

Board on Earth Sciences and Resources

Committee

Michael Manga

Chair

Michael Manga, NAS, is professor in the Department of Earth and Planetary Science at the University of California, Berkeley (UCB). His research focuses on the processes that control the storage, ascent, and eruption of magmas and the impacts of those eruptions on surface environments. Current projects also include studies of geysers, the interactions between hydrological processes and earthquakes including the origin of induced seismicity, the evolution of hydrological systems on Mars, and the tectonics of ocean worlds in the outer solar system. He chaired the National Academies of Sciences, Engineering, and Medicine's 2017 report "Volcanic Eruptions and Their Repose, Unrest, Precursors, and Timing." He is the recipient of several awards including a MacArthur fellowship in 2005, The Geological Society of America's Donath Medal, the American Geophysical Union's Macelwane Medal, the European Geoscience Union's Bunsen Medal for research in geochemistry, mineralogy, and petrology, and UCB's campus Distinguished Teaching Award in 2017 – the first to be issued from the Department of Earth and Planetary Science. In 2018, he was elected to the National Academy of Sciences for internationally recognized work including elegant experimental and theoretical work and creative field studies. Dr. Manga received a B.Sc. in solid Earth geophysics from McGill University and a M.Sc. in engineering sciences and a Ph.D. in Earth and planetary sciences from Harvard University.

Michele L. Cooke

Member

Michele Cooke is a Professor of Geosciences at the University of Massachusetts Amherst. She is a fellow of the Geological Society of America. Dr. Cooke has served in leadership roles for the Southern California Earthquake Center, the Geological Society of America's Structural Geology and Tectonics division and the international analog modeling community. Dr. Cooke was awarded the UMass Amherst Distinguished Academic Outreach Teaching Award in 2010, earned the UMass Amherst College of Natural Sciences Outstanding Research Award in 2018, and was awarded the International Association for Geoscience Diversity Inclusive Geoscience Education and Research Award in 2020. She holds a PhD in Earth Sciences from Stanford University.

Bradley D. Cramer

Member

Bradley Cramer is a Professor of Stratigraphy and Geochemistry with the School of Earth, Environment, and Sustainability at the University of Iowa. His interests include Earth system science, stable and radiogenic isotope geochemistry, chemostratigraphy, biostratigraphy, geochronology, and the Geologic Time Scale. In his words, "I try to understand the major biological, chemical, and physical events that punctuate the history of our planet by integrating as many tools and proxies as I can into a system science framework to investigate the problem." He is currently the Chair of the U.S. National Committee for Geological Sciences as well as the Chair of the International Subcommission on Timescale Calibration. His current NSF EPSCoR grant, Critical Resource Availability for the Future of the Renewable Energy Industry, focuses on critical mineral and ground water resources in Iowa and Kansas.

Mary H. Feeley

Member

Mary Feeley retired as Chief Geoscientist from ExxonMobil Exploration Company in 2014. Her responsibilities included advising senior ExxonMobil Upstream management on strategic geoscience matters and identifying global geoscience opportunities for ExxonMobil. Dr. Feeley's graduate work was focused on understanding depositional patterns in upper slope salt basins and the Mississippi Fan using seismic stratigraphy techniques. She also spent many years working on lease sales, prospect maturation, and energy development in the Gulf of Mexico. Dr. Feeley's National Academies of Sciences, Engineering, and Medicine experience includes membership on the Ocean Studies Board from 2005 to 2010 and serving on several committees, including the 2015 Committee on Guidance for NSF on National Ocean Science Research Priorities: Decadal Survey of Ocean Sciences and most recently on the Committee on Offshore Science and Assessment for BOEM. Dr. Feeley earned her Ph.D. in oceanography from Texas A&M University.

Youssef M. Hashash

Member

Youssef M. Hashash, NAE, is the Grainger Distinguished Chair in Engineering and Professor of Civil and Environmental Engineering at the University of Illinois Urbana-Champaign. Professor Hashash's expertise includes underground structures, deep excavations, numerical modeling, earthquake engineering, and static and dynamic soil-structure interaction analysis, visualization and application of information technology, deep learning and artificial intelligence to geotechnical engineering. Professor Hashash's experience encompasses geotechnical design for tunnels and excavations, seismic soil-structure interaction analysis, and construction monitoring, and the use of advanced computational tools for geotechnical practice. Professor Hashash was elected to the National Academy of Engineering in 2022, is the recipient of the 2014 Peck Medal, and the 2000 Presidential Early Career Award for Scientists and Engineers amongst many honors and recognitions. Professor Hashash received his Ph.D., M.S., and B.S. in Civil Engineering from the Massachusetts Institute of Technology.

Douglas Hollett

Member

Doug Hollett is President of MH Technology Partners, consulting with national labs, academia, industry and federal agencies on earth resource challenges and innovation. His academic background is in structural geology and rock mechanics, and his current work is with Idaho National Laboratory, Colorado School of Mines, DARPA, and with startups in the geothermal, critical minerals, carbon sequestration, biotech and geologic hydrogen sectors. He has 29 years executive experience with Marathon Oil, including as Manager International New Ventures, Director Global Unconventional New Ventures, and GM/VP Atlantic Canada. More recently he worked at the U.S. Department of Energy from 2011-2017 as Director Geothermal Technologies, Deputy Assistant Secretary Renewable Power and Acting Assistant Secretary Fossil Energy, and from 2021-23 as Special Advisor to the Under Secretary for Science and Technology. He is currently a trustee at Wellesley College. He received a B.A. in geology from Williams College and an M.S. from the University of Utah. His recent National Academies activity includes 4 years on the Committee on Earth Resources (CER) and as a reviewer for the Future Directions USGS Energy Resources Program report, and the Accelerating Decarbonization in the United States report. He was a member of the 2020 National Academies Committee on Catalyzing Opportunities for Research in the Earth Sciences (CORES), A Decadal Survey for NSF's Division of Earth Sciences, and he is a member of the current National Academies Committee on Optimizing the USGS Mineral Resources Program Science Portfolio.

Katharine W. Huntington

Member

Katharine (Kate) W. Huntington is a professor in the Department of Earth and Space Sciences at the University of Washington, where she holds the Endowed Professorship in Earth Systems, College of the Environment. Her research focuses on the interactions of tectonics, erosion and climate in shaping Earth's surface and crust over million-year to human timescales. Huntington's work has made contributions to understanding the dynamic interactions of surface and deep-Earth processes; paleoclimate and paleotopography; soil processes and geochemistry; and the role of extreme floods in landscape evolution. She has also developed new approaches using geochronology and isotope geochemistry to quantify erosion patterns, basin thermal histories, and fluid movement through fault zones. She is a fellow of the Geological Society of America (GSA) and a recipient of the National Science Foundation CAREER Award and the Donath Medal of the GSA. Recently she served on the GSA Council, where she Chaired the Society's Diversity Working Group. Huntington received a B.S. in geology and economics from the University of North Carolina at Chapel Hill and a Ph.D. in geology from the Massachusetts Institute of Technology. She previously served on the National Academies Committee on Catalyzing Opportunities for Research in the Earth Sciences: A Decadal Survey for NSF's Division of Earth Sciences.

Kristen Kurland

Member

Kristen Kurland is a Teaching Professor of Architecture, Information Systems, and Public Policy at Carnegie Mellon University's Heinz College of Information Systems and Public Policy and School of Architecture and holds a courtesy appointment in Civil and Environmental Engineering. She is also the president of a local consulting firm that has implemented computer technology programs in numerous organizations. She is a Past President of CMU's Andrew Carnegie Society and recently served as a Trustee of Carnegie Mellon University. Ms. Kurland's research focuses on interdisciplinary collaborations in health, the built environment, geospatial analysis, and 3D data visualization. Her projects focus on addressing equity, health, urban design, economic development, sustainability, big data, and smart cities issues. She actively collaborates with healthcare, non-profit, and industry organizations in Pittsburgh and worldwide. Ms. Kurland is the co-author of a series of best-selling GIS workbooks that are used by universities, colleges, and self-learners. Her accomplishments were showcased in a recent book chapter by Esri Press highlighting twenty-two global women of influence in GIS. She is the recipient of numerous awards, including the 2020 Carlow University Women of Spirit award; the 2012 Esri Health Communications Award; and the 2004 Esri Special Achievement in GIS Award. Ms. Kurland received a B.A. in Architectural Studies from the University of Pittsburgh.

Jessica P. Moore

Member

Jessica P. Moore is the West Virginia State Geologist and Director of the West Virginia Geological and Economic Survey (WVGES). Prior to her appointment in 2021, she managed the agency's Oil and Gas program for ten years and worked as a geologist for the North Carolina Geological Survey from 2003 to 2007. Moore's primary professional expertise is subsurface geology, with emphasis on sequence stratigraphic analysis, conventional and unconventional petroleum systems, and geologic storage. Her research is included in several regional cooperative projects, including the North Carolina Coastal Cooperative, the Utica Shale Play Book, the Appalachian Storage Hub for Natural Gas Liquids, and the Midwest Regional Carbon Sequestration Partnership. Her current research focuses on carbon sequestration, geothermal energy, hydrogen production and storage, and critical minerals in coal and coal waste. She has been recognized for achievement by a USGS S.T.A.R award and an Imperial Barrel award from the American Association of Petroleum Geologists as well as fellowships from the National Science Foundation and West Virginia University's Distinguished Doctoral program. Moore currently serves as President-Elect of the Association of American State Geologists and East Region Vice President of the U.S. Potential Gas Committee. A first-generation college student, she received a B.S. in geology from West Virginia University, an M.S. in geology from the University of North Carolina at Wilmington, and was a Ph.D. candidate in geology at West Virginia University before joining WVGES.

Ann S. Ojeda

Member

Ann Sullivan Ojeda is an Assistant Professor in the Geosciences Department at Auburn University. Her research focus is to understand how groundwater connects humans to the geosphere. By integrating geochemistry and community-based research, she addresses questions related to water quality and water contamination from organic compounds. She combines classical geochemical techniques with toxicology and epidemiology to better understand the mechanism of toxicity in humans and disease patterns related to impaired water quality. She also uses compound-specific isotope analysis to investigate the transformation of toxic organic compounds in groundwater and soils. Ojeda earned a B.S. and M.S. in chemistry from Lyon College and Texas A&M University, respectively, and a Ph.D. in Geology from the University of Oklahoma.

David B. Spears

Member

David Spears retired as the State Geologist of Virginia in December of 2022. David began his professional career as a petroleum geologist for Chevron USA in 1983. In 1993, he joined Virginia's geological survey as an economic geologist. From 2005 to 2009, David served as the Policy Manager for Virginia's Department of Mines, Minerals and Energy, where he facilitated revisions to Virginia's regulations covering mining, drilling, and energy. He was named State Geologist in 2009, a role in which he was called upon to provide a scientific perspective in developing Virginia's policies on offshore drilling, mining, hydraulic fracturing, earthquake response, landslide preparedness, and groundwater management. David is a member of the Geological Society of America, the American Association of Petroleum Geologists, and is a past President of the Association of American State Geologists. He served as a member of the Committee on Earth Resources at the National Academies of Sciences, Engineering, and Medicine from 2015 to 2021. David holds a B.S. in Geology from Lafayette College and an M.S. in Geology from Virginia Tech. He has been a certified Professional Geologist since 2002 and was named a Fellow of the Geological Society of America in 2020.

David W. Szymanski

Member

Dave Szymanski is Professor of Geology at Bentley University. His work as a scientist spans igneous petrology, elemental cycling in watersheds, forensic chemistry, and climate and sustainability policy. His current research is in transdisciplinary sustainability curriculum development, leading a multi-institutional NSF-funded project, BASICS, or Business and Science: Integrated Curriculum for Sustainability. Before starting at Bentley, he served as environmental and energy policy adviser to U.S. Senator Jon Tester (D-MT) as the 2008-09 AAAS/USGS/GSA Congressional Science Fellow. He served as a contract trace evidence analyst for the Michigan State Police (2004-2008) and continues to practice as a consulting forensic geologist for Forensic Science Consultants, Inc. He is an elected Fellow of the American Association for the Advancement of Science (AAAS), as well as the Geological Society of America (GSA). Szymanski received an M.S. and Ph.D. in geological sciences, as well as an M.S. in forensic chemistry, from Michigan State University.

Jolante W. van Wijk

Member

Jolante van Wijk serves as Group Leader for the Energy and Natural Resources Security group at Los Alamos National Laboratory and as the Laboratory's Program Manager for the Department of Energy's Office of Fossil Energy and Carbon Management and Geothermal Technologies Office. She holds a joint appointment at New Mexico Institute of Mining and Technology as Professor of Geophysics. Prior to joining the Laboratory in 2021, her academic career included positions at University of Houston and New Mexico Institute of Mining and Technology. She founded and was co-PI of an industry consortium, and spent a sabbatical at a natural resources company. Van Wijk's research areas include geodynamics, sedimentary basins and petroleum systems, carbon capture, utilization, and storage, energy transition, and natural hazards. She is a Fellow of the Geological Society of America. Van Wijk received a combined B.S./M.S. in geophysics from Utrecht University, Netherlands and a Ph.D. in geophysics from Vrije University Amsterdam, Netherlands.

Jessica M. Warren

Member

Jessica M. Warren is a Professor of Geochemistry and Geophysics in the Department of Earth Sciences at the University of Delaware. Her research focuses on the rheology and geochemistry of the Earth's mantle through a combination of field and laboratory analyses. Dr. Warren has participated in 14 field expeditions, including on-land expeditions to the western United States and Oman Ophiolite and seagoing expeditions in the Pacific, Atlantic, and Indian Oceans. In 2019, she served as chief scientist on the R/V Atlantis for an interdisciplinary experiment on the Gofar transform fault in the equatorial Pacific. Outreach by Dr. Warren includes work to improve the quality and accessibility of Earth Science education with a focus on field learning and the graduate experience. Dr. Warren is a recipient of a NSF CAREER award, Stanford Terman Fellowship, and Carnegie Postdoctoral Fellowship. She holds a B.A. First Class, M.A., and M.Sci. from the University of Cambridge and a Ph.D. from the Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program.

Deborah Glickson

Staff Officer