



Platte River Calibration

U.S. NATIONAL WEATHER SERVICE

PROJECT SUMMARY

The U.S. National Weather Service needed improved models to better forecast streamflow along the Platte River in Nebraska. Riverside Technology, inc. is developing hydrologic, reservoir, and irrigation models to capture the natural runoff and the operation of the system of reservoirs and canals used to meet irrigation and hydropower demands along the river.

LOCATION
Nebraska, U.S.A.

PERIOD
2009 – Present

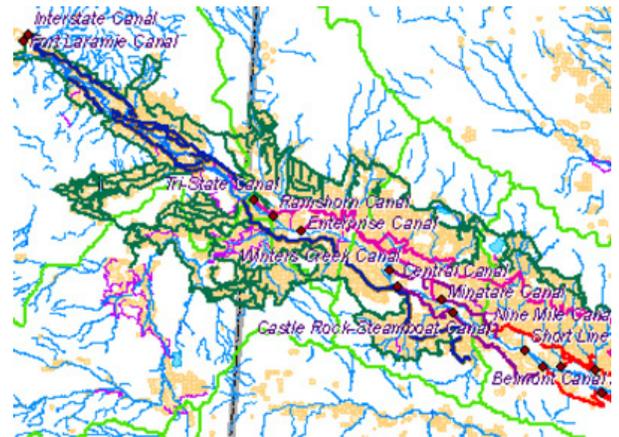
PROJECT DETAILS

The Missouri Basin River Forecast Center (MBRFC) of the U.S. National Weather Service (NWS) is updating their river forecasting models to improve their flood and long-range water availability forecasting capabilities. As a part of this effort, the MBRFC previously contracted Riverside Technology, inc. (Riverside) to improve their existing models for the South Platte and North Platte in Colorado and Wyoming. Riverside is currently working with the MBRFC to develop models of the North Platte and the Platte River mainstem in Nebraska.

Riverside has calibrated the Snow Accumulation and Ablation Model (SNOW-17), the Sacramento Soil Moisture Accounting (SAC-SMA) model, and the Lag/K routing model to simulate natural runoff and routing between forecast points. Additional models are under development to capture the effects of reservoir regulation and diversions for irrigation and hydropower.

The U.S. Bureau of Reclamation, the Central Nebraska Public Power and Irrigation District, and additional smaller irrigation companies operate an extensive system of on-channel and off-channel reservoirs and canals to provide water for irrigation and hydropower demands. These operations significantly impact the timing and volume of flow along the river, and need to be characterized in order to accurately forecast flows at forecast points.

Historical time series and supporting information provide the basis for the development of regulation models that represent the physical system and operational policies of the different entities. The reservoir and irrigation models are being developed to represent the impact of the streamflow regulation on short- and long-range forecasts. The ongoing model maintenance requirements are also under consideration, recognizing the need at MBRFC for a system of real-time models that can be easily maintained and modified as operations shift due to ongoing developments in the basin.



Irrigation canals and irrigated land at the Wyoming-Nebraska state line

RELATED PROJECTS

South Platte River Calibration

Streamflow Regulation
Accounting for the South Platte
Basin

Calibration of the St. Mary and
Milk Rivers

Hydrologic Calibration Analysis
for the North Central United
States

Watershed and Reservoir Model
Calibrations for the Ohio River
Basin

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