

The Emerging Pathogens Institute Seminar Series

Presents

Dr. David Wheeler

**Emory University School of Public Health
Atlanta, GA**

“Bayesian Wombling of Raccoon Rabies Transmission”

Friday, March 28, 2008

3:30pm - Room G-114, HPNP Building

Landscape features may serve as either barriers or gateways to the spread of certain infectious diseases, and understanding the way geographic structure impacts disease spread could lead to improved containment strategies. This presentation focuses on modeling the space-time diffusion of a 1977 raccoon rabies outbreak across a large part of the Eastern United States while measuring the impact that landscape features, such as mountains and rivers, have on the speed of infectious disease diffusion. In this research we utilize Bayesian hierarchical spatial models, which are becoming increasingly popular in the study of disease, at least in part for their flexibility in adding complexity to simple models through a hierarchical framework of parameters. The models perform boundary analysis, or wombling, for disease transmission and account for spatial autocorrelation in disease through two different types of spatial random effect parameters. Results of the models show the benefit of Bayesian hierarchical spatial models for statistical inference. I will also briefly discuss the current role of geographical information systems (GIS) in Bayesian spatial statistical modeling.

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