

FAITH ANN HEINSCH

Numerical Terradynamic Simulation Group (NTSG)
School of Forestry
The University of Montana
Science Complex 428
Missoula, MT 59812
faithann@nts.g.umt.edu
PH (406)243-6218 FAX (406)243-4510

RESEARCH INTERESTS

My research interests include soil-biosphere-atmosphere interactions, on the canopy to ecosystem scale, especially canopy carbon dioxide and water balance instrumentation, measurement and modeling.

EDUCATION

Ph.D. in Soil Science, Texas A&M University (2002).

Specialty: Environmental Physics

Dissertation Title: Effects of Freshwater Inflow on Carbon Dioxide Exchange in a Coastal Wetland

GPA 4.00

M.S. in Atmospheric Science, Oregon State University (1997).

Thesis title: Transpiration and the Atmospheric Boundary Layer: Progress in Modeling Feedback Mechanisms

GPA 3.75

B.S. in Physical Geography and German, University of Alabama (1993).

GPA 3.93

AWARDS, DISTINCTIONS, AND SOCIETIES

Tom Slick Senior Research Fellow, 2001

Special Achievement Award for Graduate Teaching, Soil & Crop Sciences Department, Texas A&M University, 2000

van Bavel Fellowship, Texas A&M University, 1998-2002

Graduate Student Fellowship, Texas A&M University, 1997-1998

NCAR Summer Colloquium, "Terrestrial Ecosystems and the Atmosphere", 1996

NASA Space Grant Fellowship, 1993-1994

Outstanding Undergraduate Student, Department of Geography, University of Alabama, 1993

President, Soil & Crop Sciences Graduate Student Association, Texas A&M University, 1999-2001

College of Oceanic and Atmospheric Sciences Student Advisory Committee, Oregon State University, 1995-1996

Phi Beta Kappa, 1993

American Geophysical Union, 1995

WORK EXPERIENCE

Post-Doctoral Research and Teaching

NTSG, The University of Montana (2002-present), under the guidance of Dr. S.W. Running and Dr. J.S. Kimball. Research topics include MODIS validation, BIOME-BGC validation, and combining measurements of differing spatial and temporal scales.

School of Forestry, The University of Montana (2002), instructor for FOR 240 "Tree Biology". Co-taught a class of 60+ students. Responsibilities included lecturing, testing, and student assistance.

Graduate Research Assistantships

Environmental Physics, Texas A&M University (1997-2002), under the guidance of Dr. J. L. Heilman. Design and implement field experiments, laboratory work, data analysis, and produce presentations and papers of ongoing research.

Atmospheric Sciences, Oregon State University (1994-1996), under the guidance of Dr. M. H. Unsworth. Model development, programming and testing, and produced presentations of research.

Graduate Teaching Assistantships

Soil Physics, Texas A&M University (Fall 2001), under the guidance of Dr. K. J. McInnes. Teaching, grading, and assisting students with experiments each week.

Introduction to Soil Science, Texas A&M University (Spring 1999, Spring 2000), under the guidance of Dr. M.H. Milford. Teaching, testing, grading, and assisting students with experiments for two laboratory sessions each week.

Environmental Sciences Program, Oregon State University (1996-1997), under the guidance of Dr. P. S. Muir and Dr. K Lajtha. Running the office, maintaining student records and advisor files, and assisting with the academic advising of students.

Introduction to Meteorology, Oregon State University (Fall, 1995), under the guidance of Mr. G. H. Taylor. Teaching and grading of two recitation sections, emphasizing the mathematics of the material covered in lectures.

SKILLS

PC and UNIX system operation
Experimental design, statistical analyses, database management
Programming Languages: C, FORTRAN, Visual BASIC
Numerical Modeling: finite difference, finite element
Field Measurements: CO₂/H₂O Measurements with Conditional Sampling and Eddy Covariance, Bowen Ratio System, Micrometeorological Instrumentation, Soil Respiration Measurement Instrumentation
Proficiency in German reading/writing

MANUSCRIPTS

Heinsch, FA, M Reeves, CF Bowker, P Votava, S Kang, C Milesi, M Zhao, J Glassy, RR Nemani. 2003. User's Guide: GPP and NPP (MOD17A2/A3) Products, NASA MODIS Land Algorithm.

Heilman, JL, DR Cobos, FA Heinsch, CS Campbell and KJ McInnes. 1999. Tower-based conditional sampling for measuring ecosystem-scale carbon dioxide exchange in coastal wetlands. *Estuaries*, 22(3A): 584-591.

Heilman, JL, FA Heinsch, DR Cobos, KJ McInnes. 2000. (E)nergy balance of a high marsh on the Texas Gulf Coast: Effect of Water Availability. *Journal of Geophysical Research: Atmospheres* 105(D17): 22371-122377.

PRESENTATIONS

Heinsch, FA, JS Kimball, AJ Oakins, M Zhao, S Kang, RR Nemani, SW Running. "Intercomparison of MODIS and Tower Eddy Flux-based Estimates of Gross Primary Production" at the American Geophysical Union Meeting, San Francisco, CA, December 2002.

Heinsch, FA, AJ Oakins, M Zhao, SW Running. "MOD17A2 (MODIS GPP) Output for Active Ameriflux Sites" at the Ameriflux Science Meeting, October, 2002.

- Running, SW, FA Heinsch, AJ Oakins, M Zhao, and RR Nemani. "Validation of MODIS Terrestrial Net Primary Productivity with Fluxnet Data" presented by SW Running at the **EOS** Investigator Working Meeting, November 2002.
- Running, SW and FA Heinsch. "MODIS Validation and Real-Time Modeling" at the Ameriflux Science Meeting, October, 2002.
- Heinsch, FA, JS Kimball, SW Running. 2002. "Biome-BGC and Estimations of Tower Fluxes" at the Chequamegon Ecosystem-Atmosphere Study Meeting, Woodruff, WI, August 16-21, 2002.
- Heinsch, FA, SW Running, JS Kimball. "Using MODIS to Estimate GPP/NPP", IARC Research Development Workshop, Fairbanks, AK, July 29 – 30, 2002.
- Heinsch, FA, JS Kimball, SW Running. "Biome-BGC and Estimations of Tower Fluxes in Alaska", IARC Research Development Workshop, Fairbanks, AK, July 29 – 30, 2002.
- Heinsch, FA, JL Heilman, KJ McInnes, "Measurement and Partitioning of Net Carbon Exchange in a Coastal Salt Marsh" at the American Geophysical Union Meeting, San Francisco, CA, December 2001.
- Heinsch, FA, JL Heilman, KJ McInnes, "Effects of Freshwater Inflow on CO₂ Exchange in a Coastal Wetland" at the American Geophysical Union Meeting, Boston, MA, May 2001.
- Heinsch, FA, JL Heilman, KJ McInnes, "Field-Scale Carbon Balance of an Estuarine Marsh" at the American Geophysical Union Meeting, San Francisco, CA, December 1999.
- Monteith, JL, MH Unsworth and FA Heinsch, "Transpiration and the Atmospheric Boundary Layer: Progress in Modeling Feedback Mechanisms" at the Ecological Society of America Meeting, Salt Lake City, Utah, 1995.
- Heinsch, FA, MH Unsworth, and D Marks, "Modeling Feedback Between Transpiring Vegetation and the Atmosphere" at the American Geophysical Union Meeting, San Francisco, CA, December 1995.