



The **Pacific Climate Impacts Consortium** is pleased to present the upcoming Canadian Water Resources Association/Canadian Society of Hydrologic Sciences (CWRA/CSHS) Discussion Group meeting, to be held on **December 8<sup>th</sup>**, at **2 pm** at the **University of Victoria**. The topic of this meeting will be *modelling snow processes for climate change impact analyses: challenges and insights*.

**Location:** the meeting will be held in Room A120 of the Social Science and Math Building (SS&M) at the University of Victoria.

**Date and Time:** December 8<sup>th</sup>, 2009, 2:00 – 3:30 pm

**How to Participate:** The seminar will be broadcast live online. Please click on the link available here <http://www.pacificclimate.org/aboutus/seminars/>. The PowerPoint presentation slides will be available on the PCIC website by midnight on December 7<sup>th</sup>, 2009. Comments or questions may be e-mailed to the discussion group conveners during the meeting at [kbennett@uvic.ca](mailto:kbennett@uvic.ca). ***There is no call in line available.***

**Agenda:**

<b>Time</b>	<b>Role</b>	<b>Name and Title</b>	<b>Title of Presentation</b>
<b>2:00 – 2:05</b>	Chair	<i>Arelia Werner</i> , Hydrologist, PCIC	Meeting Overview
<b>2:05 – 2:15</b>	PCIC Representative	<i>Katrina Bennett</i> , Hydrologist, PCIC	PCIC Hydrologic Program: 2050s projections of snow water equivalent in a Headwater Basin of the Peace River using the VIC Hydrologic Model.
<b>2:15 – 3:00</b>	Invited Speaker	<i>Dr. John Pomeroy</i> , University of Saskatchewan, Canada Research Chair in Water Resource and Climate Change	Climate Sensitivity of Alpine Snow Regimes in the Canadian Rockies
<b>3:00 – 3:30</b>	Discussion Group Panel Participants	<i>Allan Chapman</i> , Head, River Forecast Centre <i>Dr. Shawn Marshall</i> , Professor, University of Calgary <i>Markus Schnorbus</i> , PCIC Lead Hydrologist	Discussion: modelling snow processes for climate change impact analyses: challenges and insights.

**Contact:** Katrina Bennett [kbennett@uvic.ca](mailto:kbennett@uvic.ca) or 250-472-4484 regarding science-related communication, or Melissa Nottingham [mnotting@uvic.ca](mailto:mnotting@uvic.ca) or 721-6236 regarding communication issues.

We look forward to seeing you there!

Katrina Bennett, Arelia Werner and Markus Schnorbus, PCIC Hydrology Team

## ***Invited Speaker Abstract***

### **Climate Sensitivity of Alpine Snow Regimes in the Canadian Rockies**

**John Pomeroy, Anne Sabourin, Matt MacDonald**

**Centre for Hydrology, University of Saskatchewan, Saskatoon**

Seasonal snow regimes in the alpine zone consist of snowfall, snow redistribution by wind, and snowmelt. Sublimation can be an important ablation mechanism under highly ventilated conditions. All of these processes are strongly controlled by the energy inputs and energy state of the snowpack. Warmer winter temperatures have been observed and are predicted for many cold regions environments. The Cold Regions Hydrological Model (CRHM) has the capability to successfully model the major snow processes in a physically based manner. It is used here to explore the sensitivity of snow regimes in the alpine zone of Marmot Creek Research Basin in the Canadian Rockies to warmer winter temperatures. Under current conditions, blowing snow redistributes most snowfall from wind exposed ridges and wind-ward slopes and deposits the transported snow in drifts on lee slopes, gullies, and below treeline. Sublimation losses from blowing snow are substantial. Melt occurs in May-July. Warming is shown to reduce sublimation losses somewhat - its restriction of wind redistribution overcomes effects from the additional sensible energy available for sublimation. However the reduced component of precipitation as snowfall under warmer conditions causes dramatically reduced winter snow accumulation. Warming advances the timing of snowmelt initiation, but reduces the rate of melt. The reduction in melt rate was not expected and is due to the snowmelt period being advanced into a time of year when radiative energy is smaller. The combination of lower snow accumulation, earlier melt and lower melt rate mean that the duration of melt initially drops and then increases as warming increases. These initial snow hydrology modelling results have important implications for determining the hydrological sensitivity of these cold regions environments to climate change.

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### ***What is the CWRA/CSHS Discussion Group?***

The Canadian Water Resources Association/Canadian Society of Hydrologic Sciences (CWRA/CSHS) Discussion Group meetings is a great way to network with your colleagues engaged in hydrological and related work in southwest BC, and an opportunity to both learn & provide feedback on topical issues, in a friendly, informal, open (and free) setting.

### ***Meeting Format***

Meetings are informal and include 1-2 speakers and an discussion group. The topics are to be focused on key issues in hydrological sciences for British Columbia.

### ***Audience:***

The audience generally may include: government, consultants, or industry representatives, and academic scientists or resource managers who have an interest in hydrological sciences.

Contact Dr. Sean Fleming at BC Hydro for more information on this group.

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