

IP3 and the PUB Initiative

National Water Research Institute

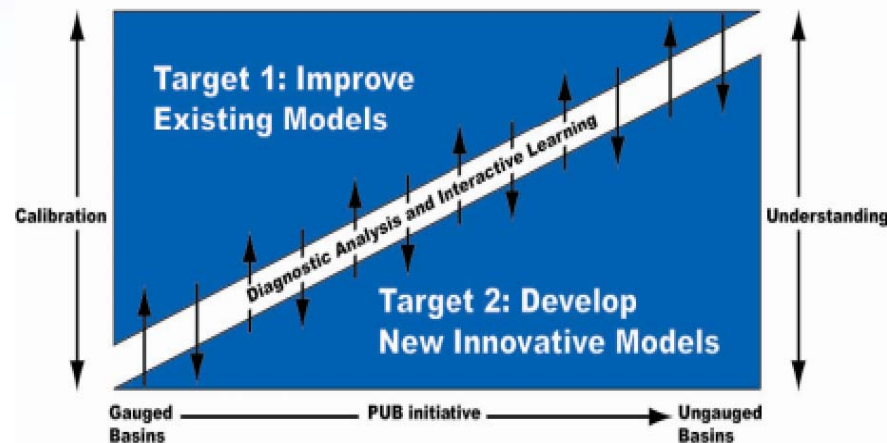
Christopher Spence
October 20, 2006



The Prediction in Ungauged Basins Initiative

- The International Association of Hydrological Sciences (IAHS) has initiated the Decade for Predictions in Ungauged Basins (PUB)
- The science goal is the quantitative estimation and reduction of predictive uncertainty.
- There are two science targets and six science themes. The themes stress comparative, diagnostic analysis and interactive learning and balance existing knowledge (as in target one) and new science and technology (as in target two). The initiative requires a program centered in extensively gauged basins, within which observation are made to develop new theories and models, and more importantly assess uncertainty.

Sivapalan, M. et al., 2003. IAHS Decade on predictions in Ungauged Basins (PUB), 2003 – 2012: Shaping an exciting future for the hydrological sciences. *Hydrological Sciences Journal* 48(6): 857-880.



The “Yellowknife” workshop

- Assess state of the art techniques to predict streamflow in ungauged basins in northern landscapes.
- Define technical needs and recommend a research agenda that can deliver these over the next decade.



**PREDICTING UNGAUGED
STREAMFLOW IN THE
MACKENZIE VALLEY:**

*TODAY'S TECHNIQUES &
TOMORROW'S SOLUTIONS*

Mackenzie
MAGS
MOUNTAIN AREA
GEOSPATIAL STUDIES

Shell

Water Survey of Canada
Relevés hydrologiques

Golder Associates

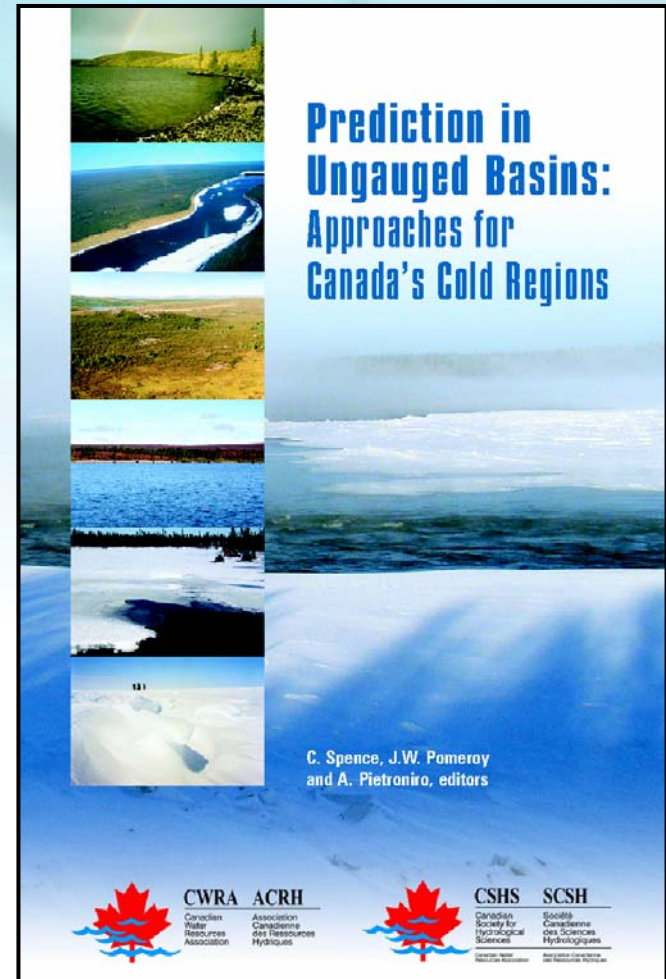
amec

Environment Canada / Environnement Canada

CSRS / CSRF

Workshop results

- Only improved understanding of the hydrological cycle will reduce the uncertainty associated with streamflow prediction.
- The smallest space and shortest time scales were identified as priorities as they are presently the most problematic in terms of prediction and design.



PUB Working Group 16

IAHS-AISH - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss Research Messenger

Address <http://www.cig.ensmp.fr/~iahs/> Go Links >>

Contents

- [IAHS Contacts](#)
- [Officers](#)
- [Commissions & W Groups](#)
- [National Reps](#)
- [Membership](#)
- [Statutes](#)
- [Prizes](#)
- [History](#)
- [Archives](#)

Hydrological Sciences Journal Online

- [Publications](#)
- [Newsletter](#)
- [MEETINGS](#)
- [Links](#)
- [Small Ads](#)
- [Home Page](#)

[Email IAHS](#)

Canadian water resource managers in the development of programs supportive of the PUB initiative, support WG implementation, funding and outreach in Canada and report to the CGU-HS, CSHS and IAHS on Canadian PUB activities. [More..](#)

Contact: [Christopher Spence](#), Environment Canada, Saskatoon, Canada

WG 16 - Improved Processes and Parameterization for Prediction in Cold Regions (IP3 in Cold Regions)

Aligned PUB Theme : [No. 3](#)

Objectives of IP3 in Cold Regions WG which is supported by Canada's Foundation for Climate and Atmospheric Sciences includes, Understanding key climate system processes relating to the hydrometeorology of cold regions; Parameterizing land surface hydrology processes that control the coupled atmospheric-hydrological system in cold regions; Validating and improving models for weather, water and climate systems leading to better prediction and simulation of related atmospheric impacts on water resources and surface climates in cold regions. [More..](#)

Contact: [Christopher Spence](#), Environment Canada, Saskatoon, Canada
[John Pomeroy](#), University of Saskatchewan, Saskatoon, Canada

WG 17 - Low Stream Flows And Hydrologic Drought

Aligned PUB Theme : [No. 1](#)

Objectives include development and evaluation of numerous stochastic and deterministic methods for predicting low stream flow and hydrological drought characteristics at ungauged river sites; identification of gaps in understanding and characterization of low stream flow and hydrological drought processes (e.g. hydro geological characterization), and advancement of current methods and estimation tools to improve low stream flow and drought prediction at ungauged river sites; sharing data and information on hydro meteorological data for low stream flow and hydrological drought predictions among the researchers around the world. [More..](#)

Contact: [Chuck Kroll](#), Environmental Resources Engineering, SUNY ESF, Syracuse

Internet

MRBN

- The Water Survey of Canada is constructing a “Monitoring and Research Basin Network” framework for its network planning.
- The MRBN designation for a WSC gauge identifies membership in one of many clusters of monitoring gauges and associated research.
- These clusters are designed to improve the ability of Environment Canada and its partners to advance research and develop predictive tools to construct policy and respond to priority issues.
- MRBN cluster requirements include:
 - Definitive engineering design or environmental prediction goals
 - High quality collaborative monitoring and research
 - Operate a relevant range of space and time scales
 - High rationale
 - Demonstrable return
 - Representative of Canada’s hydrology

Communication

- PUB sessions at upcoming conferences
 - CWRA 2007 in Saskatoon
 - CGU/CMOS/AMS 2007 in St. John's
 - IUGG in Perugia, Italy
- Go to <http://www.cig.ensmp.fr/~iahs/> (PUB corner) for a comprehensive list





Thank you!

