Virginia SpaceLink

Virginia Space Grant Consortium

June 2012

Student Research Conference Highlights

The Virginia Space Grant Consortium's (VSGC) Student Research Conference and Scholars and Fellows Luncheon was held in April at the Williamsburg Hospitality House. The conference was attended by faculty and NASA personnel, industry representatives, state legislators, and members of the Governor's Aerospace Advisory Council. A key part of the Conference agenda was a luncheon hosted by the College of William and Mary. with a welcome and opening remarks made by W. Taylor Reveley, III, President. Dr. Charles Steger, President of Virginia Tech and Chairman of VSGC's Board of Directors, made opening remarks as well. Sean Connaughton, Virginia's Secretary of Transportation, and Karen Jackson, Deputy Secretary of Technology, attended the luncheon and made brief remarks about the importance of STEM research in the Commonwealth. The Deputy Secretary of Education, Javaid Siddiqi also attended.

Forty Graduate Research Fellows presented the results of their research in 15-minute oral presentations and 14 undergraduate scholars presented posters during the conference. Graduate oral presentation sessions included: Aerospace; Applied Science; Applied Physics; Planetary Science; and Astrophysics. Also attending were 21 VSGC Under-

Continued on Page 2

MEMBER INSTITUTIONS

COLLEGE OF WILLIAM AND MARY

HAMPTON UNIVERSITY

OLD DOMINION UNIVERSITY

UNIVERSITY OF VIRGINIA

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

NASA LANGLEY RESEARCH CENTER

NASA GODDARD SPACE FLIGHT CENTER

NASA WALLOPS FLIGHT FACILITY

MATH SCIENCE INNOVATION CENTER

SCIENCE MUSEUM OF VIRGINIA

VIRGINIA AIR & SPACE CENTER

STATE COUNCIL OF HIGHER EDUCATION FOR VIRGINIA

VIRGINIA COMMUNITY COLLEGE SYSTEM

VIRGINIA DEPARTMENT OF EDUCATION

CENTER FOR INNOVATIVE TECHNOLOGY

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The Director's Message

We are very pleased and excited to announce that we will receive $838,000 per year in new funding from the Commonwealth of Virginia for 2012 – 2014 biennium. The funding supports several innovative STEM projects that encourage students to pursue STEM studies and careers and to capitalize on the excitement of high tech and aerospace fields. In collaboration with a wide range of partners statewide, these programs seek to engage, inspire and educate Virginia students through experiential opportunities. Programs include an expansion of opportunities for student participation in our successful Virginia Aerospace Science and Technology Scholars (VASTS) for high school juniors, a Virginia Space Coast Academy for rising tenth graders, an on-campus Precollege Residential STEM Program, and a Commonwealth Industry Internship program for undergraduates.

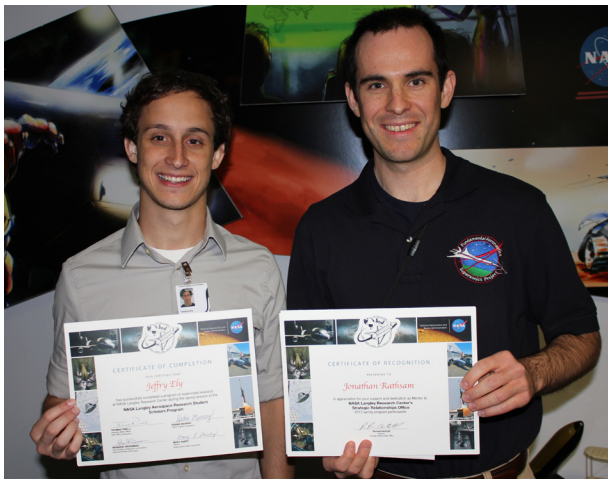
Our summer programs and activities are gearing up full steam. Stay tuned to our website and future SpaceLink issues as we implement newly funded initiatives and update you on the existing VSGC activities and programs for students and teachers.

Mary Sandy

RockOn! Workshop Scheduled for NASA Wallops Flight Facility

Teams of faculty and students from universities from across the nation will gather for the fifth annual RockOn! workshop scheduled June 16-21 at Wallops Flight Facility on Virginia's Eastern Shore. Sponsored by the Colorado Space Grant Consortium in partnership with the Virginia Space Grant Consortium, the workshop teaches participants how to build a scientific payload in four days that will be launched on a sounding rocket on the fifth day of the workshop.

Each experiment will provide valuable scientific data, analyzed as part of the student-led science and engineering research. Over 150 faculty and students from across the country have participated in RockOn! since the program's inception in 2008.



Jeffry Ely, (L) a student at Old Dominion University, was a Langley Aerospace Research Student Scholar (LARSS) intern for 15 weeks during the spring 2012 session. Jeffry, who is is a mechanical engineering major at ODU, is shown here receiving his certificate of recognition for LARSS. His mentor during the session was Jonathan Rathsam, Structural Acoustics Branch at NASA Langley.

Student Research Conference
Continued From Page 1

graduate STEM Bridge Scholars who are current sophomores at VSGC member institutions. A break-out session was held for the STEM Bridge Scholars where the students heard presentations from NASA Langley engineers and student interns who are conducting NASA-related research. Chris Carter, VSGC's Deputy Director, stated, "this is always one of our favorite days of the year because we get to meet the students in person and see the results of their research projects. The networking that takes place during the Conference can impact these students' lives forever. "

Dr. Ale Lukaszew, Distinguished Virginia Microelectronics Consortium Professor at the College of William and Mary, provided the keynote address titled, "Metal Insulator Transitions: The Case of VO2." Dr. Lukaszew is in the Physics and Applied Science department at the College.

VSGC Bridge Scholar, Simone Hyater-Adams-Hampton University, and VSGC Graduate Fellow, Collin McMillan-College of William and Mary, made brief remarks during the luncheon as to the impact of the award on their research and educational pursuits.

Scholarship and Fellowship Funding Awarded

The Virginia Space Grant Consortium (VSGC) is pleased to announce the awarding of $349,500 in graduate fellowships, undergraduate, teacher education, community college and STEM Bridge scholarships to 93 students pursuing higher education at VSGC member universities for the 2012-2013 academic year. The VSGC awarded $210,000 in Graduate Research Fellowships to 43 students including 19 renewal fellowships. A total of $93,500 in Undergraduate Research Scholarships were awarded to 12 students, five awards to teacher education students, eight community college awards and 25 (projected) awards to STEM Bridge students. These research awards require that students be engaged in a research project of interest to NASA and with a faculty advisor. Awards are based on evaluation of the applicant's research proposal and relevance to NASA, academic merit, and academic potential. ***Including this year's awards, VSGC has awarded over $5.3M in scholarships and fellowships to 1,245 students since 1989. NASA Space Grant and state funds make these awards possible.***

During the VSGC Student Research Conference, 22 undergraduate sophomores attended the second annual STEM Bridge session as a VSGC scholarship awardee. Students were inspired by a presentation from Guillermo Gonzales, NASA LaRC Orion Multi-Purpose Crew Vehicle Launch Abort System, Avionics Lead, who spoke about his experiences in the NASA pipeline.

The STEM Bridge students were also intrigued by a discussion lead by panelists Denise Arranda, NASA Ambassador and Co-op student plus several other graduate and undergraduate students who are participating in various NASA Langley programs.

Student Benefits from VSGC Community College Award

This year has been an incredible experience for me. I have completed my associates degree in engineering at John Tyler Community College and managed to maintain an overall GPA of 4.0. I have been accepted into the engineering schools at both Virginia Tech and UVA. I will transfer to one of these universities in the fall to obtain a B.S. in mechanical engineering. After I complete my undergraduate degree I will attend graduate school and prepare to enter the work force. As an engineer I will enjoy working on projects that are being done by companies such as NASA, Boeing, Lockheed Martin, and Rolls Royce.

This year I studied many of the fundamental courses in mechanical engineering, such as Differential Equations, Strength of Materials, Thermodynamics, University Physics, and Dynamics. The skills that I have learned in these classes will make it possible for me to complete my bachelors degree two years from now.

Attending John Tyler Community College has turned out to be a great decision. I have learned from all of my professors and have been able to get to know all of the students in the engineering program because of the small class size. While attending John Tyler Community College, I have been active in clubs and student organizations, and I served as a founding officer of the student government association. I was on the Dean's List for each of the past four semesters, and I was inducted into Phi Theta Kappa in my second semester as a full time student. I have served as a tutor at John Tyler for the past two years, tutoring other students in chemistry and mathematics. Tutoring has been a great experience for me because I have enjoyed the challenge of helping my fellow students learn new things and achieve their goals.

Becoming a VSGC Community College STEM Scholar has been one of the greatest honors that I have received as a college student. It has encouraged me to work harder in my classes and make the most out of my time as a student. Without this scholarship I would have had to spend more time working to pay for school and less time focusing on achieving academic excellence.

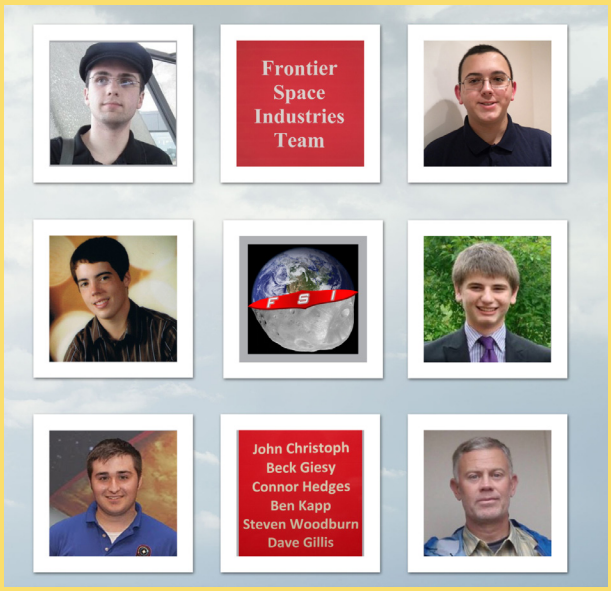
Thomas Gresham

Tri-Agency Climate Change Education PI Meeting

In April, Virginia Space Grant Consortium coordinated the NASA Innovations in Climate Education (NICE) annual principal investigator meeting which was held in Arlington, VA. The Consortium provides program integration and communication for the NICE grants program which is managed through NASA Langley Research Center. This meeting was held in conjunction with NSF and NOAA,to minimize duplication of effort, foster synergy among the different projects, leverage existing resources, and facilitate communication between the growing community of scientists and educators engaged in climate change education. Attendees at the 2012 Tri-Agency Climate Change Education PI Meeting included individuals representing projects currently funded by the NSF Climate Change Education (CCE) and Climate Change Education Partnership (CCEP) programs; the NASA Global Climate Change Education (GCCE) and NASA Innovations in Climate Education (NICE) programs; and, relevant projects funded by NOAA's Environmental Literacy Grants program.

In addition, representatives of Federal agencies involved with the US Global Change Research Program and representatives from relevant professional societies participated. Climate Change Education is a Presidential priority initiative within the current administration. In the past three years, NSF, NASA, and NOAA have dramatically increased their investments in projects that focus on increasing public understanding of climate science and improving the quality and effectiveness of climate change education in formal and informal learning environments. This is the second year that a collaborative PI meeting was held.

VASTS Scholars Propose Concepts for Spirit of Innovation Competition



A team of Virginia Aerospace Science and Technology Scholars (VASTS) scholars from the 2011 program were chosen to present a proposal at the "Innovation Summit" at NASA Ames Research Center on March 28-31 as part of the Conrad Foundation Spirit of Innovation program sponsored by Lockheed Martin. Team members include John Christoph, founding member, Beck Giesy, Ben Kapp, Steven Woodburn and Connor Hedges. These students spent months developing an economically viable plan for mining rare Earth minerals from nearby asteroids using existing technologies.

The students were coached by Dave Gillis, an AP Physics teacher at Randolph Macon Academy and advised by scientists from NASA Langley that they met through participation in VASTS. The team did all their work on-line via Facebook, Skype, and email, and only met in person once to film the required one minute video.

Google: "Frontier Space Industries" to see the video.