

Curriculum Vitae

William Scott Reeburgh
Professor of Earth System Science, Emeritus
University of California Irvine

Born: 25 February 1940, Port Arthur, Texas

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Marital Status: Married, Carelyn E. Yerkes, 6/22/63
Children: Scott Louis, b. 4/11/64, m. 8/30/97, 2 children
Nancy Elizabeth, b. 9/26/66, m. 3/20/99, 2 children
Peter William, b. 12/29/72, m. 7/25/98, 2 children

Education: University of Oklahoma - B. S. in Chemistry, 1961
Johns Hopkins University - M.A. (Oceanography) 1964
Essay: New Measurements of the Electrical Conductivity of Seawater
Johns Hopkins University - Ph.D. (Oceanography) 1967
Dissertation: Observations of Gases in Chesapeake Bay Sediments

Experience: Professor, University of California Irvine, 2/93- 2/09; Emeritus, 3/09
Professor, University of Alaska, 1977-2/93, Emeritus, 1998
Adjunct Professor, S.U.N.Y. Stony Brook, 1977
Adjunct Associate Professor, S.U.N.Y. Stony Brook, 1976-1977
Associate Professor, University of Alaska, 1972-1977
Assistant Professor, University of Alaska, 1968-1972, Tenured, 1971
Postdoctoral Research Staff Assistant, Johns Hopkins University, 1967-1968
Graduate Research Assistant, Johns Hopkins University, 1961-1967

Memberships: Professional
American Chemical Society
American Geophysical Union
American Society of Limnology and Oceanography
Geochemical Society
American Society for Microbiology
American Association for the Advancement of Science
Alpha Chi Sigma (Chemistry)
The Oceanography Society
Arctic Institute of North America
Honorary
Phi Lambda Upsilon (Chemistry)
Sigma Xi, President, Alaska Club 1974-5, 1979-80, 1989-91
Phi Kappa Phi (elected as faculty member, 1983)

National/International Committees
ONR Advisory Panel on Chemical Oceanography - 1974
Contributing Editor, Springer-Verlag Series on Coastal Oceanography
American Geophysical Union, Ewing Award Subcommittee, 1986-1988,

Atmospheric Sciences Section, Committee on Biogeochemistry, chair
 International Geosphere Biosphere Program (IGBP), Coordinating Panel on Terrestrial
 Biosphere-Atmospheric Chemistry Interactions, member, P. Crutzen, chair
 International Global Atmospheric Chemistry Program (IGAC), member, Steering
 Committee, Convener, HESS (High Latitude Ecosystems as Sources and Sinks of Trace
 Gases) activity
 U.S.-U.S.S.R. Environmental Agreement, Working Group VIII-Influence of Environmental
 Changes on Climate, Atmospheric Composition- High Latitude Methane Fluxes, member
 ARCSS (Arctic System Science) Land/Air/Ice Interactions (LAI) Program, organizing
 committee member, M. Meier, chair
 SCOR Working Group 86-Ecology of Sea Ice Biota, group member, S. F. Ackley, chair
 ARCUS (Arctic Research Consortium of the United States), treasurer, 1991-1992
 U. S. Geological Survey Global Change Research Program, Review Panel member
 International Symposium on Environmental Biogeochemistry (ISEB), member, Executive
 Board, 1991-1994, International Committee, 1991-1997
 North Pacific Marine Science Organization (PICES), member, Scientific Committee on
 Environmental Quality, 1992-1995
 Editorial Board, *Global Biogeochemical Cycles*, 1993-1995
 Editorial Board (interim) *Global Biogeochemical Cycles*, 3/97-12/97
 Editor, *Global Biogeochemical Cycles*, 1998-2001, 2002- 4/2004.
 Editorial Advisory Board, *Geobiology*, 2002-2005.
 Washington State University – Vancouver, Advisory Board, Science Program, 2003-2005.
 NAS/NRC) Committee to Review DOE's Activities under the Methane Hydrate
 Research and Development Act of 2000, 4/03-10/04.
 President-Elect, American Geophysical Union Biogeosciences Section. 7/04-7/06.
 Board of Directors, Marine Conservation Research Institute, Aquarium of the Pacific, 2005-2010
 College of Reviewers, Canada Research Chairs Program, 10/05
 Member, Scientific Advisory Committee, Max-Planck-Institut für Terrestrische-Mikrobiologie,
 Marburg, FRG, 2006-present
 President, American Geophysical Union Biogeosciences Section. 7/06-7/08.
 Associate Editor, *Journal of Geophysical Research – Biogeosciences*, 6/06 – 12/08
 NAS/NRC Committee on the Assessment of DOE's Methane Hydrate Research and Development
 Program: Evaluating Methane Hydrates as a Future Energy Source. 9/08 – 6/10, Chair
 to 8/09.

Awards: Bureau of Commercial Fisheries Fellow, 1962-1964
 Faculty Merit Award, School of Fisheries and Ocean Sciences, 1988
 1988 Editor's Citation for Excellence in Refereeing-*Global Biogeochemical Cycles*
 1998-9 Citation for Outstanding Contributions to Undergraduate Education, School of Physical
 Sciences, University of California Irvine
 2001 Fellow, American Geophysical Union
 2007 Fellow, American Academy of Microbiology
 2009 Fellow, American Association for the Advancement of Science

University Service: University of Alaska, Fairbanks
 UAF University Assembly, 1970-71, 1983-85
 UAF Program on Oceanography and Ocean Engineering (graduate teaching program), Head
 1971-73; 1975-76
 UAF Promotion Committee, 1977-79
 UAF Tenure Committee, 1980-82
 UAF Advanced Study Council, 1977-82
 UAF College of Environmental Sciences Curriculum Council, 1977
 UAF Resource Problems Fellowship Committee (chair), 1980-83
 IMS Executive Committee, 1978-1983, 1987-1990
 IMS Seward Center Committee, 1982-1990
 UAF Graduate Director, (formed Graduate School) 1983-85.
 UAF Academic Council, 1983-85
 UAF Graduate Program in Marine Sciences and Limnology, Head, 1986-1992
 UAF Graduate Council, 1988-90
 UAF Research Advisory Council, 1989-92
 UAF Center for Global Change and Arctic System Research, Chairman, Science
 Steering Committee, 1990-92

University of California, Irvine
 Principal author, Earth System Science Ph.D. proposal, 1994

Principal author, Earth System Science Department proposal, 1995
 Earth System Science Graduate Coordinator, 1994-9/2000
 UCI Representative Assembly, 1994-1997
 University Corporation for Atmospheric Research UCI Member Representative, 1997-2003
 UCI Graduate Council, 1998-9, chair, School of Engineering Program Review, 1999,
 Chair, Department Earth System Science, 9/2000 – 9/2003
 UCI Graduate Council, 2003-2006, chair, Academic Program Review Subcommittee, 2003-5,
 2004 program reviews: School of Humanities (chair), School of Social Ecology.
 2005 program reviews: Samueli School of Engineering (chair), Bren School of Information
 and Computer Sciences
 2006 program reviews (chair): Merage School of Business, Trevor School of the Arts
 Faculty Senate, Irvine Division, Committee on Privilege and Tenure, 2007-

Teaching
 Experience:

University of Alaska, Fairbanks
 Chemical Oceanography
 Advanced Chemical Oceanography
 Analytical Chemistry
 Physical/Chemical Limnology
 Geochemistry
 Seminars, Special Topics courses

University of California, Irvine
 Undergraduate:
 Physical Environment - Global Sustainability Minor core course
 Marine Biogeochemistry
 Earth System Science Field Methods (w/M. Goulden)
 Freshman seminar - "Extreme Lakes"
 Graduate:
 Earth Systems - Biogeochemistry
 Global Biogeochemical Cycles
 Marine Biogeochemistry

Graduate Students
 Supervised:
 (Present location)

David T. Heggie, M.S., 1973, Dissolved Permanent Gases in Alaskan Aquatic Environments,
(Australian Geological Survey Organisation, Canberra)
 David L. Musgrave, Ph.D., 1983, Penetrative Convection in Sediment, *(Assoc. Professor, Marine
 Science, Univ. of Alaska Fairbanks, retired)*
 David M. Glover, Ph.D., 1985, Processes Controlling Radon-222 and Radium-226 on the
 Southeastern Bering Sea Shelf, *(Sr. Research Specialist, Woods Hole Oceanographic
 Institution)*
 Roy E. Erickson, M.S., 1987, A Sulfate Reduction Rate Time-Series for Skan Bay Sediments.
(Research Associate, Forest Soils Laboratory, University of Alaska Fairbanks)
 Marc J. Alperin, Ph.D., 1988, The Carbon Cycle in an Anoxic Marine Sediment: Concentrations,
 Rates, Isotope Ratios and Diagenetic Models, *(Assoc. Professor, Marine Science, Univ. of
 North Carolina, Chapel Hill)*
 Torben Christensen (field research advisor), Ph.D. 1994, Scott Polar Research Institute,
 Cambridge University, UK, Exchange of Radiatively Active Trace Gases in Tundra
 Environments, with Particular Attention to Methane, *(Assoc. Professor, Plant Ecology, Lund
 University, Sweden)*
 Valerie Barber, M.S. 1995, Comparison of Chamber and ²²²Rn-based Methane and
 Carbon Dioxide Fluxes in Boreal Forest Soils. *(Ph.D., University of Alaska
 Fairbanks, Res. Assoc., Dept of Forest Sciences, University of Alaska Fairbanks)*.
 Shannon K. Regli, M.S. 1996, Earth System Science/Chemistry, University of California, Irvine.
(magnet middle school science teacher, Fullerton, CA).
 Jennifer Y. King, M.S. 1997, Ph.D. 1999, "Effects of Vegetation on Methane Emissions from
 Arctic Tundra Ecosystems" *(Assoc. Professor, Dept. of Geography, Univ. of California Santa
 Barbara)*)
 David L. Valentine, Ph.D. 2000, "Biogeochemistry of hydrogen and methane in anoxic
 environments: Thermodynamic and isotopic studies" *(Professor, Geological Sciences, Univ.
 of California, Santa Barbara)*
 John D. Kessler, M.S. 2003, Ph.D. 2005 (defense 8/26/05), "Studies on Oceanic Methane:
 Concentrations, Stable Isotope Ratios, and Natural Radiocarbon Measurements". *(Asst.
 Professor, Texas A & M University)*

Mary A. Pack, M.S. 2009, Ph.D. 2011, (defense 12/3/09) Development and application of a method to quantify methane oxidation rates using low-levels of $^{14}\text{C-CH}_4$ and accelerator mass spectrometry

Postdoctoral Associates:

Stephen C. Whalen, Ph.D., University of Alaska (Limnology) 1985-1993, (*Assoc. Professor, Environ. Sci. & Engineering, Univ. of North Carolina Chapel Hill*)
 Kenneth A. Sandbeck, Ph.D., University of Washington (Microbiology) 1987-1989 (*Self-employed consultant*)
 JoLynn Butts Carroll, Ph.D., University of South Carolina (Marine Radiochemistry) 1990-1992, (*Akvaplan NIVA, Tromsø, Norway*)
 Kevin Mandernack, Ph.D. University of California San Diego (Marine Biogeochemistry) 12/94-3/96, (*Assoc. Professor, Chemistry, Colorado School of Mines*)
 David L. Valentine, Ph.D. 2000, University of California Irvine (Microbial Biogeochemistry) 5/00-9/00 (*Assoc. Professor, Geological Sciences, Univ. of California, Santa Barbara*)
 Mary A. Pack, Ph.D. 2010, University of California Irvine (Marine Biogeochemistry)

Sabbatical Leaves: 1976-1977 Marine Sciences Research Center, S.U.N.Y. Stony Brook, NY
 1985-1986 Institute of Ecology and Genetics, University of Århus, Denmark; Scripps Institution of Oceanography, La Jolla, CA.
 4-9/1999 Institute of Marine Science, Institute of Arctic Biology, University of Alaska Fairbanks, AK
 7/05 –7/06 In residence, UCI

Publications: (results of 9/1/2011 Cited Reference Search in parentheses)

Reeburgh, W. S. and J. H. Carpenter. 1964. Determination of chlorinity with a differential potentiometric end point. *Limnol. Oceanogr.* **9**:589-591. (2)
 Reeburgh, W. S. 1965. Measurements of the electrical conductivity of sea water. *J. Mar. Res.* **23**:187-199. (12)
 Reeburgh, W. S. 1966. Some implications of the 1940 redefinition of chlorinity. *Deep-Sea Res.* **13**:975-976. (1)
 Reeburgh, W. S. 1967. An improved interstitial water sampler. *Limnol. Oceanogr.* **12**:163-165. (305)
 Reeburgh, W. S. 1968. Determination of gases in sediments. *Environ. Sci. & Technol.* **2**:140-141. (21)
 Reeburgh, W. S. 1969. Observations of gases in Chesapeake Bay sediments. *Limnol. Oceanogr.* **14**:368-375. (70)
 Clasby, R. C., W. S. Reeburgh and V. Alexander. 1972. A close-interval syringe-type sampler. *Limnol. Oceanogr.* **17**:632-633. (5)
 Reeburgh, W. S. 1972. Processes affecting gas distributions in estuarine sediments, pp. 382-398. In Bruce W. Nelson (ed.), G. S. A. Memoir 133, *Environmental Framework of Coastal Plain Estuaries*. (8)
 Heggie, D. T. and W. S. Reeburgh. 1973. Measurements of dissolved permanent gases with a gas density balance detector. *J. Chrom. Sci.* **12**:7-12. (7)
 Reeburgh, W. S. and D. T. Heggie. 1974. Depth distributions of gases in shallow water sediments, pp. 27-45. In I. R. Kaplan (ed.), *Natural Gases in Marine Sediments*, Plenum Press, New York. (25)
 Hood, D. W. and W. S. Reeburgh. 1974. Chemistry of the Bering Sea: an overview, pp. 191-204. In: D. W. Hood and E. J. Kelley (eds.), *Oceanography of the Bering Sea*, Occ. Publ. No. 2, Inst. Mar. Sci., Univ. Alaska, Fairbanks. (-)
 Reeburgh, W. S., R. D. Muench and R. T. Cooney. 1976. Oceanographic conditions during 1973 in Russell Fjord, Alaska. *Estuar. Coast. Mar. Sci.* **4**:129-145. (8)
 Reeburgh, W. S. and M. S. Young. 1976. University of Alaska Radiocarbon Dates I. *Radiocarbon* **18**:1-15. (7)
 Reeburgh, W. S. 1976. Methane consumption in Cariaco Trench waters and sediments. *Earth Planet. Sci. Lett.* **28**:337-344. (225)
 Reeburgh, W. S. and D. T. Heggie. 1977. Microbial methane consumption reactions and their effect on methane distributions in freshwater and marine environments. *Limnol. Oceanogr.* **22**:1-9. (130)
 Iverson, R. L., L. K. Coachman, R. T. Cooney, T. S. English, J. J. Goering, G. J. Hunt, M. C. McCauley, C. P. McRoy, W. S. Reeburgh and T. E. Whitledge. 1979. Ecological significance of fronts in the Southeastern Bering Sea, pp. 437-466. In R. J. Livingstone (ed.), *Ecological Processes in Coastal and Marine Systems*, Plenum Press, New York. (91)
 Reeburgh, W. S. 1980. Anaerobic methane oxidation: Rates and rate depth distributions in Skan Bay sediments. *Earth. Planet. Sci. Lett.* **47**:345-352. (728)

- Reeburgh, W. S. 1981. Methane oxidation in anoxic marine sediments. *AAPG Bulletin - American Association of Petroleum Geologists*. **65**(5):977. (2)
- Reeburgh, W. S. 1982. A major sink and flux control for methane in marine sediments: anaerobic consumption, pp. 203-217. In K. A. Fanning and F. T. Manheim (eds.), *The Dynamic Environment of the Ocean Floor*, D. C. Heath, Lexington, Mass. (37)
- Reeburgh, W. S. and R. E. Erickson. 1982. A "dipstick" sampler for rapid, continuous chemical profiles in sediments. *Limnol. Oceanogr.* **27**:556-559. (9)
- Musgrave, D. L. and W. S. Reeburgh. 1982. Density-driven interstitial water motion in sediments. *Nature* **299**:331-334. (15)
- Reeburgh, W. S. 1983. Rates of biogeochemical processes in anoxic sediments. *Ann. Rev. Earth Planet. Sci.* **11**:269-298. (139)
- Reeburgh, W. S. and M. Springer-Young. 1983. New measurements of sulfate and chlorinity in natural sea ice. *J. Geophys. Res.* **88**(C5):2943-2951. (9)
- Harrison, W. D., D. L. Musgrave and W. S. Reeburgh. 1983. A wave-induced transport process in sediments. *J. Geophys. Res.* **88**(C12):7617-7622. (34)
- Reeburgh, W. S. 1984. Fluxes associated with brine motion in growing sea ice. *Polar Biology* **3**:29-33. (23)
- Alperin, M. J. and W. S. Reeburgh. 1984. Geochemical observations supporting anaerobic methane oxidation, pp. 282-289. In R. Crawford and R. Hanson (eds.), *Microbial Growth on C-1 Compounds*, American Society for Microbiology. (64)
- Shaw, D. G., M. J. Alperin, W. S. Reeburgh, D. J. McIntosh. 1984. Biogeochemistry of acetate in anoxic sediments of Skan Bay, Alaska. *Geochim. Cosmochim. Acta* **48**:1819-1825. (58)
- Alperin, M. J. and W. S. Reeburgh. 1985. Inhibition experiments on anaerobic methane oxidation. *Appl. Environ. Microbiol.* **50**:940-945. (349)
- Whitledge, T. E., W. S. Reeburgh and J. J. Walsh. 1986. Seasonal inorganic nitrogen distributions and dynamics in the southeastern Bering Sea. *Cont. Shelf Res.* (PROBES issue) **5**:109-132. (57)
- Reeburgh, W. S. and G. W. Kipphut. 1986. Chemical distributions and signals in the Gulf of Alaska, its coastal margins and estuaries, pp. 77-91. In D. W. Hood and S. T. Zimmerman (eds.), *The Gulf of Alaska, Physical Environment and Biological Resources*, Minerals Management Service Publ. No. OCS study, MMS 86-0095. (8)
- Glover, D. M. and W. S. Reeburgh. 1987. Radon-222 and Radium-226 in southeastern Bering Sea shelf waters and sediments. *Cont. Shelf Res.* **7**(5):433-456. (12)
- Henrichs, S. M. and W. S. Reeburgh. 1987. Anaerobic mineralization of marine sediment organic matter: Rates and the role of anaerobic processes in the oceanic carbon economy. *Geomicrobiol. J.* **5**(3/4):191-237. (258)
- Alperin, M. J., W. S. Reeburgh and M. J. Whiticar. 1988. Carbon and hydrogen isotope fractionation resulting from anaerobic methane oxidation. *Global Biogeochemical Cycles* **2**:279-288. (123)
- Reeburgh, W. S. and M. J. Alperin. 1988. Studies on anaerobic methane oxidation. pp. 367-375. In: Transport of Carbon and Minerals in Major World Rivers, Lakes and Estuaries, Mitt. Geol. Paläontol. Inst. Hamburg, SCOPE/UNEP Sonderband 68. (9)
- Whalen, S. C. and W. S. Reeburgh. 1988. A methane flux time-series for tundra environments. *Global Biogeochemical Cycles* **2**(4):399-409. (139)
- Murray, J. W., H. W. Jannasch, S. Honjo, R. F. Anderson, W. S. Reeburgh, Z. Top, G. E. Friederich, L. A. Codispoti and E. Izdar. 1989. Unexpected changes in the oxic/anoxic interface in the Black Sea. *Nature* **338**:411-413. (189)
- Ivanov, M. V., A. Yu. Lein, W. S. Reeburgh, and G. W. Skyring. 1989. Interaction of Sulphur and Carbon Cycles in Marine Sediments, pp. 125 -159. In P. Brimblecombe and A. Yu. Lein (eds.), *Evolution of the Global Biogeochemical Sulphur Cycle*. SCOPE 39, Wiley, New York. (21)
- Sandbeck, K. A. and W. S. Reeburgh. 1989. Microbiological preparation of ³H-labelled methane. *J. Labelled Compounds and Radiopharmaceuticals* **27**:1285-1291. (2)
- Whalen, S. C. and W. S. Reeburgh. 1990. A methane flux transect along the Trans-Alaska Pipeline Haul Road. *Tellus* **42B**:237-249. (86)
- Whalen, S. C. and W. S. Reeburgh. 1990. Consumption of atmospheric methane by tundra soils. *Nature* **346**:160-162. (190)
- Whalen, S. C., W. S. Reeburgh and K. A. Sandbeck. 1990. Rapid methane oxidation in a landfill cover soil. *Appl. Environ. Microbiol.* **56**:3405-3411. (280)
- Whalen, S. C., W. S. Reeburgh and K. S. Kizer. 1991. Methane consumption and emission from taiga sites. *Global Biogeochemical Cycles* **5**:261-274. (96)
- Reeburgh, W. S., B. B. Ward, S. C. Whalen, K. A. Sandbeck, K. A. Kilpatrick and L. J. Kerkhof. 1991. Black Sea methane geochemistry. *Deep-Sea Res.* **38**:S1189-S1210. (88)
- Reeburgh, W. S. and D. L. Nebert. 1992. Oceanographic observations during the 1986

- damming of Russell Fjord by the Hubbard Glacier. In: Interactions of Biogeochemical Cycles in Aqueous Systems, part 7, Mitt. Geol. Paläont. Inst. Univ. Hamburg **72**:251-262. (1)
- Whalen, S. C. and W. S. Reeburgh. 1992. Interannual variations in tundra methane flux: A 4-year time series at fixed sites. *Global Biogeochemical Cycles* **6**:139-160. (126)
- Whalen, S. C., W. S. Reeburgh and V. Barber. 1992. Oxidation of methane in boreal forest soils: a comparison of seven measures. *Biogeochemistry* **16**:181-211. (91)
- Alperin, M. J., W. S. Reeburgh, and A. H. Devol. 1992. Organic carbon remineralization and preservation in sediments of Skan Bay, Alaska. pp. 99-122. In J. K. Whelan and J. Farrington (eds.) *Organic Matter: Productivity, Accumulation, and Preservation in Recent and Ancient Sediments*, (John Hunt Festschrift), Columbia University Press. (22)
- Horner, R., S. F. Ackley, G. S. Dieckmann, B. Gulliksen, T. Hoshiai, L. Legendre, I. A. Melnikov, W. S. Reeburgh, M. Spindler and C. W. Sullivan. 1992. Ecology of sea ice biota. 1. Habitat, terminology and methodology. *Polar Biology* **12**:417-427. (135)
- Legendre, L., S. F. Ackley, G. S. Dieckmann, B. Gulliksen, R. Horner, T. Hoshiai, I. A. Melnikov, W. S. Reeburgh, M. Spindler and C. W. Sullivan. 1992. Ecology of sea ice biota. 2. Global significance. *Polar Biology* **12**:429-444. (178)
- Reeburgh, W. S. and S. C. Whalen. 1992. High latitude ecosystems as CH₄ sources. *Ecol. Bull. (Copenhagen)* **42**: 62-70. (17)
- Reeburgh, W. S., S. C. Whalen and M. J. Alperin. 1993. The role of methylo-trophy in the global methane budget. pp. 1-14. In J. C. Murrell and D. P. Kelly (eds.) *Microbial Growth on C-1 Compounds*, Intercept, Andover, UK. (163)
- Sugai, S. F., M. J. Alperin, and W. S. Reeburgh. 1994. Episodic deposition and ¹³⁷Cs immobility in Skan Bay sediments: a ten-year ²¹⁰Pb and ¹³⁷Cs time series. In: M. I. Scranton (ed.), *Variability in Anoxic Systems*. *Mar. Geol.* **116**:351-372. (28)
- Reeburgh, W. S., N. T. Roulet, and B. H. Svensson. 1994. Terrestrial Biosphere-Atmosphere Exchanges at High Latitudes. pp. 165-178. In R. G. Prinn (ed.), *Global Atmospheric-Biospheric Chemistry*, Plenum, New York. (20)
- Reeburgh, W. S. 1995. Processes that control storage of nonliving organic matter in aquatic environments, pp. 257-274. In R. G. Zepp and C. Sonntag (eds.), *The Role of Non-living Organic Matter in the Earth's Carbon Cycle*, Wiley & Sons Ltd., Chichester. (1)
- Whalen, S. C., W. S. Reeburgh, and C. E. Reimers. 1995. Control of tundra methane emission by microbial oxidation. pp. 257-274. In J. F. Reynolds and J. D. Tenhunen (eds.), *Landscape Function: Implications for Ecosystem Response to Disturbance. A Case Study in Arctic tundra*, Springer-Verlag, New York. (17)
- Weller, G., F. S. Chapin, K. R. Everett, J. E. Hobbie, D. Kane, W. C. Oechel, C. L. Ping, W. S. Reeburgh, D. Walker and J. Walsh. 1995. The Arctic Flux Study: a regional view of trace gas release. *J. Biogeography* **22**:365-374. (66)
- Reeburgh, W. S. 1996. "Soft Spots" in the global methane budget. pp. 334-342. In M. E. Lidstrom and F. R. Tabita (eds.) *8th International Symposium on Microbial Growth on C-1 Compounds*, Kluwer, Dordrecht. (83)
- Whalen, S. C. and W. S. Reeburgh. 1996. Moisture, temperature and nitrogen sensitivity of CH₄ oxidation in boreal soils. *Soil Biology and Biochemistry* **28**:1271-1281. (75)
- Reeburgh, W. S. 1997. Figures Summarizing the Global Cycles of Biogeochemically Important Elements. *Bull. Ecol. Society of America* **78**(4):260-267. (10)
- On-line: <http://www.ess.uci.edu/~reeburgh/figures.html>. (8768 hits 2/06 - 4/07)
- Reeburgh, W. S., A. I. Hirsch, F. J. Sansone, B. N. Popp and T. M. Rust. 1997. Carbon kinetic isotope effect accompanying microbial oxidation of methane in boreal forest soils. *Geochim. Cosmochim. Acta* **61**(22):4761-4767. (44)
- Kane, D. L. and W. S. Reeburgh. 1998. Introduction to Special Section: Land-Air-Ice Interactions (LAI) Flux Study. *J. Geophys. Res.* **103**(D22): 28913-28915. (15)
- Walker, D. A., J. Bockheim, F. S. Chapin III, W. Eugster, J. King, J. McFadden, G. J. Michaelson, F. E. Nelson, W. C. Oechel, C. L. Ping, W. S. Reeburgh, S. K. Regli, N. I. Shiklomanov and G. L. Vourlitis. 1998. A major arctic soil pH boundary: Implications for energy and trace-gas fluxes. *Nature* **394**:469-472. (90)
- Reeburgh, W. S., J. Y. King, S. K. Regli, G. Kling, N. A. Auerbach and D. A. Walker. 1998. A CH₄ emission estimate for the Kuparuk River basin. *J. Geophys. Res.* **103** D22:29005-29013. (39)
- King, J. Y., S. K. Regli and W. S. Reeburgh. 1998. Methane emission and plant gas transport by arctic sedges in Alaska: results of vegetation manipulation site measurements. *J. Geophys. Res.* **103** D22:29083-29092. (1998) (42)
- Valentine, D. L., W. S. Reeburgh, and D. C. Blanton. 2000. A culture apparatus for maintaining H₂ at sub-nanomolar concentrations. *J. Microbial Methods* **39**:243-251. (14)

- Whalen, S. C., and W. S. Reeburgh. 2000. Effect of nitrogen fertilization on atmospheric methane oxidation in boreal forest soils. *Chemosphere - Global Change Science* **2**:151-155. (5)
- Whalen, S. C., and W. S. Reeburgh. 2000. Methane oxidation, production, and emission at contrasting sites in a boreal bog. *Geomicrobiol. J.* **17**:237-251. (30)
- Valentine, D. L. and W. S. Reeburgh. 2000. New perspectives on anaerobic methane oxidation. *Environmental Microbiology* **2**:477-484. (171)
- Valentine, D. L., D. C. Blanton, and W. S. Reeburgh, 2000. Hydrogen production by methanogens under low-hydrogen conditions. *Arch. Microbiology*, **174**:415-421. (20)
- Valentine, D. L., D. C. Blanton, W. S. Reeburgh and M. Kastner, 2001. Water column methane oxidation adjacent to an area of active hydrate dissociation, Eel River Basin. *Geochim. Cosmochim. Acta* **65**:2633-2640. (92)
- Whalen, S. C. and W. S. Reeburgh, 2001. Carbon monoxide consumption in upland boreal forest soils. *Soil Biology and Biochemistry* **33**:1329-1338. (4)
- King, J. Y. and W. S. Reeburgh. 2001. A pulse labeling experiment to determine the contribution of recent plant photosynthates to net methane emission from arctic wet sedge tundra. *Soil Biology and Biochemistry* **34**:173-180. (43)
- King, J. Y. W. S. Reeburgh, K. K. Thieler, G. W. Kling, W. M. Loya, L. C. Johnson and K. J. Nadelhoffer. 2002 Pulse-labeling studies of carbon cycling in Arctic tundra ecosystems: The contribution of photosynthates to methane emission. *Global Biogeochemical Cycles* doi: 10.1029/2001GB001456, 22 October 2002. (20)
- Loya, W. M., L. C. Johnson, G. W. Kling, J. Y. King, W. S. Reeburgh, and K. J. Nadelhoffer 2002. Pulse-labeling studies of carbon cycling in Arctic tundra ecosystems: The contribution of photosynthates to soil organic matter. *Global Biogeochemical Cycles* doi:10.1029/2001GB001464, 22 October 2002. (8)
- Reeburgh, W. S. (2003) Global Methane Biogeochemistry, pp. 65 - 89. In *The Atmosphere* (ed. R. F. Keeling) Vol. 4 *Treatise on Geochemistry* (eds, K. K. Turekian and H. D. Holland), Elsevier-Pergamon, Oxford. (82)
- Valentine, D. L., A. Chidthaisong, A. Rice., W. S. Reeburgh, and S. C. Tyler. 2004. Carbon and hydrogen isotope fractionation by moderately-thermophilic methanogens. *Geochim. Cosmochim. Acta* **68**:1571-1590. (72)
- Kessler, J. D., W. S. Reeburgh, J. Southon, R. Varela. 2005. Fossil methane source dominates Cariaco Basin water column methane geochemistry. *Geophys. Res. Lett.* **32**, L12609, doi:10.1029/2005GL022984, 2005. (8)
- Kessler, J. D. and W. S. Reeburgh. 2005. Preparation of natural methane samples for stable isotope and radiocarbon analysis. *Limnology and Oceanography Methods* **3**: 408-418. (7)
- Kessler, J. D., W. S. Reeburgh, J. Southon, R. Seifert, W. Michaelis, and S. C. Tyler. Basin-wide estimates of seep and hydrate methane input to the Black Sea. 2006. *Earth Planet. Sci. Lett.* **243**:366-375. (26)
- Reeburgh, W. S., S. C. Tyler, and J. Carroll. 2006. Stable carbon and hydrogen isotope measurements on Black Sea methane. *Deep-Sea Res. II* **53**, 1893-1900. (6)
- doi:10.1016/j.dsr2.2006.03.018
- Kessler, J. D., W. S. Reeburgh, and S. C. Tyler. 2006. Controls on Water Column Methane Concentration and Stable Isotope ($\delta^2\text{H-CH}_4$ and $\delta^{13}\text{C-CH}_4$) Distributions in the Black Sea and Cariaco Basin. 2006. *Global Biogeochemical Cycles* **20** doi:10.1029/2005GB002571. (12)
- Reeburgh, W. S. 2007. Global Methane Biogeochemistry, Holland, H. D., and Turekian K. K. (eds.) *Treatise on Geochemistry Update 1*. Vol **4.03**, pp. 1-32, Oxford: Elsevier Ltd. Online update only. <http://www.sciencedirect.com/science/referenceworks/9780080437511>
- Reeburgh, W. S. 2007. Oceanic Methane Biogeochemistry, *Chemical Reviews* **107**(2), 486-513, doi: 10.1021/cr050362v (Thematic issue on Chemical Oceanography, published on web 1/30/2007, http://pubs3.acs.org/acs/journals/doilookup?in_doi=10.1021/cr050362v (117)
- Zhuang, Q., Reeburgh, W. S. (2008) Introduction to special section on Synthesis of Recent Terrestrial Methane Emission Studies, *J. Geophys. Res. Biogeosciences*, **113** G00A02 (1)
- Kessler, J. D., W. S. Reeburgh, D. L. Valentine, E. T. Peltzer, P. G. Brewer, J. Southon, S. Tyler (2008) A survey of methane isotope abundance (^{14}C , ^{13}C , ^2H) from five nearshore marine basins reveals unusual radiocarbon levels in subsurface waters. *J. Geophys. Res. Oceans*. **113**(C12) C12021 (5)
- Pape, T., Bahr, A., Rethemeyer, J., Kessler, J. D., Sahling, H., Klapp, S. A., Reeburgh, W. S., Hinrichs, K.-U., Bohrmann, G. 2010 Molecular and isotopic partitioning of low-molecular weight hydrocarbons during migration and gas hydrate precipitation in deposits of a high-flux seepage site. *Chemical Geology* **269**:350-363 (6)
- Pack, M., Heintz, M., Reeburgh, W. S., Trumbore, S. E., Valentine, D. L., Xu, X. 2010 Methane oxidation rates by AMS. *Geochim. Cosmochim. Acta* **73**:A983. (-)

- Crowe, S. A., Katsev, S., Leslie, K., Sturm, A., Magen, C., Nomosatryo, S., Reeburgh, W., Roberts, J. A., Gonzalez, L. Mucci, A., Sundby, B., Fowle, D. A. 2010 The Methane Cycle in Ferruginous, Tropical Lake Matano: Methanogenesis, *Geobiology*, DOI: 10.1111/j.1472-4669.2010.00257. (1)
- Pasche, N., Schmid, M., Vasquez, F., Schubert, C., Wüest, A., Kessler, J., Pack, M., Reeburgh W., Bürgmann H. Methane Sources and Sinks in Lake Kivu, *JGR-B* **116**, article G03006, DOI:10.1029/2011JG001690
- Pack, M. A., Heintz, M. B., Reeburgh, W. S. Trumbore, S. E., Valentine, D. L., Xu, X., Druffel, E. R. M. A method for measuring methane oxidation rates using low-levels of ^{14}C labeled methane and accelerator mass spectrometry *Limnology and Oceanography Methods* **9**:245-260. DOI:10.4319/lom.2011.9.245

Total citations: 5100, average/paper: 60.71, h-index: 34

In Preparation:

- Pack, M. A., Heintz, M. B. Reeburgh, W. S. Trumbore, S. E., Valentine, D. L., Xu, X., Druffel, E. R. M. Methane oxidation in the Eastern Tropical North Pacific water column (in preparation)
- Pack, M. A., Heintz, M. B. Reeburgh, W. S. Trumbore, S. E., Valentine, D. L., Xu, X., Druffel, E. R. M. A relationship between methane oxidation rate and dissolved oxygen concentration in low-oxygen regions of the Eastern Tropical North Pacific (in preparation)
- Kessler, J. D., W. S. Reeburgh and others. Preferred Procedure for Measurements of dissolved Methane. *Limnology and Oceanography Methods*.
- Kessler, J. D., W. S. Reeburgh. Insights into the global and ocean methane budgets from measurements of ^{14}C - CH_4 in ocean water column, sediment and seep samples.
- Reeburgh, W. S., V. A. Barber, and S. C. Whalen. A comparison of chamber and ^{222}Rn -Transport-corrected methane and carbon dioxide flux measurements in boreal forest soils. *Global Biogeochemical Cycles*.

Reports, Reviews, etc.:

- Muench, R. D., W. S. Reeburgh, and R. T. Cooney. 1974. Oceanographic Data from Russell Fjord, Alaska, Summer, 1973. Data Report, Inst. Mar. Sci., Univ. of Alaska, Fairbanks, 71 pp.
- Park, P. K., W. S. Broecker, T. Takahashi and W. S. Reeburgh. 1975. GEOSECS Bering Sea station: a brief hydrographic report. In: Bering Sea Oceanography: An Update. Inst. Mar. Sci. Rept. 75-2, Univ. Alaska, Fairbanks, pp. 207-244
- Reeburgh, W. S. 1975. Sediment-Water Interactions. In: Bering Sea Oceanography; An Update. Inst. Mar. Sci. Rept. 75-2, Univ. Alaska, Fairbanks, pp. 289-293
- Reeburgh, W. S. 1978. Convective mixing in sediments (p. 188), and Zonation of reactions in sediments (p. 262). In: Biogeochemistry of Estuarine Sediments. Proceedings of a UNESCO/SCOR workshop, Melreux, Belgium, 29 Nov-3 Dec 1976
- Colonell, J. M. and W. S. Reeburgh. 1978. An investigation of certain aspects of marine disposal of crab processing wastes: Dutch Harbor, Alaska. Univ. Alaska Sea Grant Rept. 78-6, 31 pp.
- Reeburgh, W. S. 1980. Anaerobic methane oxidation and its effect on carbon and sulfur cycles. In D. Burton and J. Martin (eds.), UNESCO Review/Workshop on River Inputs to Ocean Systems, Rome, 22-26 March 1979
- Reeburgh, W. S. 1981. Review: Fjord Oceanography, by H. J. Freeland, D. M. Farmer and C. D. Levings, Plenum. Quart. Rev. Biol. 56:219
- Glover, D. M. and W. S. Reeburgh. 1982. Benthic eddy diffusivities and gas exchange rate estimates using radon. PROBES Data Report PDR 82-005, Inst. Mar. Sci., Univ. of Alaska, Fairbanks. 53 pp.
- Reeburgh, W. S. and D. L. Nebert. 1986. Oceanographic observations in glacier-dammed Russell Fjord, Summer/Fall 1986.
- Reeburgh, W. S., D. L. Nebert and L. R. Mayo. 1987. Cover photograph, Hubbard Glacier damming Russell Fjord. EOS 68(7) 2/17/87.
- Rosswall, T., F. Bak, D. Baldocci, R. Cicerone, R. Conrad, D. Ehhalt, M. Firestone, I. Galbally, V. Galchenko, P. Groffman, H. Papen, W. Reeburgh and E. Sanhueza. 1989. Group Report: What regulates production and consumption of trace gases in ecosystems: biology or physicochemistry? pp. 73-95. In: *Exchange of Trace Gases Between Terrestrial Ecosystems and the Atmosphere*, M. O. Andreae and D. S. Schimel (eds.), John Wiley and Sons, Ltd.
- Wada, E., J. A. Lee, M. Kimura, I. Koike, W. S. Reeburgh, J. G. Tundisi, T. Yoshinari, T. Yoshioka, M. I. van Vuuren. 1991. Gas Exchange in Ecosystems: Framework and Case Studies. *Japan J. Limnol.* **52**:263-281

- Reeburgh, W. S. and S. C. Whalen. 1991. The role of tundra and taiga systems in the global methane budget, p. 370, In: Proceedings, Vol. II, International Conference on the Role of Polar Regions in Global Change, 11-15 June, 1991, Fairbanks
- Reeburgh, W. S. 1992. Report on ISEB-10, ASM News, 58(6):310-311.
- Reeburgh, W. S., Report on ISEB-10, Geomicrobiol. J.
- Roulet, N. T. and W. S. Reeburgh. 1993. Formation and consumption of methane: working group report, pp. 128-137, In: Atmospheric Methane: Sources, Sinks and Role in Global Change, M. A. K. Khalil (ed.) NATO ASI series, Springer-Verlag, New York.
- Davidson, E., G. Ågren, O. Daniel, K.-C. Emeis, C. Largeau, C. Lee, K. Mopper, J. Oades, W. Reeburgh, D. Schimel, R. Zepp. 1995. What are the physical, chemical, and biological processes that control the formation and degradation of nonliving organic matter? Group report. pp. 305-324. In: R. G. Zepp and C. Sonntag (eds.), *The Role of Non-Living Organic Matter in the Earth's Carbon Cycle*, Wiley-Interscience, Chichester.
- Reeburgh, W. S. 1996. Book Review: *Global Environment: Water, Air and Geochemical Cycles*, by E. K. Berner and R. A. Berner, *EOS, Transactions of the American Geophysical Union* 77(29):276.
- Reeburgh, W. S., and P. M. Crill. 1996. Global Methane Budget Studies. *IGACTivities*, issue 6, September, 1996.
- Reeburgh, W. S. 2001. Editorial. *Global Biogeochemical Cycles* 15 (1):1-2.
- Kvenvolden, K. A., T. D. Lorenson, and W. S. Reeburgh. 2001. Attention turns to naturally occurring methane seepage. *EOS* 82(40):457 (10/2/01).
- Kessler, J. W. Reeburgh, J. Southon, S. Tyler. 2003. Natural radiocarbon in Black Sea water column methane: A tracer of hydrate-derived methane? EGS/AGU/EUG Abstracts, 5, 12216, Apr 6 – 11, Nice, France.
- Reeburgh, W. S. 2003. Editorial. *Global Biogeochemical Cycles* 17(4) DOI: 10.1029/2003GB002188, 2003.
- Charting the Future of Methane Hydrate Research in the United States, National Academies Press, 2004, Report of National Research Council (NRC) Committee to Review Activities under the Methane Hydrate Development Act of 2000.
- Ferment in the Global Methane Cycle: Emerging Perspectives from Recent Studies. Article for Fall, 2006, "Windswept", Mt. Washington (NH) Observatory Newsletter.
- Realizing the Energy Potential of Methane Hydrate for the United States, National Academies Press, 2010, Report of National Research Council (NRC) Committee on Assessment of the Department of Energy's Methane Hydrate Research and Development Program, Evaluating Methane Hydrate as a Future Energy Resource.

Shipboard & Field	1959	R/V Hidalgo, Gulf of Mexico
Experience:	1961-1968	R/V Maury, R/V Ridgeley Warfield, Chesapeake Bay
(*chief scientist)	1962, 1963	R/V Panulirus, M/V Abedufduf, Bermuda coastal waters
	1969	R/V Ursa Minor, Southeast Alaska
	1970	R/V Acona cruise 097, Glacier Bay, Alaska
	1971	R/V Acona cruise 103, Bering Sea
	1972	R/V Acona cruise 140*, Prince William Sound
	1972	R/V Acona cruise 200*, Gulf of Alaska
	1973	T-3 (Fletcher's Ice Island) cruise 706, Arctic Ocean
	1973	Zodiac, light aircraft operations, 4/21-4/27, 6/30-7/7, Russell Fjord
	1973	R/V Melville (GEOSECS Pacific Leg 3), 10/7-10/26, North Pacific (Adak-Tokyo)
	1974	R/V Trident cruise TR-147, 2/7-2/14, Cariaco Trench
	1975	Lake Iliamna, Augustine volcano ashfall study
	1977	R/V Acona cruise 250*, 9/13-9/30, Skan Bay
	1977	R/V Acona cruise 251*, 10/1-10/18, Bering Sea
	1978	R/V T. G. Thompson PROBES 78 Leg 1, 4/8-5/1, Bering Sea
	1978	R/V Acona cruise 262*, Resurrection Bay
	1978	R/V Acona cruise 265*, 8/18-9/5, Skan Bay, Bering Sea
	1979	R/V Acona cruise 272*, Resurrection Bay
	1979	R/V T. G. Thompson PROBES 79 Leg 2, 5/2-5/22, Bering Sea
	1979	Experimental Lakes Area, Kenora, Ontario, Canada 9/21-9/25
	1979	R/V Ridgeley Warfield*, 10/1-10/3, Chesapeake Bay
	1980	R/V T. G. Thompson PROBES 80 Leg 4*, 5/21-6/12, Bering Sea
	1980	R/V Alpha Helix cruise 007*, 9/15-9/24, Skan Bay
	1980	R/V Alpha Helix cruise 009*, 10/2-10/28, Bering Sea
	1981	R/V T. G. Thompson PROBES 81 Leg 4*, 6/2-7/1, Bering Sea
	1981	R/V Alpha Helix cruise 019*, 9/15-9/24, Skan Bay
	1982	R/V Alpha Helix cruise 028 PROBES finestructure, 6/11-7/6, Bering Sea
	1982	R/V Alpha Helix cruise 034*, 9/8-9/28, Skan Bay

1984	R/V Alpha Helix cruise 062*, 9/5-9/29, Skan Bay
1986	Zodiac, light aircraft operations, 9/15-9/22, Russell Fjord
1987	R/V Alpha Helix, Cruise HX-105*, 9/23-10/14, Skan Bay
1987-2000	Toolik Field Station Arctic Tundra LTER
1988	R/V Knorr, Cruise 134-12*, Methane-Organic Geochem. Leg, 7/13-7/29, Black Sea
1990-2000	Bonanza Creek Experimental Forest Boreal Forest LTER
1990	R/V Alpha Helix, 7/7-7/15, Skan Bay
1996	Biosphere 2 methane flux and oxidation studies, 4/29-5/1, 12/27-1/3
2003	Biosphere 2, 2/20-22.
1998	R/V Pt. Lobos, ROV operations in Santa Barbara Basin, 10/9-11
1999	R/V Melville, Eel River Hydrate Area, 8/15-22
2001	R/V Knorr, Black Sea, 5/19 – 6/15.
2001	R/V Alpha Helix*, Skan Bay, 9/16-10/2.
2003	R/V Alpha Helix cruise 277*, Skan Bay, 8/28-9/10.
2004	B/O Hermano Gines* (Cariaco Basin) 1/22-1/25.

Funded Research:

University of Alaska Fairbanks

Gases in Interstitial Waters as Indicators of Mixing in Sediments, NSF Oceanography GA-19380, 7/1/70-6/30/72, \$53,200.

An Oceanographic Reconnaissance of Russell Fjord, Alaska, w/R. D. Muench, R. T. Cooney, NSF Oceanography GA-35663, 10/1/72-3/31/75. \$64,900.

Studies of Sea Ice Composition, NSF Polar Programs GV-36258, 11/1/72-4/30/74, \$30,200.

Transfer of Dissolved Gases Across the Sediment-Water Interface, NSF Oceanography GA-41209, 12/1/73-11/30/75, \$42,600.

Stable Isotope Tracer Studies on Boron in Natural Waters, NSF OCE 76-02570, 1/1/76-6/30/77, \$42,900.

Kinetic Studies of Methane Consumption in Marine Sediments, NSF OCE 76-08891, 10/15/76-4/30/79, \$44,400, \$59,200.

Equipment for Upgrading Nutrient Analysis Capability, NSF OCE 77-22728, 9/1/78-2/29/80, \$10,930.

Studies of Convective Interstitial Water Replacement in Shallow Water Sediments, NSF OCE 78-20896, 10/1/78-3/30/80, \$58,203.

Continued Studies of Convective Interstitial Water Replacement in Shallow Water Sediments, NSF OCE 80-26046, 3/1/81-8/31/82, \$40,053.

Isotope Studies of the Sulfate-Methane Transition Zone in Marine Sediments, NSF OCE 79-19250, 11/1/79-4/30/81, \$60,672, \$81,505.

PROBES (Processes and Resources of the Bering Sea Shelf), NSF Polar Programs

Nutrient Dynamics and Distributions, Component 2, co-P. I. w/T. E. Whitledge

2/77-2/78 \$113,000

3/78-3/79 \$90,000

1/79-1/80 \$96,185

2/80-2/81 \$19,000

2/81-2/82 \$22,703

2/82-2/83 \$16,287

Benthic Eddy Diffusivities and Gas Exchange Rate Estimates Using Radon, Component 1b,

2/80-2/81 \$66,000

2/81-2/82 \$58,286

2/82-2/83 \$47,043

Jessie Smith Noyes Foundation Graduate Fellowships

11/79-12/80 \$17,905

1/81-12/81 \$18,273

1/82-12/82 \$22,000

1/83-12/83 \$22,000

Isotope Studies of the Sulfate-Methane Transition Zone in Marine Sediments, NSF OCE 81-17882, 1/1/82-1/1/84, \$116,197, \$113,535.

Continued Isotope Studies of the Sulfate-Methane Transition Zone in Marine Sediments. II. W. S. Reebergh, P.I., NSF OCE 84-008674, 1/84-1/86, \$145,197, \$140,247.

Chemical Distributions and Signals in the Gulf of Alaska, its Coastal Margins and Estuaries, Chapter in book, The Gulf of Alaska, Physical Environment and Biological Resources on the Continental Shelf, D. W. Hood, Editor, NOAA Memorandum of Understanding, \$24,814.

Geochemical and Kinetic Studies on Microbial Aerobic Oxidation, a Modulator of Atmospheric Methane Fluxes from Tundra and Marine Environments. W. S. Reebergh, P. I., Code EE NASA, Grant number 2009-IRP-73, 10/85 -1/89, \$126,591, \$161,328, \$134,433.

Geochemical and Microbiological Studies on Anaerobic Methane Oxidation, W. S. Reebergh, P. I., NSF Marine Chemistry OCE 85-19534, 3/86-3/89, \$109,025, \$153,088, \$106,580.

Glacial Damming of Russell Fjord, Alaska: Observations of the Onset of Anoxia, W. S. Reece, P. I., NSF Polar Programs DPP 86-17550, 9/86-12/86, \$18,095.
Interim continuation of Geochemical and Kinetic Studies on Microbial Aerobic Oxidation, a Modulator of Atmospheric Methane Fluxes from Tundra and Marine Environments. NASA, 1/89-3/89, \$33,608.

University of California, Irvine

Processes Controlling Methane and other Trace Gas Fluxes from Tundra and Taiga Ecosystems. NASA, W. S. Reece, P. I., 7/89-7/92 \$174,643, \$155,643, \$153,143.
Continued Geochemical and Microbiological Studies on Anaerobic Methane Oxidation, W. S. Reece, P. I., NSF Marine Chemistry, OCE 89-17653, 3/90-3/94, \$129,172, \$110,683, \$110,529.
Measurements of Integrated Production and Consumption of Radiatively Active Trace Gases in Tundra and Taiga Soils. co-P.I. w/ S. C. Whalen, Environmental Protection Agency, Cooperative Agreement CR-817660-01-2 (RFP no. AERL 9002, 9003), 7/90-7/93, \$142,135, \$138,582, \$138,168.
Sensitivity of tundra methane emissions to water table level: field manipulation experiments at permanent sites. W. S. Reece, P. I., Western Regional Center of the National Institute for Global Environmental Change (NIGEC), 7/1/92-7/1/93, \$97,000, 7/1/94-6/30/95, \$97,000.
Interactions of Arctic Ecosystems with Regional and Global Climate. W. S. Reece, P. I., NSF DPP 92-16138 (ARCSS LAII), 9/92-9/93, \$63,273.
Carbon dioxide and methane fluxes by ecosystem type and the long-term feedback relation ship with the atmosphere: Methane fluxes and controls, NSF DPP, ARCSS/LAII OPP 9318531, 9/93-9/96, 107,254, \$103,757, \$113,672 + 1 yr supplement, \$64,936.
Interdisciplinary Minor in Global Sustainability. Co-P. I. w/P. J. Bryant, P. A. Bowler. NSF Undergraduate Education. 10/94-10/97, \$244,345, 5% effort.
Biosphere 2, Exploratory Grant, Methane Budget Studies, 11/96-11/97, \$7700.
Belowground Carbon Sources and Sinks in Arctic Tundra Systems. co-P.I. w/K. Nadelhoffer, G. Kling, L. Johnson, NSF OPP 9615942, 4/96-5/98, \$68,000, Marine Biological Laboratory subcontract.
Experimental Studies on Hydrogen Biogeochemistry in Anoxic Environments, NSF (LEExEn), MCB-9713967 10/15/97-8/00, 1.5 mo/yr. \$85,794, \$81,477, \$112,729.
Isotope studies of methane sources in large anoxic marine basins. NSF/OCE 00969280, 1 mo/yr, \$117,121, \$88,663, 1/15/01 – 1/14/03.
LEExEn: Integrated Biogeochemical and Microbiological Studies of Cold, Anoxic Environments. w/David Valentine, UC Santa Barbara, and David Boone, Portland State Univ., 10/1/00-9/30/03, 1 mo/yr. \$181,281, \$150,474, \$232,741.
Discrimination of hydrate and diagenetic methane inputs to the ocean with measurements of natural $^{14}\text{CH}_4$ NSF/OCE proposal no. 0326928, 1.5 mo/yr, \$155,456, \$111,401, \$102,12, 9/15/03 – 9/14/06.
Gas Hydrates: from fundamental theory to hydrogen transport, w/K. Janda, V. Apkarian, K. Jordan, S. Llewellyn-Smith NSF/CHE proposal no. 0404743 (7/01/04 - 7/01/09), \$2.8 M, 1 mo/yr.
Methane Oxidation Rates by AMS: Use of low-level $^{14}\text{C-CH}_4$ and Accelerator Mass Spectrometry to Determine Rates of Water Column Aerobic and Anaerobic Methane Oxidation, w/S. Trumbore, NSF-OCE 0622759, 2 yrs, starting 3/15/07, 1.5 month/yr., \$201,906, \$163,054.

For resubmission

Does Methane in the Deep Oxidic Ocean have a Fossil Origin? Measurements of Natural $^{14}\text{CH}_4$ on Open Ocean Methane. w/S. Trumbore, OCE 0728316, 2 years, starting 10/07, 1.5 month/yr, \$198,651, \$187,947, \$171,142. submitted 2/07, declined 6/07.

Invited Participant:

NASCO *ad hoc* working group on conductivity of seawater studies, 7 February 1967, Baltimore, Maryland, D. W. Pritchard, chairman.
Symposium on Estuaries, Southeastern Section, Geological Society of America, 10-11 April 1969, Columbia, South Carolina, B. W. Nelson, convener.
Conference on Natural Gases in Marine Sediments and their Mode of Distribution, 28-30 November 1972, Lake Arrowhead, California, ONR sponsored, I. R. Kaplan, convener.
Workshop on Bering Sea Oceanography, 24-30 November 1973, Salishan Lodge, Oregon. NSF sponsored, D. W. Hood, convener.
Workshop on Transfer Processes in Continental and Coastal Waters, 23-25 July 1974, Block Island, R. I., NSF sponsored, W. S. Broecker, convener.
NSF/NRC U.S.-Japan Cooperative Seminar in Recent Studies of Bering Sea Oceanography, 7-11 October 1974, Fairbanks, Alaska.
Gordon Conference on Chemical Oceanography, speaker, 4-8 August 1975.
Joint Oceanographic Assembly, 13-24 September 1976, Edinburgh, Scotland, poster session on Benthic Processes and the Geochemistry of Marine Interstitial Waters, F. T. Manheim and K. A. Fanning, conveners.
Workshop on Estuarine Transport Processes, 10-14 November 1976, Stony Brook, New York, J. R. Schubel and H. H. Carter, conveners.

SCOR/UNESCO Workshop on Biogeochemistry of Estuarine Sediments, 29 November -3 December 1976, Melreux, Belgium, E. D. Goldberg, convener.

NSF/IDOE Workshop on Post-1980 Objectives in Chemical Oceanography. Jones Conference Center, University of Rhode Island, 1-3 June 1977, D. R. Kester, convener.

Greenland Ministry workshop on Arctic Oceanography, 23-26 January 1979, Technical University of Denmark, Lyngby.

Review/Workshop on River Inputs to Ocean Systems, SCOR Working Group 46, 22-26 March 1979, Rome.

Workshop on River Interactions with the Oceans, 4-5 June 1979, Essington, Pennsylvania, R. J. Gibbs, convener.

Marginal Ice Zone Program - Chemical Oceanography Steering Committee, Victoria, British Columbia, H. G. Östlund, convener.

International Symposium on Carbon, Nitrogen and Sulfur Cycling in Sediments. Sandbjerg Slot, Denmark, 5-9 May 1980, T. H. Blackburn, convener.

Third International Symposium on Microbial Growth on C-1 Compounds, Sheffield, England, 11-26 August 1980, J. R. Quayle, Chairman.

Invited Speaker, Session on Microbially Mediated Marine Chemistry. American Geophysical Union, San Francisco, 5-10 December 1980, D. M. Karl and R. B. Gagosian, conveners.

Invited Speaker, Session on Methane in Shallow Sediments, AAPG-SEPM meeting, San Francisco, 23-25 June 1981, K. K. Kvenvolden, convener.

Visiting Faculty Member, NASA Planetary Biology and Microbial Ecology course, Santa Clara University, 26 July-6 August 1982, K. H. Nealson, director.

Fourth International Symposium on Microbial Growth on C-1 Compounds. University of Minnesota, 6-10 September 1983, R. S. Hanson, convener, session organizer and speaker.

NOAA Workshop on Gulf of Alaska, Seattle, 22-23 March 1984, D. W. Hood, convener.

SCOPE/UNEP Sulfur Unit Workshop, 28 July -3 August 1984, Tallinn, Estonian S.S.R., M. P. Ivanov and W. Krumbein, conveners, Rapporteur for session on "Interrelations of the Cycles of S, C, N and O in Sulfur-dominated Environments".

NASA workshop on Atmospheric Methane Research Opportunities, Scripps Institution of Oceanography, La Jolla, 30-31 August 1984, R. J. Cicerone, convener.

SCOPE/UNEP Workshop on Carbon and Nutrient Transport in Lakes and Estuaries, Fairbanks, Alaska, 11-16 August 1986, E. T. Degens and A. S. Naidu, conveners.

NASA Global Tropospheric Experiment/Atmospheric Boundary Layer Experiment-3 workshop, Arlington, Virginia, 17-18 December 1986, R. C. Harriss, convener.

American Chemical Society, Division of Geochemistry, Symposium on Atmospheric Methane: Formation and Fluxes from the Biosphere/ Geosphere, R. Oremland, organizer, Denver, Colorado, 5-10 April 1987, Session organizer: Biogeochemistry of Methane Oxidation.

Center for Great Lakes Studies, University of Wisconsin-Milwaukee, Recent Advances in Limnology and Oceanography Lecture Series, guest lecturer, 13-15 April 1987.

ASLO meeting, Session on Microbial Processes in Saturated Sediments, Boulder, 11-15 June 1988, invited speaker.

Office for Interdisciplinary Earth Studies (UCAR), Global Change Institute - Trace Gases and the Biosphere, 7-21 August 1988, Snowmass, Colorado, J. Eddy and B. Moore, conveners.

SCOPE/UNEP Joint Carbon-Sulfur Unit Meeting, Irkutsk, U.S.S.R., M. V. Ivanov and E. T. Degens, conveners, 2-8 September 1988, invited speaker.

Dahlem Workshop: Exchange of Trace Gases Between Terrestrial Ecosystems and the Atmosphere, M. O. Andreae and D. S. Schimel, organizers, Berlin, 19-24 February 1989.

IGBP Coordinating Panel on Terrestrial Biosphere-Atmospheric Chemistry Interactions, P. Crutzen, chairman, 26-28 February 1989.

ASLO meeting, Symposium on Boreal Lakes and Watersheds, Fairbanks, 19-22 June 1989, D. Schindler, chair, invited speaker.

International Symposium on Physiological Ecology of Arctic Plants - Implications for Climate Change, Appleby College, Oakville, Ontario, Canada, 2-6 August, 1989, Toronto, F. S. Chapin and J. Svoboda, conveners, invited speaker.

Gordon Research Conference on Chemical Oceanography, 14-18 August 1989, M. Kastner, chair, discussion leader and speaker.

Symposium on High Latitude Global Change, AAAS Alaska Science Conference, Fairbanks, 14-16 September 1989, Fairbanks, F. S. Williamson, chair, invited speaker.

NATO Advanced Study Workshop on Black Sea Oceanography, 23-27 October, 1989, Çesme-Izmir, Turkey, E. Izdar and J. Murray, conveners, speaker and rapporteur.

SCOPE/IGBP Workshop, Trace Gas Exchange in a Global Perspective, Stockholm, Sweden, 19-23 February 1990, invited speaker.

ARCUS Workshop, Arctic System Science: A Plan for Action, 26 February - 3 March, 1990, Boulder, M. Meier, convener, writing group chairman and speaker.

School of Oceanography, University of Washington, invited seminar, Black Sea Methane Geochemistry, 7 March 1990.

American Society for Microbiology, 1990 annual meeting, Anaheim, CA 13-18 May, 1990, ASM Seminar, Global Climate Change: Methane Cycling, invited speaker, J. E. Rogers, convener.

Department of Energy Meeting on Ocean Margins, Norfolk, 18-20 June 1990, L. P. Atkinson, convener.

National Science Foundation, JGOFS Review Panel, 19 July 1990.

Vth International Congress of Ecology (INTECOL) 23-30 August 1990, Yokohama, invited speaker.

Meeting on Global Environmental Problems, Mitsubishi Kasei Institute of Life Sciences, Tokyo, 30, 31 August 1990, E. Wada, convener, invited speaker.

SCOR Working Group 86, Ecology of Sea Ice Biota, Bremerhaven, 3-7 September 1990.

Internordic Seminar on Methane Exchange Between Ecosystems and the Atmosphere. 11-14 November 1990, Grisslehamn, Sweden, B. Svensson, convener, invited speaker.

Dept. of Geology and Geophysics, Yale University, Global Change Seminar, 4 March 1991, invited

Symposium on Biogeochemistry and Environmental Microbiology, Gray Freshwater Biological Inst., Univ. of Minnesota, 12-13 July, 1991, invited speaker.

10th International Symposium on Environmental Biogeochemistry, National Committee, San Francisco, 18-25 August 1991.

Workshop on Carbon Cycling in Boreal Forest and Sub-Arctic Ecosystems, invited speaker, Corvallis, OR, Sept. 9-12, 1991, T. Vinson, convener.

IGBP, International Global Atmospheric Chemistry Program (IGAC) Meeting on Exchanges of N_2O , CH_4 and CO between Terrestrial Ecosystems and the Atmosphere, Boulder, CO, 23-25 September, 1991.

NATO Advanced Research Workshop, The Atmospheric Methane Cycle: Sources, Sinks and Role in Global Change, discussion group leader, Timberline Lodge, Oregon, 6-11 October 1991, M. A. K. Khalil, director.

National Institute for Global Environmental Change (NIGEC) Conference on Atmospheric Methane, invited speaker, Huntington Beach, California, 5-10 January 1992, F. S. Rowland, convener.

Ocean Sciences Meeting, American Geophysical Union, invited speaker, session on Variability in Anoxic Systems, New Orleans, January 27-31, 1992.

Environmental Protection Agency Workshop on Global Change Research Program, Athens, GA, 24-26 February, 1992, R. Zepp, convener.

Dept. of Microbiology, McGill Univ., Ste. Anne de Bellevue, invited seminar, 15 May 1992.

Gordon Research Conference, Environmental Science -Water, New Hampton School, J. Schnoor and M. Lidstrom, chairs. June 15-19, 1992. invited speaker.

Seventh International Symposium on Microbial Growth on C-1 Compounds, invited speaker, 15-20 August 1992, Warwick, England, H. Dalton, chairman.

IGAC/MAB Workshop: Building a Network of Networks: Trace gas flux measurements at North American sites, 26-30 September 1992, Pingree Park Field Station, CO, A. Mosier, convener.

ARCSS/LAII Flux Study workshop, Seattle, WA, 16-17 January 1993.

EPA All-Investigators Meeting, Athens, GA, 16-18 March 1993.

First IGAC Scientific Conference, Global Atmospheric-Biospheric Chemistry, Eilat, Israel, 18-22 April 1993, invited paper.

Dahlem Conference, The Role of Non-Living Organic Matter (N-L OM) in the Global Carbon Cycle, Berlin, 12-17 September 1993, invited discussion paper.

University of Saskatchewan, Dept. of Soil Science, invited seminar, March 1, 1994.

BAHC-IGAC-GCTE Task Team Meeting on IGBP Siberian Transect/Land Surface Experiment, Stockholm, 2-4 November 1994.

University of Copenhagen, Botanical Institute, invited seminar, 7 November 1994.

WESTGEC review Panel, Davis, CA, 12 Jan 1995.

DOE Ocean Margins Program Review Panel, 2-3 February 1995.

Seminar, Dept. of Biology, Global Change Research Group, San Diego State Univ., 24 April 1995.

Eighth International Symposium on Microbial Growth on C-1 Compounds, invited speaker, San Diego, CA 27 Aug to 1 Sept 1995. M. Lidstrom, chair.

ARCSS/LAII Flux Study Workshop, Seattle, WA 16-18 November 1995.

NAS Colloquium on Carbon Dioxide and Climate Change, Beckman Center, Irvine, CA, 13-15 November 1995.

Seminar, Scripps Institution of Oceanography, Univ. of California San Diego, 8 March 1996.

Seminar, Marine Studies Board, Univ. of California Santa Cruz, 5 May 1996.

NASA Pale Blue Dot Workshop, Spectroscopic Search for Life on Extrasolar Planets, invited speaker, NASA Ames Research Center, 27-28 June 1996, D. DesMarais, convener.

Keck Geology Consortium Workshop, Pomona College and UCI, 17-19 October 1996.

Fall 1996 Meeting, American Geophysical Union, co-chair w/D. Kane, Special session on Trace Gas Emissions from Arctic Systems, 14-19 December 1996.

National Science Education Standards: Impact on Postsecondary Education, Beckman Center, Irvine, CA March 7, 1997.

ARCSS/LAII Flux Study Workshop, 26-29 March 1997, Seattle, WA.

Arctic and Boreal Processes that Feedback to Climate: Extrapolation and Synthesis, A workshop on vegetation change, energy exchange, and trace gas fluxes. National Center for Ecological Analysis and Synthesis, Santa Barbara, 10-13 April 1997, F. S. Chapin, convener.

USRA Earth System Science Education meeting, Biosphere 2, Oracle, AZ, 18-22 May 1997.

LAII Flux Study Synthesis Workshop, 22-29 June 1997, Orcas Island, WA.

TRAGNET trace gas synthesis workshop, National Center for Ecological Analysis and Synthesis, Santa Barbara, CA, 2-6 December 1997, 26-27 May 1998.

Seminar, Monterey Bay Aquarium Research Institute, 13 January 1999.

Seminar, Geology Department, Washington State University Vancouver, 15 October, 1999.

Invited Speaker, Environmental and Climate Change Forum, Lund University, 15-19 May 2000.

Speaker, The Goering Symposium, 16-18 August 2000, Fairbanks, AK

Seminar, Department of Biology, Portland State University, 16 November 2000.

Seminar, Department of Geology, Portland State University, 16 November 2000.

Seminar, Dept of Geology, University of Southern California, 26 February 2001.

Co-Convener (w/K. Kvenvolden) USGS Workshop on Fossil Methane Seepage, 2-4 May 2001, Portland, OR

Distinguished Lecturer, Program in Atmospheric and Oceanic Sciences, University of Colorado, Boulder, 24 April, 2002.

NSF/MESH Workshop, Methane and Past Climate Change, July 22-23, 2002, Arlington, VA, G. Dickens, J. Zachos, convenors.

NATO ASI, The Ocean Carbon Cycle and Climate, 5-16 August 2002, Middle East Technical University (METU) Ankara, Turkey, M. Fellows and T. Oguz, organizers.

North American Carbon Program Methane Workshop, Durham, NH, Sept 10-12, 2002, P. Crill and M. Keller, convenors.

Pomona College, Environmental Analysis Program Inaugural, "Interdisciplinary Science", October 10, 2002.

Physical Sciences Breakfast talk, "Galloping Glaciers and Geochemical Buckets", Jan. 29, 2003.

Lecture, Academy for Lifelong Learning, "The Global Methane Cycle", Mar 6, 2003

American Society for Microbiology, 103rd General Meeting, May 18 – 22, 2003, Invited talk: The Role of Methane Oxidation in the Global Methane Cycle.

NATO Advanced Research Workshop, "Past and Present Water Column Anoxia", 4-8 Oct, 2003, Crimea, Ukraine, B. B. Jørgensen and L. Neretin, convenors.

Workshop on Drilling in the Black, Marmara, and Aegean Seas, SUNY Stony Brook, Oct 21, 22, 2003, R. Flood and L. Giosan, convenors.

Member, NAS/NRC Committee to Review the Activities Authorized under the Methane Hydrate Research and Development Act of 2000, Meetings: 9/2-3/03, D. C.; 10/28/03, Houston, TX.; 1/5-7/04, La Jolla, CA, 4/25-27/04, Irvine, CA.

Seminar, Studies on Methane Geochemistry in the Cariaco Basin, 1974 to Present, Instituto Venezolano de Investigaciones Cientificas (IVIC) Caracas, Jan. 19, 2004. Dr. Tibisay Perez, host

Seminar, Studies on Methane Geochemistry in the Cariaco Basin, 1974 to Present, Fundacion La Salle de Ciencias Naturales (FLASA), Estacion de Investigaciones Marinas de Margarita (EDIMAR), Punta de Piedras, Isla de Margarita, Venezuela, Jan 26, 2004. Dr. Ramon Varela, host.

NOAA/CMDL (Climate diagnostics and Modeling Laboratory) Hydrates and Climate Workshop, May 13-14, 2004, Boulder, CO

Gordon Conference on Molecular Basis of Microbial One-Carbon Metabolism, Mt. Holyoke College, Aug 1 - 6, 2004. Invited speaker, session on anaerobic methane oxidation.

Seminar at E. D. Sloan Lab, Center for Hydrate Studies, Colorado School of Mines, Golden, CO, "Geochemical Milestones in the Study of Anaerobic Methane Oxidation", 10/19/04

NSF Chemical Oceanography Panel, 11/15 - 11/19/04.

Lecturer: Mysteries of Water Summer Institute, UCI, 7/05

Invited speaker, International Union of Microbiological Societies, Symposium on Anaerobic Oxidation of Methane, San Francisco, July 23-28, 2005.

Seminar, U. S. Geological Survey, Menlo Park, CA Controls on Water Column Methane Concentration and Stable Isotope ($\delta^2\text{H-CH}_4$ and $\delta^{13}\text{C-CH}_4$) Distributions in the Black Sea and Cariaco Basin, July 29, 2005.

Osher Program in Earth System Science, seminar, Geochemical Studies in Ocean Basins that Contain No Oxygen. 11/4/05

Invited Speaker, American Chemical Society Western Regional Meeting, Orange, CA, Approaches to Estimating the Clathrate-Derived Methane Flux to the Ocean, January 23, 2006.

Participant, Workshop: Toward an adequate quantification of CH_4 emissions from land ecosystems: Integrating field and in-situ observations, satellite data, and modeling, C. Zhuang, convener, NCEAS, Santa Barbara, CA, 3/13,14/2006, 3/15,16/2007, 3/13,14/2008. Coordinator, special section in *J. Geophys. Res. Biogeosciences*.

External Reviewer, proposed B.Sc. major in Earth System Science, McGill University, Montreal, Quebec.

for Conference des recteurs et des principaux des universités de Québec (CREPUQ). 1/22/07.

Seminar, Caltech, Isotope Studies on Anaerobic Methane Oxidation, 2/05/07.

Speaker, Univ. of Washington Program on Climate Change Summer Institute, Friday Harbor, WA, 9/11-13/2007.

Panelist, U. S. Department of Energy Methane Hydrate R&D program, Colorado School of Mines, Golden, CO, 9/18-20/2007.

Scientific Advisory Committee meeting, Max-Planck-Institut-für-Terrestrische-Mikrobiologie, Marburg. 22-24 April 2006.

NAS/NRC Committee on the Assessment of DOE's Methane Hydrate Research and Development Program: Evaluating Methane Hydrates as a Future Energy Source, Meetings, 9/11-12/08, Washington, D. C. ; 12/3-4/08, Golden, CO; 3/5-6/09, Washington, D. C., 5/7-8/09, Golden, CO. Chair from 6/26/08 to 8/7/09.

Invited Paper, American Geophysical Union Ocean Sciences Meeting, "Fifty Years of Ocean Methane Observation; What have we learned, and what does the future hold?", Portland, OR 2/25/2010.

Retirement Seminar, Earth System Science, University of California, Irvine, "A Journey through Methane Biogeochemistry", 2/28/09.

Scientific Advisory Committee meeting, Max-Planck-Institut-für-Terrestrische-Mikrobiologie, Marburg. 20-22 April 2010.

Seminar, Max Planck Institute for Biogeochemistry, Jena, "Fifty Years of Methane Observations. What have we learned? What are some future challenges?" 4/23/2010.

Participant, American Academy of Microbiology Colloquium, "Linking Microbes to Climate: Incorporating Microbial Activity into Climate Models. 2/21-23/2011, Dallas, TX

Seminar, Washington State University, Vancouver, "Fifty years of Methane Biogeochemistry" April 25, 2011.

Keynote speaker, Goldschmidt Conference, Prague, "Methane Geochemistry's "Stealth Process: Microbial Oxidation" 8/15-19/2011.

Participant, workshop on 'The Enigma of the Current Global Methane Budget'. Max Planck Institut für Biogeochemie, Jena, FRG, 9/7-9/2011.

9/1/2011