

Roger A. Burke, Research Chemist, in EPA's National Exposure Research Laboratory

Systems Exposure Division

[Mailing Address](#)

burke.roger@epa.gov

Area of Expertise: Relating watershed land use to headwater stream biogeochemical characteristics, including measurements of stable isotope ratios of dissolved organic and inorganic carbon; trace gas (CO₂ and N₂O) concentrations; and sediment denitrification enzyme activity (DEA). This work took place in Georgia Piedmont watersheds impacted by poultry and cattle production, and in Appalachian headwater streams impacted by mountaintop mining. Use of diffusive equilibration in thin films (DET) to measure estuarine pore water concentrations of ammonium and phosphate in Tampa Bay, FL and Choctawhatchee Bay, FL. Future work will use nitrogen gas fluxes and stable nitrogen isotope tracers to study N cycling in estuarine sediments.

Select Publications:

- Burke, R. A., 1993. Possible influence of hydrogen concentration on microbial methane stable hydrogen isotopic composition. *Chemosphere* 26: 55-67.
- Zepp, R.G., W.L. Miller, R.A. Burke, D.A.B. Parsons, and M.C. Scholes, 1996. Effects of moisture and burning on soil-atmosphere exchange of trace carbon gases in a Southern African savanna. *Journal of Geophysical Research* 101: 23699-23706.
- O'Malley, V.P., R.A. Burke, and W.S. Schlotzhaur, 1997. Using GC-MS/Combustion/IRMS to determine the ¹³C/¹²C ratios of individual hydrocarbons produced from the combustion of biomass materials-application to biomass burning. *Organic Geochemistry*, 27: 567-581.
- Burke, R.A., R.G. Zepp, M.A. Tarr, W.L. Miller, and B.J. Stocks, 1997. Effect of fire on soil-atmosphere exchange of methane and carbon dioxide in a Canadian Boreal Forest. *Journal of Geophysical Research* 102: 29,289-29,300.
- Zepp, R.G., W.L. Miller, M.A. Tarr, R.A. Burke, and B.J. Stocks, 1997. Soil-atmosphere fluxes of carbon monoxide during early stages of post-fire succession in upland Canadian boreal forests. *Journal of Geophysical Research* 102: 29,301-29,311.
- Burke, R.A., J.L. Meyer, J.M. Cruse, K.M. Birkhead and M.J. Paul. 1999. Soil-Atmosphere exchange of methane in adjacent cultivated and floodplain forest soils. *Journal of Geophysical Research* 104(D7):8161-8171

View more research publications by [Roger Burke](#).

Education:

- Ph.D. Marine Science, University of South Florida, 1985

- M.S. Oceanography, Texas A&M University, 1979
- B.S. Chemical Engineering, Tulane University, 1975

Professional Experience:

- Research Chemist, USEPA, ORD, NERL, Athens, GA 1991-present
- Assistant Research Scientist, Department of Oceanography, Texas A&M University 1988- 1991
- Assistant in Research, Department of Marine Science, University of South Florida 1985-1988

Honors and Awards:

- USEPA Scientific and Technological Achievement Award (STAA), Level II, 1993 and 2003
- USEPA STAA, Level III 1998 (two awards), 2012, 2013
- USEPA STAA, Honorable Mention, 1993, 2003
- 2000 USEPA Science Achievement Award for Earth Sciences
- 2003 USEPA Bronze Medal
- 2010 NERL Special Achievement Award