



SACRAMENTO STATE

Department of Physics & Astronomy Spring 2006

Physics Colloquium Series

“Global Climate Modeling of the Effects of Human Activities on the Environment”

The emission of carbon dioxide and other greenhouse gases since the industrial revolution, and the prospect of steadily increasing emissions in the future, have potentially adverse consequences on the global environment, including warming, sea-level rise, and ocean chemistry changes. At Lawrence Livermore National Laboratory, we have used global climate models to predict some of these consequences, as well as to explore possible strategies for mitigating these changes. Results from our coupled climate and carbon cycle model simulations to year 2300 show what might occur if CO₂ emissions from all the currently estimated fossil fuel resources were released to the atmosphere. Simulations of land-use change show the effects of deforestation and reforestation on the future climate, with implications for climate mitigation strategies based on forests. I will also present ocean chemistry calculations based on ocean general circulation model simulations of atmospheric CO₂ emission, stabilization of atmospheric CO₂ content, and stabilization of atmospheric CO₂ achieved in total or in part by injection of CO₂ to the deep ocean interior.

Michael Wickett

Center for Applied Scientific Computing, Lawrence Livermore Lab

Thursday, March 23, 2006

4:00-5:20 PM MND 1015

OPEN & FREE TO ALL STUDENTS, FACULTY & PUBLIC