

**Interagency Collaborative on  
Environmental Modeling and Monitoring ([ICEMM](#))**

*Annual Public Meeting: March 17-18, 2020*  
U.S. Geological Survey (USGS) Headquarters,  
(Dallas Peck Auditorium)  
12201 Sunrise Valley Drive, Reston, VA 20191

**Theme: Integrated Modeling, Monitoring, and Working with Nature**

**Meeting Objectives and Panel Discussion Questions:**

1. *Advance knowledge of complex human interactions in natural systems and attendant environmental issues through the descriptive and predictive application of integrated models and monitoring programs.*  
What progress are we achieving? What are the new and innovative monitoring and modeling tools, datasets, methodologies that would benefit the integration that we are seeking?
2. *Describe how “working with nature” improves the integration of environmental models and monitoring programs important to addressing societal issues. Alternatively, describe how integrated environmental modeling and monitoring can improve “working with nature.” “Working with nature” includes ecosystem perspectives and understanding of natural processes, features, and conditions.*  
How are we making progress in incorporating natural processes, features and conditions in our conceptual and numerical models, and in designing monitoring networks? Are we explicitly considering human processes and behaviors, and consequent natural responses? What does “integration” mean? What does “working with nature” mean? How do we determine the natural processes, features, and conditions to include in conceptual models and monitoring programs?
3. *Explore how data and models are, or could be, used for the risk-informed assessments and management of hazards, natural resources, environmental systems, and built infrastructure.*  
How do you use data and models for risk-informed decision making and resilience management? What are some examples of the use of integrated modeling and monitoring, and methodologies for tracking progress?
4. *Inform and implement “Integrated Modeling, Monitoring, and Working with Nature” into anticipatory, adaptive management approaches.*  
What are the challenges and opportunities for this implementation? Can you provide examples (or nascent approaches) of anticipatory, adaptive management? How can ICEMM help explore these challenges and opportunities?

**Speakers will provide short bios and abstracts (with useful URL’s and references).**



**Wednesday, March 18, 2020**

09:00 a.m. EDST

**Review of Meeting Objectives and First Day Summary**

Pierre Glynn and Karl Rockne

09:20

***Integrated Modeling and Monitoring Across Scales***

- Integrated Water Prediction at the USGS David Lesmes and Harry Jenter, USGS
- Next Generation Integrated Modeling of Water Availability in the Delaware River Basin and Beyond Ward Sanford, USGS

10:20

Break

10:30

***Integrated Modeling and Monitoring Across Scales (Continued)***

- Integrating Natural Processes and Features into Watershed Modeling Todd Steissberg, USACE
- Ecological Modeling and Emerging Directions for Understanding Ecosystem Impacts David Mauriello, University of Maryland  
Brenda Rashleigh, Environmental Protection Agency (EPA)  
Brian Fath, Towson University

11:30

**Lunch**

12:30 p.m.

***Integrated Modeling and Monitoring Across Scales (Continued)***

- MultiSector Dynamics in Earth and Environmental Systems Modeling: Exploring Cross-Scale Interfaces Among Human and Natural Systems Bob Vallario, DOE (Office of Science)

1:15

- **Remote sensing for multi-scale monitoring of agricultural water use** Martha Anderson, USDA/Agricultural Research Service

1:45

***Socio-Economic Considerations for Sustainable and Resilient Futures***

- New Economic and Modeling Frameworks to Inform More Sustainable and Resilient Futures Jennifer Helgeson, National Institute of Standards and Technology (NIST)
- Socio-Economic Considerations of Drivers, Impacts, and Responses to Manage our Environmental Futures Jia Li, EPA

2:45

Break

3:00

**Keynote Speaker .....John C. Little, Virginia Tech.**

- Managing Complex Socio-Environmental Systems – An Evolutionary, System-of-Systems Approach

3:45

**Panel Discussion on Sessions, Presentations, and Questions in the Meeting Objectives**

Panel Moderator: Tom Nicholson, U.S. NRC

Panel members: Session Presenters, Keynote Speakers, and Invited Panelists

4:15	<b>Focused Discussion:</b> How does ICEMM address integrated environmental modeling and monitoring, and how can it move forward? Did we meet the meeting objectives? What was missed? What ideas and examples help motivate future ICEMM actions?
4:30	<b>Working Group Reports/Discussions .....Working Group Chairs</b> <ul style="list-style-type: none"> <li>• <b>WG1 Integrated Monitoring and Modeling</b> <ul style="list-style-type: none"> <li>○ Ming Zhu (DOE), George Alexander (NRC)</li> </ul> </li> <li>• <b>WG2 Data Assimilation, Uncertainty Assessment and Environmental Model Confirmation</b> <ul style="list-style-type: none"> <li>○ Tom Nicholson (NRC), Mary Hill (University of Kansas)</li> </ul> </li> <li>• <b>WG 3 Forecasting of Ecosystem Functions and Services</b> <ul style="list-style-type: none"> <li>○ Pat Deliman (USACE), Brenda Rashleigh (EPA), Ken Bagstad (USGS)</li> </ul> </li> <li>• <b>WG4 Surface Water and Watershed Water Quality Modeling</b> <ul style="list-style-type: none"> <li>○ Billy Johnson (USACE)</li> </ul> </li> </ul>
5:00	<b>Steering Committee Business..... All Agencies (ICEMM)</b>
5:15	<b>Questions from the Public?</b>
5:30	<b>Adjourn</b>

Those wishing to attend the public meeting in person are encouraged to send their name and affiliation to Pierre Glynn, USGS at [pglynn@usgs.gov](mailto:pglynn@usgs.gov)

For those wishing to attend remotely, pre-registration is required: please send your affiliation and contact information to Pierre Glynn, USGS at [pglynn@usgs.gov](mailto:pglynn@usgs.gov) by March 6, 2020. Once pre-registered, Pierre will provide registrants with Webex information. Although we are trying to provide the option, there is no guarantee that remote attendance will be offered or will be successful.

Further meeting information is provided at the ICEMM Website:

<https://my.usgs.gov/confluence/display/cdi/Interagency+Collaborative+for+Environmental+Modeling+and+Monitoring>