

## **Development, validation of LSM and its hydrological application**

Kenji Tanaka

*DPRI, Kyoto University*

SiBUC (Simple Biosphere including Urban Canopy) land surface scheme was designed to treat the landuse condition (natural vegetation, cropland, urban area, water body) in detail. Through the application to various topics, SiBUC has been improved and expanded. In this presentation, basic concept and the formulation of SiBUC are briefly introduced. Application to lake Biwa basin (3800km<sup>2</sup>), Seyhan river basin (21000km<sup>2</sup>), Huaihe river basin (270000km<sup>2</sup>), GSWP2 (global), and short term rainfall prediction are introduced to show and discuss the ability and limitation of current land surface model. In the lake Biwa basin, paddy field scheme and snow scheme were implemented. In the Huaihe river basin, irrigation scheme was implemented for various cropland. In the Seyhan river basin, the effect of climate change on regional hydrological cycle and water resources environment is assessed. In GSWP2, global distribution of energy and water balance components were estimated. SiBUC is utilized in the land-atmosphere interaction study such as the effect of urban heating on heavy rainfall event.