



NASA and NOAA Surface Water and Energy Balance Data for Water Resources Applications

David Toll (1), Jiarui Dong (2), Paul Houser (3), and Kristi Arsenault (2)

(1) NASA/Goddard Space Flight Center, Hydrological Sciences Branch, (2) UMBC/GEST, (3) GMU/IGES/CREW

The primary objective of our study is to evaluate surface water and energy balance for water resources applications through study of a selected range of modeling and data assimilation systems associated with NASA and NOAA. Specifically, the joint analysis of North American Regional Reanalysis (NARR) data, North American Land Data Assimilation System (NLDAS) and Land Information System (LIS) data versus in-situ measurements provides a unique look at the water and energy flux estimation from different modeling and data system approaches. For reference we used *in situ* data from the Coordinated Enhanced Observing Periods (CEOP 3&4), and the NASA-Reclamation ET tower sites.

Comparison shows that large biases are found on partitioning sensible heat and latent heat fluxes in most models during spring and summer seasons. Possible factors, such as model forcing, land cover classifications and model physics, affecting the energy fluxes are further investigated at a spatial high resolution through NASA LIS. It was found that the model forcing data, land cover classifications and model physics had significant influences on the energy flux estimation. This study will suggest the optimal forcing data and modeling for future operational predictions.