

U.S. National Science Foundation Significant Opportunities in Atmospheric Research and Science (NSF SOARS^{II})

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What is NSF SOARS?

NSF SOARS is an undergraduate-to-graduate bridge program, designed to broaden participation of marginalized communities in the atmospheric and related sciences.

Program Benefits:

- Multiple-Year Support: Successful Protégés can participate in NSF SOARS for up to four years.
- Stipend: NSF SOARS Protégés work 40 hours a week for 11-weeks and earn a competitive wage.
- Housing and Transportation: The program provides furnished apartments, round-trip airfare, and a bus pass.
- Conferences: Protégés are funded to attend national scientific conferences to present their summer research.

Summer 2024 Cohort



Summer 2023 Cohort



NSF SOARS:

Exemplar of Science Research and Mentoring Program for 28 Years

The history of NSF SOARS is unique, as it represented a response to systemic exclusion in STEM.

The need for a program to address the national needs of the country:

1. The US standing in the world, with respect to diversity in science
1. The US need for innovation and the global economy
1. The feedback of students in the critical aspects of sustainable pathways in STEM



The U.S. Standing

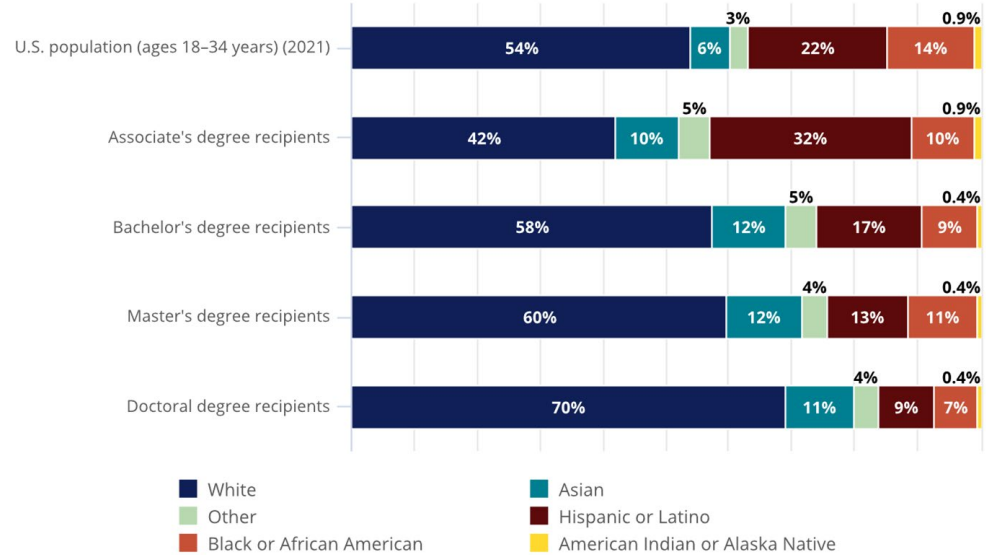
- NSF SOARS was submitted in 1994
- Address low representation of women and marginalized racial and ethnic groups in STEM disciplines

“A similarly bleak picture emerges when reviewing the National Science Foundation’s publication, *Women and Minorities in Science and Engineering: an update*, January 1992. According to this report, there were only **5 Black, 1 Native American and 21 Hispanic recipients of Ph.D.’s** in the Earth, Atmospheric and Ocean sciences in 1990...”

1990



2020

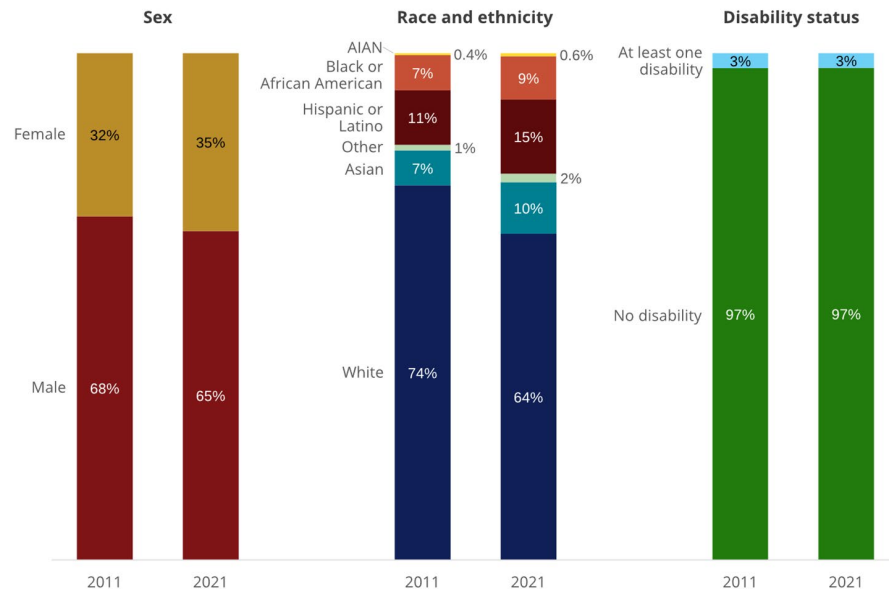


NCSEC | NSF 23-315 Fig. 2-3 Characteristics of the STEM workforce ages 18–74: 2011 and 2021
Source(s): Census Bureau, Current Population Survey, Annual Social and Economic Supplement.

The U.S. Need for Innovation and the Global Economy

In the April 2018 article published in Nature Geoscience, authors Rachel E. Bernard and Emily H.G. Cooperdock implore the Earth System Science community “... As a geoscience community, we cannot afford to miss out on the extraordinary talent that exists within currently underrepresented minority groups. We will **limit the science we do if we do not become more inclusive**. We need to do better.”

*Bernard, Rachel & Cooperdock, Emily. (2018). No progress on diversity in 40 years. Nature Geoscience. 11. 10. 1038/s41561-018-0116-6.



NCSEC | NSF 23-315 Figure 6-2 Race and ethnicity of the college-educated workforce, by occupation: 2021
Source(s): National Center for Science and Engineering Statistics, National Survey of College Graduates, 2021.

Students Feedback Critical

Students were interviewed asking what would make the program more attractive, and promote students going into the STEM workforce. Their answers summarized in four themes below, became the framework of NSF SOARS.

- Authentic research opportunities with scientists
- Multiple summers to build upon said research, and/or other research
- Competitive wages
- Tuition-assistance for graduate school



NSF SOARS: Today

Today, the core pillars that created NSF SOARS still exist. NSF SOARS has maintained the three pillars that places students first: research, mentoring, and community.



1996 Inaugural NSF SOARS Cohort



2024 NSF SOARS Cohort

Metrics Over the 28 Years

267
Protégés
Completed
NSF SOARS

255
Bachelor's
Degrees
Completed

135
Master's
Degrees
Completed

88
Enrolled in
Bachelor's,
Master's, and
Doctoral
Programs

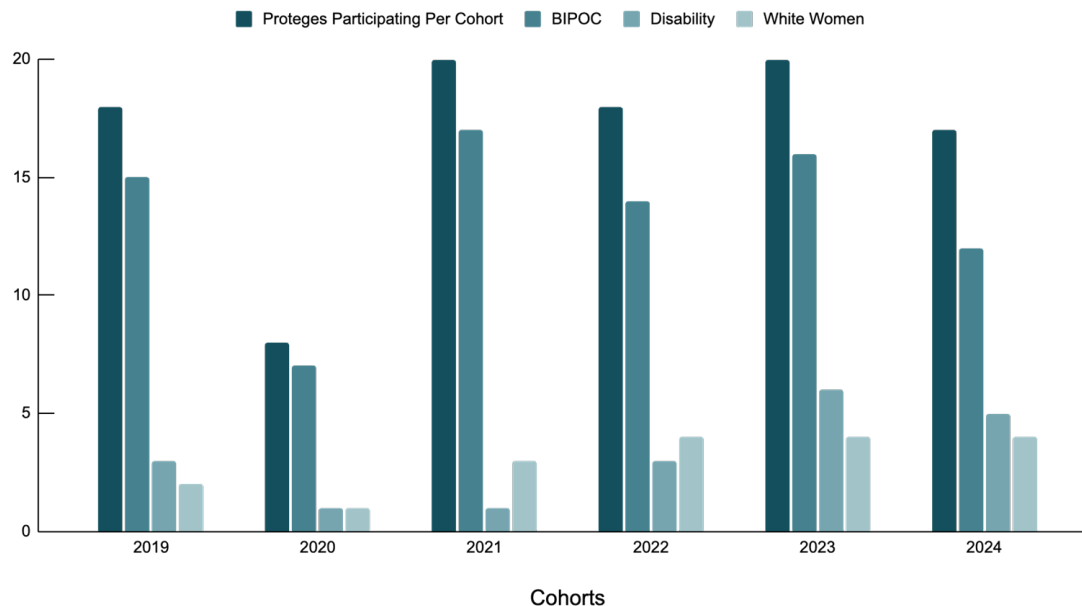
54
Doctoral
Degrees
Completed

53
Enrolled in
PhD Programs

NSF SOARS: Today

Presently, NSF SOARS remains an undergraduate-to-graduate bridge and careers pathways program, designed to broaden participation of marginalized communities in the atmospheric and related sciences.

NSF SOARS Demographics from 2019-2024



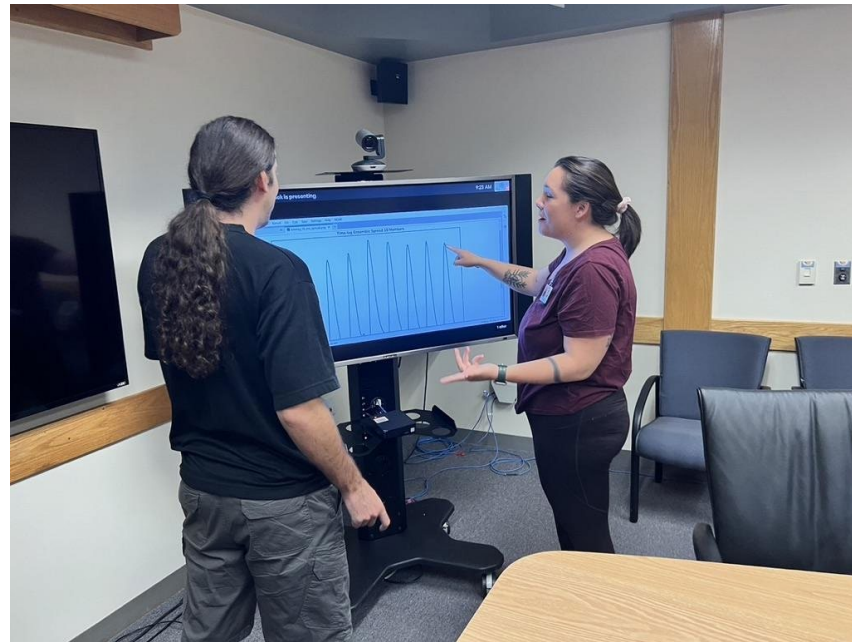
NSF SOARS: Mentoring

NSF SOARS is best known for its comprehensive, multidimensional mentoring model, a key contributor to the continued success of its Protégés.

- NSF SOARS received the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring in 2001
- NSF SOARS received the 2019 Diversity & Inclusion Program of the Year award by the US 2020 Makers + Mentors organization.

“SOARS is amazing because of how much support each protege is given! I think that having writing, peer, and community mentors in addition to research mentors is really great.”

2024 NSF SOARS Protégé

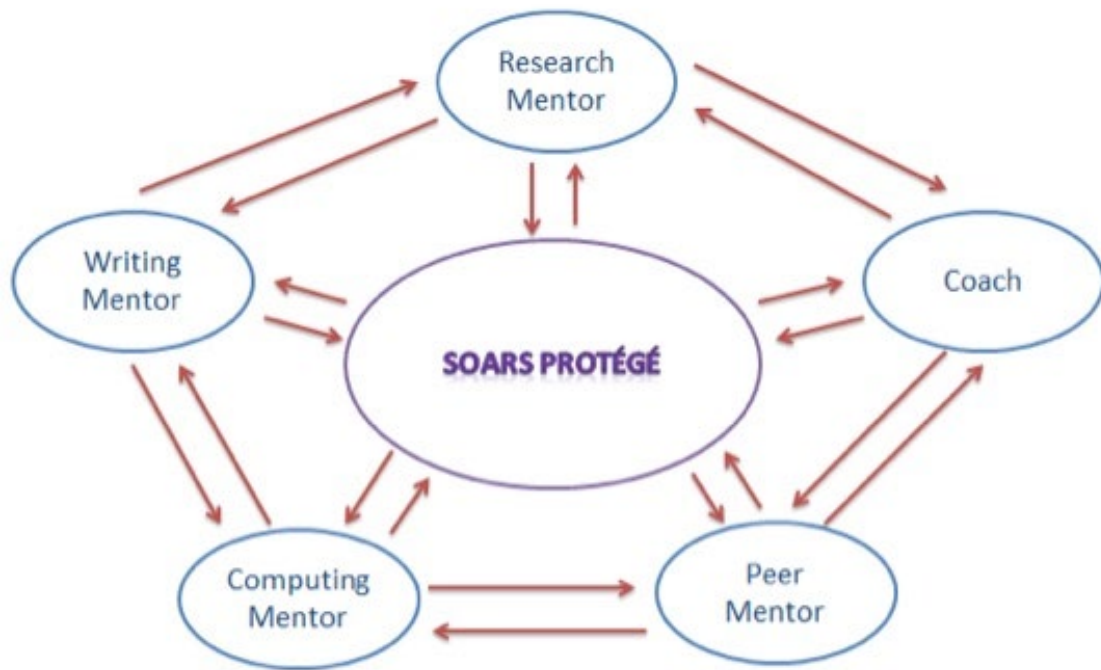


Mentors are the heart ❤️ of NSF
SOARS!

They provide:

- Scientific, communication and computing guidance
- Confidence building
- Introductions and networking
- Ethics and professional behavior role-modeling
- Collaborations
- Insight into life as a scientist
- Career guidance
- A sense of belonging

The SOARS mentoring model



Adapted from Thomas L. Windham, Amy J. Stevermer, and Richard A. Anthes, 2004: NSF SOARS®: An Overview of the Program and Its First 8 Years. Bull. Amer. Meteor. Soc., 85, 42–47

NSF SOARS: Community

- NSF SOARS team support mentors year round to provide resources and tools
- Strive to create a holistic inclusive community for all students to cultivate a sense of belonging.
- Multiple group activities and events

“The community is unmatched, I have never felt so seen and supported before. Research is very intimidating and stressful, but my fellow protégés made it very approachable and I felt like I had people to rely on and wasn’t competing against them. I felt like a valuable part of my research team and like my opinion and work really mattered.” 2024 NSF SOARS Protégé



Thank You!

Applications
are now open!



ELIGIBILITY REQUIREMENTS:

- Must be enrolled in a degree-granting institution
- Must not have received a Bachelor's degree
- Must be a U.S. Citizen or Permanent Resident

Deadline:
January 21, 2025



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