

National Aeronautics and
Space Administration



EXPLORE SCIENCE

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Self-reported Demographics of NASA SMD Research Proposal Teams 2014-2020

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Demographic Survey of Proposers

- Survey began with Research Opportunities in Space and Earth Sciences (ROSES) 2016
 - When an individual logs into NSPIRES, they are prompted to answer the survey questions
 - Responding to the survey was/is optional
- Surveyed demographics
 - Gender
 - Race
 - Ethnicity
 - Ability
 - Career questions added in 2019
 - Previous experience as a Principal Investigator (PI) or Co-PI on a federally funded project
 - Career Sector and Type
 - Final degree type and year

Survey Questions: Gender, Race, and Ethnicity

Gender (choose one):

- Male
- Female
- Other (Added in 2019)
- I prefer not to report my gender

Race (select one or more):

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White
- Other
- I prefer not to report my race

Ethnicity (choose one):

- Hispanic or Latino
- Not Hispanic or Latino
- I prefer not to report my ethnicity

Survey Questions: Ability and Final degree year

Ability: Do you have any of the following disabilities/serious health conditions? Consider your answers without the use of medication and aids (except eyeglasses) or the help of another person. (Check all boxes that apply to you.)

- Hearing Impairment
- Visual Impairment
- Mobility/Orthopedic Impairment
- Other
- None
- I prefer not to reveal my disabilities/health conditions

Final Degree Year used to calculate Career Stage

- Career Age = submission year – final degree year
- Career Stages
 - Early Career: < 10 years since final degree
 - Mid Career: 10 – 19 years since final degree
 - Late Career: 20+ years since final degree

Definitions and Exclusions

Science team roles

- PI
- Collaborator
- Consultant
- Graduate/Undergraduate Student
- Postdoctoral Associate
- Co-I
- Co-I/Co-PI (non-US organization)
- Co-I/Institution PI
- Co-I/Science PI
- Co-PI
- Deputy PI

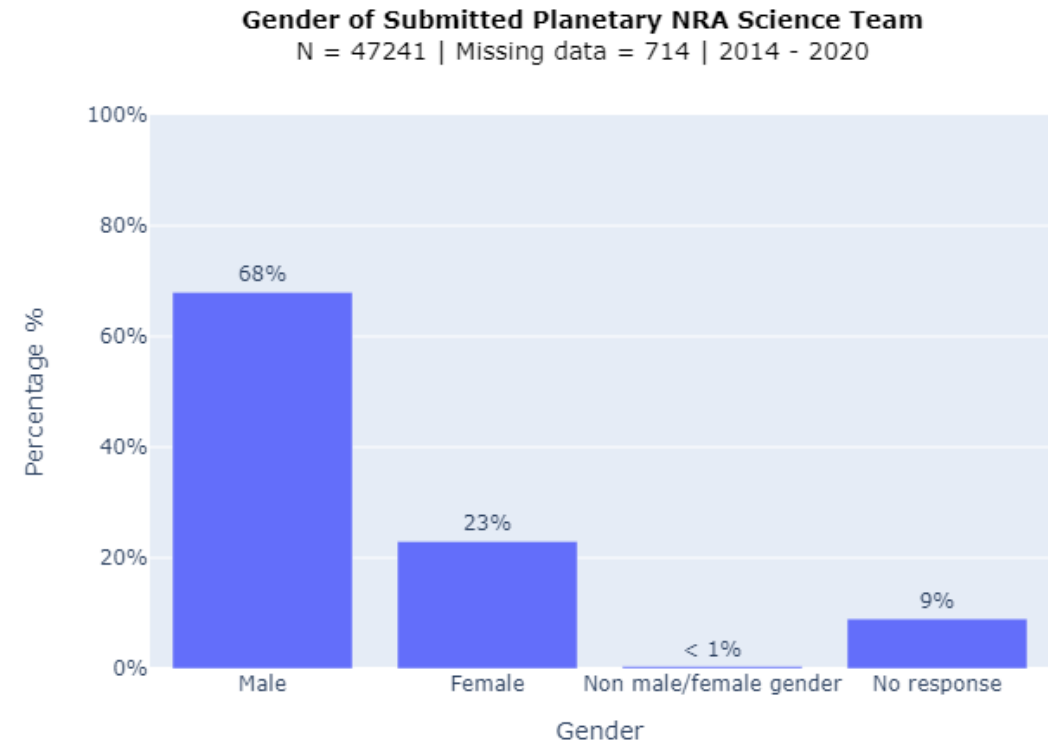
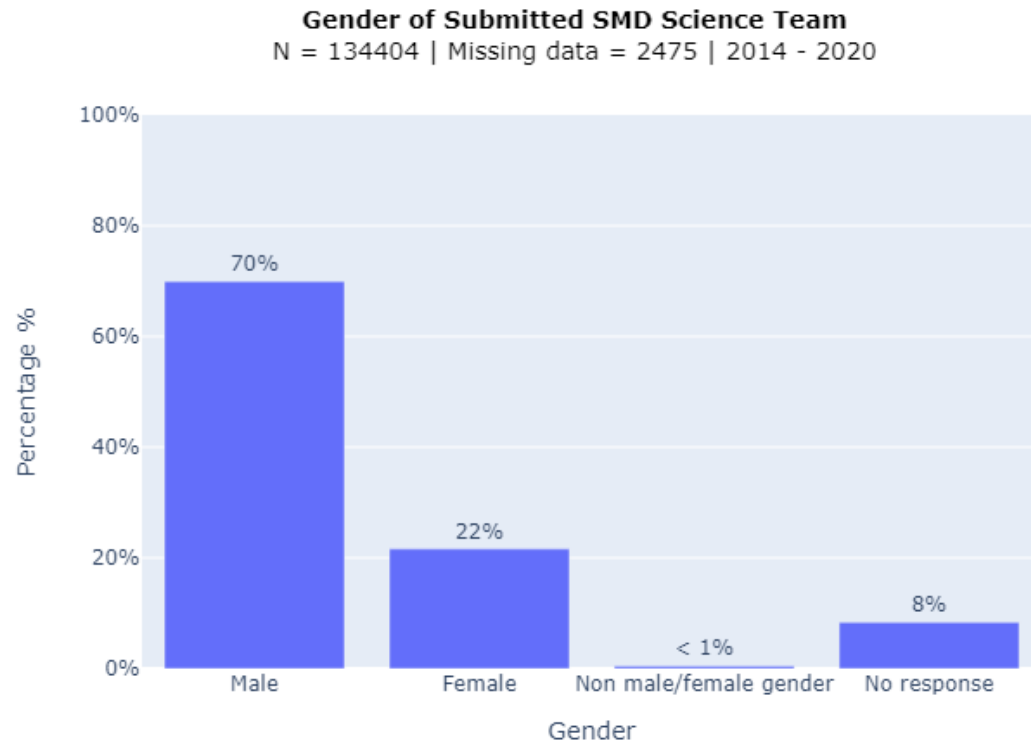
Data visualizations capture each time an individual participates in a proposal

- Programs excluded from analyses
 - Announcements of Opportunity (AOs)
 - Senior or programmatic reviews
 - Graduate and early career fellowships
 - Planetary major equipment proposals
 - Astrophysics division guest investigator/observer programs
 - Reviews are conducted outside of HQ

Survey Response Data Availability

- Current data set includes ROSES 2014-2020 proposal team members captured on the proposal cover page
- ROSES 2014-2015 demographic data for individuals is populated using available survey responses from later years
 - If not able to back-fill, team member is removed from the analysis
 - SMD: 1.8% | PSD: 1.5%
- Proposers could take the survey and chose “prefer not to report” for ALL survey questions
 - SMD: 2.6% | PSD: 2.8%
- To protect the anonymity of individuals, suppression guidelines have been created by the Office of the Chief Scientist

Results: Proposing Science Team Gender SMD and PSD



Note: Categories with less than 1% (including null values) are shown as <1%

Results: SMD + PSD Science Team Gender Submitted and Selected

Science Mission Directorate			
Gender	% Submitted	% Selected	Difference
Male	70%	70%	0%
Female	22%	22%	0%
Non male/ female gender	<1%	<1%	0%
No response	8%	8%	0%

Planetary Science Division			
Gender	% Submitted	% Selected	Difference
Male	68%	68%	0%
Female	23%	24%	1%
Non male/ female gender	<1%	<1%	0%
No response	9%	9%	0%

Note: Categories with less than 1% (including null values) are shown as <1%

Percentages are rounded up to the nearest percentage causing some categories to not add up to 100%

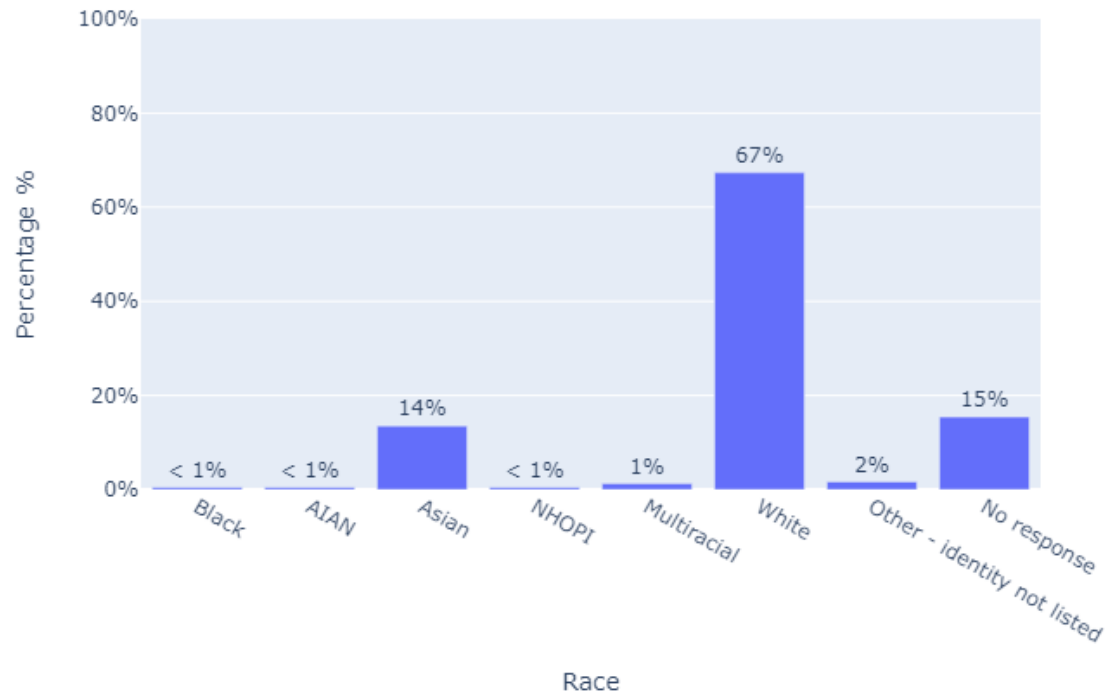
Results: Proposing Science Team Race SMD and PSD

Black = Black or African American

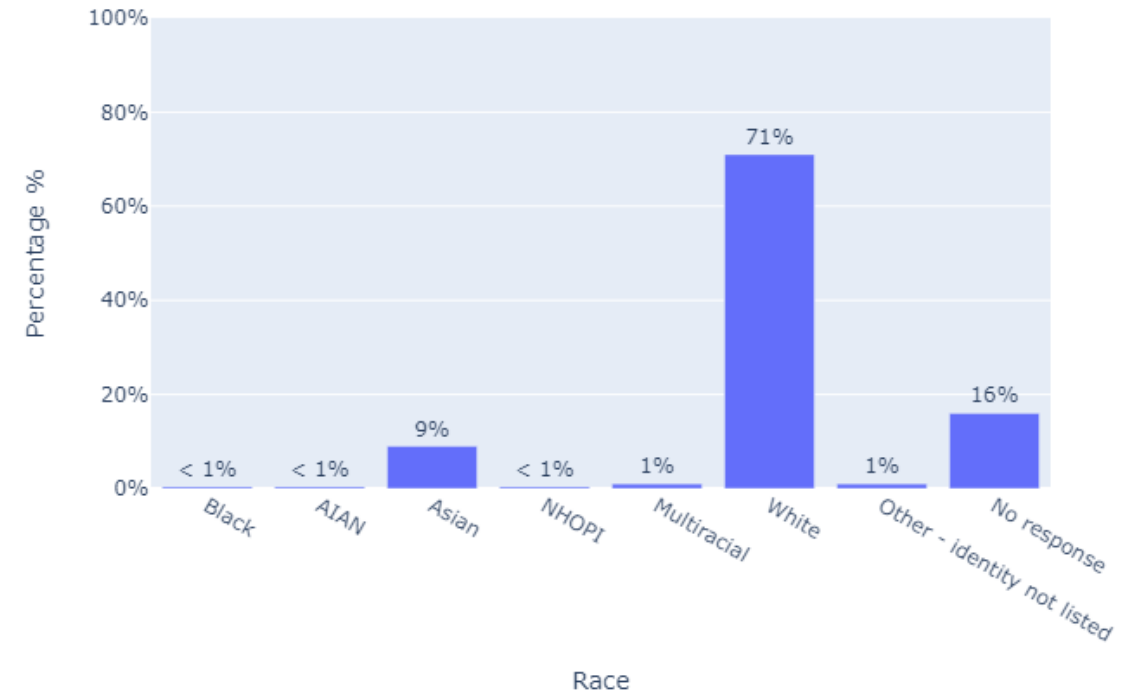
AIAN = American Indian or Alaska Native

NHOPI = Native Hawaiian or Other Pacific Islander

Race of Submitted SMD Science Team
N = 134404 | Missing data = 2475 | 2014 - 2020



Race of Submitted Planetary NRA Science Team
N = 47241 | Missing data = 714 | 2014 - 2020



Note: Categories with less than 1% (including null values) are shown as <1%

Results: SMD + PSD Science Team Race Submitted and Selected

Science Mission Directorate			
Race	% Submitted	% Selected	Difference
Black	<1%	<1%	0%
AIAN	<1%	<1%	0%
Asian	14%	12%	-2%
NHOPI	<1%	<1%	0%
Multiracial	1%	1%	0%
White	67%	69%	2%
Other	2%	2%	0%
No response	15%	15%	0%

Planetary Science Division			
Race	% Submitted	% Selected	Difference
Black	<1%	<1%	0%
AIAN	<1%	<1%	0%
Asian	9%	9%	0%
NHOPI	<1%	<1%	0%
Multiracial	1%	1%	0%
White	71%	73%	2%
Other	1%	1%	0%
No response	16%	15%	-1%

Notes: Categories with less than 1% (including null values) are shown as <1%

Percentages are rounded up to the nearest percentage causing some categories to not add up to exactly 100%

Results: Proposing Science Team Career Stage SMD and PSD

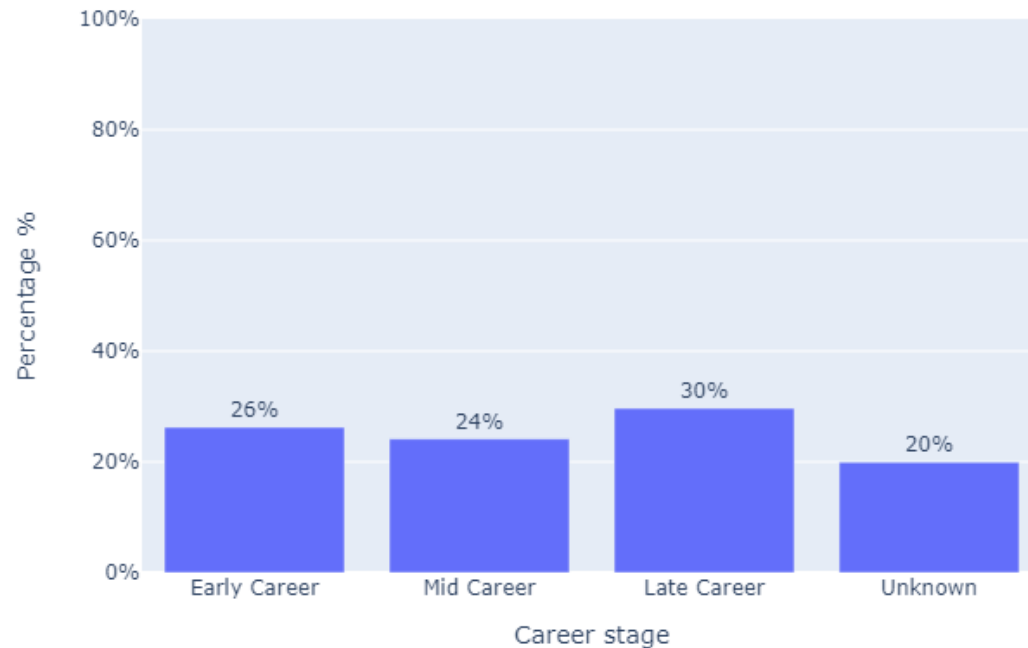
Early Career: < 10 years since final degree

Mid Career: 10 – 19 years since final degree

Late Career: 20+ years since final degree

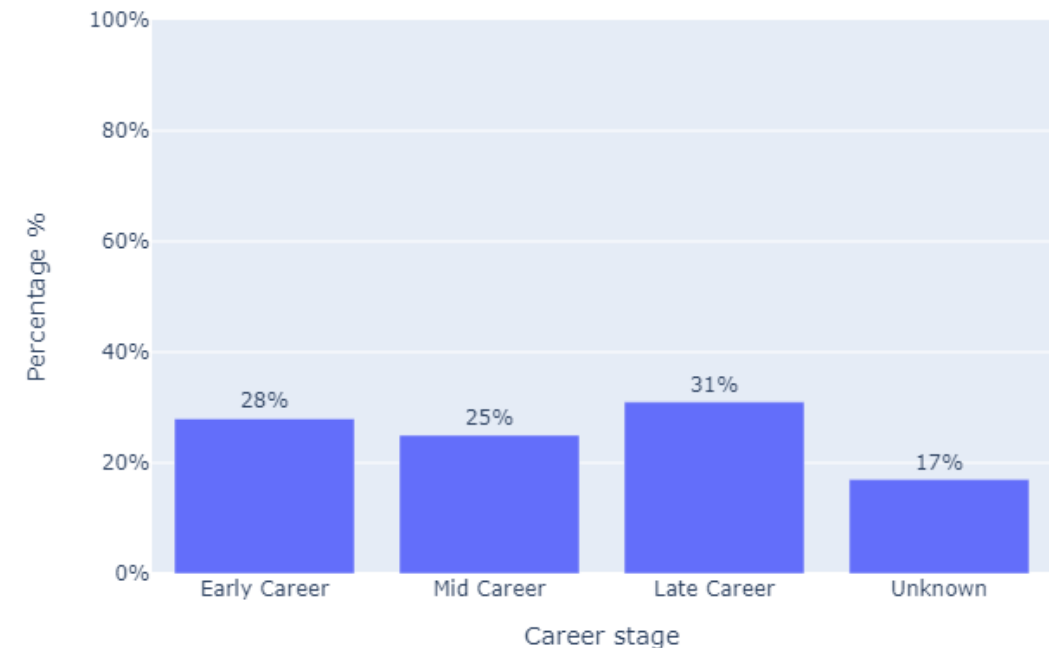
Career stage of Submitted SMD Science Team

N = 136879 | Missing data = 2475 | 2014 - 2020



Career stage of Submitted Planetary NRA Science Team

N = 47955 | Missing data = 714 | 2014 - 2020





Summary

Individual demographic categories are generally selected at the rate at which they submit

There is a larger proportion of PIs and science team members that identify as Asian across SMD than in PSD

Career stage data has a significant proportion of unknowns that makes it difficult to draw any conclusions

There is a lot more work to be done...



Future Work

- Effects of Dual Anonymous Peer Review
- Reviewers
- FINESST program
- Intersectional analyses
- Comparisons with a comparable workforce (led by OCS)
- Efforts are underway to add more options for responses
- Institutional demographics
 - Minority Serving Institutions
 - Historically Black Colleges and Universities

Backup Slides

Survey Questions: Previous PI/Co-PI, Career Sector, Career Type

Previous PI/Co-PI

Are you currently serving (or have previously served) as PI, PD, Co-PI, or Co-PD on any federally funded project?

- Yes
- No

Career Sector (choose one):

- Academia
- For profit
- Government
- Non-profit
- Other
- I prefer not to report my career sector

Career Type (choose one):

- Education
- Engineering
- Other
- Research
- Science
- Teaching
- I prefer not to report my career type

Definitions and Exclusions (2)

Proposal excluded from analyses

- Step-1, Withdrawn, Declined (non-compliant)

Abbreviated race and ethnicity category names

- Black = Black or African American
- AIAN = American Indian or Alaska Native
- Hispanic = Hispanic or Latino
- Multiracial = Two or more race categories selected (including White)
- NHOPi = Native Hawaiian or Other Pacific Islander

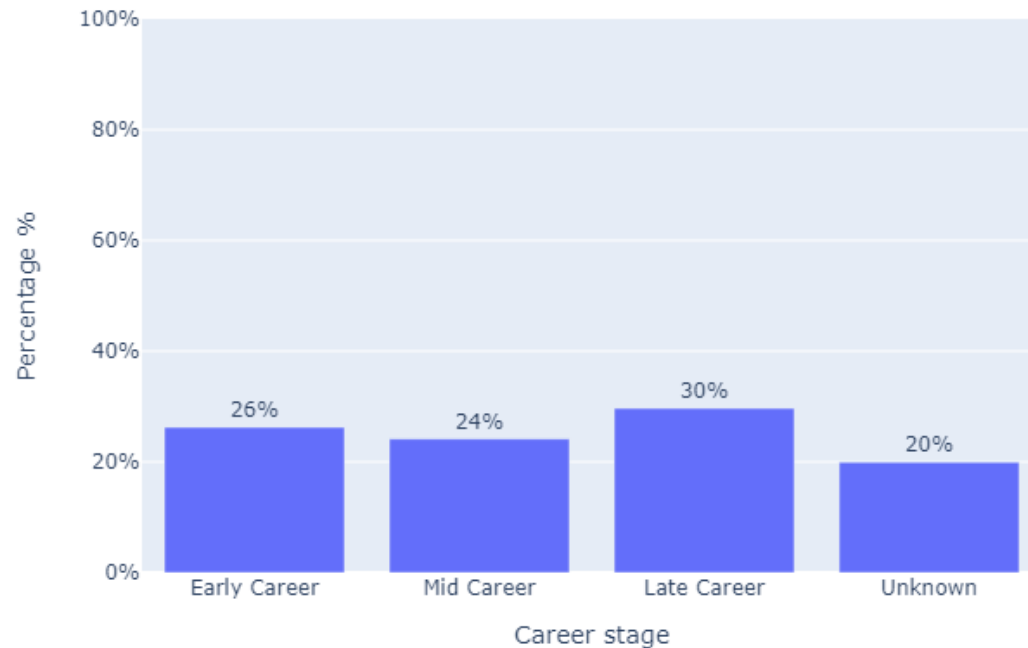
Career Stage

- Career Age = Submission calendar year – Final degree year
- Career stages
 - Early Career: < 10 years since final degree
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 - Late Career: 20+ years since final degree

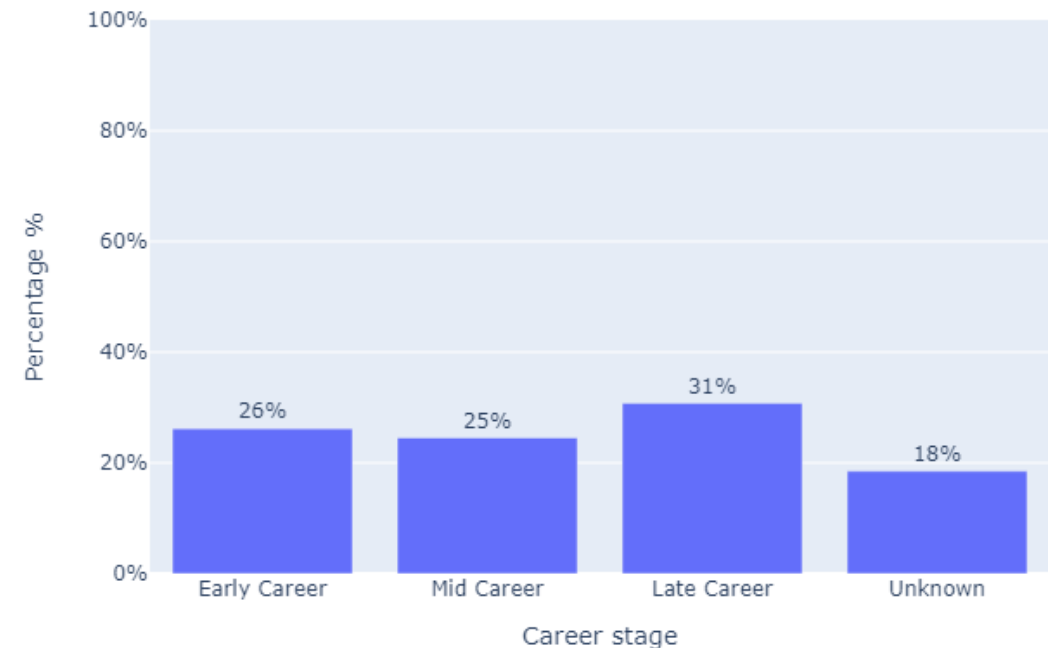
Results: SMD Science Team Career Stage Submitted and Selected

Early Career: < 10 years since final degree
Mid Career: 10 – 19 years since final degree
Late Career: 20+ years since final degree

Career stage of Submitted SMD Science Team
N = 136879 | Missing data = 2475 | 2014 - 2020



Career stage of Selected SMD Science Team
N = 36808 | Missing data = 550 | 2014 - 2020



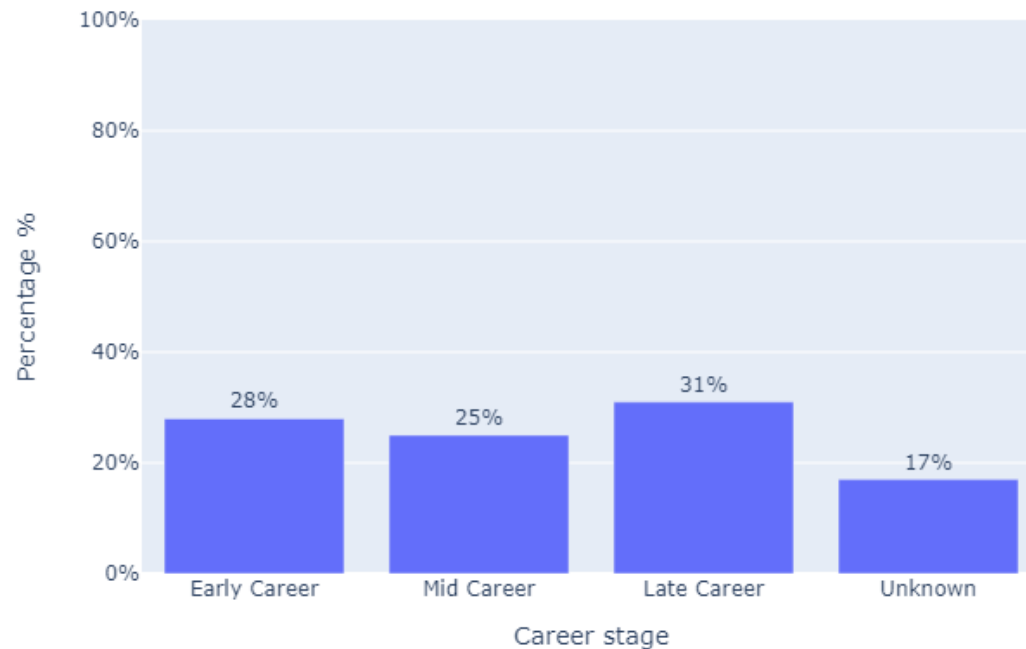
Note: Categories with less than 1% (including null values) are shown as <1%

Results: PSD Science Team Career Stage Submitted and Selected

Early Career: < 10 years since final degree
Mid Career: 10 – 19 years since final degree
Late Career: 20+ years since final degree

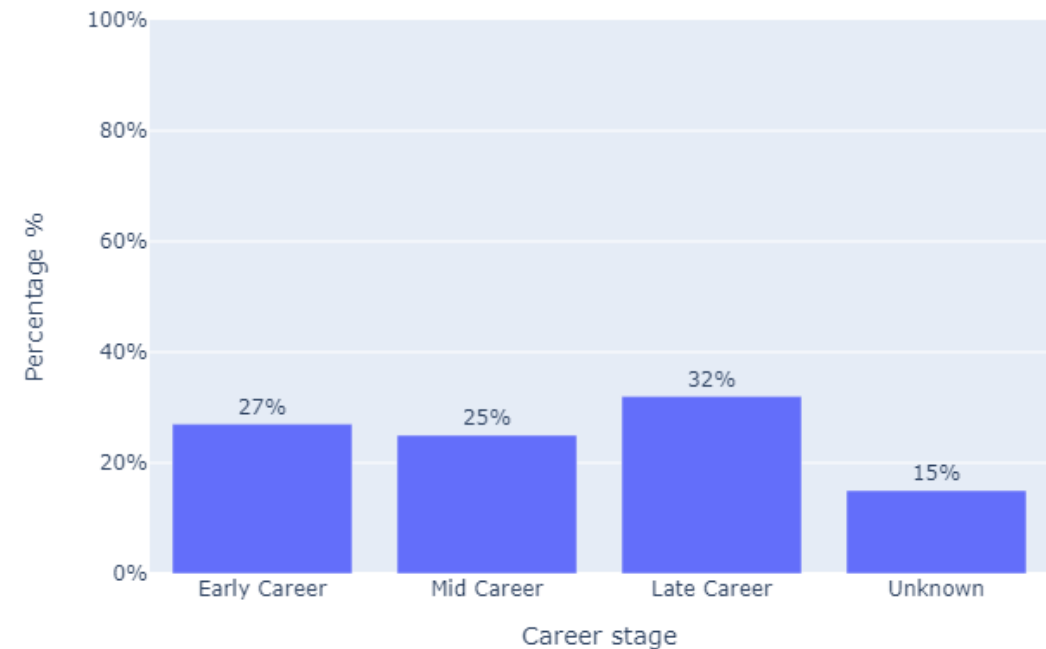
Career stage of Submitted Planetary NRA Science Team

N = 47955 | Missing data = 714 | 2014 - 2020



Career stage of Selected Planetary NRA Science Team

N = 10796 | Missing data = 137 | 2014 - 2020



Note: Categories with less than 1% (including null values) are shown as <1%

Results: SMD + PSD Science Team Career Stage Submitted and Selected

Science Mission Directorate			
Career Stage	% Submitted	% Selected	Difference
Early	26%	26%	0%
Mid	24%	25%	1%
Late	30%	31%	1%
Unknown	20%	18%	-2%

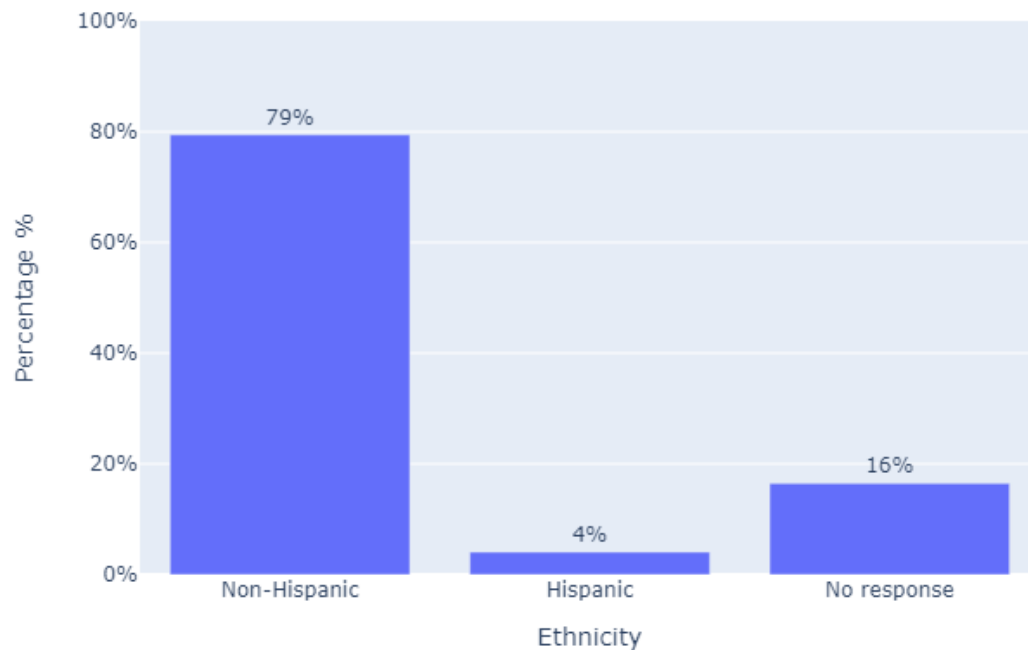
Planetary Science Division			
Career Stage	% Submitted	% Selected	Difference
Early	28%	27%	-1%
Mid	25%	25%	0%
Late	31%	32%	1
Unknown	17%	15%	-2%

Early Career: < 10 years since final degree
Mid Career: 10 – 19 years since final degree
Late Career: 20+ years since final degree

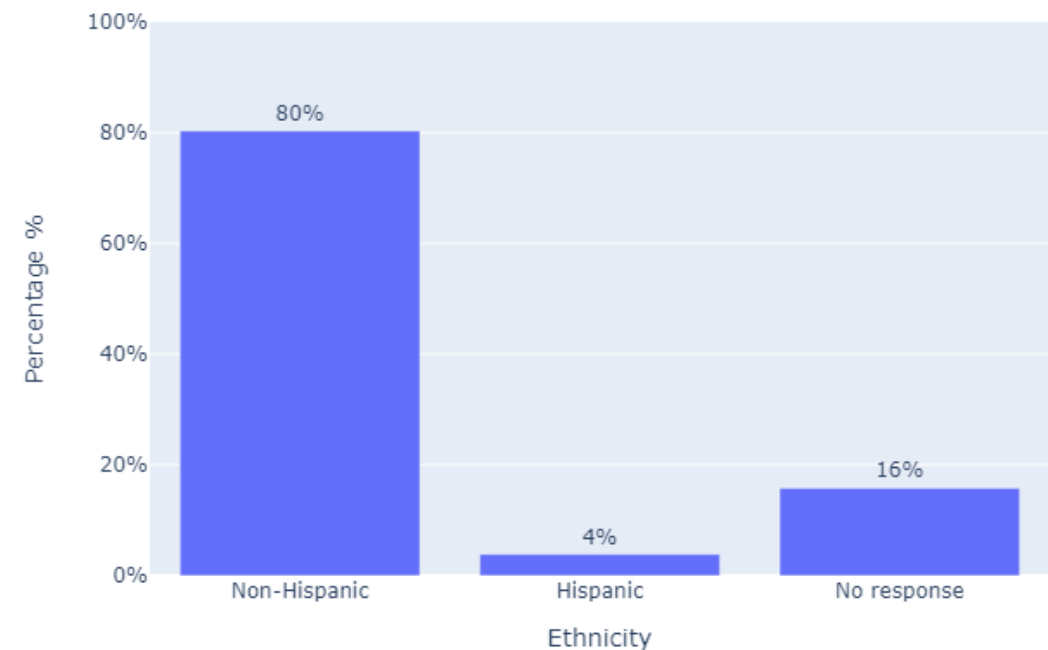
Note: Categories with less than 1% (including null values) are shown as <1%

Results: SMD Science Team Ethnicity Submitted and Selected

Ethnicity of Submitted SMD Science Team
N = 134404 | Missing data = 2475 | 2014 - 2020



Ethnicity of Selected SMD Science Team
N = 36258 | Missing data = 550 | 2014 - 2020



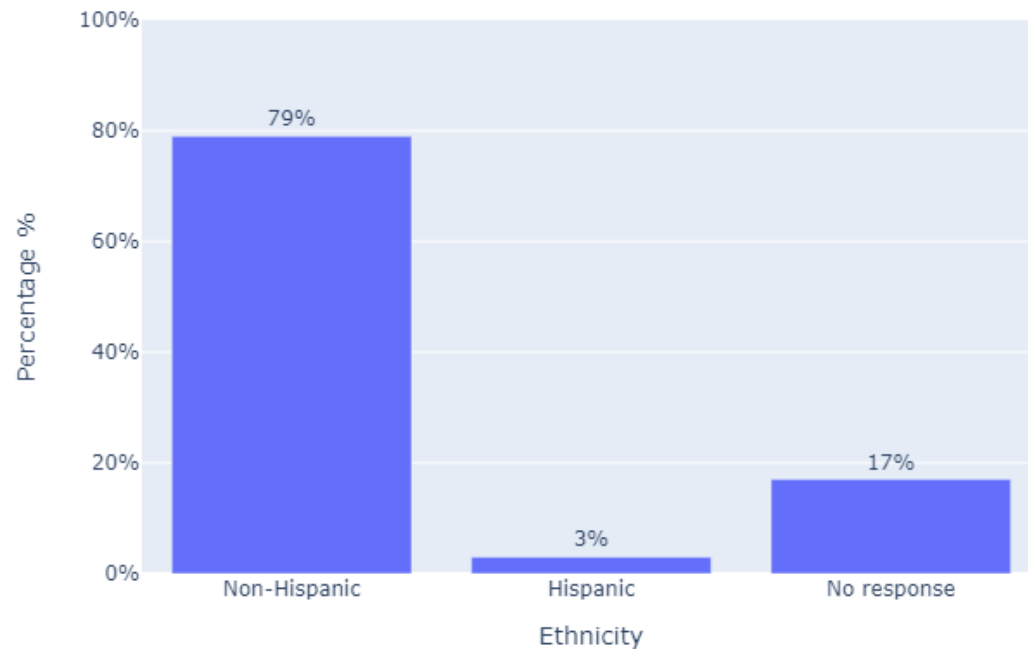
Hispanic = Hispanic and Latino

Note: Categories with less than 1% (including null values) are shown as <1%

Results: PSD Science Team Ethnicity Submitted and Selected

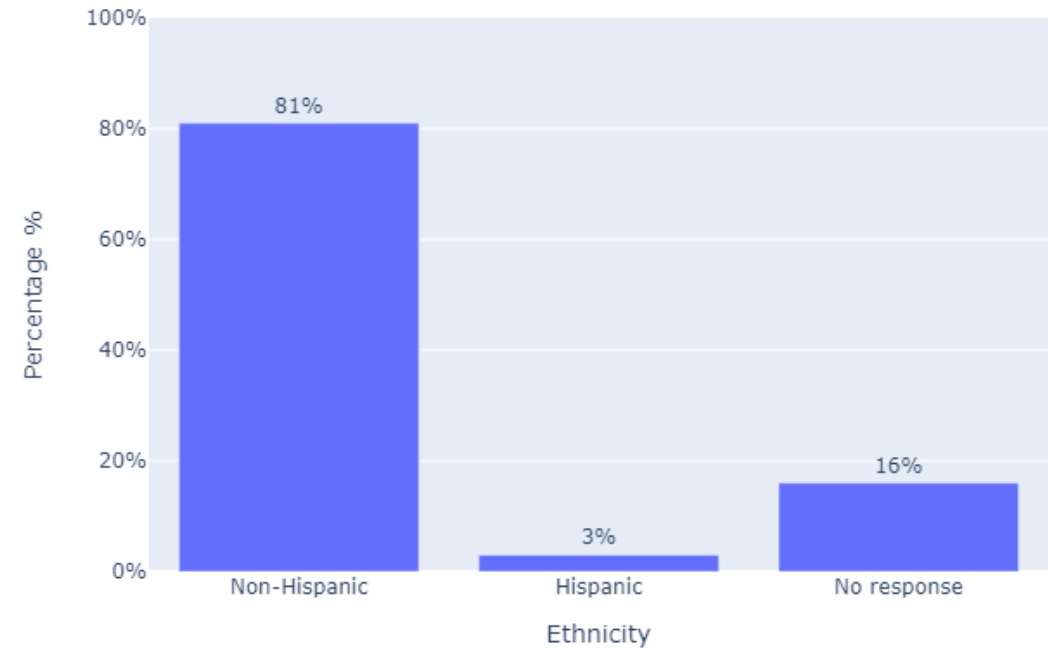
Ethnicity of Submitted Planetary NRA Science Team

N = 47241 | Missing data = 714 | 2014 - 2020



Ethnicity of Selected Planetary NRA Science Team

N = 10659 | Missing data = 137 | 2014 - 2020



Hispanic = Hispanic and Latino

Note: Categories with less than 1% (including null values) are shown as <1%

Results: SMD + PSD Science Team Ethnicity Submitted and Selected

Science Mission Directorate			
Ethnicity	% Submitted	% Selected	Difference
Non-Hispanic	79%	80%	1%
Hispanic	4%	4%	0%
No response	16%	16%	0%

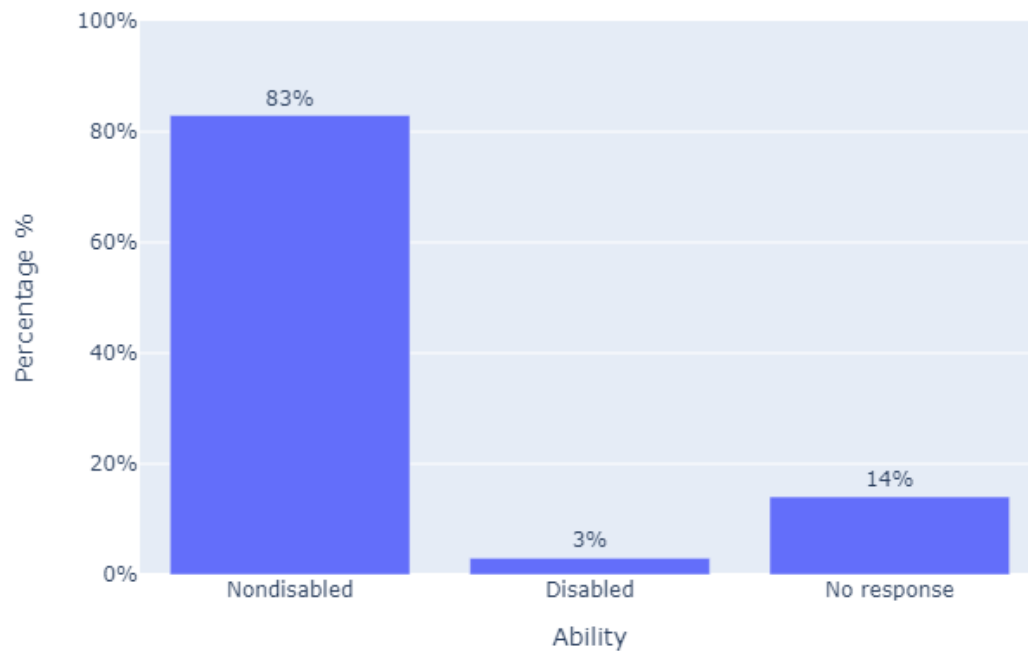
Planetary Science Division			
Ethnicity	% Submitted	% Selected	Difference
Non-Hispanic	79%	81%	2%
Hispanic	3%	3%	0%
No response	17%	16%	-1%

Hispanic = Hispanic and Latino

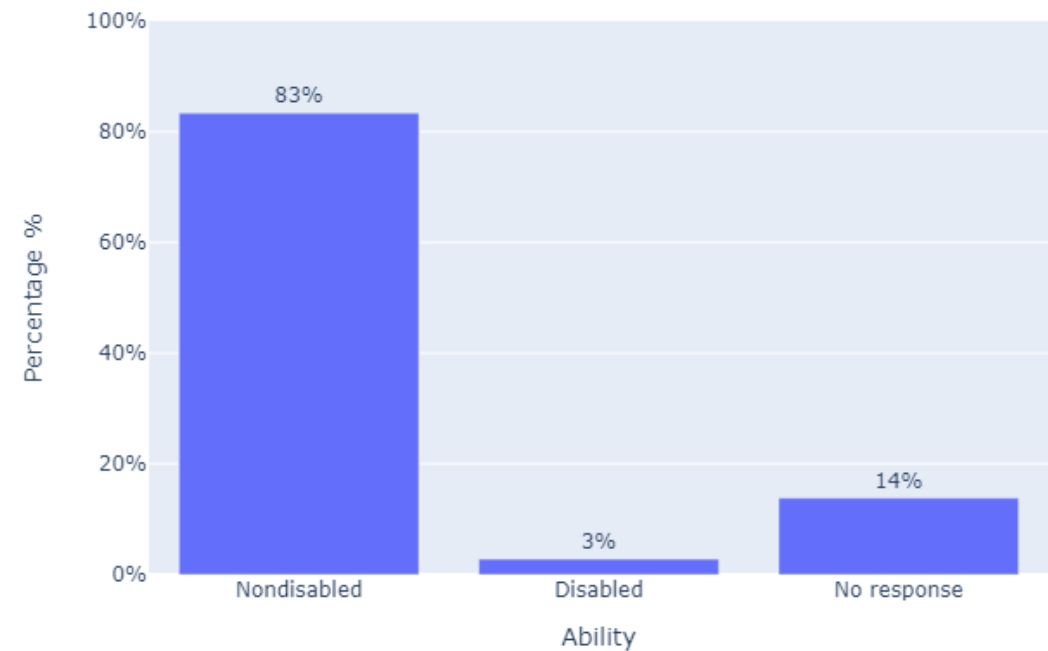
Note: Categories with less than 1% (including null values) are shown as <1%

Results: SMD Science Team Ability Submitted and Selected

Ability of Submitted SMD Science Team
N = 134404 | Missing data = 2475 | 2014 - 2020



Ability of Selected SMD Science Team
N = 36258 | Missing data = 550 | 2014 - 2020

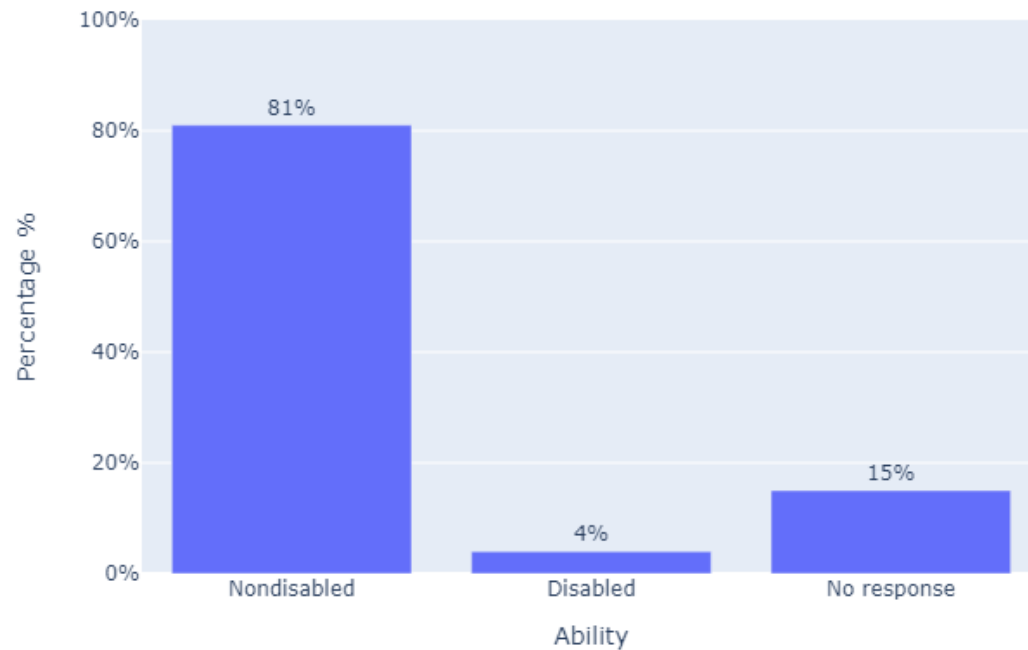


Note: Categories with less than 1% (including null values) are shown as <1%

Results: PSD Science Team Ability Submitted and Selected

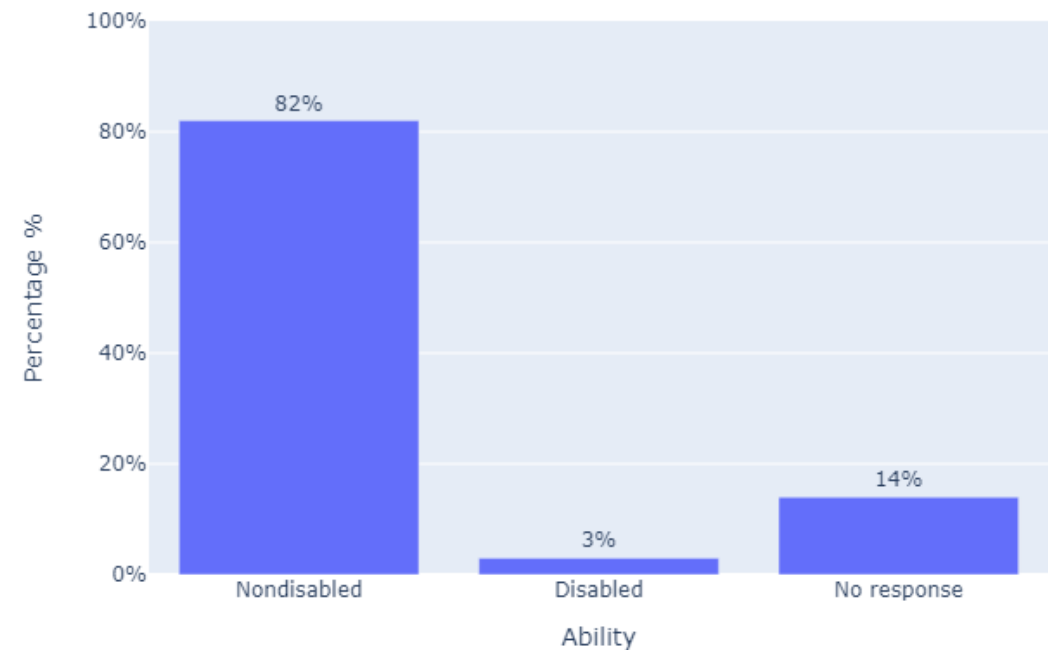
Ability of Submitted Planetary NRA Science Team

N = 47241 | Missing data = 714 | 2014 - 2020



Ability of Selected Planetary NRA Science Team

N = 10659 | Missing data = 137 | 2014 - 2020



Note: Categories with less than 1% (including null values) are shown as <1%

Results: SMD + PSD PI Ability Submitted and Selected

Science Mission Directorate			
Ethnicity	% Submitted	% Selected	Difference
Not Disabled	79%	80%	1%
Disabled	3%	3%	0%
No response	18%	17%	0%

Planetary Science Division			
Ethnicity	% Submitted	% Selected	Difference
Not Disabled	78%	79%	1%
Disabled	4%	3%	-1%
No response	18%	18%	0%

Note: Categories with less than 1% (including null values) are shown as <1%