

2007 Fall Meeting
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Rapid prototyping of soil moisture estimates using the NASA Land Information System

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The Land Information System (LIS), developed at the NASA Goddard Space Flight Center, is a functional Land Data Assimilation System (LDAS) that incorporates a suite of land models in an interoperable computational framework. LIS has been integrated into a computational Rapid Prototyping Capabilities (RPC) infrastructure. LIS consists of a core, a number of community land models, data servers, and visualization systems – integrated in a high-performance computing environment. The land surface models (LSM) in LIS incorporate surface and atmospheric parameters of temperature, snow/water, vegetation, albedo, soil conditions, topography, and radiation. Many of these parameters are available from in-situ observations, numerical model analysis, and from NASA, NOAA, and other remote sensing satellite platforms at various spatial and

temporal resolutions. The computational resources, available to LIS via the RPC infrastructure, support e- Science experiments involving the global modeling of land-atmosphere studies at 1km spatial resolutions as well as regional studies at finer resolutions. The Noah Land Surface Model, available with-in the LIS is being used to rapidly prototype soil moisture estimates in order to evaluate the viability of other science applications for decision making purposes. For example, LIS has been used to further extend the utility of the USDA Soil Climate Analysis Network of in-situ soil moisture observations. In addition, LIS also supports data assimilation capabilities that are used to assimilate remotely sensed soil moisture retrievals from the AMSR-E instrument onboard the Aqua satellite. The rapid prototyping of soil moisture estimates using LIS and their applications will be illustrated during the presentation.

DE: 0520 Data analysis: algorithms and implementation

DE: 0525 Data management

DE: 1805 Computational hydrology

DE: 1855 Remote sensing (1640)

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