



# ALBERTA INNOVATES

## Research and Innovation Project – Knowledge Transfer Summary

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| <b>Project Title:</b> | <b>Reducing The Uncertainty In Groundwater Availability And Its Sensitivity To Land-Use And Climate Variability</b>                        |
| <b>Project No:</b>    | <b>2334</b>  |
| <b>Project Lead:</b>  | <b>Masaki Hayashi, University of Calgary</b>   |
| <b>Partners:</b>      | <b>Alberta Innovates, University of Calgary, Alberta Agriculture and Forestry, Alberta Environment and Parks, Alberta Energy Regulator</b> |
| <b>Status:</b>        | <b>Ongoing</b>   |

### **Project Summary:**

Groundwater resources are gaining importance in Alberta, particularly in regions with increasing population and industrial activities. Alberta needs to recognize the limited availability of groundwater and manage this vital resource within the capacity of individual watersheds. Compared to surface water, however, much less is known about the available quantity of groundwater resources in Alberta, leading to a large degree of uncertainty in water security and management under the present condition. The uncertainty becomes greater considering changes in amounts and patterns of precipitation under projected future climate and the effects of changes in land use. Groundwater is a renewable resource, and its availability is determined by the rate of replenishment, called recharge, not by the existing volume of groundwater. Therefore, it is critically important to understand and quantify groundwater recharge processes for sustainable management of the renewable resource.

Building on the success of the on-going study on groundwater recharge (GRIP project) funded by the Water Innovation Program, this study will expand the geographic scope from the Edmonton-Calgary Corridor (ECC) to the warmer and drier Calgary-Lethbridge Corridor (CLC). Combining detailed field observation of recharge processes with numerical model development, the study will advance scientific knowledge of groundwater recharge and provide practical tools for water resource management under the present and future conditions. The overall goal is to reduce the uncertainty in groundwater recharge estimates and provide the scientific foundation for sustainable groundwater management.

### **Outcomes:**

None available.

### **Links:**

None available.

### **Alberta Innovates Contact:**

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