

Providing Sustainable Freshwater for the Future

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Goal

- Provide observation and modeling infrastructure directly supporting two related questions asked by the iUTAH interdisciplinary committee:
 1. What is the current water balance of the Wasatch region, and how vulnerable are water resources to changing climate and urbanization?
 2. What is the current structure of land use and water management, and how can these systems best adapt to future constraints on water resources?

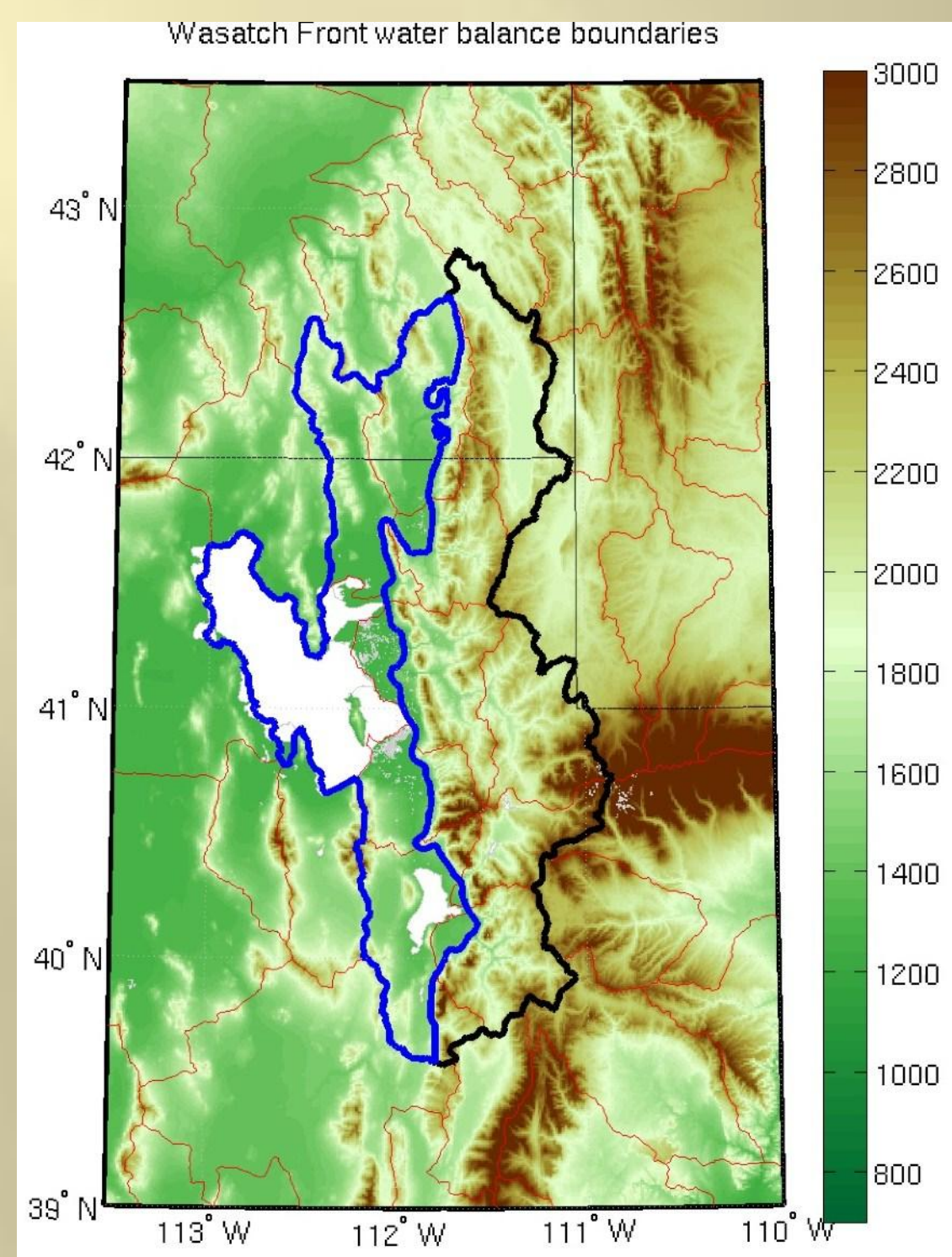


Figure 1. Wasatch Range Metropolitan Area (WRMA) water balance boundaries. The black outlines the mountainous region and the blue outlines the semi-arid region.

Research Methodology

- Develop a computationally efficient modeling framework that will quantify water balances along the Wasatch Front and their sensitivity to projected changes in climate, land use, and urban development
- Verify the model with existing data sets, existing model data, and data collected during the iUTAH instrumentation activities



Figure 2. Assembling portable field equipment for a quasi-vertical human-powered CO₂ transect.

Impact

- Evaluating the current water mass balance, including its stability and potential vulnerability to changes in land-use, urban development, and climate
- Creating effective planning and decision-making tools for future water scenarios



Figure 3. Human-powered quasi-vertical transects of CO₂ above the Salt Lake Valley.



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