



UNC  
GILLINGS SCHOOL OF  
GLOBAL PUBLIC HEALTH

## **James E. Grizzle Alumni Award Recipient Lecture**

**William K. Pan  
Assistant Professor  
Global Environmental Health  
Duke University**

### **Development of an Early Warning System for Malaria in the Amazon**

Malaria remains one of the leading causes of morbidity and mortality worldwide. In the Region of the Americas, more than 95% of all malaria cases are reported in Amazon-basin countries. Since the Roll Back Malaria Program began in 2000, considerable strides have been made in reducing malaria incidence to the extent that several scientists and policy experts believe that malaria elimination is within reach. To achieve this goal, intervention campaigns require improved identification of geographic and seasonal foci to target resources that maximize malaria risk reduction. This presentation will introduce the initial components and statistical models being developed for a detection and early warning system for malaria in the Amazon. Our approach involves the integration of three spatio-temporal models of anopheline mosquito biting rates, human settlement and migration, and malaria incidence over a 15-year period. These models are informed by an underlying land data assimilation system (LDAS) that provides extensive information pertaining to land cover, climate, hydrology, and soil moisture over time. Our goal is to forecast malaria risk in every 1-km square area for each surveillance week of a given year for the entire Amazon basin. These models are being tested and developed from data obtained from the region of Loreto in the Peruvian Amazon.

**Tuesday, April 17, 2012  
4:00-5:30 PM**

**William and Ida Friday Center for Continuing Education**