UFZ-Seminar „Wasser and Environment“

HELMHOLTZ ZENTRUM FÜR UMWELTFORSCHUNG UFZ

16. June 2014, 1.30 pm

Saal, Brückstr. 3a, Magdeburg

Luis Samaniego

Helmholtz-Zentrum für Umweltforschung - UFZ, Department Hydrosystemmodellierung

gives a talk on:

An open-source distributed mesoscale hydrologic model - mHM in a nutshell and applications -

Two of the grand challenges in contemporary hydrology are to develop the ability to globally monitor and predict the movement of water on the landscape at scales from 1 to 5 km and to reduce models' predictive uncertainty related with water and energy fluxes at ungauged locations. The Multiscale Parameter Regionalization (Samaniego et al. 2010, Kumar et al. 2013a,b WRR) technique was developed aiming at tackling those challenges. During this talk, a synthesis of this method, its implementation within mesoscale hydrological model (mHM), and its evaluation in major river basins in Europe and USA will be presented. Applications for flood forecasting and drought monitoring (Samaniego et al. JHM, 2013) will be highlighted. In addition to the standard streamflow discharge statistics, special emphasis will be given on the predictability of state variables and water fluxes such as soil moisture, evapotranspiration, and groundwater recharge. Additional processes to be included, the role of new data sources and its potential for improvement will be also discussed, for example simulation of nitrate load and other pollutants as well as reservoir operation.