

International Commission on Surface Water (ICSW), IAHS Activities Report

June 2016

1. Commission Officers

- P, Hafzullah Aksoy, Turkey, haksoy@itu.edu.tr
- PE, Gil Mahe, France, gilmahe@hotmail.com
- VP, David Hannah, UK, d.m.hannah@bham.ac.uk
- VP, Thomas Skaugen, Norway, ths@nve.no
- VP, Ennio Ferrari, Italy, ennio.ferrari@unical.it
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2. Activities 2015 - 2016

2.1 Organizing Conference

- VIII. National Hydrology Congress, 8-10 October 2015, Sanliurfa, Turkey.

2.2 Convening/Co-organizing workshops and symposium

- Assisted in organizing workshop on Flood estimation in the FloodQ project. Held in Trondheim, Norway, 23-24 May .2016.
- Convener/ Co-Convener: *European Geosciences Union (EGU) General Assembly HS2.42 Large-scale climate variability and its impact on hydrological systems (04/16), HS2.15 Large scale hydrology (04/16)* – David Hannah.
- Convenor: *American Geophysical Union (AGU) Fall Meeting 2015 H21P Stream temperature: potential climate change adaptation in an integrated landscape context; Co-convener: H33G Teleconnections in hydrological systems at decadal timescales: challenges for hydrological modeling and projection uncertainties (12/15)* – David Hannah.

2.3 Support scientific meetings as member

- European Geosciences Union, General assembly 2015, 13-18.April, Vienna, Austria.
- European Geosciences Union, General assembly 2016, 18-22.April, Vienna, Austria.
- Participated in the 53rd Bureau meeting of IHP as the Chairperson of Communication and Outreach Committee (Yan Huang), 19-21 April, 2016, Paris, France.
- Committee Member: *European Geosciences Union (EGU) General Assembly Sub-Division on Catchment Hydrology (09-)* – David Hannah.

2.4 Participation to Conferences

- Skaugen, T., I. O. Peerebom and A. Nilsson, 2015. Predicting in ungauged basins using a parsimonious rainfall-runoff model. Poster presentation at European Geosciences Union, General assembly 2015, 13-18.April, Vienna, Austria EGU.

- Dyrødal, Anita Verpe, F. Stordal, E.J. Førland and T. Skaugen, 2015. Spatial distribution of precipitation extremes in Norway. Pico presentation at European Geosciences Union, General assembly 2015, 13-18.April, Vienna, Austria.
- Skaugen, T. and Z. Mengistu. 2015. In search of catchment scale physics- estimating catchment scale groundwater dynamics from recession analysis and mean annual runoff. Oral presentation at the 3rd Conference on Modelling Hydrology, Climate and Land Surface Processes", 7-9th of September 2015 at Lillehammer, Norway.
- Lawrence, D., Paquet, E., Blanchet, J., Skaugen, T. Stochastic semi-continuous simulation for extreme flood estimation for dam safety assessments in Norway. 3rd Conference on "Modelling Hydrology, Climate and Land Surface Processes", Lillehammer, 7th – 9th September, 2015.
- Lussana, C., J. Andersen, T. Saloranta, T. Skaugen and O-E Tveito, 2015. Spatial interpolation of meteorological variables for snow and hydrological modelling. 15th EMS annual meeting & 12th European Conference on applications of meteorology (ECAM), 7-11. Sept, Sofia, Bulgaria.
- Skaugen, T. 2016. Nedbør-avløpsmodeller for umålte felt. FloodQ - Workshop for flomestimering at NTNU 23.5.2016, Trondheim, Norway.
- Skaugen T., 2016. Nedbør-avløpsmodeller for umålte felt. ExPrecFlood - Workshop at NVE 5.5.2016, Oslo, Norway.
- Skaugen, T. and I.H. Weltzien, 2016 A new spatial snow distribution in hydrological models parameterized from observed spatial variability of precipitation. Poster presentation at European Geosciences Union, General assembly 2015, 18-22. April, Vienna, Austria.
- Kråbøl, E., T. Skaugen, G. Devoli and Xu, C-Y, 2016. Investigating and predicting landslides using a rainfall runoff model in Norway. Oral presentation at European Geosciences Union, General assembly 2016, 18-22. April, Vienna, Austria.
- Rome2105. Science symposium on climate. FAO Headquarters in Rome, November 19-20, 2015.
- Round Table session of "Water cooperation as Catalyst to Achieve Water Related Goals" of the high level International Conference of "*Water for Life*", 9-11 June, 2015, Dushanbe Tajikistan.
- International Symposium "Integrated actions for global water and environmental sustainability", 21- 22 October 2015, Medan Indonesia.
- International Conference on African Large River Basins Hydrology, Hammamet, Tunisia, October 26-30th, 2015.
- The 2nd Congress on Advancement of Science and Technology in Islamic World, CASTIW, 2-3 March 2016, Tehran, Iran.
- 3rd Regional Conference on Climate Change & Global Warming, Ahmadabad, Shiraz, Iran, 8-9 March 2016.
- 7th International Conference on Integrated Water Resource Management, 18-20 May 2016, Bochum, Germany.

2.5 Supported various publications

- Skaugen, T. and T. Saloranta, 2015. Simplified energy-balance snowmelt modelling, NVE-rapport 31-2015.
- Dyrørdal, A.V, T. Skaugen, F. Stordal and E.J. Førland, 2015. Estimating extreme areal precipitation in Norway from a gridded dataset. *Hydrological Sciences Journal*. DOI: 10.1080/02626667.2014.947289.
- Skaugen, T., I. O. Peerebom and A. Nilsson, 2015. Use of a parsimonious rainfall-runoff model for predicting hydrological response in ungauged basins. *Hydrol. Process.* 29, 1999-2013, DOI:10.1002/hyp.10315.
- Skaugen, T and Z. Mengistu, 2015. Estimating catchment scale groundwater dynamics from recession analysis- enhanced constraining of hydrological models. *Hydrol. Earth. Syst. Sci. Discuss.*, 12 11129-11171, 2015. www.hydrol-earth-syst-sci-discuss.net/12/11129/2015/ doi:105194/hessd-12-11129-2015.
- Skaugen, T. and Weltzien, I. H.: A model for the spatial distribution of snow water equivalent parameterised from the spatial variability of precipitation, *The Cryosphere Discuss.*, doi:10.5194/tc-2016-43, in review, 2016.
- Ferrari E., Versace P. (Eds.), Monitoring, modelling, early warning of extreme events triggered by heavy rainfall, Proceedings of the 5th International Workshop on Hydrological Extremes, MED FRIEND group, University of Calabria, Cosenza, June 26-28, 2014, Luigi Pellegrini Editore, pp. 300 (ISBN 978-88-6822-268-0) (2015).
- Buytaert W., Dewulf A., De Bièvre B., Clark J. and Hannah D.M. (2016), Citizen science for water resources management: toward polycentric monitoring and governance. *Journal of Water Resources Planning and Management – Invited Editorial*, **142**, Art.No. 01816002 DOI: 10.1061/(ASCE)WR.1943-5452.0000641.
- Karpouzoglou T., Zulkafli Z., Grainger S., Dewulf A., Buytaert W. and Hannah D.M. (2016), Environmental Virtual Observatories (EVOs) in the Information Age: Prospects for improved knowledge co-creation and resilience building, *Current Opinion in Environmental Sustainability*, **18**, 40-48 DOI: 10.1016/j.cosust.2015.07.015.
- McMillan H., Montanari A., Cudennec C., Savenije H.H., Kreibich H., Krueger T., Liu J., Meija A., van Loon A., Aksoy H., Di Baldassarre G., Huang Y., Mazvimavi D., Rogger M., Sivakumar B., Bibikova T., Castellarin A., Chen Y., Finger D., Gelfan A., Hannah D, Hoekstra A., Li H., Maskey S., Mathevet T., Mijic A., Acuña A., Polo M., Rosales Sierra V., Smith P., Viglione A., Srinivasan V., Toth E., van Nooijen, R. and Xia J. (2016), Panta Rhei 2013-2015: Global perspectives on hydrology, society and change, *Hydrological Sciences Journal*, **61**, 1174-1191 DOI:10.1080/02626667.2016.1159308.
- Schmadel N.M., Ward A.S., Kurz M.J., Fleckenstein J.H., Zarnetske J.P., Hannah D.M., Blume T., Vieweg M., Blaen P.J., Schmidt C., Knapp J., Klaar M.J., Romeijn P., Datry T., Keller T., Folegot S., Marruedo A. and Krause S. (2016), Transport timescales of stream solute tracers changing with discharge and reach length confound process interpretation, *Water Resources Research*, **52**, 3227–3245 DOI: 10.1002/2015WR018062.
- Van Loon A.F., Gleeson T., Clark J., Van Dijk A.I.J.M, Stahl K., Hannaford J., Di Baldassarre G., Teuling A.J., Tallaksen L.M., Uijlenhoet R., Hannah D.M., Sheffield J., Svoboda M., Verbeiren B., Wagener T., Rangelcroft S., Wanders N. and Van Lanen

- H.A.J. (2016), Drought in the Anthropocene, *Nature Geosciences*, **9**, 89-91 DOI: 10.1038/ngeo2646.
- Hannah D.M. and Garner G. (2015), River water temperature in the United Kingdom: changes over the 20th century and possible changes over the 21st century, *Progress in Physical Geography*, **39**, 68–92 DOI: 10.1177/0309133314550669.
 - Garner G., Malcolm I.A., Sadler J.P., Millar C.P. and Hannah D.M. (2015), Inter-annual variability in the effects of riparian woodland on micro-climate, energy exchanges and water temperature of an upland Scottish stream, *Hydrological Processes*, **29**, 1080-1095 DOI:10.1002/hyp.10223.
 - Garner G., Van Loon A.F., Prudhomme C. and Hannah D.M. (2015), Hydroclimatology of extreme riverflows, *Freshwater Biology*, **12**, 2461-2476 DOI: 10.1111/fwb.12667.
 - Giuntoli I., Vidal J.-P., Prudhomme C. and Hannah D.M. (2015), Future hydrological extremes: the uncertainty from multiple global climate and global hydrological models, *Earth Systems Dynamics*, **6**, 267–285, DOI:10.5194/esd-6-267-2015.
 - Giuntoli I., Villarini G., Prudhomme C., Mallakpour I. and Hannah D.M. (2015), Evaluation of global impact models' ability to reproduce runoff characteristics over the central United States, *Journal of Geophysical Research: Atmospheres*, **18**, 9138-9159 DOI: 10.1002/2015JD023401.
 - Khamis K., Brown L.E., Milner A.M. and Hannah D.M. (2015), Heat exchange processes and thermal dynamics of a glacier-fed alpine stream, *Hydrological Processes*, **29**, 3306–3317 DOI:10.1002/hyp.10433.
 - Khamis K., Sorensen J.P.R., Bradley C., Hannah D.M., Lapworth D.J. and Stevens R. (2015), In-situ tryptophan-like fluorometers: assessing turbidity and temperature effects for freshwater applications, *Environmental Science: Processes and Impacts*, **17**, 740-752 DOI: 10.1039/c5em00030k.
 - Kingston D.G., Stagge J.H., Tallaksen L.M. and Hannah D.M. (2015), European-scale drought: understanding connections between atmospheric circulation and meteorological drought indices, *Journal of Climate*, **28**, 505-516 DOI 10.1175/JCLI-D-14-00001.1.
 - Lavers D.A., Hannah D.M. and Bradley C. (2015), Linking variations in groundwater level in southern England to large-scale atmospheric circulation, *Journal of Hydrology*, **523**, 179–189 DOI: 10.1016/j.jhydrol.2015.01.06.
 - Pinay G., Peiffer S., Krause S., Hannah D.M., Fleckenstein J., Sébilo M., Bishop K. and Hubert-Moy L. (2015), Upscaling nitrogen removal capacity from riparian zone to the landscape scale: A new framework, *Ecosystems*, **18**, 1101-1120 DOI: 10.1007/s10021-015-9878-5.
 - Royan A., Prudhomme C., Hannah D.M., Reynolds S.J., Nobel D.G. and Sadler J.P. (2015), Climate-induced changes in river flow regimes alter future bird distributions, *Ecosphere*, **6**, Article 50 DOI: 10.1890/ES14-00245.1.
 - Sahin S., Türkeş M., Wang S.H., Hannah D.M. and Eastwood W.J. (2015), Large-scale moisture flux characteristics of the Mediterranean basin and their relationships with drier and wetter climate conditions, *Climate Dynamics*, **45**, 3381–3401 DOI: 10.1007/s00382-015-2545-x.
 - Watts G., Battarbee R.W., Bloomfield J.P., Crossman J., Daccache A., Durance I., Elliot A., Garner G., Hannaford J., Hannah D.M., Hess T., Jackson C.R., Kay A.L., Kernan M., Knox J., Mackay J., Monteith D.T., Ormerod S., Rance J., Stuart M.E.,

- Wade A.J., Wade S.D., Weatherhead K., Whitehead P.G. and Wilby R.L. (2015), Climate change and water in the UK - past changes and future prospects, *Progress in Physical Geography*, **39**, 6-28 DOI: 10.1177/0309133314542957.
- Watts G., Hannah D.M. and Watkinson A. (2015), Introduction to the special issue on the impact of climate change on water in the UK, *Progress in Physical Geography*, **39**, 3-5, DOI: 10.1177/0309133314546345.
 - Blaen P.J., Milner A.M., Hannah D.M., Brittain J.E. and Brown L.E. (2014), Impact of changing hydrology on nutrient uptake in High Arctic rivers, *River Research and Applications*, **30**, 1073-1083 DOI: 10.1002/rra.2706.
 - Aksoy H, Eris E, Tayfur G, Empirical Sediment Transport Models Based On Indoor Rainfall Simulator And Erosion Flume Experimental Data, Land Degradation and Development (in press).
 - Vaheddoost B, Aksoy H, Structural characteristics of annual precipitation in Lake Urmia basin, Theoretical and Applied Climatology.
 - Aksoy H, Kirca VSO, Burgan HI, Kellecioglu D, Hydrological and hydraulic models for determination of flood-prone and flood inundation areas, *PIAHS*, 373, 137-141, 2016, doi:10.5194/piahs-373-137-2016.

3. Future Activities

- Participate in the *12th Kovacs Colloquium: hydrological inputs for water-related SDGs implementation: knowledge, data, Indicators, Tools & Innovations*. 15 June, 2016, Paris, France.
- Prepare for the *Scientific programme of the IAHS Scientific Assembly* to be held in July 2017, Port Elizabeth, South Africa: convene and/or co-convene the following symposia:
 - 1) *Water and Development: Scientific challenges for societal issues*, Convener(s): Gil Mahe (ICSW), Hafzullah Aksoy (ICSW), (together with all IAHS Commissions)
 - 2) *Extreme events: links between science and practice*. Conveners: Ennio Ferrari (ICSW), David Hannah (ICSW), M. Carmen Llasat (University of Barcelona, Spain); Co-conveners: Enrica Caporali (Italy), Radu Drobot (Romania), Jasna Plavsic (Serbia), Yves Tramblay (France), Elena Volpi (ICSH).
 - 3) *A symposium on water quality and sediment transport issues in surface water*. Convener(s): Gil Mahe (ICSW), David Hannah (ICSW), Michael Stone (ICCE)
 - 4) *Prediction in ungauged basins*, Conveners: Yan Huang (ICSW), Thomas Skaugen (ICSW); Co-conveners: Atilio Castellarin (ICSH), Christopher Neale (ICRS), Maria Jose Polo (ICRS).
 - 5) *Modelling hydrological processes for prediction under change*. Conveners: Hafzullah Aksoy (ICSW), Bellie Sivakumar (PuC WG); Co-conveners: Yangbo Chen (ICRS), Hossein Tabari (ICSH).
 - 6) *Nonstationarity in Hydrology: Theories, Methods and Applications*. Convener: Ebru Eris (ICSH); Co-conveners: Hafzullah Aksoy (ICSW), Krzysztof Kochanek, Seth Westra, Yuanfang Chen, Dong Wang.
- 3 x session proposed as Convenor/ Co-convenor *American Geophysical Union (AGU) Fall Meeting 2016 (12/16)* – David Hannah.

- Member of Local Organising and Scientific Advisory Committees: *HydroEco2017 – 6th International Multidisciplinary Conference on Hydrology and Ecology*, Birmingham (04/17) – David Hannah.
- Support the organising of the 8th international conference of FRIEND programme, to be held in 2018.
- Support and participate in the International symposium of IHP on *Water quality and Environment*, Oct 2016, Nanjing, China.
- Organize International Conference on the *Hydrology of the African Large River basins*, to be hold on 26-30 Nov 2016, Dakar Senegal.
- Organize *training and workshop on SWAT model* together with the Eco&Sols and GET Laboratories in France, 1-3 Dec, 2016, Dakar Senegal.
- Since 2014, founding member of the IAHS Mountain Hydrology Working Group with various activities planned – David Hannah with Shreedar Maskey.