



# International St. Mary-Milk Rivers Study Technical Working Groups

## Climate and Hydrology



U.S. Co-chair  
**Katherine Chase**

### ***U.S. Geological Survey***

Expertise: Watershed modeling, streamflow statistics, geomorphology

### **Background**

The Climate and Hydrology (CH) Technical Working Group (TWG) will use data (and models) that are readily available and open-source, and will consider a variety of data including climate, naturalized stream flows, land cover, land use and other datasets needed to model the hydrology the St. Mary and Milk River watersheds.

- The most suitable data will be selected for model development and ease of use for future updates.
- The selected future climate data will be appropriate for the study region.
- All datasets will consider compatibility for U.S. and Canadian portions of the basin for data consistency, comparability, and modelling outputs.

### **Focus**

The Climate and Hydrology (CH) Technical Working Group (TWG) provides an understanding of the past, current, and future climatic and hydrologic conditions in the basin. Specifically, the CH TWG will:

- Complete a comprehensive assessment of the watershed characteristics (i.e., climate and hydrology including natural flows).
- Evaluate, select and develop appropriate hydrologic model(s) suitable to simulate watershed hydrology of the study area.
- Evaluate geospatial and climate data sets and select the most suitable data for hydrologic modelling .
- Use fully calibrated and validated hydrologic model(s) to produce historical naturalized stream flows for the study area.
- Use future climate data in the selected hydrologic model(s) to simulate natural streamflow in the future (up to 2100).
- Provide the Water Management Modelling TWG (and other TWGs as required) with historic and future scenarios of streamflow and climate data.

The CH TWG analysis and modelling will provide an improved scientific understanding of the water balance in the basin and contribute necessary inputs for the water management models.



Canadian Co-chair  
**Anil Gupta**

### ***Alberta Environment and Protected Areas***

Expertise: Hydrology, environmental modelling, geo-spatial analysis, climate change

### **Planned Outputs**

The goal of this work is to develop hydrologic models using historical data and describe how streamflows (i.e., water supplies) may change in future under different future climate scenarios.

The CH TWG will produce a detailed description of the St. Mary and Milk River watershed characteristics (i.e., climate and hydrology). Past, present, and plausible future climate and hydrology characteristics and scenarios will be developed. The CH TWG hydrological analysis and modelling outputs will be incorporated into the other TWGs' analyses, for an understanding of future water availability.