MODSIM 2013

20th International Congress on Modelling and Simulation

PROGRAM

Adapting to change:
the multiple roles of modelling

1–6 December 2013 ADELAIDE, Australia

Defence
Operations
Research
Symposium

DORS

Adelaide, SA
December 2-5 2013

www.mssanz.org.au/modsim2013

Sponsors and participating organisations

CSIRO

Australian Government
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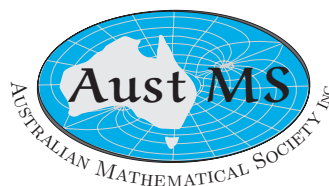University of South Australia | Centre for Industrial and Applied Mathematics

GOYDER INSTITUTE FOR WATER RESEARCH

SOUTH AUSTRALIA

Government of South Australia

AMSI AUSTRALIAN MATHEMATICAL SCIENCES INSTITUTE

Aust MS AUSTRALIAN MATHEMATICAL SOCIETY INC.

ANZIAM

Highlights

Sunday 1 December 2013

15:00 – 17:30	**Registration**	Foyer H

Registration and Information Desk, Adelaide Convention Centre

15:15	**ASOR National Executive Meeting**	Riverbank Room 4

17:30	**Opening for MODSIM/ASOR/DORS 2013**	Hall E

Professor Tony Jakeman, President of MSSANZ

Professor John Boland, Dr Julia Piantadosi, Dr Robert Anderssen

Dr Paul Gaertner, President of ASOR

Mr David Cox, DSTO OR Hub Leader

18:00	**Plenary Speaker**	Hall E

Dr Jeff Kepert

Bureau of Meteorology, Australia

The science and technology of forecasting severe weather

18:40	**Welcome reception**

Riverbank Lawn, Adelaide Convention Centre

Speaker Support Lounge

The Speaker Support Lounge will be located in Lounge C, Plaza Level, Adelaide Convention Centre.

The Speaker Lounge will be open from:

- 15:00–17:30 on Sunday 1 December 2013, and
- 7:00 am on Monday to Friday.

All presenters must go to the Speaker Support Lounge to upload their presentation before the beginning of their session.

Monday 2 December 2013

| 7:30 | Registration | Foyer H |

Registration and Information Desk, Adelaide Convention Centre

| 8:30 | Opening session for MODSIM2013 | Hall E |

Dr Robert Anderssen
Professor Tony Jakeman, President of MSSANZ
Professor John Boland
Dr (Uncle) Lewis 'Yerloburka' O'Brien
Deputy Lord Mayor of Adelaide
AMSI representative
Dr Julia Piantadosi
Dr Bronwyn Harch – Opening address: *CSIRO and MODSIM*

| 9:10 | Plenary Speaker | Hall E |

Dr Maja Schlüter
Stockholm Resilience Centre, Sweden
Embracing change – modeling for resilience thinking and ecosystem stewardship

| 13:10 | Plenary Speaker | Hall E |

Dr Alex Zelinsky
Defence Science and Technology Organisation, Australia
The challenges of modelling and simulation for defence and national security

| 16:00 | ASOR Annual Meeting | Riverbank Room 4 |

| 18:20 | Ice breaker | Riverbank Promenade |

Tuesday 3 December 2013

| 8:00 | Registration and Information Desk | Foyer H |

| 8:30 | Plenary Speaker | Hall E |

Professor Paul Whitehead
University of Oxford, United Kingdom
Adapting to climate change in freshwater ecosystems: multiple modelling approaches to assess processes, dynamics and strategies

| 13:30 | Plenary Speaker | Hall E |

Associate Professor Hedwig van Delden
Research Institute for Knowledge Systems, The Netherlands
Integrated modelling for policy support: lessons learnt and current challenges

| 18:00 | MSSANZ Annual General Meeting | Riverbank Room 1 |

Wednesday 4 December 2013

MODSIM rest day

ASOR Optimisation Day (J2)   Riverbank Room 4

Thursday 5 December 2013

| 8:00 | Registration and Information Desk | Foyer H |

| 8:30 | Plenary Speaker | Hall E |

Professor Jerzy Filar
Flinders University, Australia
The power and limitations of mathematical models and Plato's Cave Parable

| 13:30 | Plenary Speaker | Hall E |

Dr Russell Glenn
The Australian National University, Australia
Mission impossible: achieving a comprehensive approach during operations and campaigns

| 19:00 | Pre-dinner drinks | |

| 19:30 | Congress Dinner | Hall H |

Friday 6 December 2013

| 8:00 | Registration and Information Desk | Foyer H |

| 8:30 | Plenary Speaker | Hall E |

Professor Graeme Dandy
The University of Adelaide, Australia
The multiple roles of modelling in water resources planning and management

| 13:40 | Announcement of MODSIM Student Prizes, DORS Gus Schaefer Best Paper and Best Early Career Presentation, ASOR Prizes | Hall E |

| | Closing for MODSIM/ASOR/DORS 2013 | Hall E |

Sunday 1 December				
15:00	**Registration and Information Desk**	**Foyer H**		
15:15	**ASOR National Executive Meeting**	Riverbank Room 4		
17:30	**Opening for MODSIM/ASOR/DORS 2013**	Professor Tony Jakeman, President of MSSANZ Professor John Boland, Dr Julia Piantadosi, Dr Robert Anderssen Dr Paul Gaertner, President of ASOR Mr David Cox, DSTO OR Hub Leader	Hall E	
18:00	**Plenary**	**Dr Jeff Kepert** Bureau of Meteorology, Australia The science and technology of forecasting severe weather		
18:40	Welcome reception	Riverbank Lawn, Adelaide Convention Centre		

Monday 2 December				
7:30	**Registration and Information Desk**	**Foyer H**		
8:30	**Opening session for MODSIM 2013**	Dr Robert Anderssen Professor Tony Jakeman, President of MSSANZ Professor John Boland Dr (Uncle) Lewis "Yerloburka" O'Brien Deputy Lord Mayor of Adelaide AMSI representative Dr Julia Piantadosi Dr Bronwyn Harch – Opening address: *CSIRO and MODSIM*	Hall E	
9:10	**Plenary**	**Dr Maja Schlüter** Stockholm Resilience Centre, Sweden Embracing change – modeling for resilience thinking and ecosystem stewardship		

9:50	**Morning tea**	**Halls J & K**					
	Hall E	**Meeting Room 1**	**Meeting Room 2**	**Meeting Room 3**	**Meeting Room 4**	**Meeting Room 5**	**Meeting Room 8**
	ASOR Keynotes	L5. Development of an agreed set of climate projections for South Australia	A2. Solving practical inverse problems	K2. Designing and validating agent-based models **U-Session**	B2. Agricultural systems **U-Session**	H9. The resilience of ecosystems and catchments	H5. Spatial inundation modelling for environmental purposes
10:20	Framing elements for data collection in army field environments – problem structuring for acquisition of the right data right *Rees, L.L.M. and Curtis, N.J.*	Hydrological evaluation of statistical downscaling in the Onkaparinga Catchment *Westra, S., Thyer, M., Leonard, M. and Lambert, M.*	Deriving soil hydraulic properties at an intermediate scale using the cosmic-ray neutron soil moisture probe: an inverse problem *Cook, F.J. and McJannet, D.L.*	ABM design: using empirical data to contextualise a theoretical model of cooperation in the commons *Wijermans, N. and Schlüter, M.*	**KEYNOTE**: Modeling nutrient utilization in animal operations *Kebreab, E., Hansen, A.V., Theil, P.K. and Strathe, A.*	The hydrologic implications of the co-evolution of forests, fire regimes and soil profiles in SE Australian uplands *Sheridan, G.J.*	Assessing stream restoration works in the southern Macquarie Marshes using hydrodynamic modeling *Wen, L., Ralph, T., Hosking, T., Barma, D. and Saintilan, N.*
10:40		Realism of climate modes in CMIP5 models: the implication for climate projections *Weller, E. and Cai, W.*	Correcting for finite probe diameter in the dual probe heat pulse method of measuring soil water content *Knight, J.H. and Kluitenberg, G.J.*	How agency models inspire large scale participatory planning and its evaluation *Ferrand, N., Hassenforder, E., Ducrot, R., Barreteau, O. and Abrami, G.*	**KEYNOTE** cont.	The emergence and existence of multiple hydrological steady states under stochastic climate forcing *Peterson, T.J. and Western, A.W.*	Using MODIS for mapping flood events for use in hydrological and hydrodynamic models: experiences so far *Ticehurst, C.J., Chen, Y., Karim, F., Dutta, D. and Gouweleeuw, B.*
11:00	Dynamic Ridesharing: Opportunities for Operations Reseachers *Savelsbergh, M.*	Quantify trends in rainfall extremes in South Australia *Kamruzzaman, M., Beecham, S. and Metcalfe, A.V.*	Inverse of magnetic dipole field using a reversible jump Markov chain Monte Carlo *Luo, X. and Foss, C.*	The MASE design experience *Ralha, C.G., Abreu, C.G., Coelho, C.G.C. and Macchiavello, B.*	Modelling the response in streamflow to increased forestry plantations *Barlow, K.M., Weeks, A. and Christy, B.*	The importance of model structural complexity when simulating aquatic food webs *Li, Y. and Hipsey, M.R.*	Ribbon plots – a spatial flow analysis tool for stable multiple-channel drainage networks *Kucharska, D.J., Stewardson, M.J., Ryu, D.R., Costelloe, J.F. and Sims, N.*

Sunday 1 December

Monday 2 December

	Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
	F3. Financial risk management	L16. Water planning and management: issues, challenges, and solutions	L12. Impacts of climate change on urban water infrastructure	C8. Integration of models with decision-support systems	L11. Downscaling climate model data for environmental modelling	A3. Modelling of bushfire dynamics, fire weather, impact and risk	L14. Data assimilation for land surface process modelling
	Optimal risk minimization of Australian energy and mining portfolios of stocks under multiple measures of risk *Arreola, J. and Powell, R.*	Assessing freshwater availability in Africa under the current and future climate with focus on drought and water scarcity *Yang, H., Faramarzi, M. and Abbaspour, K.C.*	Modelling impact of extreme rainfall on sanitary sewer system by predicting rainfall derived infiltration/inflow *Nasrin, T., Tran, H.D. and Muttil, N.*	Integrated land systems modelling and optimisation *Herzig, A. and Rutledge, D.*	**KEYNOTE**: Regional climate projections – application ready and locally relevant *Ekström, M., Grose, M. and Whetton, P.*	**INVITED TALK**: Data assimilation – or, how to make fire modelling even more useful *Kepert, J.D. and Steinle, P.J.*	A temporal stability analysis of the Australian SMAP mission validation site *Disseldorp, D.A., Yee, M., Monerris, A. and Walker, J.P.*
	Time series properties of liquidation discount *Chan, F., Gould, J., Singh, R. and Yang, J.W.*	GCM uncertainty and reservoir storage estimation: a case study of the Warragamba catchment in Australia *Woldemeskel, F.M., Sharma, A., Sivakumar, B. and Mehrotra, R.*	Implementing future climate change scenarios using a stormwater drainage model for an urban catchment in Melbourne *Molavi, S., Tran, H.D. and Muttil, N.*	Describing models on the web using OGC standards *Watson, K. and van der Schaaf, H.*	**KEYNOTE** cont.	Modelling the fire weather of the Dunalley, Tasmania fire of January 2013: an ACCESS case study *Fawcett, R.J.B., Webb, M., Thurston, W., Kepert, J.D. and Tory, K.J.*	Towards land surface model validation from using satellite retrieved soil moisture *Yee, M., Walker, J.P., Dumedah, G., Monerris, A. and Rüdiger, C.*
	Modelling asset return using multivariate asymmetric mixture models with applications to estimation of Value-at-Risk *Lee, S.X. and McLachlan, G.J.*	Forecasting daily reference evapotranspiration for Shepparton, Victoria, Australia using numerical weather prediction outputs *Perera, K., Western, A., Nawarathna, B. and George, B.*	Changes in intensity-frequency-duration relationship of heavy rainfalls at a station in Melbourne *Yilmaz, A.G. and Perera, B.J.C.*	Agent-based modeling and simulation framework for enhanced project schedules *Lazarova-Molnar, S.*	Insights from downscaling for southern Australian climate projections *Grose, M.R., Timbal, B., Katzfey, J.J., Moise, A.F., Wang, Y., Wilson, L., Ekström, M. and Whetton, P.H.*	Coupled atmosphere-fire simulations of the 2003 Canberra bushfires using WRF-Sfire *Mattner, T.W.*	Analysis of the linearised observation operator in a land surface data assimilation scheme for numerical weather prediction *Dharssi, I., Candy, B., Bovis, K., Steinle, P. and Macpherson, B.*

Monday 2 December

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	ASOR Keynotes	L5. Development of an agreed set of climate projections for South Australia	A2. Solving practical inverse problems	K2. Designing and validating agent-based models **U-Session**	B2. Agricultural systems **U-Session**	H9. The resilience of ecosystems and catchments	H5. Spatial inundation modelling for environmental purposes	
11:20		The interplay between rainfall and vegetation *Boland, J.*	Gravitational wave data analysis using chirplet-based matched filtering *Shettigara, C.*	Modeling work organization in grape production to study its environmental impacts *Martin-Clouaire, R., Rellier, J.-P., Paré, N., Voltz, M. and Biarnès, A.*	Accuracy of root modeling and its potential impact on simulation of grain yield of wheat *Zhao, Z., Wang, E., Xue, L., Wu, Y., Zhang, J. and Wang, Z.*	Multiple steady states and regime shifts in a social-ecological system *Lade, S.J., Tavoni, A., Levin, S.A. and Schlüter, M.*	River Red Gum response to extended drought, high flow and flooding along the River Murray, South Australia *Doody, T., Benger, S.N., Pritchard, J. and Overton, I.*	
11:40	Challenges and opportunities for groundwater modelling: Update and highlights from the National Centre for Groundwater Research and Training *Simmons, C.*	Generating synthetic rainfall using a disaggregation model *Ahamed, S., Piantadosi, J., Agrawal, M. and Boland, J.*	Sparse regularization of NIR spectra using implicit spiking and derivative spectroscopy *Anderssen, R.S., de Hoog, F.R., Wesley, I.J. and Zwart, A.*	Designing a simulation-supported learning process for decision makers in the Mekong region *Smajgl, A., Ward, J. and Egan, S.*	Simulation study of low and high productivity landscapes for lamb production: comparison of two whole-farm systems *McPhee, M.J., Edwards, C. and Hegarty, R.*	Wetland vegetation – hydrology co-evolution in response to rainfall variability *Coletti, J.Z., Vogwill, R. and Hipsey, M.R.*	Development and evaluation of a spatially explicit habitat suitability model for River Red Gum on the Murray River using an inundation model *Merrin, L.E. and Pollino, C.A.*	
12:00		Atmospheric PM_{10} dispersion in the South Australian region *Aryal, R., Kamruzzaman, M. and Beecham, S.*	Derivative spectroscopy and sparse regularization *Anderssen, R.S. and Hegland, M.*	Validating human decision making in an agent-based land-use model *Villamor, G.B., Troitzsch, K.G. and van Noordwijk, M.*	Modelling trimmed fat from commercial primal cuts *Laurenson, Y.C.S.M., Walmsley, B.J., Oddy, V.H., Greenwood, P.L. and McPhee, M.J.*		GIS-based spatial zoning for flood inundation modelling in the Murray–Darling Basin *Huang, C., Chen, Y. and Wu, J.*	
12:20	**Lunch**							
13:10	**Plenary**			Dr Alex Zelinsky Defence Science and Technology Organisation, Australia The challenges of modelling and simulation for defence and national security		Hall E		

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	L19. Recent advances in hydrological remote sensing and applications in model calibration and prediction	L5. Development of an agreed set of climate projections for South Australia	A2. Solving practical inverse problems	K2. Designing and validating agent-based models **U-Session**	B2. Agricultural systems **U-Session**	H4. Sensitivity, uncertainty and analysis of error in process-based agricultural and ecosystem simulation models	F4. Economic modelling	
13:50	Standing water detection using radar *Elhassan, S., Wu, X. and Walker, J.P.*	Autumn precipitation trends over southern Australia and other Southern Hemisphere midlatitude regions as simulated by CMIP5 models *Purich, A., Cowan, T., Min, S-K. and Cai, W.*	Density estimation via optimal control *Hegland, M. and Yalçin Kaya, C.*	Numerical and analytical groundwater models as validators for an agent-based empirical subsurface flow modelling scheme *Bardsley, W.E. and Shokri, A.*	Using UK-DNDC for the evaluation of legume-based rotations in European organic agriculture *Angelopoulos, N., Topp, C.F.E. and Rees, R.M.*	**KEYNOTE:** The many aspects of uncertainty in the AgMIP project *Wallach, D., Rivington, M. and Mearns, L.*	Robust estimation based on the first- and third-moment restrictions of the power transformation model *Nawata, K.*	
14:10	Use of remotely sensed and forecast soil moisture data for improving monthly streamflow forecasts *Humphrey, G.B., Gibbs, M.S., Dandy, G.C. and Maier, H.R.*	Suitability of a coupled hydrodynamic water quality model to predict changes in water quality from altered meteorological boundary conditions *van der Linden, L., Daly, R.I. and Burch, M.D.*	An efficient closure based method for inverse climate modelling *Zidikheri, M.J. and Frederiksen, J.S.*	Validating simulations of development outcomes in the Mekong region *Smajgl, A., Ward, J. and Egan, S.*	Does increasing ewe fecundity reduce whole-farm greenhouse gas emissions intensities? *Harrison, M.T., Cullen, B.R., Rawnsley, R.P., Eckard, R.J. and Cummins, L.*	**KEYNOTE** cont.	Dynamic bargaining and CDM low hanging fruits with endogenous total emission abatement target *Akita, J., Imai, H. and Niizawa, H.*	

Monday 2 December

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
F3. Financial risk management	L16. Water planning and management: issues, challenges, and solutions	L12. Impacts of climate change on urban water infrastructure	C8. Integration of models with decision-support systems	L11. Downscaling climate model data for environmental modelling	A3. Modelling of bushfire dynamics, fire weather, impact and risk	L14. Data assimilation for land surface process modelling
Sustainable fisheries and conservation management with environmental derivatives *Little, L.R., Parslow, J., Fay, G., Grafton, R.Q., Smith, A.D.M., Punt, A.E. and Tuck, G.N.*	Dams and development: a tale of the developing world *Sivakumar, B. and Chen, J.*	Bayesian hierarchical modelling of rainfall extremes *Lehmann, E.A., Phatak, A., Soltyk, S., Chia, J., Lau, R. and Palmer, M.*	Creating workflows that execute external code bases that are under development *Smith, T., Car, N.J. and Smith, D.*	Consistent Climate Scenarios: projecting representative future daily climate from global climate models based on historical climate data *Ricketts, J.H., Kokic, P.N. and Carter, J.O.*	High-resolution WRF simulation of fire weather associated with the Mt Cook Station fire *Simpson, C., Pearce, G. and Clifford, V.*	Improving soil water representation in the Australian Water Resources Assessment landscape model through the assimilation of remotely-sensed soil moisture products *Renzullo, L.J., Collins, D., Perraud, J.-M., Henderson, B., Jin, H. and Smith, A.*
The impact of Chinese tourists on volatility size effects and stock market performance in Taiwan *Chang, C.-L., Hsu, H.-K. and McAleer, M.*	Multi-objective decision making for basin water allocation *Roozbahani, R., Schreider, S. and Abbasi, B.*	Modeling the effects of sewer mining on odour and corrosion in sewer systems *Marleni, N., Gray, S., Sharma, A., Burn, S. and Muttil, N.*	Development of complex scientific workflows: towards end-to-end workflows *Penton, D.J., Freebairn, A., Bridgart, R., Murray, N. and Smith, T.*	Initial NARCliM evaluation *Evans, J.P., Fita, L., Argüeso, D. and Liu, Y.*	A comparison of the fire weather characteristics of the Melbourne dust storm (1983) and Black Saturday (2009): a high-resolution ACCESS case study *Fawcett, R.J.B., Wain, A., Thurston, W., Kepert, J.D. and Tory, K.J.*	Joint model state-parameter retrieval through the evolutionary data assimilation approach *Dumedah, G. and Walker, J.P.*
	Cost estimates in cost-effectiveness analysis of water quality monitoring systems *Erechtchoukova, M.G. and Khaiter, P.A.*		Application of a scenario decision support solution for combined sewer systems *Denzer, R., Schlobinski, S., Hell, Th. and Gruber, G.*	Ensemble bias and variance corrected high-resolution downscaled climate projections for Southeast Asia *Katzfey, J.J., Hoffmann, P., McGregor, J.L., Nguyen, K.C. and Thatcher, M.*	Meteorological aspects of the Margaret River fires of November 2011 *Kepert, J.D. and Fawcett, R.J.B.*	Comparison of reanalysis datasets for regional climate modelling *Moalafhi, D.B., Sharma, A. and Evans, J.P.*

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I4. Modelling data in health science	L16. Water planning and management: issues, challenges, and solutions	L7. Climate variability, trends and extremes	C8. Integration of models with decision-support systems	D1. Defence applications of modelling and simulation	A3. Modelling of bushfire dynamics, fire weather, impact and risk	J1. Logistics and Workforce Planning
Modelling weight of a newborn based on baby's characteristics for low birth weight babies *Abdollahian, M., Nuryani, S. and Anggraini, D.*	Evaluating watershed development impacts on physical capital using household surveys and Bayesian networks *Patch, B., Merritt, W., Reddy, R. and Rout, S.*	Future variations of rainfall events in the Japan region based on GCM outputs considering global warming *Suzuki, Y. and Okada, S.*	Approaches to distributed execution of hydrologic models: methods for ensemble Monte Carlo risk modelling with and without workflows *Pickett, T., Smith, T., Bulluss, B., Penton, D., Peeters, L., Podger, G. and Cuddy, S.*	**KEYNOTE**: A column generation approach for the scheduling of patrol boats to provide complete patrol coverage *Chircop, P.A., Surendonk, T.J., van den Briel, M.H.L. and Walsh, T.*	**INVITED TALK**: Examination of wind speed thresholds for vorticity-driven lateral fire spread *Sharples, J.J., Simpson, C.C. and Evans, J.P.*	Optimal procurement with demand warning *Calbert, G. and Thiagarajan, R.*
Combining Structure Equation Model with Bayesian Networks for predicting with high accuracy of recommending surgery for better survival in Benign prostatic hyperplasia patients *Yoo, C. and Oh, S.*	Knowledge representation using Bayesian Networks and Ontologies *Stratford, D.S., Croft, K.M. and Pollino, C.A.*	Modelling of return periods of extreme rainfall events in Brisbane, Australia *Ahammed, F.*	Comparative code verification using redundancy in a system for national scale hydrological modelling *Leighton, B., Penton, D., Stenson, M., Manser, P., Perraud, J-M., Vleeshouwer, J., Collins, D., Bridgart, R., Mirza, F. and Kim, S.*	**KEYNOTE** cont.	Coupled numerical simulations show a fire changes the weather forecast *Peace, M., Mills, G. and Mattner, T.*	Data description and categorisation techniques for demand forecasting evaluation *Sherman, G. and Brealey, N.*

Monday 2 December

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	L19. Recent advances in hydrological remote sensing and applications in model calibration and prediction	L5. Development of an agreed set of climate projections for South Australia	A2. Solving practical inverse problems	F10. Valuing decisions under uncertainty	B2. Agricultural systems **U-Session**	H4. Sensitivity, uncertainty and analysis of error in process-based agricultural and ecosystem simulation models	F4. Economic modelling	
14:30	Impact of observation error structure on satellite soil moisture assimilation into a rainfall-runoff model *Alvarez-Garreton, C., Ryu, D., Western, A.W., Crow, W. and Robertson, D.*	Diagnosing hydrological non-stationarity in Scotts Creek catchment *Westra, S., Thyer, M., Leonard, M., Kavetski, D. and Lambert, M.*	A first approach to resolving ambiguity in hidden terrorist group detection in communications networks *Bogomolov, T. and Chiera, B.*	The choice of stochastic process in real option valuation: selecting multiple factor models *Ozorio, L.M., Shevchenko, P. and Bastian-Pinto, C.*	Stochastic growth models for analyzing crustacean data *Foo, C.H. and Wang, Y-G.*	The benefits of sensitivity analysis in an interdisciplinary environment, a case study: the Ecomeristem model *Soulié, J.-C., Luquet, D. and Rouan, L.*	Public Good Provision: Lindahl Tax, Income Tax, Commodity Tax, and Poll Tax, a simulation *Fukiharu, T.*	
14:50	Modelling overbank flood recharge using satellite imagery of flood inundation *Doble, R.C., Crosbie, R.S., Peeters, L., Joehnk, K. and Ticehurst, C.*	Statistical downscaling of extreme rainfall from CMIP5 in the Onkaparinga catchment using a generalized linear model *Rashid, M.M., Beecham, S. and Chowdhury, R.*	Art authentication from an inverse problems perspective *Sloggett, R.J. and Anderssen, R.S.*	On adoption of new technology under uncertainty *Gaitsgory, V. and Tarnopolskaya, T.*	Simulating the impact of extreme heat and frost events on wheat production: the first steps *Barlow, K.M., Christy, B.P., O'Leary, G.J., Riffkin, P.A. and Nuttal, J.G.*	Does soil water model complexity affect the sensitivity of drainage and leaching to variation in soil hydraulic parameters? *Snow, V.O., Cichota, R., Lilburne, L., Webb, T. and Vogeler, I.*	Incentive aspects of the standardization of baseline in the project based mechanisms in the international environmental cooperation *Imai, H., Akita, J. and Niizawa, H.*	
15:10	Analysis of root-zone soil moisture control on evapotranspiration in two agriculture fields in Australia *Akuraju, V.R., Ryu, D., George, B., Ryu, Y. and Dassanayake, K.*	Reconciling surface and groundwater models in a climate change context *Woods, J., Jakovovic, D., Green, G., Alcoe, D., Werner, A. and Fleming, N.*		Land use decisions under uncertainty: optimal strategies to switch between agriculture and afforestation *Bao, C. and Zhu, Z.*	Potential for future growth in lamb supply from sheep and beef farming systems in Hawke's Bay, New Zealand *Beautrais, J.R., Vibart, R.E., Mackay, A.D. and Vogeler, I.*	The use of generalised linear uncertainty estimation (GLUE) to assign initialisation values to conceptual soil organic matter pools in APSIM *Sharp, J. and Fletcher, A.*	Evaluation of the 2006 revision of the medical payment system in Japan by a new estimator of the power transformation model – an analysis of the length of the hospital stay for cataract operations *Nawata, K. and Kawabuchi, K.*	
15:30	**Afternoon tea**	**Halls J & K**						
	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	L19. Recent advances in hydrological remote sensing and applications in model calibration and prediction	A6. Disease modelling and disease surveillance	H3. Species distribution modelling	K7. Linking climate change projections and adaptation with stakeholders **U-Session**	B2. Agricultural systems **U-Session**	H4. Sensitivity, uncertainty and analysis of error in process-based agricultural and ecosystem simulation models	F4. Economic modelling	
16:00	Calibration of land surface model using remotely sensed evapotranspiration and soil moisture predictions *Poovakka, A.K., Ryu, D., Renzullo, L.J., Pipunic, R. and George, B.*	Modelling the spread of livestock disease on a national scale: the case for a hybrid approach *Bradhurst, R.A., Roche, S.E., Garner, M.G., Sajeev, A.S.M. and Kwan, P.*	A model for the marine cyanobacteria, *Trichodesmium* *Robson, B.J., Baird, M. and Wild-Allen, K.*	Net benefit assessment of illustrative climate adaptation policy for built assets *Baynes, T.M., West, J., McFallan, S. et al.*	Climate change adaptation-mitigation tradeoffs in the southern Australian livestock industry: GHG emissions *Ghahramani, A. and Moore, A.D.*	Uncertainties in soil carbon modelling caused by model initialization and parameterisation *Wang, E. and Luo, Z.*	Modelling a human well-being indicator *Abidin, S., Zhang, C. and Foo, D.*	
16:20	Error characterization of microwave satellite soil moisture data sets using Fourier analysis *Su, C-H., Ryu, D., Western, A.W., Crow, W.T. and Wagner, W.s*	Probabilistic inference of disease outbreaks from a combined particle filter and Bayesian network analysis of electronic health record databases *Dawson, P., Gailis, R. and Meehan, A.*	A Naive Bayes classifier for modeling distributions of the common reed in southern Finland *Altartouri, A. and Jolma, A.*	Supporting Regional Natural Resource Management (NRM) organisations to update their NRM plans for adaptation to climate change *Bohnet, I.C., Hill, R., Turton, S.M. et al.*	Optimal selection of whey processing facilities and technology *García-Flores, R. and Juliano, P.*	Modelling the response of N_2O emission factor to nitrogen application rates and inter-annual climate variability *Xing, H., Liu, D.L., Wang, E., Smith, C.J., Anwar, M.R. and Yu, Q.*	Scale effect in blockbuster research and development: the differences between production in Japanese firms and in US/EU firms *Miyashige, T. and Fujii, A.*	

Monday 2 December

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
I4. Modelling data in health science	L16. Water planning and management: issues, challenges, and solutions	L7. Climate variability, trends and extremes	C8. Integration of models with decision-support systems	D1. Defence applications of modelling and simulation	A3. Modelling of bushfire dynamics, fire weather, impact and risk	J1. Logistics and Workforce Planning
Using surveillance epidemiology and end results data to explore breast cancer mortality trend in an underserved population of Alabama, USA *Bae, S., Jackson, B.E., Ojha, R.P., Uhm, M., Fouad, M., Partridge, E. and Singh, K.P.*	A water resource allocation model for an area in the Murray–Darling Basin *Groen, L., Chivers, B., Sidoti, A., Ma, J., Cheung, T., Sow, D., Alharthy, E., Li, M., Cheng, Y., Wu, H. and Ding, L.*	Spatial rainfall extremes: are they changing? *Wasko, C., Sharma, A. and Westra, S.*	A distributed stream-processing infrastructure for computational models *Riedel, F. and Watson, K.*	Supply chain contract parameter optimisation to manage surge in demand for military operations *Rahman, M., Thiagarajan, R., Calbert, G. and Mekhtiev, M.A.*	Large-eddy simulations of bushfire plumes in the turbulent atmospheric boundary layer *Thurston, W., Tory, K.J., Fawcett, R.J.B. and Kepert, J.D.*	Heuristics for incremental network flow problems *Ernst, A.T., Elgindy, T., Savelsbergh, M. and Dunstall, S.*
A multilevel analysis of child chronic undernutrition in Bangladesh *Das, S. and Nesa, M.K.*	Introducing a pressure index for water distribution networks' augmentation planning strategy *Akbarkhiavi, S.P. and Imteaz, M.A.*	Trend analysis of rainfall losses using an event-based hydrological model in eastern NSW *Loveridge, M. and Rahman, A.*	Characterisation of different integration strategies in scientific workflows *Bridgart, R.J. and Smith, T.*	Individual psychological conflict within social group dynamics *Johnson, W.T. and Ivancevic, V.G.*	Atmosphere-fire simulation of effects of low-level jets on pyro-convective plume dynamics *Simpson, C., Katurji, M., Kiefer, M.T., Zhong, S., Charney, J.J., Heilman, W.E. and Bian, X.*	Hamiltonian path approach to variable-interval scheduling problems with heterogeneous resources *Ramesh, D.N., Ernst, A., Krishnamoorthy, M. and Narayanan, V.*
Integrative biostatistical approach shows better performance in missing data analysis using longitudinal study of pediatric head trauma *Yoo, C., Cheeti, A., Brooten, D. and Youngblut, J.*	Representing flow mixing demands in a multi-nodal CDDP model of a mixed used catchment *Mahakalanda, I., Dye, S., Read, E.G. and Starkey, S.R.*	Temperature and rainfall thresholds corresponding to water consumption in Greater Melbourne, Australia *Sarker, R.C., Gato-Trinidad, S. and Imteaz, M.*	An architecture for integrated crisis management simulation *Dihé, P., Denzer, R., Polese, M., Heikkilä, A.-M., Havlik, D., Sautter, J., Hell, Th., Schlobinski, S., Zuccaro, G. and Engelbach, W.*	A many-on-many simulation framework to support the development of technology and algorithms for coordinated munitions *Anderson, P.*	Smoke impacts from prescribed burning in Victoria; developing a risk climatology *Meyer, C.P., Lee, S. and Cope, M.*	A conceptual model for assessing the impact of adopting condition-based maintenance *Gallasch, G.E., Ivanova, K., Rajesh, S. and Manning, C.*

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I4. Modelling data in health sciences	L16. Water planning and management: issues, challenges, and solutions	L7. Climate variability, trends and extremes	L11. Downscaling climate model data for environmental modelling	D1. Defence applications of modelling and simulation	A3. Modelling of bushfire dynamics, fire weather, impact and risk	ASOR Annual Meeting
A model for assessing the association in the repeated measures of depression among the elderly *Islam, M.A., Chowdhury, R.I., Bae, S. and Singh, K.P.*	Advancing ecological modelling tools for application in water resource planning *Pollino, C.A., Brown, A., Merrin, L.E., Murray, J.V. and Stratford, D.S.*	Trends in low flows in the Mount Lofty Ranges, South Australia *Potter, N.*	Evaluation of downscaled POAMA M24 for monthly and 3-monthly streamflow forecasts *Zheng, H., Wang, Q.J., Aynul, K., Shao, Q., Shin, D. and Tuteja, N.*	Testing various backtracking algorithms in airborne maritime surveillance modelling *Marlow, D.O. and Murphy, J.E.*	A fire spread index for grassland fuels *Sharples, J.J. and McRae, R.H.D.*	ASOR Annual Meeting
The impact of spatial scales on discretised spatial point patterns *Kang, S.Y., McGree, J. and Mengersen, K.*	Groundwater drought assessment for Barind Irrigation Project in Northwestern Bangladesh *Adhikary, S.K., Das, S.K., Saha, G.C. and Chaki, T.*	Synoptic and dynamical analyses of ENSO extreme events over Australia *Whelan, J.A., Frederiksen, J.S., Frederiksen, C.S. and Osbrough, S.L.*	Dynamically downscaled simulations of tropical cyclones: a multi-model approach for the south-west Pacific *Lavender, S.L., Abbs, D.J. and Rafter, A.*	Discrete event simulation of hydrographic launch and recovery operations *McAteer, S.G. and Beck, J.D.*	Wildland–urban interface (WUI) fire modelling using PHOENIX Rapidfire: A case study in Cavaillon, France *Pugnet, L., Chong, D.M., Duff, T.J. and Tolhurst, K.G.*	ASOR Annual Meeting cont.

Monday 2 December

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	L19. Recent advances in hydrological remote sensing and applications in model calibration and prediction	A6. Disease modelling and disease surveillance	H3. Species distribution modelling	K7. Linking climate change projections and adaptation with stakeholders **U-Session**	B2. Agricultural systems **U-Session**	H4. Sensitivity, uncertainty and analysis of error in process-based agricultural and ecosystem simulation models	F4. Economic modelling / F10. Valuing decisions under uncertainty	
16:40	Retrieval of soil surface roughness from active and passive microwave observations *Gao, Y., Walker, J.P., Panciera, R., Monerris, A. and Ryu, D.*	Modelling symptom progression in individuals for disease surveillance *Dawson, P., Meehan, A., Aubron, C., Cheng, A., Gailis, R., Lau, W.M. and Pierce, C.*	Predictive modelling of five benthic habitats in shallow and turbid estuaries along the south-west coast of Australia *Tran, M., Anderson, T., Booth, D. and Li, J.*	Worth a thousand words: connecting tourism operators with climate change through visualisation techniques *Lim-Camacho, L. and Ashworth, P.*	High-resolution continental scale modelling of Australian wheat yield; biophysical and management drivers *King, D., Bryan, B.A., Zhao, G., Luo, Z. and Wang, E.*	Meta-modelling the NZ-DNDC model for nitrous oxide emissions from grazed pastures *Giltrap, D.L. and Ausseil, A.-G.*	Does the definition of retirement matter in estimating the effects of retirement on cognitive functioning? *Kajitani, S., Sakata, K. and McKenzie, C.R.*	
17:00	Downscaling of coarse-resolution radiometer brightness temperature by high-resolution radar backscatter *Wu, X., Walker, J.P., Panciera, R., Rüdiger, C. and Das, N.N.*	Empirical agent-based simulation of movement: the integration of high-frequency Flying-fox tracking data with a simulation model of population dynamics in time and space *Parry, H.R., Westcott, D., McKeown, A., Zhao, K., Somers, P., Jurdak, R. and Kusy, B.*	Modelling sea urchin feeding fronts *Parshotam, A. and Cole, R.*	Informing the future of Australian mining through climate change scenarios *Hodgkinson, J.H., Loechel, B. and Crimp, S.*	Use of human urine as a fertilizer for corn, potato, and soybean: a case-study analysis using a reactive model *Maggi, F. and Daly, E.*	Nitrogen cycling under urine patches: model comparison and sensitivity analysis *Vogeler, I., Cichota, R. and Giltrap, D.*	Valuing flexible operating strategies in nickel production under uncertainty *Bao, C., Mortazavi-Naeini, M., Northey, S., Tarnopolskaya, T., Monch, A. and Zhu, Z.*	
17:20	Examining the impact of scale variations on soil moisture downscaling using temporal persistence *Dumedah, G., Walker, J.P. and Mililli, B.*	Modelling hepatitis C treatment strategies using empirically grounded contact network models *Rolls, D.A., Sacks-Davis, R., Jenkinson, R., McBryde, E., Pattison, P., Robins, G. and Hellard, M.*	The biogeography of New Zealand reptiles *Di Virgilio, G., Laffan, S.W., Ebach, M.C. and Chapple, D.G.*	Experiences of user engagement and perceptions of user needs: providers of future climate information on the usefulness of the information they provide users for decision-making *Dunn, M., Howden, M. and Lindesay, J.A.*	An interdisciplinary framework of limits and barriers to agricultural climate change adaptation *Kragt, M.E., Mugera, A. and Kolikow, S.*	Sensitivity analysis to investigate the factors controlling the effectiveness of a nitrification inhibitor in the soil *Cichota, R., Snow, V.O. and Kelliher, F.M.*	Quantifying outcomes in agricultural planning *Lee, G.M., Zhu, Z. and Kirby, M.*	
17:40	Evaluation of real-time satellite rainfall products in semi-arid/arid Australia *Pipunic, R.C., Ryu, D., Costelloe, J. and Su, C-H.*	Estimating influenza incidence across time, space and population age from routinely collected surveillance data *Thomas, E., Shamakhy, A., McCaw, J., Grant, K., Kelly, H. and McVernon, J.*		Assessing urban water security and climate change adaptation in Makassar, Indonesia *Tjandraatmadja, G., Kirono, D.G.C., Neumann, L., Larson, S., Stone-Jovicich, S., Barkey, R.A., Amran, A. and Selintung, M.*	A simple carbon offset scenario tool (COST) for assessing dairy farm abatement options *Christie, K.M., Harrison, M.T., Harrison, R.P. and Eckard, R.J.*	Integrating two process-based models for assessing dairy system management impacts on N losses *Thayalakumaran, T., Vigiak, O., Beverly, C., Roberts, A., Stott, K., Robinson, B. and Freebairn, D.*	When to bite the bullet? – A study of optimal strategies for reducing global warming *Luo, X. and Shevchenko, P.V.*	
18:00	An assessment of DInSAR potential for simulating geological subsurface structure *Moghaddam, N.F., Rüdiger, C., Samsanov, S., Walker, J.P. and Hall, M.*						Linkage network of biserial queues with a multistage flowshop scheduling in fuzzy environment *Sharma, S., Gupta, D. and Sharma, S.*	
18:20	**Ice breaker**		**Riverbank Promenade**					

Monday 2 December

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I4. Modelling data in health sciences	L16. Water planning and management: issues, challenges, and solutions	L7. Climate variability, trends and extremes	L11. Downscaling climate model data for environmental modelling	D1. Defence applications of modelling and simulation	A3. Modelling of bushfire dynamics, fire weather, impact and risk	ASOR Annual Meeting
Increased risk of childhood brain tumors among children whose parents had farm-related pesticide exposures during pregnancy *Kunkle, B., Singh, K.P. and Roy, D.*	Cost-benefit analysis of farm water storage: surface storage versus managed aquifer storage *Arshad, M., Qureshi, M.E. and Jakeman, A.J.*	Assessing the impacts of changes in the Hadley Circulation on stationary Rossby wave propagation *Freitas, A.C.V., O'Kane, T.J., Frederiksen, J.S. and Ambrizzi, T.*	Using large-scale diagnostic quantities to investigate change in frequency of East Coast Low events *Ji, F., Evans, J., Fita Borrell, L. and Argüeso, D.*	Computer-based simulation of the Wayamba Unmanned Underwater Vehicle *Madden, C. and Sgarioto, D.*	From "wildlife-urban interface" to "wildfire interface zone" using dynamic fire modelling *Tolhurst, K.G., Duff, T.J. and Chong, D.M.*	ASOR Annual Meeting cont.
Modelling hospital systems: optimising patient flow, discharge timing and resource allocation *Sier, D., Boyle, J., Dods, S., Khanna, S. and Sparks, R.*	Using Bayesian networks to advise NRM agencies how to influence the adoption of water use efficiency practices by groundwater license holders *Ticehurst, J. and Curtis, A.*	Prediction of tropical cyclone activity with coarse resolution global climate models *Charles, A., Shelton, K., Nakaegawa, T., Hendon, H. and Kuleshov, Y.*	Comparison of future runoff projections using different downscaling methods *Teng, J., Evans, J.P., Chiew, F.H.S., Timbal, B., Vaze, J., Wang, B., Ekström, M., Charles, S. and Fu, G.*	Methods and models in preparing weapon-target interaction data for combat simulations *Mazonka, O. and Shine, D.*	Parameter sensitivity evaluation in bushfire spread modelling *Hilton, J.E., Huston, C., Prakash, M., Miller, C. and Sullivan, A.*	ASOR Annual Meeting cont.
Updated meta-analysis of comparison of mortality in enteral feeding (EN) vs. parenteral nutrition (PN) or other methods in gastrointestinal cancer patients *Bartolucci, A., Bae, S. and Singh, K. P.*	New approaches for groundwater salinity management and allocation reductions *Barnett, S.R. and Williamson, D.*	Trends in rainfall patterns over the Tamarabarani Basin in Tamil Nadu, India *Sivapragasam, C., Balamurli, S., Deepak, M., Prakhar, A. and Muttil, N.*	Simulated impact of urban expansion on future temperature heatwaves in Sydney *Argüeso, D., Evans, J.P., Fita, L. and Bormann, K.J.*	A discrete event simulation of the joint space cell *Mukerjee, J., Nguyen, V. and Gani, R.*	Modelling fire line merging using plane curvature flow *Sharples, J.J., Towers, I.N., Wheeler, G., Wheeler, V.-M. and McCoy, J.A.*	ASOR Annual Meeting cont.
Logistic regression and Bayesian approaches in modeling acceptance of male circumcision in Pune, India *Yoo, C., Saxena, A., Krupp, K., Kulkarni, V., Kulkarni, S., Klausner, J.D., Devieux, J. and Madhivanan, P.*	Modelling groundwater dependent ecosystems in the Willunga Basin, South Australia *Hamilton, S.H., Guillaume, J.H.A. and ElSawah, S.*		High resolution rainfall projections for the Greater Sydney Region *Ji, F., Riley, M., Clarke, H., Evans, J.P., Argüeso, D. and Fita, L.*	Integrated submarine performance simulation *Tetlow, M.R., Howard, C.Q. and Green, J.M.*	Curvature flows and barriers in fire front modelling *Wheeler, V.-M., McCoy, J.A., Wheeler, G.E. and Sharples, J.J.*	ASOR Annual Meeting cont.
Trends in waist to thigh ratio among adults in US *Faramawi, M.F., Gandhi, S., Caffrey, J.L., Felini, M., Bae, S. and Singh, K.P*	Adapting agriculture to reduce nutrient loads to the Baltic Sea under future climate and socio-economic conditions – a modeling study in the coastal watershed, Poland *Piniewski, M., Giełczewski, M., Kardel, I., Marcinkowski, P. and Okruszko, T.*		Regional climate change projections for the Tully sugar region *Sexton, J., Everingham, Y. and Skocaj, D.*			

Tuesday 3 December							
8:00	**Registration and Information Desk**	**Foyer H**					
8:30	**Plenary**	**Professor Paul Whitehead** University of Oxford, United Kingdom Adapting to climate change in freshwater ecosystems: multiple modelling approaches to assess processes, dynamics and strategies			Hall E		

	Hall E	**Meeting Room 1**	**Meeting Room 2**	**Meeting Room 3**	**Meeting Room 4**	**Meeting Room 5**	**Meeting Room 8**
	L6. Water information and its roles in water resources assessment and management	K3. Multidisciplinary decision support for natural resource management and sustainable development: policy, science, managers and stakeholders	C10. Robotics, Micromotion, Automation, Machine Condition Monitoring Automation and System of Systems	H10. Quantifying ecosystem services for sustainability appraisal	B2. Agricultural systems **U-Session**	L17. Regionalising hydrologic response to improve predictions of large-scale water availability	L8. Statistical methods in hydrology and water quality science
9:10	An overview of Australian Water Resources Assessment reporting *Edraki, M., Bende-Michl, U., Watson, M., Van Den Bos, R. and Biswas, F.*	Achieving greater real-world impact of research outputs: it's not rocket science *Lowell, K.*	Drag coefficient estimation model to simulate dynamic control of Autonomous Underwater Vehicle (AUV) motion *Tan, K.M., Lu, T-F. and Anvar, A.*	Application of a forest dynamics simulator to inform sustainable biodiversity conservation and grazing management in Australia *Ngugi, M.R., Botkin, D.B. and Doley, D.*	Temperature increase and cotton crop phenology *Luo, Q., Bange, M. and Clancy, L.*	The Australian Water Resource Assessment Modelling System (AWRA) *Vaze, J., Viney, N., Stenson, M. et al.*	Modelling sediment transport and deposition in shallow flow through grass buffer strips using machine learning *Akram, S., Yu, B. and Ghadiri, H.*
9:30	Weekly comparative evaluations of some high resolution water stress variables at the Riggs Creek OzFlux tower site *Azmi, M., Rüdiger, C. and Walker, J.*	Customer focused science and knowledge management for sustainability in New South Wales, Australia *Summerell, G.K., Leys, J. and Wilson, K.*	Maritime UAVs' Swarm Intelligent Robot modelling and simulation using accurate SLAM method and Rao–Blackwellized particle filters *Karimian, H. and Anvar, A.*	A framework for identifying and characterizing the supply and distribution of multiple ecosystem goods and services in multifunctional landscapes *Ferrer-Costa, A. and Rutledge, D.*	What impact do producer measured inputs have on the prediction accuracy of BeefSpecs? *Walmsley, B.J., Mayer, D.G. and McPhee, M.J.*	Influence of regionalisation distance on nearest-neighbour regionalisation *Viney, N.R. and Vaze, J.*	Sensitivity analysis for a proposed sewer overflow screening device *Aziz, M.A., Imteaz, M.A. and Samsuzzoha, M.*
9:50	Urban CALculator Model (UrbanCALM): consistent and efficient urban water balance reporting tool for simple and complex systems *Jayatilaka, C. and Elmahdi, A.*	An environmental management plan in the Vavouto harbor (New Caledonia) with a statistical treatment displayed on dynamic maps *Wattelez, G., Touraivane, Allenbach, M., Mangeas, M., Couturier, A. and Bonte, C.*	Intelligent Condition Monitoring System (ICMS) for Oceanic Unmanned Air Vehicle (UAV), Unmanned Surface Vehicle (USV) and Autonomous Underwater Vehicle (AUV), Robots: a feasibility study *Xu, X. and Anvar, A.*	Ecosystem services in environmental sustainability: a formalized approach using UML *Khaiter, P.A. and Erechtchoukova, M.G.*	Potential for land use change to dairy in Southland, New Zealand: impact on profitability and emissions to air and water *Vibart, R.E., Vogeler, I., Dennis, S., Burggraaf, V., Beautrais, J. and Mackay, A.*	How adequately do gauged tributaries represent the hydrological behaviour of ungauged tributaries in modelling large regulated catchments? *Costelloe, J.F., Adams, R. and Western, A.W.*	Selecting reference streamflow forecasts to demonstrate the performance of NWP-forced streamflow forecasts *Bennett, J.C., Robertson, D.E., Shrestha, D.L. and Wang, Q.J.*
10:10	Defining a water quality vocabulary using QUDT and ChEBI *Simons, B.A., Yu, J. and Cox, S.J.D.*	Supporting agricultural policy – the role of scientists and analysts in managing political risk *Matthews, K.B., Miller, D.G. and Wardell-Johnson, D.*	Small-satellite magnetorquer attitude control system modelling and simulation *Yi, X. and Anvar, A.*		Modelling water and salinity distribution in soil under advance fertigation systems in horticultural crops *Phogat, V., Skewes, M.A., Mahadevan, M. and Cox, J.W.*	Catchment grouping and regional calibration for predictions in ungauged basins *Wang, B., Vaze, J., Zhang, Y.Q. and Teng, J.*	Groundwater time-series modelling to quantify the impacts of land use change *Cheng, X., Peterson, T.J. and Western, A.W.*
10:30	**Morning tea**	**Halls J & K**					

Tuesday 3 December

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H2. GIS and environmental modelling	F8. Modelling international business finance and high-frequency data in financial markets	J4. Health, education and life sciences	J9. Environmental and natural resources	J7. Operations research for defence applications	A3. Modelling of bushfire dynamics, fire weather, impact and risk	H13. Multidisciplinary modelling marine and coastal resources
Mean monthly radiation surfaces for Australia at 1 arc–second resolution *Austin, J.M., Gallant, J.C. and Van Niel, T.*	Modelling extreme winners and extreme losers in New Zealand Stock Exchange *Abidin, S. and Nguyen, T.*	UK initiative for healthcare simulation *O'Rourke, W. and Cordeaux, C.*	Towards decision support tools for incident managers dealing with large bushfires *van der Merwe, M. and Hearne, J.W.*	**INVITED TALK:** The US Army's force generation process – to simulate, or not to simulate *Stoddard, S.A.*	**INVITED TALK:** Australian Bushfire Fuel Classification System *Featherston, G.*	Evaluating the potential implications of monitoring and assessment strategies for the management of reef fish populations on the Great Barrier Reef, Australia *Little, L.R., Campbell, A., Innes, J., Kung, J., Leigh, G., Mapstone, B.D., Norman-Lopez, A., Punt, A.E. and Thebaud, O.*
A comparison of the performance of digital elevation model pit filling algorithms for hydrology *Senevirathne, N. and Willgoose, G.*	Modelling high-frequency volatility with three-state FIGARCH models *Shi, Y. and Ho, K.-Y.*	Evaluating absolute capacity of the emergency department *Luscombe, R., Kozan, E. and Swierkowski, P.*	Simulation of regional CSG groundwater impacts – errors upscaling & multi-phase flow *Herckenrath, D., Doherty, J. and Moore, C.*	**INVITED TALK:** A campaign of experimentation employing M&S at the CFWC *Wheaton, K. and Prudat, G.*	Modelling bushfire fuel across South Australia for use in risk assessments & fire management planning *Telfer, S., Wicks, S. and Wouters, M.*	Anticipating social-ecological regime shifts in the Baltic Sea *Lade, S.J., Orach, K. and Schlüter, M.*
Creating a flow-oriented modelling mesh using the stream function *Gallant, J.C. and Basso, B.*	News sentiment and states of stock return volatility: evidence from long memory and discrete choice models *Shi, Y. and Ho, K.-Y.*	An analytical model for the capacity usage of emergency departments *Wong, A., Kozan, E., Sinnott, M., Eley, R. and Spencer, L.*	Ocean modelling both in practice and in the classroom *Kämpf, J.*	CAGE experimentation – translating the principles of peer-to-peer distributed simulations design into practice *Bowen, D., Galister, M., O'Neill, J. and Slade, M.*	Will environmental revegetation increase the threat wildfire poses to assets? *Collins, L., Penman, T.D., Price, O.F. and Bradstock, R.A.*	Baltic grey seals – balancing between sustainable management and fisheries *Vanhatalo, J., Ronkainen, L. and Helle, I.*
High resolution DEMs from unmanned aerial vehicles *Dowling, T.I. and Gallant, J.C.*	The relation between news events and stock price jump: an analysis based on neural network *Wang, W., Ho, K.-Y., Liu, W. and Wang, K.*	A generic ambulance scheduling and rostering methodology using flow-shop scheduling techniques *Reeves, C. and Kozan, E.*	Effects of temporal fluctuations on the width of the mixing zone in heterogeneous coastal aquifers *Pool, M., Post, V. and Simmons, C.*	A characterisation construct for capability considerations *van Antwerpen, C.*	The effect of fire channelling on fire severity in the 2009 Victorian fires, Australia *Price, O.F. and Sharples, J.J.*	

Tuesday 3 December

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	L6. Water information and its roles in water resources assessment and management	K3. Multidisciplinary decision support for natural resource management and sustainable development: policy, science, managers and stakeholders	C10. Robotics, Micromotion, Automation, Machine Condition Monitoring Automation and System of Systems	L15. Innovations in water engineering: the role of data-based techniques	C5. Geo-informatics	L17. Regionalising hydrologic response to improve predictions of large-scale water availability	L8. Statistical methods in hydrology and water quality science	
11:00	Modelled groundwater recharge and discharge: effects of climatic conditions *Wethasinghe, C., Carrara, E., Sharples, J., Srikanthan, S. and Daamen, C.*	The shared IA toolbox *Roosenschoon, O.R., Reis, S., Knapen, M.J.R., Jacob, K., Hüsing, T., Wascher, D.M. and van Randen, Y.*	Modelling and simulation of tactile sensing system of fingers for intelligent robotic manipulation control *Anvar, A.P., Anvar, A.M. and Lu, T-F.*	An approach for developing and comparing empirical methods to model unaccounted losses in river system models *Kim, S.S.H., Lerat, J., Chen, J. and Hughes, J.*	Climate effects on grape production and quality at Kumeu, New Zealand *Shanmuganathan, S., Whalley, J. and Perez-Kuroki, A.*	Comparison of land-cover change and climate variability impacts on runoff using hydrological modelling and sensitivity-based approaches *Vaze, J., Zhang, Y. and Li, H.*	Effects of climate and landuse activities on water quality in the Yarra River catchment *Das, S.K., Ng, A.W.M., Perera, B.J.C. and Adhikary, S.K.*	
11:20	3D visualisation of groundwater systems *Barnett, S.R.*	On the importance of behavioral operational research: the case of understanding and communicating about dynamic systems *Hämäläinen, R.P., Luoma, J. and Saarinen, E.*	A feasibility study on the design, development and operation of an automated oceanic wave surface glider robot *Wang, Y., Anvar, A.M., Anvar, A.P. and Hu, E.*	Can the peak discharge–total volume relationship for flow pulses be used to identify flow regime change? *Costelloe, J.F., Pilkington, C. and Rice, P.*	Pixel clustering in spatial data mining; an example study with Kumeu wine region in New Zealand *Shanmuganathan, S. and Whalley, J.*	Bayesian analysis diagnostics: diagnosing predictive and parameter uncertainty for hydrological models *Thyer, M., Evin, G., Kavetski, D., Westra, S. and Renard, B.*	Assessment of the indirect calibration of a rainfall-runoff model for ungauged catchments in Flanders *de Vleeshouwer, N. and Pauwels, V.R.N.*	
11:40	Rainfall-runoff modelling with downscaled rainfall forecasts for a seasonal streamflow forecast service *Shin, D., Laugesen, R., Kabir, A., Tuteja, N.K., MacDonald, A., Kent, D. and Le, B.*	Optimising economic and environmental outcomes: water quality challenges in Corner Inlet Victoria *Beverly, C., Roberts, A., Stott, K., Vigiak, O. and Doole, G.*	Intelligent submersible manipulator-robot, design, modeling, simulation and motion optimization for maritime robotic research *Guo, P., Anvar, A. and Tan, K.M.*	An approach to creating data-based models by formulating and simplifying over-parameterised constrained linear models *Bardsley, W.E.*	Microsimulation of daily movement patterns in a British city *Birkin, M., Harland, K., Malleson, N. and Martin, D.*	Hydrologic signatures for runoff prediction in ungauged catchments *Zhang, Y.Q., Vaze, J. and Chiew, F.H.S.*	Reliability analysis for rainwater harvesting system in peri-urban regions of Greater Sydney, Australia *Hajani, E., Rahman, A.S., Al-Amin, M. and Rahman, A.*	
12:00	WAFARi 2.0: Upgrade of an operational modelling system for the seasonal streamflow forecast service of the Bureau of Meteorology, Australia *MacDonald, A., Kent, D., Laugesen, R., Kabir, A., Schepen, A., Wilson, T., Tuteja, N. and Shin, D.*	Implementing and adapting the WRON-RM Use Case categories for eReefs: aiming for Interoperable Systems' requirements analysis best practice *Car, N.J. and Murray, N.*	Advanced oceanic power harvesting systems for autonomous undersea sensors *Hickin, J., Busuttil, E. and Anvar, A.*	Understanding the relationship between model parameters, objective functions and predictions for data-based modelling with conceptual rainfall-runoff models *Guillaume, J.H.A., Shin, M-J. and Jakeman, J.D.*	Climate change effects on Sri Lankan paddy yield: an initial investigation using data mining algorithms *Shanmuganathan, S.*	Surface water modelling in data sparse and varied climate regions for bioregional assessments *Aryal, S.K., Vaze, J., Welsh, W.D. and Chiew, F.H.S.*	Application of eTank for rainwater tank optimisation for Sydney metropolitan *Imteaz, M.A., Akbarkhiavi, S.P. and Hossain, M.A.*	
12:20	General discussion – Water information and its roles in water resources assessment and management	An integrated model to examine the effects of Sustainable Diversion Limits: a case study in the Lower Campaspe catchment *El Sawah, S., Kelly, R.A., Beverly, C., Stott, K., Patrick, M.J., Kath, J., Croke, B.F.W., Qureshi, M.E., Courtney-Barrer, B., Asher, M.J., Roberts, A. and Jakeman, A.J.*		Novelty and challenges in characterizing non-stationary bedforms in large rivers using Direct Sampling *Jha, S.K., Mariethoz, G. and Kelly, B.F.J.*	Bayesian model averaging for estimating non-stationary soil moisture data *Hernández, S. and Sallis, P.*	Potential improvements to the Australian Water Resources Assessment system landscape (AWRA-L) model *Ramchurn, A. and Frost, A.J.*	Water quality investigation in the Hawkesbury-Nepean River in Sydney using Principal Component Analysis *Kuruppu, U., Rahman, A., Haque, M. and Sathasivan, A.*	
12:40	**Lunch**							

Tuesday 3 December

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
H2. GIS and environmental modelling	F8. Modelling international business finance and high-frequency data in financial markets	F1. Combining information in socio-economic modelling and forecasting	J9. Environmental and Natural Resources	E1. Defence Operations Research Symposium	A3. Modelling of bushfire dynamics, fire weather, impact and risk	F5. Modelling and financial management
FishTracker: a GIS toolbox for kernel density estimation of animal home ranges that accounts for transit times and hard boundaries *Laffan, S.W. and Taylor, M.D.*	Modelling the volatility-timing of funds under CPF investment scheme *Shen, X., Tsui, A.K. and Zhang, Z.Y.*	Modelling the relationship between duration and magnitude of changes in asset prices *Chan, F. and Petchey, J.*	Multivariate analysis-based modelling for selected environmental and resource problems in the Adelaide and Mount Lofty Ranges area *Guan, H., He, X., Ding, Z., Simmons, C.T., Hutson, J., Love, A., Zhang, X., Makhnin, O. and Wilson, J.L.*	A framework for determining the validation of analytical campaigns in defence experimentation *Bowden, F.D.J. and Williams, P.B.*	**INVITED TALK:** A 40-year mesoscale gridded fire weather climatology for Victoria – an overview *Mills, G., Brown, T., Harris, S., Podnar, D. and Reinbold, H.*	Interest rate sensitivities of externally and internally managed Australian REITs *Yong, J. and Singh, A.K.*
Automated, web-based environment for daily fire risk assessment in New Caledonia *Wattelez, G., Touraivane, Mangeas, M., André, J. and Couturier, A.*	Modelling the term structure of Japanese bond yields with the Nelson-Siegel model *Tsui, A.K., Wu, J.X. and Zhang, Z.Y.*	Spatial diffusion of air conditioners and time-varying price tariffs in residential housing *Higgins, A.J., Ren, Z., Egan, S., Paevere, P., Anticev, J. and Grozev, G.*	Modelling and simulation of seasonal rainfall *Borwein, J., Howlett, P. and Piantadosi, J.*	Analysis support for Land 19, Phase 7: an integrated approach *Tramoundanis, D., Christie, M., Landi, S. and Walmsley, T.*	Mapping of Australian fire weather potential: observational and modelling studies *Sanabria, L.A., Cechet, R.P. and Li, J.*	A dynamic credit ratings model *Allen, D.E., Powell, R.J. and Singh, A.K.*
A dynamic habitat mudflat model for the Coorong, South Australia *Benger, S.N. and Sharma, S.K.*	Forecasting Singapore economic growth with mixed-frequency data *Tsui, A.K., Xu, C.Y. and Zhang, Z.Y.*	Extreme movements of the major currencies traded in Australia *Sia, C-S. and Chan, F.*	Role of thermodynamic sorption models in radionuclide transport simulations *Payne, T.E.*	Investment prioritisation *Garanovich, I.L., Nguyen, M-T., Wheeler, S. and Zadeh, H.S.*	Future fire danger and ground moisture climatology for Tasmania using a dynamically downscaled regional climate model *Fox-Hughes, P., Harris, R., Lee, G., Grose, M. and Bindoff, N.*	Dependence estimation and controlled CVaR portfolio optimization of a highly kurtotic Australian mining sample of stocks *Arreola, J., Allen, D. and Powell, R.*
Assessment of spatial models using ground point data: soil matrix and radiometric approach *Hill, S.J., Hancock, G.R. and Willgoose, G.R.*		Do more signals mean higher profits? *Klados, A.*	The challenges and opportunities of constructing input-output frameworks in a virtual laboratory – the new NeCTAR Industrial Ecology Lab *Lenzen, M., Wiedmann, T., Geschke, A., Lane, J., Daniels, P., Kenway, S., Murray, J., Malik, A., Reynolds, C., Moran, D., Webb, D., Fry, J., Ugon, J., Poruschi, L, Baynes, T., West, J. and Boland, J.*	Bridging the gap: a generic framework for behaviour representation *Dexter, R.M., Pash, K. and Piotto, J.*	High-resolution bushfire hazard mapping of the current and future climate to inform planning for the Rockhampton region *Cechet, R.P., Sanabria, L.A., French, I., Dunsmore, R. and Moore, D.*	Intraday volatility forecast in Australian equity market *Singh, A.K., Allen, D.E. and Powell, R.J.*
Sensitivity of the BFAST algorithm to MODIS satellite and vegetation index *Watts, L.M. and Laffan, S.W.*		Testing intra-daily seasonality using Maximum Entropy Density *Chan, F. and Singh, R.*	Using scientific workflows to calibrate an Australian land surface model (AWRA-L) *Vleeshouwer, J., Perraud, J.M., Collins, D., Warren, G., Gallant, S. and Bridgart, R.J.*	Utilising empirical data to identify risk and prioritise treatment *Bilusich, D., Lord, S. and Nunes-Vaz, R.A.*	Modelling the impact of climate change on lightning ignition of bushfires *Dowdy, A.J., Mills, G.A., Timbal, B. and Bates, B.*	Primary sector volatility and default risk in Indonesia *Allen, D.E., Boffey, R.R., Kramadibrata, A.R., Powell, R.J. and Singh, A.K.*

Tuesday 3 December

| 13:30 | Plenary | | Associate Professor Hedwig van Delden
Research Institute for Knowledge Systems, The Netherlands
Integrated modelling for policy support: lessons learnt and current challenges | | Hall E | | |

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8
	C4. Modelling and simulation in engineering	K3. Multidisciplinary decision support for natural resource management and sustainable development: policy, science, managers and stakeholders	H14. Spatio-temporal modelling for human and ecosystem health assessment	L15. Innovations in water engineering: the role of data-based techniques	B2. Agricultural systems U-Session	H4. Sensitivity, uncertainty and analysis of error in process-based agricultural and ecosystem simulation models	L8. Statistical methods in hydrology and water quality science
14:10	Planning with Lanier ultra-short stable slatwings of 1920s-1970s budget Vacu/Para-planes *Howden, P.ff.*	Integrated hydro-ecological-economic decision support framework for environmental water management *Fu, B., Akter, S., Dyack, B., Scarpa, R., Merritt, W., Dyer, F. and Grafton, Q.*	Developing a virtual observatory for personal exposure assessment *Reis, S., Zambelli, P., Vieno, M. and Steinle, S.*	Hydrologic data networks, connections, and dynamics *Sivakumar, B.*	Renewable electricity generation for energy-autonomous dairy farms, with backup technologies *Parshotam, A. and Heubeck, S*	Estimating the impact of grazing industry on catchment nitrogen loads of the Moe River catchment *Vigiak, O., Thayalakumaran, T., Beverly, C., Roberts, A. and Stott, K.*	Challenges for including error updating in real-time hydrological error models *Li, M., Wang, Q.J. and Bennett, J.C.*
14:30	Comparison of computational and semi-empirical aerodynamics tools for making fit-for-purpose modelling decisions *Abeynayake, D. and Agon, A.*	An interactive modelling tool to support knowledge elicitation using extreme case models *Guillaume, J.H.A. and Fu, B.*	Personal exposure to $PM_{2.5}$ – results from a pilot study *Steinle, S., Sabel, C.E. and Reis, S.*	Radar rainfall estimation using a dynamic Z-R relationship with parameterization conditional to measured reflectivity *Hasan, M.M., Sharma, A., Johnson, F., Seed, A. and Mariethoz, G.*	Production of a map of greenhouse gas emissions and energy use from Australian agriculture *Navarro, J., Bryan, B., Marinoni, O., Eady, S. and Halog, A.*	Sensitivity analysis of SWAT model in the Yarra River catchment *Das, S.K., Ng, A.W.M. and Perera, B.J.C.*	Probabilistic flood hydrographs using Monte Carlo simulation: potential impact to flood inundation mapping *Loveridge, M., Rahman, A. and Babister, M.*
14:50	Ray tracing based fast refraction method for an object seen through a cylindrical glass *Mukai, N., Makino, Y. and Chang, Y.*		Bridging the gap between air pollution models and epidemiological studies *Oxley, T., de Nazelle, A., Katara, C. and ApSimon, H.M.*	The impact of time resolution on modeling performance in runoff volume and peak discharge estimation *Hidayat, S., Pezzaniti, D. and Alankarage, G.H.*	A conceptual spatial system dynamics (SSD) model for structural changes in grassland farming *Neuwirth, C. and Peck, A.*	Uncertainty in modelled soil organic carbon changes under various cropping systems in Australian cropland *Luo, Z., Wang, E., Shao, Q. and Baldock, J.A.*	Analysing lagged ENSO and IOD as potential predictors for long-term rainfall forecasting using multiple regression modelling *Mekanik, F. and Imteaz, M.A*
15:10	CFD modeling of airflows and contaminant transport in an aircraft cabin *Zhang, J., Wang, Y., Tian, Z.F., Lu, T-F. and Awadalla, M.*		Weather, climate, and the environment data linkage with human health and wellbeing data sets: MED-MI *Osborne, N., Golding, B., Kessel, A., Haines, A., Depledge, D., Cichowska, A., Bloomfield, D., Hajat, S., Sarran, C., Sabel, C. and Fleming, L.*	An approach to detecting associations between variables for hydroclimatic forecasting *Vetrova, V.V. and Bardsley, W.E.*		Assessing the sensitivity of nitrogen losses from cropping systems to different farm management practices *Biggs, J.S. and Thorburn, P.J.*	Capability of Artificial Neural Networks for predicting long-term seasonal rainfalls in east Australia *Mekanik, F. and Imteaz, M.A.*
15:30	**Afternoon tea**	**Halls J & K**					

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
H2. GIS and environmental modelling	A5. Epidemic modelling	J4. Health, Education and Life Sciences	J9. Environmental and Natural Resources	E1. Defence Operations Research Symposium	A3. Modelling of bushfire dynamics, fire weather, impact and risk	J5. Applications of OR in Industry
Spatiotemporal dynamics of surface water networks across a global biodiversity hotspot *Tulbure, M.G., Kininmonth, S. and Broich, M.*	Empirically grounded network models for studying epidemics: what's relevant? *Rolls, D.A., Wang, P., Pattison, P. and Robins, G.*	The junior school class allocation problem – a mathematical programming solution *Gill, A.*	The development of a Bayesian Belief Network as a decision support tool in feral camel removal operations *Lethbridge, M.R. and Harper, M.L.*	ASW search and the effect of speed *Kachoyan, B.J. and Spillane, M.*	FireDST: Fire Impact and Risk Evaluation Decision Support Tool – model description *French, I., Cechet, B., Yang, T. and Sanabria, A.*	High-order multi-objective optimisation of complex water resources systems under climate change *Godoy, W.R.*
Combining satellite measurements and topographic downscaling to model net radiation and aridity in mountainous terrain *Nyman, P., Sherwin, C.B., Langhans, C. and Sheridan, G.J.*	Network centrality and super-spreaders in infectious disease epidemiology *Dekker, A.H.*	Short term health impact of air pollution in Europe *San José, R., Pérez, J.L. and González, R.M.*	Evaluation of modelled and measured evaporation from a bare Vertosol soil in south east Queensland, Australia *Kodur, S., Foley, J.L., Silburn, D.M. and Waters, D.*	Estimation and analysis schemes for collections of discrete-time integer-valued arrival processes *Malcolm, W.P. and Bennier, J.*	Building Fire Impact Model *Sanabria, L.A., French, I. and Cechet, R.P.*	Modelling the capacity of the Hunter Valley coal chain to support capacity alignment of maintenance activities *Boland, N., McGowan, B., Mendes, A. and Rigterink, F.*
	On epidemic models with non-linear cross-diffusion *Berres, S. and Gonzalez-Marin, J.*	Input system for simulation system with Excel *Namekawa, M., Shiono, Y., Ueda, Y. and Satoh, A.*	Can we trust depth-averaged models for hillslope seepage area prediction? *Bresciani, E., Davy, P. and de Dreuzy, J.-R.*	Modelling requirements for mission success prediction *Broderick, N., Tetlow, M., Waite, M. and Harvey, D.*	Assessing the exposure risk of regional populations to smoke from fires *Meyer, C.P., Cope, M. and Lee, S.*	An interactive decision support system for open-pit mine production *Liu, S.Q. and Kozan, E.*
	Analysis of importance of brief encounters for epidemic spread *Dawson, P.*		Linear programming and the Australian Electricity Market *Filar, J.A. and Mohammadian, G.*	Submarine Force deployment modelling *Braun, P. and Glassborow, D.*	Simulating bushfire risk in South Australia with Phoenix (Rapidfire) gridded fire simulations *Otterbach, A., Telfer, S. and Wouters, M.*	Modelling scheduled rail operations within a dynamic mine to port supply chain simulation *Marshall, J., Cook, M. and Brook, G.*

Tuesday 3 December

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	C4. Modelling and simulation in engineering	M1. Disaster management modelling and simulation	H14. Spatio-temporal modelling for human and ecosystem health assessment	L15. Innovations in water engineering: the role of data-based techniques	C7. Web services for modelling and simulation	H4. Sensitivity, uncertainty and analysis of error in process-based agricultural and ecosystem simulation models	L8. Statistical methods in hydrology and water quality science	
16:00	A modern take on the theoretical modelling of inertial properties of a human body for biomechanical simulations *Robertson, W.S.P.*	Real-time numerical simulation of storm surge inundation using high-performance computing for disaster management, Queensland *Burston, J., Nose, T. and Tomlinson, R.*	Examination of a tropospheric ozone control methodology from the explicit representation of POCPs across varying temporal and continent spatial domains *Lam, S.H.M., Saunders, S.M., Cheng, H.R. and Guo, H.*	Precomputing upscaled hydraulic conductivity for complex geological structures *Jha, S.K., Wawra, F., Mariethoz, G., Mathews, G., Maheswarajah, S., Vial, J., Okello, N., De, D. and Smith, M.*	Environmental modelling as a workflow supported by web services *Jolma, A. and Ventelä, A-M.*	Bayesian analysis of computer code outputs (BACCO) applied to an agent-based model *Parry, H.R., Topping, C.J., Kennedy, M.C., Boatman, N.D. and Murray, A.W.A.*	Monthly forecasts of catchment rainfall to long lead times using GCM rainfall and SSTs *Schepen, A.D. and Wang, Q.J.*	
16:20	Building adaptable agent-based models – application to the electricity distribution network *Boulaire, F.A.*	Emergency response resource quantification and prioritization *Stamber, K.L., Unis, C.J. and Gibson, J.A.*	Can a regional chemistry transport model simulate high polluted areas for human health and policy studies? *Vieno, M., Reis, S., Doherty, R. and Heal, M.R.*	Assessing the non-stationarity of biases in general circulation models *Nahar, J. and Johnson, F.*	A method and example system for managing provenance information in a heterogeneous process environment – a provenance architecture containing the Provenance Management System (PROMS) *Car, N.J.*	The uncertainty in predicting average quantities with simulation models *Wallach, D. and Thorburn, P.J.*	A stochastic weather generation method for temporal precipitation simulation *Shao, Q., Wang, Q.J. and Zhang, L.*	
16:40	A new proposed approach for star grain design and optimisation *Kamran, A., Rafique, A.F., Guozhu, L. and Zeeshan, Q.*	Initial analysis of fire weather characteristics between south-east Australia and south-west of Western Australia *Lin, X.G., Sullivan, A.L., Stephenson, A.G. and Dunstall, S.*	Modelled dispersion of emissions from a copper smelter, Karabash, Russian Federation *Osborne, N.J., Williamson, B., Aminov, P., Udachin, V., Purvis, O.W., Bellis, D., Goossens, M., Taylor, M., Wheeler, B., Wall, F, Van Veen, E., Reis, S. and Pollard, A.*	Applications of approximate Bayesian computation in hydrology *Marshall, L.A., Nott, D.J. and Brown, J.*	Integration of wireless sensor network and web services *Ghobakhlou, A., Kmoch, A. and Sallis, P.*	Bayesian hierarchical modeling of soil carbon dynamics *Clifford, D., Pagendam, D., Baldock, J., Cressie, N., Farquharson, R., Farrell, M., Macdonald, L. and Murray, L.*	Regionalisation of water savings from rainwater harvesting system in Greater Sydney *Sharmeen, L., Rahman, A. and Kuruppu, U.*	
17:00	Reversing the design process to aid in complex engineering problems *Rafique, A.F., Zeeshan, Q. and Kamran, A.*	Information integration for emergency management: recent CSIRO case studies *Power, R., Robinson, B., Wise, C. and Cameron, M.*	Application of a protectability index to assess habitat eutrophication in designated areas *Oxley, T., ApSimon, H.M. and Hall, J.*	Evaluating the effect of climate change on areal reduction factors in Sydney using regional climate model projections *Li, J., Sharma, A., Johnson, F. and Evans, J.*	Scientific workflows in a geographic portal for web-based spatial analysis *Touraivane, Couturier, A., Wattelez, G. and Allenbach, M.*	**Discussion** – approaches and development priorities for sensitivity and uncertainty analysis in process-based modelling	Dynamic seasonal stream flow forecasting approach – evaluation of rainfall runoff model performances *Wethasinghe, C., Tuteja, N.K. and Laugesen, R.*	
17:20	A new heuristic method for generating the initial population of evolutionary algorithms for the optimisation of water distribution systems *Bi, W., Dandy, G.C. and Maier, H.R.*	Zero cost solutions of geo-informatics acquisition, collection and production for natural disaster risk assessment *Zou, Z.C. and Lin, X.G.*	Air quality forecasting in Europe using statistical persistence *Zachary, D.S., Chiera, B. and Boland, J.*	A comparison of statistical and conceptual models for monthly streamflow forecasting in the Lower South East, South Australia *Humphrey, G.B., Gibbs, M.S., Maier, H.R. and Dandy, G.C.*	Integrating scientific workflows with web services for data validation and provenance reporting *Smith, T. and Car, N.J.*	**Discussion** cont.	Understanding functional efficiency of a sewer overflow screening device using combined CFD and analytical modeling *Aziz, M.A., Imteaz, M.A., Huda, N. and Naser, J.*	

Tuesday 3 December

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
H16. Bridging the divide between science and practice of natural resource planning	A5. Epidemic modelling	G1. Solar irradiance forecasting methods	L10. Modelling human-induced land subsidence	D1. Defence applications of modelling and simulation	A3. Modelling of bushfire dynamics, fire weather, impact and risk	J5. Applications of OR in Industry
A large environmental data set and multiple models for decision support in a large scale environmental restoration work – a management perspective *Ventelä, A-M., Jolma, A. and Kirkkala, T.*	Generalised multistability in a SIRWS model of infectious disease transmission *Dafilis, M.P., Frascoli, F. and McCaw, J.M.*	Probabilistic forecasting of wind farm output *Agrawal, M., Huang, J. and Boland, J.*	Simulation of shallow strata deformation caused by groundwater drainage in Shanghai *Jiao, X., Wu, J-C., Wang, H. and Ye, S-J.*	Management of interdependencies in defence capability portfolio *Garanovich, I.L., de Visser, G., Nguyen, M-T., Gill, A., Ween, A., Heseltine, T., Jiang, L., Watson, J., Taylor, R., Tailby, D. and Zadeh, H.S.*	INVITED TALK: A process model for forecasting conditions conducive to blow-up fire events *McRae, R.H.D. and Sharples, J.J.*	Nomination-based session initiation protocol service for mobile ad hoc networks *Aburumman, A., Choo, K-K. R. and Lee, I.*
Preliminary modelling to determine the extent of sustainability of land management practices within land capability in NSW *Chapman, G.A., Gray, J.M. and Young, J.A.*	Modelling the impact of vaccine coverage on maternal measles immunity *Geard, N., Glass, K., McCaw, J. and McVernon, J.*	Coordinated charging of electric vehicles *Albrecht, A. and Pudney, P.*	Numerical modeling land subsidence arrested by artificial recharge and reduction of pumpage in Shanghai *Luo, Y., Ye, S., We, J., Wang, H., Yan, X. and Wei, Z.*	Self-synchronisation in C2 networks *Dekker, A.H.*	Characterising forest wind profiles for utilisation in fire spread models *Moon, K., Duff, T.J. and Tolhurst, K.G.*	Interference-Aware Multipath routing protocols for mobile ad hoc networks *Alwadiyeh, E.S., Aburumman, A. and Choo, K-K.R.*
A new, more inclusive and interactive approach to modelling spatial priorities for investment in natural resource management in NSW *Barrett, T.W., Turner, R., Thorne, J. and Lesslie, R.*	Modelling the seasonality of respiratory syncytial virus in young children *Hogan, A.B., Mercer, G.N., Glass, K. and Moore, H.C.*	Multivariate forecasting of solar energy *Boland, J.*	Modeling the deformation of faulted volcano-sedimentary sequences associated to groundwater withdrawal in the Querétaro Valley, Mexico *Ochoa-González, G.H., Teatini, P., Carreón-Freyre, D. and Gambolati, G.*	A multi-agent system for investigating course of action planning *Marsh, L., Shekh, S., Noack, K., Gossink, D. and Allard, T.*	Using wind multipliers to determine local wind speed from modeled regional data for fire spread applications *Yang, T., French, I., Cechet, R.P. and Sanabria, L.A.*	Simulation and optimisation for bulk terminals *Corry, P.*
Using Multi-criteria Analysis Shell (MCAS-S) to rapidly assess soil erosion and flooding amelioration priorities after wildfire *Chapman, G.A., Yang, X., McInnes-Clarke, S.K., Tulau, M.J. and Barrett, T.W.*	Developing new pharmacokinetic-pharmacodynamic models of antimalarial activity *McCaw, J.M., Zaloumis, S. and Simpson, J.A.*	Sensitivity analysis for concentrating solar power technologies *Webby, B.*	Application of the Multiscale Finite Element Method to the numerical modeling of regional land subsidence *Ye, S., Xue, Y., Wu, J., Wang, H., Wei, Z. and Yan, X.*	Assessing the military impact of capability enhancement with Netlogo using the Falklands War as a case-study *Gowlett, P.*	Economic analysis of prescribed burning for wildfire management in Western Australia *Florec, V., Pannell, D.J., Burton, M., Kelso, J. and Milne, G.*	A GIS model for simulating infrastructure investments in livestock logistics: application to the northern beef industry *McFallan, S., Higgins, A., Prestwidge, D. and Laredo, L.*
Modelling for the people: improving the accessibility of landscape scale data sets and raster modelling capabilities in NSW *Barrett, T.W., Sinha, P. and Bye, D.*	Quantifying the relative fitness of two different influenza viruses *Petrie, S., Butler, J., Hurt, A., McVernon, J. and McCaw, J.*	Review of technologies and optimisation methods for integrating renewable energy sources and storage within the Australian National Energy Market *Cirocco, L.R., Pudney, P., Belusko, M., Bruno, F. and Boland, J.*	The potential mechanisms of Yinguoan Earth Fissure using 3D seismic exploration data *Yu, J., Zhu, J.Q., Gong, X.L. and Yang, Y.*	Closing the loop with the close action environment *Finlay, L.*	A methodology for evaluating the impact of visualization on decision-making under uncertainty for PHOENIX Rapidfire *Cheong, L.M., Bleisch, S., Duckham, M., Kealy, A., Tolhurst, K. and Wilkening, T.*	A branch-and-bound algorithm for scheduling unit processing time arc shutdown jobs to maximize flow through a transshipment node over time *Boland, N. and Kaur, S.*

Tuesday 3 December

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	C4. Modelling and simulation in engineering	M1. Disaster management modelling and simulation	H14. Spatio-temporal modelling for human and ecosystem health assessment		C7. Web services for modelling and simulation	H4. Sensitivity, uncertainty and analysis of error in process-based agricultural and ecosystem simulation models	L8. Statistical methods in hydrology and water quality science	
17:40	On wavelet based modeling of neural networks using graph theoretic approach *Bhosale, B.*	A national fire behaviour knowledge base for enhanced information management and better decision making *Sullivan, A., Gould, J., Cruz, M., Rucinski, C. and Prakash, M.*	Impact of chemicals and ionizing radiation on human health: need for adapted modeling techniques *Voigt, K., Scherb, H. and Bruggemann, R.*		The eReefs Information Architecture *Car, N.J.*	**Discussion** cont.	Reliability analysis of household rainwater harvesting tanks in the coastal areas of Bangladesh using daily water balance model *Karim, Md. R., Rimi, R.A. and Billah, Md. S.*	
18:00								
18:00	MSSANZ AGM	Riverbank Room 1						

Wednesday 4 December · MODSIM rest day

J2 — ASOR Optimisation Day

Riverbank Room 4

9:00	A new criterion space search algorithm for biobjective 0-1 integer programming *Boland, N., Charkhgard, H. and Savelsbergh, M.*
9:30	Time aggregation for network design to meet time-constrained demand *Boland, N., Ernst, A., Kalinowski, T., Rocha de Paula, M., Savelsbergh, M. and Singh, G.*
10:00	Directed Voronoi Search: a method for bound constrained global optimization *Robertson, B.L., Price, C.J., Reale, M. and Brown, J.A.*
10:30	**Morning tea**
11:00	Treatment planning optimisation for Volumetric Modulated Arc Therapy (VMAT) *Akartunalı, K. and Mak-Hau, V.*
11:30	Picking items for experimental sets: measures of similarity and methods for optimisation *Boland, N., Bunder, R. and Heathcote, A.*
12:00	**Lunch**
13:00	A bucket indexed formulation for nonpreemptive single machine scheduling problems *Boland, N., Clement, R. and Waterer, H.*
13:30	A variable sized bucket indexed formulation for nonpreemptive single machine scheduling problems *Clement, R., Boland, N. and Waterer, H.*
14:00	**Afternoon tea**
14:30	Panel session and open discussion Theme: Emerging Trends and Applications in Optimisation Panellists: Forbes, M., Boland, N., Savelsbergh, M.

					Tuesday 3 December	
Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
		G1. Solar irradiance forecasting methods	L10. Modelling human-induced land subsidence	D1. Defence applications of modelling and simulation		
		Synthetically interpolated five-minute direct normal irradiance *Grantham, A.P., Pudney, P.J., Boland, J.W. and Belusko, M.*	Development and application of multi-objective groundwater management model considering land subsidence in Nantong, China *Zhu, J.Q., Yu, J., Long, G.X. and Yang, Y.*	Suppression of dismounted soldiers: towards improving dynamic threat assessment in closed loop combat simulations *Millikan, J., Wong, M. and Grieger, D.*		
		A solar forecasting model based on a fractional Brownian motion *Calogine, D., Lauret, P., Addi, K. and David, M.*				

Thursday 5 December

8:00	**Registration and Information Desk**	**Foyer H**						
8:30	**Plenary**		**Professor Jerzy Filar** Flinders University, Australia The power and limitations of mathematical models and Plato's Cave Parable			Hall E		

	Hall E	**Meeting Room 1**	**Meeting Room 2**	**Meeting Room 3**	**Meeting Room 4**	**Meeting Room 5**	**Meeting Room 8**	
	H15. Spatial indicators for ecosystem pattern and processes	C4. Modelling and simulation in engineering	L2. Climate change adaptation in water resources management	F6. Quantitative and computational finance	L21. Great Barrier Reef modelling **U-Session**	F2. Financial modelling and risk management / F9. Experimental economics	A10. Mathematical modelling designed to assess the impacts of global changes	
9:10	**KEYNOTE**: Overview: Spatial indicators of ecosystem patterns and processes *Ostendorf, B.*	Optimal control of total chlorine and free ammonia levels in a chloraminated water distribution system *Wu, W., Dandy, G.C. and Maier, H.R.*	Development of a framework to evaluate the hybrid water supply systems *Sapkota, M., Arora, M., Malano, H., George, B., Nawarathna, B., Sharma, A. and Moglia, M.*	Identifying efficient exchange rate dynamics from noisy data *Chan, F.*	Great Barrier Reef paddock to reef monitoring & modelling program *Carroll, C., Waters, D., Ellis, R., McCosker, K., Gongora, M., Chinn, C. and Gale, K.R.*	Logistic models as temporal scaffoldings to mimic growth of companies in the high technology sector *Foo, D., Dong, Z. and Abidin, S.*	An investigation of cool roofing on urban street canyon air quality *Naidu, M.K., Tian, Z.F., Medwell, P.R. and Birzer, C.H.*	
9:30	**KEYNOTE** cont.	Impact of calibration data variability on rainfall-runoff modeling performance in data-limited basins *Li, C.Z., Liu, J., Yu, F.L., Wang, H., Zhao, N.N. and Liu, W.J.*	Modelling the impact of energy intensity on the economic and environmental costs of internally plumbed rainwater tanks systems *Siems, R., Sahin, O. and Stewart, R.A.*	Volatility spillovers for stock returns and exchange rates of tourism firms in Taiwan *Chang, C.-L., Hsu, H.-K. and McAleer, M.*	An integrated water quality modelling framework for reporting on Great Barrier Reef catchments *Ellis, R. and Searle, R.*	The performance of hybrid ARIMA-GARCH modeling in forecasting gold price *Yaziz, S.R., Azizan, N.A., Zakaria, R. and Ahmad, M.H.*	Multi-model ensemble simulation of flood events using Bayesian Model averaging *Zhu, R., Zheng, H., Wang, E. and Zhao, W.*	
9:50	Drought risk to reforestation: simulation as a recurrent event *Bryan, B.A., Nolan, M. and Mpelasoka, F.*	Modelling and analysis of the global stability of Blasius boundary-layer flow interacting with a compliant wall *Tsigklifis, K. and Lucey, A.D.*	Assessing the performance of an ensemble approach to rainfall—runoff modelling for prediction of the impact of climate change on streamflow *Silberstein, R. and Aryal, S.*	Understanding the two-way relationship between the ASX and NZX Indexes: a vector threshold autoregressive modeling approach *Chan, W.S., Li, J.S.-H. and Ng, A.C.Y.*	Paddock scale modelling to assess effectiveness of agricultural management practice in improving water quality in the Great Barrier Reef Catchments *Shaw, M., Silburn, D.M., Ellis, R., Searle, R., Biggs, J., Thorburn, P. and Whish, G.*	Recoverability of parameters from learning models *James, D. and Reagle, D.*	Analysis of trends in temperature and rainfall in selected regions of Australia over the last 100 years *Makuei, G., McArthur, L. and Kuleshov, Y.*	
10:10	Defining ecosystem processes of the Australian Great Artesian Basin springs from multi-sensor synergies *White, D.C. and Lewis, M.M.*	Modelling unglazed solar collectors for domestic water heating in Valparaíso (Chile) *Carvajal, D. and Araya-Muñoz, A.*	Spatio-temporal variation of temperature characteristics over Narmada basin – is the consistent warming trend a possible climate change signal? *Thomas, T., Sudheer, K.P., Ghosh, N.C. and Gunte, S.S.*	Diagnostic checking for non-stationary ARMA models: an application to financial data *Ling, S.-Q., Zhu, K. and Chong, C.-Y.*	Catchment modelling scenarios to inform GBR water quality targets *Waters, D., Carroll, C., Ellis, R., McCloskey, G., Hateley, L., Packett, R., Dougall, C. and Fentie, B.*		Modelling the spread and growth of *Caulerpa taxifolia* in closed waterways in southern Australia using cellular automata *McArthur, L., Dunn, J. and Schreider, S.*	
10:30	**Morning tea**	**Halls J & K**						

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
L1. Flood modelling under changing climate regime	H6. Integrated models for exploring the impacts of, and adaptation to, climate change for coastal systems	F7. Technology and innovation	E1. Defence Operations Research Symposium **U-Session**	A. Keynote / C. Keynote	C2. Advances in neural networks, soft computing and machine learning and applications in natural, environmental and biological systems **U-Session**	H12. The role of environmental modelling in multifunctional land use and ecosystem services assessment **U-Session**
Techniques for assessing climate change impacts on antecedent catchment wetness and flooding *Bennett, B.S., Lambert, M., Thyer, M., Bates, B. and Westra, S.*	Hydraulic modelling of predicted sea level rises in Kakadu Flood Plains *Saunders, K., Woolard, F., Prakash, M., Bayliss, P., Dutra, L. and Ward, D.*	The international technology diffusion effect of cross-border and cooperative patents *Chang, C.-L., McAleer, M. and Tang, J.-T.*	Operations research meets science communication *Stanton, B.A.*	**KEYNOTE**: Modelling plankton ecosystems and the Library of Lotka *Cropp, R.*	Gene expression based computer aided diagnosis system for breast cancer: a novel biological filter for biomarker detection *Al-yousef, A., Samarasinghe, S. and Kulasiri, D.*	Modelling the socio-ecological system dynamics of rubber agroforests to design reward mechanisms for agro-biodiversity conservation *Villamor, G.B., Djanibekov, U., Le, Q.B. and Vlek, P.L.G.*
Application of Monte Carlo simulation technique to design flood estimation: a case study for the Orara River catchment in New South Wales *Caballero, W.L. and Rahman, A.*	Systems thinking and modelling for coastal zone management and climate change adaptation *Sano, M., Richards, R., Sahin, O. and Mackey, B.*	Dynamic impact factors and escalating journal self citations *Chang, C.-L., Maasoumi, E. and McAleer, M.*	Exploring the role of joint in future force design *Neville, T., McKay, T. and Musgrove, L.*	**KEYNOTE** cont.	Mathematical modelling of p53 basal dynamics and DNA damage response *Chong, K.H., Samarasinghe, S. and Kulasiri, D.*	The effects of climate change on ecologically relevant flow regimes and water quality attributes: a comparative study between Upper Murrumbidgee and Goulburn Broken catchments *Dyer, F., Hasan M., El Sawah, S., Croke, B.F.W., Harrison, E. and Jakeman, A.J.*
Hydrodynamic modelling of potential impacts of climate change on hydrological connectivity of floodplain wetland *Karim, F., Dutta, D., Marvanek, S., Ticehurst, C. and Petheram, C*	Integrated modelling approach for climate change adaptation: the case of Surf Life Saving Australia *Sahin, O., Richards, R. and Sano, M.*	Agent based model of service providers and consumers within a dynamic mobile communications market *Mirza, F. and Beltrán, F.*	Structured time-independent capability options analysis *Williams, P.B., Bender, A., Pincombe, B. and Dilek, C.*	**KEYNOTE**: Data integration technologies to support integrated modelling *Knapen, M.J.R., Roosenschoon, O., Lokers, R., Janssen, S., van Randen, Y. and Verweij, P.*	Modeling rapid stomatal closure with Synchronous Boolean Network Approach *Waidyarathne, K.P. and Samarasinghe, S.*	Quantifying impacts of agro-industrial expansion in Mato Grosso, Brazil, on watershed hydrology using the Soil and Water Assessment Tool (SWAT) model *Guzha, A.C., Nobrega, R., Kovacs, K., Amorim, R.S.S. and Gerold, G.*
Using spatial modelling to develop flood risk and climate adaptation capacity metrics for assessing urban community and critical infrastructure vulnerability *Espada, R. Jr., Apan, A. and McDougall, K.*		Generating a synthetic population in support of agent-based modeling of transportation in Sydney *Huynh, N., Namazi-Rad, M., Perez, P., Berryman, M.J., Chen, Q. and Barthelemy, J.*	The Simple Dependency Ranking System – A novel method for defence capability prioritisation *Lowe, D.B., Hadley, A.L. and Pitinanondha, T.*	**KEYNOTE** cont.	Diagnostic models for mastitis detection using sensor data from automatic milking systems – current trends and future perspectives *Kharazi, M. and Samarasinghe, S.*	Distributive hydrological modeling of a monsoon dominated river system in central Vietnam *Fink, M., Fischer, C., Führer, N., Firoz, A.M.B., Viet, T.Q., Laux, P. and Flügel, W.-A.*

Thursday 5 December

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	K5. Data governance	C4. Modelling and simulation in engineering	L2. Climate change adaptation in water resources management	L18. Visualisation and modelling for sustainable urban development	A11. Modelling the role of water in the mining industry	A1. Industrial modelling and simulation	A10. Mathematical modelling designed to assess the impacts of global changes	
11:00	A Governance Framework for Data Audit Trail creation in large multi-disciplinary projects *Hartcher, M.G.*	Numerical simulation of a high viscosity bubble column *Carvajal, D., Melendez-Vejar, V., Irrázabal, M. and Carlesi-Jara, C.*	Rainfall—runoff model performance suggests a change in flow regime and possible lack of catchment resilience *Silberstein, R.P., Aryal, S.K., Braccia, M. and Durrant, J.*	Urban development and the water balance: coupling land-use dynamics and the hydrological system *Batelaan, O., Salvadore, E., Bronders, J. and Schmitz, O.*	A process-based simulation model for strategic mine water management *Gao, L., Barrett, D., Chen, Y., Zhou, M., Cuddy, S., Paydar, Z. and Renzullo, L.*	Multi-level grade control in a mining supply chain DEM *Grigoleit, M.T. and Schneider, M.S.*	Detecting the infrastructural, demographic and climatic changes on macroalgal blooms using simulation modelling *O'Neill, K., Schreider, M., McArthur, L. and Schreider, S*	
11:20	Driving data management cultural change via automated provenance management systems *Car, N.J., Hartcher, M.G. and Stenson, M.P.*	Multi-scale modeling of materials: a basis for computational design *Cole, I.S., Chu, C., Breedon, M. and Winkler, D.*	Changes in flow threshold characteristics due to climate change in a semi-arid region *Aryal, S.K., Silberstein, R.P., Fu, G., Charles, S.P. and McFarlane, D.J.*	A scenario analysis approach to distributed energy system optimisation *Christopher, P.B., Aye, L., Ngo, T. and Mendis, P.*	Characterising mineral slurry dewatering through laboratory centrifugation *Berres, S., Garcés, R. and Usher, S.P.*	On factory relocation via integer programming *Scott, C.H. and Liu, S.*	Multifractal analysis of wind farm power output *McArthur, L., Mackenzie, S. and Boland, J.*	
11:40	Data and information management for integrated research – requirements, experiences and solutions *Zander, F., Kralisch, S. and Flügel, W.-A.*	A high performance, agent-based simulation of old world screwworm fly lifecycle and dispersal using a Graphics Processing Unit (GPU) platform *Welch, M., Kwan, P. and Sajeev, A.S.M.*	Strategic water management for reliable mine water supply under dynamical climates *Gao, L., Connor, J.D., Barrett, D., Chen, Y. and Zhang, X.*	Does interactive visualisation increase stakeholders' understanding? A case study of Te Waihora/Lake Ellesmere, Canterbury, New Zealand. *Otinpong, B., Charters, S., McKinnon, A. and Gidlow, B.*	A scenario model for mine water management under extreme climate variability *Zhou, M., Barrett, D., Chen, Y., Gao, L., Cuddy, S., Paydar, Z. and Renzullo, L.*	Modelling motor vehicle emissions and population exposure in South Australia *Schultz, L., Chiera, B., Shah, P. and Boland, J.*	Optimisation modelling for gas supply in Eastern Australia *Plummer, J., Schreider, S. and McInnes, D.*	
12:00	Making information models work harder *Francis, W., Atkinson, R., Box, P., Cox, S.J.D. and Yu, J.*	A balancing act in heterogeneous computing – Developing the AWRA-Landscape data assimilation system *Perraud, J.-M., Collins, D., Bowden, J.C., Raupach, T., Manser, P.A., Stenson, M.P. and Renzullo, L.J.*	An assessment of climate change impacts on streamflows in the Musi Catchment, India *Nune, R., George, B., Malano, H., Nawarathna, B., Davidson, B. and Ryu, D.*	Assessing the ability of infiltration-based WSUD systems to manage channel-forming flow regimes in greenfield catchment developments: a catchment scale investigation *Subhashini, W.H.C., Hewa, G.A. and Pezzaniti, D.*	Secure mine water use with compliant discharge *Gao, L., Barrett, D., Chen, Y., Zhang, X., Cuddy, S., Zhou, M., Paydar, Z. and Renzullo, L.*	Using SIMULINK® to model and simulate supplier evaluation and selection problem *Abu-Ajamieh, A.M., Luong, L. and Marian, R.*		
12:20	Harmonising web feeds for emergency management *Power, R., Wise, C., Robinson, B. and Squire, G.*			Adapting Geospatial Business Intelligence for regional infrastructure planning *Wickramasuriya, R., Perez, P., Ma, J. and Berryman, M.*	A multi-criteria evaluation of water management for sustainable development in mining *Zhang, X., Gao, L., Barrett, D. and Chen, Y.*	An environmental and economic performance measure for industrial supply networks *Shokravi, S.*		
12:40	Lunch							

Thursday 5 December

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
L1. Flood modelling under changing climate regime	H6. Integrated models for exploring the impacts of, and adaptation to, climate change for coastal systems	D3. Fleet sizing, scheduling and management	J7. Operations Research for Defence Applications	J8. Transport	C2. Advances in neural networks, soft computing and machine learning and applications in natural, environmental and biological systems **U-Session**	H12. The role of environmental modelling in multifunctional land use and ecosystem services assessment **U-Session**
Regional flood estimation in Australia: application of gene expression programming and artificial neural network techniques *Aziz, K., Rahman, A., Shamseldin, A. and Shoaib, M.*	Generalized additive modelling helps untangle East Australian coastal processes *Hughes, L.P., Richards, R., Tomlinson, R.B. and Lemckert, C.*	Using discrete-event simulation to predict the size of a fleet of naval combat helicopters *Marlow, D.O. and Novak, A.*	Dynamic morphological exploration *Williams, P.B. and Bowden, F.D.J.*	Comparative analysis of time-dependent shortest path algorithms: an application for a multimodal trip planner *Casey, B., Guo, H. and Bhaskar, A.*	Development of Intelligent Environmental Knowledge Discovery System (i-EKbase) for sustainable precision agriculture *Dutta, R., Morshed, A., D'Este, C., Smith, D., Shu, Y., Rahman, A. and Hellicar, A.*	Optimising flow management for ecological response and consumptive use *Powell, S.J., Nichols, S.J., Webb, J.A., Adams, G., de Little, S.C. and Dyack, B.*
A simple storage based floodplain inundation modelling approach in AWRA-R for estimating floodplain fluxes *Dutta, D., Lerat, J., Hughes, J., Kim, S. and Vaze, J.*	A coastal model supporting urban catchment management *Strauss, D., Bordet, A. and Buhr, C.*	Force generation plan automation for the Royal Australian Navy *Weir, T.*	Enabling models of partially understood red forces *Rajesh, S. and Curtis, N.J.*	An Extended Demand Responsive Connector *Lee, A. and Savelsbergh, M.*	Fuzzy representation and aggregation of Fuzzy Cognitive Maps *Obiedat, M. and Samarasinghe, S.*	Sensitivity of land-use pattern optimisation to variation in input data and constraints *Herzig, A., Ausseil, A.-G.E. and Dymond, J.R.*
LUCICAT Model as a river flow forecasting tool: an experiment with Fitzroy River catchment of Western Australia *Islam, S.A., Anwar, A.H.M.F., Ezzy, G. and Bari, M.*	What is the role of sediment resuspension in the bioaccumulation of heavy metals in oysters? *Lee, J.H., Richards, R.G. and Birch, G.F.*	Assessing ship-based helicopter fleet sizes using a discrete event simulation *McIntosh, G.C.*	Cost-effective capacity testing in the Australian Army *Whitney, S.J., Hemming, D., Haebich, A. and Bowden, F.D.J.*	The two train separation problem on level track *Albrecht, A., Howlett, P., Pudney, P., Vu, X. and Zhou, P.*	Hydrologic model parameter optimisation *Cohen, W.J., Ollington, R.B. and Ling, F.L.N.*	Identifying trade-offs of increasing biogas crop production in a German watershed under climate change *Lautenbach, S., Volk, M., Strauch, M., Whittaker, G. and Seppelt, R.*
Long term water demand forecasting: use of Monte Carlo cross validation for the best model selection *Haque, M.M., Haddad, K., Rahman, A., Hossain, M., Hagare, D. and Kibria, G.*	An integrated source-fate-effects model for sedimentary metals in Sydney estuary and catchment (Australia) *Birch, G.F. and Richards, R.*	Army vehicle fleet size analysis: modeling tool and analytical approach *Richmond, M.*	Operational synthesis for small combat teams: exploring the scenario parameter space using agent-based models *Chau, W. and Grieger, D.*	In-train forces from energy-efficient driving strategies *Zhou, P., Pudney, P. and Howlett, P.*	Improving PMI based input selection by using different kernel bandwidths for artificial neural network models *Li, X.Y., Maier, H.R. and Zecchin, A.*	Using an integrated river basin model and an optimization algorithm for quantifying ecosystem services and trade-offs in large river basins – Challenges and potential solutions *Volk, M., Lautenbach, S., Strauch, M., Witing, F. and Seppelt, R.*
Trend analysis of flood data in Australia: a case study for Victoria *Hossain, M.S., Rahman, A., Haddad, K. and Ishak, E.H.*		Development of a life-cycle sustainment conceptual model for a virtual fleet environment *Diab, H., Vodicka, R. and Perry, J.*	Bayesian evolved multi-criteria system risk evaluation *Hu, Y.*	Pickup and delivery with a solar-recharged vehicle *Albrecht, A. and Pudney, P.*	Application of ensemble supervised machine learning to calibrate Cosmos bulk soil moisture sensor *Dutta, R., Almeida, A., Terhorst, A., Baillie, C., Worledge, D. and Smethurst, P.*	Habitat modelling: a multi-models approach to map the potential distribution of alpine vegetation assemblages in France *Marechal, D., Mikolajczak, A., Isenmann, M., Sanz, T. and Luque, S.*

Thursday 5 December

13:30	Plenary			Dr Russell Glenn The Australian National University, Australia Mission impossible: achieving a comprehensive approach during operations and campaigns		Hall E	

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8
	H15. Spatial indicators for ecosystem pattern and processes			L3. Modelling and public policy	L21. Great Barrier Reef modelling **U-Session**	A1. Industrial modelling and simulation	A9. Spatial modelling using statistical approaches including modern statistics, geostatistics, machine learning methods **U-Session**
14:10	An ecological footprint analysis for Illawarra Region (SA2 Level), NSW, Australia *Namazirad, A., Perez, P., Wickramasuriya, R. and Namazi-Rad, M-R.*			Multi-response calibration of a rainfall runoff model to assess downstream environmental water requirements *Gibbs, M.S. and Taylor, B.*	Great Barrier Reef Source Catchment's modelling: enhanced simulation and water quality targeting through event based assessment *Dougall, C. and Carroll, C.*	Container packing problem for stochastic inventory and optimal ordering through integer programming *Nazari, A., Dunstall, S. and Ernst, A.*	Filling gaps in daily rainfall data: a statistical approach *Hasan, M.M. and Croke, B.F.W.*
14:30	Using NDVI dynamics as an indicator of native vegetation management in a heterogeneous and highly fragmented landscape *Turner, D., Clarke, K., Lewis, M. and Ostendorf, B.*			Groundwater models of the South Australian River Murray for the Basin Salinity Management Strategy: a policy and modelling success *Yan, W., Vears, L., Woods, J.A. and Li, C.*	Assessing the effectiveness of water quality management of the Great Barrier Reef through marine monitoring and modelling *Martin, K.C., Chinn, C., Schaffelke, B., Mueller, J., Thompson, A., McKenzie, L., Waycott, M., Devlin, M., Collier, C., Brando, V., Brinkman, R., Brodie, J. and Yorkston, H.*	Data-driven modelling and analysis of household travel mode choice *Shukla, N., Ma, J., Wickramasuriya, R. and Huynh, N.*	Improved sea surface temperature/rainfall forecasts by multi-model combination approach *Khan, M.Z.K., Mehrotra, R., Sharma, A., Wang, Q.J., Schepen, A. and Robertson, D.E.*
14:50	Linking spatial inundation indicators and hydrological modelling to improve assessment of inundation extent *Gibbs, M.S. and Clarke, K.*			Exploring variability in environmental flow metrics for assessing options for farm dam low flow releases *Cetin, L.T., Alcorn, M.R., Rahman, J. and Savadamuthu, K.*	Assessing the relative risk of land based pollutants to the Great Barrier Reef *Waterhouse, J., Brodie, J. and Maynard, J.*	Analysis of queuing scheduling linkage model to minimize the hiring cost of machines/ equipments *Sharma, S., Gupta, D. and Sharma, S.*	Are spatial modelling methods sensitive to spatial reference systems for predicting marine environmental variables? *Jiang, W. and Li, J.*
15:10	Characteristics of MODIS BRDF shape and its relationship with land cover classes in Australia *Li, F., Jupp, D.L.B., Lymburner, L., Tan, P., McIntyre, A., Thankappan, M., Lewis, A. and Held, A.*				Using multi-criteria analysis models for the prioritisation of investment in the Great Barrier Reef *Barson, M., Randall, L. and Gale, K.R.*	Impact of virtual training on safety and productivity in the mining industry *Pedram, S., Perez, P. and Dowsett, B.*	Application of Kriging to groundwater level interpolation *Sharples, J., Daamen, C., Carrara, E., Wethasinghe, C. and Peterson, T.*
15:30	**Afternoon tea**	**Halls J & K**					

Thursday 5 December

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
L1. Flood modelling under changing climate regime	L20. Integrated urban water management	L13. Compound extremes: understanding process interactions in hydrology and climate science	J7. Operations Research for Defence Applications	L4. Advances in modelling and control of large-scale water resources systems	C2. Advances in neural networks, soft computing and machine learning and applications in natural, environmental and biological systems **U-Session**	H12. The role of environmental modelling in multifunctional land use and ecosystem services assessment **U-Session**
Estimation of water surface elevation on inundated area using satellite based information *Yorozuya, A., Kamimera, H., Okazumi, T., Iwami, Y. and Kwak, Y.*	Identifying safe drinking water source for establishing sustainable urban water supply scheme in Rangunia municipality, Bangladesh *Adhikary, S.K., Das, S.K., Chaki, T. and Rahman, M.*	Investigation of statistical methods for modelling bivariate extremes *Zheng, F., Westra, S., Sisson, S. and Leonard, M.*	A feasibility study on Bayesian approach for weapon system test and evaluation *Hu, Y.*	A new evaluation framework for input variable selection algorithms used in environmental modelling *Humphrey, G.B., Galelli, S., Maier, H.R., Castelletti, A., Dandy, G.C. and Gibbs, M.S.*	A hybrid neural network based Australian wildfire prediction: a novel approach using environmental data and satellite imagery *Das, A., Dutta, R. and Aryal, J.*	The use of models to explore IPM strategies and design pest suppressive landscapes for sustainable agricultural practice *Parry, H.R. and Schellhorn, N.A.*
Challenges on modelling a large river basin with scare data: a case study of the Indus upper catchment *Sugiura, A., Fujioka, S., Nabesaka, S., Sayama, T., Iwami, Y., Fukami, K., Tanaka, S. and Takeuchi, K.*	Multivariate statistical approach for modelling domestic water demand of Dhaka city in Bangladesh *Adhikary, S.K., Das, S.K., Islam, M.A. and Hossain, Q.S.*	Simulating the combined effects of climate and wildfire on streamflow *Feikema, P.M., Sherwin, C.B. and Lane, P.N.J.*	A combined Bayesian Belief Network analysis and systems architectural approach to analyse an amphibious C4ISR system *Cao, T., Coutts, A. and Lui, F.*	Model-based hypothesis testing for decision-making *Blakers, R.S., Croke, B.F.W., Doherty, J. and Jakeman, A.J.*	Development of a practically-significant ANN-based air pollution forecasting tool with the aid of explicit knowledge through sensitivity analysis *Elangasinghe, M.A., Singhal, N., Dirks, K.N. and Salmond, J.A.*	Hydrological modelling of paired catchments with competing land uses *Camporese, M., Dean, J.F., Dresel, P.E., Webb, J. and Daly, E.*
Regional flood modelling in the new Australian rainfall and runoff *Rahman, A.S., Haddad, K. and Rahman, A.*	Assessment of the first flush phenomenon in three catchments with different land uses *Aryal, R., Chong, M.N., Furumai, H., Nakajima, F. and Beecham, S.*	Thunderstorms in burned forests: compound extremes and hydro-geomorphic hazards *Sheridan, G.J., Nyman, P., Langhans, C., Jones, O. and Lane, P.N.J.*	Balancing the validity and viability of Bayesian Belief Networks for the study of national strategic decisions *Coutts, A.*	Using parallel computing for efficient large-scale hydrological modelling *Kralisch, S.*	Using genetic programming for symbolic regression to detect climate change signatures *Ricketts, J.H.*	Multi-objective spatial optimization for integrated agricultural climate change adaptation *Holzkämper, A., Klein, T., Calanca, P. and Fuhrer, J.*
	Modeling water use in schools: a comparative study of quarterly and monthly models *Barua, S., Ng, A.W.M., Muthukumaran, S., Huang, F., Roberts, P. and Perera, B.J.C.*	Estimating the contribution of rainfall and evapotranspiration changes on future flood risk *Johnson, F., Leonard, M. and Westra, S.*	Data collection at army and national security exercises *Curtis, N.J., Rees, L.M.L. and Hobbs, W.S.R.*	An equivalent cross-section framework for reducing computational time in distributed hydrologic modelling *Khan, U., Tuteja, N.K., Ajami, H. and Sharma, A.*		

Thursday 5 December

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	H15. Spatial indicators for ecosystem pattern and processes	K8. Integrated assessments in the context of urban systems **U-Session**	L2. Climate change adaptation in water resources management	H12. The role of environmental modelling in multifunctional land use and ecosystem services assessment **U-Session**	B1. Image analysis and plant phenomics	A1. Industrial modelling and simulation	A9. Spatial modelling using statistical approaches including modern statistics, geostatistics, machine learning methods **U-Session**	
16:00	How generalisable are empirical models to estimate high resolution spatial indicators of crop performance at the regional scale? *Lyle, G., Arbon, K., Clarke, K., Kilpatrick, A., Summers, D. and Ostendorf, B.*	Marrying exploratory modelling to strategic planning: towards participatory model use *Malekpour, S., de Haan, F.J. and Brown, R.R.*	Climate change impact studies: hydrologic model uncertainty evaluation *Athira, P., Cibin, R. and Sudheer, K.P.*	**KEYNOTE:** Modelling Australian land use sharing for multiple ecosystem services at high spatial resolution *Connor, J.D., Bryan, B., Nolan, M., Stock, F., Graham, P, Ernst, A., Dunstall, S. and Hatfield-Dodds, S.*	A phenotyping platform for transgenic wheat: method and initial results *Anbalagan, R., Kovalchuk, N., Parent, B., Kovalchuk, A., Okamoto, M., Whitford, R. and Haefele, S.M.*	Patient flow simulation modelling – an approach conducive to multi-disciplinary collaboration towards hospital capacity management *Mackay, M., Qin, S., Clissold, A., Hakendorf, P., Ben-Tovim, D. and McDonnell, G.*	Combination of spatial forecasts *Wasko, C., Sharma, A. and Rasmussen, P.*	
16:20	New Zealand national and regional nutrient mapping using the CLUES model *Parshotam, A., Elliott, S. and Shankar, U.*	SEVA: A non-linear mathematical framework for climate change vulnerability assessment *Tonmoy, F.N. and El-Zein, A.*	Solar chilled drinking water sourced from thin air: modelling and simulation of a solar powered atmospheric water generator *Aye, L., George, B. and Wu, D.*	**KEYNOTE:** cont.	Generalised linear model and analysis of cereal plant biomass *Cespedes, M. and Cai, J.*	The aggregate association index and its links with common measurements of association in a 2x2 table: an analysis of early New Zealand gendered voting data *Tran, D., Beh, E.J., Hudson, I.L. and Moore, L.M.*	Levy stable distribution to model stochastic processes in GNSS time series *Montillet, J.P., Yu, K. and Tregoning, P.*	
16:40	Habitat suitability and susceptibility modeling for strategic control of invasive Buffel grass, South Australia *Marshall, V., Ostendorf, B., Reynolds, T., Michaela, H., Tuke J. and Lewis, M.*	Integrated assessment of future water security: the case of Makassar, Indonesia *Neumann, L., Tjandraatmadja, G., Kirono, D. and Selitung, M*	Modelling to evaluate agricultural adaptation to climate change in southern Australia *Farquharson, R., Abadi, A., Finlayson, J., Ramilan, T., Liu, D.L., Anwar, M. and Clark, S.*	Simple models in planning for a multifunctional landscape under changing market and climate conditions *Summers, D.M., Bryan, B.A., Lyle, G., Wells, S., McLean, J., Siebentritt, M., Moon, T. and Meyer, W.*	Selection of parameters in active contours for the phenotypic analysis of plants *Chopin, J., Miklavcic, S.J. and Laga, H.*	Simulation-based operational decision support systems *Creighton, D., Johnstone, M., Le, V., Nahavandi, S. and Zhang, J.*	A novel image based end-member extraction technique to map green, non-photosynthetic and bare soil fractions using Landsat data *Tan, P., Lymburner, L. and Mueller, N.*	
17:00	Crop phenology based on MODIS satellite imagery as an indicator of plant available water content *Araya, S.G., Ostendorf, B., Lyle, G. and Lewis, M.*	Integrated assessment of water management strategies: framework and case study *Moglia, M., Nguyen, M.N., Neumann, L.E., Cook, S. and Nguyen, T.H.*	Modelling estuarine wetlands under climate change and infrastructure pressure *Trivisonno, F.N., Rodríguez, J.F., Riccardi, G.A., Saco, P.M. and Stenta, H.*	Linking Bayesian and agent-based models to simulate complex social-ecological systems in the Sonoran Desert *Pope, A.J. and Gimblett, H.R.*	3D reconstruction, modelling and analysis of in situ root system architecture *Kumar, P., Cai, J. and Miklavcic, S.*	Altering typical meteorological years data to cater for climate change *Ridley, B. and Boland, J.*	Comparison of sum of two correlated gamma variables for Alouini's model and McKay distribution *Zakaria, R., Boland, J.W. and Moslim, N.H.*	
17:20	Spatio-temporal pattern of rice production in Bangladesh: interaction of climate and management practices *Ara, I. and Ostendorf, B.*	Towards building an integrated urban water system model to inform the identification of optimal water source mixes for Adelaide *Mirza, F., Thomas, N., Maheepala, S. and Kotz, S.*		Use of multi-criteria analysis shell for catchment action planning: ecosystem services and threat analysis approach *Chapman, G.A., Yang, X. and Barrett, T.W.*	Curve-based stereo matching for 3D modeling of plants *Laga, H. and Miklavcic, S.J.*	Sport Synthesis: using simulation models to understand incentives for sporting teams to tank *Tuck, G.N. and Whitten, A.R.*	Predicting the spatial distribution of seabed gravel content using random forest, spatial interpolation methods and their hybrid methods *Li, J.*	

Thursday 5 December

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
D2. Homeland security and emergency management applications	L20. Integrated urban water management	L13. Compound extremes: understanding process interactions in hydrology and climate science	J3. Emerging Applications in Operations Research	L4. Advances in modelling and control of large-scale water resources systems	A4. Tsunami inundation and flood modelling	J8. Transport
Modeling and simulation for Homeland Security *Stamber, K.L., Brown, T.J., Pless, D.J. and Berscheid, A.*	A stochastic model of domestic water consumption and greywater generation in the Al Ain city *Chowdhury, R.K.*	Observed hydrologic non-stationarity in south-eastern Australia and implications for modelling predictions *Chiew, F.H.S., Potter, N.J., Petheram, C., Zhang, L., Vaze, J., Post, D.A. and Teng, J.*	On the justifiability of decision support analysis *Bender, A.*	An optimisation framework for scheduling environmental flow management alternatives in the South Australian River Murray *Szemis, J.M., Maier, H.R. and Dandy, G.C.*	Are the physics we use to model deep-ocean tsunami adequate? *Allgeyer, S. and Cummins, P.*	Choosing efficient hubs and routes in an innovative public transport system *Kilby, P. and Robards, M.*
Algebraic models for path-based measures in time-ordered social networks *Kontoleon, N., Falzon, L. and Pattison, P.*	Development of a framework for the valuation of Eco-System Services of Green Infrastructure *Jayasooriya, V.M. and Ng, A.W.M.*	Drought related changes in rainfall-runoff relationships and its impact on model performance *Saft, M., Perraud, J.-M., Western, A.W., Zhang, L. and Peel, M.C.*	INVITED TALK: OA and OR – time for a divorce – or at least some time apart *Kelly, J. and Creighton, D.*	Optimisation of water scheduling for irrigation using ant colony algorithms *Nguyen, D.C.H., Maier, H.R., Dandy, G.C. and Ascough II, J.C.*	Predictions on arrival times of water of the St. Francis dam break flood using ANUGA *Mungkasi, S., van Drie, R. and Roberts, S.G.*	Train scheduling and cooperative games *Kamarazaman, M., Albrecht, A. and Pudney, P.*
Using models to compare the effectiveness of alternative complex security arrangements *Nunes-Vaz, R.A., Lord, S., Bilusich,D. and Chim, L.*	A framework for optimizing residential water reuse at the cluster scale: performance trade-offs when choosing between water sources and scale of implementation *Newman, J.P., Maier, H.R. and Dandy, G.C.*	The use of multi-duration relationships for deriving design rainfall estimates in Australia *Johnson, F. and Tang, J.*	Toward a systematic process for science and technology foresight *Crone, D.J. and Gaertner, P.*	An irrigation model for use in river systems modelling *Hughes, J.D., Mainuddin, M., Lerat, J., Dutta, D. and Kim, S.S.H.*	3D tsunami/storm surge inundation modelling using SPH: advantages and challenges *Prakash, M., Woolard, F., Grant, J. and Cleary, P.W.*	Optimising reclaimer schedules *Savelsbergh, M. and Kapoor, R.*
An investigation of the effectiveness of interdiction regimes against terrorist attacks in an urban transport hub *Keep, D., Piper, I. and Green, A.*	Modeling the effects of urban growth scenarios on water demand and runoff patterns in Dublin, Ireland *Willuweit, L., O'Sullivan, J.J. and Shahumyan, H.*	Seasonal sea-level predictions for the Western Pacific *Miles, E., Spillman, C., McIntosh, P., Church, J., Charles, A. and de Wit, R.*	A structured approach to extract strategic objective categories from textual sources *Coutts, A.*	Numerical weather models as virtual sensors to data-driven rainfall forecasts in urban catchments *Cozzi, L., Galelli, S., Castelletti, A. and Jolivet, S.*	High resolution tsunami inundation simulations *Roberts, S.G., Oishi, Y. and Li, M.*	Constructing water tank delivery schedules through combined vehicle routing and packing decisions *Stolk, J., Mann, I., Mohais, A. and Michalewicz, Z.*
Microsimulation study of the release of Pneumonic Plague and Smallpox on a synthetic civilian population *Green, A., Piper, I. and Keep, D.*		Dynamical seasonal prediction of climate extremes in the Pacific *Charles, A., Miles, E., Griesser, A., de Wit, R., Shelton, K., Cottrill, A., Spillman, C., Hendon, H., McIntosh, P., Nakaegawa, T., Atalifo, T., Prakash, B., Seuseu, S., Nihmei, S., Church, J., Jones, D. and Kuleshov, Y.*	Contextual Clustering, grouping and classifying problems in a defined context *Manning, C.J. and Bowden, F.D.J.*	Reducing propagation of uncertainty in river system modelling by optimal use of streamflow data *Lerat, J., Dutta, D., Kim, S., Hughes, J. and Vaze, J.*		Operational modelling of livestock logistics for simulation based case studies *Zhou, M. and Higgins, A.*

Thursday 5 December

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	H15. Spatial indicators for ecosystem pattern and processes	K8. Integrated assessments in the context of urban systems **U-Session**		H12. The role of environmental modelling in multifunctional land use and ecosystem services assessment **U-Session**	B1. Image analysis and plant phenomics	A1. Industrial modelling and simulation		
17:40	Using spatio-temporal vegetation imagery for arid lands monitoring *Lawley, E.F., Lewis, M.M. and Ostendorf, B.*	Increased urban heat island effect due to building height increase *Bennet, M.G. and Ewenz, C.M.*		LUTO – Modeling outlooks for land use and ecosystem services in Australia *Bryan, B.A., Nolan, M. and Connor, J.D.*	Applications of image processing in viticulture: a review *Whalley, J. and Shanmuganathan, S.*	A model of idea generation, spin-offs and cluster formation *Bagley, M.*		

19:00	**Pre-dinner drinks**		
19:30	**Congress Dinner**	**Hall H**	

Friday 6 December

8:00	**Registration and Information Desk**	**Foyer H**
8:30	**Plenary**	**Professor Graeme Dandy** The University of Adelaide, Australia **The multiple roles of modelling in water resources planning and management** Hall E

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
		A7. Combining mechanistic and statistical modelling approaches	L9. Water quality and treatment	G5. Energy reservoir characterisations and modelling	L22. Great Barrier Reef modelling case study	A1. Industrial modelling and simulation	I1. Utilisation of health care systems / I2. Biomedical modelling and simulation	
9:10		Physical statistics or statistical physics? A brief review of Bayesian Melding. *Chiu, G.S. and Westveld, A.H.*	CatStream: an integrated catchment-stream water quality model *Hossain, I. and Imteaz, M.A.*	Calculation of effective permeability in fractured porous media using finite volume method *Gou, C., Natarajan, N., Tian, Z.F. and Xu, C.*	Testing two simple pesticide runoff models in Northern Australian agriculture *Anzooman, M., Silburn, D.M., Waters, D. and Craig, I.*	An index of carcenogenesis using pairwise consistency *Bhavnagri, B.*	Linking ordinal log-linear models with Correspondence Analysis: an application to estimating drug-likeness in the drug discovery process *Zafar, S., Cheema, S.A., Beh, E.J., Hudson, I.L., Hudson, S.A. and Abell, A.D.*	
9:30		Grappling with time-scales – linking land use and stream ecosystem health *Rutherford, J.C.*	Data driven statistical model for manganese concentration prediction in drinking water reservoirs *Bertone, E., Stewart, R.A., Zhang, H. and O'Halloran, K.*	Calculation of equivalent permeability of different fracture intersections in fractured porous media *Tian, Z.F., Shang, J., Xu, C. and Natarajan, N.*	Evaluation of Simhyd, Sacramento and GR4J rainfall runoff models in two contrasting Great Barrier Reef catchments *Zhang, X., Waters, D. and Ellis, R.*	Multiplicity in combustion wave behaviour for a model with competing exothermic reactions *Towers, I.N., Sidhu, H.S., Gubernov, V.V., Kolobov, A.V. and Polezhaev, A.A.*	The modelling of carious lesion progress *Kosztołowicz, T. and Leandowska, K.D.*	

Thursday 5 December

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
D2. Homeland security and emergency management applications			J3. Emerging Applications in Operations Research	L4. Advances in modelling and control of large-scale water resources systems		J8. Transport
Statistics of chemical tracer concentration in a multi-compartment structure measured with a sensor network *Karunasekera, S., Skvortsov, A., Gunatilaka, A. and Pitaliadda, D.*			Development of future space concept options using creative thinking techniques in workshops *Jakobsson, Å.*	Groundwater modeling for the Mekong Delta using iMOD *Vermeulen, P., Quan, N.H., Nam, N.D.G., Hung, P.V., Tung, N.T., Thanh, T.V. and Dam, R.*		Simulation model of crossing pedestrian movements for infrastructure planning *Berres, S., Huth, F., Schwandt, H. and Bärwolff, G.*

Friday 6 December

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
Workshop: Future directions for the human dimensions of modelling stream at MODSIM	G2. Integration of renewable energy into the electricity grid		J3. Emerging Applications in Operations Research	L4. Advances in modelling and control of large-scale water resources systems		E1. Defence Operations Research Symposium
Workshop: Future directions for the human dimensions of modelling stream at MODSIM	Transmission loss modelling and analysis with multiple linear regression *Appalasamy, S., Gan, H.S., Jones, O.D., Moin, N.H. and Tan, C.S.*		Operations Research (OR) at ports: an update *Islam, S. and Olsen, T.L.*	Mapping of flow paths in large, anastomosing arid zone rivers: Cooper Creek, Australia *Mohammadi, A., Ryu, D. and Costelloe, J.F.*		Differential analysis of text-data through sentiment scoring, applications in defence capability *Malcolm, W.P. and Buntine, W.*
Workshop cont.	Expanding renewable energy by implementing Demand-side Integration *Bouckaert, S., Assoumou, E. and Maïzi, N.*		Factors affecting seaport capacity: managerial implications for a simulation framework *Islam, S. and Olsen, T.L.*	Development of a SWAT model in the Yarra River catchment *Das, S.K., Ng, A.W.M. and Perera, B.J.C.*		Validity checking of combat models: a Falklands War dataset *Pincombe, B. and Pincombe, A.H.*

Friday 6 December

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
		A7. Combining mechanistic and statistical modelling approaches	L9. Water quality and treatment		L22. Great Barrier Reef modelling case study	A1. Industrial modelling and simulation	I2. Biomedical modelling and simulation / I3. Modelling health states and health networks: psychological and mental health and more	
9:50		Incorporating a generalised additive model of river nutrient concentrations into a mechanistic receiving water model *Robson, B.J. and Dourdet, V.*	An MILP model for cost-effective water treatment synthesis *Koleva, M.N., Polykarpou, E.M. and Papageorgiou, L.G.*		An evaluation of hydrological models for predicting mean-annual runoff and flood quantiles for water quality modelling *Karim, F., Wilkinson, S. and Dougall, C.*	Modelling of temporal combustion behaviour in a large-scale buoyant pool fire with detailed chemistry consideration *Hu, M., Yuen, A.C.Y., Cheung, S.C.P., Lappas, P, Chow, W.K. and Yeoh, G.H.*	Modelling of links from a laboratory test result to real-world performance: the case of pedestrian collisions *Hutchinson, T.P., Anderson, R.W.G. and Searson, D.J.*	
10:10		Surrogate groundwater models *Asher, M., Croke, B., Jakeman, A. and Peeters, L.*	Application of second-order central composite design (CCD) for optimization of river water treatment using trivalent (alum) and quadrivalent (titanium tetrachloride) coagulants *Hussain, S., van Leeuwen, J., Chow, C., Aryal, R. and Beecham, S.*		Monitoring to enhance modelling – a loads monitoring program for validation of catchment models *Turner, R.D.R., Smith, R.A., Huggins, R.L., Wallace, R.M., Warne, M.St.J. and Waters, D.K.*	Computational modelling of particle spray coating *Hilton, J.E., Ying, D.Y. and Cleary, P.W.*	On issues concerning the assessment of information contained in aggregate data using the F-statistic *Cheema, S.A., Beh, E.J. and Hudson, I.L.*	
10:30	**Morning tea**	**Halls J & K**						
	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	H7. Modelling of physio-chemical processes in the lake and estuarine systems	A7. Combining mechanistic and statistical modelling approaches	L9. Water quality and treatment	B3. Biological invasion and bio-security	L22. Great Barrier Reef modelling case study	A1. Industrial modelling and simulation	I5. Modelling health interventions	
11:00	Modelling acidic solute fluxes to the water column in the Lower Lakes *Mungkasi, S. and Roberts, S.G.*	RoseDist: Generalized tool for simulating with non-standard probability distributions *Feinberg, J. and Clark, S.*	Prediction of dissolved organic matter (DOM) fractions removal using high performance size exclusion chromatography *Aslam, Z., van Leeuwen, J. and Chow, C.W.K.*	To weed or not to weed? How Agent Based Models are assisting in weed management and determining optimal and economic benefits of different control strategies. *Aurambout, J-P., Weiss, J., Gajaweera, R., Steel, J., Mahr, F. and Ainsworth, N.*	Improved mapping of soil erodibility (K-Factor) in the Burdekin River catchment, Queensland, to aid landscape modelling *Pringle, M.J., Payne, J.E., Zund, P.R. and Orton, T.G.*	Adaptively limiting high order discontinuous Galerkin solutions to the advection equation *Mungkasi, S. and Roberts, S.G.*	Modelling to improve understanding of Pertussis epidemiology in Australia *Campbell, P., McCaw, J. and McVernon, J.*	
11:20	Modelling of physicochemical processes in Lake Wivenhoe during a flood period *Aryal, R., Grinham, A. and Beecham, S.*	Practical state-space modelling with LibBi *Murray, L.M.*	Prediction of trihalomethanes in drinking water *van Leeuwen, J.A., Cook, D., Chow, C., Lewis, R., Korshin, G., Bridgeman, J. and Drikas, M.*	On quantifying extinction probability from the sighting record *Barry, S.C. and Caley, P.*	Modelling river constituent budgets in the Burnett Mary region, Queensland, Australia: an example of how it could be used in prioritising management actions *Fentie, B., Ellis, R., Waters, D. and Carroll, C.*	Rim and tyre investigation for the in-wheel motor of an electric vehicle using simulations *Kulkarni, A. and Kapoor, A.*	The role of short term population movement in sustaining STI prevalence in remote Australian Indigenous communities *Hui, B.B., Gray, R.T., Wilson, D.P., Ward, J.S., Smith, A.M.A., Philp, D.J., Law, M.G., Hocking, J.S. and Regan, D.G.*	

Friday 6 December

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
Workshop: Future directions for the human dimensions of modelling stream at MODSIM	G2. Integration of renewable energy into the electricity grid		J3. Emerging Applications in Operations Research	L4. Advances in modelling and control of large-scale water resources systems		E1. Defence Operations Research Symposium
Workshop cont.	Modelling for the electricity distribution network *Boulaire, F.A., Utting, M. and Drogemuller, R.M.*		Decentralised resource scheduling with confidentiality protection *Singh, G. and O'Keefe, C.M.*	Assimilation of SMOS data for improving surface water management *Lievens, H., Al Bitar, A., Cabot, F. et al.*		On the analysis and aggregation of expert opinion, applications in Defence science *van der Hoek, J. and Malcolm, W.P.*
Workshop cont.	Accounting for renewable energy supply intermittency in energy systems modelling *Dunstall, S., ElGindy, T., Jafari, N., Ayre, M., Ernst, A.T., Graham, P., Reedman, L., Savelsbergh, M. and Woodman, S.*		Modelling of stakeholder participation in the Centre for Food Innovation *Hay, T.K.C., Curtis, N.J., Moon, T.T. and Lewis, E.*	Emulation modelling of salinity dynamics to inform real-time control of water quality in a tropical lake *Caietti-Marin, S., Galelli, S., Castelletti, A. and Goedbloed, A.*		Path analysis of infantry combat during battle of Kursk *Kosowski, L.R.*

Meeting Room 9	Meeting Room 10	Meeting Room 11	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4
Workshop: Future directions for the human dimensions of modelling stream at MODSIM	G2. Integration of renewable energy into the electricity grid	G6. Biofuel modelling	J3. Emerging Applications in Operations Research	L4. Advances in modelling and control of large-scale water resources systems		E1. Defence Operations Research Symposium
Workshop cont.	Modelling travel and charging patterns of plug-in electric vehicles *Horn, M.E.T., Grozev, G., Paevere, P. and Higgins, A.*	Simulation of biodiesel and petrodiesel pollutant kinetics *Cai, G. and Abraham, J.*	Multi-supplier and single retailer contracts: profit splits under equilibrium *Gallego, G. and Talebian, M.*	Local model emulation for Markov Chain Monte Carlo simulation of a river management model *Peeters, L., Podger, G., Smith, T., Pickett, T., Gao, L. and Cuddy, S.*		Force design for adaptivity and robustness – feasible scenario spaces and multi-scale metrics *Grisogono, A-M., Bowley, D.K. and Bowden F.D.J.*
Workshop cont.	Controlling micro-CHP generators as a virtual power plant *MacRae, C.A.G., Weiskircher, R., Dunstall, S., Ernst, A.T. and Kontoleon, N.*	Modelling ethylene-hydrogen jet flames in the MILD combustion regime *Evans, M.J., Tian, Z.F. and Medwell, P.R.*	Mathematical programming gives hard bounds of the Dirichlet Problem for partial differential equations *Kawai, R.*	Evaluating and improving simplified hydrologic models for baseflow and rainfall-runoff estimation using distributed physical models *Li, L., Maier, H.R., Lambert, M.F., Partington, D. and Simmons, C.T.*		Assessing the impact of emerging technologies on the Australian Army *Dexter, P. and Krysiak, K.*

Friday 6 December

	Hall E	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 8	
	H7. Modelling of physio-chemical processes in the lake and estuarine systems	A7. Combining mechanistic and statistical modelling approaches	L9. Water quality and treatment	B3. Biological invasion and bio-security	L22. Great Barrier Reef modelling case study	A1. Industrial modelling and simulation	I5. Modelling health interventions / H1. Modelling life histories of systems undergoing climate change	
11:40	A 3D hydrodynamic-biogeochemical model for assessing artificial oxygenation in a riverine salt-wedge estuary *Hipsey, M.R., Bruce, L.C. and Kilminster, K.*	Probabilistic ecosystem model for predicting the nutrient concentrations in the Gulf of Finland *Vanhatalo, J., Tuomi, L., Inkala, A., Helle, I. and Pitkänen, H.*	Three-dimensional investigation of retention time distribution of waste stabilisation ponds *Li, M., Zhang, H., Lemckert, C., Lu, Z., Lei, L. and Stratton, H.*	Evaluating the success of pest control programs *Caley, P., Barry, S.C. and Ramsey, D.*	Hydrodynamic modelling of floodplain flow residence time in a wet tropical catchment, north eastern Australia *Karim, F., Palmer, A. and Brodie, J.*	A symmetry analysis of non-autonomous von Bertalanffy equations *Edwards, M.P. and Anderssen, R.S*	Tiered Prediction System for Preeclampsia: an integrative application of multiple models *Leemaqz, S.Y., Dekker, G.A. and Roberts, C.T.*	
12:00	Sediment-water oxygen and nutrient fluxes in a hypoxic estuary *Nørlem, M., Paraska, D. and Hipsey, M.R.*	Modelling Submarine Groundwater Discharge (SGD) in the estuary using radon and salinity measurements *Adiyanti, S., Santos, I. and Hipsey, M.*	Modelling pollutants transport and degradation through wetlands *Imteaz, M.A., Uddameri, V. and Ahsan, A.*	When is it optimal to eradicate? A decision tool applied to Siam weed *Hester, S.M. and Cacho, O.J.*	Estimating RUSLE C-Factor values for Great Barrier Reef Catchments using satellite derived ground cover estimates *Trevithick, R. and Scarth, P.*	Simulation of an innovative public transport system *Kilby, P. and Robards, M.*	Scoping the budding and climate impacts on Eucalypt flowering: nonlinear time series decomposition modelling *Hudson, I.L. and Keatley, M.R.*	
12:20	A systematic review of the treatment of phosphorus in biogeochemical and ecological models *Robson, B.J.*	Using Bayesian hierarchical models to measure and predict the effectiveness of environmental flows for ecological responses *de Little, S.C., Webb, J.A., Miller, K.A., Rutherfurd, I.D. and Stewardson, M.J.*	Modelling salt accumulation in an oval irrigated with recycled water *Rahman, M.M., Hagare, D., Maheshwari, B. and Dillon, P.*	Do locusts seek out greener pastures? A Bayesian hierarchal analysis of the 2010–2011 Victorian Australian plague locust invasion. *Weiss, J. and McCarthy, M.*				
12:40	**Lunch**							

13:40	**Announcement of MODSIM Student Prizes, DORS Gus Schaefer Best Paper and Best Early Career Presentation, ASOR Prizes**	**Hall E**
	Closing for MODSIM/ASOR/DORS 2013	

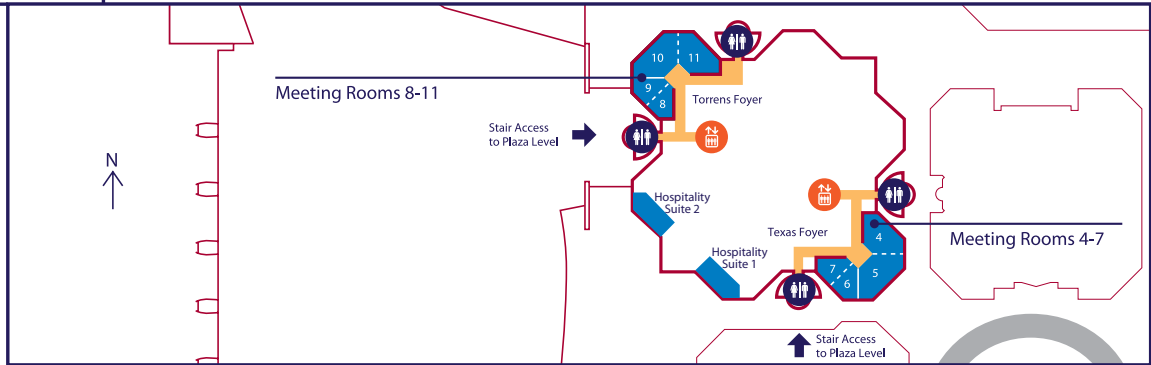|					**Friday 6 December**		
Meeting Room 9	**Meeting Room 10**	**Meeting Room 11**	**Riverbank Room 1**	**Riverbank Room 2**	**Riverbank Room 3**	**Riverbank Room 4**
Workshop: Future directions for the human dimensions of modelling stream at MODSIM	G2. Integration of renewable energy into the electricity grid	G6. Biofuel modelling	J3. Emerging Applications in Operations Research	L4. Advances in modelling and control of large-scale water resources systems		E1. Defence Operations Research Symposium
Workshop cont.	Performance of wind energy conversion systems under low power density wind regimes *Namoora, H., Mathew, S., Shah, H. and Lim, C.M.*	An Artificial Neural Network (ANN) model for predicting biodiesel kinetic viscosity as a function of temperature and chemical compositions *Jahirul, M.I., Senadeera, W., Brooks, P., Brown, R.J., Situ, R., Pham, P.X. and Masri, A.R.*	Modelling the uptake of energy efficient technologies in the residential sector *Marquez, L., Higgins, A., McNamara, C., Xu, C. and Foliente, G.*	Extending rainfall-runoff models for use in environments with long–term catchment storage and forest cover changes *Hughes, J., Silberstein, R. and Grigg, A.*		Land combat vehicle terrain accessibility and impacts on conduct of operations *Manning, C.J. and Erbacher, P.*
Workshop cont.		Thermodynamic modeling of ethanol fumigation in a diesel engine *Situ, R., Ireland, G., Bodisco, T. and Brown, R.*	Toward new combinatorial structures using a roundabout model with security related applications *Kiss, L.N.*	Quantifying in-stream and overland flow generation mechanisms using fully integrated flow models *Partington, D.J., Maier, H.R., Brunner, P., Simmons, C.T., Werner, A.D., Therrien, R., Dandy, G.C., Frei, S. and Fleckenstein, J.H.*		Organisational storytelling with cognitive work analysis: case study of air power doctrine and strategy narrative *Brady, A., Naikar, N. and Treadwell, A.*
Workshop cont.		Development of a two-dimensional internal combustion engines model using CFD for education purpose *Tian, Z.F. and Abraham, J.*	Investigating parallel implementations of CP-Beam-ACO *Cohen, D., Thiruvady, D.R. and Ernst, A.T.*	Optimised scheduling of water supply schemes *Ng, Y.V. and Monks, I.R.*		

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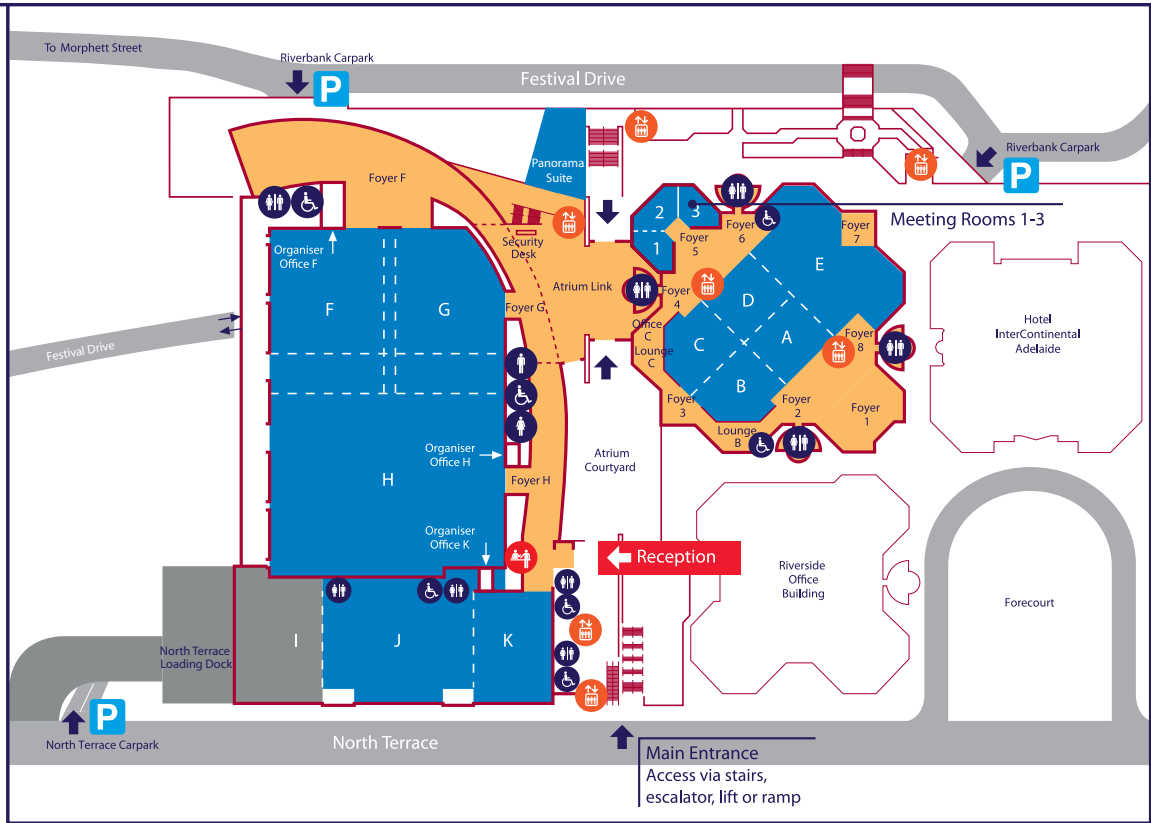sales @adelaidecc.com.au
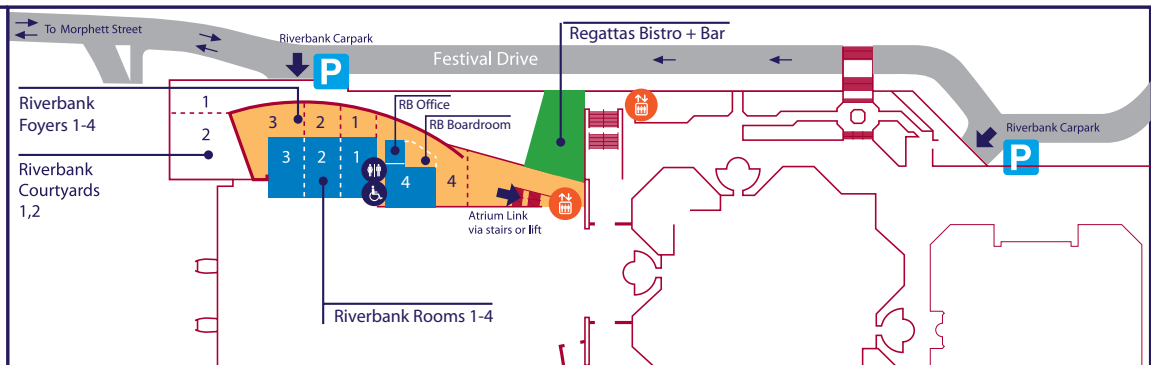www.adelaidecc.com.au

ADELAIDE **CONVENTION CENTRE**

Level One

N

Meeting Rooms 8-11

Stair Access
to Plaza Level

10 11

9
8

Torrens Foyer

Hospitality
Suite 2

Texas Foyer

Hospitality
Suite 1

4

Meeting Rooms 4-7

7 5
6

Stair Access
to Plaza Level

Plaza Level

To Morphett Street

Riverbank Carpark

Festival Drive

Riverbank Carpark

Foyer F

Panorama
Suite

Organiser
Office F

Security
Desk

Atrium Link

Foyer G

Meeting Rooms 1-3

2 3
Foyer
6

Foyer
5

1

Foyer 7

Foyer
4

E

Festival Drive

F   G

D

A

Foyer 8

Office
C
Lounge
C

C

Hotel
InterContinental
Adelaide

B

Foyer
3

Organiser
Office H

Foyer H

H

Atrium
Courtyard

Lounge
B

Foyer
2

Foyer 1

Organiser
Office K

Reception

Riverside
Office
Building

Forecourt

North Terrace
Loading Dock

I   J   K

North Terrace Carpark

North Terrace

Main Entrance
Access via stairs,
escalator, lift or ramp

Riverbank Level

To Morphett Street

Riverbank Carpark

Regattas Bistro + Bar

Festival Drive

Riverbank Carpark

Riverbank
Foyers 1-4

1

2

3 2 1

RB Office
RB Boardroom

Riverbank
Courtyards
1,2

3 2 1

4

4

Atrium Link
via stairs or lift

Riverbank Rooms 1-4

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20th International Congress on Modelling and Simulation

ASOR 2013
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