



National Aeronautics and  
Space Administration



## NASA ADVISORY COUNCIL STEM ENGAGEMENT COMMITTEE



**INSPIRE - ENGAGE - EDUCATE - EMPLOY**  
The Next Generation of Explorers



# NASA's STEM ENGAGEMENT ENTERPRISE

## Vision

We immerse students in NASA's work, enhance STEM literacy, and inspire the next generation to explore.

## Mission

We engage students in NASA's mission

### FOCUS AREAS



Create **unique opportunities** for students to contribute to NASA's work in exploration and discovery.



Build a **diverse future STEM workforce** by engaging students in authentic learning **experiences** with NASA's people, content and facilities.



**Attract students to STEM** through learning opportunities that **spark interest** and **provide connections** to NASA's mission and work.





# National STEM Updates

OSTEM Updates

STEM Strategic Outlook

Program Update

State of MUREP

Performance and Evaluation

SMD SciAct National Academy Review



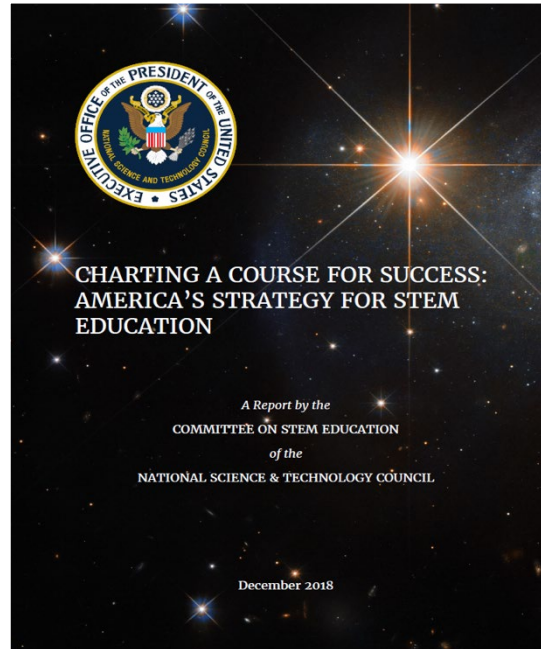
# STEM ENGAGEMENT 5-YR STRATEGIC PLAN

## VISION:

- A future where all Americans will have lifelong access to high-quality STEM education.
- The United States will be the global leader in STEM literacy, innovation and employment.

## ASPIRATIONAL GOALS:

- Build Strong Foundations for STEM Literacy
- Increase Diversity, Equity, and Inclusion in STEM
- Prepare the STEM Workforce for the Future



<http://www.whitehouse.gov/wp-content/uploads/2018/12/STEM-Education-Strategic-Plan-2018.pdf>



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# FEDERAL STEM EDUCATION 5-YEAR STRATEGIC PLAN

## Committee on STEM Education (CoSTEM)

- Co-chaired by NASA & NSF
  - Jim Bridenstine & France Cordova
- Coordinates STEM activities and programs
- Monitors overlap in federal STEM programs across agencies
- Develops strategic plan every five years

## Federal Coordination in STEM Education (FC-STEM)

- Co-chaired by NASA & NSF
  - Mike Kincaid & Karen Marrongelle
- Develops and coordinates five-year plan
- Communicates priorities across agencies
- Develops implementation structure

### FC-STEM MEMBERS:



### STEM EDUCATION ADVISORY PANEL:

Advises and evaluates CoSTEM's progress in meeting its goals. Established in 2018 by NASA, NSF, NOAA and the Dept. of Education with 18 panel members selected in 2018.



# FC-STEM UPDATE

- FC-STEM support during COVID-19 outbreak
  - Ad-hoc COVID-19 internships working group
- STEM Education Advisory Panel meeting on April 15
- 2020 CoSTEM Annual Progress Report planned release in June 2020

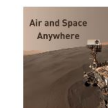
## At Home With Our Partners



U.S. Department of Transportation  
Inclusive Design Challenge



Space Foundation  
Discovery Center



Smithsonian National Air  
and Space Museum

## STEM EDUCATION ADVISORY PANEL

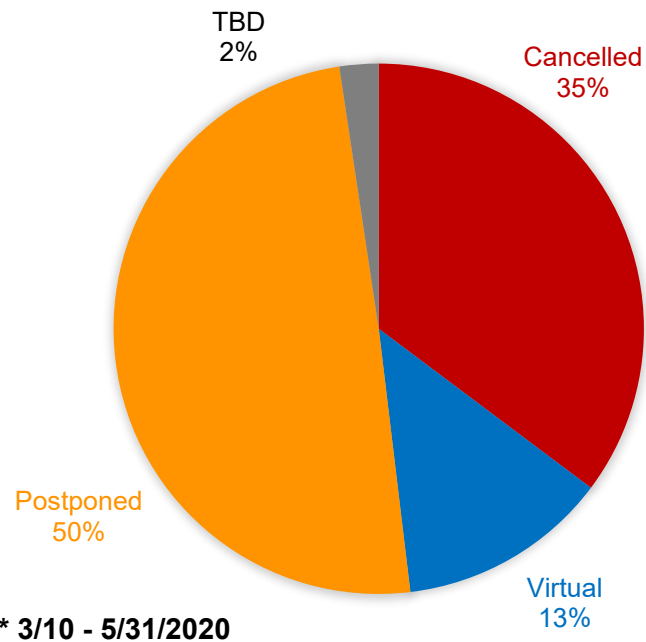


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# OSTEM COVID-19 IMPACTS – OVERARCHING

**Conducted extensive re-plan of 210 STEM Engagement activities and events between March 10 – May 31**



Type	Description	Number
National Project Competitions	Culminating events or activities for OSTEM national level projects such as the Artemis Student Challenges	20
Externally-Sponsored	NASA participation in events and conferences conducted by external sponsors (e.g., FIRST Robotics, USA Science & Engineering Festival, science fairs, etc)	33
NASA Internship Activities	Professional development activities for Spring intern cohort	6
Offsite EPD	Events conducted by contractor and cooperative agreement staff	21
Center Visits	Regional and local events and activities for students and/or educators hosted at Centers	102
Collaborations & Meetings	Strategic and operational events with internal staff, federal colleagues, and external partners	8
Other	Miscellaneous other activities including site visits, road shows, presentations to educator and student groups	20
TOTAL		210



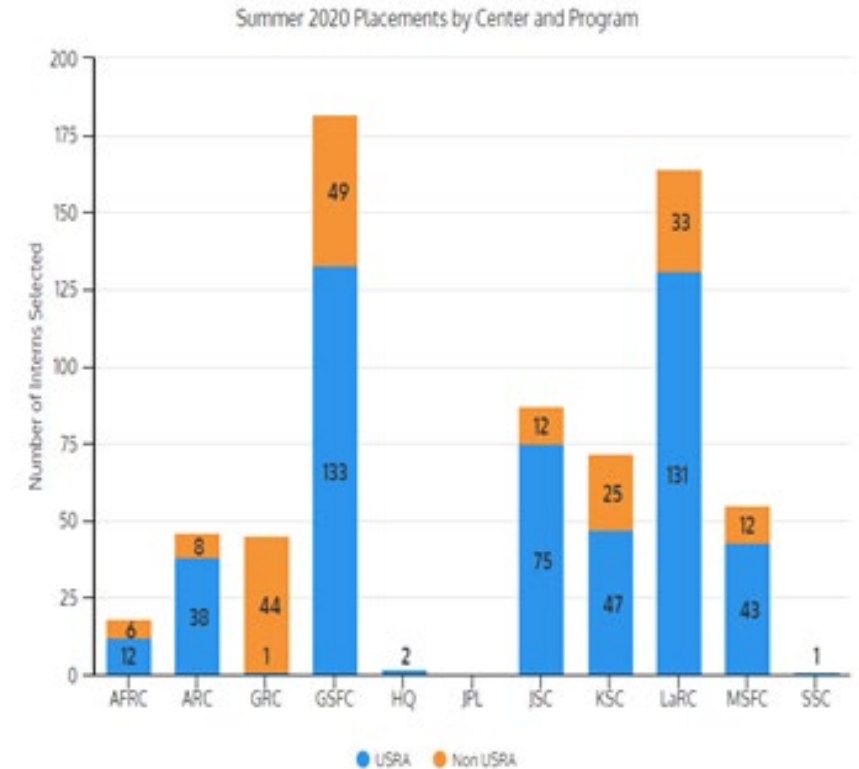
# OSTEM COVID-19 IMPACTS – INTERNSHIP PROGRAM

## ***Spring 2020 Internship Program***

- Transitioned 347 interns to virtual internships (out of 366).
- Hosting an ISS downlink event exclusively for NASA interns on April 28.
- Concluding spring program on May 8. Students can extend 6-8 weeks.

## ***Summer 2020 Internship Program***

- Finalized decision to move to virtual program 4/17.
  - Issued survey to 1500 NASA mentors 3/26 regarding feasibility. Over 600 internship projects transitioned to virtual to date.
- Our team is working extensively on logistics for onboarding/offboarding interns, thanks to excellent coordination with OCHCO, OCIO and OPS.
- Developing implementation plans, with Center STEM Engagement Directors working closely with their leadership on center-unique needs.
- Developing budget/cost impacts associated with onboarding and offboarding.





# OSTEM COVID-19 IMPACTS – FELLOWSHIP PROGRAM

## ***OSTEM Fellowship Program***

- Delayed schedule for 2020 cohort selection process, with anticipated on-time selection.
- Made decision to NOT hold on-site Center Based Research Experiences (CBREs) in Summer 2020.
  - Queried NASA Technical Advisers and Principal Investigators. 75% of NASA Technical Advisers indicated willingness to accommodate a virtual summer CBRE
- Coordinating virtual onboarding.
- Budget/cost impacts are being developed.

## ***OSTEM International Fellowship Program***

- Due to COVID-19 concerns and mandatory shelter-in-place orders, 11 students (10 at ARC & 1 at GSFC) returned home 4-6 weeks early.
- 35 international students selected for NASA projects for Summer 2020 will not be able to participate due to State Department halts on student visas and NASA security concerns regarding foreign nationals for virtual internships.
- Assessing budget impacts due to lack of reimbursable funding provided from international entities.

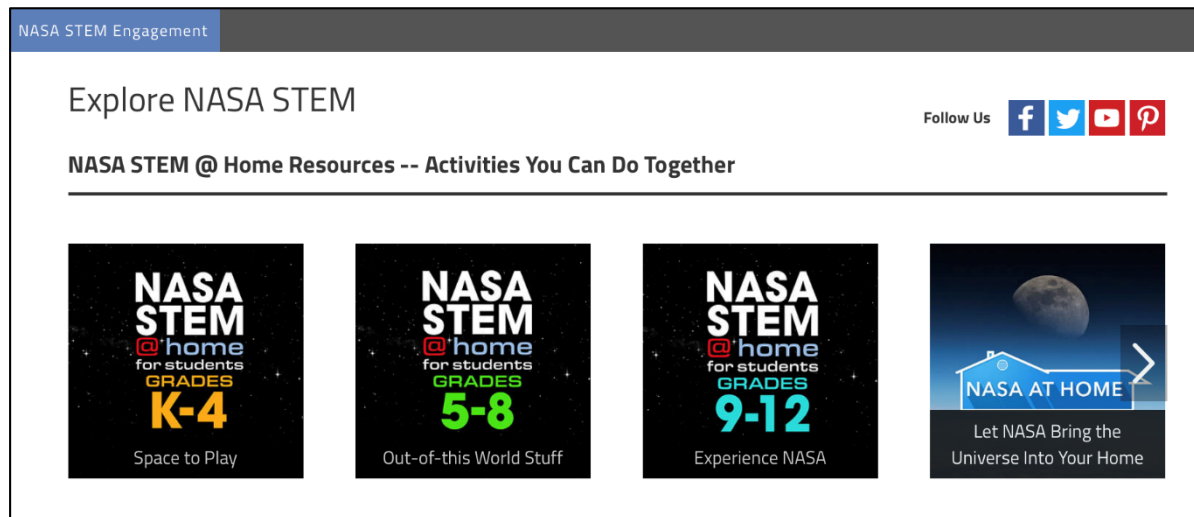


# OSTEM COVID-19 IMPACTS – OTHER PROGRAM IMPACTS AT A GLANCE

**Created new initiatives and activities to meet student needs and to fill gaps created by cancellation/postponement of planned activities.**



- NASA STEM @ Home, created in March, provides students and families hands-on educational activities that can be done with items found around the house.
  - K-4 activities range from a Moon habitat and edible spacecraft, to science-themed puzzles, to rockets
  - Grades 5-8 and 9-12 include more self-directed learning



## OSTEM Landing Page

Total Views: 338,060

## NASA Kids' Club

Total Views: 1,043,499

K-4 (Go Live Date 3/17)

Total Views: 475,098

5-8 (Go Live Date 3/27)

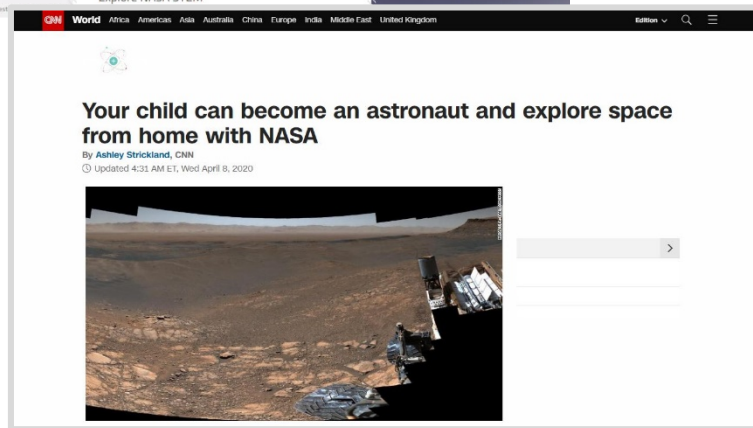
Total Views: 75,157

9-12 (Go Live Date 4/3)

Total Views: 9,083



# NASA STEM @ HOME FEATURED



**GMA Cover Story – March 18**



**Space and Science Feature – April 8**

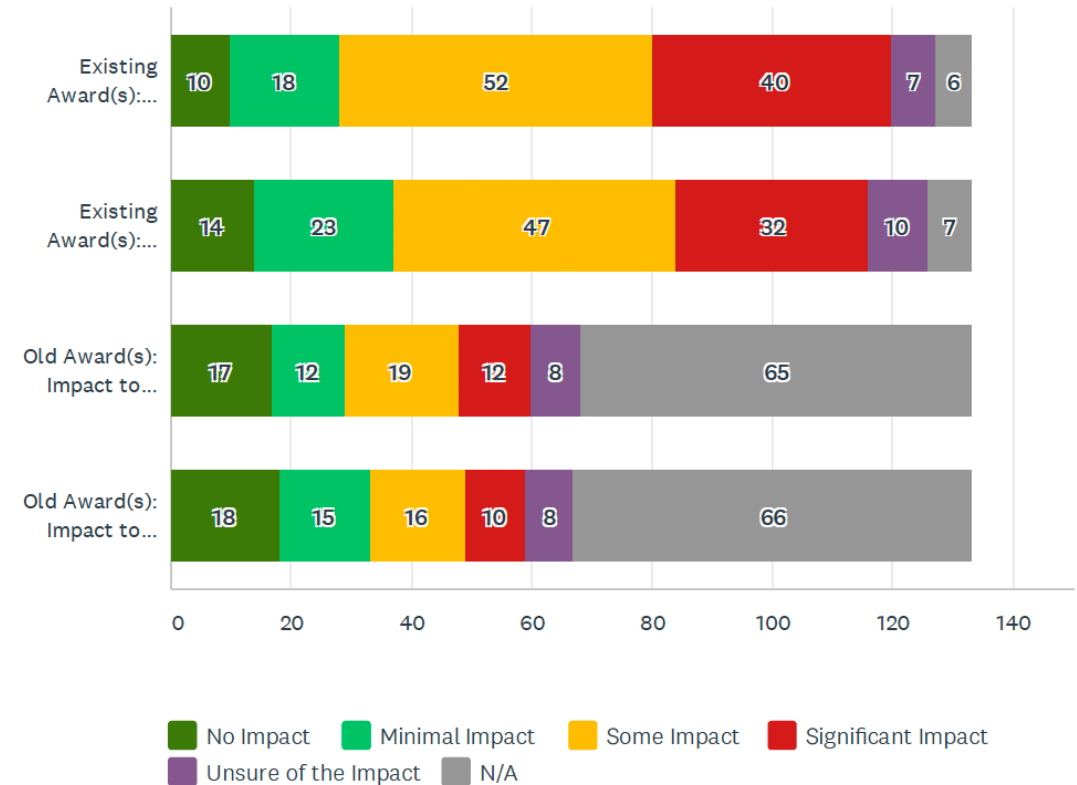


**Learning: A Special Report – April 23**

# OSTEM COVID-19 IMPACTS – OSTEM PROGRAM RISK ASSESSMENT

- Initiated overall risk analysis and assessment (March 22)
  - Issued survey of all OSTEM Principal Investigators (PIs) to begin identification of potential COVID-19 impacts
  - 133 responses provided early indicators regarding impacts by institutions
- Our project managers continue to work in close coordination with their PIs and institutions.
- Drafting subsequent guidance to PIs (for late April - early May) to identify specific programmatic and budget/cost impacts with longer-term horizon.

**PI RESPONSES REGARDING ANTICIPATED IMPACTS**  
(if normal operations resumed June 2020)





# YOUR INPUT

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**What else could NASA be doing?**

**What challenges do you see in the Coronavirus environment?**



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- Mike's Overview



# HUMAN LANDER ANNOUNCEMENT

[illegible]

# TEACHER APPRECIATION WEEK

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# COMMERCIAL CREW DEMO-2

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[go.nasa.gov/CCPLaunchKit](https://go.nasa.gov/CCPLaunchKit)



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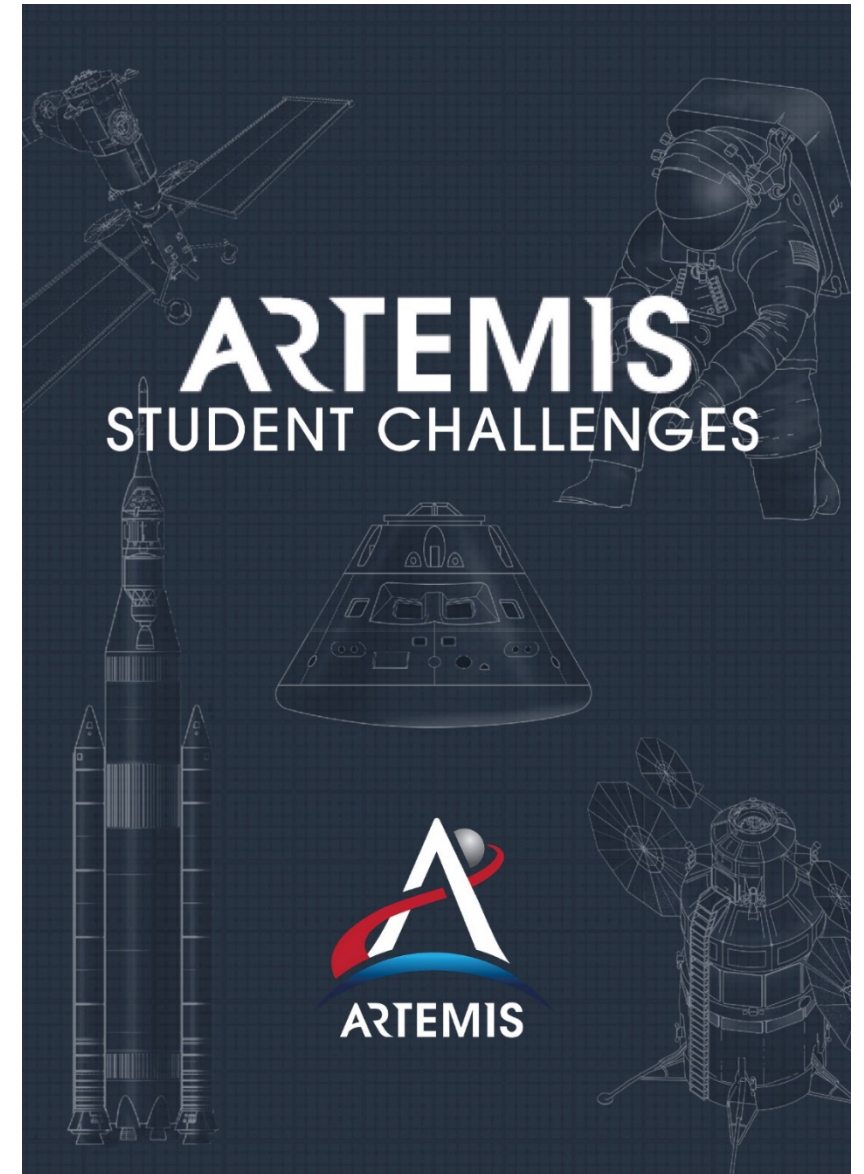


# MISSION DIRECTORATE MATCHING

OSTEM, in a cost-matching partnership with **HEOMD**, **STMD**, **SMD** and **NASA's Chief Economist** will award almost **\$2.4 million** to six National Space Grant and Fellowship Program Lead Institutions to advance the reach of current and future Artemis student challenges.

The solicitation was formulated to enable interested undergraduate students, **spanning the entire nation** to be inspired and prepared to participate in Artemis.

These awards will directly contribute to **NASA's mission**, the **Office of STEM Engagement's priorities**, and specifically, **Artemis**.

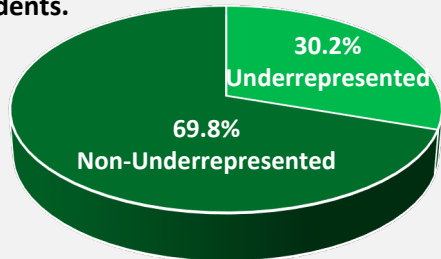


# FY18 NASA STEM ENGAGEMENT PERFORMANCE ASSESSMENT

## Internships, Fellowships and Other Higher Education (HE) Awards

8,005

In Fiscal Year 2018, NASA provided 8,005 internships, fellowships and other higher education (HE) awards to 7,357 higher education students across all institutional categories and levels. These significant awards provided a total of over **\$32M** in direct financial support to higher education students.



**30.2%** of higher education awards were made to racially or ethnically underrepresented student participants, compared to 24.5% for the national average of STEM degree enrollees.

Additionally, **39.5%** of the Agency's higher education internships and fellowship positions were filled by women.

## Research and Development



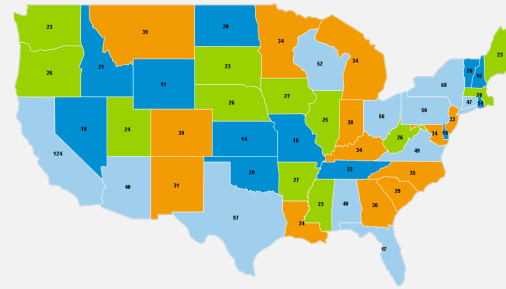
NASA's performance in providing opportunities for learners to contribute to NASA's aeronautics, space, and science missions and work technical paper is assessed across peer-reviewed publications and presentations directly resulting from research funded by NASA STEM Engagement grants and awards to higher education institutions.

1,374

Space Grant, MUREP, and EPSCoR grantee and awardee institutions reporting 1,374 peer-reviewed publications and technical papers and presentations in FY 2018.

## Collaborators

1,695



NASA's Office of STEM Engagement collaborators are funded and unfunded and located in all 50 states, DC, GU, PR, and VI. Collaborators include: government agencies, industry, formal and informal education institutions including museums, science centers, planetariums, and youth-serving organizations, non-profit, and other education organizations. Collaborators extend the reach of NASA STEM engagement opportunities by supporting the execution of an opportunity. In FY 2018 OSTEM collaborated with 1,695 institutions and organizations.

## Leveraging Partnerships and Network to Broaden the Reach of NASA STEM Engagement Investments

50+

states & territories

Competitive Grants and Cooperative Agreements Awarded to **95** Education Institutions located in all **50** States, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands.

## Engaging Students in NASA Missions

827,257\* Students participated in NASA STEM engagement activities

## Training STEM Educators to Engage the Next Generation of STEM Researcher and Explorers

182,601\* Educators participated in NASA STEM engagement training activities



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stem.nasa.gov

## NASA STEM ENGAGEMENT PROGRAM SNAPSHOT

### EPSCoR (\$21M)

The Established Program to Stimulate Competitive Research, or EPSCoR, establishes partnerships with government, higher education and industry designed to effect lasting improvements in a state or region's research infrastructure, research and development (R&D) capacity and, hence, bolster its national R&D competitiveness. EPSCoR is directed at jurisdictions that have not, in the past, participated equitably in aerospace-related research activities. The goal of EPSCoR is to provide seed funding that will enable jurisdictions to develop an academic research enterprise directed toward long-term, self-sustaining and nationally-competitive capabilities in aerospace and related research. For more information, visit [nasa.gov/epscor](http://nasa.gov/epscor)



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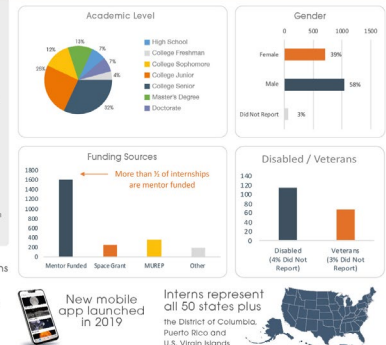
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## INTERNSHIPS

NASA internships offer unique experiences for high school, undergraduate and graduate students, as well as educators. Interns are assigned to projects that emphasize degree-related tasks and contribute to the advancement of NASA's missions.

Internships are offered during three sessions throughout the year. Summer internships are 10 weeks in length, and fall and spring internships are 16 weeks. NASA's Office of STEM Engagement interns are funded through a stipend that is competitive with industry standards for internships. Additionally, volunteer internships can be found on [intern.nasa.gov](http://intern.nasa.gov). Internship offers are typically extended three months prior to the session start date. However, mentors can select and extend an offer as early as two sessions prior to the start date.

2,031 total interns  
1,811 single session  
220 multi-session

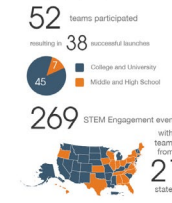


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\* Data captured during CY2019.

## Student Launch

On April 6, 2019, NASA held Student Launch, a research-based experiential exploration activity that challenges teams comprised of middle, high school, college and university students across the nation to design, build and launch payloads, or vehicle components, that support NASA's Space Launch System. Fifty-two teams participated in the project, with 38 teams ultimately launching their rockets. As part of the challenge requirements, participating teams conducted 269 STEM Engagement events reaching 50,133 participants.



## STEM Student Challenges

### NextGen STEM (\$12M)

The NextGen STEM project invests in a diverse set of efforts and student learning opportunities, including those serving students in K-12. NextGen STEM provides a platform to attract and engage students, as well as enable them to contribute to NASA's endeavors in exploration and discovery. NextGen STEM's mission-driven activities include more than 20 evidence-based products and opportunities in authentic STEM experiences. These opportunities enhance STEM literacy and help build a vibrant and diverse next-generation STEM workforce.

NextGen STEM offers competitive opportunities to museums, science centers, planetariums, NASA Visitor Centers, youth-serving organizations, libraries, and other eligible nonprofit institutions through NASA Teams Engaging Affiliated Museums and Informal Institutions (TEAM II).

In addition, NextGen STEM operates NASA's Museum Alliance, bringing current NASA science and technology to students through professional development of informal education providers and access to NASA staff and materials. The Museum Alliance enables NASA to broadly disseminate valuable learning opportunities to students all over the globe. For more information, visit [nasa.gov/nextgenstem](http://nasa.gov/nextgenstem).

### 10 astronauts provided in-flight educational opportunities for students



NASA Teams Engaging Affiliated Museums and Informal Institutions (TEAM II)

65+ organizations across 34 states, plus the District of Columbia

NASA's Museum Alliance  
1,270 organizations across 39 countries, including the U.S.

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## STEM on Station

STEM on Station uses the International Space Station (ISS), its crew and onboard research to advance NASA and the nation's STEM education and workforce pipeline. Using NASA-unique resources and opportunities such as live conversations with astronauts in space, hands-on STEM activities developed through high-profile partnerships and videos filmed by astronauts in space showcasing STEM concepts, STEM on Station inspires, engages and educates students and teachers.

The STEM on Station video library has over 235,000 views

Presented at the STEM Leadership Alliance Summit in Orlando, Florida to 200+ influential STEM leaders

Shared the Google Expeditions ISS tour and information about STEM on Station with 10,000 visitors to the National Mall during the Apollo 11 50th Anniversary Festival



STEM on Station Partners with Microsoft to Release New Lesson Series  
At the International Society for Technology Education's 2019 National Conference on June 24, the educational partners unveiled eight hands-on lesson plans to engage middle and high school students.

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# LOOKING AHEAD: STRATEGY FOR STEM ENGAGEMENT 2021-2023

## Approach:

Convened a small team to examine the strategy and propose necessary modifications/augmentations

### Team Representation:

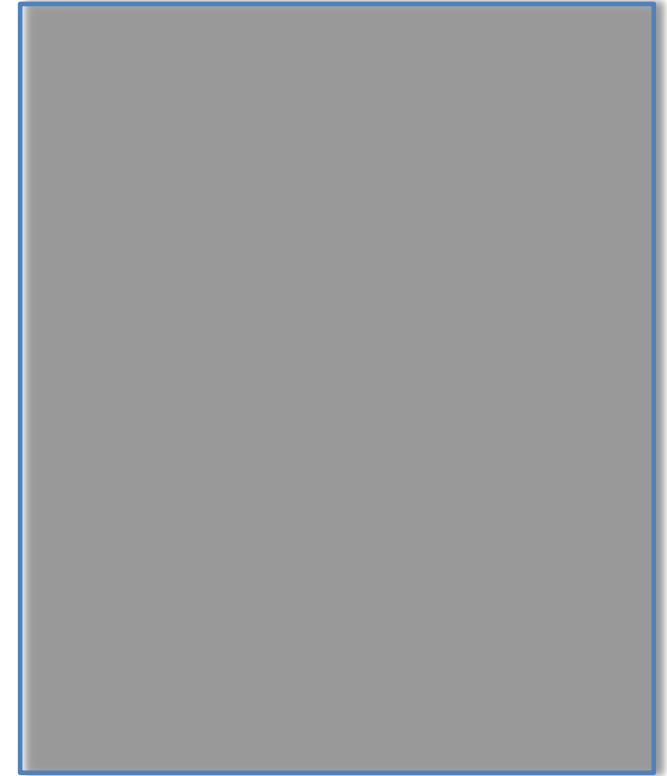
- Lead – STEM Engagement Deputy AA, Strategy and Integration

- 1-2 Mission Directorate Representatives

- 2 STEM Engagement Directors

- Representatives from: Performance Assessment and Evaluation, Tools and Platforms, ODEO, and other SEC representatives

**Target Completion Date: March 18, 2020**



- 
- Kris' additions to updated strategy slide



# FY20 #NASASTEM PRIORITIES

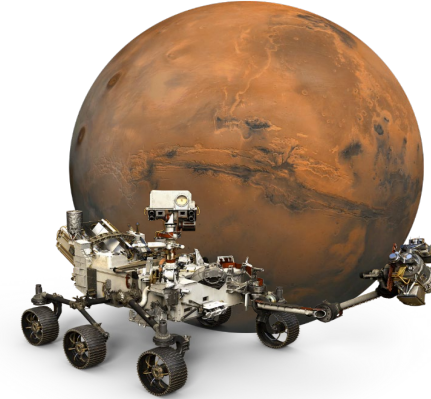
Engage students in challenges and competitions to address mission questions as NASA prepares for the Artemis program



Develop a toolkit of resources and content that includes **engineering challenges, coding, digital badging, virtual reality** and more!



**ISS is in the classroom!** Using STEM on Station content, let students engage in ISS research to deliver the excitement of science and technology to students.



**Immersive virtual experiences,** lessons and activities in advance of the launch and landing of Mars 2020 rover.

Lessons and activities that use the vantage point of space to **understand and explore our home planet** for the 50<sup>th</sup> Anniversary of Earth Day.



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# NASA's SPACE GRANT: 30 YEARS OF IMPACT

FEBRUARY 25 – 28, 2020

Space Grant members and students met with their Congressional delegations to showcase their work and demonstrated cutting edge research being conducted in areas such as Aeronautics, Engineering, Life Sciences, and Satellite Technology to advance NASA's missions.

**Feb. 25:** Exhibition and Reception held for Members of Congress and Congressional staff in the Rayburn Building Feb. 25 with remarks from Jim Bridenstine

**Feb. 26:** Fireside Chat with OSTEM AA, Mike Kincaid, Administrator Bridenstine and Associate Administrator for STMD Jim Reuter – Q/A on Artemis and agency direction

**Feb. 27 – 28:** Annual National Space Grant Directors' Meeting for members shared ideas, best practices and program updates.

- Astronaut Zena Cardman, a North Carolina Space Grant Alumna, spoke with attendees, to share how instrumental Space Grant was in shaping her career path.



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## Chad's charts





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# NASA MINORITY UNIVERSITY RESEARCH AND EDUCATION PROJECT (MUREP)

TORRY JOHNSON, MUREP MANAGER  
NASA HEADQUARTERS, WASHINGTON DC



# MUREP's PURPOSE



## AGENCY RESPONSE TO FEDERAL EXECUTIVE ORDERS FOR MINORITY SERVING INSTITUTIONS (MSIs)

MUREP is established to **increase NASA's responsiveness to federal mandates** related to MSIs and underrepresented and underserved communities, including women, girls, persons with disabilities and veterans.

- ☐ **EO 13779:** Historically Black Colleges and Universities (HBCUs)
- ☐ **EO 13592:** Tribal Colleges and Universities (TCUs)
- ☐ **EO 13555:** Hispanic Serving Institutions (HSIs)
- ☐ **EO 13515:** Asian American and Native American Pacific Islander – Serving Institutions (AANAPISIs)
- ☐ **EO 13621:** Predominantly Black Institutions (PBIs)

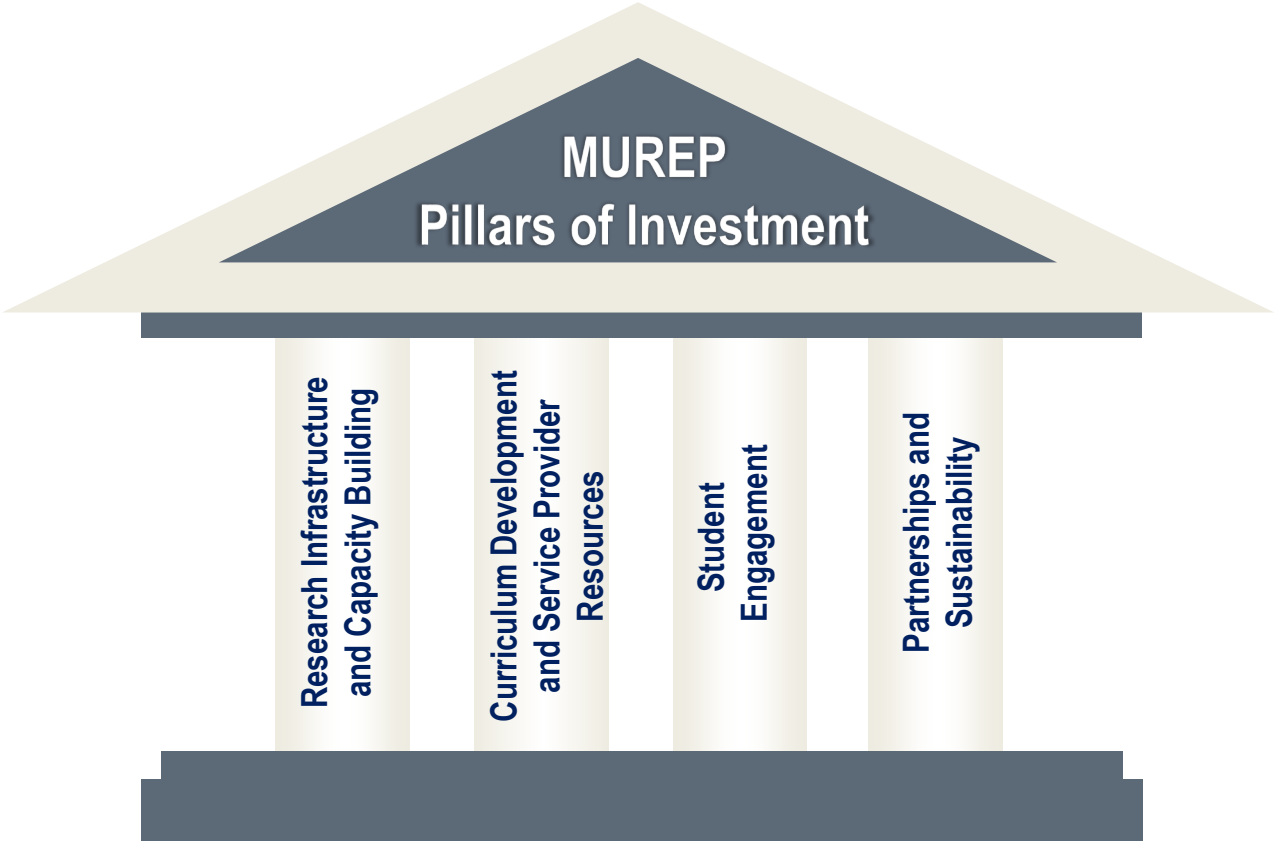




To enhance the **research, academic and technological capabilities** at **MSIs** by providing **authentic student learning** experiences **related to NASA missions** that contribute to a **Diverse Future STEM Workforce**.

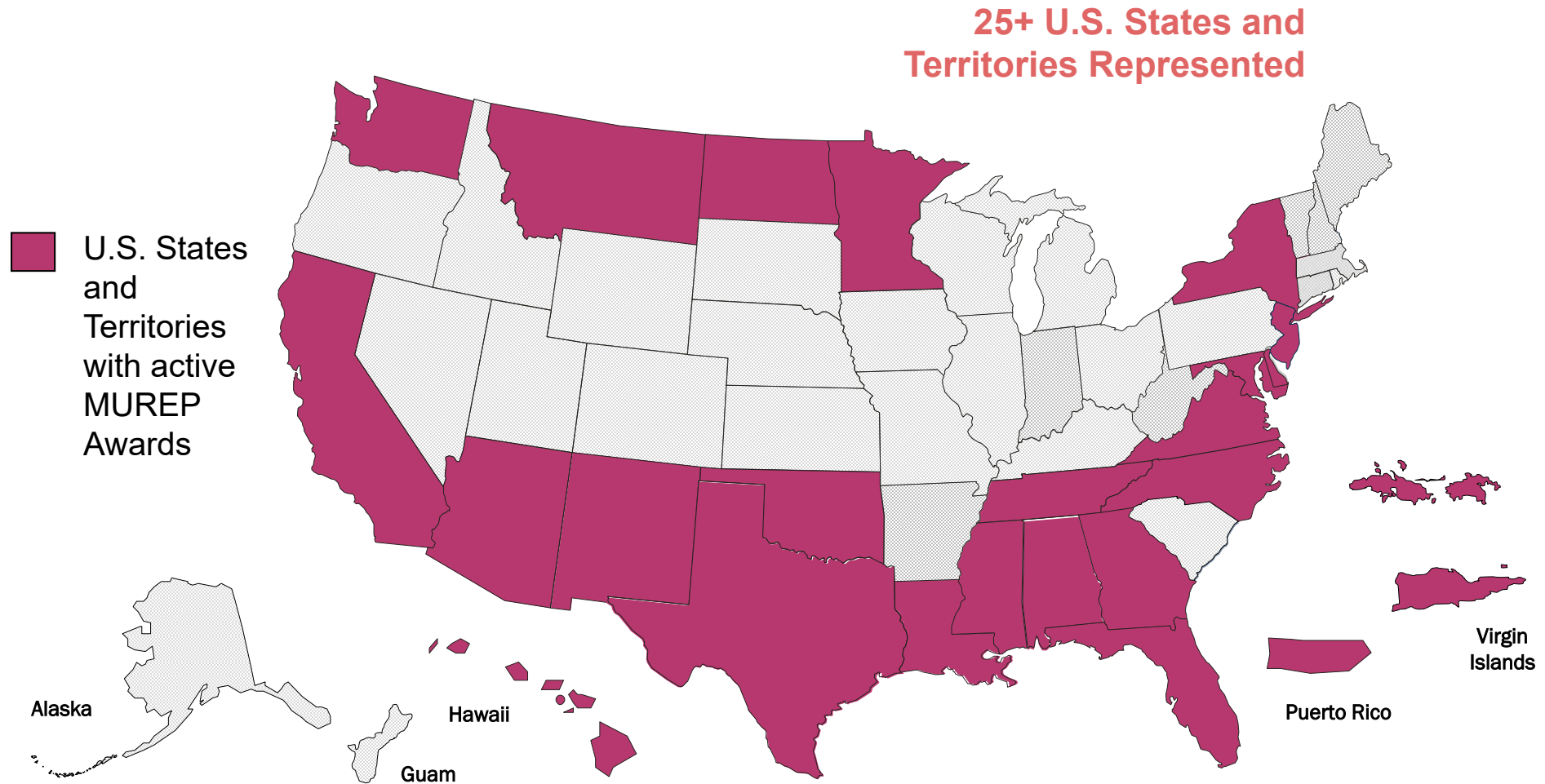


# FY 2020 - FY2021 SHIFTING PORTFOLIO





# FY 2019 - FY2020 MAP OF INVESTMENTS





# 2019 AWARDEES AT A GLANCE

## MUREP INSTITUTIONAL RESEARCH OPPORTUNITY (MIRO)

- Expands Aerospace R&D
- Promotes MSI Research Capacity
- Strengthens Skills in NASA Priority Areas



### NASA Partners with Langston University to Study Effects of Microgravity in Space

NASA Administrator helps student conduct an experiment that is studying the effects of microgravity on the immune system. This experiment destined for study aboard the International Space Station will evaluate natural countermeasures to the dysregulated immune system during spaceflight.





# 2019 AWARDEES AT A GLANCE

## MUREP AEROSPACE HIGH VOLUME MANUFACTURING & SUPPLY CHAIN COOPERATIVE



- Supports NASA's Aeronautics Mission Directorate (ARMD) framework needs by introducing new high volume, aerospace manufacturing networks.
- Aligned with NASA and Industry high-volume manufacturing and supply chain ecosystem needs for national competitiveness.
- Advances the development of **entrepreneurship** and **commercialization** by guiding students to become leaders and entrepreneurs.







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## The Next Generation of Explorers



# HBCUs and the MUREP Portfolio





# Activity Overview

National Aeronautics and  
Space Administration



## CIAA Conference Support



President/Chancellor Meetings  
Middle School Day  
High School Day  
Career Fair  
Exhibit Booth



## White House Initiative for HBCUs



Interagency Working Group  
Student Engagement  
Strategic Planning  
Training Workshops/Sessions  
Networking



## Aeronautics Research Directorate



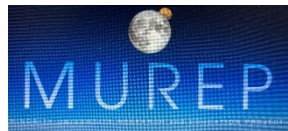
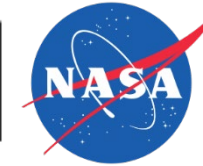
Two MUREP Awardees – High Volume  
Tuskegee/Virginia State  
Additional Funding Opportunities  
New Lead HBCU – North Carolina A&T  
New Embed Connection





# Activity Overview

National Aeronautics and  
Space Administration



## MSI Capability Gateway



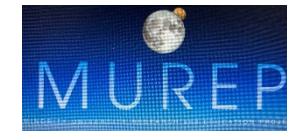
Externally Available  
Database of MSIs  
Listing of Research Capabilities  
Searchable by HBCU



## HBCU/MSI Road Tour



Agency 1% Contracting Goal for MSIs  
Training Workshops  
Networking  
Matchmaking



## Minority University Research Opportunity



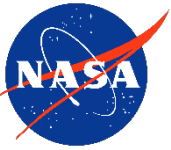
Largest MUREP Award  
\$1M Annually  
Seven HBCUs of 20 Awardees  
New Solicitation



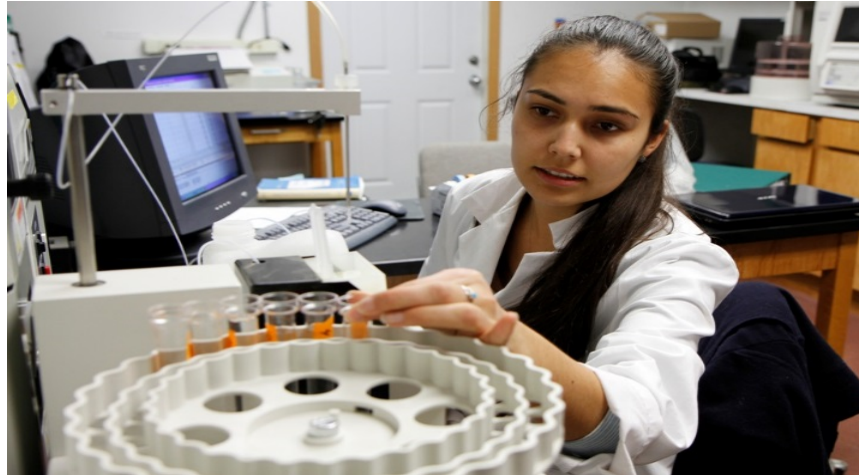




# MUREP FOR AMERICAN INDIAN & ALASKA NATIVE STEM ENGAGEMENT (MAIANSE)

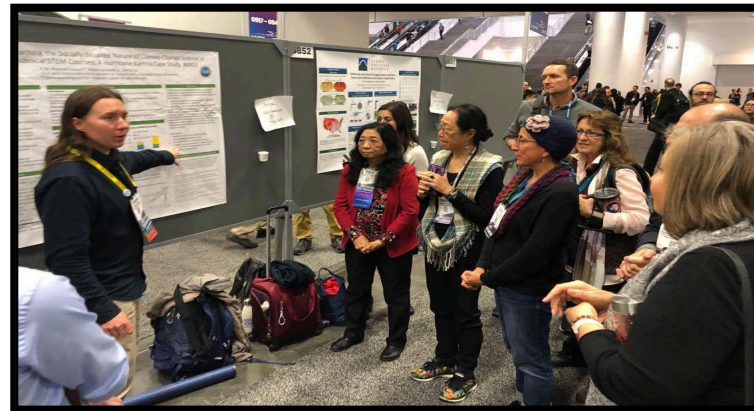


Designed to increase American Indian and Alaska Native engagement in STEM through authentic and unique NASA experiences.



The *Earth System Education for Climate Resiliency in the Salish Sea* project at Northwestern Indian College incorporates remote sensing and geospatial tools into interdisciplinary programs and course curricula to increase students' understanding of climate resiliency.

Navajo School Visits KSC | Feb 2020  
13 students from various Navajo tribes

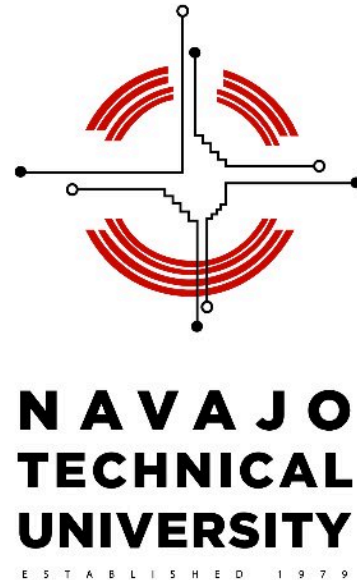


A poster session “walk-through” for the indigenous science co-convened at AGU

## FY 2019 MUREP ACTIVITY HIGHLIGHTS

*First Tribal Colleges to receive research awards as a part of MUREP for American Indian and Alaska Native STEM Engagement (MAIANSE) and MUREP Institutional Research Opportunity (MIRO) Pilot • Fall 2019*

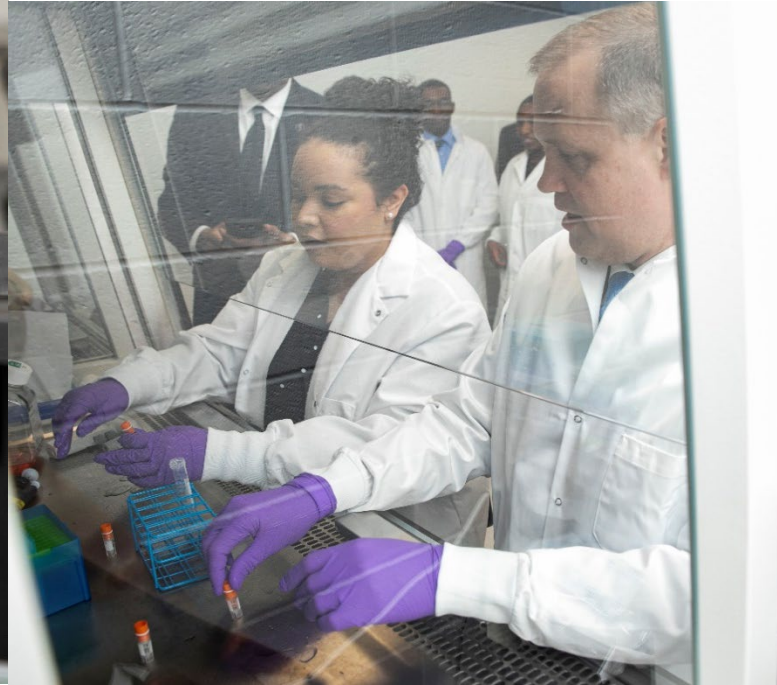
### SELECTED INSTITUTIONS:



**Facility for Innovative and Atmospheric Research and Education (FIARE) at Sitting Bull College** will advance air quality research, environmental technology and education on the Standing Rock Reservation.

**Navajo Technical University proposal for additive manufacturing and materials research and education for NASA application** will help NASA's Marshall Space Flight Center to develop advanced parts for use in the Space Launch System (SLS).









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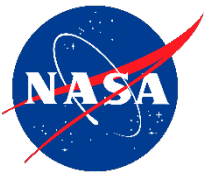


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# **NASA Advisory Council Mega-Expert Review Panel Feedback**

**May 12, 2020**

# Agenda

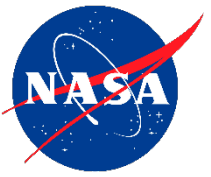


## Order of Events

1. Learning Agenda Progress Update
2. NASA 2020 NASA STEM Engagement Evaluation Plans
3. Overview of Mega-Expert Review Panel (Mega-ERP)
4. Mega-ERP Themes
5. Mega-ERP Panelist Feedback
6. Questions

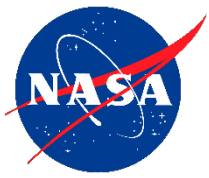


# Learning Agenda Progress Update



- In FY 2018, OSTEM developed a new OSTEM performance assessment and evaluation strategy and the OSTEM FY19-FY20 Learning Agenda
- In FY 2019, OSTEM operationalized the Learning Agenda and executed Year 1 targeted data collection and evaluation studies to create a portfolio of evidence aligned to the Learning Agenda
- In FY 2020, OSTEM is executing Year 2 targeted data collection and evaluation studies to create a portfolio of evidence aligned to the Learning Agenda and develop the next iteration of the OSTEM Learning Agenda

# NASA STEM Engagement Evaluation Plans



## FY 2020 MUREP Portfolio Evaluation

**Assess how and to what degree MUREP is achieving its goals and objectives.**

- Assess management and operations efficiency and effectiveness
- Identify challenges and promising practices
- Assess consistency with STEM Engagement goals and objectives
- Develop sustainability and partnerships

## FY 2020 NASA Internships Pilot Longitudinal Study

**Pilot methods to assess NASA Intern progression into the STEM workforce, NASA workforce, or STEM-focused post-graduate academic areas:**

- Leverage National Survey of College Graduates (NSCG) data
- Administer NSCG portion
- Add question to NSCG
- Leverage National Directory of New Hires data
- Investigate NASA Universal Uniform Personal Identification Code (UUPIC)
- Scrape social media

## FY 2020 Diversity Deep Dive

**Evaluate how NASA STEM Engagement investments have broadened participation of underserved and underrepresented groups in STEM fields.**

- Conduct literature review and Benchmark other agencies
- Convene Expert Review Panel
- Conduct focus groups
- Distribute surveys
- Develop recommendations

## FY 2020 National Space Grant Program Evaluation Solicitation

**Solicit independent program-level impact evaluation of multiple state consortiums in the Space Grant (SG) Program.**

- Assess alignment to NASA's STEM engagement priorities, goals, and federal law
- Examine program impact and degree SG achieves its intended outputs and outcomes on a national level

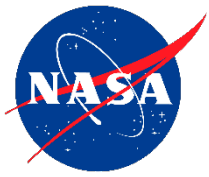
## FY 2020 – FY2021 Next Gen STEM Program Evaluation

**Responding to the FY19 Sparking STEM Interest Study recommendations.**

- Assessing the relevance of NGS products and opportunities to the unique needs and contextual factors of various beneficiaries
- Assessing models of transdisciplinary learning and authenticity
- Operationalizing NASA's roll in the broader STEM ecosystem
- Utilizing a novel, collaborative evaluation approach



# Mega-ERP Panel Members



## Dr. Kenneth Alonzo Anderson

Professor & Associate Dean, Howard University

## Dr. John Baek

Senior Education Evaluator, National Oceanic and Atmospheric Administration Office of Education

## ■ Dr. Sherilynn Black

Associate Vice Provost for Faculty Advancement, Duke University

## Dr. Heather Boyd

Research Development Program Director, University of Notre Dame

## ■ Dr. Angela Calabrese Barton

Professor, University of Michigan

## Dr. Matthew A. Cannady (Mac)

Research Group Director, UC Berkeley, Lawrence Hall of Science

## Dr. Julie Carruthers

Senior Science & Technology Advisor and Acting Director for the Office of Workforce Development for Teachers and Scientists, Department of Energy, Office of Science

## Dr. Mica Estrada

Associate Professor, University of California San Francisco

■ Virtual participation

## Dr. Sylvia James

EHR Deputy Assistant Director, National Science Foundation

## Dr. Carla C. Johnson

Senior Research Fellow and Professor, North Carolina State University

## Dr. Natalie King

Assistant Professor, Science Education, Georgia State University

## ■ Dr. Michael Lach

Assistant Superintendent, Township High School District 113

## Dr. Adam Maltese, Ph.D.

Associate Professor of Science Education, Indiana University

## Dr. Diann McCants, Ph.D.

Senior Scientist and Analyst, Strategic Analysis, Inc. / Department of Defense Contractor

## Dr. Sarah-Kathryn McDonald (Sarah-Kay), Ph.D.

Senior Advisor, Office of the Assistant Director, Directorate for Education and Human Resources, National Science Foundation

## Dr. Mwarumba Mwavita, Ph.D.

Associate Professor and Director of Center for Educational Research and Evaluation, Oklahoma State University

## Ms. Janet Sellars

Director, Diversity and Data/Analytics Division, Office of Diversity and Equal Opportunity

## Dr. Robert H. Tai, Ph.D.

Associate Professor, University of Virginia

## Dr. Aaron Thomas, Ph.D.

Associate Professor, University of Montana

## Dr. Darryl Williams, Ph.D.

SVP, Science and Education, The Franklin Institute

## Dr. Christopher Wright, Ph.D.

Assistant Professor, Drexel University

## Dr. Soohyun Yi, Ph.D.

Assistant Professor, Texas Tech University

## Dr. Jamaal Young, Ph.D.

Associate Professor, University of Iowa

## Ms. Erin White

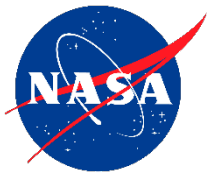
Senior Director, Product Development & Research, STEMconnector







# Themes



## Short Term

**Maximize Use of  
Participant Voice**

**Consider Alternative  
Comparisons**

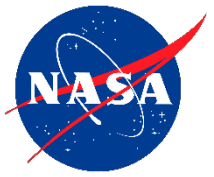
## Long Term

**Examine Full Trajectory**

**Explore Additional  
Context Questions**



# Themes



## Maximize Use of Participant Voice

- Include self-report data from participants / institutions
- Qualitative Data
  - Understand why
  - Different perspectives

## Examine Full Trajectory

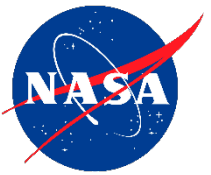
- Examine early-career NASA employees
  - Diversity, Biases, Preparedness
- Transition points along STEM pathways
- NASA's impact long-term: K-12 → Career

## Consider Alternative Comparisons

- Participants who decline
- Other agency internship programs
- Additional National data sets

## Explore Additional Context Questions

- Use a systems approach
  - Who? Under what circumstances?
  - Other variables related to “success”?
- Analysis of opportunities' impacts and outcomes



# **S T E M** INSPIRE - ENGAGE - EDUCATE - EMPLOY The Next Generation of Explorers

## Questions?

- SciAct Slides







# INSPIRE - ENGAGE - EDUCATE - EMPLOY

## The Next Generation of Explorers

