Zong-Liang Yang, University of Texas at Austin, USA

Title: Beyond Land-Atmosphere Interaction

Abstract: Traditionally, land-surface models (LSMs) provide bottom boundary conditions (or surface fluxes) for weather and climate models in the form of reflected solar radiation, upward emission of long-wave radiation, and turbulent exchanges of heat, moisture, and momentum with the lower atmosphere. Recently, LSMs are being asked to do more or to merge with other types of models including surface hydrology (runoff and stream flow with implications for flooding and drought, soil chemistry, nutrient transport, and freshwater inflow to coastal zones), groundwater (aquifers, irrigation, and human withdrawals), ecology (vegetation growth and health, crop yield, wetlands and other terrestrial ecosystems, and marine ecosystems), and air quality (biogenic emissions, dust emissions, aerosols, urban canopy layer, and dry deposition). New data assimilation methods are being explored to take advantage of terrestrial remote-sensing products to improve LSMs’ predictive skills. In this talk, I will briefly review these developments, using my research group’s work as examples.