

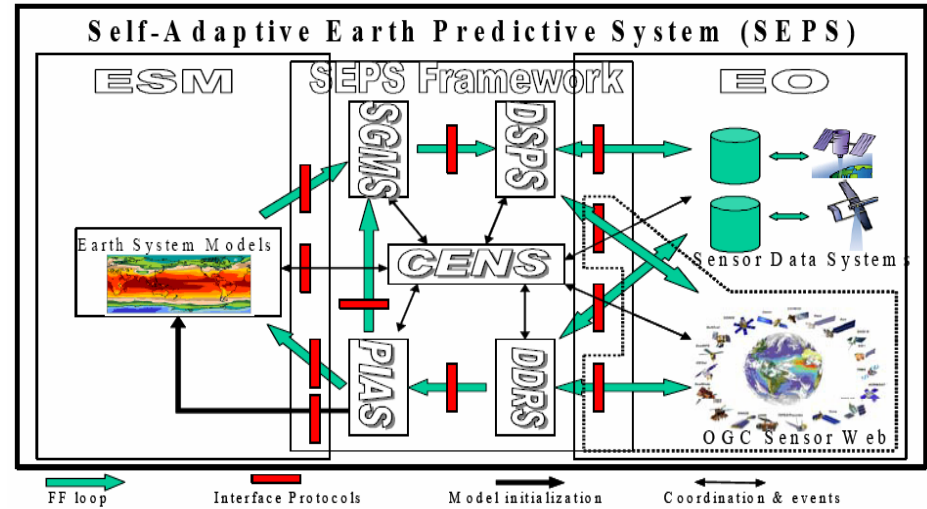


# A General Framework and System Prototypes for the Self-Adaptive Earth Predictive Systems (SEPS)--Dynamically Coupling Sensor Web with Earth System Models

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## Objective

Scientists from GMU, GSFC, and UMBC will collaborate to 1) develop a general Self-Adaptive Earth Predictive Systems (SEPS) framework for dynamic, interoperable coupling between ESMs and EO, based on open, consensus-based standards; 2) implement and deploy the framework and plug in diverse sensors and data systems to demonstrate the plug-in-EO-and-play capability; and 3) prototype a Bird-Migration-Model-to-aid-avian-influenza-prediction SEPS and an atmospheric chemistry composition SEPS using this framework, to demonstrate the framework's plug-in-ESM-and-play capability and its applicability as a common infrastructure for supporting the focus areas of NASA research.



SEPS and the SEPS Framework

## Approach

The SEPS framework, as described above, is all standards-based. Models or sensors can be plugged in and work immediately as the integral part of a SEPS as long as their interfaces comply with the interface standards. OGC and ISO standards as well as ESMF will be used for building the framework. To plug an ESM in, the model must comply with standards for interfacing with:

- PIAS - Data Preprocessing, Integration, and Assimilation Services
- SGMS - Science Goal Monitoring Services
- CENS - Coordination and Event Notification Services

## Co-I's/Partners

- Co-I's: David Lary/UMBC, James Smith/GSFC
- Partners: Shujia Zhou, Konrad Wessels / GSFC, Aijun Chen, Yuqi Bai/ GMU

## Key Milestones

- Project environment setup 11/2006
- Architecture and interface design 02/2007
- Implementation of feedback segment 02/2008
- Implementation of feed-forward segment 02/2009
- SEPS prototypes 08/2009

\*Note: Assume project starts on August 15, 2006

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