

# Joint Front Range Climate Change Vulnerability Study

WATER RESEARCH FOUNDATION

## PROJECT SUMMARY

Planning for future water requirements along Colorado's Front Range is challenging and stakeholders needed a means to effectively plan for future water usage anticipating the effects that future climate change will have on the streamflow in the basins from which they obtain their water supply. Riverside Technology, inc. is working with the Front Range communities assessing possible changes in the timing and volume of hydrologic runoff that could be expected from various climate change scenarios.

LOCATION  
Colorado, U.S.A.

PERIOD  
2008 – Present

## PROJECT DETAILS

The hydrology and water resources of Colorado are extremely sensitive to climate. Multifaceted stress on water supply such as irrigation and municipal demands and mandated biological flows, coupled with climate variability and change, are increasing the importance of supply forecasting to water managers along Colorado's Front Range. Climate change is projected to increase the frequency of drought events in much of the Western US including Colorado, and as a result of increasing temperatures water yields may decrease. Water managers along Colorado's Front Range must adequately plan for a future of increased climate variability and change to anticipate how future climate will affect streamflow in the basins from which they obtain their water supplies (i.e., the upper Colorado, South Platte, Arkansas, Cache la Poudre, St. Vrain, Boulder Creek, and Big Thompson River basins).



*The Platte River*

Riverside Technology, inc. (Riverside) is working with Front Range water providers assessing possible changes in the timing and volume of hydrologic runoff that might be expected from selected climate change scenarios. Riverside is using calibrated hydrologic models to estimate the change in hydrologic runoff based on climate inputs that have been altered to reflect climate change. Key outputs are climate adjusted natural flow time series at selected locations, and evaluations of differences between these and historical natural flows commonly used by water providers to evaluate water availability.

In addition to the Front Range water providers, this study is a collaborative effort involving leaders in climate change science, including NOAA's Western Water Assessment (WWA), the U.S. Bureau of Reclamation (USBR), the U.S. Geological Survey (USGS), and the National Center for Atmospheric Research (NCAR).



*The South Platte River*

## RELATED PROJECTS

South Platte Decision Support System

South Platte River Calibration

Web-Based Climate Change Decision Support System

RIVERSIDE



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