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Education: B.S. Chemistry, Ohio University, 1965
M.S. Organic Chemistry - Marine Natural Products, Minor: Biochemistry, University of Oklahoma, 1973

Professional Experience:

1994 - present Environmental Chemist, Senior Research Scientist. The Ecosystems Center, Marine Biological Laboratory, Woods Hole, MA
1985 - 1994 Environmental Chemist, Research Specialist. The Ecosystems Center, Marine Biological Laboratory, Woods Hole, MA.
1975 - 1984 Environmental Chemist, Research Associate in Ecology. The Ecosystems Center, Marine Biological Laboratory, Woods Hole, MA.
1973 - 1975 Separation-Isolation-Analytical Chemist. Smith, Kline and French Pharmaceuticals, Philadelphia, PA.
1968 - 1970 Marine Inorganic Chemist. Woods Hole Oceanographic Institution, Woods Hole, MA.
1966 - 1968 Organic Research Chemist. Olin Chemicals Corporation, Research Center, New Haven, CT.

Memberships in Professional Societies:

American Chemical Society
American Geophysical Union

Publications: (Published or accepted for publication)

D'Elia, C. F., P. A. Steudler and N. Corwin. 1977. Determination of total nitrogen in aqueous samples using persulfate digestion. *Limnology and Oceanography* 4:760-764.
Schmitz, F. J., K. P. Kulkarni, S. Hollenbeck, D. C. Campbell, D. J. Vanderah, L. S. Cierieszko, P. A. Steudler, D. Van der Helm and J. D. Ekstrand. 1977. Chemistry related to the search for drugs from the sea, pp. 293-310. *In: NATO Conference on Marine Natural Products, October 11-17, 1976. Plenum Press, London.*
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- Steudler, P.A., D. C. Garcia-Montiel, M. C. Piccolo, C. Neill, J. M. Melillo, B. J. Feigl and C. C. Cerri. 2002. Trace gas responses of tropical forest and pasture soils to N and P fertilization. *Global Biogeochemical Cycles* 16(2) 10.1029/2001GB001394.
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- Aber, J., S. Wofsy, F. Bazzaz, P. Steudler, J. Melillo, M. Goulden, A. Magill, S. Bassow, R. Bowden, W. Peterjohn, and M. Castro. 2003. Current Rates of Biogeochemical Cycling and Exchange. *In: D. Foster and J. Aber (eds.), Forests in Time, The Environmental Consequences of 1000 Years of Change in New England*, Synthesis Volume of the Harvard Forest LTER Program, Yale University Press, in press.
- Garcia-Montiel, D. C., J. M. Melillo, P. A. Steudler, H. Tian, C. Neill, D. W. Kicklighter, B. Feigl and C. C. Cerri. Emissions of N₂O and CO₂ from terra firme forests in Rondônia, Brazil. *Ecological Applications*, in press.
- Garcia-Montiel, D. C., P. A. Steudler, M. C. Piccolo, C. Neill, J. M. Melillo and C. C. Cerri. Nitrogen oxide emissions following wetting of dry soils in forest and pastures in Rondônia, Brazil. *Biogeochemistry*, in press.
- Garcia-Montiel, D. C., J. M. Melillo, P. A. Steudler, and C. C. Cerri. Carbon limitation to N₂O emissions in a humid tropical forest of the Brazilian Amazon. *Biology and Fertility of Soils*, in press.
- Melillo, J. M., P. A. Steudler, J. D. Aber, K. Newkirk, H. Lux, F. P. Bowles, C. Catricala, A. Magill, T. Ahrens, S. Morrisseau, E. Burrows and K. Nadelhoffer. 2003. Soil warming – a major consequence of global climate change. Chapter 14. *In: D. Foster and J. Aber (eds.), Forests in Time, The Environmental Consequences of 1000 Years of Change in New England*, Synthesis Volume of the Harvard Forest LTER Program. Yale University Press, in press.
- Neill, C., P. A. Steudler, D. C. Garcia-Montiel, J. M. Melillo, B. J. Feigl, M. C. Piccolo and C. C. Cerri. 2003. Rates and controls of nitrous oxide and nitric oxide emissions following conversion of forest to pasture in Rondônia. *Nutrient Cycling in Agroecosystems*, in press.
- Passianoto, C. C. T. Ahrens, B. J. Feigl, P. A. Steudler, J. B. do Carmo, J. M. Melillo. 2003. Changes in CO₂, N₂O, and NO emissions in response to conventional tillage and no-tillage management practices in the state of Rondônia, Brazil. *Biology and Fertility of Soils*, in press.
- Passianoto, C. C., T. Ahrens, B. J. Feigl, P. A. Steudler, J. M. Melillo and J. B. do Carmo. 2003. Diurnal changes in nitric oxide emissions from conventional tillage and pasture sites in the Amazon Basin: Influence of soil temperature. *Plant and Soil*, in press.
- Hallett, R. A., J. D. Aber, S. Millham, S. G. McNulty, J. M. Melillo, P. A. Steudler and M. Castro. Predicting trends in net nitrogen mineralization and nitrification across a regional transect using in-lab soil incubations. *Canadian Journal of Forest Research*, submitted.
- Moraes, J. F. L., C. Neill, B. Volkoff, C. Cerri, J. M. Melillo, V. C. Lima and P. A. Steudler. Soil carbon and nitrogen stocks following forest conversion to pasture in the western Brazilian Amazon Basin. *Revista de Ciencia do Solo*, submitted.
- Neill, C., M. C. Piccolo, C. C. Cerri, P. A. Steudler, J. M. Melillo, D. C. Garcia-Montiel and B. J. Feigl. Soil nitrogen transformations and soil solution fluxes following forest clearing of Amazonian tropical forest for pasture. *Ecosystems*, submitted.
- Bowden, R. D., E. Davidson, K. Savage, C. Arabia and P. A. Steudler. Chronic nitrogen additions reduce total soil respiration and microbial respiration in temperate forest soils at the Harvard Forest, in review.

Publications in Preparation:

- Castro, M. S., H. L. Gholz, K. Clark, P. A. Steudler and J. M. Melillo. Effects of harvesting on soil trace gas fluxes in a Florida slash pine plantation. To be submitted to *Biogeochemistry*.

- Chan, A. S. K., P. A. Steudler, R. D. Bowden, J. Gullledge and C. M. Cavanaugh. Consequences of nitrogen fertilization on soil methane oxidation in a productive temperate deciduous forest. To be submitted to *Biology and Fertility of Soils*.
- Gullledge, J., Y. Hrywna, C. M. Cavanaugh and P. A. Steudler. Effects of long-term nitrogen fertilization on the uptake of atmospheric methane in temperate forest soils. To be submitted to *FEMS Microbiology Ecology*.
- Steudler, P. A., S. Molina, A. Lugo and J. M. Melillo. The effects of landuse on nitrogen dynamics and trace gas fluxes in three dry tropical forests in Puerto Rico. To be submitted to *Global Biogeochemical Cycles*.

Patents:

Patent #3,555,072 USA. Kober, E. H., W. J. Schnabel and P. A. Steudler. 1968. Stabilization of Tolyene Diisocyanates.

Invited Talks and Seminars:

- October 1983 Steudler, P. A. and B. J. Peterson. Annual emission of reduced sulfur gases from short *Spartina alterniflora* in a New England salt marsh. Sixth Symposium of Environmental Biogeochemistry, Santa Fe, New Mexico.
- May 1985 Steudler, P. A. and B. J. Peterson. Contribution of gaseous sulfur from salt marshes to the global sulfur cycle. Drexel University, Philadelphia, PA.
- August 1987 Steudler, P. A., J. M. Melillo, E. Ferry, J. Tucker and A. Turner. Carbonyl sulfide and carbon disulfide emissions from temperate boreal forest soils. 194th National ACS Meeting on Biogenic Sulfur in the Environment, New Orleans, LA.
- January 1989 Steudler, P. A. and J. M. Melillo. Effect of nitrogen fertilization in the COS and CS₂ emissions from temperate forest soils. Forest Microbiology Meeting, Harvard Forest, Petersham, MA.
- April 1989 Steudler, P. A. Approaches to the determination of volatile sulfur compounds from salt marsh locations. Sulfur Intercomparisons Workshop, University of Delaware.
- May, 1989 Steudler, P. A. The linkage between methane consumption by aerobic soils and nitrogen additions. University of Göttingen, Germany.
- June 1989 Steudler, P. A., R. D. Bowden, J. M. Melillo and J. D. Aber. Methane uptake rates in aerobic forest soils: Effect of nitrogen fertilization. Universitat Konstanz, Konstanz, Germany.
- July 1990 Steudler, P. A. Controls of methane and sulfur gas fluxes from forest soils. Trace Gas Symposium - Understanding Global Change: What Controls the Fluxes of Trace Gases? Marine Biological Laboratory, Woods Hole, MA.
- August 1990 Steudler, P. A., J. M. Melillo, R. D. Bowden and A. E. Lugo. Trace gas fluxes from tropical forests along a moisture gradient. Institute of Tropical Forestry, Rio Piedras, Puerto Rico.
- December 1990 Steudler, P. A. Workshop on verification of analytical methodology for tropospheric sulfur-containing gases: Recent advances, continuing enigmas and future directions. Panel member contributed to final report. Menlo Park, CA.
- February 1991 Steudler, P. A., J. M. Melillo, R. D. Bowden, J. D. Aber and M. S. Castro. Methane oxidation in aerobic forest soils. Harvard Forest, Petersham, MA.
- March 1991 Steudler, P. A., J. M. Melillo, R. D. Bowden, M. S. Castro and A. E. Lugo. The effects of natural and human disturbances on soil nitrogen dynamics and trace gas fluxes in a Puerto Rican wet forest. Harvard University, Cambridge, MA.

- April 1991 Steudler, P. A., J. M. Melillo, R. D. Bowden, J. D. Aber and M. S. Castro. Factors controlling methane oxidation rates in aerobic soils. EPA Laboratory, Athens, GA.
- October 1991 Steudler, P. A., J. M. Melillo, J. D. Aber, M. S. Castro and R. D. Bowden. Factors controlling methane oxidation in upland forest soils. NATO Advanced Research Workshop on The Atmospheric Methane Cycle: Sources, Sinks, Distributions and Role in Global Change. Mt. Hood, Oregon.
- February 1992 Steudler, P. A., M. S. Castro, J. M. Melillo and H. Gholz. Trace gas exchanges and controls on gas fluxes in a slash pine forest in Florida. EPA Annual All Investigators Workshop of the Global Climate Change Research Program, Athens, GA.
- September 1992 Co-chairperson for working group on measurement of trace gas fluxes. Workshop on Building a U.S. Trace Gas Network: Development of the Biosphere Atmosphere Trace
- March 1993 Steudler, P. A., J. M. Melillo, W. T. Peterjohn and M. S. Castro. Trace gas studies at the Harvard Forest and a Florida pine plantation. EPA Annual All-Investigators Meeting on the Global Climate Change Research Program. Athens, Georgia.
- May 1995 Steudler, P. A., R. D. Jones, M. S. Castro, J. M. Melillo and D. Lewis. Microbial controls of methane oxidation in temperate forest and agricultural soils, pp. 69-84. In: J. C. Murrell and D. P. Kelly (eds.), The Microbiology of Atmospheric Trace Gases; Sources Sinks and Global Change Process. NATO Conference Series on Global Environmental Change. Springer-Verlag, Berlin. 13-18 May 1995. Pascoli, Italy.

Presentations: Oral Presentation (*) or Poster Presented

- May 1973 Cierieszko, L. S. and P. A. Steudler. Movement of sterols into the sediment in the predator-prey pair *Cypohoma gibosa* and *Briareum asbestinum*. Southwest Geochemical Society Meeting, San Antonio, TX.
- August 1974 Cierieszko, L. S., P. A. Steudler and F. J. Schmitz. Sterol compositions in the study of predator-prey pairs of coral reef organisms. International Symposium on Indo-Pacific Tropical Reef Biology, Australia.
- October 1975 Schmitz, F. J., K. P. Kulkarni, S. Hollenbeck, D. C. Campbell, D. J. Vanderah, L. S. Cierieszko, P. A. Steudler, D. Van der Helm and J. D. Ekstrand. Chemistry related to the search for drugs from the sea. NATO Conference on Marine Natural Products.
- November 1978 *Steudler, P. A. Global sulfur cycle: Importance of salt marshes. Yale-MBL Meeting on current Ecosystems Center research activities.
- August 1979 Zacks, C. M., P. A. Steudler and J. M. Melillo. Bacterial denitrification: A gas chromatographic study using acetylene inhibition of N₂O reductase in two-hour incubations. Abstract. Biol. Bull. 157:404.
- June 1980 *Steudler, P. A. and B. J. Peterson. Measurement of gaseous sulfur compounds. 73rd Meeting of the Air Pollution Control Association, Montreal, Quebec, Canada. Paper #80-40.3.

- August 1980 Schimel, J. P., P. A. Steudler, J. M. Melillo, J. G. Warren, C. M. Zacks and J. D. Aber. Denitrification potentials in a successional sequence of northern hardwood forest stands. Abstract. Biol. Bull. 159:464.
- August 1980 Steudler, P. A., J. M. Melillo, J. P. Schimel and J. D. Aber. Denitrification in forest ecosystems of New England. Ecological Society of America Meeting, Tucson, AZ.
- June 1981 *Steudler, P. A. and B. J. Peterson. Annual fluxes of sulfur gases from salt marsh waters and mud-flats. Symposium on Natural Emissions of Hydrocarbons, Halocarbons, Sulfur, and Nitrogen Gases into the Atmosphere. 74th Annual Air Pollution Control Association Meeting, Philadelphia, PA.
- June 1981 Melillo, J. M., P. A. Steudler, J. D. Aber and J. P. Schimel. Denitrification potentials in forest ecosystems in New England. Symposium on Biogeochemical Cycling, Stockholm, Sweden.
- June 1981 Peterson, B. J., P. A. Steudler, R. W. Howarth, D. Juers and F. Bowles. Tidal export of reduced sulfur from a salt marsh ecosystem. Symposium on Biogeochemical Cycling, Stockholm, Sweden.
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- October 1997 *Steudler, P. A., B. F. Feigl, J. M. Melillo, C. Neill, M. C. Piccolo and C. C. Cerri. Patterns of soil respiration from Brazilian forests and pastures. 1997 Soil Science Society of America Annual Meeting, Anaheim, CA.
- June 2000 *Steudler, P.A., D. C. Garcia-Montiel, M. C. Piccolo, C. Neill, J. M. Melillo, B. J. Feigl and C. C. Cerri. Trace gas responses of tropical forest and pasture soils to N and P fertilization. Summary, First International LBA Science Conference, Belem, Brazil.
- February 2001 *Steudler, P. A., D. C. Garcia-Montiel, M. C. Piccolo, C. Neill, B. J. Feigl, J. M. Melillo, and C. C. Cerri. Estimates of the exchanges of CH₄ and N₂O trace gases from Brazilian Amazon Basin. Summary, LBA Conference, Athens, GA.
- March 2002 Melillo, J. M. P. A *Steudler, H. Lux, S. Morrisseau and F. Bowles. Soil warming: Progress and Prospects. 13th Annual Harvard Forest Ecology Symposium, Petersham, MA.
- March 2002 Melillo, J. M. P. A *Steudler, H. Lux, S. Morrisseau. Soil warming in the new millennium: Recent Results and future directions. Annual NIGEC Workshop at Harvard Forest, Petersham, MA.
- July 2002 Cerri, C. C., B. J. Feigl, M. C. Piccolo, M. C. S. Carvalho, J. M. Melillo, C. Neill, P. Steudler and D. Garcia. Strategies for restoration of degraded pastures in Amazonia examining agronomic, environmental and economic criteria. Summary, Second International LBA Science Conference, Manaus, Brazil.
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- July 2002 Neill, C., P. A. Steudler and M. C. Piccolo. Control of N₂O and N₂ emissions from Amazonian pastures under intensified use: availability of nitrogen, carbon and effects of soil tillage. Summary, Second International LBA Science Conference, Manaus, Brazil.
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- July 2002 Steudler, P. A., B. J. Feigl, D. C. Garcia-Montiel, J. M. Melillo, C. Neill, M. C. Piccolo and C. C. Cerri. Annual patterns of soil CO₂ emissions from Brazil forests and pastures. Summary, Second International LBA Science Conference, Manaus, Brazil.

Reviews:

Granting Agencies:

- NSF - Atmospheric Chemistry
Ecosystems Studies Program
Biological Centers Program
Inter-American Institute for Global Change
- USDA - Forest Biology
- Forest/Rangeland/Crop Ecosystems
- EPA
- DOE - National Institute for Global Environmental Change (NIGEC)

Journals:

- American Chemical Society: *Symposium*
"Biogenic Sulfur in the Environment" Vol.
393
- Analytical Chemistry
- Biotropica
- Biogeochemistry
- Biology and Fertility of Soils
- Chemosphere: Atmospheric Methane
- Ecological Applications
- Geomicrobiology Journal
- Global Biogeochemical Cycles
- Interciencia
- Journal Air Pollution Control Association
- Journal Geophysical Research: Atmospheres
section
- NATO: ASI Series *"The Biogeochemical*
Cycling of Sulfur: Nitrogen in the Remote
Atmosphere"
- Nature
- Oikos
- Plant and Soil
- Soil Science
- Soil Science Society of America Journal
- Science
- Tellus

Ecosystems Center Activities and Committees:

Manager of Analytical Facility (through December 1992):

- 1975-1983 12-month commitment to establish facility, methods development, nutrient sample analysis, recommend new equipment purchases, attend new instrument training programs, train research assistants in the use of lab instruments, coordinate research assistants' use of lab facility, and supervise one full-time Analytical Lab Assistant.
- 1984-1985 6-month commitment to assist Principal Investigators with methods selection, institute lab orientation and safety program for research assistants, train research assistants in the use of lab instruments, and attend new instrument training programs.
- 1986-1987 4-month commitment to continue lab orientation and safety program and to supervise a 1/3-time Research Assistant III who acts as the Analytical Facility supervisor.
- 1988-1992 1-month commitment to supervise a 1/3-time Research Assistant III who acts as the Analytical Facility supervisor.

Vice-Chairperson, Research Committee, 1987

Member of Research Assistants Salary Review Committee, 1989

Chairperson, Vehicle Committee, 1987-present

Chairperson, Analytical Facilities, 1976-1985

Member, Facilities Committee, 1992-present

Education:

Instructor, January Ecology Course, Marine Biological Laboratory, 1976-1981
SES

Advisor:

Katariina Tuovinen, NSF REU
Derek M. Pelletier, NSF REU

Co-Advisor:

Gary P. Newhart, C. A. Culpeper Intern-in-Science Fellowship, 1981
Chris A. Kerfoot, Northeast Regional NIGEC Summer Fellow, 1993

Education and Research for Latin American and Caribbean Scientists (Exxon):

Carlos R. Alicea, Undergraduate, University of Puerto Rico, 1989-1991
Carlos Adorno, Undergraduate, University of Puerto Rico, 1989-1991
Gerardo Millan, Undergraduate, University of Puerto Rico, 1989-1991
Jose Neves, Undergraduate, University of Puerto Rico, 1991-1992
Alvaro Tamryo Velez, M. S. candidate, University of Puerto Rico, 1992-present
Sandra Molina, Ph.D. candidate, University of Puerto Rico, 1991-present

Texaco Fellowships in Environmental Research:

Samantha Arzon-Cintrón, M.S. candidate, University of Puerto Rico, 1991-1992
Luz Mina Babilonia, Ph.D. candidate, University of Puerto Rico, 1991-1992
Gerardo Millan, undergraduate, University of Puerto Rico, 1991-1992
Luis Ordonez, Research Assistant at CEER, University of Puerto Rico, 1991-1992
Lynnette Garces Rivera, undergraduate, University of Puerto Rico, 1992-1993
Brigitte de Paula Eduardo, Ph.D. candidate, University of Sao Paulo, Piracicaba, Brazil, 1992-1996
Marisa de Cassia Piccolo, Ph.D. candidate, University of Sao Paulo, Piracicaba, Brazil, 1992-1996
Jener L. Moraes, Ph.D. candidate, University of Sao Paulo, Piracicaba, Brazil, 1992-1996
Caio C. Passianoto, Ph.D. candidate, University of Sao Paulo, Piracicaba, Brazil. 2000-present

External Examiner:

Mark W. Vendrig, M.S. candidate, University of Witwatersrand, Johannesburg, South Africa

MBL Activities and Committees:

Corporation Member, 1985-present
Member, Safety Committee, 1977-present
Member, Research Services Committee, 1990-1998
Member, Forum of Year-Round Scientists, 1987-present