

Field	Response
1. Contact Information Name	Brian Menounos – Canada Research Chair (Glacier Change)
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2. Please indicate the alignment of your research expertise to one or more of the following GWF objectives/ deliverables:	<p>Improve disaster warning – develop scientific knowledge, monitoring and modelling technologies, and national forecasting capacity to predict the risk and severity of extreme events</p> <p>Predict water futures – use Big Data to make informed decisions, better models to assess change in human/natural land and water systems</p> <p>Inform adaptation to change and risk management – propose governance mechanisms, management strategies, and policy tools to reduce the risk of water threats, design adaptive strategies, and enhance economic opportunities</p>
3.1 Please indicate the alignment of your research expertise to the GWF Science Pillar 1 – Diagnosing and Predicting Change in Cold Regions:	<p>Hydrometeorology and Climate Change – improve understanding and prediction of how climate change influences water availability and extreme events</p> <p>Hydrology and Terrestrial Ecosystems – improve understanding and prediction of hydrological and terrestrial processes and watershed hydrology and how processes and systems will evolve and interact under a changing climate</p>
3.2 Please indicate the alignment of your research expertise to the GWF Science Pillar 2 – Developing Big Data and Decision Support Systems:	<p>Big Data for Water – sensors, sensing, instrumented river basins, data analysis systems</p> <p>Decision Support Systems – predictive and diagnostic modelling system development and deployment for hydrology, water quality and water resources</p>

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<p>3.3 Please indicate the alignment of your research expertise to the GWF Science Pillar 3 – Designing User Solutions:</p>	<p>Energy & Natural Resources – including mining and hydroelectricity</p>
<p>4. Please indicate the alignment of your research expertise to one or more of the following user needs:</p>	<p>Projects to improve environmental monitoring, including sensors, drones, satellites, river basin observatories, lake buoys, software development, chemical fingerprinting, real-time monitoring, citizen science, and integration of Big Data platforms for Cold Region water science. Model development to support climate change impact assessment, including regional climate change modeling, hydrological and ecological modeling, specifically involving improvements in forecasting and predictive capacity, downscaling, and scenario development of water futures.</p>
<p>5. Please list regions of Canada and the biomes (e.g. mountains, boreal forest, Great Lakes–St Lawrence), watersheds, and/or river basins where you are interested in conducting research for GWF:</p>	<p>Westernmost Canada (British Columbia) and the Western Canadian Arctic (Yukon and NWT). Transboundary watersheds (Columbia and those that straddle the Alaska–British Columbia border such as the Stikine, Taku, Skeena).</p>
<p>6. Please list any other expertise or recent experience (subjects, river basins, technology) not covered by above query that could help us in assessing your alignment with the GWF programme:</p>	<p>I primarily study the response of alpine glaciers to climate change. My research group (and collaborators) are interested in assessments of glacier mass change using satellites and laser altimetry. We (UNBC) own an airborne laser scanner (Riegl Q-780 full waveform) that we are using to better quantify seasonal to annual changes in glacier mass and winter snow depth in mountainous terrain of British Columbia and Alberta. I work closely with BC Hydro and the Columbia Basin Trust on quantifying cryospheric change in watersheds germane to these organizations. I also use dynamical downscaling (WRF) to better understand on changes in mass (energy) flux affect changes in snowcover/glacier mass balance.</p>