**Groundwater, Climate Change and Water Security in the Canadian Prairies Global Water Futures 2021 Operations Team Meeting – Project Reporting Template**

Instructions: All GWF projects are asked to provide a summary update on their activities and accomplishments in preparation for the upcoming Operations Team meeting. **Please submit these by email to chris.debeer@usask.ca by no later than December 2.** These will be used to help guide discussions and breakout synthesis activities and will be made generally accessible on our website in advance of the meeting.

| **Project Name:** | **Groundwater, Climate Change and Water Security in the Canadian Prairies** |
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**Our major accomplishments to date are:**

- Identification of baseflow trends across the Canadian Prairies (by month)
- Preliminary correlation to climate indices (temperature, antecedent wetness, precipitation)
- Identification of aquifer for groundwater/surface water model development
- Obtained GIS files for groundwater systems in Saskatchewan
- Obtained Saskatchewan groundwater well database

**Our current activities are:**

- Developing an integrated hydrologic model for a representative, shallow, Canadian Prairies aquifer (Dalmeny)
- Identifying potential climate and land/water use scenarios for the model
- Finalizing GAMLSS results for correlation between baseflow and climate indices
- Starting correlation analysis between streamflow and baseflow trends with GRACE/GRACE-FO data
- Identifying additional representative groundwater systems for Saskatchewan
- Preliminary planning of field sampling for spring 2022

**The main accomplishments expected by the end of the project are:**

- improved understanding of the potential effects of increased groundwater use in the Canadian Prairies using a suite of groundwater tracers, hydrograph analyses and numerical models
    - Identify representative groundwater systems in the Canadian prairies
    - Development of a geochemical catalog of environmental tracers for groundwater systems in the Canadian Prairies
    - Development of integrated hydrologic model for Dalmeny basin & other representative aquifer systems
        - Model scenarios to demonstrate potential changes to surface and groundwater availability due to changes in climate, land use and water use
    - Baseflow and hydrograph trend analysis to identify regions susceptible to streamflow depletion
        - Correlation to climate indices to indicate susceptibility to climate change
    - Integration of geological, hydrogeology, geochemical data, numerical models and statistical analyses to develop conceptual models of representative groundwater systems in the Canadian Prairies

**Here is a key visual from the project** (figure, photo, table, graph, etc.)

# July