Texas Space Grant Consortium (TSGC)
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NASA Internships, Fellowships, and Scholarships; STEM Engagement; Institutional Engagement; Educator Professional Development

PROGRAM DESCRIPTION

The National Space Grant College and Fellowship Program consists of 52 state-based, university-led Space Grant Consortia in each of the 50 states plus the District of Columbia and the Commonwealth of Puerto Rico. Annually, each consortium receives funds to develop and implement student fellowships and scholarships programs; interdisciplinary space-related research infrastructure, education, and public service programs; and cooperative initiatives with industry, research laboratories, and state, local, and other governments. Space Grant operates at the intersection of NASA's interest as implemented by alignment with the Mission Directorates and the state's interests. Although it is primarily a higher education program, Space Grant programs encompass the entire length of the education pipeline, including elementary/secondary and informal education. The Texas Space Grant Consortium is a Designated Consortium funded at a base level of $360,000 and Augmentation level of $400,000 for fiscal year 2018.

PROGRAM GOALS

The TSGC strategic goals align with NASA's Educational Outcomes. Our goals and programs serve multiple constituencies with emphases on customer focus, NASA-related content, the STEM (Science, Technology, Engineering and Math) pipeline, increased diversity, effective evaluation of programs, the development of partnerships, and program sustainability. NASA's Educational Outcomes and how TSGC's goals support them are summarized below.

Institutional Engagement (Capacity, Content, Diversity, Sustainability, Network and Community)

TSGC Goal A: *Diversity, Increase and Enhance Minority / Underserved Participation in our programs:* TSGC has a primary focus on increasing the number of minorities and females in its programs. We directly funded a total of 140 students in our Fellowship and Scholarship program and our Design Challenge workforce program. 54 were Females, and 49 were minorities. (35% minorities and 39% female).

Community College Partnerships
We continue to sustain community college partnerships. We currently have 6 Community College affiliates.

TSGC Goal B: *Workforce Development and Higher Education:* Our ongoing *Design Challenge* matches design problems suggested by NASA JSC engineering personnel with capstone

engineering design classes at our affiliates. During Fall 2017 and Spring 2018 the program involved 19 design teams and about 45 space professionals (JSC mentors, topic providers, judges) participated in the program. Details are given later in this report

TSGC Goal C: *Research Infrastructure:* (TSGC New Investigator Program). We competitively award research initiation grants to assist new faculty members / researchers at our affiliates in research aligned with NASA's strategic plan.

Internships, Fellowships and Scholarships

TSGC Goal D: *Fellowship, Scholarships and Longitudinal Tracking*: We have successfully tracked 100% of our students for 2018 who are still enrolled. Over the years of tracking, we have determined that 93% of the students that we know their next step went onto STEM disciplines

Educator Professional development

TSGC Goal F: *Precollege and K-12:* Our flagship program, *LiftOff,* continues to provide exemplary STEM professional development for K-12 educators. 61 teachers attended LiftOff 2017 receiving 40 hours of continuing education credit with the theme, *Reach New Heights, Reveal the Unknown, Benefit All Humankind.* Of the 61 selected, 24 were funded by Space Grant Consortia from other states and one received private funding. Follow-on evaluation results show those attending used NASA materials received with 13,455 students in the classroom and shared resources gained with an additional 2,936 teachers. TSGC staff and former LiftOff teachers conducted a multi-day earth and space science training titled "*NASA Careers in Earth and Space Science*" with 22 teachers receiving 40 professional development hours. TSGC staff worked with over 228 pre-service and classroom teachers to prepare them to conduct *Family STEM Science Nights* in underrepresented, underserved areas of the state that were attended by 1,000. NASA STEM hands-on activities were implemented with 3,130 students at schools. A video produced for the STEM Enhancement in Earth Science (SEES) high school intern program was entered into the NSF STEM for All Video Showcase. 66,386 visitors viewed all videos entered. SEES won "Popular Vote" for videos submitted.

STEM Engagement

TSGC Goal E: *General public, informal education and public awareness:* We provided training for the Boy Scouts Leaders, Girl Start, Barton Springs University volunteers and Boys and Girls Clubs reaching a total of 142 informal educators. We hosted exhibits and hands-on STEM activities at the Earth Science Week Career Fair, Space Exploration Educator Conference, Conference for the Advancement of Science Teachers, Barton Springs University, and Edison Science events reaching over 2,900 parents, students, and general public were reached.

TSGC Goal G: *Internal management:* We continue to focus on management efficiency and effectiveness in all of our activities. We have only one face-to-face affiliate meeting and one face-to-face board meeting each year to reduce travel costs. We have increased our usage of email, teleconferencing, and web-conferencing. We conducted one face-to-face Affiliate and Board of Directors Meeting in the Fall 2017.

PROGRAM/PROJECT BENEFIT TO PROGRAM AREAS

Internships, Fellowships and Scholarships

We directly funded 102 students in our F&S and Internship category (44 female, 35 underrepresented minorities). To demonstrate the impact of the Fellowship and Scholarship programs, we provide a quote from an awardee below.

"The Texas Space Grant Consortium has had an incomparable and invaluable impact on my education and life. Without Space Grant, I would not have been able to participate in my first internship at NASA Langley Research Center, which laid the groundwork for every aerospace opportunity but one that I have had since then. The financial and educational support provided to me has no doubt been the chief enabler of my career in aerospace thus far." (Jonathan Markel, 2018 Columbia Crew Memorial Scholarship-UT Austin, 2018 Texas Space Grant Educator Scholarsip-UT Austin)

Educator Professional development

LiftOff, TSGC's flagship K-12 program, focuses on teacher STEM education. Motivated teachers return to classrooms to excite students in STEM careers, helping to fill the STEM pipeline. Since 1990, TSGC has conducted an annual weeklong summer teacher workshop, *LiftOff*, at NASA JSC. Evaluation is conducted at the workshop and a follow-on evaluation is conducted four months later to determine what activities have been used and numbers reached. External evaluation results reported: those attending used an average of 7 NASA lessons and materials received with 13,455 students in the classroom and shared resources gained with an additional 2,936 teachers. Former LiftOff attendees are now employed at NASA JSC in the education office, at Space Center Houston, and one in Mission Control

"I returned from LiftOff so inspired to transform my campus to a STEM school. I utilized the resources you provided, rewrote curriculum, went to our board, and all changes were accepted. We have now infused NASA curriculum into 43 campuses in our district. Thank you for the most amazing training! It was life changing."

"Everything was amazing! Margaret and her staff were absolutely the best ☺ I will be running an inservice in my district. I will also work collaborating with my science department. I am also featured speaker at TRETC (Three Rivers Educational Technology Council) over the opportunity to meet and learn from so many legends and experts in the field was so incredible and something I will never forget. My depth of knowledge has increased so much and I feel like the information I received and experienced will make my teaching and lessons so much more meaningful and richer. Thank you so so much!"

STEM ENGAGEMENT

The total number of students receiving STEM resources and activities from TSGC in 2018 was 21,274. We are able to leverage our resources by partnering with the Rio Grande Valley Science Association (RGVSA), Boy Scouts, Women in Engineering, Girl Start, Texas Education Agency and Texas Regional Collaborative for Math and Science to expand our reach to both formal and informal education providers. The *LiftOff* program gives priority to teachers who reach underrepresented and underserved audiences. In follow-up evaluations, the Liftoff participants reported they teach over 11,974 students of which 15% are African American, 5% Asian, 49% are Hispanic, 1% Native American, and 30% Caucasian.

PROGRAM ACCOMPLISHMENTS

TSGC Goal D - *Fellowship and Scholarships and Longitudinal Tracking:* TSGC annually awards Fellowship and Scholarships. In 2018 we received 235 applications in our online system. As stated earlier, we directly funded 102 students in our F&S and Internship category (44 female, 35 underrepresented minorities). We also awarded 38 *Design Challenge* Academic Scholarships (28 males, 10 females, 14 minorities).

Fellowships/Scholarships (F&S) and Longitudinal Tracking Texas Space Grant has implemented a comprehensive longitudinal tracking program for all significantly supported students funded by its programs. This integrated system is designed to stay in touch with and regularly survey program participants as they progress though their education and career. It is based upon a balanced blend of automation and direct human interaction to maintain contact with program participants. The system utilizes automated, customizable surveys requests to gather up-to-date information on the participant's history of NASA program involvement, education, employment and antidotal responses regarding the impact of their participation on their education and careers. During the 2018 reporting year 6 students are pursuing advanced degrees in STEM disciplines, 4 accepted STEM positions at NASA contractors, 15 accepted STEM positions in industry, 2 accepted positions at NASA, 1 accepted a STEM position in K-12 academia, 6 accepted STEM positions in academia, and 19 went on to position in non-STEM disciplines or had unknown next steps. The remaining students have not yet received the degree that they were pursuing while the received their Space Grant award.
We were able to determine that 93% of students significantly supported from 2006-2018 went onto next steps in STEM disciplines. All 2018 supported students who are still enrolled and are currently being tracked for their next step.

TSGC Goal B - *Workforce Development and Higher Education:* Our *Design Challenge* matches undergraduate student design teams from TSGC affiliates with NASA mentors and real-world space-related design projects. In addition to the student designs, the program has resulted in the development of interdisciplinary space-related courses at participating affiliates. During Fall 2017-Spring 2018, 19 teams at 10 TSGC affiliates participated in the *Design Challenge*. 86 students participated in the program (22 females, 30 minorities). Design Teams that participated in the Fall 2017 program were:

UT Rio Grande Valley *Team Tri-Force* (Topic: Olfactory delivery system (ODS) development), UT Austin; *Team Space Bevos* (Topic Mico-g Neutral buoyancy Experiment), Texas State San Marcos, *The Soundmaster (*Topic: Use of Sonification for Spacecraft Situational Awareness Applications*),* University of North Texas, *Team Apollo's Legacy* (Topic: Intelligent Lighting) TAMU Kingsville *Team Design Team 7* (Topic Mars Sample Return System) Lone Star College *Team Cero* (Topic: Micro-G Neutral Buoyancy Experiment: Spacewalk tools to collect geological samples) Lamar, *Launderers* (Topic: Alternate Clothing Washing or Sanitizing System for Long Duration Space Missions); Texas A&M University, *Team NASA* (Topic: 3D Printed Antenna); University of North Texas, *Team Team 2B|!2b* (Topic: Spacecraft Lighting Network System); Texas A&M *Team Aurora Aggies* (Topic: Intelligent Lighting Control System); Lamar; *Team Lu Space Engineers* (Topic: Human-Tended Inflatable Lunar Outpost); Lamar; *Team Orion's Crusaders* (Topic: Mars Habitat & Initial Settlement Village); UT Tyler; *Team KST-6* (Topic: A Low Power Solid State Method of Oxygen of Supply; San Jacinto; *Team Mesch Things Up* (Topic: Prototype of a space wifi mobile, dirutions-tolerant, ad-hoc mesh network). Texas A&M University ; *Team Tx A&M Aggies (*Topic: 3D Printed Antenna*);* Lamar *Team Lu Space Engineers* (Topic: Human-Tended Inflatable Lunar Outpost); University of North Texas *Team K-RAM* (Topic: VIEC Network System);

TSGC Goal B - *Higher Education Proposal Opportunities:* We competitively award new higher education projects to faculty and staff members at our affiliates at a $10K level matched with $10K from their home institutions. In 2017 we awarded to Houston Community College "The Space Lab" proposal. PI Dr. Irina Mullins (Female).

TSGC Goal C - *Research / New Investigator Program*: TSGC provides research start-up funding of $10K, matched by the recipient's home institution, to new faculty each year. These funds are awarded competitively to young investigators starting space-related research programs. We awarded one new Research proposal to Dr. Daniel Araya of University of Houston for the proposal titled: "Control of vortex-dominated flows for space applications".

Precollege

TSGC Goal F - *K-12 Education Program*: TSGC's K-12 program focuses on teacher education to leverage the excitement of teachers to help fill the STEM pipeline. Since 1990, TSGC has conducted an annual weeklong summer teacher workshop, *LiftOff,* at NASA JSC**.** The theme for *LiftOff 2018* was "*Reach New Heights, Revel the Unknown, Benefit All Humankind*." 61 teachers attended the weeklong workshop. Of the total, 53 were female and 8 male, (12 were minorities: 6 Hispanic, 4 African American, 1 Asian, and 1 Pacific Islander, and 49 Caucasian) (25% minority, 85% female). In addition to the *LiftOff* summer program at JSC, the *LiftOff Alumni Teachers* conduct space-related professional development training with materials and content received which has reached 2,936 teachers to date.

TSGC Goal F - *K-12 Education Grants*: TSGC provides K-12 Education grants matched by the recipient's home institution, to affiliate faculty each year. These funds are awarded competitively. In 2017, we awarded two new $10,000 K-12 projects. One at University of Texas at Austin, "Coding for Kinder*",* PI: Ms. Margaret Baguio (1 female, Caucasian) Another with

Rice University, “Worlds to Touch” project headed by PI Dr. Patricia Reiff (1 female, Caucasian).

TSGC Goal F - *K-12 Education*: The Student Spaceflight Experiments Program (SSEP): We funded the SSEP program ($20,000) and supported Marfa ISD, Brazosport, Fortbend and Ector County ISDs. The program gives students across a participating community the ability to design and propose real microgravity experiments to fly in low Earth orbit (experiments conducted in a “weightless” environment)”. Goals include: 1) immerses students across a local community in a high profile science competition that is meant to result in spaceflight experiments designed by the students-the Flight Experiment Design Competition--in this case, an experiment to fly aboard the International Space Station (ISS) via "SSEP Mission 11 to ISS", and 2) leverages the excitement by wrapping community-wide science education programming around the experience-the Community Program. It is about engaging students, their teachers, and their families in science education, with a focus on the process of inquiry, and in a manner that is customized to a school district's strategic needs in STEM (science, technology, engineering, and mathematics) education. In 2018 these communities had 753 elementary school students, 1426 middle school students and 457 high school students formally engaged in this competition.

TSGC Goal F - *K-12 Education*: Zero Robotics. We funded the Zero Robotics program ($15,000) at Texas A&M University, to support Zero Robotic teams participating. Zero Robotics is a computer programming challenge designed to cultivate interest in Science, Technology Engineering and Mathematics (STEM) by giving middle and high school students unprecedented access to the International Space Station (ISS). Students learn to control free-flying satellites known as Synchronized Position Hold, Engage, Reorient, Experimental Satellites (SPHERES) aboard the ISS, through computer programming and simulations. Finalists ultimately go head-to-head against teams from across the country (middle school) or world (high school), while astronauts referee the final competition live from space using the SPHERES. The SPHERES afford the perfect testing ground for this task because they provide a risk-tolerant environment for students to use ISS hardware, all while advancing space research through an annual challenge relevant to future space missions. In 2018 88 students competed along with 15 educators.

TSGC Goal F - *Teacher professional development short term activities:* During 2018, we conducted workshops at The National Science Teacher Association (NSTA) meeting, NASA SciAct for the Science Mission Directorate, Conference for the Advancement of Science Teachers (CAST), the Space Exploration Educator Conference (SEEC), Rio Grande Valley Science Association (RGVSA), Austin Independent School District, Leander ISD, Round Rock ISD, P-16 Summit, ASEE, Space Foundation, and Texas Regional Collaborative for Science and Math. TSGC Outreach staff conducted professional development to 2936 educators who implemented programs with over 9600 youth.

Student outreach STEM initiatives:

This is the third year of funding to TSGC for the Science Mission Directorate grant titled STEM Enhancement in Earth Science. In summer 2018, of the 46 students selected for the summer intern program, 28 were female. The ethnic breakdown included: 10 Asian, 1 Native American,

6 African American/Black, and 2 Hispanic, 9 other, and 18 white. Students were from all areas of the United States – West, Northwest, Midwest, Northeast, and South. Backgrounds of students varied: child of migrant farmers, rural area where no AP or IB courses are offered, and students that are from metropolitan areas. Students conducted 60 hours of distance learning events while being mentored by faculty, NASA scientists, and graduate students and then participated in an on-site two week residential internship program where they conducted authentic research while being mentored by project scientists. 58% were female and 42% male. 65% of the student participants were underrepresented minorities and females. We partnered with the Texas Education Agency and received grant funds to simultaneously host a teacher extern program to develop curriculum for space career exploration. Evaluation results show the teachers increased their knowledge in earth and space science and space careers through this participation. Each teacher developed and career artifact which has been shared in their school districts and in statewide educator workshops. In addition, 13 NASA SME's mentored the students. 50% of students selected for SEES are underrepresented minorities. 40% of students selected for SEES are from underserved areas. We have former high school interns who have gone on to intern at the Jet Propulsion Lab analyzing Cassini data, at Boeing and Blue Origin, and BioServe where they are assisting with building hardware for biological research on the International Space Station, just to name a few.

TSGC Goal E – *Informal Education* We maintain an extensive website (www.tsgc.utexas.edu) and a TSGC fan Facebook page (http://www.facebook.com/pages/NASA-Texas-Space Grant/286095539201?v=wall) with over 2,650 fans to date. We also maintain a Twitter page with 997 followers. We advertise our programs through the Education EXPRESS newsletter. The Education EXPRESS message was sent to 22,784 EXPRESS subscribers, and shared with 46.65 thousand NASA Education Twitter followers and 21.3 million NASA Twitter followers. Through the use of social media, content from the EXPRESS message has the potential to be shared with approximately 20 million people.

TSGC has taken the lead in connecting informal education organizations, such as the *Boys and Girls Clubs, Boy Scouts,* and 4-H with NASA STEM curriculum, leveraging activities developed in our support of the *Summer of Innovation Program*. TSGC participated in numerous elementary, middle and high school programs, both short and long-term in 2018. In total, these activities reached over 1,500 students, teachers, and parents.

TSGC Goal G - *Management and Infrastructure*: We continue to seek ways to manage our program activities more efficiently. We review our strategic plan annually, seek external support, require matching from affiliates on most of our programs, and augment activities initiated by other groups whenever possible. We leverage programs wherever possible.

PROGRAM CONTRIBUTIONS TO NASA EDUCATION PERFORMANCE GOALS

Diversity

Student data and Longitudinal Tracking: in the *Design Challenge*. 86 students participated in the program (22 females, 30 minorities). In 2018 We directly funded 102 students in our F&S and Internship category (44 female, 35 underrepresented minorities). Of all the students we track 93% of our funded students moved on to STEM disciplines.

Minority Serving Institution Collaborations: The Education and Outreach staff of TSGC supported programs and proposals by affiliates, institutions, and partners that serve underrepresented and underserved populations. Minority Serving Institution involvement in our programs and proposals is one of our main focuses. Our F&S Selection Committee is comprised of three members with two of the members from MSIs (UT El Paso, Texas A&M Kingsville, Texas Tech). We continue to advertise our programs with as many of the student chapters of minority and women student organizations at our affiliates as we can obtain contact information for. TSGC also promotes the NASA JSC Pre-Service Institute to all minority serving institutions. Our collaboration with the Rio Grande Valley Science Association (RGVSA) has provided NASA resources to a largely Hispanic population in the Rio Grande Valley of south Texas along the Mexican border. The "NASA STEM Nights", co-sponsored by TSGC and RGVSA reaches Hispanic students along the Mexico border of south Texas, the Student Spaceflight Experiment Program supports underserved youth in underrepresented areas of the state, the Women in Engineering program provides female mentors for girls interested in engineering as a profession. We continue to provide NASA STEM resources to the Texas School for the Blind and Visually Impaired students, staff, and teachers who serve this disabled and often underrepresented audience.

Office of Education Annual Performance Indicators:

STEM-18-1 Provide significant, direct student awards in higher education to (1) students across all institutional categories and levels (as defined by the U.S. Department of Education); (2) racially or ethnically underrepresented students, (3) women, and (4) persons with disabilities at percentages that meet or exceed the national percentages for these populations, as determined by the most recent, publicly available data from the U.S. Department of Education's National Center for Education Statistics for a minimum of two of the four categories

- Goals (41% minority, 40% female). We directly funded 102 students in our F&S and Internship category (44 female, 35 underrepresented minorities). We also awarded 38 *Design Challenge* Academic Scholarships (28 males, 10 females, 14 minorities).
- In the *Design Challenge*. 86 students participated in the program (22 females, 30 minorities).

STEM-18-5 Provide opportunities for students to contribute to NASA's aeronautics, space, and

- science missions and work in exploration and discovery. 2,000 in-service teachers and 100 pre-service teachers through TSGC Pre-college programs
- TSGC Outreach staff conducted professional development to 2,936 educators who implemented programs with over 5,130 youth.
- the *LiftOff Alumni Teachers* conduct space-related professional development training which has reached 2,936 teachers to date.
- SSEP Program: In 2018 Brazosport, Marfa, Ector and Fort Bend ISD participated In 2018 these communities had 753 elementary school students, 1426 middle school students and 457 high school students formally engaged in this competition.

IMPROVEMENTS MADE IN THE PAST YEAR

1) New Affiliates: UT Permian Basin and St. Edwards University 2) Lone Star College Cyfair a Design Challenge team designed a tool that is going to the ISS! LSCC Team Cero 5) Provided training for instructors and logistics for the NASA RGVSA NASA Family STEM Science Nights in the Rio Grande Valley which reached over 1,000 students, parents, and teachers. We are the recipient of a NASA Science Mission Directorate Education CAN to expand the high school intern program. Outreach staff joined the state collaborative for STEM education which meets monthly and the Texas Science Leadership Association which meets quarterly. Our Outreach Coordinator Ms. Margaret Baguio is serving as a Teacher Liaison for the Space Foundation and a Solar System Ambassador. This is a group of 200 educators from 33 states in the U.S., South America, Africa, Australia, and Asia. Our partnership with NASA Network of States provided training to six former LiftOff educators at Johnson Space Center who are conducting educator professional development with resources received for grades 3-5. A new grant with the Texas Education Agency provided 22 educators the opportunity to be externs during the STEM Enhancement in Earth Science high school intern program.

CURRENT AND PROJECTED CHALLENGES

Upcoming challenges are preparing for our new Grant continuation as well as all the NASA required reporting and the new grant year shift in reporting timeline. Another challenge continues to be the amount of funding relative to the size of the audiences served. As one of the largest state consortia with a correspondingly large minority population. We will continue to support our highly successful flagship projects (LiftOff and the Design Challenge) and will award the remainder of the available funds competitively to our affiliates. As a result, the majority of our affiliates are not recipients of direct F&S Space Grant funding in any given year. Highly leveraging our activities will remain as our primary mode of operations.

PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

TSGC is structured to provide strong management input and oversight by representatives of its 60 affiliate institutions. Most affiliate representatives play a vital role in defining Consortium operations, goals, and funding distribution and are provided with many avenues for participation in consortium management and programs. They advertise and encourage students to apply for our scholarships, fellowships, and NASA internships, and STEM Space Grant and NASA programs, Review scholarship / fellowship applications, review proposals, assist in tracking program participants, and help to recruit and keep students involved in STEM activities. Below we list all TSGC affiliate members (MSIs are indicated by boldface type).

Four Year University Affiliates (38) - Angelo State University, Baylor University, Lamar University, Prairie View A&M University, Rice University, Southern Methodist University, Sul Ross State University, Tarleton State University, Texas A&M University, Texas A&M University Commerce, Texas A&M University Corpus Christi, Texas A&M International University, Texas A&M University Kingsville, Texas A&M Texarkana, Texas Christian University, Texas Southern University, Texas State University – San Marcos, Texas Tech University, Trinity University, University of Dallas, University of Houston, University of Houston Downtown, University of Houston Clear Lake, University of North Texas, University of Texas at Arlington, University of Texas at Austin, University of Texas at Dallas, University of

Texas El Paso, UT Health Science Center Houston, UT Health Science Center San Antonio, UT Medical Branch Galveston, University of Texas San Antonio, UT Southwestern Medical Center, University of Texas at Tyler, University of Texas Rio Grande Valley, University of St. Thomas, Texas Women's College, St. Edwards University, UT Permian Basin.

Community College Affiliates – (6) - San Jacinto College, Houston Community College, Austin Community College, El Paso Community College, McLennan Community College, Lone Star College System.

Industry / State Agency / Non-profit Affiliates – (16) Texas Museum of Science and Technology, Bob Bullock State History Museum, Don Harrington Discovery Center, Lockheed Martin, Office of the Governor, Southwest Research Institute, Texas Higher Education Coordinating Board, University Space Research Association, Girlstart, Texas Medical Center, Rio Grande Valley Science Association, National Society of Black Engineers, Scobee Education Center, Seal of Valor, Austin Astronomical Society and Capitol Area Council Boy Scouts of America.

PARTNERSHIPS AND COLLABORATIONS

Key partnerships were sustained in 2018 including collaborations with area school districts, Student Spaceflight Experiment Program, Texas A&M Zero Robotices, Boy Scouts of American, NASA JSC Network of States, Texas Regional Collaborative for Science, the Boy Scouts in Texas, Central Texas STEM Resource Center, and the Texas School for the Blind and Visually Impaired to provide quality STEM education programs utilizing NASA resources. New partnership developed with six school districts, the Texas Education Agency, and The University of Texas STEM Center. We collaborate with SSEP program and Zero Robotics. Strong collaboration continues with JSC and NASA mentors with our Design Challenge and SEES programs as all detailed in this report above.