

Field	Response
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2. Please indicate the alignment of your research expertise to one or more of the following GWF objectives/ deliverables:	
3.1 Please indicate the alignment of your research expertise to the GWF Science Pillar 1 – Diagnosing and Predicting Change in Cold Regions:	
3.2 Please indicate the alignment of your research expertise to the GWF Science Pillar 2 – Developing Big Data and Decision Support Systems:	Big Data for Water – sensors, sensing, instrumented river basins, data analysis systems
3.3 Please indicate the alignment of your research expertise to the GWF Science Pillar 3 – Designing User Solutions:	Water Environment – ecosystem health and conservation, water management Agriculture – including farming, food processing, country foods
4. Please indicate the alignment of your research expertise to one or more of the following user needs:	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.

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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:

This user–need driven and transformative proposal is to develop unique, miniaturized, portable, battery–operated, micro– and nano–instruments with wireless capabilities, so (when fully developed) such instruments could be used across Canada for a variety of "taking part of the lab to the sample" types of applications . Such instruments can be tailored to a variety of applications (e.g., water quality monitoring, food quality, agro–chemicals, in determining fate and transport of elemental contaminants, to name but a few).

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:

The proposal (should it be funded) will utilize micro– and nano–fabrication tools and technologies. I am a co–founder of a degree program in nano–technology engineering with a great deal of experience in fabrication technologies. I have been a co–PI in two major CFI grants involving "fabrication and metrology tools" (specifically, the Giga–to–Nano and the Quantum–Nano fabrication facility). My research group also has experience with wireless data acquisition (we published a paper earlier this year) and with energy–autonomy (required for prolonged operation of micro– and nano–instruments in the field).