

**College of Science**  
**Summer 2019 Accolades**

**College of Science.** Eight recently retired faculty were awarded the rank of Emeritus professor. **Edwin Schneider**, Atmospheric, Oceanic and Earth Sciences; **Claudio Cioffi-Revilla**, Computational and Data Sciences; **Robert Jonas** and **Albert Torzilli**, Environmental Science and Policy; **Kathleen Alligood** and **Stephen Saperstone**, Mathematical Sciences; and **Maria Dworzecka**, Physics and Astronomy.

**Alonso Aguirre**, Environmental Science and Policy, coordinated and hosted the 2019 RCN EcoHealthNet Workshop “Emerging Threats to Global Health”, in June at George Mason University. EcoHealthNet is an undergraduate and graduate-level global research coordination network, funded by the National Science Foundation, to bring together world-class research scientists from medical, ecology, veterinary, epidemiology, virology, anthropology, climate science, data science, and economics fields to advance One Health research and education. He also delivered the opening keynote “Conservation Medicine and Transdisciplinarity: Gaps in Science and Policy in Wildlife Health and Conservation” at the 4th Wildlife Disease Association Latin American Section Meeting, in Museo del Jade, San Jose, Costa Rica. Aguirre was a senior author of two articles: “The One Health approach to toxoplasmosis: Epidemiology, control and prevention in humans, animals, and ecosystems” published in *EcoHealth* and “Transdisciplinary and social-ecological health frameworks—Novel approaches to emerging parasitic and vector-borne diseases” published in *Parasite Epidemiology and Control*. He also co-published an article titled “Operationalizing One Health employing social-ecological systems theory: lessons from the Greater Mekong Subregion” published in *Frontiers in Public Health*.

**Karen Akerlof**, Environmental Science and Policy, is one of the recipients of the 2019 Provost’s Curriculum Impact Grant (CIG) competition. This seed grant program supports the generation of innovation curricular ideas and pilot programs that enhance Mason Impact and other cross – unit, multi – disciplinary undergraduate and graduate curriculum development activities. Akerlof and colleagues from CHSS and Schar, were awarded for their project, Minor in Environmental and Ecological Consulting.

**Harbir Antil**, Mathematical Sciences, was awarded \$100,000 for Collaborative Research: Multilevel Methods for Optimal Control of Partial Differential Equations and Optimization-Based Domain Decomposition by the National Science Foundation.

**Laura Antonia Balmaceda**, Physics and Astronomy, was awarded \$247,320 for The Role that Coronal Shocks and Cross- Field Particle Transport Processes play in the Observation of SEP Events by NASA- Goddard Space Flight Center.

**Raphael Attie**, Physics and Astronomy, was awarded \$80,000 for Coronal Heating of Plumes and Fan Loops by the NASA - Goddard Space Flight Center and \$80,000 for An Integrative Study on the Structure and Dynamic of the Solar Network Using Small-Scale Eruptive Events by Catholic University of America. Prime Sponsor: NASA. Attie was also awarded \$37,531 for Evaluating and Validating Heliospheric Models Against Data and Each Other by Catholic University of America. Prime Sponsor: NASA.

**Tyrus Berry**, Mathematical Sciences, was awarded \$395,425 for FRG: Collaborative Research: Non-Smooth Geometry, Spectral Theory, and Data: Learning and Representing Projections of Complex Systems by the National Science Foundation.

**Dieter Bilitza**, Physics and Astronomy, was awarded \$169,744 for Space Physics Data Facility (SPDF) Science Support by Catholic University of America. Prime Sponsor: NASA

**Benjamin Cash**, Atmospheric, Oceanic and Earth Sciences, Center for Ocean-Land-Atmosphere Studies, gave an invited presentation on "Understanding our Changing Climate: Impacts on Health" at the EcoHealthNet 2019 workshop held at George Mason University in June. Cash also joined the National Oceanic and Atmospheric Administration's Unified Forecast System Verification and Validation Working Group.

**Kim de Mutsert**, Environmental Science and Policy, was awarded \$76,000 for Gulf Research Program Early – Career Research Fellowship – Kim de Mutsert by The National Academies of Sciences. de Mutsert was also awarded \$732 for Assessment of fish passage use and success in facilitating movement of regionally vulnerable and invasive fish species in Northern Virginia portion of the Potomac River by the Friends of Accotink Creek. She also co-published a paper titled "Investigating Fishing Impacts in Nigerian Coastal Waters Using Marine Trophic Index Analyses" in *Marine and Coastal Fisheries*.  
<https://doi.org/10.1002/mcf2.10077>.

She also organized a workshop in Florida as part of her NGOMEX project, which was featured on the National Oceanic and Atmospheric Administration's website. <https://coastalscience.noaa.gov/news/with-second-workshop-nccos-continues-focus-on-hypoxias-effects-on-fish-and-fisheries/>

**Evan Del Duke**, College of Science, was selected to receive the School of Business' Prominent Patriot award, which will be recognized at Mason's Annual Business Celebration in October. This award recognizes alumni who have proved to be engaged citizens, well-rounded scholars, and prepared and resourceful innovators and entrepreneurs.

**Kenneth Dere**, Physics and Astronomy, was awarded \$30,000 for CHIANTI database and software maintenance by the NASA - Goddard Space Flight Center.

**Liping Di**, Geography and Geoinformation Science, Center for Spatial Information Science and Systems, was awarded \$50,500 for Disaster Resilience Pilot 2019 (DRP-2019) by Open GIS Consortium, Inc.

**Paul Dirmeyer**, Atmospheric, Oceanic and Earth Sciences, Center for Ocean-Land-Atmosphere Studies, was awarded \$249,969 for Parameterizing the effects of sub-grid land heterogeneity on the atmospheric boundary layer and convection: Implications for surface climate variability and extremes by the National Oceanic & Atmospheric Administration.

**Harold Geller**, Physics and Astronomy, received a Certificate of Achievement from Major General Cedric Wins of the United States Army Combat Capabilities Development Command for his participation in science and engineering judging. In June, Geller spoke at the Gum Spring Library in Stone Ridge, Virginia and at the Purcellville Library in Purcellville, Virginia. In July, Geller hosted students of the Global Research Frontiership in Astrobiology from South Korea at the George Mason University Observatory and spoke at the Rust Public Library in Leesburg, Virginia. In August, he spoke at the Montclair Community Library in Montclair, Virginia.

**Joanna Jauchen**, Mathematical Sciences, was appointed to the Program Committee for the International Conference on Technology for Collegiate Mathematics (ICTCM).

**R. Christian Jones**, along with Co-PIs, **Amy Fowler**, and **Kim de Mutsert**, Environmental Science and Policy, were awarded \$85,122 for An Ecological Study of Gunston Cove: 2019-20 by County of Fairfax.

**Nadine Kabbani**, School of Systems Biology, was featured in *EveryONE: The PLOS ONE blog*.  
<https://blogs.plos.org/everyone/2019/08/29/everyone-nadine-kabbani/>

**Cing- Dao (Steve) Kan**, Physics and Astronomy, Center for Collision Safety and Analysis, was awarded \$625,000 for TOPR2: Operate and Maintain the Federal Outdoor Impacts Laboratory (FOIL) by the U.S. Department of Transportation and \$120,000 for Training Program for Automotive Engineers for Hyundai Motor

Company by Hyundai Motor Company. Kan was also awarded \$650,000 for TOPR1: Provide Analysis & Evaluation Research Support for Roadside Safety Team by US Department of Transportation.

**Kylene Kehn – Hall**, School of Systems Biology, National Center for Biodefense and Infectious Diseases, was awarded \$75,600 for Mosquito Poll Testing for viruses through qRT-PCR- 2019-2020 by Prince William County Government.

**Jim Kinter** and **Jagadish Shukla**, Atmospheric, Oceanic and Earth Sciences, Center for Ocean-Land-Atmosphere Studies, reached a new record enrollment in their class, CLIM 101: Global Warming – Weather, Climate and Society. 209 students are enrolled in Fall 2019 course satisfying the Natural Science requirement, which is nearly double the enrollment in Fall 2018.

**Dmitri Klimov**, School of Systems Biology, was awarded \$167,005 for DNA Origami-based Bio-scavengers for Nerve Agent Sequestration by Parabon NanoLabs, Inc. Prime Sponsor: US Army.

**Barry Klinger**, Atmospheric, Oceanic and Earth Sciences, co-authored [Ocean Circulation in Three Dimensions](#) (Cambridge University Press) with a Johns Hopkins professor. The book is based on the George Mason University graduate course [CLIM 7 52 Ocean General Circulation](#).

**V. Krishnamurthy**, Atmospheric, Oceanic and Earth Sciences, Center for Ocean-Land-Atmosphere Studies, was invited to contribute to the American Geophysical Union's special issue on Nonlinear Systems in Geophysics: Past Accomplishments and Future Challenges. This peer reviewed and an open access paper entitled "Predictability of Weather and Climate" appeared in July.  
<https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2019EA000586>

**Frank Krueger**, School of Systems Biology, was awarded \$155,078 for Developing a web-based substance-use intervention to enhance patients' insight and motivation for continuing treatment by Robert Wood Johnson Foundation.

**David Luther**, Biology, co-published a paper titled "Funding and conservation actions for vertebrate species listed under the Endangered Species Act, is it enough?" in *Endangered Species Reports*.

**Julia Manganello**, Center for Ocean-Land-Atmosphere Studies, published a paper entitled, "Assessment of Climatology and Predictability of Mid-Atlantic Tropical Cyclone Landfalls in a High-Atmospheric-Resolution Seasonal Prediction System" in *Monthly Weather Review* that was highlighted by the American Meteorological Society in "Papers of Note."

**Yuri Mishin**, Physics and Astronomy, was awarded \$359,992 for NSF-BSF: Architecting metallic nanoparticles for ultimate strength by the National Science Foundation.

**Dusan Odstrcil**, Physics and Astronomy, was awarded \$250,000 for Integrated Real-Time Modeling System for Heliospheric Space Weather Forecasting by NASA-Goddard Space Flight Center.

**Mikell Paige**, Chemistry and Biochemistry, was awarded \$871,851 for Anti-Bacterial Compounds by the U.S. Department of the Army.

**Emanuel Petricoin**, School of Systems Biology, Center for Applied Proteomics and Molecular Medicine, along with Co-PI **Julia Wulfschlegel**, Center for Applied Proteomics and Molecular Medicine, were awarded \$120,372 for Early Detection of Tumor Relapse in Triple Negative Breast Cancer by Eastern Virginia Medical School. Prime Sponsor: USAMRAA (US Army).

**Peter Plavchan**, Physics and Astronomy, was awarded \$21,000 for TESS Mission Follow-up by Vanderbilt University.

**John Qu**, Geography Geoinformation Science, was awarded \$39,000 by USGS Intergovernmental Personnel Act (IPA) Agreement- John Qu by the US Geological Survey.

**Ling Ren**, Environmental Science and Policy, was awarded \$95,520 for Characterization of Phytoplankton Community Changes in Barnegat Bay Related to the Closure of Oyster Creek Nuclear Generating Station, Combining Next Generation Sequencing and Microscopic Analyses by the New Jersey Sea Grant Consortium.

**Jessica Rosenberg**, Physics and Astronomy, is one of the recipients of the 2019 Provost's Curriculum Impact Grant (CIG) competition. This seed grant program supports the generation of innovation curricular ideas and pilot programs that enhance Mason Impact and other cross – unit, multi – disciplinary undergraduate and graduate curriculum development activities. Rosenberg and her colleagues from VSE, were awarded for their project, Professional Development in Teaching and Communication for STEM Graduate Students.

**Evelyn Sanders**, Mathematical Sciences, was awarded \$42,000 for Computation and visualization of dynamical structures by Simons Foundation.

**Shobita Satyapal**, Physics and Astronomy, was awarded \$48,000 for Unveiling a Population of Buried Dual AGNs: An XMM/NuSTAR Follow-up by NASA-Goddard Space Flight Center and \$15,746 for Academic Fellowship Program for the US Naval Observatory – TO 663 by the NASA - Goddard Space Flight Center. Satyapal was also awarded \$114,962 for Academic Fellowship Program for the US Naval Observatory – TO 716 by the NASA - Goddard Space Flight Center and \$3,286 for Academic Fellowship Program for the US Naval Observatory – TO 646 by the US Department of the Navy.

**Bohar Singh**, Atmospheric, Oceanic and Earth Sciences, PhD alumnus, was mentioned in a news story entitled “Satellites see hurricane winds despite military signal tweaks,” in the Journal Science. The article discussed recent work with NASA's Cyclone Global Navigation Satellite System (CYGNSS). A Colorado State University (CSU) professor, who is mentoring Singh as a post-doctoral research associate, wrote, “Bohar described evidence from CYGNSS that persistent winds boost ocean evaporation under a 3000-kilometer-wide set of rainstorms, sustaining them. That finding could help scientists forecast how the storm belt will change in a warmer climate.” <https://science.sciencemag.org/content/364/6445/1019>

**Cynthia Smith**, Environmental Science and Policy, was awarded \$58,500 for FCPS Watershed Education AY 2019-20 by Fairfax County Public Schools.

**Cristiana Stan**, Atmospheric, Oceanic and Earth Sciences, was invited to serve as one of the two co-leads of the newly formed National Weather Service Unified Forecast System Applications Team.

**David Straus**, Atmospheric, Oceanic and Earth Sciences, along with Co-PI **Kathleen Pegion**, Atmospheric, Oceanic and Earth Sciences, were awarded \$471,763 for Ensemble Prediction and Predictability of Extreme Weather via Circulation Regimes by National Oceanic & Atmospheric Administration.

**Quansong (Daniel) Tong**, along with Co-PI **Junmei Tang**, Center for Spatial Information Science and Systems were awarded \$382,981 for NAQFC Community Emission Testbed (NCET): Accelerating anthropogenic emission updates for NAQFC FV3-CMAQ through community collaboration by the National Oceanic & Atmospheric Administration.

**Laurie Trenary**, along with **Timothy DelSole**, Atmospheric, Oceanic and Earth Sciences, Center for Ocean-Land-Atmosphere Studies, were featured in a Research Spotlight article in *Eos*. Trenary and DelSole led a team examining several climate models to evaluate how human-caused factors like greenhouse gases and aerosols

might have affected the potential intensity of hurricanes. Human-induced global heating is expected to intensify hurricanes in the future, so the question of how much stronger and more damaging hurricanes will become has generated great interest among scientists and policymakers. Trenary, along with others, showed that different climate models simulate inconsistent changes in hurricane potential intensity in response to human emissions of greenhouse gases and aerosols, so it is not possible yet to attribute changes in hurricane intensity to human activity. <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2018GL081725>

**Joris van der Ham**, Environmental Science and Policy, is one of the recipients of the 2019 Provost's Curriculum Impact Grant (CIG) competition. This seed grant program supports the generation of innovation curricular ideas and pilot programs that enhance Mason Impact and other cross – unit, multi – disciplinary undergraduate and graduate curriculum development activities. van der Ham and colleagues from CHSS and Schar, were awarded for their project, Minor in Environmental and Ecological Consulting.

**Robert Weigel**, Physics and Astronomy, was awarded \$95,000 for Heliophysics Application Programming Interface (HAPI) Standards and Software by NASA-Goddard Space Flight Center.

**Jie Zhang**, Physics and Astronomy, was awarded \$60,000 for Solar Spicules and Their Magnetic Reconnection by NASA - Goddard Space Flight Center. Zhang, along with Co-PI, **Bradley Taylor Cox**, Physics and Astronomy were awarded \$62,704 for Developing DKIST Level-2 Products: Inversions of HE I 1083.0nm - Bradley Cox by Association of Universities for Research. Prime Sponsor: National Science Foundation. Zhang, along with CO-PI **Suman Kumar Dhakal**, Physics and Astronomy, were awarded \$69,824 for Developing DKIST Level-2 Products: Inversions of HE I 1083.0nm - Suman Dhakal by Association for Universities for Research. Prime Sponsor: National Science Foundation.