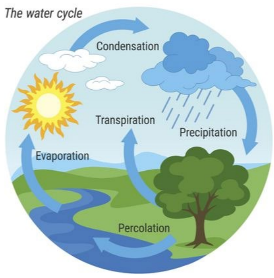


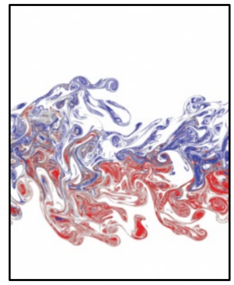

# Using Intercomparison to Evaluate Continental-Scale Hydrological Models

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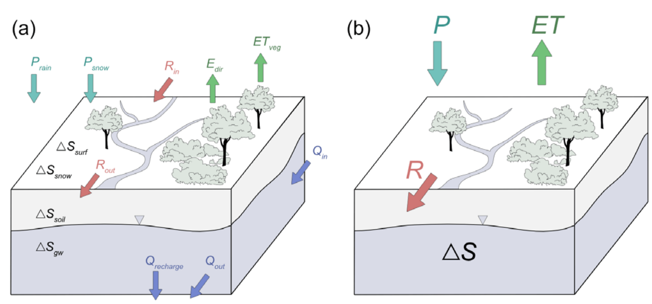
**Zoom: https://cuboulder.zoom.us/j/98861379124**

## Abstract:




High-resolution, coupled, physical hydrological models where subsurface, land-surface, and energy budget processes are represented, have been applied at the basin-scale to ask a wide range of water science questions. Recently, these models have been developed at continental scales with applications in flood forecasting, hydrologic prediction, and process representation. As use of these large-scale model configurations increases, it is exceedingly important to have a common method for performance evaluation and validation, particularly given challenges associated with accurately representing large domains. Here we present a conceptual comparison framework for continental-scale, high-resolution, processed-based hydrologic models, entitled CHIP—the Continental Hydrologic Intercomparison Project. We demonstrate the CHIP framework with a comparison of the ParFlow hydrologic model simulating most of the continental United States (PF-CONUSv1) and a NOAA US National Water Model version 1.2 configuration of WRF-Hydro (WRF-Hydro.NWM), specifically comparing simulated streamflow. To our knowledge, this is the first comparison of continental-scale, high-resolution, physical models. While the main goal of CHIP is to provide a basis for comparing these large and complex models, an additional outcome of the intercomparison is identification of important model biases. These results contribute to improvements and developments for the next version of the PF-CONUS version 2 model, which is being actively tested and run on the NCAR Cheyenne high performance computing platform. This work is a step toward improving hydrology model configuration and processes representation in large-scale models.

**Speaker Bio:** Danielle is a PhD Candidate at Princeton University in the Civil and Environmental Engineering department and studies with Dr. Reed Maxwell. Her research focuses on evaluating and improving high resolution, continental-scale hydrological models to better understand groundwater-surface water interactions. Danielle completed a masters in Hydrology at the Colorado School of Mines and worked as a community outreach hydrologist for CUAHSI in Cambridge, MA.