ISSUE 2:
New SCSGC Members, SCSGC Updates; COVID-19 Resources

WHAT IS CORE SC?
CORE SC WILL WORK WITH LOCAL, NATIONAL, AND GLOBAL ORGANIZATIONS TO SERVE AS A “NEXUS FOR RESEARCH, INNOVATION, AND COLLABORATION THAT LEADS TO ACTIONABLE OUTCOMES TO IMPROVE COMMUNITY AND SOCIETAL RESILIENCE.” THE CENTER WILL FOCUS EFFORTS ON FIVE CENTRAL RESILIENCY SECTORS:

- **WATER** - “MAINTAINING HEALTHY DRINKING WATER, MITIGATION OF COASTAL EROSION, SEA-LEVEL RISE, FILTERING AND CONTROLLING STORM RUN-OFF, RESPONDING TO CLIMATE CHANGE”
- **ENERGY** - “TESTING, DEVELOPING, DEPLOYING RENEWABLE SOURCES SUCH AS SOLAR, WIND, WATER, BATTERY, BIO-SOURCES”
- **CONNECTIVITY** - “ENSURING SOCIETAL ACCESS TO INTERNET AND OTHER MEANS OF COMMUNICATION”
- **AGRICULTURE** - “PROVIDING SUSTAINABLE FOOD SOURCES”
- **NATURAL HAZARDS** - “MITIGATING AND COMMUNICATING/RESPONDING TO EFFECTS OF EARTHQUAKES, TSUNAMIS, FLOODING, HURRICANES, TORNADOS, AND OTHER NATURAL HAZARDS”

KEVIN LIMEHOUSE
Charleston County Government Innovation and Operations Officer Office of the Deputy County Administrator

- Hometown: Summerville, SC
- Research Interests: Any advancement that helps promote better quality of living for our citizens. From water quality to micromobility and everywhere in between.
- Hobbies: Spending time with my family, cooking, and enjoying great movies.

“I am a big nerd for helping people, collaboration, and improving processes.”

LEARN MORE HERE: SCSPACEGRANT.COFC.EDU/CORESC
Dr. N. Brice Orange  
OrangeWave Innovative Science, LLC  
CEO and Physicist

- **Hometown:** Born, raised, and proud—Oakley, SC

- **Research Interests:** My research passion is definitely the Sun-Earth system. However, I love to dabble in science and R&D, so here goes! I like, and am involved to some degree in research projects related to: solar and plasma physics, robotic telescope control systems and system operations of robotic observatories, environmental/climate science and related technology R&D, high-energy astrophysics, software engineering that supports diverse scientific research fields, vertical flight R&D, development of new radiation shielding technology, and R&D for an experimental plasma physics/magnetic reconnection system that mimics solar flares.

- **Hobbies:** Surfing, Gardening, love spending time with my wife, and all our family and friends. I also enjoy traveling, trying out new food, and trying (with trying really emphasized) to learn Norwegian.

- **Current Projects:**

  Since 2015, I (and OWIS) have teamed up with faculty and undergraduate researchers from UVI, South Carolina State University (SCSU), and the US Air Force Academy to further mature some of my solar physics software that is allowing us to construct a long-term multivariate database of global scale solar activity. At present, Dr. Jennifer Cash from SCSU and I have a SCSG REAP award that will also us to historically expand this database to include 24 years worth of data! Our collaboration then intends to use these data to deepen our understanding of the long-range photosphere-corona connection by explaining causality and feedback relationships between different layers of the solar atmosphere.

  Over the last year, Myself and an OWIS Systems Engineer have been prototyping and bench testing a self-sustaining line-of-sight communicating device. Our goal is that this device can be tailored in the future as a network for advanced warning of rain events for robotic observatories, or as a suite of climate-environmental data acquisition devices to open up long-term monitoring of such in sparsely populated areas and/or even potentially uninhabited islands. This summer, we will be working with two UVI undergraduate students to complete a production analysis that focuses on a trade-off study of commercially available off-the-shelf versus 3D printed parts manufactured in-house by UVI.

  Since October 2019, I have partnered with the US Department of Agriculture to share weekly data from the USVI Climate Monitor to enhance the coverage of their US Drought Monitor in the USVI. I have also recently teamed up with the University of the Virgin Islands group tasked by the US Department of the Interior to revise the territory’s Hazard Mitigation Plan, to support their development of a revised resilience strategy against drought. In the coming months, I expect to build upon preliminary work performed by an OWIS intern this Spring (a student attending Trident Technical College interested in pursuing a B.S. in Astronomy one day) to evolve our data sharing software towards full autonomous operation, and continue contributing to the development of technical reports essential to effectively communicating information about changes in territorial rain patterns to policymakers, and the public and private sectors.
Current Projects Continued...

During the last six years I have supported OWIS’s Chief Technology Officer in developing a device to mimic the energetics of solar flares. We just submitted the technology as a US National Phase patent application, and are already working a new spin-off space technology development company centered around transforming this invention into an advanced plasma propulsion device.

If applicable, where can we see your work?

If applicable, where can we see your work? Pretty much all my publications can be found and read on either the arXiv (https://arxiv.org/), using the Astrophysical Data System (ADS; https://ui.adsabs.harvard.edu/), or probably even more easily through my ResearchGate page (https://www.researchgate.net/profile/N_Orange).

Also you can check out and follow the OWIS Facebook page (https://www.facebook.com/OrangeWave-Innovative-Science-LLC-258286907703493/), as we try our best to talk about what is and has been going on with us. It has been on our to do list for what feels like many years, but who knows may be 2020 will be different, and we will finally get an OWIS website up and running! Stay tuned.

- Contact Dr. Orange: orangewaveno@gmail.com, through the OWIS Facebook page, or by contacting our Chief Operating Officer at orangewavekm@gmail.com or Chief Communications Officer at orangewaveto@gmail.com.
Thank you, Dr. Donna Roberts of MUSC Health for coming to D.C.! She spoke at our NASA Space Grant conference about her early days with NASA, leaving the agency to go medical school to get her neuroscience degree and being one of the first to study how outer space affects human brain health. Thank you again - especially for representing S.C. & sharing how SC Space Grant/NASA EPSCoR impacted your research. Learn more about Dr. R & her team's study on health in space: TedTalk: http://bit.ly/2Py1ceF

COMMUNITY NEWS

West Ashley High School & MUSC helping healthcare professionals during the coronavirus pandemic. Read more about by heading to our website: https://scspacegrant.cofc.edu/covid-19-resources
At this time, quarantine continues and the fate of our state during this pandemic remains unknown. There is something that we do know – astronaut Scott Kelly said it best: “We are all connected.” NASA SC Space Grant Consortium hopes you, your family & friends stay safe at this time. We are here to help answer questions regarding the future of Space Grant Fellowships/Scholarships, have STEM Education resources available for K-12 students and last but not least, sharing good news happening in communities across the state of South Carolina despite COVID-19 conditions.

View a variety of STEM at-home activities by us and other NASA Space Grant consortia members & see uplifting community stories.

https://scspacegrant.cofc.edu/covid-19-resources
REAP Awards:

Frank Chen - USC
Laura Redmond - Clemson
Jon Hakkila - C of C
Jason Rawlings - Furman
Scott Husson - Clemson
Joe Carson - C of C
Jennifer Cash - SCSU
Michael Larson - C of C
Steven Rodney - USC

Research Scholarships & Fellowships Awards:

Kyle Lackey, USC - Graduate Assistantship
Jessica Deaver, Clemson - Graduate Assistantship
Gabrielle Leith, USC - Graduate Assistantship
Kara Noonan, Clemson - Kathy Sullivan Earth & Marine FS
Andrew Anderson, USC - Undergraduate
Matthew Godbold, USC - Undergraduate
Jordan James, CofC - Undergraduate
Jameel Moore, Benedict - Undergraduate
Victoria Snyder, PC - Undergraduate
JohnPaul Sleiman, Furman - Undergraduate
Natalie Sorrem, CofC - Undergraduate
Christopher Carter, USC - MIST Research Award
Taylor Cronin, CofC - MIST Research Award
Mary Kule, CofC - MIST Research Award
Kathleen Wirth, Clemson - STEM Outreach FS
Eleanor Davis, USC - STEM Outreach FS
Glenn Eddie Johnson, CofC - STEM Outreach FS
2020 - 2021 Yr. 28 SCSGC and 2020 SC NASA EPSCoR RID RGP Awardees

Continued

**Palmetto Academy Faculty:**

Frank Chen, USC  
Qiushi Chen, Clemson  
Ana Oprisan, CofC  
Sorinel Oprisan, CofC  
Sudeep Popat, Clemson  
Sakamuri Reddy, MUSC  
Ya-Ping Sun, Clemson  
Teddy Them, CofC

**Palmetto Academy Students:**

Trevor Janssen, USC – F. Chen, USC  
Micah Hinton, USC – F. Chen, USC  
William Luce, Clemson – Q. Chen, Clemson  
Christopher Overton, Wofford – Q. Chen, Clemson  
Seth Zoppelt, CofC – A. Orpisan, C of C  
Michael Cox, Clemson – S. Oprisan  
Nicholas Schirato, Clemson – Popat, Clemson  
Clancy Kerr, Clemson – Popat, Clemson  
Alexandrai Pendino, Clemson – Reddy, MUSC  
Meredith Reeves, Furman – Reddy, MUSC  
Lina Zaharias, Furman – Sun, Clemson  
Kathleen Wirth, Clemson – Sun, Clemson  
Marisa Knight, CofC – Them, C of C  
Corrine, CofC – Them, C of C
Congrats, Palmetto Academy Seniors!

Anna Alford
Furman University with a degree in Physics & Applied Mathematics. After graduation, she will be pursuing her PhD in Biomedical Engineering at Purdue University.

Allie Ottinger
Clemson University with a degree in Biological Sciences/Social Sciences Cluster. After graduation, she will be pursuing her MD degree at the Medical University of South Carolina in the fall.

Clancy Kerr
Clemson University with a degree in Microbiology. After graduation, she will be pursuing her PhD in Environmental Engineering.
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