Project Management Updates
Amin Haghnegahdar
Acknowledgement

Hayley

Stephanie

Kasra

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GIWS staff: Sherry, Kelly, Michelle, Mark
GWF & IMPC

GLOBAL WATER FUTURES
SOLUTIONS TO WATER THREATS
IN AN ERA OF GLOBAL CHANGE
WWW.GLOBALWATERFUTURES.CA

39 sub-projects

Core Modelling Team

Integrated Modelling Team

Dr. John Pomeroy

Dr. Al Pietronio

Dr. Martyn Clark

Dr. Jay Famiglietti

Dr. Saman Razavi
IMPC aims to develop a pan-Canadian integrated modelling platform to diagnose, simulate, and predict interactions amongst natural and human-driven water-resource components of the changing Earth and environmental systems, and to deliver optimal decision making tools and solutions for uncertain future water resources, considering the range of stakeholder needs in Canada’s major river basins.
4 Research Themes
14 Sub-projects

**Theme A:** Integrated Earth Systems Modelling
- A1: Atmospheric Modelling
  Coupled atmospheric-hydrologic modeling to represent feedbacks under scenarios of change
- A2: Hydrologic Modelling
  Improving process representations to better simulate snow, glacier, groundwater, and permafrost
- A3: Water Quality Modelling
  Integrating land-surface and in-stream water quality processes into hydrologic modelling
- A4: River Ice Modelling
  Integrating river ice processes into hydrological and flood forecasting
- A5: Modelling Intercomparison
  Model intercomparison and multi-model analysis for improved prediction
- A6: Floodplain Mapping
  Improving floodplain mapping in flood-sensitive watersheds
- A7: Characterization of Uncertainty
  Enabling decision making under uncertainty and identifying & reducing dominant contexts of predictive uncertainty

**Theme B:** Water Management Modelling
- B1: Basin-wide Water Resource Modelling
  Developing a basin-wide water resources model to simulate different operational policies of existing and future water infrastructure
- B2: Environmental Demands
  Developing hydro-ecologic metrics for environmental demands in water management
- B3: Hydro-economic Modelling
  Developing an integrated hydro-economic model to assess the direct and indirect impacts of policy decisions based on socio-economic water valuation studies

**Theme C:** Decision Making under Uncertainty
- C1: Future Scenario Generation
  Projection of river-basin scale changes in climate, land surface, and water resources
- C2: Optimization and Multi-Criteria Decision Analysis
  Optimization and multi-criteria decision analysis to optimize policy and decision scenarios and evaluate trade-offs between different competing objectives

**Theme D:** User Engagement and Knowledge Mobilization
- D1: Outreach and user engagement
  Inclusion of user community representatives on modeling team, and iterative, two-way sharing of information between scientists and users
- D2: Decision Support Systems
  Developing decision support systems with advanced visualization tools

**Transdisciplinary:**
- 5 Universities
- 10 Gov. agencies
- >10 User communities
- 3 Indigenous groups

**IMPC Integrates:**
- Atmospheric science
- Hydrology
- Water resource
- Ecology
- Social science
- Computer science
- Economics

**Phase I:**
$1.65M for 3 yrs
(Jun 2017-Aug 2020)

**Phase II:**
Sep 2020-Aug 2023
Lead Investigators

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Principal Investigator
University of Saskatchewan

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University of Saskatchewan

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Research Chair
University of Saskatchewan

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Dr. Tricia Stadnyk
University of Manitoba

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User Engagement Specialist
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Mike Renouf
Prairie Provinces Water Board

Bob Halliday
Partners for Saskatchewan River Basin

Wayne Jenkinson
International Joint Commission
User Community
started with 10, now over 21
Prairie Water
Dr. Christopher Spence, ECCC
Dr. Colin Whitfield
University of Saskatchewan

Ag Water Futures
Dr. Merrin Macrae
University of Waterloo

Northern Water Futures
Dr. Jennifer Baltzer
Wilfrid Laurier University

FORMBLOOM
Dr. Helen Baulch
University of Saskatchewan
Timeline

Look Into The Future

End of IMPC (phase 1) Aug 2020

Visions, plans, challenges,...

End of GWF Aug 2023
Website, Twitter, ...

- **Website** [gwf.usask.ca/impc](https://gwf.usask.ca/impc)
- **Meetings**
  - Reports, Presentations, Posters
- **Twitter** [@IMPCwatermodels](https://twitter.com/IMPCwatermodels)
  - Main outreach/update source
Annual Meetings

   – Inception report, planning
2. 1st annual meeting (18-19 July 2018)
   – Progress, interim results and plan
3. 2nd annual meeting (12-13 June 2019)
   – Progress, interim results, plan to complete, Phase II
4. 3rd annual meeting (17-18 June 2020)
   – Final report/results, Phase II updates

TENTATIVE
Other Meetings

• Current Meetings:
  – Theme A biweekly Monthly modelling meetings
    • organized by Amin Haghnegahdar

  – Theme B, monthly water management
    • organized by Mohamed Elshamy

  – Theme C & D: User Engagement/KM meetings
    • organized by Hayley Carlson

• Ongoing meetings for each project as needed lead by investigators.
This meeting by Numbers

- 152 Invitees, 92 Participants
  - last year 115 invitees, 90 in-person & WebEx

- 15 Organizations
  - Agriculture & Agri-Food Canada
  - Alberta Advisor
  - University of New Brunswick
  - City of Saskatoon
  - Environment & Climate Change Canada
  - Manitoba Infrastructure and Transportation
  - Northern Village of Cumberland House
  - Partners for the Saskatchewan River Basin
  - Prairie Provinces Water Board
  - Saskatchewan Chamber of Commerce
  - SaskPower
  - University of Gorgan, Iran
  - University of Manitoba
  - University of Saskatchewan
  - University of Waterloo
  - Water Security Agency
Important Dates & Deadlines

• **Bi-annual reports**
  1. **15 March 2018**
  2. **15 March 2019**
  3. **15 September 2019**
  4. **15 March 2020**
  5. **15 July 2020**
Progress Summary

• 54 contributing HQPs
  – 10 MSc, 16 PhD, 17 Post-docs, 7 Research Associates, 5 Research Scientists, and 4 Visiting Scholars
  – Fully or partially funded by IMPC (other sources, mainly the core GWF)

• >49 refereed papers, 22 invited & 84 non-invited presentations

• >34 international collaboration and leadership roles

• > than 14 Radio/TV/Text interviews

• >3 Magazine and Newspaper articles

• 8 institutional, national, & international awards
  – Fellowship of the Royal Society of Canada,
  – Research Chair in Water Resources Economics
  – Young Scientist Award of Canadian Geophysical Union

• IMPC/GWF connected >62 individuals from various types of partners and knowledge user communities (Academic, International, Governmental, Industry, and Indigenous communities).
  – Trips and meetings with Indigenous groups
  – By-invitation consultation meeting on Saskatchewan’s Climate Change Strategy by Saskatchewan Ministry of the Environment
  – By-invitation meeting with Saskatchewan Chamber of Commerce ...