



National Aeronautics and
Space Administration

2026 NASA SCIENCE

Statement of Task – Planetary Research Programs

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THANK YOU, PLANETARY SCIENCE COMMUNITY!

FOR YOUR DEDICATION, PASSION, AND PARTNERSHIP. EXPLORING WORLDS TOGETHER.



knowledge



collaboration



unity

Introduction



Planetary Research Programs

NASA is the primary source of funding for Planetary Science research in the U.S.

- Other federal funding agencies do not have dedicated programs to solely support planetary science research

Research & Analysis (R&A) is where strategy transforms into tangible results

- Missions provide the critical data needed to answer NASA's Science Questions
- Both Missions and R&A provide analysis of this data; R&A goes beyond the Mission Science
- R&A provides the context needed to plan future missions

R&A provides broad support across the **entire** planetary science community

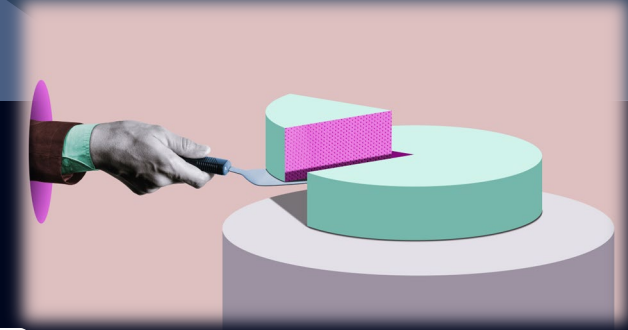
- Between ROSES 2019-2023, PSD R&A supported 1,109 unique Principal Investigators under 1,647 awards across 213 institutions.

R&A directly addresses science prioritized by the Decadal (Core programs, Astrobiology), data from missions (Data Analysis programs, Participating Scientist Programs), Technology Development, and more.

- R&A programs tie directly into national priorities (e.g. Artemis)
- R&A leads the charge on responses to new initiatives and changes in national priorities.



Planetary Research Portfolio Budget: Part of a Whole – Critical to PSD Portfolio



Close and Mindful Integration

- Astrobiology Program (AB)
- Planetary Exploration Science Technology Office (PESTO)
- Office of the Chief Science Data Officer (OCSDO)
- Exploration Science Strategy and Integration Office (ESSIO)
- Planetary Defense Coordination Office (PDCO)
- Flight Programs

Supporting the Next Generation

- FINESST
- Early Career Award
- NPP Expansion

Enabling Mission Participation

- MMX PSP
- MSL PSP Extension
- Psyche PSP

Encouraging Cross-Disciplinary Research

- Solar System Science
- Exoplanets Research Program

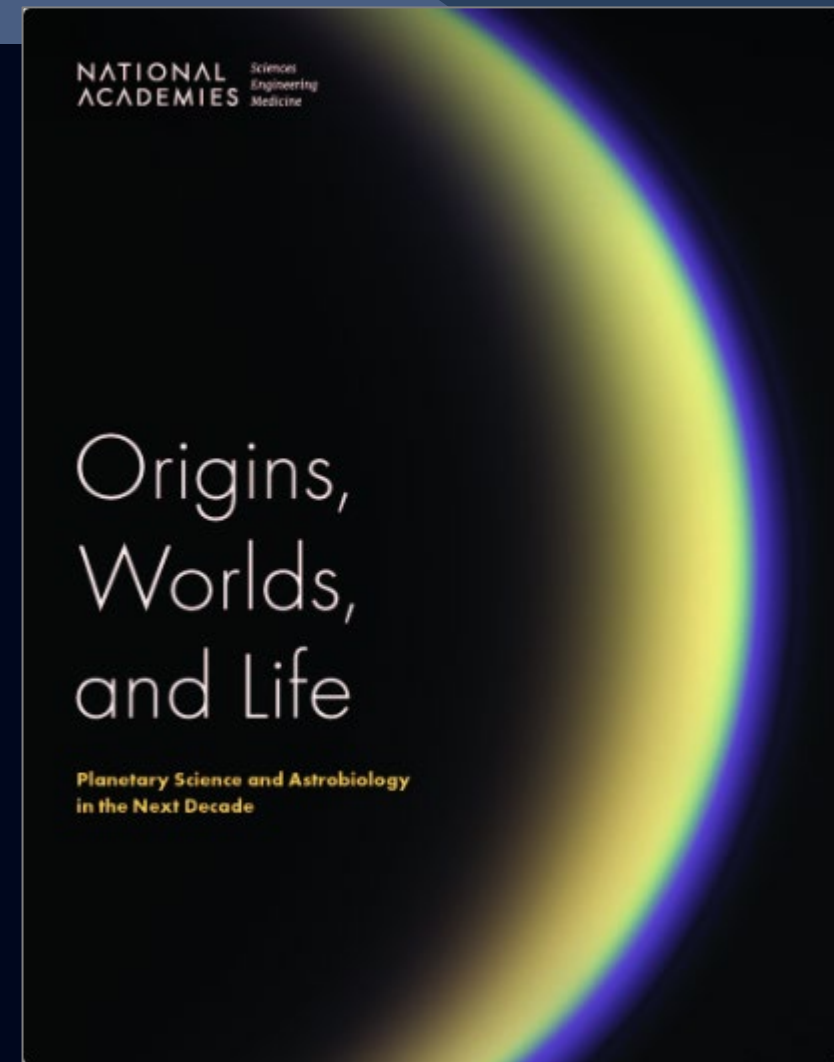
Decadal Surveys

NASA relies on the science community to identify and prioritize leading-edge scientific questions and the observations required to answer them.

One principal means by which NASA's Science Mission Directorate engages the science community in this task is through the National Research Council (NRC).

The NRC conducts studies that provide a science community consensus on key questions posed by NASA and other U.S. government agencies.

The broadest of these studies in NASA's areas of research are decadal surveys. As the name implies, NASA and its partners ask the NRC once each decade to look out 10 or more years into the future and prioritize research areas, observations, and notional missions to make those observations.



“The next decade of planetary science and astrobiology holds tremendous promise. This booklet highlights key science questions, identifies priority missions, and presents a research strategy that includes both planetary defense and human exploration.”

Statement of Task



1. Budget Allocation as a Metric

Is the most recent planetary science and astrobiology decadal survey, Origins Worlds & Life (OWL), recommended budget allocation of 10% of the PSD to the Planetary Research Program adequate as a metric to describe a thriving scientific community?

Planetary Research Programs and the 2022 NASA Authorization Act

- NASA Science, and particularly Research and Analysis, are specifically called out in the NASA Authorization Act, most recently enacted in Public Law 117-167, August 9, 2022
- General science priorities were identified (SEC. 10821. SCIENCE PRIORITIES):
 - (a) SENSE OF CONGRESS ON SCIENCE PORTFOLIO.—It is the sense of Congress that—
 - (1) a balanced and adequately funded set of activities, consisting of research and analysis grant programs, technology development, suborbital research activities, and small, medium, and large space missions, contributes to a robust and productive science program and serves as a catalyst for innovation and discovery; and
 - (2) the Research and Analysis programs funded by the Science Mission Directorate are critically important for
 - (A) preparing the next generation of space and Earth scientists;
 - (B) pursuing peer-reviewed cutting-edge research;
 - (C) maximizing scientific return from the Administration's space and Earth science missions; and
 - (D) developing innovative techniques and future mission concepts.
 - (b) GOAL.—The Administrator shall pursue the goal of establishing **annual funding for Research and Analysis in the Science Mission Directorate that reaches a level of not less than 10 percent of the total annual funding of relevant divisions of the Science Mission Directorate** by fiscal year 2025.

Decadal Survey Recommendation

17-11 and 22-14: NASA PSD should increase its investment in R&A activities (defined in Box 17.2) to achieve a minimum annual funding level of 10 percent of the PSD total annual budget by mid- decade. This increase should be achieved through a progressive ramp-up in funding allocated to the openly competed R&A programs (Table 17.1). Mid-decade, NASA should work with an appropriately constituted independent group to assess progress in achieving this recommended funding level.

90-Day Response: PSD partially concurs with this recommendation. PSD has been, and will continue, working through the annual budget cycle to augment the budget for the entire Planetary Research Program (PRP). **The PRP includes all activities funded within the R&A Portfolio and those funded under mission lines, and is not limited solely to openly competed R&A programs as defined by this decadal survey.**

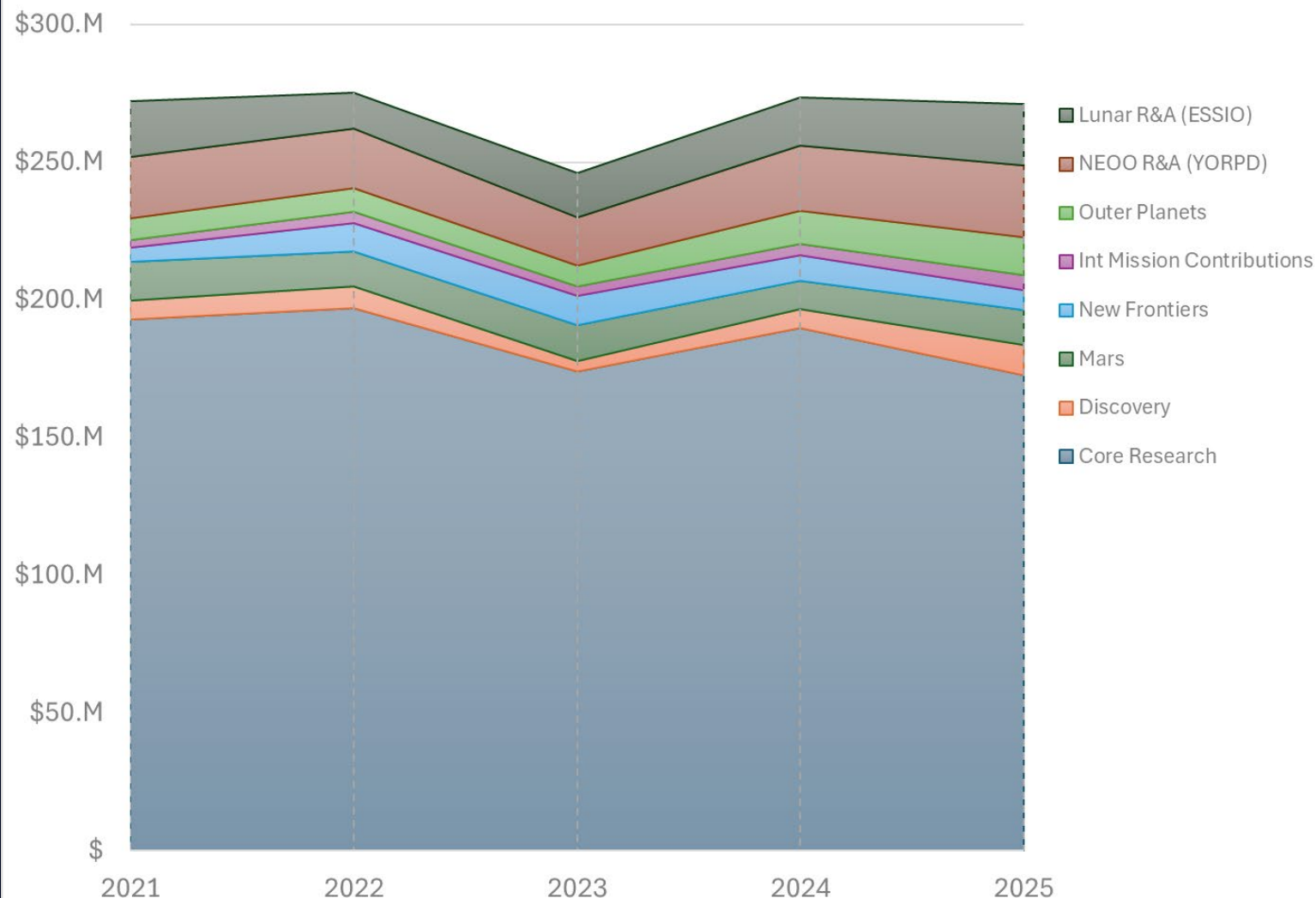
TABLE 17.1 FY2021 NASA PSD Openly Competed Research and Analysis Programs

CORE PROGRAMS	DATA ANALYSIS	ASTROBIOLOGY	TECHNOLOGY	LABORATORY	PARTICIPATING SCIENTIST	OTHER
EW	NFDAP	EXO	PICASSO	LARS	Juno	SSERVI
SSW	LDAP	PSTAR	MatISSE		VIPER	PMEF*
PDART	MDAP	ICAR	DALI		MSL	CS
SSO	CDAP	HW				
PPR	DDAP*					
ECA						
YORPD						
FINESST						
XRP						

CDAP: Cassini Data Analysis Program; CS: Citizen Science; DALI: Development and Advancement of Lunar Instrumentation; DDAP: Discovery Data Analysis Program, *includes data from the ESA Rosetta and ESA-JAXA BepiColombo missions; ECA: Early Career Award; EW: Emerging Worlds; EXO: Exobiology; FINESST: Future Investigators in NASA Earth and Space Science and Technology; HW: Habitable Worlds; ICAR: Interdisciplinary Consortia for Astrobiology Research; Juno: Juno Participating Scientist Program; LARS: Laboratory Analysis of Returned Samples; LDAP: Lunar Data Analysis Program; MatISSE: Maturation of Instruments for Solar System Exploration; MDAP: Mars Data Analysis Program; MSL: Mars Science Laboratory Participating Scientist Program; NFDAP: New Frontiers Data Analysis Program; PDART: Planetary Data Archiving, Restoration, and Tools; PICASSO: Planetary Instrument Concepts for the Advancement of Solar System Observations; PMEF: Planetary Major Equipment and Facilities, *now Planetary Science Enabling Facilities Program; PPR: Planetary Protection Research; PSTAR: Planetary Science and Technology Through Analog Research; SSERVI: Solar System Exploration Research Virtual Institute; SSO: Solar System Observations; SSW: Solar System Workings; VIPER: VIPER Mission Co-Investigator Program; XRP: Exoplanets Research Program; YORPD: Yearly Opportunities for Research in Planetary Defense.

Planetary Research Program – Budget Over Time

PSD Research Spending by Funding Line



Planetary R&A Portfolio

- Includes all activities funded under the R&A budget line (bottom wedge in figure)
 - Core Programs, Astrobiology Programs, Technology Programs, Directed Work

Planetary Research Program (PRP)

- Includes all research activities
- Includes activities funded under R&A and those funded through mission lines
- Includes both openly-competed and closed-competed research

Additional Budgetary Information (PSD can be found within SMD)

- **NASA Budgets and Reports – Nasa.gov**
 - [Budgets, Plans and Reports - NASA](#)
- **United States Government Accountability Office (GAO) – GAO.gov**
 - Report to Congressional Committees (updated yearly)
 - [GAO-26-108556, NASA: ASSESSMENTS OF MAJOR PROJECTS](#)
- **Congressional Research Service – Congress.gov**
 - NASA Appropriations and Authorizations (yearly report)
 - [NASA Appropriations and Authorizations: At a Glance](#)

1. Budget Allocation as a Metric

Is the most recent planetary science and astrobiology decadal survey, Origins Worlds & Life (OWL), recommended budget allocation of 10% of the PSD to the Planetary Research Program **adequate as a metric to describe a thriving scientific community?**

2. Additional Metrics and Indicators

Beyond percentage-based budget allocation are there other qualitative or quantitative metrics that could be used to assess the health of the Planetary Research Program on 1-year, 5-year, and 10-year timescales?



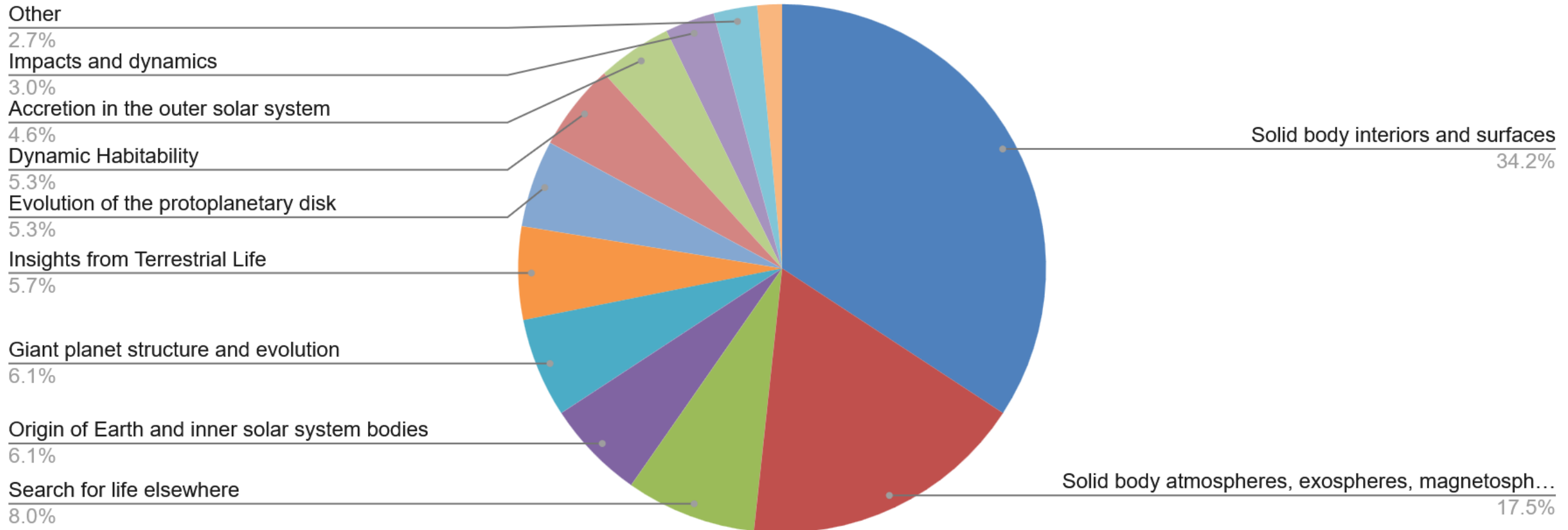
Potential metrics may include, but are not limited to:

- Proposal selection rates.
- Total number of investigators supported.
- Funding balance between mission-specific funding and the core research program.

PLANETARY SCIENCE DIVISION				16
ROSES Element *selections not yet finalized	ROSES-24		ROSES-23	
	# Submissions	Selection Rate	# Submissions	Selection Rate
C.2 Emerging Worlds	66	30%	42	55%
C.3 Solar System Workings*	157	18%	113	29%
C.4 Planetary Data Archiving, Restoration, and Tools	72	14%	55	35%
C.5 Exobiology	86	30%	54	31%
C.6 Solar System Observations	36	36%	14	50%
C.7 New Frontiers Data Analysis Program	33	24%	22	41%
C.8 Lunar Data Analysis Program	79	24%	55	16%
C.9 Mars Data Analysis Program	84	27%	79	29%
C.10 Cassini Data Analysis Program	56	18%	43	37%
C.11 Discovery Data Analysis Program	26	38%	21	24%
C.12 Planetary Instrument Concepts for the Advancement of Solar System Observations	33	12%	27	37%
C.13 Maturation of Instruments for Solar System Exploration	34	18%	-----	-----

PLANETARY SCIENCE DIVISION					17
ROSES Element	ROSES-24		ROSES-23		
	# Submissions	Selection Rate	# Submissions	Selection Rate	
C.15 Planetary Protection Research	18	44%	8	50%	
C.16 Laboratory Analysis of Returned Samples	19	32%	8	63%	
C.17 Planetary Science Enabling Facilities	13	62%	-----	-----	
C.18 Planetary Science Early Career Award	29	17%	29	17%	
C.19 Development and Advancement of Lunar Instrumentation	40	13%	32	16%	
C.20 Interdisciplinary Consortia for Astrobiology Research	42	10%	-----	-----	
C.21 Yearly Opportunities for Research in Planetary Defense	33	36%	34	41%	
C.22 Precursor Science Investigations for Europa	23	30%	-----	-----	
C.25 Lunar Mapping Program	30	33%	-----	-----	
C.26 Rapid Mission Design Studies for Mars Sample Return	49	16%	-----	-----	
C.27 Lucy in the L4 Trojans Participating Scientist Program	40	20%	-----	-----	
F.3 Exoplanets Research	152	21%	116	22%	
F.4 Habitable Worlds	46	7%	40	30%	

Primary Decadal Topic: Submitted



Illustrative

Primary Decadal Topic: Selected

Impacts and dynamics

6.7%

Dynamic Habitability

10.0%

Evolution of the protoplanetary disk

6.7%

Insights from Terrestrial Life

3.3%

Giant planet structure and evolution

13.3%

Origin of Earth and inner solar system bodies

13.3%

Solid body interiors and surfaces

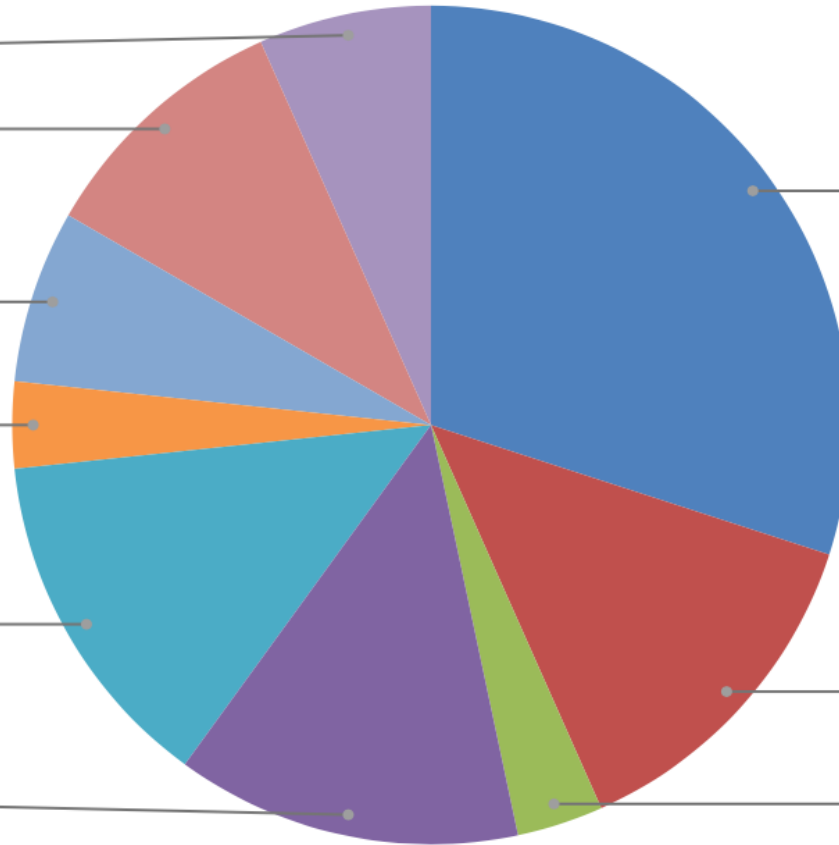
30.0%

Solid body atmospheres, exospheres, magnetosph...

13.3%

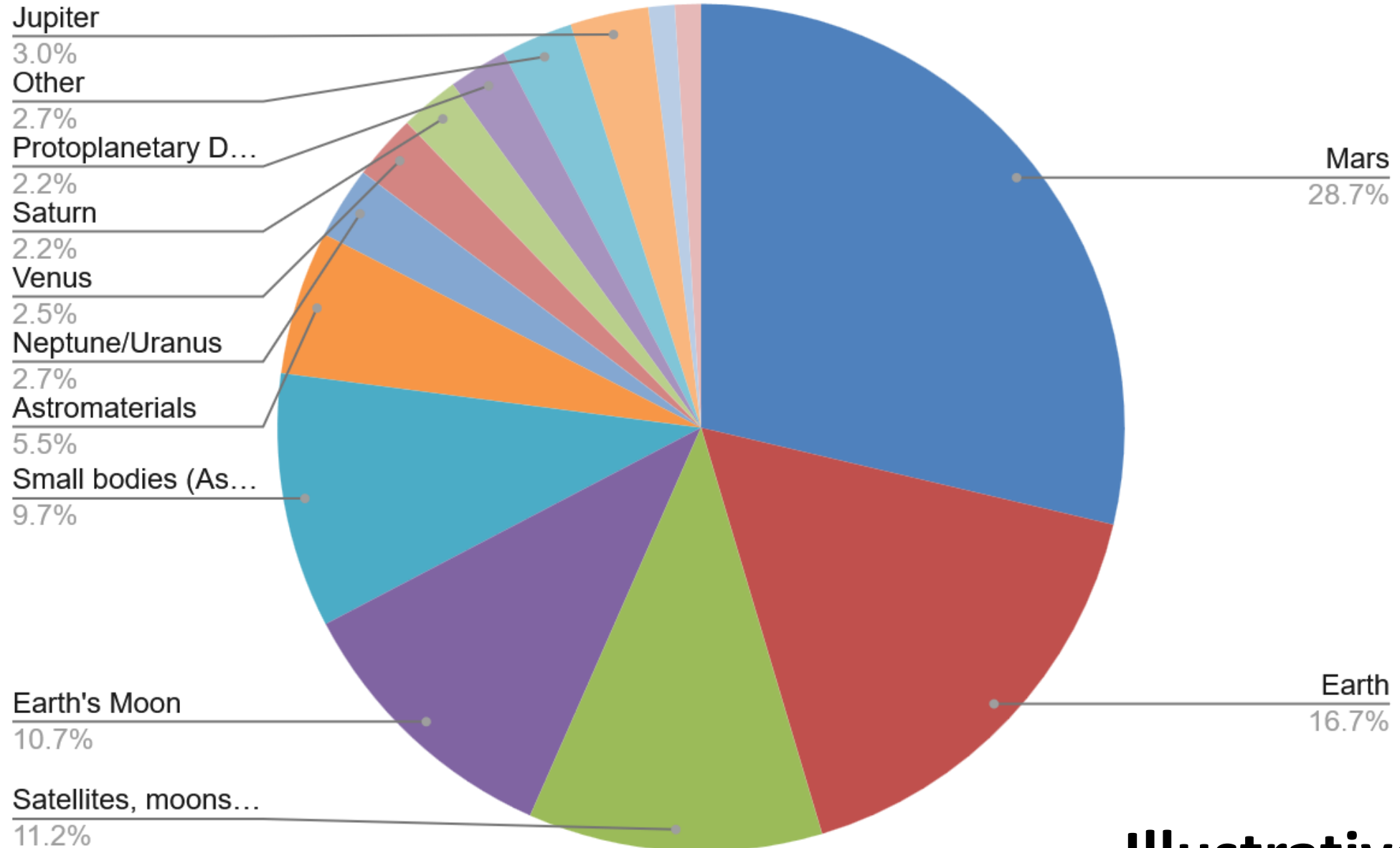
Search for life elsewhere

3.3%



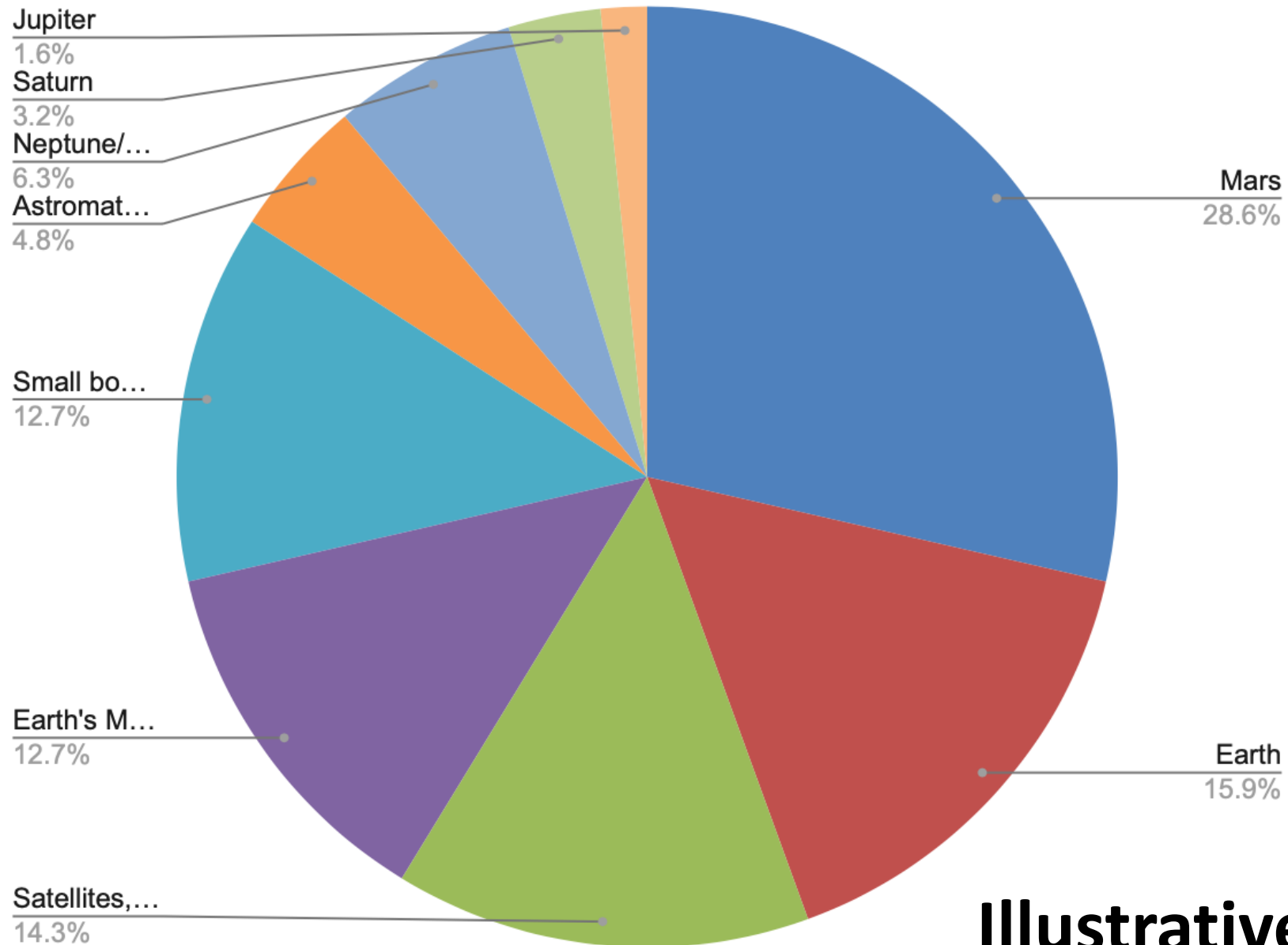
Illustrative

Target Body: Submitted



Illustrative

Target Body: Selected



Illustrative

Institution Type: Submitted

For-Profit Organization

2.7%

NASA Center (including JPL)

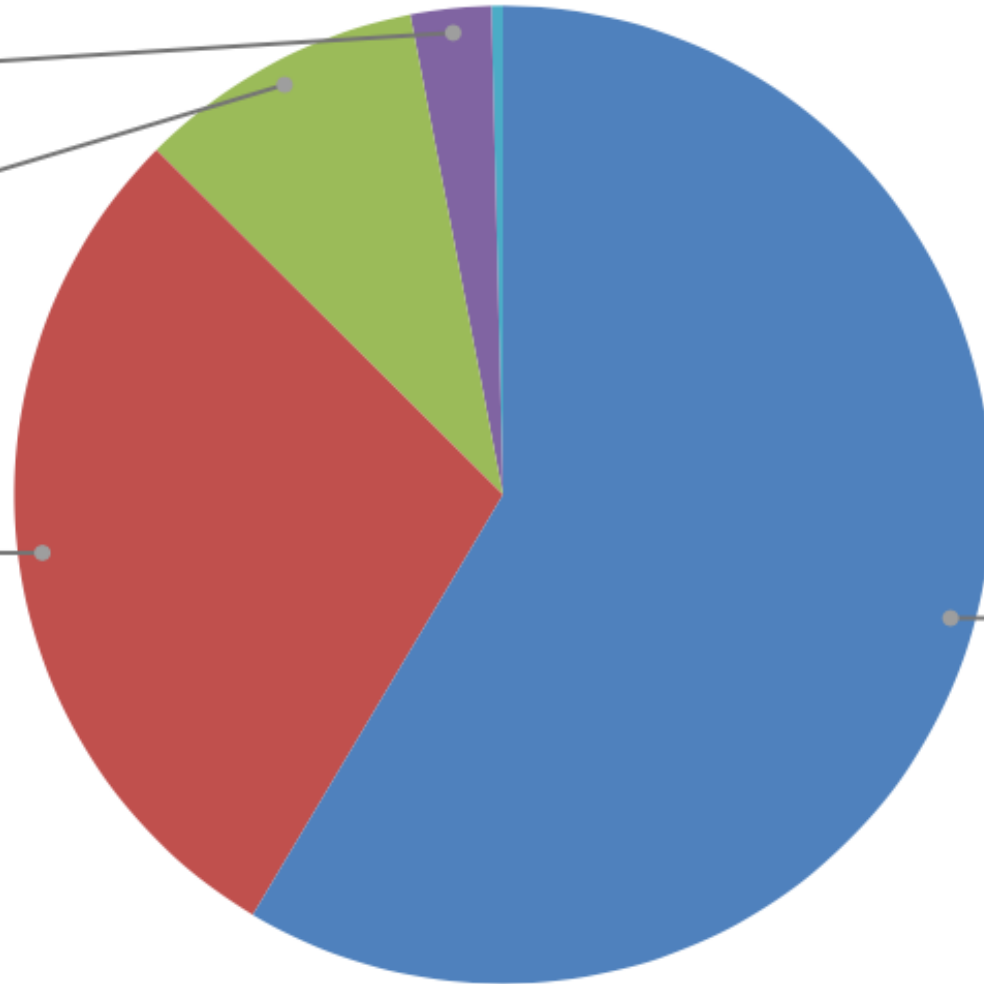
9.5%

Non-profit Organization

28.9%

Educational Organization

58.6%



Institution Type: Selected

For-Profit Organization

2.3%

NASA Center (including JPL)

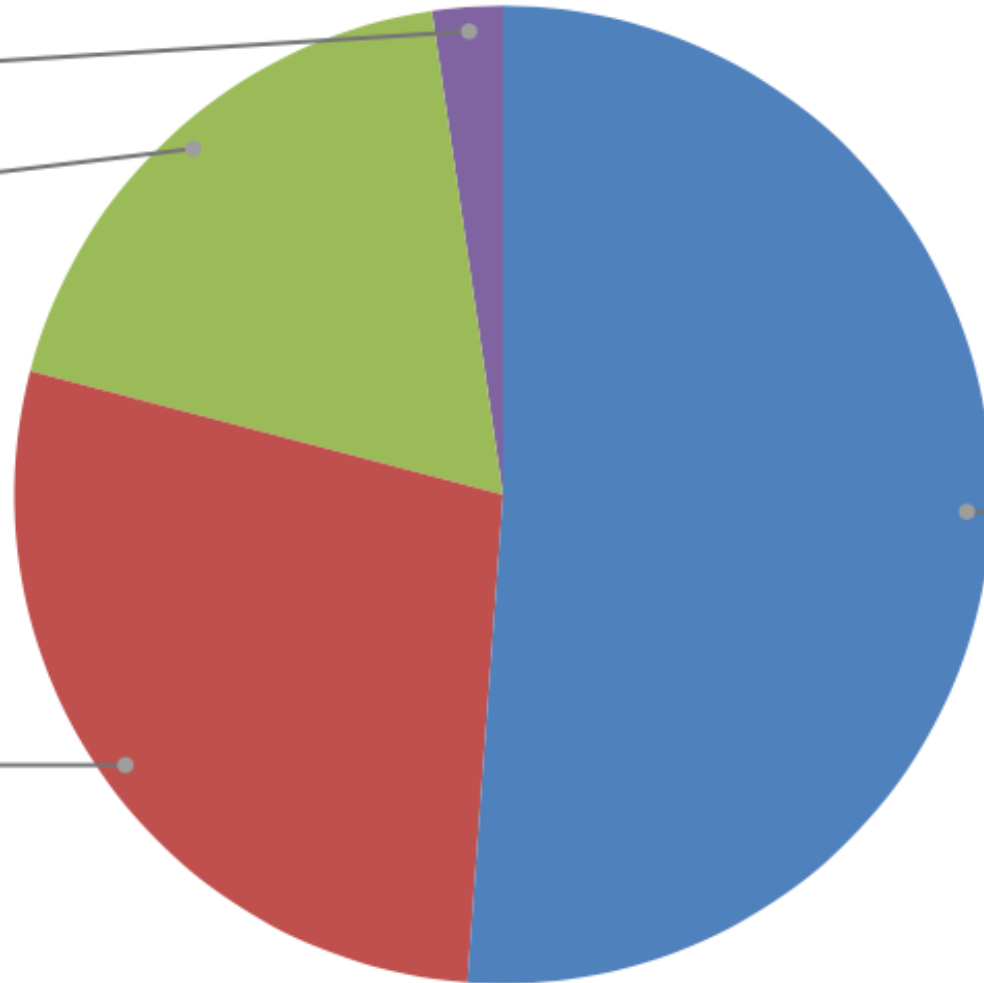
18.6%

Non-profit Organization

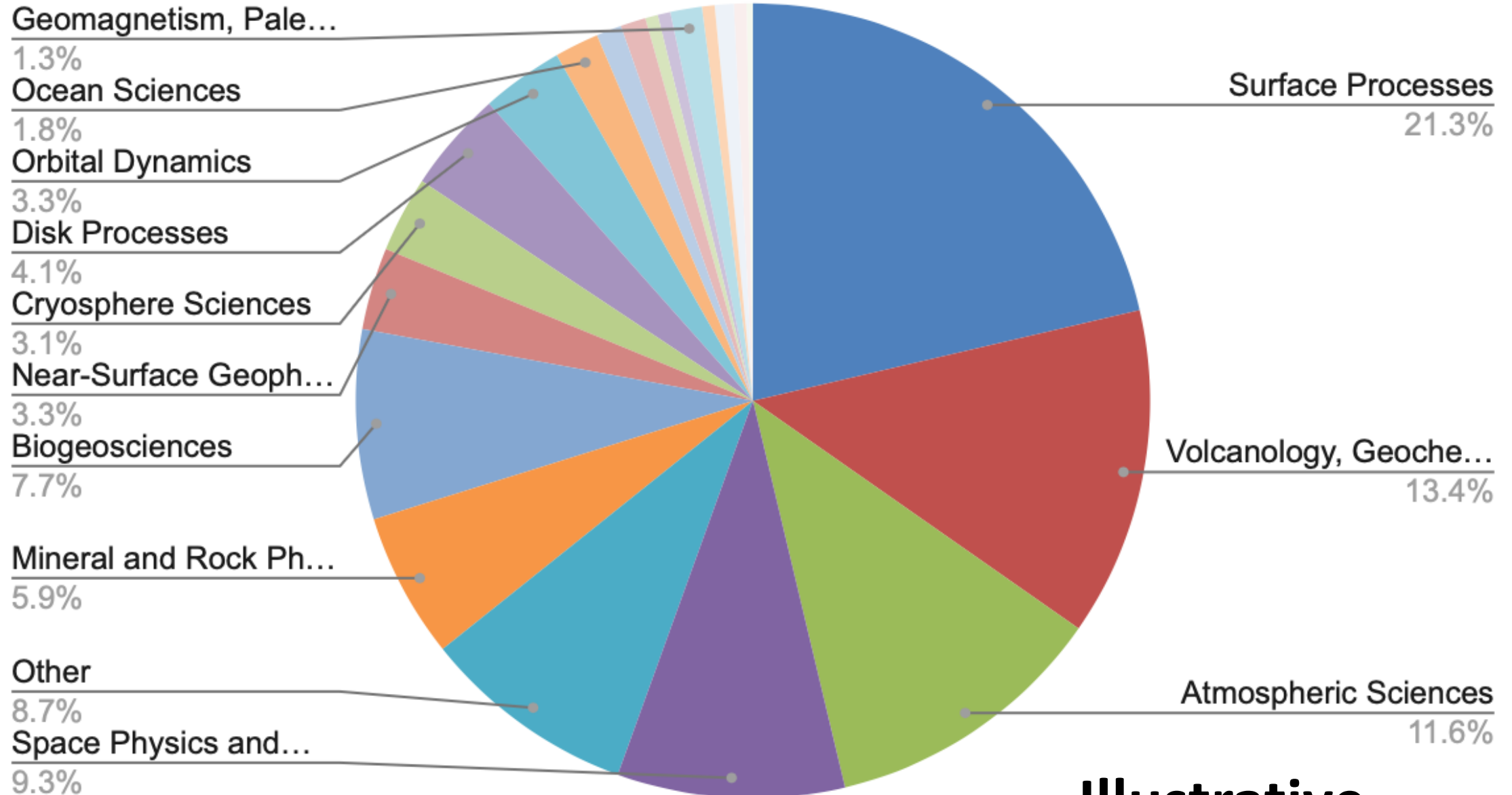
27.9%

Educational Organization

51.2%

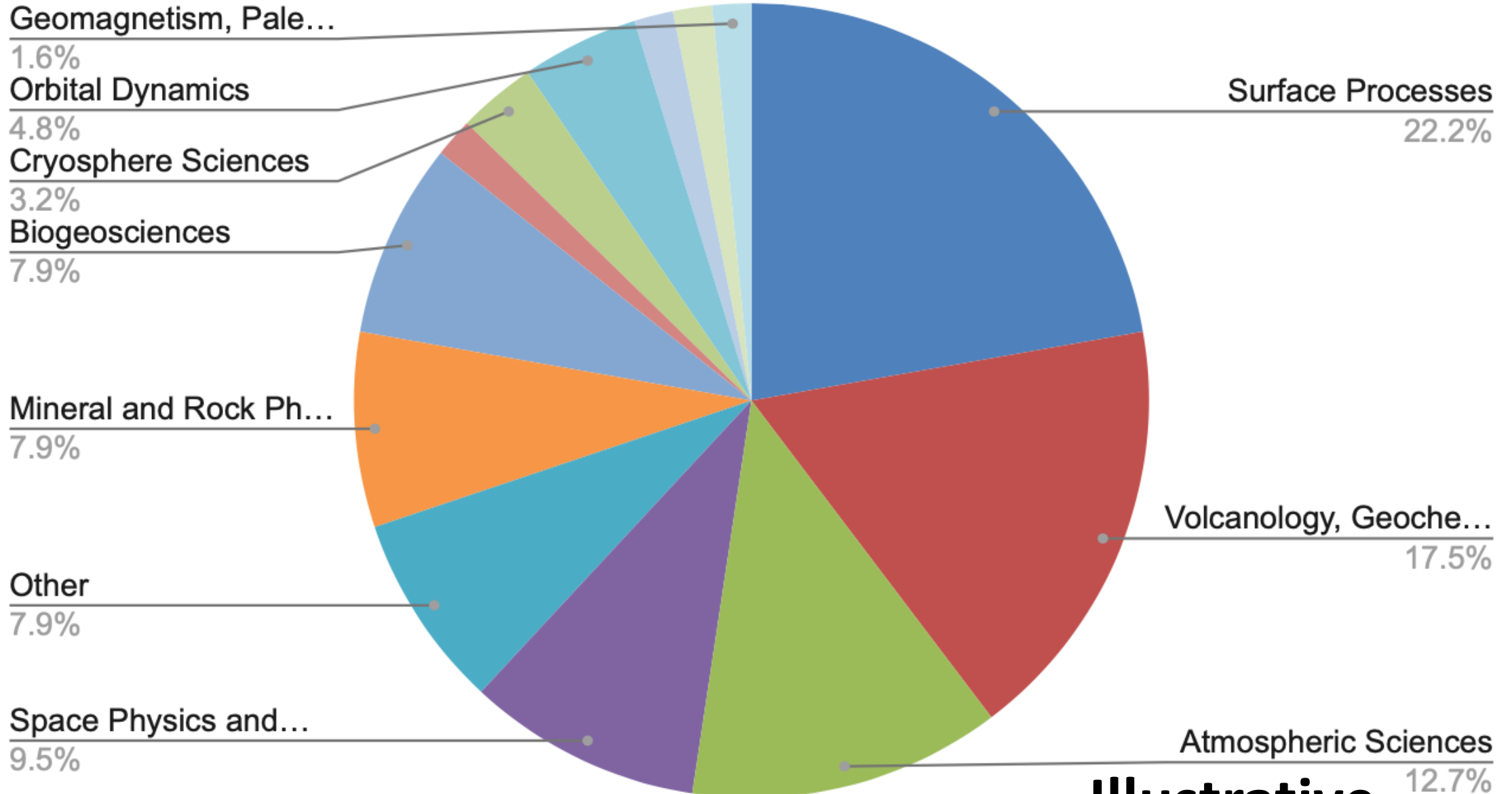


Most Relevant Discipline: Submitted



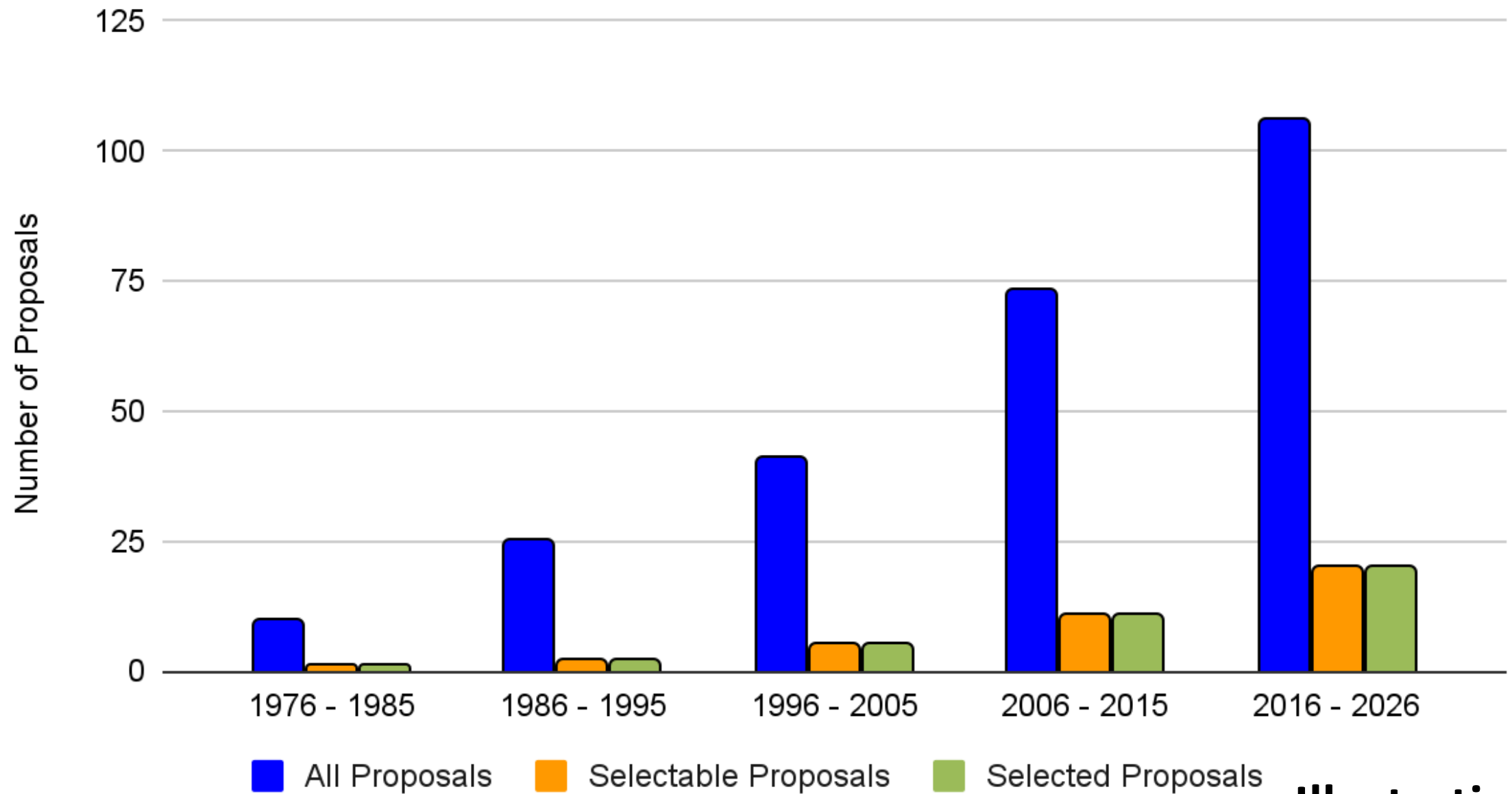
Illustrative

Most Relevant Discipline: Selected



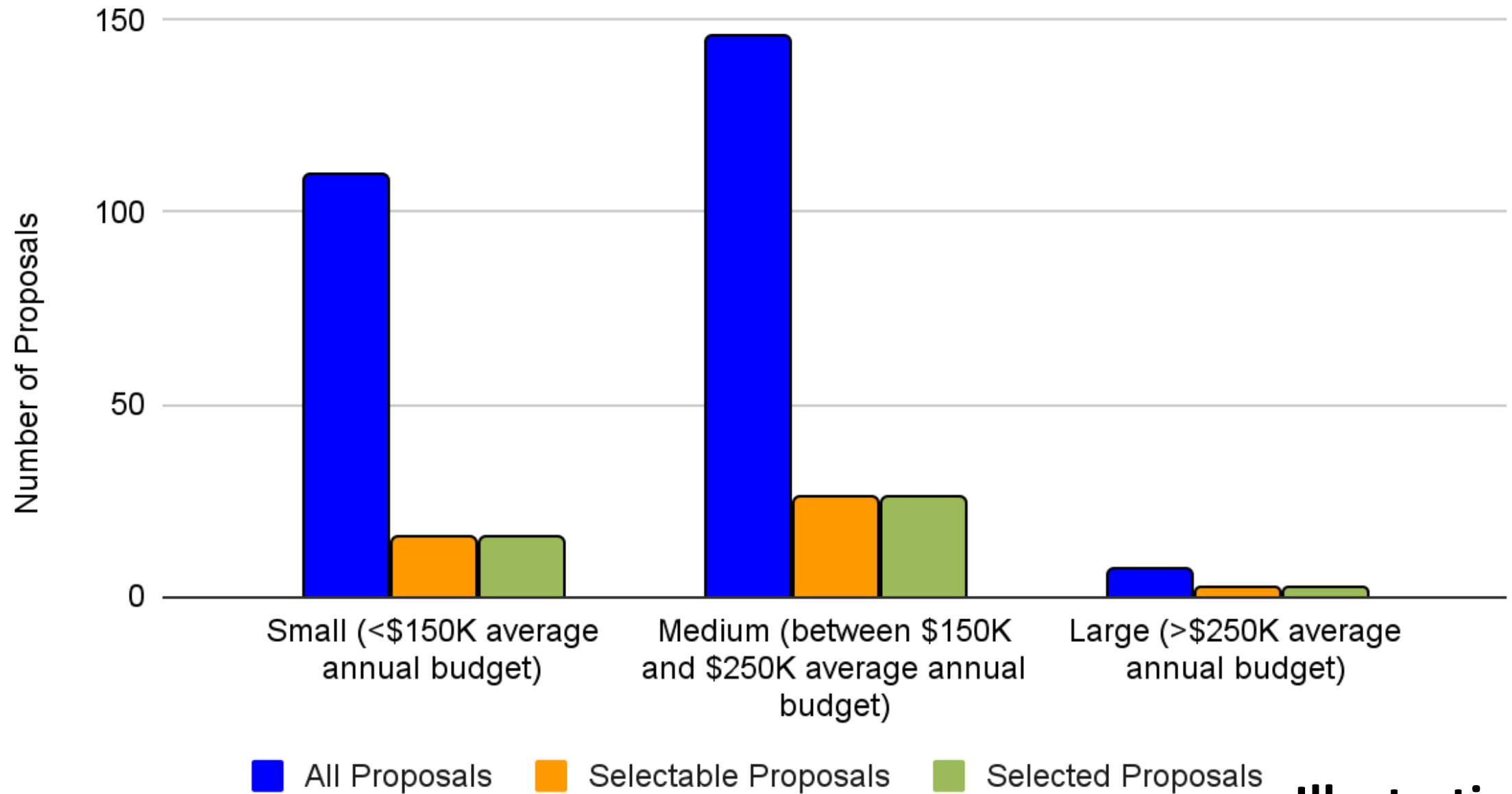
Illustrative

Question 29: Year of the PI's terminal degree



Illustrative

Question 36: Award Size

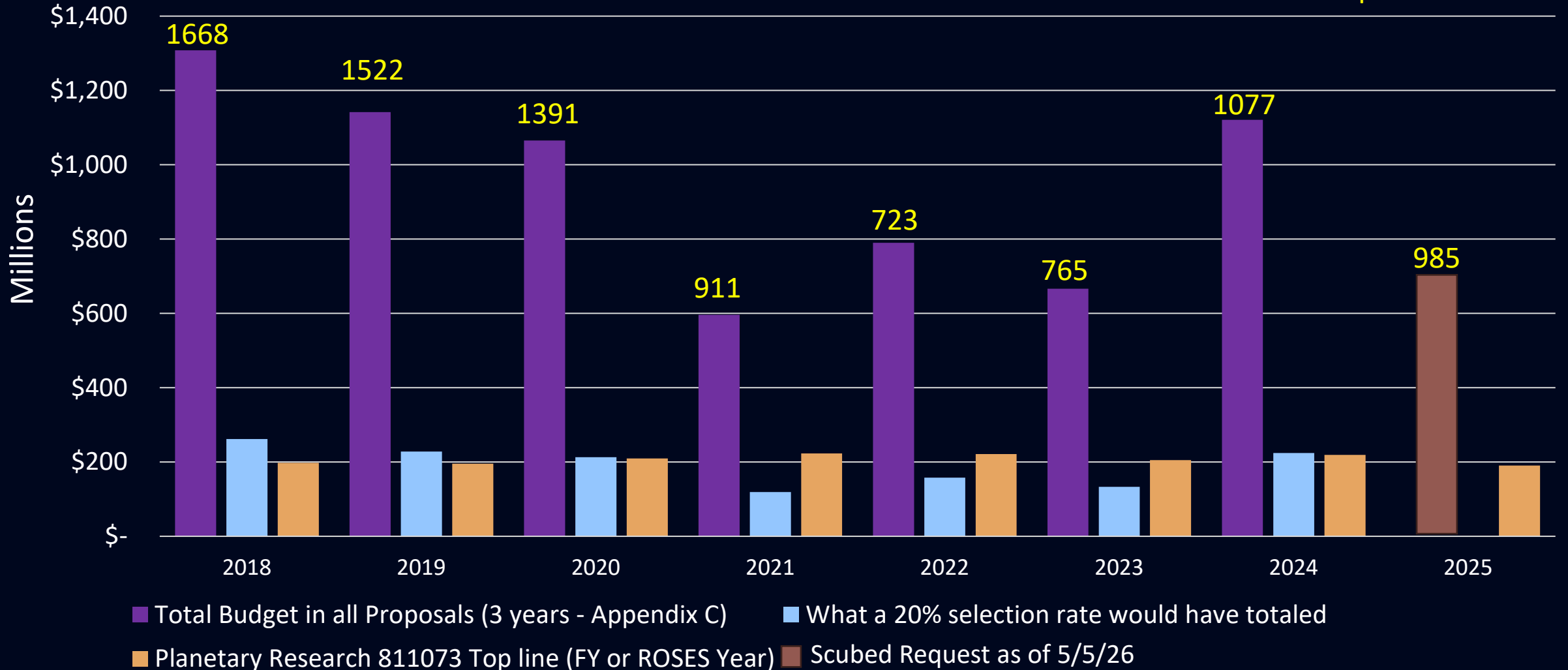


Illustrative

For Illustrative Purposes - Demand on R&A Budget Over Time – ROSES Only

*Assumptions for this graph: ROSES Year = Fiscal Year, All Appendix C is funded by 811073, Nothing outside of Appendix C (e.g., cross-divisional efforts) receives 811073 funds

Proposals Submitted



Data Availability



There is a lot of data available, but it greatly differs between programs and ROSES years.



Although we are currently moving towards a more standardized tracking of information for Planetary Research Programs, this has not always been the case, which creates some challenges comparing one program to another.



There are standardized SMD cover page questions asked across ROSES programs, and standardized PSD cover pages questions, but these may change year to year.



If it exists as a cover page question, the data can ultimately be mined.

3. Characteristics of a Healthy Research Community

What would a healthy, sustainable, and thriving planetary science research community look like when evaluated using these identified metrics and indicators?

4.Communication of Metrics and Outcomes

What communication strategies and best practices should be used to effectively convey these metrics, indicators and outcomes to stakeholders in the science community?

Current and Future Planned Communications

Community Meetings
(Conferences,
Workshops)

Posting information on
NSPIRES after selection

“Year in Review” for
Planetary Research
initiated in 2025

Twice a year
“Newsletters” with
pertinent information
for the community (in
progress)

Ad hoc requests for
presentations

5.Strategic Priorities and Funding Enhancements

Would the health and vitality of the planetary research community be improved through targeted investments in areas such as:

- New scientific capabilities and technology development
- Interdisciplinary research
- High-risk/high-reward investigations
- Targeted research opportunities

Budget Scenario Assumptions

For the purposes of this evaluation only, the Committee should assume:

- A baseline Planetary Research Program budget of **\$150 million annually**, and
- Incremental funding increases of **\$25 million**, up to a maximum program budget of **\$250 million annually**.

The Committee should consider how varying funding levels may influence the identified metrics, program health indicators, scientific productivity, workforce sustainability, and achievement of decadal science priorities over time.

**Looking
forward to the
discussion!**

