



Sunday, 1 December

2pm **Registration and information desk**
Convention Centre foyer

4pm **Newcomer Icebreaker**
Exhibition Hall

5:15pm **Opening for MODSIM2019**
Royal Theatre

5:30pm **Plenary**
Royal Theatre

The science-policy interface: A tale of interesting bedfellows
» Dr Paul Lawrence

6pm **Welcome reception**
Exhibition Hall

Monday, 2 December

7:30am **Registration and information desk**
Convention Centre foyer

8:45am **Opening for MODSIM2019**
Royal Theatre

9:15am **Plenary**
Royal Theatre

Big decisions need more than just big data, they need big models too
» Professor Karen Willcox

9:45am **Morning tea**
Exhibition Hall

10:15am **A5. Industrial modelling and simulation**
Royal Theatre
Chaired by: Prof. Bob Anderssen

10:15am **Stochastic processes in a discrete model of ground combat**
» Dr. TIMOTHY MCLENNAN-SMITH, Dr. MARK NELSON, Dr. ZLATKO JOVANOSKI, Dr. Marianito Rodrigo, Prof. Harvinder Sidhu

10:35am **Comparing the carbon footprints of food waste diversion options in Melbourne, Australia**
» Mr. CHARLES LING, Prof. John Boland

10:55am **Multistage flow shop scheduling with bi-criteria objective using sequence dependent setup times**
» Prof. Kewal Nailwal, Dr. Deepak Gupta, Dr. Sameer Sharma

11:15am **Nitrogen removal in a cascade of four reactors employing the activated sludge process**
» Dr. MARK NELSON, Dr. Faisal Hai

11:35am **2D chaotic flow in competitive exothermic-endothermic reactions**
» Dr. Zhejun Huang, Dr. Simon Watt, Prof. Harvinder Sidhu, Prof. Andy McIntosh, Prof. John Brindley

11:55am **Optimal partitioning of photovoltaic modules on a curved solar collector**
» Ms. MARIA KAPSIS, Dr. AMIE ALBRECHT, Dr. PETER PUDNEY



Continued from **Monday, 2 December**

12:15pm **Using the DEMATEL method to identify key reasons for mathematics support**
» [Dr. Michael Dzator](#), Dr. Janet Dzator

10:15am **D3. Cloud and web applications for environmental data analysis and modelling / D1. Provenance**
Bradman Theatre
Chaired by: Mr. Dean Holzworth and Dr. Wolfgang Mayer

10:15am **Closing the loop on modelling's role in natural resource investment planning**
» [Dr. Nick Marsh](#), Dr. Chris Thompson, Dr. Morag Stewart, Ms. Tory Grice, Mr. Viet Phung, Mr. Andrew Smolders

10:35am **A study on content-based geographic data sharing strategy for interdisciplinary research**
» [Dr. Jin Wang](#), Prof. Min Chen

10:55am **Service-oriented interfaces design for distributed geographical simulation resources usage in the web environment**
» [Mr. Fengyuan Zhang](#), Prof. Min Chen, Dr. Songshan Yue, Mr. Ming Wang, Prof. Yongning Wen, Prof. Guonian Lu

11:15am **Scalable Cloud-based scientific research platforms as a pathway of technology delivery in exploration geophysics**
» [Dr. Pavel Golodoniuc](#), Dr. Aaron Davis, Mr. Samuel Bradley, Mr. Shane Mulè, Mr. John Hille

11:35am **Minimal requirement provenance capturing workflow systems for hydrological modelling**
» [Mr. Timothy Smith](#), Mr. Andrew Davidson

11:55am **Enabling model management with Source**
» [Mr. Geoff Davis](#)

12:15pm **Provenance narratives and visualisation to support understanding and trust**
» [Dr. Andrew Cunningham](#), Mr. Marcin Nowina-Krowicki, Dr. James Walsh, Dr. Jae chung, Dr. Steven Wark, Prof. Bruce Thomas

10:15am **J5. Science for sustainability: learning how to successfully use modelling and simulation to promote sustainability at the science-for-policy and science-for-management**
Menzies Theatre
Chaired by: Greg Summerell

10:15am **Understanding mental models through a moderated framework for serious discussion**
» [Ms. Madiha Anjum](#), Prof. Alexey Voinov, Dr. Salvatore Flavio Pileggi, Dr. Juan Castilla

10:35am **Science for Sustainability: Using Societal Metabolism Analysis to check the robustness of European Union policy narratives in the water, energy and food nexus**
» [Dr. Keith Matthews](#), Dr. Kerry Waylen, Dr. Kirsty Blackstock, Dr. Alba Juarez-Bourke, Mr. Dave Miller, Mr. Doug Wardell-Johnson, Dr. Mike Rivington, Prof. Mario Giampietro

10:55am **Model-enabled community engagement in a mining approval process**
» [Mr. Pete Dupen](#), Dr. Juan Castilla, Prof. Alexey Voinov

11:15am **An integrated framework for exploring the feasibility of managed aquifer recharge**
» [Dr. Jenifer Ticehurst](#), Dr. Joseph Guillaume, Dr. Andrew Ross, Ms. Evangeline Packett, Dr. R. Vervoort, Mr. Ignacio Fuentes, Prof. Tony Jakeman, Prof. Barry Croke

11:35am **Building trust in modelling for integrated water management: an inter-institutional example from Uruguay**
» Ms. Flora Mer, Dr. Walter Baethgen, [Dr. R. Vervoort](#)



Continued from **Monday, 2 December**

- 11:55am **Gamification of participatory modeling in the context of sustainable development: existing and new solutions**
» Ms. Elena Bakhanova , Prof. Alexey Voinov , Dr. William Raffé , Dr. Jaime Garcia Marin
- 12:15pm **The role of simplified scenario assessment in planning for sustainable land-use and food systems**
» Dr. Javier Navarro Garcia , Dr. Raymundo Marcos Martinez , Mr. Daniel Mason-D'Croz , Mr. Mike Grundy , Dr. Michalis Hadjikakou , Prof. Brett Bryan , Mr. Eli Court
- 10:15am **F3. New trends in modelling and simulation of future mobility**
Nicholls Theatre
Chaired by: Dr. Bo Du and Michael Bell
- 10:15am **A comprehensive simulation platform for conventional, connected and automated driving**
» Dr. Dongyao Jia , Prof. Zuduo Zheng
- 10:35am **Ensuring robustness in the Stochastic Capacitated Vehicle Routing Problem: A new mathematical model**
» Dr. Marcella Bernardo , Prof. Jürgen Pannek
- 10:55am **Measuring the perceived leasing price of empty container in shipping system**
» Mr. Hao Hu , Dr. Bo Du , Dr. Mehrdad Amirghasemi
- 11:15am **Routing strategy using local information based on a two layer cellular automaton model**
» Ms. Bei Zhu , Prof. Rhea Liem
- 11:35am **The effect of risk propensity on the crash risk: Evidence from lottery sales and fatal crashes in Texas**
» Dr. Jin Ly

- 11:55am **The application of evolutionary computation and metaheuristics for solving the Network Design Problems**
» Dr. Mehrdad Amirghasemi , Dr. Bo Du , Dr. Iohan Barthelemy , Dr. Robert Ogie , Prof. Pascal Perez
- 10:15am **K17. Modelling and assessing water resources and hydrology at the national level / K8. Advances in large scale hydrological modelling to improve assessments of water availability in a changing world**
Sutherland Theatre
Chaired by: Dr. David Post and Dr. Chantal Donnelly
- 10:15am **Improvements to the Australian Water Resource Assessment Landscape Model from new remotely sensed data, calibration targets and process descriptions**
» Dr. Ashkan Shokri , Dr. Andrew Frost , Dr. Chantal Donnelly
- 10:35am **Complementing observed and modelled streamflow for Northern Australia – evaluating streamflow estimates from two hydro-meteorological operational models**
» Dr. Ulrike Bende-Michl , Dr. Chantal Donnelly , Dr. Nilantha Gamage , Dr. Julien Lerat , Dr. Ervin Zsoter
- 10:55am **Exposing underlying hydrological processes and using them for regionalization of large-scale hydrological models**
» Dr. Liliana Pagliero , Dr. Fayçal Bouraoui , Prof. Jan Diels , Prof. Patrick Willems , Prof. Neil McIntyre
- 11:15am **Downscaling runoff products using areal interpolation: a combined pycnophylactic-dasytetric method**
» Mr. Marko Kallio , Mr. Vili Virkki , Dr. Joseph Guillaume , Prof. Albert Van Dijk
- 10:15am **B3. Force design and wargaming**
Swan Room
Chaired by: Renee Kidson
- 10:15am **Baselining the whole-of-force capability and capacity of the Australian Defence Force**
» Dr. James Peacock , Mr. Dermot Blumson , Mr. Adam Hepworth , Dr. Andrew Coutts , Dr. Edward Lo



Continued from **Monday, 2 December**

- 10:35am **A novel approach to informing the future land force: Incorporating design thinking and concept, development and exploration methods**
» [Mr. Christopher Manning](#) , Dr. Ashley Stephens , Dr. Matthew Richmond
- 10:55am **Multi-criteria prioritisation of Defence projects based on Best-Worst Method**
» [Mr. Andrew Donohoo](#) , Dr. John Chisholm
- 11:15am **Narrative visualisation of simulations: Finding the stories within the data**
» [Dr. James Walsh](#) , Dr. Andrew Cunningham , Dr. Steven Wark , Mr. Marcin Nowina-Krowicki , Prof. Bruce Thomas
- 11:35am **Aggregation of dependent criteria in multicriteria decision making problems by means of capacities**
» Prof. Gleb Beliakov , Dr. Sharon Boswell , Dr. Thang Cao , Dr. Richard Dazeley , [Dr. Vicky Mak-Hau](#) , Dr. Minh-Tuan Nguyen , Dr. Tim Wilkin , Prof. John Yearwood
- 11:55am **Exploiting ecological non-trophic models in representations of warfare**
» [Dr. TIMOTHY MCLENNAN-SMITH](#) , Dr. Alexander Kalloniatis , Prof. Harvinder Sidhu , Dr. ZLATKO JOVANOSKI , Dr. Simon Watt , Dr. Isaac Towers
- 10:15am **C4. Advances in agent-based modelling and their statistical challenges in biological, ecological and agricultural systems**
Murray Room
Chaired by: Dr. Mitchell Welch and Dr. Timothy Schaerf
- 10:15am **Identifying significant differences in the rules of interaction that govern collective motion**
» [Dr. Timothy Schaerf](#) , Dr. James Herbert-Read , Prof. Mary Myerscough , Prof. David Sumpter , Prof. Ashley Ward

- 10:35am **Inferring the interaction rules governing collective movement of players in field sports**
» [Mr. Hayden Koudela](#) , Dr. Timothy Schaerf , Prof. Aron Murphy , Dr. Mitchell Welch
- 10:55am **Simulating the interactions with boundaries and barriers in collective motion models**
» [Dr. Mitchell Welch](#)
- 11:15am **Validation of methods for inferring rules of interaction that govern collective motion**
» [Mr. Rajnesh Mudaliar](#) , Prof. Yihong Du , Dr. Timothy Schaerf
- 11:35am **Extending agro-food supply chain to address sustainability: Application to wine industry**
» [Ms. Firouzeh Taghikhah](#) , Prof. Alexey Voinov , Dr. Nagesh Shukla , Prof. Tatiana Filatova , Prof. Mikhail Anufriev
- 11:55am **Partial differential equation based modelling and simulation for long-term dynamical behaviour of two invasive species**
» [Mr. Kamruzzaman Khan](#) , Ms. Shuang Liu , Dr. Timothy Schaerf , Prof. Yihong Du
- 12:15pm **Two-patch model for contact process: migration extends the survival region of species**
» [Dr. Nariyuki Nakagiri](#) , Dr. Kazunori Sato , Dr. Hiroki Yokoi , Dr. Kei-ichi Tainaka
- 10:15am **C1. Agricultural systems**
Fitzroy Room
Chaired by: Dr. Malcolm McPhee
- 10:15am **Is it working? Conceptual testing in Integrated Modelling**
» [Mr. Takuya Iwanaga](#) , Dr. Dan Partington , Mr. Joel Rahman , Prof. Barry Croke , Prof. Tony Jakeman



Continued from **Monday, 2 December**

- 10:35am **Transforming climate research into useful information: A future climate atlas for the Australian wine industry**
» [Dr. Tom Remenyi](#), Mr. Dean Rollins, Dr. Peter Love, Dr. Nick Earl, Prof. Nathan Bindoff, Dr. Rebecca Harris
- 10:55am **Optimal flowering period and corresponding sowing window shifting with Genotypes and climates in Australia Northern Grains Region**
» [Dr. Hongtao Xing](#), Dr. Felicity Harris, Ms. Deb Slinger, Ms. Allison Blake
- 11:15am **Background emissions of nitrous oxide N2O by global forest and grassland soils**
» [Dr. Lijun Yu](#), Prof. Wen Zhang, Prof. Yao Huang
- 11:35am **Using pedotransfer functions to improve the precision of spatially predicted available water capacity**
» [Ms. Jenet Austin](#), Dr. Uta Stockmann, Dr. Kirsten Verburg
- 11:55am **Representing conservation tillage in agricultural systems simulations**
» [Dr. Rogerio Cichota](#), Dr. Edmar Teixeira, Dr. Wei Hu, Dr. Allister Holmes, Dr. Paul Johnstone
- 10:15am **G3. The role of modelling and simulation to supporting evidence-based decision making in agriculture and biosecurity: science meets policy**
Derwent Room
Chaired by: Dr. Hazel Parry and Dr. Justine Murray and Dr. Matt Hill
- 10:15am **A simple model for size-at-detection of an invasive species under surveillance**
» [Prof. Andrew Robinson](#), Dr. John Kean, Dr. Melissa Welsh

- 10:35am **Surveillance strategies for weed eradication: Hawkweeds in Kosciuszko National Park**
» [Prof. Oscar Cacho](#), Dr. Hillary Cherry, Dr. Mark Hamilton, Ms. Jo Caldwell
- 10:55am **WeedSearch: a tool for weed eradication programs**
» [Dr. Susan Hester](#), Prof. Oscar Cacho
- 11:15am **Can we predict the effectiveness of a systems approach? Understanding infestation risk along commodity pathways**
» [Dr. Justine Murray](#), Dr. Kate Fiedler, Dr. Lloyd Kingham, Dr. Rieks Van Klinken
- 11:35am **Modelling animal disease control and post-outbreak management to improve outbreak response policies**
» Mr. Donkor Addai, Dr. Andrew Breed, Dr. Tim Capon, Mr. Graeme Garner, Mr. Ahmed Hafi, [Dr. Corissa Miller](#), Dr. Sharon Roche, Mrs. Ann Seitzinger, Dr. Louise Sharp, Dr. Sorada Tapsuwan
- 11:55am **Area-wide management guidelines for Sterile Insect Technique developed through interdisciplinary modelling research**
» [Dr. Hazel Parry](#), Dr. Tim Capon, Prof. Tony Clarke, Dr. Peter Crisp, Mr. Andrew Hulthen, Dr. John Kandulu, Dr. Brenda Kranz, Dr. Barton Loechel, Dr. Aditi Mankad, Dr. Penny Measham, Dr. Katharina Merkel, Dr. Justine Murray, Dr. Olivia Reynolds, Dr. Nancy Schellhorn, Dr. Florian Schwarzmüller, Ms. Mia Tam, Dr. Sorada Tapsuwan, Dr. Rieks Van Klinken, Dr. Stuart Whitten, Dr. David Williams
- 12:15pm **DISCUSSION: The role of modelling and simulation to supporting evidence-based decision making in agriculture and biosecurity: science meets policy**
» [Dr. Matt Hill](#), Dr. Hazel Parry, Dr. Justine Murray
- 12:35pm **Lunch**
Exhibition Hall
- 1:30pm **K7. Hydrologic non-stationarity and extrapolating models to predict the future**
Royal Theatre
Chaired by: Dr. Tim Peterson and Dr. Murray Peel



Continued from **Monday, 2 December**

1:30pm **Robust parameterisation of rainfall-runoff models for climate change impact assessment**
» Dr. Hongxing Zheng , [Dr. Francis Chiew](#) , Dr. lu zhang , Dr. Nick Potter

1:50pm **Changes in the frequency of Australian rainfall extremes**
» [Mr. Declan O'Shea](#) , Dr. Conrad Wasko , Dr. Rory Nathan , Prof. Ashish Sharma

2:10pm **Catchment drought recovery: A statistical analysis of hydrological resilience throughout Victoria**
» [Dr. Tim Peterson](#) , Dr. Murray Peel , Dr. Margarita Saft

2:30pm **Flip the bucket: why models based on deficits, not buckets, may be needed for runoff projections in a drying climate**
» [Dr. Keirnan Fowler](#) , Dr. Gemma Coxon , Dr. Jim Freer , Dr. Wouter Knoben , Dr. Murray Peel , Dr. Thorsten Wagener , Prof. Andrew Western , Dr. Ross Woods , Dr. lu zhang

2:50pm **Invited paper: Shifts in rainfall-runoff relationships: how did they change across Australia?**
» [Dr. Samira Akhavan](#) , Dr. Ulrike Bende-Michl , Dr. Margarita Saft , Dr. Nilantha Gamage , Dr. Murray Peel , Dr. Tim Peterson , Prof. Andrew Western

3:10pm **How might climate change impact conceptual hydrologic models? An ecohydrologic experiment**
» [Ms. Clare Stephens](#) , Dr. Lucy Marshall , Dr. Fiona Johnson , Dr. Laurence Lin , Prof. Lawrence Band , Dr. Hoori Ajami

1:30pm **K3. Large sample and high resolution hydrological studies to tackle a rapidly changing world**
Bradman Theatre
Chaired by: Prof. Yongqiang Zhang and Dr. Dongryeol Ryu and Dr. Fubao Sun

1:30pm **Invited paper: Impacts of climate change and human activities on water resources in the transboundary rivers of Central Asia**
» [Prof. Yaning Chen](#) , Prof. Weihong Li , Prof. Weili Duan

1:50pm **Irrigation expansion, groundwater declines: hydrological drivers in northwest Bangladesh**
» [Dr. Jorge Pena Arancibia](#) , Dr. Mohammed Mainuddin , Dr. Mobin Ahmad , Mr. Geoff Hodgson , Mr. Khandakar Faisal Ibn Murad , Dr. Catherine Ticehurst , Dr. M Maniruzzaman , Dr. M Golam Mahboob , Dr. Mac Kirby

2:10pm **Changes of Bowen Ratio of alpine grasslands in the Three-Rivers Headwater Region of the Qinghai-Tibet Plateau in 2000-2018**
» [Dr. Wang lunbang](#)

2:30pm **A pixel-based indicator of upland crop waterlogging using remote sensing soil moisture data**
» [Dr. Peilin Song](#) , Prof. Jingfeng Huang , Prof. Yongqiang Zhang

2:50pm **Long-term vegetation change and its driving factors in a typical catchment of the Loess Plateau**
» [Ms. Chenlu Huang](#) , Prof. Yongqiang Zhang

3:10pm **Estimating coupled high resolution global evapotranspiration and gross primary production using the Google Earth Engine**
» [Prof. Yongqiang Zhang](#)

1:30pm **H7. Modelling of bushfire dynamics, fire weather, impact and risk**
Menzies Theatre
Chaired by: Prof. Jason Sharples

1:30pm **KEYNOTE: Wind-terrain effects on firebrand dynamics**
» [Dr. James Hilton](#) , Prof. Jason Sharples , Dr. Nikhil Garg , Prof. Murray Rudman , Mr. William Swedosh , Mr. David Commins

1:50pm **A cloud-based framework for sensitivity analysis of wildfire models**
» [Mr. Ujjwal KC](#) , Dr. Saurabh Garg , Dr. James Hilton , Dr. Jagannath Aryal



Continued from Monday, 2 December

2:10pm **Quantifying dynamic fire behaviour phenomena using Unmanned Aerial Vehicle technology**

» Dr. Alexander Filkov , Mr. Brett Cirulis , Dr. Trent Penman

2:30pm **Investigation of plume attachment in inclined terrain profiles**

» Dr. Ross Edgar , Prof. Jason Sharples , Prof. Harvider Sidhu

2:50pm **Physics-based simulations of fire development downstream a canopy**

» Dr. Gilbert Accary , Dr. Sofiane Meradji , Dr. Dominique Morvan , Dr. Duncan Sutherland , Prof. Khalid Moinuddin

3:10pm **Using Windninja data into Fire Dynamics Simulator for faster fire simulations**

» Mrs. Sesa Singha Roy , Dr. Duncan Sutherland , Prof. Khalid Moinuddin

1:30pm **I1. Modelling cancer, chronic disease, and safety data in translational research**

Nicholls Theatre

Chaired by: Prof. sejong bae

1:30pm **A Bayesian paradigm of the disparities in the relation of alcohol and acetaminophen in early stage kidney toxicity**

» Prof. Harrison Ndetan , Dr. M Evans , Dr. Al Bartolucci , Dr. Sejong Bae , Dr. Emmanuel Elueze , Dr. L. Brunner , Dr. Kirk Calhoun , Dr. Karan P Singh

1:50pm **Sampling schemes for selecting control in a nested case-control cancer mortality study: An empirical comparison**

» Prof. Harrison Ndetan , Dr. Eric Johnson , Dr. Al Bartolucci , Dr. Karan P Singh , Dr. Sejong Bae

2:10pm **A flexible family of hypertabastic models**

» Prof. Harrison Ndetan , Dr. Karan P Singh , Prof. Wayne Eby , Prof. Mohammad Tabatabai , Prof. Zoran Bursac , Prof. Minyong Uhm , Prof. Al Bartolucci , Prof. sejong bae

2:30pm

Identification of risk factors of lung cancer mortality in the American poultry workers using the random forest algorithm

» Dr. Mohammed Elfaramawi , Dr. Saly Abouelenein , Dr. Karan P Singh , Dr. Eric Johnson

2:50pm

Structural equation modelling approach to explore the relation of lead exposure and cardiovascular conductivity in the US general population

» Dr. Mohammed Elfaramawi , Dr. Saly Abouelenein , Dr. Karan P Singh

3:10pm

Safety protection measures from Flare Stack through QRA (Quantitative Risk Assessment)

» Mr. Choi Bong-Sun , Dr. Sejong Bae , Dr. Jong-bae Baek

1:30pm

G1. Modelling for the Great Barrier Reef

Sutherland Theatre

Chaired by: Dr. Barbara Robson and Dr. Mark Silburn

1:30pm

Invited paper: Towards Ecologically Relevant Targets: Impact of flow and sediment discharge on seagrass communities in the Great Barrier Reef

» Dr. Victoria Lambert , Dr. Matthew Adams , Dr. Catherine Collier , Dr. Alexandra Carter , Dr. Megan Saunders , Dr. Jon Brodie , Dr. Zoe Bainbridge , Dr. Michael Rasheed , Dr. Ryan Turner , Prof. Kate O'Brien

1:50pm

Benthic light as an ecologically-validated water quality indicator

» Dr. Barbara Robson , Ms. Marites Magno-Canto , Dr. Catherine Collier , Ms. Stephanie di Perna , Dr. Murray Logan , Dr. Lachlan McKinna , Mr. Sam Noonan , Dr. Katharina Fabricius

2:10pm

The impact of anthropogenic nutrient and sediment loads on water clarity on the Great Barrier Reef

» Dr. Mark Baird , Dr. Jennifer Skerratt , Dr. Nugzar Margvelashvili , Dr. Mathieu Mongin , Dr. Cedric Robillot

2:30pm

A Keras Neural Network to emulate eReefs turbidity

» Dr. Nugzar Margvelashvili , Dr. Mark Baird



Continued from **Monday, 2 December**

- 2:50pm **Predicting subsurface water temperature from sea surface temperature in the Great Barrier Reef**
» [Ms. Rae Quinlan](#) , Dr. Barbara Robson , Ms. Jessica Benthuisen
- 3:10pm **Tipping points and early warning signals in coral reef ecosystem models**
» [Dr. Karlo Hock](#) , Prof. Alan Hastings , Prof. Peter Mumby
- 1:30pm **B8. Simulation-based analysis**
Swan Room
Chaired by: Dr. Hasan Turan
- 1:30pm **Development of a disaster evacuation tool using SUMO**
» Mr. Anas Al-Rahamneh , [Dr. Leorey Marquez](#)
- 1:50pm **An assessment of the accuracy of military workforce models**
» [Mr. David Oliver](#)
- 2:10pm **Modelling drought impacts on coffee production in Viet Nam: A system dynamics approach**
» [Ms. Yen Pham](#) , Dr. Kathryn Reardon-Smith , Prof. Shahbaz Mushtaq
- 2:30pm **Modelling a multi-modal logistic network with agents and dynamic graphs**
» [Dr. Thibaut Démare](#) , Dr. Stefan Balev , Prof. Cyrille Bertelle , Dr. Antoine Dutot , Dr. Dominique Fournier , Prof. Eric Sanlaville
- 2:50pm **Repair priorities in repairable spare part supply systems: a simulation-optimization approach**
» [Dr. Hasan Turan](#) , Dr. Sondoss Elsayah , Dr. Michael J. Ryan
- 1:30pm **A4. Bridging between mathematical and physically based models**
Murray Room
Chaired by: Prof. Suxia Liu and Dr. Milton Speer

- 1:30pm **KEYNOTE: Bridging between mathematical and physically based models**
» Prof. Lance Leslie , [Dr. Milton Speer](#)
- 1:50pm **Evaporation rates for a coral island by field observation and simulation**
» [Mr. Shengsheng Han](#) , Prof. Suxia Liu , Dr. Shi Hu , Prof. Xingguo Mo , Prof. Xianfang Song
- 2:10pm **Sediment load change observed by using both physically based model and statistical analysis**
» Prof. Liying Sun , Prof. Qiangguo Cai , Prof. Haiyan Fang , [Ms. Fei He](#)
- 2:30pm **Changes of hydrological processes under climate change in the upper reach basin of the Yellow River**
» [Prof. Xingguo Mo](#) , Dr. Chengcheng Meng , Dr. Xuejuan Chen , Dr. Shi Hu , Prof. Zhonghui Lin
- 2:50pm **Test the capability of artificial neural networks by using a univariate runoff forecasting for a data-scarce basin**
» [Prof. Suxia Liu](#) , Mr. Wen Liu , Prof. Xingguo Mo , Prof. Peter Bauer-Gottwein
- 3:10pm **Temporal and spatial variation of precipitation in Nansha Islands, South China Sea**
» [Mr. Dongxu Yao](#) , Prof. Xianfang Song , Dr. Lihu Yang
- 1:30pm **C1. Agricultural systems**
Fitzroy Room
Chaired by: Dr. Malcolm McPhee
- 1:30pm **KEYNOTE: Pasture API: A digital platform to support grazing management for southern Australia**
» Dr. Dean Thomas , [Dr. Patrick Mitchell](#) , Mr. Eric Zurcher , Mr. Neville Herrmann , Mr. Joe Pasanen , Dr. Chris Sharman , Dr. Dave Henry
- 1:50pm **Data assimilation of APSIM wheat and soil state variables in a synthetic study framework**
» [Ms. Yuxi Zhang](#) , Prof. Jeff Walker , Prof. Valentijn Pauwels



Continued from **Monday, 2 December**

- 2:10pm **AgPasture - a general pasture model for APSIM Next Generation**
» Mrs. Mariana Pares Andreucci , [Dr. Rogerio Cichota](#) , Mr. Dean Holzworth , Dr. Val Snow
- 2:30pm **Dynamic simulation of crop rotations to evaluate the impact of different nitrogen management strategies on water quality in Southland, New Zealand**
» [Dr. Edith Khaembah](#) , Dr. Rogerio Cichota , Mr. Rob Zyskowski , Dr. Iris Vogeler
- 2:50pm **Challenges in modelling multi-species pastoral systems**
» [Dr. Rogerio Cichota](#) , Dr. Val Snow
- 3:10pm **Can farmers that irrigate assist in the management of summer-time peak electricity demand? A preliminary study from Mid-Canterbury, New Zealand**
» [Dr. Val Snow](#) , Dr. Robyn Dynes , Dr. Munir Shah , Dr. Jeremy Bryant , Ms. Laura Grundy , Mr. Jeremy Adamson , Mr. Pat Ealam , Mr. David Wilson
- 1:30pm **G3. The role of modelling and simulation to supporting evidence-based decision making in agriculture and biosecurity: science meets policy**
Derwent Room
Chaired by: Dr. Hazel Parry and Dr. Justine Murray and Dr. Matt Hill
- 1:30pm **The development of a marine species distribution modelling approach designed for a regulatory context**
» [Mr. Nathaniel Bloomfield](#) , Dr. Rupert Summerson , Dr. Tony Arthur
- 1:50pm **Mechanistic forecasting of exotic pest establishment and spread - an integrated approach for industry preparedness**
» [Dr. James Maino](#) , Dr. Elia Pirtle , Dr. Peter Ridland , Mr. Rafael Schouten , Dr. Jessica Lye , Mr. Darryl Barbour , Dr. Paul Umina

- 2:10pm **Modelling the population dynamics of green mirids to support IPM decision-making for the Australian cotton industry**
» [Mrs. Emilie Roy-Dufresne](#) , Mr. Aaron Brooks , Dr. Mary Whitehouse , Dr. Darren Kriticos
- 2:30pm **Computational modelling of estimating the long-distance dispersal threat of pests and pathogens from Southeast Asia to Australia**
» [Dr. Ming Wang](#) , Mr. Noboru Ota , Mr. Aaron Brooks , Mrs. Emilie Roy-Dufresne , Dr. Darren Kriticos , Dr. Dean Paini
- 2:50pm **Modelling the impacts of consumer policies on organic farming adoption: Ecological and sociological perspectives**
» [Ms. Firouzeh Taghikhah](#) , Prof. Alexey Voinov , Dr. Nagesh Shukla , Prof. Tatiana Filatova , Prof. Mikhail Anufriev
- 3:10pm **DISCUSSION: The role of modelling and simulation to supporting evidence-based decision making in agriculture and biosecurity: science meets policy**
» [Dr. Matt Hill](#) , Dr. Hazel Parry , Dr. Justine Murray
- 3:30pm **Afternoon tea**
Exhibition Hall
- 4pm **K7. Hydrologic non-stationarity and extrapolating models to predict the future**
Royal Theatre
Chaired by: Dr. Tim Peterson and Dr. Murray Peel
- 4pm **Random walk parameters to model hydrologic non-stationarity**
» [Mr. Shaun Kim](#) , Dr. Justin Hughes , Dr. Lucy Marshall , Prof. Ashish Sharma , Dr. Jai Vaze
- 4:20pm **Trends in Precipitation and Temperature in Canberra**
» [Mr. Joshua Hartigan](#) , Dr. Shev Macnamara , Prof. Lance Leslie


Continued from **Monday, 2 December**

- 4:40pm **Assessment of hydrological stationarity of the Border Rivers catchment**
» Dr. Ashok Raut , Mr. Golam Kibria , Dr. Nanda Nandakumar , Mr. Selvaratnam Maheswaran
- 5pm **Projections of water futures for Australia: an update**
» Dr. Hongxing Zheng , Dr. Francis Chiew , Dr. Nick Potter , Dr. Dewi Kirono
- 4pm **K3. Large sample and high resolution hydrological studies to tackle a rapidly changing world**
Bradman Theatrette
Chaired by: Prof. Yongqiang Zhang and Dr. Dongryeol Ryu and Dr. Fubao Sun
- 4pm **Global catchments classification based on machine learning for hydrological signature interpretation**
» Dr. Yuhuan Guo , Prof. Yongqiang Zhang
- 4:20pm **A high-resolution paleo streamflow record for Monsoon Asia with surrogate streamflow data**
» Mr. Hung Nguyen , Mr. Valerio Barbarossa , Dr. Sean Turner , Prof. Brendan Buckley , Prof. Stefano Galelli
- 4:40pm **The spatio-temporal NDVI analysis for two different Australian catchments**
» Mrs. Nikul Kumari , Mr. Omer Yetemen , Mr. Ankur Srivastava , Dr. Jose Rodriguez , Dr. Patricia Saco
- 4pm **H7. Modelling of bushfire dynamics, fire weather, impact and risk**
Menzies Theatrette
Chaired by: Prof. Jason Sharples
- 4pm **Insights into the role of fire geometry and violent pyroconvection**
» Dr. Rachel Badlan , Prof. Jason Sharples , Prof. Jason Evans , Mr. Rick McRae

- 4:20pm **Modelling the fire ecology of the Tasmanian Wilderness World Heritage Area**
» Dr. Peter Love , Dr. Jenny Styger , Dr. Rebecca Harris , Dr. Tom Remenyi , Dr. Nick Earl , Prof. Nathan Bindoff
- 4:40pm **The flow over a forested hill**
» Dr. Nazmul Khan , Dr. Duncan Sutherland , Prof. Khalid Moinuddin
- 5pm **Climate change increases the potential for extreme wildfires**
» Dr. Giovanni Di Virgilio , Prof. Jason Evans , Ms. Stephanie Blake , Mr. Matthew Armstrong , Dr. Andrew Dowdy , Prof. Jason Sharples , Mr. Rick McRae
- 5:20pm **Stochastic model for the ROS in a heterogeneous environment**
» Dr. ZLATKO JOVANOSKI , Prof. Jason Sharples , Prof. Harvinder Sidhu , Dr. Isaac Towers
- 5:40pm **Probabilistic modelling of bushfire rate of spread from line scan observations**
» Mr. Michael Storey
- 4pm **I1. Modelling cancer, chronic disease, and safety data in translational research / I2. Health care decision support / I3. Data science and simulation modelling methods in the health sector**
Nicholls Theatrette
Chaired by: Prof. sejong bae and Dr. Louise Freebairn and Irene Hudson
- 4pm **Key role of clients and contractors in chemical factory construction to solve health and safety problems**
» Mr. Seung Hyeon Shin , Ms. Yeji Na , Prof. Jeong-Hun Won , Prof. Jeongkeun Park
- 4:20pm **"Stopping before you start": Reducing and preventing initiation of tobacco use in the ACT**
» Dr. Louise Freebairn , Dr. Larry Kreuger , Ms. Cathy Watson , Dr. Oscar Yang , Ms. Kathleen Graham , Mr. Glenn Draper , Dr. Geoff McDonnell , Ms. Erica Nixon , Prof. Jo-An Atkinson



Continued from **Monday, 2 December**

4:40pm **Development of a dynamic simulation model to estimate the impact of various policy options on alcohol consumption in the Australian Capital Territory**
» Mr. Glenn Draper , Dr. Louise Freebairn , Dr. Oscar Yang , Dr. Larry Kreuger , Mr. Philip Hull , Ms. Kathleen Graham , Ms. Erica Nixon , Prof. Jo-An Atkinson

5pm **Particle based droplet simulation in liquid-liquid two-phase flow**
» Mr. Takuya Natsume , Mr. Masamichi Oishi , Prof. Marie Oshima , Prof. Nobuhiko Mukai

4pm **G1. Modelling for the Great Barrier Reef**
Sutherland Theatre
Chaired by: Dr. Barbara Robson and Dr. Mark Silburn

4pm **Xenobiotic compounds in the Great Barrier Reef catchments: modelling temporal dynamics**
» Dr. Anna Lintern , Ms. Ruth Hicks , Dr. Ryan Turner , Mr. Shuci Liu , Dr. Danlu Guo , Dr. Dongryeol Ryu , Dr. Angus Webb , Prof. Andrew Western

4:20pm **The erosion of an ideal gully under steady state conditions**
» Dr. Melanie Roberts

4:40pm **Streamflow simulations for gauged and ungauged catchments of the Great Barrier Reef region using a distributed hydrological model**
» Dr. Urooj Khan , Dr. Steven Wells , Dr. Prasantha Hapuarachchi , Dr. Steven Cole , Dr. Mohammad Mahadi Hasan , Mr. Richard Laugesen , Mr. Robert Moore , Dr. Mohammed Bari , Dr. Narendra Kumar Tuteja

5pm **Bayesian uncertainty analyses of Great Barrier Reef catchment water quality model parameters without likelihood assumptions**
» Dr. Ramanan Baheerathan , Dr. Frederick Bennett

5:20pm **Purpose-focused and multiple-method sensitivity and uncertainty analysis of a catchment water quality model**
» Dr. Baihua Fu , Prof. Barry Croke , Mr. Robin Ellis , Mr. David Waters , Prof. Tony Jakeman

4pm **B8. Simulation-based analysis**
Swan Room
Chaired by: Dr. Hasan Turan

4pm **An Integrated Platform System Model (IPSM) applied to a large Unmanned Underwater Vehicle (UUV) for design and mission planning decision support**
» Mr. Craig Fletcher , Dr. Stuart Anstee , Dr. Keiran Pringle , Mr. Karl Slater

4:20pm **Investigating the use of uninhabited aerial systems (UAS) to support anti-ship missile defence through simulations**
» Dr. Simon Blaess , Dr. Patrick van Bodegom

4:40pm **Helicopter (blue) agent path optimisation against small-arms operators**
» Prof. Kutluyil Dogancay , Mr. Ziming Tu , Dr. Gokhan Ibal , Mr. Mina Shokr , Mr. Christopher Stewart

5pm **Bayesian network meta-models from combat simulation for Defence decision analysis**
» Mrs. Abida Shahzad , Dr. Steven Mascaro , Dr. Thang Cao , Dr. Kevin Burt Korb

5:20pm **A hybrid immersed boundary--lattice Boltzmann and finite difference method for bushfire simulation**
» Dr. Li Wang , Dr. Fangbao Tian

4pm **H6. Earth observation data assimilation for improved land surface modelling**
Murray Room
Chaired by: Dr. Siyuan Tian and Dr. Wendy Sharples and Dr. Luigi Renzullo


Continued from **Monday, 2 December**

- 4pm **Assimilating streamflow observations into forecasting models by combining state and output updating**
» [Dr. David Robertson](#) , Mr. James Bennett
- 4:20pm **Assimilating satellite soil moisture retrievals to improve operational water balance modelling**
» Dr. Siyuan Tian , [Dr. Luigi Renzullo](#) , Dr. Robert Pipunic , Dr. Wendy Sharples , Dr. Julien Lerat , Dr. Chantal Donnelly
- 4:40pm **Observation-constrained prediction of the response of whole soil profile carbon to warming across the globe**
» [Dr. Zhongkui Luo](#)
- 5pm **Improving current estimates of global water and energy budgets**
» [Dr. Sanaa Hobeichi](#) , Dr. Gab Abramowitz , Prof. Jason Evans
- 5:20pm **Remote sensing estimation of the soil erosion cover-management factor over China's Loess Plateau**
» [Dr. Xihua Yang](#) , Prof. Xiaoping Zhang , Ms. Du Lv , Mr. Mingxi Zhang , Prof. Shuiqing Yin , Dr. Esther Zhu
- 4pm **C1. Agricultural systems**
Fitzroy Room
Chaired by: Dr. Malcolm McPhee
- 4pm **Integrative modelling of phosphorus losses from crop production**
» [Dr. Hong Yang](#)
- 4:20pm **Automated reasoning for situational awareness**
» [Dr. Peter Baumgartner](#) , Dr. Alexander Krumpholz
- 4:40pm **Simulations + source code = documentation**
» [Mr. Dean Holzworth](#) , Dr. Neil Huth , Dr. Hamish Brown , Dr. Val Snow

- 5pm **Invited paper: Modelling feedlots using the MEDLI model framework**
» [Ms. Alison Vieritz](#) , Mr. Mark Lowry , Mr. Tim Sullivan , Mr. Michael Atzeni , Mr. Alex Hope-O'Connor , Dr. Peter Watts
- 5:20pm **A multi-sensor approach to reduce data uncertainty in development of cattle behaviour classification platform for reliable prediction of animal state**
» Mr. Peter Pletnyakov , [Dr. Mos Sharifi](#) , Mr. Stuart Lindsey , Dr. Mark Shepherd
- 5:40pm **Integrated software system with 3D imaging to assess cattle and assist in meeting market specifications**
» [Dr. Malcolm McPhee](#) , Dr. Gibson Hu , Mr. Behnam Maleki , Dr. Mark Evered , Dr. Brad Walmsley , Mr. Brett Littler , Mr. Jason Siddell , Dr. Victor Oddy , Dr. Alen Alempijevic
- 4pm **G9. Informatics and machine learning for ecology and agriculture / G5. Assessing impacts of resource developments on ecosystems**
Derwent Room
Chaired by: Dr. Grant Hamilton and Dr. Brent Henderson
- 4pm **Hybrid analytics – harnessing the best of process-based modelling and machine and deep learning**
» Dr. Jeremy Bryant , [Dr. Val Snow](#) , Dr. Ioannis Athanasiadis
- 4:20pm **Modelling wildlife species abundance using automated detections from drone surveillance**
» [Ms. Evangeline Corcoran](#) , Dr. Simon Denman , Dr. Grant Hamilton
- 4:40pm **On-vessel video analysis for fish species identification using deep learning**
» [Mr. Logan Howell](#) , Dr. Dadong Wang , Dr. Maoying Qiao , Dr. Geoff Tuck , Dr. Rich Little , Dr. Andre Punt
- 5pm **Conceptualising River Red Gum ecological response in a river basin model**
» [Mrs. Rebecca Carlier](#) , Prof. George Kuczera , Dr. Jose Rodriguez , Dr. Steven Sandi Rojas , Dr. Emily Barbour , Dr. In-Young Yeo , Dr. Patricia Saco



Continued from **Monday, 2 December**

5:20pm **Cumulative impact assessment: Accumulated lessons from a large study assessing impacts of coal resource development on water-dependent assets**
» [Dr. Brent Henderson](#)

6pm **ASOR Annual General Meeting**
Bradman Theatre

Tuesday, 3 December

7:30am **Registration and information desk**
Convention Centre foyer

8:30am **Plenary**
Royal Theatre

Adaptive human behavior and institutions in models of socio-environmental systems: in search for resilience in an urbanised world
» Professor Tatiana Filatova

9:05am **A2. Spatial/spatio-temporal predictive modelling: variable selection, performance assessment and uncertainty quantification**
Royal Theatre
Chaired by: Dr. Warren Jin

9:05am **Bushfire emergency response simulation**
» [Dr. Troy Bruggemann](#) , Prof. Jason Ford , Dr. Gentry White , Prof. Tristan Perez

9:25am **Bushfire emergency response uncertainty quantification**
» [Dr. Troy Bruggemann](#) , Prof. Jason Ford , Dr. Gentry White , Prof. Tristan Perez , Mr. Wayne Power

9:05am **K2. Flood and tsunami modelling: techniques and applications**
Bradman Theatre
Chaired by: Ms. Jin Teng and Dr. Fazlul Karim

9:05am **Solving the fully non-linear weakly dispersive Serre equations for flows over dry beds**
» Dr. Jordan Pitt , Dr. Christopher Zoppou , [Prof. Stephen Roberts](#)

9:25am **Validated flood modelling for the Copiapó basin in Chile**
» [Dr. Raymond Cohen](#) , Dr. Mahesh Prakash , Mr. Fareed Mirza , Dr. James Hilton , Mr. Mauricio Caroca , Dr. Alfredo López , Mrs. Gabriella Bennison , Dr. Edmundo Claro

9:45am **Impacts of the representation of stream network and spatial resolution on the simulation of large-scale floods using a 2D flexible mesh hydrodynamic model**
» [Dr. Cherry Mateo](#) , Dr. Jai Vaze , Ms. Jin Teng , Mr. Shaun Kim , Dr. Catherine Ticehurst , Mr. Steve Marvanek

10:05am **Developing a flood inundation emulator based on two-dimensional hydrodynamic modelling results**
» [Dr. Fazlul Karim](#) , Mr. Simon Kitson , Dr. Justin Hughes , Dr. Cuan Petheram

9:05am **H7. Modelling of bushfire dynamics, fire weather, impact and risk**
Menzies Theatre
Chaired by: Prof. Jason Sharples

9:05am **Evolution of southeast Australian fire activity seasons**
» [Mr. Rick McRae](#)

9:25am **Evaluation of a simple rate of spread index applied to Canadian fuel types**
» [Prof. Jason Sharples](#)



Continued from Tuesday, 3 December

9:45am **A computational study on the implication of derived wind reduction factor in predicting fire rate of spread**

» [Dr. Mahmood Rashid](#) , Dr. James Hilton , Dr. Nazmul Khan , Dr. Duncan Sutherland , Prof. Khalid Moinuddin

10:05am **Burn extent and severity mapping by spectral anomaly detection in the Landsat data cube**

» [Dr. Luigi Renzullo](#) , Dr. Siyuan Tian , Prof. Albert Van Dijk , Dr. Pablo Larraondo , Dr. Marta Yebra , Dr. Fang Yuan , Mr. Norman Mueller

9:05am **H8. Single and multiple natural hazards: impacts on regional to global scales**

Nicholls Theatre

Chaired by: Dr. Nicholas Herold and Dr. Fei Ji

9:05am **Invited paper: Hydrological modelling as the alternative to flood frequency analysis in a changing climate**

» [Dr. Olga Makarieva](#) , Ms. Nataliia Nesterova

9:25am **Global patterns of flood change: analysis of observed changes in the magnitude, frequency and drivers of extreme floods**

» [Dr. Shulei Zhang](#) , Prof. Yuting Yang

9:45am **Understanding past and future changes to global flood hazard: Comparison of global hydrological models with streamflow observations**

» Dr. Hong Do , Dr. Fang Zhao , [Prof. Seth Westra](#) , Dr. Michael Leonard , Dr. Lukas Gudmundsson , Dr. Jinfeng Chang , Dr. Philippe Ciais , Dr. Dieter Gerten , Dr. Simon Gosling , Dr. Hannes Müller Schmied , Dr. Tobias Stacke , Dr. Boulange Julien Eric Stanislas , Dr. Yoshihide Wada

10:05am **A national hydrological projections service for Australia**

» [Dr. Louise Wilson](#) , Dr. Pandora Hope , Dr. Elisabeth Vogel , Dr. Justin Peter , Dr. Chantal Donnelly

9:05am **K20. Understanding water-poverty dynamics for infrastructure development**

Sutherland Theatre

Chaired by: Dr. Nicky Grigg and Robyn Johnston

9:05am **An integrated assessment framework for examining the effectiveness of local water institutions**

» Dr. Wendy Merritt , [Dr. Serena Hamilton](#) , Mr. Mahanambrota Das , Dr. Md. Wakilur Rahman , Ms. Sumana Bhuiyan , Mr. Sambhu Singha , Mr. Kazi Farid , Dr. Lucy Carter , Dr. Michaela Cosijn , Dr. Christian Roth

9:25am **Water related risks and its management for agricultural development in Indian Sundarbans delta**

» [Dr. D Burman](#) , Dr. S. Mandal , Dr. U.K. Mandal , Dr. T.D. Lama , Dr. S.K. Sarangi , Dr. K.K. Mahanta , Dr. P.C. Sharma , Dr. Mohammed Mainuddin

9:45am **Engaging small farmers and rural poor in modeling: Farmer Integrated Learning Model (FILM)**

» [Dr. Sandra Heaney-Mustafa](#) , Dr. Iftikhar Hussain , Mr. Shah Najaf Mukhtar

10:05am **Evaluating the effects of irrigation infrastructure on agricultural activities in the Kamala Basin, Nepal**

» [Dr. Yingying Yu](#) , Mr. Dave Penton , Dr. Emily Barbour , Dr. Auro Almeida

9:05am **B4. Machine learning in Defence applications**

Swan Room

Chaired by: Clint Heinze

9:05am **Evolving behaviour trees for automated discovery of novel combat strategy in real-time strategy wargames**

» [Dr. Martin Masek](#) , Dr. Chiou Peng Lam , Mr. Luke Kelly , Mr. Martin Wong

9:25am **Towards an intelligent agent for a humanitarian disaster relief wargame**

» [Mr. Martin Wong](#) , Dr. Dmitri Kamenetsky , Mr. Peter Williams



Continued from Tuesday, 3 December

9:45am **Identifying intelligence links in threat networks through machine learning on explosives chemical data**

» [Mr. Simon Crase](#) , Dr. Benjamin Hall , Prof. Suresh Thennadil

10:05am **An embodied cognition classifier of human emotion and senses**

» [Dr. David Kernot](#)

9:05am **K1. Collaborative arrangements to support and improve water modelling (10-min presentations)**

Murray Room

Chaired by: Dr. Brian McIntosh

9:05am **The Queensland Water Modelling Network – an overview of the benefits of a growing collaborative network (Part A)**

» Ms. Jean Erbacher , [Dr. Paul Lawrence](#) , Ms. Jenny Riches

9:15am **Case examples of collaborative approaches to Queensland Water Modelling Network projects (Part B)**

» Ms. Jean Erbacher , [Ms. Jenny Riches](#) , Ms. Sarah Stevens

9:25am **Collaborating to share water modelling and monitoring information in New South Wales**

» Mr. Adam Joyner , [Mr. Edward Couriel](#) , Mr. Bronson McPherson , Ms. Danielle Baker , Dr. Andrew Demery , Ms. Fiona Smith , Dr. David Hanslow

9:45am **Lessons from a water modelling Community of Practice**

» Dr. Piet Filet , [Dr. Brian McIntosh](#)

9:55am **Communities of practice in building river system models for coastal regions of NSW using eWater Source**

» [Dr. Dushmanta Dutta](#) , Mr. Aaron Trim , Mr. James Simpson , Mr. James Nicholls , Dr. Phuong Cu , Mr. Daniel Haris

10:05am **What next for the eWater Source Community of Practice**

» [Ms. Trudy Green](#) , Ms. Meryl McKerrow , Mr. Geoff Davis

9:05am **F1. Probabilistic forecasting of solar farm output**

Fitzroy Room

Chaired by: Prof. John Boland

9:05am **Short term forecasting of solar farm output**

» [Prof. John Boland](#)

9:25am **Improving solar power forecasting to reduce regulation Frequency Control Ancillary Services causer pay in the National Electricity Market**

» [Dr. Jing Huang](#) , Dr. Sam West

9:45am **Forecasting irrigation electricity demand using a machine learning model**

» Dr. Jeremy Bryant , Mr. Flojan Camlek , [Dr. Munir Shah](#) , Dr. Robyn Dynes , Dr. Val Snow , Mr. Jeremy Adamson , Mr. Pat Ealam , Mr. David Wilson

10:05am **Time-space dependency of utility-scale solar photovoltaic power generation in the National Electricity Market**

» [Dr. Jing Huang](#)

9:05am **F2. Integrating live data in simulation**

Derwent Room

Chaired by: Prof. Robert Tanton and Dr. Johan Barthelemy

9:05am **Traffic simulation using real-time smart sensor data: The case of Liverpool**

» Dr. Johan Barthelemy , Mrs. Agathe Granier , [Mrs. Yan Qian](#) , Dr. Hugh Forehead , Dr. Mehrdad Amirghasemi , Prof. Pascal Perez

9:25am **Using IoT data to derive enhanced predictions of CO2 emissions**

» [Prof. Robert Tanton](#) , Dr. Yogi Vidyattama , Dr. Jinjing Li , Dr. Mike Jensen , Dr. Kumudu Munasinghe , Dr. Nishant Jagannath

9:45am **An agent-based approach for flash flood prediction and prevention in Wollongong (NSW, Australia)**

» Mr. Anton Bommel , Prof. Pascal Perez , [Dr. Johan Barthelemy](#)



Continued from **Tuesday, 3 December**

- 10:05am **Prediction of traffic demand using deep generative adversarial neural networks**
» [Dr. Iohan Barthelemy](#) , Mrs. Marine Payet , Mr. Bilal Arshad , Prof. Pascal Perez
- 10:25am **Morning tea**
Exhibition Hall
- 10:50am **K19. River system modelling for water resources management: advances and challenges**
Royal Theatre
Chaired by: Dr. Dushmanta Dutta
- 10:50am **Invited paper: Evaluating the suitability of generated climate data for water security assessments**
» [Ms. Rachel Blakers](#) , Dr. Dushmanta Dutta , Dr. Richard Beecham , Mr. James Nicholls
- 11:10am **Assessing the sensitivity of catchment yields to changes in the frequency and timing of East Coast Lows: a case study in a coastal regulated river system in NSW**
» [Mr. Aaron Trim](#) , Dr. Dushmanta Dutta , Dr. Anthony Kiem , Mrs. Katie Brookes
- 11:30am **Comparison of Sacramento rainfall-runoff model performance using catchment rainfall and potential evaporation data from various sources for selected Murrumbidgee Valley catchments**
» [Dr. Nanda Nandakumar](#) , Mr. Selvaratnam Maheswaran , Dr. Ashok Raut , Mr. Gurmeet Singh
- 11:50am **Using a multiple lines of evidence approach to streamflow calibration in river system modelling**
» [Mr. Daniel Aramini](#) , Mrs. Linda Holz , Mr. Michael Sugiyanto , Mr. Aaron Trim , Dr. Dushmanta Dutta

- 12:10pm **Development of Practice Notes to support consistent, transparent and efficient implementation of eWater Source across the Murray Darling Basin**
» [Dr. Alice Brown](#) , Dr. Matthew Bethune , Mr. Alistair Korn , Ms. Maria Greer , Mr. Andrew Brown , Mr. Andrew Davidson , Dr. Uttam Manandhar , Dr. Matt Gibbs
- 12:30pm **Multiple lines of evidence for robust demand configuration in a NSW river system model: a case study**
» [Mr. Michael Sugiyanto](#) , Mr. Prasad Inamdar , Mrs. Linda Holz , Dr. Dushmanta Dutta
- 10:50am **K2. Flood and tsunami modelling: techniques and applications**
Bradman Theatre
Chaired by: Dr. Fazlul Karim and Ms. Jin Teng
- 10:50am **What if the big flood happens again?**
» Ms. Jin Teng , [Dr. Iai Vaze](#) , Dr. Catherine Ticehurst , Dr. Ang Yang , Dr. Matt Gibbs
- 11:10am **Invited paper: Capturing surface water dynamics using Landsat and Sentinel-2 satellite data**
» [Dr. Catherine Ticehurst](#) , Mr. Shaun Kim , Dr. Cherry Mateo , Dr. Iai Vaze
- 11:30am **Urban flood hazard analysis in present and future climate: a case study in Ha Tinh city (Vietnam)**
» [Mrs. Thi Tuyet Anh Le](#) , Ms. Els Van Uytven , Dr. Lan Anh Nguyen , Prof. Patrick Willems
- 11:50am **Incorporating dependence in Intensity-Frequency-Duration curves: Flood risk estimation for civil infrastructure systems**
» Dr. Dong Le Phuong , Dr. Michael Leonard , [Prof. Seth Westra](#)
- 12:10pm **Urban flood modelling and planning system (UFMPS)**
» [Mr. Wenhua Xu](#) , Mr. Bill Syme , Mr. Chris Huxley , Dr. Wenyan Wu



Continued from Tuesday, 3 December

10:50am H7. Modelling of bushfire dynamics, fire weather, impact and risk / A6. Modelling, simulation and optimisation in engineering

Menzies Theatre

Chaired by: Prof. Jason Sharples and Prof. Barry Croke

10:50am Victorian fire weather trends and variability

» Dr. Sarah Harris, Dr. Graham Mills, Dr. Timothy Brown

11:10am Empowering strategic decision-making for wildfire management: the methodology of polygons of fire potential

» Mr. Marc Castellnou, Ms. Núria Prat, Ms. Étel Arilla, Mr. Asier Larrañaga, Mr. Edgar Nebot, Mr. Xavier Castellarnau, Mr. Jordi Vendrell, Mr. Josep Pallàs, Mr. Joan Herrera, Mr. Marc Monturiol, Mr. José Céspedes, Mr. Jordi Pagès, Mr. Claudi Gallardo, Ms. Marta Miralles

11:30am Hydrodynamic modelling of a drinking water reservoir to assist in bushfire impact mitigation and recovery

» Dr. Kathy Cinque

11:50am Agent-based modelling of bushfire evacuations and the decision-making processes of evacuees

» Dr. Danya Rose, Dr. Peter Kim, Dr. Duncan Sutherland, Prof. Jason Sharples

12:10pm T-splines and Bézier extraction in modeling shape of boundary in Parametric Integral Equation System for 3D problems of linear elasticity

» Dr. Krzysztof Szerszeń, Prof. Eugeniusz Zieniuk

12:30pm Modification of interval arithmetic in modeling uncertainty of boundary conditions in boundary value problems

» Dr. Marta Kapturczak, Prof. Eugeniusz Zieniuk, Dr. Krzysztof Szerszeń

10:50am H8. Single and multiple natural hazards: impacts on regional to global scales

Nicholls Theatre

Chaired by: Dr. Nicholas Herold and Dr. Fei Ji

10:50am Mapping of flooding risk hotspots along major highways using the AWRA-L water balance model

» Dr. Elisabeth Vogel, Dr. Julien Lerat, Mr. Luke A. Gericke, Mr. Christopher A. Russell, Dr. Robert Pipunic, Dr. Zaved Khan, Dr. Chantal Donnelly

11:10am Simulation-optimisation for coastal flood risk management

» Mr. Jeffrey Newman, Prof. Holger Maier, Prof. Graeme Dandy, Dr. Aaron Zecchin, Mr. Graeme Riddell, Prof. Hedwig van Delden

11:30am Revisiting the Australian/New Zealand Standard for Wind Actions (AS/NZS 1170.2:2011): Do current wind standards sufficiently capture local wind climates?

» Dr. Andrew Magee, Dr. Anthony Kiem

11:50am The role of forcing anomalies and climate shifts in seasonal forecasts

» Ms. Stacey Osbrough, Dr. Jorgen Frederiksen, Dr. Carsten Frederiksen

12:10pm Evaluating the ability of a regional climate model ensemble to simulate temperature extremes

» Mr. Zak Baillie, Dr. Sophie Lewis

10:50am A1. Advances in neural networks, soft systems and complex systems modelling and applications

Sutherland Theatre

Chaired by: Prof. Sandhya Samarasinghe and Irene Hudson

10:50am Dynamics within and amongst service-provision systems – A formal exploration using dynamical systems on graphs

» Dr. Fjalar de Haan



Continued from **Tuesday, 3 December**

11:10am **Modelling curvelet based signal processing problems via wavelet analysis**

» [Dr. Bharat Bhosale](#)

11:30am **Modelling cell aggregation using a modified swarm model**

» [Mr. Fillipe Georgiou](#), Prof. Natalie Thamwattana, Dr. Bishnu Lamichhane

11:50am **Artificial Neural Networks & Random Forest Classification of druggable molecules and disease targets via scoring functions (SFs)**

» [Prof. Irene Hudson](#), Dr. Shalem Leemaqz, Prof. Andrew Abell

12:10pm **Detection of dairy cattle Mastitis: modelling of milking features using deep neural networks**

» [Dr. Moaath Khamaysa Hajaya](#), Prof. Sandhya Samarasinghe, Prof. Don Kulasiri, Dr. Mario Lopez Benavides

12:30pm **Some experiments in automated identification of Australian plants using convolutional neural networks**

» [Mr. Tony Boston](#), Prof. Albert Van Dijk

10:50am **B5. OR methods, platforms and application**

Swan Room

Chaired by: Brandon Pincombe

10:50am **Improving analytical quality assurance in support of current operations**

» [Mr. Mark Bottger](#), Mr. Jamahl Bennier

11:10am **A mixed-integer linear programming model for capacitated asset protection problem**

» Ms. Delaram Pahlevani, Prof. John Hearne, [Prof. Babak Abbasi](#)

11:30am **Correspondence analysis approach to examine the Nobel Prize**

» [Mr. Turki Alhuzali](#), Dr. Elizabeth Stojanovski, Prof. Eric Beh

11:50am **Machine-based production scheduling for rotomoulded plastics manufacturing**

» [Mr. Mark Baxendale](#), Dr. James McGree, Mr. Aaron Bellette, Dr. Paul Corry

12:10pm **Scheduling pilot training for 725 Squadron**

» Mr. Rasul Esmailbeigi, [Dr. Vicky Mak-Hau](#), Dr. Ana Novak

12:30pm **Optimisation of school infrastructure investment**

» [Dr. Reena Kapoor](#), Dr. Phil Kilby, Dr. Dan Popescu, Dr. Rodolfo Garcia-Flores, Dr. Melanie Ayre

10:50am **K1. Collaborative arrangements to support and improve water modelling (10-min presentations)**

Murray Room

Chaired by: Dr. Brian McIntosh

10:50am **Critical review of climate change in Queensland water models: Enhancing outcomes**

» [Ms. Jean Erbacher](#), Ms. Catie Dunbar, Ms. Jenny Riches, Ms. Sarah Stevens, Mr. Tony Weber

11am **A collaborative review process supports better outcomes from environmental modelling**

» [Dr. Barbara Robson](#), Ms. Susan Cuddy, Dr. William Glamore, Ms. Zoe Rogers, Dr. Angus Ferguson, Dr. Peter Scanes

11:10am **Collaborating successfully in integrated assessment and modelling exercises: personal reflections**

» [Prof. Tony Jakeman](#), Prof. Barry Croke, Dr. Sondoss Elsawah, Dr. Baihua Fu, Dr. Joseph Guillaume, Dr. Serena Hamilton, Mr. Takuya Iwanaga, Ms. Leila Macadam, Dr. Wendy Merritt, Dr. Jenifer Ticehurst, Ms. Fateme Zare

11:30am **Towards methods for tracing uncertainty management through a decision support network**

» [Dr. Joseph Guillaume](#), Dr. Ehsan Nabavi, Ms. Fateme Zare, Prof. Tony Jakeman



Continued from **Tuesday, 3 December**

- 11:40am **Constructing customized modelling guidelines: a Participatory Integrated Assessment and Modeling example**
» [Ms. Fateme Zare](#) , Dr. Joseph Guillaume , Prof. Tony Jakeman
- 11:50am **AWRA-CMS: A framework for hydrological model development**
» [Dr. Wendy Sharples](#) , Dr. Andrew Frost , Mr. David Shipman , Mr. Stuart Baron-Hay , Mr. David Smith , Dr. Ashkan Shokri , Dr. David Wright , Dr. Chantal Donnelly
- 12pm **A new era for the HowLeaky agricultural systems and water quality model in an open science platform**
» [Dr. Afshin Ghahramani](#) , Dr. David Freebairn , Dr. Paul Lawrence
- 12:10pm **The collaboration model delivering land use information for Australia**
» [Dr. Jane Stewart](#) , Ms. Jodie Mewett
- 10:50am **G8. Modelling sustainable food and land systems**
Fitzroy Room
Chaired by: Dr. Michalis Hadjikakou and Prof. Brett Bryan
- 10:50am **A meta-model for comprehensive environmental risk assessment of global food system futures**
» [Dr. Michalis Hadjikakou](#) , Mr. Nicholas Bowles , Ms. Ozge Geyik , Mr. Mohammad Abdullah Shaikh , Prof. Brett Bryan
- 11:10am **Next-generation modelling of pathways to sustainable land-use and food systems for Australia**
» [Prof. Brett Bryan](#) , Dr. Michalis Hadjikakou , Dr. Enayat A. Moallemi , Dr. Rebecca Runting , Dr. Raymundo Marcos Martinez , Dr. Lei Gao , Dr. Javier Navarro Garcia , Mr. Eli Court , Ms. Kirsten Larsen , Ms. Emily Byrne , Dr. Amandine Denis
- 11:30am **MODIS vegetation cover data to monitor sustainable land management**
» [Dr. Jonathan Gray](#) , Dr. John Leys , Dr. Xihua Yang , Mr. Mingxi Zhang

- 11:50am **Providing evidence-based support for poverty alleviation and sustainable development in tropical regions**
» [Prof. Hedwig van Delden](#) , Dr. Luuk Fleskens , Dr. Jantiene Baartman , Mr. Gijs Simons , Mr. Roel Vanhout
- 12:10pm **Consumers' risk perceptions and risk reduction strategies for organic products**
» [Mr. Wannapol Suphaskuldamrong](#) , Prof. Christopher Gan , Dr. David Cohen
- 10:50am **E5. Ethical and sustainable finance**
Derwent Room
Chaired by: Dr. Sazali Abidin
- 10:50am **Corporate social responsibility and the local dividend clientele effect**
» [Dr. Jin Lv](#)
- 11:10am **Credit and non-credit support services on rural household welfare in Thailand**
» [Ms. Juntip Seneerattanaprayul](#) , Prof. Christopher Gan
- 11:30am **Boardroom gender diversity and discretionary investment: The role of critical mass in the UK**
» [Mr. Sanaullah Farooq](#) , Dr. Sazali Abidin , Prof. Christopher Gan
- 11:50am **Impacts of Microfinance Programs in Thailand**
» [Mr. Wittawat Hemtanon](#) , Prof. Christopher Gan
- 12:10pm **Petty corruption on firm level innovation of MSMEs: Evidence from emerging economies**
» [Dr. Nirosha Wellalage](#)
- 12:50pm **Lunch**
Exhibition Hall



Continued from Tuesday, 3 December

- 1:45pm **K19. River system modelling for water resources management: advances and challenges**
Royal Theatre
Chaired by: Dr. Dushmanta Dutta
- 1:45pm **A web application to estimate water extraction using a satellite-informed farm water balance model**
» [Prof. Albert Van Dijk](#) , Dr. Ali Ershadi , Dr. Pablo Larraondo
- 2:05pm **Application of natural hydrological cues for enhanced delivery of environmental water: proof of concept study**
» [Dr. Durga Kandel](#)
- 2:25pm **Meeting at the confluence – an interdisciplinary approach to representing environmental water requirements**
» [Dr. Joanna Szemis](#) , Dr. Stephanie Ashbolt , Ms. Sarah Gaskill
- 2:45pm **Considerations in developing an optimisation modelling tool to support annual operation planning of Melbourne Water Supply System**
» [Mr. Heerbod Jahanbani](#) , Dr. Udaya Kularathna , Dr. Guido Tack , Dr. Ilankaikone Senthoooran
- 1:45pm **K2. Flood and tsunami modelling: techniques and applications**
Bradman Theatre
Chaired by: Ms. Jin Teng and Dr. Fazlul Karim
- 1:45pm **Developing a numerical simulation model for a meteorite impact tsunami**
» [Dr. Naotaka Chikasada](#) , Dr. Toshitaka Baba , Dr. Tetsuharu Fuse
- 2:05pm **TRI-based tsunami source inversion**
» [Dr. Tomohiro Takagawa](#) , Prof. Phil Cummins

- 2:25pm **Tsunami data assimilation of offshore ocean-bottom pressure gauge records for real-time forecasting**
» [Dr. Takuto Maeda](#) , Mr. Yuchen Wang , Dr. Aditya Gusman , Prof. Kenji Satake
- 2:45pm **Dispersive distortion of pulling-dominant tsunamis caused by outer-rise earthquakes and submarine landslides**
» [Dr. Toshitaka Baba](#) , Dr. Naotaka Chikasada , Dr. Tatsuhiko Saito , Dr. Sebastien Allgeyer , Prof. Phil Cummins
- 1:45pm **A6. Modelling, simulation and optimisation in engineering**
Menzies Theatre
Chaired by: Prof. Barry Croke
- 1:45pm **Modelling of Mid Lachlan System using eWater Source model**
» [Mr. Gurmeet Singh](#)
- 2:05pm **Investigating the value of upgrades to the Bega River and Richmond River Valleys**
» [Mr. Scott Podger](#) , Mr. Gurmeet Singh
- 2:25pm **Stability test for semi-active suspensions with base disturbance**
» [Dr. Ian Storey](#) , Dr. Anna Bourmistrova
- 2:45pm **Designing a new single-blade wind turbine using Computational Fluid Dynamics**
» [Dr. Sarah Wakes](#) , Mr. Jessy Cornil , Mr. Bill Currie
- 1:45pm **H8. Single and multiple natural hazards: impacts on regional to global scales**
Nicholls Theatre
Chaired by: Dr. Nicholas Herold and Dr. Fei Ji
- 1:45pm **Seasonal variation in the extreme precipitation-temperature scaling relationship**
» [Mr. Johan Visser](#) , Dr. Conrad Wasko , Prof. Ashish Sharma , Dr. Rory Nathan



Continued from **Tuesday, 3 December**

- 2:05pm **Future changes in storm related indices for Australia**
» Dr. Fei Ji , Prof. Jason Evans , Dr. Kevin Cheung , Dr. Nicholas Herold , Dr. Nidhi Nishant , Dr. Stephanie Downes , Dr. Kathleen Beyer
- 2:25pm **Comparison and application study on conditional stability and convective stability**
» Prof. Li Yaodong , Dr. Shi Xiaokang
- 2:45pm **Assessment of tree shade coverage in forecasting seasonal energy saving of houses**
» Mrs. Mina Rouhollahi , Prof. John Boland
- 1:45pm **K20. Understanding water-poverty dynamics for infrastructure development**
Sutherland Theatre
Chaired by: Dr. Nicky Grigg and Robyn Johnston
- 1:45pm **Who, what, where, when? Modelling cross-scale linkages between groundwater and household rice economies**
» Ms. Leila Macadam , Dr. Wendy Merritt , Prof. Tony Jakeman
- 2:05pm **Supporting water management in Nepal – Comparing options for water availability in the Kamala Basin**
» Mr. Dave Penton , Dr. Emily Barbour , Dr. Tira Foran , Dr. Auro Almeida , Dr. Maheswor Shrestha
- 2:25pm **Understanding the impacts of short-term climate variability on drinking water source quality: sampling and modelling approaches**
» Dr. Danlu Guo , Dr. Fiona Johnson , Mr. Alfred Lazaro , Mr. Clarence Mahundo , Dr. Dickson Lwetoijera , Ms. Emmanuel Mrimi , Ms. Fatuma Matwewe , Dr. Jacqueline Thomas
- 2:45pm **State of the Kamala Basin: Co-producing knowledge to support water resources modelling and basin planning in Nepal**
» Dr. Auro Almeida , Mr. Dave Penton , Dr. Maheswor Shrestha , Dr. Tira Foran , Dr. Emily Barbour , Dr. Yingying Yu

1:45pm **B5. OR methods, platforms and application**

Swan Room

Chaired by: Brandon Pincombe

1:45pm **Towards a digital twin: getting to know your data**

» Dr. Melanie Ayre

2:05pm **A mixed-integer linear programming approach for soft graph clustering**

» Dr. Vicky Mak-Hau , Prof. John Yearwood

1:45pm **K1. Collaborative arrangements to support and improve water modelling**

Murray Room

Chaired by: Dr. Brian McIntosh

Discussion session/workshop

1:45pm **J8. Modelling and decision making under uncertainty**

Fitzroy Room

Chaired by: Prof. Holger Maier

1:45pm **Climate informed robust decision analysis for environmental flow risks in the Lower Murray-Darling Basin, Australia**

» Dr. Michelle Ho , Dr. Peter Bridgeman , Dr. Peter Briggs , Dr. Francis Chiew , Dr. Jong Lee , Dr. Danial Stratford , Dr. Ang Yang , Dr. lu zhang

2:05pm **Optimising invasive species removal in highly uncertain systems**

» Dr. Christopher Baker

2:25pm **Understanding the uncertainty around simulation models: Conceptual and empirical insights from transdisciplinary agricultural research**

» Dr. Martin Espig , Dr. Susanna Finlay-Smiths , Dr. Esther Meenken , Dr. Val Snow , Dr. Mos Sharifi



Continued from **Tuesday, 3 December**

2:45pm **From data to decisions: Bayesian inference for differential equation models of food web networks and seagrass ecosystem trajectory**

» Dr. Matthew Adams , Prof. Eve McDonald-Madden , Prof. Scott Sisson , Dr. Kate Helmstedt , Dr. Christopher Baker , Mr. Edwin Koh , Dr. Maria Vilas , Dr. Catherine Collier , Dr. Len McKenzie , Dr. Matthew Holden , Dr. Matias Quiroz , Dr. Victoria Lambert , Dr. Michaela Plein , Ms. Jacinta Holloway , Prof. Kerrie Mengersen , [Prof. Kate O'Brien](#)

1:45pm **J9. Being socially inclusive in your modelling practices: what does this mean and what are the benefits?**

Derwent Room

Chaired by: Ms. Susan Cuddy

1:45pm **Inclusive water resources modelling: giving a voice to the 'voiceless'**

» [Ms. Susan Cuddy](#)

2:05pm **Evaluation of Mathematics teaching strategies in Australian High Schools**

» [Mr. Ali Alzahrani](#)

2:25pm **Reflecting on integrated assessment in the Socially Inclusive Agricultural Intensification (SIAGI) project**

» [Dr. Wendy Merritt](#) , Dr. Serena Hamilton , Dr. Lucy Carter , Dr. Michaela Cosijn , Dr. Lilly Lim-Camacho , Dr. Christian Roth

2:45pm **From conjecture to application: developing tangible steps to integrate gender into water management modelling**

» [Ms. Alex Baker](#) , Ms. Betha Westall

3:05pm **Afternoon tea**
Exhibition Hall

3:30pm **G2. Modelling complex human-natural systems under uncertainty: advances of participatory and computational approaches**

Royal Theatre

Chaired by: Dr. Enayat A. Moallemi

3:30pm **Robust decision support for achieving sustainability in cities and communities: Connecting sustainability knowledge and local actions**

» [Dr. Enayat A. Moallemi](#) , Prof. Brett Bryan

3:50pm **POMDPs for sustainable fishery management**

» Prof. Jerzy Filar , [Mr. Zhihao Qiao](#) , Dr. Nan Ye

4:10pm **A participatory framework for evaluating Sustainable Development Goals under future uncertain change**

» [Ms. Katrina Szetey](#) , Dr. Enayat A. Moallemi , Prof. Brett Bryan

3:30pm **K4. Meeting the simulation challenges of Northern Australia**

Bradman Theatre

Chaired by: Dr. Justin Hughes

3:30pm **The effect of in-stream dam development on flood-mitigation in the Fitzroy River, Western Australia**

» [Dr. Justin Hughes](#) , Dr. Cuan Petheram , Dr. Fazlul Karim , Mr. Simon Kitson , Dr. Danial Stratford

3:50pm **Development of an interactive river system model based on a web application**

» [Mr. Lynn Seo](#) , Dr. Justin Hughes , Dr. Cuan Petheram , Dr. Danial Stratford

3:30pm **E1. Modelling international business finance and financial markets in Asia**

Menzies Theatre

Chaired by: Prof. Zhaoyong Zhang



Continued from **Tuesday, 3 December**

- 3:30pm **News release and volatility spillovers across Chinese financial markets**
» Prof. Zhaoyong Zhang
- 3:50pm **Causality and cointegration of stock markets within the Asian growth triangle**
» Dr. Sazali Abidin , Dr. Azilawati Banchit
- 4:10pm **An improvement of jump diffusion model for Japan Nikkei 225 indexes and its application to estimating the stochastic volatility**
» Prof. Shuya Kanagawa , Prof. Mitsuhiro Namekawa , Prof. Kimiaki Shinkai

3:30pm **J7. Integrated assessment and modelling for understanding pathways for socio-environmental systems: case studies of impact**
Nicholls Theatre
Chaired by: Dr. Serena Hamilton and Dr. Wendy Merritt

3:30pm **Integrated assessment frameworks for understanding pathways for socially inclusive agricultural intensification**
» Dr. Serena Hamilton , Dr. Wendy Merritt , Dr. Lilly Lim-Camacho , Dr. Lucy Carter , Dr. Michaela Cosijn , Dr. Christian Roth

3:50pm **Unified natural hazard risk mitigation exploratory decision support system (UNHaRMED): Pathways for development and utilisation**
» Prof. Holger Maier , Mr. Graeme Riddell , Prof. Hedwig van Delden , Mr. Roel Vanhout , Dr. Aaron Zecchin , Mr. Jeffrey Newman , Dr. Sofanit Araya , Prof. Graeme Dandy , Dr. James Daniell , Mr. Eike Hamers

3:30pm **J6. Optimisation methods and applications to socio-environmental principle-agent problems**
Sutherland Theatre
Chaired by: Prof. Martin Volk

3:30pm **Towards multifunctional agricultural landscapes: Assessing and governing synergies between food production, biodiversity and ecosystem services**
» Prof. Martin Volk , Ms. Andrea Kaim , Dr. Anne Jungandreas , Dr. Anna Cord , Dr. Nina Hagemann , Dr. Michael Strauch

3:50pm **Towards a multi-scale optimization model to support integrated river basin management: the case of the Cantabrian region, Spain**
» Mrs. Diana Derepasko , Prof. José Barquín , Dr. Francisco Jesús Peñas , Dr. Michael Strauch , Prof. Martin Volk

4:10pm **Bilevel optimisation as a solution method for an agri-environmental principal-agent problem**
» Dr. Brad Barnhart , Dr. Moriah Bostian , Dr. Syezlin Hasan , Dr. Jim Smart , Dr. Christopher Fleming

3:30pm **G6. GIS and environmental modelling**
Swan Room
Chaired by: Dr. Shawn Laffan

3:30pm **Highly precise terrain models expose soil pattern based on sub-meter elevation detail**
» Prof. Bertram Ostendorf , Dr. David Taggart

3:50pm **Spatial modelling shows that permanent drink sites influence the predicted suitability of nest sites for a mobile species in a water limited ecosystem**
» Mr. Stanley Mastrantonis , Dr. Michael Craig , Dr. Michael Renton , Prof. Richard Hobbs

4:10pm **Freely accessible environmental modelling platforms**
» Dr. Shawn Laffan

3:30pm **K24. Spatial analysis for hydrological modelling**
Murray Room
Chaired by: Dr. John Gallant



Continued from **Tuesday, 3 December**

- 3:30pm **The importance of topography in hyper-resolution hydrological modelling**
» [Prof. Albert Van Dijk](#) , Mr. Simon Walker
- 3:50pm **Open data based exposure assessment of flash floods in high-density urban areas**
» [Dr. Zhichong Zou](#) , Dr. Fengyong Zhai
- 4:10pm **Merging lidar with coarser DEMs for hydrodynamic modelling over large areas**
» [Dr. John Gallant](#)
- 3:30pm **J8. Modelling and decision making under uncertainty / I4. Climate change and health – risks, health metrics and alerting**
Fitzroy Room
Chaired by: Dr. Ainura Tursunaliyeva and Dr. Joseph Guillaume
- 3:30pm **Emulation-based sensitivity analysis for distributed water quality models**
» [Ms. Qian Wang](#) , Prof. Tony Jakeman , Dr. John Jakeman , Prof. Tao Yang
- 3:50pm **Copula modelling of agitation-sedation rating of ICU patients: towards monitoring and alerting tools**
» [Dr. Ainura Tursunaliyeva](#) , Prof. Irene Hudson , Prof. Geoffrey Chase
- 4:10pm **A new Maxwell paired comparison model: application to a study of the effect of nicotine levels on cigarette brand choices**
» Dr. Salman Cheema , [Prof. Irene Hudson](#) , Dr. Tanyeer Kifayat , Dr. Kalim ullah , Dr. Muhammad Shafqat , Dr. Abid Hussain
- 3:30pm **J4. Application of new data, visualisation, analytics and decision support tools/systems for increasing climate resilience of infrastructure systems**
Derwent Room
Chaired by: Dr. Oz Sahin

- 3:30pm **Urban sensing and weather prediction: Can IOT devices be used to improve weather prediction in cities?**
» [Dr. Nikhil Garg](#) , Dr. Mahesh Prakash , Dr. Marcus Thatcher , Dr. Rajesh Sankaran
- 3:50pm **Rainfall retrieval using commercial microwave links in Melbourne, Australia**
» [Mr. Jayaram Pudashine](#) , Dr. Adrien Guyot , Prof. Valentijn Pauwels , Dr. Aart Overeem , Dr. Alan Seed , Prof. Remko Uijlenhoet , Dr. Mahesh Prakash , Prof. Jeff Walker
- 4:10pm **Understanding resilience in apple supply chains**
» [Mr. Simon Allen](#) , Dr. Rodolfo Garcia-Flores , Dr. Paul Johnstone , Dr. Dale Yi , Dr. Jason Johnston , Ms. Toni White , Mr. Duncan Scotland , Dr. Lilly Lim-Camacho
- 4:30pm **Poster session**
Exhibition Hall
- Poster – An improved stochastic modelling framework for biological networks**
» Mr. Ibrahim Yasin Sulaiman Altarawni , [Prof. Sandhya Samarasinghe](#) , Prof. Don Kulasiri
- Poster – Developing a machine learning-based model to forecast growing season rainfall for Australian wheat belt**
» [Mr. Puyu Feng](#) , Dr. Bin Wang , Dr. DE LI LIU , Dr. Dengpan Xiao , Ms. Lijie Shi , Dr. Qiang Yu
- Poster – Evaluation of P-Delta instability in hardening oscillators using dynamical systems approach**
» Mr. Shivang Pathak , [Dr. Simon Watt](#) , Dr. Amar Khennane , Dr. Safat Al-Deen
- Poster – Optimization models to locate health care facilities**
» [Dr. Michael Dzator](#) , Dr. Janet Dzator
- Poster – Computational design of molecularly imprinted electropolymer for selective recognition of nitrofurantoin**
» [Mr. Bryan Pajarito](#)



Continued from **Tuesday, 3 December**

Poster – Applying reinforcement learning techniques to operations-level wargaming scenarios

» [Dr. Lindsay Wells](#) , Prof. Tomasz Bednarz , Dr. Andrew Au

Poster – Sequence analysis applying fuzzy graph theory and fuzzy core index method in social network analysis

» [Prof. Kimiaki Shinkai](#) , Prof. Shuya Kanagawa , Prof. Mitsuhiro Namekawa

Poster – Flow balancing in a wastewater network by optimising storage in pumping stations

» Dr. Christina Burt , Dr. Bernard Candy , Mr. Rosario D'Arpa , Mr. Eng Lim Koh , [Mr. Phillip Meng](#) , Mr. Daniel Salamone , Mr. Tim Sondalini , Mr. Peter Taylor

Poster – Developing the Crop Livestock Enterprise Model (CLEM) – a whole farm bio-economic simulation model

» [Dr. Adam Liedloff](#) , Ms. Di Prestwidge , Dr. Andrew Ash , Mr. Shaun Verrall , Dr. Elizabeth Meier , Dr. Skye Traill

Poster – Comparing remote sensing and tabulated crop coefficients to assess irrigation water use

» [Mr. David Bretreger](#) , Mr. Alexander Warner , Dr. In-Young Yeo

Poster – Extension of WetUp dripper wetting pattern estimation to solute fronts

» [Prof. Freeman Cook](#)

Poster – Predicting grassland responses to variable rainfall in Australia: combining traits and processes in an ecophysiological model

» [Mr. Jinyan Yang](#) , Prof. Belinda Medlyn , Prof. Sally Power , Prof. David Tissue , Prof. Elise Pendall

Poster – Recording and using provenance of data transformations for loading a graph cache

» [Mr. Nicholas Car](#) , Mr. Rob Atkinson , Mr. Marcus Jowsey

Poster – Predicting recirculating flow over an idealized dune using machine learning

» [Dr. Sarah Wakes](#) , Dr. Michael Mayo , Prof. Bernard Bauer

Poster – Quantifying the contribution of multiple factors to land subsidence using artificial intelligence technology in Beijing, China

» Ms. rui cheng , [Prof. Lin Zhu](#) , Dr. Hui Jun Li , Prof. Jie Yu , Dr. Lin Guo , Dr. Le Yin Hu , Dr. Yong Sheng Li

Poster – Risk tolerance, investment horizons and debt decisions

» [Mrs. Trang Phung](#)

Poster – Understanding the impacts of pesticides on Great Barrier Reef Catchments: A systems thinking approach

» [Dr. Thuc Phan](#)

Poster – Modelling the responses of marine ecosystems to climate change impacts

» [Ms. Chinenye Ani](#) , Dr. Barbara Robson , Dr. Stephen Lewis , Dr. Jon Brodie , Dr. Scott Smithers

Poster – Accuracy analysis in CH4MODwetland simulating CH4 emissions from Chinese wetlands

» [Dr. Qing Zhang](#) , Dr. Tingting Li , Dr. Guocheng Wang , Dr. Pengfei Han

Poster – Machine learning-based surface air temperature estimation using multiple source of predictors in Tibetan Plateau, China

» [Mr. Mingxi Zhang](#)

Poster – A consensus by integrating multiple research conclusions on the future crop yields by climate change in China

» [Prof. Ning Li](#) , Dr. Chengfang Huang

Poster – Risk assessment of geological disasters in the Hehuang valley of the Qinghai-Tibet Plateau

» [Prof. Guangliang Hou](#)



Continued from Tuesday, 3 December

Poster – Statistical and dynamical downscaling of temperature extremes in China

» [Prof. Aihui Wang](#), Dr. Xianghui Kong, Dr. Lianlian Xu, Ms. Jinjie Li

Poster – Analysis on change trend of extreme temperature events in Qinghai-Tibet Plateau based on probability distribution

» [Prof. FengGui Liu](#)

Poster – The dependence of daily and hourly precipitation extremes on temperature and atmospheric humidity over China

» [Dr. Hong Wang](#), Dr. Fubao Sun, Dr. Wenbin Liu, Prof. Weihong Li

Poster – Footprints of Atlantic Multidecadal Oscillation in the low-frequency variation of extreme high temperature in the Northern Hemisphere

» [Dr. Miaoni Gao](#), Prof. Jing Yang

Poster – Ancient barrier lakes developed in the Golmud River valley, NE Qinghai-Tibetan Plateau: Implications for the future hazard prevention for downstream city and salt factories

» [Prof. FuYuan An](#), Prof. DengXing Yang, Mr. TianYuan Chen, Prof. XiangJun Liu, Prof. XiangZhong Li

Poster – Impacts of changes in climate mean, variability, and their interaction on wheat yield risk on the North China Plain

» Mr. Weihang Liu, [Prof. Tao Ye](#), Prof. Peijun Shi

Poster – An integrative investigation of the causation for pre-historical catastrophes in the Lajia Ruins, Qinghai Province, China

» [Prof. Qiang Zhou](#)

Poster – Australian summers in future?

» [Dr. Nidhi Nishant](#), Dr. Fei Ji, Dr. Stephanie Downes, Dr. Kathleen Beyer

Poster – Impact of bias corrected WRF lateral boundary conditions on extreme rainfall events

» [Mr. Youngil Kim](#), Dr. Eytan Rocheta, Prof. Jason Evans, Dr. Fiona Johnson, Prof. Ashish Sharma

Poster – Regional Climate Modelling with WRF-LIS-CABLE: simulation skill of Australian climate and extremes

» [Dr. Annette Hirsch](#), Dr. Jatin Kala, Dr. Claire Carouge, Dr. Martin De Kauwe, Dr. Giovanni Di Virgilio, Dr. Anna Ukkola, Prof. Jason Evans, Dr. Gab Abramowitz

Poster – Future projections of Australian bushfire conditions: ensemble of ensembles approach for examining regional extremes

» Dr. Andrew Dowdy, Dr. Harvey Ye, Dr. Acacia Pepler, Dr. Marcus Thatcher, Ms. Stacey Osbrough, [Prof. Jason Evans](#), Dr. Giovanni Di Virgilio, Mr. Nicholas McCarthy

Poster – Surface water detection in areas with emerging vegetation using SAR data

» [Dr. Stefania Grimaldi](#), Dr. Fang Yuan, Mr. Norman Mueller, Mr. Jin Xu, Dr. Yuan Li, Dr. Ashley Wright, Prof. Valentijn Pauwels, Prof. Jeff Walker

Poster – Incorporating firebrands and spot fires into vorticity-driven wildfire behaviour models

» [Dr. James Hilton](#), Dr. Nikhil Garg, Prof. Jason Sharples

Poster – Coupling litter and soil moisture models to forecast surface fuel moisture content

» [Ms. Li Zhao](#), Dr. Marta Yebra, Prof. Albert Van Dijk, Dr. Geoff Cary

Poster – Wildfire risk assessment using the Cloud

» Mr. Nicholas Forbes-Smith, [Dr. James Hilton](#), Mr. William Swedosh, Mr. Samuel Ferguson, Ms. Rochelle Richards

Poster – Multi-hazard risk assessment and insurance pricing based on adapted local sample capture – a case study on rural housing in Zhejiang Province, China

» [Mr. Qingyang Mu](#), Prof. Tao Ye, Mrs. Yu Haijiao



Continued from Tuesday, 3 December

Poster – Life prediction and verification of degradation mechanism of gasket for corrosive materials in PCB manufacturing process

» [Ms. Mileong Lee](#), Mr. Chang Yeop Chu, Dr. Sejong Bae, Dr. Jong-bae Baek

Poster – Children's Environmental Health in the Solomon Islands – a modelling approach to problem solving in a data poor environment

» [Ms. Claire Brereton](#), Dr. Russell Richards, Prof. Paul Jagals

Poster – Combining conceptual models and expert elicitation for estimating and monitoring species' response to management

» [Dr. Helen Mayfield](#), Mr. James Brazill-boast, Ms. Emma Gorrod, Dr. Megan Evans, Dr. Tony Auld, Dr. Jonathan Rhodes, Prof. Martine Maron

Poster – Synthesising multiple observations into annual environmental condition reports: the OzWALD system and Australia's Environment Explorer

» [Prof. Albert Van Dijk](#), Mr. Joel Rahman

Poster – Exploring the effects of linguistic and cultural similarities between interviewer and respondents' behavior in large scale surveys

» Dr. Salman Cheema, [Prof. Irene Hudson](#), Dr. Muhammad Shafqat, Dr. Tanyeer Kifayat, Dr. Zawar Hussain

Poster – Simulated temperature and precipitation changes on the Tibetan plateau by state-of-the-art climate models

» [Ms. Yuyao zhu](#), Prof. Saini Yang

Poster – Discussion on the trend of Continental Runoff

» [Mr. Zhengrong Wang](#)

Poster – Time series mapping of cropped areas and water use patterns in the Indus Basin Pakistan

» [Dr. Jorge Pena Arancibia](#), Dr. Mobin Ahmad, Dr. Mac Kirby, Dr. Jehanzeb Cheema

Poster – The effect of future hydropower dams on the hydrological regime of African rivers

» [Dr. Luergen Berlekamp](#), Mr. Leonhard Bürger, Prof. Christiane Zarfl

Poster – Evaluating the impact of flood extent assimilation on hydraulic model forecast skill

» Ms. Antara Dasgupta, Dr. Renaud Hostache, Dr. RAAJ Ramsankaran, Dr. Guy Schumann, Dr. Stefania Grimaldi, Prof. Valentijn Pauwels, [Prof. Jeff Walker](#)

Poster – Comparing transpiration changes of three tree species based on hydraulic strategy in a semi-arid region

» [Mr. Austin Rechner](#), Ms. Ana Maria Restrepo Acevedo, Ms. Erica McCormick, Mr. Chance Bolduc, Mr. Austin Mursinna, Mr. Christian Romulis, Dr. Ashley Matheny

Poster – Aspect-controlled spatial and temporal soil moisture patterns across three different latitudes

» [Mr. Ankur Srivastava](#), Mr. Omer Yetemen, Mrs. Nikul Kumari, Dr. Patricia Saco

Poster – Updated AWRA-L input spatial layers at ~1 km and ~5 km resolutions for the Australian continent

» [Dr. Cherry Mateo](#), Dr. Jai Vaze, Mr. Biao Wang, Dr. Russel Crosbie

Poster – A multi-scenario Decision Support System for real-time operation of over-year multi-reservoir systems 1. Model structure

» [Mr. Claudio Arena](#), Prof. Marcella Cannarozzo, Mr. Francesco Oliva, Prof. Mario Rosario Mazzola

Poster – Modelling impacts of climate change on potential evapotranspiration in New South Wales, Australia

» [Ms. Lijie Shi](#), Mr. Puyu Feng, Dr. Bin Wang, Dr. DE LI LIU, Ms. Siyi Li, Dr. Qiang Yu



Continued from **Tuesday, 3 December**

Poster – Developing an artificial neural network model for predicting monthly rainfall in June for the Han River basin, Korea

» [Dr. Jeongwoo Lee](#), Dr. Chul-gyum Kim, Dr. Jeong Eun Lee, Dr. Nam Won Kim, Dr. Hyeonjun Kim

Poster – Estimating Lake Mulwala diversions for calibration of a semi-distributed hydrologic model of the Murray River

» [Dr. Seline Ng](#), Dr. David Robertson, Mr. James Bennett

Poster – Forecasting daily precipitation and temperature using spatial weather generator for watershed modelling in the Han River, Korea

» [Dr. Jeong Eun Lee](#), Dr. Chul-gyum Kim, Dr. Jeongwoo Lee, Dr. Nam Won Kim, Dr. Hyeonjun Kim

Poster – Forecasting monthly precipitation for the Han River basin in Korea using large scale climate teleconnections

» [Dr. Chul-gyum Kim](#), Dr. Jeongwoo Lee, Dr. Jeong Eun Lee, Dr. Nam Won Kim, Dr. Hyeonjun Kim

Poster – Improving parameter estimation in ecohydrologic multi-objective calibration and validation

» [Ms. Natasha Harvey](#), Dr. Lucy Marshall, Dr. R. Vervoort

Poster – Validating satellite precipitation products through input to a commonly-used hydrologic model

» [Ms. Clare Stephens](#), Dr. Hung Pham, Dr. Lucy Marshall

Poster – Applying rainfall ensembles to explore hydrological uncertainty

» [Mrs. Nikul Kumari](#), Mr. Suwash Acharya, Dr. Luigi Renzullo, Mr. Omer Yetemen

Poster – The effects of SILO & AWRA wind speeds on irrigation depth simulations

» [Mr. David Bretreger](#), Dr. In-Young Yeo

Poster – Remotely sensed data for calibrating hydrologic models

» [Ms. Hae Na Yoon](#), Dr. Lucy Marshall, Prof. Ashish Sharma, Dr. Seokhyeon Kim

Poster – Anomaly kriging helps remove bias in model runoff estimates

» [Mr. Nadir Loonat](#), Prof. Albert Van Dijk, Prof. Michael Hutchinson, Prof. Albrecht Weerts

Poster – Measuring moisture distribution in surface and subsurface irrigations and comparing the results with HYDRUS-2D model

» Mr. Amin Binesh, Mrs. Adeleh Khoshzaban, [Mr. Ali Binesh](#)

Poster – A data-driven model to simulate groundwater levels - Application to an urban agglomeration in India

» [Mrs. Lakshmi Elangovan](#), Dr. Riddhi Singh, Dr. Phanindra K B V N

Poster – Disaggregating water usage data in the complex river system using a constraints-based framework

» [Dr. Jie Chen](#), Dr. Fangfang Zhao, Mr. Hitesh Patel, Dr. Alice Brown, Mr. Andrew Brown, Dr. Dushmanta Dutta, Ms. Rachel Blakers

Poster – Coupling of improved SWAT models with global precipitation measurement data and its application to Alpine Inland River Basins

» [Dr. Xin Jin](#), Dr. Yanxiang Jin

Poster – Effects of soil data input on catchment streamflow and soil moisture prediction

» [Mr. Ali Binesh](#), Dr. In-Young Yeo, Dr. Greg Hancock

Poster – Long-term inflows for Namoi Valley

» [Mr. Tahir Hameed](#), Ms. Richa Neupane

Poster – Modelling the implications of reduced return flows due to irrigation efficiency improvement projects in the southern Murray-Darling Basin

» [Mr. Colin Huggins](#), Dr. Matthew Bethune, Mr. Alistair Korn



Continued from **Tuesday, 3 December**

Poster – Considering water quality with quantity for optimal management of water resources

» Ms. Sayani Dey , Prof. Andrew Barton , Prof. Adil Bagirov , Dr. Harpreet Kandra , Mr. Kym Wilson

Poster – Influence of revegetation on the water cycle of a typical inland river basin, the Qaidam Basin

» Dr. Yanxiang Jin , Dr. Xin Jin

Poster – A simple ecohydrological model for estimating streamflow, evapotranspiration and gross primary production for Australian catchments

» Ms. Rong Gan , Prof. Yongqiang Zhang , Dr. Qiang Yu

Poster – Atmospheric CO2 fertilization slows down the east-ward movement of the 100th Meridian

» Dr. Cicheng Zhang , Prof. Yuting Yang

Poster – Study on the groundwater dynamics variation and numerical simulation in Ejina Basin under climate change

» Dr. Haiyang Xi , Dr. Jianhua Si

Poster – Hydrological responses to land use change in tropical Australia: A case study of the North Johnstone River catchment

» Mrs. Hong Zhang

Poster – Assessing the steady state assumption of catchment water balance

» Mr. Juntai Han , Prof. Yuting Yang

Poster – Land use change and its impact on soil erosion in Central Highlands of Sri Lanka using GIS

» Mrs. Sumudu Senanayake , Prof. Biswajeet Pradhan , Prof. Alfredo Huete , Dr. Jane Brennan

6pm

MSSANZ Annual General Meeting
Bradman Theatre

Wednesday, 4 December

9am

Workshop and networking day

Various venues including the National Convention Centre, ADFA, ANU and CSIRO

Thursday, 5 December

7:30am

Registration and information desk

Convention Centre foyer

8:30am

Plenary

Royal Theatre

Guiding a path from problem to policy

» Emeritus Distinguished Professor Gerald G Brown

9am

President's invited plenary

Royal Theatre

Large sample and high-resolution hydrological modelling studies to tackle a rapidly changing world

» Professor Yongqiang Zhang

9:35am

C6. Pasture and rangelands system modelling

Royal Theatre

Chaired by: Dr. Malcolm McPhee


Continued from **Thursday, 5 December**

9:35am **Improving evapotranspiration estimation in pasture and native vegetation models using flux tower data, remote sensing and global optimisation**

» Ms. Jo Owens, Mr. John Carter, Dr. Grant Fraser, Dr. James Cleverly, Dr. Lindsay Hutley, Mr. Jason Barnetson

9:55am **Using cedar GRASP to simulate pasture utilisation in historical grazing trials in northern Australia**

» Dr. Robyn Cowley, Mr. John Carter, Dr. Grant Fraser, Ms. Giselle Whish, Dr. Kieren McCosker

10:15am **Bio-economic modelled outcomes of drought-related management strategies in the Mitchell grass region**

» Ms. Giselle Whish, Mr. Fred Chudleigh, Dr. David Phelps, Dr. Maree Bowen

9:35am **H2. Projections of regional climate change: from modelling to applications**

Bradman Theatre

Chaired by: Prof. Jason Evans

9:35am **Realised added value in dynamical downscaling of Australian climate change**

» Dr. Giovanni Di Virgilio, Prof. Jason Evans, Dr. Alejandro Di Luca, Dr. Michael Grose, Ms. Vanessa Round, Dr. Marcus Thatcher

9:55am **Climate data for next generation projections in southeastern Australia**

» Dr. Nick Potter, Dr. Francis Chiew, Dr. Steve Charles, Dr. Guobin Fu, Dr. Hongxing Zheng, Dr. lu zhang

10:15am **Downscaled projections of hydrological variables for Australia**

» Dr. Justin Peter, Dr. Pandora Hope, Dr. Louise Wilson, Dr. Elisabeth Vogel, Dr. Wendy Sharples, Dr. Andrew Dowdy, Dr. Chantal Donnelly

9:35am **H1. Global change population and economic risk assessments and risk-informed decision-making: modelling and simulation**

Menzies Theatre

Chaired by: Prof. Peijun Shi and Prof. Yongqiang Zhang

9:35am **Hot spots of climate extremes in the future**

» Dr. Lianlian Xu, Prof. Aihui Wang

9:55am **Rainfall statistics, stationarity, and climate change**

» Dr. Fubao Sun, Dr. Michael L. Roderick, Dr. Graham Farquhar

9:35am **K15. Advances in water quality modelling and analysis**

Nicholls Theatre

Chaired by: Dr. Anna Lintern and Dr. Danlu Guo and Prof. Freeman Cook and Ms. Susan Cuddy

9:35am **What do we need from catchment water quality models in Australia?**

» Dr. Baihua Fu, Dr. Wendy Merritt, Ms. Susan Cuddy, Prof. Tony Jakeman, Prof. Barry Croke, Mr. Tony Weber, Mr. Joel Hall, Mr. David Waters, Ms. Danielle Baker

9:55am **Coupling a simple groundwater model to surface water for steady state contaminant transport**

» Dr. Sandy Elliott, Dr. Channa Rajanayaka, Dr. Jing Yang, Dr. Jeremy White

10:15am **Estimating bankfull channel geometry, dimensions and associated hydraulic attributes using high resolution DEM generated from LiDAR data**

» Dr. Banti Fentie

9:35am **K21. Cumulative impacts of mining on water, ecology and society**

Sutherland Theatre

Chaired by: Dr. David Post



Continued from **Thursday, 5 December**

9:35am **Desalinated water infrastructure optimization under competing trade-offs: A Chilean case study**
» Prof. Nadja Kunz , Dr. Cecilia Campero , Ms. Constanza Nicolau , Dr. Liliana Pagliero

9:55am **Hydro-economic modelling of a mining catchment**
» Dr. Juan Ossa Moreno , Prof. Neil McIntyre , Dr. Josue Medellin-Azuara , Dr. Jim Smart , Dr. Diego Rivera

10:15am **Assessing the cumulative impacts of coal resource development using surface and groundwater models**
» Dr. David Post

9:35am **B1. Analysis and decision making under uncertainty**
Swan Room
Chaired by: Dr. Melanie Ayre

9:35am **The value of optimal stochastic control when operating hybrid ground source heat pump systems**
» Ms. Hansani Weeratunge , Dr. Simon Dunstall , Dr. Julian De Hoog , Dr. Guillermo Narsilio , Prof. Saman Halgamuge

9:55am **Operations analysis support to the Combined Maritime Forces (CMF)**
» Dr. Miroslav Dubovinsky

10:15am **Inventory control with partially observable states**
» Mr. Erli Wang , Dr. Hanna Kurniawati , Prof. Dirk Kroese

9:35am **K5. Observing and modelling surface water dynamics**
Murray Room
Chaired by: Dr. Stefania Grimaldi and Prof. Jeff Walker

9:35am **Developing a framework to derive river morphology attribute from remote sensing**
» Mr. Jiawei Hou , Prof. Albert Van Dijk , Dr. Luigi Renzullo , Prof. Robert Vertessy , Mr. Norman Mueller

9:55am **Evaluation of satellite-based land surface temperature differences for global flood detection**
» Dr. Hung Pham , Dr. Lucy Marshall , Dr. Fiona Johnson

10:15am **On the use of remote sensing observations for improved modelling of floodplain inundation dynamics**
» Dr. Stefania Grimaldi , Dr. Ashley Wright , Dr. Yuan Li , Prof. Jeff Walker , Prof. Valentijn Pauwels

9:35am **K6. Modelling eco-hydrological processes at different spatial and temporal scales**
Fitzroy Room
Chaired by: Dr. Edoardo Daly and Dr. Federico Maggi and Dr. Patricia Saco

9:35am **Tree-hydrodynamic modelling of Eucalyptus globulus for plantation assessment**
» Mrs. Marcela Silva , Dr. Ashley Matheny , Prof. Valentijn Pauwels , Mr. Gil Bohrer , Dr. Edoardo Daly

9:55am **Improvement of a simplified process-based model for estimating transpiration under water-limited conditions**
» Ms. Na Liu , Dr. Huade Guan , Dr. Thomas Buckley , Dr. Hailong Wang , Dr. Xinguang He

10:15am **Predictive modelling of vegetation responses to water availability along the lower River Murray**
» Mr. Claude Platell , Dr. Tanya Doody , Dr. R. Vervoort

9:35am **D2. Workflows and modelling software: opportunities, best practice and case studies**
Derwent Room
Chaired by: Dr. Paul Cleary


Continued from **Thursday, 5 December**

- 9:35am **Workspace – a Scientific Workflow System with commercial impact**
» Ms. Nerolie Oakes, Mr. Lachlan Hetherton, Mr. Matt Bolger, Mr. David Thomas, Mr. Chris Rucinski, Dr. Damien Watkins, Dr. Paul Cleary
- 9:55am **Fractura - Common modelling platform for multiple hydraulic fracture simulators**
» Mr. James Kear, Mr. Dane Kasperczyk, Mr. Lachlan Hetherton, Dr. Dang Quan Nguyen, Mr. Chris Rucinski, Mr. Abbas Movassagh, Dr. Saeed Salimzadeh, Dr. Xi Zhang
- 10:15am **An integrated optimisation functionality for Workspace**
» Dr. Daniel Potter, Mr. Lachlan Hetherton, Mr. David Thomas, Dr. Robbie McNaughton, Dr. Damien Watkins
- 10:35am **Morning tea**
Exhibition Hall
- 11am **K22. Australian drought: assessment and management for sustainable development**
Royal Theatre
Chaired by: Dr. Fiona Johnson
- 11am **Exploring post 2011–12 drought in the Murray–Darling Basin**
» Dr. Iannatun Nahar, Mr. Malcolm Watson, Dr. Masoud Edraki, Mr. Matthew Walker, Dr. Biju George
- 11:20am **A wavelet-based method to analyse sustained hydrological anomalies under climate change**
» Mr. Ze Jiang, Prof. Ashish Sharma, Dr. Fiona Johnson
- 11:40am **Residual Mass Severity Index (RMSI) – a duration free method to characterise droughts**
» Ms. Rounak Afroz, Dr. Fiona Johnson, Prof. Ashish Sharma

- 12pm **Centennial-scale variability of soil moisture in eastern Australia**
» Mr. Abraham Gibson, Dr. Greg Hancock, Dr. Danielle Verdon-Kidd, Dr. Tony Wells
- 12:20pm **Lagrangian back-trajectory modelling to infer rainfall recycling and moisture sources in the Murray-Darling Basin**
» Ms. Chiara Holgate, Prof. Jason Evans, Prof. Albert Van Dijk, Prof. Andy Pitman
- 11am **H2. Projections of regional climate change: from modelling to applications**
Bradman Theatre
Chaired by: Prof. Jason Evans
- 11am **Evaluating hydrologic stress under climate change**
» Dr. Rory Nathan, Prof. Tom McMahon, Dr. Murray Peel, Dr. Avril Horne
- 11:20am **The impact of dynamically downscaled rainfall bias on modelled runoff response to climate change**
» Dr. Steve Charles, Dr. Nick Potter, Dr. Francis Chiew, Dr. Hongxing Zheng, Dr. Guobin Fu, Dr. Lu Zhang
- 11:40am **Changing patterns of snowpack due to climate change**
» Mr. Ahmad Hasan Nury, Prof. Ashish Sharma, Dr. Lucy Marshall, Dr. Ian Cordery
- 12pm **Impacts of natural variability and climate change on tourism related snow indices**
» Mr. Fabian Willibald, Prof. Adrienne Grêt-Regamey, Prof. Ralf Ludwig
- 12:20pm **An evaluation of the MACA statistical downscaling approach on fire weather variables for Victoria, Australia**
» Mr. Scott Clark, Dr. Timothy Brown, Dr. John Abatzoglou, Dr. Sarah Harris, Dr. Graham Mills, Dr. Ailie Gallant


Continued from **Thursday, 5 December**

12:40pm **Invited paper: Compound rainfall events in Tasmania**
» [Dr. Nick Earl](#), Dr. Tom Remenyi, Dr. Peter Love, Dr. Rebecca Harris, Mr. Dean Rollins, Prof. Nathan Bindoff

11am **H1. Global change population and economic risk assessments and risk-informed decision-making: modelling and simulation**
Menzies Theatre
Chaired by: Prof. Peijun Shi and Prof. Yongqiang Zhang

11am **Effects of horizontal resolution on the hourly precipitation in AGCM simulations**
» [Dr. Xianghui Kong](#)

11:20am **Changes in dust activities over East Asia under a global warming scenario**
» [Ms. Qi Zong](#), Prof. Rui Mao

11:40am **Projected near-term changes of temperature extremes in Europe and China under different aerosol emissions**
» [Dr. Feifei Luo](#)

12pm **Extreme temperature and precipitation changes associated with four degree of global warming above pre-industrial levels**
» [Dr. Xiaoxin Wang](#)

12:20pm **Modulation of the Kara Sea Ice Variation on the Ice Freeze-Up Time in Lake Qinghai**
» [Dr. Yong Liu](#), Prof. Huopo Chen

12:40pm **Population exposure to droughts due to future climate and socioeconomic change in China under the 2.0 °C global warming target**
» [Dr. Yujie Liu](#), Dr. Jie Chen, Dr. Tao Pan, Dr. Quansheng Ge, Dr. Yanhua Liu

11am **K15. Advances in water quality modelling and analysis**
Nicholls Theatre

11am **Mixing assumptions and transit times using an age ranked storage approach**
» [Mr. Alexander Buzacott](#), Dr. R. Vervoort

11:20am **Developing a hybrid water quality model to support catchment management**
» [Dr. Baihua Fu](#), Mr. Joel Hall, Prof. Barry Croke, Mr. Joel Rahman, Dr. Wendy Merritt, Mr. David Waters, Mr. Tony Weber, Dr. Dushmanta Dutta, Ms. Danielle Baker, Prof. Tony Jakeman

11:40am **Future Water: Comparing and contrasting approaches to predicting water quality**
» Dr. Danlu Guo, Dr. Anna Lintern, Dr. Veljko Prodanovic, Dr. Martijn Kuller, Dr. Peter Bach, Prof. Ana Deletic, Mr. Baiqian Shi, Dr. David McCarthy, Dr. Dongryeol Ryu, Dr. Angus Webb, Mr. Shuci Liu, [Prof. Andrew Western](#)

12pm **Future freshwater inflows to the Baltic Sea under changing climate and socioeconomics: upscaling local effects**
» [Dr. Alena Bartosova](#), Dr. René Capell, Dr. Jørgen E. Olesen, Dr. Karin Tonderski, Dr. Chantal Donnelly, Dr. Berit Arheimer

12:20pm **National scale nutrient/metals loading model - VEMALA**
» [Mrs. Marie Korppoo](#), Mr. Markus Huttunen, Dr. Inese Huttunen, Ms. Tiia Vento, Dr. Matti T. Leppanen, Dr. Bertel Vehviläinen

12:40pm **An integrated catchment water quantity and quality modelling framework for Port Phillip and Westernport Catchments**
» [Dr. Lydia Cetin](#), Ms. Trish Grant, Ms. Shiroma Maheepala, Mr. Anthony Ladson, Dr. Manoj Shrestha, Mr. Andrew Grant, Mr. Philip Pedruco

11am **K13. Advances and applications in hydrometeorological forecasting**
Sutherland Theatre
Chaired by: Dr. David Robertson



Continued from Thursday, 5 December

- 11am **Advances in seasonal streamflow forecasting provided by the Australian Bureau of Meteorology**
» [Dr. Christopher Pickett-Heaps](#) , Dr. Julien Lerat , Dr. Fitsum Woldemeskel , Dr. Daehyok Shin , Dr. Paul Feikema , Dr. Narendra Kumar Tuteja
- 11:20am **Invited paper: Toward real-time operational flood forecasting using a probabilistic event-based framework**
» [Mrs. Katayoon Bahramian](#) , Dr. Rory Nathan , Prof. Andrew Western , Dr. Dongryeol Ryu
- 11:40am **Improved flood forecasting using convective-scale hydrometeorological ensembles: a forecast sensitivity study**
» [Dr. Celine Cattoen-Gilbert](#) , Dr. Stuart Moore , Dr. Trevor Carey-Smith
- 12pm **GLOFFIS: the Deltares global hydrological forecasting system**
» Dr. Jan Verkade , Prof. Albrecht Weerts , [Ms. Simone De Kleermaeker](#)
- 12:20pm **Integrated hydrologic forecasting-optimisation model to optimise reservoir release considering downstream flow target**
» [Dr. Seline Ng](#) , Dr. David Robertson , Mr. James Bennett
- 12:40pm **Potential benefits of rainfall forecast information and real-time control to reduce urban flooding using distributed smart stormwater storage systems**
» [Mr. Ruijie Liang](#) , Dr. Michael Di Matteo , Prof. Holger Maier , Prof. Mark Thyer , Prof. Graeme Dandy , Mr. Russell King , Mr. Aaron Wood
- 11am **B1. Analysis and decision making under uncertainty**
Swan Room
Chaired by: Dr. Melanie Ayre
- 11am **Relational algebraic approaches to decision making under uncertainty**
» [Mrs. Anushka Chandrababu](#) , Dr. Abhilasha Aswal , Prof. Srinivasa Prasanna

- 11:20am **A protocol for selecting a rule of combination for fusion of imprecise cyber sensor data**
» [Dr. Edwin El-Mahassni](#)
- 11:40am **Bayesian Statistics in Operations Research**
» [Dr. Tom Keevers](#)
- 12pm **Understanding the risk to operational success in contested environments**
» Dr. Andrew Au , [Dr. Peter Hoek](#)
- 12:20pm **Uncertainty quantification in classification problems: A Bayesian approach for predicating the effects of further test sampling.**
» [Mr. Jordan Phillipson](#) , Prof. Gordon Blair , Dr. Peter Henrys
- 12:40pm **Modelling time decay in uncertain implication rules of evidence theory with a focus on cyber attacks**
» [Dr. Edwin El-Mahassni](#)
- 11am **K5. Observing and modelling surface water dynamics**
Murray Room
Chaired by: Prof. Jeff Walker and Dr. Stefania Grimaldi
- 11am **Predicting the initiation of plot-scale overland flow from surface water coverage and microtopographic depression filling**
» [Dr. Chandra Prasad Ghimire](#) , Dr. Val Snow , Ms. Laura Grundy , Dr. Seth Laurenson , Prof. Stuart Bradley , Dr. Anna Radionova , Dr. Willemijn Appels
- 11:20am **Application of of network approach in regional flood frequency analysis**
» [Mr. Xudong Han](#) , Prof. Ataur Rahman , Dr. Raj Mehrotra , Prof. Ashish Sharma
- 11:40am **Efficient simulation of flood events using machine learning**
» [Ms. Jihane Elyahyoui](#) , Dr. Francois Petitjean , Dr. Mahesh Prakash , Dr. Edoardo Daly , Prof. Valentijn Pauwels



Continued from **Thursday, 5 December**

- 12pm **Responses of groundwater discharge to climate variation in headwater catchments of the Murray-Darling Basin**
» [Dr. Ruiru Zhu](#) , Dr. Hongxing Zheng , Prof. Tony Jakeman
- 12:20pm **Informing planning of River Murray operations by modelling the Lake Bonney/Loch Luna wetlands**
» [Dr. Daniel McCullough](#) , Dr. Matt Gibbs
- 11am **K6. Modelling eco-hydrological processes at different spatial and temporal scales**
Fitzroy Room
Chaired by: Dr. Edoardo Daly
- 11am **Analysing the effect of climatic variations on soil carbon redistribution using a coupled dynamic vegetation, carbon pools and landform evolution model**
» [Mr. Juan Quijano](#) , Dr. Patricia Saco , Dr. Jose Rodriguez
- 11:20am **Modelling water table depth in New South Wales groundwater bores**
» [Dr. Magda Guglielmo](#) , Dr. Fiona Tang , Dr. R. Vervoort , Dr. Federico Maggi
- 11:40am **Groundwater sustains water and carbon fluxes in natural urban reserves: The case of Melbourne**
» Mrs. Valentina Marchionni , [Dr. Edoardo Daly](#) , Dr. Gabriele Manoli , Prof. Nigel Tapper , Prof. Jeff Walker , Dr. Simone Fatichi
- 12pm **Investigation of alternative hypotheses using supplementary binary data**
» [Ms. Alicja Makarewicz](#) , Dr. Michael Leonard , Prof. Seth Westra , Dr. Dan Partington

- 12:20pm **Assessment of the impact of cyclones on the annual sediment budget in a Pacific Island catchment using a hydro-sedimentological model**
» [Ms. Eliana Jorquera](#) , Dr. Jose Rodriguez , Dr. Patricia Saco , Mr. Herman Timmermans
- 11am **D2. Workflows and modelling software: opportunities, best practice and case studies**
Derwent Room
Chaired by: Dr. Paul Cleary
- 11am **Translation of stranded IP to commercialisable software applications using Workspace**
» [Dr. Paul Cleary](#) , Mr. Lachlan Hetherton , Mr. David Thomas , Mr. Matt Bolger , Dr. Damien Watkins
- 11:20am **ArcWeld: A case study of the extensibility of software applications built using Workspace architecture**
» [Mr. David Thomas](#) , Dr. Tony Murphy , Dr. Fiona Chen , Dr. Junting Xiang , Dr. Yuqing Feng
- 11:40am **Workspace for Industry 4.0**
» [Mr. Lachlan Hetherton](#) , Mr. Matt Bolger , Mr. Zikai Zhang , Ms. Nerolie Oakes , Dr. Damien Watkins , Dr. Paul Cleary
- 12pm **The Bio-Mechanic Workspace plugin: Enabling biomechanical measurement and simulation across workflows and software applications**
» [Dr. Simon Harrison](#) , Dr. Raymond Cohen
- 12:20pm **Retrospective BIM as an enabler for digital transformation in the built environment: A case study**
» [Mr. Ahmed Alnaggar](#)
- 1pm **Lunch**
Exhibition Hall



Continued from **Thursday, 5 December**

1:30pm International Association of Hydrological Sciences meeting
Bradman Theatre
Chaired by: Prof. Barry Croke

Engagement with the International Association of Hydrological Sciences
» Professor Barry Croke

2pm F4. Urban observatories and city benchmarking / F5. Modelling the impact of low carbon energies
Royal Theatre
Chaired by: Prof. John Boland

2pm Urban Service Levels: Measure, monitor and mobilize
» Dr. Cole Hendrigan , [Prof. Pascal Perez](#)

2:20pm Meta-moderation for crowdsourced disaster management and urban participatory applications
» Dr. Robert Ogie , Dr. Mehrdad Amirghasemi , [Prof. Pascal Perez](#)

2:40pm Multi-objectives evaluation framework: A comparative study on the relationship between urban form and key environmental performance indicators in Tianjin Eco-city
» [Mr. Gavin P. Raharjo](#) , Prof. Chye Kiang Heng , Dr. Ji Zhang

3pm Hydrogen as a future fuel, challenges and opportunities: An overview of modelling approaches
» [Dr. George Grozev](#) , Dr. Fariba Ramezani , Prof. Pascal Perez , Mr. Steve Whetton , Prof. Michael Young

2pm H2. Projections of regional climate change: from modelling to applications / H5. New approaches to measure and model the dynamics of rivers, wetlands and constructed water bodies
Bradman Theatre
Chaired by: Prof. Jason Evans and Prof. Albert Van Dijk

2pm Ocean wave climate modelling at global and regional scales
» [Ms. Claire Trenham](#) , Dr. Mark Hemer , Dr. Vanessa Hernaman , Dr. Ron Hoeke , Mr. Joao Morim , Dr. Marcus Thatcher , Dr. Grant Smith

2:20pm Quantifying water volumes of ungauged lakes using optical satellite imagery and high-resolution LiDAR DEMs
» [Ms. Nevenka Bulovic](#) , Ms. Dewi Sari , Dr. Sabah Sabaghy

2:40pm A global, near real-time system measuring river, lake, and reservoir dynamics
» [Mr. Jiawei Hou](#) , Prof. Albert Van Dijk , Dr. Hylke Beck

3pm Modelling river network topology from a perspective of riverine ecosystem services
» [Ms. SEEMA KARKI](#) , Prof. Michael J Stewardson , Dr. Angus Webb , Dr. Giri Raj Kattel , Dr. Keirnan Fowler , Prof. David Gilvear

2pm E3. Quantitative and computational finance
Menzies Theatre
Chaired by: Prof. Chia-Lin Chang and Prof. Michael McAleer

2pm Modelling latent carbon emission prices: theory and practice
» [Prof. Michael McAleer](#) , Prof. Chia-Lin Chang

2:20pm Pricing carbon emissions for Japan based on energy production
» [Prof. Chia-Lin Chang](#) , Prof. Shigeyuki Hamori , Prof. Michael McAleer

2:40pm Contagion effect analysis of US to East Asia stock markets
» [Mr. Roengchai Tansuchat](#)

3pm Impact of positive and negative price shocks on investment portfolios in selected Asian markets
» [Dr. Sazali Abidin](#) , Dr. Azilawati Banchit

2pm K15. Advances in water quality modelling and analysis
Nicholls Theatre



Continued from **Thursday, 5 December**

- 2pm **Source Catchment Model Application to Assess Outcomes for Stream Sediment Loads from NRM Investment in Southern Inland Queensland**
» [Mr. Paul Webb](#) , Mr. David Waters , Prof. Geoff Cockfield , Prof. Armando Apan
- 2:20pm **A Source plugin to predict and prevent hypoxic blackwater risks in floodplain-river systems**
» [Dr. Matt Gibbs](#) , Dr. Luke Mosley , Dr. Todd Wallace , Mr. Joel Rahman , Mr. Tom Robert
- 2:40pm **Application of a dynamic sediment budget model (dSedNet) in the Westernport catchment**
» Dr. Lydia Cetin , [Mr. Tony Weber](#) , Ms. Susan Cuddy , Mr. Andrew Freebairn , Mr. Joel Rahman , Mr. Dennis Gonzalez , Dr. Scott Wilkinson , Dr. Rhys Coleman , Dr. Antonia Gamboa Rocha , Mr. Peter Thew
- 3pm **Identifying faecal contamination sources and assessing mitigation effectiveness in a drinking water catchment**
» [Mr. Robert Sargent](#) , Dr. Rebekah Henry , Ms. Piyumi Thilakarathna , Dr. Anna Lintern , Prof. Tim Fletcher , Mr. Toby Prosser , Dr. Rhys Coleman , Dr. David McCarthy
- 2pm **K13. Advances and applications in hydrometeorological forecasting**
Sutherland Theatre
Chaired by: Dr. Seline Ng
- 2pm **Towards seamless National Water Services for forecasting and climate risk strategy**
» [Dr. Chantal Donnelly](#) , Dr. Andrew Frost , Dr. Julien Lerat , Dr. Louise Wilson , Dr. Wendy Sharples
- 2:20pm **Seasonal hydrological forecasts for Australia using ACCESS-S1 and the AWRA-L water balance model**
» Dr. Elisabeth Vogel , [Dr. Julien Lerat](#) , Dr. Robert Pipunic , Dr. Zaved Khan , Dr. Andrew Frost , Dr. Chantal Donnelly , Mr. David Shipman , Mr. Sean Loh , Dr. Morwenna Griffiths , Dr. Harry Hendon

- 2:40pm **Daily hydrological forecasts forced with AWRA-L model on a continental scale**
» [Dr. Zaved Khan](#) , Dr. Julien Lerat , Dr. Elisabeth Vogel , Dr. Robert Pipunic , Dr. Chantal Donnelly
- 3pm **Postprocessing and skill assessment of AWRA seasonal runoff forecasts at key locations across Australia**
» [Dr. Yating Tang](#) , Prof. QJ Wang , Dr. Julien Lerat , Dr. Elisabeth Vogel , Dr. Zaved Khan , Dr. Robert Pipunic , Dr. Chantal Donnelly
- 2pm **B7. Design of experiments**
Swan Room
Chaired by: David Marlow
- 2pm **Simulation design and analysis to support decision making in the management of capability programs**
» Mr. Duane Jusaitis , Mr. Kim Baddams , Ms. Nikita Sardesai , [Mr. Russell Anderson](#)
- 2:20pm **Intelligent Analyst Assistant: identifying and visualising causal events to support closed-loop combat simulation analysis**
» [Dr. Antonio Giardina](#) , Dr. Andrew Gill , Mr. Marco Tamassia , Prof. Kon Mouzakis , Prof. Rajesh Vasa
- 2:40pm **Factor screening high-dimensional, stochastic combat simulations**
» [Dr. Dang Nguyen](#) , Dr. Cheng Li , Prof. Santu Rana , Dr. Andrew Gill , Prof. Sunil Gupta , Prof. Svetha Venkatesh
- 3pm **Two common pitfalls applying design of experiments (and hopefully how to avoid them!)**
» [Dr. Andrew Gill](#)
- 2pm **J1. Integrated participatory systems approach for modelling socio-ecological systems**
Murray Room
Chaired by: Dr. Oz Sahin



Continued from **Thursday, 5 December**

- 2pm **Probabilistic predictions of coastal erosion: Spatial Bayesian Network**
» [Dr. Oz Sahin](#) , Dr. Khoi Nguyen , Dr. Edoardo Bertone , Dr. Douglas Alves Peixoto , Mr. Mehdi Hafezi , Prof. Rodney Stewart
- 2:20pm **Development of an integrated model to evaluate impacts of climate change on malaria risk at the community level – A systems approach**
» [Dr. Esther Onyango](#) , Dr. Oz Sahin , Dr. Shannon Rutherford , Prof. Cordia Chu , Prof. Brendan Mackey
- 2:40pm **Modelling impacts of inorganic UV blockers used in sunscreens on marine environment**
» [Ms. Simone Heilgeist](#) , Dr. Oz Sahin , Prof. Rodney Stewart
- 3pm **An integrated approach for improved management of an island's scarce water resources under climate change and tourism development**
» [Dr. Thuc Phan](#) , Dr. Oz Sahin , Mr. Hoang Trinh , Mr. Hieu Dao , Mr. Luan Mai , Mr. Tuyen Pham , Mr. Hai Pham , Ms. Thao Do , Ms. Trang Vu , Dr. Samantha Capon
- 2pm **G7. Integrated modelling and data science for environmental and human health**
Fitzroy Room
Chaired by: Dr. Stefan Reis and Dr. Ivan Hanigan
- 2pm **Spatio-temporal modelling of human health impacts of air pollution exposure - what next?**
» [Dr. Stefan Reis](#)
- 2:20pm **BERTHA: The Danish Big Data Centre for Environment and Health**
» [Prof. Clive Sabel](#) , Prof. Ole Hertel , Prof. Carsten Bøcker Pedersen , Prof. Torben Sigsgaard , Prof. Christian Erikstrup

2:40pm **Invited paper: Comparing estimated years of life lost due to air pollution using system dynamics versus Leslie matrices**
» [Dr. Ivan Hanigan](#) , Dr. Richard Broome , Dr. Martin Cope , Prof. Jane Heyworth , Mr. Joshua Horsley , Prof. Bin Jalaludin , Mr. Edward Jegasothy , Dr. Luke Knibbs , Prof. Gavin Pereira , Mr. Stephen Vander Hoorn , Prof. Barry Newell , Prof. Geoffrey Morgan

3pm **Air quality modelling of 2016 Madrid air pollution episode**
» [Prof. Roberto San Jose](#) , Prof. JUAN LUIS PEREZ CAMAÑO , Prof. Libia Perez , Prof. Rosa Maria Gonzalez Barras

2pm **D5. Machine-learning for environmental modelling**
Derwent Room
Chaired by: Dr. Wenyan Wu and Prof. Ataur Rahman

2pm **Comparing regular expression and deep learning methods for the classification of descriptive lithology**
» Mr. Sudhir Gupta , [Mr. Jean-Michel Perraud](#) , Dr. Tao Cui , Dr. Matthias Raiber

2:20pm **Using natural language processing for classification of lithological borehole data**
» [Mr. Ignacio Fuentes](#) , Mr. José Padarian , Mr. Takuya Iwanaga , Dr. R. Vervoort

2:40pm **Contextual digital soil mapping using CNNs**
» [Mr. José Padarian](#) , Prof. Budiman Minasny , Prof. Alex McBratney

3pm **Image recognition for vehicle traffic analysis at intersections**
» [Prof. Mitsuhiro Namekawa](#) , Prof. Shuya Kanagawa , Prof. Kimiaki Shinkai

3:20pm **Afternoon tea**
Convention Centre foyer

3:50pm **K26. Innovations in water sensitive urban design using MUSIC / K25. eWater Source for river basin modelling**
Royal Theatre
Chaired by: Dr. Ashis Dey



Continued from **Thursday, 5 December**

- 3:50pm **MUSIC-X for integrated urban water modelling**
» [Dr. Ashis Dey](#) , Dr. Mukta Sapkota
- 4:10pm **Modelling infiltration and exfiltration in MUSIC**
» [Mr. Jim Caddey](#) , Dr. Girja Sharma , Ms. Nicole Wallwood
- 4:30pm **Impact assessment of drought, climate change and development in a highly regulated arid basin**
» [Dr. Jorge Pena Arancibia](#) , Dr. Hongxing Zheng , Dr. Rodrigo Rojas , Mr. Dave Penton , Mr. Vianney Torres , Mr. Carlos Cambillo , Mr. Zenon Pacoricona , Dr. Neil Lazarow , Dr. Sorada Tapsuwan
- 4:50pm **Non-climatic trends in gridded climate data**
» [Ms. Kate Austin](#) , Ms. Katherine Szabo
- 5:10pm **Global spatial layers enable rapid water resource assessment in data-sparse regions**
» [Ms. Juanita Moolman](#) , Dr. Jin Wang
- 5:30pm **Modelling approaches to estimate environmental water contribution in the Murray-Darling Basin**
» [Dr. Aftab Ahmad](#) , Mr. Jim Foreman , Mr. Fiorenzo Guarino
- 5:50pm **Source adoption in Northern Victoria: a hydrological model of an integrated Goulburn, Broken, Campaspe, Coliban and Loddon Rivers system**
» [Dr. Yong Li](#) , Dr. Uttam Manandhar , Mr. Seker Mariyapillai
- 3:50pm **H5. New approaches to measure and model the dynamics of rivers, wetlands and constructed water bodies**
Bradman Theatre
Chaired by: Prof. Albert Van Dijk
- 3:50pm **Representation of river streamflow in China from land surface modellings and global reanalysis products**
» [Ms. Yue Miao](#) , Prof. Aihui Wang

- 4:10pm **Wetland dynamics from combined optical and radar satellite observations**
» [Mr. Richard Taylor](#) , Dr. Fang Yuan , Ms. Bex Dunn , Dr. Leo Lymburner , Ms. Erin Telfer , Mr. Norman Mueller
- 4:30pm **Opportunities and challenges for integration of remote sensing and GIS into water take compliance regulation across the Murray-Darling Basin and coastal river systems in NSW, Australia**
» [Dr. Ivars Reinholds](#) , Ms. Kaia Hodge
- 4:50pm **Impact of climate change on flood frequency and proposed dams: Using SWAT model under CMIP5 RCP scenarios in the Kunar Basin, Afghanistan**
» [Mr. Suliman Safi](#) , Dr. Won-Ho Nam , Mr. Hashmatullah Ghafoori , Mr. Idrees Malyar
- 3:50pm **H1. Global change population and economic risk assessments and risk-informed decision-making: modelling and simulation**
Menzies Theatre
Chaired by: Prof. Peijun Shi and Prof. Yongqiang Zhang
- 3:50pm **Assessing the exposure of global industrial system**
» [Dr. Wei Song](#) , Ms. han li , Ms. Ze Han , Dr. Huiyi Zhu
- 4:10pm **Predicting global planting suitability of wheat under the 1.5 °C and 2 °C warming goals**
» Mr. Puying Zhang , [Dr. Yaojie Yue](#) , Prof. Jing-ai Wang
- 4:30pm **Exposure analysis of highways network in China on the context of future extreme precipitation scenarios of CMIP5**
» [Mr. Liang Jia](#) , Prof. Saini Yang
- 4:50pm **Construction of assessment model of economic impact of natural disaster and its multi-scale applications**
» Dr. Zhengtao Zhang , [Prof. Ning Li](#) , Dr. Yuan Liu , Dr. Chengfang Huang



Continued from **Thursday, 5 December**

- 5:10pm **Assessment of future flash flood inundations in coastal regions under climate change scenarios -A case study**
» Ms. Yue Zhang , Prof. Ying Wang , Prof. Ning Li
- 5:30pm **Dependence of tropical cyclone damage on maximum wind speed and socioeconomics**
» Ms. Mengqi Ye , Dr. Jidong Wu
- 3:50pm **K15. Advances in water quality modelling and analysis**
Nicholls Theatre
- 3:50pm **Modelling nitrogen transport in sugar cane from soil to runoff from banded surface and buried fertiliser using HYDRUS2D and a post-processing algorithm**
» Prof. Freeman Cook , Mr. Matthew Eyles , Mr. Bruce Cowie , Ms. Bronwyn Bosomworth , Dr. Mark Silburn
- 4:10pm **Simulation of the suppressive effect of zinc on cyanobacteria in paper mill wastewater**
» Mr. Hugh Burger , Dr. John Awad , Dr. Guna Hewa , Prof. John van Leeuwen
- 4:30pm **Modelling the impact of design and operational variables on stormwater biofilter performance - a data driven approach**
» Dr. Kefeng Zhang , Mr. Yizhou Liu , Dr. Belinda Hatt , Dr. Gayani Chandrasena , Ms. Tracy Pham , Dr. Yali Li , Dr. David McCarthy , Prof. Ana Deletic , Dr. Anna Lintern
- 4:50pm **Modelling the canopy effect in filamentous algae mats**
» Dr. Anika Kuczynski , Ms. Ankita Bakshi , Dr. Martin Auer , Dr. Steven Chapra
- 3:50pm **K13. Advances and applications in hydrometeorological forecasting**
Sutherland Theatre
Chaired by: Dr. Celine Cattoen-Gilbert

- 3:50pm **Verifying ensemble forecasts where observations are modeled output: a case study of soil moisture**
» Dr. David Robertson , Dr. Durgalal Shrestha , Mr. Andrew Schepen , Mr. James Bennett , Dr. Yong Song , Mr. Matt Stenson , Mr. Ross Searle
- 4:10pm **Invited paper: Investigative verification: A case study of Australian Bureau of Meteorology precipitation forecasts**
» Dr. Deryn Griffiths , Dr. Tom Pagano , Mr. Nicholas Loveday , Dr. Michael Foley
- 4:30pm **KEYNOTE: Processing numerical weather prediction (NWP) outputs to enhance precipitation forecasting for Australia**
» Prof. QJ Wang , Dr. Qichun Yang , Dr. Yating Tang
- 4:50pm **Improving Numerical Weather Prediction (NWP) forecasts for Australia using a quantile mapping method**
» Dr. Qichun Yang , Prof. QJ Wang , Dr. Robert Pipunic , Dr. Elisabeth Vogel
- 5:10pm **Towards hydrological pre-processing of numerical weather predictions for multiple issue time initializations**
» Dr. Durgalal Shrestha , Dr. David Robertson , Dr. Yong Song , Mr. James Bennett , Mr. Andrew Schepen
- 5:30pm **Embedding trend into seasonal temperature forecasts through statistical calibration of GCM outputs**
» Ms. Yawen Shao , Prof. QJ Wang , Dr. Dongryeol Ryu , Mr. Andrew Schepen
- 3:50pm **B2. Defence decision analysis**
Swan Room
Chaired by: Dr. Richard Taylor
- 3:50pm **KEYNOTE: Scheduling combat logistic force replenishments at sea for the US Navy**
» Dr. Gerald Brown , Dr. Matthew Carlyle , Prof. Jeffrey Kline , Prof. Anton Rowe



Continued from **Thursday, 5 December**

- 4:10pm **Evaluating a virtual human storyteller for improved decision support**
» Dr. Karen Blackmore , [Dr. Shamus Smith](#) , Dr. Keith Nesbitt , Ms. Lauren North , Dr. Steven Wark , Mr. Marcin Nowina-Krowicki
- 4:30pm **A new model for topical and thematic analysis to support Force Design decision making**
» [Dr. Li Jiang](#)
- 4:50pm **Visual analytics and narrative visualisation for data farming of a complex warfighting model**
» [Prof. Tomasz Bednarz](#) , Dr. Huyen Nguyen , Ms. Jenny Vuong , Mr. Conan Bourke , Mr. Robert Lawther , Dr. Lindsay Wells , Mr. Marcin Nowina-Krowicki , Dr. Steven Wark , Dr. Andrew Au
- 5:10pm **Data farming and data analysis for tackling uncertainty in major Defence workforce transitions**
» [Mr. Cameron Pike](#) , Ms. Katie Mortimer , Dr. Ana Novak
- 5:30pm **New Investments to Risk Options (NITRO) – a portfolio analysis and optimisation tool to support force design investment decisions**
» [Dr. Greg Calbert](#) , Dr. Terence Weir , Dr. Ivan Garanovich , Dr. Richard Taylor
- 5:50pm **Multi-stock replenishment of naval vessels by specialist replenishment ships**
» Dr. Steven Rowling , Dr. Ming Mei Teo , [Mr. Marc West](#)
- 3:50pm **J1. Integrated participatory systems approach for modelling socio-ecological systems**
Murray Room
Chaired by: Dr. Oz Sahin

3:50pm **A participatory geographic modeling platform: Solving complex geographic problems through collaboration**
» Mr. Zaiyang Ma , [Dr. Songshan Yue](#) , Prof. Min Chen , Mr. Beichen Zhang , Ms. Zhiyi Zhu , Mr. Yuchen Lu

4:10pm **Skin groups and Onan: computer simulation as an aid to understanding anthropological phenomena**
» [Dr. Anthony Dekker](#)

3:50pm **G7. Integrated modelling and data science for environmental and human health**
Fitzroy Room
Chaired by: Dr. Stefan Reis and Dr. Ivan Hanigan

3:50pm **A framework for the generalised computational modeling of various hazards in geospatially situated social systems**
» Mr. Matt Begun , [Dr. David Heslop](#)

4:10pm **'Detailed verification': Extension to stochastic quantitative microbial risk assessment for water recycling**
» [Mr. Chris Owens](#)

4:30pm **Estimating the impact of mass-drug administration to eliminate lymphatic filariasis in American Samoa**
» Dr. Zhijing Xu , [Dr. Angus Mclure](#) , Dr. Patricia Graves , Dr. Kathryn Glass , Dr. Colleen Lau

4:50pm **Identifying hotspots of infectious disease transmission using a random forest machine learning algorithm: a case study of lymphatic filariasis elimination in Samoa**
» [Dr. Helen Mayfield](#) , Dr. Hugh Sturrock , Dr. Ben Arnold , Dr. Ricardo Pacheco , Dr. Robert Thomsen , Dr. Therese Kearns , Dr. Katherine Gass , Dr. Colleen Lau

5:10pm **Where do we recreate? Comparison of different methods to determine importance of site characteristics for outdoor recreation**
» [Mr. Fabian Willibald](#) , Dr. Maarten Jan Van Strien , Prof. Adrienne Grêt-Regamey



Continued from **Thursday, 5 December**

5:30pm	Reducing Environmental Impact Statement processing effort and rejection risk by moving to data submissions » Mr. Ignacio Flores Peters , Mr. Nicholas Car , Prof. Ron Johnstone
3:50pm	D5. Machine-learning for environmental modelling <i>Derwent Room</i> Chaired by: Dr. Wenyan Wu and Dr. Conrad Wasko
3:50pm	Machine learning approaches to improve and predict water quality data » Dr. Yifan Zhang , Dr. Peter Thorburn , Dr. Maria Vilas , Mr. Peter Fitch
4:10pm	Mixed methods of sensitivity analysis for studying the response surface and uncertainty of hydrologic models » Dr. Jing Yang , Prof. Tony Jakeman , Dr. Channa Rajanayaka
4:30pm	Block-based artificial neural networks for flood inundation modelling » Dr. Wenyan Wu , Mr. Shuai Xie , Mr. Mooser Sebastian , Prof. QJ Wang , Dr. Rory Nathan
4:50pm	Decreases in flooding due to drier soils » Dr. Conrad Wasko , Dr. Rory Nathan
4:50pm	Workshop: Meet the Editors of Environmental Modelling & Software – Publishing your work in international peer-reviewed journals <i>Murray Room</i> Chaired by: Dan Ames and Prof. Tony Jakeman
7pm	Pre-dinner drinks <i>Convention Centre foyer</i>

7:30pm **Gala Dinner**
Exhibition Hall

Friday, 6 December

8am	Registration and information desk <i>Convention Centre foyer</i>
8:30am	Plenary <i>Royal Theatre</i> Hazards of working across disciplines: how models (and modellers) can bridge the gaps » Associate Professor Kate O'Brien
9:05am	K27. Using eWater Source to support Integrated Water Resource Management <i>Royal Theatre</i> Chaired by: Geoffrey Adams
9:05am	Australian WaterTools: Three national platforms supporting the management of Australia's scarce water resources » Dr. Robert Carr , Ms. Trudy Green , Ms. Erin Telfer , Mr. Norman Mueller , Dr. Narendra Kumar Tuteja , Dr. Daehyok Shin , Dr. Fitsum Woldemeskel , Dr. Greg Kociuba
9:25am	Using eWater Source to support Integrated Water Resources Management in Lao People's Democratic Republic » Dr. Inthavy Akkharath , Dr. Paradis Someth
9:45am	A vision for future hydrologic modelling to support Victoria's evolving water resource management » Mr. Seker Mariyapillai , Dr. Uttam Manandhar , Mr. Tony Sheedy



Continued from **Friday, 6 December**

10:05am **Using the Source Murray Model to calculate Annual Permitted Take under the Sustainable Diversion Limits in the Murray-Darling Basin Plan**

» [Mr. Alistair Korn](#)

9:05am **K28. Understanding hydrological processes in a changing environment**

Bradman Theatre

Chaired by: Prof. Lei Cheng

9:05am **Afforestation impacts on streamflow generation in intermittent catchments**

» [Mr. Ali Azarnivand](#), Dr. Matteo Camporese, Dr. Sina Alaghmand, Dr. Edoardo Daly

9:25am **Understanding hydrological processes at a remote mountainous continuous permafrost watershed in a changing environment**

» [Ms. Nataliia Nesterova](#), Dr. Olga Makarieva, Dr. David Post

9:45am **Drought induced non-stationary in rainfall-runoff relationship invalidates the role of control catchment at the Red Hill paired catchment experiment site**

» [Ms. Yunfan Zhang](#), Prof. Lei Cheng, Dr. Lu Zhang, Prof. Pan Liu, Mr. Yanghe Liu

10:05am **The impact of vegetation change on global terrestrial runoff within the Budyko framework**

» [Ms. Yuyan Luo](#), Prof. Yuting Yang

9:05am **H1. Global change population and economic risk assessments and risk-informed decision-making: modelling and simulation**

Menzies Theatre

Chaired by: Prof. Peijun Shi and Prof. Yongqiang Zhang

9:05am **Reduced livestock snow disaster risk in the Qinghai-Tibetan Plateau: contribution from climate change and socioeconomic development**

» [Prof. Tao Ye](#), Mr. Weihang Liu, Prof. Peijun Shi, Ms. Shuo Chen

9:25am **River floods induced population mortality risk across the globe**

» [Ms. Xinli Liao](#), Ms. Junlin Zhang, Prof. Wei Xu

9:45am **Dynamic simulation of the two-way interaction between flooding and land-use change to better understand and reduce future flood risk**

» [Mr. Eike Hamers](#), Prof. Holger Maier, Dr. Aaron Zecchin, Prof. Hedwig van Delden, Mr. Graeme Riddell

10:05am **Heat wave with high impact on human health under global warming**

» [Dr. Miaoni Gao](#), Prof. Jing Yang

9:05am **K18. Groundwater hydrology**

Nicholls Theatre

Chaired by: Dr. Tim Peterson

9:05am **Groundwater modelling – A tool for sustainable aquifer management under changing climate**

» [Mr. Ghulam Zakir Hassan](#)

9:25am **Quantifying the impact of climate change on groundwater**

» [Ms. Xinyang Fan](#), Dr. Benjamin Henley, Dr. Tim Peterson, Dr. Meenakshi Arora

9:45am **Joint estimation of gross recharge, groundwater usage and hydraulic properties within HydroSight**

» [Dr. Tim Peterson](#), Mr. Simon Fulton

10:05am **Joint simulation of surface-groundwater dynamics at the catchment scale: a challenge**

» [Mr. Giancarlo Bonotto](#), Dr. Tim Peterson, Prof. Michael J Stewardson


Continued from **Friday, 6 December**

9:05am **K9. Enabling better water resources decision making in the face of uncertainty**
Sutherland Theatre
 Chaired by: Dr. Bree Bennett and Dr. Lanying Zhang and Dr. Michelle Ho

9:05am **Decadal variability in historical record – short-term drought analysis for Warragamba system**
 » Ms. Lanying Zhang, Mr. Golam Kibria, Mr. Mahadeva Maha, Mr. Selvaratnam Maheswaran, Dr. Anthony Kiem, Prof. George Kuczera

9:25am **Modelling household water use: Using empirical data to inform continuous simulation**
 » Mr. David Leonard, Dr. Shirley Gato-Trinidad

9:45am **Understanding large-scale streamflow trends in the southern Murray Darling Basin**
 » Ms. Zitian Gao, Dr. Danlu Guo, Dr. Murray Peel, Prof. Michael J Stewardson

10:05am **Two approaches that address challenges in integrating optimisation into water supply planning**
 » Dr. Stephanie Ashbolt, Dr. Udaya Kularathna, Dr. David Flower, Mr. Robert Yurisich

9:05am **B2. Defence decision analysis**
Swan Room
 Chaired by: Dr. Richard Taylor

9:05am **Navy Mission Planner**
 » Dr. Gerald Brown, Dr. Matthew Carlyle, Prof. Jeffrey Kline

9:25am **Fishing for the unknown unknowns: A Bayesian perspective**
 » Dr. Robert Niven

9:45am **Integration of Bayesian network and multi-objective evolutionary algorithms for evaluating land combat vehicle system**
 » Dr. Minh-Tuan Nguyen, Dr. Thang Cao

10:05am **Ranking defence systems using SCMI data**
 » Dr. Yue-jin Wang, Dr. Richard Taylor

9:05am **J2. Holistic modelling and optimisation for sustainable design of buildings and communities**
Murray Room
 Chaired by: Dr. Edoardo Bertone and Dr. Emiliya Suprun

9:05am **Water and energy-based optimisation of a “MiniCity”: A system dynamics approach**
 » Dr. Emiliya Suprun, Mr. Glauber Cardoso de Oliveira, Dr. Edoardo Bertone, Dr. Oz Sahin, Prof. Daniela Ottmann, Prof. Joerg Baumeister

9:25am **Orienting solar panels to minimise power shortfall**
 » Ms. Kirrilie Rowe, Dr. PETER PUDNEY

9:45am **System dynamics based interactive game for managing the looming rooftop solar and battery waste crises in Australia**
 » Mr. Hengky Salim, Prof. Rodney Stewart, Dr. Oz Sahin

9:05am **E2. Technology and innovation**
Fitzroy Room

9:05am **Classifying the shape of qPCR expression data**
 » Dr. Peter Whigham, Dr. Jo-Ann Stanton, Mr. Chris Mason, Dr. Christopher Rawle, Dr. Michael Macknight

9:25am **Empirical distribution of endogenous inefficiency: Case of municipal hospitals in Japan**
 » Dr. Atsushi Fujii

9:45am **Investment location selection: Strategies for foreign direct investment in Vietnam**
 » Mrs. Linh Ho, Prof. Christopher Gan, Prof. Baiding Hu



Continued from **Friday, 6 December**

10:05am **Inadequate corporate profitability and marketability efficiency: A case of Vietnam manufacturing enterprises**
» Ms. Le Trang Anh Dao , Prof. Christopher Gan

9:05am **K14. Understanding and quantifying uncertainties in hydrologic and environmental models**
Derwent Room
Chaired by: Dr. Danlu Guo and Dr. Lucy Marshall and Dr. Stefania Grimaldi

9:05am **Error estimation of satellite signal-based river discharge using double instrumental variables method**
» Dr. Hung Pham , Dr. Seokhyeon Kim , Dr. Lucy Marshall , Prof. Ashish Sharma

9:25am **Do state error models improve hydrologic predictions?**
» Mr. Shaun Kim , Dr. Lucy Marshall , Dr. Justin Hughes , Prof. Ashish Sharma , Dr. Jai Vaze

9:45am **Error propagation in coupled hydrologic-hydraulic modelling of floods at the large scale**
» Dr. Stefania Grimaldi , Dr. Guy Schumann , Dr. Ashkan Shokri , Prof. Jeff Walker , Prof. Valentijn Pauwels

10:05am **Reliable predictive uncertainty distributions in rivers with >50% zero flow**
» Mr. James Bennett , Prof. QJ Wang , Dr. David Robertson , Dr. Ming Li

10:25am **Morning tea**
Exhibition Hall

10:50am **K27. Using eWater Source to support Integrated Water Resource Management**
Royal Theatre
Chaired by: Mr. Geoff Davis

10:50am **Refinement and application of the Source Murray model in South Australia**

» Dr. Eva Beh , Mr. Mahdi Montazeri , Dr. Matt Gibbs , Mr. Tom Stewart

11:10am **Calibration of flow model in a complex regulated river system in NSW, Australia**

» Dr. Fangfang Zhao , Mr. Andrew Davidson , Ms. Lili Zhang , Dr. Alice Brown , Ms. Meryl McKerrow , Dr. Dushmanta Dutta

11:30am **Applications of Source in the Australian Capital Territory**

» Dr. Danswell Starrs , Ms. Sarah Crisp , Dr. Ralph Ogden

11:50am **Considerations in developing a modelling tool for integrated water resource assessment in Melbourne**

» Dr. Udaya Kularathna , Dr. Stephanie Ashbolt , Mr. Heerbod Jahanbani , Dr. Carl Daamen

12:10pm **Integrated urban water modelling for sustainable water management**

» Dr. Mukta Sapkota , Dr. Ashis Dey

12:30pm **An iterative simulation-optimisation approach to catchment mitigation assessment using eWater Source**

» Mr. Jeffrey Newman , Dr. Brooke Swaffer , Ms. Mel Abela , Mrs. Hayley Abbott , Mrs. Jacqueline Frizenschaf

10:50am **K28. Understanding hydrological processes in a changing environment / A3. Solving practical inverse problems**

Bradman Theatre

Chaired by: Prof. Lei Cheng and Prof. Markus Hegland and Dr. Bob Anderssen

10:50am **Impact of root zone storage capacity on the streamflow anomaly in six catchments experienced tree die-off**

» Mr. Yanghe Liu , Prof. Lei Cheng , Prof. Pan Liu , Dr. Lu Zhang

11:10am **Comparison of two potential evaporation models on land**

» Ms. Zhuoyi Tu , Prof. Yuting Yang



Continued from Friday, 6 December

- 11:30am **Identifying flexible decision intervals for long-term operation of hydro-photovoltaic hybrid power system**
» [Mr. Yu Gong](#) , Prof. Pan Liu
- 12:10pm **Deconvolution for oscillatory shear rheometry using the Landweber iteration**
» [Dr. Bob Anderssen](#) , Dr. Frank de Hoog , Dr. Rick Loy
- 12:30pm **A functional strategy for nonlinear functionals**
» Prof. Bob Anderssen , [Prof. Markus Hegland](#)
- 10:50am **H1. Global change population and economic risk assessments and risk-informed decision-making: modelling and simulation**
Menzies Theatre
Chaired by: Prof. Peijun Shi and Prof. Yongqiang Zhang
- 10:50am **New understanding of climate change on the Qinghai-Tibetan Plateau and its adapting counter-measures**
» [Prof. Peijun Shi](#) , Prof. Tao Ye , Mr. Yanqiang Chen
- 11:10am **Factors contribution to oxygen concentration in Qinghai-Tibetan Plateau: A preliminary study**
» [Mr. Yanqiang Chen](#) , Prof. Peijun Shi
- 11:30am **Trends and risk evolution of drought disasters in the Tibet Region, China**
» [Prof. Qiong Chen](#)
- 11:50am **Exploring the relationship between spatiotemporal characteristics of snow cover and ENSO episodes in the Qinghai-Tibetan Plateau**
» [Mrs. Cungui Zhang](#)

- 10:50am **K18. Groundwater hydrology / K11. Quantifying and managing hydroclimatic variability and change – getting maximum value from observed data, palaeoclimate records and climate models**
Nicholls Theatre
Chaired by: Dr. Tim Peterson
- 10:50am **Comparison of three approaches to groundwater recharge estimation**
» Ms. Gemma Bloomfield , Prof. Hyosang Lee , Dr. Carlos Miraldo Ordens , Dr. Liliana Pagliero , Ms. Letitia Sabburg , Dr. Joshua Larsen , Ms. Nevenka Bulovic , [Prof. Neil McIntyre](#)
- 11:10am **A quantitative study of the land subsidence formation mechanism on sub-center of Beijing, China**
» [Dr. Lin Guo](#) , Prof. Huili Gong , Prof. Xiaojuan Li , Prof. Lin Zhu , Prof. Wei Lv , Ms. rui cheng
- 11:30am **Quantifying transient lateral river-aquifer exchanges through the joint simulation of groundwater flow and heat transport**
» [Dr. Yueqing Xie](#) , Dr. Jordi Batlle-Aguilar
- 11:50am **Incorporating palaeoclimate reconstructions into stochastic water resource analyses**
» [Ms. Natasha Ballis](#) , Dr. Murray Peel , Dr. Rory Nathan , Dr. Benjamin Henley , Prof. David Karoly
- 10:50am **K9. Enabling better water resources decision making in the face of uncertainty**
Sutherland Theatre
Chaired by: Dr. Bree Bennett and Dr. Lanying Zhang and Dr. Michelle Ho
- 10:50am **Changing domestic water consumption during a heatwave: The importance of social factors.**
» [Prof. Iain Walker](#) , Dr. Sorada Tapsuwan , Dr. Magnus Moglia , Dr. Stephen Cook , Mr. Ross Mulcahy
- 11:10am **foreSIGHT - An R package to support scenario-neutral climate impact assessments**
» [Dr. Bree Bennett](#) , Mr. Sam Culley , Prof. Seth Westra , Prof. Holger Maier , Dr. Danlu Guo



Continued from **Friday, 6 December**

11:30am **Stochastic model of urban water demand for water supply system planning**

» [Ms. Hoda Maki](#) , Prof. George Kuczera , Mr. Russell Beatty

11:50am **Challenges in combining hydrological and ecological methods to predict climate change risks to freshwater ecosystems**

» [Mr. Andrew John](#) , Dr. Rory Nathan , Dr. Avril Horne , Prof. Michael J Stewardson , Dr. Angus Webb , Dr. Jun Wang , Prof. LeRoy Poff

12:10pm **Climate impact on environmental flow outcomes in the Goulburn system, Victoria: a decision scaling approach**

» Dr. Avril Horne , [Dr. Keirnan Fowler](#) , Mr. Andrew John , Dr. Rory Nathan , Dr. Murray Peel , Prof. Michael J Stewardson , Dr. Angus Webb , Ms. Meghan Mussehl , Prof. LeRoy Poff

12:30pm **The merits of transient stochastic climate change projections for risk assessments of water resources**

» Dr. Michelle Ho , Dr. Lu Zhang , Dr. Hongxing Zheng , [Dr. Guobin Fu](#) , Dr. Nick Potter , Dr. Peter Briggs , Dr. Francis Chiew

10:50am **B6. OR/CP and analytics for transport, logistics, and supply chain**

Swan Room

Chaired by: Dr. Amir Salehipour and Prof. Babak Abbasi

10:50am **The influence of the vendor's power on vendor-retailer partnerships**

» [Mr. Farshid Evazabadian](#) , Prof. Richard Middleton , Dr. Masoud Talebian

11:10am **A heuristic for the generalized due-date min-max earliness-tardiness problem**

» Dr. Daniel Oron , [Dr. Amir Salehipour](#)

11:30am **Optimised long term forestry planning considering increasing wildfire risk**

» [Dr. Simon Dunstall](#) , Mr. Claudio Parada

11:50am **A branch-and-cut algorithm and valid inequalities for the covering Chinese postman problem**

» [Mr. Rafael Kendy Arakaki](#) , Prof. Mutsunori Yagiura , Dr. Fabio Luiz Usberti

12:10pm **Mixed integer linear programming for the minimum-sum-of-squares clustering**

» [Mr. Rasul Esmailbeigi](#) , Dr. Vicky Mak-Hau , Prof. John Yearwood

12:30pm **Cluster-First, Route-Second Approach to Capacitated VRP problems**

» [Dr. Dan Popescu](#) , Dr. Phil Kilby

10:50am **H4. Climate impacts on soil security**

Murray Room

Chaired by: Dr. Xihua Yang

10:50am **Controls of rainfall patterns on soil organic carbon and nitrogen stocks in Australian grasslands**

» [Dr. Fiona Tang](#) , Dr. Giulia Ceriotti , Dr. William Riley , Dr. Federico Maggi

11:10am **Climate change and soil security: A soil erosion modelling story**

» [Ms. Amelie Jeanneau](#) , Mr. Tim Herrmann , Prof. Bertram Ostendorf

11:30am **Modelling organic carbon stocks in croplands of China: the past and the future**

» [Dr. Yongqiang Yu](#) , Prof. Yao Huang , Prof. Wen Zhang

11:50am **Economic costs of projected loss of soil organic carbon with climate change over New South Wales**

» [Dr. Jonathan Gray](#) , Mr. Matthew Riley

12:10pm **Effects of snowmelt on hillslope erosion in Australian Alpine Region**

» Dr. Xihua Yang , [Dr. Esther Zhu](#)



Continued from Friday, 6 December

- 10:50am **K10. Land surface observation and assimilation: data-model integration approach for improved hydrologic prediction and water resources management**
Fitzroy Room
Chaired by: Prof. Jeff Walker
- 10:50am **A water-level based calibration approach of rainfall-runoff models**
» Ms. Jie Jian , Dr. Dongryeol Ryu , Prof. QJ Wang
- 11:10am **Australian coastal catchment river discharge dataset for marine reanalysis modelling and forecasting application**
» Mr. Mayank Tuteja , Dr. Urooj Khan , Dr. Gnanathikkam Amirthanathan , Dr. Mohammed Bari , Dr. Greg Kociuba , Mr. Richard Laugesen , Dr. Narendra Kumar Tuteja
- 11:30am **Using an artificial neural network to enhance the spatial resolution of satellite soil moisture products based on soil thermal inertia**
» Mr. Indishe Senanayake , Dr. In-Young Yeo , Prof. Garry Willgoose , Dr. Greg Hancock , Mr. David Bretreger
- 11:50am **Combining geophysical variables for maximizing temporal correlation without reference data**
» Dr. Seokhyeon Kim , Dr. Hung Pham , Dr. Yi Y. Liu , Prof. Ashish Sharma , Dr. Lucy Marshall
- 12:10pm **Fusing remote sensing data with numerical simulation to estimate historical water levels in Thirlmere Lakes**
» Dr. Shengyang Chen , Dr. William Glamore , Dr. Fiona Johnson
- 12:30pm **Soil moisture retrieval depth at P- and L-band: simulations and observations**
» Mr. Xiaoji Shen , Prof. Jeff Walker , Dr. Nan Ye , Dr. Xiaoling Wu , Ms. Nithyapriya Boopathi , Ms. Linlin Zhang , Mr. Liujun Zhu , Dr. In-Young Yeo

- 10:50am **K14. Understanding and quantifying uncertainties in hydrologic and environmental models**
Derwent Room
Chaired by: Dr. Danlu Guo and Dr. Lucy Marshall and Dr. Stefania Grimaldi
- 10:50am **Resolving transboundary water conflict by the game model considering inflow forecasting errors**
» Ms. Jisi Fu , Prof. Pingan Zhong , Ms. Juan Chen , Mr. Feilin Zhu , Prof. Bin Xu , Dr. Lucy Marshall
- 11:10am **Global uncertainty analysis in irrigation scheduling**
» Mr. Arash Parehkar , Dr. Dongryeol Ryu , Dr. Danlu Guo , Prof. QJ Wang , Prof. Andrew Western
- 11:30am **Assessment of uncertainty in modelling annual impacts of farm dams in Victoria**
» Mr. Matt Scolah , Dr. Phillip Jordan , Mr. Robert Morden , Dr. Rory Nathan , Mr. Simon Lang , Ms. Ashley Zhang
- 11:50am **A global sensitivity analysis for spatially distributed watershed models: a holistic analysis applied to SWAT for input datasets and model parameters**
» Dr. Hyeongmo Koo , Prof. Min Chen , Prof. Tony Jakeman , Mr. Fengyuan Zhang
- 12:10pm **Role of Wiener chaos expansion in modelling randomness for groundwater contamination flow**
» Dr. Parul Tiwari , Prof. Don Kulasiri , Prof. Sandhya Samarasinghe
- 12:30pm **Probabilistic indicators for soil and groundwater contamination risk assessment**
» Prof. Giovanni Porta , Dr. Daniele Ia Cecilia , Dr. Fiona Tang , Prof. Monica Riva , Prof. Alberto Guadagnini , Dr. Federico Maggi
- 12:50pm **Lunch**
Exhibition Hall



Continued from Friday, 6 December

1:50pm **K27. Using eWater Source to support Integrated Water Resource Management**

Royal Theatre

Chaired by: Ms. Trudy Green

1:50pm **Using eWater Source for detailed site water balance modelling and assessment**

» Mr. Luke Kidd

2:10pm **Modelling salinity registers using the Source Murray Model**

» Dr. Iabed Bhuiyan , Mr. Alistair Korn

2:30pm **A flexible and intuitive approach to water resource modelling: Otway Source Model case study**

» Ms. Alice Drummond , Dr. Walter Godoy , Ms. Ruth Hicks

2:50pm **Transforming modelling data into decisions: Interactive dashboards for eWater Source**

» Ms. Alice Drummond , Mr. Christian Borovac

1:50pm **A3. Solving practical inverse problems**

Bradman Theatre

Chaired by: Prof. Markus Hegland and Dr. Bob Anderssen

1:50pm **Near integrability in plasma dynamics**

» Dr. Peter Vassiliou

2:10pm **Model order reduction techniques for spectral method solutions of hyperbolic partial differential equation**

» Ms. Chaitanya Shettigara

2:30pm **Stratified space learning: Reconstructing embedded graphs**

» Mr. Yossi Bokor , Dr. Daniel Grixti-Cheng , Prof. Markus Hegland , Prof. Stephen Roberts , Dr. Katharine Turner

2:50pm

The use of Bayesian inference to model complex systems

» Prof. Matthew Hole , Dr. Gregory von Nessi , Mr. Ashley Barnes , Dr. Daniel Grixti-Cheng

1:50pm

G4. Integrating translational ecology in freshwater systems

Menzies Theatre

Chaired by: Dr. Danial Stratford and Dr. Ashmita Sengupta

1:50pm

Assessing change in regional communities as a consequence of water recovery: Issues of scale and zoning when combining data

» Mr. Martin Nolan , Dr. Danial Stratford , Dr. Nicky Grigg , Dr. Yanchang Zhao , Dr. Sam Nicol , Dr. Carmel Pollino

2:10pm

Spatial comparison of biodiversity with sources of hydrological stress in the Murray Darling Basin

» Mr. Robert Morden , Dr. Nick Bond , Dr. Avril Horne , Dr. Rory Nathan

2:30pm

Development of the Floodplain Ecological Response Model (FERM)

» Ms. Jin Teng , Prof. Barry Croke , Dr. Danial Stratford , Mr. Takuya Iwanaga , Dr. Carmel Pollino , Dr. Jai Vaze

2:50pm

Integrated approach for predicting impacts of future climate and land use changes on macroinvertebrates in a Mediterranean catchment using GF, SWAT and HEA models

» Ms. Jawairia Sultana , Prof. Friedrich Recknagel , Ms. Hong Hanh Nguyen , Dr. John Tibby

3:10pm

Assessing the cumulative impacts of mining activities on stygofauna across the Pilbara region

» Dr. Karel Mokany , Dr. Thomas Harwood , Dr. Stuart Halse , Dr. Simon Ferrier

1:50pm

J3. Modelling for action: how can we make ourselves heard?

Nicholls Theatre

Chaired by: Prof. Martin Volk and Prof. Alexey Voinov



Continued from Friday, 6 December

- 1:50pm **Studying behaviour in operations research interventions: A 30 year review**
» [Prof. Raimo Hämmäläinen](#)
- 2:10pm **Participatory modelling in socio-ecological systems: A framework for action**
» [Mr. Daniel Kenny](#) , Prof. Alexey Voinov , Dr. Juan Castilla
- 2:30pm **Using instructional design theories to incorporate motivational elements into simulation design: Application of the ARCS Framework**
» [Mr. Jason Evans](#) , Dr. Sondoss Elsayah , Dr. Michael J. Ryan
- 2:50pm **Ecological vs social thresholds for use in modelling**
» [Ms. Meghan Mussehl](#) , Dr. Angus Webb , Dr. Avril Horne
- 3:10pm **How wicked are wicked problems and how do we model them**
» [Prof. Alexey Voinov](#)
- 1:50pm **K9. Enabling better water resources decision making in the face of uncertainty**
Sutherland Theatre
Chaired by: Dr. Bree Bennett and Dr. Lanying Zhang and Dr. Michelle Ho
- 1:50pm **Development of an Atmosphere-Ocean-Geosphere-Coupled Model and its application to the Kanto area, Japan**
» [Mr. Jean-Francois VUILLAUME](#) , Mr. Sōki Fukazawa , Mr. Koji Goto , Mr. Aurelien Hazart , Mr. Yuki Konishi , Mr. Ryo Onishi , Mr. Toru Sugiyama , Mr. Kazuhiro Tada , Mr. Yasuhiro Tawara , Mr. Hiroyuki Tosaka , Mr. Keiko Takahashi
- 2:10pm **An evaluation of statistical bias-correction and downscaling methods for hydrological impact studies**
» [Dr. Elisabeth Vogel](#) , Dr. Louise Wilson , Dr. Wendy Sharples , Mr. Sean Loh , Dr. Justin Peter , Dr. Pandora Hope , Ms. Sonya Fiddes , Dr. Chantal Donnelly , Dr. Andrew Dowdy

- 2:30pm **Irrigation water resource management: 'IW-QC2' software tool**
» [Dr. John Awad](#) , Mr. David Pezzaniti , Dr. Joanne Vanderzalm , Ms. Onyi-Obazi Esu , Prof. John van Leeuwen
- 2:50pm **A multi-scenario Decision Support System for real-time operation of over-year multi-reservoir systems 2. DSS simulation**
» [Mr. Claudio Arena](#) , Prof. Marcella Cannarozzo , Mr. Francesco Oliva , Prof. Mario Rosario Mazzola
- 3:10pm **Soil water modelling for irrigation scheduling: how well can we do with limited data?**
» [Dr. Danlu Guo](#) , Dr. Dongryeol Ryu , Prof. QJ Wang , Mr. Arash Parezkar , Prof. Andrew Western
- 1:50pm **B6. OR/CP and analytics for transport, logistics, and supply chain**
Swan Room
Chaired by: Dr. Amir Salehipour and Prof. Babak Abbasi
- 1:50pm **Modelling railway traffic management through multi-agent systems and reinforcement learning**
» [Mr. Allan Bretas](#) , Dr. Alexandre Mendes , Dr. Stephan Chalup , Mr. Martin Jackson , Dr. Riley Clement , Dr. Claudio Sanhueza
- 2:10pm **A simple heuristic for the coupled task scheduling problem**
» [Mr. Mostafa Khatami](#) , Dr. Amir Salehipour
- 2:30pm **The network maintenance problem on an arc with uncapacitated repair**
» [Ms. Parisa Charkhgard](#) , Dr. Thomas Kalinowski , Dr. Hamish Waterer
- 2:50pm **A spatial decomposition based Math-heuristic approach to the asset protection problem**
» [Mr. Dian Nuraiman](#) , Dr. Melih Ozlen , Prof. John Hearne
- 1:50pm **H3. Enhancing real-time rainfall information: retrievals, analyses and forecasts**
Murray Room
Chaired by: Dr. Luigi Renzullo and Dr. Pablo Larraondo



Continued from Friday, 6 December

- 1:50pm **Daily rainfall data infilling with a stochastic model**
» [Dr. Warren Jin](#) , Dr. Quanxi Shao , Dr. Steven Crimp
- 2:10pm **Improved precipitation estimates using neural networks to merge radar and geostationary satellite images**
» [Dr. Pablo Larraondo](#) , Dr. Luigi Renzullo , Prof. Albert Van Dijk
- 2:30pm **Evaluation of GPM IMERG rainfall estimates under different rain gauge densities in the high elevation tropical Andes**
» [Ms. Nevenka Bulovic](#) , Prof. Neil McIntyre , Dr. Fiona Johnson
- 2:50pm **Evaluation of precipitation from a regional reanalysis for Australia and its applications**
» [Mr. Suwash Acharya](#) , Dr. Rory Nathan , Prof. QJ Wang , Dr. Chun-Hsu Su , Mr. Nathan Eizenberg
- 1:50pm **K12. When models fail: lessons learned from false starts, wrong turns and dead ends**
Fitzroy Room
Chaired by: Mr. James Bennett
- 1:50pm **Unknown knowns: when you don't understand your model as well as you think you do**
» [Mr. James Bennett](#) , Dr. David Robertson , Dr. Durgalal Shrestha , Dr. Ming Li , Prof. QJ Wang
- 2:10pm **How failure in bioenergy systems modelling led to an ensemble forecast based dam release model**
» [Dr. Seline Ng](#)
- 2:30pm **The value of local knowledge: a bump in the road to using the ecohydrologic model RHESSys**
» [Ms. Clare Stephens](#) , Dr. Lucy Marshall , Dr. Fiona Johnson

- 2:50pm **Hydrological Betamax: a parable of good modelling that failed badly**
» [Dr. Rory Nathan](#)

- 1:50pm **K14. Understanding and quantifying uncertainties in hydrologic and environmental models**
Derwent Room
Chaired by: Dr. Danlu Guo and Dr. Lucy Marshall and Dr. Stefania Grimaldi

- 1:50pm **Rainfall-runoff analysis by Bayesian inverse methods**
» [Dr. Robert Niven](#) , Dr. Laurent Cordier , Dr. Markus Abel , Dr. Markus Quade , Prof. Ali Mohammad-Djafari

- 2:10pm **Gradient boosting machine assisted approximate Bayesian computation for uncertainty analysis of rainfall-runoff model parameters**
» [Dr. Frederick Bennett](#)

- 2:30pm **Evaluating the impact of the vegetation dynamics on streamflow predictions using Bayesian Ecohydrologic modelling across catchments in Australia**
» [Dr. Yating Tang](#) , Dr. Lucy Marshall

- 2:50pm **A new Bayesian calibration algorithm to quantify input uncertainty for hydrological models**
» Ms. Xia Wu , [Dr. Lucy Marshall](#) , Prof. Ashish Sharma

- 3:30pm **Announcement of Student Prizes (with afternoon tea); Closing for MODSIM2019**
Exhibition Hall