The International Symposium on Environmental Software Systems was initiated in 1995 as a forum to present and discuss the fundamentals, progress and trends in this area in terms of methods, tools and state-of-the-art environmental informatics applications. Over the years, it has also evolved into an important networking opportunity for academics, environmental professionals, and other interested parties. ISESS brings together researchers and practitioners dealing with environmental challenges and trying to provide solutions using forward-looking and leading-edge IT technology.

ISESS is organised by Working Group WG5.11 Computers and Environment of the International Federation for Information Processing (IFIP).

Workshop in Collaboration with NCI

 Scalability of global 0.25° ocean simulations using MOM, Marshall Ward
 A Performance Assessment of the Unified Model, Dale Roberts
 The Czech e-Infrastructure and the European Grid Infrastructure Perspective, Ludek Matyska
 The NCI High Performance Computing and High Performance Data Platform to Support the Analysis of Petascale Environmental Data Collections, Ben Evans
 A Big Data Architecture for Environmental Analytics, Ritaban Dutta
 A Performance Study of Applications in the Australian Community Climate and Earth System Simulator, Mark Cheeseman
 A New Approach for Coupled Regional Climate Modeling Using More than 10,000 Cores, Marcus Thatcher
 The NCI High Performance Computing (HPC) and High Performance Data (HPD) Platform to Support the Analysis of Petascale Environmental Data Collections, Ben

Important links

[www.isess2015.org](http://www.isess2015.org)
[www.ifipwg511.org](http://www.ifipwg511.org)
[www.ifip.org](http://www.ifip.org)

Download all four workshop descriptions at isess2015.org
Keynotes
A Provenance Maturity Model, Kerry Taylor
Challenges in Modelling of Environmental Semantics, Ioannis Athanasiadis

Context articles
A Complete History of the International Symposium on Environmental Software Systems, Ralf Denzer
The Framework for Environmental Software Systems of the European Environment Agency, Jiří Hřebíček
Crowdsourcing in Crises and Disaster Management - the Latest Fad or a Valuable Resource?, Gerald Schimak
Evolution of Environmental Information Models, Katharina Schleidt

Information systems, information modelling and semantics
An Interactive Website for the River Eurajoki, Ari Jolma
An Information Model for a Water Information Platform, Pascal Dihè
Towards Linked Data Conventions for Delivery of Environmental Data using netCDF, Jonathan Yu
Information Technology and Solid Residue Management, José Tarcísio Franco de Camargo
Joining the Dots: Using Linked Data to Navigate Between Features and Observational Data, Robert A. Atkinson
An SMS and Email Weather Warning System for Sheep Producers, Anna Weeks
The Emergency Response Intelligence Capability Tool, Robert Power
ZmapujTo - phenomenon of civic issues reporting in the Czech Republic, Miroslav Kubášek
Mobile Field Data Collection for Post Bushfire Analysis and African Farmers, Bradley Lane
Provenance in Systems for Situation Awareness in Environmental Monitoring, Markus Stocker

Decision support tools and systems
Decision Making and Strategic Planning for Disaster Preparedness with a Multi-Criteria-Analysis DSS, Sascha Schlobinski
A Cotton Growers Decision Support System and Benchmarking Tool Using National, Regional and Local Data, Jamie Vleeshouwer
Water Pollution Reduction: Cost-Effectiveness Modelling Supporting Decision-Making Processes, Petr Šauer
Scenario Planning Case Studies using Open Government Data, Robert Power
Training support for crisis managers with elements of serious gaming, Denis Havlík
A Software System for the Discovery of Situations Involving Drivers in Storms, Markus Stocker

Architectures, infrastructures, platforms and services
A Distributed Computing Workflow for Modelling Environmental Flows in Complex Terrain, Stuart R. Mead
An Integrated Workflow Architecture for Natural Hazards, Analytics and Decision Support, James Hilton
Quality Control of Environmental Measurement Data with Quality Flagging, Mauno Rönkkö
Towards a Search Driven System Architecture for Environmental Information Portals and Mobile Applications, Thorsten Schlachter
National Environmental Data Facilities and Services of the Czech Republic and their Use in Environmental Economics, Jana Soukopová
A Best of Both Worlds Approach to Complex, Efficient, Time Series Data Delivery, Benjamin Leighton
Implementing a glossary and vocabulary service in interdisciplinary environmental assessments for decision makers, Simon N. Gallant

Modelling and simulation systems
An Application Framework for the Rapid Deployment of Ocean Models in Support of Emergency Services: Application to the MH370 Search, Uwe Rosebrock
Medium-Term Analysis of Agroecosystem Sustainability under Different Land Use Practices by Means of Dynamic Crop Simulation, Sergey Medvedev
Spark: A bushfire modelling tool. An introduction, test cases, and mechanisms for dealing with local environmental variations, Claire Miller
Construction of a Bio-Economic Model to Estimate the Feasibility and Cost of Achieving Water Quality Targets in the Burnett-Mary Region, Queensland, Craig Beverley
Integrating Hydrodynamic and Hydraulic Modeling for Evaluating Future Flood Mitigation in Urban Environments, Mahesh Prakash
Modelling of Air Flow Analysis for Residential Homes using Particle Image Velocimetry, Rajiv Pratap
Use of heterogeneous open observation data sources for modelling the risks of microbial contamination in bathing waters, Gianluca Corrando
Ecohydrology models without borders? The challenges of using geospatial web services in EcohydroLib workflow in the United States and Australia, Brian Miles

Requirements, software engineering and software tools
Requirements Engineering for Emergency Situations, Alena Oulehlová
Requirements Engineering for Semantic Sensors in Crisis and Disaster Management, Bojan Božić
Context ontology design patterns to support sensor data ingestions for critical crowd evacuation management in confined spaces, Gianluca Corrando
Reconstructing the Carbon Dioxide Absorption Patterns of World Oceans using a Feed-Forward Neural Network, Jiye Zeng
Three levels of R language involvement into Global Monitoring Plan warehouse architecture, Jiří Kalina
Process Design Patterns in Emergency Management, Tomáš Ludík

Analytics and visualisation
Advanced Data Analytics and Visualisation for the Man-agement of Human Perception of Safety and Security in Urban Spaces, Panos Melas
Combined Aggregation and Column Generation for Land-Use Trade-Off Optimisation, Asef Nazari, Andreas Ernst, Simon Dunstall, Brett Bryan
Graph partitioning experiments on a European catchment dataset, Ralf Denzer
Understanding Connectivity between Groundwater Chemistry Data and Geological Stratigraphy via 3D Sub-surface Visualization and Analysis, Jane Hunter
Distributed Minimum Temperature Prediction using Mixtures of Gaussian Processes, Sergio Hernández
A framework for optimal assessment of planning investments in urban water systems, Rodolfo García-Flores
Measuring and Benchmarking Corporate Environmental Performance, Marie Pavíaková Dočekalová
GeneralBlock: A C++ program for identifying and analyzing rock blocks formed by finite sized fractures, L. Xia
On the Volume of Geo-referenced Tweets and their Relationship to Events Relevant for Migration Tracking, Georg Neubauer
Benchmarking Systems and Methods for Environmental Performance Models, Zuzana Chvátalová

Workshops
Computational and data intensive methods in environmental and earth system sciences
Environmental modelling and decision making processes using Maple, Asim Gous
Crowdsourcing/-tasking in the context of crisis and disaster management, G. Schimak
Evolution of Environmental Infomation Models, Katharina Schleidt

www.enviromatics.org
Crowdsourcing/-tasking in the context of crisis and disaster management

Convenors: Gerald Schimak and Denis Havlik
Austrian Institute of Technology

With the rise of social media platforms, crowdsourcing has become a powerful tool for mobilizing the public. Recent events such as the earthquake in Haiti or the downfall of governments in Libya and Egypt indicate its potential in crisis situations. In the scope of the workshop, we encourage participants to discuss the relevance of crowdsourcing in the area of crisis and disaster management.

Together with the workshop participants, we will analyse different types of crowds and crowdsourcing and define what is meant by crowd tasking in the field of crisis and disaster management. Discussion will be oriented towards technological, societal and ethical challenges when using crowdsourcing in crisis management. Participants will be encouraged to present their experience, e.g. with the process of crowdsourcing/-tasking, the development or usage of crowdsourcing applications and/or tools. Short presentations are welcome and will find its room within the workshop. As outcome of the workshop the organisers intend to invite participants to write a joint paper for the journal EM&S and to prepare a co-organised session (ISESS/iEMSs) at iEMSs 2016.

Contact: gerald.schimak@ait.ac.at

Workshop topics

- Crowd Management and Tasking;
- Crowdsourcing Application and Tools;
- Data management and Quality Assurance aspects;
- Social and ethical considerations;
- Privacy, Reliability, Trust and Uncertainty;
- Crises and Disaster Management existing systems and examples.

Links

www.isess2015.org
www.ifipwg511.org
www.ifip.org

www.enviromatics.org
Workshop announcement

Evolution of environmental information models

Convenor: Katharina Schleidt
Austrian Environment Agency

Due to the increasing prevalence of standardized data models and services in the environmental domain, exchanging data across thematic, institutional and national boundaries has never been easier. However, over time, thematic extensions are required; as these thematic extensions grow and develop, they rapidly introduce new concepts not aligned with similar concepts stemming from a different thematic area. This is where a new level of diversification is rapidly encroaching, with new Towers of Babel being erected upon standardized foundations. New tools and processes, as well as governance structures, will be required if we are to avoid this next pitfall.

The goal of this workshop is to gather a well-founded problem description as well to sketch possible ways forward. Participants are encouraged to explain the difficulties encountered in maintaining alignment of data models and services over time, as well as approaches used to encourage alignment. The types of tools, processes and governance models required will be discussed.

Contact: katharina.schleidt@umweltbundesamt.at

Workshop topics

- Environmental data and service modelling
- Extension of standardized data models
- Collaborative data modelling
- Semantic alignment approaches
- Processes and governance structures for collaborative data modelling

Links

www.isess2015.org
www.ifipwg511.org
www.ifip.org

www.enviromatics.org
Workshop announcement

MELBOURNE Australia
March 25-27 2015

Computational and data intensive methods in environmental and earth system sciences

Convening organisation: National Computing Infrastructure

Computational simulation and analysis of large scale data using advanced computational methods lies at the heart of modern science and the technological advances that underpin current and future generation of services. In environmental and earth system science the need for large scale data analytics is obvious, due to the scale of many problems.

The workshop aims to provide a venue for environmental and earth system science managers, scientists and software developers to discuss software and hardware advances to meet their respective challenges in today’s high performance computing environment.

Scientists and developers will present their achievements in the development of techniques and algorithms for today’s platforms and can exchange ideas on the use of computing in future research and services. Computer scientists can give an update on their efforts in providing tools, which will help users to exploit the power of new computing architectures.

Contact: t.pugh@bom.gov.au

Workshop topics

- Environmental application requirements of high performance computing
- Hardware and software advances in high performance computing
- Large scale earth systems and environmental systems modelling and simulation
- BigData for environmental applications
- National and international computing infrastructures

Links

- www.isess2015.org
- www.ifipwg511.org
- www.ifip.org

www.enviromatics.org
Workshop announcement

MELBOURNE
Australia
March 25-27
2015

Environmental modelling and decision making processes using Maple

Convenor: Asim Gous
ASES

Maple is a state-of-the-art mathematical environment which can be utilized to analyse environmental data and create forecasts. Users can for instance assess risks and develop econometric and quantitative algorithms to support current and future strategies.

The workshop aims at introducing participants to the Maple software and providing an insight into its state-of-the-art data modelling and visualisation capabilities for environmental applications.

Maple’s capabilities and benefits will be demonstrated by working through various environmental data modelling and visualisation problems. Further, the development of decision making processes and how these can be optimised using Maple’s powerful optimisation tools and algorithms will be explored. Ultimately these demonstrations will explore the diverse scope of applications that are possible using Maple.

Contact: asim.ghous@ases.co

Workshop topics

- Advanced mathematical and statistical modelling
- Symbolic and numeric solvers
- Math-aware programming languages
- Code generation tools
- Live calculations and interactive computations

Links

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- www.ifipwg511.org
- www.ifip.org
- www.enviromatics.org