

LuWQ2019

International Interdisciplinary Conference

on

Land Use and Water Quality Agriculture and the Environment

Aarhus, Denmark,

3 June - 6 June 2019

Final Conference Programme

Version 26 May 2019



International Interdisciplinary Conference on
Land Use and Water Quality
 Agriculture and the Environment
 Aarhus, Denmark, 3-6 June 2019

Jointly convened by

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



Scientific sponsors and institutional supporters:

- Institute of Bio- and Geosciences (IBG), Forschungszentrum Jülich, Germany
- Flanders Environment Agency, Department Operational Water Management, Belgium
- IAH, International Association of Hydrogeologists
- Our Land and Water National Science Challenge, New Zealand
- Institut National de la Recherche Agronomique, Agrocampus Rennes, Rennes, France
- Johann Heinrich von Thünen Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries, Germany

FLANDERS
 ENVIRONMENT AGENCY



National
Science
 Challenges

OUR LAND
 AND WATER

Toitū te Whenua,
 Toiora te Wai



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 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 spend enough presentation time for 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
- ✓ You can get materials to fix your poster to a poster board at:
 - the Registration desk in Mathematics building and
 - in the poster exhibition area in Lakeside building
- ✓ Put your poster on poster board with ID number of your poster

LuWQ2019 Conference Programme

(Total 225 abstracts: 137 oral, 88 poster)

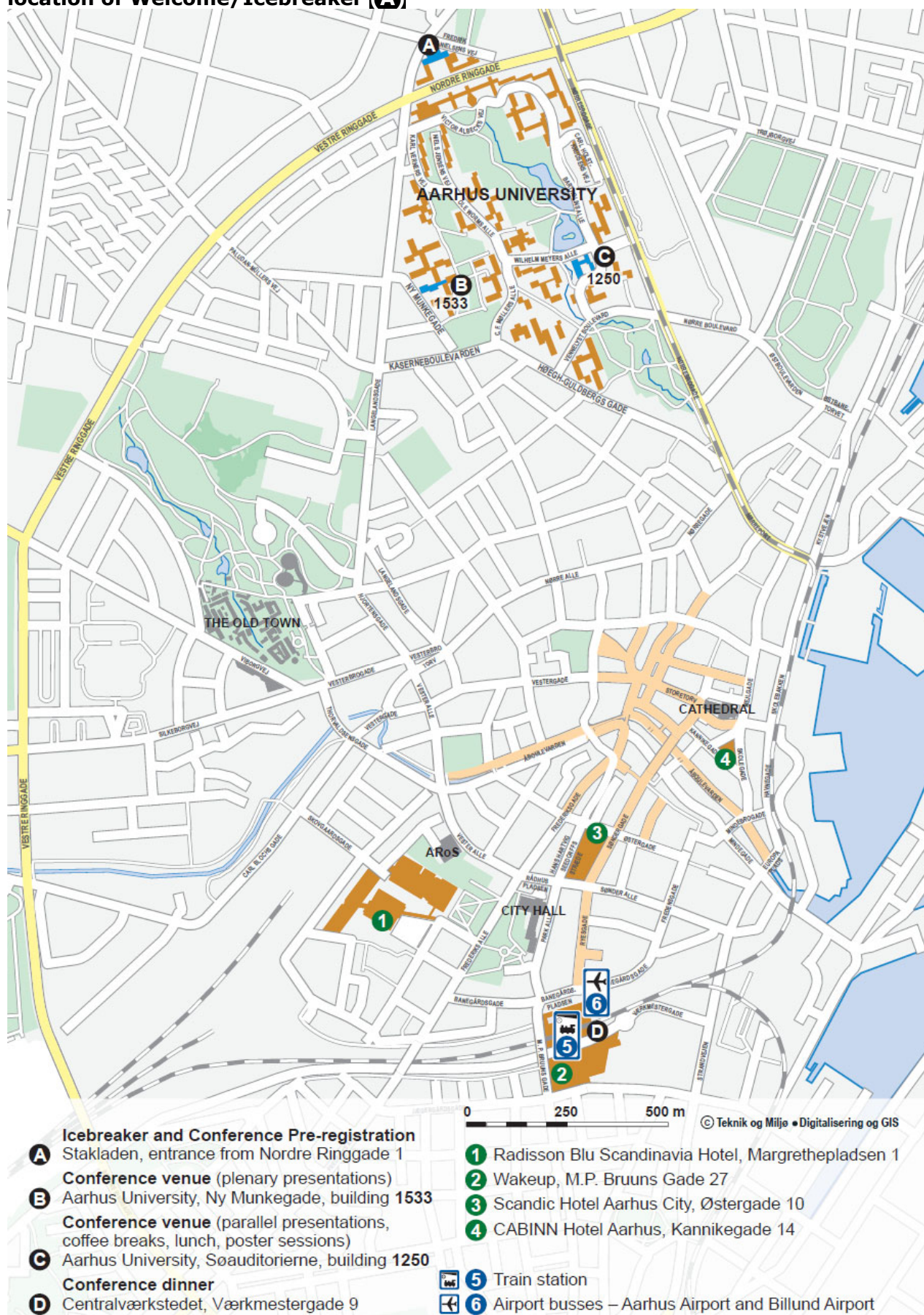
The following sessions are distinguished for oral presentation

- A.i-A.v** 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 (Systems Function)
(Monday 3 June 13:30 to Wednesday 5 June 15:15)
- B.i-B.iv** Water quality monitoring: improving monitoring, data management and combined monitoring-modelling to support the evaluation of programmes of measures (WQ Monitoring)
(Monday 3 June 15:45 to Thursday 6 June 12:15)
- C.i-C.ii** Impact of climate change on land use and water quality: assessment of impact on groundwater and surface water quality (Climate and WQ)
(Monday 3 June 13:30 to Tuesday 4 June 10:00)
- D.i-D.vi** Assessment of national or regional policy: effectiveness of programmes of measures on water quality on a regional and national scale (Policy Assessment)
(Monday 3 June 10:40 to Wednesday 5 June 17:00)
- E.i and E.ii** 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 (WQ and Land Use)
(Thursday 6 June 10:45 to 15:00)
- F.i-F.iii** 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 (Eco-Technologies)
(Tuesday 4 June 10:45 to Thursday 6 June 15:00)
- G.i-G.ii** 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 (Management Protected Areas)
(Monday 3 June 13:30 to Thursday 6 June 10:00)
- HI.i-HI.vi** 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) (Decision Making)
(Tuesday 4 June 10:45 to Thursday 6 June 12:15)
- SS1.i-SS1.ii: Special Session on Land and water management for a sustainable bioeconomy** - Use of bioprocesses to support a sustainable production of food, materials and energy **(BIOECONOMY)**
(Wednesday 5 June 10:45 to 15:15)
- FAIRWAY workshop (i-ii)** – Farm system management and governance for producing good water quality for drinking water supplies (FAIRWAY)
(Tuesday 4 June 10:45 to 15:15)

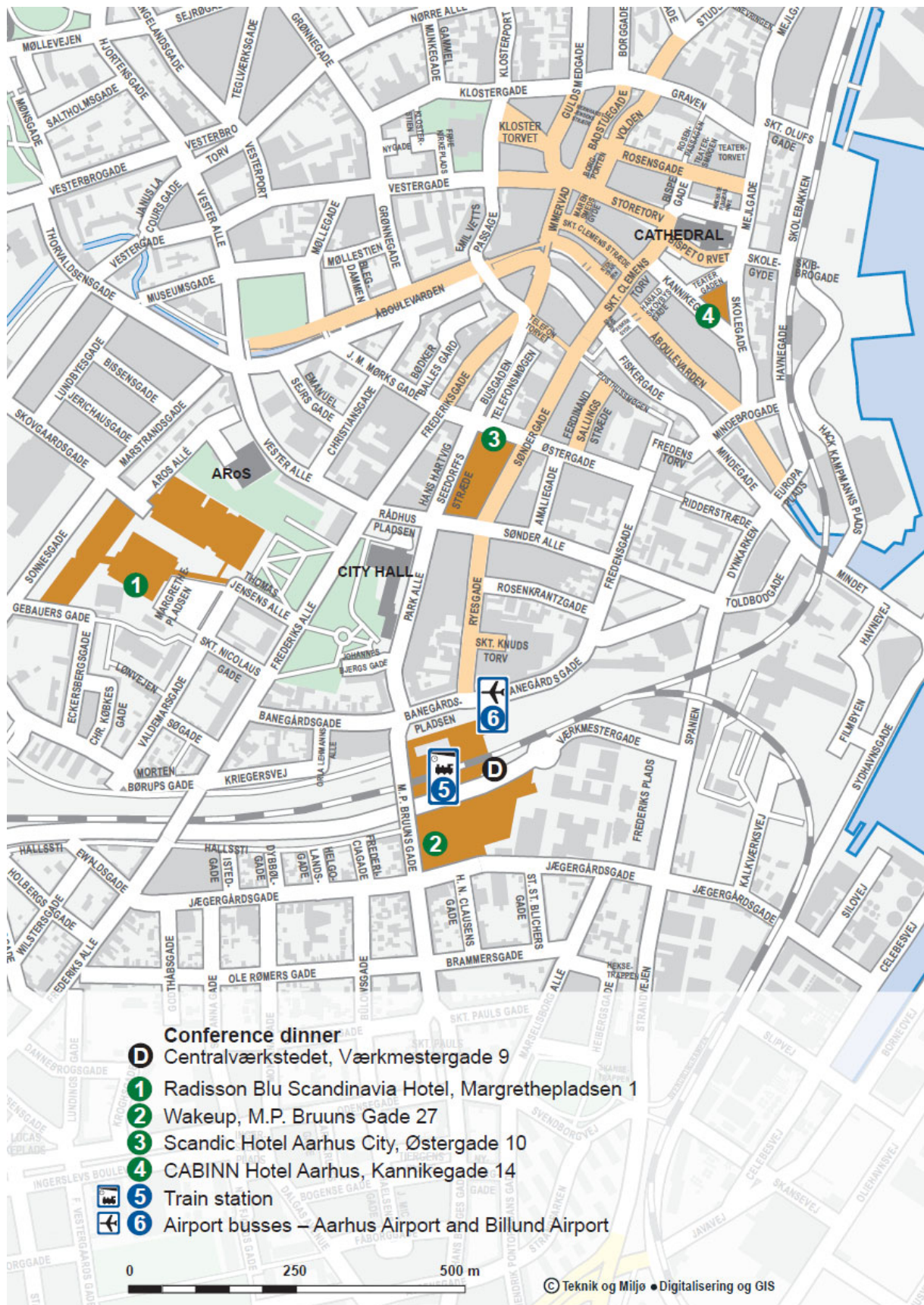
Poster session

- Poster session (All Themes A, B, C, D, E, F, G, HI and special session 1)**
Tuesday, 4 June, 17:15-18:45, with refreshments
Poster authors should attend their posters, for technical discussions with interested attendees.

Map 1 – Overview map of Aarhus, including campus of Aarhus University and location of Welcome/Icebreaker (A)



Map 2 – Detailed map of the centre of Aarhus, including location of Conference Dinner (D)



Overview: Sunday-Thursday, 2 June - 6 June 2019

Sunday 2 June: Pre-registration / Conference secretariat desk open 17:00 – 19:30
Welcome / Icebreaker 18:00 – 20:00



Monday 3 June	7:30 – 8:30	8:30 – 10:00	10:00 – 10:40	10:40 – 12:00	12:00 – 13:30	13:30 – 15:00	15:00 – 15:45	15:45 – 17:15		18:30 – 22:00
	Registration Posters can be installed		Opening	Introduction D.i		Session A.i		A.ii / B.i		Conference Dinner
	Upload ppt					Session C.i				
			Session D.ii							
			Session G.i							
Registration / Conference secretariat desk open (8:30 – 17:30)										
Posters on display										

Tuesday 4 June	7:30 – 8:30	8:30 – 10:00	10:00 – 10:45	10:45 – 12:15	12:15 – 13:45	13:45 – 15:15	15:15 – 16:00	16:00 – 17:00		17:15 – 18:45
	Registration Posters to be installed	B.ii / C.ii		Session D.iii		Session A.iii		D.v		Poster session with refreshments
				Session F.i		Session D.iv				
				Session HI.i		Session HI.ii				
				FAIRWAY.i		FAIRWAY.ii				
Upload ppt	Posters on display									

Wednes- day 5 June	7:30 – 8:30	8:30 – 10:00	10:00 – 10:45	10:45 – 12:15	12:15 – 13:45	13:45 – 15:15	15:15 – 16:00	16:00 – 17:00		
	Registration	HI.iii		Session A.iv		Session A.v		D.vi		
				Session B.iii		Session F.ii				
				Session HI.iv		no session				
				Special S1.i		Special S1.ii				
Upload ppt	Posters on display									

Thursday 6 June	7:30 – 8:30	8:30 – 10:00	10:00 – 10:45	10:45 – 12:15	12:15 – 13:45	13:45 – 15:00	15:00 – 15:30	Legend = lunch = coffee break <div>Oral session</div> <div>Poster display / session</div>		
	Registration	G.ii / HI.v		Session B.iv		E.ii / F.iii	Closure			
				Session E.i						
				Session HI.vi						
	Upload ppt	Posters to be removed								

Legend

 = lunch
 = coffee break

Oral session

Poster display / session

Sunday 2 June 2019

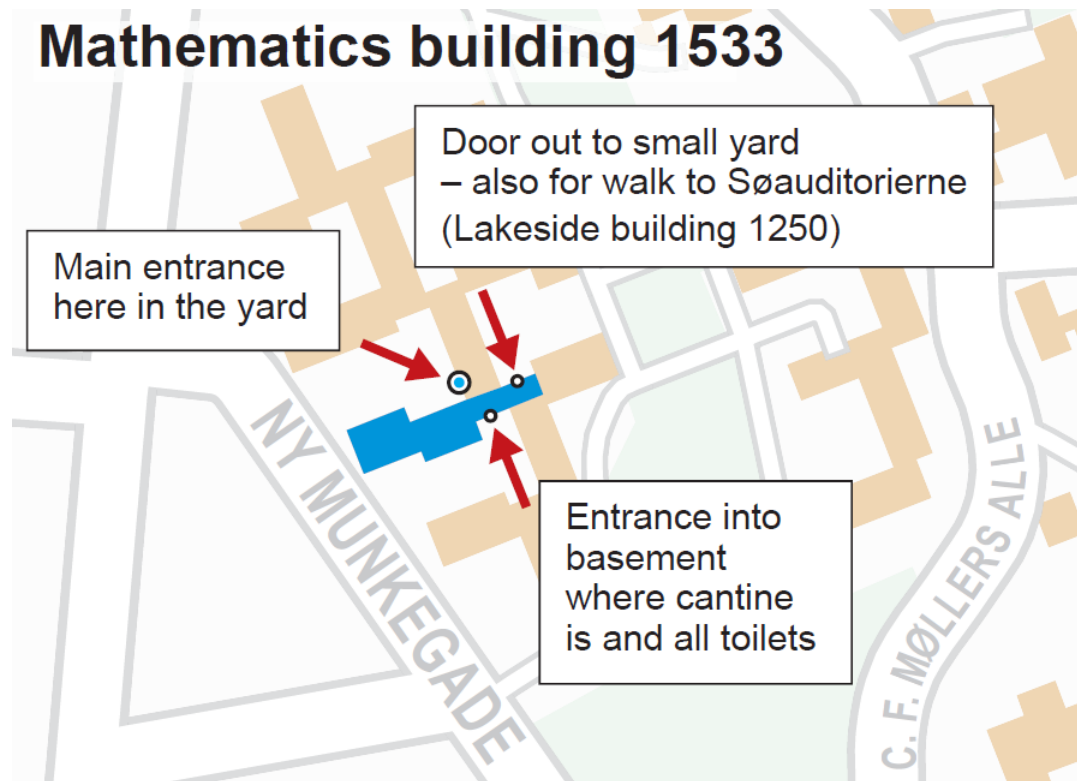
Welcome / Icebreaker (18:00 – 20:00) and Conference Pre-registration are held in the building Stakladen on the fringe of the campus. The entrance of Stakladen is from the street Nordre Ringgade 1. See (A) in Map 1 (page 8).

Pre-registration / Conference secretariat desk open 17:00 – 19:30

Monday, 3 June 2019

Plenary sessions are in E-auditoria in the Mathematics Building (building 1533) with main entrance from the street 'Ny Munkegade'. See (B) in Map 1 (page 8) and the below map 'Mathematics building 1533'.

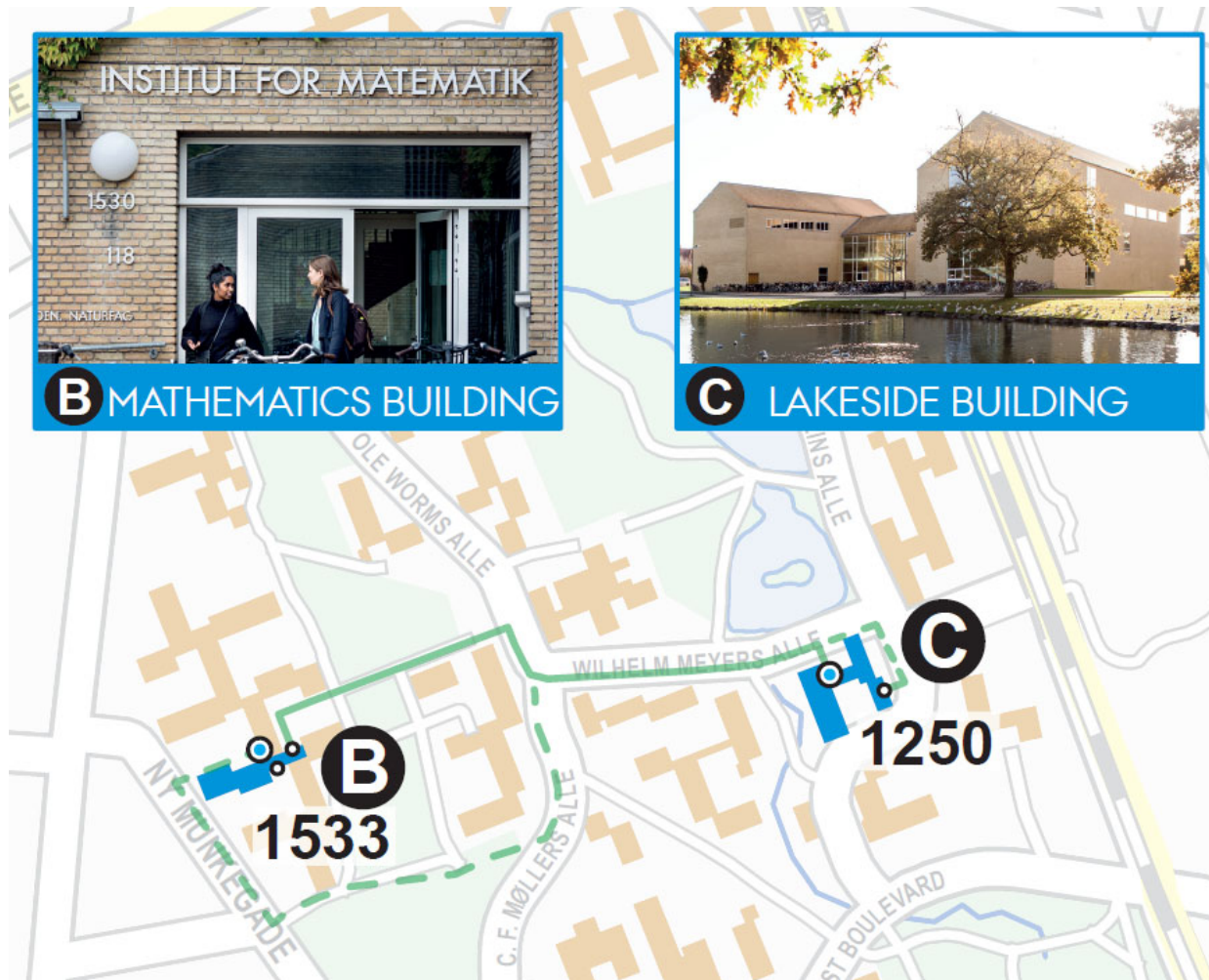
Map 3 – Entrances Mathematics Building Auditoria E



Registration desk will be open (a) during PLENARY SESSION in Mathematics Building and (b) during PARALLEL SESSIONS in Lakeside Building, i.e. NOT in BOTH buildings at the same time	
07:30-17:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk	
07:30-15:30 Posters can be installed, see instructions on page 5	
<i>PLENARY Lecture Hall: Mathematics Building Auditoria E</i>	
Opening of the Conference Chair: Brian Kronvang (Denmark)	
10:00 - 10:40 Welcome Welcome on behalf Aarhus University by pro-dean Kurt Nielsen, Faculty of Science and Technology, AU Welcome on behalf Aarhus University by Director Hanne Bach, Danish Centre for Environment and Energy, A Some practical issues, Organising Committee, Karel Kovar	
Introduction & Session D.i: Assessment of national or regional policy Chairs: Brian Kronvang (Denmark) & Dico Fraters (Netherlands)	
10:40 – 11:10 D. Fraters, B. Kronvang, R. Stenger, T. Harter, K. Kovar: Agriculture and water quality, developments and challenges in science, management and policy in 2013-2019: Examples from a few countries (abstract #000)	
11:10 – 11:30 R. McDowell: Perspectives on global nutrient loads and flows (abstract #023)	
11:30 – 11:50 L.M. Svendsen, B. Gustafsson, S.E. Larsen: Baltic Sea Action Plan: Assessing progress towards fulfilling nutrient reduction targets as prerequisite for a non-eutrophied marine environment (Abstract #235)	
11:50 – 12:00 M. Stutter: Information about the Special Issue from LuWQ2017 (Journal of Environmental Quality - Special Section: Riparian Buffer Management)	
12:00 – 13:30 Lunch, including 15 minutes' walk to Lakeside building	

Parallel sessions (4 lecture rooms) are in the Lakeside building (Aarhus University, Søauditorierne, building 1250).
See **(C)** in Map 1 (page 8) and the below map showing the path to walk between Mathematics building and Lakeside building.
The solid green line is shorter distance.

Map 4 – Path to walk between Mathematics building **(B) and Lakeside building **(C)****



<i>Lecture Hall: Eduard Biermann Auditoriet</i>	<i>Lecture Hall: Jeppe Vontilius Auditoriet</i>	<i>Lecture Hall: Merete Barker Auditoriet</i>	<i>Lecture Hall: William Scharff Auditoriet</i>
Session A.i Impact of groundwater travel times	Session C.i Climate and weather effects on water quality	Session D.ii Assessment of Action programmes	Session G.i Management of Drinking Water Protection Areas
Chairs: Gunnar Lischeid (Germany) & Annemieke van der Wal (Netherlands)	Chairs: Patricia Chambers (Canada) & Claudia Heidecke (Germany)	Chairs: Frank Wendland (Germany) & Pavel Rosendorf (Czech Republic)	Chairs: Marianne Bechmann (Norway) & Falk Hilliges (Germany)
13:30-13:45 R. Kunkel, S. Bergmann, M. Eisele, B. Linder, T. Schöbel, H. Schuster, F. Wendland: Which time-lags in groundwater have to be taken into account before nutrient reduction measures show effects after implementation? Case study North Rhine-Westphalia, Germany (Abstract #019)	13:30-13:45 A. Bartosova, R. Capell, J. Strömqvist, B. Arheimer, J.E. Olesen, K. Tonderski: The role of climate, socioeconomics, and mitigation efforts in future nutrient loads to the Baltic Sea (Abstract #125)	13:30-13:45 S. Klages, C. Heidecke, B. Osterburg: Nitrogen surplus - a unified indicator for Europe? (Abstract #163)	13:30-13:45 J. Schullehner, B. Hansen, T. Sigsgaard: Chronic health effects of nitrate in drinking water (Abstract #075)
13:45-14:00 Y. Jiang, J. Nyiraneza, B.J. Murray: Ongoing release of legacy nitrate from agricultural vadose zone delays groundwater quality improvement response to BMPs (Abstract #037)	13:45-14:00 P.-E. Mellander, C. Fennell, G. McGrath: Large-scale weather changes and weather extremes influence on phosphorus loss to small agricultural rivers (Abstract #257)	13:45-14:00 J. Elliott, H. Baulch, H. Wilson, M. Cordeiro, D. Flaten, D. Lobb: Soil and water management for nutrient control in the Northern Great Plains of Canada and the USA (Abstract #226)	13:45-14:00 M. Emmert: Risk management and risk-oriented groundwater monitoring in well catchment areas (Abstract #218)
14:00-14:15 C. Merz, J. Steidl, N. Moosdorf: Nitrate transport through groundwater into the sea: A ticking time bomb? (Abstract #038)	14:00-14:15 J.H. Knouft, C.-L. Wu: Influence of best management practices on contemporary and future water resources and biodiversity: A watershed-scale assessment in the Midwestern United States (Abstract #216)	14:00-14:15 H. Gömann, P. Kreins, T. Pfingsten, F. Wendland: Development and assessment of regionally adapted agricultural nitrogen reduction measures to reach groundwater and surface water quality targets in North Rhine-Westphalia (NRW), Germany (Abstract #260)	14:00-14:15 A. van Loon, B. Raterman, T. Pronk, R. Sjerps, A. van Wezel: Impact of past and current pesticide use on groundwater sources used for drinking water production in the Netherlands (Abstract #246)

14:15-14:30 <i>S. Collins</i> , U. Morgenstern: Combining the use of age and isotope tracers to shed light on catchment hydrology, groundwater processes and land use effects (Abstract #039)	14:15-14:30 <i>M.J. Waterloo</i> , J. Velstra, F. Hoogland, A.I. Gevaert: Assessment of the effect of water quality measures under current and future climate and farming scenarios using a two- step modelling approach (Abstract #225)	14:15-14:30 <i>J. Coppens</i> , R. Laethem: The use of the nutrient emission model NEMO for quantifying losses of nitrogen and phosphorous from agriculture to surface waters in Flanders (Abstract #162)	14:15-14:30 <i>M. de Jonge</i> : Patterns and time series of nitrate and hardness in groundwater monitoring networks around 40 vulnerable well fields in eastern Netherlands (Abstract #239)
14:30-14:45 <i>S. Wilson</i> : Estimating nitrate transit times in the vadose zone in two contrasting regions in New Zealand (Abstract #105)	14:30-14:45 <i>M. Kraft</i> , J. Lange, L. Menzel: Influence of drought on soil water dynamics and nitrate concentrations on agricultural sites in southwestern Germany (Abstract #187)	14:30-14:45 <i>T. D'heygere</i> , S. Quidé , T. Lebecque, F. Steen: Interregional coordination on gap analysis in Belgium for the Water framework directive (Abstract #145)	14:30-14:45 <i>E.F. Stubsgaard</i> : Targeted measures in main groundwater recharge areas in the Aarhus Municipality (Abstract #289)
14:45-15:00 <i>M. van Vliet</i> , H.P. Broers, T. Kivits: Forecasting nitrate concentrations in Dutch chalk springs using tritium based travel time distributions (Abstract #242)	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>
15:00-15:45 Coffee break, including 15 minutes' walk to Mathematics building			
<i>PLENARY Lecture Hall: Mathematics Building Auditoria E</i>			
Session A.ii & B.i: Increasing our understanding of 'systems function' & Water quality monitoring Chairs: Lærke Thorling (Denmark) & Lars Svendsen (Denmark)			
15:45 – 16:15 <i>R. Stenger</i> , S.J.R. Woodward: Utilising stream monitoring data to elucidate pathway-specific nutrient transfers in meso-scale catchments (Abstract #124)			
16:15 – 16:35 <i>P. Jordan</i> , R. Cassidy, I. Thomas: Phosphorus transfers from soil to water: Linking concentration and flux to catchment carrying capacities (Abstract #137)			

16:35 – 16:55 <i>G. Lischeid</i> , T. Kalettka, C. Lehr, C. Merz, M. Pätzig, G. Onandia, F. Revere, J. Steidl: Artefacts and pitfalls in assessing land use effects on groundwater, stream and pond water quality (Abstract #211)
16:55 – 17:15 H.P. Broers, M. van Vliet, <i>T. Kivits</i> : Trends in age-dated groundwater: Analysing diffuse groundwater pollution in the Dutch Meuse River basin (Abstract #245)
End of presentations of Monday, 3 June 2019
Conference dinner (18:30 at Centralværkstedet & Smedien, Værkmestergade 9) (included in conference fee)
The street entrance of Centralværkstedet & Smedien is at Værkmestergade 9. See (D) in Maps 1 and 2 (page 8 and 9).

Tuesday, 4 June 2019

07:30-17:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk			
07:30-15:30 Posters to be installed, see instructions on page 5			
PLENARY Lecture Hall: Mathematics Building Auditoria E			
Session B.ii & C.i : Water quality monitoring & Impact of climate change on land use and water quality Chairs: Chantal Gascuel-Odoux (France) & Roland Stenger (New Zealand)			
08:30 – 09:00 C. Heidecke, S. Klages, B. Osterburg: The impact of agricultural production and policy on water quality during the dry year 2018 (Abstract #160)			
09:00 – 09:20 P.A. Chambers, K.J. Rattan: Hydrological variability affects particulate nitrogen and phosphorus in streams of prairie Canada (Abstract #217)			
09:20 – 09:40 J. Rozemeijer, B. van der Grift: Monitoring for a spatial targeting approach for nutrients (Abstract #195)			
09:40 – 10:00 F. Hilliges: Opportunities and limits of official reporting data for scientific purposes in groundwater protection (Abstract #065)			
10:00-10:45 Coffee break, including 15 minutes' walk to Lakeside building			
<i>Lecture Hall: Eduard Biermann Auditoriet</i>	<i>Lecture Hall: Jeppe Vontilius Auditoriet</i>	<i>Lecture Hall: Merete Barker Auditoriet</i>	<i>Lecture Hall: William Scharff Auditoriet</i>
Session D.iii Evaluation of Action programmes Chairs: Thomas Harter (USA) & Mariëlle van Vliet (Netherlands)	Session F.i Bufferstrip & wetlands to reduce losses Chairs: Marianne Bechmann (Norway) & Martin Schönhart (Austria)	Session HI.i Economics of programmes & finding effective tools Chairs: Bob Middleton (United Kingdom) & Natalie Phillips (United Kingdom)	FAIRWAY Workshop Chairs: Gerard Velthof (Netherlands)

10:45-11:00 <i>R.D.R. Turner, M.St.J. Warne, R. Wallace, C. Neelamraju, B. Ferguson, R.M. Mann, R.A. Smith, A.M. Davis:</i> The increasing risk of imidacloprid in Australia's Great Barrier Reef catchments (Abstract #144)	10:45-11:00 <i>E. Valkama, K. Usva, M. Saarinen, J. Uusi-Kämpä:</i> Nitrogen retention by buffer zones in surface runoff and groundwater: A meta-analysis (Abstract #017)	10:45-11:00 <i>P. Thorburn, J. Biggs, L. McMillan, T. Webster, Y. Everingham:</i> Insurance as a tool to help farmers mitigate nitrogen pollution from intensive cropping (Abstract #091)	10:45-11:00 <i>G. Velthof:</i> Introduction
11:00-11:15 <i>G.K. Bedford, E. Graham, R. Storey:</i> Regional-scale stream health responses to riparian management (Abstract #036)	11:00-11:15 <i>G. Quaglia, I. Joris, S. Broekx, N. Desmet, W. Boënné, K. Koopmans, P. Seuntjens:</i> Mitigating pesticide levels in surface waters: Long-term surface water monitoring in an agricultural catchment (Abstract #104)	11:00-11:15 <i>M. Strauch, A.F. Cord, A. Jungandreas, A. Kaim, M. Volk:</i> Land use optimization based on scenario analysis: An approach to foster multifunctionality in agricultural landscapes (Abstract #220)	11:00-11:15 <i>N. Surdyk, S. Klages, C. Christophoridis, D. Doody, B. Hansen, C. Heidecke, A. Henriot, H. Kim, S. Schimmelpfennig:</i> Agri-drinking water indicators (ADWIs): Linkage between agricultural practice and good drinking water quality (Abstract #078)
11:15-11:30 <i>A. van der Wal, P. van Beelen:</i> Long-term field observations may indicate phosphate leaching in sandy agricultural soils (Abstract #067)	11:15-11:30 <i>D. Zak, M.V. Carstensen, J. Audet, C.C. Hoffmann, S. Hille, M. Knudsen, B. Kronvang, M. Stutter, J. Stockan, H. Watson, H.S. Jensen, S. Egemose, J.A. Strand, P. Feuerbach, B. Christen, G. Heckrath:</i> The multi-functionality of integrated buffer zones in Northwest Europe (Abstract #120)	11:15-11:30 <i>T.C. van Leeuwen, M.W. Hoogeveen, C.H.G. Daatselaar:</i> Best performing dairy farms in the Netherlands: Their results, strategy and management (Abstract #256)	11:15-11:30 <i>R.K. Laursen, J. Williams, F.A. Nicholson, L. Tendler, R. Cassidy, P. Schipper, K. Verloop, J. van Vliet:</i> Decision support tools for reduction of nitrate and pesticide pollution from agriculture (Abstract #118)

11:30-11:45 <i>C. McClain</i> , L. Wilson, B. Mayer, P. Humez, M. Nightingale, M. Nasr: Nitrate occurrence in groundwater of Alberta, Canada (Abstract #106)	11:30-11:45 <i>C. Kjaergaard</i> , C.C. Hoffmann, B.V. Iversen: Constructed wetlands targeting nutrient removal in agricultural drainage discharge: A new cost- effective mitigation strategy in Denmark (Abstract #238)	11:30-11:45 <i>A.L. Collins</i> , Y. Zhang: The effectiveness of on-farm measures for delivering multiple benefits: Integrating farm surveys and modelling to co- design solutions at landscape scale (Abstract #013)	11:30-11:45 <i>M.C. Commelin</i> , P. Groenendijk, J. Baartman, S. Klages, I. Calciu, A. Ferreira. M. Graversgaard, I Wright, V. Geissen, O. Oenema: Effectiveness of agricultural management practices to reduce pesticide pollution to ground and surface waters – a meta-analysis (Abstract #180)
11:45-12:00 <i>A. Sofo</i> , A.N. Mininni, C. Crecchio, P. Ricciuti, C. Xiloyannis, B. Dichio: Water and soil quality in Mediterranean orchards managed with sustainable or conventional systems (Abstract #055)	11:45-12:00 <i>C. Tanner</i> , J.P.S. Sukias, S.T. Larned: How much wetland would be needed for 20% and 40% reduction in agricultural nitrogen loads into Te Waihora / Lake Ellesmere? (Abstract #149)	11:45-12:00 <i>M.J. Gutierrez Gines</i> , D. Clarke, V. Baker, I. Alderton, R. Simcock, G. Tupuhi, B.H. Robinson, M. Taylor, J. Efford, T. Nikau, T.R. Biddle, T. Moana, J. Horswell: Water quality, ecosystem restoration and traditional knowledge (Abstract #015)	11:45-12:00 <i>P. Groenendijk</i> , M. Commelin, S. Klages, I. Calciu, A. Ferreira. M. Graversgaard, I Wright, O. Oenema: Review of measures to decrease nitrate pollution of drinking water (Abstract #182)
12:00-12:15 <void slot, to be used by session chairs>	12:00-12:15 <i>J. Audet</i> , A. Kjeldgaard, S.E. Larsen, N.B. Ovesen, D. Zak, C.C. Hoffmann: Nutrient retention in restored riparian wetlands in Denmark (Abstract #117)	12:00-12:15 <void slot, to be used by session chairs>	12:00-12:15 <i>A.E. Boekhold</i> , B.I. Wright, J. Rowbottom, K. Dudman, F.M. Platjouw, S. Wuijts: Innovative governance approaches to protect drinking water resources against nitrate and pesticide pollution from agriculture (Abstract #167)
12:15 – 13:45 Lunch (no walk)			
<i>Lecture Hall:</i> <i>Eduard Biermann Auditoriet</i>	<i>Lecture Hall:</i> <i>Jeppé Vontilius Auditoriet</i>	<i>Lecture Hall:</i> <i>Merete Barker Auditoriet</i>	<i>Lecture Hall:</i> <i>William Scharff Auditoriet</i>
Session A.iii Model development to improve understanding Chairs: Jenny Deakin (Ireland) & Marco Acutis (Italy)	Session D.iv Tools at national scale for improving water quality Chairs: Frank Coale (USA) & Berit Hasler (Denmark)	Session HI.ii Policies for improving water quality Chairs: Wibke Christel (Denmark) & Bob Middleton (United Kingdom)	FAIRWAY Workshop ii Chairs: Gerard Velthof (Netherlands)

13:45-14:00 <i>A.L. Højberg, I. Karlsson, J. Koch, J.C. Refsgaard, A.L. Hansen, P. Engesgaard, C. Kjærgaard, R.J. Petersen:</i> Improvements in catchment scale modelling for assessing nitrate reduction (Abstract #059)	13:45-14:00 <i>B. Hankin, J. Strömqvist, C. Pers, S. Bielby, B. Romero-Revilla, C. Burgess, L. Pope:</i> A new national rainfall-runoff and water quality model for England (Abstract #248)	13:45-14:00 <i>F. Vernier, A. Miralles, J.-P. Tonneau:</i> A decision-making information system to support the governance of territories with water issues (Abstract #261)	13:45-13:50 Introduction
14:00-14:15 <i>R. Singh, D.J. Horne, A. Elwan, A. Rivas, S. Collins, J. Roygard:</i> The landscape nitrogen attenuation index: A framework for effective land use practices and water quality outcomes (Abstract #111)	14:00-14:15 <i>C. Buckley, E. Dillon, B. Moran, J. Lennon, D. Wall:</i> The disconnect between nutrient demand and supply at farms scale: The potential of better nutrient management to achieve better outcomes (Abstract #230)	14:00-14:15 <i>B. Kronvang, R. Ejrnæs, P.H. Johansen, J.S. Schou, J.V. Olsen, S. Præstholt:</i> A novel indicator-based approach to assess and plan for multifunctional land consolidation (Abstract #094)	13:50-14:05 <i>F. Sudnes, C. van den Brink, A. de Vries:</i> The role of Multi-Actor Platforms in addressing challenges to protect drinking water supplies (Abstract #135)
14:15-14:30 <i>G. McCloskey, C. Dougall:</i> Confronting the extremes, droughts and cyclonic rains: Modelling fine sediment export across the Great Barrier Reef catchments, Australia (Abstract #112)	14:15-14:30 <i>F. Djodjic, P. Geranmayeh, H. Markensten:</i> Optimizing placement of countermeasures at landscape scale as low-hanging fruits to reduce phosphorus losses (Abstract #136)	14:15-14:30 <i>F. Gertz:</i> Catchment officers – a new water management approach in Denmark (Abstract #237)	14:05-14:20 <i>M. Glavan, M. Pintar, G. Velthof, P. Schipper:</i> Evaluation of barriers and issues in providing integrated scientific support for EU policy (Abstract #030)
14:30-14:45 <i>G. McCloskey, C. Dougall:</i> Confronting the extremes, droughts and cyclonic rains: Modelling dissolved inorganic nitrogen export across the Great Barrier Reef catchments, Australia (Abstract #113)	14:30-14:45 <i>I.A. Thomas, M. Bruen, E. Mockler, G. McGrath, P.-E. Mellander, E. Kelly, A. Del Prado, S. Reaney, P.N.C. Murphy:</i> Improving national mapping of critical source areas of phosphorus and nitrogen losses in Irish agricultural catchments to support policy (Abstract #172)	14:30-14:45 <i>V. Verguts, M. Van Oeckel:</i> Scientific research to support agricultural nutrient management policy in Flanders (Abstract #188)	14:20-14:45 Discussion A discussion and ranking of the main barriers, bottlenecks, and challenges for creating safe drinking water resources

14:45-15:00 <i>M.J. Friedel</i> , S. Wilson, M. Close, M. Buscema, P. Abraham, L. Banasiak: A novel data-driven workflow for 3D predictions of groundwater redox status in agriculturally- dominated regions of New Zealand (Abstract #114)	14:45-15:00 <i>B. Hansen</i> , L. Thorling, H. Kim, G. Blicher- Mathiesen: Hydro-geochemical controls on nitrate response in shallow groundwater to agricultural N regulation in Denmark (Abstract #069)	14:45-15:00 <i>C.H.G. Daatselaar</i> , G.J. Doornewaard, J.W. Reijs: Towards more land-based dairy farming in the Netherlands: Effects on nutrient surpluses and nitrate concentration (Abstract #254)	14:45-15:10 Discussion A discussion and ranking of the main measures, tools, and incentives for creating safe drinking water resources
15:00-15:15 <void slot, to be used by session chairs>	15:00-15:15 <void slot, to be used by session chairs>	15:00-15:15 <void slot, to be used by session chairs>	15:10-15:15 Conclusions and next steps
15:15-16:00 Coffee break, including 15 minutes' walk to Mathematics building			
<i>PLENARY Lecture Hall: Mathematics Building Auditoria E</i>			
Session D.v: Assessment of national or regional policy: effectiveness of programmes of measures on water quality on a regional and national scale Chairs: Phil Jordan (United Kingdom) & Claudia Heidecke (Germany)			
16:00 – 16:20 <i>F.J. Coale</i> : Three decades of effort to attain nutrient loading reduction goals in Chesapeake Bay, USA (Abstract #071)			
16:20 – 16:40 <i>P. Rosendorf</i> , D. Fiala, T. Beránková: Regional, seasonal and inter-annual patterns of phosphorus and nitrogen runoff from agricultural watersheds in the Czech Republic after period of fertilization change (Abstract #208)			
16:40 – 17:00 <i>G. Blicher-Mathiesen</i> , H. Tornbjerg, H.E. Andersen, H. Thodsen, B. Kronvang: A new targeted regulation of agriculture in Denmark (Abstract #275)			
<i>Lecture Hall: Lakeside building (15 minutes' walk)</i>			
17:15 – 18:45 Poster session : All Themes (with refreshments during the session)			
Poster authors should attend their posters, for technical discussions with interested attendees			
End of presentations of Tuesday, 4 June 2019			

Wednesday, 5 June 2019

07:30-17:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk			
<i>PLENARY Lecture Hall: Mathematics Building Auditoria E</i>			
Session HI.iii : 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) Chairs: Ken Taylor (New Zealand) & Berit Hasler (Denmark)			
08:30-09:00 <i>W. Christel, J. Ibsen-Jensen, M. Ejrnæs:</i> "Targeting regulation": The challenge of addressing varying nutrient reduction need in aquatic bodies, while maintaining equal regulatory constraints for farmers (Abstract #271)			
09:00 – 09:20 <i>M. Stenberg, S. Olofsson:</i> A voluntary initiative for long-term changes in farmer attitude and behaviour (Abstract #175)			
09:20 – 09:40 <i>T. Harter:</i> Nitrate contamination of groundwater from agriculture and other land uses in California's Central Valley: An evolving regulatory landscape (Abstract #109)			
09:40 – 10:00 <i>F. Wendland, S. Bergmann, E. Brandes, M. Eisele, J. Elbers, H. Gömann, P. Kreins, R. Kunkel, T. Pfungsten:</i> Agricultural nitrogen reduction requirement to reach groundwater and surface water quality targets in North Rhine-Westphalia (NRW), Germany (Abstract #018)			
10:00-10:45 Coffee break, including 15 minutes' walk to Lakeside building			
<i>Lecture Hall: Eduard Biermann Auditoriet</i>	<i>Lecture Hall: Jeppe Vontilius Auditoriet</i>	<i>Lecture Hall: Merete Barker Auditoriet</i>	<i>Lecture Hall: William Scharff Auditoriet</i>
Session A.iv Data analysis for improving understanding & Importance of transport pathways Chairs: Carl Bolster (USA) & Gunnar Lischeid (Germany)	Session B.iii Set up of monitoring networks Chairs: Jenny Deakin (Ireland) & Joachim Rozemeijer (Netherlands)	Session HI.iv Farmers involvement in water quality improvement Chairs: Stina Olofsson (Sweden) & Natalie Phillips (United Kingdom)	Special Session 1.i Land and water management for a sustainable bioeconomy Chairs: Eva Skarbøvik (Norway), Jan Vermaat (Norway), Brian Kronvang (Denmark)

10:45-11:00 T. Lacout-Bonnamy, I. Pohle, M. Trolborg: Spatio-temporal variability of water quality determinants in Scottish catchments (Abstract #097)	10:45-11:00 D. Bönsch, A. Ahring, A. Brunsch, C. Gattke: Emissions from drained agricultural field: Detecting subsurface drainages by remote sensing (Abstract #068)	10:45-11:00 J. Petersen: Groundwater protection in Denmark: Getting to yes using BIG data (Abstract #243)	10:45-11:00 Introduction
11:00-11:15 I. Hernández-García, M. López-Vicente, M. Goñi, D. Merchán, M.A. Campo-Bescós, R. Giménez, J. Casali, J. Del Valle Lersundi: Assessing current flow connectivity indexes to understand differences in sediment and nutrient dynamics in two Mediterranean watersheds in Navarre (Spain) (Abstract #131)	11:00-11:15 D. Fraters, M. van Vliet, H.P. Broers, A. Kan: Monitoring spring water quality to assess the changing impact of agricultural on the water environment: Case study from the loess region of the Netherlands (Abstract #142)	11:00-11:15 C. van den Brink, W. Rauws, M. Japenga: Constraining and enabling factors in implementing agricultural innovations in groundwater protection areas in Overijssel, the Netherlands (Abstract #063)	11:00-11:15 D. Collentine, K. Kyllmar, J. Rakovic, A.L. Solheim, G. Blicher-Mathiesen, A. Tolvanen: BIOWATER systems attribute survey: Impacts of the bioeconomy on land use and land management in the Nordic countries in the year 2050 (Abstract #095) J. Rakovic, D. Collentine, M.N. Futter: The Nordic Bioeconomy Pathways and water quality futures in agricultural landscapes (Abstract #158)
11:15-11:30 M.St.J. Warne, R. D.R. Turner, R.A. Smith, C. Neelamraju, R. Mann: Land-use as a predictor of pesticide concentrations, mixture complexity and mixture toxicity (Abstract #147)	11:15-11:30 J. Bikše, I. Retike: New data on nitrate distribution in shallow groundwater for optimization needs of national nitrates groundwater monitoring in Latvia (Abstract #231)	11:15-11:30 I. Maxwell, N.C. Delzescaux: The power of collaboration and partnerships, moving from problems to solutions through community engagement and landowner participation: The success story of Whangawehi Stream, New Zealand (Abstract #221)	11:15-11:30 K. Kyllmar, H.E. Andersen, G. Blicher-Mathiesen, M. Bechmann, K. Rankinen: Source apportionment of N and P in small agricultural monitoring catchments as a basis for improved classification of river basins (Abstract #153)

11:30-11:45 <i>G. Ezzati</i> , O. Fenton, M.G. Healy, S. Thornton, L. Christianson, G. Feyereisen, K. Daly: Investigating the ditch system in retaining and mobilizing nutrients in an intensive dairy farm (Abstract #041)	11:30-11:45 <i>A.S. Burger</i> , J. Velstra, F. Hoogland, M.J. Waterloo: Benefits of a participatory approach to monitoring surface water quality (Abstract #224)	11:30-11:45 <i>L. Tent</i> : Participation of public groups in brook restoration, a vital tool to improve lively habitats: Urban and rural examples of the metropolitan region of Hamburg, Germany (Abstract #007)	11:30-11:45 <i>J.E. Vermaat</i> , B. Immerzeel, E. Pouta, A. Juutinen: Applying ecosystem services as a framework to analyze the possible effects of a green bio- economy shift on Nordic catchments (Abstract #031)
11:45-12:00 <i>M.S. Srinivasan</i> , R. Muirhead, S.K. Singh, R. Stenger, R. Monaghan, L. Basher, M. Close, A. Manderson, D. Selbie, C. Tanner, D. Houlbrooke: A biophysical framework to describe the linkages between land use and water quality impacts (Abstract #043)	11:45-12:00 <i>S. Guillemot</i> , F. Moatar, O. Fovet, C. Gascuel- Odoux, G. Gruau: Controls on the spatial and seasonal variations of nutrient concentrations (C, N, P) of headwater catchments at regional level (Abstract #268)	11:45-12:00 <i>M.A. McCormack</i> , C. Buckley: A Technology Acceptance Model of factors influencing farmer adoption of nutrient management practices (Abstract #009)	11:45-12:00 <i>E. Skarbøvik</i> , B. Kronvang, K. Kyllmar, K. Rankinen: Setting reference conditions for nutrients in Nordic surface waters: Methodologies, levels, uncertainty and management implications (Abstract #053)
12:00-12:15 <i>M. Fresne</i> , P.E. Mellander, K. Daly, O. Fenton, G. Gruau, P. Jordan: Mobilisation, pathway and delivery experiments to understand the role of colloidal P transfer to groundwater (Abstract #083)	12:00-12:15 <void slot, to be used by session chairs>	12:00-12:15 <void slot, to be used by session chairs>	12:00-12:15 Discussion
12:15 – 13:45 Lunch (no walk)			

<i>Lecture Hall: Eduard Biermann Auditoriet</i>	<i>Lecture Hall: Jeppe Vontilius Auditoriet</i>	<i>Lecture Hall: Merete Barker Auditoriet</i>	<i>Lecture Hall: William Scharff Auditoriet</i>
Session A.v Organic and inorganic substances in the environment & transfer processes Chairs: Piet Groenendijk (Netherlands) & Phil Jordan (United Kingdom)	Session F.ii Technical & chemical measures to reduces losses Chairs: Dominik Zak (Denmark) & Roland Stenger (New Zealand)	NO SESSION	Special Session 1.ii Land and water management for a sustainable bioeconomy Chairs: Eva Skarbøvik (Norway), Jan Vermaat (Norway), Brian Kronvang (Denmark)
13:45-14:00 D. Mooney, M. Danaher, K. Richards, L. Gill, P.-E. Mellander, C. Coxon: Agro-chemicals in Irish groundwaters: Investigating the occurrence of veterinary drugs and their transformation products (Abstract #133)	13:45-14:00 B. Levine, L. Burkitt, D. Horne, C. Tanner, L. Condron, J. Paterson: Quantifying the ability of Detainment Bunds to attenuate sediments and nutrients in surface runoff from grazed pasture in the later Rotorua catchment (Abstract #085)	13:45-14:00	13:45-14:00 M. Stutter, I. Pohle, J. Rakovic: Typing catchments for risk and resilience factors in P pollution and waterbody impacts: Supporting landscape planning (Abstract #183)
14:00-14:15 R. Holten, F.N. Bøe, M. Almvik, S. Katuwal, M. Stenrød, M. Larsbo, N. Jarvis, O.M. Eklo: The effect of freezing and thawing on water flow and MCPA leaching in partially frozen soil (Abstract #210)	14:00-14:15 G.W. Feyereisen, E. Ghane, M. Dittrich: Denitrification bioreactors as a structural water quality measure at catchment scale: Performance and lessons learned (Abstract #086)	14:00-14:15	14:00-14:15 Ø. Kaste, H.A. de Wit, H. Wenng, E. Skarbøvik: Counteracting effects of climate and land-use change on riverine element run-off? A combined analysis of Norwegian natural and agricultural headwater catchments and large rivers' monitoring data (Abstract #119)
14:15-14:30 M. Gassmann, S. Falk, H. Brunn, T. Stahl: PFAS – a new class of emerging agrochemicals? (Abstract #229)	14:15-14:30 L. Burbery, R. Mellor, P. Abraham, M. Finnemore, L. Weaver, M. Close: Denitrification wall trial in a gravel aquifer (Abstract #121)	14:15-14:30	14:15-14:30 M. Stenrød, F.N. Bøe, O.M. Eklo: Glyphosate and the sustainability of cropping practices in northern climate (Abstract #247)

14:30-14:45 J. Rakovic, M.N. Futter, K. Kyllmar, M. Bieroza, I. Pohle, S. Sandström, M. Stutter: Unravelling the relative importance of different phosphorus forms for transfer processes at the agricultural catchment scale (Abstract #252)	14:30-14:45 A. Pacholski, M. Goebel, A. Meyer, T. Mannheim: The role of nitrification inhibitors to control reactive N transport from the root zone (Abstract #171)	14:30-14:45	14:30-14:45 R. Dynes, A. Renwick, P. Johnstone, W. King, L. Holt: Development of next generation farming systems using a multi-criteria decision making framework (Abstract #203)
14:45-15:00 F. Mourot: Farm nutrient losses to groundwater in the West Matukituki Valley, Lake Wanaka catchment (Otago region, New Zealand) (Abstract #287)	14:45-15:00 S. Vandermoere, N.A. Ralaizafisoarivony, E. Van Ranst, S. De Neve: Reducing phosphorus (P) losses from drained agricultural fields with iron coated sand (- glauconite) filters (Abstract #215)	14:45-15:00	14:45-15:15 Discussion
15:00-15:15 <void slot, to be used by session chairs>	15:00-15:15	15:00-15:15	
15:15-16:00 Coffee break, including 15 minutes' walk to Mathematics building			
PLENARY Lecture Hall: Mathematics Building Auditoria E			
Session D.vi Assessment of national or regional policy: effectiveness of programmes of measures on water quality on a regional and national scale Chairs: Marco Acutis (Italy) & Frank Coale (USA)			
16:00 – 16:20 L. Thorling, S. Boutrup: Thirty years of national monitoring of groundwater and surface water in Denmark (Abstract #214)			
16:20 – 16:40 B. Middleton: Evidence-led: Improving catchment management through the use of evidence (Abstract #288)			
16:40 – 17:00 J. Deakin, E. Mockler, M. Archbold: From science to action – the Irish approach to improving water quality (Abstract #227)			
End of presentations of Wednesday, 5 June 2019			

Thursday, 6 June 2019

07:30-15:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk			
07:30-15:30 Posters to be removed			
<i>PLENARY Lecture Hall: Mathematics Building Auditoria E</i>			
Session G.ii & HI.v Managing protected areas for water supply and nature conservation & Decision-making on and implementation of Programmes of Measures Chairs: Thomas Harter (USA) & Wibke Christel (Denmark)			
08:30 – 09:00 <i>K. Taylor:</i> New Zealand's "Our Land and Water" National Science Challenge: Is it making a difference? (Abstract #132)			
09:00 – 09:20 <i>B. Hasler, K.H. Zemo, L.B. Hansen, M.T. Konrad, H.Ø. Nielsen, A.B. Pedersen, M. Czajkowski, K. Elofsson, T. Häggmark, O. Niskanen, K. Peterson:</i> Cost-effective implementation of agri-environmental schemes for nutrient abatement and climate mitigation: A case study in the Baltic Sea region (Abstract #176)			
09:20 – 09:40 <i>C. Gascuel-Odoux:</i> Science-policy interfaces on two cases: Drinking water and eutrophication, from the French experience (Abstract #279)			
09:40 – 10:00 <i>N. Phillips, M. Whiteman, A. Haslam, G. Farr:</i> Investigating atmospheric and terrestrial exceedances at GWDTEs and implications for regulation (Abstract #259)			
10:00-10:45 Coffee break, including 15 minutes' walk to Lakeside building			
<i>Lecture Hall:</i> <i>Eduard Biermann Auditoriet</i>	<i>Lecture Hall:</i> <i>Jeppe Vontilius Auditoriet</i>	<i>Lecture Hall:</i> <i>Merete Barker Auditoriet</i>	<i>Lecture Hall:</i> <i>William Scharff Auditoriet</i>
Session B.iv Challenges in monitoring of surface waters Chairs: Joachim Rozemeijer (Netherlands) & Piet Groenendijk (Netherlands)	Session E.i Management measures to improve water quality Chairs: Lærke Thorling (Denmark) & Dominik Zak (Denmark)	Session HI.vi Regulations as tool for water quality improvement Chairs: Ken Taylor (New Zealand) & Chantal Gascuel-Odoux (France)	NO session

10:45-11:00 <i>M. Bieroza</i> , A.L. Hethwaite, M. Bechmann, K. Kyllmar, P. Jordan: Integrating high- and low- frequency water quality monitoring at the catchment scale (Abstract #006)	10:45-11:00 <i>S. Navarrete</i> , P.D. Kemp, M.J Rodriguez, M.J. Hedley, D.J. Horne, J.A. Hanly: Decreased nitrate leaching when lactating cows graze plantain (<i>Plantago lanceolata</i>) pastures (Abstract #107)	10:45-11:00 M. Workman, <i>G. Willis</i> : Nitrogen limit-setting and allocation of discharge rights in New Zealand (Abstract #073)	
11:00-11:15 <i>R. Stott</i> , R. Davies- Colley, S. Heubeck, V. Montemezzani, J. Milne, C. Conwell: Automated high frequency and near-real time monitoring of microbial dynamics for assessing health risks from land use on surface waters in Aotearoa / New Zealand (Abstract #152)	11:00-11:15 <i>D. Merchán</i> , L. Sanz, A. Alfaro, I. Pérez, M. Goñi, F. Solsona, I. Hernández-García, C. Pérez, J. Casalí: Irrigation implementation promotes a new nitrate vulnerable zone in the Cidacos River Watershed (Navarre, Spain) (Abstract #047)	11:00-11:15 <i>J. De Nies</i> , B. Catteeuw: From a voluntary sustainable fertilisation programme towards a dual policy with mandatory guidance if needed (Abstract #265)	
11:15-11:30 <i>S.G.W. van't Veen</i> , A. Kjeldgaard, H. Tornbjerg, J. Windolf, G. Blicher-Mathiesen, B. Kronvang: Is it possible to use stream measurements to calculate nitrogen emissions from agricultural areas in Danish catchments? Investigating the possibility to create a nitrogen emission map for catchments (Abstract #096)	11:15-11:30 <i>B.N. Pedersen</i> , J. Eriksen, B.T. Christensen, P. Sørensen: Cover crop effect on nitrate leaching following application of solid animal manure and mineral fertilizer (Abstract #236)	11:15-11:30 R. van der Veeren, <i>T. te Winkel</i> , S. Reinhard: The potential role of natural capital and ecosystem services in stopping peat oxidation in the Dutch province of Flevoland (Abstract #066)	
11:30-11:45 <i>M.K. Kardos</i> , A. Clement: Spatio-temporal optimization of monitoring networks with respect to water body classification (Abstract #199)	11:30-11:45 <i>H. Prins</i> , M.W. Hoogeveen , C.H.G. Daatselaar, T.C. van Leeuwen: Farm management, nutrient results and water quality with focus on maize (Abstract #273)	11:30-11:45 <i>T. Vehanen</i> : Improving the status of river fish communities in changing climate: From in-stream habitat restoration to catchment management (Abstract #012)	

11:45-12:00 A. Müller, B. Karaoglan, C. Pickl, T. Frische, <i>K.L. Hitzfeld</i> , M. Liess, S. Knillmann, K. Foit, M. Möder, T. Reemtsma: Small, vulnerable and largely ignored in the past – UBA initiative for an event-driven monitoring of pesticide residues in small surface waters in German agricultural landscapes (Abstract #284)	11:45-12:00 <i>M. Curk</i> , M. Glavan, D. Kastelec, V. Usenik, Š. Železnikar, M. Pintar: Modelling potential for sustainable plant production: A case study of apple orchard in south-eastern Slovenia (Abstract #051)	11:45-12:00 <i>D.M.R. Jensen</i> , S. Egemose, A.T.H. Thomsen, T. Larsen: Variations in the Danish permit practice and the resulting differences in urban discharge of storm water to the recipients (Abstract #057)	
12:00-12:15 <void slot, to be used by session chairs>	12:00-12:15 <void slot, to be used by session chairs>	12:00-12:15 <void slot, to be used by session chairs>	
12:15 – 13:45 Lunch, including 15 minutes' walk to Mathematics building			
<i>PLENARY Lecture Hall: Mathematics Building Auditoria E</i>			
Session E.ii & F.iii Improving water quality by farm management practices and by establishing eco-technological mitigation measures Chairs: Patricia Chambers (Canada) & Frank Wendland (Germany)			
13:45 – 14:15 <i>M. Bechmann</i> , S. Kværnø, F. Bøe: Soil tillage effects on water quality in a cold climate (Abstract #052)			
14:15 – 14:35 <i>M. Schönhart</i> : Effectiveness of management measures to reduce nitrogen loads from agriculture in temperate regions under climate change (Abstract #194)			
14:35 – 14:55 P.A. Moore Jr., J.W. Martin, A.J. Ashworth, K.R. Anderson, D.M. Miller, <i>P.R. Owens</i> , D.H. Pote, C. Pilon, P.B. DeLaune: Long-term effects of grazing management and buffer strips on phosphorus runoff from pastures fertilized with poultry litter (Abstract #081)			
Closure			
15:00 – 15:30 Closure session: Dico Fraters (RIVM, the Netherlands)			
End of official conference programme			

Poster session (88 posters)

Tuesday, 4 June, 17:15-18:45, combined with refreshments

**Posters of Theme A (21), Theme B (10), Theme C (9) and Theme D (3),
Theme E (16) Theme F (8), Theme G (6), Theme HI (7) and
Special session 1 (8)**

Theme A Increasing our understanding of 'systems function': research to increase understanding and improving modelling of the hydro(geo)logical, geochemical and biochemical reality (21 posters)

S. Jiang:

Effects of stream nitrate data frequency on watershed model performance and prediction uncertainty (abstract #011)

M. Glendell, J. Palarea-Albaladejo, I. Pohle, S. Marrero, B. McCreadie, G. Cameron, M. Stutter:

Applying complementary modelling approaches to link phosphorus pollution and ecological impact – an example from Scotland (abstract #64)

Y.-F. Zhang, P. Thorburn, P. Fitch:

SSIM – A deep learning approach for recovering missing time series sensor data (abstract #072)

C.H. Bolster:

Evaluating the potential for calculating the degree of P saturation from ammonium lactate extractable Al, Fe, and P (abstract #087)

M. Holbak, E. Diamantopoulos:

Calibration and validation of the Daisy model for predicting pesticide leaching (abstract #90)

H. Kim, L. Thorling, R. Jakobsen, J. Aamand, T.S. Bording, A.V. Christiansen, A.-S. Høyer, B. Hansen:

Complex nitrate pathways in two Danish catchments: Importance for the future targeted N regulation of agriculture (abstract #098)

R. Singh, N. Jha, M. Gonzalez, A. McMillan:

Benign denitrification in shallow groundwaters (abstract #110)

R. Stenger, M.J. Friedel, S.R. Wilson, A. Rivas, J.C. Clague, R. Fuller, T. Wöhling, B. Miller, G.F. Barkle, P. Journeaux, A. Eger, R.W. McDowell, U. Morgenstern, I. Kusabs, S.J.R. Woodward:

Critical Pathways: Unravelling sub-catchment scale nitrogen delivery to waterways (abstract #126)

A. Mehrtens, P. Luedeke, V. Burke, T. Licha:

Tracking veterinary pharmaceuticals: Combined field and laboratory experiments on the fate of veterinary pharmaceuticals in the environment (abstract #138)

T.J. Brussée, A. van der Wal, D. Walvoort:

Relationship between organic matter in sandy soil layers and nitrate concentrations in groundwater (abstract #148)

Z.P. Simpson, R.W. McDowell, L.M. Condron:
Meta-analysis of stream sediment phosphorus buffering at baseflow (abstract #156)

X. Yang, S. Jomaa, M. Rode:
In-stream autotrophic nitrate uptake modelling at river network scale based on continuous high frequency data (abstract #166)

A. Bartosova, A. Delavenne, J. Musuuza, J. Strömqvist, B. Arheimer:
Exploring global sediment sources, processes, and impacts with a global dynamic model (abstract #170)

R. Dupas, O. Fovet, C. Gascuel-Oudou, S. Ehrhardt, A. Musolff:
Data-driven quantification of nitrate retention and transit time distribution in agricultural catchments (abstract #173)

P.R. Owens, Y.-Y. Jiang, Z.-X. Sun, Q.-B. Wang, J.J. Read, A. Ashworth:
Long-term spatial distribution of P and other elements following poultry litter applications (abstract #190)

V. Burke, W.J.T. Lühring, R. Wahlen:
On the fate of veterinary pharmaceuticals in the unsaturated zone – a lysimeter study (abstract #191)

J.J. Read, A. Adeli, J.P. Brooks:
Rainfall simulation study to assess nitrogen and phosphorus loads in runoff and leachate from Marietta soil amended with poultry litter and cattle manure (abstract #204)

H. Thodsen, H.E. Andersen:
Phosphorous content in Danish riverbanks (abstract #205)

J. Rolighed, G.J. Heckrath, G.H. Rubæk, E.M.P.M. van Boekel, P. Groenendijk, O.F. Schoumans, H.E. Andersen:
Parameters for a simple Langmuir-based Phosphorus Leaching model (abstract #241)

E.E. Lannergård, B.J. Huser, O. Agstam-Norlin, M.N. Futter:
Internal loading from stream bed sediment: Insignificant or a missing link? (abstract #302)

A. Ahring, E. Christoffels, B. Dieckrüger:
Assessing diffuse N inputs into surface waters using a SWAT inverse modelling approach (abstract #305)

Theme B Water quality monitoring: improving monitoring, data management and combined monitoring-modelling to support the evaluation of programmes of measures (10 posters)

B. Stever-Schoo, O. Stock, M. Kücke, J.-M. Greef, M. Dieser:
Indicators for the early detection of nitrate loads in soil under crop production: A demonstration project (abstract #029)

A. Manley, A.L. Collins, J. Evans, S. Vero, P.-E. Mellander, P. Jordan:
A laboratory scale sterol degradation study for slurry biomarkers and nutrient associations (abstract #032)

H. Holm, G. Blicher-Mathiesen, H.E. Andersen:

Combining information from aerial photography with root zone and drainage water to document how areas with limited growth led to higher nitrogen loss (abstract #122)

H. Marttila, A. Lepistö, M. Bechmann, A. Tolvanen, K. Kyllmar, K. Rankinen, S. Hellsten, P. Kortelainen, H. Wenng, J. Rakovic, M.N. Futter, B. Klöve, H. de Wit:

Nordic bioeconomy and surface water quality, how do they interact? (abstract #129)

R.D.R. Turner, R. Wallace, C. Neelamraju, B. Ferguson, R. Huggins, D. Orr, S. Preston, S. Simpson, J. Strauss, L. Anderson, C. Roberts, K. Welk, S. Fisher, S. Rodriguez-Robles, R. Mann:

Monitoring real-time sediment and nitrate in catchments for the protection of the Great Barrier Reef (abstract #150)

J. Urbanc, A. Jamšek, M. Glavan, M. Pintar:

Estimation of nitrate leaching from agricultural fields by means of mini lysimeters (abstract #197)

N.Q. Vu, J. Dietrich, G. Houben:

Application of calibrated reagent-free spectrophotometry in determining nitrate in river water (abstract #198)

L. Thorling, B. Hansen, A.R. Johnsen:

Representative monitoring of the impact of land use on groundwater quality (abstract #223)

I. Retike, J. Bikše:

Assessment of seasonal changes in spring water chemistry for national groundwater monitoring optimisation in Latvia (abstract #250)

T.C. van Leeuwen, M.W. Hoogeveen, C.H.G. Daatselaar:

Improving representativeness of national and regional outcomes on nitrogen surpluses and water quality by weighing of farm results (abstract #255)

Theme C Impact of climate change on land use and water quality: assessment of impact on groundwater and surface water quality (9 posters)

A. Botero-Acosta, M.L. Chu, J.H. Knouft:

Contemporary and future effects of environmental stressors on non-point source pollution in an intensively managed watershed (abstract #028)

E. Molina-Navarro, H.E. Andersen:

Modelling the impact of climate and land use changes in the ecological status of the Odense Fjord basin's streams using Bayesian Belief Networks (abstract #079)

B. Mehdi, M. Schönhart, M. Zessner, E. Schmid, K. Schulz:

Sustainable nitrogen management under climate change in Austria (abstract #127)

M.J. Friedel, M. Buscema:

Identifying climate- and land-use change signals in a freshwater ecosystem, Upper Illinois River Basin, USA (abstract #134)

M. Riley:

Love that dirty water? Investigating the effects of climate change on water quality in the Charles River Watershed (abstract #151)

K. Rankinen, J E. Cano Bernal, P. Kortelainen:

Effects of climate and land use change on water quality in Finnish rivers (abstract #164)

E. Jost, M. Schönhart, J. Balkovič, R. Skalsky, E. Schmid:

Soil functions assessments as a means for sustainable water and land use management planning: A regional scale exploration of their sensitivity toward processes of global change (abstract #165)

J. Rozemeijer, R. Noordhuis, A. Blauw, M.D. Pires:

Climate variability effects on chemical and ecological quality of groundwater, lakes, rivers, and coastal waters in the Netherlands (abstract #196)

S. Li, Y. Kupriyanovich, Z. Xing:

Hydrology and water quality observed at the outlet of a small agricultural watershed in Atlantic Canada: Effects of climate and land use (abstract #207)

Theme D Assessment of national or regional policy: effectiveness of programmes of measures on water quality on a regional and national scale (3 posters)

E. Streng, G. Hepp, M. Zessner:

PhosFate: A model for cost-effective management of phosphorous emissions in watersheds by the localisation of emission hotspots (abstract #077)

C.M. Kouba, T. Harter:

Total salt loads and specific thresholds: Can two California regulatory schemes work together? (abstract #108)

T.J. de Koeijer, P.W. Blokland, C.H.G. Daatselaar, M.W. Hoogeveen:

The economic and environmental effects of derogation on dairy farms in the Netherlands (abstract #270)

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 (16 posters)

H. Wey, D. Hunkeler, E.K. Buenemann:

Monitored risk management for nitrate leaching from arable fields above a groundwater aquifer (abstract #040)

E. Valkama, G. Kunyiyayeva, R. Zhapayev, M. Karabayev, E. Zhusupbekov, M. Acutis:

Controlling of nitrogen leaching through conservation agriculture in Kazakhstan (abstract #045)

J.D. Jabro, W.M. Iversen, W.B. Stevens, U.M. Sainju, B.L. Allen:

Tillage effects on nitrate leaching through unsaturated zone under irrigated corn-soybean production (abstract #049)

- B. Goeller, F. Matheson, C. Tanner:
Siting, scaling, and selecting edge-of-field tools to attenuate contaminants across agricultural landscapes (abstract #050)
- H. Li, Y. Diao, G. Yang:
Agricultural nitrogen emissions in response to historical shifts (1980s-2010s) of fertilizer application in the Taihu Lake Basin, China (abstract #060)
- H. Frick, A. Oberson, E. Frossard, H.-R. Wettstein, E.K. Bünemann:
Tracing the fate of ¹⁵N-labelled animal manure in the environment (abstract #076)
- K. Liang, Y. Jiang, J. Nyiraneza, K. Fuller, F.-R. Meng:
Mitigation of nitrogen leaching from potato-based rotations in Atlantic Canada: New insights from a nitrogen budget and dynamic analysis (abstract #084)
- I. Vogeler, R. Cichota, I.K. Thomsen, E.M. Hansen:
Catch crops for increasing nitrogen use efficiency in cropping systems (abstract #088)
- D.M. Wheeler, V. Cave:
Uncertainty in a farm-scale model for estimating N leaching (abstract #099)
- J. Vuaille, M. Holbak, P. Abrahamsen, C.T. Petersen:
Effect of pesticide application timing on pesticide leaching to drains: predicting the optimum application date (abstract #159)
- A.J. Ashworth, P.A. Moore Jr., J.W. Martin, D.H. Pote, P.R. Owens, K.R. Anderson:
Developing best management strategies for reducing soluble phosphorus losses from poultry litter in grazing systems (abstract #192)
- N. Balashova, K.M. Hiscock, B.J. Reid:
How effective are catchment-based approaches in reducing metaldehyde loss to water supply at a catchment scale (abstract #234)
- M. Young, W. de Vries, G. Ros:
Development of a decision support framework to evaluate the impacts of agricultural management on crop, soil, and environmental quality (abstract #278)
- C. Paneru, C.P. Haslauer, O.A. Cirpka:
Effects of agricultural land use on nitrate concentrations at catchment scale (abstract #291)
- A. Bauwe, B. Lennartz:
Land management governs nitrate losses: A modelling study (abstract #296)
- D. Houlbrooke, B. Carlson, A. Judge, G. Lucci, M. Sprosen, J. Wyatt:
Contaminant losses from contrasting peat soil types and farm dairy effluent regimes (abstract #299)

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 (8 posters)

L.E. Christianson, G. Ezzati, K.M. Koopmans, K.J. Dhaese:
Nitrate removal rate in a 'in-ditch'-woodchip bioreactor in Flanders (Belgium)
(abstract #033)

L. Burberry, P. Abraham, T. Sarris:
In-stream woodchip denitrifying bioreactor trial, New Zealand (abstract #128)

P. Jordan, C. Johnston, G. Gaffney, C. McLaughlin:
Short rotation coppice willow for waste-water effluent irrigation – experience and considerations for future assessment (abstract #139)

M. Stutter, M. Wilkinson, N. Baggaley, D. Ó hUallacháin, P.-E. Mellander, T. Nisbet, J. Letts:
Effective targeting of novel riparian buffer designs (abstract #178)

A.J.A. Vinten, I. Pohle, L. Kuhfuss, J. Stockan, A. Ibiyemi:
Development of a hydraulic model for water management in the Lunan Water, Scotland
(Abstract #212)

J. Jakubínský, P. Cudlín:
Importance of riparian habitats lining small streams to improve the soil water retention capacity of agricultural landscape (abstract #233)

C. Kjaergaard:
Differentiated landscape based strategies for optimized implementation of drainage filter technologies targeting agricultural nutrient losses (abstract #264)

G. Tavernier, E. Vandewoestijne, S. Buysens:
Preventing point source pollution by installing a public filling place (abstract #304)

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 (6 posters)

J. Fletcher:
Implementing irrigation best management practices for water resource protection in central Florida (abstract #010)

E. Momol, J. Fletcher, B. Unruh, C.J. Bain, J. Bossart, S. Yang, L. Trenholm, S. Haddock, L. Barber:
Florida Fertilizer Ordinance mobile web app matches work locations to applicable regulations (abstract #042)

V. Zupanc, R. Bakkour, J. Adu-Gyamfi, P. Vreča, M. Pintar, J. Halder, M. Curk:
Water quality in vulnerable and shallow aquifers under intensive vegetable production zone (abstract #080)

P. Jordan, R. Cassidy, P. Morton, K. Atcheson, S. Floyd, C. McRoberts, D. Doody
A catchment scale monitoring solution for MCPA: Time and space considerations
(abstract #140)

P.S. Jakobsen, S. Krogh:
Groundwater protection in Denmark; Target regulation as a supplement to general
protection regulation (abstract #143)

J. Dickey, G. Paul, T. Hartz, Y. Yimam, T. Harter:
Quantifying nitrate leaching from Central Valley irrigated lands with the Soil & Water
Assessment Tool (SWAT) (abstract #200)

Themes HI 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) (7 posters)

C. Cameron:
Delivering policies for cumulative impact management and net benefits to manage land
based runoff and improve the resilience of the Great Barrier Reef (abstract #014)

C.-A. Chivers:
Utilising hard evidence tools to improve farm advice relating to water quality
(abstract #021)

T. Clem, E. Momol, J. Fletcher, L. Trenholm, T. Wichman, C.J. Bain, J. Bossart:
Florida's Green Industries Best Management Practices training promotes sustainable
urban landscapes (abstract #046)

S.A. Carnohan, J.K. Clifford-Holmes, U.S. McKnight, S. Pollard:
Integrating stakeholder narratives and simulation modelling to support water resource
management in data-scarce environments (abstract #181)

V. Verguts, K. Desimpelaere:
Action programme in execution of Nitrates Directive (MAP6) in Flanders: Towards an
intensified tailor-made area specific approach (abstract #251)

K. Kyllmar, I. Wesström:
Implementation of water retention measures in catchments - a multi-functional and
multi-actor approach (abstract #269)

C. Carter, J.-M. Lescot, K. Petit, O. Phelpin-Leccia, O. Piller, S. Sabatie, J.-P. Terreaux,
F. Vernier:
Tackling water issues in the Charente River basin through greater cohesion between
coastal and inland activities: the COASTAL Project (abstract #286)

Session S1: Special session on Land and water management for a sustainable bioeconomy (8 posters)

H. Wenng, M. Bechmann:

Effects of land use on nutrient losses from small agricultural catchments in Norway (abstract #008)

B. Kronvang, S.E. Larsen, H. Tornbjerg, K. Kyllmar, B. Klöve, M. Bechmann, K. Rankinen, A. Lepistö, H. de Wit:

A conceptual mini-catchment typology for analyzing eutrophication risks in surface waters in the Nordic countries (abstract #093)

M.V. Carstensen, C.C. Hoffmann, D. Zak, J. Audet, B. Klöve, H. Marttila, K. Kyllmar, J. Vermaat, B. Immerzeel, B. Kronvang:

Efficiency of measures reducing nutrient losses from agricultural drainage (abstract #146)

A.-G.B. Blankenberg, E. Skarbøvik:

Bufferzones along streams: Good for environment but bad for food production? (abstract #155)

G.M. Hansen, T.B. Clem:

Comparing various irrigation, plant, and turfgrass combinations to improve water conservation and quality in Florida's urban landscapes (abstract #184)

W. King, R. Dynes, A. Renwick, P. Johnstone, L. Holt, D. Houlbrooke:

Next generation farming systems: Transformation by design (abstract #201)

M.N. Futter, J. Rakovic, S. Sandström, K. Kyllmar:

Phosphorus mass balances in Swedish agricultural catchments (abstract #219)

F. Hashemi, B. Kronvang:

Analysis of land use change for nitrate reduction to obtain multiple benefits for water quality and nature in a Danish catchment (abstract #306)