

## SCOTT D. MILLER

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## EDUCATION

- 1998 Ph.D. Engineering, UC Irvine: *The Structure of Turbulent and Wave-Induced Wind Fields Over Open-Ocean Waves*
- 1994 M.S. Mechanical Engineering, UC Irvine: *A Model for the Effects of Density Gradients on Mixing in Vortices*
- 1991 B.S. Mechanical Engineering, SUNY at Buffalo

## RELEVANT EXPERIENCE

2003-Present Assistant Researcher, UC Irvine, Earth System Science. Micrometeorology.

Ecosystem-atmosphere carbon dioxide and energy exchange and micrometeorology in Brazilian rainforest (NASA LBA Project, co-PI). Focus is the effect of selective logging on forest-atmosphere exchange.

Ocean-atmosphere exchange of carbon dioxide, dimethyl sulfide, and acetone (NSF, PI). Shipboard eddy flux measurements combining micrometeorology with API/CIMS (Atmospheric Pressure Chemical Ionization Mass Spectrometer) for dimethyl sulfide and acetone flux, and infrared gas analyzer for carbon dioxide flux.

River-atmosphere carbon dioxide and energy exchange . Amazon riverboat mounted eddy covariance system.

- 1998-2003 Post-Doctoral Researcher, UC Irvine, Earth System Science. Eddy covariance and biometric measurements of ecosystem-atmosphere exchange of carbon dioxide and water vapor above tropical rainforest, boreal forest, and a Southern California fresh water marsh.
- 1998-2000 Post-Doctoral Researcher, UC Irvine, Mechanical and Aerospace Engineering. Continued analysis of Marine Boundary Layers Experiment data set. Focus on flux divergence in the marine atmospheric surface layer.
- 1993-1998 Research Assistant, UC Irvine, Mechanical and Aerospace Engineering. Marine atmospheric surface layer measurements using unique platform R/P FLIP (Marine Boundary Layer Experiment), 10 and 30-day field deployments. Analysis of the turbulence structure and wave-induced perturbations in the wind.
- 1993 Graduate Teaching Assistant, UC Irvine, Mechanical and Aerospace Engineering. Fluids Lab.
- 1993 Physics Tutor: Tutorial Assistance Program, UC Irvine
- 1991-1994 Research Assistant, UC Irvine. Masters degree research modeling molecular mixing.
- 1990-1991 Junior Engineer, Hebel Corporation, Buffalo, NY.

## FUNDING

- 2004 Principle Investigator: *Direct Measurements of Carbon Dioxide, Dimethylsulfide, and Acetone Over the Ocean by Eddy Covariance*, Sept. 2004-Sept 2007, National Science Foundation, Co-PI: Eric Saltzman.
- 2002 Co-Principle Investigator: LBA-ECO Phase II: *Measuring the effects of logging on the CO<sub>2</sub> and energy exchange of a primary forest in Tapajos National Forest*. NASA, PI: Mike Goulden.

## SERVICE

2002-Present: Reviewer for Global Biogeochemical Cycles, Journal of Atmospheric and Oceanic Technology, Global Change Biology, Agricultural and Forest Meteorology, Ecologia, Bionetropica, NSF, NOAA.

2002 Panel Member, WESTGEC Regional Scientific Board, Davis, CA.

## REFEREED PUBLICATIONS

- Miller, S.D.**, M.L. Goulden, M.C. Menton, H.R. da Rocha, H.C. Freitas, A.M.S Figueira, C.A.D. Sousa. 2004. Biometric and micrometeorological measurements of tropical forest carbon balance. *Ecological Applications*, V14, N4: S114-126.
- Goulden, M.L., **S.D. Miller**, M.C. Menton, H.R. da Rocha, and H.C. Freitas. 2004. Physiological controls on tropical forest CO<sub>2</sub> exchange. *Ecological Applications*. V14, N4: S42-55.
- da Rocha, H.R., M.L. Goulden, **S.D. Miller**, M.C. Menton, L.D.V.O Pinto, H.C Freitas, A.M.S. Figueira. 2004. Seasonality of water and heat fluxes over a tropical forest in eastern Amazonia. *Ecological Applications*, V14, N4: S22-32.
- Keller, M., A. Alencar, G.P. Asner, B. Braswell, M. Bustamante, E. Davidson, T. Feldpausch, E. Fernandes, M. Goulden, P. Kabat, B. Kruijt, F. Luizão, **S. Miller**, D. Markewitz, A. Nobre, C. Nobre, N. Priante, H. Rocha, P. Silva Dias, C. von Randow, G. Vourlitis. 2004. Ecological research in the Large-scale Biosphere-Atmosphere experiment in Amazonia: early results. *Ecological Applications*, V14, N4: S3-16.
- Saleska, S.R., **Miller, S.D.**, Matross, D.M., Goulden, M.L., Wofsy, S., Rocha, H.R., Camargo, P.B., Crill, P., Daube, B.C., Freitas, H.C., Hutyrá, L., Keller, M., Kirchhoff, V., Menton, M., Munger, J.W., Hammond Pyle, E., Rice, A.H., and Silva, H. 2003. Carbon in Amazon Forests: Unexpected Seasonal Fluxes and Disturbance-Induced Losses, *Science* 302: 1554-1557.
- Litvak, M., **S. Miller**, S. Wofsy, and M. Goulden. 2003. Effect of stand age on whole ecosystem CO<sub>2</sub> exchange in Canadian boreal forest. *Journal of Geophysical Research-Atmospheres-* art. no 8225, 108, D3: 8225.
- Grachev, A.A., C.W. Fairall, J.E. Hare, J.B. Edson, and **S.D. Miller**. 2003. Direction of wind stress vector over waves, *Journal of Physical Oceanography*, 33(11): 2408-2429.
- Hristov, T.S., **S.D. Miller**, C.A. Friehe. 2003. Wind and ocean surface waves: dynamics of coupling. *Nature*, 422, March 6, 2003: 55:58.
- Hristov, TS, **S.D. Miller**, and C.A. Friehe. 2000. Linear time-invariant compensation of cup anemometer and vane inertia. *Boundary Layer Meteorology*, 97, N2: 293-307.
- Hristov, T., C. Friehe, and **S. Miller**. 1998. Wave-coherent fields in air flow over ocean waves: Identification of cooperative behavior buried in turbulence. *Physical Review Letters*, 81, N23: 5245-5248.
- Miller, S.D.**, C.A. Friehe, T.S. Hristov, and J.B. Edson. 1997. Wind and turbulence profiles in the surface layer over ocean waves. *Wind-Over-Wave Couplings: Perspectives and Prospects*, Salford University, England, SOUTHEND-ON-SEA, Essex, UK.
- Hristov, T.S., C.A. Friehe, **S.D. Miller**, J. Edson, and S. Wetzel. 1997. Structure in the atmospheric surface layer over open ocean waves—representation in terms of phase averages. *Wind-Over-Wave Couplings: Perspectives and Prospects*, (same volume as above).

## OTHER PUBLICATIONS

- Miller, S.D.**, C.A. Friehe, T.S. Hristov, J.B. and Edson. 1997. Wind and turbulence profiles in the surface layer over the ocean. 12th AMS Symposium on Boundary Layers and Turbulence, UBC, Vancouver, BC, Canada.
- Edson J.E., S.W. Wetzel, C.A. Friehe, **S.D. Miller**, and T.S. Hristov. 1997. Energy flux and dissipation profiles in the marine surface layer. 12th AMS Symposium on Boundary Layers and Turbulence, UBC, Vancouver, BC.
- Hristov, T.S., C.A. Friehe, **S.D. Miller**, J.B. Edson, and S. Wetzel. 1997. Structure of the atmospheric surface layer over the ocean waves—phase averaging via the Hilbert Transform. 12th Symposium on Boundary Layers and Turbulence, P11.3, Vancouver, Canada.

## SELECTED PRESENTATIONS

- 2004 Micrometeorology, CO<sub>2</sub> and H<sub>2</sub>O exchange of a tropical rainforest before and after selective logging , 3<sup>rd</sup> LBA Science conference, Brasilia, Brazil.
- 2003 Carbon cycling in tropical and boreal forests, University Federal do Para, Para, Brazil.
- 2003 Flux corrections for cross-contamination, AmeriFlux Workshop on Standardization of Flux Analysis and Diagnostics, Corvallis, Oregon
- 2003 Tower- and biometry-based measurements of tropical forest carbon balance. 2<sup>nd</sup> LBA Science Conference, Manaus, Brazil.
- 2002 Disturbance effects on ecosystem carbon balance in tropical and boreal forests. FluxNet, Orvieto, Italy.
- 2002 Micrometeorological measurements of forest-atmosphere carbon dioxide exchange in tropical and boreal forests, Department of Atmospheric Science, University of Sao Paulo, Brazil.
- 2001 Comparison between open-and closed path analyzers for CO<sub>2</sub> flux measurements in Tapajos National Forest, 2 Brazil, CPTEC workshop, Sao Paulo, Brazil.
- 2001 Measuring the effect of selective logging on forest-atmosphere exchange: Report to the 10<sup>th</sup> LBA-ECO Science Steering Committee, Palmas, Tocantins, Brazil.
- 2001 Measuring the effect of tropical logging on forest-atmosphere exchange, Global Change Open Science Conference, (IGBP), Amsterdam, Netherlands (poster).
- 2001 Measuring the effect of tropical logging on forest-atmosphere exchange: Preliminary Results, LBA-Ecology Open Meeting, Atlanta, GA.
- 1999 The wave-induced wind field above deep ocean waves, 13th AMS Symposium on Boundary Layers and Turbulence, Dallas, Texas.
- 1997 Wind and turbulence profiles in the surface layer over the ocean, 12th AMS Symposium on Boundary Layers and Turbulence, UBC, Vancouver, BC, Canada, July 1997.
- 1997 Wind and turbulence profiles in the surface layer over ocean waves, Wind-Over-Wave Couplings: Perspectives and Prospects, University of Salford, Salford, England.
- 1996 Wind profiles and turbulence over ocean waves, AGU Ocean Sciences, San Diego, CA.
- 1995 Profiles of wind speed and Reynolds' stress over the ocean. Third International Symposium on Air-Water Gas Transfer, Heidelberg, Germany (poster).