THE NASA SCIENCE MISSION DIRECTORATE'S ROSES 2021 RESEARCH AND ANALYSIS YEARBOOK: AN ONLINE RESOURCE FOR PROGRAMMATIC AND SELF-REPORTED DEMOGRAPHIC DATA. H. B. Jensen[1,*], L. L. Pappas[1], N. A. Taha[1], and M. H. New[2]. [1]Agile Decision Sciences, Washington, D.C., [2]NASA Headquarters, Washington, D.C., [*]heidi.b.jensen@nasa.gov.

Introduction: The ROSES 2021 Research and Analysis Yearbook is a new, online resource to provide relevant science communities and the public with data about ROSES 2021, including demographic data analyses of proposers and programmatic information. The initial Yearbook release can be found at https://science.nasa.gov/roses2021yearbook/ and includes analyses of the demographic characteristics of proposers to research and analysis solicitations for ROSES year 2021. These data are presented at both Science Mission Directorate (SMD) and SMD Division levels, with comparisons of ROSES 2021 data with aggregated data for the five previous ROSES years to provide context. As new analyses of the Research and Analysis program are completed, their results will be added to the Yearbook. When all competitions for ROSES 2022 are completed, a new volume will be added to the Yearbook containing similar analyses for ROSES 2022 proposals.

ROSES 2021 Research and Analysis Yearbook: Contents of Initial Release

1. Introduction: Opening remarks by SMD Deputy Associate Administrator for Research Michael New, followed by a Table of Contents, and a detailed discussion of data sources, handling, reporting constraints, and limitations.

SMD-wide and SMD Division-level analyses

2. PI and science team demographics for submitted and selected proposals: Analysis of self-reported demographic data for proposers to ROSES solicitations, with comparisons between ROSES 2021 and ROSES 2016-2020.
3. Institutional classifications for submitted and selected proposals: a) Institution Type (Educational, Non-profit, etc.); b) Minority Serving Institutions, Historically Black Colleges and Universities, Tribal Colleges and Universities; c) Carnegie Classification of Research Intensity (R1, R2, etc.).
4. Selection rates of PIs by demographic category: Number of selected proposals from PIs in a given demographic response group/ Number of submitted proposals from PIs in the same group.
5. New PI: Submission and selection rates for New PIs. A New PI has been selected as the PI in a given SMD Division/Directorate but not selected as the PI on a proposal submitted to a any program in that SMD Division/Directorate in the last five ROSES years.
6. Unique PI: Number of Unique PIs for submitted and selected proposals and selection rates. A Unique PI removes duplicate proposals for an individual to the number of individuals that were PIs for submitted and selected proposals.
7. Time-to-announce: Time from proposal submission to selection announcement.

SMD-level analyses only

1. Intersectional demographic data for PIs of submitted and selected proposals: Tables presenting the demographic survey responses of PIs for two demographic categories.

ROSES Demographic Data Survey: NASA began collecting voluntary demographic information from research teams submitting proposals for research grants and proposal reviewers in 2016. This information was collected from individuals upon logging into the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) [1]. Initially, the survey included questions about the following demographic categories: gender, ethnicity, race, and disability. In 2019, the survey questions were updated to include a non-binary option for gender and career questions, including: career classification sector and type, highest degree earned, and year of terminal degree. Where possible, newly collected demographic responses were used to update previous demographic survey responses.

Institution Classifications: In addition to demographic information about proposing research teams, information about the institutions submitting proposals will be presented; institution type, Carnegie classification of research intensity [2], and Minority Serving Institution (MSI) classification [3,4].

NASA Office of the Chief Scientist (OCS) Suppression Guidelines for Self-Reported Demographic Data: Public presentation of demographic survey data requires suppression to protect the anonymity promised to survey respondents. These suppression rules include:

a. Percentages less than 1% (including null values) are shown as <1%, and all other percentages are rounded to the nearest full digit.

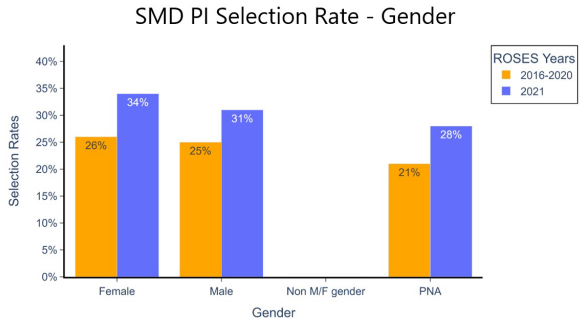
b. If there are 10 or less unique people in a cell, the result will be reported as either <11 or NR (Not Reportable).

c. Total selections and submissions by year cannot be reported. The total number of proposals submitted across all SMD Divisions for all years can be shown.
d. Selection rates (selections/submissions) are not computed when the total submissions (the denominator) for a particular group is less than 50; or number of unique people selected is 10 or less.

Sample Data Visualizations:

Gender	SMD 2016 - 2020	SMD 2021
Female	25%	28%
Male	66%	65%
Non M/F gender	NR	NR
PNA	9%	7%

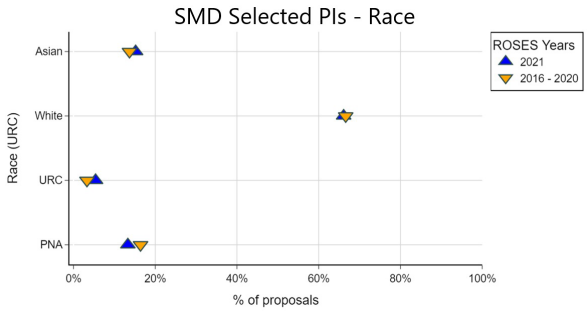
PNA: Prefer not to answer | ROSES 2016-2020 proposal data are aggregated.



Gender	SMD 2016-2020	SMD 2016-2020 Response/All Genders	SMD 2021	SMD 2021 Response/All Genders
Female	26%	1.04	34%	1.06
Male	25%	1	31%	0.97
Non M/F gender	NR	NR	NR	NR
PNA	21%	0.84	28%	0.88
All Genders	25%	1	32%	1

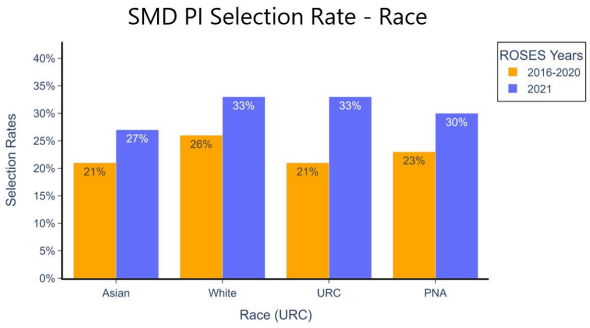
PNA: Prefer not to answer | ROSES 2016-2020 proposal data are aggregated.

Acknowledgments: We are thankful for our collaboration with Louis Barbier and Caroline Wilson of the NASA Office of the Chief Scientist in creating standard processes for working with demographic survey data. This work would not have been possible without the efforts of Meagan Thompson to establish and optimize the demographic survey, and provide us with guidance as we started working with these data. Lastly, we are thankful to a few NASA interns that helped in the development this work; Madeleine Tumbarello, Ankita Kc and Nazifa Taha.



Race (URC)	SMD 2016 - 2020	SMD 2021
Asian	14%	15%
White	67%	66%
URC	3%	5%
PNA	16%	13%

Under-Represented Community (URC) includes American Indian & Alaska Native, Black, Native Hawaiian & Other Pacific Islander, Multiracial, and Other.
PNA: Prefer not to answer | ROSES 2016-2020 proposal data are aggregated.



Race (URC)	SMD 2016-2020	SMD 2016-2020 Response/All Races (URC)	SMD 2021	SMD 2021 Response/All Races (URC)
Asian	21%	0.84	27%	0.84
White	26%	1.04	33%	1.03
URC	21%	0.84	33%	1.03
PNA	23%	0.92	30%	0.94
All Races (URC)	25%	1	32%	1

Under-Represented Community (URC) includes American Indian & Alaska Native, Black, Native Hawaiian & Other Pacific Islander, Multiracial, and Other.
PNA: Prefer not to answer | ROSES 2016-2020 proposal data are aggregated.

References: [1] NASA Solicitation and Proposal Integrated Review and Evaluation System, https://nspires.nasaprs.com/external/. [2] Carnegie Classifications public data files, http://carnegieclassifications.iu.edu/downloads/. [3] NASA Minority Serving Institutions (MSI) List, https://www.nasa.gov/sites/default/files/atoms/files/edu_nasa_msi_list_aug_2021.pdf. [4] Eligibility Designations and Applications for Waiver of Eligibility Requirements, https://www2.ed.gov/about/offices/list/ope/idues/eligibility.html.