

ICSIH Annual Report to IAHS Bureau

July 1, 2017; Dr. Tobias Jonas, ICSIH President-Elect



1. Introduction

ICSIH, the International Commission on Snow and Ice Hydrology, continues to promote the scientific study of the processes of snow, permafrost and ice dynamics, the interactions between snow, permafrost, ice and ecosystems, and impact of snow, permafrost and ice on runoff generation, rivers and lakes, with an emphasis on the seasons and regions where the solid phase of water and its subsequent runoff are prevalent.

Cold regions are particularly responsive to changing environmental conditions, and small shifts can result in hydrological regimes that have not been observed in the past. Key to improve our understanding of the involved complex and interacting processes is collaboration, both geographically and across disciplines.

ICSIH maintains a network with many organizations acting in the field of cryospheric sciences. ICSIH strives to integrate the communities' effort within IAHS, enabling us to foster exciting research at the interface between cryospheric and hydrological sciences.

2. Organization

ICSIH Bureau 2016-2017:

- President: Dr. Danny Marks, Agricultural Research Service, Dept. of Agriculture, USA
- President-Elect: Dr. Tobias Jonas, WSL Institute for Snow and Avalanche Research SLF, Davos, Switzerland
- Immediate Past President: Dr. John Pomeroy, University of Saskatchewan, Canada
- Vice-President: Dr. Timothy Link, University of Idaho, USA
- Vice-President: Dr. Sebastian Mernild, Sogn og Fjordane University College, Norway
- Vice-President: Dr. Melody Sandells, CORES Science & Engineering, Edinburgh, UK
- Secretary: Dr. Alexander Gelfan, Water Problems Institute of the Russian Academy of Sciences, Moscow, Russia

3. ICSIH Activities 2016-2017

3.1 The IAHS Assembly in Port Elizabeth

ICSIH has proposed the following two sessions for the assembly.

- Symposium on *Advances in cold-region hydrological models: Integration of process understanding and application to climate and landcover changes*
- Symposium on *Operational snowmelt runoff modelling: Advances and prospects for water management*

As anticipated, ICSIH had difficulties to attract abstract submissions from snow scientist, despite promoting both sessions actively on several occasions (AGU 16, EGU 17, direct emailing). Main reasons for not attending were: a) the conference being too far away, b) the conference being a IAHS only meeting, c) travel or budget restrictions, d) other important meetings / workshops in 2017. Given the success of ICSIH to organize sessions at conferences such as the IUGG meeting 2015 in Prague or the DACA meeting 2013 in Davos, we would certainly benefit from the next IAHS assembly to be jointly organized with either IACS, IAMAS or both.

Given the number of abstracts received, we have requested to merge the above two sessions into one. The merged session is now listed as W16

- Symposium on *Advances in cold-region hydrological models and operational snowmelt runoff modelling*, to be convened by T. Jonas (ICISH) , A. Gelfan (ICISH) , E. Boegh (ICCLAS) , M. Rogger (ICWRS) , T. Link (ICSIH), R. Essery , M. Dumont

Description: The storage and release of water from seasonal snowcovers constitutes a critical component of the annual hydrological cycle in many parts of the world. In these regions, monitoring of snow water resources, prediction, and forecasting of snowmelt runoff are vital tools for water managers concerned with floods, droughts, water supply, and/or hydropower generation. Recent climate conditions have led to changes in precipitation, soil moisture, and streamflow that are having an impact on water supplies, ecosystems, and agriculture. Land cover changes driven by human activities, natural disturbances, and species changes are likewise altering snowpack, soil moisture, evaporative flux, and runoff dynamics. Advances in fundamental snow science are essential to understand both the impacts of landcover and climate trends on hydrological systems. This session will bring together experimental and modeling experts to address a broad range of topics that are important to improve current cold-region hydrological models and its operational applications. We welcome contributions related to topics such as

- Impacts of climatic variability and projected changes on water resources
- Impacts of landcover changes on snow patterns and processes
- Snowcover modeling in vegetated and complex terrain
- Representation of small-scale variations at coarser modeling grid scales
- Assimilation of snow observations
- Operational snowmelt runoff modelling

3.2 INARCH

ICSIH actively sponsors INARCH which is the international network for alpine research catchment hydrology. INARCH supports an active collaboration and exchange of knowledge and data between international researchers who work mountain catchment hydrology. ICSIH is very supportive of these goals and is involved by having three current bureau members within the scientific steering group of INARCH. INARCH has held his second annual workshop in Grenoble in October 2016. More information is available at http://www.usask.ca/inarch/wkshp2_report.php

3.3 Webpage + Twitter

The web-presence of ICSIH is now hosted by iahs.info. New content has been added over the past 12 months, including a section on upcoming conferences and workshops of interest, content related to relevant IAHS proceedings volumes, and a list of useful links. ICSIH has further started a twitter feed available @iahs_icsih

3.4 ICSIH articles

Aimed at people who only occasionally deal with snow and ice hydrology, ICSIH has started a new series of featured articles. These articles are intended to outline basic concepts, provide insights on current methods, point at interesting open-source tools, and host opinion papers. A first article on *Estimating the snow water equivalent from snow depth data* has recently been published. A second article on *snowmelt modelling concepts*, and a third article on *getting started with an open-source energy-balance snowmelt model* are currently in preparation.

ICSIH Bureau, July 2017.