1086-92-474 **Richard A Erickson*** (richard.erickson@ttu.edu), Box 41163, Department of Environmental Toxicology, Texas Tech University, Lubbock, TX 79407, and **Stephen B. Cox**, **Katharine Hayhoe**, **Linda J.S. Allen**, **Kevin R. Long** and **Steven M. Presley**. *Potential impact of climate change on dengue and its mosquito vector, Aedes albopictus: A mechanistic modeling approach.*

Global climate change may have profound impacts on the ecology of infectious diseases such as dengue. Traditionally, habitat envelopes and other statistical classification approaches have been used to assess climate change. These coarse approaches provide insight into species distributions and ranges, but do not provide insight into population or disease dynamics.

We examined how the transmission and maintenance dynamics of dengue were changed under projected climate conditions. A mechanistic, stage-structured population model with ordinary differential equations was used to model *Aedes albopictus*. This mosquito model was then incorporated into a disease model.

Potential changes in dengue season length were projected for three cities on the current edge of the species range: Atlanta, GA; Chicago, IL; and Lubbock, TX. High-resolution climate projections from 4 global climate models were used with projections from two emission scenarios. We found that projected climate change shortened mosquito life spans in the southern cities, which in turn may decrease the potential dengue season length. In contrast, Chicago had an increase in possible dengue season length. Our findings illustrate the difficulties in predicting how climate change may alter complex systems. (Received September 04, 2012)