

ERIC T. SUNDQUIST

U. S. Geological Survey
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EDUCATION:

Harvard University, Ph.D., Geology, 1979
Harvard University, A.M., Geology, 1973
Pomona College, B.A., Geology, 1970

AWARDS AND HONORS:

USGS STAR Awards, 2009, 2001
Lead for Scientific Content, U.S. State of the Carbon Cycle Report, 2004-2005.
Woodford-Eckis Lecturer, Pomona College, 2002
Department of the Interior Meritorious Service Award, 1996
Fellow, American Association for the Advancement of Science, 1992
Department of the Interior Superior Service Award, 1988

PROFESSIONAL EXPERIENCE:

Research Geologist, U.S. Geological Survey (USGS), since March 1978.

Research on relationships among the global carbon cycle, human land and energy use, and atmospheric CO₂. Current research interests include relationships between oceanic and terrestrial carbon cycling, effects of human land use on CO₂, effects of erosion and sediment transport on CO₂ budgets, exchange of CO₂ between soils and the atmosphere, evaluation of power-plant emissions data, development of methods for comprehensive carbon sequestration assessment, ocean acidification, and past natural variations in atmospheric CO₂.

Tutor, Teaching Fellow, and Research Assistant, Harvard University, 1971-1973 and 1974-78.

Geology Tutor at Lowell House. Teaching and research for Prof. Y-H. Li and Prof. R. Siever.

Scientist, Geochemical Ocean Sections Study, 1973-1974.

Shipboard and laboratory measurements. Worked six months at sea in Pacific Ocean.

Research Assistant, Lamont-Doherty Geological Observatory, 1971-73.

Summer assistant for Profs. W.S. Broecker and T. Takahashi. Shipboard and laboratory measurements.

Geologist, Phelps-Dodge Corporation, Prince William Sound, Alaska, 1970.

Field exploration for copper/nickel deposits.

SCIENTIFIC LEADERSHIP:

Program Council, USGS Climate and Land-Use Change Research and Development Program (2010-present)
Meeting Program Committee, North American Carbon Program (2010-2011)
Chair, U.S. Department of the Interior Biological Carbon Sequestration Workgroup (2009-2010)
Chair, USGS Interdisciplinary Carbon Committee, 2008-2011.
Perlman Award Committee, American Geophysical Union (2006-2008).
Chair, Chapman Conference on the Science and Technology of Carbon Sequestration (2005)
U.S. Carbon Cycle Interagency Working Group (2004-2005)
Lead for Scientific Content, U.S. State of the Carbon Cycle Report (SOCCR), 2004-2005. (Withdrawn from this position following implementation of high-level review by political appointees.)
Chair, subcommittee to plan U.S. SOCCR, Carbon Cycle Scientific Steering Group, 2002-2003.
Invited expert, U.S. Climate Change Science Program Office, summer 2002. (Provided comments and written reviews of all U.S. Federal carbon-related science programs.)
Climate/Earth System Model Advisory Board, National Center for Atmospheric Research (2001-present)
Chair, Committee and Focus Group on Global Environmental Change, American Geophysical Union (2000-2003)
U.S. Carbon Cycle Scientific Steering Group (2000-2004)
USGS Research Adviser for Surface Water Chemistry (1997-2002)

Scientific Coordinator, USGS Mississippi Basin Carbon Project, 1996-2000.
National Research Council Panel on Oceanic Carbon (1992-1995)
Chair, International (SCOR) Working Group on Ocean/Atmosphere Paleochemistry (1988-1993)
National Research Council Panel on CO₂ (1988-1992)
National Research Council Panel on Sea-Level Change (1984-1990)
Chair, International (SCOR) Working Group on Geologic Variations in CO₂ and the Carbon Cycle (1985-1988)
Chair, Chapman Conference on Natural Variations in Carbon Dioxide and the Carbon Cycle (1984)

SELECTED PUBLICATIONS:

- Sundquist, E.T., Ackerman, K.V., Parker, L., and Huntzinger, D.N., 2009, An introduction to global carbon cycle management, *in* McPherson, B.J., and Sundquist, E.T., eds, Carbon Sequestration and Its Role in the Global Carbon Cycle: American Geophysical Union Monograph Series 183, Washington, American Geophysical Union, p. 1-23.
- Sundquist, E.T., and Keeling, R.F., 2009, The Mauna Loa carbon dioxide record: Lessons for long-term Earth observations, *in* McPherson, B.J., and Sundquist, E.T., eds, Carbon Sequestration and Its Role in the Global Carbon Cycle: American Geophysical Union Monograph Series 183, Washington, American Geophysical Union, p. 27-35.
- McPherson, B.J., and Sundquist, E.T., eds, 2009, Carbon Sequestration and Its Role in the Global Carbon Cycle: American Geophysical Union Monograph Series 183, Washington, American Geophysical Union, 359 p.
- Sundquist, E.T., Ackerman, K.V., Bliss, N.B., Kellindorfer, J.M., Reeves, M.C., and Rollins, M.G., 2009, Rapid assessment of U.S. forest and soil organic carbon storage and forest biomass carbon sequestration capacity: U.S. Geological Survey Open-File Report 2009–1283, 15 p. ([on-line abstract](#) or [on-line publication in pdf format](#), 2.1 MB - available online only)
- Ackerman, K.V., Mixon, D.M., Sundquist, E.T., Stallard, R.F., Schwarz, G.E., and Stewart, D.W., 2009, RESIS–II—An updated version of the original Reservoir Sedimentation Survey Information System (RESIS) database: U.S. Geological Survey Data Series 434 - available only online. ([on-line abstract and to download data base](#) or [on-line report in pdf format](#) , 308 KB)
- Ackerman, K.V. and Sundquist, E.T., 2008, Comparison of two U.S. power-plant carbon dioxide emissions data sets: Environmental Science and Technology, v. 42, no. 15, p. 5688-5693. ([on-line abstract](#) or [on-line article in pdf format](#), 148 KB, published by American Chemical Society; not subject to U.S. copyright)
- Sundquist, E.T., Burruss, R.C., Faulkner, S.P., Gleason, R.A., Harden, J.W., Kharaka, Y.K., Tieszen, L.L., and Waldrop, M.P., 2008, Carbon Sequestration to Mitigate Climate Change: U.S. Geological Survey, Fact Sheet 2008–3097, 4p. ([on-line abstract](#) or [on-line fact sheet in pdf format](#), 2.3 MB)
- Borken, W., Davidson, E.A., Savage, K., Sundquist, E.T., and Steudler, P., 2006, Effect of summer throughfall exclusion, summer drought, and winter snow cover on methane fluxes in a temperate forest soil: Soil Biology and Biochemistry, v. 38, no. 6, p. 1388-1395. ([on-line abstract of journal article](#))
- Sundquist, E.T. and K. Visser, 2004, The geological history of the carbon cycle, *in* Schlesinger, W.H., ed., Biogeochemistry, Treatise on Geochemistry, v. 8, Elsevier, Chapt. 9. p. 425-472.
- Liu, S., N. Bliss, E. Sundquist, T. Huntington, 2003, Modeling carbon dynamics in vegetation and soil under the impact of soil erosion and deposition: Global Biogeochemical Cycles, v. 17, no. 2, 1074.
- Sundquist, E.T., R..F. Stallard, N.B. Bliss, H.W. Markewich, J.W. Harden, M.J. Pavich, W.E. Dean, Jr., 1998, Mississippi Basin Carbon Project Science Plan: U.S. Geological Survey Open-File Report 98-177, 28 p.
- Sundquist, E.T., 1993, The global carbon dioxide budget: Science, v. 259, p. 934-941.
- Sundquist, E.T., 1991, Steady- and non-steady-state carbonate-silicate controls on atmospheric CO₂: Quaternary Science Reviews, v. 10, p. 283-296.
- Sundquist, E.T., 1990, Long-term aspects of future atmospheric CO₂ and sea-level changes, *in* Revelle, R., ed., Sea Level Change: Washington, D.C., National Academy of Sciences, p. 193-207.
- Sundquist, E.T., 1985, Geological perspectives on carbon dioxide and the carbon cycle, *in* Sundquist and Broecker, eds.,
- Sundquist, E.T., and Broecker, W.S., eds., The Carbon Cycle and Atmospheric CO₂: Natural Variations Archean to Present: American Geophysical Union Monograph Series 32, Washington, American Geophysical Union, 627 p.

Sundquist, E.T., Plummer, L.N., and Wigley, T.M.L., 1979, Carbon dioxide in the ocean surface: The homogeneous buffer factor: *Science*, v. 204, p. 1203-1205.

SELECTED PRESENTATIONS:

Historical influence of soil and water management on carbon erosion and burial in the United States. European Geophysical Union, Vienna, Austria, 2012.

Atmospheric carbon dioxide: A global balancing act. Seabury Retirement Community, Bloomfield, CT, 2012.

Rapid assessment of carbon storage and sequestration capacity in U.S. wetlands, International Wetlands Conference, Orlando, FL, 2012.

Carbonate buffering constraints on paleocean alkalinity and pH (paleocean alkalification). Workshop on paleocean acidification and carbon cycle perturbation events, Catalina Island, CA, 2010.

Evaluation of carbon dioxide management options: Model integration of human actions and the natural carbon cycle, USGS Modeling Conference, Denver, CO, 2010.

A resource assessment approach to carbon sequestration: Implications for terrestrial carbon science and assessment. U.S. Fish and Wildlife Service Carbon Sequestration Workshop, Alexandria, VA, 2009

From carbon footprint to carbon pathway: Carbon cycle science at a crossroads: North American Carbon Program Synthesis Workshop, Oak Ridge, TN, 2009; also presented at Ocean Carbon and Biogeochemistry Scoping Workshop on Terrestrial and Coastal Carbon Fluxes in the Gulf of Mexico, St. Petersburg, FL, 2008.

Global change and natural resource assessment: A new look at a traditional form of scientific decision support: AGU meeting, San Francisco, 2008.

A resource assessment approach to carbon sequestration: Implications for soil carbon science and assessment: AGU meeting, San Francisco, 2008.

Carbonate buffering constraints on long-term geologic changes in the carbon cycle. Workshop on Ocean Acidification: Australian Impacts in the Global Context, Hobart, Tasmania, Australia, 2008; also presented at International Geosphere-Biosphere Program Fast-Track Initiative, Palisades, NY, 2006.

The role of Geological Surveys in understanding climate change: Association of American State Geologists, Shepherdstown, WV, 2008.

Historical influence of soil and water management on carbon erosion and burial in the United States. North American Carbon Program Investigators' Meeting, Colorado Springs, 2007.

Comparison of two U.S. power-plant carbon dioxide emissions datasets. AGU meeting, San Francisco, 2006.

Time matters in carbon-cycle change and management: Perspectives from the past, present, and future. University of Illinois and USGS seminars in Reston, Denver, and Menlo Park, 2006.

Anthropogenic carbon dioxide: From geophysical experiment to geopolitical debate. Georgia Institute of Technology Blue Skies Energy Symposium, Atlanta, GA, 2002

Opportunities and challenges in integrating the science and policy of global environmental change. AGU meeting, Washington, DC, 2002

Adventures in carbon-cycle science: From cottage industry to global enterprise. Woodford-Eckis Lecture, Pomona College, Claremont, CA, 2002

The global carbon cycle. AGU Tutorial, Fall meeting, San Francisco, 2001

Effects of erosion and sediment deposition on the historical and modern U.S. carbon budget. AGU meeting, Washington, DC, 2000

Assessing the accuracy of closed-chamber soil gas flux measurements. Harvard Forest Ecology Symposium and NIGEC Workshop, Petersham, MA, 1998

OTHER PROFESSIONAL INFORMATION:

Editor-in-Chief, *Global Biogeochemical Cycles* (2010-present)

Editor of two American Geophysical Union Monographs: *Carbon Sequestration and Its Role in the Global Carbon Cycle* (2009), and *The Carbon Cycle and Atmospheric CO₂: Natural Variations Archean to Present* (1985).

Chair of committees to plan carbon sequestration resource assessment by the U.S. Department of the Interior and the U.S. Geological Survey.

In 2004, named lead scientist ("lead for scientific content") of the U.S. State of the Carbon Cycle Report (SOCCR). Withdrew from this position in 2005 following announcement by the U.S. Climate Change

Science Program that the report would be subject to final review and approval by high-level political appointees.

In 2001-2002, initiated several activities to improve communication of scientific information to the public, including numerous visits to U.S. Congress (at own time and expense) for AGU, and plans for a State of the Carbon Cycle Report (SOCCR) for the U.S. Carbon Cycle Scientific Steering Group.

In 1992, elected Fellow of the American Association for the Advancement of Science "for pioneering research on the relationships between the global carbon cycle and atmospheric CO₂, emphasizing geochemical effects of CO₂, and past natural variations."

Coauthor, U.S. Carbon Cycle Science Plan (1999) and North American Carbon Program Plan (2002).