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*Foundation Professor and Associate Dean of the Knowledge Enterprise and Strategic Outcomes in the New College of Interdisciplinary Arts and Sciences at Arizona State University. In this capacity he oversees the strategic growth and administration of the research and scholarly production of the four Schools in the New College. He is responsible for supporting, advancing, and growing a broad portfolio of scholarly outputs, creative activities, translational, pure, and applied research from the vibrant, interdisciplinary community of over 400 faculty, staff, and students annually engaged in knowledge production in the New College.*

*Dr. Morris is an accomplished geoscientist with academic affiliations in the New College of Interdisciplinary Arts and Sciences, the School of Earth and Space Exploration, the School of Sustainability, and the Center for Gender Equity in Science and Technology (CGEST). Dr. Morris has extensive experience in developing and managing large-scale research projects, research centers, and academic programs using data-driven and design thinking approaches. These large, multidisciplinary projects span multiple areas of science and include the advancement of discovery-based and applied research, workforce development, capacity building and equitable inclusion of individuals from historically excluded groups in STEM fields and careers. This has led to him establishing a substantial record of productive collaborations with the federal sector, university, business, and international communities. His accomplishments include grantsmanship over \$65M in funding as Principal Investigator and an additional \$31M as co-PI from a diverse portfolio of agencies and non-federal funders including IBM, NSF, NASA, DOE, NIH, and NOAA.*

*Dr. Morris is an internationally recognized scholar who has published in premier journals on topics ranging from molecular dynamics, to the spectroscopy of free radicals, to climate change, atmospheric chemistry, and environmental justice. His seminal work in molecular dynamics of free radical collisions is credited with inspiring a new field of study in roaming radical reactions. His work in atmospheric sciences has led to the creation of the most comprehensive data set on Saharan dust in the tropical remote ocean. This data set is currently in use at both NOAA and NASA as well as internationally for the verification and development of new aerosol parameterizations in advanced operational weather models and in global climate models, for improvement of satellite sensor corrections and retrievals, and for new product and application development. Examples include calibration/validation and improvement of advanced satellite retrievals for the NOAA-20 and SNPP Cross-track Infrared Sounder (CrIS) and Advanced Technology Microwave Sounder (ATMS), the Visible Infrared Imaging Radiometer Suite (VIIRS), as well as the NOAA Geostationary Operational Environmental Satellite (GOES-16/ GOES-East). The data collected in one of his multi-decadal field campaigns (AEROSE) is in current use to test and evaluate decision support materials from the NOAA Unique Combined Atmospheric Processing System (NUCAPS) suite for scientific field campaigns.*

*Moreover, he is an enthusiastic and decorated mentor of students, faculty, and staff and a proven champion in the promotion of broadened participation, equitable access and inclusion, and justice in STEM fields. He has created programs that are national leaders in the production of STEM talent from populations that are historically underrepresented in the geosciences and his hands-on K-gray outreach programs have reached over 25,000 learners.*

## EDUCATION AND TRAINING

1992 – 1994 UC President’s Postdoctoral Fellow, University of California, Davis, CA  
1991 – 1992 Postdoctoral Fellow, Lawrence Livermore National Laboratories, Livermore, CA  
1990 Ph.D. Geophysical Sciences, Georgia Institute of Technology  
1985 B.S. Chemistry and Mathematics, Morehouse College

## ACADEMIC ADMINISTRATIVE EMPLOYMENT

2023 – present Associate Dean, Knowledge Enterprise and Strategic Outcomes, New College of Interdisciplinary Arts and Sciences, Arizona State University  
2022 – present Foundation Professor, ASU  
2020 – 2023 Director, School of Mathematical and Natural Sciences, New College of Interdisciplinary Arts and Sciences, Arizona State University (ASU)  
2016 – 2020 Director, NOAA Cooperative Science Center in Atmospheric Sciences and Meteorology (NCAS-M)  
2014 – 2020 Director, Atmospheric Sciences Program, Howard University  
2012 – 2013 Interim Chair, Department of Chemistry, Howard University  
2011 – 2020 Professor, Howard University  
2006 – 2008 Chair, Department of Chemistry, Howard University  
2003 – 2010 Co-Director Laboratory for Molecular Computations and Bioinformatics, National Institutes of Health Research Center for Minority Institutions NIH/RCMI  
2001 – 2018 Director, NOAA Center in Atmospheric Sciences (NCAS)  
2001 – 2004 Director, Atmospheric Sciences Program, Howard University  
2000 – 2005 Director of Howard University Component of the NASA Goddard Earth Sciences and Technology Center  
1998 – 2011 Associate Professor, Howard University  
1996 – 2001 Deputy Director, Center for the Study Terrestrial and Extraterrestrial Atmospheres, Howard University

## FACULTY AND ACADEMIC APPOINTMENTS

2022 – present Affiliate Faculty, School of Earth and Space Exploration, Arizona State University  
2021 – present Associate Faculty, Center for Gender Equity in Science and Technology (CGEST), Arizona State University  
2020 – present Professor, School of Mathematical and Natural Sciences, Arizona State University  
2020 Emeritus Professor, Howard University  
2014 – 2019 Special Member, Graduate Faculty Plant Sciences and Landscape Architecture, University of Maryland  
2012 – 2018 Graduate Faculty, Department of Geology, University of Texas El Paso  
2012 – 2020 Professor, Howard University  
2011 – 2012 Adjunct Faculty, De La Salle University, College of Sciences, Manila, Philippines

- 2009 – 2010 Adjunct Faculty, Environmental Sciences, Addis Ababa University, Addis Ababa, Ethiopia
- 1998 – 2011 Associate Professor, Howard University
- 1994 – 1997 Assistant Professor, Department of Chemistry, Howard University,
- 1988 – 1990 Lecturer, Department of Chemistry, Spelman College

#### RESEARCH APPOINTMENTS

- 2020 – present Senior Sustainability Scientist, Julie Ann Wrigley Global Institute of Sustainability, Arizona State University
- 2015 – 2018 Fulbright Specialist (Senegal)
- 2011 – 2020 Distinguished Visiting Professor, Department of Physics, De La Salle University Manila, Philippines
- 2010 Visiting Scientist, J. Craig Venter Institute, Rockville, MD
- 2001 – 2002 Visiting Scientist, NASA Goddard Space Flight Center, Atmospheric Chemistry and Dynamics Branch, Greenbelt, MD
- 1999 – 2001 NASA Administrator’s Fellow, NASA Goddard Space Flight Center, Atmospheric Chemistry and Dynamics Branch, Greenbelt, MD

#### NATIONAL AND INTERNATIONAL COMMITTEE APPOINTMENTS

- 2022 – 2025 National Climate Security Roundtable
- 2020 – 2026 National Science Foundation Committee on Equal Opportunities in Science and Engineering (CEOSE)
- 2020 – 2023 University Center for Atmospheric Research (UCAR) Board of Trustees
- 2019 – 2021 Environmental Protection Agency (EPA) Clean Air Act Advisory Committee
- 2015 – 2017 Department of Energy ARM Science Board
- 2008 UNESCO steering committee for the “Application of Remote Sensing for Integrated Management of Ecosystems and Water Resources in Africa”. This was a subcommittee of the Working Group on Climate Observations in the Gulf of Guinea
- 2005 – 2007 Member, National Academies of Sciences Board on Atmospheric Sciences and Climate (BASC)
- 2003 – 2005 Member of the NASA Earth Systems Sciences and Applications Advisory Council, (ESSAAC)

#### PROFESSIONAL AFFILIATIONS

- American Geophysical Union (AGU)
- American Meteorological Society (AMS)
- International Network on Appropriate Technology (INAT)
- National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCHE)
- National Society for Black Physicists (NSBP)
- National Technical Association (NTA)
- Philippine Physics Society (PPS)

## HIGHLIGHTS OF ACCOMPLISHMENTS

### **Leadership in Academic Affairs and Administrative Supervision**

2023 – present Associate Dean of the Knowledge Enterprise and Strategic Outcomes, in the New College of Interdisciplinary Arts and Sciences at Arizona State University

- Provided leadership and strategic planning for the Knowledge Enterprise which includes all forms of scholarly outputs, creative activities, translational, pure, and applied research, patents, and scientific endeavors leading to new knowledge. The Knowledge Enterprise in New College supports approximately 400 research-active faculty, postdoctoral fellows and graduate students and engages 200 undergraduate students in R1-level scholarly activities each year.
- Oversee research operations of ~\$25M with the goal of increasing research revenue and expenditures by 20% annually.
  - Coordinate and implement the Commit to Submit program which provides orientation to the ASU knowledge enterprise, consultation on scholarly proposals, and operational assistance in supporting research vision and success with focus on junior faculty and mid-rank faculty seeking to bolster their research programs.
  - Manage two seed grant programs (One for faculty and a newly designed program for students)
  - Annually averaged year-over-year grant revenue is 30%
  - Increased total grant submissions each year
  - Tripled the number of Tier 3 proposal submissions from New College
- Oversee the creation and management of the College's nine Research Institutes, Hubs, and Initiatives. These entities include interdisciplinary consortia in the humanities, forensic sciences, data science, environmental science, and social justice.
- Established new partnerships between New College and two federal agencies (the National Oceanic and Atmospheric Administration – NOAA and the Department of Energy – DOE)
- Oversight of the New College Antiracism Council (NewARC), which was initiated with eighteen goals to facilitate genuine conversation, dialogue, exchange of ideas building toward greater understanding and inclusion for all identities through innovative curriculum, novel technology tools, and cultural engagements. This includes leading the development of strategic justice, equity, and inclusion goals in the College bylaws and administrative processes (e.g. leadership searches, annual reporting, and evaluation)
- Development of a community-engaged environmental justice portfolio for New College. This involves establishing partnerships and sustained presence in local communities in Arizona to advance energy justice, water justice, support advocacy of environmental rights, and provide technical support for local activists and communities.
  - Examples include:

- Design of the environmental justice concentrations in Biology and Environmental Science degree programs. This included the design of a new course; “Deconstructing Environmental Justice”
  - Supervising undergraduate research in “EJ for the Incarcerated”
  - Offering free consultation for individuals experiencing environmental injustice within the penal system (both workers and institutionalized individuals)
  - Partnering with the Arizona State University Center for Energy and Society (CES) to strengthen community collaborations in environmental justice. The CES is an EPA Region 9 Partner on a regional workshop on energy justice in the Phoenix metropolitan region
- Expanding undergraduate research program participation by:
    - Double-digit increases in both numbers of students and new faculty mentors engaged
    - Introduction of specific inclusion elements; bilingual video abstracts, virtual poster sessions, and integration of family participation
    - Formal expansion of undergraduate research opportunities to online students
  - Advancing experiential equity in research as a central thematic focus. Experiential equity is the principle that all undergraduates participate in substantive individual inquiry as an integral part of their undergraduate experience in a manner consistent with their values and career goals. This includes multiple opportunities to explore scholarly pursuits determined by their own interests, career aspirations, values, and cultural sensitivities.
  - Led the design and implementation of ‘Hacking Sustainability’, a summer program designed to provide introductory Tier 1 research experiences to non-traditional students (e.g. primary care-givers, online students, first-generation, working families) and to introduce concepts of sustainability, environmental justice, and critical approaches to complex environmental problems. The program has been conducted for the summers in 2022-2024

2020 – 2023 Director of the School of Mathematical and Natural Sciences (SMNS) in the New College of Interdisciplinary Arts and Sciences at Arizona State University

- Provided leadership and strategic planning for a dynamic, diverse, and innovative research, teaching, and learning environment offering degrees in Applied Computing, Cybersecurity, Applied Mathematics, Biology (BA and BS), Biological Data Science (MS), Biotechnology and Bio-enterprise, Computational Forensics, Environmental Science (BA and BS), Forensic Science (BS and PSM), Pharmacology & Toxicology, and Statistics.
- Supported the delivery of cutting-edge interdisciplinary research, with a collegial and collaborative faculty culture, in an accessible and dynamic educational environment for over 1400 students and 100+ faculty members.

- Led the development of institution-wide Environmental Justice Partnership in 2020 to generate a common platform for discussion of EJ work and instruction at ASU. This resulted in the approval of new degree opportunities. I completed the design of two new concentrations in Environmental Justice in the Biology and Environmental Science BS and BA degrees in 2022 and the tracks were launched in Fall 2023 becoming the first such concentrations at ASU. I also designed two courses including the inaugural course in the concentration.
- Co-Lead of Presidential Postdoctoral Fellows and Graduate Fellows programs at ASU. These programs are designed to increase inclusion and access to graduate study and tenure track faculty positions for students identifying as Black, Indigenous, or a Person of Color (BIPoC) with emphasis on increasing Black faculty at ASU. Fifty-four postdoctoral fellows and fifty graduate fellows have been funded over the first two years of the program. As of January 2023, five of the postdoctoral fellows have already transitioned into faculty positions.
- Member of the Executive Committee of the Listen, Invest, Facilitate, Teach (LIFT) initiative at ASU. The LIFT initiative is a series of actions designed to enhance access to opportunities, leadership, and success for Black scholars within ASU reflected by increased diversity, inclusion, growth and opportunity for Black undergraduate and graduate students, Black faculty, and Black staff. LIFT represents a novel university-wide effort launched to address internal social transformation for the explicit purpose of fulfilling the ASU charter.
- Oversaw the construction of over \$10M in state-of-the art research space for new and existing MNS research faculty and students
- Supported the launch of new online degree programs in Biological Data Science and Forensic Science. In 2022, SMNS was approved for two more online degree programs in Applied Computing and Pharmacology & Toxicology.
- Designed and established (in 2023) an environmental justice concentration in the unit for the Biology and Environmental Science majors but available to all majors in the College.
- Led efforts to raise and maintain student retention above 95%

1998 – 2020 Founding Director Designed and led the implementation of first graduate degree-granting interdisciplinary program at Howard University – Atmospheric Sciences Program

- Directed the Atmospheric Sciences Program securing a minimum of \$3 million annually in external funding (Served 2001 – 2004 and 2014 – 2020)
- Within the first ten years of existence, led the program in becoming the Nation’s leading producer of African American PhDs in Atmospheric Sciences.
- Over the decade (2006 – 2017) the program produced 60% of the African American PhDs and 30% of the Hispanic female PhDs in Atmospheric Sciences.
- Placed 97% of its graduates in STEM careers; across academic, public, and private sectors.
- Served as a University representative to the University Center for Atmospheric Research (UCAR) 2015 to 2020.
- Recruited a diverse cadre of faculty (2 African American females, 3 African

American males, 2 Asian American males, and 2 Caucasian males) to support and sustain the program over the past program lifetime.

- Developed and implemented a recruitment program that sustained enrollment in the program to produce 69 graduates from 2006 to 2020.

2002 – 2018 Developed and Broadened the Atmospheric Sciences Enterprise at Howard University

- Co-developed the Howard University North campus at Beltsville, MD (a 109-acre facility about 11 miles from Washington DC main campus) into a national resource as an atmospheric observatory, training site and instrument testbed with approximately \$15M of advanced instrumentation on site.
- Served as the institutional lead for efforts leading to a World Meteorological Organization (WMO) designation for the Howard University North campus at Beltsville as a Global Climate Observation Systems (GCOS) Reference Upper Air Network site.
- Negotiated a Doppler Radar transfer from the local Fox affiliate to the Howard University North campus - valued at \$2M.
- Negotiated a \$5M laser lab transfers from NASA to Howard University
- Established research and training relationships with NASA, NOAA, the EPA, and the Department of Defense, DC Government, and the Federal Reserve, including the establishment of adjunct faculty appointments
- Fostered rigorous national and international collaborations through an academic exchange program, resulting in 20 scientists and students participating in these bi-directional activities with Universities in the Philippines, Senegal, Brazil, Mexico, and Ethiopia.
- Liaised with professional organizations in Atmospheric Sciences; the American Meteorological Society (AMS) and the American Geophysical Union (AGU).

2006 – 2008 and 2012-2013 Chair of the Department of Chemistry

- Supervised instruction and training of more than 1500 students per semester – the largest service course offerings in the College of Arts and Sciences – in addition to 130 majors and 40 graduate students.
- Coordinated workload and schedules for 19 full-time faculty members and eight lecturers and adjuncts.
- Supervised five staff members.
- Implemented a mandatory research requirement for all majors seeking American Chemical Society (ACS) accreditation
- Developed a transparent and equitable workload policy for faculty
- Developed By-Laws and updated structure and guidelines for standing departmental committees
- Led departmental strategic planning and reorganized departmental research portfolio into three clusters; environmental, nanomaterials, and natural products research. This enabled the department to prioritize hiring, collective grant-writing efforts, and recruiting.
- Led the successful acquisition of instrumentation for the teaching and research laboratories exceeding \$250K in value. This enabled for an upgrade of the

- analytical and physical chemistry teaching labs.
- Ensured quality delivery of academic advising, and student success, implemented accountability in committee reporting structure
- Engaged both federal agencies and private sector (including Genentech, Glaxo Smith-Kline, Kraft Foods, L'Oreal, S.C. Johnson, Pfizer, and Genewiz leading to student internships, donations (cash and in-kind), and instrument transfer.
- Maintained relationships with the American Chemical Society (ACS) and the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE)

1994 – 2000 Designed, coordinated, and implemented an annual summer undergraduate research program (Summer Institutes in Research and Training in Atmospheric Sciences – SIRTAS) in atmospheric sciences at Howard University.

- Trained more than 300 students in an eight-week research-intensive experience
- Secured more than 40 faculty advisors during its lifetime.
- Laid the framework to sustain the program through Summer 2017 using alternate funding sources
- Provided unique and intensive research experiences for an additional 150 undergraduates from over 27 different academic institutions, including Howard University through a satellite partnership program
- Alumni of this program were successfully recruited to graduate programs in engineering, physics, and chemistry at Howard University leading to increases in the graduate enrollment of some departments (Physics) of as much as 50%.
- Secured NSF, NASA, and NOAA funding for these training efforts

### **Other Leadership in Research Administration, Planning, and Implementation**

Served as the principal investigator and director of the NOAA Cooperative Science Center in Atmospheric Sciences and Meteorology. This is a new and separate \$15.5M award from the NCAS award that involves a 13-member public-private partnership that began in fall 2016. The mission of NCAS-M is to increase the number of workforce-ready graduates from underrepresented communities in NOAA-related sciences, to support NOAA, other Federal agencies, academic institutions, and the private sector. NCAS-M is guided by the philosophy of *research as education*.

- Oversaw collaborations with NOAA and NOAA stakeholder in support of this mission in three highly interdisciplinary thematic areas; (1) Interdisciplinary scientific research for building resilient communities against weather extremes; (2) Innovative observations for advancing the analysis and prediction of weather, climate, and atmospheric chemistry; and (3) Interdisciplinary research in support of building healthy communities.
- Managed the budget, which includes direct funding of \$3.1M per year for five years with a five-year extension option and the facility for obtaining additional funding through task orders of up to an additional \$1M/yr. (2016 - 2020)
- Oversaw up to nine individual subcontracts with academic partners annually
- Oversaw the center-wide education and professional development programs. Under this award all students – regardless of discipline – are engaged in a rigorous professional development program that ensures core competencies in



interdisciplinary and trans-disciplinary research in support of NOAA mission science and services for protection of life, environment, and property.

- Development and implementation of comprehensive and dynamic evaluation and assessment for continual improvement of research and educational products and services.
- Served as the coordinating head for the Center Directors of the three sister NOAA Cooperative Science Centers. In this capacity, I coordinate lessons-learned, best practices, and collaborations across the Centers.

Served as the principal investigator and director of the NOAA Center for Atmospheric Sciences (NCAS) from 2001 — 2018. NCAS was a multidisciplinary research program on the Howard University campus that, beginning in 2001, annually supports the research of over thirty graduate students, postdoctoral fellows, and faculty spanning four colleges and eight departments on the Howard University campus and an additional thirty students, postdoctoral fellows, and faculty at the five partnering academic institutions: Jackson State University, University of Maryland, the University of Puerto Rico, the University of Texas El Paso, and the State University of New York Albany.

- Oversaw operations for a research center whose research integrates disciplines such as journalism, psychology, and sociology into applied STEM research (e.g. marine sciences, climate change, and atmospheric chemistry) to address 21<sup>st</sup> century challenges for science, technology and society with respect to climate, precipitation, air quality, and human impacts.
- Coordinated and monitor the research, financial, and assessment activities of upwards of twenty-five individual collaborative research projects across the six institutions annually.
- Managed a cooperative agreement with the Department of Commerce with direct funding of over \$45M since 2001 and annual leveraged funding of approximately \$2M/yr (<http://ncas.howard.edu/>).
- Enabled the production of over 300 graduates in academic disciplines supporting NOAA's mission and led to over 50 directly employed by NOAA.
- Manage primary support funding for research operations at the Beltsville facility
- Oversaw the education and outreach programs of the center, which include an annual summer program, an outreach program bringing science to underserved communities and an engagement program with secondary schools in the District of Columbia.
- Implemented an evaluation and assessment protocol for Center activities in research, administration (including financial), and education/training.

Served as the chief scientist and principal investigator of the High-Resolution Aerosols and Sulfur Dioxide Experiment (HASE). This was a \$50M satellite proposal that was developed while at NASA. The legacy of the instrumentation proposed ultimately led to the integration of an experiment on the international space station.

- As primary author of the proposal, developed the central scientific themes and goals
- Coordinated the budget and program planning for the mission including science, engineering, integration, and education.

- Managed the science writing and concept teams

Served as Deputy Director, Center for the Study Terrestrial and Extraterrestrial Atmospheres, Howard University from 1996 – 2001. This was a university research center funded by NASA from 1994 – 2001.

- Oversaw the development of the science portfolio
- Developed and reviewed science plans and projects
- Coordinated reporting and assessment for the Center
- Developed and implemented outreach programs
- Represented the center as lead scientist to NASA administrators
- Interfaced with technical monitors for the award and external advisory committee

### **Academic Budget Planning, Prioritization, and Management**

- Generated grant revenue from corporate, government and non-governmental organizations of over \$65 million in research funding as principal investigator.
- Annually managed research expenditures for NOAA research center budgets of over \$3M each as well as smaller associated research awards while at Howard University. The annual budget responsibility typically exceeded \$4M/yr.
- Managed the budget for the Howard University Department of Chemistry, which included funds for small equipment, materials and supplies, lab fee revenues, indirect costs, and donated accounts exceeding \$1.5M annually.
- Solicited more than \$100K in alumni donations for various initiatives in chemistry 2006 - 2016
- Annually raised more than \$10,000 in cash and in-kind support for community outreach and mentoring programs since 2008

### **Leadership Contributions to Interdisciplinary Research**

- Serving as the principal investigator and chief scientist for the Trans-Atlantic AERosols and Oceanographic Science Expedition (AEROSE) aboard the NOAA ship Ronald H. Brown, March 2004. NOAA and NASA have financially supported this project since its inception. Continued service as PI of the AEROSE missions aboard the NOAA ship Ronald H. Brown annually 2006 – 2024, serving as Chief Scientist of the US flagship Class 1 research vessel for NOAA, *Ronald H. Brown*, four times. These missions were conducted in collaboration with NOAA PMEL and the NOAA AOML-sponsored PIRATA Northeast Extension (PNE) mission. <http://ncas.howard.edu/research-programs/aerose/>. These cruises have led the development of improved global modeling capabilities, improved reanalyses for climate in remote ocean regions and new satellite operational data products for water vapor imagery, improved sea surface temperature, space-based aerosol retrievals, and air quality forecasting boundary conditions. As chief scientist, I am responsible for the coordination of the participation of over 40 international scientists and sixty-one students in addition to over sixty US scientists

(academic, private sector, and federal) from a variety of scientific specialties, for the planning, development and implementation of the comprehensive science plan, scientific reporting and accountability of the science party.

- Led a team of faculty, staff, and students from Howard University and University of Maryland Baltimore County (UMBC) in joining the Ozone-Water-Land Environmental Transition Study (OWLETS). This team combined with an interdisciplinary and inter-agency group of scientists and students from NASA, NOAA, EPA, and the Maryland Department of Environmental Quality (MDE) to collect and analyze data from several land stations and mobile platforms. Mobile platforms included balloon soundings, deployments on small marine vessels and drones. The 2018 (OWLETS-2) was a follow-on study to the OWLETS 2017 campaign aimed at deepening the understanding of the behavior of ozone and related trace gases across the water and transition zone in the upper portion of the Chesapeake Bay.
- Established collaborations across departmental, college, and university silos to develop projects integrating STEM and non-STEM research and training within the NCAS and NCAS-M research centers. Participating faculty are drawn from Economics, Psychology, Sociology, Mathematics, Physics, Chemistry, Journalism, Communication Sciences, Biology, Electrical Engineering, Mechanical Engineering, and Atmospheric Sciences.
- Established International Research Collaborations focused on Air Quality and Climate Health Linkages with scientists in Ethiopia (University of Addis Ababa), Mali (University of Bamako, Malian Meteorological Bureau), Senegal (University of Dakar), Sudan (Omdurman Ahlia University and Sudan University of Science and Technology) the Philippines (De La Salle University), and Jamaica (University of West Indies, Mona). 2000 – present. These efforts seek to build on common scientific interests but are structured in a way to be inclusive of future opportunities in both the sciences, technology, engineering, and mathematics (STEM) disciplines as well as societal, behavioral, and economic (SBE) sciences. The initial partnerships pertain to research on the interconnections between tropical northern hemispheric megacity development, environmental and climate change and public health.
- Served as the principal investigator of a 5-year project that focuses on the study of the distribution, exposure, and transmission mechanisms of neglected diseases - especially opportunistic parasites in developing nations within the African Diaspora. The project is aimed at characterizing the influence of the long-range transport of pathogens on air-borne particles that originate in regional environments (northern Ethiopia) affected by desertification and climate change. We have been studying the variability of the atmospheric biome during the dry season – wet season transition and ultimately how the chemical environments of the airborne particulate influence pathogen viability. The project combines environmental monitoring, atmospheric sampling, and modeling with the genomic mapping of sampled airborne microflora. One specific application of this work is the development of a better understanding of the distribution and transmission of opportunistic microflora among different wards (e.g. ICU, HIV, TB, and Leishmaniasis) in the hospital environment at the University of Gondar Medical Campus and their

influence on patient health. This collaboration involved medical doctors, pharmacists, virologists, and microbiologists at the University of Gondar and Howard University.

- Led a six-member team of scientists and students from Howard University, the NOAA Center for Atmospheric Sciences (NCAS), and the National Oceanic and Atmospheric Administration (NOAA) for a twenty-eight-day ocean-based observational component of the CalWater2 campaign (Jan 14 – Feb 12, 2015). This was a comprehensive research effort that involved four aircraft (the NASA ER-2 and the P-3, G-I, and G-IV from NOAA), satellite measurements, coastal and inland surface observation networks, and ship-based measurements. The NCAS/Howard University team participated from the ship, the NOAA *R/V Ronald H. Brown*. <http://www.arm.gov/campaigns/amf2015apex>
- Served as the chief scientist and principal investigator for the NCAS TROPical Transect Cruise (TROT 2005) from the Gulf of Mexico to Port-of-Spain Trinidad, November 2005. Coordinated participation from international scientists from Mexico, Trinidad and Tobago, and Argentina in addition to students from HU and scientists from NASA. This campaign sought to characterize air quality pollutant dispersions in two oil producing gulf regions (the Gulf of Mexico and the Gulf of Paria). It is worthwhile to note that this campaign took place during the 2005 hurricane season and the ship conducted measurements in the Caribbean at a time during which three active systems one hurricane and two tropical storms were traversing the Caribbean basin. The success of this mission required a unique ability to perform under a high level of stress but to also make life or death decisions for an eighteen-member research team (scientists and crew) in a highly tempestuous physical environment.
- Served as the principal investigator of ER-2/QCM sampling experiments. The project integrated academic sector scientists and students (HU), private sector partners (California Measurements, Inc. and Lockheed-Martin), and federal sector partners (NASA) for an interdisciplinary project conducted in the near-space environment. The purpose of the study was to investigate stratospheric aerosols and, in particular, the chemical evolution of aerosols in the exhausts of stratospheric aircraft and mineral dust aerosol injected from dust storms. This was the first HBCU-led project to be put on the ER-2 aircraft and led to the first observations of Asian Dust in the stratosphere. The ER-2 flights were conducted from Moffett Field, CA between 1995-1997 and served as the basis for a NASA experiment in 1998 involving an ER-2 intercepting the wake of an SST that was recognized with a Presidential award for excellence

#### **Innovation in Outreach, Mentoring, Advocacy, Equitable Inclusion, and Diversity**

- 2023 – present Co-founder of the Student Leadership Initiative. This program provides numerous opportunities for students to engage in leadership development, policy analysis, and advocacy through their internship and scholarship programs. The centerpiece of the program is sponsored participation in the Congressional Black Caucus Annual Legislative Conference, which provides a venue for students to not only further their education but also to directly influence and contribute to the advancement of policies impacting Black communities globally. This initiative is designed to empower the next generation of leaders within African American, Hispanic, and other communities

of color, particularly those committed to serving their communities. These programs and events

- 2022 – present. Led the design and implementation of ‘Hacking Sustainability’, a summer program designed to provide introductory Tier 1 research experiences to non-traditional students (e.g. primary care-givers, online students, first-generation, working families) and to introduce concepts of sustainability, environmental justice, and critical approaches to complex environmental problems.
- 2021 –present. Developed and launched the Future Leaders and Geoscience High-Road Internship Program (FLAGSHIP). FLAGSHIP (<https://newcollege.asu.edu/flagship>) is a two-phase experiential training and professional program designed to provide a career on-ramp for learners interested in job opportunities at the intersections of sustainability, justice, climate change, and urban infrastructure. The program connects local communities, academia, industry partners, and local governments within an equity-centered framework. In this partnership model, educators, mentors, geoscience experts, private industry employers, local government, workforce leaders, emerging professionals, and nonprofit partners will form the elements of an educational ecosystem. Each member of the ecosystem represents a symbiotic component both gaining from and contributing to the success of the project. This project aims to create a transferable model for STEM professional society community engagement and social embeddedness and has been institutionalized in New College at Arizona State University.
- 2021 – ongoing. Co-sponsor and co-organizer of the Bill Anderson Fund Annual Student workshops. For the past four years [2021-virtual, 2022 – ASU, 2023 – UC Irvine, and 2024 – ASU], these workshops have been conducted to bring existing cohorts of the Bill Anderson Fellows together for two days of professional development, career coaching, networking, and technical programming.
- 2020 – ongoing. Led the formation of NoTimeforSilence: A Call to Action for a Anti-Racist Science Community from Geoscientists of Color: Listen, Act, Lead (<https://notimeforsilence.org>). This group advocates for and offers consulting and support for transformative change in professional societies, academic units, science mission agencies, science organizations. NoTimeforSilence was co-recipient of the 2020 AGU Presidential Citation for Science and Society
- 2000 — ongoing Created the concept for the informal “Colour of Weather <sup>TM</sup>” Mixers for minority students and professionals at the Annual Meetings of the American Meteorological Society. This is the first annual activity of the organization that addresses diversity of its membership and seeks to break down barriers of access and inclusion of African Americans and Latinos. To date, Colour of Weather mixers have facilitated connections between over 2000 students and professionals of color with potential mentors in the AMS membership. This event has now received full endorsement and sponsorship from the AMS, UCAR, and several university partners. This program is now a highly anticipated part of the annual meetings (e.g.

<https://annual.ametsoc.org/2017/index.cfm/programs/social-gatherings/annual-colour-of-weather/>).

- 2002 — 2017 Organized and implemented a national network of high school summer camps focused on atmospheric sciences that target students from groups that are under-represented in the geosciences. The current camp locations include Washington, DC; Jackson, MS; Mayaguez, PR; New York, NY; El Paso, TX; and Greensboro, NC. The Channeling Atmospheric Research into Educational Experiences Reaching Students (CAREERS) network is comprised of six core camps and five affiliate camps. To date, there are nearly 700 alumni of these camps and over half are pursuing advanced study and/or careers in the field of atmospheric sciences.  
<http://onlinelibrary.wiley.com/doi/10.1029/2012EO150001/pdf>
- 1997 — 2011 Organized and directed an annual summer high school research program (physical and environmental sciences) at Howard University. During this period, twenty high school students were mentored, including ten in my own research group.
- 1997 — 2001 Co-developed and organized a partnership for education and research with five (5) HBCUs; Grambling, State University, Lincoln University, Savannah Stated University, Virginia State University, and Jackson State University. The goals of the partnership (called the CSTEА Howard Academic and Research Consortium or CHARC) were to increase the number and quality of students from traditionally underrepresented groups pursuing terminal degrees in atmospheric and related sciences, to provide Howard University with a pool of students interested in pursuing terminal degrees, and to foster collaboration between NASA and HBCU faculty. This program provided the initial recruitment pool of students to initiate the graduate program in atmospheric sciences at Howard University and led to the production of over twenty African American PhD and MS recipients in Chemistry, Physics, and Atmospheric Sciences.
- 2002 — 2004: Organized NCAS Community lecture series. This was a series of public lectures held in Washington, D.C. libraries, large churches, and recreational centers on topics of interest to the local community (air pollution, heat waves, public health issues related to urban environment).
  - These lectures facilitated direct engagement between federal agency experts and researchers with over 250 District of Columbia community citizens.
- January 2003, Dec 2004, January 2005, January 2006: Conducted Public Climate Change Lectures in San Juan, Puerto Rico.
  - These lectures were coordinated with Universidad Metropolitana de San Juan and reached over 400 San Juan community participants.
- 2009 — 2020: Organized and implemented the DC Community Science-Fests.
  - The focus is on middle school (grades 5 – 8) but students from all levels in the DC public schools are treated to a free suite of hands-on science demonstrations that rotate between community and public schools on a monthly basis beginning in 2009.

- These events are coordinated activities involving undergraduate students from Howard University and the George Washington University, graduate students from Howard University, faculty from Howard University, and professionals (Lockheed-Martin, NOBCCChE, etc.).
- Over one hundred (100) undergraduate and graduate students have been trained as science module demonstrators since 2009.
- Over 3000 students have been reached in the DC, Maryland, and Virginia region.
- 2010 and 2011: Crazy Chemistry Philippines, these were Science Fests conducted at Lipa Christian School in Batangas, Philippines.
  - Two events were conducted – one during each visit to the Philippines.
  - Thirty (30) students in grades 4-6 were engaged each event on topics ranging from electronics, to polymer chemistry, to weather.

### **National Recognitions for Research and Scholarship**

|             |   |
|-------------|---|
| 2022        | ACS Experts Program   |
| 2022        | Inaugural Class of USC Wrigley Storytellers                                   |
| 2021        | Trailblazer Award American Chemical Society                                   |
| 2020        | AGU Presidential Citation for Science and Society                             |
| 2020        | One of the 1000 Most Inspiring Black Scientists in America (Cell Publishing)  |
| 2020        | Color of STEM Award   |
| 2019        | Elected a Fellow of the African Scientific Institute                          |
| 2018        | NASA Award for Team Science – OWLETS-2  |
| 2018        | A. T. Weathers Award for Technical Achievement National Technical Association |
| 2016        | Elected a Fellow of the American Meteorological Society                       |
| 2013        | HBCU Awards – Best Research Center  |
| 2013 – 2017 | Fulbright Specialist Roster   |
| 2012        | Inducted into The History Makers  |
| 2011        | Selection as one of the 50 most Influential Blacks in Technology              |
| 1999        | NASA Administrator’s Fellowship   |
| 1997        | PKAL Faculty for the 21st Century   |
| 1997        | NSF CAREER Awardee  |
| 1996        | IBM Support for University Research (SUR) Award                               |
| 1994        | Mordecai W. Johnson New Faculty Research Support Grant                        |
| 1992        | University of California President's Postdoctoral Fellowship                  |

### **National Recognitions for Teaching and Mentoring**

|      |   |
|------|---|
| 2023 | Inaugural Lifetime Award for Diversity and Inclusion, AGU   |
| 2017 | Charles Anderson Award American Meteorological Society  |
| 2012 | Henry C. McBay Outstanding Teacher Award National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCChE) |
| 1997 | PKAL Faculty for the 21st Century   |

### **Institutional Awards and Recognitions**

|      |  |
|------|--|
| 2023 | Inaugural Stanlee James Legacy Award “For advancing social justice and inclusion” (Arizona State University) |
| 2022 | Foundation Professor (Arizona State University)  |
| 2018 | Outstanding Researcher Award (Howard University)   |
| 2017 | Graduate Faculty Exemplar Award for Mentoring (Howard University)  |
| 2016 | Outstanding Researcher Award (Howard University)   |

### Media Mentions, Podcasts, and Interviews

- September 28, 2024 Daily Independent As Arizona voters fear climate change, both Harris and Trump support some fossil fuels <https://www.yourvalley.net/stories/as-arizona-voters-fear-climate-change-both-harris-and-trump-support-some-fossil-fuels,536642>
- September 16, 2024 MSNBC Podcast with Chris Hayes The Threat of Project 2025 on Climate <https://www.msnbc.com/msnbc-podcast/why-is-this-happening/withpod-threat-project-2025-climate-rcna171893>
- June 10, 2024 Future U podcast ‘On the role of equity and belonging in innovation design and change leadership’
- November 28, 2023 The Arizona Republic 'Find a way to make this happen': Phoenix planned homeless shelter on land contaminated for decades' <https://www.azcentral.com/story/news/local/phoenix/2023/11/28/phoenix-planned-homeless-shelter-on-contaminated-land/71428437007/>
- October 17, 2023 The Royal Gazette US Academic aims to expose youth to the wonders of science <https://www.royalgazette.com/education/news/article/20231017/us-academic-aims-to-expose-youth-to-wonders-of-science/>
- April 28, 2023 ASU News ASU Students solve real-world problems for Department of Defense <https://news.asu.edu/20230428-solutions-asu-students-solve-realworld-problems-department-defense>
- February 14, 2023 The State Press ASU People, Programs, and Events Address Low Representation of Black Professionals in STEM <https://www.statepress.com/article/2023/02/black-history-engineering-events>
- December 9, 2022 ASU News FLAGSHIP program puts underrepresented students on path to success <https://news.asu.edu/20221209-university-news-students-attend-largest-conference-geoscientists-world>
- November 8, 2022. Physics 15, 173 Systemic Racism Reflected in Grant Allocations, Researchers Argue [https://physics.aps.org/articles/v15/173?utm\\_campaign=weekly&utm\\_medium=email&utm\\_source=emailalert](https://physics.aps.org/articles/v15/173?utm_campaign=weekly&utm_medium=email&utm_source=emailalert)
- September 21, 2022 The Margin, We Glow In The Dark, <https://themargin.us/features/we-glow-in-the-dark>



- August 16, 2022. UC San Diego Scripps Institute of Oceanography Nierenberg Prize Awarded to Distinguished Atmospheric Scientist Warren Washington  
<https://scripps.ucsd.edu/news/nierenberg-prize-awarded-distinguished-atmospheric-scientist-warren-washington>
- July 26, 2022 Science NSF grant decisions reflect. Systemic racism, study argues  
<https://www.science.org/content/article/nsf-grant-decisions-reflect-systemic-racism-study-argues>
- July 18, 2022 KJZZ 2 ASU experts join national panel to address security risks from climate change. <https://kjzz.org/content/1795541/2-asu-experts-join-climate-change-national-security-panel>
- July 13, 2022 2 ASU News ASU experts join national panel to address security risks from climate change <https://news.asu.edu/20220713-two-asu-experts-join-national-panel-address-security-risks-climate-change>
- February 28, 2022 Accuweather Black History Month interview on Accuweather - <https://www.accuweather.com/en/videos/how-to-bring-more-diversity-to-the-geosciences/5mjpZPU3>
- February 15, 2022 ASU News – “Celebrating Black History Month: 6 change-makers to know” - <https://provost.asu.edu/celebrating-black-history-month-6-change-makers-know>
- Dec 10, 2021 AGU TV Interview – “Mentoring Underrepresented Students in Atmospheric Sciences” <https://www.youtube.com/watch?v=7BaFy0K02S4> November 4, 2021 Bryan Bender and Jonathan Custudio Politico, “It is a game changer’: Waging war on climate from space <https://www.politico.com/news/2021/10/31/climate-change-space-satellites-517773>
- October 29, 2021 BIMS DIVVES Podcast into Ocean and Atmosphere with Dr. Vernon Morris <https://www.youtube.com/watch?v=Iu7dWZbeyEc>
- Oct 15, 2021 Politico Interview - ‘It is a game changer’: Waging war on climate change from space - [POLITICO](https://www.politico.com/news/2021/10/15/climate-change-space-satellites-517773)
- October 7, 2021 Last Negroes at Harvard Podcast Vernon Morris ... Atmospheric Scientist <https://podcasts.apple.com/us/podcast/vernon-morris-atmospheric-scientist/id1521268233?i=1000537892118>
- September 18, 2021 Big Discussions on Science and Technology podcast Dr. Vernon Morris Discusses STEM Education, Atmospheric Research and Sustainability Science on - <https://www.youtube.com/watch?v=kMsJ22cuqzw&feature=youtu.be>
- August 17, 2021 Insight into Diversity O’Malley, Lisa and Mariah Bohanon. “The Least Diverse Field in Science” <https://www.insightintodiversity.com/the-least-diverse-field-in-science/#>
- June 2021 Voosen, Paul. “A Change in the Air” Science, 372, 6549, 1382

- May 27, 2021, Bloomberg News “What Climate Science Loses Without Enough Black Researchers” <https://www.bloomberg.com/news/features/2021-05-27/addressing-racism-inside-climate-science>
- May 2021, Nexus Media News “Racism in Academia Isolates Scientists, Causes Suboptimal Outcomes” [https://nexusmedianews.com/top\\_story/racism-in-academia-isolates-scientists-causes-suboptimal-outcomes/](https://nexusmedianews.com/top_story/racism-in-academia-isolates-scientists-causes-suboptimal-outcomes/)
- January 18, 2021 ASU News ASU faculty discuss equity and inclusion in STEM at virtual event <https://news.asu.edu/20210119-asu-faculty-discuss-equity-and-inclusion-stem-virtual-event>
- January 9, 2021 Washington Post Women and minorities in weather and climate fields confront harassment, lack of inclusion <https://www.washingtonpost.com/weather/2021/01/09/women-minorities-harassment-weather-climate/>
- January 2021, C&EN Global Enterprise “*Vernon Morris, This chemist is unlocking the secrets of atmospheric dust and expanding field research opportunities*” *C&EN*, **2021**, *99* (6), pp 40–41 February 22, 2021; <https://pubs.acs.org/doi/full/10.1021/cen-09906-feature6>
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- June 2020, Eos “Geoscience Commits to Racial Equality. Now We’ve Got Work to Do” <https://eos.org/articles/geoscience-commits-to-racial-justice-now-weve-got-work-to-do>
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- 2019 Featured in Documentary Film “Can We Talk 2: Difficult Conversations with Underrepresented People of Color: White Allyship” Produced by Kendall Moore, KendallMooreDocs
- April 16, 2019, Twitter Chat NCAS-M, its history and NCAS-M program

- 2018 Featured in Documentary Film “Can We Talk: Difficult Conversations with Underrepresented People of Color: Sense of Belonging and Obstacles to STEM Fields” Produced by Kendall Moore, KendallMooreDocs
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<https://bigwordsarepowerful.com/2017/02/a-black-history-month-interview-with-dr-vernon-morris-part-one/>  
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[https://article.wn.com/view/2016/03/01/A\\_black\\_history\\_month\\_interview\\_with\\_Dr\\_Vernon\\_Morris\\_part\\_t/](https://article.wn.com/view/2016/03/01/A_black_history_month_interview_with_Dr_Vernon_Morris_part_t/)
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- University, In *Technical Advances in Education, Aeronautics, Space, Autonomy, Earth, and Environment*. M. Jamshidi, R. Lumia, E. Tunstel, Jr., B. White, J. Malone, and P. Sakimoto, Eds. ACE Center Press: Albuquerque, NM 1997.
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  9. V. R. Morris and W. M. Jackson A Theoretical Study of the H + SO<sub>2</sub> Reaction. *Chem. Phys. Lett.* **220**, 448, 1994.
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  4. V. R. Morris, S. C. Bhatia, and J. H. Hall, Jr., Ab-initio Self-Consistent-Field Study of the Vibrational Spectra of NO<sub>3</sub> Geometric Isomers II. Isotopic Shifts of Sym-NO<sub>3</sub> *J. Phys. Chem.*, **95**:9203, 1991
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  2. V. Morris, G. A. Walker, P. Jones, Y. Cao, S. C. Bhatia, and J. H. Hall, Jr. Ab Initio SCF Studies of the Electronic Structure of Halogen Nitrates. 2. FNO<sub>x</sub> (x = 1,2,3) *J. Phys. Chem.* **93**, 7071-7074, 1989
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## OTHER SELECTED REVIEWED PUBLICATIONS

24. Committee on Equal Opportunities in Science and Engineering (CEOSE) 2021 – 2022 Biennial Report to Congress – Making Visible the Invisible – Understanding Intersectionality
23. Vallar, E.; Castilla, R.; Galvez, M. C.; Morris, V. Temporal and Seasonal Variation of Precipitable Water over Manila, Philippines (14.567° N, 120.980° E) DLSU Research Congress July 2021
22. Committee on Equal Opportunities in Science and Engineering (CEOSE) 2019 – 2020 Biennial Report to Congress – Making Visible the Invisible – Bold Leadership Actions
21. Rosado, K.; Liu, B.; Morris, V.; Tallapragada, V. S.; and Zhu, L. Spatial and Temporal Evolution of a Lightning Diagnostic in HWRF (V3.7a) *Geoscientific Model Development Discussions* <https://doi.org/10.5194/gmd-2019-13>. 2019
20. Vallar, E.; Galvez, M.C.; Castilla, R.; Cayetano, M.; Simpas, J.; Cruz, M.; Lamorena-Lim, R.; Lim, L.H.; Pabroa, P.C.; Macatangay, R.; Bagtasa, G.; Peralta, T.; Rosete, J.; Morris, V. Analysis of tropospheric and columnar ozone measurements in Manila, Philippines *ACRS 2015 - 36th Asian Conference on Remote Sensing: Fostering Resilient Growth in Asia, Proceedings* 2015
19. Castilla, R.M.; Plando, F.R.P.; Vallar, E.A.; Galvez, M.C.D.; Morris, V.R. Characterization of columnar water vapor measurements and its comparison with model estimates and surface meteorological parameters Over Manila, Philippines (14.567° N, 120.980° E) *35th Asian Conference on Remote Sensing 2014, ACRS 2014: Sensing for Reintegration of Societies* 2014
18. Esther B. Effiong, Vernon R. Morris, Nicholas R. Nalli Morphology and chemical composition of airborne Saharan dust during the AEROSol and Ocean Science Expeditions (AEROSE). Vancouver, BC, Canada, July 24-29, 2011
17. W, Gong & Min, Qingwen & Li, Rui & A, Teller & E, Joseph & Morris, Vernon. Detailed cloud resolving model simulations of the impacts of Saharan air layer dust on tropical deep convection – Part 1: Dust acts as ice nuclei. *Atmospheric Chemistry and Physics Discussions*. 10. 10.5194/acpd-10-12907-2010. 2010
16. Apodaca, Karina, and Vernon R. Morris. "Analysis of Aerosol Number Size Distributions and Hygroscopic Growth Factors as functions of Ambient Relative Humidity during the North American Monsoon." *BAMS Extended Abstracts 11th Conference on Atmospheric Chemistry*. 2009.
15. White, Rufus Ty, and Vernon Morris. "A Feasibility Study if the MARGA Tool as an Aerosol Analyzer " *BAMS Extended Abstracts 10th Conference on Atmospheric Chemistry*. 2008.
14. Hawkins, M., Morris, V., Nalli, N., & Joseph, E. (2007, January). Comparison of AEROSE I and AEROSE II Surface Level Ozone Measurements and Ozonesonde Profiles within Saharan Dust and Biomass Burning Plumes. *In Extended Abstracts, Ninth Conference on Atmospheric Chemistry, 19th Conference on Climate Variability and Change*, AMS Forum: Climate Change Manifested by Changes in Weather, San Antonio, TX, Amer. Meteor. Soc.
13. Roldán, Lizette, and Vernon R. Morris. "Altitude-dependent aerosol optical depths and number densities at El Teide, Canary Islands." *BAMS Extended Abstracts Sixth Conference on Atmospheric Chemistry*. 2004.

12. Greene, Natasha A., and Vernon R. Morris. "Examination of Heavy Metals and Particulate Matter Exposures and Effects in Susceptible Wards in the Washington, DC Region." *BAMS Extended Abstracts Sixth Conference on Atmospheric Chemistry* 2004.
11. Roldan, Lizette, and V. R. Morris. "Shipboard measurements of Saharan Dust near Puerto Rico during summer 2002." *BAMS Extended Abstracts 5th Conference on Atmospheric Chemistry*. 2003.
10. Greene, Natasha, et al. "Use of the electrostatic classification method to investigate the size distribution of aerosols near Hurricane Erika." *BAMS Extended Abstracts 5th Conference on Atmospheric Chemistry*. 2003.
9. V. R. Morris The CSTE A Howard Oxidants and Air Quality Experiment (CHOAQE): Preliminary Results from Summer 1997 *Proceedings of the 26th Annual Meeting of the NOBCChE* 1998.
8. C. K. Wright, C. B. Peterson, and V. R. Morris Calibration of the QCM/SAW Cascade Impactor for Measurement of Ozone in the Stratosphere *Proceedings of the NASA URC Technical Conference* 1997.
7. K. Meadows, C. K. Wright, S. C. Sims, V. R. Morris Preparation of Nitron for Use as a Chemical Sensor for Nitric Acid. *Proceedings of the 24th Annual Meeting of the NOBCChE* 1996.
6. S. C. Sims, C. Wright, J. Cobb, T. Mc Calla, R. Revelle, V. R. Morris, and S. K. Pollack New Polymer Coatings for Chemically Selective Mass Sensors *Proceedings of the 24th Annual Meeting of the NOBCChE* 1996.
5. J. B. Cobb, V. R. Morris, and A. N. Thorpe Mass Loading Characteristics of Crystal Clock Oscillators *Proceedings of the AIAA* 1996.
4. S. C. Sims, C. K. Wright, and V. R. Morris The Impact of Aircraft on the Chemistry of the Upper Atmosphere *Proceedings of the 23<sup>rd</sup> Annual Proceedings of the NOBCChE* 1995.
3. L. J. Valdry, V. R. Morris, and W. M. Jackson Dynamics of Energy Deposition in the HCN Product from Reactions of CN with CHCl<sub>3</sub> and CH<sub>2</sub>Cl<sub>2</sub>. *Proceedings of the 22<sup>nd</sup> Annual Proceedings of the NOBCChE* 1994.
2. V. R. Morris Ab initio Spectral Characterization of the CCN Free Radical *Proceedings of the 20<sup>th</sup> Annual NOBCChE Conference* 1992.
1. V. L. Sewell, V. R. Morris, and S. C. Bhatia ab initio Studies of the Electronic Structures of Halogen Nitrates III: BrNO<sub>2</sub> *Proceedings of the Sixth National Conference on Undergraduate Research* 1992.

## BOOK CHAPTERS, MONOGRAPHS, REPORTS

### BOOK CHAPTERS

N. R. Nalli, G. R. Foltz, J. Gero, L. Gibson, R. O. Knuteson, R. Lumpkin, P. J. Minnett, V. R. Morris, M. Ondrusek, R. C. Perez, M. Wang, J. i Wei, Ship-based Cal/Val Campaigns, Chapter 1, Editor(s): Nicholas R. Nalli, Field Measurements for Passive Environmental Remote Sensing, Elsevier, 2023, Pages 195-217

V. Sloan, R., Haacker, L. White, L., and V. Morris, Editor(s) V. Sloan & R. Haacker, Developing an Anti-Racist REU, Chapter 8: V. Sloan & Haacker, R. (Eds.). GEO REU

Handbook: A Guide for Running Inclusive and Engaging Geoscience Research Internship Programs (2<sup>nd</sup> ed.). 2020 doi:10.5065/ycba-qw42

V. Sloan, R., Haacker, L. White, L., and V. Morris, Editor(s) V. Sloan & R. Haacker, Developing an Anti-Racist REU, Chapter 8: V. Sloan & Haacker, R. (Eds.). GEO REU Handbook: A Guide for Running Inclusive and Engaging Geoscience Research Internship Programs (1<sup>st</sup> ed.). 2020 doi:10.5065/ycba-qw42

V. R. Morris, S. C. Bhatia A Theoretical Study of the Geometric Isomers of ClO dimer and Their Roles in ClO + ClO Reaction Mechanisms Chapter 4, H. C. McBay Festschrift MIT Press 1986

## SELECTED INVITED PANELS AND LECTURES

### 2024

*The Data Science of Climate Change* Keynote Lecture for the Virtual Student Data Science Symposium, Atlanta University Center September 27, 2024

*Leadership, Program-Building, Trail-Blazing for Inclusion in the NOAA-Relevant Sciences Navigating the Landscape of Barriers* NOAA Cafecito Leadership Hour May 28, 2024

*What You Don't Know Might Kill You* Panelist, Transformative Justice Coalition GenZ/Young Millennial Votes Matter Training Session, Talking Stick Resort, Scottsdale, AZ April 5, 2024

*Educational Inroads and Pathways for Tribal Youth* In conversation with Jacob Moore for the 2024 NOAA RCN Annual Workshop, Phoenix, AZ March 26, 2024

*Thoughts on the ALI Experience* Alumni Panelist, Advanced Leadership Initiative, January 10, 2024

### 2023

*Racism in Science and Pathways to Systemic Transformation for Just Futures* Panelist and co-Convener, American Geophysical Union Fall Meeting San Francisco, CA December 13, 2023

*Implementation and Outcomes of the ASU Future Leaders and Geoscience High-Road Internship Program (FLAGSHIP)* American Geophysical Union Fall Meeting San Francisco, CA December 15, 2023

*Begin and End with Inclusion* Bermudan Underwater Exploration Institute (BUEI) Public Lecture, Hamilton, Bermuda October 18, 2023

*An Overview of the AERosols and Ocean Science Expeditions (AEROSE): Characterizing Aerosol Evolution During Long-Range Transport and Implications to Global Health* Bermuda Institute of Ocean Sciences (BIOS) Hamilton, Bermuda Oct 17, 2023.

*Geosciencing While Black: 20 Years of Unsettling Racial Discrimination and the White Gaze in Earth Sciences Research and Workforce Preparation 2023* Ambrose Jearld Lecture Woods Hole, MA June 28, 2023 [https://www.youtube.com/watch?v=k3m-mWF\\_VIU](https://www.youtube.com/watch?v=k3m-mWF_VIU)

*Climate Change, STEM, and Racism* Grand Rounds Emory University Medical School Atlanta Georgia May 24, 2023

*Systemic racial disparities in funding rates at the National Science Foundation, Implications to Science Equity, and Possible Countermeasures* American Physical Society Meeting, Las Vegas, NV March 9, 2023

Workshop on a Pilot Design for Air Quality in Africa Logistics, Kigali, Rwanda January 17, 2023

## 2022

Invited Panelist for *Historical Resonances in the Atlantic: Implications for Black Marine Science* American Geophysical Union Fall Meeting Dec 13, 2022

Invited Panelist “*Systemic Racial Disparities in funding rates at the National Science Foundation*” American Geophysical Union Fall Meeting Dec 12, 2022

*An Overview of the AERosols and Ocean Science Expeditions (AEROSE): Research Cruises Integrating Inclusive Geoscience and Field-based Science.* Goddard Earth Science and Technology and Research (GESTAR-II) Seminar Series (via Zoom) Sep 8, 2022

*Can We Talk 2 - Difficult Conversations with Underrepresented People of Color: Sense of Belonging and White Allies in STEM* Panelist for film discussion  
NOAA Florida D&I Workshop June 22, 2022

*Climate Change, Health, and Equity* 3<sup>rd</sup> Annual MGB Radiology Juneteenth Keynote Lecture  
Massachusetts General Brigham, Boston, MA June 20, 2022

*The Importance of Coordinated Observations of African Megacity Air Pollution* at the 50<sup>th</sup> Global Monitoring Annual Conference (GMAC) 2022, Boulder, CO May 24, 2022

*Microphysical and Chemical Processes on Saharan Dust Aerosols During their Atmospheric Life Cycle: Focus on Ozone Chemistry* ASU School of Molecular Sciences (SOMS) April 29, 2022

*Microphysical and Chemical Processes on Saharan Dust Aerosols During their Atmospheric Life Cycle* featured speaker for monthly meeting of the Central North Carolina Chapter of the American Meteorological Society (CNCC-AMS) April 18, 2022

*Climate Change, STEM, and Racism* Association of University Radiologists March 22, 2022

An Overview of the AERosols and Ocean Science Expeditions (AEROSE)” ASU School of Earth and Space Exploration (SESE) Seminar  
[https://www.youtube.com/watch?v=KfgIiRFG\\_MU](https://www.youtube.com/watch?v=KfgIiRFG_MU) January 19, 2022

## 2021

*Leadership in STEM*, Invited panelist for Leadership in STEM Workshop hosted by NSF and Penn State University <https://leadershipinstem.psu.edu/>

October 29, 2021

*“A Conversation About the racial diversity of geoscience students”* AGU/AGI Heads and Chairs Seminars <https://www.americangeosciences.org/webinars/conversation-about-racial-diversity-geoscience-students> September 25, 2021

*Environmental Justice 101* Briefing to the Swire Coca Cola Corporate Affairs and Communications Team Retreat August 26, 2021

*Improving Inclusion in Professional Societies* Invited Speaker at the American Meteorological Society Summer Policy Colloquium August 17, 2021

*Combating Racism in the Geoscience* Invited speaker at the NASA Goddard Space Flight Center Diversity and Inclusion Discussion, August 5, 2021

Invited panelist at the National Weather Service (NWS) – Academia Partner Roundtable, May 24, 2021

*Post-Film Discussion of Can We Talk? 2: White Allyship* at NFISH Program Woods Hole Oceanographic Institute, May 20, 2021

*Aerosol Research and Jedi Activities in Geoscience”* at the Earth and Space Exploration Brown Bag, Arizona State University, April 8, 2021

*The Hidden Influence of Dust”* Invited speaker for STEM in the City, March 27, 2021  
[https://www.youtube.com/watch?v=KcJK\\_fU2lk](https://www.youtube.com/watch?v=KcJK_fU2lk)

*Inclusive Leadership*, Invited Speaker for American Meteorological Society (AMS) Early Career Professionals Leadership Workshop, March 25, 2021

*What is in the Air Around Us?* OASIS Online Learning Community, Mar 22, 2021

Invited Panelist on for *Deep Connections* at the Scripps Oceanographic Institute February 2, 2021

*Racism and Definitions* Invited Panelist for Opening Unlearning Racism in Geoscience (URGE) January 25, 2021 <https://www.youtube.com/watch?v=vzmXgUi4FI8&list=PLSG3ktAvyNY-pRpC54Zslis-oDQOJ51fp&index=10>

*A Tale of Two Cities: Comparing Lessons Learned from Community Engagement in Geohealth/Environmental Justice Studies in Washington, DC and Gondar, Ethiopia* Invited Keynote at the 23<sup>rd</sup> Conference on Atmospheric Chemistry at the 101<sup>st</sup> AMS Annual Meeting January 15, 2021 <https://youtu.be/6TZfpn5qFAE>

**2020**

*Challenges to Achieving Equitable Representation in Geosciences: A View from Within* Earth Talks at Penn State University, Earth and Environmental Systems Institute November 23, 2020

Frontiers in Atmospheric Chemistry Seminar Series, MIT *Microphysical and Chemical Processes on Saharan Dust Aerosols During Their Atmospheric Life Cycle* October 30, 2020

National Academy of Sciences *Increasing Diversity and Inclusion for Underrepresented Scholars in Earth Sciences: Addressing an Urgent Challenge*; Invited panelist for the Board on Earth Sciences and Resources (BESR) October 9, 2020

Colorado Local Science Engagement Network (CO-LSSEN) and AAAS; A Discussion on Institutional Racism in STEM *Challenges of Institutional Racism in STEM* (Panel Presentation and Discussion), September 30, 2020 (<https://www.youtube.com/watch?v=r-Pye3hmLRs>)

NWS Summer 2020 Partner Webinar Series: *A Change in the Weather: Research and Undergraduate Learning* (Panel Presentation and Discussion), August 18, 2020

*Ocean STEM Careers*, Panel Presentation and Discussion at the 2020 Monterey Bay Ocean Sciences REU Program Online Professional Development Workshop Series: July 29, 2020

*Post-Film Discussion of Can We Talk? 2: White Allyship*, Invited Panelist at the SOARS Professional Development Program, July 16, 2020

*Sense of Belonging in STEM Careers* Panel Presentation and Discussion at the National Hurricane Center Florida Diversity & Inclusion Workshop: June 2, 2020

*Microphysical and Chemical Processes on Saharan Dust Aerosols During Their Atmospheric Life Cycle* Department of Geoscience, Lehigh University, February 27, 2020

## 2019

*Microphysical and Chemical Processes on Saharan Dust Aerosols During Their Atmospheric Life Cycle* Department of Meteorology, University of Oklahoma, Norman, OK Dec 3, 2019

*A Retrospective on a Decade of Dust Measurements in the Tropical Atlantic: What Have We Learned from AEROSE?* University of West Virginia, November 1, 2019.

*Microphysical and Chemical Processes on Saharan Dust Aerosols During Their Atmospheric Life Cycle* Invited Talk at Colorado State University, October 10, 2019.

*Obstacles for Underrepresented POC in STEM and Strategies for Diversifying Geoscience Fields.* (Panel Presentation and Discussion) Narraganset Bay, RI May 23-24, 2019

*Geosciences Connections Across the Disciplines: Highlights from 15 Years of Inter- and Cross-Disciplinary Connections* Howard University Research Retreat, Washington, DC April 9, 2019.

*Can We Talk: Difficult Conversations on Race in STEM* (Panel Discussant) NOAA 3rd Annual Diversity and Inclusion Summit Silver Spring, MD April 2, 2019

*Inhalation-Level Exposures and Challenges to Current Regulatory Monitoring Networks in Washington, DC* (for a delegation of Chinese engineers and scientists from Jinan Environmental Protection Agency) UVA Northern Virginia Campus. January 18, 2019.

## 2018

*STEM in the 21st Century: Ensuring That People of Color Will Not Be Left Behind Again* (Panel Discussant) Black Male Initiative City Tech, New York, New York November 5-6, 2018

*Seasonal Mapping of Inhalation-Level Aerosol in Washington, DC* 90th National Technical Association Annual Meeting, Hampton, VA September 26-28, 2018

*What Is and Isn't Working in Diversity Efforts: Time for a Change* National Science Foundation GEO Research Experiences for Undergraduates (REU) Workshop National Center for Atmospheric Research (NCAR) Boulder, CO, September 13-15, 2018

*Reflections on Diversity and Inclusion in Atmospheric Sciences*, Department of Meteorology, University of Oklahoma September 10, 2018

*Warren Washington's Entrainment Model of Mentoring* Warren Washington Legacy Symposium, Pennsylvania State University, State College, PA September 5, 2018

*Reflections on Boundary Spanning Design* (Panel discussant) SESYNC Boundary Spanning: Advances in Socio-Environmental Systems Research International Workshop Annapolis, MD June 11-13, 2018

*Sustaining Geoscience Programs at HBCUs* (Panel Discussant) Broadening Participation in Geosciences at HBCUs Workshop Greensboro, NC May 15, 2018

*Physical Chemical Processes of Saharan Dust Aerosols During Their Atmospheric Life Cycle* Chemical Society of Washington, Washington, DC May 10, 2018

## 2017

*The Role Professional Societies in STEM Diversity* 89th National Technical Association Annual Meeting, Baltimore, MD September 2017

*Climate Variability, Public Health, and the Atmospheric Microbiome in the Ethiopian Highlands* Scholar on Campus Geophysics Lecture, New York City College of Technology, April 25, 2017

## 2016

*A Retrospective on a Decade of Dust Measurements in the Tropical Atlantic: What Have We Learned from AEROSE?* Department of Plant and Environmental Sciences, University of California Davis December 16, 2016



*Fourteen Years of CAREERS Camps* at the NOAA Education Council Meeting, Silver Spring, MD January 20, 2016

**2015**

*Successful Team Science in Practice* at the RCMI Team Science Symposium, Howard University, April 14, 2015

*Sharing Our Voices – Saharan Dust, Air Chemistry, and Global Climate* at the US Customs and Border Protection February 25, 2015

**2014**

*Tropical Aerobiology and Climate* at the University of Gondar (UOG) Medical School, Gondar, Ethiopia June 23, 2014

*The Joys of Being Nonlinear* at the 5<sup>th</sup> Annual Hopps Training Symposium & Recruitment Fair, Morehouse College, Atlanta, GA February 28, 2014

*History-Makers Presentation and News Conference* at Friendship Collegiate PCS, Washington, DC September 27, 2014

**2013**

*Research Findings from the Saharan Dust AERosols and Ocean Science Expeditions (AEROSE) 2004 – 2013* at Geophysical Fluid Dynamics Laboratory (GFDL), Princeton, New Jersey July 1, 2013

*Accomplishments of the NOAA Educational Partnership Program* - Briefing to the NOAA Research Council, Silver Spring, MD May 13, 2013

**2012**

Henry C. McBay Lecture: *Continuing Adventures of a Nonlinear Chemist at the Interface of Disciplines* at the 39<sup>th</sup> Annual NOBCCHE National Conference Washington, DC September 25-28, 2012

*Integrating NOAA Science into Research and Outreach to Produce Next-Generation STEM Scholars* at the 6<sup>th</sup> Biennial NOAA Education and Science Forum Tallahassee, FL March 26-28, 2012

**2011**

*Linking the Microphysics and Composition of Saharan Dust to Climate and Human Dimensions Across the Planet* at the Philippine Physics Society Meeting Dumaguete, PI April 5-9, 2011

**2010**

*Aerosol and Trace Gas Measurements in the Tropical Atlantic: What Do In-Situ Atmospheric Measurements Tell Us About Chemical and Climate Change in the Earth System?* at the Chinese Academy of Sciences, Beijing, China August 2010

*Research Highlights of the NOAA Center for Atmospheric Sciences* at the Wuhan University, Wuhan, China August 2010

*The trans-Atlantic Aerosols and Ocean Science Expedition (AEROSE)* at the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana April 2010

*The Demographics of Climate Change* at the Science Cafe, Washington, DC – March 4, 2010

*Nonlinear Career Paths in Environmental Sciences* at the Fernbank Science Center, Decatur, GA – Jan 19, 2010

#### **2009**

*Ongoing Research and New Opportunities in Climate Change – Air Quality \_ Environmental Health: A Prelude to Discussions on Collaborative Research* at the National Human Genome Center, Howard University Washington, DC – December 15, 2009

*Climate Impacts of Aerosols and Case Studies of Cloud Modification* at Omdurman Ahlia University, Omdurman, Sudan – May 21, 2009

*Linking the Composition of Saharan Dust to Climate Change and Human Dimensions* at the Sudan University of Science and Technology, Khartoum, Sudan – May 23, 2009

#### **2008**

*Overview of the NOAA Center for Atmospheric Sciences (NCAS) Measurements and Observing Systems Programs* at the Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA), Quezon City, Philippines December 6, 2008

*Chemistry on a Global Scale – Linking the Composition of Saharan Dust to Climate Change* at De La Salle University, Manila, Philippines – November 28, 2008

*Measurements of Saharan/Sahel Climate, Air Quality, and Regional Airborne Biodiversity* at Coppin State University, Baltimore, MD – October 21, 2008

*What's Dust Got To Do With It? – Climate Change and West African Air Masses* at Chicago State University – March 25, 2008

*Ozone Chemistry in West African Air Mass Outflows over the Tropical Atlantic* at Addis Ababa University, Addis Ababa, Ethiopia – January 23, 2008

#### **2007**

*Atmospheric Chemistry at Sea – Field Investigations of the Climate, Environmental and Health Impacts of Air Mass Transport from Saharan and Sahelian Africa*, at State University of New York at Albany – SUNY, Albany, New York – November 21, 2007

*Climate Issues in West and Sahelian Africa and the Potential for Use of Carbon Sequestration* at the International Workshop on Curbing the Global Warming by Carbon Sequestration at the Catholic University of America, Washington, DC – October 30, 2007

*Research Highlights from the NOAA Center for Atmospheric Sciences Applied Physics Laboratory, at the University of Washington, Seattle, Washington – October 24, 2007*

*Measurements of Aerosol Outflows from Africa and Their Impacts on Climate, Chemistry, and Health at the Pacific Northwest National Laboratory, Richland Washington – October 23, 2007*

## 2006

*Impacts of Saharan Dust in the Caribbean at the University of the West Indies Mona Campus, Kingston, Jamaica – October 19, 2006*

### SELECTED PRESENTATIONS (2006 – to present)

V. Morris, “Airborne Mineral Dust, Aerobiology, and Health in North Africa” Workshop on a Pilot Design for Air Quality in Africa, June 8, 2021

V. Morris, S. Bililign, and B. Demoz “The Hard Truths Redux: Facts, Figures, and Diversions in the Struggle to Broaden Participation in the Atmospheric Sciences Professoriate” 101 AMS Meeting, New Orleans, LA Jan. 7-12, 2021

V. Morris and L. Williams “The Hard Truth: Facts, Figures, and Diversions in the Struggle to ‘Broaden Participation’” 100th AGU Meeting, San Francisco, CA Dec 9 — 13, 2019

D. Yeager and V. R. Morris “Radiative Forcing of Aging Saharan Dust Storms Entering the North Atlantic” 99th AMS Meeting Phoenix, AZ Jan 6 - 10, 2019

V. Morris, J. Manswell-Butty, K. Thiero, M. D. Walter “Overview and Outcomes of the NOAA Center for Atmospheric Sciences Weather Camp Program” 99th AMS Meeting Phoenix, AZ Jan 6 - 10, 2019

R. Sakai, V. R. Morris, A. Flores, B. Carroll, V. Caicedo, R. Delgado, B. Demoz, O. Parker, M. Tzortziou, J. T. Sullivan “Boat Transect Measurements over the Chesapeake Bay during the OWLETS-2 Campaign” 100th AGU Meeting Washington, DC Dec 10-14, 2018

J. Manswell Butty, V. Morris, T. Adams “NCAS-M Experiential Training Program for Rising Sophomores: A Whole Student Approach to Success” 100th AGU Meeting Washington, DC Dec 10-14, 2018

S. Hsieh, V. Morris, A. L. Northcross, S. Wilson, R. R. Dickerson, E. D. Roper, and P. Norouzi “Monitoring Concentrations of PM<sub>2.5</sub> and Black Carbon in a Neighborhood in Washington, DC: When Using Citywide Averages for Environmental Assessment Underestimates Impacts in a Community” 100th AGU meeting Washington, DC Dec 10-14, 2018

V. Morris and T. Washington “How Professional Societies Can Impact Diversity in STEM” National Technical Association 89th Annual Conference, Baltimore, MD September 20-22, 2017

V. Morris, M. Fayissa, N. Greene, S. Abegaz, and J. Tirado Seasonal Mapping of Inhalation-Level Aerosol in Washington, DC 95<sup>th</sup> AMS Annual Meeting, New Orleans, LA January 10-15, 2016

N. R. Nalli, NOAA/NESDIS, College Park, MD; and V. Morris, E. Joseph, C. D. Barnet, Q. Liu, T. Reale, J. W. Smith, A. Gambacorta, C. Tan, B. Sun, F. Iturbide-Sanchez, D. Wolfe, M. Wilson, T. S. King, W. Wolf, and F. Tilley Ship-Based Campaigns Supporting S-NPP CrIS/ATMS Sounder Validation: CalWater/ACAPEX and AEROSE 95<sup>th</sup> AMS Annual Meeting, New Orleans, LA January 10-15, 2016

K. K. Venable and V. Morris Characterizing the Distribution of Water in the Tropospheric Column During the Monsoon Season in the Philippines 95<sup>th</sup> AMS Annual Meeting, New Orleans, LA January 10-15, 2016

E. Castillo, V. Morris, R. Fitzgerald Aerosol mass distribution found in the marine boundary layer over the tropical Atlantic Ocean 94<sup>th</sup> AMS Annual Meeting, Atlanta, GA February 5-10, 2014

N. R. Nalli, NOAA/NESDIS, College Park, MD; and C. D. Barnet, T. Reale, E. Joseph, V. R. Morris, D. E. Wolfe, A. Gambacorta, P. J. Minnett, T. King, H. Xie, E. Maddy, F. Iturbide-Sanchez, M. Divakarla, M. I. Oyola, J. W. Smith, and E. D. Roper NOAA Aerosols and Ocean Science Expeditions (AEROSE) Supporting S-NPP EDR Validation 94<sup>th</sup> AMS Annual Meeting, Atlanta, GA February 5-10, 2014

J. M. Tirado and V. Morris Particulate matter modeling in Puerto Rico during wet and dry season episodes 94<sup>th</sup> AMS Annual Meeting, Atlanta, GA February 5-10, 2014

M. I. Oyola, N. Nalli, V. Morris, S. Lu, E. Joseph Analyzing satellite temperature retrievals over dust-laden fields in the Northeast Atlantic 94<sup>th</sup> AMS Annual Meeting 18th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) Atlanta, GA February 5-10, 2014

K. K. Venable and V. Morris Characterizing Aerosol Forcing Spatial Patterns and Climatology Trends Impact on Monthly Precipitation Rates During the Monsoon Season in Manila, Philippines 94<sup>th</sup> AMS Annual Meeting Joint Session of the Second Symposium on Prediction of the Madden-Julian Oscillation: Impacts on Weather and Climate Extremes; and the Fifth Conference on Weather, Climate, and the New Energy Economy Atlanta, GA February 5-10, 2014

K. K. Venable and V. R. Morris Characterizing Spatial Patterns and Climatology Trends using Monthly Rainfall Rates in Manila, Philippines 93<sup>rd</sup> AMS Annual Meeting 27th Conference on Hydrology Austin, Texas January 5-10, 2013

M. I. Oyola, and E. Joseph, F. Adames, N. R. Nalli, V. Morris, C. D. Barnet, and D. Wolfe Interhemispheric Tropospheric Vertical Distribution of Ozone Over the Atlantic Ocean: Multi-

year assessment from shipboard observations during the NOAA AEROSE II –AEROSE VII 93<sup>rd</sup> AMS Annual Meeting 27th Conference on Hydrology Austin, Texas January 5-10, 2013

M. A. Fayissa, V. R. Morris, Y. Gultneh. Fluorescence Detection of Nitric Oxide in Methanol Solution by  $\text{Cu}^{2+}$  Complex of Tridentate Ligand 245th ACS National Meeting and Exposition New Orleans, Louisiana, April 7-11, 2013

E. D. Roper, E. Joseph, N. R. Nalli, V. R. Morris Analysis of surface ozone concentrations within the Saharan air layer during AERosols and Ocean Science Expeditions (AEROSE) 245th ACS National Meeting and Exposition New Orleans, Louisiana, April 7-11, 2013

V. Morris and M. Guereque In-situ Observations of Mineral Dust Mass Distribution Characteristics: AEROSE (2004-2011) Joint Meeting of the National Society of Black Physicists and the National Society of Hispanic Physicists Austin, Texas September 21-24, 2011

M. Oyola, E. Joseph, N. Nalli, and V. Morris Validation of Leosphere Windcube© Lidar Measurements aboard the Aerosols and Ocean Science Expedition VI (AEROSE) 91st AMS Annual Meeting 5<sup>th</sup> Symposium on Lidar Atmospheric Applications January 23–27, 2011

E. B. Effiong and V. R. Morris Physical/Chemical Characterization of Trans-Atlantic Airborne Saharan Dust during the Aerosol and Ocean Science Expeditions (AEROSE) 91st Annual Meeting Field, Lab, and Modeling Studies of Air Quality Poster January 23–27, 2011

H. M. Mogil and V. R. Morris Summer Weather Camps: Opening Doors to CAREERS in Meteorology 91st Annual Meeting 20<sup>th</sup> Symposium on Education January 23–27, 2011

A. Flores, E. Joseph, N. Nalli, and V. Morris Analysis of Aerosol Optical and Physical Properties and Their Impact on Surface Radiative Energy Budget and Atmospheric Thermodynamics during AEROSE Campaigns American Geophysical Union, Fall Meeting Dec 2010

M. L. Robjhon, S. Chiao, E. Joseph, N. R. Nalli, A. E. Reynolds, and V. Morris A modeling study of tropical cyclone suppression during the AEROSE 2009: Case study of Ana 29th Conference on Hurricanes and Tropical Meteorology May 9-14, 2010

N. R. Nalli, C. D. Barnet, E. Joseph, V. R. Morris, H. Xie, D. E. Wolfe, M. D. Goldberg, and P. J. Minnet Aerosol and Ocean Science Expeditions (AEROSE): Dedicated marine soundings for CrIMSS and GOES-R proxy datasets 90<sup>th</sup> Annual Conference of the AMS, 14th Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS), January 17-21, 2010

K. Apodaca and V. Morris Analysis of Aerosol Number Size Distributions and Hygroscopic Growth Factors as functions of Ambient Relative Humidity during the North American Monsoon 89<sup>th</sup> Annual Conference of the AMS, 11th Conference on Atmospheric Chemistry Special Symposium on Aerosol–Cloud–Climate Interactions January 14, 2009.

C. A. Stearns, E. Joseph, N. R. Nalli, V. Morris, A. M. Thompson, and B. Bojkov Tropospheric ozone events during AEROSE cruise 2007 88<sup>th</sup> Annual Conference of the AMS, 10<sup>th</sup> Conference on Atmospheric Chemistry January 23, 2008

I. Renta-López, M. D. Powell and V. Morris Evaluation of the surface wind fields of the GFDL coupled forecast for Hurricane Ivan using H\*Wind Analysis 88<sup>th</sup> Annual Conference of the AMS, Tropical Meteorology Special Symposium 19th Conference on Probability and Statistics January 21, 2008

M. Fuentes, O. Reale and V. Morris Investigating barotropic instability of the African Easterly Jet and its potential for development in the NASA Finite-Volume GCM 88<sup>th</sup> Annual Conference of the AMS, January 21, 2008

I. Renta-López, M. D. Powell and V. R. Morris GFDL model output comparisons with surface wind observations for hurricane Ivan 2004 87<sup>th</sup> Annual Conference of the AMS, 11th Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) January 14-18, 2007

V. Morris, M. Hawkins, N. Nalli, E. Joseph, M. Goldberg, P. J. Minnett, and L. Roldan AEROSE: Ongoing field investigations of downwind transport of aerosols from Saharan and Sub-Saharan Africa across the Tropical Atlantic 87<sup>th</sup> Annual Conference of the AMS, 9<sup>th</sup> Conference on Atmospheric Chemistry January 14-18, 2007

M. Hawkins and V. Morris Comparison of ozone and carbon monoxide observations during the NCAS Trans-Atlantic Saharan Dust Aerosol and Ocean Science Expedition with other aerosol datasets 86<sup>th</sup> Annual Conference of the AMS 8th Conference on Atmospheric Chemistry January 9-14, 2006

K. Apodaca and V. R. Morris Dust observations in El Paso, Texas during the 2005 North American Monsoon season 86<sup>th</sup> Annual Conference of the AMS 14th Joint Conference on the Applications of Air Pollution Meteorology with the Air and Waste Management Assoc January 9-14, 2006

RESEARCH ACTIVITIES, FELLOWSHIPS, GRANTS, CONTRACTS

| Project Title   | Source                            | Funding/<br>Role  | Duration                  |
|---|-----------------------------------|---|---------------------------|
| STEM Connect Teacher training   | APS                               | \$67,336  | 6/1/2023 –<br>12/31/2024  |
| 2021 Courseware Second Exemplar - NSE - ASU/CMU<br>(PI: Ariel Anbar)  | Bill and Melinda Gates Foundation | \$4.6M (total)<br>SME for culturally relevant content                               | 11/23/2021 –<br>1/31/2025 |
| Southwest Urban Corridor Integrated Field Laboratory (SW-IFL) Co-PI (PI: David Sailor)  | Department of Energy              | \$25M (total)<br>\$105K/yr  | 9/1/22 – 8/31/27          |
| LTER: CAP V: Investigating how relationships between urban ecological infrastructure and human-environment interactions shape the structure and function of urban ecosystems<br>(PI: Daniel Childers) | NSF                               | \$7.65M (total)<br>Maintenance and collection of air quality data record in Phoenix | 3/1/2023 –<br>2/28/2029   |
| International Research Experiences in Earth and Atmospheric Sciences in Botswana  | NSF                               | \$19.5K   | 7/1/2022 –<br>9/30/22     |
| NASA Goddard Earth Science Technology and Research (GESTAR) – II – PI   | NASA                              | \$671K  | 1/01/22 –<br>12/31/25     |
| The Geoscience behind Infrastructure Careers - Unlocking the Intrinsic Value of Diverse Communities – PI  | NSF                               | \$300K  | 08/01/21 –<br>07/31/23    |
| Workshop in Measurements, Modeling and Data Analysis of the Planetary Boundary Layer Co-PI (PI:David Whiteman)  | NSF                               | \$90K   | 08/19 - 08/21             |
| Investigating Vertical Profiles of Aerosols and Their Radiative Impacts – PI  | NSF                               | \$300K  | 1/01/19 -<br>12/31/21     |

|   |            |                         |                   |
|---|------------|-------------------------|-------------------|
| HBCU-Excellence in Research: Radiative Effects of Biomass Burning Aerosols Laboratory and Field Measurements and Modeling of Climate and Health Impacts; subaward PI (NC A&T is the lead) | NSF        | \$1M (\$150K sub-award) | 09/18 - 08/21     |
| Ninth Education and Science Forum – PI  | NOAA       | \$190,000               | 10/17- 09/19      |
| Targeted Infusion Project: Promoting Environmental Education in Urban Social-Ecological Resilience Co-PI (PI: Rubin Patterson)  | NSF        | \$398K                  | 5/22/17 - 5/21/20 |
| Cooperative Science Center for Atmospheric Sciences and Meteorology - PI and Director   | NOAA       | \$15.5M                 | 9/16 – 9/21       |
| Chemistry Mathematics, Physics Scholarships (CMaPS) S-STEM Co-PI (PI: Dennis Davenport)   | NSF        | \$617K                  | 10/14 – 9/19      |
| GP-IMPACT: Strengthening Pathways into Geosciences through Linkages between Summer Bridge and Undergraduate Training Programs, co-PI (PI: Paulinus Chigbu)                                | NSF        | \$500K                  | 9/15 — 9/19       |
| Minority Health International Research Traineeship (MHIRT) Co-PI (PI: Winston Anderson, HU)   | NIMHD/N IH | \$267K                  | 11/13 – 12/18     |
| Providing Unique Laboratory Experiences to Under-represented STEM Students Co-PI (PI: Jason Matthews)   | NIST       | \$1.5M                  | 09/12 – 10/15     |
| IGERT: Water-Climate-Health Co-PI (PI: Grace Brush, JHU)  | NSF        | \$40K/yr                | 09/11 – 08/16     |
| Natural Disaster Risk Communication – PI  | NOAA       | \$106K                  | 09/12 – 08/14     |
| NOAA CAS – PI and Director  | NOAA       | \$15M                   | 09/11-08/16       |
| CAREERS Weather Camps – PI  | NSF        | \$181K                  | 10/09 – 9/11      |
| NOAA CAS – PI and Director  | NOAA       | \$12.3M                 | 09/06-08/11       |
| NOAA CAS – PI and Director  | NOAA       | \$12.5M                 | 09/01-08/06       |
| Atmospheric Biodiversity – PI   | EPA        | \$120K                  | 10/08 – 9/11      |



|   |   |           |                    |
|---|---|-----------|--------------------|
| Education and Science Forum – PI  | NOAA  | \$210,000 | 09/08- 08/10       |
| NASA GEST Center – PI   | NASA  | \$6.4M    | 06/00-05/05        |
| Collaborative Research: ITR Linked Environments for Atmospheric Sciences Co-PI (PI: Everette Joseph)                | NSF   | \$760K    | 03/03 - 02/07      |
| Laboratory for Molecular Computations – co-Director and co-PI (PI: William Southerland)                             | NIH   | \$2.29M   | 08/03 – 07/12      |
| Research and Training Award – PI  | Pfizer  | \$17,000  | 1/1/08 – 12/31/08  |
| BCCSO University Research Center – Co-I (PI: Everette Joseph)   | NASA  | \$5M      | 1/01/09 – 12/31/14 |
| Evaluation of Wet and Dry Deposition in Washington, DC – PI   | District of Columbia Water and Sewage Authority (WASA), | \$111,000 | 9/1/05-8/31/07     |
| Saharan Dust Aerosols and Science Expedition (AEROSE) – PI  | NOAA<br>NASA  | \$200,000 | 12/03-11/04        |
| Celebrating 20th Century Pioneers in Atmospheric Sciences, Examining 21st Century Challenges and Opportunities — PI | NSF   | \$49K     | 03/99 - 02/01      |
| CASTNET Support – PI  | EPA   | \$20,000  | 1/01/05 – 12/31/05 |
| Investigation of Particulate Generation in Aircraft Turbines – PI   | Boeing  | \$60,000  | 1997 – 1998        |
| CAREER – PI   | NSF   | \$386,000 | 1997 – 2001        |
| Development of a Computational Model of Aerosol Formation – PI  | IBM   | \$400,000 | 1996 – 1998        |

EDITORIAL WORK, CONSULTANCIES, BOARDS, REVIEW PANELS (since 2006)

Contributing Editor, Environment Magazine (2021 – 2023)

HBCU Working Group on Geosciences (2017 – 2020)  
 NCAR non-NSF Proposal Review Panel (2015 – 2017)  
 Board Member, Perry School (2013 – 2016)  
 Consultant, Empower DC (2012 — 2015)  
 Chair, Advisory Board for NSF CREST Center for the Integrated Study of Coastal Ecosystem Processes and Dynamics in the Mid-Atlantic region at the University of Maryland Eastern Shore (2011 – 2016)  
 Board of Advisors, Manila Journal of Sciences (2011)  
 Reviewer for National Science Research Council Curriculum Development (2006)

#### OTHER PROFESSIONAL SERVICE

Advisory Board Member, AGU LANDInG; (Leadership Academy and Network for Diversity and Inclusion in the Geosciences (2020 – 2023)  
 Culture and Inclusion Council, American Meteorological Society (2020 – 2023)  
 American Meteorological Society Council (2020 - 2023)  
 Dashboard for Agricultural Water use and Nutrient Management (DAWN) (2020 – 2022)  
<https://dawn.umd.edu>  
 American Geophysical Union Diversity and Inclusion Advisory Committee (2019 — 2022)  
 Chair, Planning Committee of the 9th Biennial Education and Science Forum (2018)  
 Planning Committee, International Conference on Appropriate Technology (ICAT) (2017-2018)  
 District of Columbia STEM Advisory Council (2011 – 2014)

#### UNIVERSITY SERVICE

##### *INSTITUTIONAL*

|                |  |
|----------------|--|
| 2023 – present | SEA Change Committee   |
| 2022 – present | Global Futures Lab Task Force  |
| 2021 – present | ASU ADVANCE internal advisory committee  |
| 2021 – present | Co-lead ASU Full Black Faculty Roundtable  |
| 2020 – present | Advisory Council on African American Affairs (now the LIFT Initiative)                                     |
| 2020 – present | Co-Lead of Presidential Postdoctoral Program (new initiative in Presidential commitment to antiracism)     |
| 2020 – present | Co-Lead of Presidential Graduate Fellows Program (new initiative in Presidential commitment to antiracism) |
| 2020 – 2021    | Participant in target hire searches for ESE, SOMS, School of Criminology and Criminal Justice, and SOLS    |

##### *COLLEGE*

|                |  |
|----------------|--|
| 2022           | Co-Chair, School of Interdisciplinary Forensic Science Director Search |
| 2021 – present | Institutional Representative to West MEC                               |
| 2020 – present | New College Antiracism Council (NewARC)                                |

#### INTERNATIONAL PROFESSIONAL/RESEARCH TRAVEL AND OUTREACH

1. Country: Canary Islands (Spain)

Purpose: In 2003, I travelled to Las Palmas, Gran Canaria to seek collaboration with Scientists at the University of Las Palmas and the Instituto de Canario de Ciencias Marinas (ICCM) to study Saharan dust transport over the island. These talks led to a team of six Canarian scientists joining my 2004 AEROSE cruise (See below) and two field experiments along the ascent of Tenerife to study the vertical distribution of Saharan dust in the islands

Sponsorship: NASA

Dates: March 2003

2. Countries: Barbados, Bermuda, Brazil, Canary Islands, Cape Verde, Chile, Ghana, Trinidad, and Uruguay

Purpose: As PI and Chief Scientist for the AERosols and Ocean Science Expeditions (AEROSE – [www.aerose.org](http://www.aerose.org)), I lead an international, interdisciplinary campaign that involves ship-based aerosol field campaigns between 2004 and 2012 with the unique objective of generating a comprehensive data set of complementary atmospheric measurement and Oceanographic observations aimed at characterizing the impact and microphysical evolution of Saharan dust aerosols transported across the Atlantic Ocean. This project routinely sponsors international scientists to join the cruise for training, technology transfer, and scientific collaboration. Scientists from Canada, Germany, France, and Indonesia have participated during the years 2009-2012. As a result of this cruise, I have travelled to several countries. In each nation, we tend to perform outreach to public schools and give community lectures and a tour of the ship. In many of the instances, we also train one or more visiting scientists onboard the ship.

Sponsorship: NOAA

Dates: 2004 - 2017

3. Country: Jamaica

Purpose: I travelled to Jamaica in (on an invitation from the University of West Indies – Mona) to explore collaborations between the Department of Chemistry at HU and their Department of Chemistry. I gave scientific presentations, lectured in classes, and visited local schools to give science lectures across the island. I also visited the Meteorological Bureau to discuss research collaborations on upper air measurements.

Sponsorship: University of West Indies – Mona and Howard University

Dates: November 2006

4. Country: Mali

Purpose: I travelled to Bamako, Mali in 2006 to initiate discussion of a collaborative field experiment between HU and scientists in Mali at the University of Bamako and the Malian Meteorological Bureau. The project was an observational field campaign conducted from June – October to collect environmental measurements to characterize air quality and health linkages during the transition from wet to dry season and the influence of Saharan dust storms on air quality and public health risks. In 2007 a team of students and faculty returned from to conduct atmospheric observations, size-resolved aerosol sampling, and both chemical and microbiological analysis.

- Conducted two IOPs in Bamako in which air filters were obtained during the summer and fall to investigate the populations of airborne microflora during dust episodes and how they influence ambient aerobiology
- Bacterial isolates were categorized into family groups based on phenotypic and phylogenetic characterization
- Published results of collaborative research in Mali

Sponsorship: Howard Hughes Research Institute

Dates: July 2006 and October 2007

5. Country: Ethiopia

Purpose: I took sabbatical to hold adjunct appointments on the Science Faculty at Addis Ababa University in the Department of Chemistry and in the Graduate Environmental Sciences Program. During the 2009 sabbatical, I completed the following activities:

- Taught a graduate course in the environmental sciences program (Atmospheric Chemistry) at Addis Ababa University (AAU).
- Provided guest lectures in the graduate course in Environmental Chemistry at AAU
- Advised graduate students and oversaw environmental research projects.
- Conducted a pilot IOP in Addis Ababa, Ethiopia.
- Served as a member of an external review team for the Environmental Sciences Program (ESP). This five-member team of visiting scientists performed the following tasks for the Program Director, Dr. Solomon Seyoum: a) Reviewed overall program structure, b) Reviewed individual core courses and recommended critical content,
  - c) Reviewed program mission goals and core strategies, d) Provided recommendations for growth strategies, alignment with national needs, and research foci.
- Developed a series of collaborative projects in environmental sciences and chemistry for extended interactions between faculty at AAU and at HU

Sponsorship: Addis Ababa University and Howard University

Dates: February through early June 2009

6. Country: Sudan

Purpose: In response to an invitation from faculty colleagues at the University of Khartoum, Omdurman Ahlia Islamic University and SUST, I visited the University campuses in Khartoum and Omdurman.

- Delivered seminars at three Universities
- Engaged in discussion of extended research collaborations
- Devised three memoranda of understanding that were ultimately signed into effect at HU.

Research collaborations continue that involve local and regional observations of air quality and data analysis.

Sponsorship: The Sudan Academy of Sciences and the Sudanese Ministry of Education  
Dates: May 22 – June 3, 2009

7. Country: Philippines

Purpose: I took a leave of absence from Howard University to serve as the Distinguished Visiting Scientist at De La Salle University in Manila, Philippines

Sponsorship: De La Salle University (DLSU). The objective was to stimulate research and contribute to the educational and outreach projects in the Department of Physics. A key goal was the development of projects and strengths in environmental physics.

Dates: January – May 2011. This was a follow up to an initial visit in fall 2010 in which I attended the Philippine Meteorological Society Meeting and made initial contacts at DLSU.

During this time, I:

Taught and advised students

- Environmental Methods Seminar Course – This graduate course was team taught with Dr. Gil Santos
- Guest Lectures in course number SCIMATP
- Guest Lectures in course number SCIENVP

Outreach

- Crazy Chemistry Day in Lipa City for middle school students (March 3 and Nov 7)
- Conducted De La Salle University Weather Camp for undergraduate students (March 5-6)
- Conducted Science Camp 2011 (April 1-2)
- Served as the Invited Guest Speaker at Recognition Day at Lipa Christian School (April 4 Lipa City)
- Participated as an organizer, speaker, and docent during the E4 (Electronic Enablers of Excellence in Education) Teachers Workshop (Nov 3-5, 2011)

Established Research Collaborations

- Implementation of the Air Quality Station – an air quality station consisting of ambient ozone measurements, gravimetric PM<sub>2.5</sub> aerosol sampling, and gravimetric size-segregated aerosol sampling (six size cuts between 7 and 0.65 microns), and a weather station was set up on the rooftop of the Andrew Building on the DLSU Manila campus during the week of March 14 and began collecting all data streams on March 17 and continues to present.
- Developed an interdisciplinary Aerobiology Collaboration – Drs. Morris and Vallar met with Dr. Esperanza Cabrera of the DLSU Biology Department to discuss the potential for interdepartmental collaboration on the ambient aerosol sampling and analysis project. One undergraduate student was recruited (Clarisse Yeung) to work on culturing and sequencing the DNA from the air samples collected. Dr. Cabrera agreed to provide

technical expertise, bench space, and staff assistance in support of the collaboration. Aerobiological sampling is scheduled to commence in early May 2011.

- Visit to DENR/EMB (March 23) – Drs. Morris and Vallar visited the Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR) to discuss collaboration regarding the ambient aerosol sampling and analysis project at DLSU. The outcomes of this discussion were 1) EMB committing to establishing a fully-automated air quality station on the campus of DLSU-Manila and 2) I conducted an air quality modeling workshop for EMB to be hosted by DLSU in collaboration with NCAS at Howard University
- EMB committed to collaborate and share data (principally TSP and PM<sub>10</sub>) and the DLSU/HU team would share the ozone, PM<sub>2.5</sub> and smaller size-segregated atmospheric particulate.

8. Country: South Africa

Purpose: To attend the 5<sup>th</sup> International Conference on Appropriate Technology in Pretoria, South Africa and to visit the University of Pretoria and initiate collaborations with Professor Hannes Rautenbach, Chair of the Department of Geography, Geoinformatics and Meteorology November 2012.

- During this visit I teamed with Professor Hannes Rautenbach and some of the faculty Geography, Geoinformatics, and Meteorology to draft a proposal for an observational field campaign at their facility.
- The proposal was favorably reviewed and is in the process of consideration for a Fulbright proposal to support the development of a Global Reference Upper Air Network site in Pretoria, RSA. My role was leading the technology transfer team in this effort.
- Plans are underway to transfer, site, and train local meteorologists on the installation and use of a ceilometer to provide continuous measurements of the planetary boundary layer.

Sponsorship: Howard University

Dates: November 20-28, 2012

9. Country: Ethiopia

Purpose: Multi-year project designed to characterize aerobiological variability during the wet season – dry season transition in Northern Ethiopia with the objective of clarifying the climatic influences on the long-range transport of opportunistic pathogens via air-borne particles especially those originating in desert regions. This study combines environmental measurements, particulate sampling, and modeling with the genomic mapping of sampled airborne bacteria to characterize the human health impacts. Aerobiological samples are collected in order to identify the taxonomically diverse and novel bacteria present on airborne particulate. One interesting application of this work is characterization of the distribution and transmission of pathogenic microflora among different wards (e.g. ICU, HIV, TB, and Leishmaniasis) in the hospital environment at the University of Gondar Medical Campus and their influence on patient health. This regional hospital is an open-air facility, typical throughout tropical Africa. Combating opportunistic infections within the open-air environment is one of the primary challenges to health care in these types of facilities. We anticipate the creation of an airborne microflora database that

will enable distinction of opportunistic airborne pathogens along with the elucidation of environmental conditions favorable for their transport thereby establishing a relationship between these airborne microorganisms, atmospheric parameters, and human health. The database would help health care providers differentiate between normal airborne pathogens and suspicious fluctuations in the hospital environment, which can help constrain risk.

- Conducted three six-week observational campaigns to measure ambient aerosol mass distributions and acquire air samples for aerobiological analysis
- Performed molecular and genomic analysis on the air samples to provide a characterization of airborne microflora and changes in their distribution across the dry season – wet season transition
- Conducted studies of microflora in the ICU, HIV, Leishmaniasis, and TB wards at the University of Gondar Hospital to investigate the presence and distribution of airborne opportunistic pathogens.

Sponsorship: NIH

Dates: June 8 – July 20, 2014, June 5 – August 6, 2015; June 1 – August 3, 2016.

10. Country: Senegal

Purpose: Two-week visit for the explicit purpose of constructing a Fulbright proposal project designed to explore aerobiological variability in the urban canopy in Dakar and along predominant dust air mass pathways. I served as a visiting scientist at the Laboratory for Atmospheric Physics at Universite Cheikh Anta Diop (UCAD).

Sponsorship: HU

Dates: Oct 8 – 14, 2014 (The proposal was selected for a Fulbright Specialist project in 2015 — 2016)

11. Country: Botswana

Purpose: Six-week field campaign to monitor, collect, and characterize airborne particulate from air masses transecting a southeast African field site during winter season. This field experiment was executed in Palapye, Botswana in July 2022. The goal of this 2022 IRES project *was to additionally* provide US students the opportunity for international research and engage in international research partnerships.

Sponsorship: NSF

Dates: July -August, 2022

## WORK IN ENVIRONMENTAL JUSTICE

1999 – Participated in the formation of the Howard University Environmental Justice Partnership (HUEJP). This activity involved recruitment and training of a team of faculty, postdoctoral fellows, and students in the execution of projects in service of communities needing assistance in environmental assessments, environmental analysis, subject matter experts, expert testimony, and independent investigation of environmental pollution, exposure, and health risks. This team has conducted studies in Memphis – Rozelle community (2000),

2006 – Washington, DC – Ivy City neighborhood (2006, 2012 – 2015) and Buzzard Point, Washington, DC (2016 – 2020).

- The activities conducted for the Memphis Defense Depot led to a revision of prior environmental impact assessments after identification of exposure pathways and elevated heavy metals in the surrounding community. Additional remediation was conducted subsequent to corroboration of these results.
- The activities conducted in Ivy City and subsequent court testimonies led to an injunction against the city (Washington, DC) that delayed the construction of a parking lot and protected the Ivy City citizens against further degradation of their air quality for two years. This ultimately resulted in a lower environmental impact on the citizens of the Ivy City community during that period.
- The activities conducted in collaboration with Buzzard Point residents include supporting community-inspired air quality monitoring, preparation of data for advocacy, and preparation of summary reports for residents to explain regulatory reports and responses.

## WORKSHOPS/WEBINARS

1. Co-organizer of Workshop on a Pilot Design for Air Quality in Africa (Focused on Addis Ababa, Ethiopia) <https://cpaess.ucar.edu/meetings/2020/pilot-design-air-quality-africa>
2. Organized and co-hosted the 2019 Project Fest at the NOAA National Center for Weather and Climate Prediction along with NWS on September 20, 2019.
3. Organized and hosted the 2018 NOAA Education and Science Forum March 18-20, 2018 in Washington, DC. The Forum featured 150 technical presentations (oral and poster), four technical workshops, and was attended by over 600 participants including civil servants, academicians, students, and private sector representatives.
4. Summer Workshop in Environmental Data Analysis and Visualization, Universidad Metropolitana, San Juan, Puerto Rico June 2017
5. Organized and hosted Workshop on Future Directions of the US Weather Research Program College Park, MD November 2014
6. Webinar: Best Practices in Outreach/Informal Science Program Evaluation April 2013
7. Organized and co-hosted workshop on Current Trends in Operational Weather Forecasting and Observations (for a contingent of Chinese meteorologists) Washington, DC November 2012
8. Opening Doors to CAREERS in Meteorology—Taking Summer Weather Camp Experiences Back to the Classroom Oct 28, 2011 (San Francisco, CA) and March 29, 2008 (Boston, MA) National Science Teachers Association (NSTA) Meetings
9. Conducted an Air Quality Modeling Workshop for the Philippine Environmental Management Board (EMB) Manila, Philippines June 2011



10. CAREERS Weather Camp Coordinators Workshops at the Annual American Meteorological Society (AMS) Meetings (Atlanta, Jan 2009; Seattle, Jan 2010; New Orleans, Jan 2011)
11. Organized and hosted the 2009 NOAA Education and Science Forum November 12-14, 2009 in Washington, DC. Over 400 participants including civil servants, academicians, students, and private sector representatives attended this conference.
12. Hosted and co-sponsored the National Institute of Consulting Meteorologists (NCIM) Short Course on Professional Development at Howard University June 23, 2006
13. Co-organized and co-hosted special session at spring Joint Assembly of the American Geophysical Union the Canadian Geophysical Union, the European Geophysical Union, Special Issues in West Africa (Tropospheric Ozone, Saharan Dust, and Biomass Burning) San Francisco, CA May 2004.
14. Co-hosted Workshop to increase collaboration between West African and U.S. Scientists Washington, DC August 2000
15. Organized and Hosted Conference to celebrate contributions of Pioneers in the Atmospheric Sciences during the 20<sup>th</sup> century, Howard University July, 1999

## TEACHING

### **Courses Taught at Howard University (Last five years)**

#### *Undergraduate Courses*

Physical Chemistry Lab (Thermodynamics)

Physical Chemistry Lab (Kinetics, Spectroscopy, and Quantum Mechanics)

(New modules were developed for both sections of Physical Chemistry labs)

#### *Graduate Courses*

Advanced Physical Chemistry I (Thermodynamics and Statistical Mechanics)

Atmospheric Chemistry I

Atmospheric Chemistry II

Advanced Lab and Instrumentation in Atmospheric Sciences

Atmospheric Aerosols

Environmental Chemistry

Special Topics in Aerosol Measurements (*New course*)

Current Topics in Atmospheric Sciences

### **Other courses at Howard University**

#### *Undergraduate Courses*

General Chemistry Lecture

Chemical Instrumentation Lab

General Chemistry Laboratory I

General Chemistry Laboratory II

Environmental Analysis

Physical Chemistry Lecture I

Physical Chemistry Lecture II

#### *Graduate Courses*

Advanced Chemical Instrumentation Lecture

Advanced Quantum Mechanics

Advanced Thermodynamics

Air Pollution Meteorology (*New course*)

Atmospheric Thermodynamics

Chemical Kinetics and Dynamics

Climate Change (*New course*)

Introduction to Atmospheric Sciences (*New course*)

Planetary Atmospheres and Evolution (*New course*)

Professional Development (*New course*)

Remote Sensing of the Atmosphere

Techniques for Environmental Sampling (*New course*)

Technical Writing

### **Training Workshops at Howard University**

Techniques for Bio-aerosol Measurement

Air Quality and Health (for the Masters in Public Health program)

**Courses Taught at Addis Ababa University (Addis Ababa, Ethiopia)**

*Graduate Course only*

Atmospheric Chemistry

**Courses Taught at De La Salle University (Manila, Philippines)**

*Graduate Course only*

Environmental Methods Seminar

**Courses Taught at Spelman College (Atlanta, GA)**

*Undergraduate Courses only*

General Chemistry Laboratory I

General Chemistry Laboratory II

STUDENT TRAINING AND PRODUCTION

**PRIMARY RESEARCH ADVISING (20 PhDs and 14 MS students)**

Martin Navarro-Jimenez, MS Biological Data Science (2022)

Arianna Jordan, MS Atmospheric Sciences, HU (2020)

Daniel Yeager, PhD Atmospheric Sciences, HU (2019)

Mariam Almedwah, MS Chemistry, HU (2019)

Francia Bissereth MS Chemistry, HU (2019)

Mussie Kebede, MS Atmospheric Sciences (2018)

Keren Rosado, PhD Atmospheric Sciences, HU (2017)

Devoun Stewart, PhD Chemistry, HU (2017)

Efosa Igbiginun, PhD Chemistry, HU (2017)

Kar'retta Venable, PhD Atmospheric Sciences, HU (2016)

Jose Tirado, PhD Atmospheric Sciences, HU (2016)

Craig Battle, MS Chemistry, HU (2016)

Mosissa Fayissa, PhD Chemistry, HU (2015)

Elsie Castillo, PhD Physics, UTEP (2015)

Maria Velez-Qinones, PhD Biology, HU (2013)

Nelsie Ramos, PhD Atmospheric Sciences, HU (2012)

Esther Effiong, PhD Chemistry, HU (2012)

Mariana Guereque, MS Geology, HU (2012)

Rufus White, PhD Chemistry, HU (2011)

Karina Apodaca, PhD Atmospheric Sciences, HU (2010)

Marangelly Fuentes, PhD Atmospheric Sciences, HU (2010)

Jose Tirado, MS Atmospheric Sciences, HU (2009)

Ramsey Smith, PhD Chemistry, HU (2008)

Isha Renta, MS Atmospheric Sciences, HU (2008)

Michelle Hawkins, PhD Atmospheric Sciences, HU (2007)

DaNa Carlis, PhD Atmospheric Sciences, HU (2007)

Serenella Linares, MS Atmospheric Sciences, HU (2007)

Angelina Amadou, PhD Physics, HU (2006)

Natasha Greene, PhD Atmospheric Sciences, HU (2006)

Lizette Roldan, PhD Atmospheric Sciences, HU (2006)  
Jason White, MS Atmospheric Sciences, HU (2000)  
Natasha Greene, MS Atmospheric Sciences, HU (2000)  
Kapres Meadows, MS Chemistry, HU (1999)  
Cassandra Wright, MS Chemistry, HU (1998)  
Janel Cobb, MS Physics, HU (1997)

#### CURRENT STUDENTS

##### **PhD Students**

Jia-Fong Fan, Atmospheric Sciences, HU

##### **Thesis Committees**

Saira Ahmed, PhD Thesis Committee, SESE, ASU

##### **Undergraduate and High School**

Farad Brown, ASU

Nagasriya Ramisetty, University of Arizona

#### THESIS COMMITTEE MEMBER

PhD Thesis Committee Member, Physics, Edward Colon (HU) – 1999  
PhD Thesis Committee Chair, Chemistry, Bretta King (HU) – 2000  
PhD Thesis Committee Member, Chemistry, Kahsay Habte (HU) – 2000  
PhD Thesis Committee Member, Chemistry, Yirgaalem Abrha (HU) – 2001  
MS Thesis Committee Member, Atmospheric Sciences, Michelle Farver (HU) – 2006  
PhD Thesis Committee Chair, Chemistry, Steven Ferber (HU) – 2006  
PhD Thesis Committee Member, Atmospheric Sciences, Hassan Moore (HU) – 2006  
PhD Thesis Committee Member, Biochemistry, Angela Jackson (HU) – 2006  
PhD Thesis Committee Member, Atmospheric Sciences, Andrea Sealy (HU) – 2006  
PhD Thesis Committee Member, Chemistry, Joseph Langat (HU) – 2007  
PhD Thesis Committee Chair, Ainsley Gibson (HU) – 2008  
MS Thesis Committee Member, Atmospheric Sciences, Nelsie Ramos (HU) – 2008  
PhD Thesis Committee Member, Atmospheric Sciences, Torreon Creekmore (HU) – 2009  
PhD Thesis Committee Chair, Chemistry, Floyd Fayton (HU) – 2010  
PhD Thesis Committee Member, Chemistry, Tigist Kassa (HU) – 2010  
PhD Thesis Committee Member, Chemistry, Rhonda McCoy (HU) – 2011  
PhD Thesis Committee Chair, Chemistry, Mark N'Doumi (HU) – 2011  
PhD Thesis Committee Chair, Chemistry, Charlene Lawson (HU) – 2013  
PhD Thesis Committee Member, Chemistry, Joseph Williams (HU) – 2013  
MS Thesis Committee Member, Atmospheric Sciences, Tasha Anderson-Sumo (HU) – 2014  
PhD Thesis Committee Member, Atmospheric Sciences, Churchill Okonkwo (HU) – 2014  
PhD Thesis Committee Chair, Chemistry, Steven Burnett (HU) – 2014  
MS Thesis Committee Chair, Chemistry, Akitunde Akinyemi (HU) – 2015  
PhD Thesis Committee Member, Atmospheric Sciences, Lorenza Cooper (HU) – 2015  
PhD Thesis Committee Member, Atmospheric Sciences, Mayra Oyola (HU) – 2015  
PhD Thesis Committee Member, Atmospheric Sciences, Megan Payne (HU) – 2016

PhD Thesis Committee Member, Atmospheric Sciences, Tatiana Gonzalez (HU) – 2016  
PhD Thesis Committee Member, Chemistry, Emily Sanders (HU) – 2017  
PhD Thesis Committee Member, Chemistry, Ugochukwu Okeke (HU) – 2017  
PhD Thesis Committee Member, Communication and Culture, Leticia Williams (HU) – 2017  
MS Thesis Committee Chair, Atmospheric Sciences, Anaiyah Reliford (HU) – 2021  
MS Thesis Committee Member, Chemistry, Malachi Berry (HU) – 2021  
MS Thesis Committee Member, Social Justice and Human Rights, Justice McClinton (ASU) – 2021  
PhD Thesis Committee Member, Doctor of Education Michael Peel, (ASU) – 2023

#### POSTDOCTORAL ADVISING (Name – Current Position)

Ebony Roper (2012 – 2014) - Cecil College  
Adrian Allen (2011 – 2013) – Montgomery College  
Lakew Temeselew (2009) – Addis Ababa University  
Yayin Fang (2005 – 2008) – Howard University  
Samuel Abegaz (2005 – 2008) – Columbus State University  
Keren Rosado (2017 - 2019) – NOAA National Weather Service  
Leticia Williams (2018 – 2020) – NOAA  
Sium Gebremariam (2019 - 2021) – Penn State University

#### UNDERGRADUATE ADVISING

(Advised over 200 undergraduate and high school students as a research mentor on individualized projects)

#### REFERENCES

Available upon request