



PCIC UPDATE

Volume 3 Number 3 • March 2010

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PREPARING FOR CLIMATE CHANGE

The climate in Pacific North America is getting warmer, runoff patterns are changing, extreme precipitation events are expected to become more frequent and sea level is rising. The BC Government also recognized that these changes will alter ecosystems and have social and economic consequences. This trend is expected to continue for decades. Well-informed adaptation measures can minimize the impact and associated costs for the BC Government (<http://www.livesmartbc.ca/government/adaptation.html>).

At the February 17 Pacific Climate Seminar, Ben Kangasniemi, A/Manager, Science and Adaptation, Climate Action Secretariat and Chair of the PCIC Program Advisory Committee outlined three elements of a climate change adaptation strategy:

- 1) build a strong foundation of knowledge and tools,
- 2) make adaptation part of government business, and
- 3) assess the risks and implement actions in key climate-sensitive sectors.

This new strategy acknowledges the critical roles that PCIC and PICS play in its implementation. Regional- and local-scale projections of future climate change are needed by provincial agencies, local government and industry to guide adaptation measures. Also needed are improvements in how we derive climate trends and patterns from numerous meteorological observation networks. Secondly, analyses of current climate conditions from observational networks are needed to improve monitoring of climate trends. Third, embedding adaptation into government business will require training for government staff across several ministries, a role that PICS is prepared to fulfill. Finally, assessing the risks in specific sectors and engaging stakeholders and decision makers in taking action will require support from both PCIC and PICS. For example, coastal communities will need information, guidance and impact analysis tools in the face of a growing risk of flooding and erosion due to threats of storm surge and rising sea level.

The BC Government Adaptation Strategy envisions a future where “BC is prepared for and resilient to the impacts of climate change”. This concept is a cornerstone of the PCIC vision to “bridge the gap” between climate research and applications. The PCIC Strategic Plan focuses on four Themes:

- 1) Regional Climate Impacts,
- 2) Hydrologic Impacts,
- 3) Ocean Influences,
- 4) Climate Analysis.

PCIC will work with other climate centres, agencies and academic experts and ensure the products and services produced in these theme areas are scientifically credible and relevant to the needs of decision-makers in BC.

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PCIC UPDATE is issued quarterly in
September, December, March and June.
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PERSPECTIVE:

Message from the Administrative Officer

PCIC is a unique organization, doing high-quality work in the complex and sometimes political world of climate change impacts. As the Administrative Officer, I work to maintain the organization's financial and administrative credibility and strengthen PCIC's team of administrative, scientific and technical staff. This professional team is essential to PCIC's success.



In 2009, the staff conducted an iterative process to define PCIC's Core Values, which were published in the PCIC Strategic Plan. These are Quality, Collaboration, Respect, Sustainability, and Balance, and are the basis for defining the PCIC culture. Over the past year, several new staff have joined PCIC and as we move into the next fiscal year, we are preparing for a transition with the departure of some of our long-term staff. In times of growth, transition and change, it is important for PCIC staff, partners and collaborators to reflect on our Core Values and know and understand the basic principles to which we are committed.

CORE VALUES

Quality

We ensure that our methods are current and relevant, and that the implications and limitations of our results are clear. We take the initiative to solve problems and eliminate errors in order to produce robust results.

Collaboration

We work with researchers to provide new solutions for practical problems, and with stakeholders to target our applied research. This collaboration is an integral part of PCIC and benefits all parties involved.

Respect

We listen to the needs of others and value their opinions.

Sustainability

We know that human activity has had a major impact on the environment, so we strive to set an example of wise use of resources.

Balance

We are dedicated to PCIC's mission, and PCIC supports our professional development. We excel in our roles by balancing our professional and personal lives.

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While the Core Values describe our shared principles, the PCIC Vision and Mission point to where we are going and why we are here. PCIC staff share a dedication to the Vision and Mission and understand the importance of the work that we accomplish. Each team member has an important and complementary role to play towards achieving our objectives and PCIC's success lies in its ability to accept those roles and work together.

A scientific organization in the public eye must not only practice excellent and credible science, it must also demonstrate leadership and direction in organizational administration through accountability and transparency. Indeed, this is the only environment in which scientists are able to work productively. As Administrative Officer, I am committed to further enhancing the cohesiveness of the PCIC team while maintaining a high standard of administrative oversight.

The PCIC Corporate Report 2009-10 will be published in May 2010 and will provide a detailed account of PCIC collaborations, projects, and financials. Watch for it!

MISSION

The Mission of the Pacific Climate Impacts Consortium is to quantify the impacts of climate change and variability on the physical environment of Pacific North America.

VISION

The Vision of the Pacific Climate Impacts Consortium is to stimulate collaboration among government, academe and industry to reduce vulnerability to extreme weather events, climate variability and the threat of global change. The consortium for climate impacts will bridge the gap between climate research and climate applications and will make practical information available to government, industry and the public.

CLIMATE DEFINITIONS

Climate model

A numerical representation of the climate system based on the physical, chemical, and biological properties of its components, their interactions and feedback processes, and accounting for all or some of its known properties. The climate system can be represented by models of varying complexity (i.e., for any one component or combination of components a hierarchy of models can be identified, differing in such aspects as the number of spatial dimensions, the extent to which physical, chemical, or biological processes are explicitly represented, or the level at which empirical parameterisations are involved. Coupled atmosphere/ocean/sea-ice General Circulation Models (AOGCMs) provide a comprehensive representation of the climate system.

More complex models include active chemistry and biology. Climate models are applied, as a research tool, to study and simulate the climate, but also for operational purposes, including monthly, seasonal, and interannual climate predictions.

(From IPCC AR4 Glossary for Working Group I, p.872 — <http://www.ipcc.ch/pdf/glossary/ar4-wg2.pdf>)

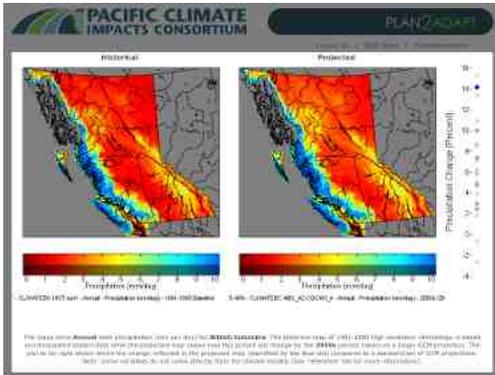
Downscaling

Downscaling is a method that derives local- to regional-scale (10 to 100 km) information from larger-scale models or data analyses. Two main methods are distinguished: dynamical downscaling and empirical/statistical downscaling. The dynamical method uses the output of regional climate models, global models with variable spatial resolution or high-resolution global models.

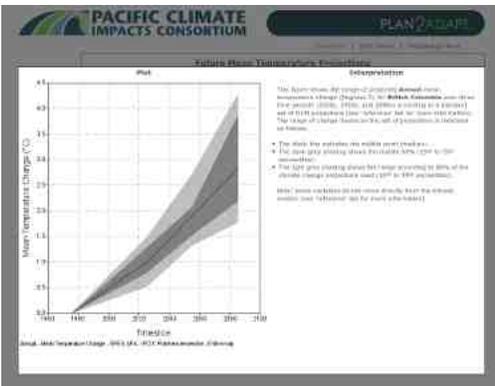
The empirical/statistical methods develop statistical relationships that link the large-scale atmospheric variables with local/regional climate variables. In all cases, the quality of the downscaled product depends on the quality of the driving model.

(From IPCC AR4 Glossary for Working Group II, p.944 — <http://www.ipcc.ch/pdf/glossary/ar4-wg1.pdf>)

PROJECT FOCUS: PLAN2ADAPT COMMUNITY PLANNERS TOOL



Screenshot showing historical and future projected changes in precipitation for British Columbia through the 2050s using PCIC's new Plan2Adapt tool.



Screenshot showing projected increase in average temperature for British Columbia through the 2080s time period using PCIC's new Plan2Adapt tool.

Planning to overcome the impacts of regional climate change should get a little easier with Plan2Adapt, PCIC's new online tool for assisting community adaptation. The online software tool is a simplified, user-friendly interface for determining projected climate changes in regional districts and helpful for anyone tasked with making community-level decisions.

Using a simple web-based form, visitors can choose the regional district, the season of the year, and how far into the future they want to look (e.g. 2050s, 2080s, etc.). The tool outputs a summary table of values showing expected changes in several key climate change indicators, such as temperature and precipitation, for the time period and region chosen. Additional colour maps and plots supplement these values and provide a spatial view of the future climate within the chosen region.

Plan2Adapt was unveiled to a small alpha testing group in mid-March. Currently it is available for beta testing in order to garner feedback and continual refinement (<http://plan2adapt.ca>).

The tool has been developed by PCIC's Regional Climate Impacts theme and NRCan's Regional Adaptation Collaboration (RAC) initiative. PCIC staff working on the project include Project Lead Trevor Murdock along with David Bronaugh and Paul Nienaber. The original idea came from CitySpaces Consulting and Senior Planner Jennifer Hill at BC's Ministry of Community and Rural Development. The current beta testing phase of the project is funded by BC's Ministry of Environment.

BRIDGING THE GAP: REGIONAL CLIMATE IMPACTS

Activities taking place under PCIC's Regional Climate Impacts theme are helping to improve understanding of regional impacts of climate change in a number of ways, including:

- At the Barkley Sound Knowledge Symposium, held at UVic in February, a PCIC presentation on biophysical climate change and impacts anticipated in the region was tied to a subsequent talk by UVic Geography postgraduate student Mary Liston. The case study she presented was based in part on information supplied by PCIC.
- Results from several regional climate model (RCM) projections were presented in the lunch time seminar series of Environment Canada's Canadian Centre for Climate Modelling and Analysis (at UVic), in order to obtain expert feedback from the centre on the use of RCM results by PCIC.
- The Sierra Club will use information concerning anticipated climate impacts in BC to inform their policies on how to link projections of climate change impacts to the Sierra Club's conservation goals and programs.
- Guest lecturing for the course offering titled Human Dimensions of Climate Change 200, part of UVic's new climate change minor. The lecture focused on the application of climate impacts information to policy and decision-making.
- PCIC has delivered a climate impact assessment for BC's Ministry of Transportation and Infrastructure Coquihalla Highway pilot project.

PACIFIC CLIMATE SEMINAR SERIES

One of the ways in which PCIC works to stimulate collaboration and cooperation is through seminars and guest speakers. Four guest speakers have initiated the PCIC/PICS joint Pacific Climate Seminar Series in 2010, presenting varied topics of interest in the area of climate impacts and adaptation.

In January, Georg Jost from UBC, spoke about his modelling platform, YAM (Yet Another Model). Dr. Jost's application is designed to assist with modelling the impact of landscape changes on streamflow with minimum input data requirements.



Ben Kangasniemi from BC's Climate Action Secretariat and Chair of PCIC's Program Advisory Committee presented BC's Adaptation Strategy in February. Mr. Kangasniemi highlighted BC's intention to continue engaging both PCIC and PICS "to ensure they produce high quality applied science information that decision-makers need", as outlined in a new adaptation strategy.

In March, our third speaker of 2010, Thomas Okey, lead us through the process of adaptation in the context of climate impacts on a marine system. His presentation was titled "Progress in assessing climate-related impacts on marine biota and ecosystem services and in coping with these changes through adaptation frameworks and strategies".

In April, Barry Carin from UVic's Centre for Global Studies speaks at the final Pacific Climate Seminar for the current academic year. His presentation, titled "An Outside-the-Box Approach to Climate Change Negotiations", will include discussion on post-Copenhagen global climate change strategies.

The Pacific Climate Seminar Series presentations can be watched via live web stream at <http://www.pacificclimate.org/resources/seminars/>. Slides, abstracts and the seminar schedule can also be viewed at this site. The Pacific Climate Seminar Series will resume in September 2010.

CMOS/CGU CONGRESS

PCIC and Consortium Ouranos are jointly co-chairing a session at the upcoming Canadian Meteorological and Oceanographic Society (CMOS)/ Canadian Geophysical Union (CGU) Congress from May 31 to June 4, 2010, in Ottawa, entitled "Uncertainty in climate change impacts to the water cycle".

Dr. Howard Wheeler, Professor of Hydrology at Imperial College London and Director of the new Imperial College Environment Forum, will attend the session as an invited speaker to discuss "New approaches to analysis of climate model outputs for impacts assessment, and the need for improved interdisciplinary science to analyse and account for uncertainties".



Dr. Howard Wheeler

The session, which is co-sponsored by PCIC and PICS, will include 14 presentations from researchers at various institutes and universities across Canada. More information can be found at <http://www.cmos.ca/congress2010/indexe.html>, or contact Katrina Bennett (kbennett@uvic.ca).

OTHER NEWS SNIPPETS

PCIC's New Staff Member

Greg Maruszczyk has joined PCIC as its new Webmaster/Editor, to assist in the ongoing development of the PCIC website, including in-house writing and editing of PCIC publications.



Greg received his MA in International Affairs from the Norman Paterson School of International Affairs in 2000 and his BA in Environmental Studies from Carleton University in 1996. Over the years he has worked as a writer and editor for a number of organizations in both the private and public sectors. In addition to a background in journalism and communications, Greg also brings with him knowledge and experience in IT and web application development.

Search for Administrative Assistant

PCIC is seeking an Administrative Assistant to replace Melissa Nottingham while she is on a one-year maternity leave. Consideration of candidates has already begun and it is hoped that the position will be filled by mid-April.

Coming Soon: New PCIC Website

PCIC is currently working with Vancouver web design company Graphically Speaking to develop a fresh new look for its current website at www.PacificClimate.org. The visual re-design includes some new and improved features for delivering stakeholder-focused tools and information. The new site is expected to launch in May 2010.

Cold Regions Hydrology Model (CRHM) Workshop, March 2-11

PCIC representatives Markus Schnorbus and Katrina Bennett travelled to the University of Calgary's Biogeoscience Institute, located at the Barrier Lake Field station, Kananakis Valley, Alberta to participate in an introductory workshop on the Cold Regions Hydrology Model (CRHM), organized by Dr. John Pomeroy.

The CRHM has been developed by Dr. Pomeroy and his research technicians at the University of Saskatchewan, to incorporate new physically-based hydrological process algorithms and to connect them for purposes of simulating the cold regions hydrological cycle over small- to medium-sized basins.

PCIC is considering applying CHRM in regions of British Columbia to complement its climate change impacts study of hydrologic processes in mountainous terrain.

Accompanying PCIC was Scott Jackson, a representative from the River Forecast Centre. Scott was also exploring the use of CRHM for now-casting snowpack to add to the province's modelling capability.

More information on CHRM can be found here: <http://www.usask.ca/hydrology/crhm.htm>.

John Pomeroy explains the use of the Campbell scientific instrumentation collecting field data in the Marmot Creek basin. (Photo courtesy of Scott Jackson)



Thank you for your continued interest in the Pacific Climate Impacts Consortium. We are committed to maintaining PCIC as a stakeholder-driven consortium, rooted in the academic research community, yet looking outward. Hence, we welcome and value feedback from researchers and stakeholders either through our online feedback form at <http://www.pacificclimate.org/aboutus/contactus/feedback/> or by contacting us directly via email at climate@uvic.ca, or telephone (250) 721-6236.