



International Network for Alpine Research Catchment Hydrology (INARCH)

Fourth Annual INARCH Workshop

Santiago and Portillo, Chile

October 24–26, 2018.

INARCH is a network of scientists studying mountain hydrology around the world and has the overall objective to better understand alpine cold regions hydrological processes, improve their prediction, and find consistent measurement strategies. The fourth annual INARCH workshop will bring together this network to follow up on activities, progress, and plans towards its overall objective and its research questions relating to alpine hydrology. A number of topics will be reviewed and discussed, including field observations, catchment data and emerging methods, snow hydrology, glacier hydrology, model simulation and data assimilation, and the interface of science to policy. Regional initiatives and linkages with various external organizations, such as Future Earth’s Sustainable Water Futures Programme and UNESCO’s International Hydrological Programme, as well as the Canadian-led Global Water Futures Project and the recently proposed and initiating ANDEX RHP for the Andes, will be discussed.

Meeting Agenda

Wednesday, October 24

Joint ANDEX–GHP–INARCH meeting Universidad de Chile, Santiago		
High Mountain Water Cycle Research Needs		
9:00 – 9:10	Peter van Oevelen	Welcoming remarks
9:10 – 9:30	Joan Cuxart	GEWEX Hydroclimate Panel (GHP)
9:30 – 9:50	Germán Poveda	ANDEX hydroclimate research program for the Andes
9:50 – 10:10	Prof. Ailikun	Third Pole Environment (TPE)
10:10 – 10:30	John Pomeroy	International Network for Alpine Research Catchment Hydrology (INARCH)
10:30 – 10:50	Coffee break	
10:50 – 11:10	John Pomeroy	Global Water Futures (GWF) RHP
11:10 – 11:30	Roy Rasmussen	Prospective western US RHP & Water for Foodbaskets
11:30 – 12:30	General discussion on mountain water research, prediction and monitoring needs for extreme events	
12:30 – 14:30	Lunch around campus	

INARCH meeting participants travel to Portillo		
14:30	Buses to depart from the University	
17:30	Arrival, welcome to Portillo	
18:30	Dinner and reception, evening social activities	

Thursday, October 25

INARCH workshop Day-1 Hotel Portillo		
7:00 – 8:00	Breakfast	
8:30 – 8:50	James McPhee & John Pomeroy	Introductory remarks and goals for the workshop
Catchment & process hydrology; field observations and emerging techniques; INARCH regional activities (Chair: Tom Painter)		
8:50 – 9:20	Sean Carey	Runoff processes in alpine catchments: Challenges and opportunities
9:20 – 9:50	James McPhee	The 2010 Chile Mega-drought and its impacts on snow and glacier hydrology
9:50 – 10:05	Short (3-4 minute) poster presentations	
	Sebastian Krogh (for Adrian Harpold)	Sagehen Creek Watershed, Sierra Nevada, USA: A long-term dataset for investigating groundwater-mediated streamflow response to variable maritime snowmelt and rainfall
	Jesús Revuelto	Current status of meteorological and snow observations and reanalysis available in the French Alps
	Rafael Pimentel	The key role of terrestrial imagery in semiarid mountainous areas: The snow monitoring system in Sierra Nevada (Spain)
	John Pomeroy (for Kabir Rasouli)	How interactions between climate and vegetation impact hydrological processes in mountain headwater basins
10:05 – 11:00	Posters and coffee	
11:00 – 12:00	Panel discussion (Panelists: S. Carey, J. McPhee; Rapporteur: F. Pellicciotti)	
12:00 – 13:30	Lunch	
Glaciers and climate change (Chair: Nacho Lopez Moreno)		
13:30 – 14:00	Shelley MacDonell	The hydrological role of glaciers in the Atacama Desert

14:00 – 14:30	Gino Casassa	Glacier monitoring in Chile
14:30 – 15:00	Mariano Masiokas	The first national glacier inventory of Argentina
15:00 – 15:15	Short (3-4 minute) poster presentations	
	Juan Rivera	Ensemble Empirical Mode Decomposition for streamflow data analysis of snow-fed rivers along Central Andes of Argentina
	Thomas Shaw	Snow depth distribution and storm events of high mountain Central Chile: A new experimental setup
15:00 – 16:30	Posters and coffee/tea	
16:30 – 17:30	Panel discussion (Panelists: S. MacDonell, G. Casassa, M. Masiokas; Rapporteur: Juan Rivera)	
17:30	Outdoor activity: Portillo overlook which can be accessed via the ski lift	
19:00	Dinner and social activities	

Friday, October 26

INARCH workshop Day-2 Hotel Portillo		
7:00 – 8:00	Breakfast	
8:15 – 8:20	James McPhee	Workshop day-2 introduction
Data and simulations; big data techniques; remote sensing; data assimilation and models (Chair: Shelley MacDonell)		
8:20 – 8:50	Ethan Gutmann	A golden era for alpine catchments: the convergence of high-resolution atmospheric modeling, remote sensing, and hydrology
8:50 – 9:20	Nacho Lopez Moreno	Decoupling of mountain snowpacks from hydrology due to climate warming
9:20 – 9:50	Tom Painter	Snow albedo and its physical controls from the NASA Surface Biology and Geology (SBG) imaging spectrometer mission: Global distribution of cal/val from INARCH
9:50 – 10:00	Short (3-4 minute) poster presentations	
	Jesús Revuelto	Can MODIS reflectance assimilation improve snowpack simulations in alpine terrain?

	Sebastian Krogh	Simulating hydrological processes at two mountainous sites underlined by continuous permafrost in northern Yukon, Canada
	John Pomeroy (for Logan Fang)	Impact of meteorological forcing data on snowpack and streamflow simulations in the Canadian Rockies
	Thomas Shaw	Mapping high elevation spatial snow depths using tri-stereo optical satellite imagery
10:00 – 11:00	Posters and coffee	
11:00 – 12:00	Panel discussion (Panelists: E. Gutmann, N. Lopez Moreno, T. Painter; Rapporteur: R. Rasmussen)	
12:00 – 14:00	Brown bag lunch + Outdoor activity: walk along the Laguna del Inca shore	
Linkages with other programs and global contribution/impact (Chair: John Pomeroy)		
14:00 – 14:15	Chris DeBeer	INARCH contributions to international initiatives and activities of working group on Climate Impacts on Global Mountain Water Security
14:15 – 15:30	<p>General discussion</p> <ul style="list-style-type: none"> • INARCH links to Future Earth (proposal for working group on Climate Impacts on Global Mountain Water Security), UNESCO International Hydrological Programme, GWF and Mountain Water Futures • Discussion on these and potential ANDEX linkage • Contribution of pre-assessment synthesis article(s) to inform IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (chapter on High Mountain Areas) and IPCC Sixth Assessment Report • WMO High Mountain Initiative 	
Workshop close (Chair: James McPhee)		
15:30 – 16:00	Concluding comments, workshop statements and roundtable	
16:00	Departure and return to Santiago	