OSGC Directorship Changes Hands – Gary Slater Retires and Ruby Mawasha Named As Interim Director!

Dr. Gary Slater assumed the duties of OSGC Director in September, 2009, and announced his retirement from Space Grant recently. Dr. Slater had a longstanding, dedicated career as a faculty member in Aerospace Engineering at the University of Cincinnati as well as a devoted researcher with a long tenure at NASA Ames Research Center specializing in the areas of Air Traffic Control (modeling and scheduling), cooperative control on unmanned vehicles, and formation flight of satellites. He currently holds the title of Professor Emeritus in the Aerospace Engineering and Engineering Mechanics Department in the University of Cincinnati’s College of Engineering and Applied Science.

The OSGC thanks Dr. Slater for his years of dedicated service and numerous contributions to NASA and STEM education and wishes him all the best in his retirement.

Dr. P. Ruby Mawasha is currently the Interim Director of the OSGC and also serves as Associate Dean in the College of Engineering and Computer Science at Wright State University. Dr Mawasha’s current research and academic interests include: Engineering Education, Bioengineering, Heat Transfer, Fluid Mechanics, and Applied Mathematics. Dr. Mawasha is a Registered Professional Engineer in the State of Ohio and an American Society of Mechanical Engineers Fellow.

Former OSGC Directors, Home Universities, and Tenure as Director

Paul C. Claspy
Case Western Reserve University

Kenneth J. De Witt
The University of Toledo

Paul C. K. Lam
The University of Akron
(2007 – 2009)

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Director’s Corner

Fall, 2014

One Last Column

Well, the headline on page one says it: “OSGC Directorship Changes Hands”. After serving as the OSGC Campus Representative from the University of Cincinnati (UC) for about 10 years, and then five more years as Director, (prefaced by my 40 years as an Aerospace faculty member/researcher) I felt it was time to let new leadership take over the task of leading Ohio Space Grant Consortium into another grant cycle. And, I am proud that our Campus Representatives have chosen the Associate Director, Ruby Mawasha, to provide that leadership.

I must admit, when I started my time with Space Grant, I really didn’t know what I was getting into! Scholarships and fellowships for students were what I thought- but I quickly found out there was much more, including research grants, curriculum grants, and even grants for K-12 teachers and community organizations that focused on STEM education. And, during the five years of my Directorship our activities have changed; some due to changing needs and direction from NASA Headquarters. This included expanding our affiliate network, including to non-PhD granting four-year institutions, and adding a new focus on community college STEM students. I must admit- being Director took more time than I had anticipated! Dealing with the students and our faculty has always been pleasurable.

As a national program mandated by congress, and included by name in the NASA education budget, Space Grant has recently celebrated its 25th year. Our Ohio congressmen and senators have all been strong supporters of Space Grant, and have helped resist funding cuts that have been pervasive in Washington in recent years. With strong leadership in Ohio and nationally, I hope that the Space Grant continues to lead and evolve in providing a strong STEM education focus, and promote the technical achievements epitomized by the NASA space and aeronautics efforts. Locally, the Ohio Space Grant Consortium is supported by volunteer campus representatives at our 26 schools, and their dedication and work is what has made OSGC such a success. Finally, without a dedicated Program Manager in Laura Stacko, OSGC would not be able to provide services and meet the reporting requirements we deal with. I am pleased that I was able to help in this, and while I am happy to pass on the Director responsibility to Dr. Mawasha, I will willingly continue to assist OSGC in any way possible.

Best wishes for the future!

Sincerely,

Prof. Gary L. Slater
Director
Ohio Space Grant Consortium
Email: gary.slater@uc.edu
Phone: (513) 556-3223
University of Cincinnati’s UAS (Unmanned Aerial Systems) Program Applauded!

The University of Cincinnati (UC) was recently mentioned in an *Aerospace Manufacturing and Design* article as one of the top 10 universities to receive a UAS (Unmanned Aerial Systems) degree. While UC doesn’t have a dedicated degree for UAS construction, their SIERRA (Surveillance for Intelligent Emergency Response Robotic Aircraft) project has garnered attention before for its capability to spot forest fires. SIERRA has also partnered with AMP Electric Vehicles to create a high-tech delivery system.

The University of Cincinnati has more power behind this capability than ever before, now that they have a 3D printer to construct parts as well as an approved indoor flight facility for testing.

Congratulations to everyone at UC; particularly faculty member, Kelly Cohen, Professor of Aerospace Engineering, School of Aerospace Systems, College of Engineering and Applied Science who oversees all of the UAS activities and offered the following: “We have the ability to design small, unique, multi-copters and manufacture the air-frame using a 3-D printer in the lab. Then we integrate motors, batteries, props, communication devices, electronics and a camera. At that point we can develop and integrate a flight control system; and voila, we can fly indoors in our newly approved indoor facility in a safe, secure and legal manner!!!! I feel that this capability will provide a terrific introduction to students interested in flight, robotics, intelligent systems, dynamics and control systems, image processing, to name a few areas.”
OSGC Wins NASA Award for CC-STARS! (Community College – STEM Training and Retention of Students!)

The CC-STARS! (Community College – STEM Training and Retention of Students!) is a new, creative, and innovative program to encourage and increase the number of Community College and Technical School (CC-TS) students to engage in NASA-oriented Science, Technology, Engineering, and Mathematics (STEM) education and skills. The OSGC is partnering with 4 Ohio community colleges and 1 technical school, and 7 four-year universities to achieve these goals.

The following community colleges and technical school are eligible to participate:
- Cincinnati State Technical and Community College
- Cuyahoga Community College
- Lakeland Community College
- Lorain County Community College
- Sinclair Community College

The following 4-year universities are eligible to participate:
- Central State University
- Cleveland State University
- The University of Akron
- University of Cincinnati
- University of Dayton
- The University of Toledo
- Wright State University

CC-STARS! is focused on the following three programs:

1. Scholarship Program

Scholarship - Year 1 - $2,500
Selected students will work on an introductory research project with a faculty mentor throughout the 2014-2015 academic school year.

Scholarship - Year 2 - $2,500
Depending on the student’s research progress and availability, the following options are available for the final year of the scholarship. Students will:
1. Participate in a summer internship at either NASA Glenn Research Center, Wright-Patterson Air Force Base, or with industry;
2. Continue the current research project at their community college or technical school;
3. Receive a “Bridge” scholarship transitioning to a 4-year university.

2. Hands-on Team Programs

Unmanned Aircraft Systems (UAS) Program — Develop, build, and fly an unmanned aircraft system (UAS) culminating in a competition with other schools in the program at an annual competition. Programs can be modeled and expanded on a previously funded program currently in existence at Lorain County Community College who will lead this program.

Astronomy and Space Program — Focuses on Astronomy and Space which can be modeled and expanded on the successful Astronomical Research Program (ARP) currently in existence at Lakeland Community College who will lead this program. The ARP provides meaningful hands-on research opportunities for students which contribute to current NASA Missions.

3. Bridge Mentoring Program — Encourages and mentors students who transition from the two-year Associate Degree Program to a four-year Engineering/Technology Bachelor’s Degree.
New OSGC Faces

Dr. Alan L. Jennings – Air Force Institute of Technology (AFIT)
The OSGC’s new Campus Representative and member of the Executive Committee at the Air Force Institute of Technology (AFIT) is Dr. Alan L. Jennings, Research Assistant Professor, Department of Aeronautics and Astronautics. Dr. Jennings is a former OSGC Doctoral Fellowship Recipient in Electrical Engineering at the University of Dayton. Many thanks to Dr. Jonathan T. Black who served as the AFIT Campus Representative for many years!

Ms. Rose Begalla – Cleveland State University (CSU)
The OSGC’s new Campus Representative and member of the Executive Committee at Cleveland State University is Ms. Rose Begalla. In her role as Manager Student Affairs and Advising Scholarship Coordinator, Rose is responsible for counseling STEM students. Our thanks to Dr. Pamela Charity-Leeke for her commitment and service to the Ohio Space Grant Consortium, and wish her well in her retirement.

Dr. Yanhai Du – Kent State University (KSU)
The OSGC’s new Campus Representative and member of the Executive Committee at Kent State University is Dr. Yanhai Du, Assistant Professor, College of Applied Engineering, Sustainability and Technology. The OSGC is grateful to Dr. Gerald O. Thompkins for his contributions to the Ohio Space Grant Consortium.

Dr. Steven Oluic – Lakeland Community College (LCC)
Welcome Dr. Steven Oluic, Ph.D., USA (ret.), Dean of Mathematics, Engineering, Technologies, Natural & Social Sciences, Lakeland Community College, as the new OSGC Campus Representative. Thank you, Dr. Margaret Bartow, for her services.

Dr. Rosa E. Rivera-Hainaj – Lorain County Community College (LCCC)
Rosa E. Rivera-Hainaj, Ph.D., Dean, Science and Mathematics Division, Lorain County Community College, is the new Campus Representative. The OSGC thanks Dr. George Pillainayagam for his many years of service!

Mr. Glenn Rettig – Owens Community College
Mr. Glenn Rettig, Dean, School of STEM (Science, Technology, Engineering, and Mathematics), Owens Community College, is the new Campus Representative. Thanks to Randy Wharton for your contributions to the OSGC.

Larraine A. Kapka, P.E. – Sinclair Community College
Larraine A. Kapka, P.E., Assistant Dean, Science, Mathematics and Engineering, Sinclair Community College, is the new Campus Representative. The OSGC thanks Professor Kent Wingate for his numerous contributions to the OSGC!

OSGC Names New Community College Affiliate!
Congratulations to Cincinnati State Technical and Community College who was recently added as an OSGC Community College Affiliate member. Professor David Simmermon, Program Chair, Pre-Engineering Program, serves as the OSGC Campus Representative!
Featured Student Internships

Summer, 2014 – NASA Academy:
- NASA Aeronautics Academy @ Langley Research Center – Brian M. Katona, Senior, Aerospace Engineering, Kent State University, “Design, Build and Fly a Dual Purpose UAV for Search and Rescue and Precision Agriculture”
- NASA Aeronautics Academy @ Glenn Research Center – Caitlyn M. Rodomsky, Junior, Mechanical Engineering, Youngstown State University, “CFD Analysis of Aeroperformance Degradation in Aircraft Icing”

Summer, 2014 – NASA Internships:

Caitlyn M. Rodomsky

Sarah A. Roth  Rebekah G. Douglass  Taylor S. Wyan

Brian J. Katona
2014-2015 Scholarship Awardees

The University of Akron
*Calia A. Battista, Senior, Biomedical Engineering  
*Kenneth W. Smith, Jr., Senior, Aerospace Systems Eng.  
*AlRitia J. Gore, Junior, Biomedical Engineering

Case Western Reserve University
*David R. Moore, Senior, Mechanical/Aerospace Engineering  
*Andrea S. Terrasi, Senior, Mechanical/Aerospace Engineering  
*Dora Wu, Senior, Mechanical Engineering  
*Hillary K. Bunnelle, Junior, Mechanical/Aerospace Engineering

Cedarville University
*Dylan J. McKevitt, Senior, Geology  
*Zachary J. Sirois, Senior, Biology  
*Calvin J. Anderson, Junior, Geology  
*Grace A. Revenaugh, Junior, Biology

Central State University
*Talion M. Grace, Senior, Manufacturing Engineering  
*Chidiobi J. Nwagu, Senior, Manufacturing Engineering  
*Daniel Peoples, Jr., Senior, Environmental Engineering/Water Resources Management  
*Jamall L. B. Porché, Senior, Manufacturing Engineering  
*Tiffany D. Bailey, Junior, Mathematics

University of Cincinnati
*Andrea M. Gillis, Senior, Aerospace Engineering  
*Jacob R. Holden, Senior, Aerospace Engineering  
*Owen B. R. Macmann, Senior, Aerospace Engineering  
*Peter J. Miller, Senior, Chemical Engineering  
*Sophia M. Mitchell, Senior, Aerospace Engineering

Cleveland State University
*John P. Gavin, Senior, Chemical Engineering  
*Daniel G. Gerges, Senior, Mechanical Engineering  
*Teisha L. N. Mullins, Senior, Chemical Engineering

Kent State University
*Chelsea D. Atkins, Senior, Air Traffic Control  
*Zachary M. Emrich, Senior, Mathematics  
*Tessandra A. Sage, Senior, Comp. Science/Physics  
*Andrew J. Knueven, Junior, Applied Engineering  
*Miguel R. D. Richey, Junior, Aerospace System Engineering Technology

Marietta College
*Erica M. Ohler, Senior, Petroleum Engineering  
*Myles A. Shade, Junior, Petroleum Engineering  
*Shaun T. Stoner, Junior, Petroleum Engineering  
*Blair M. Wilson, Junior, Petroleum Engineering

Miami University
*Ryan M. Ettenhofer, Senior, Mechanical Engineering  
*Charles A. Laymon, Senior, Mechanical Engineering  
*Danielle S. Oliver, Senior, Mechanical Engineering  
*Joshua G. Smith, Junior, Mechanical Engineering

Ohio Northern University
*Camden C. Brown, Senior, Mechanical Engineering  
*Taylor R. Manahan, Senior, Mechanical Engineering  
*Rebekah G. Douglass, Junior, Mechanical Engineering  
*Michael V. Potter, Junior, Mechanical Engineering

The Ohio State University
*Kyle J. Sherman, Senior, Mechanical Engineering  
*Adam T. Davidson, Junior, Aeronautical/Astronomical Engineering

Ohio University
*Tyler C. Beck, Senior, Biological Sciences  
*Jennifer M. Neumeyer, Senior, Biological Sciences  
*Kyle A. Young, Senior, Electrical Engineering

The University of Toledo
*Taylor C. Killian, Senior, Electrical Engineering  
*Kia N. Potts, Senior, Mechanical Engineering  
*Bryan D. Robbins, Senior, Mechanical Engineering  
*Rosen Dennis Jacob Smithers, Senior, Biology

Wilberforce University
*Valencia L. Dove, Senior, Comp. Information Systems  
*Dahirion D. Johnson, Senior, Computer Engineering  
*Martina Brady, Junior, Computer Information Systems  
*Alexander Robinson, Junior, Electrical Engineering  
*James Stewart, Junior, Electrical Engineering

Wright State University
*Joshua D. Compaleo, Senior, Electrical Engineering  
*Jeremy J. Lee, Senior, Mechanical Engineering  
*Bassirou Seck, Senior, Electrical Engineering  
*Erica G. Meadows, Junior, Materials Engineering

The OSGC would like to recognize Choose Ohio First, the Nord Family Foundation, and the Nordson Corporation Foundation for providing financial support to our Scholarship and Fellowship program!
2014-2015 Fellowship Awardees

**Doctoral**

*Kent State University*
*Dulcinea M. Avouris, PhD 1, Applied Geology

*The Ohio State University*
*Luís C. Herrera, PhD 3, Electrical Engineering
*Joseph A. Plattenburg, PhD 1, Mechanical Engineering
*Michael G. Wood, PhD 1, Electrical Engineering

**Master’s Degree**

*Case Western Reserve University*
*Lauren M. Smith, MS2, Mechanical Engineering

*Cleveland State University*
*Joshua M. Cmar, MS1, Chemical Engineering
*Andrew J. Zak, MS1, Chemical Engineering

2014-2015 Community College Scholarship Awardees

*Columbus State Community College*
*Darren M. Conley, Sophomore, Construction Management
*John P. Whalen, Sophomore, Electrical Engineering Technology

*Owens Community College*
*Harold J. Kuhbander, Sophomore, Nursing
*Anthony O. Smoktonowicz, Sophomore, Electrical/Electronics Engineering Technology

2014-2015 Education Scholarship Awardees

*Cedarville University*
*Matthew C. Matyszczak, Junior, Middle Childhood Education, Science and Mathematics
*Jesse R. Orndoff, Junior, Adolescent to Young Adult (AYA), Physical Science

*Central State University*
*Ryan B. Jones, Senior, Adolescent to Young Adult (AYA), Biology

*Cleveland State University*
*Kristen R. Schuler, Senior, Adolescent to Young Adult (AYA), Mathematics and Physics

*Kent State University*
*Stacey N. Forte, Adolescent to Young Adult (AYA), Mathematics and Physics

*Marietta College*
*Stephanie K. Grube, Adolescent to Young Adult (AYA), Mathematics

*Ohio Northern University*
*Callie M. Brown, Adolescent to Young Adult (AYA), Life Sciences,
*Kerry E. DuLaney, Senior, Adolescent to Young Adult (AYA) Education, Mathematics

*University of Cincinnati*
*Hanna Jo Clark, Senior, Early Childhood Education

*University of Dayton*
*Jennifer M. Marek, Junior, Middle Childhood Education, Science and Mathematics
*Daniel S. Zillich, Senior, Middle Childhood Education, Mathematics

*Wright State University*
*Heather A. Hitchcock, Senior, Middle Childhood Education, Science and Language Arts
*Jenna M. Falldorf, Sophomore, Early Childhood Education

*Youngstown State University*
*Josiah M. Banks, Senior, Adolescent to Young Adult (AYA) Education, Integrated Mathematics

_The OSGC would like to recognize Choose Ohio First, the Nord Family Foundation, and the Nordson Corporation Foundation for providing financial support to our Scholarship and Fellowship program!_
Congratulations go out to Anthony O. Smoktonowicz, Electrical/Electronics major at Owens Community College for being named a NASA National Community College Aerospace Scholar for Phase I of the Program. Following are some of the experiences Tony will have as an Aerospace Scholar:

- Interactive web-based activities including: Approximately 20 hours of work online
- Online interaction with participants and webinars with NASA engineers/scientists
- Design a 3D model of a rover using an AutoCAD program such as Google Sketch-Up or Autodesk123d
- Plan a mission to Mars

Students who successfully complete the interactive web-based activities may be eligible for an onsite experience at NASA including:

- Exploration team project directed by NASA engineers
- Briefings by engineers and scientists
- Tour of NASA facilities

What can I expect in the online learning experience?

- Four (4) modules and a final project (approximately 20 hours of work over a 5-week period)
- Learn about past, present, and future of Mars missions
- Participate in discussions with other students online
- Live video chats with NASA experts
- Quizzes to check for understanding
- Plan a Mars mission and design a 3D model of a rover

Tony’s winning poster display is shown above for his research entitled: “Autonomous Methane Detection Robot for Landfill Applications” at the 2014 Annual Student Research Symposium.

Tony was selected for Phase 2 of the NASA National Community College Aerospace Scholar program and will be conducting research at NASA Marshall Space Flight Center in Huntsville, Alabama, in December, 2014.

Congratulations, Tony! We are all very proud of your accomplishments!
Ohio Teams Compete in Ohio Unmanned Aircraft Systems (UAS) Conference

The Air Force Research Laboratory Sensors Directorate, in conjunction with the Dayton Development Coalition and the Institute of Navigation, hosted the first annual Autonomous Aerial Vehicle Competition at the 2014 Ohio Unmanned Aircraft Systems (UAS) Conference on August 26-28, 2014, at the Dayton Convention Center in Dayton, Ohio. The premise of this collegiate-level challenge is autonomous navigation and target geo-location in a GPS-denied environment using a small UAS. With a primary focus on algorithm development, all teams will have the option of purchasing and modifying the same low-cost open-source hobby-level multirotor aircraft. This year's competition challenges an autonomous multirotor aircraft to search for an object in a hazard-cluttered indoor playing field, image the object, and report the object's coordinates. Points will be rewarded for team prepared reports, team design review presentations, progress through the competition field, successful object imaging, and accuracy of object geo-location. Prize money will be awarded to the winners. The following two Ohio teams participated in the competition:

- The University of Toledo – “SUAVE (Smart Unmanned Aerial Vehicle for Exploration)"
- Lorain County Community College – “Team Orbit"

The University of Toledo SUAVE team garnered First Place Honors and the Lorain County Community College (LCCC) Team Orbit took Third Place at the competition. LCCC's entry was designed, built, and programmed by Emilio Borges under the direction of Professor Marlin Linger. Congratulations to both teams!
OSGC hosted their ninth annual Education Workshop in cooperation with NASA Glenn Research Center Office of Education at the Ohio Aerospace Institute in Cleveland on October 31, 2014. Attendees included 15 undergraduate students studying to be K-12 teachers. Ms. Susan M. Kohler, Education Professional Development Specialist, NASA Glenn Research Center, Office of Education, taught the group through a variety of hands-on lesson plans and brainstorming practices for a variety of K-12 STEM disciplines, including:

• Rockets to the Rescue- Who will feed the world? – Engineering Design Challenge (Grades 3 – 12)
• Building for a Hurricane – Engineering Design Challenge (Grades K – 12)
• Build a Satellite – Engineering Design Challenge (Grades K – 8)
• ECHO the Bat – Science Literacy and Biodiversity (Grades 3 – 9)
• The Endangered Hoppit-5E’s Inquiry Based Learning (Grades K – 5) Kinesthetic

Other speakers included Dr. Michael L. Heil, President and Chief Executive Officer, Ohio Aerospace Institute, who welcomed the group, and Mr. Robert F. LaSalvia, Chief, Office of Education, NASA Glenn Research Center, who gave the students an overview of NASA Education resources and Glenn Research Center.

Some workshop commentary from the participants include: “Participating in these workshops has helped me to plan lessons and to provide resources to other teachers I work with -- passing it on! This was great! I wish I could go to more!! It was very interactive, and kept me engaged the whole time! I learned so much, it was a huge blessing! The roles were great! It streamlined the processes and will be great in the classroom. The activities were useful and a lot of fun. The amount of resources is unbelievable, and I will definitely be utilizing them!”

Annual Pre-Service Teacher Workshop – Friday, October 31, 2014
### Ohio Space Grant Consortium Membership

#### Affiliate Members:
- Air Force Institute of Technology
- Case Western Reserve University
- Cedarville University
- Central State University
- Cleveland State University
- Kent State University
- Miami University
- Ohio Northern University
- The Ohio State University
- Ohio University
- The University of Akron
- University of Cincinnati
- University of Dayton
- The University of Toledo
- Wilberforce University
- Wright State University

#### Participating Institutions:
- Marietta College
- Youngstown State University

#### Community Colleges:
- Cincinnati State Technical and Community College
- Columbus State Community College
- Cuyahoga Community College
- Lakeland Community College
- Lorain Community College
- Owens Community College
- Sinclair Community College
- Terra State Community College

#### Education Outreach Partners:
- Cincinnati Observatory Center
- Drake Planetarium & Science Center
- iSPACE, Inc.

#### Government Partners:
- NASA Glenn Research Center
- Air Force Research Laboratory

#### Lead Institution:
- Ohio Aerospace Institute