



California Water and Environmental Modeling Forum

Promoting Excellence and Consensus in Water and Environmental Modeling
P.O. Box 5051, Vacaville, CA 95696 • 916-850-3110 • cwemf@cwemf.org • www.cwemf.org

Technical Workshop Water Supply Reliability Estimation and Protocols for Water and Environmental Modeling

Thursday, October 27, 2022

9:15 a.m. – 12:00 noon

Cal EPA Building, 1001 "I" Street, Sacramento, CA, Klamath Room (2nd floor) or Online via Zoom

This workshop is open to CWEMF members at no cost
Pre-registration is required for online attendance and encouraged for in-person attendance
To register, please email cwemf@cwemf.org & include "CWEMF Technical Workshop" in the subject line
Please go to www.cwemf.org for information on renewing your membership or becoming a member

Join Zoom Meeting

<https://us06web.zoom.us/j/84274276805?pwd=MkFqZnE2blVUWDdGZEVpVWhYRERZQT09>

Meeting ID: 842 7427 6805

Passcode: 440360

Phone (Audio) Call-In Number: 1-253-215-8782

Agenda

- 9:15 a.m. Welcome and Introduction
- 9:25 a.m. 2021 CWEMF Modeling Protocols Report – Sujoy Roy (Tetra Tech)
- 10:05 a.m. Questions & Answers; Suggestions for Future Report Revisions
- 10:25 a.m. Break
- 10:40 a.m. 2022 Water Supply Reliability Report – Jay Lund (U.C. Davis)
- 11:20 a.m. Panel Discussion, [Panel Members]
- 12:00 p.m. Adjourn

Managing water in California's complex water system is challenging. The most successful parts of California's water system have managed supplies and demands conjunctively for planning and operational horizons, which is known as *portfolio management*. Water management portfolios increasingly include groundwater banking, water market transfers, joint facilities, and integrated system operations. Management successes require assessments of water supply reliability. California's future water management, with less certain and more variable conditions, will place greater demands on estimation of water supply reliability. The policy and operational discussions needed for adaptation can be improved with systematic, transparent, and shared system and reliability analyses. In June 2022, the Delta Stewardship Council (DSC) Independent Science Board (ISB) released its report on water supply reliability estimation, entitled "Review of Water Supply Reliability Estimation Related to the Sacramento-San Joaquin Delta". The report reviews the scientific and practical condition of water supply reliability assessments in California for its ever-evolving water uses and systems. The focus is on water supply reliability estimation, primarily using portfolio management, because a forward-looking and more common understanding of reliability estimation is an essential foundation for management and policy assessments, discussions, and solutions. The report can be found at: <https://deltacouncil.ca.gov/pdf/isb/products/2022-06-16-isb-water-supply-reliability-review.pdf>

Modeling has become indispensable for managing water in California. This dependence on models raises important questions about quality control among stakeholders and decision-makers. To provide guidance on this complex activity, the California Water and Environmental Modeling Forum (CWEMF) developed a set of modeling protocols, first published in 2000. The protocol report, entitled "Modeling Protocols for Water and Environmental Modeling," which was updated in 2021, reflects changes in the practice of modeling, key technological developments, and applications addressing problems relevant today. These protocols



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are intended to serve modelers as well as the broader community of model sponsors and stakeholders, who have an interest in the quality and reliability of a modeling study. The protocols describe the following modeling approaches used to address water resources problems:

- analytical/numerical models that simulate individual and/or integrated physical processes over a defined domain;
- statistical/empirical models based on relationships among observed data but with little to no process representation;
- optimization-based models that seek to meet key objectives subject to defined constraints;
- machine learning-based models, a sub-class of statistical/empirical models with a wider range of algorithms and capacity to handle disparate data sets; and
- agent-based models that represent behavior of organisms or populations (animal or human) in response to external factors.

The report can be found at: <https://cwemf.org/wp/wp-content/uploads/2021/11/Modeling-Protocols-Report-Final-11-19-2021.pdf>