

## William J. Sacks

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### EDUCATION

**University of Wisconsin-Madison**, Madison, WI (*fall 2005 – present*)

Ph.D. candidate, Land Resources. Advisor: Jon Foley. GPA: 4.0.

**Williams College**, Williamstown, MA (*fall 1999 – spring 2003*)

Graduated Summa Cum Laude with Bachelor of Arts degree. Major in Computer Science, concentration with highest honors in Environmental Studies. GPA: 4.05; in major: 4.29 (A+).

**Lower Merion High School**, Ardmore, PA (*fall 1995 – spring 1999*)

Graduated with 5.0/5.0 GPA, distinguished scholar's diploma. National Merit Scholar.

**PA Governor's School for the Sciences**, Carnegie Mellon Univ., Pittsburgh, PA (*summer 1998*)

Concentration in computer science, with focus on parallel processing. Worked on team research project in computer science: "Classification of DNA Using Kohonen Neural Networks."

### HONORS AND AWARDS

- Early-Career Scientist Best Poster Award, First iLEAPS Science Conference (*1/26/06*)
- NSF Graduate Research Fellowship (*fall 2005*)
- University Fellowship, University of Wisconsin-Madison (*fall 2005*)
- Robert F. Rosenburg Prize for Excellence in Environmental Studies (*6/8/03*)
- Sigma Xi (*inducted 6/03*)
- Phi Beta Kappa (*inducted 9/02*)

### PROFESSIONAL RESEARCH EXPERIENCE

**National Center for Atmospheric Research, Graduate Research Assistant**, Boulder, CO  
(*10/03 – 5/05*)

Major projects included data assimilation in a terrestrial carbon flux model, and modeling and measurement work related to the Airborne Carbon in the Mountains Experiment.

**NASA/Goddard, Research & Discover Intern**, Greenbelt, MD (*6/03 – 8/03*)

Conducted forest modeling and remote sensing research on the effects of an insect outbreak on local climate in the Siberian boreal forest.

**University of New Hampshire, Research & Discover Intern**, Durham, NH (6/02 – 8/02)

Constructed a simple terrestrial carbon flux model and conducted research on parameter optimization using eddy covariance flux data.

**University of Pennsylvania, SUNFEST Participant**, Philadelphia, PA (5/01 – 8/01)

An NSF Research Experiences for Undergraduates program. Conducted computer science research on vision and obstacle avoidance in robot soccer; team won 3rd place in international RoboCup competition.

**The Wetlands Institute, Intern**, Stone Harbor, NJ (5/00 – 8/00)

Assisted in research and conservation of diamondback terrapins.

## TEACHING EXPERIENCE

**Regional Biogeochemistry Summer Colloquium: Ecological Model Optimization Tutorial**,

Boulder, CO (6/13/07)

Designed and led half-day tutorial on parameter optimization in ecological models, with about 25 participants. Part of a two-week workshop for graduate students sponsored by the Advanced Study Program of the National Center for Atmospheric Research.

**University of Wisconsin-Madison, Environmental Studies Teaching Assistant**, Madison, WI

(fall 2006)

Redesigned, taught and graded computer-based lab section for introductory graduate-level course, “Modeling and Analysis of Environmental Systems”.

**Williams College, Computer Science Teaching Assistant**, Williamstown, MA

(fall 2000, fall 2001, fall 2002)

Helped instruct labs, graded student work, and conducted weekly help sessions for “Data Structures & Advanced Programming” and “Computer Organization”.

## PROFESSIONAL DEVELOPMENT

**Art of Climate Modeling, National Center for Atmospheric Research**, Boulder, CO (6/06)

Participated in a two-week workshop on climate modeling in general, and NCAR’s CCSM in particular. Worked on a group project investigating the effects of irrigation on climate.

## PUBLICATIONS

**Sacks WJ**, Cook BI, Buening N, Levis S, Helkowski JH (**in revision**). Effects of global irrigation on the near-surface climate. *Climate Dynamics*.

Zobitz JM, Moore D, **Sacks WJ**, Monson RK, Bowling DR, Schimel DS (2008). Integration of process-based soil respiration models with whole-ecosystem CO<sub>2</sub> measurements. *Ecosystems*, 11: 250-269.

**Sacks WJ**, Schimel DS, Monson RK (2007). Coupling between carbon cycling and climate in a high-elevation, subalpine forest: a model-data fusion analysis. *Oecologia*, 151: 54-68.

- Sacks WJ**, Schimel DS, Monson RK, Braswell BH (2006). Model-data synthesis of diurnal and seasonal CO<sub>2</sub> fluxes at Niwot Ridge, Colorado. *Global Change Biology*, 12: 240-259.
- Braswell BH, **Sacks WJ**, Linder E, Schimel DS (2005). Estimating diurnal to annual ecosystem parameters by synthesis of a carbon flux model with eddy covariance net ecosystem exchange observations. *Global Change Biology*, 11: 335-355.
- Sacks WJ** (2003). *Parameter optimization in a forest model using hourly eddy flux measurements*. Senior thesis, Environmental Studies, Williams College, Williamstown, MA, 91 pp.
- Chitta S, **Sacks W**, Ostrowski JP, Das AK, Mishra PK (2001). The University of Pennsylvania RoboCup Legged Soccer Team. In: *RoboCup 2001: Robot Soccer World Cup V*, A. Birk, S. Coradeschi, and S. Tadokoro (Eds.), Springer-Verlag.

## PRESENTATIONS

- CCSM Land Model Working Group**, Boulder, CO (2/27/07)  
“Realistic irrigation in the CLM and its effects in a CCSM simulation” (oral).
- First iLEAPS Science Conference**, Boulder, CO (1/25/06)  
“Partitioning NEE into its component fluxes using model-data fusion: a study at Niwot Ridge, Colorado” (poster).
- NOAA Climate Monitoring & Diagnostics Laboratory Seminar**, Boulder, CO (3/24/05)  
“Model-data synthesis of CO<sub>2</sub> fluxes at Niwot Ridge, Colorado” (oral; invited).
- NCAR Climate & Global Dynamics Division Seminar**, Boulder, CO (3/8/05)  
“Model-data synthesis of CO<sub>2</sub> fluxes at Niwot Ridge, Colorado” (oral).
- AGU Fall Meeting**, San Francisco, CA (12/17/04)  
“Assimilation modeling of CO<sub>2</sub> fluxes at Niwot Ridge, CO, and strategy for scaling up to the region” (poster).
- AmeriFlux Annual Meeting**, Boulder, CO (10/6/04)  
“Assimilation modeling of NEE at Niwot Ridge, Colorado” (poster).
- New York Turtle and Tortoise Society Annual Seminar**, New York, NY (1/13/01)  
“Results from terrapin excluder experiment” (oral; invited).

## SERVICE ACTIVITIES

- Reviewer for *Global Change Biology*, *Geophysical Research Letters*, *JGR – Biogeosciences*, *Agricultural & Forest Meteorology*, *Earth Interactions*, *Canadian Journal of Soil Science*

## TECHNICAL SKILLS

*Programming languages:*

- Significant experience with FORTRAN and C
- Some experience with Perl, C++, Java, Pascal, LISP, ML, and BASIC

*Scientific packages & tools:*

- Significant experience with MATLAB, R, Excel, STELLA modeling software, and Unix operating system (including shell scripting)
- Some experience with IDL, NCL, NetCDF operators, ENVI and ArcGIS

*Other:*

- Experience with configuring and using Subversion version control system
- Some experience with Flash & ActionScript