



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

# Perspectives on Indigenous and Underserved Community Engagement of EO Data Uptake AEOIP Spring Workshop

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# NASA STEM ENGAGEMENT

## 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

### Strategic Goals



Create **unique opportunities** for a diverse set of 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 **diverse groups of students to STEM** through learning opportunities that **spark interest** and **provide connections** to NASA's mission and work.

# BROADENING STUDENT PARTICIPATION PLAN



*Purpose: Provides an integrated set of efforts for broadening student participation to increase diversity, equity and inclusion in STEM through NASA opportunities and activities.*

## Overarching Goals:

1. Enhance communications and stakeholder engagement and build networks and relationships.
2. Strengthen practices and systems.
3. Focus on metrics and evaluation to effectively measure progress.
4. Drive a collective focus across NASA's STEM Engagement community.



# How we Engage Minority Serving Institutions



**RESEARCH  
INFRASTRUCTURE &  
CAPACITY BUILDING**

**CURRICULUM  
DEVELOPMENT & SERVICE  
PROVIDER RESOURCES**

**STUDENT  
ENGAGEMENT**

**PARTNERSHIPS  
& SUSTAINABILITY**

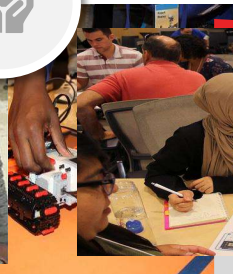
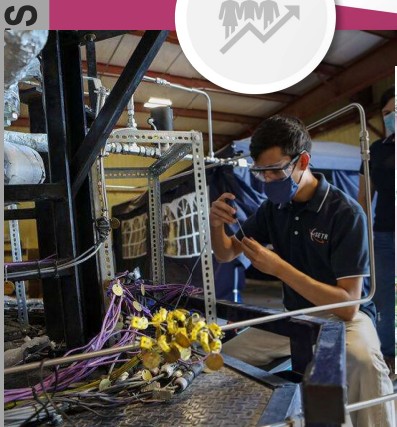
**TARGETED  
OUTCOMES**

**MISSION-CENTERED  
ALIGNMENT & APPROACH**

**ENHANCED STEM  
CAPABILITIES AT MSIs**

**BROADENING MSI  
PARTICIPATION**

**STUDENT SUCCESS**



**Mission Driven  
Research Efforts**

**Leveraging Virtual Tools  
& Technology**  
**Curriculum Development**  
**Indigenous Connections  
& Engagement**  
**Digital Badging**

**Pre-College STEM Learning  
Experiences**  
**Higher Education STEM  
Learning Experiences**  
**Challenges & Competitions**  
**Awareness Events**

**Internal & External  
Collaboration**



# MUREP for American Indian and Alaska Native STEM Engagement (MAIANSE)



## The MAIANSE Mission:

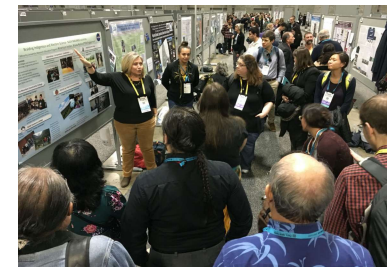
*To increase American Indian and Alaska Native engagement in science, technology, engineering, and mathematics (STEM) through authentic and unique NASA experiences.*

## How MAIANSE achieves this mission:

- Building Capacity
  - Through awards at Native American and Indigenous-serving higher education institutions
  - Current Solicitation: MAIANSE CONNECT
- Building Relationships and Partnerships
  - Internal to NASA and with external partners (federal agencies, non-profit organizations, and industry)
- Student Engagement
  - Through NASA internships and competitions

## Affinity Organizations & STEM Conferences

- AISES (formal partnership for FY22)
- AIHEC
- Rising Voices
- American Geophysical Union (AGU)
- Natives at NASA Employee Resource Group
- National Adaptation Forum



Poster walk at AGU 2019

## Support to Tribal Colleges & Universities



### NWIC Award Highlight:

College instructors Steven Weaver (left) and Stephanie Bostwick alongside training equipment used by students taking a solar photovoltaic course developed by Remote Energy and taught at Lake Washington Institute of Technology. (photo courtesy of Remote Energy)

To view the KCTS-9 video feature click [here](#).

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## Outcomes and Impacts of Earth Observation data use within MAIANSE



MAIANSE team with MIRO awardee from Sitting Bull College

**MIRO/ MAIANSE Integration:**  
Sitting Bull College has an award to build a CAPABLE site and investigating local air quality using remotely sensed imagery and ground-based data from Purple Air sensors

**Partnership with NASA SMD:**  
Science Activation funded Arctic and Earth SIGNS project focused on GLOBE data collection and incorporation of remotely sensed data



Arctic and Earth SIGNS TCU student participants in Alaska GLOBE workshop.

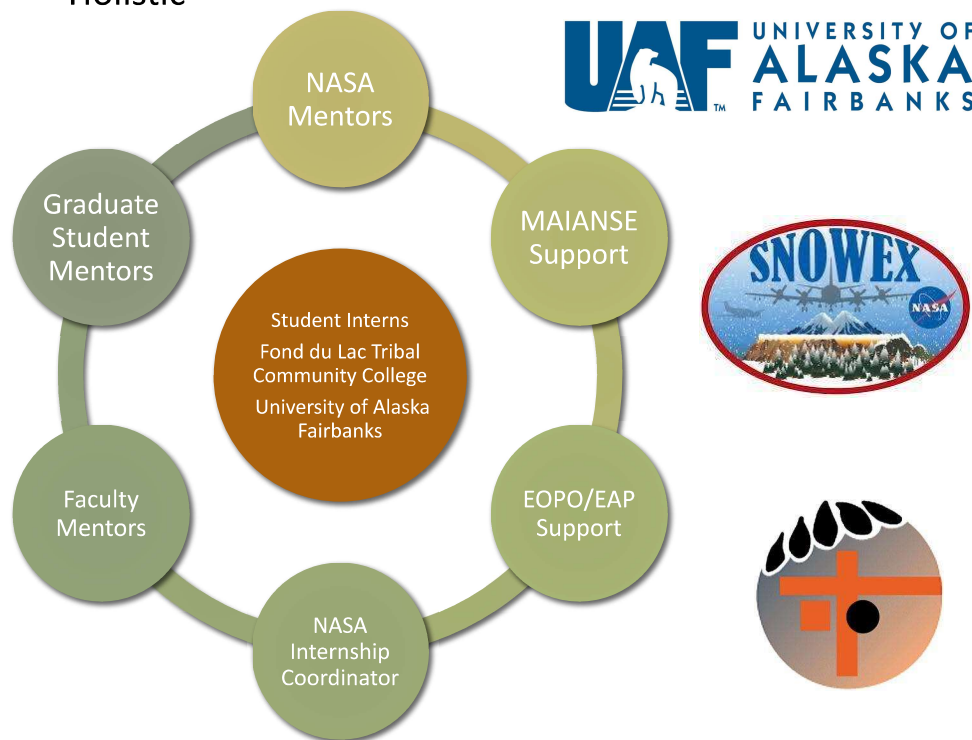


**MAIANSE award at NWIC:**  
focused on research of algal blooms using remotely sensed data

Left: Northwest Indian College student presenting at AGU 2021

### MAIANSE internship model

- Piloting model with SnowEx mission
- Scalable and sustainable
- Holistic





## NSYNC: NASA STEM for Youth and Native Communities

**Foundation:** *Building relationships and trust with Native communities to co-create ongoing educational programming is at the heart of all we do.*

**Philosophy:** We understand that Traditional Knowledge and Western science reflect, resonate with, and reinforce one another, and affirm each other as *equally valid, valuable, and vital.*

**How We Work:** Our *Culturally-Based, Dual-Learning* methodology prioritizes Indigenous knowledge—which is taught first in our programs, always and only by Indigenous educators and Elders, with Indigenous languages and pedagogies, in Indigenous places. Afterward, corresponding Western STEM concepts are conveyed by experts in those fields.

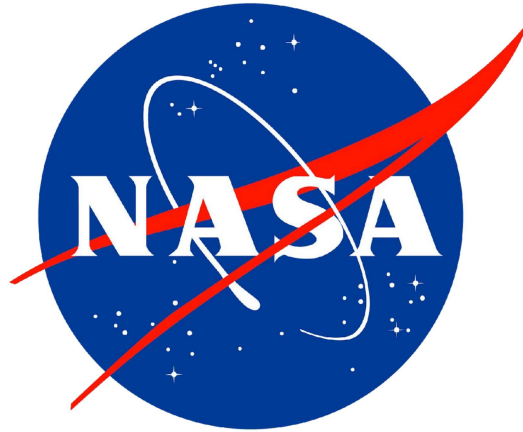
### Partnerships:

Navajo Nation via Dept. of Diné Education, Navajo Technical University (AZ/NM/UT)  
 Picuris Pueblo Tribal Dept. of Education (NM)  
 Umo<sup>o</sup>ho<sup>o</sup> Nation Public School (NE)  
 Wabanaki Youth in Science (ME)  
 Rosebud Sioux Tribal Dept. of Education (SD)  
 Xaadass Nation via Hydaburg Cooperative Association (AK)  
 Ojibways of Onigaming First Nation (ON)

### Emerging Relationships:

Cedarville Band of Piscataway Indians (MD)  
 Laguna Pueblo via University of New Mexico (NM)  
 Powhatan/Pamunkey communities (MD/VA/NJ/NY/PA)  
 Jicarilla Apache Nation (NM)





FOR ADDITIONAL INFORMATION AND UPDATES, VISIT THE MUREP WEBSITE:

[WWW.NASA.GOV/STEM/MUREP](http://WWW.NASA.GOV/STEM/MUREP)

FOR QUESTIONS OR FEEDBACK, CONTACT US:

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