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	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER 206022

6. AUTHORS Linda Hayden	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAMES AND ADDRESSES Elizabeth City State University 1704 Weeksville Road Elizabeth City, NC 27909 -9913	8. PERFORMING ORGANIZATION REPORT NUMBER
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9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS (ES) U.S. Army Research Office P.O. Box 12211 Research Triangle Park, NC 27709-2211	10. SPONSOR/MONITOR'S ACRONYM(S) ARO
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13. SUPPLEMENTARY NOTES The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other documentation.

14. ABSTRACT This Satellite Remote Sensing - Research and Education Instrumentation Program (SRS-REIP) project provides lab upgrades to augment existing satellite remote sensing ground station capabilities at Elizabeth City State University (ECSU). Lab upgrades requested include uninterruptible power supply (UPS), backup generators, network upgrades for dedicated bandwidth and required computer consoles plus software for the training center. All funds provided under this project are for equipment, installation and training.
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15. SUBJECT TERMS Interim Progress Report
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16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	15. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON Linda Hayden
a. REPORT UU	b. ABSTRACT UU	c. THIS PAGE UU			19b. TELEPHONE NUMBER 252-335-3696

ABSTRACT

This Satellite Remote Sensing - Research and Education Instrumentation Program (SRS-REIP) project provides lab upgrades to augment existing satellite remote sensing ground station capabilities at Elizabeth City State University (ECSU). Lab upgrades requested include uninterruptible power supply (UPS), backup generators, network upgrades for dedicated bandwidth and required computer consoles plus software for the training center. All funds provided under this project are for equipment, installation and training.

No students or faculty are supported through this grant. However, graduate and undergraduate students have assisted with the project. Funding of the Satellite Remote Sensing Research and Education Instrumentation Program (SRS-REIP) under the DoD Research and Education Program for HBCU/MIs BAA W911NF-13-R-0008 furthers DoD's objective of attracting students to pursue studies leading to Science, Technology, Engineering and Mathematics (STEM) careers by providing a platform for student training in satellite remote sensing research and ground station operations.

Entire List of papers submitted or published that acknowledge ARO support since the start of the project to the date of this printing (8/27/14). List the papers, including journal references, in the following categories:

(a) Papers published in peer-reviewed journals (N/A for none)

<u>Received</u>	<u>Paper</u>
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TOTAL:

Number of Papers published in peer-reviewed journals:

(b) Papers published in non-peer-reviewed journals (N/A for none)

<u>Received</u>	<u>Paper</u>
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TOTAL:

(c) Presentations

Non Peer-Reviewed Conference Proceeding publications (other than abstracts):

Received Paper

TOTAL:

Peer-Reviewed Conference Proceeding publications (other than abstracts):

Received Paper

TOTAL:

(d) Manuscripts

Received Paper

TOTAL:

Books

Received Paper

TOTAL:

Honors and Awards

Dr. Linda Bailey Hayden has been elected to the Administrative Committee for the IEEE-Geoscience and Remote Sensing Society (GRSS). Term will be from Jan. 1 2015 to Dec. 31 2017.

Titles of Patents disclosed during the reporting period

Number of Patents disclosed during the reporting period: 0.00

Patents Awarded during the reporting period

Number of Patents awarded: 0.00

Graduate Students

<u>NAME</u>	<u>PERCENT SUPPORTED</u>	<u>Discipline</u>
Michael Jefferson	0.00	Mathematics
Andrew Brumfied	0.00	Mathematics
Jamika Baltrop	0.00	Mathematics
Kevin Jones	0.00	Mathematics
Patrina Bly	0.00	Mathematics
Justin Deloatch	0.00	Mathematics
FTE Equivalent:	0.00	
Total Number:	6	

Post Doctorates

<u>NAME</u>	<u>PERCENT SUPPORTED</u>
FTE Equivalent:	
Total Number:	

Faculty

<u>NAME</u>	<u>PERCENT SUPPORTED</u>
FTE Equivalent:	
Total Number:	

Under Graduate Students

<u>NAME</u>	<u>PERCENT SUPPORTED</u>	<u>Discipline</u>
Antonio Guion	0.00	Computer and Computational Sciences
Anthony Meadows	0.00	Mathematics
FTE Equivalent:	0.00	
Total Number:	2	

Student Metrics

This section only applies to individuals supported by this agreement in this reporting period

The number of post-graduates and Ph.D's funded by this agreement during this period:..... 6

The number of under-graduates funded by this agreement during this period:..... 2

The number of undergraduates funded by this agreement who graduated during this period:..... 0.00

The number of undergraduates funded by this agreement who graduated during this period with a degree in science, mathematics, engineering, or technology fields:..... 0.00

The number of undergraduates funded by your agreement who graduated during this period and will continue to pursue a graduate or Ph.D degree in science, mathematics, engineering, or technology fields:..... 0.00

Number of graduating undergraduates who achieved a 3.5 GPA to 4.0 (4.0 max scale): 0.00

Number of graduating undergraduates funded by a DoD funded Center of Excellence grant for Education, Research and Engineering:..... 0.00

The number of undergraduates funded by your agreement who graduated during this period and intend to work for the Department of Defense:..... 0.00

The number of undergraduates funded by your agreement who graduated during this period and will receive scholarships or fellowships for further studies in science, mathematics, engineering or technology fields:..... 0.00

Masters Degrees Awarded

NAME

Justin Deloatch

Patrina Bly

Michael Jefferson

Total Number: 3

PHDs Awarded

NAME

Total Number:

Other Research Staff

NAME

PERCENT SUPPORTED

FTE Equivalent:

Total Number:

Technology transfer (any specific interactions or developments which would constitute technology transfer of the research results). Examples include patents, initiation of a start-up company based on research results, interaction with industry/Army RD Lab

Nothing to report at this time.

Scientific progress and accomplishments (Description should include significant theoretical or experimental advances)

Lab upgrades funded in this project include uninterruptible power supply⁶ (UPS), backup generators, network upgrades for dedicated bandwidth and required computer consoles plus software for the training center. SeaSpace will supply the training for faculty and students. Training includes 1 SeaSpace employee on site for 8 days install and 2 days testing. This also includes 1 SeaSpace employee on site for 5 days training. Training will include:

- System Overview; Satellites and Sensors; Teravision; Data Capture; Operating Procedures
- Automatic Generation and Distribution of TeraScan Products using TeraPGS
- System Setup; Operations; System Hardware; Troubleshooting
- training exclusive to ECSU principals only - Limited to 5 people

Below is a listing of the purchase orders that have been issued through the Elizabeth City State University Purchasing Office. Purchase order numbers, vendors and amounts are included in the listing.

Vendor	PO Number	Amount	Description
SeaSpace Corp	P0035727	\$210,678.00	computers & training
Apple Computer	P0034747	\$6,622.81	computer equipment
B and M Contractors Inc	P0035323	\$68,975.00	Generator w/ Transfer switch
IRCameras LLC	P0034939	\$2,239.00	Thermal Imagine Camera, cable, power supply and Lens
Ricky's Welding	P0035569	\$1,140.00	Install dome platform

Total amount encumbered as of this quarter is \$289,654.81

Price Proposal

to

ECSU

Ref: BAA W911NF-13-R-0008

Offered by



August 14, 2014

TeraScan® L-Band System

<u>Item</u>	<u>Unit Price</u>	<u>Qty</u>	<u>Extended Price</u>
Monitoring System	\$6,500.00	2	\$13,000.00
<ul style="list-style-type: none"> - system for data visualization and monitoring - includes necessary hardware and software - includes 42" monitor 			
Visualization System	\$6,500.00	15	\$97,500.00
<ul style="list-style-type: none"> - system for data visualization and analysis - includes necessary hardware and software - includes 24" monitor 			
Visualization S/W License			
- TeraScan® License #1	\$15,000.00	1	\$15,000.00
- TeraScan® License #2 ~ #5	\$12,750.00	4	\$51,000.00
- TeraScan® License #6 ~ #10	\$11,250.00	5	\$56,250.00
- TeraScan® License #11 +	\$7,500.00	7	\$52,500.00
EDUCATIONAL DISCOUNT			-\$174,750.00
TeraScan Rapid Environmental X-treme processor (T-REX)	\$25,000.00	1	\$25,000.00
<ul style="list-style-type: none"> - optimized for processing NEXTGEN satellites - includes hardware and RAMPS license 			
TeraVault™	\$35,000.00	1	\$35,000.00
<ul style="list-style-type: none"> - for archiving of raw data and products to be accessible to other users via a network (60TB). Additional storage available. - includes necessary hardware and software - includes 36U Rack for TeraVault and T-REX above 			
On-site System Installation and Testing	\$23,840.00	1	\$23,840.00
<ul style="list-style-type: none"> - includes 1 SeaSpace employee on site for 8 days install and 2 days testing - installation includes anchoring of two portable geostationary antennas to existing concrete pads - customer will drill a total of six holes in concrete required to anchor each antenna tripod - customer will furnish all required anchor hardware - customer will furnish earth ground infrastructure for each antenna - includes all travel expenses 			
On-site Training - Basic TeraScan® and Product Generation		1	\$14,038.00
<ul style="list-style-type: none"> - includes 1 SeaSpace employee on site for 5 days training. Training will include: <ul style="list-style-type: none"> - System Overview; Satellites and Sensors; Teravision; Data Capture; Operating Procedures - Automatic Generation and Distribution of TeraScan Products using TeraPGS - System Setup; Operations; System Hardware; Troubleshooting - training exclusive to ECSU principals only - Limited to 5 people - includes all travel expenses 			
Shipping & Handling: DAP		1	\$2,300.00
Customer will be responsible for transportation from the airport to site.			

Total Price: \$210,678.00

· **Annual Software Support Maintenance following the 1st year**

TeraScan® software - License #1	\$3,375.00	1	\$3,375.00
TeraScan® software - License #2 ~ #5	\$2,868.75	4	\$11,475.00
TeraScan® software - License #6 ~ #10	\$2,531.25	5	\$12,656.25
TeraScan® software - License #11+	\$1,687.50	7	\$11,812.50

· **Annual Training Service(includes the following)**

- Instructor fee(\$1,800/ day)
- All travel expenses

* *Separate quote will be issued if there is request from ECSU*

see last page for details of support coverage

1. Payment Terms

Foreign order over \$200,000 USD may require an irrevocable Letter of Credit. Payment terms are as follows:

- Thirty percent (30%) of the value of the order at signing of contract.
- Fifty percent (50%) of the value of the order before shipment of the order.
- Twenty percent (20%) of the value of the order within 30 days after signing of SAT.

Wire Instructions (Please add Sales Order to wire transfer header)

- Bank Reference

Name: California Bank & Trust
Address: 10605 Scripps Poway Pkwy, San Diego, CA 92131 USA
Tel: 858-621-7275 Fax: 858-621-7281
Account No: 2160151181
ABA/Routing No: 122232109 (Domestic Transactions)
SWIFT Code: CALBUS66 (Foreign Transactions)

- Beneficiary Information

Name: SeaSpace Corporation
Address: 13000 Gregg St. Suite A, Poway, CA 92064 USA
Tel: 858-746-1100 Fax: 858-746-1199

2. Delivery

The delivery schedule for this system is three (3) months ARO. Delivery should be made DAP pursuant to SeaSpace

3. Warranty Term

SeaSpace offers a one (1) year (Return to Factory) Limited Warranty on all hardware. Completion of SeaSpace software training course is required for validation of Warranty. For our warranty records and export law compliance, the final system installation location must be disclosed before a shipment can be released from our facility. Warranty does not cover damage caused by lightning or dirty power. Warranty starts upon signing of Site Acceptance Test (SAT) or after 90 days from shipment, whichever comes first.

4. Validity

This Price Proposal is valid for three (3) months.

5. Site Preparation

Customer is responsible for site preparation. SeaSpace will furnish all pertinent information relevant to site preparation. Completion of site preparation is required prior to installation. It is understood that antenna system will be installed in an already existing platform. It is assumed that customer will prepare the existing platform to support the foot pattern of our proposed antenna base.

6. Shipment

Shipment will be made via airfreight DAP to ECSU campus.

7. System Test Procedure

All SeaSpace products are fully tested at the factory and as part of standard testing the proposed system will be setup to track and ingest actual satellite data. Customers are always welcome to visit us to tour our facility and observe system assembly and standard testing at no charge. The SeaSpace test facility is optionally available for a formal factory acceptance test (FAT) at the rate of \$1,800 USD per day.

8. Terms and Conditions

See our SeaSpace Standard Terms and Conditions.

Definition of Products and Services

TeraScan® Processing Software Support Services Agreement

IN SCOPE: Products and Services provided by this agreement include the following:

1. Distribution of TeraScan® software releases and patches
2. On-line SeaSpace Customer Support Web site (www.seaspace.com) for access to:
 - Updated and archived orbital elements
 - User documentation
 - Current list of frequently asked questions, and answers (FAQ's)
 - Updated coefficients table (various telemetries)
 - Satellite news
3. Help Desk support via on-line web site, e-mail, telephone, or fax for basic assistance with:
 - Effective use of software
 - Clarification of basic software functions (1 hour maximum per issue)
 - Basic trouble-shooting of apparent system malfunctions
 - Software upgrade installation
4. Access to the SeaSpace web forum (<http://forums.seaspace.com>)
 - Exchange ideas, research interests, processing scripts, etc. with other customers regarding TeraScan research applications.

Customer Support

Monday through Friday, Pacific (California) time: 8am – 5pm

E-mail: support@seaspace.com

Tel: 1-858-746-1160, Fax: 1-858-746-1199

www.seaspace.com

OUT OF SCOPE: Services NOT covered under this agreement: *

1. Basic software training over the phone

NOTE: SeaSpace and SeaSpace authorized dealers provide training classes for TeraScan® customers.

2. Specialized scripting, customization, and modification of software
3. Troubleshooting of user-generated scripts
4. Remote system administration
5. Failures caused by inappropriate or unauthorized system changes or additions
6. Specialized scientific consulting
7. Support for customer supplied equipment (CFE)
8. Hardware Troubleshooting (after warranty has expired)

* All out-of-scope services may be quoted at current SeaSpace labor rates.

Use of TeraScan® software is warranted and subject to the terms of the SeaSpace Software License Agreement.