The Global Land Data Assimilation System (GLDAS): Results and New Directions

Matt Rodell and Hiroko Kato
Hydrological Sciences Branch
NASA Goddard Space Flight Center

The Global Land Data Assimilation System (GLDAS) generates global, high resolution fields of land surface states (e.g., soil moisture and temperature) and fluxes (e.g., evapotranspiration, ground heat flux) by synthesizing satellite- and ground-based observational data products within sophisticated land surface models. Observation-based precipitation and downward radiation products, as well as output fields from the best available global coupled atmospheric data assimilation systems, are employed to force the models. Twenty-seven year (1979-present) simulations with the Noah, CLM2, and Mosaic land surface models, parameterized and forced by an amalgam of the best available datasets, are available and will continue into the future. GLDAS supports CEOP by providing a global context for reference site and CSE data, and CEOP supports GLDAS by enabling local scale model evaluation in a variety of global climatic regimes. GLDAS has been selected as a primary integration tool for scientific products resulting from NASA's Energy- and Water-Cycle Sponsored Research (NEWS) initiative.   Through the support of NEWS, mature data assimilation techniques and other modeling advancements are now being implemented tested in the software.