

ICSIH Annual Report to IAHS Bureau

July-8, 2019; Dr. Tobias Jonas, ICSIH President



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 2018-2019:

- Immediate Past President: Dr. Danny Marks, Agricultural Research Service, Dept. of Agriculture, USA
- President: Dr. Tobias Jonas, WSL Institute for Snow and Avalanche Research SLF, Davos, Switzerland
- 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

*Note that we have lost contact to Dr. Sebastian Mernild who is no longer responsive to emails concerning ICSIH

3. ICSIH Activities 2018-2019

ICSIH has continued to promote SIH related science. As detailed below, ICSIH is involved in setting up the second edition of the International Conference on Snow Hydrology early next year, has organized a number of sessions for the upcoming IUGG General Assembly, and published another opinion paper. ICSIH has further actively worked towards the elections to complete our bureau after the retirement of three officers in 2019

3.1 International Conference on Snow Hydrology #2, January 28-31, 2020, Bolzano, Italy

ICSIH is sponsoring the next edition of the International Conference on Snow Hydrology. The first circular has just been released and is available from <https://snowhydro.eurac.edu/>. The conference will consist of two days of regular sessions, a field trip, and an affiliated workshop to enable participants to engage together towards an IPCC-related summary paper. ICSIH has been involved in shaping scope and format of the conference, is represented in the scientific committee, and is officially listed as a supporting organization. Unlike the first edition of this conference, the SPC does not invite abstracts for pre-defined sessions, but will bundle the incoming abstracts into sessions after the submission deadline.

3.2 The IUGG General Assembly, July 8-18, 2019, Montreal, Canada,

ICSIH has set up two own sessions (H17 and H18) and teamed up with IACS to offer two further sessions (JC04 and JC08) at the IUGG General Assembly. In total these sessions received 86 abstracts, which allowed to fill an exciting program for 8 oral slots à 5 to 6 presentations. The four session titles and conveners a listed below, the full program including the session descriptions is available online at <http://iugg2019montreal.com/h.html>

- H17 – Advances in Snow Hydrology
Convener: Timothy Link (USA)
Co-Conveners: Melody Sandells (UK), Danny Marks (USA), Tobias Jonas (Switzerland), Alexander Gelfan (Russia), Elzbieta Czyzowska-Wisniewski, (USA)
- H18 – Advances in Remote Observation Of Seasonal Snow
Convener: Tobias Jonas (Switzerland)
Co-Conveners: Jeff Deems (USA), Jessica Lundquist (USA), Danny Marks (USA), Maria-Jose Polo (Spain), Elzbieta Czyzowska-Wisniewski, (USA)
- JC04 – Declining Glaciers and Snow Cover and Their Impacts on Downstream Hydrology (IACS, IAHS)
Convener: Regine Hock (USA, IACS)
Co-Conveners: Danny Marks (USA, IAHS), Alexander Gelfan (Russia, IAHS)
- JC08 – Coupling Processes Between the Atmospheric Boundary-Layer and Snow/Ice Surfaces: Observations and Modelling (IACS, IAHS, IAMAS)
Convener: Vincent Vionnet (Canada, IACS)

Co-Conveners: Ruzica Dadic (New Zealand, IACS), John Pomeroy (Canada, IAHS), Tobias Jonas (Switzerland, IAHS), Rebecca Mott (Switzerland, IAMAS), Ethan Gutmann (USA, IAMAS)

3.3 ICSIH opinion paper on “Understanding strengths and limitations of temperature-index snowmelt models” by Tim Link and Daniel G. Marks

ICSIH has started a series of short methodological and/or opinion papers to be published online. In this context Tim Link and Daniel Marks (both present / past ICSIH officers) have taken the effort to write a paper on “Understanding strengths and limitations of temperature-index snowmelt models”, which are still being widely used in operational applications but not recommended for reasons outlined in the paper. From the abstract:

“This article focuses on two fundamental approaches to snow and glacier surface melt modeling, specifically the differences between empirical (or temperature-index) and physically-based (or mass- and energy-balance) snowmelt models. This article is intended as a concise primer for students, practitioners, and scientists who are new to the field of snow hydrology, deal infrequently with snowmelt modeling, or need to understand the strengths and limitations of the two fundamentally different, yet commonly used approaches to snow and ice melt modeling.”

The paper is about to be published on the ICSIH webpage and will likely be extended into a full paper this summer.

3.4 IUGG elections to renew the ICSIH bureau in 2019

In accordance with the IAHS statutes, ICSIH has formed its own nomination panel for the upcoming elections to take place during the IUGG General Assembly in Montreal. The nomination panel consisted of T. Jonas, Daniel G. Marks, John W. Pomeroy (current and past presidents of ICSIH). ICSIH has to replace three officers, i.e. Alexander Gelfan (S), Sebastian Mernild (VP), and Melody Sandells (VP, standing for P).

In this process, ICSIH has actively approached potential candidates and nominated three upcoming officers to form the following ballot:

ICSIH	PE	Melody Sandells (current VP)	UK
	3 VPs	Tim Link (current VP)	USA
		James McPhee (new)	UAS / Chile
		McKenzie Skiles (new)	USA
	S	Vsevolod Moreydo (new)	Russia

ICSIH is looking forward to working with the new officers and will have a first meeting with the new bureau in Montreal.