

LIVE WEBCAST

Selecting a Modeling Approach for Socio-Environmental Systems

TUES. 29 NOV. 2022, 15:00 – 16:30 (EDT UTC -4)
TUES. 29 NOV. 2022, 21:00 – 22:30 (CEST UTC +2)
WED. 30 NOV. 2022, 07:00 – 08:30 (AEST UTC +10)

Hosted by:

The Integrated Assessment Society; The National Socio-Environmental Synthesis Center;
the journal, *Socio-Environmental Systems Modelling*; and the International Environmental Modelling
& Software Society



**Serena
Hamilton**
Presenter



**Sondoss
Elswah**
Contributor



**Tony
Jakeman**
Contributor



**Kirsten
Oleson**
Panelist



**David
Wrathall**
Panelist



**Hedwig
van Delden**
Panelist

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Addressing complex problems that cross disciplinary and sectoral boundaries requires combining knowledge from multiple domains, and integrated modeling provides an ideal platform for this. It facilitates synthesis of data, theories, and perspectives to explore interactions and seek solutions. But, selecting the best modeling approach can be daunting, especially when considering the many options available—including system dynamics, agent-based, Bayesian network, and coupled component models. In this webinar and panel discussion event, scholars from the field of socio-environmental modeling will focus on how to select a modeling approach that best suits the unique socio-environmental issue or system that a researcher is exploring.

The event will begin with a pre-recorded presentation developed by Drs. Serena Hamilton, Tony Jakeman, and Sondoss Elswah, followed by short talks from each panelist based on their experiences with different modeling approaches; then, an open discussion will follow. Viewers may post questions and comments. The event is intended for practitioners and scholars who commission, sponsor, or use socio-environmental system models.

PROGRAM

Welcome & Introduction: **Margaret Palmer**, Director, National Socio-Environmental Synthesis Center, USA

Presentation: "Selecting a Modeling Approach for Addressing a Socio-Environmental Problem" (20 mins.)

Serena Hamilton, Research Fellow, Australian National University, Australia with contributions from **Tony Jakeman**, Professor Emeritus, Australian National University, & **Sondoss Elswah**, Associate Professor, University of New South Wales, Canberra, Australia

Panel Session: (Responses 7 mins. per panelist)

Kirsten Oleson, Professor, University of Hawaii at Mānoa, USA

David Wrathall, Associate Professor, Oregon State University, USA

Hedwig van Delden, Director of the Research Institute for Knowledge Systems (RIKS), Netherlands & Adjunct Associate Professor, University of Adelaide, Australia

Q&A: Presenters and panelists respond to questions from the participants (15 mins.)

Open Discussion: (10 mins.)

PRESENTERS' & PANELISTS' BIOS

Dr. Serena Hamilton is a research fellow at the Institute for Water Futures at The Australian National University. Her research is in the area of water resources management and integrated assessment and modeling. Her main focus is on developing interdisciplinary models for improving understanding and management of complex socio-environmental systems. She is particularly interested in the dynamic interplay between water, humans, and ecosystems, as well as how to improve associated sustainability outcomes through better-informed decision making. Her recent work includes designing integrated assessment frameworks for understanding pathways for socially inclusive and sustainable agricultural intensification in developing countries. Serena is also the managing editor of the open-access journal *Socio-Environmental Systems Modelling* (SESMO).

Dr. Tony Jakeman is a Professor Emeritus in the Fenner School of Environment and Society and Director of the Integrated Catchment Assessment and Management (iCAM) Centre at The Australian National University. He is also a member of the Institute for Water Futures. Tony is an environmental modeler with over 450 publications, and he has been a principal supervisor to over 60 graduated PhD students. Since 1997, Tony has directed the iCAM Centre pursuing methods and applications of integrated assessment and decision support on water resource issues.

Dr. Sondoss Elsworth is an Associate Professor in the School of Engineering and Information Technology at the University of New South Wales, Canberra, and leads the modeling and simulation effort in the Capability Systems Centre. Her research focuses on the behavior of large complex problems and systemic risks arising from interactions between social, ecological, and technological systems. She is Editor of the journal *Environmental Modelling and Software* and has published over 90 journal articles, 3 of which are Web of Science high-impact papers. Her research and leadership have been recognized with eight awards and fellowships.

Dr. Kirsten Oleson is a Professor of Ecological Economics with the Department of Natural Resources and Environmental Management at the University of Hawaii at Mānoa. She is an interdisciplinary sustainability scientist. Her research program's overarching goal is to ensure that the value of nature is captured in national, state, and community decision making. She employs tools from economics, social science, engineering, and decision analysis to provide rigorous foundations for discussions of trade-offs. She also engages with national and state policy makers and local communities over a wide range of resource management, economic development, and conservation issues.

Dr. David Wrathall is an Associate Professor of Natural Hazards at Oregon State University's College of Earth, Ocean and Atmospheric Sciences, and a lead author on the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report on Chapter 8: Poverty, Livelihoods, and Sustainable Development. David studies the ways that climate change impacts are threatening people's livelihoods and rendering parts of the planet uninhabitable, and thus driving new patterns of human migration. He has examined human migration in response to various climate change hazards and studies other wicked environmental problems and the relationship between climate change, violent conflict and human displacement.

Dr. Hedwig van Delden is the Director of the Research Institute for Knowledge Systems (RIKS) in the Netherlands and an Adjunct Associate Professor in the School of Civil, Environmental and Mining Engineering at the University of Adelaide. She applies research into planning and policy practice, in particular on understanding and modeling land-use dynamics, disaster-risk dynamics, integrating socio-economic and biophysical processes, bridging the science-policy gap and the development of strategic scenarios. She integrates disciplines, as well as techniques (analysis, modeling, participation).

