- **Mary Albert** is a Professor at the Thayer School of Engineering at Dartmouth College, and also Executive Director of the U.S. Ice Drilling Program. Her current research involves ice core science and engineering, and also climate adaptation and mitigation issues. Mary has led and participated in many scientific expeditions both in Greenland and in Antarctica, including serving as Chief Scientist of the Norwegian-US Scientific Traverse of East Antarctica in 2007-2008. Albert Valley in Antarctica is named after Mary. On invitation from the National Academies Polar Research Board, Mary served as Chair (2004-2006) of the U.S. National Committee for the International Polar Year, and she currently serves as an invited member of the U.S. National Committee for the International Union of Geodesy and Geophysics. Mary earned her B.S. in Mathematics from Penn State, B.E. and M.S. in Engineering Sciences from Dartmouth, and Ph.D. in Engineering Sciences from the University of California San Diego.

- **Elizabeth Bagshaw** is a glaciologist exploring new methods to assess the impact of microbial and biogeochemical processes operating in extreme environments. Her research combines engineering with precision biogeochemical techniques to understand microbial and biogeochemical cycles. Liz develops sensors that can collect and communicate data from extreme environments, including wireless data transfer from subglacial systems. She has worked in the polar regions for >15 years, predominantly in Antarctica and Greenland. Liz undertook her PhD in glaciology at the University of Bristol, exploring biogeochemical processes in Antarctic ecosystems, followed by postdoctoral training in engineering. She is currently a Senior Lecturer (Associate Professor) in Earth and Environmental Sciences at Cardiff University, where she leads the Cold Climates research team.

- **Melissa Battler** is the Chief Science Officer at Mission Control Space Services, where she guides the development of mission operations software to meet the needs of the planetary science community, and conducts mission operations research to increase science return and optimize team communication. With 20 years of experience as a field geologist and planetary scientist, she has worked with NASA, the Canadian Space Agency, and other partners to lead more than 10 planetary analogue missions in the Canadian Arctic and other extreme environments around the world, to guide and prepare for the exploration of the Moon and Mars. Melissa is an Adjunct Faculty member at both the University of Western Ontario, and the International Space University.

- **Gijs de Boer** is a Research Scientist at the Cooperative Institute for Research in Environmental Studies (CIRES) at the University of Colorado and an associate director of CU's Integrated Remote and In Situ Sensing (IRISS) program, which focuses on the development and deployment of innovative observing technologies in support of Earth System research. He has led several field campaigns to deploy uncrewed aircraft systems (UAS) to study the lower atmosphere and its interactions with the surface, including a number of campaigns at high latitudes. Most recently, heled UAS-based collection of data during the Multi-disciplinary drifting Observatory for the Study of Arctic Climate (MOSAiC). Dr. de Boer has served as chair and scientific committee member for the International Society for Atmospheric Research using Remotely Piloted Aircraft (ISARRA), is a US member of the International Arctic Science Committee (IASC) Atmosphere Working Group, a co-lead of the Interagency Arctic Research Policy Committee (IARPC) Atmosphere Collaboration Team, and a previous winner of the Presidential Early Career Award in Science and Engineering (PECASE).

- **Caitlin Callaghan** is Chief of the Research and Engineering Division of the Cold Regions Research and Engineering Laboratory (CRREL).   Previous to her tenure with CRREL, she served as an ORISE Fellow, and as an AAAS Science and Technology Policy fellow, in the DOE Office of Electricity Delivery and Energy Reliability. She has an MS/PhD in Chemical Engineering from Worcester Polytechnic Institute., along with a JD/MELP in Environmental and Energy Law from the Vermont Law School

- **Jason Cervenec** is the Education and Outreach Director for the Byrd Polar and Climate Research Center at The Ohio State University. Jason leads a team that designs and delivers programs that reach 11,000 individuals in-person annually, including broader impacts for numerous federal grants. Jason's NSF-funded research projects are focused on geoscience visualizations and polar education. The most common request for information that Jason receives from the public is on climate change, and he led the development of the Columbus Climate Adaptation Plan. Jason taught high school science for 11 years and, during that time, took part in a Fulbright Teacher Exchange in Mumbai, India.

- **Yi Chao** is the Founder and CEO of Seatrec. He pioneered the ocean thermal energy harvesting project at NASA JPL in collaboration with his co-Inventors, Jack Jones and Thomas Valdez. Additionally, Yi was the PI for the SOLO-TREC project and the follow-on project Slocum-TREC.   As an oceanographer prone to seasickness, Yi decided to study the ocean from outer space and was a Project Scientist for the successful Aquarius Satellite Mission (a $300M NASA project that launched the first salinity satellite), where he was responsible for science, technology, and engineering implementation. Yi has worked on numerous projects ranging from ocean science, satellite oceanography, ocean modeling, and underwater technology development. Currently, he is affiliated with the University of California at Los Angeles as an Adjunct Professor. Yi holds a Ph.D. in Atmospheric and Oceanic Sciences from Princeton University.

- **Robert Clauer** is an emeritus professor in the Bradley Department of Electrical and Computer Engineering at Virginia Polytechnic Institute and State University. His research interests include experimental and theoretical investigations of the electrodynamic coupling between the solar wind, magnetosphere and ionosphere using global arrays of ground-based and satellite-based instruments and the utilization of computer networks to form knowledge network in the support of scientific and educational activities. Dr. Clauer has over five decades of research activity and has over 150 publications and over 300 presentations at scientific meetings on these research areas. He has pioneered the development and operation of autonomous environmental monitoring platforms in remote regions of the Arctic and Antarctic and presently operates a chain of space weather monitoring stations on the East Antarctic Plateau. He has previously served on the National Academies of Sciences, Engineering and Medicine's Polar Research Board and the Committee on the Development of a Strategic Vision for the Antarctic Program.   Dr. Clauer received his Ph.D in geophysics and space physics from the University of California, Los Angeles in 1980.

- **Zoe Courville** is a Research Mechanical Engineer for the U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory (CRREL) in Hanover, NH. Dr. Courville received a B.S. in mechanical engineering from the University of Denver and a PhD in materials science from the Thayer School of Engineering at Dartmouth College. Dr. Courville's research is focused on snow and snow related processes in Polar Regions. Her work has encompassed remote fieldwork in both the Arctic and the Antarctica, for a combined 40 field expeditions. She currently leads a group of subject matter experts in engineering support for Summit Station in Greenland, and for the last eleven years, has provided engineering support for the US Antarctic Program, including crevasse detection support for the South Pole Traverse, snow characterization for the Phoenix Runway, and ground penetrating radar surveys of McMurdo Station and the Scott Base Transition.

- **Pedro Elosegui** leads the Space Geodesy group at MIT Haystack Observatory. His research interests include geodesy using the Global Positioning System (GPS) and Very Long Baseline Interferometry (VLBI). He has devised applications of space geodesy to geophysics, climate, glacier dynamics, sea ice dynamics, polar oceanography, and remote sensing of the atmosphere. He is involved in research and development of technology aimed at the accuracy improvement of space geodetic systems. He received a Ph.D. in Physics from the University of Granada, Spain, and has been a researcher at the Harvard-Smithsonian

Center for Astrophysics and with the Institute of Marine Sciences of the Spanish National Research Council.

- **Seth Finkel** is VP Public Sector at Matterport, a spatial data company driving the digital transformation of the built world. He leads strategy and revenue growth for government agency markets as Matterport enters the public sector and digitizes U.S. Government facilities, infrastructure and strategic initiatives. He has over 25 years of experience in technology sales and business development targeting public and private sector, specializing in applying rapid-growth technology platforms to modernize federal, state, and international government agency operations. He was previously VP Advanced Technology at Aventum, a 34,000 person organization which provides technical and engineering services to all 50 U.S. states and 105 global countries and territories.

- **Matt Fouch**, Ph.D. currently serves as President and Co-Founder of Subsea Data Systems, a new startup dedicated to the development of SMART (Sensor Monitoring and Reliable Telecommunications) Cables. He is also Chief Scientist and Co-Founder of Samara/Data, a science, technology, and software consulting firm with offices in Washington, DC and Los Angeles, CA.

- **Lee Freitag** is a Principal Engineer of Applied Ocean Physics and Engineering at the Woods Hole Oceanographic Institution. His research interests include underwater acoustic signal processing including: time-delay estimation, beamforming, ultra-short baseline navigation, acoustic communication; underwater systems architecture, design and implementation; project engineering and project management. He has a B.S. and M.S. in Electrical Engineering from the University of Alaska Fairbanks.

- **Maaten Furlong** is a Systems Engineer with 20 years of experience in Marine Autonomous Systems. He has worked on most aspects of the R&D and operation of MAS, and has led and participated in numerous science and engineering cruises. In 2013 he became the head of the NOC's Marine Autonomous and Robotics Systems group, and has been instrumental in expanding the size of the team. He oversees the operations and development of the MAS fleet and is actively involved in improving operational efficiency. He has won Innovate UK funding and was responsible for the technical development of the £16M Oceanids programme for which he acted as a technical advisor. More recently he led the Future Marine Autonomous Systems work package of the Net Zero Oceanographic Capability project looking at decarbonising oceanographic observations.

- **Bernadette Garcia-Galvez** is Deputy Director, of the NASA Colorado Space Grant Consortium at University of Colorado Boulder. Her roles are to manage the 21 member consortium, including programs at 20 CO institutions of higher education; and to coordinate and implement Consortium programs on the CU Boulder campus. She also manages multiple statewide post-secondary programs including high altitude scientific balloon payloads, autonomous robotics challenge, and the undergraduate space research symposium. Bernadette has an MS in Education Foundations Policy and Practice from the University of Colorado Boulder.

- **Andrew Gerrard** is a professor and Physics Department Chair at the New Jersey Institute of Technology and Director of the Center for Solar-Terrestrial Research (United States).Prof. Gerrard's research interests include upper atmospheric and magnetospheric processes at high latitudes and involve numerous geospace instrumentation suites distributed across the Antarctic, with an emphasis on the Eastern High Plateau. Prof. Gerrard has been involved with Arctic research efforts since 1996, and Antarctic research efforts since 2006.

- **Scott Harper**, is a Program Officer at Office of Naval Research, where he leads the Arctic and Global Prediction Program. This program has three focus areas: Improving understanding of the physical environment and key processes in the Arctic Ocean; Investigating new technologies, e.g., sensors,

platforms, navigation and communications, that may enable a sustained observational capability in the challenging Arctic environment; and; and Developing integrated ocean-ice-wave-atmosphere models for improved Arctic prediction at a variety of time scales. Harper has a BS and MS in Aerospace, Aeronautical and Astronautical Engineering from the University of Colorado Boulder, and a PhD in Oceanic and Atmospheric Science from Princeton University**.**

- **Melinda Holland** is the CEO of Wildlife Computers. Since 2001, she has overseen operations and shaped the future course of the company. Her primary task is to understand the current and future requirements of the research community and to ensure that the company's research and development efforts are focused to meet those requirements

- **Aya Ishihara** joined the IceCube collaboration in January 2005. Her first postdoc position was at the University of Wisconsin at Madison. Aya has conducted a series of analyses to search for ultra-high energy neutrinos, including the analysis of the first data from the fully completed IceCube detector in 2012. The search for ultra-high energy neutrinosin 2012 revealed the existence of cosmic neutrinos in the PeV energy region for the first time. Aya was co-convener of the diffuse, atmospheric, and extremely high energy neutrino PWG(2012-2016) and co-convener of the extremely high energy neutrino PWG (2010-2012) in the IceCube collaboration. Aya made the first design and has developed the new optical sensor "D-Egg" for the IceCube-Gen2 and IceCube Upgrade projects since 2013. The Chiba IceCube group completed the 310 D-Egg productions by September 2021. These new modules will be deployed in the IceCube-Upgrade array. Currently, Aya Ishihara is a chair of speakers committee of the IceCube collaboration as well as a level-2 lead of the deep optical sensor array in the IceCube-Gen2project, the next generation 8 km 3 scale neutrino telescope at the South Pole.

- **Sarah Johnson** is a Provost's Distinguished Associate Professor in the Georgetown University Department of Biology. Her research is driven by the underlying goal of understanding the presence and preservation of biosignatures within planetary environments. Her lab is also involved in the implementation of planetary exploration, analyzing data from current spacecraft as well as devising new techniques for future missions. A former Rhodes Scholar and White House Fellow, she received her Ph.D. from MIT and has worked on NASA's Spirit, Opportunity, and Curiosity Rovers. She is also a visiting scientist with the Planetary Environments Lab at NASA's Goddard Space Flight Center. Her recent book, *The Sirens of Mars*, was a *New York Times* Editor's Choice and selected as one of the *New York Times* 100 Notable Books of 2020.

- **Deneb Karentz** is a professor of Biology and Environmental Science at the University of San Francisco. She is a marine biologist with expertise in plankton ecology. Deneb is the co-director of the NSF International Training Program in Antarctic Biology, the US delegate to the Scientific Committee on Antarctic Research (SCAR), on the SCAR Executive Board as the Vice President for Science, and a science advisor to the US Delegation for the Antarctic Treaty Consultative Meetings. In her role as a SCAR vice president, she represents SCAR on a number of committees, including the Antarctic Environments Portal Board, the Southern Ocean United Nations Ocean Decade Task Force, and the Southern Ocean Observing System Steering Committee.

- **Alia Khan** is an Assistant Professor in the Department of Environmental Science at Western Washington University and is a recipient of a recent NSF-CAREER award to investigate Coastal Antarctic Snow Algae and Light Absorbing Particles: Snowmelt, Climate and Ecosystem Impacts. Alia combines biogeochemistry and remote sensing to quantify glacier and snow melt from the Arctic to the Antarctic and incorporates technology in her research through the application of novel UAV and satellite remote sensing approaches. Alia completed her PhD in August 2016 in Civil and Environmental Engineering at the University of Colorado – Boulder. She was then a Postdoctoral Research Associate at the National Snow and Ice Data Center. She is a co-PI on an NSF OPP funded project, PolarPASS, where she and collaborators are

developing and implementing innovative teaching methods to strengthen students' knowledge of polar science and build student connections to polar places.

- **Diana King** is a Deputy Program Manager at the University of Wollongong. She is interested in using technology to assist with environmental monitoring and ecological studies. She is currently working on Antarctic biodiversity monitoring methodologies and protocols through the ECO Antarctica Global Challenges Project for the Antarctic Near-shore and Terrestrial Observing System (ANTOS) and Securing Antarctica's Environmental Futures (SAEF). She has a PhD in ecology, and this research involved developing a method to identify Antarctic plants from photographs taken in the field.

- **Craig Kulesa** is an Associate Research Professor at the University of Arizona's Steward Observatory.   Dr. Kulesa's main research area is the Galactic interstellar medium, with a special emphasis on the broad understanding of the life cycle of interstellar gas as it relates to star formation. Aspects of this evolutionary cycle include the formation and destruction of molecular clouds and the direct feedback mechanism between stars and gas. To study these processes, he is working on a variety of new infrared and submillimeter instrumentation. He is deputy-PI of both the 'Supercam' 64-beam imaging spectrometer for the SMT, and the balloon-borne Stratospheric Terahertz Observatory. He has also recently deployed a first-generation submillimeter telescope to the summit of the Antarctic plateau (HEAT), and is completing an infrared imager and echelle spectrometer for the MMT (ARIES).

- **Samuel Laney** is an Associate Scientist in the Biology Department at the Woods Hole Oceanographic Institute. He is an oceanographer and engineer with broad interests in phytoplankton ecology, especially how phytoplankton interact with the oceanic light environment. His research is strongly interdisciplinary and novel instrumentation & observational approaches play an important role in my laboratory and field studies. He has a Ph.D. in Biological Oceanography from Oregon State University, College of Oceanic and Atmospheric Sciences.

- **Matt Lazzara** is a Senior Scientist and Research Meteorologist at the Antarctic Meteorological Research Center (AMRC), Space Science and Engineering Center (SSEC), University of Wisconsin–Madison (UW–Madison). He is also full-time faculty member and Department Chair of the Department of Physical Sciences in the School of Engineering, Science and Mathematics at Madison Area Technical College. He is the Principal Investigator of the Antarctic Automatic Weather Station (AWS) Program and Antarctic Meteorological Research & Data Center Project that are a part of the United States Antarctic Program. He has worked on site at McMurdo Station, Antarctica, and at UW–Madison from 1995 to the present, with 10 deployments to Antarctica. His areas of expertise include Antarctic meteorology and climate, satellite meteorology, education, and interactive meteorological processing systems. Dr. Lazzara is currently the President of International Commission on Polar Meteorology.

- **Michelle LaRue** is an Associate Professor in Gateway Antarctica at the University of Canterbury in New Zealand. LaRue's research focuses on understanding the biogeography and population change of marine predator species in the Southern Ocean, like penguins and seals. Her tools of choice tend to be high-resolution satellite imagery, GIS and spatial modeling, and working with citizen scientists. A passionate science communicator, LaRue's work has been covered by the BBC, The Wall Street Journal, and National Geographic.

- **Anthony (Tony) Lyscio** is a Starlink Development Manager for SpaceX. His roles as Starlink Development Manager and Technical Project Lead have challenged him with engineering and program management responsibilities rotating across the full breadth of the program (satellites, user terminals, ground network, etc.). The Starlink program has consumed about half of his seven years at SpaceX. Prior to Starlink, he supported the Falcon 9, Falcon Heavy, and Dragon programs as a Lead Test Engineer and Senior Structures Engineer, with time served on the tube, on build floors, in test labs, and in mission control.

Prior to joining SpaceX, Tony spent 16 years at General Motors in various roles in Vehicle Architecture, Advanced Technology Development, and Vehicle Dynamics.

- **Krithika Manohar** is an Assistant Professor of Mechanical Engineering at the University of Washington. She works at the intersection of machine learning, optimization and control, developing efficient and certifiable data-driven models for inference and control of complex dynamic systems. She leverages these techniques for optimal sensor placement and design of measurements in imaging, fluid dynamics and manufacturing systems. Dr. Manohar received her Ph.D. in Applied Mathematics at the University of Washington (2018), followed by a Postdoctoral position and von Karman Instructorship at Caltech (2018-2020). She is a recipient of the NSF Mathematical Sciences Postdoctoral Research Fellowship and the Boeing Award for Excellence in Research at the University of Washington.

- **Clive McMahon** is the Operations and Scientific Manager at the Sydney Institute of Marine Science (SIMS) for Australia's Integrated Marine Observing System's (IMOS) Animal Tracking sub-facility. At SIMS, Clive leads the Southern Ocean Seals as Oceanographers program. This program collects year-round hydrography and animal behavioural observations as part of Australia's sustained ocean observing network, Clive's principal role is to build, maintain and extend this long-term monitoring programme (in the southern Indian Ocean we have a time series from 2004 to present, many of these CTD profiles are from south of 60 degrees). Clive is the co-chair of the GOOS network AniBOS. Clive is particularly interested in integrating biological and physical research to understand the complex responses of animals to changing environments and climate and more broadly environmental stewardship.

- **Carolyn Mercer** serves as the Chief Technologist for NASA's Science Mission Directorate where she serves as the focal point for the development of innovative new technologies that will enable exciting new capabilities for astrophysics, heliophysics, Earth and planetary science, and fundamental physics on the International Space Station. She champions technology needs among senior executives in NASA and advocates within SMD for technological innovation and new paradigms enabled by emerging technologies. Prior to joining the Science Mission Directorate's leadership team, Dr. Mercer held several NASA Headquarters positions, including founding leader of the Planetary Exploration Science Technology Office where she created innovative approaches to promote technology infusion including the development of communities of practice to promote knowledge exchange.

- **Johanna Nagy** is an Assistant Professor in the Physics Department at Washington University in St. Louis. Her research focuses on observational cosmology with an emphasis on measuring the cosmic microwave background (CMB) to understand the evolution and composition of the Universe. Her research group works on instrumentation and analysis techniques for both balloon-borne and ground based CMB experiments including SPIDER, Taurus, and CMB-S4. Prior to joining Washington University, Dr.Nagy was a Dunlap Fellow at the University of Toronto. She earned her undergraduate degree in Physics from Stanford University and her Ph.D. from Case Western Reserve University.

- **Erin Pettit**, is an Associate Professor in the Oregon State University college of Earth, Ocean and Atmospheric Sciences.   Her research Interests include glacier and ice sheet dynamics, ice/ocean interactions, ice rheology and deformation, ice-core climate history, and applied geophysical methods in ice (seismics, acoustics, borehole logging, radar, etc).   She is the Director of "Inspiring Girls Expeditions" and through this and other programs, seeks to use field-research experiences as a mechanism to build confidence in and inspire underprivileged young women to explore science as a career; teaching climate science in the field.   Pettit has a PhD in Glaciology/Geophysics from the University of Washington.

- **Maryam Rahnemoonfar** is the PI and Director of NSF data science institute (iHARP), Director of Computer Vision and Remote Sensing Laboratory, and Associate Professor of AI and Data Science at College of

Engineering and Information Technology, University of Maryland, Baltimore Campus. Her research interests include Deep Learning, Computer Vision, Data Science, and AI for Social Good, Remote Sensing, and Document Image Analysis. Her research specifically focuses on developing novel machine learning and computer vision algorithms for heterogenous sensors such as Radar, Sonar, Multi-spectral, and Optical. Her research projects have been funded by several awards, including the NSF HDR institute Award, NSF BIGDATA award, Amazon Academic Research Award, Amazon Machine Learning award, Microsoft, and IBM. Dr. Rahnemoonfar holds a Ph.D. in Computer Science from University of Salford Manchester, UK.

- **Fernando Rodriguez Morales** received the B.S. degree in electronics engineering from the Universidad Autónoma Metropolitana, Mexico City, Mexico, in 1999, and the M.S. and Ph.D. degrees in electrical and computer engineering from the University of Massachusetts, Amherst, MA, in 2003 and 2007, respectively. Dr. Morales' expertise is primarily in the area of high-frequency technology for remote sensing applications. For the last 15 years, he has been involved in the development and deployment of various surface-based and airborne radar systems for ice and snow related research. He is currently a Senior Scientist with the Center for Remote Sensing of Ice Sheets (CReSIS) at The University of Kansas (KU).

- **Mike Rose** is Head Engineering Technology at British Antarctic Survey (BAS) and manages the electronic, mechanical, communication and vehicle groups. He has worked for BAS for over 25 years, with more than a dozen seasons in Antarctica including two overwintering. Technically, his initial areas of interest are novel HF antenna design and low power instrumentation, expanding into environmental power supplies and battery performance generally. Recently his interest has been in automating an Antarctic research station (Halley) at which it is no longer prudent to maintain continual occupation. He is author or co-author of 16 papers. He was the lead engineer on the Low Power Magnetometer project which resulted in an international network of 25 instruments in Antarctica, now running for over 20 years.

- **Mark Seefeldt** is a Research Scientist at the National Snow Ice and Data Center (NSIDC) at the University of Colorado Boulder. His research encompasses applied meteorology and climatology projects spanning the Antarctic and the Arctic. Current research projects include: the in situ measurement of precipitation at remote sites in Antarctica and regional climate modeling studies of the Arctic using the Regional Arctic System Model (RASM) of the Weather Research and Forecast (WRF) models. He has had eight field seasons in the Antarctic and one in the Arctic. He has a PhD in Atmospheric Sciences from University of Colorado Boulder. Mark also serves as one of the lead organizers for the Polar Technology Community.

- **Britney Schmidt** is an Associate Professor in the Cornell University Departments of Earth and Atmospheric Sciences and of Astronomy. She previously served as a professor at the Georgia Institute of Technology. She and her team develop robotic tools and instruments and use spacecraft to study planets. Exploring Earth's ice shelves and glaciers and the oceans beneath them, Schmidt's team helps to capture the impacts of changing climate on the cryosphere, while understanding analogs for Ocean Worlds like Jupiter's moon Europa.   Schmidt has a long history of NASA spacecraft involvement, and she has conducted seven field seasons in Antarctica and one in the Arctic. Her team's most recent projects have deployed the Icefin vehicle, built in her lab, to explore underneath the McMurdo and Ross Ice Shelf and Thwaites Glacier. She also worked on a campaign to explore ground ice and water in Pingos in the Arctic—analogs for features on Mars and asteroids, which the team will explore with candidate instruments for future robotic lander and human exploration.   She has a PhD in Geophysics and Space Physics from UCLA.

- **Beth Shapiro** is an evolutionary biologist who specializes in the genetics of ice age animals and plants. Professor of Ecology and Evolutionary Biology at UC Santa Cruz and Investigator at the Howard Hughes

Medical Institute, Beth uses DNA recovered from bones and other remains to study how species evolved through time and how human activities have affected and continue to affect this dynamic process, asking questions about domestication, admixture, speciation, and pathogen evolution. She also develops techniques to recover increasingly trace amounts of DNA such as from environmental and water samples and use these data to discover how biological communities and ecosystems might be made more resilient. A 2009 MacArthur Fellow, Beth is an award-winning popular science author and communicator who uses her research as a platform to explore the potential of genomic technologies for conservation and medicine.

- **Alana Sherman** is the Electrical Engineering Group Lead at the Monterey Bay Aquarium Research Institute. Her primary role is to develop scientific instruments and underwater vehicles to increase our understanding of the world's oceans. During her time at MBARI, she has worked on a wide variety of projects in collaboration with chemists, geologists, marine biologists, and ecologists. In addition to designing, building, and testing new instrumentation, she follows her equipment out to sea for deployment and service. She has an M.S. in Mechanical Engineering, and a Ph.D., Bioengineering, University of California, Berkeley.

- **Scott Tyler** is a Foundation Professor in the Department of Geological Sciences and Engineering at the University of Nevada, Reno and director of the NSF-supported Centers for Transformative Environmental Monitoring Programs (CTEMPs) Community User Facility focusing on the development and application of fiber-optic based sensing for environmental temperature and strain. His research spans the atmospheric boundary layer, through the vadose zone and has included deep groundwater circulation.

- **Taneil Uttal** is a supervisory meteorologist with NOAA's Physical Sciences Laboratory and has been studying the Arctic atmosphere through field work for 24 years. Before that, she worked for the NOAA Wave Propagation Laboratory and Environmental Technology Laboratories specializing on interpreting the results from new technologies (radars, lidar, radiometers) to study clouds. She is currently the team lead for the Polar Observations and Processes Team. Uttal recently returned from a 5-month stint during the winter months in the central Arctic Ocean on the MOSAiC Expedition, an ambitious Arctic research effort led by the Alfred Wegener Institute. The project she was supporting measured surface energy balances with a tower and three autonomous systems on the Arctic icepack. She is currently working through the Polar Prediction Project to create observation-model data products that are harmonized to allow integrated system science research as well as reduce data latency in order to promote environmental intelligence for services.

- **Arvind Varsani** works across ecosystems, from plants to animals, and from the tropics to the Antarctic with a strong focus on viral evolution and dynamics, and viral metagenomics. Arvind's research uses a combination of traditional virology, microscopy (including transmission electron microscopy), molecular and cellular biology techniques in conjunction with modern techniques including high throughput sequencing, synthetic biology and bioinformatics.

- **Robyn Verrinder**   Robyn Verrinder is a Senior Lecturer in the Department of Electrical Engineering at the University of Cape Town.   Her research interests focus on robotics and control & instrumentation engineering.   She has overseen graduate students working on activities such as *design of a novel, low-cost autonomous platforms for the Antarctic Marginal Ice Zone in the Southern Ocean; polar power supply units for Antarctic data-gathering systems;* and *temperature measurement for artificial sea ice growth experiments.*   She has a B.Sc. and M.Sc in Electrical Engineering from the University of Cape Town.

- **Eric Wachman** Director of the Maryland Energy Innovation Institute, is the Chair in Energy Research with appointments in both the Department of Materials Science and Engineering, and the Department of Chemical Engineering at the University of Maryland. He received a Ph.D. in Materials Science & Engineering from Stanford University. Dr. Wachsman is President of The Electrochemical Society (ECS), a Fellow of both ECS and the American Ceramic Society; the recipient of the Sir William Grove Award from the International Association for Hydrogen Energy; along with many other distinguished career awards. His research is focused on solid ion-conducting materials and electro catalysts, and includes the development of solid-state batteries, solid oxide fuel cells, ion-transport membrane reactors, and solid-state gas sensors, using advanced ion conducting materials. He has more than 270 publications and 35 patents/patent applications on ionic and electronic transport in materials, and their catalytic properties, and device performance, and to date four companies have been founded based on these technologies.

- **Terry Wilson** is professor emerita in the School of Earth Sciences and senior research scientist in the Byrd Polar and Climate Research Center at the Ohio State University. With her research group and collaborators, she investigates the structural architecture of Antarctica and the interactions between the solid Earth and the Antarctic ice sheet, using structural field observations, and geophysical and geodetic data. The Antarctic Network (ANET) of the Polar Earth Observing Network (POLENET), a collaborative project led by Wilson, operates autonomous GNSS and seismic sensors across West Antarctica. Wilson has extensive experience working to create and sustain international programs and collaboration and was honored by the 2018 SCAR Medal for International Coordination. Wilson received her B.Sc. in geology from the University of Michigan and Ph.D. in geology from Columbia University.