

# **Trends and Opportunities in Federal Earth Science Education and Workforce Training**

## **Committee**

### **Arthur Goldstein**

#### **Chair**

Arthur Goldstein, chair, is the founding Dean of the College of Science and Mathematics at Bridgewater State University, Massachusetts, a position he has held since August 2010. Prior to joining Bridgewater State University, he held appointments as a dean at the University of New England and the director of the Division of Earth Sciences at the National Science Foundation (NSF). While at NSF, Dr. Goldstein was involved in developing GeoTeach, a program aimed at improving the development of pre-service and in-service secondary school teachers. Prior to his appointment at NSF, he was a professor of geology at Colgate University and served as department chair for five years. Dr. Goldstein was the co-chair of the NRC study on Scientific Ocean Drilling: Accomplishments and Challenges (2011). He received a B.S. in geology from Kent State University and an M.S. and Ph.D. from the University of Massachusetts, Amherst.

### **Pranoti Asher**

#### **Member**

Pranoti Asher is the Education and Public Outreach Manager for the American Geophysical Union (AGU), a professional society of the earth and space sciences with more than 60,000 members. Prior to joining AGU, she spent 18 years as a geoscience faculty member at universities and community colleges. Dr. Asher is deeply interested in education, outreach, and workforce development for the geosciences and is currently working on an NSF-funded study aimed at the development of earth and space science faculty and their students at two-year colleges. She is also knowledgeable about education and outreach activities of other professional geoscience societies. She received her B.Sc. and M.Sc. in geology from the University of Bombay, India, and a Ph.D. in the geological sciences from the University of Connecticut.

## **Susan E. Cozzens**

### **Member**

Susan E. Cozzens is Vice Provost for Graduate Education and Faculty Affairs at the Georgia Institute of Technology, as well as a professor of public policy and Director of the Technology Policy and Assessment Center. Her research interests are in science, technology, and innovation policies, with an emphasis on issues of equity, equality, and development. Dr. Cozzens is active in developing science and technology indicators as well as methods for assessing research. She is a fellow of the American Association for the Advancement of Science, and past chair of the AAAS Committee on Science, Engineering, and Public Policy. Dr. Cozzens has served on nine previous NRC committees, mostly related to program evaluation in a wide range of fields. She has a B.S. in sociology from Michigan State University and a Ph.D. in sociology from Columbia University.

## **Cathy A. Manduca**

### **Member**

Cathy A. Manduca is Director of the Science Education Resource Center at Carleton College. She is involved in a variety of projects that support improvements in undergraduate geoscience education. Her areas of interest include bringing research results on teaching and learning into broader use in the geosciences, understanding geoscience expertise, and building strong geoscience departments. She is the Executive Director of the National Association of Geoscience Teachers and serves on the AGU Outreach Committee and the American Institute of Physics Education Committee. Dr. Manduca is the lead investigator of a \$10 million NSF grant to improve geoscience education and to integrate the geosciences across other academic disciplines. She received a B.A. in geology from Williams College and an M.S. and Ph.D. in geology from the California Institute of Technology.

## **Eric J. Pyle**

### **Member**

Eric J. Pyle is a professor of geology in the Department of Geology and Environmental Science at James Madison University. He has a strong background in K-12 and college-level STEM education and program assessment and evaluation. Dr. Pyle was a member of the Earth and Space Science Design Team for the NRC's "A Curriculum Framework for K-12 Science Education." He is a past President of both the Virginia Association of Science Teachers and the West Virginia Science Teachers Association. He currently serves as Co-director for the James Madison University Center for STEM Education and Outreach and is a National Association of Geoscience Teachers Counselor for Virginia. He has a B.S. in earth science from the University of North Carolina, Charlotte, an M.S. in geology from Emory University, and a Ph.D. in science education from the University of Georgia.

## **Eric M. Riggs**

### **Member**

Eric M. Riggs is the Assistant Dean for Diversity and Graduate Student Development and a research associate professor of geoscience education at Texas A&M University. Prior to this appointment, he was the founding co-director of an interdisciplinary research center dedicated to the advancement of science and mathematics education research at Purdue University. His research interests lie at the intersection of cognitive science and geology, especially across diverse cultures and backgrounds. He is especially interested in workforce issues, including hispanic and native American diversity in the geosciences. Dr. Riggs is a past President of the National Association of Geoscience Teachers. He received a B.A. in english literature from Pomona College and a Ph.D. in geological sciences from the University of California, Riverside.

## **Karl K. Turekian**

### **Member**

Karl K. Turekian, NAS, is the Sterling Professor of Geology and Geophysics Emeritus and Senior Research Scientist at Yale University. His research focuses on the use of radioactive and radiogenic nuclides for deciphering the environmental history of Earth. He is also interested in science education, and has previously participated in studies related to this topic. Dr. Turekian has served on more than 10 NRC committees and boards, and is currently the NAS Section 16 liason to the NRC. He is a fellow of the American Academy of Arts and Sciences, the American Geophysical Union, the American Association for the Advancement of Science, and the Geological Society of America, and is a member of the National Academy of Sciences. He has an undergraduate degree in chemistry from Wheaton College (Illinois) received his Ph.D. in geochemistry from Columbia University.

## **Lisa D. White**

### **Member**

Lisa D. White is the Associate Dean of the College of Science and Engineering at San Francisco State University. Previously, she was a professor of geology and chair of the Geosciences Department. Her background is in micropaleontology, paleoceanography, and stratigraphy. Dr. White has extensive experience with science outreach programs for urban students and is active in efforts to increase diversity in the geosciences. She is principal investigator of the SF-ROCKS (Reaching Out to Communities and Kids with Science in San Francisco) program, which is aimed at attracting minority high school students to the geosciences through environmental research projects and training. She coordinated the Minority Participation in the Earth Sciences (MPES) Program at the U.S. Geological Survey from 1988-1995, and is a past chair of the GSA Committee on Minorities and Women in the Geosciences. Dr. White received her Ph.D. in earth sciences from the University of California, Santa Cruz.