Goddard's NOS Program Dramatically Improves Flood Forecasts

The New Observing Strategy (NOS) concept is designed to optimize data from many different sensors and models in response to specific measurement needs or water-related events.

The NASA Land Information System (LIS), developed in Goddard's Hydrological sciences lab, was used as the modeling environment to drive the initial NOS demonstration for a hydrology application.

A historical case of floods over the Midwest U.S. in March 2019 was used for the first 'proof-of-feasibility' demonstration. NASA LIS was used to assimilate information from in-situ soil moisture and low latency VIIRS flood products to issue forecasts of flooding conditions.

Based on these forecasts, taskable high-resolution commercial satellite data was obtained over the locations of anticipated flooding and were used to refine the forecasts. *Assimilating all NOS-directed observations improves forecasts of flooding conditions by as much as 30%*

A fully automated NOS testbed informed by LIS forecasts was successfully demonstrated, and shown to significantly improve forecasts.

Configuration of the NOS Testbed where LIS is used as the environment to integrate different sources of observations and to develop measurement acquisition targets