IAHS ICCE 2017 Report

Submitted by Mike Stone (President ICCE)

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Introduction

The International Commission on Continental Erosion (ICCE) has historically been a very active commission within IAHS. Its mandate is to focus on the erosion, transport and deposition of sediment and associated nutrients and contaminants and the interaction of these processes with other components of the hydrological cycle and the environment. ICCE recognizes the pivotal role that erosion and sediment delivery play in many environmental issues and plays a pivotal role in advancing inter-disciplinary research required to improve our understanding and management of these issues.

Current Organizational Structure

Current President	Micheal Stone (Canada)
President Elect	Adrian Collins (UK)
Past President	Valentin Golosov (Russia)
Hon. President	Des Walling (UK)
Vice-President	Kazimierz Banasik (Poland)
Vice-President	Sergey Chalov
Vice-President	Dieter Rickenmann (Switzerland)
Secretary	Paolo Porto (Italy)

Previous Conferences

Previous IAHS conferences organized by ICCE can be grouped under the following three broad themes areas.

Theme 1: ***Improve knowledge of the mobilization, transfer and redistribution of sediment within river basins at different spatial and temporal scales (sediment budgets and identifying sources and sinks)***

Sediment budgets (1988 Porto Alegre, Brazil)
Sediment transfer through the fluvial system (2004 Moscow, Russia)
Sediment budgets (2005 Foz do Iguaçu, Brazil)
Sediment Dynamics from Summit to Sea (2014 New Orleans,USA)
Monitoring and modelling sediment dynamics (2016 Rothamsted Research, UK)

Theme 2: ***Development of improved measurement techniques***

Sediment transport monitoring in river basins (1992 Oslo, Norway)
Erosion and sediment transport in rivers – Technical and methodological advances (2002 Oslo, Norway)
Sediment tracing workshop (2011 Melbourne, Australia) Hydrological Processes 27(6) Special Issue 2013

Theme 3: ***Human and climate change impacts on sediment erosion***

Sediment Sources and Sediment Delivery under Environmental Change (2007 Perugia, Italy) – Catena 79(3) Special Issue 2009
Sediment Dynamics in Changing Environments (2008 Christchurch, New Zealand)
The Role of Erosion and Sediment Transport in Nutrient and Contaminant Transfer (2000, Waterloo Canada)
Sediment Dynamics for a Changing Future (2010 Warsaw, Poland)
Erosion and Sediment Yields in The Changing Environment (2012 Chengdu, China)
Wildfire and Water Quality: Processes, Impacts and Challenges (2010 Banff, Canada)

Forthcoming ICCE Conferences

The 2018 ICCE symposium "Climate Change Impacts on Sediment Dynamics: Measurement, Modelling and Management" will be jointly held in Moscow with "The Second International Young Scientists Forum on Soil and Water Conservation. This joint meeting is organized and hosted by Sergey Chalov.

Conferences Organized or Sessions Co-convened by ICCE members

Mike Stone is a co-convener of Session 2 "Water quality and sediment transport issues in surface water" IAHS Scientific Assembly 10–14 July 2017 Port Elizabeth, South Africa

Kazimierz Banasik, Sergey Chalov and the Association of Polish Hydrologists (member of the NETWORK of NATIONAL AND REGIONAL HYDROLOGICAL ASSOCIATIONS of IAHS) are organizing the III NATIONAL HYDROLOGICAL CONGRESS in Warsaw, Poland September 19-21, 2018.

Paolo Porto organized and hosted the 14th International Symposium on the Interactions between Sediments and Water Science (IASWS) Meeting in Taormina, Italy June 2017.

Adrian Collins organized a workshop on 'Sediment fingerprinting' at the International Hydro-sedimentology conference, Brazil, June 2017

Sergey Chalov co-organized conference on "Selenga-Baikal research" in Chelan, USA (November 2017)

Recent Publications

Integrating monitoring and modelling for understanding, predicting and managing sediment dynamics ICCE Symposium 2016 – Integrating monitoring and modelling for sediment dynamics, Okehampton, UK, 11–15 July 2017 Editor(s): A. Collins, M. Stone, A. Horowitz, and I. Foster PIAHS Volume 375, 2017.

Chalov Sergey, Bazilova Varvara, Tarasov Mikhail Modeling suspended sediment distribution in the Selenga River Delta using LandSat data // Proc. IAHS, 375, 19-22, doi:10.5194/piahs-375-19-2017, 2017

Pietroń J, Chalov S, Chalova A, Alekseenko A, Jarsjö J. Extreme spatial variability in riverine sediment load inputs due to soil loss in surface mining areas of the Lake Baikal basin // Catena Volume 152, May 2017, Pages 82–93 http://dx.doi.org/10.1016/j.catena.2017.01.008

Chalov, Sergey R, Tsyplenkov, Anatolii S, Pietron, Jan, Chalova, Aleksandra S, Shkolny, Danila I, Jahsjo J. Maerker, Michael Sediment transport in headwaters of a volcanic catchment—Kamchatka Peninsula case study // Front. Earth Sci. DOI 10.1134/S0097807812010022

The special issue in Journal of Environmental Management following an ICCE convened workshop at the Prague IUGG meeting in 2015 has recently been published. This special issue includes the following papers from attendees:

Collins, A.L., Foster, I.D.L., Gellis, A., Porto, P., Horowitz, A.J. (2017). Sediment source fingerprinting for informing catchment management: methodological approaches, problems and uncertainty. Journal of Environment Management 194, 1-3.

Du, P., Walling, D.E. (2017). Fingerprinting surficial sediment sources: Exploring some potential problems associated with the spatial variability of source material
Properties. Journal of Environment Management 194, 4-15.

Pulley, S., Foster, I.D.L., Collins, A.L. (2017). The impact of catchment source group classification on the accuracy of sediment fingerprinting outputs. Journal of Environment Management 194, 16-26.

Manjoro, M., Rowntree, K., Kakembo, V., Foster, I., Collins, A.L. (2017). Use of sediment source fingerprinting to assess the role of subsurface erosion in the supply of fine sediment in a degraded catchment in the Eastern Cape, South Africa. Journal of Environment Management 194, 27-41.

Palazon, L., Navas, A. (2017). Variability in source sediment contributions by applying different statistic test for a Pyrenean catchment. Journal of Environment Management 194, 42-53.

Rowntree, K.M., van der Waal, B., Pulley, S. (2017). Magnetic susceptibility as a simple tracer for fluvial sediment source ascription during storm events. Journal of Environment Management 194, 54-62.

Nosrati, K. (2017). Ascribing soil erosion of hillslope components to river sediment yield. Journal of Environment Management 194, 63-72.
Gellis, A.C., Fuller, C.C., Van Metre, P.C. (2017). Sources and ages of fine-grained sediment to streams using fallout radionuclides in the Midwestern United States. Journal of Environment Management 194, 73-85.

Collins, A.L., Pulley, S., Foster, I.D.L., Gellis, A., Porto, P., Horowitz, A.J. (2017). Sediment source fingerprinting as an aid to catchment management: A review of the current state of knowledge and a methodological decision-tree for end-users. Journal of Environment Management 194, 86-108.

Presentations / Contributions delivered to meetings

Sergey Chalov 2017 “Lena River catchment erosion and sediment transport modeling” World Large Rivers congress (India, 21-24 April 2017).

Sergey Chalov 2017 “Source and sink patterns of As in river basins: hydrological, environmental and anthropogenic impacts” “Arsenic in the environment conference” (Sweden 20-22 June 2016).

Sergey Chalov 2017 “ Sediment and metal sink in Selenga River delta: long-term perspective”, Bringing Together Selenga-Baikal Research, (Chelan USA, 10-15 November 2016).

Sergey Chalov 2017 “Modeling suspended sediments in the downstream reach of the Selenga River using LandSat data” ICCE IAHS meeting «Integrating monitoring and modelling for understanding, predicting and managing sediment» (10-15 July 2016),

Adrian Collins contributed input to a meeting of the IAHS UK Committee

Adrian Collins contributed input to a meeting of the UK Committee for National and International Hydrology (UKCNIH) – held at CEH, Wallingford, March 2017

Adrian Collins ‘Projected impacts of a bottom-up approach to mitigating diffuse pollution from agriculture: experience from Demonstration Test Catchments, UK’ at the Land Use and Water Quality international conference, The Netherlands, May 2017

Adrian Collins (2017) “The efficacy of on-farm measures for sediment control”, International Hydro-Sedimentology Conference, Brazil June 2017

Paolo Porto (2017) “Using tracers 137Cs and 210Pbex to predict erosion rates in Mediterranean environments. Results from recent research in a small experimental catchment in Southern Italy”, Conference of EU COST ACTION ES1306 Connecting European Connectivity Research - Connecteur February, 28 to March, 5, 2016 - Palermo (Italy)

Paolo Porto (2017) “Developing novel and improved procedures for applying FRNs to quantify changes in erosion and soil redistribution rates associated with climate change and changes in land management in upland agro-ecosystems, with particular reference to Southern Italy” IAEA - Coordinated Research Project (CRP) D1.50.17, Vienna 25-29 July, 2016

Paolo Porto and Des Walling (2017) Coupling cesium-137 measurements and sediment load records to calibrate the sediment delivery distributed model (SEDD). A regional study in Calabria, Southern Italy, Conference on Soil Erosion Modelling JRC Ispra 20-21-22 March 2017

Stone M. (2017) Watershed Science on Fire: Insights from a long-term large scale watershed research platform in southern Alberta. 2017 Woo Water Lecturer at McMaster University November 18, 2017.