

MSSANZ

NEWSLETTER



INSIDE THIS ISSUE

MODSIM2017 Update

President's Report

Treasurer's Report

MODSIM2015 Report

2015 Biennial Medallists

2015 ECRE Awards

2015 Student Awards

2016 Fellows

MSSANZ aims to promote, develop and assist in the study of all areas of modelling and simulation.

The society's main activity is organising the MODSIM biennial conferences on modelling and simulation (the first in 1974). These conferences are highly regarded and well attended and attract strong student representation through the award of student prizes and subsidised registration.

MODSIM2017 CONGRESS

Managing cumulative risks through model-based processes

Grand Chancellor Hotel, Hobart, Tasmania, Australia

Sunday 3 to Friday 8 December 2017

Congress Co-Convenors: Geoff Syme (ECU), Darla Hatton MacDonald (UTas) and Beth Fulton (CSIRO)

CALL FOR ABSTRACTS

<http://www.mssanz.org.au/modsim2017/>

ABSTRACT SUBMISSION DEADLINE: May 31 2017



Program Chairs' Report on MODSIM2017

Planning for the congress is well underway. ASOR (the Australian Society for Operations Research) and DORS (the DSTO-led Defence Operations Research Symposium) will again be joining us at MODSIM. Special themes of the conference will include pragmatic policy evaluation, scenario modelling of uncertain futures under climate change, resource constraints, colliding 'catastrophes' and limited budgets.

In addition to the traditional modelling and simulation papers, papers are encouraged that explore the conference theme from a wide spectrum of disciplinary perspectives. Papers can take a number of approaches including quantitative modelling as well as qualitative, procedural and stakeholder techniques. As well as innovative approaches using novel modelling objectives, we strongly support papers considering modelling techniques and practices that explicitly consider societal and political risk.

A new initiative for the Society is the establishment of Special Interest Groups (SIGs). The main aim is for members and attendees at MODSIM conferences to have a collegiate venue or vehicle for discussing and developing thematic research and/or teaching ideas which lead to publication and wide adoption. Also for the first time, we will be introducing poster sessions. We invite you to participate in both of these new initiatives.

Beth, Darla and Geoff

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Organising Committee

Professor Geoff Syme
Associate Professor Darla Hatton
MacDonald
Dr Beth Fulton
Dr Robert Anderssen
Dr Richard Davis
Professor Hussein Abbass
Ms Susan Cuddy
Dr Sondoss El Sawah
Professor Tony Jakeman
Dr Wendy Merritt
Dr Julia Piantadosi
Dr David Post

Program Co-Chairs

Professor Geoff Syme
Associate Professor Darla Hatton
MacDonald
Dr Beth Fulton
Dr Julia Piantadosi

Key Dates

Expression of Interest: 31 May 2017
Notification of EOI acceptance: 16 June 2017
Submission of full papers: 28 July 2017
Submission of revised papers: 2 October 2017
Early bird registration: 28 August 2017
All presenting authors to be registered: 27 October 2017
Last day to register: 24 November 2017

Conference URL and Facebook

<http://www.mssanz.org.au/modsim2017/index.html>

<https://www.facebook.com/modsim2017/>

MODSIM 2017 Streams

Applied and computational mathematics

Stream leaders: Barry Croke and Roger Braddock

Biological systems

Stream leaders: Malcom McPhee and David Mayer

Computer science and engineering

Stream leaders: Peter Fitch and Tim Peterson

DORS – Defence and homeland security modelling

Stream leader: Richard Davis

Economics and finance

Stream leaders: Michael McAleer and Chia-Lin Chang

Energy, integrated infrastructure and urban planning

Stream leaders: John Boland and Pascal Perez

Environment and ecology

Stream leaders: Andre Zerger, Brett Bryan and Grant Hamilton

Global change and natural hazards

Stream leaders: Jason Evans and Albert van Dijk

Health informatics

Stream leader: Irene Hudson

ASOR – Operations research

Stream leaders: Hussein Abbass and Simon Dunstall

Participatory decision making and modelling social systems

Stream leaders: Sondoss El Sawah and Susan Cuddy

Water Resources

Stream leaders: Francis Chiew and Jai Vaze

Organising Committee

Program Co-chairs

Key Dates

Conference Websites

Conference Streams



President's Report

Dear All,

Firstly, I trust that those of you who attended MODSIM 2015 on the Gold Coast enjoyed it as much as I did. I thought it was a tremendous conference and would like to thank Tony Weber and Malcolm McPhee for doing such a splendid job as conveners. Many thanks to those of you who provided feedback on the conference via the survey that I sent out early this year. The results of these help us immensely in organising future conferences. We have used your feedback to make some changes to the upcoming conference in Hobart.

It's only early days yet, but MODSIM 2017 to be held in Hobart from 3rd to 8th December 2017 is already looking like it is going to be brilliant. I'd suggest marking it in your calendar now so you don't miss it.

Best regards,

David Post
MSSANZ President

President's Report

Treasurer's Report

Dear All,

The major activity of MSSANZ during the 2015-16 financial year was finalising the remaining expenses (e.g. venue expenses, plenary speakers' expenses, and student awards) and revenues for MODSIM2015 congress held in the Gold Coast in December 2015. MSSANZ remains in a strong financial position in 2016. The society has also started paying some expenses for MODSIM2017 congress to be held in Hobart in December 2017 (e.g. website development, venue hire). A modest loss was made in the 2015-16 financial year due to MODSIM 2015 expenses (of which the largest component is the hire cost of the conference venue). This is standard in a non-conference year where we receive no income (other than interest). The society still maintains its regular income sources, mainly the interest gained from our 'sinking fund' term deposit and business online saver account. The 2015-2016 budget has been fully audited by Les Ellis and Associates Pty.

Please contact me via email (s.elsawah@unsw.edu.au) or telephone (0430303946) if you wish view the Society's financial statements or to discuss any aspect of the financial management of MSSANZ.

Sondoss El Sawah
MSSANZ Treasurer

Treasurer's Report



Report on MODSIM2015/21st International Congress on Modelling and Simulation Gold Coast Convention and Exhibition Centre 29 November to 4 December 2015.



Broadbeach was the location of the 21st International Congress on Modelling and Simulation (MODSIM 2015). The Congress was held at the Gold Coast Convention and Exhibition Centre (GCCEC), from 29 November to 4 December 2015. It was held jointly with the 23rd National Conference of the Australian Society for Operations Research (ASOR) and the Defence Operations Research Symposium (DORS 2015). The Australian Energy and Water Exchange Initiative 2nd National Workshop (OzEWEX) was held on Wednesday December 2. The theme for the congress was "Partnering with industry and the community for innovation and impact through modelling".

The Congress was attended by 621 delegates, including 140 students and participants from 25 countries. Over 680 contributed talks were presented across a programme of twelve parallel sessions, covering a wide range of topics in Applied and computational mathematics; Biological systems; Computer science and engineering; Defence and homeland security modelling; Economics and finance; Energy, integrated infrastructure and urban modelling; Environment and ecology; Health informatics; Global change and natural hazards; Operations research (ASOR); Participatory decision making and modelling social systems; and Water resources. The full program and abstracts are available at <http://www.mssanz.org.au/modsim2015/program.html>.

Four plenary talks and two mid-career plenary talks were presented at the Congress all of which were of an excellent standard and covered a wide range of fascinating topics. Many thanks to the Program Committee for their work in selecting the speakers. This year's plenary speakers were: Associate Professor Mary Myerscough, University of Sydney, Australia; Professor Kerrie Mengersen, Queensland University of Technology, Australia; Dr Robert Vertessy, Bureau of Meteorology, Australia; Professor Howard Wheeler, The University of Saskatchewan, Canada. Inaugural mid-career plenaries were given by Dr Christina Burt, University of Melbourne, Australia and Associate Professor Jason Evans, University of New South Wales, Australia. Further details of the speakers and their talks are at <http://www.mssanz.org.au/modsim2015/plenary.html>.

On the social front, the opening session and plenary talk on Sunday was followed by the welcome reception held in the GCCEC which was complete with the occasional body builder wandering past (no doubt checking out the strong competition from us modellers!). Outside, Broadbeach put on an impressive lightning display as a backdrop to our reception. The Congress dinner was held at the GCCEC on Thursday evening with musical entertainment, good food and company, and the presentation of awards to outstanding researchers in various stages of their careers. Professor Tony Jakeman was presented with a Lifetime Membership of the Society to recognize his enormous contribution over several decades.

Report on
MODSIM2015

2015 Biennial Medallists

Professor Chia-Lin Chang, National Chung Hsing University, Taiwan

Chia-Lin Chang is a University Distinguished Professor at the Department of Applied Economics and Department of Finance, National Chung Hsing University, Taiwan. Her research covers applied econometrics, financial econometrics, risk and financial management, energy economics and finance, applied time series analysis, forecasting, innovation, empirical industrial organization, tourism research and management, and international rankings of journals and academics. In previous years, she has received a MODSIM student prize, MSSANZ Early Career Research Excellence Award (2009) and been appointed an MSSANZ Fellow (2012).

Professor Kerrie Mengersen, Queensland University of Technology, Australia

Kerrie is a statistician whose research interests are in Bayesian and other modern methods for statistical modelling and computation. She holds a Chair in Statistics at Queensland University of Technology, and is a Deputy Director of the ARC Centre of Excellence in Maths and Stats Frontiers, which aims for research excellence and its translation to collaborative domains in healthy people, sustainable environments and prosperous societies. Kerrie leads the Bayesian Research and Applications Group (BRAG) which aims to engage in world-class, relevant fundamental and collaborative statistical research, training and application through Bayesian and other modern methods.

Professor Andrew Western, University of Melbourne, Australia

Andrew is currently the deputy Head of the Department of Infrastructure Engineering at the University of Melbourne. He has expertise in field monitoring, physically-based and conceptual catchment and river modelling, catchment analysis and remote sensing and has concentrated on integrating these areas to support catchment system understanding and management. He has undertaken major field programs in Australia and New Zealand investigating catchment behaviour and has made leading contributions to spatial analysis in hydrology, particularly in the area of spatial soil moisture variability, patterns and processes. He has contributed to development of the Thales physically-based catchment model, models of salinity stratification in inland rivers and soil property and vegetation data sets available through the Catchment Modelling Toolkit.

Biennial Medals

1. In every odd-numbered year, to coincide with the Biennial Congress, the Society may confer a limited number of Biennial Medals for 'exceptional research contributions to modelling and simulation, and for promoting the aims of the Society'.
2. Biennial Medallists automatically become Fellows of the Society, and are entitled to use the postnominal 'FMSSANZ'.
3. Any member of the Society may be nominated for a Biennial Medal. The proposer and seconder must be members of the Society. Self-nomination is not permitted.
4. Written nominations should be sent directly to the President of the Society at least three months before the Biennial Congress, and should be accompanied by a written statement and a curriculum vitae of the nominee.
5. Nominations will be reviewed by the Awards Committee who will make recommendations to the Management Committee for ratification.



2015 Biennial Medallists

Professor Chia-Lin Chang



Professor Kerrie Mengersen



Professor Andrew Western



2015 Early Career Research Excellence Awards

Dr Sondoss El Sawah, University of New South Wales (UNSW), Australia

In 2010, Sondoss completed her PhD at UNSW investigating the role of systems thinking and dynamic modelling in understanding and communicating about water resources management. Her decision making framework was used by the water industry as a communication tool during the millennium drought. Sondoss then held a postdoctoral position at the Australian National University, applying systems methodologies to integrated modelling. Sondoss is currently a Postdoctoral fellow at the School of Engineering and Information Technology, University of New South Wales, at Canberra. She is the Treasurer of MSSANZ and has been a session organiser and stream leader in recent MODSIM congresses.

Dr Lei Gao, CSIRO, Australia

Lei is a Senior Research Scientist at CSIRO Land and Water in South Australia. His work encompasses: complex systems modelling, simulation, and optimisation, adaptive management of natural resources, robust decision-making, sensitivity analysis and risk assessment, integrated hydro-economic modelling and water trade modelling, agent-based simulation, operations research and applied decision theory, and virtual water and water footprint analysis. Lei's research focuses on understanding environmental dynamics, evaluating management strategies, and exploring optimal solutions in integrated water resource systems, through mathematical modelling including intelligent decision-making processes and socio-economic analyses.

Dr Majeed Safa, Lincoln Univeristy, New Zealand

Majeed received his PhD in Modelling Energy in Agriculture and Environment from Lincoln University in New Zealand 2011. He currently is a Senior Lecturer in agricultural engineering at Lincoln University. His expertise is in information systems and energy benchmarks. Majeed conducts research across the fields of energy management, precision agriculture, sustainability and modelling.

Dr Tim Peterson, University of Melbourne, Australia

Tim completed his PhD in 2009 on pioneering work on catchment resilience and multiple steady states. More recently, he's been researching the use of statistics to identify catchments with multiple steady states. He has developed nonlinear groundwater time-series approaches for extrapolating and decomposing hydrographs and probabilistic geostatistical methods for mapping groundwater elevation. He works with several government agencies in applying these tools. The Bureau of Meteorology have adopted the mapping techniques for the National Water Account.

Early Career Research Excellence Prizes

1. In every odd-numbered year, to coincide with the Biennial Congress, the Society may confer a limited number of Early Career Research Excellence Prizes for 'early career research excellence in modelling and simulation'.
2. An early career researcher should have graduated with a PhD degree or equivalent within seven years of being nominated for the award.
3. Any eligible member of the Society may be nominated for an Early Career Research Excellence Prize. The proposer and seconder must be members of the Society. Self-nomination is not permitted.
4. Written nominations should be sent directly to the President of the Society at least three months before the Biennial Congress, and should be accompanied by a written statement and a curriculum vitae of the nominee.
5. Nominations will be reviewed by the Awards Committee who will make recommendations to the Management Committee for ratification.

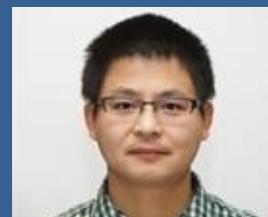


2015 ECRE awards

Dr Sondoss El Sawah



Dr Lei Gao



Dr Majeed Safa



Dr Tim Peterson





MODSIM 2015 Student Awards for Excellent Paper and Presentation

1. In every odd-numbered year, to coincide with the Biennial Congress, the Society may confer multiple Student Awards for Excellent Paper and Presentation.
2. The Convenor of the Biennial Congress and the President will appoint a Student Awards Committee for the Congress.
3. Nomination and selection procedure for Student Awards are determined by the Student Awards Committee, in consultation with the Management Committee.

MODSIM 2015 Student Awards for Presentations

Over 140 students attended MODSIM2015. Eight commendations were awarded in accordance with the Student Awards Policy and Guidelines

Di He, CSIRO, received an award for a paper titled 'Modelling the impact of climate variability and irrigation on winter canola yield and yield gap in Southwest China'.



Yanlin Shi, received an award for a paper titled 'A Discussion on the Innovation Distribution of Markov Regime-Switching GARCH Model'. Yanlin's PhD was undertaken at the Australian National University.



Rachael Quill received her Student Award for her paper 'Effects of post-fire vegetation regrowth on wind fields over complex terrain'. Rachael is undertaking her PhD at the University of New South Wales, Canberra. Her project aims to improve knowledge of wind characteristics over complex terrain to improve bushfire modeling.



Gaohong Yin, received her Student Award for her paper 'A Multiple-point Geostatistics Method for filling gaps in Landsat ETM+ SLC-off images'. She is undertaking her PhD at King Abdullah University, Saudi Arabia



Enayat Moallemi received his award for his paper 'Dynamic modelling of energy transitions using a coupled modelling-narrative approach'. Enayat is a PhD Candidate in Energy Policy at University of Melbourne. His research investigates the long-term impact of public policies on energy transitions in deep uncertainty condition.



Chaitanya Kapiolani Oehmigara received her Student Award for her paper 'Reduced Basis Model Reduction for Statistical Inverse Problems with applications in Tsunami Modelling'. Chaitanya is a PhD Candidate at the Mathematical Sciences Institute at The Australian National University.



Ali Abroudi received his award for his paper 'System modelling of mammalian cell cycle regulation using multi-level hybrid petri nets'. Ali is undertaking his PhD at Lincoln University, New Zealand



Jens Froese received his award for his paper 'Moving window analysis links landscape-scale resource utilization to habitat suitability models of feral pigs in northern Australia'. Jens is undertaking his PhD on Spatial risk modelling of infectious animal diseases using Bayesian Belief Networks and GIS at the University of Queensland.



2016 Fellows

Associate Professor Barry Croke

Barry originally trained as an astrophysicist, and has been working in environmental science since 1996, with focus on water resource modelling: including flow, water quality (sediment, nutrient and pathogens) and carbon fluxes. An Associate Professor at the Australian National University, Barry has particular expertise in model development, assessment and uncertainty analysis. He has been a session organiser at all MODSIM conferences since 2007.

Professor Holger Maier

Holger is a Professor at the School of Civil, Environmental and Mining Engineering, University of Adelaide. His research develops modelling, optimisation and multi criteria, and uncertainty analysis techniques to support the sustainable management of water resources and infrastructure in an uncertain environment. He has been a regular session organiser at MODSIM conferences since 2003, and a member of organising and program committees for the 2001 and 2003 congresses.

Professor Pascal Perez

Pascal is Director of the SMART Infrastructure Facility at the University of Wollongong. His research and expertise spans the development of participatory decision support tools for Government, Industry and Communities, agent based modelling technology, and Urban Liveability. Having first participated in MODSIM in 1997, Pascal has been a regular organiser of sessions and, since 2013, streams. He was a member of the 2001 and 2013 Program Committees and sponsored prizes in 2009 and 2011.

Dr Malcolm McPhee

Malcolm has worked for NSW DPI for over 25 years and is currently in the beef production unit, Armidale. His research includes animal systems modelling, development of decision support tools, and the use of statistical techniques in building mathematical models. Malcolm co-leads the Biological Systems Stream of MODSIM, has a long association with the Agricultural Systems session, and was co-convenor of MODSIM2015 at the Gold Coast.

Associate Professor Jason Sharples

Jason is Associate Professor in Applied Mathematics at the School of Physical, Environmental and Mathematical Sciences, UNSW. Jason's research interests cover mathematical modelling and simulation of combustion, bushfire and associated processes, and he has lead several projects considering extreme and dynamic fire behaviour, the development of large conflagrations and bushfire risk management. He has been a regular attendee since 2003 and been a session organiser since 2009.

Dr Jai Vaze

Jai is a Senior Principal Research Scientist, CSIRO with expertise in the fields of hydrology and climate change. Jai has been a session organiser at MODSIM congresses since 2009, a committee member and is a co-organiser of the Water Resources stream.



Assoc.Prof. Barry Croke



Prof Holger Maier



Prof Pascal Perez



Dr Malcolm McPhee



Assoc. Prof. Jason Sharples



Dr Jai Vaze





Professor Sandhya Samarasinghe



Professor Sejong Bae



Associate Professor Sergei Schreider



Professor Wai-Sum Chan



2016 Fellows

Professor Sandhya Samarasinghe

Sandhya is a Professor and Head of the Integrated Systems Modelling Group at Lincoln University, New Zealand, with research interests in the development and application of Holistic/Integrated Systems Modelling methods and concepts including Neural Networks and AI for the study of self organisation, complexity, emergent properties and dynamical behaviour of complex systems. She has attended MODSIM since 2005 and been a session organiser at our congresses since 2007.

Professor Sejong Bae

Sejong is a Professor at the University of Alabama at Birmingham in the School of Medicine. His research interests include the modelling of multistate cancer and chronic disease. Sejong has been a session organiser at every MODSIM congress since 2007.

Associate Professor Sergei Schreider

Sergei is an Associate Professor at the RMIT with research interests across many aspects of water related problems, including Operations Research, Mathematical Economics, Water Resource Modelling and Ecological Modelling. Sergei has been a member of MSSANZ and attended every conferences since 1993, over which time he has regularly contributed to the society as a session organiser and member of the organising and program committees.

Professor Wai-Sum Chan

Wai-Sum is a Professor of Finance at the Chinese University of Hong Kong. His main research interests include stochastic modelling of mortality trends, statistical analysis of financial risks and the application of actuarial science to English common-law courts. He has been attending MODSIM congresses since 1997.

MSSANZ Fellowship Award Criteria

1. In every even-numbered year, the Society may confer a limited number of Fellowships for 'unselfish dedication to promoting the aims of the Society, and for significant contributions to modelling and simulation'.
2. Fellows are entitled to use the postnominal 'FMSSANZ'.
3. Any member of the Society may be nominated for Fellowship. The proposer and seconder must be members of the Society. Self-nomination is not permitted.
4. Written nominations should be sent directly to awards@mssanz.org.au. Opening and closing dates are as set by the Awards Committee, but must be at least three months before the Annual General Meeting in every even-numbered year. Nominations must be accompanied by a written statement and a curriculum vitae of the nominee.
5. Nominations are reviewed by the Awards Committee who make recommendations to the Executive Committee for ratification. Fellows are awarded at the next MODSIM conference.