

Catchment Restoration and Water Protection

13-15 AUGUST, 2012 IN OULU – FINLAND

Second Announcement and Call for Abstracts

It's all about Hydrology



Dear colleagues!

Nordic Water is a conference series focusing on water resources, hydrology and related sciences. Providing good solutions for water resources problems requires an interdisciplinary approach. The conference will bring together scientists, managers and decision-makers to talk about recent trends in water research and water resources management.

In Europe, an important issue is the EU Water Framework Directive (WFD) and the Groundwater Directive (GWD), which aim to ensure good water quality for human and ecosystem needs. Finding cost-effective and acceptable methods to improve the status of water bodies is an essential task for the future. Northern conditions place particular demands regarding natural environment, climate and socio-economic development. Generally, water is highly valued and good water quality is required for drinking water, watercourses and groundwater systems. This calls for high-level research and knowledge.

The conference will take place in Oulu, the main city in Northern Finland. Oulu is easily accessible, with frequent flights from Helsinki and direct connections from several other Nordic and Baltic capitals.

We warmly invite you to Oulu, Finland, for Nordic Water 2012 this summer!

Riitta Kamula and Bjørn Kløve



Venue

The XXVII Nordic Hydrological Conference will be held at the University of Oulu, Northern Finland. The main venue will be the Linnanmaa Campus, about 6 km from the city centre. Linnanmaa is easily accessible by bus, with a frequent bus service from the city centre. The welcome reception, conference dinner and the walking tour will all take place in the city centre.

Oulu is a lively university city with 140,000 inhabitants. Surrounded by water and landscapes of great natural beauty, Oulu has something to offer to all. During the summer months, one of Oulu's main attractions is Nallikari beach.

The University of Oulu is one of the largest universities in Finland. It is engaged in multidisciplinary research and academic education. The University cooperates closely with industry and commerce, and has broad connections with hundreds of international research and educational institutions.

Objectives and Scope

NORDIC WATER 2012 is all about hydrology in its widest sense. The main theme will focus on catchment restoration and water protection. Several sub-themes relevant for northern water research will also be included as sub-themes. The conference will include oral and poster presentations and special workshops.

The conference aims to promote exchanges of experiences from hydrological research and practice. As a hydrology gathering, the main goal is to identify, establish and strengthen collaborations, leading to real partnerships between researchers, decision-makers and managers of water resources.

Abstract Submission and Call for Abstracts

Abstracts are invited on the topics outlined in the conference themes and others falling within the scope of the conference.

All writers are strongly encouraged to submit their full papers to be published in a special issue of the international journal Hydrology Research.

Read more at http://nhc2012.oulu.fi/abstract_submission.htm

Fees and registration

Registration and excursion tees:						
NHF Member	320 Euros					
Non-member	370 Euros					
Accompanying person	100 Euros					
Rokua excursion (1 day)	85 Euros					
Oulanka excursion (3 days)	160 Euros					

Registration in NORDIC WATER 2012 is through the conference website at http://nhc2012.oulu.fi/.

The fees include the welcome reception, conference dinner, daily lunches and coffees and the walking tour in the City Park.

Conference Themes

The main conference theme of 'Catchment restoration and water protection' will revolve around the following sub-themes:

 Hydropower, river engineering and the environment
Hydraulic structures
Design, operation and inflow forecasting

Regulation of lakes and reservoirs Environmental flow

- Climate and hydrology Climate variability and climate change Climate impact on river and lake dynamics and groundwater systems Integrated management of climate impacts on hydrology Adaptation to climate change
- Cold climate hydrology Snow processes, observations and modelling Frost in soils Floods and droughts
- Groundwater systems Groundwater contamination Groundwater and integrated modelling Groundwater interaction with surface water and terrestrial ecosystems
- Land use, hydrology and water quality Diffuse pollution and control Nutrient and sediment retention; from the field to the sea Constructed wetlands, buffer zones, filter media and water treatment solutions Impacts of restoration measures on water quality and quantity

- Catchment and river restoration Measures, demand and experience in catchment restoration Hydrological alterations and methods of water regime restoration Restoration of aquatic ecosystems
- Ecological and hydrological effects of catchment restoration Interaction between hydrology and biology Sediment dynamics and biological interactions Habitat hydraulics Wetlands and peatland hydrology
 Global change, water resources and ecosystems
 - Impacts of climate change, land use and water extraction Effects of hydropower regulation Urban hydrology and impacts
- Modelling, methods and practices in hydrology Tracer methods in hydrology On-line monitoring Data assimilation methods Modelling, forecasts and uncertainty
 Management, decision support and
- knowledge uptake Data policy and data availability Science-policy interaction: WFD and GWD Socio-economic impacts and decisionmaking Education in hydrology



Programme Outline

	SUNDAY.	MONDAY	TUESDAY	WEDNESDAY.	THURSDAY	FRIDAY
	AUGUST 12	AUGUST 13	AUGUST 14	AUGUST 15	AUGUST 16	AUGUST 17
00.00					Post-conference	Post-conference
06.00		Registration			excursion	excursion
08:30				NHF General		
09:00		Welcome		assembly		
09:30		KEYNOTE	KEYNOTE	KEYNOTE		
10:00						
10:30		Coffee break	Coffee break	Coffee break		
11:00		Parallel Sections	Parallel Sections	Parallel Sections		
12:30		Lunch	Lunch	Lunch	One-day	Three-day
13:30		Parallel Sections		Parallel Sections	excursion Rokua, Finland	excursion Oulanka, Finland
14:30		Coffee break	-	Coffee break		
15:00		Parallel Sections	lour	Parallel Sections		
16:30		Poster Session		Closing		
17:30				NHF - Board meeting		
19:00	NHF - Board meeting	Welcome reception	Conference dinner			

Walking Tour in the City Park, Tuesday August 14, 2012

The walking tour will take conference participants into the City Park, located next to the city centre. The Park features hydrological interests such as old water powerhouses, small brooks and creeks with scenic white wooden bridges, and a fishway built not only for fish migration but also to increase detention time in the pool below.

Post-conference Excursions

The post-conference excursions will introduce the participants to Finnish hydrological research into bogs, groundwater, long-term monitoring and water resources management. The excursions will also offer opportunities for adventure activities.

Post-conference Course

A course on calibration and uncertainty analysis of environmental models using PEST will be held on 16-22 August, 2012. The course will begin with the conference excursion to Rokua esker (fee 85 €). Find out more about this course at http://value.oulu.fi/PEST2012.

Keynote speakers



John Doherty (Australia)

"Environmental modeling - encapsulating what we known and quantifying what we don't"

Dr. John Doherty works primarily as a private consultant. He also works in a part-time capacity at the National Centre for Groundwater Research and Training at Flinders University, Australia. There is a considerable overlap between his research and consulting interests. These focus mainly on the following topics, all of which attempt to serve the greater purpose of maximising the use of environmental modelling in the decision-making context:

 Solution of the inverse problem of model calibration in ways that are numerically efficient but that allow maximum usage of both field data and expert knowledge

- Quantification of the uncertainty associated with model predictions of management interest
- Development of a theoretical understanding of the benefits and costs of simplicity vs. complexity in environmental models
- Appropriate use of models in the environmental decision-making process.

Cintia Bertacchi Uvo (Sweden)

"The interacting system of climate and hydrology"

Cintia Bertacchi Uvo is a Professor at the Department of Water Resources Engineering, Lund University. Her research interests lie on how climate and hydrology affect, interact and relate to each other in different time and space scales, typically from monthly to decadal. Prof. Uvo's work is essentially interdisciplinary and dedicated to understanding of processes that are then statistically modelled and applied. In the latest years, the development of seasonal hydrological forecast based on climate variability has included a large part of her research. Her work is very collaborative and international. Applications of her work have been made in many parts of the world and in collaboration with diverse institutions worldwide.



Prof. Uvo is also very active in education of doctoral students and has created several international courses with the objective of stimulating young researcher to comfortably walk on the bridge that connects climate and hydrology.



Per Gustav Stålnacke (Norway)

"How slow can it be? Spatial and temporal considerations on nutrient retention from source to river mouth"

Dr. Per Stålnacke is the head of the Department of Water Quality and Hydrology at Bioforsk Soil and Environment, Norway, and is also vice-President of IAHS ICWQ. His research interests lie in integrated water resources management and the policy-science interface. In addition, he has considerable experience in assessment of nutrient fluxes at river basin scale. According to Dr. Stålnacke, there is a huge research need to accurately quantify hydrological pathways and develop better tools to assess and improve the understanding of how long it may take before we can observe improved water quality due to mitigation measures implemented. These are the apparent needs in relation to the WFD and the HELCOM BSAP. At Nordic Water 2012, Dr. Stålnacke will present and discuss some very recent results on nutrient retention in the Baltic Sea drainage area and time trends in selected rivers in the Baltic Sea countries and Europe.

Keynote speakers



Aaron Packman (USA)

"Overview of surface-groundwater interactions in the context of river degradation, water guality and ecosystem processes" Aaron Packman is a Professor at the Department of Civil and Environmental Engineering, McCormick School of Engineering and Applied Sciences, Northwestern University. His research focuses on environmental and microbial transport processes, with particular emphasis on understanding the basic processes that control interfacial transport in aquatic systems and the coupling of physical transport processes with biological and biogeochemical processes in dynamic natural environments such as rivers. Prof. Packman's work is highly collaborative and encompasses basic fluid mechanics, particle transport and morphodynamics, microbiology, and aquatic and surface chemistry. Important applications include contaminant transport and water quality, microbial habitat conditions and benthic microbial ecology, nutrient and carbon cycling, ecosystem degradation and restoration, control of biofilm-based infections, and the transmission of waterborne disease.

Prof. Packman has received several awards for his work, including Career awards from the U.S. National Science Foundation and National Institute of Health, and the Huber Research Prize from the American Society of Civil Engineers. He is currently associate editor of the leading aquatic sciences journal Limnology and Oceanography – Fluids and Environments, and is vice-President of the International Association for Sediment Water Science. He is also very active on technical committees and panels addressing sediment contamination, hydrological synthesis and waterborne disease transmission.

Nikolai Friberg (Denmark)

"Restoring stream ecosystems in a changing climate:

Dr. Nikolai Friberg is Deputy Head of the Department of Bioscience at Aarhus University. He has more than 20 years of research experience in the field of freshwater ecology, working both in Denmark and abroad. The main focus of his research is on applied issues and how anthropogenic disturbance affects freshwater communities. His scientific work in the past has evolved around community ecology and centred on three overall themes:

• The influence of habitats and anthropogenic stressors (organic pollution, pesticides, etc.) on stream biota and ecosystem processes

• The influence of riparian areas and catchment land use on stream communities and biological structure, including effects of restoration measures

• The effects of climate change on stream ecosystem structure and functioning, including food web architecture.

His main research interest at present relates to the interactions between organisms across levels of organisation and how this influences ecosystem processes, including recently how food webs change in relation to climate. He is currently involved as Work Package leader in a new EU FP 7 project, REFORM, on detecting habitat degradation and developing evidence-based ways of restoring rivers. He is currently President of NORBS (Nordic Benthological Society) and is the Danish representative in CHIN and Euraqua.



Post-conference Excursion August 16, 2012:

This excursion will pass through the Oulu river basin, ending at the Rokua esker, about 70 km east of Oulu. The excursion will conclude with a traditional Finnish summer evening event, with sauna and refreshments.

Rokua esker aquifer is one of the largest and most studied aquifers in Finland. This esker was formed during the last deglaciation and has the status of a Finnish national park. It has a unique landscape consisting of picturesque kettle lakes and sand dunes. It is also the first Geopark site in Finland. The esker has several clearwater lakes that are dependent on groundwater. During the excursion, hydrogeology, groundwater monitoring and recent research on surface-groundwater interactions in eskers will be introduced. In addition, issues such as the impacts of land use (i.e. forest drainage) and climate change on groundwater are being studied at Rokua and will be introduced during the excursion.

Cost: 85 €; includes travel from and to Oulu, meals and refreshments.

Preliminary programme

Departure from Oulu city centre (in front of City Hall) at 8:00. Rokua tourist centre Suppa and introduction of the site. Rokua Ahveroinen lake: Surface-groundwater interaction monitoring. Lunch. Lake Saarinen/Salminen isthmus: Geology of the esker and geophysical measurements. Walking tour in Rokua National Park Merilä farmhouse by the Oulu river: Refreshments, sauna and dinner. Return to Oulu at about 21:00.



Rokua Esker Aquifer and Groundwater-Dependent Ecosystems





Post-conference Excursion August 17-19, 2012:

Oulanka Research Station was established in 1966 to promote research and education in biological sciences and geosciences at the University of Oulu. Early research at the station included studies and surveys on local flora, fauna and environmental conditions. In the 1990s, the environmental monitoring programmes carried out at the station were complemented with the European Monitoring and Evaluation Programme. Other important activities include phenological monitoring and analyses of water quality in streams, rivers and ponds. Today Oulanka Research Station is part of the Thule Institute. Oulanka National Park is a superb hiking destination. The popular Karhunkierros Hiking Trail

leads through the National Park. Hikers can get a general picture of the park's nature and see the national landscape even on part-day trips lasting a few hours. The Park is located in an upland region of north-eastern Finland. Oulanka is a unique and versatile combination of northern, southern and eastern natural biotopes. The landscape is made up of pine forests, river valleys with sandy banks and rapids and, in the north, vast mires. The area is rich in animal and plant species, including some endangered species. In 2002, Oulanka National Park received the international PAN Parks Certificate (www.panparks.org).

Preliminary Programme

Friday August 17, 2012

Depart from Oulu at 8.30, stop at Pudasjärvi/ Viinivaara and bogs along the route. Research activities in Oulanka Research Station. Short walks. Sauna, mingling, evening meal. Saturday August 18, 2012 Optional activities e.g.: Shooting the rapids (extra cost 50 €). Short tour by bus: Kitkajärvi (lowered lake hydrology), Kiveskoski outlet, Juuma. Unaccompanied hiking (marked routes). Sauna, evening meal.

Sunday August 19, 2012 Hiking, etc. Departure for Oulu by bus at 13.00. Arrival in Oulu at about 17.00.

Accommodation options (price/option varies) Single room Double room Separate apartment (limited availability)

Cost 160 €; includes travel to and from Oulanka, accommodation in double room, bed-linen, all meals, short bus tour.

Extra costs: rafting 50 €, accommodation in single room, and accommodation in separate apartment.



Oulanka Research Station and National Park







Important dates

15 March 2012 Deadline for submission of abstracts (extended) 01 April 2012 Notification regarding acceptance of abstracts 15 April 2012 Deadline for grant applications (students and young researchers) 15 April 2012 Deadline for fee reduction applications (Baltic members) 15 May 2012 Notification regarding grant and fee reduction awards 01 June 2012 Final programme issued 13 August 2012 Conference begins 13 August 2012 Welcome reception 14 August 2012 Conference dinner NHF General Assembly 15 August 2012 16 August 2012onwards Post-conference excursions

Organisers

The conference is being organised by the Water Resources and Environmental Engineering Laboratory, University of Oulu, in collaboration with the Thule Institute, VALUE Doctoral Programme, LYNET and the Finnish Hydrological Association on behalf of the Nordic Association for Hydrology (NHF).

University of Oulu is one of the largest universities in Finland and it is known for its interdisciplinary research and academic education.

The Water Resources and Environmental Engineering Laboratory belongs to the Process and Environmental Engineering Department, University of Oulu. The focus of the Laboratory's research and education is on water and soil environmental engineering.

Thule Institute is a multidisciplinary research centre in the fields of environmental and northern issues and natural resources at the University of Oulu.

VALUE - Doctoral Programme in Integrated Catchment and Water Resources Research is a nationwide programme, with eight participating Finnish universities and six research institutes. The integral theme of VALUE is comprehensive analysis of watershed activities and their impacts.

LYNET is a consortium of public research institutes in Finland with its field of expertise in natural resources and the environment. LYNET offers joint research programmes and expertise services. LYNET aims to unify data management, environmental monitoring, joint activities and services.

http://nhc2012.oulu.fi/









