BETH A. DREWNIAK

Atmospheric Sciences Section
Environmental Science Division
Argonne National Laboratory

Education:

M.S. University of Illinois, Atmospheric Sciences, 2006
B.S. University of Illinois, Physics and Astronomy, 2002

Professional Experience:

2011-Present	Computational Associate, Atmospheric Modeling
	Environmental Science Division
2009-2011	Scientific Associate
	Environmental Science Division
2006-2009	Predoctoral Appointee
	Environmental Science Division
	Argonne National Laboratory

Integrate agriculture land representation, including maize, soybean, and spring wheat into the Carbon-Nitrogen version of the land surface model - Community Land Model (CLM-CN) with dynamic roots, management practices, and a separate growth scheme with carbon and nitrogen allocation. Investigate the impact on soil organic carbon from farming practices including residue management, fertilizer use, and land cover change. Evaluate the impacts of land use change from increased biofuel demand on soil organic carbon by expanding the dynamic vegetation capability of the model to maintain carbon, water, and energy balance across multiple soil columns. Interests for this work also include adding additional management practices (e.g., tillage and irrigation) and crop types (including managed grasses) to the CLM framework. Integrate dynamic land use land change into the CLM model to understand the effects of new land use on climate.

Provide assistance to federal sponsors with regard to air quality compliance requirements through knowledge of new and pending orders, pollution prevention strategy development, compliance evaluations, database development, etc. Particular emphasis is given to greenhouse gas emissions inventories and criteria pollutants.

Summary of Previous Experience:

2004-2006	Graduate Research Assistant
	University of Illinois, Champaign-Urbana, IL

Evaluated the influence of climate on land cover and biogenic volatile organic carbon emissions from vegetation and nitrogen oxides from soil, with a modified version of the dynamic vegetation model, Integrated Biosphere Simulator, agricultural version (Agro-IBIS). Prepared a biogenic emissions inventory for the Environmental Protection Agency. Collaborated with scientists from the Illinois State Water Survey and other departments within the University of Illinois to

develop an Emissions Inventory Modeling System for the Chicago Area. Worked with the Global Biosphere Emissions and Interactions System (GloBEIS) model to estimate spatial changes in isoprene emissions from a new plant species distribution in the northern US forests.

Research Interests:

Research interests include biogeochemical cycling, particularly the carbon cycle and expanding the capability of vegetation models to include an agriculture component. Other interests are coupled atmosphere-terrestrial models which can simulate climate impacts on land surface dynamics, global and regional climate modeling, greenhouse gas inventory development, biogenic emission modeling, and air quality issues.

Professional Activities:

American Geophysical Union

Publications:

Author or Co-author of 10+ journal, report, and conference publications.