IAHS Newsletter

NL103 September 2012

KNOWLEDGE FOR THE FUTURE

Joint Assembly Gothenburg IAHS - IAPSO - IASPEI Sweden 22-26 July 2013

constituent Associations of International Union of Geodesy and Geophysics (IUGG)

Full IAHS Scientific Programme and Call for Abstracts – see p. 5

Weather Radar and Hydrology

Weather Radar and Hydrology combines developments in weather radar technology with advances in hydrological application. It concerns the monitoring and forecasting of rainfall over space and time, and how the pattern of rainfall is transformed by a varied landscape into surface water runoff and river flow across a city, region or country. Thus it has significant practical application across water resource functions, including flood forecasting and warning, flood design, urban drainage management, water supply and environmental services. A valuable record of current activities in the field is now available – see page 3.

Wildfire and Water Quality

There is increasing global concern over the impacts of landscape disturbance by wildfire on a range of aquatic ecosystem services and drinking water supply. Profound and often irreversible changes in river ecosystem function, geomorphology, water quality and water supply occur due to the severity and magnitude of wildfire-related landscape disturbance. Such impacts have important management implications for source water supply and protection at the catchment scale. In view of this, the IAHS International Commission on Continental Erosion and Sedimentation held a symposium in Banff, Canada, in June on the topic of *Wildfire and Water Quality: Processes, Impacts and Challenges* to bring together researchers and practitioners from diverse fields of hydrology, sediment transport, water quality and watershed management. The goals of the symposium were to improve knowledge of the impacts of large-scale landscape disturbances by wildfire on freshwater ecosystems and better

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Hydrological Sciences Journal – improved IF

In June, the 2011 Impact Factor: 1.541 (©2012 Thomson Reuters), for *HSJ* was announced in the 2011 *Journal Citation Report*®, and is good improvement on 1.418 last year.

Anyone can view the latest content of *HSJ* and some full papers are open access. Forthcoming papers can be seen at *iFirst* and soon a list of accepted papers will also be available. Note that papers in all pre-2010 volumes are open access.

IAHS Members in the poorer developing countries can freely access all *HSJ* content via the *HSJLink* button in their personal membership area at the IAHS website. Members in these countries are automatically granted access when they register.

Message from the President

gordonyoung_wwap@yahoo.com

We are now preparing for important up-coming events at a time when a major initiative is coming to a close and when a new initiative is being vigorously debated. In the immediate future we prepare for the 90th birthday celebrations of our Association in Delft this October, and in the more distant future for our next major Scientific Assembly in Gothenburg in July 2013.

IAHS 90th birthday celebrations in Delft, 23–25 October 2012

IAHS President-Elect, Hubert Savenije, is kindly hosting this major event at his home institution; a welcome message is provided by Hubert later in this Newsletter. The event will comprise two major components as well as our usual business meetings and prize ceremonies.

♦ The first will be the major closing session of the Decade on Prediction in Ungauged Basins with an impressive list of invited speakers. This will be the time when two major publications are launched: a very comprehensive book assessing the state of the art of predicting runoff in ungauged basins: "*Runoff Prediction in Ungauged Basins – Synthesis Across Processes, Places and Scales*", compiled by Günter Blöschl, his editing team and more than 100 contributing authors. The second book, titled "*Putting PUB into Practice*", focuses on the ways in which PUB will be particularly relevant to the needs of society and is being produced by John Pomeroy and his team with a large number of inputs from authors around the world.

♦ The second event is a workshop to define the major scientific focus for IAHS in the decade starting in July 2013. Alberto Montanari and his Task Force have been working extremely effectively to compile and synthesize the inputs from a large number of members of the hydrological community; at EGU in April a very lively and informative debate took place and a major EGU session on IAHS's future was attended by more than 600 scientists. This was followed in May by a workshop hosted at Hohai University, Nanjing, China, by Vice-President Liliang Ren and attended by some 30 scientists. It was a very important workshop as the outline for the future scientific initiative was formulated. More on this is found later in the Newsletter.

IAHS Scientific Assembly, Gothenburg, 22–26 July 2013

The schedule for the joint Assembly with our colleagues from IAPSO and IASPEI has now been finalized. We are looking forward to four joint symposia, five IAHS symposia and eleven workshops. Our thanks to Liliang Ren for initiating discussion on the schedule and to the great efforts of Christophe Cudennec for the major negotiations in bringing the large number of suggestions to a manageable timetable.

Now that we have a schedule, the real work begins. Papers will be immediately solicited and the time-line for the six symposia that will have pre-published Red Books will be particularly tight. Adherence to the time-lines will be essential. Lead conveners will have major responsibilities to work with their co-conveners in overseeing reviewing of abstracts, selection of papers for oral and poster presentations, setting out detailed timetables for presentations, editing final papers and producing the Red Books. We look to all involved for their enthusiasm on behalf of the Association. Details for the Assembly are found later in the Newsletter.

Looking forward to meeting many of you at the up-coming events.

Gordon Young

IAHS online bookshop at www.iahs.info

It is simple to order and pay online by credit card. Membership discounts apply.

Books are dispatched from IAHS Press at Wallingford, UK, as before.

IAHS publications can still be ordered from Jill Gash: jilly@iahs.demon.co.uk

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Edited by Cate Gardner

The Newsletter is provided free of charge to members of IAHS. This Newsletter and previous issues may be downloaded from: *www.iahs.info*

Articles from IAHS members on all aspects of hydrology and related topics are welcomed for publication in the Newsletter. They should be sent to the IAHS Secretary General, Christophe Cudennec: *cudennec@agrocampus-ouest.fr*, or to:
IAHS, UMR SAS, Agrocampus Ouest,
CS 84215, 35042 Rennes Cedex, France

Advertisements may be placed in the Newsletter, at the discretion of the IAHS Secretary General. Contact: *cate@iahs.demon.co.uk*

The next Newsletter will be published in December 2012; copy deadline: 15 November 2012.

Forthcoming titles

Models – Repositories of Knowledge

Proceedings of ModelCARE2011 held at Leipzig, Germany.

Part of the Calibration and Reliability in Groundwater Modelling series.

IAHS Publ. 355 (October 2012)

Erosion and Sediment Yields in the Changing Environment

Proceedings ICCE2012 Symposium held at Chengdu, China

IAHS Publ. 356 (October 2012)

Floods: From Risk to Opportunity

Proceedings of ICFM5 held in Japan

IAHS Publ. 357 (2012)

Message from Hubert Savenije

Dear Fellow Hydrologists,

As your present PUB chair and your President-elect, it is a great pleasure for me to invite you to the happy event of the 90th anniversary of IAHS, where we also celebrate the closing of the PUB decade with a great closing symposium. The symposium will consist of a variety of key-note presentations on the themes of PUB and will aim at providing a synthesis of what we have achieved during the decade. Don't miss it !

As was decided in Melbourne, my main task as PUB chair is to formally close the PUB decade with a major IAHS conference that will also celebrate the 90th anniversary of IAHS. All the Conference information: programme, registration, call for abstracts and hotel information can be found on the conference web site:
http://pub.iahs.info/meeting2012/index.html

The conference is sponsored by the Delft University of Technology on the occasion of its 170th anniversary, and as a result registration only costs a nominal fee of 50 Euros. We'll make sure that you will feel welcome in Delft. In view of IAHS's 90th anniversary we'll give the conference a festive character.

The conference will be the official closure of the PUB decade and it is structured around the main themes of PUB. There will be special sessions focused on the PUB manual prepared by John Pomeroy and his team, and a selection of case studies selected by Berit Arheimer. A major output of the PUB decade is the PUB synthesis report coordinated by Günter Blöschl, which will be presented during the conference.

Another important objective of the conference is to set the scene for the next science agenda of IAHS. We have invited an impressive list of speakers, including the Nobel Prize winner Paul Crutzen and Johan Rockstrom of the Stockholm Resilience Centre, who will speak about water in the Anthropocene. These key-note lectures will be the upbeat to the visionary session led by Alberto Montanari on the day following the conference, which will have a workshop character; see:
http://pub.iahs.info/meeting2012/newdecade.htm)
This workshop is not part of the conference, but is open to anybody who wants to make a contribution to the process of formulating the next IAHS research agenda. This process is already in full swing and is led by Alberto Montanari who was given this task during the Melbourne meeting.

Finally, the Delft meeting will also provide the occasion for the awarding of the Tison award and the International Hydrology Prize. As always we'll make this into a festive gathering for all hydrologists of the world.

I am looking forward to seeing you during the Delft meeting,

Hubert Savenije

IAHS 90th Anniversary and Symposium on: Completion of the IAHS Decade on Prediction in Ungauged Basins and the Way Ahead

Delft, The Netherlands, 23–24 October 2012

Weather Radar and Hydrology

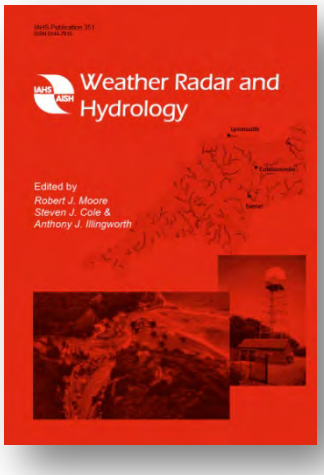
Edited by Robert J. Moore, Steven J. Cole & Anthony J. Illingworth

IAHS Publ. 351 (*2012*) ISBN 978-1-907161-26-1, 672 + xvi pp. Price £125.00

Combines developments in weather radar technology with advances in hydrological application, bringing together over 100 peer-reviewed papers from the *International Symposium on Weather Radar and Hydrology* (WRaH 2011, Exeter, UK)

A valuable record of current activity in:

1 Weather radar theory, technology and systems
2 Rainfall estimation and quality control
3 Rainfall forecasting (nowcasting and numerical weather prediction)
4 Uncertainty estimation
5 Hydrological impact and design studies
6 Hydrological modelling and flood forecasting
7 Urban hydrology and water management applications



See also details of IAHS Publ. 352, *Remote Sensing and Hydrology*, page 4.

The New Science Initiative for IAHS: 2013–2022

As reported in the previous newsletters, a Task Force under the leadership of Alberto Montanari has been set up to oversee the discussions that will lead to the creation of a new IAHS Scientific Decade scheduled to begin in mid-2013.

Task Force members are leading the brainstorming on the most relevant topics to be addressed during the new decade. Their inputs, including a summary of the outcome from physical meetings organised so far, are to be found through the blog at:

http://distart119.ing.unibo.it/iahs/

Since mid-December 2012, when the blog was initiated, there have been some 11 000 visits to the blog and there has been lively and provocative discussion. Among the physical meetings, an exciting discussion was hosted in May by the Hohai University in Nanjing, China, where the targets of the new scientific decade were agreed. The blog is still active and open to comments from the community.

The general subject identified for the new IAHS decade relates changing hydrology for a changing society and environment. Attention will be concentrated on understanding and modelling the two-way interactions between hydrological systems and society, which presupposes the study of how the hydrological systems themselves react to human-induced and natural changes.

The following research targets were identified during the meeting in Nanjing:

Target 1 – Understanding

Improve the knowledge and understanding of hydrological systems, and in particular variability, indeterminacy, impacts of change, interaction with human activity. Special attention will be dedicated to complex systems like mountain areas (glaciers), urban areas, alluvial fans, deltas.

Target 2: Estimation and prediction

Estimate and predict the behaviours and patterns of hydrological systems, with uncertainty assessment to support risk evaluation. This target includes estimation of design variables under change.

Target 3: Science in practice

Address societal needs, policy making and implementation.

Each target must be referred to by science questions. The discussion entertained so far has identified the science questions described below; for more details, please see:

http://distart119.ing.unibo.it/iahs/?p=264).

The targets will be revised and completed in the coming months through the blog discussion and during the *Open Visionary Sessions on the Research Challenges for Hydrology in the next 10 Years*, to be held in Delft on 25 October 2012; please see:

http://pub.iahs.info/meeting2012/newdecade.htm

The visionary session will close the celebrations of the 90th anniversary of IAHS; please see:

http://pub.iahs.info/meeting2012/.

A draft Science Plan for the new decade will be presented to introduce the way ahead.

Science question 1

(referred to Target 1) How to understand the behaviours of changing hydrological systems?

Science question 2

(referred to Target 2) How to integrate advanced knowledge with indeterminacy modelling and uncertainty assessment for improving prediction?

Science question 3

(referred to Target 3) How can we produce sound and transparent scientific modelling tools (open source)?

Science question 4

(cross-cutting targets) How can we make use of new observations and information technologies in a new generation of models?

Science question 5

(cross-cutting targets) How to model hydrology at the interfaces (e.g. surface/ground water interactions) and complex systems?

Preparations for the implementation of the new initiative will continue until the launch of the new decade in July 2013 at the IAHS Scientific Assembly in Gothenburg, Sweden.

All members of IAHS are invited to give input and comments to the blog discussion – this should be an all-inclusive effort, so please visit the site and make your contribution. Comments made up to the end of September 2012, will be considered when preparing the draft science plan.

Alberto Montanari

KNOWLEDGE FOR THE FUTURE

Joint Assembly Gothenburg IAHS - IAPSO - IASPEI Sweden 22-26 July 2013

The IAHS Scientific Assembly at Gothenburg will run from Monday 22 July to Friday 26 July 2012, inclusive. In addition to the IAHS-led joint events and IAHS symposia and workshops, there will be many events run by IASPEI and IAPSO that IAHS members are welcome to participate in. A summary of the IAHS events is given below with fuller details in the following pages. The Assembly website is at http://iahs-iapso-iaspei2013.com/. *Abstracts should be submitted via the website.*

*Red Books will be published for the six events marked "*RB 15 Nov*" below. To allow time for publication, the abstract submission deadline for those six events will be 15 November 2012. The abstract deadline for other events will be 4 February 2013.*

Another Red Book, combining contributions to HP2 and HP3, will be published after the Assembly.

Codes: H = IAHS (Hydro), P = IAPSO (Physical oceanography), S = IASPEI (Seismology), and w = workshop

Code	Event	Lead convener(s)
IAHS-led Joint Events		
HPS1	**Advanced statistical methods for hydrology, oceanography and seismology** Organiser: IAHS Co-sponsor: IAPSO, IASPEI	Salvatore Grimaldi
HP1 **RB 15 Nov**	**Deltas: landforms, ecosystems and human activities** Organisers: IAHS and IAPSO Co-sponsor: IAHS-ICCE, ICSW, ICWRS, ICSIH, ICWQ, ICCLAS	Gordon Young & Gerardo M.E. Perillo
HP2	**Land–ocean interaction** Subtitle: Hydrodynamics and biogeochemistry Organiser: IAHS Co-sponsor: IAPSO	Christophe Cudennec
HP3	**Implications of sea-level change for the coastal zone** Organiser: IAHS Co-sponsors: IAPSO, CCEE	Dan Rosbjerg
IAHS Symposia and Workshops *The IAHS Symposia are coded H0x and will consist of oral presentations and poster presentations that have been accepted by the Symposia Conveners, and will each generate a Red Book. Workshops are coded Hw0x*		
H01 **RB 15 Nov**	**Climate and land-surface changes in hydrology** Organiser: IAHS (ICCLAS, ICRS, ICSW) Co-sponsor: GEWEX/GLASS	Eva Boegh
H02 **RB 15 Nov**	**Cold and mountain region hydrological systems under climate change: towards improved projections** Organiser: IAHS (ICSIH, ICCLAS)	Alexander Gelfan
Hw03	**Characterizing water quantity and quality: new approaches and future directions** Organiser: IAHS (ICWQ, ICGW, ICSW)	Kate Heal
H04 **RB 15 Nov**	**Understanding freshwater quality problems in a changing world** Organiser: IAHS (ICWQ, ICCE)	Berit Arheimer
H05 **RB 15 Nov**	**Interactions between sediment and aquatic ecology: an ecohydrological perspective** Organiser: IAHS (ICCE, ICGW, ICSW, ICCLAS)	Adrian Collins
Hw06	**Anthropogenic radionuclide contamination of water and sediment: short-term and long-term consequences** Organiser: IAHS (ICCE, ICWQ)	Valentin Golosov
Hw07	**Tracer hydrology as a tool for understanding and quantifying flow-paths and biodegradation processes in groundwater systems** Organiser: IAHS (ICT)	Piotr Maloszewski
Hw08	**Subsurface warming, heat energy and groundwater** Organiser: IAHS (ICGW)	Makoto Taniguchi
H09 **RB 15 Nov**	**Considering hydrological change in reservoir planning and management** Organiser: IAHS (ICWRS, ICCE, ICSH, ICRS, ICSW, ICWQ)	Andreas Schumann

Hw10	**Adaptative water resources management – system design and operation** Organiser: IAHS (ICWRS, ICSH)	Barry Croke
Hw11	**Environmental information systems for hydrology and water resources** Organiser: IAHS (ICSW, ICWRS, ICRS)	Jean-François Boyer
Hw12	**The Third Pole Environment – Remote sensing and modelling of hydrometeorological processes in high elevation areas** Organiser: IAHS (ICRS) Co-sponsor: TPE, GEWEX	Bob Su
Hw13	**How can models help to solve water quality problems?** Organiser: IAHS (ICWQ, ICSW)	Valentina Krysanova
Hw14	**Regional modelling in hydrology using statistical tools** Organiser: IAHS (ICSH)	András Bárdossy
Hw15	**Testing simulation and forecasting models in non-stationary conditions** Organiser: IAHS (ICSH, ICSW)	Vazken Andréassian
Hw16	**Hydrology education and capacity building in developing countries** Organiser: IAHS (Education Working Group)	Thorsten Wagener

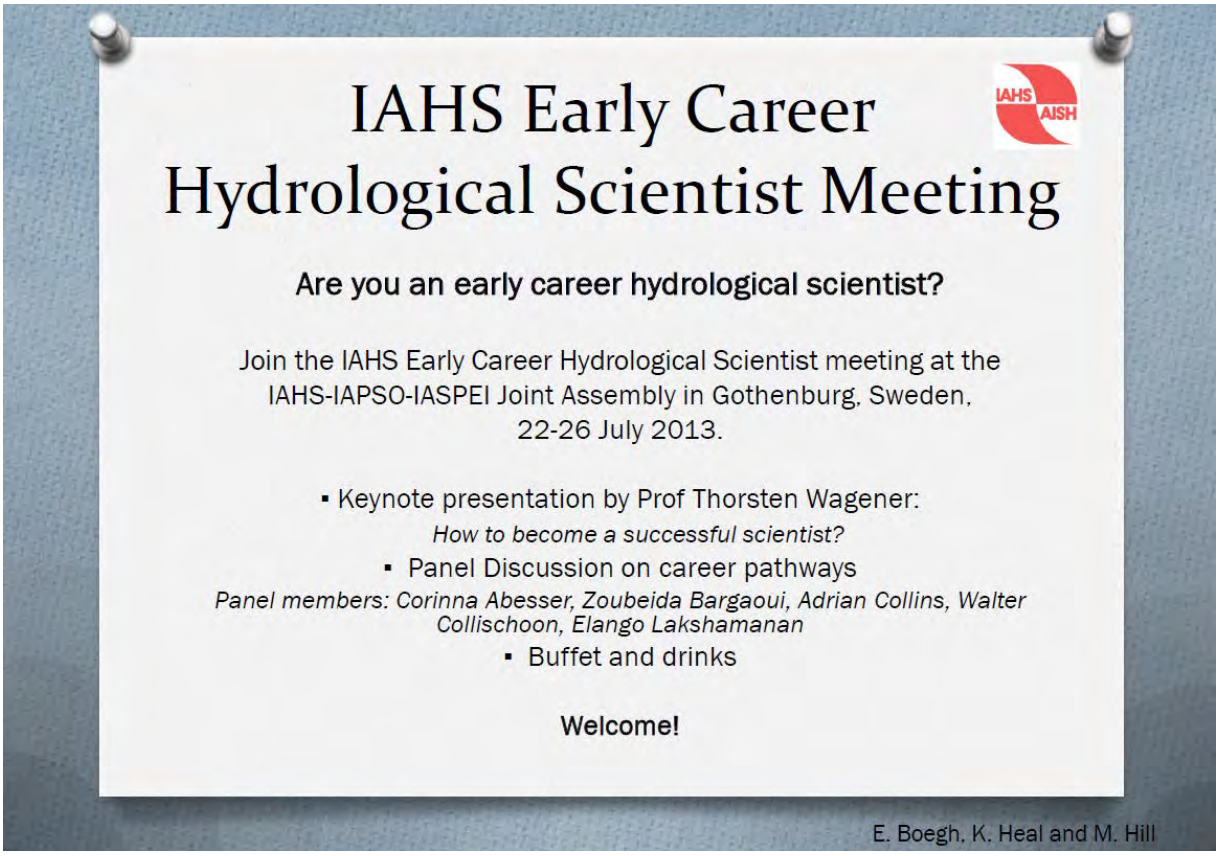
Members and others are invited to submit abstracts for any of the above events via the Joint Assembly website:

http://iahs-iapso-iaspei2013.com/

15 November 2012 is the abstract submission deadline for all events marked RB 15 Nov
(HP1, H01, H02, H04, H05 and H09)
This early deadline is essential to enable preparation of papers for publication in the six Red Books. Notice of acceptance of abstracts will be given by 4 December 2012, and authors will be required to submit their full papers by 20 January 2013.

***4 February 2013** is the abstract deadline for all other events, and also for Travel Grant Applications. Notice of acceptance of abstracts and award of travel grants will be given in mid-April.*

***Travel Grant Applications** Some funds will be available to assist participants with travel expenses. Applications for funds should be made via the Joint Assembly website.*



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Joint Assembly Gothenburg IAHS - IAPSO - IASPEI Sweden 22-26 July 2013

Detailed IAHS Scientific Programme

Codes: H = IAHS (Hydro), P = IAPSO (Physical oceanography), S = IASPEI (seismology), and w = workshop

HPS1
Advanced statistical methods for hydrology, oceanography and seismology

Organiser: IAHS
Co-sponsor: IAPSO, IASPEI
Lead Convener: Salvatore Grimaldi (Italy)
Co-Conveners: Thomas Bodin (USA), Amir Khan (Switzerland), Jan Dettmer (Canada), Eugene Kulikov (Russia), Simon-Michael Papalexiou (Greece)

Description Statistical and probabilistic methods have been traditionally applied to address many geophysical problems, such as extreme flood and precipitation frequency analysis and prediction, spatial analysis and stochastic simulation of hydrological processes, ocean wave prediction and simulation, parameter inference and uncertainty estimation of Earth and ocean models, quantitative model selection (including physical theories and their parameterization), statistical behaviour of earthquake occurrence and patterns, time-dependent earthquake forecasting, and forecast evaluations. While the field is well established and much experience has been gained over the years, the development of new statistical methods and tools and the advances in computing hardware and software have significantly enlarged the scope of applications. This workshop aims to attract contributions on advanced statistical methods which are applied to a wide range of data sets and geophysical phenomena including hydrological, oceanographic and seismological processes. The workshop further aims to stimulate the transfer of methods and tools between the different disciplines.

HP1
Deltas: landforms, ecosystems and human activities

Organisers: IAHS and IAPSO
Co-sponsor: IAHS-ICCE, ICSW, ICWRS, ICSIH, ICWQ, ICCLAS
Lead Conveners: Gordon Young (Canada) and Gerardo M.E. Perillo (Argentina)
Co-Conveners: Hafzullah Aksoy (Turkey), Jim Bogen (Norway), Alexander Gelfan (Russia), Gil Mahé (France), Philipp Marsh (Canada), Hubert Savenije (Netherlands)

Description Deltas, both marine and lacustrine, are environmental and economic hot spots; occupying some 1% of the global land surface, they are home to some 500 million people and typically have vibrant ecosystems – thus they are vitally important human and natural habitats. Deltas pose great challenges, both as regions of purely physical land–sea interaction and as regions of intense human activity set in the context of complex and often rapidly changing natural environments.

Physically, they are complex systems where land and marine/lacustrine environments meet. They are the end-products of catchment processes involving water supply, sediment delivery and water quality – elements that are fast changing over time as a result of both human influences and changes in climatic drivers. Tides, sea level changes, storm surges, tsunamis and littoral currents result in influences from the marine environment. They are also regions of natural subsidence, with rates of subsidence often increased by human extraction of groundwater and minerals.

A significant portion of the global population lives in delta regions often in very densely-settled conditions; at the same time these are regions of high food productivity. Thus, there are great challenges for the managers of water resources – challenges that are intensified by recurrent disasters from land- and ocean-based floods.

Red Book – 15 November 2012 abstract submission deadline

HP2
Land–ocean interaction
Subtitle: Hydrodynamics and biogeochemistry

Organiser: IAHS
Co-sponsor: IAPSO
Lead Convener: Christophe Cudennec (France)
Co-Conveners: Marina Kravchishina (Russia), Jörg Lewandowski (Germany), Per Stålnacke (Norway)

Description The coastal domain is the location of intense land–ocean interactions in terms of hydrodynamics and related biogeochemistry, underlying major ecological dynamics. Multiple processes, intense spatial heterogeneity, large temporal variability, steep gradients and extremely high turnover rates make the interface complex, and it is sometimes considered as a hydrodynamically driven biogeoreactor. Land–ocean interactions are very diverse due to the topology, the geometry and the connectivity of the interface itself, in morphological and functional terms. Interactions are further subject to changes, either because of changes in the interface itself, or because of changes in the driving forces and upstream determinants. Finally, the limnological parallel (allowed by our joint assembly), in terms of land–lake and land–lagoon interactions, through both surface and ground freshwater, may be very fruitful to understand, model and manage such complex systems.

Potential issues to address during this symposium are:
– Biogeochemical processes in the fresh and saline water mixing areas

- Innovative measurement techniques and modelling concepts for quantification of interactions
- Drivers of temporal variability/spatial heterogeneity of interactions – causes and consequences
- Respective roles of interacting compartments and processes
- Disequilibria and changes resulting in perverse interactions (eutrophication, salt water intrusion…) – assessment, modelling and solution-seeking
- Remote processes, drivers and changes impacting on the interface through the hydrological and oceanographic dynamics

To be post-published in an IAHS Red Book with HP3

HP3
Implications of sea-level change for the coastal zone

Organiser: IAHS
Co-sponsors: IAPSO, CCEE
Lead Convener: Dan Rosbjerg (Denmark)
Co-Conveners: Gary Mitchum (USA), Makoto Taniguchi (Japan), Philip L. Woodworth (UK)

Description (To be confirmed/updated) – One of the most notable consequences of climate change is a substantial sea level rise, which seems be occurring even faster than climate models have predicted. This will create a wide range of problems in the coastal zone including, e.g. increased risk of inundation from the sea and along rivers, salt water intrusion in coastal aquifers, new patterns of coastal erosion, changing water quality, less effective urban drainage, etc. This calls for intensified adaptation measures with strong socio-economic implications, and particularly in poor countries this will become a major burden. The symposium will address the whole set of problems related to the ongoing and predicted sea-level rise.

To be post-published in an IAHS Red Book with HP2

H01
Climate and land-surface changes in hydrology

Organiser: IAHS (ICCLAS, ICRS, ICSW)
Co-sponsor: GEWEX/GLASS
Lead Convener: Eva Boegh (Denmark)
Co-Conveners: Eleanor Blyth (UK), David Hannah (UK), Hege Hisdal (Norway), Harald Kunstmann (Germany), Koray K. Yilmaz (Turkey), Bob Su (Netherlands)

Description Climate and land-use change is complicating current and future water management challenges by adding hydrological variability and uncertainty to decision-making processes. Limitations of traditional hydrological analyses and model approaches based on concepts of stationary hydrological events need to be understood and alternative methods explored to deal with environmental change. This symposium focuses on experimental and modelling studies addressing the sensitivity of hydrological and hydrometeorological fluxes of the coupled land–atmosphere system to climate and land-use change at local, regional and global scales. In particular, studies addressing: (a) the evaluation and development of methods to represent temporal and/or spatial land surface processes for hydrological assessment, (b) empirical studies of climate and land-use drivers, and (c) the use of multi-variable and/or multi-scale data (i.e. land surface fluxes, remote sensing, streamflow, groundwater) to improve and evaluate hydrological or hydrometeorological predictions are encouraged. Evaluations and use of climate and weather prediction data and measured data provided by global databases, such as GEWEX and FluxNet, are also encouraged.

The symposium will include:

1 methods to improve evapotranspiration predictions by better representation of land use and land surface–atmosphere interactions,
2 climate and land-use change impacts on extreme events,
3 use of spatial data and techniques to represent and evaluate impacts of spatial heterogeneity on land surface fluxes and hydrological predictions,
4 use of multi-variable data to assess and evaluate the utility of land–atmosphere process formulations in hydrological modelling,
5 evaluation of hydrological sensitivity and impacts of climate and land-use scenarios, including use of weather prediction forecast data and land-use strategies, and
6 the use of climate predictions for hydrological impact studies – downscaling and uncertainty.

Red Book – 15 November 2012 abstract submission deadline

H02
Cold and mountain region hydrological systems under climate change: towards improved projections

Organiser: IAHS (ICSIH, ICCLAS)
Lead Convener: Alexander Gelfan (Russia)
Co-Conveners: Eugene Gusev (Russia), Harald Kunstmann (Germany), Daqing Yang (Canada)

Description Cold- and mountain-regions are the areas of the Earth where some of the earliest and most profound climate-induced changes of hydrological systems are expected, because of the dominant contribution of snow and ice to hydrological processes. Our ability to understand changes in hydrological responses to a changing climate needs to be improved through enhancement of the modelling tools (hydrological and land-surface models) and observation techniques used for future projections. This symposium will address major issues both in modelling cold- and mountain-regions hydrological processes (with an emphasis on snow and ice hydrology), and in adapting these models to changing climatic conditions. Among the issues related to cold-region modelling *per se*, deepening the process understanding and physical foundation of models, adapting models to new data sources, and PUB-related cold-region issues will be addressed. Among the issues related to model adaptability, problems of model parameterization, calibration and validation taking into account changing climate conditions, and the demonstration of a model's readiness for use in these environmental conditions will be examined. This session will also bring together experimental and modelling experts to address a broad range of issues related to understanding specific features of cold-region hydrological systems that are responsible for their visible sensitivity to climate change.

Red Book – 15 November 2012 abstract submission deadline

Hw03
Characterizing water quantity and quality: new approaches and future directions

Organiser: IAHS (ICWQ, ICGW, ICSW)
Lead Convener: Kate Heal (UK)
Co-Conveners: Jim Butler (USA), Wouter Buytaert (UK), Chia-Shyun Chen (Taiwan), Peter Dietrich (Germany), Catherine Gonzalez (France)

Description Data for water quantity and quality investigations are vital for all areas of hydrology, from monitoring and assessing water resources and understanding their response to environmental change, to better characterizing the complexity of surface and subsurface hydrological systems, to model calibration and testing, and, ultimately, to improving process understanding. There is currently a high demand for evaluation of water quality monitoring strategies to meet the requirements of legislation, for more effective systems to remediate water contamination, and for better strategies to assess the future prospects for highly stressed hydrological systems. New characterization approaches are clearly needed if we are to meet these ever-increasing societal demands and expectations. Over the last decade, the development and deployment of novel low-cost and/or widely distributed and continuously monitoring sensors for water quantity and quality has increased, e.g. smart sensor networks, "labs-on-a-chip", and distributed temperature sensing technology. The widespread adoption and use of such monitoring and investigative techniques requires their validation relative to existing methods, e.g. comparison of different strategies for water sampling, of biological and chemical monitoring techniques for water quality, and of results from investigations using new and conventional approaches. Advances in data processing and assimilation may also be required to manage, process and assimilate the large volumes of data generated by widespread deployment of continuously monitoring sensors and application of the new generation of high-resolution characterization approaches (e.g. direct-push techniques for assessment of shallow groundwater systems).

The aim of this workshop is to share good practice and experience of novel characterization techniques for water quantity and quality investigations. Papers are invited on:

1. Applications of novel characterization techniques for water quantity or quality: examples of the application of novel monitoring and investigative techniques, such as in water resource management, identifying sources of pollution, design of remediation systems, targeting pollution control strategies and reducing pollutant loads; validation of novel characterization techniques compared to existing approaches.
2. Data processing and assimilation to support novel characterization techniques for water quantity or quality: how can the large quantities of data generated by these techniques be managed, processed and assimilated into databases and models?
3. Novel sensors or tools for water quantity or quality investigations: descriptions of novel sensors and tools and their advantages and limitations.
4. What does the future hold for the characterization of hydrologic systems? Discussion of promising sensors, tools, and approaches that are under development.

In addition to traditional sessions with oral presentations, we plan to organise a more interactive "show and tell" session during this workshop, at which presenters can give a more hands-on demonstration of novel characterization techniques.

H04
Understanding freshwater quality problems in a changing world

Organiser: IAHS (ICWQ, ICCE)
Lead Convener: Berit Arheimer (Sweden)
Co-Conveners: Adrian Collins (UK), Valentina Krysanova (Germany), Elango Lakshmanan (India), Michel Meybeck (France), Mike Stone (Canada)

Description Great efforts have been made world-wide during the last decades to detect freshwater quality problems and to reach more sustainable, holistic and integrated water management. Both problems and solutions differ between regions, reflecting environmental and societal conditions. Moreover, the knowledge of water status and understanding of processes involved in pollution also differ between regions. At present, the world is undergoing accelerated changes in climate, land-use and society (e.g. demography, urbanization, economy), which will probably influence the water resources, and this may lead to further decline in water quality. To be prepared, there is an urgent need for better overall knowledge about the water quality situation globally, as well as a deeper understanding of processes involved in water quality degradation. More efficient water management and implementation of remedial measures to improve the situation need to be based on scientific knowledge. As on-going changes are not well understood there is a need for the scientific community to embrace this challenge to enhance the level of knowledge.

This symposium welcomes contributions describing present regional or local freshwater quality status world-wide. Moreover, we encourage contributions that actually try to understand underlying processes causing the problems and how the situation may develop into the future, considering on-going changes in environment and society. Scientific questions in line with the new IAHS science initiative could be: How to understand the behaviour of changing hydrological systems and impacts on freshwater quality? How can we effectively bring together theoretical hydrology, experimental hydrology and new measurement techniques to advance our knowledge of water quality processes for the future? How can the typical time-scales of change be identified? How to estimate and predict the behaviour and patterns of freshwater quality, with uncertainty assessment to support risk evaluation?

Red Book – 15 November 2012 abstract submission deadline

H05
Interactions between sediment and aquatic ecology: an ecohydrological perspective

Organiser: IAHS (ICCE, ICGW, ICSW, ICCLAS)
Lead Convener: Adrian Collins (UK)
Co-Conveners: David Hannah (UK), Gunnar Nützmann (Germany), Mario Schirmer (Switzerland)

Description With wider recognition of the pivotal role of sediment in regulating water and aquatic habitat quality, increasing attention is focusing on establishing meaningful targets or thresholds for guiding mitigation strategies and on the efficacy of abatement measures and programmes. Much on-going work is assessing the performance of targeted on-farm mitigation options for reducing excessive sediment loss, but the in-channel restoration of streams has equally become an increasingly popular activity. In most cases, stream

restoration activities have largely focused on modifying channel form with associated impacts on in-stream habitat recreation and species management. But, since hyporheic exchange contributes to many stream ecosystem functions, hyporheic restoration can represent a critical element in the improvement of degraded stream ecosystems. A variety of stream restoration measures can assist hyporheic exchange, mainly by enhancing groundwater–surface water hydraulic gradients and increasing the hydraulic conductivity of sediments. In addition, restored river reaches and induced river bank filtration are effective means of enhancing aquifer recharge, which is important under conditions of global warming and associated shifting weather patterns. This symposium welcomes researchers, practitioners, policy makers and stakeholders working on the sediment–aquatic ecology interface, assessing the efficacy of targeted sediment mitigation measures for farming or alternative sectors, implementing stream restoration activities or developing empirical and modelling approaches for improving the multi-disciplinary evidence base.

Red Book – 15 November 2012 abstract submission deadline

Hw06
Anthropogenic radionuclide contamination of water and sediment: short-term and long-term consequences

Organiser: IAHS (ICCE, ICWQ)
Lead Convener: Valentin Golosov (Russia)
Co-Conveners: Olivier Evrard (France), Kate Heal (UK)

Description The serious incidents at the Fukushima Dai-ichi nuclear power plant in Japan in March 2011 led to the high-profile release of radionuclides into the environment. It is estimated that 20% of emitted radionuclides were deposited on land in Japan as the result of wet and dry fallout. After radionuclide fallout from the atmosphere, or their direct discharge into surface or ground waters, the subsequent vertical and lateral migration of radionuclides is mostly associated with water flow in both dissolved and particulate forms. Radionuclides can also sorb onto soil particles and be redistributed across landscapes by runoff and erosion processes. These transfer mechanisms lead to considerable modifications of the initial contamination patterns. Long-term observations conducted after the Chernobyl nuclear accident demonstrated that the most serious contamination of surface waters occurred during the first 2–3 years after the incident, whereas long-lasting contamination was evident mostly in groundwater and soil/sediment. Recent studies have also demonstrated that because of sediment-associated radionuclide redistribution across landscapes, the total inventory of radionuclides can increase dramatically at certain locations with high sedimentation rates (e.g. reservoirs, floodplains, small ponds, dry valley bottoms). These results have important implications for land and water management.

In this context, it is timely to evaluate the short-term and long-term consequences of radionuclide contamination of different compartments of hydrological systems and in different landscape zones. Particular emphasis will be placed on investigations dealing with the behaviour of radionuclides depending on the chemical properties of water, the features of sediment redistribution, land-use types and other anthropogenic activities.

The following themes will be discussed at the workshop:

1 Radionuclide contamination and water/sediment quality.
2 Interaction between radionuclides transported in dissolved and solid forms.
3 Features of radionuclide redistribution in hydrological systems located in different climatic and landscape zones (with particular attention to areas exposed to Chernobyl and Fukushima radionuclide contamination).
4 Quantitative assessment of sediment-associated radionuclide redistribution and application of spatially distributed models.
5 Consequences of radionuclide contamination for land use and water supply, and management in areas affected by radionuclide contamination of different magnitudes.

Hw07
Tracer hydrology as a tool for understanding and quantifying flow-paths and biodegradation processes in groundwater systems

Organiser: IAHS (ICT)
Lead Convener: Piotr Maloszewski (Germany)
Co-Conveners: Zhonghe Pang (China), Maki Tsujimura (Japan), Przemyslaw Wachniew (Poland)

Description Tracers have been widely used to characterize and estimate groundwater resources and the dynamics, water origin and/or mixing processes in aquifers. Recently tracers have been used increasingly in research settings to understand solute transport phenomena in karst, fractured rock aquifers and heterogeneous porous media, including processes in the unsaturated zone. In those systems there is still a need to use tracers to understand and quantify water flow-paths by combined use of tracers and mathematical models, as well for using tracers for calibrating numerical flow and transport models. Additionally, there are now many practical uses of isotopes in understanding biodegradation processes in the sub-surface. The characteristic isotopic signature of many pollutants, and changes in isotopic composition during specific biological, chemical and physical processes may yield unique information on the origin of pollutants and their fate in soil and groundwater. For natural attenuation studies in particular, isotope analysis can provide essential information. Conservative and reactive tracers can greatly aid in the design and evaluation of enhanced bioremediation strategies by providing a reliable way to measure *in situ* contaminant decay, oxide-reduction process rates, and zones of influence. The long-term application of tracers can be used to evaluate hydraulic confinement and demonstrate containment. The workshop will focus on application of tracers and mathematical models for understanding and quantifying flow-paths and biodegradation processes in heterogeneous media, and on application of tracers for calibrating numerical flow and transport models.

Hw08
Subsurface warming, heat energy and groundwater

Organiser: IAHS (ICGW)
Lead Convener: Makoto Taniguchi (Japan)
Co-Conveners: Corinna Abesser (UK)

Description Subsurface warming is a recent phenomenon caused by the deposition and trapping of large amounts of thermal energy in the subsurface. It is a direct result of the

global-scale increase in average surface air temperatures (global warming), as well as of the increase in urbanization (local heat-island effects). While providing a large (renewable) resource of thermal energy, the impacts of increased subsurface temperatures on micro-biomass activities and groundwater quality are largely unknown. In this workshop, we invite both field and modelling studies on subsurface warming and the reconstruction of surface warming history (including urbanization). We are also interested in studies on the exploitation and use of (deep and shallow) subsurface thermal energy and on the effects it has on the groundwater resources. We encourage contributions from field and modelling studies on direct and indirect impacts of heat energy abstraction and usage on aquifers. This embraces all aspects related to the installation and running of abstraction systems (e.g. heat pumps), as well as issues related to thermal impacts on groundwater and surface water ecosystems, increasing competition for groundwater resources and the sustainability of such systems.

H09
Considering hydrological change in reservoir planning and management

Organiser: IAHS (ICWRS, ICCE, ICSH, ICRS, ICSW, ICWQ)
Lead Convener: Andreas Schumann (Germany)
Co-Conveners: Vladimir Belyaev (Russia), Emna Gargouri (Tunisia), Yan Huang (China), George Kuczera (Australia), Gil Mahé (France), Stephen Mallory (South Africa)

Description Reservoirs are fundamental components of water resources systems. By altering the temporal distribution of water resources, reservoirs bridge the gap between human-induced water demand and the variability of supply. Nowadays reservoir management is more challenging than ever because: (a) the natural variability of available water resources is increasing, (b) the requirements of modern societies and the growing concern about negative side-effects of reservoirs impose new targets and boundary conditions for planning and management, and (c) the number and spatial distribution of reservoirs may result in the accumulation of negative impacts at larger spatial scales in river basins.

In many parts of the world reservoir management is regulated by government, but the operation of reservoirs is conducted by private or public institutions. The process of developing new management regulations is often complex as many different aspects have to be considered and negotiated between regulating authorities, water managers and stakeholders. As a result, it is difficult to gain approval for new management schemes. There is a clear need to adapt reservoir management to changing demand and supply conditions and to harmonize reservoir management within river basins using a more systemic approach.

In this session, new approaches for reservoir planning and management will be discussed with the aim of improving the beneficial contribution of reservoirs within the context of Integrated Water Resources Management at the river basin scale. The following themes will be considered:

1 Reservoir planning under uncertainty – should we consider nonstationarity in stochastic approaches?
2 Is flexible and adaptive reservoir management a realistic option?
3 Reservoir operation for conjunctive use of multiple water resources (e.g. groundwater, desalinated water and others).
4 Erosion and sediment problems of reservoirs: land-use, erosion and siltation rate; impact of reservoir sedimentation on estuarine and coastal areas.
5 Prognoses of reservoir impacts on river basins – which criteria and which methods should be applied?
6 How well can the operation of reservoirs be adapted to on-going droughts?
7 Adaptive reservoir management during floods.
8 Scale issues of reservoir management and the robustness of water supply in large river basins: How can the cumulative impacts of different reservoirs be assessed with sparse data?
9 The role of remote sensing in reservoir management.

With regard to these themes the emphasis will be on new approaches. It will be insufficient to only present problem descriptions and case studies.

Red Book – 15 November 2012 abstract submission deadline

Hw10
Adaptative water resources management – system design and operation

Organiser: IAHS (ICWRS, ICSH)
Lead Convener: Barry Croke (Australia)
Co-Conveners: Uwe Haberlandt (Germany), Alla Kolechkina (Netherlands), Ronald van Nooijen (Netherlands)

Description In water management, design and operation are two complementary aspects of the same activity: the adaptation of the environment to the needs of (parts of) society. As the goals to be met by that adaptation grow in ambition, more and more conflicting goals are set for the same system and these ambitious goals cause stronger interactions between formerly separate systems. Failure to realize goals such as protection against floods, and adequate supply of water for consumption, personal hygiene, agriculture and industry, can have severe consequences. The theme of this workshop is to obtain better knowledge of geophysical processes to predict future dangers to mankind and minimize their effect. Adaptive water resources management attempts to overcome the limitations in the predictions of future water resources due to uncertainty in hydrological data and models. As management of water resources requires an integrated approach that considers all of the key components of the system, the complexity of the system and the resulting model is also a significant limiting factor. Management requires information on the future status of the water resources, and so the uncertainty in future climate and water-use demand scenarios also requires attention. In addition, managers need to consider the risk to and vulnerability of systems dependent on the water resources.

This workshop will explore tools and techniques for adaptive water resources management, considering management of waterways, lakes, reservoirs, aquifers and estuaries. This includes methods for reducing the uncertainty, identifying risks and vulnerabilities, as well as techniques to improve water resource management in the presence of the inherent predictive uncertainty. It will concentrate on minimization of the effects of water-related problems through the redesign of water resource systems and their behaviour.

Operations research and control theory provide some of the ingredients for the resolution of conflicts between goals, translating these goals into system behaviour and designing water resource systems and control schemes that realize the desired behaviour. Traditionally these topics are seen as parts of mathematics, but the concepts that underlie them, such as feedback, system modelling, statistics and optimization of parameters, are very familiar to hydrologists and water managers. This workshop aims to provide a forum for the discussion of applications of operations research and control theory within water management.

Hw11
Environmental information systems for hydrology and water resources

Organiser: IAHS (ICSW, ICWRS, ICRS)
Lead Convener: Jean-François Boyer (France)
Co-Conveners: Günter Blöschl (Austria), Eric Servat (France), Frédérique Seyler (France)

Description An Environmental Information System (EIS) is a set of data, information and tools, the purposes of which are multiple. First, an EIS has to supply scientists with easy access to a big volume of heterogeneous quality and informed data in an organized system, allowing easy an selection process and a good knowledge of the way this information was produced.

Then, it has to contribute to develop monitoring centres which, on the Internet and for a wider public, provide simple and didactic spatialized representations of an area such as a catchment basin or a groundwater system. Thus, an EIS also contributes to improve citizens' environmental education by bringing means of displaying and understanding environmental processes through digital technologies.

For many key players, an EIS is also a decision-making tool for management of environmental resources.

Furthermore, EIS have to develop interaction capacities in order to increase their efficiency and their information sharing capacities. This can be done by adopting common standards regarding representation of data, meta-data, computing processes and spatialized geographical information. This also has to be the case regarding the development of the request interfaces and of the information exchange flows.

This workshop will be the opportunity to present specifically-designed EIS, their links with hydrological modelling and water resources, their connections with remote sensing and spatial information, and their role as a tool for both scientific research and education. Case studies allowing productive exchanges will be welcome.

Hw12
The Third Pole Environment – Remote sensing and modelling of hydrometeorological processes in high elevation areas

Organiser: IAHS (ICRS)
Co-sponsor: TPE, GEWEX
Lead Convener: Bob Su (Netherlands)
Co-Conveners: Y. Ma (China), P. Van Oevelen (USA), F. Zhang (China)

Description The headwater areas of the major rivers in Southeast Asia are located in the Tibetan Plateau, where intensive exchanges of water and energy fluxes between the Asian monsoon, the plateau cryosphere and the plateau surface take place. Currently there is a critical lack of knowledge on this unique environment. Fully integrated use of satellite observations and ground measurements is essential to clarify the roles of the interactions between glaciers, the plateau surface and the atmosphere.

This session invites contributions dealing with advances in issues to improve the understanding of the interactions of the Asian monsoon, glaciers and the Tibetan Plateau in terms of water and energy budgets in order to assess and understand the causes of changes in cryosphere and hydrosphere in relation to changes of plateau atmosphere in the Asian monsoon system, and to predict possible changes in water resources in the Third Pole Environment.

Hw13
How can models help to solve water quality problems?

Organiser: IAHS (ICWQ, ICSW)
Lead Convener: Valentina Krysanova (Germany)
Co-Conveners: Ahti Lepistö (Finland), Roger Moussa (France), Michael Rode (Germany), Per Stålnacke (Norway), Martin Volk (Germany)

Description Water quality models are tools for simulating the movement of water, nutrients and pollutants from the ground surface, sewage treatment units and other pollution sources through the soil profile, catchment and channel networks to receiving waters. Both single-event and continuous simulation may be performed on catchments having storm sewers and natural drainage, for prediction of flows, pollutant loads and concentrations. Depending on the objectives of model application and the availability of measured data, water quality models of different complexity are used: from conceptual models based on statistical and empirical relationships to process-based and physically-based models derived from physical and physicochemical laws, also including some equations based on empirical knowledge.

Despite all the uncertainties involved in water quality modelling with limited input data, water quality models are very important tools to support water managers and policy makers. It would be impossible to evaluate the effectiveness of land management measures, changes in land use and climate change on water quality without their use. The dynamic catchment models driven by climate conditions and land use could provide functional and useful tools for creating river basin management plans in view of changing conditions.

The intention of this workshop is to discuss the applicability of modelling tools for solving real water quality problems. Papers are invited presenting results on:

– Success stories: examples of how the results of water quality modelling were used for solving a water quality problem or reduction of pollution levels,
– Missing link examples: how the results of water quality modelling did not find their way to real-case application, and why.

Besides the traditional sessions with oral presentations, we plan to organise two round-table discussions during the workshop:

1 Summary of success stories in application of water quality models for solving water quality problems; what

are the conditions for success? How and to what extent can results of water quality modelling be generally applicable for solving distinct water quality problems in certain conditions (e.g. diffuse-source pollution)?

2 Obstacles and barriers preventing successful application of water quality models to real management; How to improve the situation? What actions are needed from the modellers and from the stakeholders?

Hw14
Regional modelling in hydrology using statistical tools

Organiser: IAHS (ICSH)
Lead Convener: András Bárdossy (Germany)
Co-Conveners: Emna Gargouri (Tunisia), Salvatore Grimaldi (Italy), Luis Samaniego (Germany)

Description Water management and design requires hydrological predictions for future decisions. Present methods of prediction are based on the assumption that the future will be similar to the past in a statistical sense. This assumption is used, for example, for the assessment of future extremes, flow characteristics and even for model parameters. Unfortunately, hydrological observations are only available at a few selected locations, therefore a spatial transfer – regionalisation – is required. One can establish a spatial transfer based on catchment properties related to the variable(s) under investigation. Another possible method is to transfer model parameters for catchments without discharge observations. These techniques are based on the assumption of temporal stationarity. However, due to significant changes in many important influencing factors, such as climate or land use, future conditions may not allow a simple transfer of past knowledge. It is of great importance to investigate how the spatially-scarce and temporarily not necessarily representative information can be used for reasonable predictions.

The purpose of this workshop is to investigate present statistical techniques for regional estimation and their suitability for changing conditions, and to present new approaches for spatial and temporal regionalization.

Hw15
Testing simulation and forecasting models in non-stationary conditions

Organiser: IAHS (ICSH, ICSW)
Lead Convener: Vazken Andréassian (France)
Co-Conveners: Sandra Ardoin-Bardin (France), Valérie Estupina-Borrell (France), Francesco Laio (Italy), Julien Lerat (Australia), Charles Perrin (France), Olga Semenova (Russia)

Description At various time scales, hydrological processes may be considered as non-stationary. This may be the case when predicting the long-term hydrological impacts of changes over the catchment (e.g. in terms of climate or vegetation cover). This might also be the case in short- or medium-term forecasting applications, where model parameters require some level of adaptation to better represent catchment behaviour, e.g. through data assimilation. Most model applications rely on the stationary hypothesis and so are not well suited for predicting changes or time variability. This difficulty generates significant uncertainty in studies where non-stationary or highly variable behaviours occur.

The objective of the workshop is to discuss the issue of model application under changing conditions at various temporal scales, and to propose appropriate methodologies to evaluate their efficiency and associated uncertainties (including testing approaches, evaluation criteria and statistical tests). The participants to the workshop will be requested to test their models under a common framework for the following applications:

- prediction in changing climate conditions and/or land cover;
- short- to medium-term forecasting using data assimilation to account for temporal variability in processes.

Prior to the workshop, participants will be provided with a common database, consisting of catchments that experienced non-stationary conditions in the past, or for which the time variability of conditions is known to limit forecasting efficiency. A testing framework will be defined. Then results will be analysed using common criteria.

Presentations at the workshop are invited:

1 discussion of results of the model application on the workshop database;
2 innovative methods (including data assimilation procedures) to develop hydrological models better able to cope with non-stationary conditions and/or time variability;
3 innovative methods (including data assimilation procedures) to predict the hydrological impacts of various changes and evaluate associated uncertainties;
4 methods, testing schemes, criteria or statistical tests, to evaluate the reliability of models under changing conditions.

Hw16
Hydrology education and capacity building in developing countries

Organiser: IAHS (Education Working Group)
Lead Convener: Thorsten Wagener (UK)
Co-Conveners: Claudio Caponi (Switzerland, WMO), Denis Hughes (South Africa), Rajendra Prasad (India), Raymond Venneker (Netherlands, UNESCO)

Description The increasing impact of water-related hazards and the continuing reduction in freshwater-driven ecosystem services demand urgent attention in many parts of the world. These threats to water security are likely to increase in the future, given global natural and human-induced changes, and can only be addressed if a sufficiently trained workforce is available to tackle them. However, the recent increment in the water-related educational offer seems to be mainly focused on management issues, while hydrology education is facing considerable unresolved problems. These problems are especially large in those regions of the world that are most vulnerable to the negative impacts of these threats. This workshop aims to address this issue with a particular focus on developing countries. Contributions are invited that describe opportunities, challenges or examples for advancing hydrology education and capacity building.

IAHS Red Book Publication Series

BEST EARLY CAREER SCIENTIST PAPER AWARD

of IAHS Scientific Assembly proceedings 2013

In order to encourage young scientists in Hydrology, IAHS will sponsor a Prize for the ***best Early Career Scientist Proceedings Paper*** that is included in one of the six IAHS Red Books that will be published for the IAHS-IAPSO-IASPEI Joint Assembly, to be held at Gothenburg, Sweden, 22–26 July 2013.

The Prize is free access to the Joint Assembly and a free ticket for the IAHS dinner during the Assembly.

One paper will be nominated from each of the six planned pre-published Red Books by the respective IAHS Red Book editors, and the best paper will be selected by an evaluation committee.

Eligible candidates for the Best Early Career Scientist Proceedings Paper Award are undergraduate, graduate or postdoctoral hydrological scientists with up to 5 years of experience since PhD graduation.

IAHS pre-published Redbook proceedings are planned for the following symposia:

HP1 *Deltas: landforms, ecosystems and human activities*

H01 *Climate and land surface changes in hydrology*

H02 *Cold and mountain region hydrological systems under climate change: towards improved projections*

H04 *Understanding freshwater quality problems in a changing world*

H05 *Interactions between sediment and aquatic ecology: an ecohydrological perspective*

H09 *Considering hydrological change in reservoir planning and management*

Submit your abstract before 15 November 2012: http://iahs-iapso-iaspei2013.com

http://www.surveymonkey.com/s/2012Water

Your Participation Matters

Hydrological monitoring technologies, industry standards, and best practices have changed drastically in the last decade. This September, the global 2012 Hydrological Monitoring Industry Survey will help quantify current challenges, practices, and trends.

Scientists, hydrologists, hydrographers, and water resource managers from around the globe are invited to participate, before 30 September 2012, here: http://www.surveymonkey.com/s/2012Water

Everyone who completes the survey by Friday, 30 September 30, 2012 will be entered to win a new iPad (or a $500 donation to their charity of choice). All participants will also receive a copy of the final report so they can benchmark their organization's hydrometric monitoring program.

Hydrological monitoring has changed substantially as a result of adaptation to new and emerging technologies. A new 'normal' is emerging and it is time to re-engineer hydrometric programs to optimize efficiencies and maximize effectiveness in the delivery of program products and services. But one thing that is lacking is good data on what, exactly, the new normal looks like. The 2012 Hydrological Monitoring Industry Survey is an opportunity for members of the community to work together to gain a better understanding of the current state of the industry.

PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A MATHEMATICAL, PHYSICAL & ENGINEERING SCIENCES

Royal Society Publishing
Informing the science of the future

River history

Compiled and edited by Claudio Vita-Finzi

Published May 2012

Freely available online until 30th September 2012

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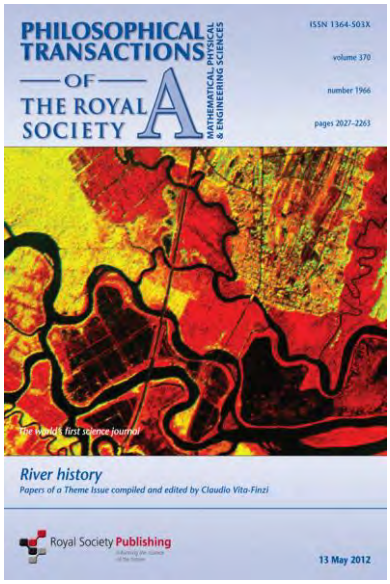

By draining the land, rivers have become sensitive to environmental changes over much of the Earth's surface. The study of river history has made great strides in the last half century thanks to conceptual advances in geomorphology and hydrology and technical developments in remote sensing, geochronology, sedimentology and geophysics.

This issue illustrates some key themes by considering river changes at timescales of a few hours, decades, millennia and millions of years; the dating of fluvial changes using radiometric, cosmogenic, archaeological, historical and geodetic techniques; and the potential bearing of the resulting sequences on climate, tectonics, soil erosion, human health and environmental management.

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PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A

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HydroEco´2013 http://osur.univ-rennes1.fr/HydroEco2013

4th International Multidisciplinary Conference on Hydrology and Ecology: Emerging Patterns, Breakthroughs and Challenges

Rennes, France, 13–16 May 2013 Abstracts are due by 30 September 2012

OBJECTIVES AND SCOPE

A considerable number of interdisciplinary research projects have been developed at the interface between hydrology and ecology during the last decade. The increasing number of peer-reviewed papers on the topic demonstrates the vitality of this theme.

This interest in coupling hydrological and ecological studies has been triggered by purely scientific questions related to the quantification of the role of interactions between hydrological and biological processes on surface and groundwater resources and quality, but also by the importance of these physical and biological interactions at small, local and regional scales. These scales are of paramount importance for applied environmental issues related to air and water quality or biodiversity dynamics for instance.

The aim of this fourth HydroEco conference, the previous ones were in Karlovy Vary (Carlsbad), Czech Republic in 2006, then in Vienna, Austria, in 2009 and 2011, is fourfold:

i) to present new findings and approaches on interactions between hydrology and ecology,
ii) to promote interdisciplinary interactions on water related issues between hydrology, hydrogeology, biogeochemistry, microbial ecology and ecology,
iii) to explore emerging patterns, breakthroughs and challenges, and
iv) to provide management applications and guidelines to tackle environmental issues.

To address the relevant issues, the conference aims to bring together experts from different disciplines, such as hydrologists (groundwater, surface water), ecologists, biologists, subsurface microbiologists, environmental biogeochemists, eco-technologists, geomorphologists, hydraulic engineers, forest managers, nature reserve managers, regional and landscape planners, as well as experts from governmental institutions.

More information at: http://osur.univ-rennes1.fr/HydroEco2013

11th International Precipitation Conference

Ede-Wageningen, The Netherlands, 1–3 July 2013

The dates for IPC11 have been confirmed as 1–3 July 2013. The venue will be the Hotel/Conference Centre ReeHorst in Ede-Wageningen, The Netherlands.

Over the years, the International Precipitation Conference has stimulated the interdisciplinary exchange of ideas and expertise as a way of improving our understanding of precipitation processes, their observations, estimation, modelling and prediction. Beginning with the first conference held in 1986 in Caracas, Venezuela, the series has been an important forum that brings together meteorologists, hydrologists, statisticians and engineers whose research includes interest in precipitation. Results presented and discussed at the ten previous meetings have been published in numerous refereed journal articles and are often widely cited. The series has promoted the importance of such fundamental aspects of precipitation processes as variability across scales in space and time, strong nonlinearity of the involved dynamical process, and the inherent uncertainty involved in precipitation observations and forecasts. The International Precipitation Conference is unique in its combination of interdisciplinarity and limited size, and it can therefore be very effective in continuing to stimulate interdisciplinary discussions on precipitation research.

Organizing committee: Remko Uijlenhoet (Wageningen University), Hidde Leijnse (KNMI) and Hedy Wessels (Wageningen UR)

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GQ 13
Groundwater Quality 2013

CALL FOR ABSTRACTS

8th IAHS GROUNDWATER QUALITY CONFERENCE (GQ13)

Managing Groundwater Quality to Support Competing Human and Ecological Needs

April 21-26, 2013

University of Florida | Gainesville, Florida, USA

The Conference Organizing Committee from the University of Florida is pleased to welcome you to the 8th IAHS Groundwater Quality Conference, (GQ13) to be held at the University of Florida's J. Wayne Reitz Union.

The conference is being hosted in the USA for the first time, and only the second time in North America. Previous GQ conferences were held in Tallinn, Estonia (1993), Prague, Czech Republic (1995), Tűbingen, Germany (1998), Sheffield, UK (2001), Waterloo, Canada (2004), Fremantle, Australia (2007), and most recently in Zűrich, Switzerland (2010).

The 8th IAHS International Groundwater Quality Conference (GQ13) is now inviting conference participants to submit a one-page abstract on the conference theme, *Managing Groundwater Quality to Support Competing Human and Ecological Needs*, and indicate their preference for an oral or poster presentation by 15 October 2012. Notification of acceptance will be transmitted by 15 November 2012. Abstracts must be submitted electronically via the online submission form. Please visit the website for further details.

www.conference.ifas.ufl.edu/gq13 (or Google GQ13)

SCARCE-Consolider CSD-2009-00065

Advanced Course

Barcelona (Catalonia, Spain)
October 15-16, 2012
www.scarcecourse.fluvialdynamics.com

Rivers are among the most complex and dynamic systems in nature. They constitute natural units characterized by more or less frequent transfer of water and sediments that, in turn, support life. While moving through stream courses, water and sediments connect all river compartments, from the basin headwaters to the lowland deposition zones. Sediment that is supplied from drainage basins to rivers (from fines to sand, gravels and coarser materials) constitutes the essential element of the physical structure of the channels and the habitat for the numerous species of animals and vegetation. The failure to appreciate the fundamental role of sediments in river functioning underlies some of the current environmental problems in stream conservation and management. Therefore, there is a need to highlight the role of sediment transport and associated river dynamics towards a better understanding of fluvial processes, and their relation and adjustment to various human impacts (i.e. regulation, gravel mining, etc.). In addition, channel morphology and its sedimentary structure integrate long-term effects of changes in the land use and the basin hydroclimatic characteristics. This is one of the central goals of the SCARCE Project, within which this course is scheduled.

This **2-day advanced course** is designed for graduate students, PhD students and researchers interested in understanding sediment transport and associated processes and the role played by major impacts on sediment budgets from the catchment to the reach scale.

The course covers theoretical and practical aspects, including an introduction to the application of advanced monitoring techniques to the analysis of river morpho-dynamics, and the design of advanced restoration practices in regulated river systems. 60-minute lectures given by experts from various research areas followed by open discussions on case studies constitute the general framework of the course.

The course will be limited to 30 participants accepted in order of registration.

Fees: 100€ for SCARCE students and 125€ for non-SCARCE students. Fees include the course registration, lunch and documentation. Please, make a transfer to the following account (expenses for the sender):
Account: ADECIT. Associació per al Desenvolupament de la Ciència I la Tecnologia; SCARCE. Course UdL-IDAEA
Bank: La Caixa
IBAN number: ES70 2100-0655-780200202561
SWIFT code: CAIXESBB
Specify concept: SCARCE Course UdL-IDAEA and participant name

Online registration is available until 10 October 2012 at:
www.idaea.csic.es/scarceconsolider

Organizers:
- University of Lleida (UdL) / Fluvial Dynamics Research Group – RIUS
- Institute of Environmental Studies and Water
- Forest Science Center of Catalonia (CTFC)
- Agència Catalana de l'Aigua (ACA)
- University of the Balearic Islands (UIB)
- Polytechnic University of Valencia (UPV)

Note: The course will take place at IDAEA-CSIC, c/ Jordi Girona 18-26, 08034 Barcelona. For accommodation options, see:
www.scarcecourse.fluvialdynamics.com

From the International Association for Mathematical Geosciences

Dear IAHS Member,
We would kindly like to draw your attention to the session on *Hydrogeology: from process understanding to improved predictions*, which will be held at the 15th annual conference of the International Association for Mathematical Geosciences (IAMG2013), which will take place in Madrid, 2–6 of September 2013.

The session focuses on new developments contributing to improved predictions of flow and transport processes in aquifers, by means of process understanding and subsurface characterization. Possible topics are anomalous transport behaviour in aquifers, reactive transport, upscaling of transport parameters, subsurface parameter identification, including realistic representation of geology and fully coupled modelling of the groundwater compartment together with other compartments (e.g. vadose zone, overland flow and land surface).

Please consider submitting an abstract to this session from the 1st January 2013 onwards (deadline 1st February 2013). More information about the conference at:
http://www.igme.es/internet/iamg2013/
I hope to see you in Madrid at IAMG2013.

Harrie-Jan Hendricks Franssen
h.hendricks-franssen@fz-juelich.de

Calendar of meetings Organized/Sponsored by IAHS

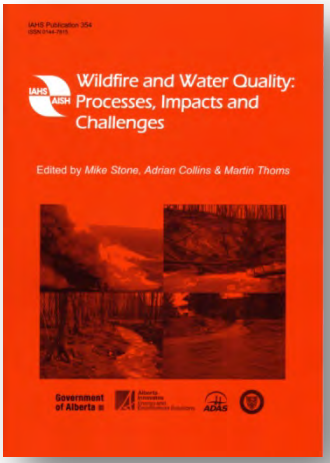
2012	Conference	Contact details
Niagara Falls, Canada 16–23 September	IAH Congress. Confronting Global Change including a joint IAHS–IAH session on Artificial Tracers and Environmental Isotopes to Understand and Quantify Water Flow-paths and Pollutant Transport in Karst Aquifers	conference@iah2012.org
Vienna, Austria 24–27 September	HydroPredict2012, International Interdisciplinary Conference on Predictions for Hydrology, Ecology and Water Resources Management	Universität für Bodenkultur Wien (BOKU) University of Natural Resources and Applied Life Sciences Institute of Water Management, Hydrology and Hydraulic Engineering, Vienna, Austria Prof. Hans-Peter Nachtnebel or Mr Karel Kovar hans_peter.nachtnebel@boku.ac.at or karel.kovar@pbl.nl
Tunis, Tunisia 1–2 October	Statistical Methods for Hydrological Application, 3rd official STAHy workshop (postponed from October 2011)	info@stahytunis.org
Chengdu, China 11–15 October	International Symposium of IAHS-ICCE	Prof. Xiubin He, Prof. Xinbao Zhang, Dr Yuhai Bao http://iahs.info/conferences/2012_Chendu_ICCE.pdf
Baghdad, Iraq 17–18 October	Water Resources Engineering Technology in Iraq and its Obligation for Technical Potential to Satisfy the Future Demand	Prof. Dr Aqeel Al-Adili, University of Technology, Baghdad, Iraq tel: +9647901766126 aqeeladili@yahoo.com
Delft, Netherlands 22–26 October	Completion of the IAHS Decade on Prediction in Ungauged Basins, and the Way Ahead. IAHS 90th Anniversary meeting	Hubert Savenijie, h.h.g.savenije@tudelft.nl
Johannesburg, South Africa 2–4 November	13th WaterNet/WARFSA/GWP-SA. International Symposium on Integrated Water Resource Management (IWRM)	WaterNet Programme Officer, Rennie Chioreso Munyayi tel: +263-4-333248 symposium13@waternetonline.org
Tullamore, Ireland 13 November	Irish National Hydrology Conference 2012	Barry Tyther, Office of Public Works, Head Office, Trim, Co. Meath, Ireland T : +353 (0)46 942 6737 ; F : +353 (0)46 943 8459 E : barry.tyther@opw.ie
Istanbul, Turkey 14–16 November	International Conference on Sediment Transport in Hydrological Watersheds and Rivers	Prof. Dr. Hafzullah Aksoy, Istanbul Technical University, Dept Civil Engineering. tel: +90 212 2856577; fax: +90 212 2856587 haksoy@itu.edu.tr or medfriend@itu.edu.tr
Torino, Italy 14-16 November	Hydrology and Society. Connections between Hydrology and Population dynamics,Policy making and Power Generation	http://eguleonardo2012/polito.it
Saint Moritz, Switzerland 6–9 December	9th International Workshops on Precipitation in Urban Areas	
Orange, California, USA 15–18 December	First IUGG GRC Conference on Extreme Natural Hazard and their Impacts	Chair of the LOC: D. Ramesh P. Singh, School of Earth and Environmental Sciences, Schmid College of Science and Technology, Chapman University, Orange, CA 92866, USA. tel: +1 714-289-2057; fax: +1 714-516-4542 rsingh@chapman.edu

2013	Conference	Contact details
Algiers, Algeria 24–25 February	5th International Conference on Water Resources and Sustainable Development (CIREDD 2013)	Prof. Mohamed Meddi, Ecole Nationale Supérieure d'Hydraulique, Blida, Algérie mmeddi@yahoo.fr or m.meddi@ensh.dz
Gainesville, FL, USA 21–26 April	IAHS Groundwater Quality Conference (GQ13)	
Rennes, France 13–16 May	HydroEco2013, 4th International Multidisciplinary Conference on Hydrology and Ecology: Emerging Patterns, Breakthroughs and Challenges	Dr Gilles Pinay, Observatoire des Sciences de l'Univers de Rennes Université de Rennes 1, Rennes, France, tel: +33 2 23 23 68 69; gilles.pinay@univ-rennes1.fr Mr Karel Kovar, PBL Netherlands Environmental Assessment Agency Bilthoven, The Netherlands, tel: +31 30 274 3360; karel.kovar@pbl.nl
Koblenz, Germany 3–7 June 2013	Water and Sediment – VI International Conference on Water and Environmental Research	Johannes Cullmann, IHP/HWRP Sekretariat, Bundesanstalt fuer Gewaesserkunde, Am Mainzer Tor 1, 56068 Koblenz, Germany tel: +49 261 1306 5313; Cullmann@bafg.de
The Hague, The Netherlands 10–13 June	LuWQ2013, International Interdisciplinary Conference on Land Use and Water Quality: Reducing Effects of Agriculture	Dico Fraters, RIVM National Institute of Public Health and the Environment, Bilthoven, the Netherlands T : +31 30 274 4039 ; E : dico.fraters@rivm.nl Karel Kovar, PBL Netherlands Environmental Assessment Agency, Bilthoven, The Netherlands T : +31 30 274 3360 ; E : karel.kovar@pbl.nl
Wageningen, The Netherlands 1-3 July	IPC11 – 11th International Precipitation Conference	Contacts : Remko Uijlenhoet Remko.Uijlenhoet@wur.nl and/or Sabine Meijerink Sabine.Meijerink@wur.nl
Göteborg, Sweden 22–26 July	Knowledge for the Future. Joint IAHS-IAPSO-IASPEI Scientific Assembly	Joint Assembly Secretariat, Congrex Sweden AB, IAHS/IAPSO/IASPEI 2013 PO Box 5078, SE-402 22 Göteborg, Sweden. tel: +46 31 708 60 00; fax: +46 31 708 60 25. iahs.iapso.iaspei2013@congrex.com
Perth, Western Australia 16–20 September	IAH International 40th Congress – Solving the Groundwater Challenges of the 21st Century	
Kos Island, Greece 17–19 October	Facets of Uncertainty 5th EGU Leonardo Conference • Hydrofractals'13 • Statistical Hydrology—Stahy'13	http:/kos2013.org
Kathmandu, Nepal 27–29 November	International Conference on Climate Change, Water and Disaster in Mountainous Areas	Mr Deepak Paudel, General Secretary, info@soham.org.np Mr Jagat K. Bhusal, Chairman, bhusaljagat@yahoo.com

2014	FRIEND Conference: Hanoi, Vietnam, February/March
2015	XXVIth IUGG General Assembly, including the IAHS Assembly: Prague, Czech Republic, 22 June–2 July

International Association of Hydrological Sciences
Association Internationale des Sciences Hydrologiques

Wildfire and Water Quality: Processes, Impacts and Challenges



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Continued from page 1.

elucidate processes that influence the source, transport and fate of sediment-associated contaminants in the aquatic environment.

A selection of 15 peer-reviewed papers presented at the symposium have been published as an IAHS Red Book (Publ. 354). The symposium addressed several key themes and provided an opportunity for state-of-the-art knowledge transfer and exchange regarding the impacts of large-scale landscape disturbance by wildfire on water quality, and its implications for sustainable management of water–sediment systems. Themes addressed in the volume include:

(1) impacts of wildfire on hillslope hydrology,
(2) effects of wildfire on the physical, chemical and biological composition of soils,
(3) changes in sediment transport dynamics and yields resulting from wildfires,
(4) methodologies used to evaluate the provenance and fate of wildfire impacted sediments and associated contaminants,
(5) prediction of hydrological and sediment transport recovery trajectories at the local and catchment scales,
(6) impacts of wildfire on aquatic ecology,
(7) post-fire sedimentation and water quality impacts in reservoirs, and
(8) management actions to reduce the impact of wildfires or river ecosystems.