

Michael Mayhew

707A Main Street, Gaithersburg MD 20878
m2mayhew@gmail.com

B.A., Mathematics, Ohio State University (1964)

Ph.D., Marine geophysics, Lamont Geological Observatory, Columbia University (1969)
Higgins Fellow/Continental Petroleum Foundation Fellow

2010- Senior Research Scientist, Science Education Solutions

Diverse recent initiatives in science education: Co-developed panel-based peer review system for digital educational resources. Edited 4-volume GIS-based high school Earth science curriculum. Wrote case studies for undergraduate-level GIS-based natural hazards curriculum. Co-developed New Mexico science café program for high school students. Co-director of Teen Science Café Network, an NSF-supported expansion nationally of the “teen café” model. Co-developed educational games with the theme, “The Nexus of Energy, Climate, and Water.”

Member of the Organizing Committee for the Coalition for the Public Understanding of Science. Member of the Committee on Education and Human Resources of the American Geophysical Union (AGU), 2006-10. Member of AGU Position Statement Panel on the Teaching of Evolution. Co-convenor of 2007 AGU Fall Meeting Session, “Promoting Student Inquiry Using Real Scientific Data in Science Curriculum.” NSF Innovative Technology Experiences for Students and Teachers (ITEST) review panelist, 2008. NSF Centers for Ocean Science Education Excellence (COSEE) review panelist, 2009. On the Cutting Edge Advisory Committee, 2008-2013. AGU Spilhaus Award Committee, 2010-12. Prepared Centers for Ocean Science Education Excellence for NSF Decadal Review, 2011. Judge, 2012 Jackson Hole Science Media Awards. Judge, NSF-funded Ocean 180 Video Challenge, 2014, 2015.

2007. American Geophysical Union Excellence in Geophysical Education Awardee.

2020. Elected AAAS Fellow, American Association for the Advancement of Science

1982-2006. Program Director, Geosciences, National Science Foundation

Program development and management in solid Earth geophysics and geoscience education. Particular strength in organizing and aligning diverse community interests behind innovative initiatives, with associated skills in securing funds and budget management, strategic planning, collaboration-building, and mentoring.

Geoscience Education Program: Established geoscience education program for the Geosciences Directorate. The program supports undergraduate, pre-college, and public geoscience education, as well as the graduate and postdoctoral levels, in all geoscience disciplines. Convened the seminal Geoscience Education Working Group and wrote the workshop report: “Geoscience Education: A Recommended Strategy.” Organized internal support and funding competition, issued program announcement, and managed peer review. Organized community support around this initiative. The program has led to the development of an extensive national geoscience education community. Other initiatives in educational training of scientists, educational seismology, public geoscience literacy, curricular reform, and geoscience diversity.

Primary current interest is improving public understanding of science.

Digital Library for Earth System Education. Organized and nurtured community development of DLESE through a confluence of NSF programs in information technology applied to digital libraries (DL-2) and programs in support of geoscience education. DLESE became well-established, with broad community support, and took on the leadership of the National Science Digital Library (NSDL), an NSF priority. Fostered collaboration between the Directorate for Geosciences and the Directorate for Education and Human Resources (EHR), the first such substantive collaboration between an NSF “research” directorate and EHR. Continued as lead NSF DLESE program manager. Co-convenor with NASA of the AGU session “Digital Libraries for Earth System Education.”

Other Education-related Activities. Organization of directorate activities in the NSF programs: Working Group on Undergraduate Education, Research Experiences for Undergraduates, Professional Opportunities for Women in Research and Education, Integrated Graduate Education and Research Training, Early Faculty Career Development, and Earth Sciences Postdoctoral Program.

Geophysics Program (1982-1996). Management of multidisciplinary grants program in geophysics. Networked academic scientists, other agencies, the laboratories, and industry to advance the geophysical sciences.

GPS Met. Organized the NSF-led interagency effort to launch the GPS Meteorological Satellite (GPS Met). This highly successful satellite developed by UCAR and JPL scientists and carried aboard a Pegasus launch vehicle “got NSF into the space business” and established a precedent for “smaller-faster-cheaper” access to space.

UNAVCO. Brought the nuclear group seeking federal funding for high-precision GPS geodesy to its natural home at NSF, thereafter nurtured the community development of the University NAVSTAR Consortium (UNAVCO) as a facility for supporting GPS research, and acted as program manager for GPS field programs.

CSEDI. Organized and nurtured community development of Cooperative Studies of the Earth’s Deep Interior (CSEDI). The program, designed to facilitate interdisciplinary collaboration toward solution of the great problems of deep-Earth dynamics, led to rapid advances in the field, and has been a model for subsequent programs.

Other Experience While at NSF:

NSF representative to WG 1, Subcommittee on Global Change Research (SGCR)
SGCR representative to Space-based Global Change Observing System
High-performance Computing and Communications (HPCC) activity
Presidential Young Investigator program manager, Division of Earth Sciences
Directorate Small Business Innovation Research program manager
Member, Task Group on Solid Earth Processes, Global Change Working Group
NSF representative to NAS/NRC Committee on Geodesy
Member, Interagency Coordinating Committee on Geodynamics
Member, Science Coordinating Committee, Salton Sea Scientific Drilling Project
GLOBE science education program manager
Member, NASA TOPEX/Poseidon Review Panel
Member, NASA EOS Interdisciplinary Review Panel
Chair, AGU public policy Panel on Geomagnetic Observatories
Member, AGU Books Board
Acting Program Director, Continental Lithosphere Program
Visiting Fellow, Macquarie University, Australia

On leave as director of UCAR program in support of federal GLOBE program
On sabbatical with UNAVCO, GPS field deployment in Patagonia
Ongoing geomagnetic research at NASA Goddard Space Flight Center
Co-investigator, Mars Observer Mission
Scientist/Mentor, APS-Montgomery County (MD) Public Schools Alliance

Pre-NSF Experience

1975-1982. NASA Goddard Space Flight Center. NASA-USGS program for interpretation of satellite magnetic field data (Magsat). Developed methodologies for extraction of weak magnetic anomaly signal from a noisy data set and inversion to source models. Software became “industry standard” for this type of research. Processing and interpretation of the data, focused on thermal structure and magnetic petrology of the continental lithosphere. Chair of NASA Study Committee for Magsat-B. NASA Magsat Scientific Investigation Team Group Achievement Award.

1974-1975. University of Massachusetts, Amherst. Visiting Fellow carrying out research on hydrothermal processes in Yellowstone Lake and on seamount magnetism.

1973-1974. University of Wisconsin-Milwaukee. Assistant Professor. Field work, data reduction, and interpretation, Wisconsin/Utah small boat geophysical program, Yellowstone and Jackson Lakes. Party Chief during main data collection season.

1970-1973, New York University. Assistant Professor. Visiting Research Associate, Lamont-Doherty Geological Observatory. Appalachian Working Group, U.S. Geodynamics Committee. Consultant, Mobil Oil Corporation. Lead technical paper, AAPG East Coast Offshore Symposium. Compiled all geophysical data for the North American continental margin between Labrador and the Bahamas and made substantive reinterpretations of this data, in particular of a much thicker sedimentary section beneath the outer continental margin; interpretations subsequently confirmed by USGS and industry offshore profiling and drilling.

1968-1969. Rutgers University-Newark. Assistant Professor. Research interpreted the structure of the continental margins of the Labrador Sea and demonstrated a plate tectonic history for the Labrador Basin.

1963-1965 (summers). U.S. Geological Survey. Mathematician. Field measurements of terrestrial heat flow, data reduction for same, laboratory measurement of thermal conductivity.

Publications [List of publications available on request.]