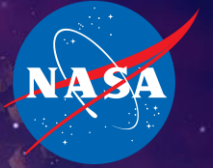



National Aeronautics and
Space Administration



EXPLORE SOLAR SYSTEM & BEYOND

Dr. Stephen Rinehart
Director, Planetary Research Programs

PAC Meeting
November 15, 2021



ROSES20: Summary

All ROSES20 solicitations are now done. Some statistics:

- 1595 proposals were submitted across all programs
- 307 proposals were selected (will go up slightly)
- 19.2% overall selection rate
- Average time to notification was 154 days
 - Improvement over the past 2 years!
 - Two programs (PDART and LARS) exceeded 180 days; five programs were at less than 100 days.
- Very positive reviews of our DAPR experiment – more on that later

For comparison
ROSES19

- 1568
- 242
- 15.4%
- 166 days

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.*



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; another talk on this topic later in the meeting.
- 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.
 - Again, wait for Aaron's talk.

| 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 | xx/44 | TBD | |
| 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%) | 11/15/2021 | 104 |
| 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 | No | xx/50 | | |
| Planetary Science and Technology Through Analog Research | 07/23/2021 | 10/07/2021 | No | xx/49 | | |
| New Frontiers Data Analysis Program ¹ | 09/03/2021 | 11/04/2021 | No | xx/21 | | |
| Mars Science Laboratory Participating Scientist Program ¹ | 09/15/2021 | 11/05/2021 | No | xx/50 | | |
| Mars Data Analysis ¹ | 09/24/2021 | 11/18/2021 | No | | | |
| Discovery Data Analysis ¹ | 09/28/2021 | 11/23/2021 | No | | | |
| Planetary Science Early Career Award | N/A | 12/08/2021 | No | | | |
| 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 | TBD | TBD | No | | | |
| Future Investigators in NASA Earth and Space Science and Technology | N/A | TBD | No | | | |

1: DAPR Program

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

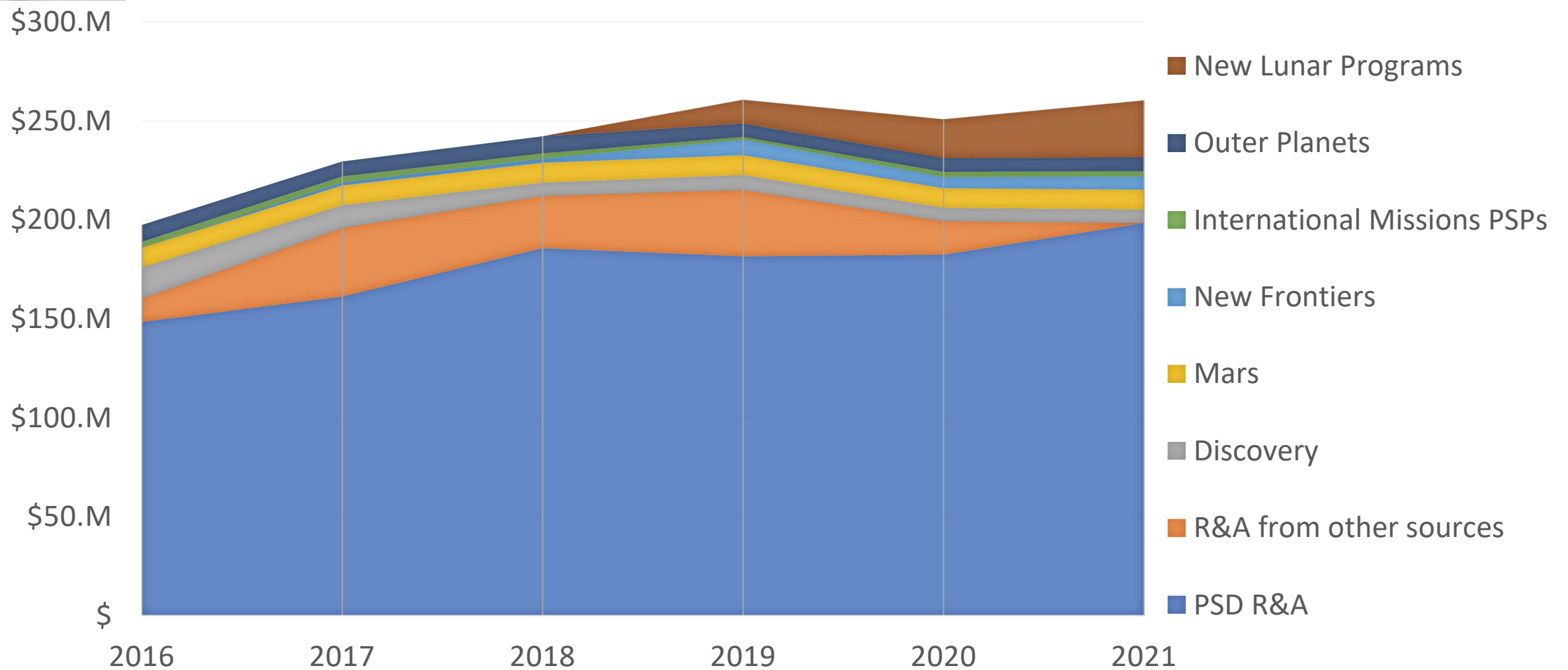
NoDD programs

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

- Several programs just passed their “anniversary date”. One program (SSW) has an anniversary date in January.
- 45% of all proposals received under NoDD have been reviewed as of 11/4/21 (more reviews will be completed by the time you see this).
- Selection rates so far are comparable to those from ROSES20, but we anticipate that they will go up as more reviews are completed.
- Average notification time is currently <120 days (across all programs) and we expect it to go down at least a little. Only one proposal has exceeded the targeted maximum time to notification (235 days).

FY21 Budget

RESEARCH BUDGETS OVER TIME

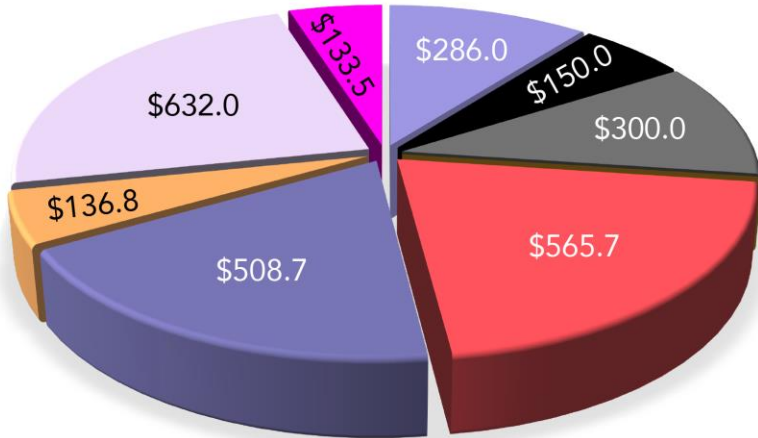


Repeat of slide from last PAC

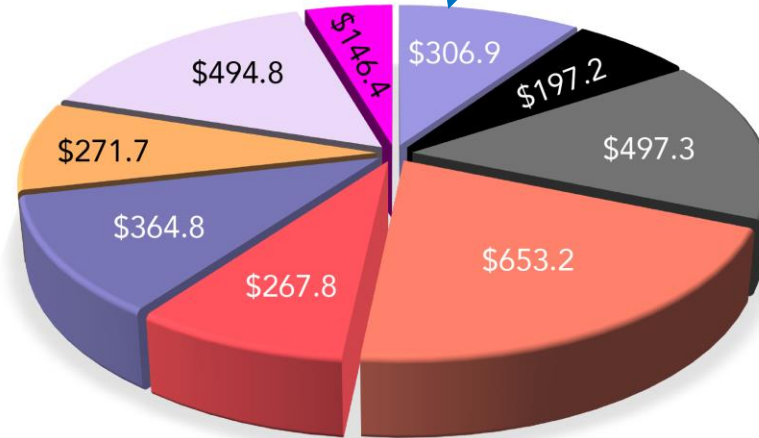
FY22 Budget

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

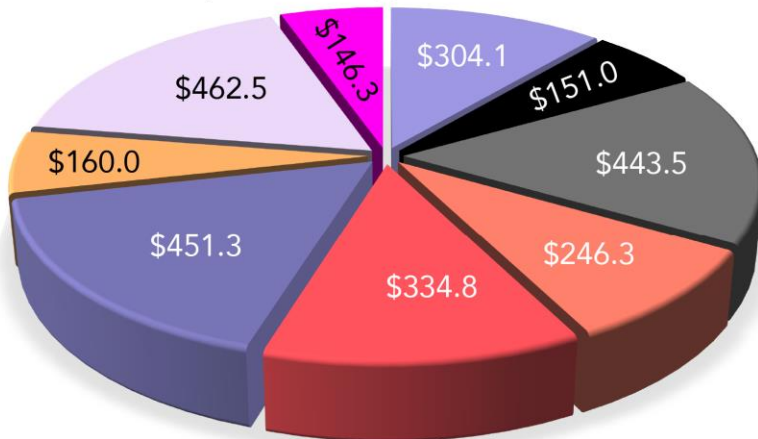
FY20 Actual (Total: \$2,712.6M)



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



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



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.



ROSES22: Some changes

- PMEF turning into PSEF (as already mentioned)
- We expect to have several new calls
 - Apollo Next Generation Sample Analysis 2 (ANGSA-2)
 - Desert Research and Technology Studies (D-RATS)
 - Artemis Geology Team
 - OSIRIS-REx Sample Analysis PSP
- PDART: under ROSES22, PDART will not accept any proposals for development or validation of tools
 - 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.

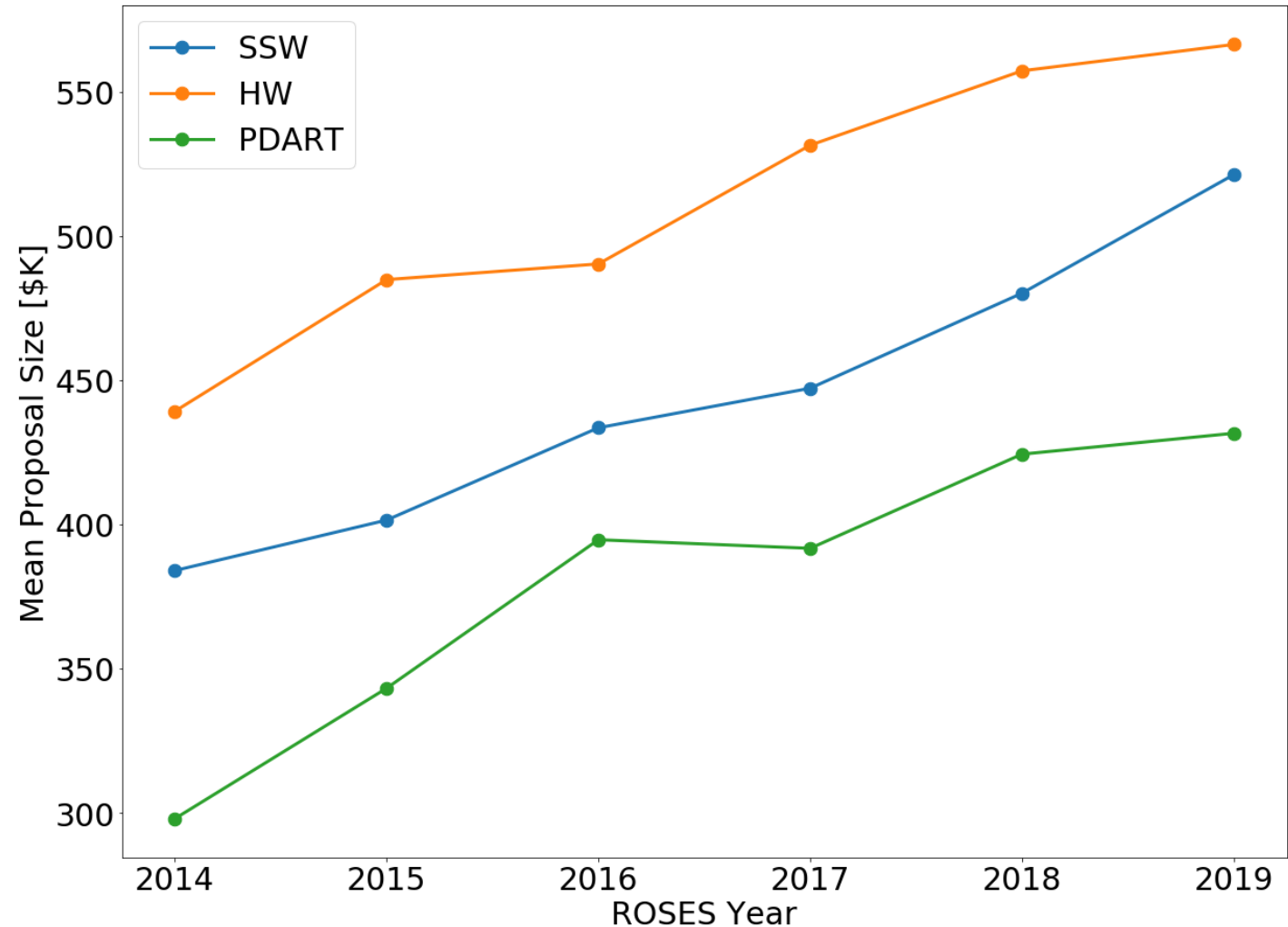
Rising Proposal Budgets: Revisited

This is data you've seen before: Submitted proposal budgets are increasing at rates well-above inflation.

Why?

Possibilities:

1. Team size (FTEs) is growing
2. Some particular element(s) are growing very fast

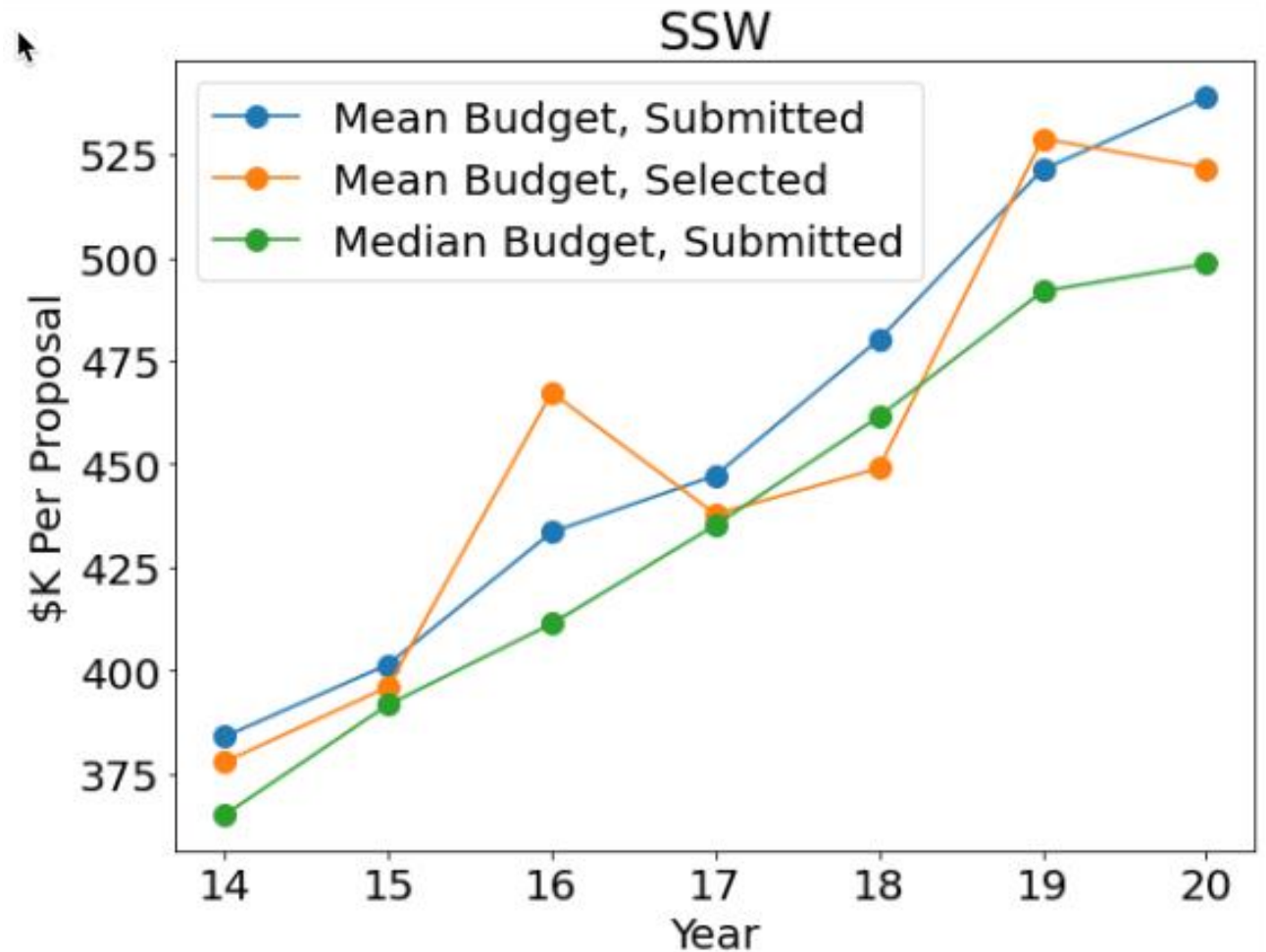


Rising Proposal Budgets: Example

Data from SSW – 40% cost growth in 6 years (SSW is not unique in this regard!)

Takeaways:

- Selections are not biased for or against expensive proposals
- Median is lower than mean – we have a "tail" on the high-cost end.
- The trend is effectively linear

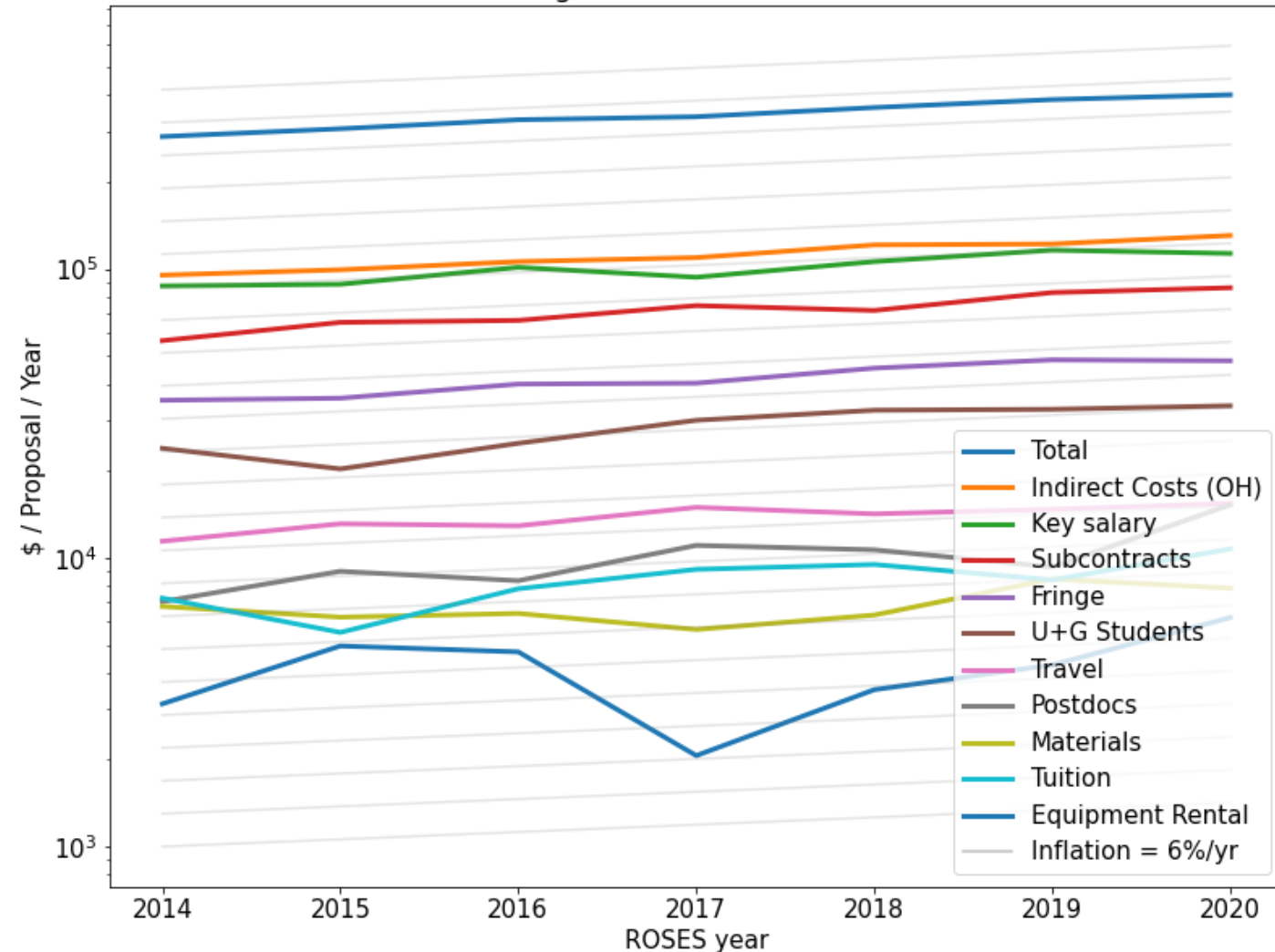


Rising Proposal Budgets: Breakdown

Breakdown budget into subcomponents: *this is taken from NSPIRES cover page information, and does have uncertainties*

- Salary and Indirects are the highest individual cost components
- All components (save one) are growing at around 6%/year
- Subawards are growing a bit faster.
- **No obvious culprit!**

SSW Budget Breakdown, 2014 - 2020

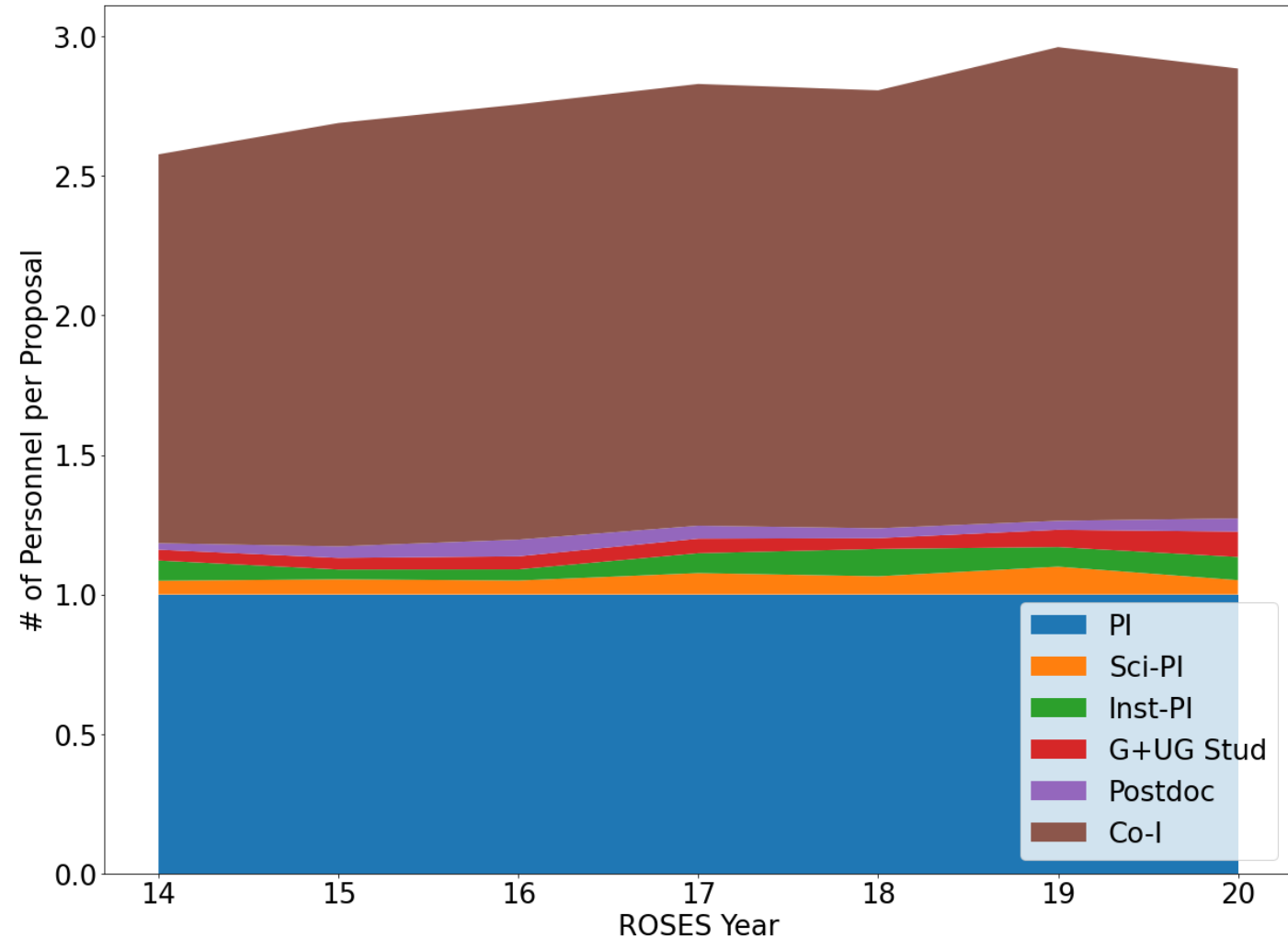


Rising Proposal Budgets: Team Size

Are teams getting bigger?

- Yes, but not nearly at the same rate. Team size grows at ~2% / year (~10% over the last 6 years)
- Are teams asking for more FTEs?
 - We can't tell – while information is in the Table of Work Effort for each proposal (as required in ROSES), those tables aren't easily parsed.

SSW Funded Team Size vs. Time



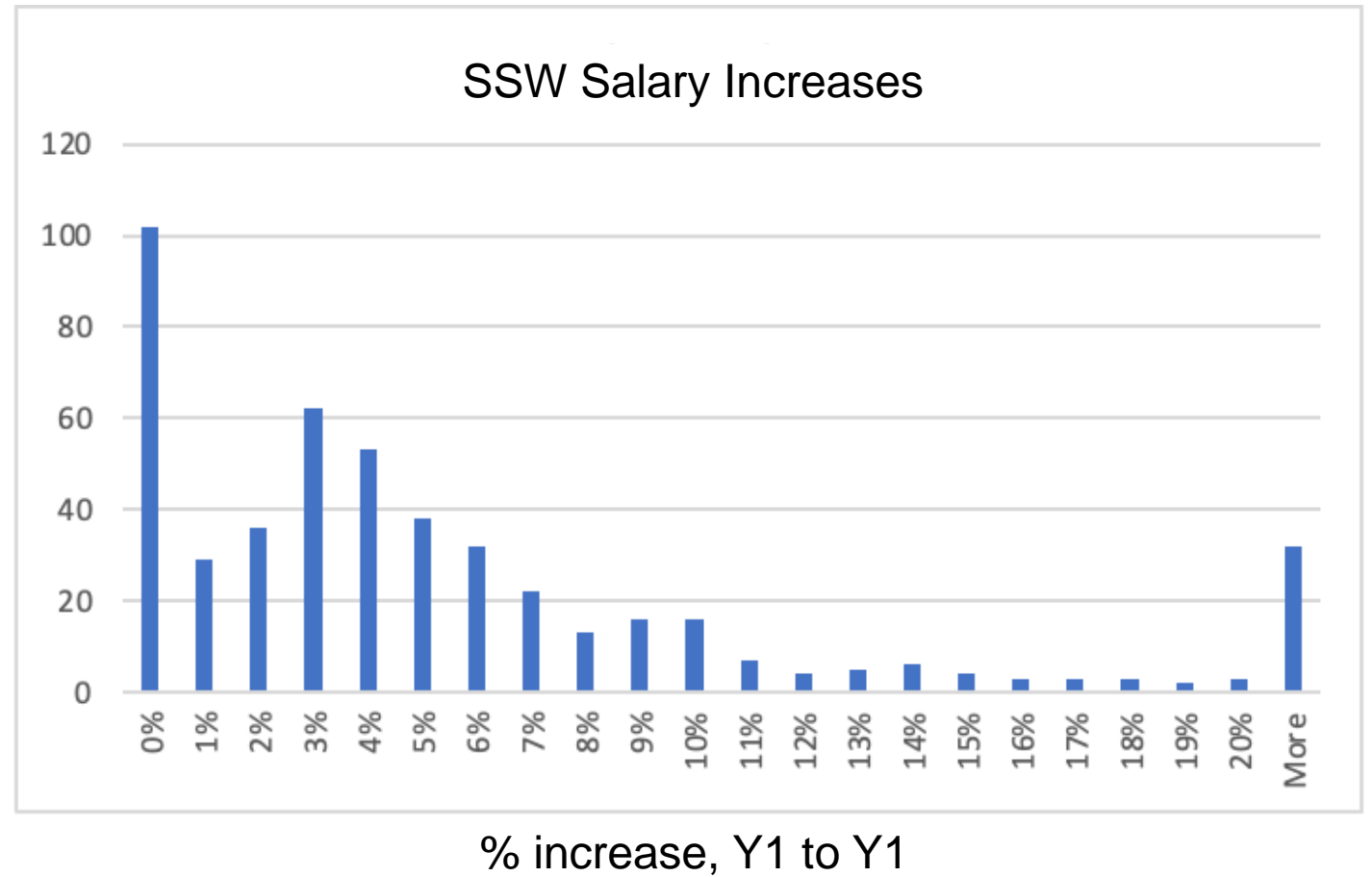
Rising Proposal Budgets

Salaries themselves appear to be growing at a rate in excess of inflation.

Mean salary increases are 3.6%/year.

Combine this with 2%/year growth in team size, and it's just about the 6% we see.

Is that it?



Excessive Fringe/Inflation

It has been noted that some proposals have excessive fringe rates and/or relatively large inflation factors built into a budget:

- 1) NSSC notices these things and flags them.
- 2) These can lead to significant delays in sending out new awards
- 3) In these instances, budgets will also be reduced per NSSC findings

What is “excessive”?

- Inflation rates >3%
- Fringe rates



Allowable costs for data archiving

Can a proposal include effort for data archiving?

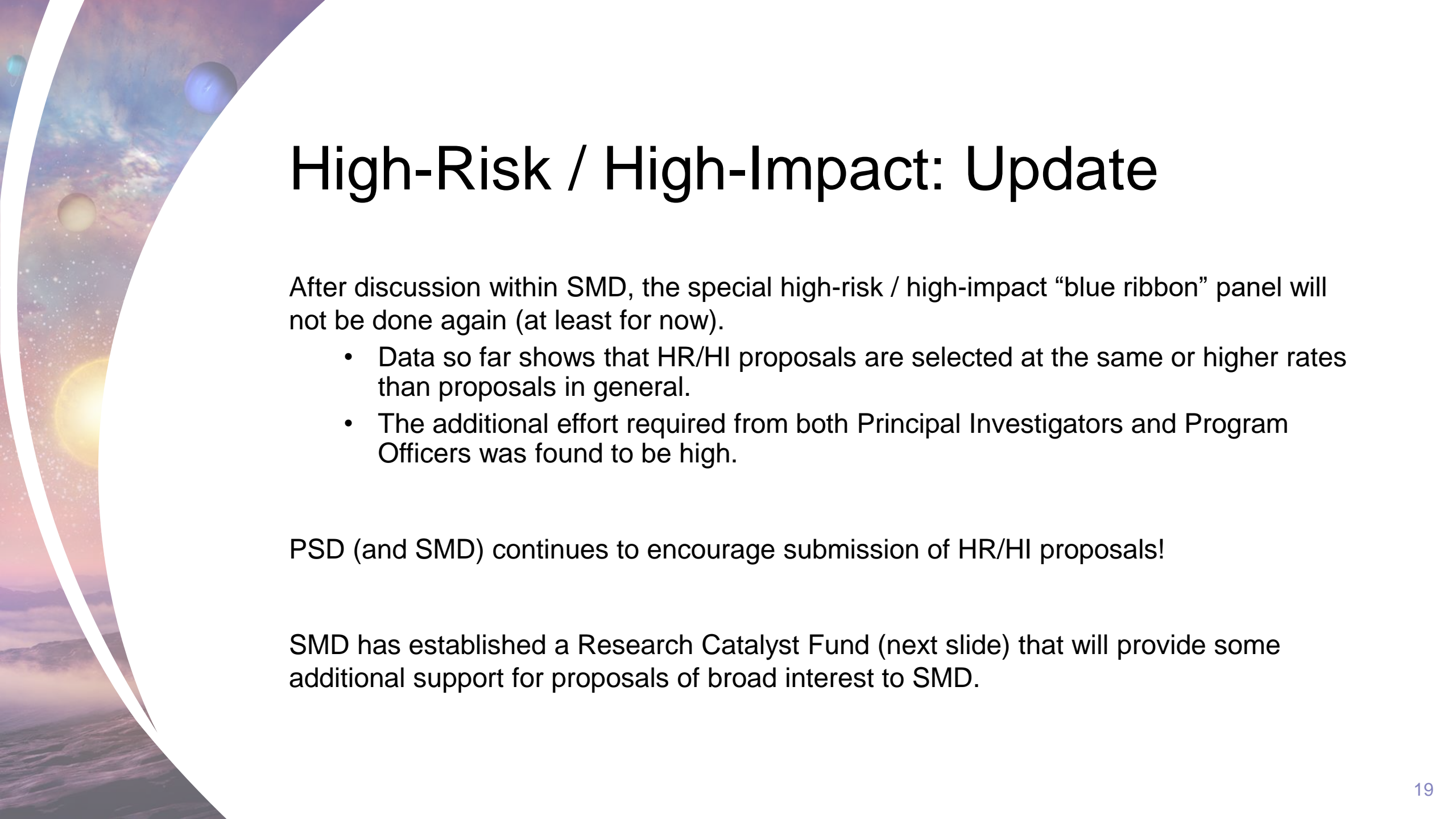
- Yes
- Of course, any effort included in a proposal will be part of the peer review, so should have an appropriate justification.



Grant funding for Community Service

This came up at the last PAC, and after discussion with grants folks, we have a better answer:

- May proposals include time for community service?
 - Short answer: No
 - Longer answer: Anything charged to the grant has to be “allocable” – i.e., the costs incurred further the funded activity.
 - Review panels were specifically called out as an unallocable cost
 - Service **can** be covered through overheads on grants, but that is a matter of written institutional policy



High-Risk / High-Impact: Update

After discussion within SMD, the special high-risk / high-impact “blue ribbon” panel will not be done again (at least for now).

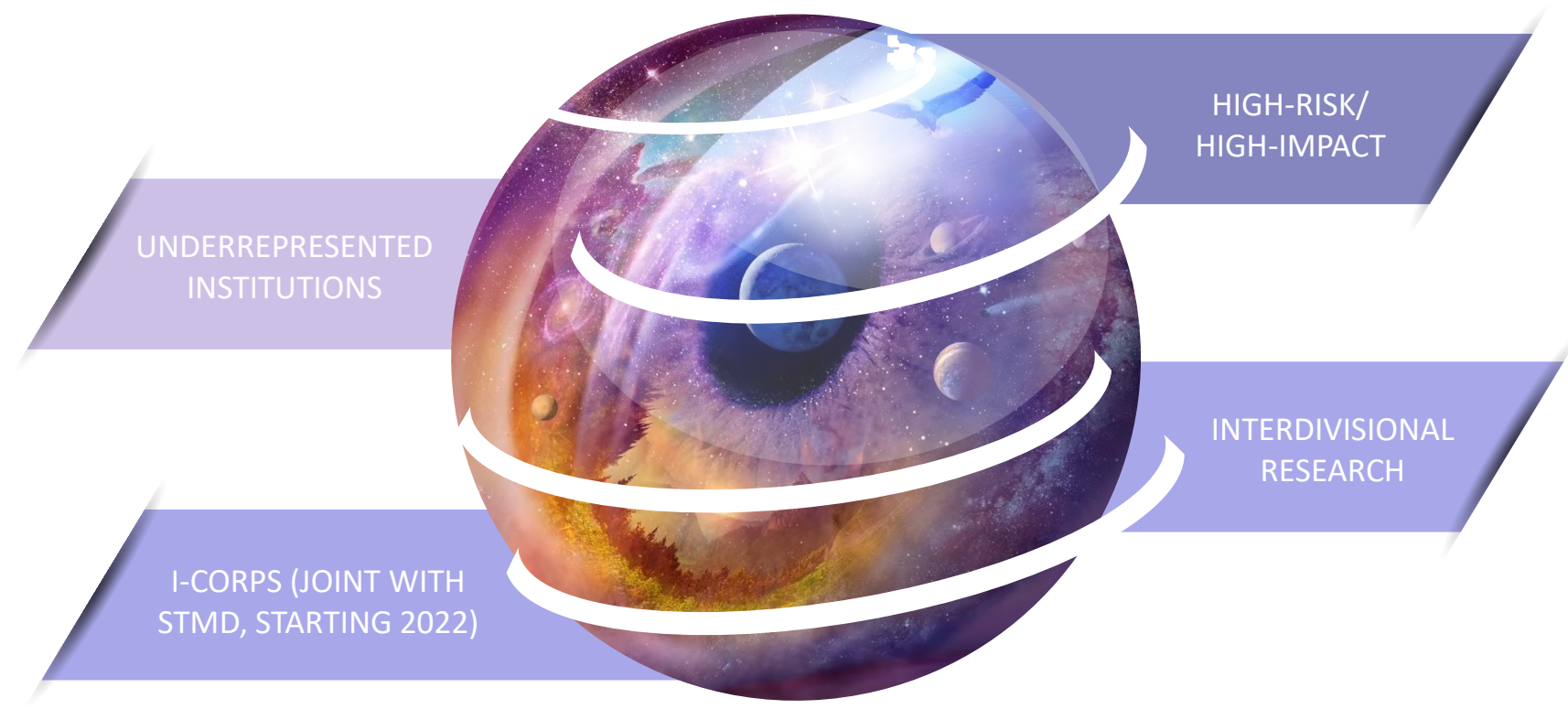
- Data so far shows that HR/Hi proposals are selected at the same or higher rates than proposals in general.
- The additional effort required from both Principal Investigators and Program Officers was found to be high.

PSD (and SMD) continues to encourage submission of HR/Hi proposals!

SMD has established a Research Catalyst Fund (next slide) that will provide some additional support for proposals of broad interest to SMD.

SMD Research Catalyst Fund

- RCF is a small SMD-level funding line designed to act as a focal point and catalyst for programmatic activities that cut across the directorate's science disciplines.
- RCF co-funds disciplinary research awards based on four priorities. It is not a separate solicitation.



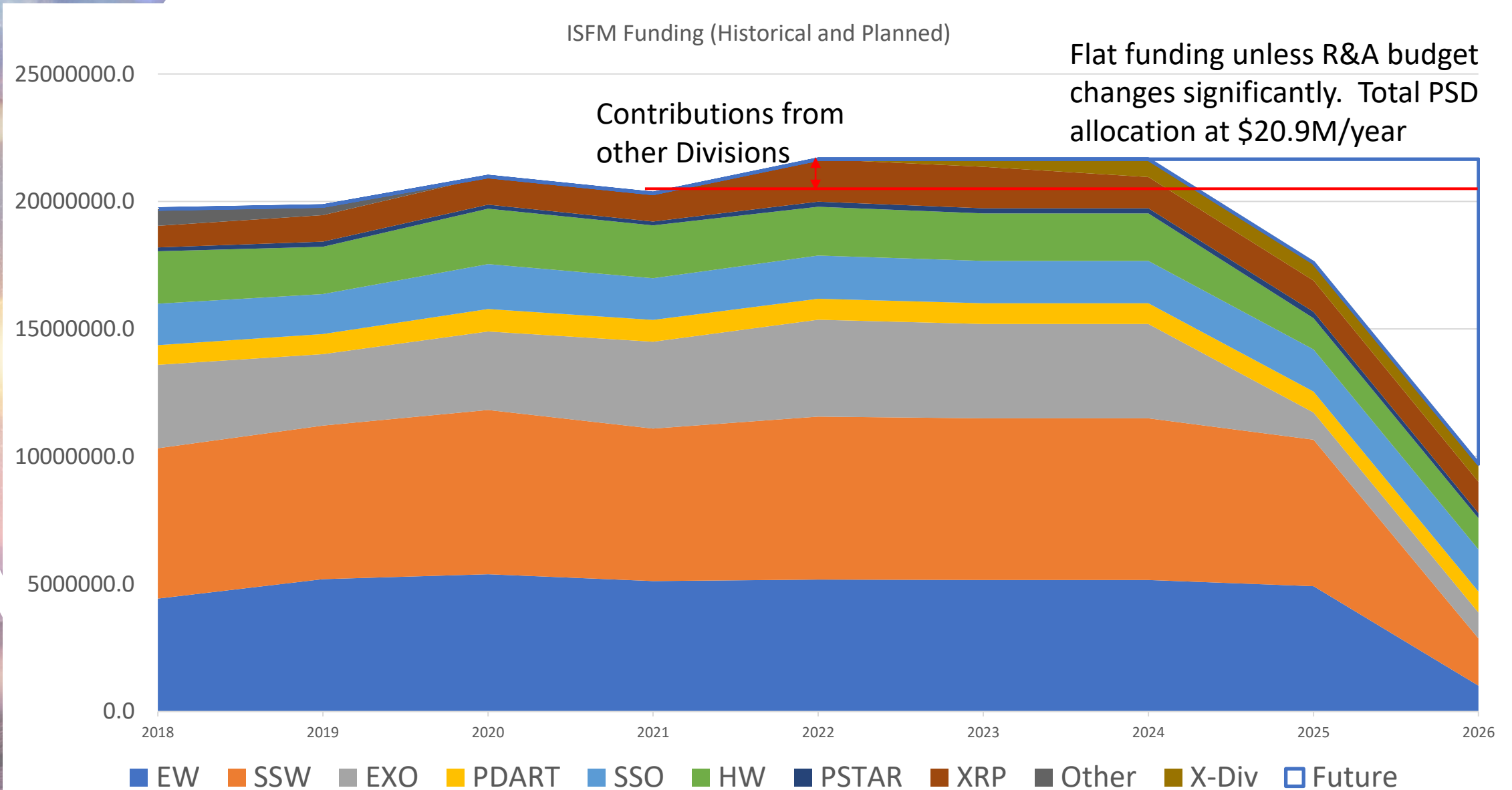
ISFM Update: ISFMs renewed

| Center | ISFM | Lead | FY22 | Duration | Last Review | Reproposed | Next Review | Other Divisions |
|----------|---|---------------------|-----------|------------|-------------|------------|-------------|-----------------|
| ARC | Mars Climate Modeling Center (MCMC) | Kahre | 1,280,000 | 10/21-9/24 | Jun-20 | Mar-21 | ~Mar-23 | |
| ARC | Habitable Environments and Biosignatures / Center for Life Detection (HEB/CLD) | Hoehler & Parenteau | 1,615,000 | 10/21-9/24 | Jun-20 | Mar-21 | ~Mar-23 | BPSD |
| ARC/GSFC | Evolutionary Processes that Drove the Emergence and Early Distribution of Life (EPDEL) | Ditzler & Pohorille | 857,000 | 10/21-9/24 | Jun-20 | Mar-21 | ~Mar-23 | BPSD |
| ARC | NASA Center for Optical Constants (NCOC) | Sciamma-O'Brien | 297,200 | 10/21-9/24 | Jun-20 | Mar-21 | ~Mar-23 | |
| ARC | Astrobiologically Important Organics during Early Planetary System Formation and Evolution | Sandford | 300,000 | 10/21-9/24 | Jun-20 | Mar-21 | ~Mar-23 | |
| GSFC | Planetary Geodesy | Mazarico | 545,000 | 10/21-9/26 | Jun-20 | Mar-21 | ~Oct-24 | |
| GSFC | Fundamental Laboratory Research (FLaRe) | Elsila & Stern | 4,100,000 | 10/21-9/26 | Jun-20 | Mar-21 | ~Oct-24 | |
| GSFC/ARC | The Goddard Instrument Field Team (GIFT) | Young & McAdam | 778,989 | 10/21-9/26 | Jun-20 | Mar-21 | ~Oct-24 | |
| GSFC | Sellers Exoplanet Environments Collaboration (SEEC) | Mandell & Kopparapu | 2,378,000 | 10/21-9/26 | Jun-20 | Mar-21 | ~Oct-24 | APD/HSD |
| GSFC | Exosphere-Ionosphere-Magnetosphere Modeling (EIMM) | Sarantos & Tucker | 1,220,000 | 10/21-9/26 | Jun-20 | Mar-21 | ~Oct-24 | HSD |
| GSFC | (R3D) Resolving Orbital and Climate Keys of Earth and Extraterrestrial Environments with Dynamics | Way & Kiang | 199,423 | 10/21-9/26 | Jun-20 | Mar-21 | ~Oct-24 | |
| JSC | Coordinated Analysis (CA) | Keller | 1,950,000 | 10/21-9/25 | Jun-20 | Mar-21 | ~Oct-23 | |
| JSC | Geo-Cosmochemistry (GC) | Simon | 2,199,938 | 10/21-9/25 | Jun-20 | Mar-21 | ~Oct-23 | |
| JSC | Planetary Process Simulation (PPS) | Righter | 1,320,657 | 10/21-9/25 | Jun-20 | Mar-21 | ~Oct-23 | |
| JSC | Organic Geochemistry (OG) | Burton | 500,862 | 10/21-9/25 | Jun-20 | Mar-21 | ~Oct-23 | |
| JSC | Mission Enabling (ME) | Rampe | 1,092,143 | 10/21-9/25 | Jun-20 | Mar-21 | ~Oct-23 | |
| MSFC | Marshall Interdisciplinary Planetary Science | Zanetti | 630,000 | 10/21-9/25 | | Mar-21 | ~Oct-23 | |

Total Budget from PSD: \$20.9M

Increase in PSD budget comes from moving directed work from SERA to ISFM and by moving a cross-divisional contribution into this portfolio.

ISFM Update: Budgets over time





ISFM Update: Quad Charts & Communication

We are not presenting them today, but we have quad charts for all of the ISFMs to give status updates. Those charts have been sent to the PAC and will be posted with this presentation.

Question for the PAC: (Maybe you can't answer this yet)
Is this a good way to keep you informed of ISFM Status?



GPRAMA / Science Nuggets

It was observed this year while preparing for GPRAMA that the demographic statistics of the science highlights (nuggets) tends to skew towards: more senior; male; Caucasian.

We want the highlights to reflect the diversity of our community, and we're thinking about how we can improve and communicate our process to get better representation in submissions.

This will be a topic next time.

Feedback to PSD and the role of the AGs

Recently, we made some small changes to how NASA takes feedback from the AGs. To that end, a few points:

- NASA can only take Advice from a single body (the PAC), and that body operates under FACA rules. There are also laws limiting how many FACA bodies can exist.
- The AGs cannot provide advice or findings that require an official response. But,
 - The POC for each AG can take any “comments” from them and bring them back to PSD for discussion and to get answers
 - The AG can bring comments to the PAC – this is important when a particular topic may need an official response – but the PAC ultimately is responsible for determining how it will treat those comments.



The Future of Data Analysis Programs

Disclaimer: There is no intent to make any major changes to the DAPs any time soon. These are topics that have been raised several times on which we felt that the PAC might have some useful advice.

Over time, many DAPs acquire ever-more eligible missions: what is the right time to “retire” a mission from DAP eligibility?

- N years after end of mission?
- When proposal pressure drops below some threshold?

Would having a single “Planetary DAP” make sense (much like the successful Astrophysics DAP in APD)?

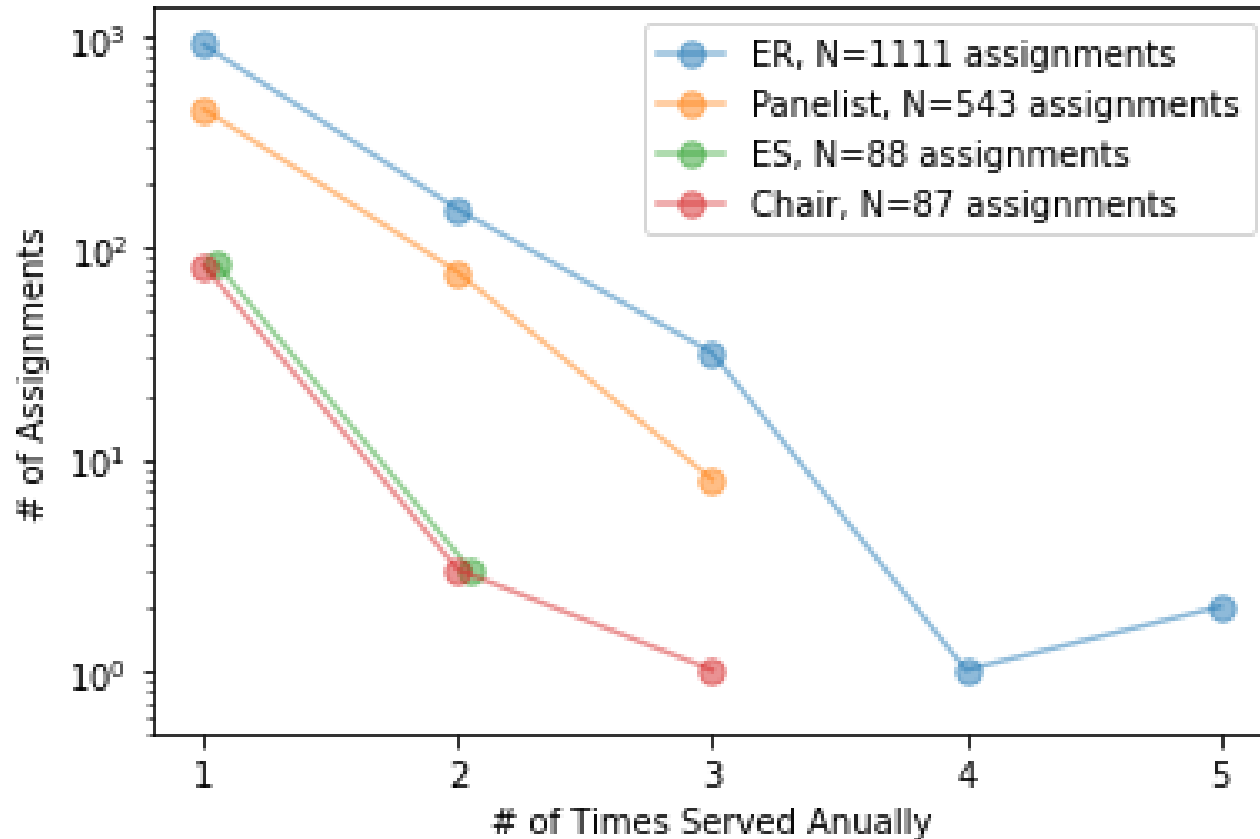


Backup Slides



Reviewers: A little bit of data

Annual Reviewer Assignments, PSD, N=1829 assignments



ROSES 2019, N = 3561 proposals

