

JOSHUA P. SCHIMEL
Environmental Studies Program &
Dept. Ecology, Evolution, and Marine Biology
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EDUCATION

Ph.D. 1987 University of California, Berkeley. Soil Science
B.A. 1979 Middlebury College, Chemistry, Cum Laude

EMPLOYMENT

2005- Directeur de Recherche Associé, Centre d'Ecologie Fonctionnelle & Evolutive,
Centre Nationale de la Recherche Scientifique, Montpellier, France. June-
September.
2004-2007 Chair, Environmental Studies Program, University of California, Santa Barbara
2000- Professor, Soil and Ecosystem Ecology, University of California, Santa Barbara
1996-2000 Associate Prof, Ecosystem Ecology, University of California, Santa Barbara
1995- Senior Research Associate and Affiliate Faculty, University of Alaska Fairbanks
1995-1996 Asst. Prof. of Ecosystem Ecology, University of California, Santa Barbara
1989-94 Asst. Prof. of Microbial Ecology, University of Alaska-Fairbanks
1988 Research Associate, Dept. Crop & Soil Science, Michigan State University
1987 Leverhulme Visiting Fellow and Honorary Research Fellow, Dept. Plant
Science, University of Aberdeen, Aberdeen, Scotland.
1981-86 Graduate Research Assistant, Teaching Assistant, and Assistant Specialist, Dept.
of Plant and Soil Biology, University of California, Berkeley.
1979-81 Research Assistant, Ecosystems Center, MBL, Woods Hole, MA

RECOGNITION

Aldo Leopold Leadership Fellow. 2006.
Francis Clark Award Symposium speaker. Soil Science Society of America. 2003.
Outstanding Professor. UCSB (Awarded by Residence Hall Students) 1998.
Leverhulme Commonwealth/USA Visiting Fellowship, 1987.
Distinguished Teaching Assistant Citation, 1984-1985.
Hilgard Scholarship, 1984.
Carolyn Meeks Scholarship, 1981.

PROFESSIONAL SERVICE

LEADERSHIP & PLANNING

Chair, NSF Arctic System Science Steering Committee. 2006-
Kearney Foundation of Soil Science, Advisory Committee. 2006-2011.
Co-organizer, Soil Science Society of America annual meeting session: "Towards a predictive
understanding of belowground ecosystem responses to global change." 2006.
Member, NSF, OPP SEARCH Program 'Observing Change' Panel. 2005.

Co-organizer, ESA-INTECOL session: "From microbes to ecosystems: How do we really make the connections?" 2005.

Leadership Committee, Arctic land cover change working group. 2005-

NEON planning group: Sensors and Sensor Networks. 2005-2006.

Organizing committee, NSF-ACERE sponsored workshop: "Water: Challenges at the Intersection of Human and Natural Systems." 2004.

Executive Committee, NSF Advisory Committee on Environmental Research and Education (ACERE), 2004. Member 2002-2005.

Chair, NSF Office of Polar Programs Advisory Committee, 2004. Member 2002-2005.

Soil Science Society of America Committee on Journal Comparability, 2003.

Arctic Consortium of the US (ARCUS) Student Awards Committee, 2002-2004

U.S. National Academy of Sciences workshop: Frontiers in Polar Biology. Working group rapporteur. 2002.

NSF/ESA Workshop: Linking ecological and geological approaches in ecosystem studies. Organizing committee. 2001.

NSF Division of Earth Sciences Workshop: The Changing Carbon Cycle- a terrestrial focus. Participant and presenter. 2000.

SCOPE Workshop to Assess the Role of Soil and Sediment Biodiversity in the Functioning of Critical Transition Zones. Working Group Rapporteur. 1999.

Presenter, "A future for Valley Oaks" workshop. 1999.

Workshop participant: Research Support needs for Barrow Alaska. 1999.

NSF Arctic System Science, Land-Atmosphere-Ice Interactions program, steering committee 1998-2005.

NCEAS workshop participant: Arctic & Boreal Processes that Feed Back to Climate; Extrapolation and Synthesis.

SCOPE/GCTE workshop: "The Functional Role of Soil Biota Under Global Change: An Ecosystem-level Perspective". Presenter and lead author for section on trace gases.

Ecological Society of America, program committee, 1995-1997.

Chair, Soil Ecology Section, Ecological Society of America, 1995-1997.

Organizing Committee, ARCUS workshop developing Science Mission Statement for the Toolik Field Station. 1994-1995.

US Trace Gas Network (TRAGNET) steering committee, 1994-

NSF Office of Polar Programs Committee of Visitors to evaluate the Social Science and ARCSS programs, 1994.

EPA assessment group- response of high latitude trace gas fluxes to climate change, 1994.

LTERR All-Investigators meeting workshop on the US Trace Gas Network (TRAGNET) rapporteur, 1993.

SCOPE workshop on "Role of biodiversity in arctic and alpine tundra ecosystems"- working group rapporteur, 1993.

NSF Office of Polar Programs, Advisory committee, 1993-97.

American Society for Agronomy Working Group on Global Change, 1992 - 1993.

IGBP International Global Atmospheric Chemistry Program planning meeting- Rapporteur and working group chair, 1991.

LTERR Workshop on decomposition and soil organic matter formation, 1991. Participant.

LTERR All-Investigators meeting workshop on trace gas studies in the LTERR network. Organizer & Chair, 1990.

SCOPE/IGBP workshop on “Trace gas exchange in a global perspective”- working group rapporteur, 1990.

Session Chair- AAAS Arctic Science Conference, 1989.

American Society for Microbiology- Alaska branch, educational representative, 1990-91.

American Society for Microbiology- Alaska branch, president, 1991-92.

Exxon Valdez Oil Spill Coastal Habitat Damage Assessment Committee, 1989.

U.K. Mycorrhizal group meeting organizing committee, 1987.

EDITORIAL, REVIEWING, PROGRAM EVALUATION, ETC.

Editorial

Chief Editor, Soil Biology & Biochemistry: 2007-

Editor-in-Chief, Syntheses and Emerging Ideas Section, Biogeochemistry: 2005-

Editor, Biogeochemistry: 2004-

Editor, Ecology: 2001- 2005.

Subject Editor, Soil Biology & Biochemistry: 1997-2007.

Reviewer for Journals: Applied Soil Ecology; Arctic, Antarctic, and Alpine Research;

Australian Journal of Soil Research; Biogeochemistry; BioScience, Canadian Journal of Forest Research; Canadian Journal of Microbiology; Canadian Journal of Soil Science; Chemosphere; Climatic Change; Ecological Applications; Ecological Bulletin.

(Stockholm); Ecology; Ecology Letters; Ecological Modeling; Ecoscience; Ecosystems;

Environmental Microbiology; European Journal of Soil Biology; Frontiers in Ecology;

Journal of Ecology; Journal of Environmental Quality; Journal of Geophysical Research

Atmospheres; Global Biogeochemical Cycles; Global Change Biology; Journal of

Tropical Ecology; Microbial Ecology; Nature; New Phytologist; Oecologia; Oikos;

Pedobiologia; Plant and Soil; Planta; Polar Research; Proceedings of the National

Academy of Science, Rapid Communications in Mass Spectrometry; Science; Science of

the Total Environment; Soil Biology & Biochemistry; Soil Science Society of America

Journal.

Funding Agencies

NSF Ecosystems Panel: 1997-2000

NASA Large Scale Research in Amazonia (LBA) program panel. 1997.

NSF TECO (Terrestrial Ecosystems and Global Change) panel. 1996.

NSF postdoctoral fellowships related to the environment, panel. 1996-98

USDA Review panel, Soil Biology, 1994.

U.S. Research Proposal Reviews: DOE-PER; USDA-NRI; NSF: Antarctic Geology &

Geophysics, Ecology, Ecosystems, Geobiology and Low-Temperature Geochemistry,

International programs, Microbial Observatories, Polar Biology, Environmental

Biogeochemistry, Systematics & Population Biology, and Biotic Surveys and Inventories

programs; Kearney Foundation of Soil Science.

International Research Proposal Reviews: Canadian NSERC; Israel Science Foundation;

Netherlands Geosciences Foundation; Royal Society of New Zealand; U.K. Natural

Environment Research Council (NERC); Swiss National Science Foundation.

Program Evaluation

U.S. Climate Change Science Program: Synthesis and Assessment Product 2.2. The First State of the Carbon Cycle Report (SOCCR): The North American Carbon Budget and Implications for the Global Carbon Cycle. 2006.

External review committee, Dept. Environmental Studies, University of California Santa Cruz. 2005.

Chair, external review committee, Institute for Arctic and Alpine Research, University of Colorado-Boulder. 2004.

NSF site review team for the Jornada Long Term Ecological Research (LTER) Program. 2003.

NSF Committee of Visitors evaluating the IGERT (Integrative Graduate Education and Research Traineeships) program. 2002.

NSF workshop participant: "Improving NSF's proposal review process", 1995

UNIVERSITY SERVICE

University of California, Santa Barbara

Campus level

UCSB Representative to National Association of State Universities and Land-Grant Colleges (NASULGC) Commission on Food, Environment and Renewable Resources, 2004-

Chair, Dean's committee on recruitment and compensation of Department Chairs, 2003.

Conflict of Interest Committee, 2002-

Faculty Adviser, Sedgwick Reserve, 2002-

Chair, UCSB Natural Reserve System Advisory Committee, 2001-

UCSB preproposal evaluation committee: NSF Major Instrumentation program, 2000

UCSB Enrollment Task Force, 2000-2001

Sedgwick Reserve advisory committee, 2000-

Kenneth S. Norris Rancho Marino Reserve Advisory committee, 2000-2002

UCSB Natural Reserve System Advisory Committee, 2000-2001

Search Committee for Director: Rancho Marino Natural Reserve, 2000

Univ. California, Coordinating Committee on Graduate Affairs (CCGA), 2000-2002

Chair, UCSB Graduate Council, 2000-2002

UCSB Regents Fellows selection committee, 2000

UCSB WASC reaccreditation subcommittee on graduate affairs, 2000-2001

Chair, Compass program on general education, Steering Committee, 1997-9

UCSB Graduate Council, member, 1997-2000

Compass program on general education, faculty committee, 1996-9

Departmental

EEMB Resources Committee, 2006-

Chair, Environmental Studies Program, 2004-

EEMB Life Science Building Equipment Committee, 2004-2005

Vice Chair, Environmental Studies Program, 2003-2004

Chair, EEMB search committee: ecosystem/plant ecology, 2000-2001, 2001-2002, 2002-2003

Chair, EEMB graduate committee, 2002-2003

EEMB Chair's advisory council, 2002-2003

EEMB Grad student advisory committee, 2002-2003

EEMB Planning and oversight committee, 2001-2003

EEMB Biological Sciences building renovation committee, 2001-

EEMB graduate committee, member, 2000-2002

EEMB search committee: marine microbial ecology, 2000

Search Committee: Dehlsen Chair, Environmental Studies Program, 1998-9

Education Abroad selection committee, 1998-2000
EEMB Department Chair's Advisory Council, 1998-9
ES Program, curriculum committee, 1998-2004
ES Program, Chair Awards committee, 1997-99
Chair, EEMB Graduate Committee, 1997-99
EEMB Grants Officer Search Committee, 1997
ES Program- TA committee, 1997-98
EEMB Long-term planning committee, 1997
Search Committee, Environmental Microbiologist, School of Environmental Science & Management, 1997
EEMB Graduate Committee, 1995-96; 2000-2003.
Search Committee, Soil Scientist, Geography and Env. Studies, 1995

University of Alaska Fairbanks

University of Alaska Excellence in Research Award Committee, 1994
Biology Department MS comprehensive exam committee, 1993-94
UAF Alternate representative to ARCUS (Arctic Research Consortium of the US), 1993-4.
Chair, Toolik Field Station Steering Committee, 1992-4.
Faculty Coordinator, Earth Systems Science Curriculum Development Program, 1990-4.
IAB Research Advisory Committee, 1991-1993.
Task force on environmental studies, 1990-1993.
Steering Committee, Center for Global Change and Arctic System Research (CGCASR). 1990-4.
Chair, CGCASR working group on ecosystem and community dynamics, 1990-1992.
Chair, CGCASR working group on education and curriculum development, 1992-4.
Chair, Search Committee for Microbiologist, 1989-90.

GRANTS & FUNDING

INFRASTRUCTURE, EQUIPMENT, & EDUCATION

Sedgwick Reserve Infrastructure Development. NSF. 2003. \$225,757. 3 years. Co-PI.
Acquisition of a cryostage and transfer system to characterize biological systems and frozen materials with Environmental Scanning Electron microscope. NSF. 2002. \$142,322 (+\$ 61 K cost share). 2 years. Co-PI
An isotope ratio mass spectrometer for ecological research. NSF. 2002. \$195,211 (+\$84 K cost-share). 2 years. PI.
Curriculum development in earth system science. USRA/NASA. 1991. \$95,000. 4 years. PI and Faculty coordinator.

RESEARCH

Microbial and hydrological control of the N flush at the summer-winter seasonal transition. Kearney Foundation of Soil Science. 2007. \$157,446. 2 years. PI.
Dry Season Biogeochemistry of California ecosystems. NSF. 2007. \$512,948. 3 Years. PI.
Resource and Stress Interactions in Regulating Microbial Communities in a California Grassland Soil. NSF. 2005. \$400,000. 3 Years. Co-PI.
Microbes and Ecosystems: Working group at the National Center for Ecological Analysis and Synthesis. 2004. 1 year. PI.

- The implications of exoenzyme activity on C flow and microbial carbon and nitrogen limitation in soil. Kearney Foundation. 2004. \$111,000. 3 years. PI.
- The bugs of winter: microbial control of soil biogeochemistry during the Arctic cold season. NSF. 2004. \$505,833. 3 years. PI.
- CRB: The role of seed limitation, resource competition, and community complementarity in invasions and restoration. NSF. 2002. \$364,197. 3 years. Co-PI.
- Coupling of carbon and water cycles in a cold, dry ecosystem: Integrative physical, chemical, and biology processes and their controls on CO₂ exchange. NSF. 2002. \$1.7 Million total (SB component \$340,000). 5 years. Co-PI.
- Land-Water Interactions at the Catchment Scale: Linking Biogeochemistry and Hydrology. NSF. 2002. \$1.6 Million total (SB component: \$220,000). 4 years. Co-PI.
- Soil organic matter does not break itself down- the implications of exoenzyme activity on C flow and microbial carbon and nitrogen limitation in soil. Kearny Foundation. 2001. \$70,000. 2 years. PI.
- Microbial and hydrological controls of nitrogen losses from alpine and chaparral ecosystems during seasonal transitions. NSF. 2001. \$795,000. 3 years. Co-PI.
- Dissolved Organic Nitrogen Intersite Comparison. NSF. 2000. \$50,000. 2 years. Co-PI.
- Bonanza Creek LTER. NSF. 2000. \$15,000/year. 6 years. Co-I.
- Santa Barbara Coastal LTER. NSF. 1999. \$4,200,000. total. 6 years. Co-I.
- Amino acids in the N economy of Arctic tundra communities. Mellon Foundation. 1999. \$298,000. 3 years. PI.
- Linking Resource and stress gradients to microbial community composition and function through the soil profile of a California annual grassland at the Sedgwick Reserve. NSF Microbial Observatories Program. 1999. \$664,000. 4 years. PI.
- SGER: An Analysis of Biotic and Physical Factors in El Nino- Induced Landslides. NSF Special Grant for Exploratory Research. 1998. \$30,000. 1 year. Co-I.
- Global Soils Carbon Consortium. DOE National Labs-UC Campuses program. 1998. \$620,000. 3 years. Co-PI.
- Bonanza Creek LTER. NSF. 1998. Soils Group- \$150,000. 2 years. Co-I.
- Winter C-flux in Arctic ecosystems under changing climate: effects of soil carbon and active layer dynamics. NSF (ARCSS-LAII). 1998. \$1,345,000. 5 years. PI.
- Collaborative Research: Interactions between plant chemicals and microbial communities through forest succession in the Alaskan taiga. NSF. 1996. \$350,000. 3 years. PI.
- Exploring the dynamics of dead wood in the context of the global carbon cycle. Lawrence Livermore National Laboratory. 1995. \$90,000. 2 years. Co-PI.
- Effects of cattle grazing on soil processes in upland and riparian systems in the Central Coast Range: soil processes as mediators and indicators of disturbance. California Integrated Hardwood Range Management Program. 1995. \$100,000. 5 years. PI.
- Dynamics of biologically available C and N across the tundra landscape. NSF. 1995. \$365,000. 3 years. PI.
- Interactions between plant secondary chemicals and microbial communities through succession in the Alaskan taiga—a pilot study. NSF. 1994. \$50,000. 1 year. PI.
- Successional processes in taiga forests of interior Alaska: A Long Term Ecological Research program (LTER) for study of controls of subarctic forest development. NSF. 1992. \$305,474. 6 years. Co-PI

- Controls on ratiatively active trace gases in tundra and taiga ecosystems. EPA. 1990.
\$499,897. 3 years. PI
- Controls over nutrient flow through plants and microbes in Arctic tundra. DOE. 1989.
\$130,000. 3 years. PI
- Comprehensive Coastal habitat Assessment, supratidal zone. U.S. Forest Service. 1989.
\$1,00,000. 3 years. PI
- Univ. Alaska-Fairbanks Faculty Research Grant. 1989- Microbial mediation of ecosystem
response to global warming in the Alaskan tundra: a growth chamber study. \$5,000, 1
year. PI
- Characterization of the biological basis of PCB dechlorination and the influence of
boiavailability on dechlorination rates. General Electric Corporation. 1988. \$240,000.
Co-investigator.
- Travel Grant to attend 4th ISME, Ljubljana, Jugoslavia. NSF. 1986.
1986. Travel grant to attend 4th ISME. University of California. 1986
- Chancellor's Patent Fund grant to support graduate research. University of California. 1985.

TEACHING EXPERIENCE

Courses Taught:

University of California, Santa Barbara

ES 100	Environmental Ecology	2001-present (each year)
EEMB 4/5C	Introductory Biology	1998-2000
EEMB/GEOG 295	Soils and Ecosystems	1997- present (each year)
EEMB 595	Plant Ecology Seminar	1995- present (every quarter)
EEMB 271	Ecosystem Processes	1996- present (each year)
EEMB/ES-171	Ecosystem Processes	1996- present (each year ex. 2001)
ES 13	Biological Environment	1995-1999

University of Alaska Fairbanks

BIOL 273	Humans in the Earth System	1993, 1994
BIOL 342	Microbiology	1989, 1990, 1991
BIOL 443	Microbial Ecology	1991, 1993
BIOL 497	Independent Study in Soil Biology	1990, 1992
BIOL/ALR 693	Soil Microbiology and Biochemistry	1991, 1993
BIOL 697	Microbial Ecophysiology (Ind. Study)	1990
BIOL 697	Microbial Stress Ecology (Ind. Study)	1993

Undergraduate Research Projects:

- Alisha Dahlstrom. Effects of different fertilizer types on soil quality. 2005-06.
- Maren Poitras. Effects of different fertilizer types on soil quality. 2005-06.
- Jenny Phillips. Nutrient dynamics in annual and perennial grass communities. 2003.
- Sarah Redin. Nutrient dynamics in annual and perennial grass communities. 2003.
- Jennifer Larson. Soil enzyme dynamics. 2003.
- Sage Voliter. Ecosystem processes independent study course. 2002.
- MaryAnn Kirigin. Soil processes in California grasslands. 2001.
- E. Sean Carter. Soil processes in California grasslands. 2001.
- K. Ali Ger. Soil processes in California grasslands. 2001.

Scott Rueter. Soil processes in California grasslands. 2001.
 Chris Anderson. Soil processes in California grasslands. 2001.
 Sol Marie Duerr. Oak effects on nitrification. ARC program. 2001.
 Lindsay Furuyama. Plant chemical effects on soil processes. 1998.
 Jared Ogdon. Soil dynamics in a California Annual Grassland. 1998.
 Todd DeHerrera. Temperature/moisture effects on C and N turnover in Arctic Soils. 1998.
 Doug Dornelles. Soil N dynamics in a California Annual Grassland. 1998.
 Luke Montague. Soil respiration in California Annual Grassland. 1998.
 Roger Pham. Soil N availability in annual grassland. 1998.
 Laura Dane. Effects of rainfall events on ecosystem respiration in grasslands. 1997.
 Shauna Simpson. Effects of moisture dynamics on microbial activity in grassland soils. 1996-7.
 Joy Clein. Effects of drying and rewetting on microbial activity in birch litter. UAF 1993.

Graduate Adviser

Completed:

Sophie Parker, Ph.D. *Nutrient Cycling in California Grasslands*. Postdoc, UCSB. Received *Best Student Paper Award from the Soil Ecology Section of the Ecological Society of America*.

Mike Weintraub, Ph.D. 2004. “*Dynamics of biologically available carbon and nitrogen in the Arctic tundra of Alaska*.” Asst. Prof. Univ. Toledo. Received *Arctic Consortium of the US award for best interdisciplinary research paper in Arctic Science, 2003*.

Noah Fierer, Ph.D. 2003. “*Microbial stress ecology*”. Asst. Prof. Univ. Colorado. Received *Soil Science Society Francis Clark Scholarship for top Soil Microbiology Student 2003*.

Doug Dornelles, M.S. 2001. “*Plant community effects on N cycling in Central California Ecosystems*”.

Jeff Chambers, Ph.D. (Co-chair) UCSB. 1998. “*Dynamics of coarse woody debris in tropical evergreen forests of the Amazon basin*” Currently Assistant Professor, Tulane Univ.

Jay Gullede, Ph.D. UAF. 1996. “*Soil Consumption of Atmospheric Methane: Importance of Microbial Physiology and Diversity*.” Currently Asst. Professor, University of Louisville.

Mitch Wagener, Ph.D. (Co-chair) UAF. 1995 “*The ecology of birch litter decomposition in interior Alaska*”. Currently Associate Professor. Western Connecticut State University.

Joy Clein, M.S. UAF. 1994 “*Changes in nitrogen cycling during the transition from alder to balsam poplar in primary forest succession in the Alaskan taiga*” Currently research Associate, University of Alaska Fairbanks.

In progress:

Shawna McMahon, Ph.D.
 Ben Colman, Ph.D.
 Julie Simpson, Ph.D. Co-chair.

Graduate Committees

Completed:

Marcy Gallo, Ph.D. University of New Mexico. 2006.
 Izaya Numata, Ph.D. Dept. Geography. 2006.
 Sean Watts, Ph.D. EEMB. 2005.
 Shelly Cole, Ph.D. EEMB. 2005.

Rachel Steinberger, Ph.D. Bren School. 2005.
Risa Goldstein, M.A. Geography. 2004.
Jim Sickman, Ph.D. EEMB. 2001.
Al Leydecker, Ph.D. EEMB. 2000.
Veronique LaCapra, Ph.D. EEMB. 2000.
Faraneh Chamran, M.S. Geography, UCSB. 2000.
Aaron Miller, M.S. Geography, UCSB. 1999.
Tim Hovanec, Ph.D. EEMB, UCSB. 1998.
Osni de Souza, Ph.D. EEMB, UCSB. 1998.
Jochen Schenk, Ph.D. EEMB, UCSB. 1998.
Daniel Ulliasi, M.S. Biology. UAF. 1998.
Jason Hamilton, Ph.D. EEMB, UCSB. 1998.
Michael Williams, Ph.D. EEMB, UCSB. 1997.
Jon Lindstrom, Ph.D. Biology, UAF. 1997.
Daniel Sarr, M.S. EEMB, UCSB. 1996.
Valerie Barber, M.S. Oceanography, UAF. 1994.
Ming Di, M.S. Plant Pathology, UAF. 1994.

In progress:

Stephanie Yelenik, Ph.D. EEMB

Off Campus and International Graduate Education:

Scientific writing: a 2 week short course. September 2005. Centre d'ecologie fonctionnelle et d'evolutive. Centre National de Recherche Scientifique, Montpellier, France. September 2005.

Outside committee member. Marcy Gallo. Ph.D. student, University of New Mexico, 2005-.

External Ph.D. examiner (opponent): University of Lund. Katarina Månsson, April 2005.

External Ph.D. examiner: Jennifer Bennett. University of British Columbia. 2000.

International graduate course: "Soil Ecology from Theory to Practice." Wageningen, The Netherlands. June 2003. Presenter: Bacteria Rule: linking bacterial and ecosystem dynamics.

Postdoctoral Supervision:

Keri Holland, UCSB. Exoenzymes in soils.

Matt Wallenstein. UCSB. Microbial communities in Arctic tundra soils.

Amy Miller. UCSB. Nutrient cycling in alpine and chaparral ecosystems.

Noah Fierer. UCSB. Microbial community biogeography.

Doris Grellmann. UCSB. Herbivory effects on Arctic plant/soil processes.

Michael LaMontagne. UCSB. Effects of resource and stress gradients on bacterial communities.

Andrew Allen. UCSB. Moisture control over microbial community dynamics.

Carl Mikan. UCSB. Microbial activity in Arctic soils.

Maria Teresa Iglesias, Summer 2000, visiting post-doc from Spain.

Jay Gulledege. UAF. Methane consumption in taiga forests.

Susan Sugai. UAF. Metabolism of phenolics in taiga soils.

Knut Kielland. UAF. Trace gas dynamics in tundra soils

OUTREACH AND K-12 EDUCATION

Press and related:

Interview for Santa Barbara News Press story: Environmental impact of Christmas trees. December 24 2006.
Letter in Santa Barbara News Press. "Warming trend thickens ice sheet" [about Greenland]. July 26 2006.
Letter in Santa Barbara News Press. "Gore's questionable path to White House." A response letter discussing Arctic warming. June 25 2006.
Update on Arctic Climate Change: official letter from Arctic Consortium of the U.S. to a number of U.S. Senate and House committees. I was the lead author and signatory on this letter, as Chair of the Arctic System Science Committee.
Letter in Santa Barbara News Press. "Blame humans for global warming." April 23 2006.
Letter in Santa Barbara News Press. "Climate models long-term predictors." March 10 2005.
Letter in Santa Barbara News Press. "Mixing science, politics, clouds facts." August 23, 2004.
Column in the Santa Barbara News Press. Headline: "What's good for the environment is good for the economy." Lessons from the Trans-Alaskan oil pipeline. July 11, 2004.
Column in Santa Barbara News Press. "A lesson about Grad Students." Jan. 14 2004.
Interviews for newspapers and other science reporting: Anchorage Daily News, UCSB Daily Nexus, Geotimes, National Geographic, Santa Barbara News Press, Science, Science News.

Outreach presentations:

Status of Arctic Climate Change. Presentation for the United States Senate. Organized by the Arctic Consortium of the United States (ARCUS). May 2006.
Climate change, the press, and the public. Panel presentation & discussion (with Elizabeth Kolbert, New Yorker Magazine, and James McWilliams, UCLA). May 2006.
Humans and the Climate System: how to create an apparent controversy. Little House of Ojai Senior Center. April 2006.
Fahrstrup-Mortensen Lecture: The human role in the global climate system. Lecture and panel discussion. Solvang Danish Lutheran Church: this was part of an annual, nationally attended lecture series and educational event. March 2006.
Soils and Sedgwick: what happens belowground? Sedgwick Reserve Docents: ½ day presentation and field trip. February 2006.
Presentations to Association of Pacific Rim Universities group on research at the Sedgwick Reserve. August 2004.
UC-HBCU AGEP Partnership Mini-Conference: Panel on Promoting Inter-campus Research Collaborations. July 2004.
Panels on "How to get a postdoc" for the GRIP program (Graduate Intern Program for students from AGEP Partners [Minority Serving Institutions]). July and August, 2004.
Public Lecture: Nitrate dynamics in California grasslands: why is groundwater nitrate so high? Santa Ynez Natural History Society. February 2004.
Public Lecture: Nitrate dynamics in California grasslands: implications for groundwater quality. Santa Barbara Unitarian Society. February 2004.
Public Lecture: California Ecosystems: A tale of nitrate, cows, & vegetation change. Public Lecture in SB Main Library. Hosted by Environmental Studies Associates. 2003.
South Coast Science Project- program for Middle and High School teachers, presentation and discussions. 2003.
Johns Hopkins Center for Talented Youth (CTY) program: Explorations in Environmental Science. Presentation to the parents: Education and Explorations in Environmental Science and Policy. 2001.
Presentations in Advanced Placement Biology & Environmental Science. Laguna Blanca School. 2000, 2001, 2002.
California Forum for Diversity in Graduate Education: Speaker and Panelist. 2000.
"A future for Valley Oaks:" A workshop for scientists, ranchers, and land managers. Organized by the Integrated Hardwood Range Management Program. 1999.

PUBLICATIONS (INCLUDES PEER-REVIEWED BOOK CHAPTERS)

1. Numata, I., D.A. Roberts, Y. Sawada, O.A. Chadwick, J.P. Schimel, H. Sawada, and J.V. Soares. 2007. Characterization of pasture biophysical properties and the impact of grazing intensity using remotely sensed data. *Remote Sensing of the Environment*. *In press*.
2. Jackson, R.B., N. Fierer, and J.P. Schimel. 2007. New Directions in Microbial Ecology (intro to special feature section in Ecology). *Ecology*. *In press*.
3. Schimel, J.P., T.C. Balsler, and M. Wallenstein. 2007. Microbial stress-response physiology and its implications for ecosystem function. *Ecology*. *In press*.
4. Wallenstein, M. McMahon, S., and J. Schimel. 2007. Bacterial and fungal community structure in Arctic tundra tussock and shrub soils. *FEMS Microbiology Ecology*. 59 (2): 428-435.
5. Numata, I., Chadwick, O.A., Roberts, D.A. Schimel, J.P., Sampaio, F.F., Leonidas, F.C., and Soares, J.V. 2007. Temporal nutrient variation in soil and vegetation of 1 post-forest pastures as a function of soil order, pasture age, and management, Rondônia, Brazil. *Agriculture, Ecosystems and Environment*. 118: 159–172.
6. Fierer, N., B. P. Colman, J. P. Schimel, and R. B. Jackson. 2006. Predicting the temperature dependence of microbial respiration in soil: A continental-scale analysis, *Global Biogeochem. Cycles*, 20, GB3026, doi:10.1029/2005GB002644.
7. Schimel, J.P., J. Fahnestock, G. Michaelson, C. Mikan, C.-L. Ping, V.E. Romanovsky, and J. Welker. 2006. Cold-season production of CO₂ in Arctic soils: can laboratory and field estimates be reconciled through a simple modeling approach? *Arctic, Antarctic, and Alpine Research*. 38: 249-256.
8. Li, X., T. Meixner, J.O. Sickman, A.E. Miller, J.P. Schimel, and J.M. Melack. 2006. Decadal-scale dynamics of water, carbon and nitrogen in a California chaparral ecosystem: DAYCENT modeling results. *Biogeochemistry*. 77: 217–245.
9. Schimel, J.P. and F.S. Chapin III. 2006. Microbial processes in the Alaskan boreal forest. In: *Alaska's Changing Boreal Forest*. Chapin, F.S. III, M.W. Oswood, K. van Cleve, L.A. Viereck, and D.L. Verbyla (Eds.) Oxford University Press. Pp. 227-240.
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Technical Reports

1. Schimel, J. and S. Moore. 2005. Session Summary: Biological Feedbacks. In.: Study of Environmental Arctic Change (SEARCH). Proceedings of the SEARCH Open Science Meeting, 27-30 October 2003. Arctic Consortium of the US (ARCUS). Fairbanks, AK.

2. Water: Challenges at the Intersection of Human and Natural Systems. 2005. NSF/DOE. J. Futrell, R. Gephart, E. Kabat-Lensch, D. McKnight, A. Pyrtle, J. Schimel, R. Smyth, D. Skole, J. Wilson.
3. Complex Environmental Systems: Pathways to the Future. 2005. NSF Advisory Committee for Environmental Research and Education.
4. PACTS (Pan-Arctic Cycles, Transitions, and Sustainability): A Science Plan. 2003. M. Sturm, F.S. Chapin III, M.E. Edwards, D.B. Griffith, H.P. Huntington, G.P. Kofinas, A.H. Lloyd, A.H. Lynch, B.J. Peterson, R.A. Pielke Sr., J.P. Schimel. M.C. Serreze, and G.R. Shaver. Report to the National Science Foundation. Published by the Land-Atmosphere-Ice Interactions Science Management Office.
5. Linking Ecological Biology & Geoscience: Challenges for terrestrial environmental science. 2002. Report to the National Science Foundation.
6. The Future of an Arctic Resource. 1999. Published by ARCUS. Participant in workshop and report writing.
7. Toolik Field Station: The second 20 years. Published by ARCUS. Organizing committee member, and a lead author on the report.
8. Wagener, M.W. and J.P. Schimel. 1995. The production of greenhouse gases in academic seminars. Published on the World Wide Web as part of the First International Virtual Conference on Mad Science. (IVCMS '96) <http://www.ftech.net/~madsite/>. Note: the data are real.
9. Reeburgh, W., P. Crill, D. Funk, K. Nadelhoffer, K. Peterson, J. Schimel, and B. Whitman. 1994. Radiatively important trace gases in high latitude systems. Report to EPA Global Change Program. 23 pp.
10. Schimel, J.P., H. Maier, L. Moilanen. 1991. Coastal Habitat Injury Assessment: Supratidal. Technical Report (confidential), part of Status Report for the Exxon Valdez Comprehensive Damage Assessment Program.
11. Tiedje, J.M., S.A. Boyd, J.F. Quensen, and J. Schimel. 1989. Reductive dechlorination of PCBs by anaerobic microorganisms. Chapter 5 in General Electric Company Research and development program for the destruction of PCBs, 8th progress report.

INVITED PRESENTATIONS

NATIONAL/INTERNATIONAL SYMPOSIA

1. The role of microbial stress responses in regulating ecosystem-level responses to episodic pulse weather events. American Geophysical Union Annual Meeting Symposium: "Impact of Climate Variability and Extreme Weather on Ecosystem Structure and Function Across Spatiotemporal Scales." December 2006.
2. Microbial Stress-Response Physiology: Influences on Whole-Ecosystem C and N Flows. Soil Science Society of America Annual Meeting Symposium: "Towards a predictive understanding of belowground ecosystem responses to global change." Indianapolis 2006.
3. Scaling up: you have to identify the target before you can hit it. International Symposium on Microbial Ecology. Vienna, Austria. August 2006.

4. Linkages between C and N cycling in the Arctic tundra. BIOGEOMON. Santa Cruz, CA. June 2006.
5. Adding the Decomposer to Decomposition Models. 2nd International Conference on Mechanisms of Organic Matter Stabilization and Destabilization in Soils. Asilomar, CA. September 2005.
6. Nitrogen mineralization: the changing paradigm. Ecological Society of America Annual Meeting. Portland. August 2004.
7. Microbial substrate use in soils across the “zero degree curtain:” implications for Arctic tundra C & N cycling. International Conference on Arctic Microbiology, Rovaniemi, Finland. March 2004.
8. Integrating microbial physiology and community composition at the soil profile scale: implications for trace gas fluxes. Francis E. Clark Award Symposium. Soil Science Society of America Annual Meeting. November 2003.
9. Bacteria Rule: linking bacterial and ecosystem dynamics. Presented as part of an international graduate course: “Soil Ecology from Theory to Practice.” Wageningen, The Netherlands. June 2003.
10. Microbial community composition and soil N cycling: is there really a connection? British Ecological Society Symposium: Soil Biodiversity and Function, Lancaster, England, March 2003.
11. Interactions Between Hydrological and Biotic Process in the Arctic Landscape, Arctic Forum, Washington, May 2002.
12. Modeling microbes at the biogeochemical scale: Plenary Address. European Union Conference: COST Action 627: "Carbon stores in European grasslands." April 2002.
13. Models and microbes in forest ecosystems. Soil Science Society of America Symposium: Microbial Impacts in Forest Soils. Salt Lake City. Nov. 1999.
14. Methane consumption: links between biogeochemistry and microbial communities. Soil Science Society of America Symposium: Linking structure and function in microbial community ecology: looking for the smoking guns. Baltimore. Oct. 1998.
15. Soil microbes and global systems: linking scales in trace gas biogeochemistry. Inagural Symposium for the founding of the new Max Planck Institut for Biogeochemistry. Jena, Germany. Sept. 1998.
16. Disturbances and soil community structure: linking population and process. Ecol. Soc. Am. symposium: Disturbance and soil ecosystems: from food webs to biogeochemistry. August 1997.
17. Microbial Community Structure and Global Trace Gases. SCOPE/GCTE workshop: “The Functional Role of Soil Biota Under Global Change: An Ecosystem-level Perspective”. October 1996.
18. Plant-Soil interactions through succession in boreal forests. Soil Sci. Soc. Am. Symposium: Plant-soil interactions. November 1996.
19. Microbial communities and atmospheric C gases. Am. Soc. Microbiology Symposium: Microbiology of trace gas dynamics. May 1996.
20. Plant-microbe interactions in high latitude ecosystems. Ecol. Soc. Am. symposium. August 1994.
21. Plant Control of CH₄ Efflux from Arctic Wet Meadow Tundra. Am. Geophysical Union annual meeting. December 1993.

22. Control of succession by Balsam Poplar secondary chemistry in the Alaskan taiga-Bonanza Creek LTER "Site-Bite" LTER All-Investigators meeting. 1993.
23. Ecosystem consequences of microbial diversity and community structure. SCOPE workshop on the role of biodiversity in tundra ecosystems. Kongsvald, Norway. 1993.
24. Recent research on trace gases: Methane. Soil Science Society of America Symposium-Agroecosystem effects on radiatively active trace gasses and global climate change. November, 1991.
25. Production and consumption of gases by microorganisms in soil. Soil Science Society of America Symposia- Instructional aids in soil microbiology. 1990 and 1991.
26. Use of $^{15}\text{NO}_3^-$ pool dilution to measure nitrification in soils. Conference on Nitrification in terrestrial and aquatic ecosystems. Arnhem, The Netherlands. 1988.
27. Nitrification in two ecosystems: the roles of autotrophic and heterotrophic nitrification in N-cycling. 1986. Symposium at the Ecol. Soc. Am. Meetings. Minneapolis.

UNIVERSITIES

1. Microbial control of ecosystem dynamics in California grasslands. California State University Fullerton. October 2006.
2. Integrating across scale in soil biogeochemistry: a California grassland case study. University of Vienna. August 2006.
3. The Arctic plant-soil feedback loop: linkages to the Arctic system. Colorado State University. May 2006.
4. The Arctic plant-soil feedback loop: linkages to the Arctic system. University of California Berkeley, February 2006.
5. The Arctic plant-soil feedback loop: implications for the Arctic system. Stanford University. February 2006.
6. Linking environment, microbial communities, and ecosystem processes: a whole soil profile perspective. INRA. Versailles, France. September 2005
7. Linking environment, microbial communities, and ecosystem processes: a whole soil profile perspective. Centre d'ecologie fonctionnelle et d'evolutive. Centre National de Recherche Scientifique, Montpellier, France. September 2005.
8. Linking environment, microbial communities, and ecosystem processes: a whole soil profile perspective. University of Vienna. July 2005.
9. Nitrogen mineralization: the changing paradigm. Centre d'ecologie fonctionnelle et d'evolutive. Centre National de Recherche Scientifique, Montpellier, France. June 2005.
10. The Arctic plant-soil feedback loop: linkages to the Arctic system. University of Alaska, Fairbanks. May 2005.
11. The Arctic plant-soil feedback loop: linkages to the Arctic system. University of Lund, Sweden. April 2005.
12. The Arctic plant-soil feedback loop: linkages to the Arctic system. Umeå University, Sweden. April 2005.
13. Linking environment, microbial communities, and ecosystem processes: a whole soil profile perspective. University of Louisville, Oct. 2004.
14. Nitrogen mineralization: the changing paradigm. University of Louisville, Oct. 2004.
15. Linking environment, microbial communities, and ecosystem processes: a whole soil profile perspective. NREL, Colorado State University, May 2004

16. Microbial processes in Arctic soils across the “zero-degree curtain.” Carnegie Institution of Washington, Palo Alto, April 2004.
17. Linking environment, microbial communities, and ecosystem processes: a whole soil profile perspective. Stanford University, April 2004.
18. Linking environment, microbial communities, and ecosystem processes: a whole soil profile perspective. University of Colorado, Boulder. February 2004.
19. Microbiology and Biogeochemistry- linking the smallest and largest scales of life. San Diego State University. October 2003.
20. Microbial stress ecology: links between processes and populations. University of Aberdeen, Scotland. April 2003.
21. Microbes in Biogeochemical models: University of Alaska Fairbanks, August 2002.
22. Accelerating succession: the role of plant secondary chemicals in Alaskan floodplain soils. Utah State University. April 2002.
23. Microbiology and Biogeochemistry- linking the smallest and largest scales of life. Utah State University. April 2002.
24. Microbiology and Biogeochemistry- linking the smallest and largest scales of life. University of California, Berkeley. Nov. 2001.
25. Linking Resource and stress gradients to microbial community composition and function through the soil profile of a California annual grassland. Oregon State University. June 2001.
26. Accelerating succession: the role of plant secondary chemicals in Alaskan floodplain soils. Tulane University. Dec. 2000.
27. Microbiology and Biogeochemistry- linking the smallest and largest scales of life. Tulane University. Dec. 2000.
28. Microbiology and Biogeochemistry- linking the smallest and largest scales of life. Cornell University Biogeochemistry Program. Sept. 2000.
29. Microbial community structure and ecosystem function: making the links. Center for Microbial Ecology. Michigan State University. Sept. 1998.
30. Microbial community structure and ecosystem function. California Polytechnical, San Luis Obispo. May 1998.
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32. Microbial community structure: does it matter? Western Connecticut State University. December 1997.
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