



International Interdisciplinary Conference on
Land Use and Water Quality
Reducing Effects of Agriculture
The Hague, the Netherlands, 10-13 June 2013

International Interdisciplinary Conference on

Land Use and Water Quality:

Reducing Effects of Agriculture

10-13 June 2013, The Hague, the Netherlands

PRELIMINARY, 28 May 2013

CONFERENCE PROGRAMME

Jointly convened by

- National Institute for Public Health and the Environment (RIVM), the Netherlands
- Department of Bioscience, Aarhus University, Denmark
- Geological Survey of Denmark and Greenland (GEUS), Denmark
- Umweltbundesamt, Environment Agency Austria
- Umweltbundesamt (UBA), Federal Environment Agency, Germany

Scientific sponsors and institutional supporters:

- PBL Netherlands Environmental Assessment Agency, Bilthoven, the Netherlands
- EEA, European Environment Agency, Copenhagen, Denmark
- IAHS, International Association of Hydrological Sciences
- IAH, International Association of Hydrogeologists



**National Institute for Public Health
and the Environment**
Ministry of Health, Welfare and Sport



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DENMARK AND GREENLAND

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For our Environment



**AARHUS
UNIVERSITY**
DEPARTMENT OF BIOSCIENCE

umweltbundesamt^U
ENVIRONMENT AGENCY AUSTRIA

LuWQ2013 Conference Programme

(total 158 abstracts: 109 oral, 49 poster)

The following sessions are distinguished for oral presentation

A.i-A.vi Research for increasing system knowledge: understanding and modelling the hydro(geo)logical, geochemical and biochemical reality
(Monday 10 June 13:30 till Thursday 12 June 12:00)

C.i-C.vi Assessment of effects of Programmes of Measures on water quality on a regional and national scale: monitoring and modelling changes in water quality
(Tuesday 11 June 8:30 till Wednesday 12 June 15:00)

D.i-D.iv Field research & modelling for quantifying effects of farming practices and changes in land use
(Tuesday 11 June 10:30 till Wednesday 12 June 12:00)

E.i and E.ii Monitoring, modelling and management of water quality in protected areas: use of monitoring and modelling to improve water quality for drinking water supply areas and habitat and species protection areas
(Thursday 13 June 8:30 till Thursday 13 June 12:00)

FG.i-FG.iv Decision-making on and implementation of Programmes of Measures: role of policy, stakeholders and science, and social and economic incentives and constraints (carrots and sticks)
(Wednesday 12 June 13:30 till Thursday 13 June 15:00)

P.i and P.ii Poster sessions

Tuesday 11 June 10:00-10:45, combined with coffee

Introductory Poster session P.i:

Participants take a quick glance at posters.


Poster authors should **not attend** their posters, technical discussions of posters to be in Poster session P.ii.


Wednesday 12 June 17:00-18:30, with drinks and snacks

Poster session P.ii:

Poster authors should (yes) attend their posters, for technical discussions with interested attendees.

Legend











 = lunch

 = coffee break

Oral session

Poster display / session

Overview: Sunday-Thursday, 9-13 June 2013

Sunday 9 June	16:00 -	Monday 10 June	11:00 -	13:00 -	13:30 -	14:00 -	15:00 -	15:30 -	17:00 -	17:30 -	
	18:00		13:00 -	13:30 -	14:00 -	15:00 -	15:30 -	17:00 -	17:30 -	19:30	
	Pre-Registration / Conference secretariat desk open		-		Opening	Introduction / Session A.i		Session A.i	-	Welcome Reception / Icebreaker	
			Registration / Conference secretariat desk open (11:00 – 17:30) PowerPoint presentations to be uploaded at the conference secretariat desk								
Tuesday 11 June	7:30 -	8:30 -	10:00 -	10:45 -	12:00 -	13:30 -	15:00 -	15:30 -	17:00 -	18:00 -	
	8:30	10:00	10:45	12:00	13:30	15:00	15:30	17:00	18:00	23:00	
	Registration. Posters to be installed. Upload ppt	Session C.i	Introductory Poster session P.i 	Session A.ii Session C.ii Session D.i		Session A.iii Session C.iii Session D.ii		Session D.iii	-	Conference Dinner departure from venue	
		Posters on display									
Wednesday 12 June	7:30 -	8:30 -	10:00 -	10:30 -	12:00 -	13:30 -	15:00 -	15:30 -	17:00 -		
	8:30	10:00	10:30	12:00	13:30	15:00	15:30	17:00	18:30		
	Registration. Posters to be installed. Upload ppt	Session C.iv		Session A.iv Session C.v Session D.iv		Session A.v Session C.vi Session FG.i		Session FG.ii	Poster session P.ii with drinks and snacks		
		Posters on display									
Thursday 13 June	7:30 -	8:30 -	10:00 -	10:30 -	12:00 -	13:30 -	15:00 -				
	8:30	10:00	10:30	12:00	13:30	15:00	15:30				
	Registration. Upload ppt	Session E.i		Session A.vi Session E.ii Session FG.iii		Session FG.iv	Closure				
		Posters on display			Posters to be removed						

Monday, 10 June 2013

Lecture Hall A.1
11:00-17:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk
Only plenary presentations during this afternoon
13:00 – 13:30 Welcome and coffee
Opening of the Conference
13:30 – 14:00 hours Welcome Welcome on behalf of RIVM, Director Environment and Safety, Marcel van Raaij Welcome on behalf of the Organising Committee, Dico Fraters Some practical issues, Organising Committee, Karel Kovar
Introductory lecture to the conference
14:00 – 14:30 <i>D. Fraters</i> , K. Kovar, B. Kronvang, D.F. McGonigle: Farming within environmental boundary conditions: Developments and challenges from a European perspective (abstract #254)
Session A.i Research for increasing system knowledge: understanding and modelling the hydro(geo)logical, geochemical and biochemical reality Chairs: : Ruth Grant and Lærke Thorling
14:30 – 15:00 <i>B. Kronvang</i> , J. Bøgestrand, J. Windolf, N.B. Ovesen, L. Troldborg: Background phosphorus concentrations in Danish groundwater and surface water bodies (abstract #46)
15:00 – 15:30 Coffee break
Session A.i Research for increasing system knowledge: Understanding and modelling the hydro(geo)logical, geochemical and biochemical reality Chairs: : Ruth Grant and Lærke Thorling
15:30 – 15:45 O. Oenema, R. Jongmans, G. Hazeu, <i>K.B. Zwart</i> , G.L. Velthof: Differentiation of pedo-climatic zones in Europe to indicate the risks of nutrient leaching and runoff (abstract #57)

15:45 – 16:00 T. Nemeth, I. Sisak: Quantification of the municipal and agricultural diffuse phosphorus load based on long term watershed model of River Zala, Hungary (abstract #105)
16:00 – 16:15 R. Stenger, J.C. Clague, S.J.R. Woodward, B. Moorhead: Understanding and quantifying denitrification in shallow groundwater (abstract #120)
16:15 – 16:30 P. Rosendorf, J. Hejzlar, J. Krasa: Eutrophication of inland water and phosphorus source apportionment – Different tools according the Nitrate Directive and Water Framework Directive (abstract #151)
16:30 – 16:45 L. Posthuma, D. de Zwart, K. Kapo, C. Holmes, S.D. Dyer: GIS-based coupling of data on land use, water quality, toxicant exposures and censuses of fish and invertebrate species provides a rich basis for diagnosing the complex causes of local ecological impacts (abstract #160)
16:45 – 17:00 P.A. Chambers, J.M. Culp, R.B. Brua, G.A. Benoy: Development and application of nutrient criteria for streams in agricultural landscapes (abstract #219)
End of presentations of Monday, 10 June 2013
17:30 – 19:30 Welcome Reception / Icebreaker

Tuesday, 11 June 2013

07:30 – 08:30 Posters can be installed by presenters in the Poster exhibition room		
07:30-17:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk		
Lecture Hall A.1		
Session C.i Assessment of effects of Programmes of Measures on water quality on a regional and national scale: Monitoring and modelling changes in water quality Chairs: Brian Kronvang and Rüdiger Wolter		
08:30 – 09:00 L. Keller, P. Kreins, R. Kunkel, P. Kuhr, B. Tetzlaff, M. Trepel, C. Heidecke, A. Wagner, <i>F. Wendland</i> : Modelling and management of nitrate inputs into groundwater and surface water in the Federal State of Schleswig-Holstein (abstract #54)		
09:00 – 09:20 L.J.M. Boumans, <i>E.J.W. Wattel-Koekkoek</i> , E. van der Swaluw: Influence of emission reduction policy on rainwater and groundwater quality during the 1988-2011 period in the Netherlands (abstract #65)		
09:20 – 09:40 <i>S. Burke</i> , A. Lovett, M. Blackwell, B. Surridge, A.L. Collins, K. Hiscock, P. Haygarth, R. Harris, D.F. McGonigle, J. Quinton, P. Quinn, C. Hodgson: Testing integrated diffuse pollution mitigation measures for arable cropping, livestock, dairy and other farming systems: The Demonstration Test Catchment platform (abstract #70)		
09:40 – 10:00 <i>P.J. Haest</i> , S. Broekx, J. van der Kwast, P. Seuntjens: A conceptual model to evaluate remediation measures at the river basin scale (abstract #91)		
10:00 – 10:45 Introductory Session P.i and Coffee break Poster session; participants take a quick glance at posters (poster authors should not attend their posters)		
Lecture Hall A.1	Lecture Hall M-5	Lecture Hall M-8
Session A.ii Research for increasing system knowledge Chairs: Esther Wattel and Hans Kros	Session C.ii Assessment of effects of Programmes of Measures on water quality on a regional and national scale Chairs: Hans-Peter Broers and Eke Buis	Session D.i Field research & modelling for quantifying effects of farming practices and changes in land use Chairs: Janjo de Haan and Ruth Grant

10:45 – 11:00 <i>D.P. Oliver</i> , R.S. Kookana, J.W. Cox, J. Anderson: Off-site transport of pesticides in Mt Lofty Ranges, South Australia, Australia: Relation to hydrological events (abstract #19)	10:45 – 11:00 <i>L.J.M. Boumans</i> , D. Fraters: Nitrate mapping for root zone leaching in the Netherlands (abstract #60)	10:45 – 11:00 <i>A. Vinten</i> , K. Loades, S. Addy, S. Richards, M. Stutter, Y. Cook, H. Watson, C. Taylor, C. Abel, N. Baggaley: Assessment of the use of filter fences for erosion control in the aftermath of potatoes on sloping land in Eastern Scotland (abstract #50)
11:00 – 11:15 <i>J. Velstra</i> , M.M.A. Groen, J. Groen: Transport of water, salts and nutrients in the vadose and saturated zone in drained cropland in Dutch polders: A study using time series of 2D resistivity imaging and solute transport modelling (abstract #236)	11:00 – 11:15 <i>B. Holmes</i> , C.J.A. Macleod, J.J.C. Dawson, S. Dunn, M. Stutter, J.M. Potts: Exploring the usefulness of surface water quality datasets in assessing the effectiveness of Nitrate Vulnerable Zones in Scotland (abstract #189)	11:00 – 11:15 <i>F. Verhagen</i> , J. Rozemeijer, F. van Herpen: Soil and water quality effects of buffer strips in Noord-Brabant, the Netherlands (abstract #113)
11:15 – 11:30 <i>J. Deakin</i> , B. Misstear, M. Archbold, R. Flynn: The role of artificial field drainage in the delivery of flow and nutrients to rivers in low permeability catchments (abstract #168)	11:15 – 11:30 <i>G. Blicher-Mathiesen</i> , H.E. Andersen, J. Windolf, B. Kronvang: Can monitoring support targeting of measures to high N load catchments? (abstract #199)	11:15 – 11:30 <i>O. Salazar</i> , F. Nájera, C. Rojas, N. Sepúlveda, P. Realini, J. Vargas, F. Corradini: Narrow buffer strips as mitigation measure to reduce nitrogen losses from maize fields in central Chile (abstract #187)
11:30 – 11:45 <i>J. Elliott</i> , K. Liu, D. Flaten, D. Lobb, J. Yarotski: Developing agricultural management practices to protect water quality in the cold dry climate of the Canadian Prairies (abstract #142)	11:30 – 11:45 <i>A. Tiktak</i> , M.M. van Eerd, A.M.A. van der Linden: Effect of pesticide reduction strategies on surface water quality in the Netherlands (abstract #253)	11:30 – 11:45 <i>K. Izydorczyk</i> , W. Frątczak, E. Cichowicz, M. Zalewski: Enhanced land-water buffer zones for reduction of diffuse pollution from the landscape to freshwater ecosystems (abstract #238)
11:45 – 12:00 <i>J. Rozemeijer</i> , Y. van der Velde, F. van Geer, H.P. Broers: Tracing agricultural nutrient losses: From field-scale concentration patterns in groundwater to catchment-scale surface water quality (abstract #83)	11:45 – 12:00 <i>M. Hashim</i> : The situation of groundwater quality and its availability for agriculture in Yemen (abstract #99)	11:45 – 12:00 <void slot, to be used by session chairs>
12:00 – 13:30 Lunch		

Lecture Hall A.1	Lecture Hall M-5	Lecture Hall M-8
<p>Session A.iii Research for increasing system knowledge</p> <p>Chairs: Hans Kros and Alice Melland</p>	<p>Session C.iii Assessment of effects of Programmes of Measures on water quality on a regional and national scale</p> <p>Chairs: Eke Buis and Hans-Peter Broers</p>	<p>Session D.ii Field research & modelling for quantifying effects of farming practices and changes in land use</p> <p>Chairs: Johannes Grath and Janjo de Haan</p>
<p>13:30 – 13:45 <i>J. Windolf, J. Bøgestrand, G. Blicher-Mathiesen, P. Wiberg-Larsen, N.B. Ovesen, K.E. Nielsen, B. Kronvang:</i> Background nitrogen concentrations in fresh waters in Denmark (abstract #29)</p>	<p>13:30 – 13:45 <i>R. Barthel, T.G. Reichenau, K. Schneider, T. Krimly, S. Dabbert, W. Mauser:</i> Integrated, process-based, spatially explicit modelling of the effects of water resources management (abstract #25)</p>	<p>13:30 – 13:45 <i>H. Ibrikci, M. Cetin, E. Karnez, R. Aragues, W.A. Flügel, H. Sagir, B. Tilkici:</i> Irrigation-induced pollution assessed in a Mediterranean irrigation district: Nitrate (abstract #69)</p>
<p>13:45 – 14:00 <i>G. Lischeid, Ch. Lehr:</i> Increasing nitrogen contamination? What trend analysis would not tell you (abstract #108)</p>	<p>13:45 – 14:00 <i>C. Heidecke, P. Kreins, U. Hirt, A. Wagner, F. Wendland:</i> Analysis of nutrient intakes and concentrations and measures for water quality management under the Water Framework Directive in the Weser river basin (abstract #80)</p>	<p>13:45 – 14:00 <i>V. Zupanc, N. Maršič-Kacjan, M. Pintar, M. Šturm, S. Lojen, J. Adu-Gyamfic, B. Bračič-Železnik, J. Urbanc:</i> Tracking nitrogen leaching with 15N-labelled fertiliser from vegetable field to shallow aquifer (abstract #79)</p>
<p>14:00 – 14:15 <i>Y. van der Velde, J. Rozemeijer, F. van Geer, H.-P. Broers, G. de Rooij:</i> Catchment-scale nitrogen balance derived from a 25-year nitrate record of an agricultural stream (abstract #135)</p>	<p>14:00 – 14:15 <i>H.H. Luesink, T.J. de Koeijer, G. Kruseman, P.W. Blokland:</i> Monitoring of manuring in the Netherlands (abstract #81)</p>	<p>14:00 – 14:15 <i>M. Glendell, R. Brazier:</i> Quantifying the effectiveness of a catchment-scale, ecosystem management approach to deliver water quality improvements (abstract #17)</p>
<p>14:15 – 14:30 <i>A. Wagner, C. Heidecke, P. Kreins, M. Trepel:</i> How to handle data gaps and reproduce veritabel trends in recent nutrient surpluses? (abstract #147)</p>	<p>14:15 – 14:30 <i>V. Marconi, D. Viaggi, M. Raggi:</i> Agricultural nitrogen balance surplus at regional and local scale: A case study of Emilia-Romagna (abstract #100)</p>	<p>14:15 – 14:30 <i>D. Graeber, G. Goyenola, M. Meerhoff, E. Zwirnmann, N.B. Ovesen, J. Gelbrecht, F. Teixeira de Mello, I. Gonzalez-Bergonzoni, E. Jeppesen, B. Kronvang:</i> Amount, composition and seasonality of dissolved organic carbon and nitrogen export from agriculture in contrasting climates (abstract #93)</p>
<p>14:30 – 14:45 <i>N.J.K. Howden, F. Worrall, T. Burt:</i> Does it matter what we monitor and how we choose to analyse our data? (abstract #245)</p>	<p>14:30 – 14:45 <i>H. Estrup Andersen, A. Nielsen, D. Trolle, G. Blicher-Mathiesen, H. Thodsen, S. Lu:</i> Modelling nutrient loading of Danish marine waters using SWAT (abstract #178)</p>	<p>14:30 – 14:45 <i>L. Bonten, B.-J. Groenenberg, P. Römkens:</i> Measure to reduce heavy metal emissions from agriculture to surface waters (abstract #210)</p>

14:45 – 15:00 <void slot, to be used by session chairs>	14:45 – 15:00 <i>A.L. Collins</i> , I. Jones, D. Sear, P. Nadena, R. Gooday, D. Skirvin, Y. Zhang, D. Lee, J. Murphy, I. Pattison: Potential benefits of on-farm mitigation for controlling ecologically- harmful sediment loss to rivers across England and Wales (abstract #188)	14:45 – 15:00 <void slot, to be used by session chairs>
15:00 – 15:30 Coffee break		
Lecture Hall A.1		
Session D.iii Field research & modelling for quantifying effects of farming practices and changes in land use Chairs: Stephen Foster and Marco Acutis		
15:30 – 15:45 <i>C.S. Tan</i> , T.Q. Zhang: Use of water table management and water recycling system to reduce the negative impacts of climate change on field crop production and water quality (abstract #5)		
15:45 – 16:00 <i>S.M. Dunn</i> , B.B. Balana, R.C. Helliwell, L. Jackson-Blake, A.J. Vinten: Modelling catchment scale effectiveness of a suite of diffuse pollution mitigation measures on water quality (abstract #34)		
16:00 – 16:15 <i>D. Merchan</i> , J. Causape, R. Abrahao, I. Garcia-Garizabal: Impacts on water quality after implementation of irrigation in Lerma Basin (Spain) (abstract #122)		
16:15 – 16:30 <i>J. Steidl</i> , T. Kalettka, V. Ehlert, J. Augustin: Nutrient retention from agricultural drainage effluents by retention ponds (abstract #161)		
16:30 – 16:45 <i>S. Jansen</i> , J. Gerritse, R. Stuurman: Puridrain – Towards site-specific and cost-effective removal of nutrients from tile drainage (abstract #176)		
16:45 – 17:00 <void slot, to be used by session chairs>		
End of presentations of Tuesday, 11 June 2013		
17:00 – 18:00 Time to freshen up, the buses to the beach leave at 18:00		
18:00 Departure of buses (in front of the hotel) to the Taruga Beach Club		
18:30 – 22:30 Conference Dinner		
22:30 Departure of buses to the World Hotel Bel Air		

Wednesday, 12 June 2013

07:30 – 08:30 Posters can be installed by presenters in the Poster exhibition room		
07:30-17:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk		
Lecture Hall A.1		
Session C.iv Assessment of effects of Programmes of Measures on water quality on a regional and national scale: Monitoring and modelling changes in water quality Chairs: Frank Wendland and Dico Fraters		
08:30 – 09:00 T.P. Burt, <i>N.J.K. Howden</i> , F. Worrall, S.A. Mathias, M.J. Whelan: Farming for water quality: Managing long-term nitrate pollution in UK river basins (abstract #134)		
09:00 – 09:20 <i>M. Acutis</i> , L. Alfieri, A. Perego, A. Giussani: Experience in building and application of an expert system for agricultural nitrogen management at regional level (abstract #111)		
09:20 – 09:40 <i>R. Eppinger</i> : Nitrate indicator – Instrument for evaluation and prediction of changes of nitrate contents in groundwater (abstract #227)		
09:40 – 10:00 <i>R. Wolter</i> , L. Keller, F. Wendland: Reducing nitrate pollution in German groundwater bodies (abstract #240)		
10:00 – 10:30 Coffee break		
Lecture Hall A.1	Lecture Hall M-5	Lecture Hall M-8
Session A.iv Research for increasing system knowledge Chairs: Wim de Vries and Jouke Velstra	Session C.v Assessment of effects of Programmes of Measures on water quality on a regional and national scale Chairs: Leo Boumans and Gitte Blicher-Mathiesen	Session D.iv Field research & modelling for quantifying effects of farming practices and changes in land use Chairs: Marco Acutis and Stephen Foster

10:30 – 10:45 <i>J. de Weert, F. Smedes, E. Roex:</i> Monitoring plant protection substances with passive sampling (abstract #116)	10:30 – 10:45 <i>J.E. Sample, S.M. Dunn:</i> National scale modelling to assess the effects of changing agricultural land use and weather variability on diffuse nitrate pollution (abstract #31)	10:30 – 10:45 <i>J. De Waele, B. Vandecasteele, A. De Vliegheer, V. Derycke, G. Haesaert, D. Wittouck, W. Odeurs, J. Bries, S. De Neve:</i> Evolution of soil mineral nitrogen under different catch crops fertilized with pig slurry after harvest of winter cereals in northern Belgium (abstract #118)
10:45 – 11:00 <i>S. Sheriff, J.S. Rowan, A.R. Melland, P.N.C. Murphy, P.E. Mellander, P. Jordan, D. Ó Huallacháin:</i> Linking land-use to catchment sediment fluxes and yields in small agricultural catchments (abstract #130)	10:45 – 11:00 <i>H.P. Broers, J. Rozemeijer, B. Kronvang, A. Visser, J.W. Erisman, J.C. Refsgaard, L. Thorling, C. Slomp, H. Prommer:</i> Nitrogen responses in groundwater, surface water and air following nitrate action plans in the Netherlands and Denmark (abstract #32)	10:45 – 11:00 <i>R. Liz Hamilton, Ch. Bradley, R. Bartlett, G. Pinay:</i> The effects of oil palm plantation establishment on nitrogen cycling in the tropical lowland soils of Malaysian Borneo (abstract #123)
11:00 – 11:15 <i>K. Meyer:</i> Monitoring of actual N-immissions into groundwater in Lower Saxony, Germany by determining excess-N ₂ (abstract #146)	11:00 – 11:15 <i>S. Maes, D. Vandervelpen, A. Elsen, J. Bries, H. Vandendriessche, K. Van Overtveld, J. Diels:</i> Impact of the application of nitrogen from livestock manure on water quality: Derogation in Flemish agriculture (abstract #132)	11:00 – 11:15 <i>K. Hiscock, A. Lovett, S. Carr, T. Howson, F. Outram, L. Noble:</i> A mass balance approach to evaluate diffuse pollution mitigation measures in an intensive arable catchment in Eastern England (abstract #197)
11:15 – 11:30 <i>O. Gabriel, H. Brielmann, F. Humer, H. Lindinger, J. Grath, C. Schilling:</i> Tile drainage monitoring – a useful instrument to assess the effectiveness of agricultural measures to reduce nitrate emissions to surface waters? (abstract #149)	11:15 – 11:30 <i>E. Buis, L. Boumans, A. van den Ham, C. Daatselaar:</i> Five years of derogation: Water quality on grassland farms in the Netherlands (abstract #203)	11:15 – 11:30 <i>J.J. de Haan, W. van Geel:</i> Does reduction of organic matter input reduce crop yield on the long term? (abstract #207)
11:30 – 11:45 <i>G.M.C.M. Janssen, J. Griffioen:</i> Coupling ANIMO and MT3DMS for 3D regional-scale modelling of nutrient transport in soil and groundwater (abstract #159)	11:30 – 11:45 <i>M. Quemada, M. Baranski, M. Nobel de Lange, A. Vallejo, J.M. Cooper:</i> Meta-analysis of strategies to control nitrate leaching in irrigated agricultural systems (abstract #228)	11:30 – 11:45 <i>S. Lukacs, A. van den Ham:</i> Water quality and agricultural practices in the clay region in the Netherlands (abstract #232)
11:45 – 12:00 <void slot, to be used by session chairs>	11:45 – 12:00 <void slot, to be used by session chairs>	11:45 – 12:00 <void slot, to be used by session chairs>
12:00 – 13:30 Lunch		

Lecture Hall A.1	Lecture Hall M-5	Lecture Hall M-8
<p>Session A.v Research for increasing system knowledge</p> <p>Chairs: Jouke Velstra and Piet Groenendijk</p>	<p>Session C.vi Assessment of effects of Programmes of Measures on water quality on a regional and national scale</p> <p>Chairs: Gitte Blicher-Mathiesen and Leo Boumans</p>	<p>Session FG.i Decision-making on and implementation of Programmes of Measures</p> <p>Chairs: Bob Middleton and Dico Fraters</p>
<p>13:30 – 13:45 M. Stokal, <i>W. de Vries</i>: Dynamic modelling and source appointment of dissolved inorganic phosphorus export by world rivers (abstract #106)</p>	<p>13:30 – 13:45 G.L. Velthof, J.P. Lesschen, <i>J. Kros</i>, O. Oenema: The impact of the Nitrates Directive on nitrogen emissions from agriculture in the EU-27 during 2000-2008 (abstract #59)</p>	<p>13:30 – 13:45 <i>Th. Harter</i>: A historic perspective on current challenges to regulate groundwater pollution from nonpoint sources in California (abstract #42)</p>
<p>13:45 – 14:00 <i>M.A. Snell</i>, <i>P.A. Barker</i>, B.W.J. Surridge, A.R.G. Large, C.McW.H. Benskin: Influence of stream headwater flow biotopes on within-reach variability in benthic diatom assemblages within the River Eden Demonstration Test Catchment (abstract #167)</p>	<p>13:45 – 14:00 <i>M.E. Stuart</i>: The impact of climate change on future nitrate concentrations in groundwater: A case study from the UK (abstract #213)</p>	<p>13:45 – 14:00 J. McGrath, <i>F.J. Coale</i>, R. Kratochvil: A decade of implementation: Using the Phosphorus Site Index to assess risk of phosphorus losses from agricultural landscapes (abstract #117)</p>
<p>14:00 – 14:15 <i>L.A. Jackson-Blake</i>, A.J. Wade, S.M. Dunn, R.C. Helliwell: Can INCA-P simulate phosphorus concentrations in a diffuse pollution-dominated Scottish catchment? (abstract #171)</p>	<p>14:00 – 14:15 <i>R.S. Ward</i>, L. Wang, M.E. Stuart, J.P. Bloomfield, D.C. Goody, M.A. Lewis, A.A. McKenzie, A.T. Williams: The UK "nitrate time bomb" (abstract #223)</p>	<p>14:00 – 14:15 <i>C. van den Brink</i>, S. van Lienden: Reducing agricultural emissions to protect vulnerable drinking water abstraction in Overijssel, the Netherlands (abstract #112)</p>
<p>14:15 – 14:30 <i>A.R. Melland</i>, P.N.C. Murphy, P.-E. Mellander, O. Shine, G. Shortle, Ph. Jordan, L. Williams: Stream ecological, chemical and hydromorphological relationships in six headwater agricultural catchments (abstract #182)</p>	<p>14:15 – 14:30 M. Van Opstal, M. Tits, V. Beckers, <i>K. Van Overtveld</i>, O. Batelaan, J. Van Orshoven, A. Elsen, J. Diels, T. D'Heygere, K. Van Hoof: ArcNEMO, a new spatially distributed nutrient emission model to quantify N and P losses from agriculture to surface waters (abstract #115)</p>	<p>14:15 – 14:30 <i>E. Vrain</i>, A. Lovett, L. Noble, F. Grant, P. Blundell, W. Cleasby: Farmer attitudes towards diffuse pollution mitigation measures in England (abstract #162)</p>

14:30 – 14:45 <i>B. van de Grift, J. Griffioen:</i> Hydrological and biogeochemical controls on phosphorus retention in lowland catchments (abstract #195)	14:30 – 14:45 <i>M. Boy, A. Mencio, J. Mas-Pla, B.T. Nolan:</i> Calibration and validation of a regression model for aquifer vulnerability to nitrate pollution in the Osona Region (NE Spain) (abstract #191)	14:30 – 14:45 <i>F. Gertz:</i> From general N-regulation to more targeted measures – in Denmark (abstract #234)
14:45 – 15:00 <void slot, to be used by session chairs>	14:45 – 15:00 <void slot, to be used by session chairs>	14:45 – 15:00 <void slot, to be used by session chairs>
15:00 – 15:30 Coffee break		
Lecture Hall A.1		
Session FG.ii Decision-making on and implementation of Programmes of Measures Chairs: Thomas Harter and Ralf Eppinger		
15:30 – 16:00 <i>S. Foster:</i> Promoting groundwater-friendly agricultural land-use policy – Relevance of EU experience to a hungry world (abstract #143)		
16:00 – 16:30 <i>D.F. McGonigle, R.C. Harris, S. Willows, A. Williamson, R. Cole:</i> Turning good science into good policy on agriculture, water quality and other objectives: A UK perspective (abstract #209)		
16:30 – 17:00 <i>M. Bechmann:</i> Mitigation measures to reduce phosphorus losses from agricultural areas in Norway (abstract #139)		
17:00 – 18:30 Session P.ii Poster session (with drinks and snacks) (authors should attend their posters for technical discussions with interested attendees)		
End of presentations of Wednesday, 12 June 2013		

Thursday, 13 June 2013

07:30-15:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk		
Lecture Hall A.1		
Session E.i Monitoring, modelling and management of water quality in protected areas Chairs: Johannes Grath and Nicolas Howden		
08:30 – 09:00 <i>Th. Harter</i> , D. Boyle, H. Canada, J. Darby, K. Dzurella, G. Fogg, A. Fryjoff-Hung, A. Hollander, K. Honeycutt, et al.: Nitrate and drinking water in California agricultural regions: Assessment and solutions (abstract #41)		
09:00 – 09:20 <i>L. Thorling</i> , R. Thomsen: How protection zones and land management restored nitrate contaminated groundwater on the Island of Tunø, Denmark (abstract #20)		
09:20 – 09:40 C.McW.H. Benskin, P.M. Haygarth, D. Bellaby, P. Barker, C. Deasy, M. Ockenden, J. Quinton, M.A. Snell, B.W.J. SurrIDGE, N. Watson, M.T. Perks, S. Reaney, <i>J. Jonczyk</i> et al.: The River Eden as an example of a UK National Demonstration Test Catchment (abstract #211)		
09:40 – 10:00 <i>N. Phillips</i> , M. Whiteman, A. Brooks: Assessing the risk of significant damage to groundwater dependent terrestrial ecosystems from nutrients (abstract #200)		
10:00 – 10:30 Coffee break		
Lecture Hall A.1	Lecture Hall M-5	Lecture Hall M-8
Session A.vi Research for increasing system knowledge Chairs: Frank Wendland and Marianne Bechmann	Session E.ii Monitoring, modelling and management of water quality in protected areas Chairs: Lærke Thorling and Rüdiger Wolter	Session FG.iii Decision-making on and implementation of Programmes of Measures Chairs: Rob Ward and Esther Wattel
10:30 – 11:45 <i>M. Zhou</i> , K. Butterbach-Bahl, B. Zhu: Nitrate leaching and nitrous oxide emissions from sloping cropland in the Sichuan Basin, China (abstract #1)	10:30 – 11:45 <i>M.M. Mayzelle</i> , J.H. Viers, J. Medellin-Azuara, Th. Harter: The potential of agricultural land use buffers to reduce nitrogen loading to drinking water aquifers (abstract #10)	10:30 – 11:45 <i>L. Smith</i> , A. Inman, K. Balcombe: Costs and characteristics of long term agreements for the provision of ecosystem services by land managers (abstract #27)

10:45 – 11:00 <i>B. Hansen</i> , J. Windolf, G. Blicher-Mathiesen, L. Thorling, B. Kronvang: Estimation of time lag in groundwater and surface water N response in regard to N reduction in agriculture in selected estuary catchments of Denmark (abstract #40)	10:45 – 11:00 <i>R. Thomsen</i> : The Danish site-specific groundwater protection strategy (abstract #48)	10:45 – 11:00 <i>J. McClellan</i> , G. Talbert: Opportunities and constraints for farmers participating in a nutrient trading programme in the Chesapeake watershed (abstract #95)
11:00 – 11:15 <i>S. Jiang</i> , S. Jomaa, M. Rode: Simulating inorganic nitrogen leaching at an heterogeneous agricultural nested mesoscale catchment in central Germany (abstract #45)	11:00 – 11:15 <i>C. Sohier</i> , A. Degre: Modelling agricultural strategies to protect groundwater resources in the Hesbaye aquifer (Belgium) (abstract #72)	11:00 – 11:15 <i>F. Galioto</i> , V. Marconi, M. Raggi, D. Viaggi: Assessing the costs required to comply with the WFD in Emilia Romagna (abstract #201)
11:15 – 11:30 <i>A. Folch</i> , A. Menció , R. Puig, A. Soler, J. Mas-Pla: Effect of irrigation pumping on groundwater quality in a large scale flow system (abstract #51)	11:15 – 11:30 <i>R.D.H. Bugan</i> , M. Fink, T. Steudel, B. Pfenning, C. Fischer, J. Helmschrot, N.Z. Jovanovic, W.P. De Clercq: Land use management: A dryland salinity mitigation measure (Western Cape, South Africa) (abstract #89)	11:15 – 11:30 <i>A. Aftab</i> , N. Hanley, G. Baiocchi: Transferability of instruments to control agricultural nonpoint pollution: A cross catchment comparison (abstract #233)
11:30 – 11:45 <i>P. Groenendijk</i> , M. Heinen, G. Klammler, J. Fank, H. Kupfersberger, V. Pisinaras, A. Gemitzi, S. Peña-Haro, A. García-Prats, M. Pulido-Velazquez, A. Perego, A. Giussani, M. Acutis, M. Trevisan: Performance assessment of nitrate leaching models for highly vulnerable soils used for low input farming based on lysimeter data (abstract #140)	11:30 – 11:45 <i>M. Dedewanou</i> , S. Binet, H. Noel, R. Talva, A. Bruand: A process-based modelling approach to assess aquifer vulnerability (abstract #174)	11:30 – 11:45 <i>J. Martin-Ortega</i> , <i>B. Balana</i> , S. Cooksley, S. Dunn, L. Jackson-Blake, A. McKee, A. Perni, B. Slee, A. Vinten: A transdisciplinary approach to cost-effectiveness and disproportionality in the implementation of the Water Framework Directive at the sub-catchment level (abstract #126)
11:45 – 12:00 <i>A.E.J. Hooijboer</i> , J. Klein: Nitrogen in surface water in different scale monitoring networks (abstract #231)	11:45 – 12:00 <i>L.M. van der Toorn</i> , H. van de Weerd, R.F.M. van Montfoort: Calculation of nitrate transport and effects of agricultural management scenarios on future nitrate concentrations in Heuveland, the Netherlands, with the Integral Water and Nitrate model, IwanH (abstract #202)	11:45 – 12:00 <void slot, to be used by session chairs>
12:00 – 13:30 Lunch		

Lecture Hall A.1
Session FG.iv Decision-making on and implementation of Programmes of Measures Chairs: Daniel McGonigle and Marianne Bechmann
13:30 – 14:00 <i>R. Grant, G. Blicher-Mathiesen:</i> Implementation of Danish Action Plans to reduce nutrient losses from agriculture to the aquatic environment (abstract #244)
14:00 – 14:20 <i>J. Willems, O. Schoumans, G. Velthof:</i> Role of stakeholders, politicians and researchers in the implementation of the Nitrate Directive in the Netherlands – A review (abstract #242)
14:20 – 14:40 <i>Q.M. Ketterings, K.J. Czymmek:</i> Adaptive management approaches for enhanced nutrient use efficiency of dairy farms; New York State example (abstract #101)
14:40 – 15:00 <i>R. Middleton, Ph. Mansfield:</i> Catchment Sensitive Farming: partnership approach to improving water quality (abstract #127)
Closure
15:00 – 15:30 Closure session: Brian Kronvang (University of Aarhus, Denmark)
End of official conference programme

Friday, 14 June 2013

Field Excursions	
08:15 Gathering in hotel lobby	
Excursion 1	Excursion 2
Amsterdam Water Supply Dunes, agriculture related problems in flower-growing (bulb) region, city of Amsterdam	Nieuwkoop Lakes (water quality in peat wetland nature reserves due to agriculture in neighbouring areas), visit to the Zaanse Schans Open Air Museum
Excursion leader: Arno Hooijboer	Excursion leader: Saskia Lukacs
08:30 Departure of bus to Amsterdam Water Supply Dunes	08:30 Departure of bus to Nieuwkoop Lakes
About 18:00 Return to hotel	About 18:00 Return to hotel

Poster sessions Pi and P.ii (49 posters)

Introductory Session P.i : Tuesday, 11 June 2013, 10:00-10:45, combined with coffee
Session P.ii : Wednesday, 12 June 2013, 17:00-18:30, combined with snacks and drinks

Theme A Research for increasing system knowledge: understanding and modelling the hydro(geo)logical, geochemical and biochemical reality

M. Glendell, R. Brazier, C. Extence, R. Chadd:
Testing the pressure-specific index (PSI) as a tool for determining ecologically relevant
water quality sedimentation targets (abstract #21)

Th. Harter, G. Kourakos, A. King, D. Boyle, R.M. Hagan:
Spatially distributed stochastic modelling of nonpoint source pollutants in groundwater
(abstract #43)

F. Humer, S. Weiss, S. Reinnicke, M. Clara, J. Grath, G. Windhofer:
Application of an indicator test for urban wastewater influence (abstract #68)

V. Panasenko, M. Zinchuk:
Point-source contamination of Western Bug River water sources with pesticides
(abstract #78)

J. Valstar, N. Nikolaidis, E. Rowe, P. van Gaans:
Development and application of a 1D-model to describe the complex interactions
between soil evolution, plant production and reactive transport (abstract #87)

M. Cetin, H. Ibrikci, R. Aragues, E. Karnez, W.A. Flügel, S. Tor, M. Fink:
Time series modelling of monthly salt and nitrate loads in irrigation return flows in the
semiarid Mediterranean landscapes of Turkey (abstract #103)

S. Woodward, R. Stenger, V. Bidwell:
Estimation of catchment scale groundwater and nitrate fluxes using stream flow and
chemistry data from a lowland pastoral dairying catchment (abstract #121)

K. Dragon:
The influence of agricultural drainage system on groundwater chemistry (Tursko well
field, Poland) (abstract #129)

W. Eschenbach, R. Well, L. Krienen:
Validation of modelled denitrification in selected river catchment areas of northern
Germany by direct measurement of denitrification in groundwater (abstract #156)

C. van der Salm, O. Schoumans, M. Pleijter, D. Walvoort:
Application of the phosphorus leaching model PLEASE at the regional scale (abstract
#163)

P. Groenendijk, M. Mulder, E. van Boekel, F. van der Bolt, P. Schipper, L. Renaud, O.
Schoumans:
A new method to quantify the different diffuse nutrient sources of surface water
contamination (abstract #169)

R. Barthel, J. Fleckenstein:

Do we understand the interaction of groundwater and surface water at large spatial and temporal scales? (abstract #177)

F. Nájera, O. Salazar, M. Casanova, I. Fuentes:

Soil nitrogen balance in two soils with pig slurry application during fallow period in the Mediterranean climate zone of central Chile (abstract #186)

M. Boy, A. Mencia, J. Mas-Pla:

Spring hydrology as an indicator of groundwater recharge quality in a nitrate polluted area (Osona Region, NE Spain) (abstract #192)

R.F.A. Hendriks:

Source of sulphate in the process of 'internal eutrophication' in surface waters in Dutch peat lands (abstract #208)

S.M. Reaney, S.N. Lane, A.L. Heathwaite, D.G. Milledge:

Mapping diffuse pollution source areas at the landscape scale: The SCIMAP approach (abstract #224)

Th. Harter, H. Canada, J. Darby, N. De La Mora, K. Dzurella, A. Fryjoff-Hung, A. Hollander, V. Jensen, A. King, et al.:

Modelling spatially distributed groundwater nitrate loading in California's agricultural-urban heartland, 1945-current (abstract #230)

B. Brauns, R. Jakobsen, X. Song, P. Løgstrup Bjerg, F. Einsiedl, X. Sun, B. Zhang, W. Wang, B. Jiang: Nutrient and pesticide fate and transport in an agricultural soil →ground ↔ surface water system at Fu River, China (abstract #252)

Theme B Impact of climate change and weather variability: assessment of effect on groundwater and surface water quality and distinguishing from effect of human behaviour

W. Towers, S. Dunn, J. Dawson, J. Sample, I. Brown, J. MacDonald, I. Baber:

2050 – What are the potential future risks to water quality in Scotland from climate and land use change? (abstract #30)

J. Rozemeijer, Y. van der Velde, F. van Geer, H.P. Broers:

Dynamics in surface water solute concentrations and consequences for water quality monitoring (abstract #84)

A. Sterk, A.M. de Roda Husman, T. de Nijs, M. Stergiadi, J. Schijven:

Quantifying climate change impacts on runoff of zoonotic pathogens from land (abstract #141)

M. Stergiadi, A. Sterk, T. de Nijs, M. van der Perk, M.F.P. Bierkens:

Assessment of the impact of climate change on the stocks and fluxes of toxicants and pathogens at the river basin scale (abstract #144)

I. Keupers, P. Willems:

Climate change impact on the river water quality of the Grote Nete catchment (abstract #155)

Theme C Assessment of effects of Programmes of Measures on water quality on a regional and national scale: monitoring and modelling changes in water quality

B. Hansen, T. Dalgaard, L. Thorling, B. Sørensen, M. Erlandsen:
Regional analysis of groundwater nitrate concentrations and trends in Denmark with focus on agricultural pressure (abstract #15)

H.P. Broers, J. Rozemeijer, J. Klein:
A national scale monitoring network for nutrients in agriculture dominated headwaters in the Netherlands (abstract #33)

V. Grekov, L. Vasilenko, E. Yarmolenko:
Influence of intensive agriculture on groundwater quality in Ukraine (abstract #85)

Ya-song LI, Zhao-ji ZHANG, Yu-hong FEI, Zhao WANG, Jing-sheng CHEN, Feng-e ZHANG, Yong QIAN:
Research on the groundwater quality and the contamination characteristics in the Hutuo River plain area, China (abstract #137)

P. Groenendijk, L. Renaud, O. Schoumans:
Prediction of nitrate concentrations and nutrient loads on surface waters for the permissible fertilization rates of the Fourth Nitrates Action Programme and reduced rates in the Netherlands (abstract #138)

O. Gabriel, A. Kovacs, M. Zessner, M. Kuderna, C. Schilling, G. Windhofer:
Assessment of effectiveness of measures to reduce N and P emissions to surface waters in Upper Austria – A catchment scale approach (abstract #150)

C. Heidecke, P. Kreins, U. Hirt, J. Mahnkopf, G. Schernewski:
Consequences of recent energy policy on nutrient fluxes in German Baltic river basins – A scenario analysis (abstract #154)

A. Vrijhoef, L.J.M. Boumans, B. Fraters:
Trend analysis, coping with annual variations in nitrate in upper groundwater on Dutch farms in the Sand region of the Netherlands (abstract #166)

M. Hoogeveen, T. van Leeuwen, J. Reijs, D. Fraters:
Dutch Minerals Policy Monitoring Programme (LMM): Set-up of the monitoring network and collection of farm data (abstract #256)

Theme D Field research & modelling for quantifying effects of farming practices and changes in land use

B. Khalil, J. Adamowski:
Estimation of water quality characteristics at ungauged sites using ensemble artificial neural networks in the canonical correlation physiographic space (EANN-CCA) (abstract #7)

C.S. Tan, T.Q. Zhang, T.W. Welacky:
Effectiveness of organic and inorganic fertilizers on water quality and crop production under free drainage and water table control systems (abstract #8)

M. Glavan, M. Pintar:
Impacts of historically changed land use on the water quality of the two Mediterranean rivers in Slovenia (abstract #23)

M. Mastrorilli, A.D. Palumbo, P. Campi, A. Navarro, A.F. Modugno:
Waste waters and sweet sorghum productivity in Mediterranean Europe (abstract #56)

S.A. Alkhamisi, M. Alwardy, M. Ahmed, S.A. Prathapar:
Effect of reclaimed water irrigation on yield attributes and chemical composition of wheat (*Triticum aestivum* L.), cowpea (*Vigna unguiculata* L.) and maize (*Zea mays* L.) plants in Oman (abstract #64)

M. Hauken:
Agricultural environmental monitoring in Norway (abstract #92)

G.-J. Wilbers, Z. Sebesvaria, F.G. Renaud:
Effect of land-use systems on surface water quality for nutrients and heavy metals in the Mekong Delta, Vietnam (abstract #128)

M. Tits, F. Elsen, D. Devenyns, J. Laeremans, A. Elsen:
Impact of agricultural practices on surface water quality: A case study in the problem area of the Horstgaterbeek in North Limburg, Flanders (abstract #133)

C. van der Salm, Ph. Ehlert, J. van Middelkoop:
Long term effects of mining soil phosphorus by zero P application (abstract #164)

H. van de Weerd, O. van Zanten:
Iron bags, a measure to reduce nutrient run-off from farmland (abstract #184)

J. Niziolowski, R. Simmons, M. Hann:
Optimising runoff and erosion control from row crops (abstract #229)

Theme E Monitoring, modelling and management of water quality in protected areas: use of monitoring and modelling to improve water quality for drinking water supply areas and habitat and species protection areas

D.P. Traficante, S. Campos, R.L. Manzione, E.D Carvalho:
Relationship with possible pollution sources through limnological studies for bathing in the Marta's Waterfall Municipal Natural Park (Botucatu, Sao Paulo, Brazil) (abstract #145)

G. Roskam, R. Loeb, E. Lucassen, F. Smolders, P.-J. Werstendorp, F. Ebbens, M. Thannhauser:
Can temporary desiccation be applied to improve the chemical and ecological water quality? (abstract #196)

T. Constant, A. Lioeddine, S. Charriere, Y. Emsellem:
Management, protection, planification of water resources integration, modelisation and applications to drinking water catchments (abstract #251)

Theme FG Decision-making and implementation: role of policy, stakeholder and science in decision-making, and social and economic incentives and constraints for implementation (carrots and sticks)

L. Smith:

How to do catchment management for control of land use based water pollution (abstract #28)

G.L. Velthof, O. Oenema:

Underpinning the nutrient management policy in the Netherlands (abstract #58)

J. Tuinstra, S. Boekhold:

Land use management based upon ecosystem services (abstract #180)