

# 2022 PACE Applications Workshop

September 14<sup>th</sup> & 15<sup>th</sup> 2022

## Session 1: Advancing Applications Readiness through Co-Development of Action

**Host/Speaker/Panelist: Erin Urquhart**, PhD, *PACE Mission Applications Coordinator, NASA Goddard Space Flight Center/Science Systems and Applications Inc.*



Dr. Erin Urquhart, Applications Coordinator for the NASA Plankton, Aerosol, Cloud, and ocean Ecosystem (PACE) mission, works at the transdisciplinary boundary of earth science, social science, and public health. Erin engages end-user/stakeholder communities to identify their needs and science objectives while exploring innovative and practical uses of PACE data products. She has a proven track record in coastal and inland water quality research and satellite remote sensing with a MHS in Environmental Public Health and a MA/PhD in Earth & Planetary Sciences from Johns Hopkins University. Before coming to NASA, she worked on model development and detection of inland cyanobacteria harmful algal blooms at the US Environmental Protection Agency (EPA).

**Host/Speaker/Moderator: Natasha Sadoff**, *PACE Mission Applications Deputy Coordinator, NASA Goddard Space Flight Center/Science Systems and Applications Inc.*



Ms. Natasha Sadoff is the Applications Deputy Coordinator for the NASA PACE mission. Natasha is a geographer who works at the nexus of environmental management, governance, and earth science. She has twelve years of experience connecting data users and stakeholders to resources to improve decision-making and governance in areas such as climate change adaptation and resilience; energy management; air quality; solid waste management; and other areas. She facilitates stakeholder needs assessments, user engagement, training and outreach, and capacity building/development, particularly in the usage of Earth observations for societal benefit. Before coming to NASA, she was a senior scientist at Battelle, where she managed domestic and international environmental governance and capacity building programs for Federal government clients like US EPA and NASA.

**Speaker: Lawrence Friedel**, *Director of the Applied Sciences Program, NASA Headquarters*



Lawrence Friedl serves as the Director of the Applied Sciences Program within the Earth Science Division at NASA Headquarters. The program enables uses of Earth science information to inform decisions and actions by public and private sector organizations. In addition, he serves as a Co-Chair of the interagency U.S. Group on Earth Observations, NASA Principal to the Civil Applications Committee, Co-Chair of a Group on Earth Observations initiative on the Sustainable Development Goals, and the National Space Club's Award Committee for Innovative Uses of Earth Observation Satellite Data. Previously, Lawrence worked at US EPA, focusing on applications of geospatial data and technology. He served as a Space Shuttle Flight Controller in NASA's Mission Control Center, including several Earth science missions. Lawrence received a Masters degree in Public Policy from Harvard University's Kennedy School of Government, and he received a Bachelors degree in Mechanical & Aerospace Engineering from Princeton University.

**Speaker: Neil Davé, JD, Managing Director, Tidal | x.company**



Driven by the desire to solve challenges that impact humanity, Neil joined X in 2016 and is currently the General Manager of Tidal, the ocean health and productivity moonshot at X. Prior to Tidal, Neil led strategic partnerships and go-to-market strategy for Wing, Alphabet's autonomous delivery drone bet. Before joining X, Neil held a number of leadership roles in Finance, Consumer Hardware, Strategy and Operations at Google. During that time, Neil also helped build start-ups external to Alphabet focused on next-gen communications, ecommerce, and the gig economy, all aimed at using advanced technology and systems thinking to solve complex, multifactorial problems. Prior to joining Google, Neil was a corporate tax attorney specializing in international product launches, M&A and corporate structuring. In addition to his work at X, Neil advises start-ups and mentors founders for Sustainable Ocean Alliance and First Round Capital. Neil has a B.A. in Political Science from University of California, Berkeley, and a J.D. from Santa Clara University School of Law. When he's not at work, Neil enjoys photography, cycling and reading science fiction.

## Session 2: Getting to know the PACE Mission

**Speaker: Jeremy Werdell**, PhD, *PACE Project Scientist, NASA Goddard Space Flight Center*



Dr. Jeremy Werdell is an oceanographer in the Ocean Ecology Laboratory at NASA Goddard Space Flight Center (GSFC), where he also serves as the Project Scientist for the upcoming Plankton, Aerosol, Cloud, ocean Ecosystem (PACE) mission. Jeremy joined GSFC in 1999, where he's made a career ruminating on the on-orbit calibration of ocean color instruments, the development of remote-sensing algorithms, and the validation and application of satellite-derived data products. When not traveling with his family and obsessing about his yard, Jeremy also moonlights as a teacher and student mentor. But, if he had to do it all again, he would pursue his real dream of becoming a professional chef.

**Speaker: Mark Voyton**, *PACE Project Manager, NASA Goddard Space Flight Center*



Mark Voyton is currently the PACE Project Manager (PM). Mark is responsible for the completion of the PACE Mission scheduled for launch from the Cape in early 2024. Voyton's career with NASA began in 1992. He has worked on several missions including the Submillimeter Wave Astronomy Satellite (SWAS), the Transition Region and Coronal Explorer (TRACE), the Wide Field Infrared Explorer (WIRE), and the Swift Gamma Ray Burst Explorer (Swift). Mark recently led all work required to successfully process and launch the James Webb Space Telescope (JWST) as the Launch Site Manager. His prior positions include the Optical Telescope and ISIM (OTIS) Manager, and the JWST Observatory I&T Manager at NASA's Goddard Space Flight Center in Greenbelt, Maryland. Voyton has a B.S. in Engineering Science from Loyola University in Maryland (1985) and an M.S. in Technical Management from Johns Hopkins University in Maryland (1996). Voyton enjoys spending time outdoors, including running, biking, and hiking with his family.

**Speaker: Antonio Mannino**, PhD, *PACE Deputy Project Scientist, NASA Goddard Space Flight Center*



Dr. Antonio Mannino, research oceanographer of the Ocean Ecology Laboratory at NASA Goddard Space Flight Center since 2002, is currently Deputy Project Scientist for Oceans on NASA's PACE mission focusing on validation and applications. He is also Deputy Principal Investigator on the NASA GLIMR EVI-5 mission. At NASA, Dr. Mannino has served as project PI, lead/co-lead for the GEO-CAPE mission pre-formulation ocean science working group, MODIS and VIIRS ocean science team member, PI for the Ocean Biology and Biogeochemistry field support group, chief scientist and technical officer for multiple field campaigns, liaison on ocean color with the Korean Ocean Satellite Center and led several instrument design lab studies for NASA. Mannino has served as a member of the International Ocean Color Coordinating Working Group on geostationary ocean

color requirements and currently contributing to the IOCCG field measurement protocols. He has mentored several postdoctoral researchers and numerous summer interns. Mannino has published several articles on coastal ocean color algorithm development and validation including for colored dissolved organic matter and particle absorption, dissolved organic carbon, and phytoplankton pigments and taxonomy. His current research applies field observations, satellite data, and 3D models to study carbon cycle processes and phytoplankton diversity from rivers to oceans with greater emphasis on coastal Arctic waters. His fundamental research question focuses on how physical forcings including river discharge, ocean circulation, climate change impact the ocean's (coastal and global) carbon cycle and the plankton at the heart of it. The research is multi-disciplinary requiring a broad range of physical, chemical, and biological observations at various frequencies (hourly to daily to monthly to yearly), over an extended period (decadal to multi-decadal) and at relatively high spatial resolution of ~0.1 to 1 km spanning hundreds of kilometers to global scale. Mannino's research addresses NASA's long-term goal to understand and protect our home planet.

**Speaker: Ivona Cetinić, PhD, PACE Project Science Lead for Ocean Biogeochemistry, NASA Goddard Space Flight Center/GESTAR II – Morgan State University**



Dr. Ivona Cetinić is an oceanographer in the Ocean Ecology Laboratory at NASA Goddard Space Flight Center/Morgan State University. Her research focuses on developing new ways of resolving ocean biogeochemistry and phytoplankton diversity from satellite and other remote observations. At the University of Southern California, she conceived of and participated in field campaigns focused on developing innovative ocean observing technology, several for which she served as chief scientist. These campaigns include the ground breaking Tara Oceans circumnavigation of the globe, as well as others that utilized unique fusions of cutting edge technology such as hyperspectral radiometry, light polarimeters, and airborne lidar, allowing for more detailed information about concentration and composition of particles in the ocean (as well as the atmosphere - SABOR). Dr. Cetinić has served as the project scientist for EXPORTS (EXport Processes in the Ocean from RemoTe Sensing), a large-scale NASA-led field campaign, and as the PACE (Plankton, Aerosol, Cloud, ocean Ecosystem) Project Science Lead for Ocean Biogeochemistry, a NASA mission scheduled for launch in 2022. In the last 10 years, she has been a member of multiple international science teams and committees and has served as the co-chair of the Ocean Optics Conference. Currently, she is serving at National Academies of Sciences, Engineering, and Medicine Committee on Earth Sciences and Applications from Space. She earned her PhD in biological oceanography at University of Southern California in 2009.

**Speaker: Lachlan McKinna, PhD, Research Oceanographer, Director & Lead Oceanographer, Go2Q Pty Ltd**



Dr. Lachlan McKinna is the PACE Project Science Lead for Bio-optics, with an emphasis on deriving inherent optical properties (IOPs) from OCI data. His role focuses on the implementation and continual improvement of IOP algorithms for both oceanic and complex coastal waters. His current research interests include improving the consistency of IOP data products across ocean color missions, understanding uncertainties in satellite observations, and optically complex/shallow water applications. Dr McKinna holds a B.Sc. (Mathematics & Physics), a B.Sc. Honors (Statistics), and a Ph.D. (Physics) all from James Cook University, Australia. After completing his doctoral research, Lachlan worked as a postdoc at Curtin University and then at NASA's Ocean Ecology Laboratory. He currently supports algorithm development and scientific analyses for NASA-supported missions including MODIS, VIIRS, and PACE. He previously served as a member of the HICO Data User's Group and is currently a Principal Investigator on JAXA's GCOM-C Science Team. Lachlan is also proud to re-invest his professional knowledge by supervising postgraduate students as an Adjunct Research Fellow at James Cook University.

**Speaker: Andy Sayer**, PhD, *PACE Project Science Lead for Atmospheres, NASA Goddard Space Flight Center/University of Maryland Baltimore Co.*



Dr. Andrew Sayer is the PACE Project Science Lead for Atmospheres, with a focus on aerosols and clouds from OCI. He has been involved with the development and application of satellite aerosol and cloud data sets from several sensors, including in the NASA Deep Blue and European ORAC algorithm families. He is also very interested in the evaluation of data sets and how uncertainty, sampling, and representativeness influence analyses and the conclusions drawn. Andrew Sayer earned his degrees in the United Kingdom: a master's in chemistry from the University of York (2005), and a doctorate in physics from the University of Oxford (2010). Following his doctoral thesis, "Aerosol remote sensing using AATSR", he worked as a postdoc in aerosol and cloud remote sensing jointly at Oxford and the Rutherford Appleton Laboratory. In September 2010, Dr. Sayer joined Christina Hsu's group in the Climate and Radiation Laboratory at GSFC to work on aerosol remote sensing as part of the Deep Blue aerosol project. He joined GESTAR in May 2011 and has been in Dr. Jeremy Werdell's group in the Ocean Ecology Laboratory, since summer 2018.

**Speaker: Kirk Knobelspiesse**, PhD, *PACE Project Science Lead for Polarimetry, NASA Goddard Space Flight Center*



Dr. Kirk Knobelspiesse develops optical remote sensing methods, from space, of parameters important to the Earth's climate. This includes expertise in radiative transfer computations, information content assessment, algorithm development, and validation with ground and airborne observations. Specific interests include polarimetric remote sensing of aerosols and clouds, atmospheric correction required for ocean color observations, and the statistical and AI tools useful for both. Dr. Knobelspiesse received an undergraduate degree in Photography from the Rochester Institute of Technology in 1998, then a master's degree in Imaging Science from the same university in 2000. For the next four years, he worked as a contractor at NASA GSFC on the SeaWiFS and SIMBIOS projects, then returned to graduate school at Columbia University in 2004. His PhD, in Applied Mathematics, dealt with remote sensing retrievals of atmospheric aerosols from multi-angle polarimeters. During his studies, he spent his time at NASA GISS, and remained at that institution for a Postdoctoral fellowship following graduation. He took a position at NASA Ames in 2012 and returned to NASA GSFC in 2016.

**Speaker: Susanne Craig**, PhD, *PACE Project Science Lead for System Vicarious Calibration, NASA Goddard Space Flight Center/University of Maryland Baltimore Co.*



Dr. Susanne Craig graduated in 1999 from the University of Strathclyde, UK with a PhD in Physics that studied the optical and fluorescence characteristics of phytoplankton. Following her PhD, she postdoc'd in the U.K. for a time, then spent two years at the University of Southern Mississippi at Stennis Space Center working on optical approaches for detecting the harmful alga, *Karenia brevis* under the ECOHAB project. In a serendipitous series of events, she left MS in 2005 to begin a new position at Dalhousie University, Canada one day before Hurricane

Katrina destroyed her beach apartment! In Canada, she worked both as a senior scientist in the academic sector and as a Federal Scientist on several projects, focusing on ocean observation systems, novel methods to retrieve optical properties in optically complex waters, phytoplankton ecology, harmful algal blooms, and the role that phytoplankton play in creating climate-relevant trace gases and aerosols. She was Mission Scientist for the Canadian Space Agency's Coastal Ocean Colour Imager (COCI) mission. In February of 2018, she moved to the Ocean Ecology Laboratory at NASA Goddard Space Flight Center to take up a Senior Scientist position. She is the lead for system vicarious calibration (SVC) for the PACE mission, Principal Investigator for a project investigating the use of Bayesian machine learning for predicting phytoplankton community composition from ocean color, and the lead for several instrument development projects to develop autonomous platforms for characterizing the ocean and atmosphere.

**Speaker: Amir Ibrahim**, PhD, *PACE Project Science Lead for Atmospheric Correction, NASA Goddard Space Flight Center*



Dr. Amir Ibrahim is currently a research scientist at the Ocean Ecology Lab (616) in support of the Plankton, Aerosol, Clouds, ocean Ecosystem (PACE) mission's Science Team activities to develop and evaluate atmospheric correction methods for derivation of ocean color from a hyperspectral radiometer and combined multi-angle polarimeter. Dr. Ibrahim obtained his PhD. degree in February 2015 from the Electrical Engineering Dept. at the City College of the City University of New York (CCNY). His dissertation focused on ocean color remote sensing using polarimetric observation of light. He developed an inversion algorithm (c/a algorithm) based on Vector Radiative Transfer (VRT) models to retrieve macro- and micro-physical properties of oceanic hydrosols that helps in improving our understandings of the ocean geochemical properties and carbon cycle, in addition to improving the estimates of global chlorophyll and suspended minerals concentrations.

### Session 3: Stakeholder Involvement & Co-Production- What can we learn from other disciplines?

**Plenary Speaker: Dez Holmes, Director, Research in Practice**



Dez Holmes is the Director of [Research in Practice](#), a not-for-profit organization that since 1996 has been supporting those who work with children, families, and adults to use evidence in their practice and leadership. Prior to this, Dez was the Programme Manager at [C4EO](#) responsible for Capacity Building. She previously worked in local government establishing and managing integrated early intervention services to families and previously managed multi-agency prevention and early intervention programmes (YISPs). Dez has several years' experience of training and workforce and leadership development; she is the Programme Director for the [Practice Supervisor Development Programme](#). Her practice experience is largely within youth offending services and early help. She is particularly interested in adolescence, transitions, risk and participatory practice; Dez has led Research in Practice's work on Adolescent / Transitional Safeguarding; she is the Programme Director for the [Tackling Child Exploitation Programme](#) and also chairs the [Contextual Safeguarding](#) UK Advisory Group. Dez chairs the Advisory Group for [The Staff College](#), which develops leadership capacity across local authority children's services; and is a member of the [NICE Implementation Strategy Group](#), and sits on a number of Association of Directors of Children's Services (ADCS) policy committees and on several research advisory boards. During 2021-22 Dez was a member of the Evidence Group, supporting the [Review of Children's Social Care](#), and is also a trustee of [Family Action](#), a large charity providing practical, emotional and financial support to families who are experiencing poverty, disadvantage and social isolation.

**Moderator: Sydney Neugebauer, Coordination & Analysis Lead for NASA's Capacity Building Program, NASA HQ**



Sydney Neugebauer serves as the Coordination & Analysis Lead for NASA's Capacity Building Program. The Capacity Building Program provides individuals and institutions with workforce development, training activities, and collaborative projects to strengthen understanding of Earth observations and expand their use around the world. Sydney has a background in environmental sciences and GIS and holds bachelor's degrees in Earth and Environmental Sciences and Music from Boston University.

**Panelist: Bryan Duncan, PhD, Research Physical Scientist/Project Scientists Aura, NASA Goddard Space Flight Center**



Dr. Bryan N. Duncan is an atmospheric scientist in the Atmospheric Chemistry and Dynamics Laboratory (ACDL) at NASA Goddard Space Flight Center. He is Project Scientist for the NASA Aura satellite mission, which observes atmospheric constituents in the troposphere, stratosphere, and mesosphere. He has expertise in air quality and tropospheric trace gas composition. He's a member of NASA's Health and Air Quality Applied Sciences Team, which facilitates the use of NASA satellite data by the health and air quality communities. He is also the Assistant Lab Chief for the ACDL.

**Panelist: Nikki Cooley, Co-Manager, Tribes and Climate Change Program, Institute for Tribal Environmental Professionals (ITEP)**



Nikki Cooley is of the Diné Nation and resides in Northern Arizona with her family. She is the co-manager of ITEP's Tribes & Climate Change Program and interim assistant director of the institute. ITEP's goal is to strengthen tribal capacity and sovereignty in environmental and natural resource management through culturally relevant education, research, partnerships, and policy-based services. Nikki works across the continental US and Alaska on climate change adaptation, mitigation, and resilience planning with Tribal/Indigenous partners to assist Tribal Nations in addressing and preparing for climate change impacts. Nikki has a background in sheepherding, Forestry and Traditional/Indigenous Knowledges.

**Panelist: Dan Irwin, Global Program Manager of SERVIR, Capacity Building Program, NASA**





Dan Irwin is a research scientist at the NASA Marshall Space Flight Center and the global program manager for SERVIR — a flagship NASA and US Agency for International Development (USAID) program with activities in over 40 countries throughout Eastern and Southern Africa, West Africa, the Hindu Kush Himalaya, lower Mekong and Amazonia regions. He has over 25 years of experience in satellite remote sensing applications and Geographic Information Systems (GIS) in the developing world. He also served as a lead remote sensing specialist in support of NASA's space archeology program, with a focus on detecting structures of the ancient Maya. Prior to joining NASA, Dan lived and worked in Guatemala, developing leading GIS laboratories for conservation organizations and the Guatemalan government. Dan received his undergraduate degree in environmental science from James Madison University in Harrisonburg, Virginia, and his master's degree in environmental science from Miami University of Ohio in Oxford.

**Richard D. Quodomine**, *Program Manager, Clean Waters Task Force, City of Philadelphia*



Richard D. Quodomine, MA, FRCGS currently serves as the Program Manager of the Clean Waters Task Force for the City of Philadelphia. Prior to that, he served as the Senior Lead GIS Analyst for the Department of Public Property. Among his many roles, he utilized the city's asset management applications to ascertain and analyze the expenditures on locations of public infrastructure and assets throughout the city. He also works with many other agencies, both internal and external to analyze the impact of public investment in the city. These assets include Green Stormwater Infrastructure, PWD assets and areas and assets impacted by Flooding. Rich has also won grants for writing and reviewed infrastructure grants both at the city and in prior roles. Before moving to Philadelphia, Rich served as an Analyst at the New York State Department of Transportation and was responsible for working with Transportation and Public Transit Agencies and Metropolitan Planning Organizations to contract for and maintain public transit vehicles and facilities throughout the state. Rich is also an adjunct GIS professor at Rowan University and has several publications in transportation, infrastructure, and responses to Emergency Management situations, for both hurricane response and more recently, COVID-19.

## Session 4: Improving Access To & Usability of Data Services & Tools

**Plenary Speaker: Chelle Gentemann**, PhD, *Program Scientist Transform to Open Science (TOPS), NASA HQ*



Dr. Gentemann is a passionate advocate for open science, open source software, and inclusivity. As a physical oceanographer focused on remote sensing, she has worked for over 25 years on retrievals of ocean temperature from space and using that data to understand how the ocean impacts our lives. More recently, she is leading NASA's Transform to Open Science (TOPS) mission and coordinating the 2023 Year of Open Science.

**Moderator: Helen Amos, PhD, Applications Scientist, NASA Goddard Space Flight Center/ Science Systems and Applications Inc.**



Dr. Helen Amos is an Applications Scientist on the [Goddard Applied Sciences](#) team. Her role is to facilitate the use of Goddard research and data products toward addressing environmental health challenges. Her current focus is on climate, air quality, and natural disasters. Previously at NASA, Dr. Amos was the Science Outreach Lead for [GLOBE Observer](#). She was in environmental consulting before starting her career in government. Dr. Amos received her PhD in atmospheric chemistry from Harvard University, postdoc'd at the Harvard TH Chan School of Public Health, and did an AAAS Science & Technology Policy Fellow at the US Environmental Protection Agency. ORCID 0000-0002-0297-6643.

**Panelist: Peter Miller, PhD, Principal Scientist, Plymouth Marine Laboratory**



Peter Miller is a principal Earth observation scientist at the Plymouth Marine Lab (PML) with over 25 years' experience and 100 published papers (H-index of 33). His research on discriminating harmful algal blooms (HABs) using ocean colour data has been developed within 8 European and UK funded projects for monitoring water quality for the protection of aquaculture. He leads the co-design work package of the EC Horizon NextOcean project to develop commercial Earth observation services. He coordinates PML's activities on fisheries and aquaculture, leads PML's involvement in Interreg PRIMROSE, and is a member of the ICES Working Group on HAB Dynamics. He also leads research on ocean fronts, their impact upon animal behaviour and potential modulation by climate change.

**Panelist: Marina Marrari, PhD, Costa Rica Fishing Federation, FECOP**



Marina Marrari is a marine biologist currently working as Executive Director at the Costa Rica Sportfishing Federation, a non-for-profit organization dedicated to promoting sustainable fishing practices and conservation of marine species through research and education. She was born in Buenos Aires, Argentina, and graduated from the National University of Mar del Plata in 2001. She moved to the US in 2022 as a Fulbright Scholar to pursue her PhD in Biological Oceanography at the College of Marine Science, University of South Florida. She then spent 2 years at Goddard NSFC as a postdoctoral researcher working on the application of satellite data for fisheries research on the Patagonian shelf. Her current work in Costa Rica involves doing research to support fisheries management decisions, lobbying for protection of marine species of tourism interest, and promoting sustainable fishing practices.

**Panelist: Alicia Scott, Deputy DAAC Manager, OB.DAAC, Ocean Ecology Lab, NASA GSFC**



Alicia began her career as Command Controller and Mission Planner for the Terra spacecraft at GSFC. She moved on to become a data processing analyst for the Packet Processor Automation (Pacor-A) System, ensuring proper retrieval, quality and archival of Hubble and TRMM data. With her mission operations experience, she eventually landed at the Ocean Ecology Lab (OEL) at GSFC providing science operations support for the Aquarius/SAC-D mission and participating in Phases C-F of the NASA Project Life Cycle. At the OEL, Alicia has performed additional functions including social media content contributor, website content management, and user support for the Ocean Biology (OB) Distributed Active Archive Center (DAAC). Today, she continues to provide science operations support for missions and serves as the Deputy DAAC Manager for the OB.DAAC.

**Panelist: Diane Davies, Operations Manager, NASA LANCE (Land Atmosphere Near-real-time Capability for EOS), NASA GSFC**



Diane Davies is the operations manager for NASA's Land Atmosphere Near real-time Capability for EOS (LANCE), an umbrella system that delivers near real-time data and imagery from 11 instruments. Diane also manages the Fire Information for Resource Management System (FIRMS) and supports NASA's contribution to CEOS Working Group on Information Systems and Services (WGISS). Diane has a particular interest in how satellite data and derived products can be made more accessible to end-users. Diane worked as a remote sensing and GIS specialist in Namibia for seven years managing direct broadcast satellite receiving stations and using real-time satellite data to monitor fires, floods and vegetation. Before taking on her role as

LANCE operations manager, Diane worked at the University of Maryland (UMD). Diane holds an MSc in Land Resource Management from Cranfield University, UK and a BSc in Geography from Nottingham University, UK.

## Session 5: Building Data Synergies for the Water Sector

**Moderator: Natasha Sadoff**, *PACE Mission Applications Deputy Coordinator, NASA Goddard Space Flight Center/Science Systems and Applications Inc.*



Ms. Natasha Sadoff is the Applications Deputy Coordinator for the NASA PACE mission. Natasha is a geographer who works at the nexus of environmental management, governance, and earth science. She has twelve years of experience connecting data users and stakeholders to resources to improve decision-making and governance in areas such as climate change adaptation and resilience; energy management; air quality; solid waste management; and other areas. She facilitates stakeholder needs assessments, user engagement, training and outreach, and capacity building/development, particularly in the usage of Earth observations for societal benefit. Before coming to NASA, she was a senior scientist at Battelle, where she managed domestic and international environmental governance and capacity building programs for Federal government clients like the US Environmental Protection Agency (EPA) and NASA.

**Panelist: Maria Tzortziou**, PhD, *PACE Deputy Program Applications Lead, GLIMR Mission Applied Science Lead, NASA Goddard Space Flight Center; Professor, Earth and Atmospheric Sciences, Center for Discovery and Innovation, The City University of New York*



Dr. Maria Tzortziou is a physicist/oceanographer with expertise in optics, photo/biogeochemistry, and remote sensing. After receiving an MSc and a PhD in Ocean and Atmospheric Sciences from the University of Maryland College Park, she became Postdoctoral Fellow at the Smithsonian Institution and NASA Goddard Space Flight Center. She is currently Professor of Earth & Atmospheric Sciences at The City University of New York, and Research Scientist at NASA Goddard Space Flight Center. Her research integrates multidisciplinary datasets, satellite remote sensing observations, and ecosystem models to provide mechanistic insights into the impacts of human and environmental pressures on air- and water- quality, biogeochemical cycles, and ecological processes along the continuum of inland, coastal, and open ocean ecosystems. Tzortziou has served on the Science Steering Committee for the Ocean Carbon Biogeochemistry (OCB) Program and on the Science Leadership Board of the North American Carbon Program (NACP), and she has contributed to several policy-relevant and science planning publications, including the “Second State of the Carbon Cycle Report” (SOCCR2) and “Earth’s Living Ocean: The 2017-2027 Advanced Science Plan for NASA’s Ocean Biology and Biogeochemistry Research”. Tzortziou serves as the Deputy Program Applications Lead for NASA’s PACE (Plankton, Aerosol, Cloud, ocean Ecosystem) mission and was member of the 2014-2017 NASA PACE Science Team. She is Science Team Member and the Applied Science Lead for GLIMR (Geostationary Littoral Imaging and Monitoring Radiometer).

**Panelist: Batuhan Osmanoglu, PhD, NISAR Deputy Applications Lead, NASA Goddard Space Flight Center**



Batuhan “Batu” Osmanoglu holds a B.Sc. in telecommunications engineering and a Ph.D. in synthetic aperture radar interferometry time-series analysis. His dissertation was selected to be the most original research, and he is the winner of the University of Miami Rosenstiel School F.G. Walton Smith Prize for 2012. He worked on glacier remote sensing as a Post-Doc at the University of Alaska Fairbanks between 2011 and 2013. His primary area of expertise is radar remote sensing, and he has worked on applications for observing surface deformation, measuring target velocities, boosting signal-to-noise ratio in target detection algorithms, and radar design and instrumentation. Since 2013 he has been working at the NASA Goddard Space Flight Center. He has been working on the instrument and algorithm development of P-, L-, X- and Ku-band synthetic aperture radar systems. He is the recipient of the 2015 NASA Goddard Heliophysics and Biospheric Sciences Award and the 2020 NASA Early Career Achievement Medal (ECAM) for his contributions. He is a member of the IEEE and American Geophysical Union and chaired the Microwave Remote Sensing working group under International Society for Photogrammetry and Remote-Sensing Technical Commission III between 2016-2022. He is the principal investigator for the Snow Water Equivalent SAR and Radiometer (SWESARR). He serves as one of the NISAR Deputy Application Leads, candidate architecture and architecture assessment deputy lead for Surface Deformation and Change mission study. He is a subject matter expert for the NASA Commercial Smallsat Data Acquisition Program and is the stakeholder engagement program lead for the Observational Products for End-Users from Remote Sensing Analysis (OPERA) project. He is working on several radar remote sensing projects on various topics such as surface deformation, snow water equivalent, flood, and topography mapping at NASA.

**Panelist: Stephanie Schollaert Uz, PhD, Applied Sciences Manager- Earth Science Division, NASA Goddard Space Flight Center**



Dr. Stephanie Schollaert Uz is the Applied Sciences Manager at NASA Goddard Space Flight Center where she leads activities to advance the practical application of NASA data and science, connecting researchers across the Earth Sciences Division with end users, developing external partnerships, and fostering innovative uses of Earth observations for societal benefit. As part of this effort, she leads a team that convenes six working groups with scientists and stakeholders around Food Security, Air Quality & Health, Climate & Environmental Health, Disasters, Mission Applications, and the Chesapeake Bay. Her research focuses on the response of marine and aquatic ecosystems to physical forcing using satellite data, in situ measurements, model output and statistical reconstructions. She is the Principal Investigator on a new project exploring ways to apply remote sensing to identify water quality issues for aquaculture in the Chesapeake Bay. These and many other Applied Sciences activities inform NASA’s upcoming missions, i.e. PACE, scheduled to launch in 2023, a potential Surface Biology and Geology mission recommended by the 2017 Decadal Survey of Earth Science and Applications from Space. She has a Ph.D. in Atmospheric and Oceanic Sciences from the University of Maryland, an M.S. in Physical

Oceanography from the Graduate School of Oceanography at the University of Rhode Island and B.S. from the U.S. Naval Academy, where she majored in Oceanography and minored in French.

**Panelist: Erin Urquhart**, PhD, *PACE Mission Applications Coordinator, NASA Goddard Space Flight Center/Science Systems and Applications Inc.*



Dr. Erin Urquhart, Applications Coordinator for the NASA Plankton, Aerosol, Cloud, and ocean Ecosystem (PACE) mission, works at the transdisciplinary boundary of earth science, social science, and public health. Erin engages end-user/stakeholder communities to identify their needs and science objectives while exploring innovative and practical uses of PACE data products. She has a proven track record in coastal and inland water quality research and satellite remote sensing with a MHS in Environmental Public Health and a MA/PhD in Earth & Planetary Sciences from Johns Hopkins University. Before coming to

NASA, she worked on model development and detection of inland cyanobacteria harmful algal blooms at the US Environmental Protection Agency (EPA).