The OpenMI Association

Annual Report 2013

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A MESSAGE FROM THE CHAIRMAN

Welcome to the seventh annual report of the OpenMI Association (OA).

In my last report I began by saying that it had been our objective from the outset to create a world standard. It gives me, and I hope all our members, great pleasure to know that on 6th December 2013 we achieved that objective. Following the vote by the Open Geospatial Consortium's Technical Committee (OGC TC) to adopt the OpenMI at their Frascati meeting and the ratification of that vote by the OGC Planning Committee in Mumbai, we have finally completed the OGC's approval process. Licence conditions have been agreed between the OA and OGC and the only outstanding task is for the OGC to publish the text of the standard. The OpenMI is therefore now a member of the OGC family of international standards.

This is a great achievement and is due to a combination of good fortune and an immense amount of hard work and support by many individuals and organisations within and without the HarmonIT and OpenMI-Life projects, the OpenMI Association and the European Commission. I hope to write personally to as many as can be tracked down to thank them later this year. In such situations, mentioning individuals is always fraught with problems but I think nobody could object to my making special reference to the OA Technical Committee which has been in existence, in one form or another, since the beginning. They conceived, developed the architecture, implemented, tested, documented, released, demonstrated, supported and then refined the Open Modelling Interface until we have the version which the OGC has just adopted. Without their sustained work over twelve years we would not have made it. Their results have been exposed to peer review across the world and the quality of their work has always been commended.

Special mention of a few people that have made particularly valuable contributions to the development and promotion of OpenMI in the past, but who have moved away from integrated environmental modelling using OpenMI; at least for the time-being. The individuals are Jan Gregersen and Peter Schade, who after sterling work for the OA have decided to step down from the OA Executive Committee.

Turning to the future, this will be my last report as Chairman of the Association. The release of the OpenMI version 2.0 and completion of the OGC process seem to provide a natural milestone in the development of the OpenMI; one where the current phase of development is complete and hence one where my successor will have an uncluttered desk from which to plan the future direction of the OA's work. I will therefore be stepping down as Chairman at the 2013 AGM.

I suspect I am one of the few EC project coordinators who can honestly say that being a coordinator has been the most tremendous fun. Of course I had an astonishing piece of luck at the outset which was that the six people dispatched by their organisations to a dismal office in the midst of Schiphol airport to write the HarmonIT bid would turn out to be your dream team. None of us had met before. None of us had drafted an EC Framework proposal; though all of us had been assured by our organisations that the others were all old hands. Our good fortune was that our organisations had managed, by pure chance, to assemble an astonishingly harmonious group with the right skills, at the right time; a group which remarkably retained its harmonious nature as it grew in number.

To close this message, I would like to thank all of the Association's members and the many outside it who have supported both myself and the Association consistently and generously for the whole of my time as both as Coordinator and as Chairman. I hope very much that you will be able to give the same support to whoever you choose as my successor. He or she has the hugely exciting and challenging task of working with the OpenMI community to enable the benefits of integrated modelling to be accessible to everyone.

Roger Moore

Chairman

REVIEW OF 2013

EXECUTIVE COMMITTEE (OA EC)

The main focus of the OA EC has been to manage the process of making the OpenMI an OGC standard. Whilst the lion's share of the effort of this work has undertaken by the OA TC, the OA EC has helped ensure that the OGC voting process went as smoothly as possible. Letters of support from various organisations were garnered in good time for the decision. Various members of the OA EC attended the OGC TC meeting in Frascati making sure that OGC members understood what the OpenMI was and why it should be made an OGC standard. Producing the standards document required by the OGC has been a significant amount of work and been co-ordinated by the OA EC.

Alongside this activity, the OA EC has ensured that funding opportunities such as provided by Horizon 2020 could be exploited. This led to the identification of an opportunity in the Water1a call for which a first stage proposal was submitted in April 2014. Other matters which have held the OA EC's attention include the development of a Java version of the OpenMI SDK. The aim is to provide a similar set of tool as FluidEarth does for .NET.

TECHNICAL COMMITTEE (OA TC)

Since the last AGM, the OpenMI Association Technical Committee (OA TC) has focused its work on producing the OpenMI Standard 2.0 documentation in the format defined by the OGC. This process started in the middle of 2012 and finished in April this year. There were several iterations based on the comments from the OGC members. The OATC helped with preparation of answers to the questions / requirements coming from OGC comment period. The final version of the documents was prepared based on post – voting comments.

DISSEMINATION COMMITTEE (OA DC)

The main thrust of the OpenMI Association Dissemination Committee's (OA DC) work has been to ensure that the website is used and maintained to provide a link between the OA, its various committees and the rest of the world. This has been a success with news items being added frequently and linkages with social media enhanced. The OA DC has also been planning for the time when the OpenMI will be adopted as a standard by the OGC.

OPENMI 2012 AWARDS

As well as being the year of the London Olympics, 2012 marked the third year of the OpenMI Association Awards. These awards are intended to recognise all achievements in furthering the use and development of OpenMI. This includes:

- Examples of the use of OpenMI in "real-world" situations;

- Research projects and innovations involving OpenMI;

- OpenMI related tools and new technologies;

- Extensions to the standard;

- Publications, promotion and presentations.

There are no specific categories, all entries are considered together and the winners taken from the full set of nominations. Entries are not confined to OpenMI Association members, any individual or group is entitled to enter. For the calendar year 2012 it was decided to give two awards.

1. Integrating OpenMI and UncertWeb (Aston University)

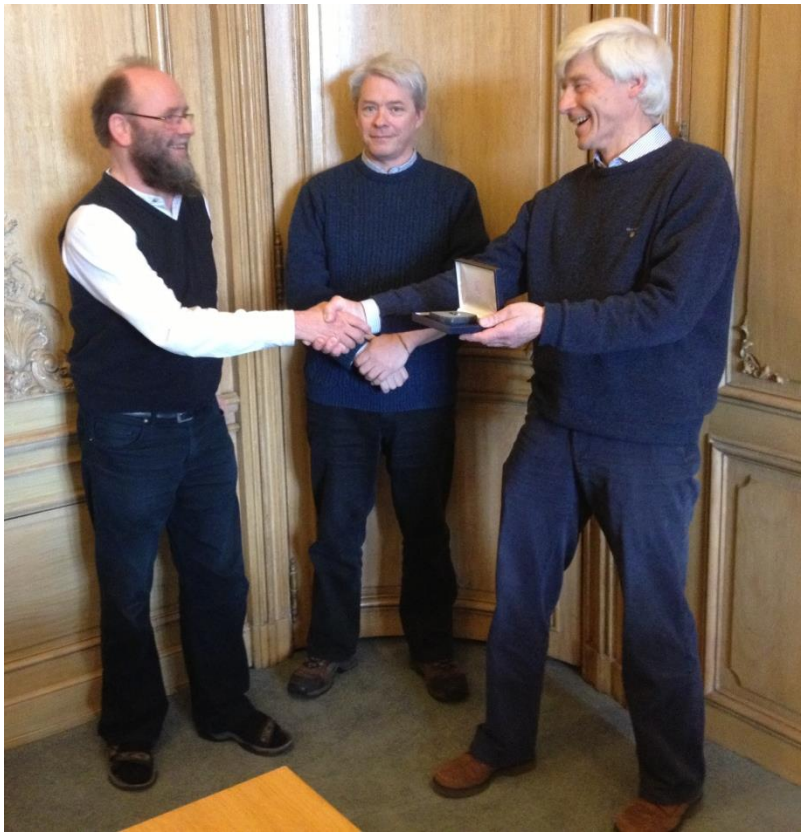
The paper "Integrating OpenMI and UncertWeb: Managing Uncertainty in OpenMI Models" was presented at the iEMSs 2012 conference in Leipzig by Lucy Bastin of Aston University, Birmingham UK.

2. FluidEarth2 (Paul Cleverley (HR Wallingford), David Kelly (HR Wallingford) and Adrian Harper (Innovyze))

Version 2 of the FluidEarth toolkit for OpenMI version 2.0 is now available. FluidEarth is HR Wallingford's implementation of the OpenMI standard, with the objective of making integrated environmental modelling easier and more flexible. This release of version 2 of the toolkit runs on Windows with .Net 4 with C# and FORTRAN and includes:

- An open source version of the Pipistrelle GUI and FluidEarth Software Development Kit (Pipistrelle_2_0_x86_RC1): http://sourceforge.net/projects/fluidearth/ ;
- A training website with videos and example models, starting at the beginning: http://elearning.fluidearth.net/.

Information about FluidEarth and the above links are given on the FluidEarth portal (http://fluidearth.net/); anyone may request an ID to contribute to the community and raise discussion points and questions.



The photograph shows Adrian Harper and Paul Cleverley being presented with the award by the OA Chairman, Roger Moore, at the 2013 OA Annual General Meeting.

The OpenMI Awards continue into 2013, where the results will be announced at the 2014 AGM.

NEW OPENMI APPLICATIONS IN 2013

There have been a number of new linkages facilitated by OpenMI that have come to fruition in 2013. The notable ones are:

- MODFLOW and HEC-RAS: The USGS groundwater model MODFLOW has been coupled to the river hydraulics model HEC-RAs by the US Army Corps of Engineers (US ACE). Two

proposed uses of the new system have been undertaken: one in Florid examining canal-groundwater interaction and the other in northern California for the Sonoma County Water Agency. More information can be found on page 8 of the US ACE newsletter "http://www.hec.usace.army.mil/newsletters/HEC_Newsletter_Spring2013.pdf".

- SWAT and SWMM: The land surface hydrological model SWAT (Soil and Water Assessment Tool) has been linked to the stormwater urban drainage model SWMM (Storm Water Management Model) to simulate the water environment in the river Zenne in Belgium. More information can be found here "http://fluidearth.net/Lists/Announcements/Attachments/55/Shresthaa%20et%20al.pdf".
- MUSCARET and RFSM-EDA: The 1D open channel model MUSCARET has been linked to the 2D hydraulic model RFSM (Rapid Flood Spreading Model) using the EDA variant (Explicit Diffusion wave with Acceleration terms) to investigate the impact of flooding as part of the EU funded DHRIM project. More information can be found here http://fluidearth.net/Lists/Announcements/Attachments/56/Lhomme%20et%20al.pdf.

OPENMI RELATED PUBLICATIONS

Appendix 4 lists papers and publications known to the OpenMI Association which reference the OpenMI. If you know of others, please let us know and we will be very happy to add them to the list.

The new crop of publications for 2013 demonstrate that the OpenMI is being taken up and used for a variety of different applications; from linking climate models to river hydraulic models. This is highly encouraging and shows the maturity of the standard.

PLANS FOR 2014

OpenMI 2.0 has now achieved the status of an accredited and published OGC (Open Geospatial Consortium) standard. Alongside this, the association's long-standing chairman, Roger Moore, will be stepping down and a new chairman will be appointed to take the OA forwards. In the light of the association's previous priority to these activities and this period of change, new plans will be put together by the Executive, Dissemination and Technical Committees. It is, however, expected that the association will continue to be active in the following areas:

- Exploiting the recognition of OpenMI as an OGC standard;
- Promoting integrated modelling and OpenMI;
- Encouraging the development of a Community for IEM;
- Monitoring and supporting users of OpenMI
- To develop critical mass (compliant models and tools)

FINANCIAL REPORT

The treasurer reports that during 2013 the financial transactions have been minimal. The Association has not spent any money other than the costs associated with running the bank account itself. On the other hand it has in 2013 also not received any membership fees. This is caused by the fact that for various reasons no invoices have been sent out. Although the Association's Charter doesn't specifically require invoices to be sent, this is effectively the only way to get membership fees paid.

In 2014 we'll send out invoices for the membership fees overdue; they are major term on the balance. Furthermore, we will systematically start sending out invoices for the next year at the end of October to be paid as stated in the Charter before January 1st.

Since the Association has during all its existence only occasionally used its financial resources, it has – even without the outstanding membership fees – sufficient funds in hand to cover the anticipated expenses in the coming year. The accounts for the year 2013 can be found in Appendix 5 .

APPENDIX 1 OPENMI ASSOCIATION MEMBERS

Table 1 and Table 2 show the OpenMI Association's membership at 31-12-2013.

Table 1 OpenMI Association Institutional members

ID	Organisation name	Role	Represented by:				
			Organisation	Last name	First names	Title	Gender
0001	HydroInform ApS	OAEC	HydroInform	Gregersen	Jan Børge	Mr.	M
0003	Bundesanstalt für Gewässerbau	OATC	Bundesanstalt für Gewässerbau	Schade	Peter	Mr.	M
0004	Centre for Ecology and Hydrology	Member	Centre for Ecology and Hydrology	Boorman	David	Dr	M
0006	HALCROW	Member	HALCROW	Wicks	Jon	Dr.	M
0008	DHI Water • Environment • Health	OAEC	DHI Water • Environment • Health	Hartnack	Johan	Prof.	M
0009	Alterra	OAEC	Alterra	Wien	Jan-Erik	Mr	M.
0010	AquaFin	OADC - Chairman	AquaFin	van Assel	Johan	Mr	M
0011	UNESCO-IHE	OAEC	UNESCO-IHE	van Griensven	Ann	Dr.	F
0012	RWTH Aachen, Institute for Hydraulic Engineering and Water Resources	Member	RWTH Aachen, Institute for Hydraulic Engineering and Water Resources	Schüttrumpf	Holger	Prof. Dr.-Ing.	M
0013	Deltares	OAMC OAEC Treasurer	Deltares	Jagers	Bert	Dr.	M
0014	University di Trento - CUDAM	Member	University di Trento - CUDAM	Rigon	Riccardo	Prof.	M
0015	Consortium of Universities for the Advancement of Hydrologic Sciences, Inc.	Member	Consortium of Universities for the Advancement of Hydrologic Sciences, Inc.	Hooper	Richard	Dr.	M
0016	Universidad de Cantabria / IH Cantabria	Member	Universidad de Cantabria / IH Cantabria	Kakeh Burgada	Nabil	Mr.	M
0017	CSIRO	Member	CSIRO	Lemon	David	Dr.	M
0018	Technical University of Civil Engineering from Bucharest	Member	Technical University of Civil Engineering from Bucharest	Drobot	Radu	Prof.	M

ID	Organisation name	Role	Represented by:				
			Organisation	Last name	First names	Title	Gender
0019	Bureau of Meteorology	Member	Bureau of Meteorology	Argent	Robert	Dr.	M
0020	Diapason Consulting Ltd	Member	Diapason Consulting Ltd	di Pierro	Francesco	Dr.	M
0021	British Geological Survey	Member	British Geological Survey	Hughes	Andrew	Dr.	M
0022	HR Wallingford	Member	HR Wallingford	Pearce	Geoff	Mr.	M
0023	IDSIA	Member	IDSIA	Rizzoli	Andrea Emilio	Prof	M
0024	Waterbouwkundig Laoboratorium	Member	Waterbouwkundig Laoboratorium	Vereecken	Hans	Ir	M

Table 2 OpenMI Association Individual members

ID	Last name	First names	Title	Affiliation	Role	Gender
0002	Blind	Michiel Willem	Mr.	Deltares	OAEC OADC	M
0007	Mimikou	Maria	Prof.	National Technical University of Athens	OAEC OADC	F
0025	Fortune	David	Mr	XP Solutions	OAMC OAEC - Deputy Chairman	M
0004	Moore	Roger Vernon	Mr.	British Geological Survey	OAMC OAEC - Chairman OADC	M

APPENDIX 2 COMMITTEE MEMBERSHIP 2013

Executive Committee

• Chairman:	Roger Moore	Individual Member, UK
• Vice Chairman:	David Fortune	Individual member, UK
• Secretary:	Andrew Hughes	British Geological Survey, UK
• Treasurer:	Bert Jagers	Deltares, NL
• Members:	Michiel Blind	Individual member, NL
	Jan Gregersen	HydroInform, DK
	Quillon Harpham	HR Wallingford, UK
	Jesper Grooss	DHI, DK
	Rob Millington	Innovyze, UK
	Maria Mimikou	Individual member, GR (represented by Christos Makropoulos, National Technical University of Athens, GR)
	Onno Roosenschoon	Alterra, NL
	Peter Schade	Bundesanstallt für Wasserbau (BAW), DE
	Ann van Griensven	Unesco-IHE, NL
	Stanislav Vaneçek[1]	DHI Water and Environment
	Johan van Assel[2]	Aquafin, BE

[1] Represents the OpenMI Association Technical Committee.

[2] Represents the OpenMI Association Dissemination Committee.

Management Committee

• Chairman:	Roger Moore	Individual member sponsored by the British Geological Survey, UK
• Vice Chairman:	David Fortune	Individual member, UK
• Secretary:	Andrew Hughes	British Geological Survey, UK
• Treasurer:	Bert Jagers	Deltares, NL

Dissemination Committee

• Chairman:	Johan van Assel	Aquafin, BE
• Members:	Michiel Blind	Deltares, NL
	Jan Gregersen	HydroInform, DK
	Prof. Maria Mimikou	(represented by Christos Makropoulos) National Technical University of Athens, GR
	Andrew Hughes	British Geological Survey, UK
	Roger Moore	Individual member, UK

Technical Committee

• Chairman:	Stanislav Vanecek	DHI, CZ
• Members:	Adrian Harper	Innovyze, UK
	Stef Hummel	Deltares, NL
	Gennadii Donchyts	Deltares, NL
	Peter Gijsbers	Deltares, NL
	Johan Hartnack	DHI, DK
	Jesper Gross	DHI, DK
	Onno Roosenschoon	Alterra, NL
	Rob Knapen	Alterra, NL
	Jon Goodall	USC, USA
	Andrea Antonello	Univita Trento/Hydrologis, IT
	Peter Schade	Bundesanstalt fuer Wasserbau (BAW), DE
	Jan Gregersen	HydroInform, Denmark
	Paul Cleverley	HR Wallingford (SeaZone Group), UK
	Robert Szczepanek	Cracow University of Technology / NT, PL

APPENDIX 3 ASSOCIATION CONTACT DETAILS 2013

For all general questions and feedback, please contact the Dissemination Committee.

For technical questions, please contact the Technical Committee or visit the technical pages on the Technical Committee's wiki or use the SourceForge forum.

For questions regarding Association membership or meetings, please contact the Secretariat.

N.B. when following these links please remember to **remove the 'nospam'** element, e.g. to contact the Dissemination Committee change oadc@nospam.openmi.org to oadc@openmi.org

APPENDIX 4 PUBLICATIONS

The table below lists papers and publications known to the OpenMI Association which reference the OpenMI. For the most up to date information please go to: https://sites.google.com/a/openmi.org/home/openmi-around-the-world/publications-and-presentations . For a wider search follow the link to: http://scholar.google.nl/scholar?q=openmi&hl=nl&btnG=Zoeken&lr= .

Authors	Date	Title	Event	Reference	Type
Year: 2010					
Safiolea E., Kokkinos K., Vasiliades, L., Liakopoulos A., Sotiropoulos E. and Mimikou M.	11/1/2010	Demonstration of integrated modelling in Pinios River basin (Thessaly, Greece) using OpenMI	OpenMI-Life Final Workshop, Brussels, Belgium		Poster
Safiolea E., Kokkinos K., Vasiliades, L., Liakopoulos A., Sotiropoulos E., and Mimikou M.	11/1/2010	Task C: The Pinios river use cases	OpenMI-Life Final Workshop, Brussels, Belgium		Brochure
K. Kokkinos and A. Loukas	14/03/2010	Collaborative Migration, Coupling and Simulation of Water Resources Models through OpenMI	Submitted to WETICE 2011 19th IEEE International Workshop on Enabling Technologies: Infrastructures for Collaborative Enterprises June 28 - June 30, 2010, TEI of Larissa (Greece)		Paper submitted for publication in conference proceedings
Tom Bulatewicz, Xiaoying Yang, Jeffrey M. Peterson, Scott Staggenborg, Stephen M. Welch,	16/03/2010	Accessible integration of agriculture, groundwater, and economic models using the Open Modeling Interface (OpenMI): methodology and initial results		Hydrology and Earth System Sciences, 14, 521-534. Copernicus Publications, 16 March 2010	Paper

Authors	Date	Title	Event	Reference	Type
and David R. Steward					
Moore R.V , et al	30/04/2010	OpenMI Final Progress Report – October 2006 to January 2010.			Customer Report to the European Commission. April 2011.
Ed.: Morris, S Authors:Van Assel, J., Waterschoot, G., Spee, E., Schaart, B., Stout, J., Holvoet, J., Neyskens, I., Vereecken, Hans., Deliège, J-F., Magermans, P., Ronse, Y., Devroede.N., Safiolea, E., Baki, S., Douka, E., Stamou, A., Mimikou, M.,Economidou, P., Makroupoulos, C. and Vasilia, L.	30/04/2010	An evaluation of OpenMI-based integrated modelling in relation to water management issues from user and developer perspective			Customer Report to the European Commission. April 2011.
Ed.: Morris, S Authors:Van Assel, J., Waterschoot, G., Spee, E., Schaart, B., Stout, J., Holvoet, J., Neyskens, I., Vereecken, Hans., Deliège, J-F.,	30/04/2010	An evaluation report on the OpenMI from a user and developer perspective			Customer Report to the European Commission. April 2011.

Authors	Date	Title	Event	Reference	Type
Magermans, P., Ronse, Y., Devroede.N., Safiolea, E., Baki, S., Douka, E., Stamou, A., Mimikou, M.,Economidou, P., Makroupoulos, C. and Vasilia, L.					
Ed.: Morris, S Authors:Van Assel, J., Waterschoot, G., Spee, E., Schaart, B., Stout, J., Holvoet, J., Neyskens, I., Vereecken, Hans., Deliège, J-F., Magermans, P., Ronse, Y., Devroede.N., Safiolea, E., Baki, S., Douka, E., Stamou, A., Mimikou, M.,Economidou, P., Makroupoulos, C. and Vasilia, L.	30/04/2010	An evaluation report on the OpenMI support organization from a user perspective			Customer Report to the European Commission. April 2011.
Ed.: Morris, S Authors:Van Assel, J., Waterschoot, G., Spee, E., Schaart, B., Stout, J., Holvoet, J., Neyskens, I.,	30/04/2010	An evaluation report on the OpenMI support organization from the deliverer's perspective			Customer Report to the European Commission. April 2011.

Authors	Date	Title	Event	Reference	Type
Vereecken, Hans., Deliège, J-F., Magermans, P., Ronse, Y., Devroede.N., Safiolea, E., Baki, S., Douka, E., Stamou, A., Mimikou, M.,Economidou, P., Makroupoulos, C. and Vasilia, L.					
Makropoulos, C., Safiolea, E., Baki, S., Douka, E., Stamou, A., and Mimikou, M.(	July 2010	An integrated, multi-modelling approach for the assessment of water quality: lessons from the Pinios River case in Greece,	Proceedings of International Environmental Modelling and Software Society (iEMSs) 2010 International Congress, Fifth Biennial Meeting, Ottawa, Canada		Conference paper
Sloboda, M.,Swayne, D., Booty, W., McCrimmon, C., and Wong, I.	July 2010	AutoCalibration ofIntegrated Lake Water Quality Models for the Lake Winnipeg Basin Initiative,	Proceedings of International Environmental Modelling and Software Society (iEMSs) 2010 International Congress, Fifth Biennial Meeting, Ottawa, Canada		Conference paper
Makropoulos C., Safiolea E., Baki S., Douka, E., Stamou, A., and Mimikou, M.	July 2010	An integrated modelling approach for the assessment of water quality: lessons from the Pinios river case in Greece	International Congress on Environmental Modelling and Software, July 5 - 8 2010, Ottawa, Ontario, Canada		Paper Accepted for publication in conference proceedings
Donchyts, G., Hummel, S., Vaneçek, S., Groos, J., Harper,	07/2010	OpenMI 2.0-What's new.	In Proceedings of 2010 International Congress on Environmental Modelling and		Conference paper

Authors	Date	Title	Event	Reference	Type
A., Knapen, R., ... & Gijsbers, P			Software, Ottawa, Canada.		
F. Fotopoulos*, C. Makropoulos, M.A. Mimikou	2010	Flood forecasting in transboundary catchments using the Open Modeling Interface		Environmental Modelling & Software 25 (2010) 1640e1649	
Year: 2011					
K. Kokkinos and A. Loukas	14/03/2011	Collaborative Migration, Coupling and Simulation of Water Resources Models through OpenMI	Submitted to WETICE 2011 19th IEEE International Workshop on Enabling Technologies: Infrastructures for Collaborative Enterprises June 28 - June 30, 2011, TEI of Larissa (Greece)		Paper submitted for publication in conference proceedings
Bulatewicz, T and Andresen, D.,	July 18-21, 2011	Efficient data access for Open Modeling Interface (OpenMI) components,	International Conference on Parallel and Distributed Processing Techniques and Applications, July 18-21, 2011, Las Vegas, NV, USA		
Bernhard P. Becker and Holger Schüttrumpf	2011	An OpenMI module for the groundwater flow simulation programme Feflow		Journal of Hydroinformatics, 13 (1), 1-12	Paper
Safiolea, E., Baki, S., Makropoulos, C., Deliege, J.F, Magermans, P., Everbecq, E., Gkesouli, A., Stamou,	2011	Flexible, component-based integrated modeling for river basin management planning,		ICE Water Management Journal, 164, 8, 405-419	Paper

Authors	Date	Title	Event	Reference	Type
A., and Mimikou, M.					
Willy Bauwens, Narayan Shrestha, Olkeba Tolessa & Ann van Griensven	23 November 2011	Hydrological open source experiences using SWAT and OpenMI	Hype Open Source Community, 23 November 2011, Stockholm, Sweden		Conference paper
Betrie G.D., van Griensven A., Mohamed Y.A., Popescu I., Mynett A.E. and Hummel S.	2011	Linking SWAT and SOBEK using Open Modelling Interface (OpenMI) for Sediment Transport Simulation in the Blue Nile River Basin,		Transactions of the American Society of Agricultural and Biological Engineers, vol. 54(5), 1749-1757.	Paper
Year: 2012					
Shrestha N.K., Leta O.T, de Fraine B., Van Griensven A., Garcia-Armisen T., Ouattara N.K., Servais P., Bauwens W.	14-18/07/2012	Integrated modelling of river Zenne using OpenMI.	Paper presented at the 10th International Conference on Hydroinformatics, HIC 2012, 14-18 July 2012, Hamburg.		Conference paper
Leta O.T., Shrestha N.K., De Fraine B., van Griensven A., Bauwens W.	12-14/09/2012	OpenMI Based Flow and Water Quality Modelling of the River Zenne	Paper presented at SimHydro 2012, 2nd International conference, 12-14 September 2012, Nice, France.		Conference paper
Bulatewicz, T. and D. Andresen	July 16-19, 2012	Efficient data collection from Open Modeling Interface (OpenMI) components	In: Proceedings of the International Conference on Parallel and Distributed Processing Techniques and		Conference paper

Authors	Date	Title	Event	Reference	Type
			Applications (PDPTA), ed. H. R. Arabnia et al., CSREA Press, Las Vegas, Nevada, Vol. 1, 53-59, July 16-19, 2012. The paper is included in the publicly available conference proceedings.		
Liao, Y. P., Lin, S. S., & Chou, H. S.	2012	Integration of urban runoff and storm sewer models using the OpenMI framework.		Journal of hydroinformatics, 14(4), 884-901.	
Bulatewicz, T., Allen, A., Peterson, J. M., Staggenborg, S., Welch, S. M., & Steward, D. R.	2012	The Simple Script Wrapper for OpenMI: Enabling interdisciplinary modeling studies.		Environmental Modelling & Software.	
Knapen, R., Janssen, S., Roosenschoon, O., Verweij, P., De Winter, W., Uiterwijk, M., & Wien, J. E.	2012	Evaluating OpenMI as a model integration platform across disciplines.		Environmental Modelling & Software.	
Wang, J. P., Chen, J., & Li, C. H.	2012	Research for Hydrological Modelling System Technology Based on OpenMI.		Advanced Materials Research, 347, 1806-1815.	
Shrestha, N. K., Leta, O. T., De Fraine, B., Van Griensven, T., Garcia-Armisen, T., Ouattara, K. N., ... & Daemrich, K. F.	2012	Integrated modelling of river Zenne using OpenMI.		In Proceedings of the 10th International Conference on Hydroinformatics HIC 2012. IWA.	
Schellekens, J., Becker, B. P. J., Donchyts, G., Goorden, N., Hoogewoud, J. C.,	2012, April	OpenStreams: Open Source Components as Building Blocks for Integrated Hydrological Models.		In EGU General Assembly Conference Abstracts (Vol. 14, p. 3953).	

Authors	Date	Title	Event	Reference	Type
Patzke, S., & Schwanenberg, D.					
CHEN, J., WANG, J., & LI, C.	2012	Application of Open Model Interface in Hydrological Analogue System.		Hydropower Automation and Dam Monitoring, 1, 006.	
Fritzinger, E., Dascalu, S., Ames, D. P., Benedict, K., Gibbs, I., McMahon Jr, M. J., & FC Jr, H.	2012	The Demeter framework for model and data interoperability.		In Proceedings of the International Congress on Environmental Modeling and Software (IEMSS-2012) (pp. 1535-1543).	
Larsen, M. A. D., Jensen, K. H., Refsgaard, J. C., Christensen, J. H., Drews, M., & Butts, M. B.	2012, June	The effect of two-way coupling in a climate-hydrological setup.		In International Conference on Water Resources.	
Nicholls, R. J., Bradbury, A., Burningham, H., Dix, J., Ellis, M., French, J., ... & Whitehouse, R.	2012	iCOASST–integrating coastal sediment systems.		Coastal Engineering Proceedings, 1(33), sediment-100.	
Schwarz, N., Kahlenberg, D., Haase, D., & Seppelt, R.	2012	ABMland-a Tool for Agent-Based Model Development on Urban Land Use Change.		Journal of Artificial Societies and Social Simulation, 15(2), 8.	
Talsma, J., Patzke, S., Becker, B. P., Schwanenberg, D., & Jansen, M.	2012, April	Predictive control of water distribution in the Dutch National Hydrological Instrument (NHI).		In EGU General Assembly Conference Abstracts (Vol. 14, p. 13108).	
Wang, X., Mao, H., & Luo, Y.	2012, July	Design model execution engine based on web services for distributed geography modeling environment.		In Geoscience and Remote Sensing Symposium (IGARSS), 2012 IEEE International (pp. 527-530).	

Authors	Date	Title	Event	Reference	Type
				IEEE.	
Peckham, S. D., David, O., & Goodall, J. L.	2012	JPM Syvitski.		Handbook of Environmental Fluid Dynamics, Volume Two: Systems, Pollution, Modeling, and Measurements, 399.	
Jonoski, A.	2012, September	Hydroinformatics and Decision Support: Current Technological Trends and Future Prospects.		In BALWOIS 2012.	
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Schutte, S., & Sonnenschein, M.	2012, December	Mosaik—Scalable Smart Grid scenario specification.		In Simulation Conference (WSC), Proceedings of the 2012 Winter (pp. 1-12). IEEE.	
Voinov, A., & Shugart, H. H.	2012	'Integronsters', integral and integrated modeling.		Environmental Modelling & Software.	
Peckham, S. D., & Goodall, J. L.	2012	Driving plug-and-play models with data from web services: A demonstration of interoperability between CSDMS and CUAHSI-HIS.		Computers & Geosciences.	
Merwade, V., Feng, W., Zhao, L., & Song, C. X.	2012, July	WaterHUB: a resource for students and educators for learning hydrology.		In Proceedings of the 1st Conference of the Extreme Science and Engineering Discovery Environment: Bridging from the eXtreme to the campus and beyond (p. 59). ACM.	

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Laroque, C., Himmelspach, J., Pasupathy, R., Rose, O., & Uhrmacher, A. M.	2012	MOSAIK–SCALABLE SMART GRID SCENARIO SPECIFICATION.			
Granell, C., DíAz, L., Schade, S., OstläNder, N., & Huerta, J.	2012	Enhancing integrated environmental modelling by designing resource-oriented interfaces.		Environmental Modelling & Software.	
Moore, R., Hughes, A., Gaber, N., Geller, G., Glynn, P., Laniak, G., Voinov, A. and Whelan, G.	2012	International Summit on Integrated Environmental Modeling.		U.S. Environmental Protection Agency, Washington, DC, EPA/600/R/12/728, 2012.	
Groen, D., Zasada, S. J., & Coveney, P. V.	2012	Survey of multiscale and multiphysics applications and communities.		arXiv preprint arXiv:1208.6444.	
Dent, M. C.	2012	Catchment management agencies as crucibles in which to develop responsible leaders in South Africa.		Water SA, 38(2), 313-326.	
Bezrukova, M., Shanin, V., Mikhailov, A., Mikhailovay, N., Khoraskina, Y., Grabarnik, P., & Komarov, A.	2012	DLES: A Component-Based Framework for Ecological Modeling.		Models of the Ecological Hierarchy: From Molecules to the Ecosphere, 25, 331.	
Hennicker R., & Ludwig, M.	2012	View-based development of a simulation framework for multi-disciplinary environmental modelling.		In Large-Scale Complex IT Systems. Development, Operation and Management (pp. 224-250). Springer Berlin Heidelberg.	
Humphrey, M., Beekwilder, N., Goodall, J. L., & Ercan, M. B.	2012, October	Calibration of watershed models using cloud computing.		In E-Science (e-Science), 2012 IEEE 8th International Conference on (pp. 1-8). IEEE.	
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Bach, M., & Ostrowski, M.	2012	Analysis of intensively used catchments based on integrated modelling.		Journal of Hydrology.	
Panzeri, M., Stripling, S., & Chesher, T. J.	2012	A GIS framework for probabilistic modelling of coastal erosion and flood risk.			
Ames, D. P., Horsburgh, J. S., Cao, Y., Kadlec, J., Whiteaker, T., & Valentine, D.	2012	HydroDesktop: Web services-based software for hydrologic data discovery, download, visualization, and analysis.		Environmental Modelling & Software.	
Seppelt, R., Voinov, A. A., Lange, S., & Bankamp, D.	2012	Managing Resources of a Limited Planet.			
Barthel, R., Reichenau, T. G., Krimly, T., Dabbert, S., Schneider, K., & Mauser, W.	2012	Integrated modeling of global change impacts on agriculture and groundwater resources.		Water resources management, 26(7), 1929-1951.	
Tan, W. C., Haas, P. J., Mak, R. L., Kieliszewski, C. A., Selinger, P. G., Maglio, P. P., ... & Li, Y.	2012, January	Splash: a platform for analysis and simulation of health.		In Proceedings of the 2nd ACM SIGHIT International Health Informatics Symposium (pp. 543-552). ACM.	
Laniak, G. F., Olchin, G., Goodall, J., Voinov, A., Hill, M., Glynn, P., & Hughes, A.	2012	Integrated environmental modeling: A vision and roadmap for the future.		Environmental Modelling & Software.	

Authors	Date	Title	Event	Reference	Type
Smiatek, G., Kunstmann, H., & Werhahn, J.	2012	Implementation and performance analysis of a high resolution coupled numerical weather and river runoff prediction model system for an Alpine catchment.		Environmental Modelling & Software, 38, 231-243.	
Wen, Y., Chen, M., Lu, G., Lin, H., He, L., & Yue, S.	2012	Prototyping an open environment for sharing geographical analysis models on cloud computing platform.		International Journal of Digital Earth, (ahead-of-print), 1-27.	
Vitolo, C L A.U.D I.A., Buytaert, W O U T E R., & Reusser, D.	2012	Hydrological Models as Web Services: An Implementation using OGC Standards.			
Akbar, M., Aliabadi, S., Patel, R., & Watts, M.	2012	A fully automated and integrated multi-scale forecasting scheme for emergency preparedness.		Environmental Modelling & Software.	
Pouget, L., Escaler, I., Guiu, R., Mc Ennis, S., & Versini, P. A.	2012	Global Change adaptation in water resources management: The Water Change project.		Science of the Total Environment.	
Arnold, T. R.	2012	Procedural knowledge for integrated modelling: Towards the Modelling Playground.		Environmental Modelling & Software.	
Nativi, S., Mazzetti, P., & Geller, G. N.	2012	Environmental model access and interoperability: The GEO Model Web initiative. Environmental Modelling & Software.			
Langevin, C. D., & Panday, S.	2012	Future of Groundwater Modeling.		Ground Water, 50(3), 334-339.	
Wainwright, J., & Mulligan, M.	2012	27 Pointers for the Future.		Environmental Modelling: Finding Simplicity in Complexity, 453.	
Hansen, N., & Egebo, L.	2012	Titel		(Doctoral dissertation, Ph. D. dissertation, The faculty of Health Science of the University of Copenhagen).	
Whiteman, M. I.,	2012	The National Groundwater Modelling		Geological Society, London,	

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Maginness, C. H., Farrell, R. P., Gijsbers, P. J. A., & Ververs, M.		System: providing wider access to groundwater models.		Special Publications, 364(1), 49-63.	
Harrison, P. A., Holman, I. P., Cojocaru, G., Kok, K., Kontogianni, A., Metzger, M. J., & Gramberger, M.	2012	Combining qualitative and quantitative understanding for exploring cross-sectoral climate change impacts, adaptation and vulnerability in Europe.		Regional Environmental Change, 1-20.	
Clematis, A., D'Agostino, D., Danovaro, E., Galizia, A., Quarati, A., Parodi, A., ... & Cros, P. H.	2012, July	DRIHM: Distributed Research Infrastructure for Hydro-Meteorology.		In System of Systems Engineering (SoSE), 2012 7th International Conference on (pp. 149-155). IEEE.	
J. Schellekens (1), B.P.J. Becker (1), G Donchyts (2), N Goorden (3), J.C. Hoogewoud (3), S Patzke (1), and D Schwanenberg (1)	2012	OpenStreams: Open Source Components as Building Blocks for Integrated Hydrological Models	In: Geophysical Research Abstracts. Presented at the EGU General Assembly 2012, Vienna, Austria; Presented at the EGU General Assembly 2012, Vienna, Austria		
Olkeba Tolessa Leta, Narayan Kumar Shrestha, Bruno De Fraine, Ann Van Griensven and Willy Bauwens	2012	Water Quality Modeling of the River Zenne (Belgium) Using OPENMI		Advances in Hydroinformatics, SIMHYDRO 2012 – New rontiers of Simulation" Chapter 22. http://www.springer.com/engineering/civil+engineering/book/978-981-4451-41-3	
Year: 2013					

Authors	Date	Title	Event	Reference	Type
Castronova, A. M., Goodall, J. L., & Ercan	2013	Integrated modeling within a hydrologic information system: an OpenMI based approach.		Environmental Modelling & Software, 39, 263-273	
Castronova, A. M., Goodall, J. L., & Ercan	2013	Simulating watersheds using loosely integrated model components: Evaluation of computational scaling using OpenMI.		*Environmental Modelling & Software*, *39*, 304-313.	
Castronova, A. M., Goodall, J. L., & Elag, M. M.	2013	Models as web services using the Open Geospatial Consortium (OGC) Web Processing Service (WPS) standard.		*Environmental Modelling & Software*, *41*, 72-83.	
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Bulatewicz, T., A. Allen, J.M. Peterson, S. Staggenborg, S.M. Welch, D.R. Steward,	2013	The Simple Script Wrapper for OpenMI: Enabling interdisciplinary modeling studies,		Environmental Modelling & Software, 39 (January), 283-294, ISSN 1364-8152, 10.1016/j.envsoft.2012.07.006.	Paper
Wojda, P., & Brouyère, S.	2013	An object-oriented hydrogeological data model for groundwater projects.		Environmental Modelling & Software.	
Sloan, B. M., McCorkle, D. S., & Bryden, K. M.	2013	Providing online access to hydrological model simulations through interactive geospatial animations.		Environmental Modelling & Software.	
Brooking, C., &	2013	Providing online access to hydrological		*Environmental Modelling &*	

Authors	Date	Title	Event	Reference	Type
Hunter, J.		model simulations through interactive geospatial animations.		*Software*.	
Bastin, L., Cornford, D., Jones, R., Heuvelink, G., Pebesma, E., Stasch, C., & Williams, M.	2013	Managing uncertainty in integrated environmental modelling: The UncertWeb framework.		*Environmental Modelling & Software*, *39*, 116-134.	
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Gill, L., Sheffield, U. K., Hathway, E. A., Lange, E., Morgan, E., & Romano, D.	2013	Coupling Real-Time 3D Landscape Models with Microclimate Simulations.			
D. R. Steward*; J. A. Aistrup; L. Kulcsar; J. M. Peterson; S. M. Welch; D. Andresen; E. A. Bernard; S. A. Staggenborg; T. Bulatewicz	2013	An OpenMI Implementation of a Water Resources System using Simple Script Wrappers		Environmental Modelling & Software Volume 39, January 2013, Pages 283–294. Thematic Issue on the Future of Integrated Modeling Science and Technology	
K. Saint*; J. L. Goodall	2013	An Approach to Coupled Climate-Hydrologic Interactions that Preserves Disciplinary Communities, Infrastructure, and Information Delivery Systems		GC41B-1013 – Hall A-C (Moscone South) – Poster session Thursday Dec 12, 2013 morning 8:00AM-12:20P	

Authors	Date	Title	Event	Reference	Type
H. Madsen*; M. E. Ridler; N. v. Velzen; S. Hummel; I. Sandholt; A. K. Falk; A. Heemink	2013	An open framework for hydrological data assimilation		H52E-07 – 3020 (Moscone West) – Presentation Friday Dec 13, 2013 morning 11:50AM-12:05PM	
Anthony M. Castronova, Jonathan L. Goodall	2013	Integrated modeling within a Hydrologic Information System: An OpenMI based approach		Environmental Modelling & Software, Volume 39, January 2013, Pages 263–273. Thematic Issue on the Future of Integrated Modeling Science and Technology	
Zeng Zhou,Belén Lopez, Robert Nicholls	2013	An OpenMI-based combined model for alongshore sediment transport and shoreline change		Proceedings of the ICE - Maritime Engineering, Volume 166, Issue 4, September 2013 pages 175 – 186	
Dr.-Ing. Bernhard Becker, Frederic Martin Evers, Prof. Dr.-Ing. Holger Schüttrumpf	2013	OpenMI coupled surface–subsurface water flow simulation for subsurface flood modeling with FEFLOW			
Majdi Mansour, Jonathan Mackay, Corinna Abesser, Ann Williams, Lei Wang, Stephanie Bricker, Christopher Jackson	2013	Integrated Environmental Modeling applied at the basin scale: Linking different types of models using the OpenMI standard to improve simulation of groundwater processes in the Thames Basin, UK.		In: *MODFLOW and More 2013: Translating Science into Practice, Colorado, USA, 2-5 June 2013*. (Unpublished) http://nora.nerc.ac.uk/501789/	

Authors	Date	Title	Event	Reference	Type
Narayan Kumar Shrestha, Olkeba Tolessa Leta, Bruno De Fraine, Tamara Garcia-Armisen, Nouho Koffi Ouattara, Pierre Servais, Ann van Griensven and Willy Bauwens	2013	Modelling Escherichia coli dynamics in the river Zenne (Belgium) using an OpenMI based integrated model.		Journal of Hydroinformatics. In Press, Uncorrected Proof © IWA Publishing 2013 | doi:10.2166/hydro.2013.171 http://www.iwaponline.com/jh/up/jh2013171.htm	
Shrestha N.K.; Leta O.T.; De Fraine B.; van Griensven A.; Bauwens W.	2013	OpenMI based integrated sediment transport modelling of the river Zenne, Belgium.		Environmental Modelling & Software, doi: 10.1016/j.envsoft.2013.05.004. Not yet available online.	

APPENDIX 5 FINANCIAL STATEMENT

Prepared by Bert Jagers, Treasurer 2013

Profit / Loss year 2013

	Category									
	IN (€)					OUT (€)				
	Admission fee	Contribution	Donations	Subsidies	Other	T&S	Consumables	Purchases	Administration	Other
Yearly Total per Category (€)	0	0	0	0	0	0	0	0	137.24	0
Total IN/OUT for all categories					**0**					137.24
Profit / Loss excluding outstanding invoices										**-**137.24

Balance 31 December 2013

	01-01-2013		31-12-2013	
	Debit (€)	**Credit (€)**	**Debit (€)**	**Credit (€)**
OA assets:				
Bank account	6,189.81		6,052.57	
Outstanding invoices	3,900.00		6,100.00	
Outstanding debits		0.00		0.00
Equity		10,089.81		12,152.57
Total profit/loss				
Total balance	10,089.81	10,089.81	12,152.57	12,152.57

Remarks

This financial statement is composed of a profit/loss section and a balance section. This account is based on the cost/benefit realisation at the moment of invoicing.