Interagency Collaborative for Environmental Modeling and Monitoring

Description: A group to continue and strengthen a framework for facilitating cooperation and coordination among Federal agencies in research and development of multimedia environmental models, software and related databases.

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The Interagency Collaborative for Environmental Modeling and Monitoring (ICEMM) is a U.S. federal government group chartered through a Memorandum of Understanding that includes six federal agencies. The purpose of ICEMM is to continue and strengthen a framework for facilitating cooperation and coordination among Federal agencies in research and development of multimedia environmental models, software and related databases. Multimedia model development and simulation supports interagency interests in risk assessment, uncertainty analyses, water supply issues, and contaminant transport.

Contact: Pierre Glynn, pglynn@usgs.gov

Participating Agencies

U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research

U.S. Department of Defense, Army Corps of Engineers, Engineer Research and Development Center

U.S. Department of Energy, Office of Environmental Management

U.S. Department of the Interior, U.S. Geological Survey

U.S. Environmental Protection Agency, Office of Research and Development

National Science Foundation, Geoscience Directorate

ICEMM Public Meetings

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2020 Meeting (March 17-18, 2020): USGS Headquarters, Reston, VA. Theme: *Integrated Modeling, Monitoring, and Working with Nature*.

Agenda. **Abstracts and Biographical Information. Description of the meeting.** Please contact Pierre Glynn by email (pglynn@usgs.gov) for further information or questions.

March 17 presentations/links:

Welcome (Geoff Plumlee, USGS)

ICEMM 2020 Meeting: **Background, Meeting Aims, and Defining Poems** (USGS, Pierre Glynn);

Keynote by Todd Bridges (USACE): Engineering with Nature for Sustainable Systems. **Branko Kerkez** (U. Michigan): Building Smarter Water Systems through Improved Sensors, Autonomy, and Data Processing. **Charles Rhodes** (TBD consulting): Natural Capital Accounting and Measuring Ecosystem Services: the Next Wave.

Keynote by Sunil Sinha (Virginia Tech)**:** Smart One Water Cyber-Physical-Social Infrastructure: Transforming the Way People Interact with Water Services, Advancing Adaptive Management and Resilience of Engineered and Natural Water Systems. **George Alexander, Doug Mandeville, Thomas Nicholson (USNRC) & Vicky Freedman(PNNL)**: Long-Term Performance of Engineered Systems in Nature. **Mark Kautsky** (DOE Office of Legacy Management): Improvements in Cover Performance at Engineered Disposal Cells when Working with Nature to Inform Environmental Design. **Don Rosenberry** (USGS): Black Swans, Disappearing Lakes, and the Societal Value of Integrated Modeling and Monitoring.

Fred Lipschultz (USGCRP): The National Climate Assessment: What Insights Does it Provide for Environmental Modeling, Monitoring and Nature-Based Solutions? **Igor Linkov** (USACE): Systemic Collapse and Resilience.

March 18 presentations/links:

David Lesmes & Harry Jenter (USGS): Integrated Water Prediction at the USGS. **Ward Sanford** (USGS): Next Generation Integrated Modeling of Water Availability in the Delaware River Basin and Beyond. **Todd Steissberg, Billy Johnson & Jodi Ryder** (USACE): Integrating Natural Processes and Features into Watershed Modeling. **David Mauriello U. Maryland) & Brenda Rashleigh (EPA) & Brian Fath (Towson U.)**: Ecological Modeling and Emerging Directions for Understanding Ecosystem Impacts.

Robert Vallario (DOE Office of Science): MultiSector Dynamics in Earth and Environmental Systems Modeling: Exploring Cross-Scale Interfaces among Human and Natural Systems. **Martha Anderson** (USDA/ARS): Remote Sensing for Multi-Scale Monitoring of Agricultural Water Use. **Jennifer Helgeson** (NIST): New Economic and Modeling Frameworks to Inform More Sustainable and Resilient Futures. **Jia Li** (EPA): Socio-Economic Considerations of Drivers, Impacts, and Responses to Manage our Environmental Futures.

Keynote by John C. Little (Virginia Tech): Managing Complex Socio-Environmental Systems – An Evolutionary, System-of-Systems Approach.

Working Group Presentations:

WG2 presentation on Data Assimilation, Uncertainty Assessment and Environmental Model Confirmation (Tom Nicholson, USNRC).

WG3 presentation on Ecosystem Services and Functions (Ken Bagstad, USGS; Pat Deliman, USACE; Brenda Rashleigh, EPA).

Notes from WG1, WG3, and WG4 report-outs. WG1: Integrated Modeling and Monitoring (George Alexander, USNRC; Ming Zhu, DOE/EM). WG4: Surface Water and Watershed Water Quality Modeling (Billy Johnson, USACE).

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2018 Meeting: Rockville, MD, *Theme: Monitoring and Modeling Data Fusion*

2018 presentations and links: EPA (ICEMM introduction: Rashleigh), USGS (From Data to Decisions: Glynn), CUAHSI (Services for Data Fusion: Castronova), USGS (Earth Intelligence: Cline), NSF (Terrestrial Systems Modeling: Torgersen), DOE/OBER (Cyberinfrastructure for Mechanistic Modeling: Lesmes), USGCRP (Watercycle modeling and monitoring coordination: Saleem-Arrigo), USNRC (Risk-informed assessments: Nicholson and Esh), SNRL (Optimization of groundwater monitoring, Eddy-Dilek & Wainwright), USACE (Integrated water quality modeling, Steissberg), NSF (Remote sensing: beyond GRACE, Venkat Lakshmi), ICEMM WG1 report (Integrated Monitoring & Modeling, Ming Zhu, DOE), ICEMM WG2 report (Data Assimilation, Uncertainty Assessment, and Environmental Model Confirmation, Thomas Nicholson, USNRC), ICEMM WG3 report (Ecosystem Functions and Services, Pat Deliman, USACE), ICEMM WG4 report (Surface Water and Watershed Water Quality Modeling, Billy Johnson, USACE).

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2016 Meeting: Washington, DC. *Theme: Interagency Collaboration for Modelling and Monitoring*

Presentations: EPA, DOE, ACE, NRC, USGS, Water Modeling Workgroup, Data Assimilation Workgroup, Integrated Modeling and Monitoring Workgroup

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2015 Meeting: Davis, CA *Theme: Environmental Modeling for Complex Decision Analysis*

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2014 Meeting: Baltimore, MD *Theme: Environmental Modeling in the Chesapeake Bay Watershed and Receiving Waters*

Workgroups

Watershed Modeling

Data Assimilation -- Webinar on Big Data and Data Assimilation: Kumar Presentation, Schaeffer Presentation

Integrated Modeling and Monitoring

Ecosystem Functions and Services

Minutes of ICEMM Calls

October 25 2018 call (ICEMM-call-minutes-Oct-25.pdf).

Links & Upcoming Conferences

International Environmental Modelling & Software Society (IEMSs) – Conference 24-28 June 2018, Fort Collins, Colorado USA

International Society for Ecological Modelling (ISEM) – Conference 27-21 September 2017, Jeju, Korea

Resources

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