National Aeronautics and Space Administration

2018 NASA STEM EPDC ANNUAL REPORT

A report of Educator Professional Development and Student STEM Engagement Activities carried out by the EPDC in 2018

NASA EPDC
STEM EDUCATOR PROFESSIONAL DEVELOPMENT COLLABORATIVE

2019 ANNUAL REPORT

Araceli Martinez Ortiz, Ph.D
NASA STEM EPDC, Principal Investigator and Executive Director

Leslie Huling Ed.D
NASA STEM EPDC, Program Director

MESSAGE FROM THE DIRECTORS

The NASA STEM Educator Professional Development Collaborative (EPDC) is proud to continue providing high-quality research-based STEM professional development opportunities for educators on behalf of NASA. We have adjusted our scope of work to align with the new NASA STEM Engagement organization and the Federal Government's five-year strategic vision and plan for STEM education. EPDC will now additionally support specific strategic STEM Engagement opportunities or students.

The LBJ Institute for STEM Education and Research at Texas State University and NASA STEM EPDC are fully committed to continuing our innovative educational research work to contribute to the field of STEM education teaching and learning.

National Aeronautics and Space Administration

NASA STEM EPDC drives STEM engagement by developing educators who will prepare a generation ready to code, calculate, design, and discover its way to a new era of American innovation.

2018 ANNUAL REPORT

NASA STEM EPDC

IMPACTING

EPDC impacts STEM instruction nationwide through engaging, standards-aligned professional development.

INNOVATING

EPDC enriches educator learning experiences by providing access to NASA-unique assets and innovative technologies.

RESEARCHING

EPDC contributes to the preparation of the next generation of scientists and engineers and researches the impact of NASA's investment in education and outreach.

PARTNERING

EPDC creates powerful NASA partnerships with university and community stakeholders.

Using NASA-unique assets, NASA STEM EPDC is committed to conducting educational research and providing high-quality STEM professional development to educators. Armed with these enhanced skills and repertoire of resources educators can better engage and teach their students.

Our efforts collectively support the goals of NASA and the Office of STEM Engagement.

EPDC SUPPORTS NASA GOALS

NASA STEM EPDC directly contributes to the advancement of NASA's Strategic Goal #3: Address National Challenges and Capitalize Economic Growth, Objective 3.3 Inspire and Engage the Public in Aeronautics, Space and Science. This strategy is expanded by:

» ***Enabling the public to embrace and understand NASA's work and value,*** *today and tomorrow, by providing unique STEM opportunities for diverse stakeholders.*

» ***Contributing to our nation's science literacy*** *through educator professional development designed to promote improved STEM education.*

» ***Elevating the public's understanding and appreciation*** *of the value of STEM and the many career opportunities in STEM fields.*

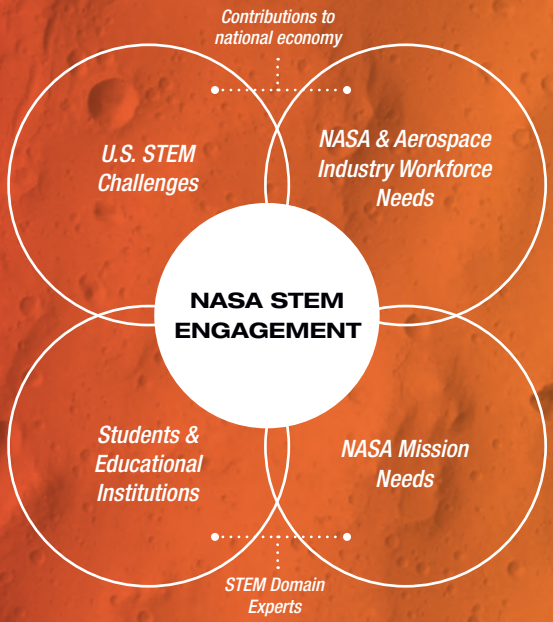
NASA'S OFFICE OF STEM ENGAGEMENT

NASA STEM EPDC supports and drives the goals of NASA's Office of STEM Engagement to:

» *Create unique opportunities for students and the public 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 people, content, and facilities.*

» *Strengthen public understanding by enabling powerful connections to NASA's mission and work.*



IMPACTING

We are making an impact on STEM instruction nationwide through engaging, standards-aligned professional development.

Developing Educators and Their Students Wherever They Are

SCALABILITY TO MAGNIFY NASA'S REACH AND IMPACT

Tapping into NASA's mission, we focus on student opportunities, the future STEM workforce, and public understanding, to create a program for learners everywhere—from elementary school to graduate students.

PROGRAM DRIVERS & REQUIREMENTS

- *Evidence-based strategies*
- *Rigorous planning*
- *Integrated operation model*

FOCUS AREAS

- *Create unique opportunities for student contribution*
- *Build a diverse future STEM workforce with engaging, authentic learning experiences*
- *Strengthen public understanding by creating powerful connections to NASA's mission and work*

RESULTS

- *Robust, strategic, and balanced STEM portfolio*
- *NASA-unique learning experiences*
- *Student contribution to NASA's work*

High-quality professional development is a necessary ingredient in preparing educators to guide their students through rigorous and engaging STEM learning opportunities that will inspire students and propel them toward future STEM careers.

In this way, educators and the professional development they receive, fulfill a critical role in broadening the STEM pipeline that will, in turn, enable the U.S. to continue to lead the world in scientific innovation and space exploration.

In addition to high-quality face-to-face and online professional development, NASA STEM EPDC also provides students with authentic STEM Engagement experiences utilizing NASA-unique content and assets. NASA STEM EPDC provides the flexibility busy educators need to tailor their professional learning.

We offer a comprehensive program of NASA content for educators, including workshops, webinars, digital badges, and longer duration professional development through a collaboration of graduate course offerings through U.S. satellite.

Educator and student offerings are continually updated and featured on the NASA STEM EPDC website ***(www.txstate-epdc.net)*** *where individuals may register for events that best meet their needs.*

WHO WE SERVE

K-20
Students

Pre-Service
Teachers

In-Service
Teachers

Informal
Educators

University
Faculty

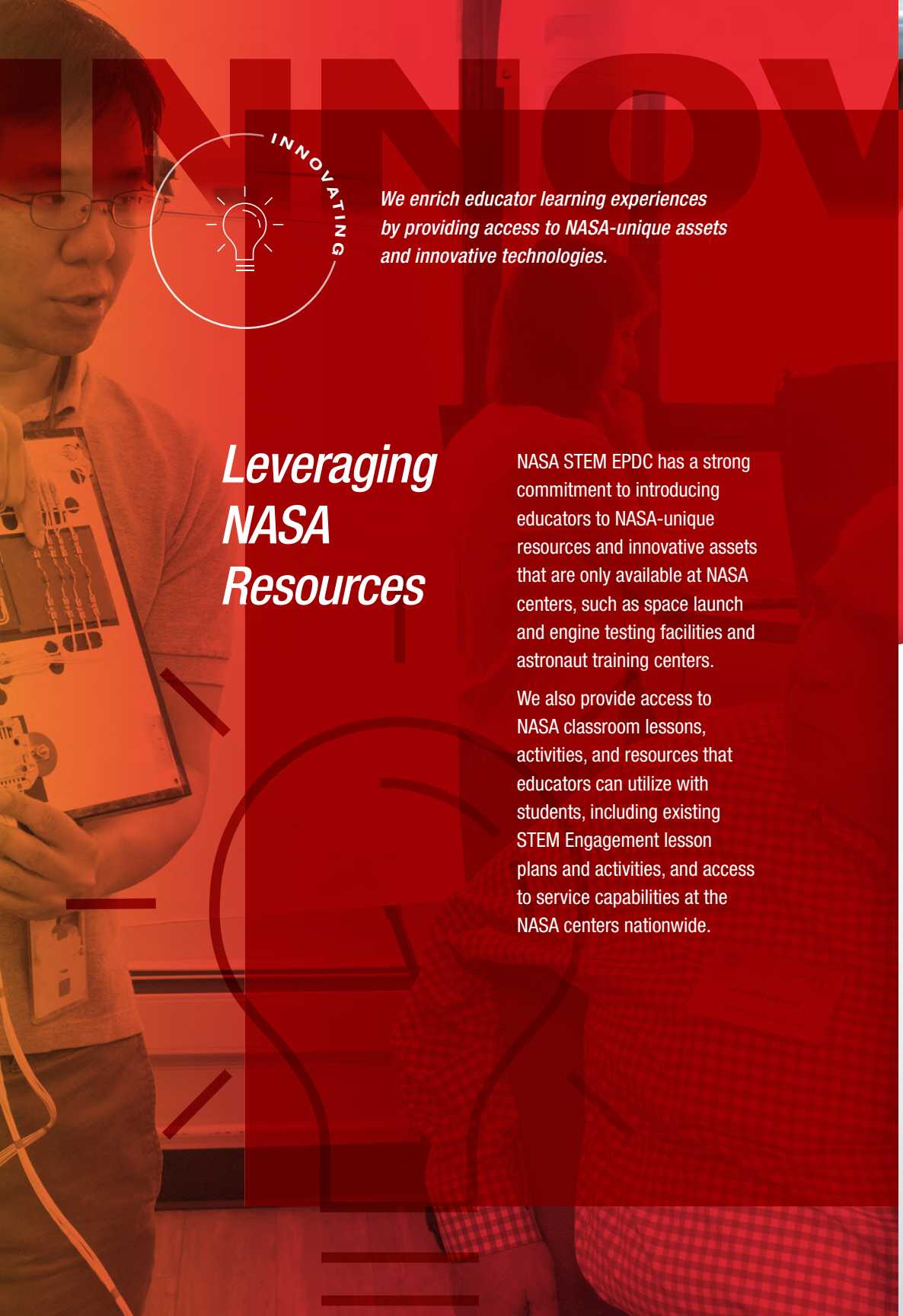
Steve Culivan

Stennis Space Center
EPDC Specialist

Steve Culivan, a 28-year career veteran with NASA Education and experienced middle school science, English, and art teacher, knows the value of NASA STEM education resources!

"STEM is a part of almost every aspect of our lives. Bringing STEM directly to students and teachers in a classroom environment is an ideal way to encourage, increase and continue to promote STEM for all learners. EPDC is NASA's premier program that delivers STEM to all learners.

NASA missions are an exciting way to integrate STEM into existing classroom lessons for all educator types—pre-service teachers, in-service teachers, informal educators, and university faculty. NASA focuses on real-world problems and solutions and brings real-world STEM learning to teachers and students of all grade levels, genders, cultures, and backgrounds. This ensures development of a well-trained and diverse workforce is maintained in all STEM careers across the United States."



INNOVATING

We enrich educator learning experiences by providing access to NASA-unique assets and innovative technologies.

Leveraging NASA Resources

NASA STEM EPDC has a strong commitment to introducing educators to NASA-unique resources and innovative assets that are only available at NASA centers, such as space launch and engine testing facilities and astronaut training centers.

We also provide access to NASA classroom lessons, activities, and resources that educators can utilize with students, including existing STEM Engagement lesson plans and activities, and access to service capabilities at the NASA centers nationwide.

NASA CENTERS

NASA STEM EPDC is uniquely positioned to provide educators with opportunities to complete professional development through engaging with subject matter experts and NASA STEM EPDC education specialists at each of the ten NASA centers. NASA centers focus on research and activities based on the facility and personnel capabilities and can offer varied and unique professional developmental experiences.

NASA EPDC SPECIALISTS

Housing a NASA STEM EPDC specialist at each center, NASA STEM EPDC is able to provide real examples from NASA centers on topics including space exploration and aeronautics research. Training educators to use NASA images, resources, and data collected by NASA scientists enables students and educators to explore real-world problems directly related to NASA activities.

Two additional specialists located at Texas State University provide support in areas of culturally responsive teaching, instructional strategies for English language learners (ELL), and impact research in STEM education.

Dr. Lester Morales

Kennedy Space Center
EPDC Specialist

Dr. Barbara Buckner
Armstrong Flight Research Center

Ms. Sara Torres
Ames Research Center

Dr. Lester Morales
Kennedy Space Center

Dr. Anne Weiss
Langley Research Center

Ms. Susan Labarre-Kohler
Glenn Research Center

Dr. Deepika Sangam
Goddard Space Flight Center

Mr. John Weis
Marshall Space Flight Center

Mr. Stephen Culivan
Stennis Space Center

Dr. Samuel Garcia Jr.
Jet Propulsion Laboratory

Mr. Steven Smith
Johnson Space Center

Dr. Laura Cano Amaya
Research and Evaluation Specialist

Ms. Michelle Berry
Badging Specialist

A medical doctor, a classroom teacher and now a NASA Education Specialist, Lester Morales knows the importance of involving families when working with Hispanic/ African American communities.

"As a NASA Education Specialist, I organized a partnership with the Hispanic Services Council and La Red de Padres Activos to provide NASA science educational training to a Hispanic farming community in Tampa, Florida. It was very rewarding to see these families interested and engaged with their children learning about science, NASA, and potential future careers."

NASA STEM EPDC Badging System

A “badge” is a micro-credential or certification in a specific topic area. In support of professional development for educators and STEM engagement for students, the badging system offers a personalized, relevant, and engaging experience.

The robust, quality system designed for STEM educators and students tracks learning, provides access to online courses, and maintains a certification database. Evidence of progress in skill attainment is monitored while the completion of related activities, assessments, and projects are documented.

THE FACTS

- LAUNCHED IN FEBRUARY 2016
- 40+ CURRENT ACTIVE EDUCATOR BADGES
- NEW 2018 PILOT LAUNCH TO INCLUDED STUDENT BADGES
- ASSESSMENT MODULE INTEGRATED FOR ALL BADGES

BADGES BY THE NUMBERS

EARNED SINCE FEB ‘16 LAUNCH

2,390 *digital badges*

REPRESENTING

19,866 *hours of PD credit*

TARGET TO EARN BY EOY SEPT ‘19

4,000 *digital badges*

REPRESENTING

30,000 *approx. hours of PD credit*

NASA STEM EPDC VIRTUAL EDUCATION RESOURCES

NASA Educator Virtual Learning Community

WEBSITE

- » *Blogs & EPDC Resources*
- » *EPDC Event Registration*
- » *Educator News & Opportunities*
- » *Links to NASA.gov Educator Resources*

Online STEM Classrooms-Synchronous Learning

WEBINARS

- » *Online Instruction on NASA STEM Topics*
- » *Special learning events for educators*
- » *Introductory sessions prior to live events*
- » *Special interest group collaborations*

Micro-Credentialing NASA EPDC Virtual Education-Asynchronous Learnings

BADGES

- » *Physical/ Life/ Earth & Space Science*
- » *Engineering & Technology*
- » *Mathematics*
- » *Cross-Cutting Concepts*
- » *STEM Instructional Practices*
- » *NASA Special Initiatives*

NASA EPDC Global Registration & Evaluation System

DATA MANAGEMENT

- » *Registration database for all events*
- » *Automated event feedback mechanism*
- » *Extended surveys for detailed insight regarding impact of NASA STEM EPDC*

BADGING MANAGEMENT PROCESS

Design

- » *Utilize standards-based curriculum development approach to create a quality learning experience*
- » *Connect the STEM content to a relevant and current NASA context*

Pilot/Review

- » *Internal teams of badge specialists conduct quality reviews of draft badges*
- » *Collect user data on pilot launch of new badges*
- » *Make appropriate adjustments*
- » *Assign ongoing badge evaluators*

Launch Badge

- » *Announce badge launch to special interest groups*
- » *Monitor badge completion*
- » *Report to stakeholders*
- » *Communicate with learners as needed*

Evaluate

- » *Evaluate badge evidence as it is submitted*
- » *Issue badge completion/ certification*
- » *Recommend related badges*
- » *Reporting*

THE BADGES

NASA PHYSICAL SCIENCE

- NASA Rockets: Forces & Motion
- Energy & Power for Living on the Moon
- EM Spectrum & Remote Sensing

NASA STRATEGIC THEMES

- NASA LaRC 100: Aeronautics (E/S)
- Earth Right Now: NASA LaRC (E/S)
- Journey to Mars (E/S)
- *Development of Commercial Crew Program (E/S)
- *Human Exploration Beyond Low Earth Orbit (E/S)
- *Small Steps to Giant Leaps: Looking to the Future of NASA Innovation (E/S)

STEM INSTRUCTIONAL PRACTICES

- Practicing Equity in STEM Education
- Preparing to Be Culturally Responsive
- Ways of Knowing & Student Inquiry

NASA MATHEMATICS

- Math with Smart Skies
- Year of the Solar System Math (6-12)

NASA ENGINEERING & TECHNOLOGY

- Space Operations Learning Center (K-6)
- NASA: Johnson Style
- NASA Spinoff
- NASA History JSC Edition
- On the Moon: Engineering 6-12
- NASA'S BEST: Educator Leader Badge
- NASA BEST: Engineering for K-8 Students
- NASA'S BEST Activity Badge: Lunar Buggy
- Pre-MEI Institute
- Post-MEI Institute
- Moon Munchies
- *Landing on the Moon & Mars
- *Introduction to Additive Manufacturing

NASA CROSS CURRICULAR

- Rockets2Racecars: Aero & Bernoulli
- Racing Physics
- NASAR2R: Engineering Design Challenges

NASA LIFE SCIENCE

- ISS Life Science & Ecosystems
- Looking for Life
- Rockets2Racecars: Matter and Energy Flow in Organisms
- Veggies in Space
- Veggies in Space (Spanish)

NASA EARTH & SPACE

- Earth's Orbit & Distance from the Sun
- NASA's InSight into Quakes (Grade 6-9 Educators)
- Global Climate Change (K-5/6-12)
- Microgravity University for Educators 2018
- Ways of Knowing & Student Inquiry in Earth Space Science
- NASA Solar Eclipse Spotlights (1+2.0)
- GLOBE: Elementary Water Studies
- Urban Heat Island Effect

* Denotes a badge currently in development for 2018/2019 (E/S) denotes an available student course

RESEARCH

We contribute to the preparation of the next generation of scientists and engineers and research the impact of NASA's Education investment.

Researching Educational Impacts

The NASA STEM EPDC program has implemented a comprehensive evaluation model that identifies the specific delivery mechanisms through which individual educators receive NASA professional development services, as well as the topics, frequency, and duration of the professional development in which they are engaging.

These evaluation and research efforts will provide NASA with important insights on how best to expend resources in educator professional development to result in the desired impacts.

NASA STEM EPDC RESEARCH PROCESS

1. *Develop and validate new research instruments*
2. *Collect research data from participants*
3. *Collect detailed impressions from the voice of educators about their needs through focus groups*
4. *Analyze data*
5. *Use data to guide and improve instruction and future deliverables*

SECONDARY EDUCATORS REACHED BY NASA STEM EPDC

	Yr 1 FY 2015	Yr 2 FY 2016	Yr 3 FY 2017	Yr 4 FY 2018	Total Educators
Middle School	2,430	8,198	12,639	5,894	29,161
High School	1,140	4,367	7,813	4,672	17,992
TOTAL	3,570	12,565	20,452	10,566	47,153

EDUCATIONAL RESEARCH FRAMEWORK

To understand the effectiveness of our efforts, a research framework is used to study features of high-quality teacher professional development. These four factors are critical in positively impacting teachers' self-reported increases in knowledge, skills and classroom practices.

CONTENT
How can STEM content topics be best presented to educators to keep them up-to-date with application and career connections?

DURATION & MODE OF DELIVERY
What length of professional development and type of learning events prove to be most effective?

COHERENCE
How can educators leverage NASA educator resources in such a way that they are able to align these to their State learning standards?

COLLECTIVE PARTICIPATION
What is the impact of professional learning communities in STEM? What elements of online learning in STEM PD are most effective?

REACH*

1 *Secondary Teacher* **X** **100** *Students/yr*

*One teacher can reach **1000 students** over 10 years.*

** NASA STEM EPDC impacted over 47,153 secondary teachers in four years. In ten years, these teachers can impact more than 47.2 million students.*

Dr. Deepika Sangam

Goddard Space Flight Center EPDC Specialist

As a STEM educator supporting education in eleven East Coast States and a builder of diverse STEM education experiences, Dr. Deepika Sangam believes in the mission and importance of the NASA EPDC.

"NASA, with its' space exploration mission, is in a unique position to inspire human endeavor to understand our place in the universe. NASA also has the ability to unify people from different walks of life and to truly make a positive difference.

NASA STEM EPDC continues to use its' position to inspire and engage educators and students and to educate them in STEM. By engaging in STEM education on a national-scale, NASA has the ability to influence how the future workforce is developed. To truly affect students, and to scale impact, NASA EPDC's efforts focus on educators. Sowing the seeds of STEM Engagement for students and educators today will enable NASA to reap the benefits tomorrow when a competent workforce is essential to realize its' mission."

PARTNERING

We are creating powerful NASA partnerships with university and community stakeholders.

Building Networks

Utilizing NASA resources, NASA STEM EPDC's professional development offerings provide educators of diverse students with specific instructional strategies and enhancements that capture the imagination of students of all backgrounds. These products help educators connect with content in ways that relate to their lives and personal experiences. Given the diversity of the U.S. student population, this ambitious endeavor requires the expertise of educators from a variety of STEM fields.

STEM experts work in tandem with teacher educators, researchers, and scholars who specialize in the science of learning and culturally responsive instructional practices to create meaningful STEM engagement experiences.
A number of intertwined networks have been cultivated that bring educators from different disciplines together. These educators work collectively on the design and delivery of culturally responsive STEM instruction using unique NASA resources.

Dr. Anne Weiss

Langley Research Center EPDC Specialist

Challenged at an early age with learning differences, persistence propelled her to reach her PhD!

"As a young child, I was held back a year in school because of a speech impediment. For several years my mother had me read aloud on the couch for speech therapy and checked my writing assignments before I handed them in to my teachers. I was inspired by my mother's dedication to helping me succeed. I went on to study science in college and completed a Ph.D.

Now, as an EPDC specialist, I enjoy promoting NASA's Years of Education on Station to educators and students. As Christa McAuliffe, the original Educator Astronaut said, 'I touch the future, I teach.'"

THE MINORITY SERVING INSTITUTIONS TEACHER EDUCATOR NETWORK (MSI TEN)

The MSI TEN members are essential partners in the preparation of the next generation of STEM teachers. Comprised of STEM faculty members from Texas State University and fifteen partner universities, MSI TEN faculty in institutions have a wealth of expertise to share about working with diverse learners and the integration of culturally relevant instructional strategies to promote the STEM success of all students.

THE EMERGING STARS NETWORK

These MSI institutions are committed to enriching their STEM teacher preparation programs and value professional development in STEM education for their faculty. NASA STEM EPDC specialists at the NASA Centers frequently provide online and face-to-face professional development for the Emerging Stars institutions. Over 100 NASA MSI EMERGING STARS Network Member Institutions have joined since 2015.

15 MSI TEN PARTNERS

117 EMERGING STARS PARTNERS

MSI TEN PARTNER INSTITUTIONS

Alabama A&M University
Bowie State University 1865
CSUN California State University Northridge
Coppin State University
Lehman College
Morgan State University
NSU Norfolk State University
North Carolina Central University
Texas State University The rising STAR of Texas
USF University of South Florida
UIC
UMES

YEAR 4

203 *Online Webinars*

203 *On-Site Face-to-Face Events*

613 EVENTS

207 *Off-Site Face-to-Face Events*

1,069 DIGITAL BADGES

The NASA STEM EPDC Badging System awarded **totaling** **8,883 HRS OF PD CREDIT**

IN FY 2018, NASA STEM EPDC UTILIZED 10 SPECIALISTS *around the country to serve* **51,563 EDUCATORS*** *with the following break down*

- **1,813** *Pre-Service*
- **5,894** *MS*
- **2,137** *Higher Ed*
- **2,490** *Informal*
- **6,283** *Elem.*
- **4,672** *HS*
- **705** *Admin*
- **27,569** *Other*

**Educators have participated in PD experiences ranging from 1-60 hours*

117 EMERGING STARS PARTNERS

NASA EPDC EVENTS

JUN 8 2016

Approximately 30 STEM faculty members from the Texas State Colleges of Science and Engineering and Education participated in the 2016 STEM Faculty Summer Learning Community Event.

SEPT 19 2016

NASA STEM EPDC designed and delivered training to the NASA Community College Aerospace Scholars Program Coordinators and Robotics Educators via the NASA Johnson Space Center's Digital Learning Network.

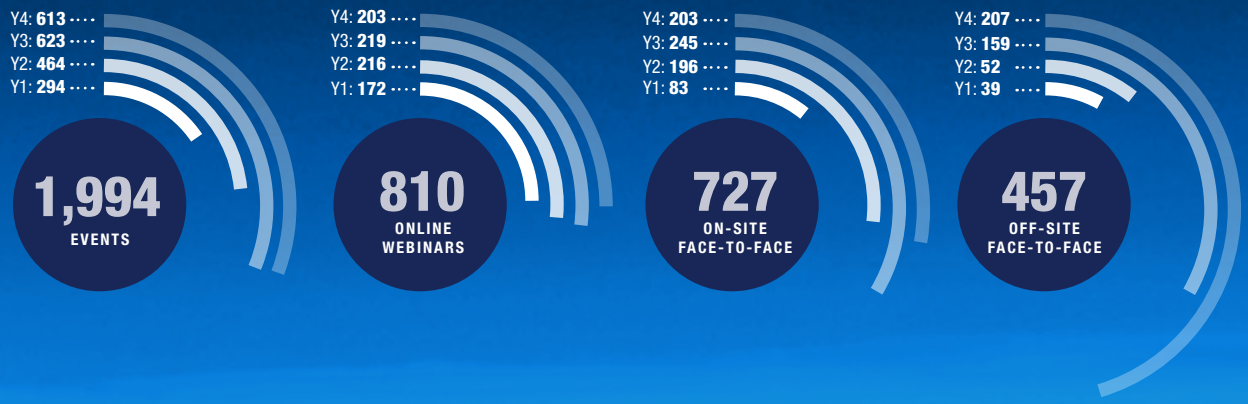
NOV 15 2016

NASA EPDC specialists, in collaboration with Morgan State University, hosted a week of NASA STEM workshops to help further STEM education.

JAN 10 2017

EPDC specialists from the Marshall Space Flight Center and Jet Propulsion Laboratory partnered with the JPL subject matter expert to provide a webinar for pre-service, in-service, and homeschool educators intended for grades 9–12.

YEARS 1-4



EDUCATORS SERVED

Level	*YEAR 1: FY 2015*	*YEAR 2: FY 2016*	*YEAR 3: FY 2017*	*YEAR 4: FY 2018*	*YEARS 1-4 TOTALS*
Pre-Service	992	2,109	2,726	1,813	7,640
Elementary	2,047	6,653	10,542	6,283	25,525
Middle School	2,430	8,198	12,639	5,894	29,161
High School	1,140	4,367	7,813	4,672	17,992
Higher Education	1,765	1,189	3,412	2,137	8,503
Administrator	101	535	1136	705	2,477
Informal Educators	982	1,638	3,186	2,490	8,295
Other	114,798	9,520	23,855	27,569	175,742
Totals	**124,255**	**34,209**	**65,309**	**51,563**	**275,336**

EXAMPLES

FEB 27–MAR 2 2017

Faculty from Texas State University teamed up with the Kennedy and Langley EPDC specialists to deliver four full-day workshops at various universities in Puerto Rico.

AUG 21 2017

Steve Culivan, Stennis EPDC specialist, helped in the delivery of an educational event at the Infinity Science Center where 2,900 participants were able to view the rare solar eclipse, which was about 75% visible from the Pearlington, MS area.

AUG 22 2017

Approximately 50 teacher educators, preservice teachers, and youth attended the mobile planetarium exhibit 'Exploring the Solar System and Beyond: Teaching Earth and Space Science in Texas Through the NASA Planetarium' hosted by NASA STEM EPDC at Texas State University.

SEPT 26 2017

NASA STEM EPDC facilitated a 2 ½ hour long workshop at Marymount University in Virginia with presenters such as Dr. Samuel Garcia, EPDC specialist, and Dr. Araceli Ortiz, EPDC PI and Director of the LBJ Institute for STEM Education and Research.

THE NASA STEM EPDC BADGING SYSTEM FROM FY2015–FY2018

	EPDC BADGES AWARDED	TOTALING	HOURS OF PD CREDIT
Y1: 2015	0	TOTALING	0
Y2: 2016	1,004	TOTALING	5,587
Y3: 2017	1,303	TOTALING	10,688
Y4: 2018	1,069	TOTALING	8,883
COMBINED TOTALS			
Y1 — Y4	3,376	TOTALING	25,158

LOOKING FORWARD TO 2019

As accomplished educators and researchers in STEM education from Texas State University, EPDC represents a knowledgeable, innovative, effective, and flexible partner poised to support NASA's Office of STEM Engagement for years to come. We will collaborate to deliver science, engineering, and math educational content leveraging NASA's unique technologies and resource tools. We will invite students and teachers to participate in digital and face-to-face learning experiences to support their educational success in science, technology, engineering, and math. In 2020 and beyond, we will collaborate to increase K-12 involvement in NASA projects, enhance higher education partnerships with underrepresented communities, strengthen online education, and boost NASA's contribution to informal education.

The NASA STEM EPDC Badging System will award

140 EPDC BADGES & 1,000 NEXT GEN BADGES**

totaling

3,840 HRS OF PD CREDIT

*Based on projections for FY 2019. **Total of 500 NEXT GEN Student Badges & 500 NEXT GEN Educator badges.

NOV 9 2017

NASA STEM EPDC specialist from each of the ten NASA Centers and Texas State University converged at Johnson Space Center for their annual meeting and participated in CAST (Conference for the Advancement of Science Teaching).

MAY 22 2018

Brandon Rodriguez, JPL EPDC specialist, facilitated the participation of seven Title I schools (totaling over 3,300 students and 250 teachers) in a project that focused on life in space.

AUG 27-30 2018

Kennedy and Armstrong EPDC Specialists provided support to a NASA Network of States program held in Puerto Rico. A total of 400 educators from Minority Serving Institutions (MSIs) participated in full-day workshops about NASA's opportunities for research, internships, and competitions.

SEPT 1 2018

NASA Langley's Office of STEM Engagement (OSE) supported the Center's Office of Strategic Analysis, Communications & Business Development (OSACB) at the 75th annual NASA Oceana Air Show serving 5,500 fifth graders and their teachers.

NASA EPDC STEM EDUCATOR PROFESSIONAL DEVELOPMENT COLLABORATIVE

TEXAS STATE
LBJ INSTITUTE FOR STEM EDUCATION AND RESEARCH

LBJ INSTITUTE FOR STEM EDUCATION AND RESEARCH COLLEGE OF EDUCATION DIRECTORS

Dr. Araceli Martinez Ortiz
NASA STEM EPDC Principal Investigator and LBJ Institute for STEM Education and Research Executive Director

Dr. Leslie Huling
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College of Education

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Department of Mathematics

Dr. Vedaraman Sriraman
Department of Engineering Technology

OTHER PARTNERS AND CO-INVESTIGATORS

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Deans, Texas State University

Dr. Roy Clariana
Pennsylvania State University's Center for Online Innovation in Learning (COIL)

Dr. Keith Duclos
DC&M

Ms. Karen Woodruff and the late Mr. Glen Schuster
Program Directors, U.S. Satellite, Inc.

NASA STEM EPDC & MSI TEN

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NASA EPDC
STEM EDUCATOR PROFESSIONAL DEVELOPMENT COLLABORATIVE

txstate-epdc.net

ABOUT US

The NASA STEM EPDC program is a professional learning initiative resulting from a five year (2014–2019) cooperative agreement between NASA's Minority University Research and Education Project (MUREP) and Texas State University's LBJ Institute for STEM Education and Research.

TEXAS STATE®
LBJ Institute for STEM Education and Research

Headquartered in San Marcos, Texas at Texas State University, The LBJ Institute for STEM Education and Research, under the leadership of the College of Education and the LBJ Institute for STEM Education & Research, coordinates the NASA STEM EPDC program and other grant-funded activities. The College of Education is the largest university producer of teachers in Texas, and the second largest nationally, preparing 800 to 1,000 teachers each year.

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Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Aeronautics and Space Administration.