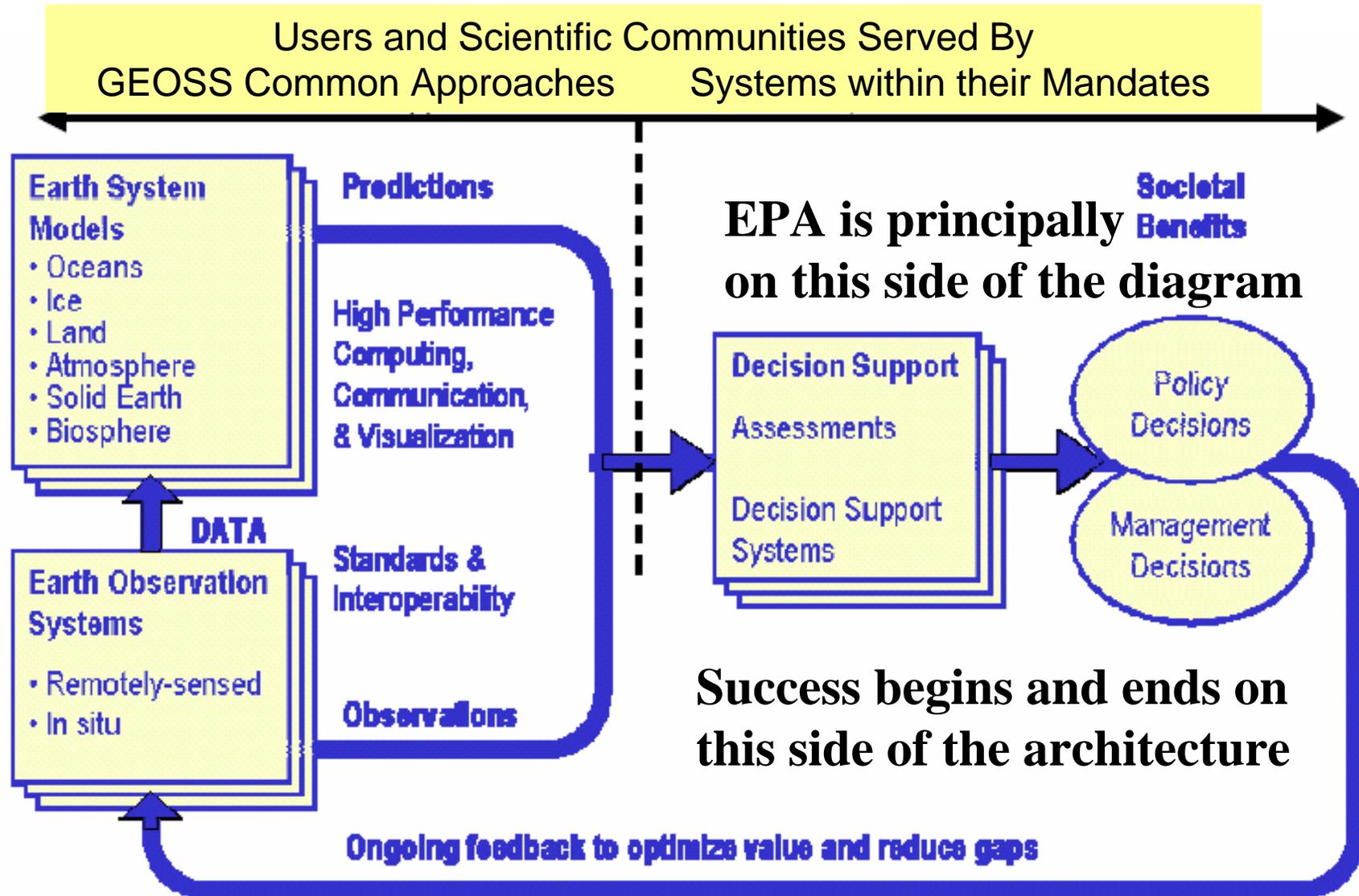


Global Earth Observation System of Systems Advanced Monitoring Initiative

Gary J. Foley, PhD
Senior Advisor to the Chief Scientist



The GEOSS Architecture





GEOSS - AMI

Recent Accomplishments

Global Air Quality

The deployment of AIRNow-International and the emergence of a broader Air Quality (AQ) information system of systems supports the development of a global community of AQ management professionals. This enables improved AQ management and promotes awareness of AQ problems with the goal of leading to measures to reduce air pollution, domestically and globally, including long-range and hemispheric transport.

Lyme disease

The most frequently reported vector-borne illness in the US. Due to fragmenting, forested habitat loses native biodiversity and Lyme disease transmission increases. Land Use tools are being used in Wisconsin, Maryland, Pennsylvania, and New York to map out projections of Lyme Disease risk under alternative scenarios of development patterns.

Water Quality (WQ) Aquatic Integrity Measurements

Important to the Clean Water Act, the traditional methods are costly and lack quality. DNA Barcoding provides better resolution and has the potential to reduce costs. This effort is determining how to incorporate DNA Barcoding into the State's bioassessment programs in an effective manner.



GEOSS -AMI

2010 – 2014 Strategic Directions

The SPC's advice to the EPA GEO:

- (1) Ensure a credible and transparent EPA GEO process and organization,
- (2) Develop a set of EPA GEO strategic actions that supports the SPC science priorities,
- (3) Enhance cross-Agency communication and coordination of the activities of the EPA GEO,
- (4) Enhance the accessibility and application of EPA Global Earth Observation Systems of Systems (GEOSS) data and products,
- (5) Leverage capabilities in the Agency for monitoring, modeling, technology innovation, and decision tools for integrated problem solving.

EPA GEO Proposed Principles (draft)

The EPA GEO was created to support and benefit from the GEOSS, and to bring the best monitoring data and information into the environmental decision making. Its architecture integrates environmental observation, monitoring, and measurements with modeling that directly support health, climate change, air quality, and other social benefit areas. The EPA GEO's primary responsibility, in addition to transferring currently funded research to products, and new undertakings should directly support the Agency's science priorities while leveraging capabilities across EPA programs, offices, and regions, as well as with states, federal partners, and the international community. These efforts should guide the Agency to integrate better monitoring and observational data, modeling results, technology, and decision tools.



GEOSS - AMI

Examples of Anticipated Products

Global Earth Enhanced Visualization of Data and Modeling for Decision-Makers

The Google Earth “virtual globe” technology is being used to interoperably fuse together earth observation data, provide more powerful and user-friendly visualizations for advanced decision support analyses and real-time adaptive management applications, which include emergency response (spills, major fires/smoke, etc.), visualization of monitoring data and model outputs for watershed analysis and enforcement investigations.

Infectious Diseases and Integrated Pest Management

Characterization of environmental factors (i.e. land use, land condition, land cover change) affecting animals and pests, play a role in infectious disease transmission to humans and the design of environmentally-based (nonchemical) strategies to reduce infectious-disease incidence. For example, sound land use practices can be part of IPM strategies under the authority of *FIFRA section 20(a)* to minimize the use of pesticides as a control method of infectious diseases and result in less pollution to land, air and water.

Advanced Sensors and Measurement Techniques: Several brought to commercialization to enhance data collection for use in environmental decision-making.

Integrated Monitoring: Products that address observation, modeling, technology needs in an manor to bring integrated science and technology to decision-makers.