

David Julius Erickson III

Education

- 1987 Ph.D. (Chemical Oceanography/Atmospheric Chemistry)
Graduate School of Oceanography
University of Rhode Island
Narragansett, Rhode Island
- 1982 B. S. (Chemistry)
The College of William and Mary
Williamsburg, Virginia

Professional Experience

- 2000-present Senior Research Staff Member
Computer Science and Mathematics Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee
- 1999 – 2000 Scientist
Universities Space Research Association
Laboratory for Atmospheres
NASA/Goddard Space Flight Center
Greenbelt, Maryland
- 1990 - 1999 Scientist
National Center for Atmospheric Research
Boulder, Colorado
- 1987 - 1990 Post-doctoral Research Fellow
Scripps Institution of Oceanography
University of California, San Diego
La Jolla, California

Appointments, Panel Memberships, Steering Committees

- 1994 - present Panel Member, United Nations Environment Program
(UNEP), Environmental Effects of Ozone Depletion
- 1994 - 1998 Steering Committee Member, International Global Atmospheric
Chemistry Program (IGAC), Reactive Chlorine Inventory
- 1995 - present Member, Advisory Board, Tropical Atmospheric Science Center
(TASC), University of Puerto Rico
- 1996 - present Member, Executive Committee, Chairman, Air-sea Interaction
Group, Atmospheric Sciences Section, American Geophysical
Union (AGU)

1997 - 1999

Panel Member, National Research Council (NRC)/National Academy of Sciences (NAS), Panel on Atmospheric Effects of Aviation

2001-present

Member, Editorial Board, Chemosphere: Global Change Science

September 19, 20

Presentations/Lectures (exclusive of published abstract presentations above)

1. 'Seasonal estimates of the global atmospheric sea-salt distribution and oceanic whitecap coverage distribution', Searex Annual Meeting, Narragansett, R. I., Nov. 13-16, 1984.
2. 'Seasonal estimates of the global atmospheric sea-salt distribution and oceanic whitecap coverage', Poster session, NATO Advanced Study Institute, Sea-air exchange in biogeochemical cycling, Bombannes, France, Sep. 16-27, 1985.
3. 'The role of oceanic trace elements in the K/T boundary mass extinctions', Earth and Environmental Science Colloquia, Wesleyan University, Middletown, Conn., Feb. 26, 1986.
4. 'Selective trace element toxification of marine biota: A new mechanism for preferential mass extinctions', Marine Chemistry Seminar Series, Graduate School of Oceanography, University of Rhode Island, Narragansett, R. I., Mar. 28, 1986.
5. 'Global atmospheric sea-salt and oceanic whitecap distribution', Microlayer Workshop, Office of Naval Research, American Meteorological Society, Boston, Mass., Apr. 23, 1986.
6. 'Selective trace element toxification of marine biota: A new mechanism for preferential mass extinctions', Geology and Geophysics Seminar Series, Woods Hole Oceanographic Institution, Woods Hole, Mass., May 27, 1986.
7. 'Atmospheric chemistry: An overview', Guest lecture, Introductory Oceanography, University of Rhode Island, Kingston, R. I., June 24, 1986.
8. 'On the global flux field of atmospheric sea-salt', Marine Chemistry Seminar Series, Scripps Institution of Oceanography, La Jolla, Calif., Dec. 5, 1986.
9. 'Trace element geochemistry at the K/T boundary', Marine Chemistry Seminar Series, Scripps Institution of Oceanography, La Jolla, Calif., Dec. 5, 1986.
10. 'On the global flux field of atmospheric sea-salt', Climate Club Seminar Series, National Center for Atmospheric Research, Boulder, Co., Dec. 15, 1986.
11. 'Paleochemical perturbations from volcanic and meteoritic trace element aerosol fluxes to the global ocean: The biological response', Climate Club Seminar Series, National Center for Atmospheric Research, Boulder, Co., Dec. 15, 1986.
12. 'Global trace element aerosol fluxes at the K/T boundary: The oceanic response', Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology, Cambridge, Mass., Jan. 30, 1987.

13. 'The global flux of atmospheric sea-salt', Marine Chemistry Seminar Series, Graduate School of Oceanography, University of Rhode Island, Narragansett, R. I., Mar. 13, 1987.
14. 'Global air-sea particle and gas exchange', Institute of Marine Resources Seminar Series, Scripps Institution of Oceanography, May 21, 1987.
15. 'Biotic extinctions at the K/T boundary', COSOD II, Strausbourg, France, Jul. 6-8, 1987.
16. 'Simulating the global transfer velocity fields of trace gases', Marine Chemistry Seminar Series, Scripps Institution of Oceanography, La Jolla, Calif., Sep. 25, 1987.
17. 'Studies of the isotopic composition and residence time of surface microlayers', Office of Naval Research Microlayer workshop, Arlington, Va., Jan. 14, 1988.
18. 'Simulating air-sea gas exchange', Climate Group Seminar Series, Scripps Institution of Oceanography, La Jolla, Calif., Jan. 28, 1988.
19. 'Simulating air-sea CO₂ exchange', Geophysical Sciences Seminar Series, Lawrence Livermore National Laboratory, Livermore, Calif., Feb. 25, 1988.
20. 'Simulating air-sea gas exchange', Oceanography Seminar Series, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, Calif., June 15, 1988.
21. 'Simulating the global biogeochemical system', Environmental Research Lab Seminar Series, NOAA, Boulder, CO, June 28, 1988.
22. 'Towards a chemical climatology of the Earth's atmosphere and ocean', Climate Group Seminar Series, National Center for Atmospheric Research, Boulder, CO, July 5, 1988.
23. 'Simulating the air-sea exchange of trace gases: CO₂, DMS and ³He', Geochemistry Seminar Series, Lamont-Doherty Geological Observatory of Columbia University, Palisades, New York, July 19, 1988.
24. 'Simulating the CO₂ cycle', Geochemistry and Geophysical Fluid Dynamics Seminar Series, Department of Geology and Geophysics, Yale University, New Haven, Conn., July 20, 1988.
25. 'Simulating the air-sea exchange of trace gases', Chemical Oceanography Seminar Series, Graduate School of Oceanography, University of Rhode Island, Narragansett, R. I., July 22, 1988.
26. 'Simulating global biogeochemical cycles', Bigelow Laboratory for the Ocean Sciences, Boothbay Harbor, Maine, July 28, 1988.

27. 'Toward a chemical climatology of the Earth's ocean and atmosphere', Physical Oceanography Seminar Series, Scripps Institution of Oceanography, La Jolla, CA, Aug. 17, 1988.
28. 'Air-sea gas exchange with GCM's', INCOR Meeting, Los Alamos National Laboratory, Los Alamos, N. M., Sept. 15, 1988.
29. 'The atmospheric CO₂ system', Guest lecture, Introduction to Meteorology, San Diego State University, San Diego, CA, Nov. 3, 1988.
30. 'Ocean to atmosphere DMS flux', INCOR Meeting, Lawrence Livermore National Laboratory, Livermore CA, Mar. 7, 1989.
31. 'Geochemical climate simulations of present and past atmospheres and oceans', Climate and Remote Sensing Seminar Series, Scripps Institution of Oceanography, La Jolla, CA, Mar. 29, 1989.
32. 'Simulating the oceanic source of climate-reactive gases to the atmosphere', Climate Group Seminar Series, National Center for Atmospheric Research, Boulder, CO, July 7, 1989.
33. 'Global atmospheric sulfur modeling', INCOR meeting, Scripps Institution of Oceanography, La Jolla, CA, Sep. 27, 1989.
34. 'Numerical geochemistry: Does oceanic dimethyl sulfide influence climate?', Marine Geochemistry Seminar Series, Scripps Institution of Oceanography, La Jolla, CA, Oct. 2, 1989.
35. 'Numerical geochemistry: Does oceanic dimethyl sulfide influence climate?', Marine Chemistry Seminar Series, Graduate School of Oceanography, University of Rhode Island, Narragansett, R. I., Oct. 19, 1989.
36. 'Numerical geochemistry: Does oceanic dimethyl sulfide influence climate?', Geochemistry and Geophysical Fluid Dynamics Seminar Series, Department of Geology and Geophysics, Yale University, New Haven, Conn., Jan. 4, 1990.
37. 'Numerical modeling of global biogeochemical systems', Earth System Science Center Seminar Series, Pennsylvania State University, State College, PA, March 6, 1990.
38. 'Numerical modeling of climate reactive gases', Dept. of Applied Sciences, Brookhaven National Laboratory, Upton, New York, March 20, 1990.
39. '3-D numerical modeling of climate reactive gases', Atmospheric Chemistry Seminar Series, National Center for Atmospheric Research, Boulder, CO, May 10, 1990.

40. 'Atmospheric sulfur and 3-D climate modeling', Service D'Aeronomie, Universite de Paris, Paris, Sept. 5, 1991.
41. 'The influence of increased UVB radiation on global biogeochemical cycles', SCOPE Workshop, Effects of increased UV radiation on biological systems, Budapest, Hungary, Feb. 17-22, 1992.
42. 'Numerical experiments in biogeochemistry', Atmospheric Chemistry Division Seminar, NCAR, Boulder, CO, May 15, 1992.
43. 'Numerical biogeochemistry and climate', Dept. of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology, Cambridge, Mass., Aug. 27, 1992.
44. 'Numerical biogeochemistry and climate', Depts. of Biogeochemistry and Air Chemistry, Max-Planck Institute fur Chemie, Mainz, Germany, Sept. 1, 1992.
45. 'The global carbon cycle', Global Carbon Cycle Modeling (GCCM) update, NCAR, Boulder, CO, May 19, 1993.
46. 'A global carbon cycle model', NOAA/CMDL/Carbon cycle group, Boulder, CO, June 7, 1993.
47. '3-D numerical models of biogeochemistry: The CO₂ cycle', Dept. of Atmospheric Sciences, Colorado State University, Ft. Collis, CO, Oct. 7, 1993.
48. 'Global three dimensional modeling of biogeochemical systems: The C and S cycles', NOAA/CMDL, Boulder, CO, Oct. 28, 1993.
49. 'Numerical biogeochemistry: The NCAR global CO₂ cycle model', Climate and Global Dynamics Seminar Series, National Center for Atmospheric Research, Boulder, CO, Nov. 9, 1993.
50. 'Modeling natural VOC fluxes from the ocean', IGAC/GEIA Workshop, NCAR, Boulder, CO, Nov. 30, 1993.
51. 'Global emission inventories: A modelers perspective', IGAC/GEIA Workshop, NCAR, Boulder, CO, Dec. 1, 1993.
52. 'Numerical biogeochemistry: Modeling the global carbon cycle with a GCM', Global Change Seminar, School of Oceanography, University of Washington, Seattle, Feb. 16, 1994.
53. 'Numerical modeling of global air-sea gas exchange', Chemical Oceanography Seminar, University of Washington, Seattle, Feb. 18, 1994.

54. 'Air-sea exchange of climate reactive gases', Tropical Atmospheric Science Center, University of Puerto Rico, Ponce, Puerto Rico, Feb. 25, 1995.
55. 'Numerical experiments in biogeochemistry and climate: carbon and sulfur', ACD Seminar Series, NCAR, Boulder, CO, Feb. 16, 1995.
56. 'A simple atmospheric chemistry formulation for climate system models', Scientific Advisory Committee meeting, Climate System Modeling, NCAR, Boulder, CO, Dec. 7, 1995.
57. 'Climate system modeling', CRES, Australian National University, Canberra, Australia, July 17, 1996.
58. 'Global climate system modeling', NIWA, Wellington, New Zealand, Oct. 1., 1996.
59. 'A simple atmospheric chemistry formulation for use in CSM', Earth System Modeling Workshop, NCAR, Boulder, CO, Aug. 18-19, 1997.
60. 'Global oceanic and atmospheric chemistry: Quantitative linkages and simulation', Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution, Woods Hole, MA, March 24, 1998.
61. 'The Reactive Chlorine Emissions Inventory (RCEI): An overview', IGAC Meeting, Seattle, WA, Aug. 19, 1998.
62. 'Interdisciplinary studies of global biogeochemistry within a general circulation model framework', Nicholas School of the Environment, Duke University, Durham, NC, Feb. 23, 1999.
63. 'Interdisciplinary studies of global biogeochemistry within a general circulation model dynamical framework', Department of Environmental Sciences, University of Virginia, Charlottesville, VA, March 5, 1999.
64. 'Interdisciplinary studies of global biogeochemistry within a general circulation model dynamical framework', Department of Meteorology, Texas A&M University, College Station, Texas, April 22, 1999.
65. 'Numerical modeling in climate and atmospheric science research', Division of Environmental Sciences, Oak Ridge National Laboratory, Oak Ridge, Tennessee, Aug. 31, 1999.
66. 'Global biogeochemical simulation within a general circulation model dynamical framework', Goddard Laboratory for Atmospheres, NASA/GSFC, Greenbelt, MD, Dec. 2, 1999.

67. 'Global biogeochemical simulation including an explicit treatment of air-ocean gas flux', Goddard Laboratory for Hydrospheric Processes, NASA/GSFC, Greenbelt, MD, Jan. 19, 2000.
68. 'Global biogeochemical simulation and air-sea gas flux', Goddard Laboratory for Hydrospheric Processes, NASA/Wallops, Wallops Island, VA, Mar. 17, 2000.
69. 'Global biogeochemical simulation within a general circulation model (GCM) framework', Department of Earth Sciences, University of California, Santa Cruz, CA, May 15, 2000.
70. 'The global atmospheric carbon cycle', USRA/NASA Summer Student Lecture Series, NASA/GSFC, Greenbelt, MD, Jun. 28, 2000.
71. 'Global biogeochemical simulation: The impact of air-sea gas exchange', Air-sea flux workshop, University of New Hampshire, Durham, New Hampshire, July 26, 2000.
72. 'Global simulation of climate and atmospheric chemistry', Computer Science and Mathematics Division, Oak Ridge National Laboratory, Oak Ridge, TN, July 17, 2000.
73. 'A global numerical model of halogen generation in the marine boundary layer', Department of Meteorology, University of Maryland, College Park, Maryland, Oct. 6, 2000.
74. 'Global biogeochemical simulation within a GCM dynamical framework', Goddard Institute for Space Studies (GISS), NASA/Columbia University, New York, New York, October 20, 2000.
75. 'Global C, S, N and Fe biogeochemistry inside general circulation models: Linkages and satellite constraints', Invitational Seminar Series, College of Marine Studies, University of Delaware, Lewes, Delaware, February 20, 2001.
76. 'High performance computing at Oak Ridge National Laboratory', Sigma Xi Initiation and Awards Banquet, University of Alabama in Huntsville Chapter, Huntsville, Alabama, April 27, 2001.
77. 'Computational climate research at ORNL', DOE On-site review, Oak Ridge, Tennessee, Aug. 8, 2001.

ORNL Internal Service:

Proposal Review Committee, ORNL Seed Money Fund, April 1, 2001- March 31, 2003.

Peer journal reviewer:

Science

Journal of Atmospheric Chemistry

Journal of Geophysical Research (Atmospheres)

Journal of Geophysical Research (Oceans)

Global Biogeochemical Cycles

Journal of Marine Research

Journal of Marine Systems

Journal of Physical Oceanography

Journal of Climate

Tellus

Atmospheric Environment

Chemosphere:Global Change Science

Geophysical Research Letters

Journal of Photochemistry and Photobiology

Peer proposal reviewer:

National Science Foundation

U. S. Department of Energy

NASA

NOAA

Earthwatch

Natural Environment Research Council (NERC) (UK)

Public Service

Interview and feature article, L. A. Times Magazine, May 20, 1989.

Interview, Global Warming, KNOS radio, July 10, 1989.

Interview, Global Warming, San Diego Channel 8, Nov. 12, 1989.

Interview, Futures in Mathematics, PBS, Feb. 22, 1990.

Public lecture, Global warming and climate change, Chula Vista Nature Interpretive Center, April 21, 1990.

Interview and article, Numerical modeling of the atmospheric chemistry system, R&D Magazine, July 18, 1990.

Lecture on global warming, East Denver Elementary School, Denver, CO, March 12, 1991.

Interview and article, Columbus Dispatch, Columbus, Ohio, Oct. 11, 1992.

Lecture, Numerical simulations of Earth chemistry and climate, Central European Environmental Journalism Program, NCAR, Boulder, CO, May 11, 1993.

Lecturer, Project LEARN, NCAR, Boulder, CO, July 12-28, 1993.

Interview, Global carbon cycle issues, Marian Wigand, Cologne, Germany freelance science writer, Boulder, CO, Sept. 23, 1993.

Discussion, Abt Associates on behalf of the Federal Coordinating Council for Science, Engineering and Technology (FCCSET), NCAR, Boulder, CO, Dec. 6, 1993.

Interview, Frank Barnas, Greenspun School of Communication, University of Nevada, Las Vegas, Global warming, May 13, 1994.

Interview, Dr. von Arb, Swiss Embassy Attache for Science and Technology, Oct. 20, 1994.

Interview, Frank Barnas, Greenspun School of Communication, University of Nevada, Las Vegas, Global warming, Oct. 27, 1994.

Lecture, Project LEARN, NCAR, Boulder, CO, Feb. 4, 1995.

Interview and filming, Frank Barnas, Greenspun School of Communication, University of Nevada, Las Vegas, Global warming, March 2, 1995.

Panel member, Global warming implications, Southern Hills Middle School, Boulder, CO, April 18, 1995.

Interview, US News and World Report, November 12, 1996.

Interview, Newsweek, August 4, 1998.

Interview, EarthWatch Radio, Dec. 3, 1999.

Lecture, The global carbon cycle: Atmospheres, NASA/GSFC Instruction for EAPS course MIT 12.421, Physical Principles of Remote Sensing, January 20, 2000.

Lecture, The global carbon cycle: Atmospheres, NASA/GSFC Instruction for University of Maryland graduate course, Physical Principles of Remote Sensing, March 24, 2000.

Interview, Kris Christen, Environmental Science and Technology Magazine, Numerical modeling of iron fluxes and NASA satellite data, January 22, 2001.

Magazine article, Environmental Science and Technology Magazine, 'Linking iron with carbon sequestration', March 1, Vol. 35, pp.98-99, 2001.

Laboratory and Field Work

- 1981 Laboratory Tech 'A', Virginia Institute of Marine Science, College of William and Mary. Analytical techniques applied to elemental and molecular properties of Chesapeake Bay water.
- 1983 Participated in SEAREX field program, collecting aerosol, wet and dry deposition samples. Ninety-Mile Beach, North Island, New Zealand.
- 1984 Developed near-real time flow through wet deposition collection system, and interfaced with various electrochemical techniques. Narragansett, Rhode Island.
- 1985 Designed, constructed and operated field program obtaining aerosol, wet and dry deposition samples. Oahu, Hawaii.
- 1987 ONR microlayer field program collecting microlayer samples for isotopic analysis and estimation of residence time. May and September in Damariscotta, Maine.
- 1988 Fluorescence scanning of seawater samples treated with UV oxidation and various permutations of Pt and Ti catalysts. Film pressure measurements of natural sea-surface microlayers.

Analytical Techniques

Neutron activation of aerosols and foraminifera
Atomic absorption
Electrochemical sensors

Newsletters, Reports and Letters

1. Erickson, D. J. III, J. T. Merrill and R. A. Duce, 'Seasonal estimates of global atmospheric sea-salt distributions', Searex Newsletter, 13-17, May, 1985.
2. Erickson, D. J. III, 'Elements of extinction', Letters, Science News, 129, 67, 1986.
3. Erickson, D. J. III, J. T. Merrill and R. A. Duce, 'Seasonal estimates of global oceanic whitecap coverage', Searex Newsletter, 10-18, May, 1986.
4. Erickson, D. J. III and R. A. Duce, 'On the global transfer velocity field of gases with a Schmidt number of 600', Searex Newsletter, 7-10, January, 1987.
5. Erickson, D. J. III, K. J. Robertson and P. M. Williams, 'Isotopic composition and residence time estimates of sea-surface microlayers', Report to the Office of Naval Research, 29 p., 1988.
6. Erickson, D. J. III, 'Ocean-atmosphere CO₂ exchange', EPRI Conference, 'Interactions of the global carbon and climate systems', Lake Arrowhead, CA, Oct. 21-26, 1988.
7. Lal, D., M. Laffoon and D. J. Erickson III, 'Inferences about climatic changes based on ¹⁴C, ¹³C, CaCO₃, pCO₂ and ¹⁰Be', EPRI Conference, 'Interactions of the global carbon and climate systems', Lake Arrowhead, CA, Oct. 21-26, 1988.
8. Erickson, D. J. III, S. Ghan and J. Penner, 'Global ocean to atmosphere dimethyl sulfide flux', INCOR Annual Report, 1989.
9. Erickson, D. J. III, 'Experiments in numerical atmospheric chemistry', INCOR Annual Report, 1990.
10. Erickson, D. J. III and 10 others, 'A Global Carbon Model', CMAP document, 1991.
11. 1991- present, Numerous annual reports, status reports, white papers, program plans, etc.