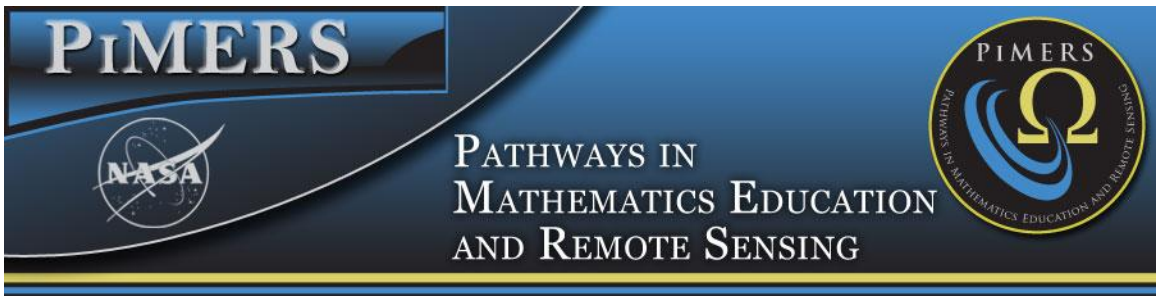

Report: NNX16AC89A
Pathways in Mathematics Education and Remote Sensing (PiMERS)

Periods of Performance
July 5, 2016 - September 26, 2017

Principal Investigator:
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Project Website:
http://nia.ecsu.edu/pimers/

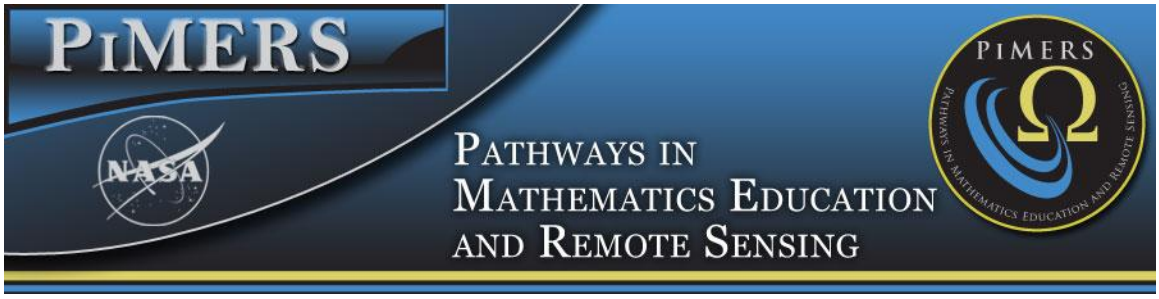

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Table of Contents

Pathways in Mathematics Education and Remote Sensing (PiMERS), represents a joint effort between Elizabeth City State University (ECSU) and NASA Langley Research Center (LaRC). In addition The Association of Computer and Information Science/Engineering Departments at Minority Institutions (ADMI) representing 54 MSIs will support this contribution to the NASA national efforts for achieving excellence in STEM education. PiMERS is a two-year project, which contributes to the effective implementation of NASA's educational goals and objectives using NASA's unique assets and capabilities in Mathematics Education and Remote Sensing. In addition PiMERS provides the opportunity to include the areas of computational chemistry and aviation, through the PiMERS Advisory Board, strategy sessions and NASA LaRC research seminars.

The intrinsic merit of the PiMERS project is foremost seen in the strong NASA relevant educational experiences that are made available to African American and women students from middle school through graduate school level.

PiMERS represents an aggressive effort to work in conjunction with Langley Research Center and ADMI to improve the quality of STEM education in the United States, which support both NASA's strategic plan and the Administration's STEM policy. To accomplish this we will implement the following.

(a) A PiMERS Scholarship and fellowship program
(b) A Celebration of Women in Math PiMERS workshops and Luncheon in the fall
(c) Research Week: NASA Day and Precollege Day events in the spring
(d) PiMERS 2-week Middle School Program during the summer
(e) Academic Year Research Training Seminars during the fall and spring
(f) PiMERS summer internships for undergrads at ECSU and LaRC

This report contains responses to the quarterly report guidelines for cooperative agreements. As such, the report includes 6 sections. The response to each of the 6 sections immediately follows the list.

1. Activities performed during the period
2. Planned activities to be performed the next period
3. Objective and/or strategy changes
4. Budget expenditures
   During the period as compared to the total budget
   Actual cost versus planned Expenditures
5. Demographic makeup of program participants during that period
6. New partnerships or programs established resulting from this NASA grant

1. Activities performed during the period.

Activities performed during the period July 5, 2016 - September 26, 2017 have included: 1a) GLOBE Training Program; 1b) PiMERS Robotics Program, 1c) PiMERS Pre-college Program, 1d) 2017 Summer Intern - Jefferson Ridgeway,.

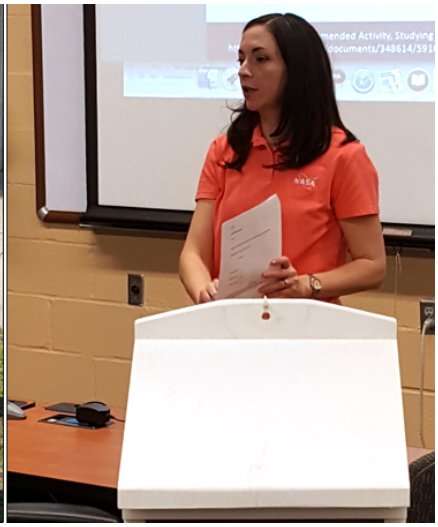
1a) GLOBE Training for Preservice and In-service Teacher Education at Elizabeth City State University

http://nia.ecsu.edu/ur/1617/teams/globe/research.html

Global Learning and Observations to Benefit the Environment (GLOBE) is a K-12 environmental education program supported by National Aeronautics Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), and National Science Foundation (NSF). GLOBE is a powerful teaching tool that enables students to use hands-on, inquiry-based methods to gather and interpret scientific data. Pathways in Mathematics Education and Remote Sensing (PiMERS) represents a joint effort between Elizabeth City State University (ECSU) and NASA Langley Research Center (LaRC) which held a hybrid regional teacher in-service and student preservice workshop on GLOBE Protocols at on the campus of ECSU located in Elizabeth City, North Carolina in the northeastern region of the state. A Protocol eTraining took place in January 2017 and the face-to-face workshop was held in February 2017. Over a two-week period, students and teachers learned basic GLOBE protocols and formed questions concerning each of the assigned GLOBE topics. During the face to face workshop participants collected data in the field, performed data/laboratory analyses, and compared data submitted by various schools around the world on the GLOBE website. The participants learned about remote sensing and viewed/manipulated images using image-processing software, and were introduced to the study of GLOBE Protocols as applied in northeastern North Carolina as well. Teachers and preservice students were excited about this hands-on experience in GLOBE and stated that this new learning prepared them to pass on this newly acquired knowledge. GLOBE protocols used in the workshop were recommended for incorporation into the current preservice teacher education program at ECSU.

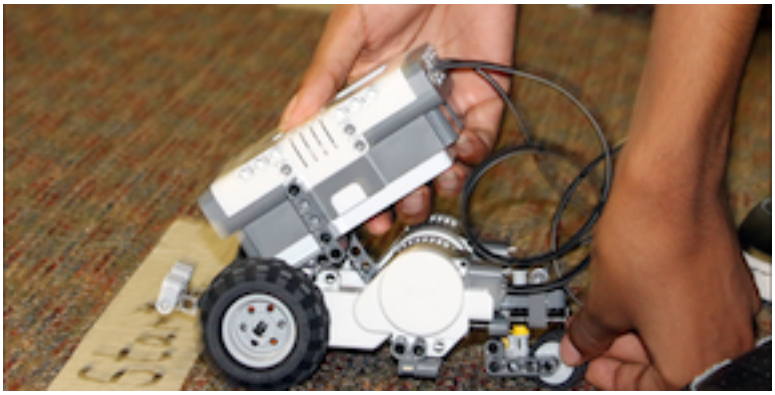
As a result of the GLOBE training, the 2017 PiMERS Mathematics Team at ECSU established three environmental sites on the campus of ECSU. With these three established sites, the research team conducted investigations for the following GLOBE protocols: Clouds, Air Temperature, and Surface Temperature. For atmosphere investigations of air and surface thermometers; minimum, and maximum temperatures were recorded from the area located near the front of the Dixon/Patterson Hall building and the softball field on the campus of Elizabeth City State University. With the newly installed weather station loaned by LaRC, IRT207 Infrared Thermometers and digital multi-day max/min/current thermometers were used to record measurements of air and soil temperatures. For cloud investigations, the total cloud/contrail cover, sky color and visibility, cloud levels: high, mid, and low, and surface conditions were observed and recorded from the open area located near the front of Burnim Fine Arts Complex on the campus of Elizabeth City State University. All cloud observations were done visually.

The collection of environmental data from these three sites around the ECSU campus that encompass these protocols were conducted by four preservice mathematics education students and one university mathematics instructor from the General Studies Program. The team gained a better understanding of Earth System Science, its relationship to mathematics, and interrelated cycles which comprise an integrated system. The mathematics team uploaded the collected environmental data to the GLOBE website and provided environmental data that enabled scientists to help in the study the earth's system. The PiMERS Mathematics Team collected and evaluated obtained data, and created graphical models to express data quantitatively using the GLOBE website data resources.



1b) Pathways in Mathematics Education and Remote Sensing (PiMERS) Robotics
http://nia.ecsu.edu/pimers/robotics/robotics17/
PiMERS is committed to recruiting, retaining and educating students within a diverse, multidisciplinary research team that focuses on topics related to Robotics Science Protocols, robotics, and remote sensing. Equally important is our goal to reach out to upcoming 6th & 7th grade underrepresented students, their teachers, and the general public. We want to give them resources to learn more about mathematics and remote sensing are used to benefit all members of society and better comprehend how they can impact everyone in the world.
Selected students worked with a team mentor on a robotics project which involved learning the fundamentals of mathematics and remote sensing.
Participants also :

- Learned about basic computer programming or coding
- Participated in Robotics workshops
- Learned about mathematics related careers
- Collaborated with scientists and faculty





1c) PiMERS Pre-College Program
Leadership Academy for Young Men - Step Up, Inc.
The Leadership Academy for Young Men is a program sponsored by STEP UP, Inc. It is a year-long mentorship program that provides monthly training for young men in Camden County and the surrounding areas. The male participants selected for the initiative are rising freshmen in high school to college level students.

The academic goal of this program is for the participants to have research experience and gain knowledge in the field of cybersecurity as well as robotics. This program also provides enrichment in social, fiscal, and personal responsibility for the youth involved. As a part of the program, participants work on team research projects, attend monthly meetings regularly, participate in community service projects, and adhere to behavioral and academic standards set forth by the organization. The program also places its members in the presence of strong male leaders that are successful within the community and nationwide.

STEP UP, Inc. is committed to growing young men in the STEM field and showing these young men how to become productive citizens in society. It is the goal of the academy to strengthen the leadership skills of the young men involved so that they become the future leaders of tomorrow.

Pathways in Mathematics Education and Remote Sensing (PiMERS) Pre-College Program

Pathways in Mathematics Education and Remote Sensing (PiMERS) represents a joint effort between Elizabeth City State University (ECSU) and NASA Langley Research Center (LaRC). In addition The Association of Computer and Information Science/Engineering Departments at Minority Institutions (ADMI) representing 54 MSIs will support this contribution to the NASA national efforts for achieving excellence in STEM education. PiMERS is a two-year project, which contributes to the effective implementation of NASA's educational goals and objectives using NASA's unique assets and capabilities in Mathematics Education and Remote Sensing. In addition PiMERS will provide the opportunity to include the areas of computational chemistry and aviation, through the PiMERS Advisory Board, future strategy sessions and NASA LaRC research seminars.

1d) Jefferson Ridgeway - NASA Ames Intelligent Robotics Group (IRG)
Deployment of a Regression Testing System for Analysis and Visualization of Astrobee Localization. Mentor: Brian Coltin, IRG Group

The autonomous free-flying robot Astrobee, designed for the ISS, localizes on a sparse visual map in six degrees of freedom using an Extended Kalman Filter. Currently, the Astrobee team conducts numerous tests to ensure Astrobee's

localization will succeed on the International Space Station (ISS). However, in testing different mapping and localization algorithms for Astrobee, the method of manual trial and error has been used against individual test cases to determine whether the change was a success. Hence, we are creating a regression testing system to utilize in lieu of trial and error on specific tests, which has proven to be ineffective. The regression testing system will automate the testing process and show the Astrobee engineers how their changes affect the localization system, as the EKF is highly dependent on small changes and provides a complex output challenging for humans to understand. Furthermore, this research seeks to analyze the results of the testing system and then visualize the results in easily understandable ways. The regression testing system is extensible and prepared to be used on new tests created on the ISS when Astrobee launches next spring.

1e) 2017 PiMERS Middle School Program

Pathways in Mathematics Education and Remote Sensing (PiMERS) represents a joint effort between Elizabeth City State University (ECSU) and NASA Langley Research Center (LaRC). In addition The Association of Computer and Information Science/Engineering Departments at Minority Institutions (ADMI) representing 54 MSIs will support this contribution to the NASA national efforts for achieving excellence in STEM education. PiMERS is a two-year project, which contributes to the effective implementation of NASA's educational goals and objectives using NASA's unique assets and capabilities in Mathematics Education and Remote Sensing. In addition PiMERS will provide the opportunity to include the areas of computational chemistry and aviation, through the PiMERS Advisory Board, future strategy sessions and NASA LaRC research seminars.

2017 PiMERS Middle School Program

2017 PiMERS Middle School Summer Program Applicant Information & Ranking

Name	School	Grade	GPA	Activities	Score
Seth Evans	ECMS	6	4.00	Scientist -SAT, HR & AIG(Sci-92, Math-92, SS-96, Eng-93)	16
Camryn Roberts	ECMS	7	3.50	Biologist-HR, JHNS(Sci-98, Math-82, SS-99, Eng-84)	14
Total # of Applicants for ECMS					
Chyna Foskey	RRMS	6	3.00	Scientist-(Sci-83, Math-74, SS-92, Eng-80)	12
Deja Whitehurst	RRMS	6	3.00	Computer Science-AIG, HR, SAT(Sci-71, Math-90, SS-99, Eng-78)	12
Dorian Griffin	RRMS	6	3.00	Engineer-SAT, (Sci-80, Math-80, SS-80, Eng-83)	12
Jayla Brumsey	RRMS	7	3.00	Scientist -(Sci-90, Math-71, SS-89, Eng-87)	12
Total # of Applicants for RRMS					
Romeo Paxton	CMS	6	4.00	Computer Science-AIG, Semester HR(Sci-98, Math-94, SS-98, Eng-98)	16
Mya Huacuz	CMS	6	3.75	Mathematics-HR, Art, President's Award(Sci-99, Math-88, SS-97, Eng-97)	15
Mariah Butts	CMS	6	3.75	Mathematics-HR(Sci-95, Math-86, SS-95, Eng-92)	15
Branden James	CMS	6	3.75	Dentist-HR, MSEN(Sci-99, Math-83, SS-98, Eng-95)	15
Alexis McCoy	CMS	6	3.75	Scientist-HR, MSEN(Sci-99, Math-89, SS-94, Eng-99)	15
Shamar Sutton	CMS	6	3.50	Biologist-(Sci-96, Math-85, SS-97, Eng-85)	14
Total # of Applicants for CMS					

Total # of Applicants 14	**All Schools**	**3**	**Applications received as of May 15, 2017**

2. Planned activities to be performed the next period.

Activities planned for the next period include: 2a) Preparation for the NASA MOOs PI meeting; 2b) Preparation for the Celebration of Women in Mathematics; 2c) GRSS Student Chapter host the Fall Distinguished Lecture; and 2d) Academic year research training seminars for Mathematics Education majors, 2e) Hosting the Fall Internship Roundtable with introduction to NASA OSSI; 2f) Preparation for NASA Day @ ECSU during Spring 2018.

2a) Preparation for the NASA MOOs PI meeting;
Planning is underway to participate in the PI meeting at Johnson Space Center for two days during the week of Nov 6th. This time will include an ECSU "reverse site visit"

2b) Preparation for the Celebration of Women in Mathematics;
The Center of Excellence in Remote Sensing Education and Research at Elizabeth City State University with the "Celebration of Women in Mathematics" on October 24, 2017 from 8:30 am – 1:45 pm. Approximately 400 students will participate in this year's program with a wide range of hands-on activities and math related workshops. Workshops include Globe Protocols, STEM Mobile Tour, Rocket Launching, Mathematics Applications, Discovering Female Mathematicians, Remote Sensing, Planetarium Review of Lunar and Solar Eclipses, Mysteries of Flight, and Robotics Competition as well as others. These sessions are designed to expose girls to the applications of mathematics in their lives and challenge them to widen their perspectives on math and STEM. A Math Sprint Competition consists of a team of girls from each school completing to solve problems under a time constraint. An "I Want to be Like Her" Essay Competition will give all participants an opportunity to read about the success stories of women in mathematics. They write a short essay on why they could look up to and follow women who have overcome hardships and striven for success in their fields. The closing ceremonies will be held in the Robert L. Vaughan Center where Dr. Farrah Ward, Vice Chancellor for Academic Affairs at Elizabeth City State University, will serve as guest speaker. During lunch student teams will present their enthusiasm for math through their "Math Cheers." Videos of the cheers will be available online after the event. http://nia.ecsu.edu/cwm.html

2c) GRSS Student Chapter host the Fall Distinguished Lecture;

2d) Academic year research training seminars.
Academic Year research training seminars will begin in late August 2017 and extend through early April 2018. The seminars will be held on Tuesday and Thursday evenings from 5 -7:30pm in 229 Dixon Hall.

2e) Hosting the Fall Internship Roundtable with introduction to NASA OSSI.

2f) Preparation for NASA Day @ ECSU during Spring 2018.
The 2018 NASA DAY Committee at Elizabeth City State University (ECSU) is planning on the annual "Research Week's K-12 NASA Day" in April 2018. This year's theme is "Showcasing STEM". Students participating in the program will participate in a wide range of hands-on activities and NASA/STEM related workshops that will include Space Travel, Robotics, Flight Simulations, Air Traffic Control, Airplanes & Flight History, Planetarium Shows, Cloud Computing, as well as others. These workshops are designed to expose students to the applications of STEM in their lives and challenge them to widen their perspectives. Several members of the NASA staff, ECSU faculty, undergraduate and graduate students, as well as visiting professors will provide hands on instruction and training for the students. A "Distinguished Lecturer" from the NASA Langley Research Center in Hampton, Virginia will serve as our motivational speaker in the Moore Hall Auditorium on the campus of ECSU.

3. Objectives and/or strategy changes
One item is included in this report section on objectives and/or strategy changes. They include: a) Pursuing aggressively a GLOBE training program for pre-service and In-service teachers with the support of LaRC.

* Development of a GLOBE Training Program at ECSU.

* The PiMERS Mathematics Education Team will use a Globe weather station loaned from NASA LaRC to collect data that will be added to the GLOBE database.

* The Globe weather station will be placed in a permanent location to conduct continual research.

* Annual events such as the PiMERS Middle School summer program, local school division training, and in-service teacher training will be conducted.

* The PiMERS Mathematics Team and other researchers will monitor the local environment and observe seasonal changes.

* Presentations of Globe research data will be shared with the education department on an annual basis.

4. Budget expenditures

Current balance in the account is $**139,532.22 . This does not include expenditures for The PI meeting in Houston, the Celebration of Women in Mathematics event or the distribution of scholarships and fellowships for the spring semester 2018. Below is a screen shot of the ECSU Banner System line items for this grant.**

556002 NASA PiMERS Banner Activity through September 21, 2017						
Account	Type	Title	Adjusted Budget	Activity	Commitments	Available Balance
11110	L	EPA Regular Salary	12,726.00	5,000.00	0.00	7,726.00
11310	L	EPA Academic Salary	22,274.00	25,452.00	0.00	(3,178.00)
11410	L	Non-Student Reg Wage	80,000.00	76,306.50	0.00	3,693.50
11450	L	Student Wages	54,000.00	26,220.00	0.00	27,780.00
11577	L	U Ins 1% Payment to DES	1,054.00	0.00	0.00	1,054.00
11810	L	Social Security	9,528.00	8,056.83	0.00	1,471.17
11820	L	State Retirement	6,372.00	806.00	0.00	5,566.00
11830	L	Medical Insurance	14,984.00	0.00	0.00	14,984.00
12200	E	Food Products	0.00	141.94	0.00	(141.94)
12300	E	Educational Supplies	10,690.00	5,660.84	670.20	4,358.96
12500	E	Motor Veh Supplies-Gasoline	0.00	773.65	0.00	(773.65)
12501	E	Motor Veh Supplies-Other	0.00	208.95	0.00	(208.95)
12600	E	Office Supplies	5,444.00	4,439.61	209.43	794.96
12909	E	Other Supplies	0.00	0.00	75.99	(75.99)
13050	E	Honorariums	800.00	0.00	0.00	800.00
13090	E	Other Contract Services	15,000.00	15,693.98	0.00	(693.98)
13093	E	Contracted Food Service	10,000.00	6,973.99	2,342.09	683.92
13111	E	In-State Tran-Air	10,000.00	0.00	0.00	10,000.00
13112	E	In-State Tran-Ground	0.00	300.00	0.00	(300.00)
13113	E	In-State Tran-Other	0.00	24.00	0.00	(24.00)
13114	E	In-State Trav-Lodging	0.00	372.28	0.00	(372.28)
13115	E	In-State Trav-Meals	0.00	83.60	0.00	(83.60)
13116	E	In-State Travel-Tel/Tips	0.00	4.00	0.00	(4.00)
13121	E	Out-of-State-Air	0.00	759.50	0.00	(759.50)
13122	E	Out-of-State-Ground	0.00	812.20	0.00	(812.20)
13129	E	Out-of-State-Registration	0.00	1,913.00	0.00	(1,913.00)
13141	E	Board/Non-Emp-Air	22,500.00	11,912.45	0.00	10,587.55
13142	E	Board/Non-Emp-Ground	1,600.00	196.80	0.00	1,403.20
13143	E	Board/Non-Emp-Other	0.00	86.00	0.00	(86.00)
13144	E	Board/Non-Emp-Lodging	3,000.00	1,484.05	0.00	1,515.95
13145	E	Board/Non-Emp-Meals	3,000.00	2,543.15	0.00	456.85
13146	E	Board/Non-Emp-Tel/Tips	0.00	4.00	0.00	(4.00)
13149	E	Board/Non-Emp-Registration	(1,500.00)	7,400.00	0.00	(8,900.00)

13197	E	Travel Advance	0.00	4,371.20	0.00	(4,371.20)
13201	E	Postage	0.00	77.69	0.00	(77.69)
13202	E	Telephone Service	0.00	13.50	0.00	(13.50)
13206	E	Telephone Service-Long Distance	0.00	170.27	0.00	(170.27)
13909	E	Other Miscellaneous Services	0.00	537.42	0.00	(537.42)
13989	E	Other Fixed Charges	0.00	31.50	0.00	(31.50)
13990	E	Travel Advance	0.00	553.52	0.00	(553.52)
13999	E	Membership Dues	5,554.00	2,700.21	0.00	2,853.79
14503	E	Insurance-Other	0.00	128.00	0.00	(128.00)
14900	E	Other Fixed Charges	0.00	0.00	0.00	0.00
16592	E	Stipends	17,824.00	36,700.00	3,000.00	(21,876.00)
16593	E	Scholarship Awards	0.00	30,775.02	0.00	(30,775.02)
16902	E	Stipends	18,000.00	1,100.00	0.00	16,900.00
16903	E	Scholarship Awards	84,600.00	0.00	0.00	84,600.00
18960	E	Indirect Overhead Cost	46,275.00	0.00	0.00	46,275.00
19002	E	Indirect Overhead Cost	46,275.00	73,382.42	0.00	(27,107.42)
			500,000.00	**354,170.07**	**6,297.71**	**139,532.22**

5. Demographic makeup of program participants during the period.

Event	Male	Female	African Am.	Hispanic	Caucasian	Other	Total
PiMERS Fellowship	100%	0%	50%	0%	50%	0%	2
PiMERS Middle School Prog,	58%	42%	92%	8%	0%	0%	12
NASA Day @ Research Week	46%	54%	57%	4%	39%	0%	528

6. New partnerships or programs established resulting from this NASA grant

Nothing to report this quarter.

7. Project accomplishments measured against proposed goals and objectives

PiMERS goals and objectives as stated and how to be measured at http://nia.ecsu.edu/pimers/PiMERS_EVAL_Report_ECSU_2017.pdf

NASA's Education Performance Goal	Annual Performance Indicators (API)	PiMERS Methodology	PiMERS Evaluation Metric	PiMERS Goal
Goal: FY 2015 and FY 2014 2.4.1 Assure that	FY 2015 ED-15-1 Provide significant, direct student	Provide PiMERS fellowships, stipends and	Percent of women and minority participants.	75% minority

students participating in NASA higher education projects are representative of the diversity of the Nation.	awards in higher education to (1) students across all institutional levels and types (as defined by the U.S. Department of Education); (2) racially or ethnically underrepresented students, (3) women, (4) persons with disabilities, and (5) veterans 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 five categories.	scholarships to Mathematics Education, CS and Remote Sensing majors.	Total number of minorities and women participating in NASA higher education projects.	40% women (Exceeded objective goals)
Goal: FY 2015 and FY 2014 2.4.2: Continue to support STEM educators through the delivery of NASA education content and engagement in educator professional development opportunities.	API: FY 2015 ED-15-2: 250,000 educators participate in NASA-supported professional development, research, and internships that use NASA-unique STEM content.	Provide PiMERS scholarships to Mathematics Education preservice teachers. Provide internships at NASA LaRC for Mathematics Education preservice teachers.	Number and amount of scholarships distributed to Mathematic Education preservice teachers. Number of internships provided for Mathematic Education preservice teachers.	3 Pre-service teachers/year receive scholarships and internships (Exceeded objective goals)
Goal: FY 2015 and FY 2014 2.4.3: Assure that the institutions NASA engages with represent the diversity of institution types and levels in the Nation as defined by the U.S. Department of Education.	API: FY 2015 ED-15-3: Provide funding to institutions of higher education across all institutional categories and types (as defined by the U.S. Department of Education) that meet or exceed the national percentages for these institutional types and category levels, as determined by the most recent, publicly available data from the U.S. Department of Education.	House the PiMERS program at Elizabeth City State University (an HBCU) Document Racially/ethnically ECSU underrepresented students and women participants in PiMERS events	Grant is managed by and housed in the Mathematics and Computer Science Department of Elizabeth City State University. ECSU Business and Finance Office and the Office of Sponsored Programs provide oversight for the award.	Successful operation and reporting as required by Elizabeth City State University. (Exceeded objective goals)
Goal: FY 2015 and FY 2014 2.4.5 Continue to provide opportunities for learners to engage in STEM education engagement activities	API: FY 2015 ED-15-5: 600,000 elementary and secondary students participate in NASA STEM engagement activities.	Conduct NASA STEM Day in the spring, summer middle school program and Celebration of Women Math in the fall.	Number of Girls participating in the CWM Number of students participating in NASA day during Research Week.	300 precollege girls participating in the CWM 400 precollege students participating in NASA STEM Day

that capitalize on NASA unique assets and content.			Number of precollege students participating in summer programs. 300 precollege girls participating in the CWM	12 summer middle school students. (Exceeded objective goals)

Formative Evaluation 1. List of Student, Faculty and Staff Activities 2. Webpages of all pertinent activities 3. Tabulation and assessment of questionnaires, reaction surveys, program evaluations (including but not limited to the Celebration of Women, Academic Year REU, Research Week and PiMERS Summer Internship Experiences) 4. Daily entry of debits and credits, weekly assessment of the budget, and review of monthly financial summary reports

Summative Evaluation 1. Total number of minorities and women college students participating in NASA higher education projects 2. Documentation of significant, direct student awards in higher education to (1) racially/ethnically underrepresented students and (2) women 3. Total numbers and kinds of PiMERS elementary and secondary students who are traditionally underrepresented have participated in NASA STEM engagement activities 4. Total number of fellowships and scholarships disseminated by virtue of this grant 5. The retention and graduate rates of PiMERS undergraduate and master's student participants

NASA's Annual Performance Indicators are outlined in NASA's FY 2015 Complete Management and Performance Appendix. FY 2015 and FY 2014 2.4.1: Assure that students participating in NASA higher education projects are representative of the diversity of the Nation. **PiMERS anticipates 75% African American participation and 40% for women.**

FY 2015 ED-15-1: Provide significant, direct student awards in higher education to (1) racially or ethnically underrepresented students and (2) women. **PiMERS will provide over $160,000 in scholarships, work-study, and fellowships (~ 30% of its budget).**

FY 2015 ED-15-5: 600,000 elementary and secondary students participate in NASA STEM engagement activities.

- The PiMERS luncheon and workshops during the CWM will impact over 300 middle and high school students/year and their teachers.

- The precollege day during Research Week will impact over 400 precollege students
- The Research Week seminars and poster session's impacts 200 undergraduates.

8. Evidence of how project activities have furthered stakeholder priorities

NASA's Annual Performance Indicators are outlined in NASA's FY 2015 Complete Management and Performance Appendix FY 2015 and FY 2014 2.4.1: Stakeholder priorities are aligned with those Annual Performance Indicators.

stakeholder priorities	**PiMERS Evidence through Sept 26, 2017**
Assure that students participating in NASA higher education projects are representative of the diversity of the Nation.	78% African American participation in NASA Day. 412 Girls participating in 2016 CWM event. (Exceeded objective goals)
600,000 elementary and secondary students participate in NASA STEM engagement activities.	528 Students involved in the NASA STEM day. 63 Students involved in summer 2017 programs. 1200 Community participants involved in Hidden Figures event (EC). (Exceeded objective goals)
Goal: FY 2015 and FY 2014 2.4.2: Continue to support STEM educators through the delivery of NASA education content and engagement in educator professional development opportunities.	January 2017 GLOBE Training at Elizabeth City State University-Online Training February 2017 GLOBE Training at Elizabeth City State University-Face-To-Face Training March 2017 GLOBE Training at Elizabeth City State University-Face-To-Face Training (Exceeded objective goals)
Summative Evaluation 1. Total number of minorities and women college students participating in NASA higher education projects 2. Documentation of significant, direct student awards in higher education to (1) racially/ethnically underrepresented students and (2) women	$52,650 in scholarships, work-study and fellowships awarded this reporting period.

9. Extent to which collaborations and/or partnerships have evolved.

Nothing to report this period.

10. Planned activities for the next year with an updated budget plan.

The following activities are planned for next quarter and beyond. No budget adjustments are needed. Budget will remain unchanged.

NASA Day events during Research Week

Research Week will be held during the month of April 2018. Friday of Research Week will be designated as NASA Day. The events will include ECSU students, local middle and high school students, NASA LaRC representatives and ECSU PiMERS students.

GRSS Remote Sensing Distinguished Lectures

The Fall 2017 Distinguished Lecture is scheduled for Nov. 16, 2017 at 11am in 229 Dixon Hall. Featured will be Mr. Joseph Ausby GIS Manager M.S., GISP, CGCIO, City of Wilson Geographic Information Services. He will discuss GIS and the management of the City's Enterprise GIS with ECSU CS and Remote Sensing majors. The Spring 2018 Distinguished Lecture has not yet been scheduled.

NASA LaRC 100 Anniversary celebration

NASA Langley Research Center in Hampton, Virginia, will open its doors to the public on Oct. 21, 2017. This large-scale open house will showcase Langley's contributions in the past and present, and look toward the future as well. The daylong event will feature bus tours, and hands-on activities both indoors and outdoors. Admission to the open house is free. The Hampton Healthy Families Partnership participants will participate in this event. More information is available at https://openhouse.larc.nasa.gov/