Meeting of the
President's Council of Advisors on Science and Technology (PCAST)
July 11, 2024

Invited Speaker Biographies, in order of Presentation

Session: Research with Societal Impacts – Climate Resilience

Dr. Jola Ajibade, Associate Professor, Scholar-Activist, Emory University

Dr. Jola Ajibade is an Associate Professor and scholar-activist in the Environmental Sciences Department at Emory University. Her scholarship advances justice-centered approaches to climate adaptation, relocation, community resilience, and future city planning. Specifically, she explores how climate change impacts and adaptation programs are transforming the lives, livelihoods, socio-cultural landscapes, and housing access for historically marginalized communities. As an urban political ecologist, Dr. Ajibade is dedicated to identifying innovative, effective, and equitable approaches to the climate crises and proposed solutions. She integrates environmental justice and antiracist lenses, as well as feminist decolonial praxis and care ethics, in her approach to these challenges. Throughout her scholarly work, Dr. Ajibade emphasizes the importance of striving for just transformations in a changing climate. This involves advocating for disruptive and positive shifts in the global political economy, human behavior, land use patterns, tree distribution, housing, energy use, disaster management, and migration policies.

She has served as a consultant to UNEP on global adaptation gaps and World Bank on Sponsored Projects. She also served as an advisor to Oregon's Committee and Department of Environmental Quality on Earthquake Resilience Planning and Response; and advisor on COVID Recovery Data, the Education team, Oregon metro government. Dr. Ajibade holds a PhD in Geography and Environmental Sustainability from Western University, Canada; an M.A. in International Law and Human Rights, UPEACE, Costa Rica; and a B.A in Philosophy from Obafemi Awolowo University, Nigeria. She has won numerous awards, including NSF-NCAR Early Career Grant; NSF Enabling the Next Generation of Hazards and Disasters Researcher Grant, Canada Social Sciences and Humanities Research Council Fellowship; Outstanding Researcher Award for the Earth Sciences, Columbia-Willamette Chapter of Sigma Xi; United Nations University Fellowship Award, Tokyo; and Jeanne Sauvé Fellowship Award for Emerging Global Leaders. Her work has been featured in many academic journals and media outlets, including Nature, Science, NPR, Al Jazeera, Science Friday, Yale Environment 360, New Internationalist, and Vice. She co-edited the book titled "Global Views on Climate Relocation and Social Justice," published by Routledge in 2022.

Dr. Amy McGovern, Lloyd G. and Joyce Austin Presidential Professor, University of Oklahoma

Dr. Amy McGovern is a Lloyd G. and Joyce Austin Presidential Professor in the School of Meteorology and School of Computer Science at the University of Oklahoma (OU). Dr McGovern is also the director and PI of the NSF AI Institute for Research on Trustworthy AI in Weather, Climate, and Coastal Oceanography (AI2ES). AI2ES is one of the inaugural AI institutes, funded by the National Science Foundation in 2020. AI2ES partners include multiple academic institutions, private industry, and government.

Dr McGovern is a national leader in the field of AI for weather and has been working in the field since joining OU in 2005. She is the lead author on multiple highly cited publications in AI for weather, including showing how AI can be used to successfully predict high-impact weather events, developing explainable AI methods focused on weather, and showing the value of convergence research for AI in weather.

Dr. McGovern received her PhD in Computer Science from the University of Massachusetts Amherst in 2002 and was a senior postdoctoral research associate at the University of Massachusetts until joining the University of Oklahoma in 2005. She received her MS from the University of Massachusetts Amherst (1998) and her BS (honors) from Carnegie Mellon University (1996). Dr McGovern is a fellow of the American Meteorological Society.

Dr. Dawn Wright, Chief Scientist, Environmental Systems Research Institute

Dawn J. Wright, Ph.D., is Chief Scientist of the Environmental Systems Research Institute (aka "Esri"), a world-leading geographic information system (GIS) software, services and spatial data science company. She is also professor of Geography & Oceanography at Oregon State University.

Dr. Wright's research has spanned many fields ranging from marine geology, marine geophysics and physical geography to environmental informatics, and geographic information science. Her work has had significant impact on the use of GIS technology on a variety of seafloor mapping, environmental conservation, and regional/global terrestrial mapping projects, as well as the development of integrated data management, interoperability, and infrastructure across conservation science. Her current research also provides important retrospectives and perspectives on emerging issues in spatial data science such as harmonization and integration of data, and approaches for international collaborative data sharing, as well as a communication of science that promotes engagement and innovation within various policy-making and industry sectors.

In terms of field work, Dr. Wright has participated in over 20 oceanographic research expeditions worldwide, to some of the most geologically active regions of the planet, including the East Pacific Rise, the Mid-Atlantic Ridge, the Juan de Fuca Ridge, the Tonga Trench, and volcanoes under the Japan Sea and the Indian Ocean. In 1991 she became the first Black female to dive to the deep ocean floor in a research submersible. In the summer of 2022, she became the first Black person of any gender (and the first woman) to dive to the deepest spot on the entire planet, Challenger Deep (western Pacific Ocean), and to successfully operate a sidescan sonar at full-ocean depth, all in collaboration with explorer Victor Vescovo and his Caladan Oceanic team.

Dr. Wright is an elected member of both the National Academy of Sciences and the National Academy of Engineering, as well as the American Academy of Arts & Sciences. Earlier this year, she was selected to the first all-female cohort of US State Department Science Envoys and will serve as a Science Envoy for Ocean Sustainability. Dr. Wright is also a Fellow of the American Association for the Advancement

of Science (AAAS), the Geological Society of America (GSA), the American Association of Geographers (AAG), and The Oceanography Society (TOS). Her recent advisory board service includes the National Academy of Sciences Geographical and Geospatial Sciences Committee, the Woods Hole Oceanographic Institution Corporation, the Directors Council of the Scripps Institution of Oceanography, the Board of Directors of the EO Wilson Biodiversity Foundation, the Strategic Advisory Group of the UN Ocean Decade's Seabed 2030 Project, and the NOAA Science Advisory Board (in service to PCAST member Dr. Kathryn Sullivan).

Dr. Wright holds an Individual Interdisciplinary Ph.D. in Physical Geography and Marine Geology from UC-Santa Barbara, an M.S. in Oceanography from Texas A&M, and a B.S. cum laude in Geology from Wheaton College (Illinois). Other interests include road cycling and mountain biking, 18th-century pirates, building with LEGO bricks, her golden retriever Riley, and SpongeBob SquarePants. Her handle on all major social media platforms is @deepseadawn.

Session: Research and Researchers on the Horizon

Dr. William Anderegg, Director of the Wilkes Center for Climate Science and Policy & Associate Professor, University of Utah
Dr. William Anderegg is the director of the Wilkes Center for Climate Science and Policy and a professor in the School of Biological Sciences at the University of Utah. He joined the faculty at Utah in 2015 and served as an Associate Research Scholar at the Princeton Environmental Institute, Princeton University until 2016. He was a NOAA Climate & Global Change Postdoctoral fellow at Princeton before that. Dr. Anderegg earned a B.A. in Human Biology and Ph.D. in Biology from Stanford University. Dr. Anderegg has been recognized by National Science Foundation's Alan T. Waterman Award, National Science Foundation Faculty Development Early Career Science Program (CAREER), Blavatnik Foundation National Laureate in Life Sciences, Web of Science Global Highly Cited Researcher, Packard Foundation Fellow for Science and Engineering, Tansley Medal from the New Phytologist Trust, Early Career Award from the American Geophysical Union Global Environmental Change Section, and Early Career Fellow of the Ecological Society of America. Dr. Anderegg has published over 155 peer-reviewed papers, which have been covered in media outlets including the New York Times, Wall Street Journal, Washington Post, Rolling Stone, BBC, and the Guardian.

Dr. Anderegg's research centers broadly around the intersection of ecosystems and climate change. His group studies how climate change and climate extremes affect ecosystems, including tree physiology, ecohydrology, carbon cycling, pollen and health impacts, and nature-based climate solutions. A major recent focus of his research revolves around urgently-needed, interdisciplinary, and rigorous science to inform forests' potential role in nature-based climate solutions, carbon markets, carbon offsets, and climate policy. His group is developing tools to inform and guide decision-making and policy, including novel datasets on climate risks to ecosystems and carbon projects. His research spans a broad array of methods and spatial scales and seeks to gain a better understanding of how climate change will affect ecosystems and society in the western US and around the world.

Dr. Marina Vance, Associate Professor, Anderegg Lab Director, McLagan Family Faculty Fellow, University of Colorado Boulder

Marina E. Vance, Ph.D., is an associate professor and the McLagan Family faculty fellow in the Department of Mechanical Engineering at University of Colorado Boulder, and she holds a courtesy appointment in the university's Environmental Engineering Program. Her research is focused on air quality, specifically on measuring emissions and understanding the dynamics of particulate matter in the contexts of ambient and indoor air quality. Her goal is to inform everyday decisions that can reduce exposure to particulate matter to improve human health and protect the environment. Her group's research projects have included deployments of research-grade instruments and consumer-grade sensors in homes to understand the transformations, fate, and transport of particulate matter and the efficacy of air cleaning devices. Her group has also performed laboratory investigations of the physical properties of particle emissions from everyday sources such as cooking activities, consumer-grade 3-D printers, and biomass burning, among others. Particle properties investigated have included size distributions, volatility, effective density, hygroscopicity, and light absorbance.

Dr. Vance is one of the principal investigators of the HOMEChem (House Observations of Microbial and Environmental Chemistry, 2018) and CASA (Chemical Assessments of Surfaces and Air, 2022) research initiatives, which were large indoor chemistry field campaigns incorporating measurements from several research groups. Dr. Vance received an NSF CAREER award to investigate physical transformations of particulate matter after transport between indoor and outdoor environments (2021) and an EPA STAR early career award to assess the transport of wildfire-generated particulate matter into homes and to develop practical interventions to reduce human exposure (2021). She received a Fulbright Scholar award to measure personal exposure to fine particulate matter in Indonesia (2023). She has published over 60 peer-reviewed research articles, mentored over 10 graduate (MS and PhD) students and over 20 undergraduate students in research projects. She has taught undergraduate and graduate courses on topics including air quality, environmental nanotechnology, and data analysis and experimental methods. Dr. Vance earned a bachelor's degree in sanitation and environmental engineering (2004) and a master's degree in environmental engineering (2008) from the Universidade Federal de Santa Catarina (Brazil) and a Ph.D. in civil and environmental engineering from Virginia Tech (2012).

Dr. Muyinatu Bell, John C. Malone Associate Professor, PULSE Lab Director, Johns Hopkins University

Muyinatu A. Lediju Bell is the John C. Malone Associate Professor in the Department of Electrical and Computer Engineering at Johns Hopkins University, where she holds a joint appointment in the Department of Biomedical Engineering, a secondary appointment in the Department of Computer Science, and an appointment in the Department of Oncology. She is also the founder and director of the Photoacoustic & Ultrasonic Systems Engineering (PULSE) Lab at Johns Hopkins University.

Bell's pioneering research integrates optics, acoustics, robotics, and deep learning to engineer and deploy innovative biomedical imaging systems with applications in neurosurgical navigation, cardiovascular disease, women's health, and cancer detection and treatment. She invented and patented the world's first short-lag spatial coherence (SLSC) beamformer for ultrasound data, an innovative technique that significantly improves ultrasound image quality by reducing acoustic clutter, allowing for clearer images displaying structures of interest. She adapted the SLSC technology to address challenges with photoacoustic imaging, including skin tone bias issues, where melanin affects light penetration depth and causes elevated levels of acoustic clutter. This single technique benefits multiple communities, including those with darker skin tones, women with dense breast

tissue, and overweight or obese patients. Bell has also developed photoacoustic-guided surgery techniques that significantly improve operator maneuverability and reduce the risk of patient death by providing visualization of hidden tissues—such as major blood vessels and nerves—during surgery.

Bell earned a Ph.D. in Biomedical Engineering at Duke University and an S.B. in Mechanical Engineering at the Massachusetts Institute of Technology. She spent 2009 to 2010 as a Whitaker International Fellow at the Institute of Cancer Research and Royal Marsden Hospital in the United Kingdom and completed a postdoctoral fellowship with the Engineering Research Center for Computer-Integrated Surgical Systems and Technology at Johns Hopkins University in 2016. She received the National Institutes of Health (NIH) K99/R00 Pathway to Independence Award (2015) and appeared on MIT Technology Review's 35 Innovators Under 35 list (2016). She won the NIH Trailblazer Award (2018), the National Science Foundation (NSF) CAREER Award (2018), a Sloan Research Fellowship in Physics (2019), and was named Maryland's Outstanding Young Engineer (2019). Bell is an elected fellow of the American Institute for Medical and Biological Engineering (2022), SPIE (2023), and Optica (2024), and she recently earned the highest honor in the nation for early-career scientists and engineers — the NSF Alan T. Waterman Award (2024).