Interagency Collaborative for Environmental Modeling and Monitoring (ICEMM)
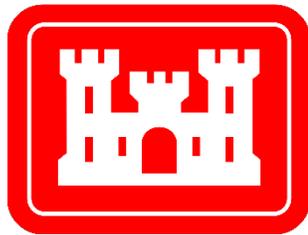
THE UNITED STATES NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REGULATORY RESEARCH

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT

THE UNITED STATES DEPARTMENT OF DEFENSE
ARMY CORPS OF ENGINEERS
ENGINEER RESEARCH AND DEVELOPMENT CENTER

THE UNITED STATES DEPARTMENT OF ENERGY
OFFICE OF ENVIRONMENTAL MANAGEMENT

THE UNITED STATES DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

THE NATIONAL SCIENCE FOUNDATION GEOSCIENCES DIRECTORATE

ICEMM Background

Formed in July 2001 with participation from NRC, EPA, USACE, DOE, USGS, USDA, NOAA, USBR, and NSF

Run by a Steering Committee, with yearly public meeting

Operates in Workgroups
- Integrated Monitoring & Modeling (Ming Zhu, DOE)
- Water Quality (Billy Johnson, USACE)
- Data Assimilation, Uncertainty Assessment and Environmental Model Confirmation (Tom Nicholson, NRC)
- Ecosystem Functions and Services (Ken Bagstad, USGS, Brenda Rashleigh, EPA, Pat Deliman, USACE)

Priorities and Future Directions

PRIORITIES

Establish working partnerships, reduce redundancies, and improve common technology

Support development, enhancements, applications and assessments of environmental models, software and related databases

FUTURE DIRECTIONS

- Automating model assembly
- Cloud-based data and models
- Uncertainty assessment
- Big data and data assimilation
- Developing and using semantic models
- Structured decision making
- Integration of monitoring and modeling

Today's Meeting

Monitoring and Model Data Fusion -- coupling temporal and/or spatial data with the model that quantitatively analyzes/simulates the system of concern.

Fusion involves the active processing and synthesis of data sources into a unified model database
◦ the model informs the monitoring programs as to **what**, **when**, **where** and **how** the data is to be obtained and translated into modeling assumptions and inputs such as boundary conditions and parameters.