LuWQ2022

International Interdisciplinary Conference
on

Land Use and Water Quality

Agriculture and the Environment

Maastricht, the Netherlands,

11-15 September 2022

Final
Conference Programme

Programme version, update 12 October 2022

This post-conference publication contains PDF files of ORAL and POSTER presentations during conference, structured by sessions in the conference programme

Only those presentations are included for which the presenters have given their permission for publication of their presentation [per 23-11-2022]

Explanation about abstract ID numbers:

- character 'm' right after the abstract ID number, e.g. in '005m_', indicates that the PDF file was created by the author;
- character 'a' right after the abstract ID number, e.g. in '029a_', indicates that the PDF file was created by the organisers, using a PowerPoint file obtained from the author after the conference;
- character 'u' right after the abstract ID number, e.g. in '029u_', indicates that the PDF file was created by the organisers, using the PowerPoint file as it was used for the presentation at the conference.

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International Interdisciplinary Conference on
Land Use and Water Quality
Agriculture and the Environment
Maastricht, the Netherlands, 12–15 September 2022

Jointly convened by

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

Scientific sponsors and institutional supporters:

- Jülich Research centre, Germany
- Flanders Environment Agency (VMM), Belgium
- IAH, International Association of Hydrogeologists
- National Science Challenge – Our land and water, New Zealand
- INRA, Science and Impact, France
- Von Thünen Institute, Germany
- Vewin, Association of drinking water companies, the Netherlands

Speaker / Poster Instructions

Speaker instructions

The programme also shows the time allotted for each presentation.
When preparing your presentation, please keep in mind the following:

Regular oral presentations (15 minutes)
Maximum 12 minutes presentation, 2 minutes for discussion/questions

Extended regular oral presentations (20 minutes)
Maximum 17 minutes presentation, 2 minutes for discussion/questions

Invited oral presentations (30 minutes)
Maximum 24 minutes presentation, 5 minutes for discussion/questions

Note that we allocate 1 minute for change of speakers between presentations.

Suggestions for PowerPoint presentation

The key points for your care are:

- ✓ that the standard presentation format is widescreen (16:9),
- ✓ that you do not put too much information on a slide,
- ✓ that you use a big enough font to make your slides well readable, and, finally,
- ✓ that you do not use too many slides, in other words that you give enough attention to each slide.

Poster instructions

- ✓ Size of posters: maximum size is A0 (width about 0.90 m, height about 1.20 m).
- ✓ Total space provision: space for one poster sheet for each allocated poster presentation.
- ✓ How shall they be hung: in vertical (portrait) direction.
- ✓ Format? No specific format for poster layout (structure, content) is prescribed.
- ✓ Materials to attach the posters to the poster board are available at the poster boards.
- ✓ Put your poster on poster board with ID number of your poster in the top-right corner, e.g. ”#20”. You can find the ID-number of your poster(s) on pages 26 through 31.

LuWQ2022 Conference Programme

(Total 172 abstracts: 113 oral, 59 poster)

The following sessions are distinguished for oral presentation

A.i-A.iv Increasing our understanding of 'systems function': research, tools and methodologies to increase understanding and improving modelling of the hydro(geo)logical, geochemical and biochemical processes
(Monday 12 September 10:30 till Thursday 15 September 12:00)

B.i-B.iv Water quality monitoring: improving monitoring, data management and combined monitoring-modelling to support the evaluation of programmes of measures
(Monday 12 September 10:30 till Thursday 15 September 10:00)

C.i-C.ii Impact of climate change on land use and water quality: assessment of impact on groundwater and surface water quality
(Tuesday 13 September 13:30 till Thursday 15 September 10:00)

D.i-D.v Assessment of national or regional policy: effectiveness of programmes of measures on water quality on a regional and national scale
(Tuesday 13 September 10:45 till Thursday 15 September 15:00)

EF.i and EF.iii Improving water quality by farm management practices and by establishing eco-technological mitigation measures: research (monitoring and modelling) at plot, field and catchment scales to quantify the effects of farming practices and changes in land use
(Monday 12 September 10:30 till Wednesday 14 September 17:00)

G.i Managing protected areas for water supply and nature conservation: risk assessment techniques, monitoring and modelling of water quality and quantity for the protection of (a) water resources for drinking water supply, and (b) groundwater dependent terrestrial ecosystems)
(Wednesday 14 September 15:30 till 17:00)

HI.i-HI.v Decision-making on and implementation of Programmes of Measures: the role of stakeholder input and science in policy decision-making, and social and economic incentives and regulatory mandates that drive implementation (carrots and sticks)
(Tuesday 13 September 08:30 till Thursday 15 September 12:00)

SS1.i-SS1.ii: Special Session on Real-time water quality monitoring - From scientific play tool to applications in real-life world of water quality management.
(Wednesday 12 September 10:00 till 15:00)

SS2.i-SS2.ii: Special Session on protection of drinking water resources against nitrate and pesticide pollution.
(Wednesday 12 September 10:00 till 15:00)

AGRUM: session on German-wide modelling of nutrient inputs into groundwater and surface water
(Monday 12 September 10:30 till 12:00)

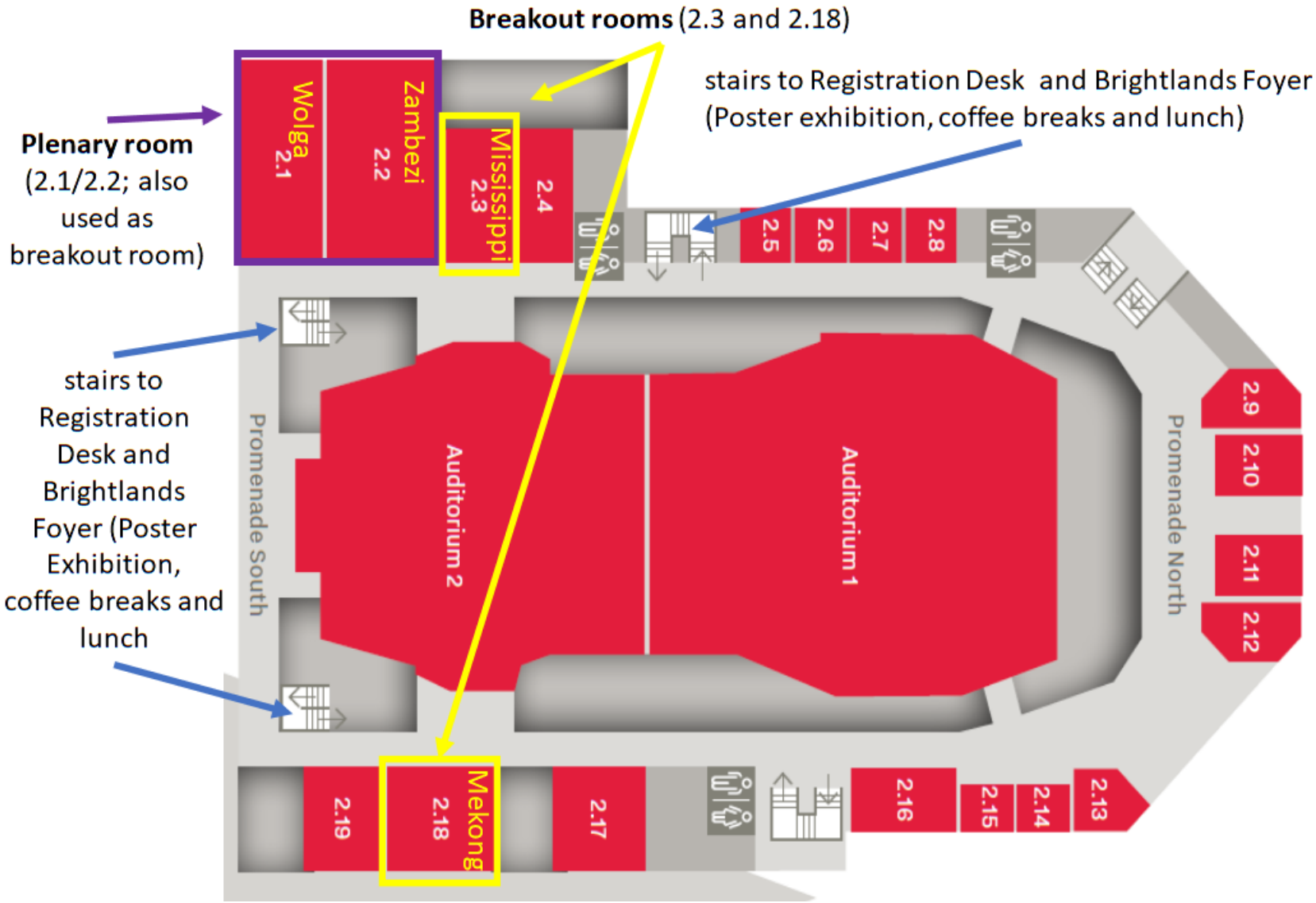
P.i and P.ii Poster sessions

P.i: Poster session 1
Tuesday, 13 September, 10:00-10:45, extended coffee break
Participants take a quick glance at posters (poster authors should not attend their posters).

P.ii: Poster session 2
Wednesday, 14 September, 17:15-18:45, with drinks and snacks
Poster authors should attend their posters, for technical discussions with interested attendees.

Map 1 – Overview Map of Maastricht and important conference locations

Map 2 – Overview Map LuWQ2022 conference rooms at MECC Maastricht



Overview: Sunday-Thursday, 11 - 15 September 2022

Legend

 = lunch

 = coffee break

Oral session

Poster display / session

Overview: Sunday-Thursday, 11 September - 15 September 2022

Sunday 11/9: Pre-registration / Conference secretariat desk open 17:00 – 19:30
Welcome / Icebreaker 18:00 – 20:00

Monday 12/9	7:30 – 8:45	8:45 - 10:00	10:00 – 10:30	10:30 - 12:00	12:00 – 13:30	13:30 – 15:00	15:00 – 15:30	15:30 – 17:00	18:00 – 19:00	**18:45** - 22:30
	Registration. **Posters to be installed. Upload ppt**	Opening & Introduction		A.i B.i EF.i		A.ii AGRUM EF.ii		A.iii	Town Hall Recep-tion	Walking dinner (*not included in fee*)
		Registration / Conference secretariat desk open (8:30 – 17:30)								

Tuesday 13/9	7:30 – 8:30	8:30 – 10:00	10:00 – 10:45	10:45 – 12:00	12:00 – 13:30	13:30 – 15:00	15:00 – 15:30	15:30 – 17:00	**18:15** – 22:30
	Registration. **Posters to be installed. Upload ppt**	HI.i	Poster session P.i	B.ii D.i -		B.iii HI.ii C.i		D.ii / HI.iii	Conference Dinner
		Posters on display							

Wednes-day 14/9	7:30 – 8:45	8:45 – 10:00	10:00 – 10:30	10:30 – 12:00	12:00 – 13:30	13:30 – 15:00	15:00 – 15:30	15:30 – 17:00	17:15 – 18:45
	Registration. **Posters to be installed. Upload ppt**	D.iii / HI.iv		Special S1.i Special S2.i		Special S1.ii Special S2.ii		EF.iii / G.i	Poster session P.ii with drinks and snacks
		Posters on display							

Thurs-day 15/9	7:30 – 8:30	8:30 – 10:00	10:00 – 10:30	10:30 – 12:00	12:00 – 13:30	13:30 – 15:00	15:00 – 15:30
	Registration. **Upload ppt**	B.iv / C.ii		A.iv D.iv HI.v		D.v	Closure
		Posters on display			Posters to be removed		

Monday, 12 September 2022

07:30-17:30 Registration / Conference secretariat desk open
PowerPoint presentations to be uploaded at the conference secretariat desk

Room: 2.1/2.2 Wolga/Zambesi (see Map 2, page 9)

Opening of the Conference
Chairs: Dico Fraters (Netherlands) & Brian Kronvang (Denmark)

08:45 – 09:30 Welcome
Welcome on behalf RIVM by Jappe Beekman (head of the department of Agriculture & Groundwater)
Welcome on behalf the Ministry of Agriculture, Nature and Food Quality by Marije Beens (Director-General Agro)
Some practical issues, Organising Committee, Karel Kovar

09:30 – 10:00 *B. Fraters*, B. Kronvang, F. Wendland, K. Kovar
Agriculture and the Environment – How to further improve water quality. An introduction to the LuWQ2022 conference (Abstract #000)

10:00-10:30 Coffee break (Brightlands Foyer)

Room: 2.1/2.2 Wolga/Zambesi	*Room: 2.18 Mekong*	*Room: 2.3 Mississippi*
Session A.i Increasing our understanding of 'systems function' **Chairs: Saskia Lukács (Netherlands) & Katarina Kyllmar (Sweden)**	**Session B.i Water quality monitoring: improving monitoring and data management** **Chairs: Susanne Wuijts (Netherlands) & Pavel Rosendorf (Czech Republic)**	**Session EF.i Technical & chemical measures to improve water quality** **Chairs: Gitte Blicher-Mathiesen (Denmark) & Ryan Turner (Australia)**
10:30-10:45 *B. Hansen*, E. Auken, C. Duus Børgesen, A. Vest Christiansen, T. Dalgaard, R. Rumph Frederiksen, B.H. Jacobsen, R. Jakobsen, A. Kallesøe, H. Kim, I. Møller, R.B. Madsen, G. Blicher-Mathiesen, S. Schaper, P.B.E. Sandersen, D.D. Voutchkova, I. Wiborg, J. Aamand A new Danish concept for hectare-scale groundwater N-retention mapping – Presentation, implementation and validation of the concept (Abstract #155)	10:30-10:50 *P.-E. Mellander*, J. Galloway, D. Hawtree, P. Jordan Phosphorus loss risk to water estimated from high frequency data: Quantifying the 'transfer continuum' (Abstract #092)	10:30-10:45 A. Maagaard, M. Meldorf Deichmann, R.J. Petersen, B. Kronvang, N.B. Ovesen, J. Audet, C.C. Hoffmann, *D.H. Zak* Saturated buffer zones treating agricultural drainage water: A new mitigation measure in Denmark (Abstract #174)

10:45-11:00 M. de Jonge, *R.P.J.J. Rietra* Exploring nitrate in shallow groundwater on the basis of soil types: Possible role of denitrification capacity in subsoil (Abstract #034)		10:45-11:00 *J.A. Strand*, L.D. Schneider, S. Hedman, P. Feuerbach, L. Feuerbach Wengel, B. Klatt LIFE-Goodstream for Good Ecological Status in a holistic approach: Reduced nutrients and increased biodiversity in an agricultural stream using multifunctional wetlands and Integrated Buffer Zones (Abstract #183)
	10:50-11:10 *A.E.J. Hooijboer*, E. Tenner Measuring water quality on farms in the Netherlands with sensors: Results of the four year WaterSNIP programme (Abstract #014)	
11:00-11:15 *K.M. Hiscock*, N.L. Garrard, R.J. Cooper, A.D. Marca, S.K. Wexler A stable isotope and hydrochemical approach to investigating denitrification in an agriculturally-impacted arable catchment in eastern England (Abstract #194)		11:00-11:15 K. Blombäck, *K. Mårtensson*, A. Lindsjö, K. Persson, F. Djodjic, D. Collentine, H. Johnsson, K. Kyllmar A new calculation system to evaluate the effect of leaching reducing measures for P from arable land in the local scale (Abstract #212)
	11:10-11:30 *J. Galloway*, D. Hawtree, P.-E. Mellander The application of a hierarchical Bayesian model to understand water quality drivers in four agricultural catchments across multiple spatial scales (Abstract #135)	
11:15-11:30 *L. Christiaens*, P. Goderniaux, P. Orban, S. Brouyère Characterisation of nitrate contamination through hydrochemical and isotopic analyses – application to the chalk aquifer of the Mons Basin (Belgium) (Abstract #050)		11:15-11:30 *F. Djodjic*, P. Geranmayeh, M. Futter, H. Markensten, D. Collentine Cost efficient nutrient retention in constructed wetlands at a landscape level (Abstract #125)
11:30-11:45 *T. Kivits*, H.P. Broers, M. de Jonge Assessing the land use specific vulnerability of public drinking water supplies using multi-tracer age dating (Abstract #137)	11:30-11:50 *M. Sapiano*, M. Schembri, O. Dahan, J.A. Mamo, H. Debattista Monitoring the fate of nitrate contamination in the vadose zone in Malta's Mean Sea Level Aquifer system (Abstract #179)	11:30-11:45 *M. Meldorf Deichmann*, B. Hansen, I.A. Wiborg, T. Dalgaard, B.H. Jacobsen, J.E. Ørum A new Danish concept for hectare-scale groundwater N-retention: Optimization of catch crop application at field and catchment scale (Abstract #146)
11:45-12:00 *J. Windolf*, H, Tornbjerg, G. Blicher-Mathiesen, B. Kronvang Assessment of agricultural nitrogen pressures and legacies in Denmark (Abstract #006)	11:50-12:00 <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 (Brightlands Foyer)		
Room: 2.1/2.2 Wolga/Zambesi	*Room: 2.18 Mekong*	*Room: 2.3 Mississippi*
Session A.ii Increasing our understanding of 'systems function' Chairs: Serge Brouyère (Belgium) & Rafael Filippelli (Denmark)	**AGRUM German-wide modelling of nutrient inputs into water Chairs: Frank Wendland (Germany) & Dico Fraters (Netherlands)**	**Session EF.ii Management measures to improve water quality Chairs: Dominika Krzeminska (Norway) & Patrick Durand (France)**
13:30-13:45 *M. Glendell*, Z. Gagkas, S. Richards, A. Lilly, A. Vinten, M. Coull, M.I. Stutter PhosphoRisk – a systems approach to modelling phosphorus pollution risk in Scottish rivers using a spatial Bayesian Belief Network (Abstract #015)	13:30-13:45 *B. Schmidt*, M. Fischer, A. Krüger, M. Trepel AGRUM-DE: A national project towards a common understanding between water management and agriculture in Germany with regard to nutrient inputs (Abstract #016)	13:30-13:45 *C.H.G. Daatselaar*, R. van Duijnen Farm management, nutrient results and water quality with focus on maize (Abstract #154)
13:45-14:00 *H.E. Andersen*, G. Heckrath Mapping of risk areas for diffuse phosphorus losses to the Danish aquatic environment (Abstract #074)	13:45-14:00 *M. Zinnbauer*, M. Eysholdt, P. Kreins Regional agricultural N surpluses and potential impacts of the revised Fertilizer Ordinance in Germany (Abstract #036)	13:45-14:00 *M. Dieser*, S. Zieseniß, H. Mielenz, K. Müller, J.-M. Greef, B. Stever-Schoo Identifying most relevant factors on soil mineral nitrogen contents in autumn on agricultural soils in Germany using Random Forest (Abstract #082)
14:00-14:15 *S.G. Darr*, D. Ross, D.T. Malcolm, M. Barker Enhanced estimates of gully erosion to improve modelled estimates of progress towards water quality targets for the Great Barrier Reef, Australia (Abstract #038)	14:00-14:15 *B. Tetzlaff*, R. Kunkel, H. Nguyen, M. Venohr, F. Wendland, T. Wolters Modelling N- and P-input into surface waters in Germany (Abstract #083)	14:00-14:15 *S. Zieseniß*, M. Dieser, H. Mielenz, K. Müller, J.-M. Greef, B. Stever-Schoo Nitrogen use efficiency on arable farms in five regions in Germany at four scales – region, farm, crop and field (Abstract #086)
14:15-14:30 *B. Dessirier*, B. Müller-Karulis, M.L. McCrackin, C. Humborg, H.E. Andersen, G. Blicher-Mathiesen, B.G. Gustafsson A century of Nitrogen dynamics in agricultural watersheds of Denmark and Sweden (Abstract #195)	14:15-14:30 *T. Wolters*, R. Kunkel, M. Venohr, F. Wendland Compliance checking for modelled nitrate concentrations in leachate and gap analysis for reaching WFD targets for groundwater (Abstract #010)	14:15-14:30 *B. Brauns*, K. Banda, D.J. Lapworth, A.M. MacDonald, D. Mudimbu, W. Namaona, R. Owen, M.C. Sinda Assessing differences in groundwater recharge flows under conservation agriculture and conventional tillage (Abstract #220)

14:30-14:45 *H. Thodsen* Danish Year 1900 nitrogen load to the sea (Abstract #188)	14:30-14:45 *M. Venohr*, H.H. Nguyen, R. Kunkel, B. Tetzlaff Compliance checking for modelled N and P loads in surface waters and gap analysis for reaching MSFD and WFD targets in surface waters (Abstract #027)	14:30-14:45 *G. Sundermann*, N. Wägner, A. Cullmann Organic farming, water quality and drinking water supply costs – An empirical analysis for Germany (Abstract #133)
14:45-15:00 *B. Müller-Karulis*, M.L. McCrackin, B. Dessirier, B.G. Gustafsson, C. Humborg, O.P. Savchuk Legacy nutrients in the Baltic Sea drainage basin: Large scale modelling of nutrient storage and transfer to the sea (Abstract #186)	14:45-15:00 *M. Trepel*, P. Kreins, M. Venohr, F. Wendland, M. Zinnbauer Nutrient modelling in the national monitoring programme for implementation of the Nitrate Directive in Germany (Abstract #042)	14:45-15:00 <void slot, to be used by session chairs>

15:00-15:30 Coffee break (Brightlands Foyer)

Room 2.1/2.2 Wolga/Zambesi

Session A.ii: Increasing our understanding of 'systems function'
Chairs: Wibke Christel (Denmark) & Phil Jordan (United Kingdom)

15:30 – 16:00 *L. Thorling*, L. Gourcy, H.P. Broers, K. Hinsby
Redox conditions in European groundwater and nitrate pollution potential (Abstract #054)

16:00 – 16:20 H.P. Broers, *M.E. van Vliet*, B. Fraters
Hydrogeological constraints on age distributions and nitrate evolution in Dutch chalk springs (Abstract #129)

16:20 – 16:40 *K. Kyllmar*, J. Fölster
Adaptive water management in the agricultural landscape: A framework for integration of field experiments, long-term monitoring, modelling and local engagement (Abstract #149)

16:40 – 17:00 *B. Kronvang*, S.G. van't Veen, D.H. Zak, E.S. Henriksen, N.B. Ovesen
Advancing understanding of the importance of surface runoff for delivery of water, sediment, nutrients and pesticides to streams within agricultural catchments (Abstract #039)

End of presentations of Monday, 12 September 2022

18:00 – 19:00 Maastricht Town Hall Reception (included in conference fee). See Map 1 (page 8), location number 5

18:45 – 22:30 Walking Dinner Maastricht (NOT included in conference fee, sold out). Starts outside Town Hall

Tuesday, 13 September 2022

07:30-17:30 Registration / Conference secretariat desk open
PowerPoint presentations to be uploaded at the conference secretariat desk

Room: 2.1/2.2 Wolga/Zambesi

Session HI.i Policies for improving water quality & Economic incentives and regulatory mandates that drive implementation (carrots and sticks)
Chairs: Natalie Kieboom (United Kingdom) & Martin Schönhart (Austria)

08:30 – 09:00 *W. Christel*, L.R. Friederich, J. Ibsen-Jensen, J. Machon, M. Ejrnæs
Green transition of Agriculture – How Denmark plans to reduce aquatic N pollution and GHG emissions by transforming the sector and integrating N & C management at farm and landscape scale (Abstract #087)

09:00 – 09:20 *J. Deakin*
Science-Policy-Action-Outcomes – Ireland's journey towards improving water quality (Abstract #205)

09:20 – 09:40 *R.J.H.M. van der Veeren*, S.A.M. Damen, P.H.J. Goorhuis, A.C.C. Plette
Ten years of experience with agricultural water management in the Netherlands: Co-operation and knowledge sharing between farmers and regional water authorities to achieve environmental objectives (Abstract #003)

09:40 – 10:00 *B. Middleton*, P. Smith
Linking evidence and delivery: evaluating and improving delivery of water quality measures at the farm level (Abstract #192)

Room: Brightlands Foyer

10:00-10:45 **Introductory Poster Session P.i and Extended coffee break**
Poster session; participants take a quick glance at posters (poster authors should not attend their posters)

Room: 2.1/2.2 Wolga/Zambesi	*Room: 2.18 Mekong*
Session B.ii Water quality monitoring: improving monitoring and data management **Chairs: Katarina Kyllmar (Sweden) & Phil Jordan (United Kingdom)**	**Session D.i Assessment of national or regional policy** **Chairs: Michael Trepel (Germany) & Pavel Rosendorf (Czech Republic)**
10:45-11:00 *R.R. Frederiksen*, S.E. Larsen, G. Blicher-Mathiesen, B. Kronvang An empirical model for tile flow fraction in systematically tile-drained minerogenic soils (Abstract #107)	10:45-11:00 *M.T. Manshanden*, A.F. Greijdanus, T.J. de Koeijer Goal based approach using maximum allowed level of nitrogen soil surplus on Dutch cropping farms (Abstract #216)

11:00-11:15 *R. van Duijnen*, C. de Jong, S. Lukács, T.J. Brussée Impact of crop type on nitrate concentrations in tile drain water in the Clay region of the Netherlands using monitoring data (Abstract #044)	11:00-11:15 *M. McCormack* Socio-economic drivers of Nitrogen Use Efficiency and Nitrogen Balances on Irish dairy farms (Abstract #130)
11:15-11:30 C. Merz, *M. Taie Semiromi*, J. Steidl, M. Hayashi Are kettle holes across agricultural landscapes a potential medium for redistribution of solutes towards their nearby river network? (Abstract #172)	11:15-11:30 *P. Löw*, B. Osterburg, S. Klages Assessing the reliability and uncertainty of agri-environmental indicators in German nitrogen policy (Abstract #103)
11:30-11:45 A. Lagzdins, *A. Veinbergs*, L. Grinberga, I. Siksnane, R. Sudars, K. Abramenko The long-term results of the Agricultural Runoff Monitoring Programme in Latvia: Nitrate-nitrogen concentrations (Abstract #064)	11:30-11:45 A. Bhogal, S. Anthony, R. Gooday, *J. Williams* Farming Rules for Water in England – Finding the balance (Abstract #075)
11:45-12:00 *M.E. van Vliet*, H.P. Broers, G.M.C.M. Janssen Evaluating patterns of nutrients, pesticides and emerging contaminants in age-dated groundwater: Monitoring the Sand-Meuse groundwater body in the Netherlands (Abstract #144)	11:45-12:00 <void slot, to be used by session chairs>

12:00 – 13:30 Lunch (Brightlands Foyer)

Room: 2.1/2.2 Wolga/Zambesi	*Room: 2.18 Mekong*	Room: 2.3 Mississippi
Session B.iii Water quality monitoring: improving monitoring and data management **Chairs: Marco Acutis (Italy) & Dominika Krzeminska (Norway)**	**Session HI.ii Policies for improving water quality** **Chairs: Patrick Durand (France) & Bob Middleton (United Kingdom)**	**C.i Climate change and weather variation** **Chairs: Mariëlle van Vliet (Netherlands) & Frank Wendland (Germany)**
13:30-13:45 *T.J. Brussée*, G. Wolbink, B. Baumann Strategy to reduce consequence for monitoring in case of change in laboratory (Abstract #056)	13:30-13:45 *F.C.J. van Herpen*, A.W. Vonk, H.A. Rutjes, L.P.A. van Gerven, J. Verstraten, N. Bartelds, J.C. Rozemeijer, A. van Loon, P. Schipper Joint fact finding on options for nutrient loss reduction (Abstract #070)	13:30-13:45 *B. Hankin*, P. Smith, J. Strömqvist, N. Wood, S. Warren, K. Shelton, C. Burgess, L. Pope, T. Newton The impact of climate change-driven water quality changes on long-term environmental planning (Abstract #033)

13:45-14:00 *B. Kronvang*, J. Windolf, S.G. van 't Veen, N.B. Ovesen, H. Tornbjerg, H. Thodsen, G. Blicher-Mathiesen, S.E. Larsen Pitfalls and new solutions in water quantity and quality monitoring (Abstract #221)	13:45-14:00 *M. Eisele* Determination of nitrate polluted areas – Experiences in North Rhine-Westphalia (Germany) (Abstract #132)	13:45-14:00 *B.O. Oduor*, M.A. Campo-Bescós, J.C. Sarasibar, N.S. Lana-Renault Modelling the impacts of climate change on streamflow and nitrates export in a Mediterranean agricultural watershed in Spain (Abstract #072)
14:00-14:15 *A.H. van Loon*, B. van der Grift, J. de Wit, J.C. Rozemeijer, M. Karaoulis, P. Schipper, P. Groenendijk, S. Lucaks, F.C.J. Herpen Linking nutrient leaching to agricultural activities and weather events by field-scale hydrochemical monitoring (Abstract #131)	14:00-14:15 *I. Nesheim,* C. Enge, F. Sundnes, M. Graversgaard, C. van den Brink The role of structural input factors for the functioning of stakeholder involvement in decision making: Economic resources, a specified mandate and a pressure for change (Abstract #171)	14:00-14:15 *C. Farkas*, A. Engebretsen, E. Skarbøvik Water quality response to Nordic bioeconomy and climate change scenarios at catchment scale, a case study from S-E Norway (Abstract #108)
14:15-14:30 *H. Mielenz*, M. Dieser, S. Zieseniß, K. Müller, J.-M. Greef, B. Stever-Schoo Suitability of early indicators to assess nitrate leaching from agricultural fields (Abstract #068)	14:15-14:30 *A.L. Solheim*, A. Tolvanen, E. Skarbøvik, D. Collentine, B. Kronvang, G. Blicher-Mathiesen, F. Hashemi, A. Juutinen, B. Kløve, S. Hellsten, E. Pouta Quantifying stakeholder opinions on how bioeconomic development could change land-use, agriculture and forest production in the Nordic countries (Abstract #152)	14:15-14:30 *S. Lukács*, D. Fraters Effects of drought: Extreme weather conditions provide insight in leaching process (Abstract #046)
14:30-14:45 *F. Lauryssen* Estimation of the natural background of phosphate in a lowland river using tidal marsh sediment cores (Abstract #231)	14:30-14:45 *F. Gertz*, L.K. Tholstrup, L. Bønnelycke Nørgaard Water exchange in coastal waters affecting priorities of land-based measures (Abstract #143)	14:30-14:45 *S. Buijs*, J.C. Rozemeijer, K. Ouwerkerk Impact of the 2018-2020 drought on nutrient concentrations in agricultural-dominated headwaters in the Netherlands (Abstract #096)
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 (Brightlands Foyer)		

Room: 2.1/2.2 Wolga/Zambesi
Session D.ii & HI.iii: Assessment of national or regional policy & Economic incentives and regulatory mandates that drive implementation (carrots and sticks) **Chairs: Claudia Heidecke (Germany) & Cors Van den Brink (Netherlands)**
15:30 – 16:00 *T. Harter*, G. Kourakos, C. Henri, Z. Cao, M. Yang Quantifying long-term regional groundwater quality benefits from agricultural practices (Abstract #204)
16:00 – 16:20 B. Hasler, *R. Filippelli*, G. Levin, D. Nainggolan Cost-effective implementation of the WFD in Denmark – a national scale modelling approach (Abstract #207)
16:20 – 16:40 *M. Volk*, N. Amorsi, S. Bokal, C. van den Brink, N. Natalja Čerkasova, C. Farkas, P. Fučík, M. Glavan, L. Honzak, D.M. Krzeminska, T. Lemann, F. Monaco, A. Nemes, I. Nesheim, M. Piniewski, C. Schürz, M. Strauch, B. Toth (Szabo), F. Witing OPTAIN – Optimal strategies to retain and re-use water and nutrients in small agricultural catchments across different soil-climatic regions in Europe (Abstract #069) [this talk was not presented]
16:40 – 17:00 *M. Schönhart*, E. Schmid, E. Jost, J. Parajka, C. Schürz, E. Strenge, M. Zessner, O. Zoboli, B. Mehdi-Schulz Integrated assessment of policies to manage nutrient losses from agricultural land under climate change in Austria (Abstract #120)
End of presentations of Tuesday, 13 September 2022
18:15 – 22:30 Conference Dinner, Chateau St. Gerlach Departure at MECC Maastricht 18:30 (Map 1, page 8, bus stop 1), bus will also stop for pick-up at the Maasboulevard near the centre of Maastricht, underneath the 'Hoge Brug' (high pedestrian bridge; Map 1, bus stop 2)

Wednesday, 14 September 2022

07:30-17:30 Registration / Conference secretariat desk open
PowerPoint presentations to be uploaded at the conference secretariat desk

Room: 2.1/2.2 Wolga/Zambesi

Session D.iii & HI.iv : Assessment of national or regional policy & Policies for improving water quality
Chairs: Thomas Harter (USA) & Jenny Deaking (Ireland)

08:45 – 09:15 *N.A. Kieboom*, C. Speed
National Sector Inventory and heat mapping of nitrogen loads to groundwater in England (Abstract #109)

09:15 – 09:35 *P. Durand*
Modelling nitrogen dynamics in farming landscapes: From system understanding to support to policies, 20 years of TNT2 model (Abstract #018)

09:35 – 09:55 *P. Rosendorf*, M. Trepel, G. Ollesch, J. Duras
Strategy for nutrient reduction in waters in the international Elbe River Basin district – Goals and opportunities (Abstract #161)

10:00-10:30 Coffee break (Brightlands Foyer)

Room: 2.1/2.2 Wolga/Zambesi	*Room: 2.18 Mekong*
Special session 2.i On protection of drinking water resources **Chairs: Gerard Velthof, Susanne Wuijts, Mart Ros (Netherlands)**	**Special Session 1.i Real-time water quality monitoring** **Chairs: Arno Hooijboer, Joachim Rozemeijer (Netherlands) & Michael Rode (Germany)**
10:30-10:40 Introduction	10:30-10:40 Introduction
10:40-11:00 A.E. Boekhold, *S. Wuijts* From farm to drinking water: Improving governance conditions to better protect drinking water resources against agricultural pollution from nitrate and pesticides (Abstract #157)	10:40-11:00 *R. Cassidy*, P. Jordan Perspectives on water quality monitoring approaches from citizen science to enhanced and real-time solutions for delivering behavioural change (Abstract #076)
11:00-11:20 *N. Surdyk,* S. Klages, N. Baran, L. Farrow, M. Glavan, B. Hansen, C. Heidecke, H. Kim, M. Laurencelle, J. Williams, I. Wright, G.L. Velthof Challenges for linking agricultural pressure indicators with water quality state indicators: Examples from FAIRWAY project (Abstract #022)	11:00-11:20 *E. Tenner*, A.E.J. Hooijboer, J.C. Rozemeijer Measurement campaign High-frequency Nitrate sensors in the Meuse River: Eight nitrate sensors compared, what are the differences? (Abstract #023)

11:20-11:40 *F.M.J. Vaessen* The process by which a water supply company collaborates with farmers with the aim of avoiding investment costs for building a nitrate treatment plant (Abstract #084)	11:20-11:40 *E. Skarbøvik*, S.G. van't Veen, K. Atcheson, H. Wenng, E. Lannergård, M. Kämäri, H. Marttila, M. Bieroza, M. Stutter, P.-E. Mellander, Ø. Kaste, J. Fölster, B. Kronvang, A. Lepistö, P. Jordan Comparing the correlation between turbidity and suspended solid concentrations in rivers of different characteristics from six northern-European countries (Abstract #066)
11:40-12:00 *M.B.H. Ros*, G.L. Velthof, J.P. Lesschen Exploring the potential of cover crops and balanced fertilisation to reduce nitrate leaching in Europe (Abstract #123) [talk presented by G.L. Velthof]	11:40-12:00 Discussion
12:00 – 13:30 Lunch (Brightlands Foyer)	
Room: 2.1/2.2 Wolga/Zambesi	***Room: 2.18 Mekong***
Special session 2.ii On protection of drinking water resources **Chairs: Gerard Velthof, Susanne Wuijts, Mart Ros (Netherlands)**	**Special Session 1.ii Real-time water quality monitoring** **Chairs: Arno Hooijboer, Joachim Rozemeijer (Netherlands) & Michael Rode (Germany)**
13:30-13:50 *U. Ladekarl*, E. Stubsgaard, B. Vægter Targeted measures against pesticide contamination in main groundwater recharge areas in Aarhus – groundwater protection and management (Abstract #127)	13:30-13:50 *P.J. Thorburn*, A.J. Webster, J.S. Biggs, M. Mooij, B. Dungand, P. Fitch, R.D.R. Turner, A. Davis, P. Baker, S. Fielke Increasing farmer awareness of the impact of agriculture on water quality with the 1622WQ app (Abstract #090)
13:50-14:10 *P. Jordan*, K.F. Atcheson, R. Cassidy, S. Cook, D. Doody, L. Farrow, S. Floyd, R. McRoberts, P.-E Mellander, P.A. Morton, C. Glass, D. Burgess MCPA herbicide: Revealing the pressures and addressing the challenges at catchment scale (Abstract #134)	13:50-14:10 M. Sinclair, R.D.R. Turner, *C. Neelamraju*, D. Orr, B. Ferguson, M.S.J. Warne, R. Mann Near real time water quality monitoring based on co-design, fostering real-life adaptive management (Abstract #210)
14:10-14:30 *C. Heidecke*, S. Klages, E. Buis, L. Elings, V. Eory, K. D'Haene, S. Higgins, G. Hofman, S. Luostarinen, I. Nesheim, G. Provolo, N. Surdyk, B. Osterburg Aspects of implementing Farm to Fork nitrogen targets with tools, measures and policy instruments across Europe (Abstract #180)	14:10-14:30 *K. Ouwerkerk*, J.C. Rozemeijer, S. Buijs, V. Kaandorp, A.E.J. Hooijboer, S. Lukacs, A.H. van Loon, B. van der Grift, P. Schipper, P. Groenendijk, F.C.J. van Herpen, M. Oudendijk Hot-spots and hot-moments: High resolution monitoring in time and space to support a spatial targeting approach for nutrients in agricultural catchments (Abstract #116)
14:30-15:00 Discussion	14:30-15:00 Discussion

15:00-15:30 Coffee break (Brightlands Foyer)
Room: 2.1/2.2 Wolga/Zambesi
Session EF.iii & G.i Management measures to improve water quality & Managing protected areas for water supply and nature conservation **Chairs: Lærke Thorling & Gitte Blicher-Mathiesen (Denmark)**
15:30 – 16:00 *R.D.R. Turner*, M.S.J. Warne, J. McMahon, D. Correa, Y. Mao, S. Phinn Reef Catchments Science Partnership: Enabling water quality improvements for the Great Barrier Reef (Abstract #091)
16:00 – 16:20 *S. Brouyère*, L. Balzani, P. Orban The CASPER project – an integrated approach for pollution risk assessment in peri-urban groundwater catchment areas (Abstract #059) [talk presented by L. Balzani]
16:20 – 16:40 *C. van den Brink* Dutch approach to meet the nitrate objectives in vulnerable groundwater protection areas reviewed (Abstract #007)
16:40 – 17:00 *M. Acutis*, V. Minin, A. Zaharov, A. Perego, E. Walkama Is organic farming a solution to promote water quality and ecosystem services in the Russian part of the Baltic Sea catchment area? (Abstract #209)
Room: Brightlands Foyer
17:15 – 18:45 **Poster Session P.ii - session with drinks and snacks** (authors should attend their posters for technical discussions with interested attendees)
End of presentations of Wednesday, 14 September 2022

Thursday, 15 September 2022

07:30-15:30 Registration / Conference secretariat desk open
PowerPoint presentations to be uploaded at the conference secretariat desk

Room: 2.1/2.2 Wolga/Zambesi

Session B.iv & C.ii : Water quality monitoring & Impact of climate change on land use and water quality
Chairs: Ryan Turner (Australia) & Rafael Filippelli (Denmark)

08:30 – 09:00 *G. Lischeid*, J. Steidl, F. Koch, C. Engelke
The curse of the past – what can tile drain effluent tell about arable field management? (Abstract #124)

09:00 – 09:20 *G. Blicher-Mathiesen*, B. Hansen, H. Tornbjerg, H. Thodsen, S.E. Larsen, B. Kronvang
Effect of extreme climate events on responses of nitrogen leaching and concentrations in agricultural catchments in Denmark (Abstract #121)

09:20 – 09:40 *J.C. Rozemeijer*, V. Barcala, B. van der Grift, L. Gerner
Impact of climate variability and water conservation on farm-scale P and N losses towards surface water from four years of high-resolution monitoring (Abstract #128)

09:40 – 10:00 *M. Rode*, X. Zhou, S. Jomaa, X. Yang, R. Merz, Y. Wang
Exploring the relations between sequential droughts and stream nitrogen dynamics in central Germany through catchment-scale mechanistic modelling (Abstract #094)

10:00-10:30 Coffee break (Brightlands Foyer)

Room: 2.1/2.2 Wolga/Zambesi	*Room: 2.18 Mekong*	*Room: 2.3 Mississippi*
Session A.iv Increasing our understanding of 'systems function' **Chairs: Claudia Heidecke (Germany) & Thomas Harter (USA)**	**Session D.iv Assessment of national or regional policy** **Chairs: Lærke Thorling & Natalie Kieboom (United Kingdom)**	**HI.v Economic incentives and regulatory mandates that drive implementation (carrots and sticks)** **Chairs: Cors Van den Brink (Netherlands) & Jenny Deakin (Ireland)**

10:30-10:45 *E. Brandes*, M. Henseler, F. Herrmann, P. Kreins, G. Shiravani, B. Tetzlaff, F. Wendland, A. Wurpts MOMENTUM – a model network to quantify microplastic sources and migration pathways throughout a river catchment (Abstract #112)	10:30-10:45 *J. Coppens*, R. Laethem The use of the nutrient emission model NEMO for evaluating policy scenarios related to nutrient emissions from agriculture to surface waters in Flanders (Abstract #060)	10:30-10:45 *E. Strenge*, O. Zoboli, M. Zessner The model PhosFate as a decision support tool for implementing erosion mitigation measures in agriculture land (Abstract #122)
10:45-11:00 *A. Bartosova*, C. Brendel, B. Arheimer Evaluating sources and flows of riverine plastics with ensemble modelling (Abstract #088)	10:45-11:00 *P. Duy Ta*, B. Tetzlaff, M. Trepel, F. Wendland Implementing a state-wide deficit analysis for inland surface waters according to the Water Framework Directive – An exemplary application on phosphorus pollution in Schleswig-Holstein (northern Germany) (Abstract #218)	10:45-11:00 *P. Geranmayeh*, A. Speks, D. Collentine Has regional targeting improved distribution of funds and construction of purpose driven wetlands in Sweden? (Abstract #026) [talk presented by D. Collentine]
11:00 -11:15 *J. Strömqvist*, A. Bartosova, C. Brendel National-scale modelling of silica and assessment of riverine contribution to potential coastal eutrophication (Abstract #040)	11:00-11:15 *J. Spijker*, D. Fraters, A. Vrijhoef A machine learning based modelling framework to predict nutrient leaching from agricultural soils across the Netherlands (Abstract #105)	11:00-11:15 *M. Graversgaard*, M.H. Thorsøe, T. Dalgaard Catchment officers in Denmark – how does this new concept in Danish water management fit into the existing governance set-up? (Abstract #181)
11:15-11:30 *B. van der Grift*, A.E. Hockin, M. de Jonge Unexpected impact of land use on hardness of groundwater abstracted for drinking water supply (Abstract #151)	11:15-11:30 *J. Klištinec*, R. Cibulka Groundwater nitrate pollution from agricultural sources and its monitoring in the Slovak Republic (Abstract #150)	11:15-11:30 *T. McIntyre* Nitrogen reductions through behaviour change: A focus on fertilizer (Abstract #061)
11:30-11:45 *R. Dupas*, A. Casquin, V. Viaud, P. Durand The influence of landscape organized heterogeneity on riverine nitrate dynamics (Abstract #041)	11:30-11:45 *J.E. Vermaat*, E. Skarbøvik, B. Kronvang, A. Juutinen, S. Helsten, K. Kyllmar Projecting the impacts of the bioeconomy on Nordic land use and freshwater quality and quantity – an overview (Abstract #189)	11:30-11:45 *S. Nawara*, K. Willekens, S. Janssens, S. Degelin Good practices focused on improving water and soil quality: The farmer as promoter and key actor for a right behaviour and broad use of appropriate techniques (Abstract #102)
11:45-12:00 *P. Jarosiewicz*, K. Zagibajło, A. Miszczak, M. Zalewski Spatial-temporal dynamics of pollutants in small rivers under the different pressure of orchards (Abstract #077)	11:45-12:00 *R. Capell*, A. Bartosova Effectiveness of upstream remediation measures on macro-nutrient loads to the Baltic Sea (Abstract #190)	11:45-12:00 <void slot, to be used by session chairs>
12:00 – 13:30 Lunch (Brightlands Foyer)		

Room: 2.1/2.2 Wolga/Zambesi
Session D.v Assessment of national or regional policy **Chairs: Bob Middleton (United Kingdom) & Marco Acutis (Italy)**
13:30 – 13:50 *W. Odeurs*, D. Vandervelpen, A. Elsen, G. Ruysschaert, T. Vanden Nest, T. D'Hose, V. Verguts, H. Vandendriessche Monitoring of Flemish farms benefiting from derogation reveals determinant parameters for the nitrate-N residue (Abstract #025)
13:50 – 14:10 *S. De Neve*, K. D'Haene, J. De Waele, G. Hofman Spatial distribution of the relationship between nitrate residues in soil and surface water quality revealed through attenuation factors (Abstract #193)
14:10 – 14:30 *K.L. Hitzfeld*, A. Müller, S. Knillmann, C. Pickl, M. Liess, O. Weisner, P. Vormeier, L. Liebmann, T. Reemtsma Small streams, big problems – German event-driven monitoring reveals alarming pesticide pollution and regulatory deficiencies (Abstract #031)
14:30 – 14:50 *A.M. Erlandsson Lampa*, J.F. Petersson, D.J.P. Smith, L.M. Bång, M.A. Hoffman Methods to assess the potential of reducing phosphorus loads from agricultural land (Abstract #118)
14:50-15:00 <void slot, to be used by session chairs>
Closure
15:00 – 15:30 Closure session: Brian Kronvang (Aarhus University, Denmark)
End of official conference programme

Poster sessions P.i and P.ii (59 posters)

Session P.i (introduction): Tuesday, 13 September, 10:00-10:45, extended coffee break, participants take a quick glance at posters (poster authors should not attend their posters)

Session P.ii : Wednesday, 14 September, 17:15-18:45, combined with snacks and drinks (authors should attend their posters for technical discussions with interested attendees)

Theme A Increasing our understanding of 'systems function': research to increase understanding and improving modelling of the hydro(geo)logical, geochemical and biochemical reality (*15 posters*)

B. Kronvang, S.E. Larsen, J. Windolf, H. Tornbjerg, J. Rolighed
A novel machine learning national model for diffuse source total phosphorus concentrations in streams (Abstract #020)

M.S.J. Warne, *R.D.R. Turner*, A. Davis, R. Smith, A. Huang
Temporal variation of imidacloprid concentration and risk in waterways discharging to the Great Barrier Reef and potential causes (Abstract #029)

A. Koroša, N. Mali
Modelling transport of nitrate in a gravel unsaturated zone (Abstract #047)

N. Mali, A. Koroša, P. Auersperger, M. Kozjek, M. Kovač Viršek
Microplastics as emerging contaminants in groundwater (Abstract #049)

J.A.R. Soedarso, N.B. Sutton, H.H.M. Rijnaarts
The fate of contaminants of emerging concern in sandy soils by irrigating with (in)direct treated municipal effluent (Abstract #057)

P.J.J.M.E. Kusters, J.W.A.M.S. Crijns
Development and implementation of the Nitrate leaching Model South Limburg: Towards improvement of water quality in combination with sufficient fertilization of arable crops (Abstract #085)

P.A. Morton, W.R. Hunter, R. Cassidy, D. Doody, K. Atcheson, P. Jordan
Walking trees and dark rivers: Impacts of a large-scale bogflow (peat slide) on water quality in the Derg catchment, NW Ireland (Abstract #095)

T. Coussement, M. Tits, S. Moermans, J. Coppens, R. Laethem, J. Diels, A. Elsen
Further development of the modelling of nutrient processes in the unsaturated zone in the nutrient emission model NEMO (Abstract #110)

H. Holm, S. Kolind Hvid, M. Meldorf Deichmann
Development of a new and more differentiated nitrogen retention mapping to reduce nitrate leaching with a more targeted and cost-efficient N-mitigation strategy (Abstract #111)

K.F. Atcheson, P.-E Mellander, R. Cassidy, S. Cook, S. Floyd, C. McRoberts, P.A. Morton, P. Jordan
MCPA exports and pathways at catchment scale: Insights from enhanced water quality data (Abstract #114)

P.O. Ekholm, J.M. Lehtoranta, R. Uusitalo
Release of soil-bound phosphorus in aquatic systems (Abstract #136)

Y. Fujita, A. Berndsen, G.H. Ros
Assessing effects of agricultural soils and measures on water quality: National and regional scale case studies with farm specific monitoring tools (Abstract #153)

T.J. Salo, *M. Saarinen*, J. Kostensalo, R. Lemola, L. Ukonmaanaho
Developing nitrogen leaching model for the Life cycle assessment of organic and conventional crops (Abstract #187) [poster presented by L. Ukonmaanaho]

S. De Neve, J. De Waele, M. Van Camp, K. Walraevens
Long term (50 years) simulations of average root zone nitrate concentrations partially explain slowly improving water quality in northern Belgium (Abstract #191)

D.J. Shockley
Assessing mobility of microplastics from soil to groundwater using soil leaching columns to enhance effectiveness of field sampling of groundwater for microplastics presence (Abstract #228)

Theme B Water quality monitoring: improving monitoring, data management and combined monitoring-modelling to support the evaluation of programmes of measures (11 *posters*)

V. Altés, O. Merlin, M. Pascual, J.M. Villar, P. Laluet
Nitrate and salt exportations monitoring at irrigation district level (Abstract #035)

A. Lagzdins, I. Siksnane, R. Sudars
Targeted water quality monitoring for implementation of river basin management plans in Latvia: The approach of the LIFE GOODWATER IP project (Abstract #063)

J. Fölster, *K. Kyllmar*, C. von Brömssen, J. Rakovic
GAMM models on open data show improving water quality in agricultural streams (Abstract #065)

J. Appels
No online sensor data possible without certified lab-data – how to optimize sensor data (Abstract #078)

L.G. Farrow, P.A. Morton, C. McRoberts, S. Floyd, R. Cassidy, P. Jordan, D. Doody
Evaluation of Chemcatchers® for pesticide monitoring in agricultural grassland catchments (Abstract #079)

R. Haghi, S. Freitag, H. Watson, J. Robertson, M. Stutter, *M. Glendell*
Evaluating the application of UV-Vis spectroscopy for simultaneous detection of nitrate, DOC and phosphorus and for chemical 'water quality fingerprinting' (Abstract #117)

O. Žurovec, B. Lynch, K.G. Richards
Lysimeter-measured nitrate leaching on non-derogation and derogation farms in Ireland (Abstract #142)

C. Spill, L. Ditzel, M. Gassmann
Water quality monitoring in headwaters with mixed land use: First insights into water quantity and quality (Abstract #162)

P. van Beelen
An R package for the quality control of groundwater and surface water measurements (Abstract #206)

T. Gallé, J. Farlin, C. Braun, V. Huck, D. Pittois, M. Bayerle
Catchment property- load regressions as a simple management tool for agricultural impact mitigation (Abstract #224)

L. Møllerhøj, J. Sivertsen
Danish strategy for governmental groundwater monitoring (Abstract #234)

Theme C Impact of climate change on land use and water quality: assessment of impact on groundwater and surface water quality (*6 posters*)

I. Siksnane, A. Lagzdins
Analysis of the impacts of meteorological and hydrological variability on quality of agricultural runoff in Latvia (Abstract #053)

J.J. Bernhardt
Modelling climate change impacts on regional agricultural irrigation demand – a case study in Bavaria (southern Germany) (Abstract #097)

D.M. Krzeminska, A.G. Blankenberg, M. Bechmann, J. Deelstra
The effect of constructed wetlands under future climate conditions – 18 years of measurements in a small constructed wetland in Norway (Abstract #101)

K. Bieger, *B. Kronvang*, F. Hashemi, M. Vodder Carstensen
Impacts of the transition to a Nordic bioeconomy on streamflow and nitrogen loads in the Odense Fjord Catchment, Denmark (Abstract #165)

I. Karlović, T. Marković, A.C. Smith, T. Kanduč
Impact of land use on groundwater quality in the Varaždin alluvial aquifer (Abstract #217)

F. Saavedra
The effect of hydrological extreme events on nitrate export patterns (Abstract #233)

Theme D Assessment of national or regional policy: effectiveness of programmes of measures on water quality on a regional and national scale (*8 posters*)

R.D.R. Turner, M.S.J. Warne, C. Neelamraju, D. Orr, B. Ferguson, R. Mann
Analysis of fifteen years of anthropogenic loads of sediment, nitrogen and phosphorus entering the Great Barrier Reef, Australia (Abstract #089)

R. Adams, D. Doody
Meeting WFD Targets in the Blackwater Catchment in Northern Ireland: A simple modelling based approach to estimating phosphorus load reductions (Abstract #093)

D. Hawtree, J. Galloway, P.-E Mellander
Application of a parsimonious phosphorus model (SimplyP) to two contrasting agricultural catchments in Ireland (Abstract #113)

W. Malik, F. Oehler, L. Sgro, P. Durand
Modelling nitrogen mitigation scenarios to reduce coastal eutrophication (Abstract #156)

M. Curk, M. Glavan, M. Pintar
Balancing environmental and economic impacts of groundwater protection measures for sustainable development of agriculture in nitrate vulnerable zones (Abstract #177)

B. Hasler, *R. Filippelli*, G. Levin, H.E. Andersen
Cost-effective phosphorus load reductions to lakes – an integrated modelling approach (Abstract #208)

K. Blombäck, *K. Mårtensson*, H. Johnsson, A. Lindsjö, K. Persson, K. Kyllmar
Effects of bioeconomy scenarios on agricultural management practices and nutrient leaching losses using high resolution leaching coefficients (Abstract #213)

H. Guejjoud, F. Curie, C. Grosbois
Phosphorus surplus in France: Model and trends over the period 1920-2020 (Abstract #219)

Theme E Improving water quality by farm management practices: research (monitoring and modelling) at plot, field and catchment scales to quantify the effects of farming practices and changes in land use (*6 posters*)

T.V. Clement, C.L. Bielders, A. Degré, G. Manssens, G. Foucart, O. Pigeon, A. Blondel, B. Huyghebaert
Effectiveness of undersown crops and strip tillage at reducing erosion and pesticide transfer in maize crops: Results of field trials (Abstract #013)

G. Ezzati, J. Barron, *K. Kyllmar*
Catchment-specific best management practices to minimize nutrient losses (Abstract #032)

B.O. Oduor, M.A. Campo-Bescós, J.C. Sarasibar, N.S. Lana-Renault
Evaluating the impacts of agricultural transformation from rainfed to irrigation on streamflow and nitrates in a Mediterranean agricultural watershed in Spain (Abstract #073)

E. Severini, M. Bartoli, M. Pinardi, F. Celico
Short-term effects of the EU Nitrate Directive reintroduction: Reduced N loads to river from an alluvial aquifer in northern Italy (Abstract #098)

N.H. Kristensen, B.N Pedersen, H.V. Poulsen
Effect of previous years fertilizer application rate on nitrate leaching (Abstract #145)

A. Scott, R. Cassidy, J. Arnscheidt, P. Jordan
Quantifying sediment and phosphorus erosion at riverbank cattle access points (Abstract #175)

Theme F Improving water quality by establishing eco-technological mitigation measures: development, testing, implementation and operation at plot, field and catchment scales to quantify the effects of structural measures (*6 posters*)

P.A. Moore
Legacy effects of fertilizing with alum-treated poultry litter on phosphorus runoff
(Abstract #028)

M.V. Barcala, *S. Jansen*, J.C. Rozemeijer, B. Bisschops, M. Goosens, J. Weert
How to optimize phosphate removal by iron-coated sand filters in agriculture
(Abstract #043)

L.V. Hallberg, M.Z. Bieroza
The role of catchment controls for nitrogen and phosphorous removal in remediated agricultural ditches (Abstract #071)

P. Jordan, G.J. Gaffney, C. Johnston
Using short-rotation willow coppice to mitigate water quality impacts from point sources
(Abstract #104)

L. Pugliese, G.J. Heckrath
Phosphorus retention by compact filter systems treating agricultural drainage discharge
(Abstract #173)

J.A. Strand, *P. Feuerbach*, L. Feuerbach Wengel, S. Hedman, L.D. Schneider
Widening of stream cross sections of agricultural water courses as a tool to reduce floods and erosion in downstream areas (Abstract #184)

Theme G Managing protected areas for water supply and nature conservation: risk assessment techniques, monitoring and modelling of water quality and quantity for the protection of (a) water resources for drinking water supply, and (b) groundwater dependent terrestrial ecosystems (*1 posters*)

R. Cvejić, M. Curk, N. Mali, J. Mulec, M. Petrič, M. Pintar, J. Urbanc, M. Prelovšek
Advancing land use practices to ensure suitable groundwater quality for the aquatic salamander Proteus anguinus in the Dinaric karst (Bela krajina, SE Slovenia)
(Abstract #200)

Themes H and I Decision-making and implementation: the role of stakeholder input and science in policy decision-making and social and economic incentives and regulatory mandates that drive implementation (carrots and sticks) (*6 posters*)

Y. Zhuang, *T. Silvasy*, T. McIntyre, W. Lester, J. Daughtery, A. Marek, T. Freeman, T.M. Momol
Florida-Friendly Landscaping™ education in central Florida results in measurable water conservation (Abstract #037)

T.A. Wichman, E. Momol, D. Rainey, B. Unruh, L. Barber, M. Celestin, C. Peralta, C. Bain, J. Bossart
Florida's Green Industries Best Management Practices training promotes sustainable urban landscapes (Abstract #045)

K. Izydorczyk, W. Frątczak, K. Krauze, T. Rychlicki
Multi-stakeholder local cooperation on water management in agricultural landscapes for increased water retention: Kutno County, Waterdrive case area (Abstract #115)

K.J. Adams, M.J. Metzger, R. Helliwell, C.A.J. Macleod, N. Melville, J. Pritchard, K. Edwards, M. Glendell
Identifying and testing adaptive management options to increase catchment resilience using a Bayesian Network (Abstract #139)

C. Enge, I. Nesheim
A clear mandate and political anchorage is needed for sustainable stakeholder engagement in water management (Abstract #163)

K. Izydorczyk, W. Frątczak, M. Szymańska, M. Biernacki
Raising farmers' environmental awareness for wider use of NBS measures (nature-based solutions) in agricultural areas (Abstract #178)