Land Data Assimilation of Satellite-Based Soil Moisture Products Using the Land Information System Over the NLDAS Domain

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This presentation will include results from data assimilation simulations using the NASA-developed Land Information System (LIS). Using the ensemble Kalman filter in LIS, two satellite-based soil moisture products from the AMSR-E instrument were assimilated, one a NASA-based product and the other from the Land Parameter Retrieval Model (LPRM). The domain and land-surface forcing data from these simulations were from the North American Land Data Assimilation System Phase-2, over the period 2002-2008. The Noah land-surface model, version 3.2, was used during the simulations. Changes to estimates of land surface states, such as soil moisture, as well as changes to simulated runoff/streamflow will be presented. Comparisons over the NLDAS domain will also be made to two global reference evapotranspiration (ET) products, one an interpolated product based on FLUXNET tower data and the other a satellite- based algorithm from the MODIS instrument. Results of an improvement metric show that assimilating the LPRM product improved simulated ET estimates while the NASA-based soil moisture product did not.