

# Program



## 5<sup>th</sup> Conference on Modelling Hydrology, Climate and Land Surface Processes

17.-19. September 2019

Lillehammer, Norway



## Tuesday 17. September

10:30- Registration

11:30-12:45 Lunch

13:00-13:15 Opening of the 5<sup>th</sup> conference on modelling Hydrology, Climate and Land Surface Processes  
 Ole Einar Tveito  
 chair of the organizing committee  
 Hege Hisdal  
 chair of the Norwegian Hydrological Council

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### **Session 1: Water Cycle extremes**

*Chair: Hege Hisdal*

13:15-14:00 **Key note: Hydro-climatic extremes in a changing environment**  
 Lena M. Tallaksen  
 Department of Geosciences, University of Oslo, Oslo, Norway

14:00-14:20 The Water Cycle Extremes in Cold Climate: A case study of Latvia  
 Inga Grinfelde, Anda Bakute  
 Latvia university of life sciences and technology

14:20-14:40 Constructing and simulating a rain-on-snow climatology for Norway  
 Pardeep Pall, Jean laquinta, Lena Tallaksen, Frode Stordal  
 University of Oslo, Department of Geosciences

14:40-15:00 Applying NWP-ensembles to identify different large scale setups for analyzing local extreme precipitation  
 Karianne Ødemark, Ole Einar Tveito, Malte Müller  
 MET Norway

15:00-15:30 *Coffee break*

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### **Session 1: Water Cycle extremes (cont.)**

*Chair: Nils-Otto Kitterød*

15:30-16:15 **Key note: TBA**  
 Etienne Leblois  
 Irstea, Lyon, France

16:15-16:35 Subsurface-state equals runoff ? – it depends  
 Thomas Skaugen, Søren Boje, Knut Møen, and Anne Ellekjær Stavang  
 1Hydrology Department, Norwegian Water resources and Energy Directorate; 2Norwegian University for Life Sciences

16:35-16:55 Analysis on the added value of accounting for slope/aspect and shading effects in hydrologic simulations  
 Olga Silantyeva<sup>1</sup>, Lena M. Tallaksen<sup>1</sup>, John F. Burkhart<sup>1,3</sup>, Ola Skavhaug<sup>2</sup>, Sigbjørn Helset<sup>3</sup>  
 1 University of Oslo, 2 Expert Analytics AS, 3 Statkraft AS

16:55-17:15 seNorge\_2018 observational gridded datasets over Norway  
 Cristian Lussana, Ole Einar Tveito, Ketil Tunheim  
 Norwegian Meteorological Institute, Oslo, Norway

## Tuesday 17.September (cont.)

17:15-17:45	Introduction to the poster session (short max. 2 min presentations of the posters)
17:45-19:00	Poster session with drinks
19:30-	Dinner

## Wednesday 18.September

<b>Session 1: Water Cycle extremes (cont.)</b>		<b>Chair: Oddbjørn Bruland</b>
09:00-09:20	Direct statistical downscaling of monthly discharge from atmospheric variables in catchments with differing contributions from snowmelt	Shaochun Huang 1, Deborah Lawrence 1, and Irene Brox Nilsen 1,2 1 Norwegian Water Resources and Energy Directorate (NVE), Oslo, Norway, 2 Norwegian Centre for Climate Services
09:20-09:40	Characteristics of winter warming events and the influence of such events on the ground surface temperature along alpine environmental gradients in southern Norway	Rune Strand Ødegård 1), Ketil Isaksen 2) and Cristian Lussana 2) 1)Norwegian University of Science and Technology and 2)Norwegian Meteorological Institute
<b>Session 2: From modelling to decisions</b>		<b>Chair: Oddbjørn Bruland</b>
09:40-10:25	<b>Key-note: Addressing the usability gap: critical challenges in transitioning from research to services and applications</b>	Stefan Sobolowski NORCE Norwegian Research Centre, Bjerknnes Centre for Climate Research
10:25-10:45	What could the consequences of extreme rainfall be in Oslo?	Julia Kvitsjøen, Tharan Fergus The Agency for Water and Wastewater Services, City of Oslo; Faculty of Science and Technology, Norwegian University of Life Sciences
10:45-11:15	Coffee break	
<b>Session 2: From modelling to decisions (cont.)</b>		<b>Chair: Asgeir Sorteberg</b>
11:15-11:35	Impact of different parameterizations of potential evapotranspiration on estimation of hydrological drought duration in a changing climate	Wai Kwok Wong <sup>1</sup> , Shaochun Huang <sup>1</sup> , Stephanie Eisner <sup>2</sup> , Stein Beldring <sup>1</sup> 1 The Norwegian Water Resources and Energy Directorate (NVE), P.O. Box 5091, Majorstua, 0301 Oslo, Norway 2 Norwegian Institute of Bioeconomy Research (NIBIO), P.O. Box 115, 1431 Ås, Norway
11:35-11:55	A statistical technique for designing the lowest navigable water level under changing environment	Lu Wang, Ping Xie, Chongyu Xu State Key Laboratory of Water Resources and Hydropower Engineering Science, Wuhan University, Wuhan, China; Department of Geosciences, University of Oslo, Oslo, Norway

## Wednesday 18. September (cont.)

11:55-12:15      Improving long-term hydropower inflow forecasts by assimilating snow data      Felix Matt (1), Jan Magnusson (1), Geir Nævdal (2), Adam Winstral (3), John F. Burkhart (4)  
1) Statkrat AS, 2) NORCE, 3) SLF, 4) University of Oslo

12:15-13:30      *Lunch*

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### **Session 2: From modelling to decisions (cont.)**

*Chair: Asgeir Sorteberg*

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13:30-14:15      **Key note: High impact environmental events, the role of Earth System modelling**      Øystein Hov  
The Norwegian Academy of Science and Letters/Norwegian Meteorological Institute

14:15-14:35      Integrated assessment of the impacts of, and interactions between climate, land use and the hydrological cycle      Stein Beldring<sup>1</sup>, Stephanie Eisner<sup>2</sup>, Shaochun Huang<sup>1</sup>, Jan Magnusson<sup>1</sup>, Rasmus Astrup<sup>2</sup>, Wai Kwok Wong<sup>1</sup>  
1. Norwegian Water Resources and Energy Directorate, P.O. Box 5091, Majorstua, 0301 Oslo, Norway. 2. Norwegian Institute of Bioeconomy Research, P.O. Box 115, 1431 Ås, Norway

14:35-14:55      Impacts of weighting global climate models on quantifying hydrological responses to climate change      Hui-Min Wang, Jie Chen, Chong-Yu Xu, Hua Chen, Xiangquan Li  
State Key Laboratory of Water Resources and Hydropower Engineering Science, Wuhan University, Wuhan, China; Department of Geosciences, University of Oslo, Oslo, Norway

14:55-15:15      Lake temperature and global warming      Sverre Anmarkrud<sup>1</sup>, Alemayehu Adugna Arara<sup>2</sup>, Anne Kværnø<sup>3</sup>, and Nils-Otto Kitterød<sup>1</sup>  
1) Norwegian University for Life Sciences, 2) Hawassa University, Ethiopia, 3) Norwegian University of Science and Technology

15:15-15:45      *Coffee break*

15:45-18:00      *Excursion/guided tour along river Mesna*

19:30      **Conference dinner**

## Thursday 19. September

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**Session 3: Learning from environmental data: from field observations to machine learning (cont.)**

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*Chair: Jan Magnusson*

09:00-09:45	<b>Key-note: Exploring Landscapes and Ecosystems by Studying their Streams</b>	James Kirchner ETH, Zürich, Switzerland
09:45-10:05	The rain check	Rasmus E. Benestad, Abdelkader Mezghani, Kajsa M. Parding, Helene B. Erlandsen The Norwegian Meteorological Institute
10:05-10:25	New short-range weather forecast products improved by citizen observations	Cristian Lussana, Thomas Nipen, Ivar Seierstad, and Christoffer Elo Norwegian Meteorology Institute
10:25-10:45	Novel framework for merging radar and gauge precipitation in cold climates	Kuganesan Sivasubramaniam, Knut Alfredsen, Ashish Sharma Norwegian University of Science and Technology (NTNU), Norway and University of New South Wales (UNSW), Australia
10:45-11:15	<i>Coffee break</i>	

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**Session 3: Learning from environmental data: from field observations to machine learning (cont.)**

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*Chair: Jan Magnusson*

11:15-11:35	High-frequency satellite radiation data as input to hydrological modelling	Sjur Kolberg Enki hydrologi
11:35-11:55	The isotopic state of the Norwegian snow pack during the Easter week 2019 - results from a citizen science experiment	Harald Sodemann (1) and Mika Lanzky (2) 1) Geophysical Institute, University of Bergen and Bjerknes Centre for Climate Research, (2) Department of Geosciences, University of Oslo
11:55-12:15	On the use of an explicit snow scheme in numerical weather prediction and operational snow mapping	Trygve Aspelien, Mariken Homleid, Tuomo Mikael Saloranta MET-Norway, NVE
12:15-13:30	<i>Lunch</i>	

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**Session 3: Learning from environmental data: from field observations to machine learning (cont.)**

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*Chair: Ole Einar Tveito*

13:30-13:50	Application of machine learning emulators in parameter identification for a distributed hydrological model	Aynom T. Teweldebrhan, John F. Burkhart, and Thomas V. Schuler Department of Geosciences, University of Oslo
13:50-14:10	Nowcasting precipitation by Random Forest	Yiwen Mao, Asgeir Sorteberg, Ivar Ambjørn Seierstad, Thomas Nils Nipen University of Bergen
14:15-14:45	Discussion, final remarks, closing the conference.	



**Train to Oslo/Oslo Airport 15:07**

**Train to Trondheim 16:11**

## Posters

Combining streamflow time series, historical information and paleodata in statistical flood frequency analysis – a case study from the Glomma river in Norway

Kolbjørn Engeland (1), Eivind Støren (2), Anna Aano (1)

(1) (NVE), Oslo, Norway, (2) Department of Earth Science and Bjerknes Centre for Climate Research, University of Bergen, Norway

An event based evaluation framework for hydrological ensemble forecasts

Elin Langsholt and Gusong Ruan

Moisture sources and isotope signatures of snow and water vapour at the Norwegian mountain station Finse (1222m)

Mika Lanzky (1), Alexandra Touzeau (2), Harald Sodemann (2), Simon Filhol (1), Sven Decker (1) and John Burkhart (1)

The Norwegian Water Resources and Energy Directorate

Estimating likely changes in peak flow magnitudes in small catchments under a future climate

D. Lawrence (1), Ó. Rognvaldsson (2), T. Skaugen (1), A. Sorteberg (2), W. K. Wong (1)

(1) Hydrology Department, Norwegian Water Resources and Energy Directorate (NVE), Oslo, Norway (2) Geophysical Institute, University of Bergen, Bergen, Norway

From large-scale atmospheric circulation to flooding in Norway: Using machine learning to infer non-stationarity

Jenny Sjøstad Hagen (1,2), Asgeir Sorteberg (1,2), Deborah Lawrence (3), Jostein Bakke (2,4), Dimitri Solomatine (5)

1. University of Bergen, Geophysical Institute, Bergen, Norway. 2. Bjerknes Centre for Climate Research, Bergen, Norway. 3. Norwegian Water Resources and Energy Directorate, Hydrology Department, Oslo, Norway. 4. University of Bergen, Department of Earth Science, Bergen, Norway

The 2018 Northern Europe Hydrological Drought and its Drivers in a Historical Perspective

Sigrid J. Bakke, Monica Ionita, Lena M. Tallaksen

University of Oslo

Hydrological Modelling of a Steep Norwegian Catchment using SHyFT

Nitesh Godara & Oddbjørn Bruland

Norwegian University of Science and Technology

Runoff modelling on arable land

Anne Ellekjær Stavang, Ståle Leif Haaland, Nils-Otto Kitterød, Thomas Skaugen

Norwegian University of Life Sciences, Environmental Sciences and Natural Resource, NVE

Assessment of the water and energy balance simulations of CTSM using satellite-based observations over Scandinavia

Yeliz A. Yilmaz, Lena M. Tallaksen, Frode Stordal

Department of Geosciences, University of Oslo, Oslo, Norway

The effects of wind on lake stratification – A stochastic approach

Sverre Anmarkrud<sup>1</sup>), Alemayehu Adugna Arara<sup>2</sup>), Anne Kværnø<sup>3</sup>), and Nils-Otto Kitterød<sup>1</sup>)

1) Norwegian University for Life Sciences, 2) Hawassa University, Ethiopia, 3) Norwegian University of Science and Technology