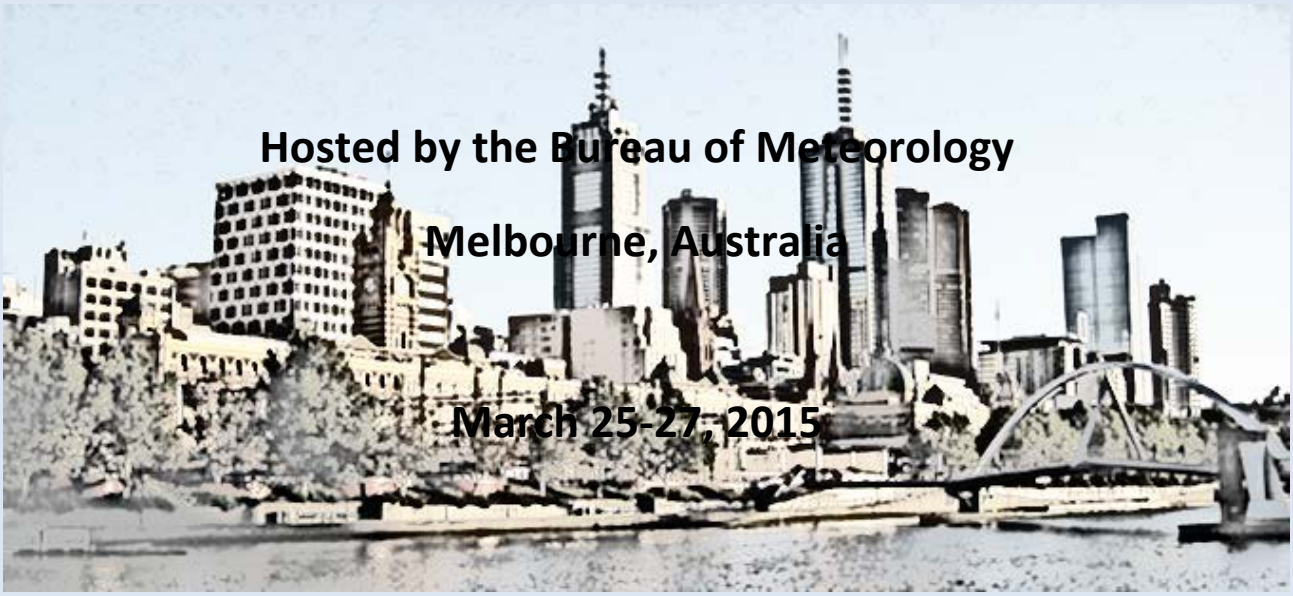
The International Symposium on Environmental Software Systems

ISESS 2015

PROGRAM



Hosted by the Bureau of Meteorology

Melbourne, Australia

March 25-27, 2015

Sponsored and supported by

Australian Government Bureau of Meteorology · EIG · NCI · Universitas Masarykiana Brunensis · FUJITSU · AIT Austrian Institute of Technology Tomorrow Today

Welcome

Welcome to the 2015 International Symposium on Environmental Software Systems, and also welcome to Melbourne, Australia. We have an excellent technical and social program available for the conference and I hope that all participants have a chance to be both informed and entertained.

I would like to acknowledge the significant efforts of the conference Organising Committee and the international Program Committee in bringing together such as fine technical program and conference proceedings, and also the efforts of all authors. Springer have assisted us in publishing the conference proceedings CD and the conference book, and have also made the proceedings available online during the conference. Thanks also to the staff of the Bureau of Meteorology and the volunteers who have assisted in bringing the conference together.

All the best for your time in Melbourne.

Dr Robert Argent

Conference Chairman, on behalf of the Organising Committee.

ISESS 2015 Review Description

For ISESS 2015 we received 104 abstracts in stage 1 of the submission process, with the majority in the form of a 3-4 page extended abstract. Most abstracts were reviewed by 3 independent reviewers, with 13 being reviewed by two reviewers. Twenty-one submissions were rejected, and 29 submissions were accepted conditionally. For stage 2, two independent reviewers were assigned to each full paper, many of whom had not reviewed the paper in stage 1. Sixty-one papers were accepted in the full paper review and published in the conference book after an editorial process, which amounts to an overall rejection rate of 41.3%.

Tuesday March 24, 2015

17:00	Registration - **via Reception, 700 Collins St, Docklands**
17:30 – 19:00	Icebreaker drinks and snacks Watermark Pavilion - Tenancy 9/800 Bourke Street, Docklands

Wednesday March 25, 2015

	Level 6 Conference Area, 700 Collins St, Docklands	
09:00	Registration Welcome tea and coffee	
09:20	**Plenary (Room 3)**	
09:20-09:40	Opening and Announcements, Acknowledgement of Country Chair: Robert Argent	
09:45	**Room 1/2**	**Room 3**
	Chair: Robert Argent	Chair: Katharina Schleidt
09:45	#23 (pg. 333) An Integrated Workflow Architecture for Natural Hazards, Analytics and Decision Support, *James Hilton*	#58 (pg. 217) Training support for crisis managers with elements of serious gaming, *Denis Havlik*
10:10	#97 (pg. 445) Advanced Data Analytics and Visualisation for the Management of Human Perception of Safety and Security in Urban Spaces, *Lee Middleton*	#80 (pg. 455) Combined Aggregation and Column Generation for Land-Use Trade-Off Optimisation, *Asef Nazari*
10:35	#69 (pg. 56) Crowdsourcing in Crisis and Disaster Management – Challenges and Considerations, *Gerald Schimak*	#110 (pg. 71) Evolution of Environmental Information Models, *Katharina Schleidt*
11:00	Morning tea	
11:20	Chair: Ben Evans	Chair: *David Segersson*
11:20	#71 (pg. 569) The NCI High Performance Computing and High Performance Data Platform to Support the Analysis of Petascale Environmental Data Collections, *Ben Evans*	#21 (pg. 141) The Emergency Response Intelligence Capability Tool, *Robert Power*
11:45	#104 (pg. 561) The Czech e-Infrastructure and the European Grid Infrastructure Perspective, *Ludek Matyska*	#102 (pg. 151) Civic Issues Reporting and Involvement of Volunteers as a Phenomenon in the Czech Republic, *Jiří Kalina*
12:10	#39 (pg. 542) Scalability of Global 0.25° Ocean Simulations using MOM, *Marshall Ward*	#31 (pg. 102) Towards Linked Data Conventions for Delivery of Environmental Data using netCDF, *Jonathan Yu*
12:35	#64 (pg. 578) Big Data Architecture for Environmental Analytics, *Ritaban Dutta*	#63 (pg. 242) Exposure Modeling of Traffic and Wood Combustion Emissions in Northern Sweden - Application of the Airviro Air Quality Management System, *David Segersson*
13:00	Lunch	
14:00	Chair: Brian Miles	Chair: Robert Argent
14:00	#40 (pg. 552) A Performance Assessment of the Unified Model, *Dale Roberts*	#101 (pg. 361) National Environmental Data Facilities and Services of the Czech Republic and their Use in Environmental Economics, *Jiří Hřebíček*

	Room 1/2	Room 3
14:25	#41 (pg. 589) A Performance Study of Applications in the Australian Community Climate and Earth System Simulator, *Mark Cheeseman*	#70 (pg. 475) Understanding Connectivity between Groundwater Chemistry Data and Geological Stratigraphy via 3D Sub-surface Visualization and Analysis *Jane Hunter*
14:50	#20 (pg. 599) A New Approach for Coupled Regional Climate Modeling Using More than 10,000 Cores, *Marcus Thatcher*	#48 (pg. 169) Provenance in Systems for Situation Awareness in Environmental Monitoring, *Markus Stocker*
15:15	Spatiotemporal monthly rainfall forecast for south-eastern and eastern Australia using climatic indices, *Maryam Montazerolghaem*	37 (pg. 160) Mobile Field Data Collection for Post Bushfire Analysis and African Farmers, *Bradley Lane*
15:40	**Afternoon tea**	
16:00-17:40	**Workshops**	

Room 1	Room 2	Room 3	Room 9E
Evolution of Information Models	High Performance Computing	Crowd Sourcing (Gerald Schimak, Denis Havlik)	Modelling with Maple

Thursday March 26, 2015

	Level 6 Conference Area, 700 Collins St, Docklands	
08:45	Registration Welcome tea and coffee	
09:00	**Plenary (Room 3)**	
09:00-09:40	Chair: Gerald Schimak Announcements Keynote: A Provenance Maturity Model, *Kerry Taylor*	
09:45	**Room 1/2**	**Room 3**
	Chair: Denis Havlik	Chair: Thorston Schlachter
09:45	#98 (pg. 44) The Framework for Environmental Software Systems of the European Environment Agency, *Jiří Hřebíček*	#14 (pg. 343) Quality Control of Environmental Measurement Data with Quality Flagging, *Markus Stocke*
10:10	#49 (pg. 371) A Best of Both Worlds Approach to Complex, Efficient, Time Series Data Delivery, *Benjamin Leighton*	#82 (pg. 280) Implementing a Glossary and Vocabulary Service in an Inter-disciplinary Environmental Assessment for Decision Makers, *Simon N. Gallant*
10:35	#106 (pg. 178) Decision Making and Strategic Planning for Disaster Preparedness with a Multi-Criteria-Analysis Decision Support System, *Ralf Denzer*	#19 (pg. 196) Water Pollution Reduction: Reverse Combinatorial Auctions Modelling Supporting Decision-Making Processes, *Petr Šauer*
11:00	Morning tea	
11:20	Chair: Jiří Hřebíček	Chair: Uwe Rosebrock
11:20	#26 (pg. 262) SPARK - a Bushfire Spread Prediction Tool, *Claire Miller*	#55 (pg. 293) Modelling of Air Flow Analysis for Residential Homes using Particle Image Velocimetry, *Rajiv Pratap*
11:45	#72 (pg. 311) Ecohydrology Models Without Borders? Using Geospatial Web Services in EcohydroLib Workflows in the United States and Australia, *Brian Miles*	#103 (pg. 426) Three Levels of R Language Involve-ment in Global Monitoring Plan Warehouse Architecture, *Jiří Kalina*

	Room 1/2	Room 3
12:10	#8 (pg. 512) GeneralBlock: A C++ program for identifying and analyzing rock blocks formed by finite sized fractures, *Lu Xia*	#13 (pg.) Reconstructing the Carbon Dioxide Absorption Patterns of World Oceans using a Feed-Forward Neural Network: Software Implementation and Employment Techniques, *Jiye Zeng*
12:35		#25 (pg. 113) Information Technology and Solid Residue Management: A Case Study Using Freeware and Social Networks *José Tarcísio Franco de Camargo (via video)*
13:00	Lunch	
14:00-15:40	**Workshops**	

Room 1	**Room 2**	**Room 3**	**Room 9E**
Evolution of Information Models	High Performance Computing	IFIP WG5.11 Meeting (Gerald Schimak WG Chair)	Modelling with Maple

15:40	Afternoon tea	
	room 1/2	**room 3**
16:00	Chair: Jiri Kalina	Chair: Ralf Denzer
16:00	#42 (pg. 235) An Application Framework for the Rapid Deployment of Ocean Models in Support of Emergency Services: Application to the MH370 Search *Uwe Rosebrock*	#96 (pg. 407) Context Ontology Modelling for Improving Situation Awareness and Crowd Evacuation from Confined Spaces, *Lee Middleton*
16:25	#83 (pg. 351) Towards a Search Driven System Architecture for Environmental Information Portals, *Thorsten Schlachter*	#62 (pg. 467) A Software Package for Automated Partitioning of Catchments, *Ralf Denzer*
16:50	Close	
18:30	**Woolshed Pub – Harbour View Room** Shed 9,T18/161 Harbour Esplanade, Docklands **Conference Dinner**	
22:30	Close	

Friday March 27, 2015

	Level 6 Conference Area, 700 Collins St, Docklands	
08:45	Registration; Welcome tea and coffee	
09:00	**Plenary (Room 3)**	
09:00-09:40	Chair: Jiří Hřebíček Announcements, Keynote: Challenges in Modelling of Environmental Semantics, *Ioannis Athanasiadis*	
09:45	**Room 1/2**	**Room 3**
	Chair: Markus Stocker	Chair: Ralf Denzer
09:45	#100 (pg. 520) On the Volume of Geo-referenced Tweets and their Relationship to Events Relevant for Migration Tracking, *Denis Havlik*	#99 (pg. 26) Topics in Environmental Software Systems, *Ralf Denzer*
10:10	#46 (pg. 207) Scenario Planning Case Studies using Open Government Data, *Lachlan Rudd*	#66 (pg. 272) Construction of a Bio-Economic Model to Estimate the Feasibility and Cost of Achieving Water Quality Targets in the Burnett-Mary Region, Queensland, *Craig Beverly*
10:35	#90 (pg. 388) Requirements Engineering for Emergency Situations*, Jiří Barta (via video)*	#22 (pg. 282) Integrating Hydrodynamic and Hydraulic Modeling for Evaluating Future Flood Mitigation in Urban Environments, *Mahesh Prakash*
11:00	Morning tea	
11:20	Chair: Lee Middleton	Chair: Robert Argent
11:20	#15 (pg. 321) A Distributed Computing Workflow for Modelling Environmental Flows in Complex Terrain, *Stuart R. Mead*	#68 (pg. 397) Requirements Engineering for Semantic Sensors in Crisis and Disaster Management, *Gerald Schimak*
11:45	#95 (pg. 303) Open Data Sources for the Development of Mobile Applications and Forecast of Microbial Contamination in Bathing Waters, *Lee Middleton*	#24 (pg. 252) Medium-Term Analysis of Agroeco-system Sustainability under Different Land Use Practices by Means of Dynamic Crop Simulation, *Sergey Medvedev (via video)*
12:10	#86 (pg. 484) Distributed Minimum Temperature Prediction using Mixtures of Gaussian Processes*, Philip Sallis*	#35 (pg. 492) A framework for optimal assessment of planning investments in urban water systems*, Magnus Moglia*
12:35	#59 (pg. 503) Measuring and Benchmarking Corporate Environmental Performance, *Marie Pavláková Dočekalová* (Via Video)	#61 (pg. 531) Benchmarking Systems and Methods for Environmental Performance Models, *Zuzana Chvátalová*
13:00	Lunch	
14:00	Chair: Ari Jolma	Chair: Jamie Vleeshouwer
14:00	#107 (pg. 91) An Information Model for a Water Information Platform, *Ralf Denzer*	#47 (pg. 226) A Software System for the Discovery of Situations Involving Drivers in Storms, *Markus Stocker*
14:25	#79 (pg. 121) Joining the Dots: Using Linked Data to Navigate Between Features and Observational Data, *Peter Taylor*	#44 (pg. 131) An SMS and Email Weather Warning System for Sheep Producers, *Anna Weeks*
14:50	#32 (pg. 81) An Interactive Website for the River Eurajoki, *Ari Jolma*	#43 (pg. 187) A Cotton Irrigator's Decision Support System and Benchmarking Tool using National, Regional and Local Data, *Jamie Vleeshouwer*
15:15	**Plenary (Room 3)**	
15:15-15:40	Session chair: Robert Argent Workshop reports, Closing	

Proceedings

Keynotes and context articles

Information systems, information modelling and semantics

Decision support tools and systems

Modelling and simulation systems

Architectures, infrastructures, platforms and services

Requirements, software engineering and software tools

Analytics and visualization

High performance computing and Big Data

ISESS 2015

Logistics

Wireless access	"ISESS" SSID will available for the duration of the conference. Password will be supplied to delegates.
Online proceedings	ISESS proceedings (including 1995, 1999, 2011, 2013 and 2015) are available on-line to conference participants at: **http://www.isess2015.org/index.php?pg=proceedings** Proceedings of ISESS 2001, ISESS 2003, ISESS 2005, ISESS 2007 and ISESS 2009 are available for PDF download at www.enviromatics.org

Program Overview

Tuesday 24 March	
1700	Registration, via Reception, 700 Collins St, Docklands
17:30-19:30	Icebreaker (Watermark Pavilion - Tenancy 9/800 Bourke Street, Docklands)
Wednesday 25 March	
09:00	Registration, Welcome tea and coffee, Level 6, 700 Collins St
09:20	Opening and welcome (Rooms 1/2 & 3)
9:45-16:00	Conference sessions with catering (Room 1/2 and Room 3)
16:00-17:40	Workshops (part 1) (Rooms 1, 2, 3, and 9E)
Thursday 26 March	
08:45	Registration, Welcome tea and coffee, Level 6, 700 Collins St
09:00	Keynote (Rooms 1/2 & 3)
9:45-14:00	Conference sessions with catering (Room 1/2 and Room 3)
14:00-15:40	Workshops (part 2) (Rooms 1, 2, 3, and 9E)
15:40-16:50	Conference sessions with catering (Room 1/2 and Room 3)
18:30	Conference dinner, Woolshed Pub – Harbour View Room Shed 9,T18/161 Harbour Esplanade, Docklands
Friday 27 March	
08:45	Registration, Welcome tea and coffee, Level 6, 700 Collins St
09:00	Keynote (Rooms 1/2 & 3)
9:45-15:15	Conference sessions with catering (Room 1/2 and Room 3)
15:15-15:40	Workshop reports and close