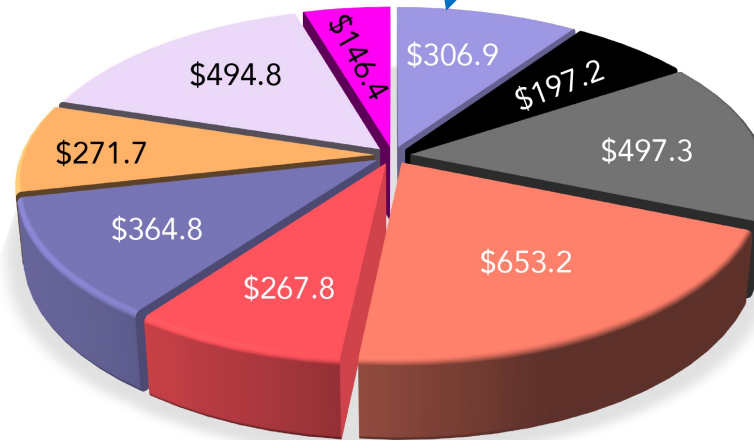
FY22 Budget

R&A lives here, along with AMMOS, PDS, etc.

FY20 Actual (Total: \$2,712.6M)



FY22 Request (Total: \$3,200.0M)

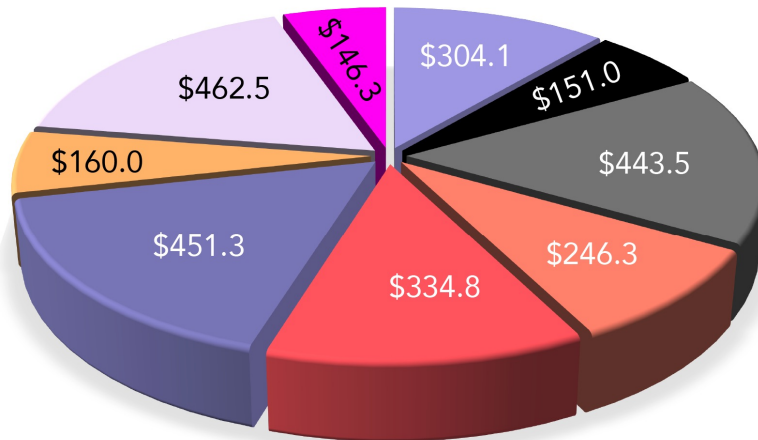


The FY22 President's Budget Request includes \$11M additional funding for R&A!

This funding will be incredibly valuable, allowing us to:

- Establish a Facilities program
- Significantly reduce or eliminate all of the out-year "mortgages" for R&A.

FY21 Operating Plan (Total: \$2,699.8M)




- Planetary Science Research/Other
- Planetary Defense
- Lunar Discovery and Exploration
- Mars Sample Return
- Mars Exploration
- Discovery
- New Frontiers
- Outer Planets & Ocean Worlds
- Radioisotope Power



ROSES22: Some changes

- PMEF turning into PSEF (as already mentioned)
- Some calls to watch for:
 - Apollo Next Generation Sample Analysis 2 (ANGSA-2)
 - Analog Activities to Support Artemis Lunar Operations
 - Artemis III Geology Team
 - Martian Moons eXploration (MMX) PSP
 - Preparatory Science Investigations for Europa
- PDART: under ROSES22, PDAR will not accept any proposals for development or validation of tools (note PDART → PDAR)
 - Reason: The Planetary Data Ecosystem review highlighted some weaknesses in how tools are developed *and supported*. We need to change how this is done moving forward.



ROSES2022: INTERDISCIPLINARY CONSORTIA FOR ASTROBIOLOGY RESEARCH (ICAR)


- Proposals should describe an interdisciplinary approach to a single, compelling question in astrobiology, and may address a single Science Strategy goal or several Science Strategy goals.
- A Step-1 proposal is required and the Step-1 proposal is binding.
- Team size and resources requested should be appropriate to the scale of the proposed research.
- There is no ideal size of an ICAR Team, but the scope of the research and the resources requested should exceed those typically considered in a ROSES program element (e.g., Exobiology, Habitable Worlds).
- Award sizes are expected to fall within \$600-1,000 K per year for five years.
- Proposals to this program element that are awarded funding will become members of the Research Coordination Networks (RCNs) relevant to their selected research.

ROSES2022: ICAR

The areas of research emphasis and the RCNs covered in this solicitation are as follows:

Being
reviewed this
year (post-
Decadal)

1. **Nexus for Exoplanet System Science (NExSS)** investigates the diversity of exoplanets and to learn how their history, geology, and climate interact to create the conditions for life
2. **Network for Life Detection (NfoLD)** investigates life detection research, including biosignature creation and preservation, as well as related technology development
3. **Prebiotic Chemistry and Early Earth Environments (PCE3)** investigates the delivery, synthesis, and fate of small molecules under the conditions of the Early Earth, and the subsequent formation of proto-biological molecules and pathways that lead to systems harboring the potential for life
4. **Network for Ocean Worlds (NOW)** investigates the diversity of other worlds in the solar system and to learn how their history, geology, and climate interact to create the conditions for life
5. **From Early Cells to Multicellularity (ECM)** investigates the earliest biological processes and the evolution of life on Earth into more complex



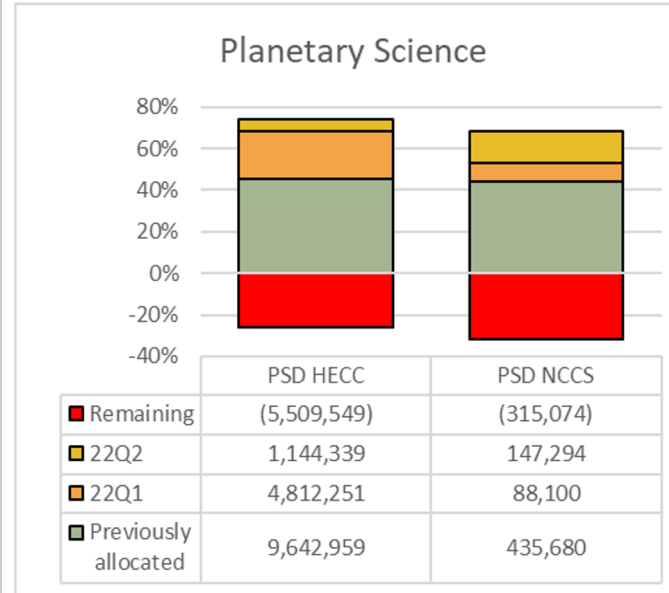
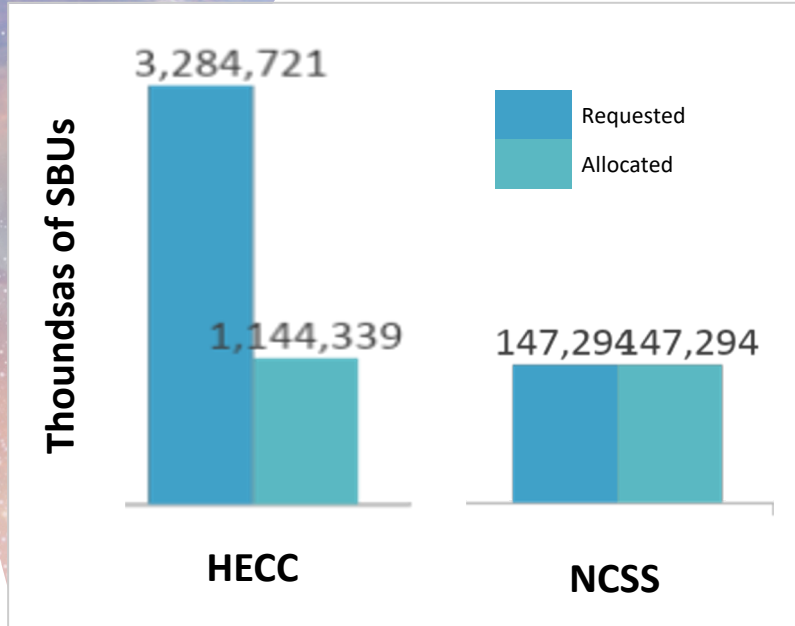
ROSES2022: ICAR

Tentative Schedule

ROSES Announcement
Step -1 Proposals Due
Step -2 Proposals Due

April 15, 2022
Sept 16, 2022
Dec 19, 2022

22Q2 HEC Status for PSD



- PSD PIs not using allocated SBUs
- So far this helps balance over-allocation since we can re-allocate SBUs to other users

| SMD Division | # of IDs | Unused SBUs |
|--------------|----------|-------------|
| PSD | 46 | 2,252,996 |

- We are only in Q2 of FY22 and PSD is already over-allocated at both HECC (severe) and NCCS (at limit)
- This is in part due to commitments made in previous years by projects with multi-year allocations
- PSD has one mega-user that dominates usage
- PSD is looking at better ways to manage our HEC allocation

PSD Funding for Community Service: A Table of Possibilities

| | # people | Assumptions | \$\$/person | est. cost/yr | Notes |
|--|----------|------------------------|-------------|--------------|---|
| PAC | 13 | 10% time | \$25,000 | \$325,000 | Legal framework makes this complicated |
| AGs | 100 | 5% time | \$12,500 | \$1,250,000 | |
| Review Panels (in-person) | 720 | Double honoraria | \$3,000 | \$2,160,000 | SMD Decision |
| Review Panels (pre-panel) | 720 | Include non-panel time | \$3,000 | \$2,160,000 | SMD Decision |
| Review Panels (externals) | 1100 | pay externals | \$750 | \$825,000 | SMD Decision |
| White Papers | 300 | | \$10,000 | \$3,000,000 | No mechanism exists and potential legal issues |
| RFIs | 200 | | \$10,000 | \$2,000,000 | No mechanism exists and potential legal issues |
| Decadal Survey (Steering Committee) | 20 | 10% for SC members | \$25,000 | \$500,000 | Decision up to the Academies |
| Decadal Survey (Panels) | 140 | 5% for panel members | \$12,500 | \$1,750,000 | Decision up to the Academies |
| Mission Definition Teams | 30 | 10% time: this is low | \$25,000 | \$750,000 | |
| Facility Reviews | 30 | | \$5,000 | \$150,000 | We generally provide honoraria for senior review, major reviews, etc. already |
| State of the Profession / Workforce Reviews | | Ballpark on cost | | \$250,000 | |
| | | | | \$15,132,500 | |



Some notes on IDEA in PSD

All of PSD is committed to the ideals of IDEA:

So far, there have been a number of different IDEA activities spread across the Division.

PSD is now working to document all of the things that are happening in this area.



Some notes on IDEA in PSD R&A

Within the R&A Group, our approach (in general) is:

- Improve ourselves; training and education are not by themselves a solution, but a HQ workforce more cognizant of IDEA issues is better able to address them
- Look for places where improvements can get made
 - Who will benefit?
 - Who will pay? (money and time!)
 - Are impacts measurable?
- Choose a few things to do
 - The group has limited bandwidth available for new activities
 - Do a few things well, get them established, then move on to the next thing

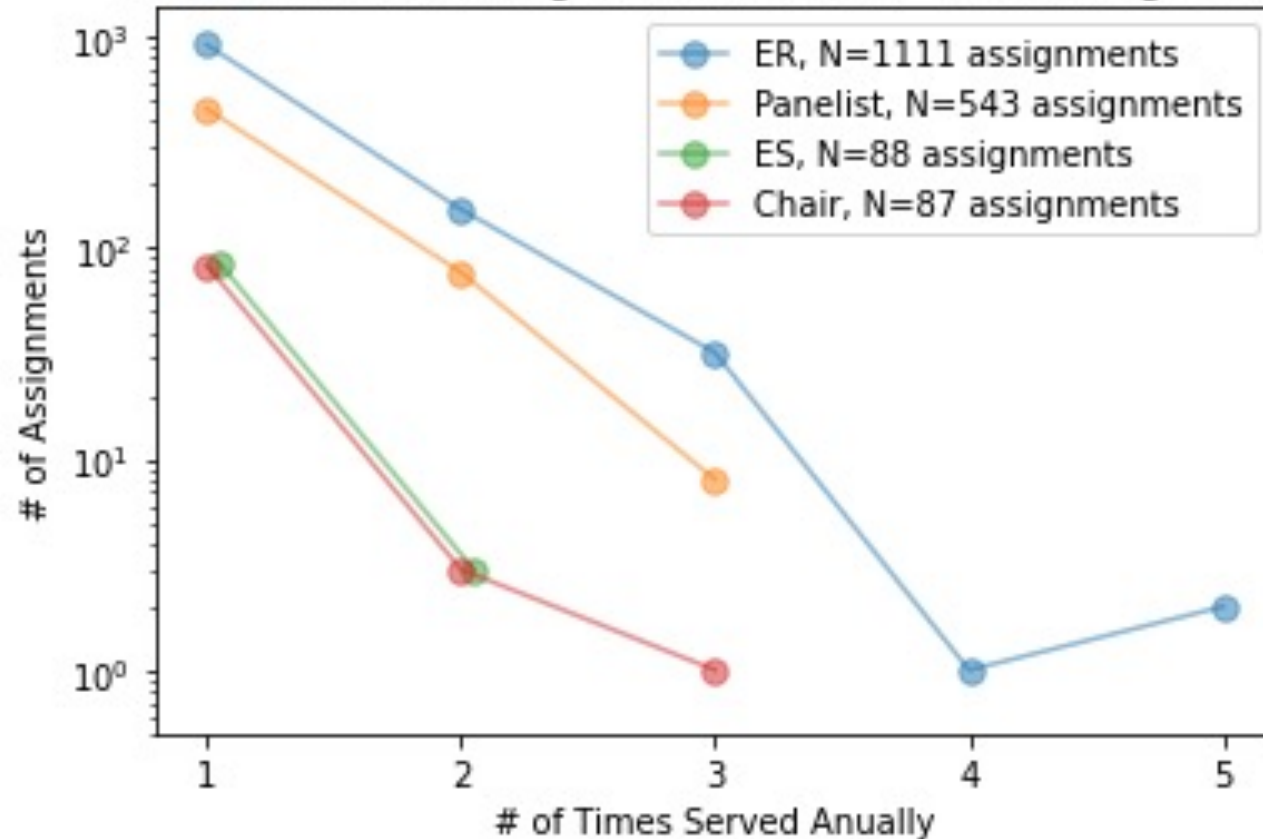


Backup Slides



Reviewers: A little bit of data

Annual Reviewer Assignments, PSD, N=1829 assignments



ROSES 2019, N = 3561 proposals

