Ensemble Snow Data Assimilation Methods for Streamflow Forecasting

David R. Casson[1,2], Louise Arnal[1], Wouter Knoben[1], Guoqiang Tang[1], Martyn Clark[1]
[1]Computational Hydrology, Coldwater Lab , University of Saskatchewan, Canmore, Alberta
[2]Operational Water Management Department, Deltares, Delft, Netherlands

University of Saskatchewan

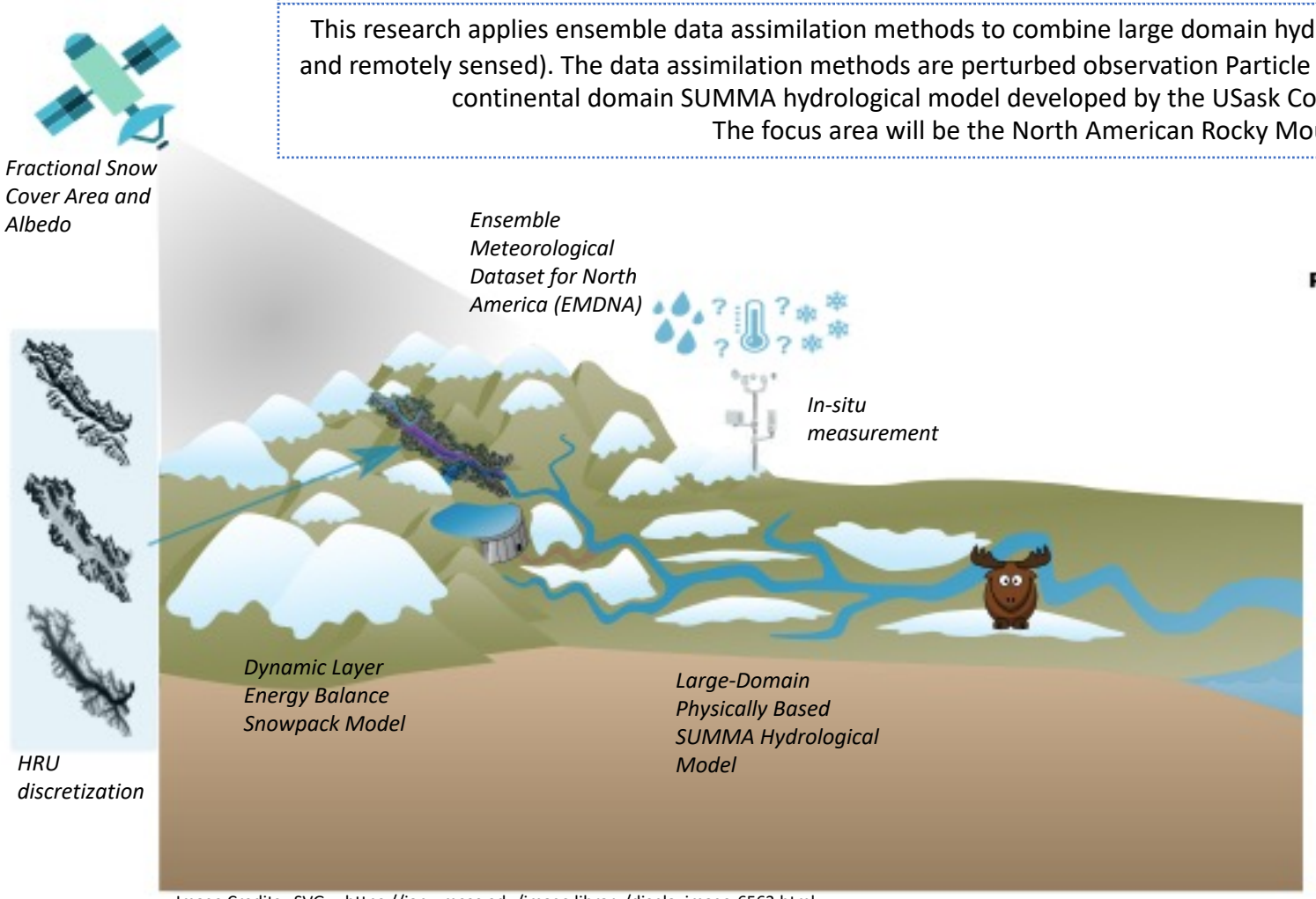
Core Modelling Team

Deltares

How can we better forecast snowmelt-driven streamflow?

By combining physically-based model simulations with available snow measurement data, using data assimilation to improve the initial snowpack state in a hydrological forecasting system.

This research applies ensemble data assimilation methods to combine large domain hydrological modelling with snow data (in-situ and remotely sensed). The data assimilation methods are perturbed observation Particle and Ensemble Kalman Filter. The model is a continental domain SUMMA hydrological model developed by the USask Computational Hydrology group.
The focus area will be the North American Rocky Mountains.



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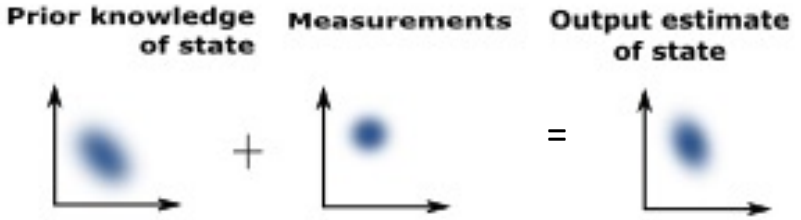
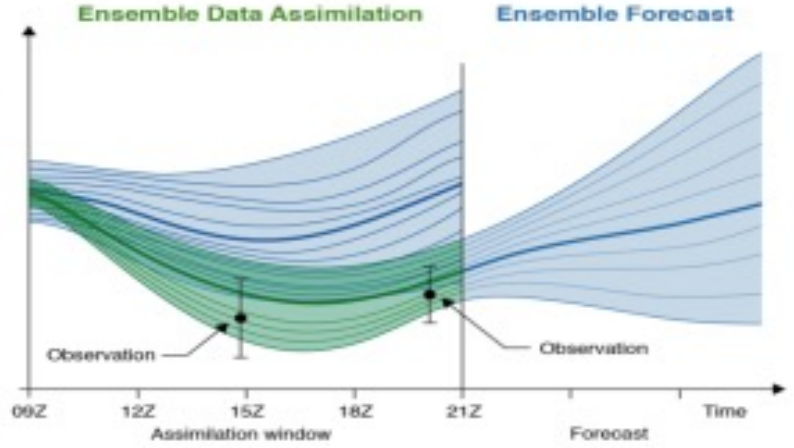


Ensemble, Bayesian Data Assimilation



Ensemble Plot: ECMWF

Ensemble Streamflow Forecasting