global science solutions

South Platte River Calibration

U.S. NATIONAL WEATHER SERVICE

PROJECT SUMMARY

The National Weather Service needed to develop a modeling solution for the South Platte River basin and the associated systems of water delivery and consumption to allow flood forecasting and long-range water availability. Riverside Technology, inc. developed and implemented a modeling strategy for the South Platte River and tributaries downstream to the Colorado state line.

LOCATION Colorado, U.S.A.

PERIOD 2007 - 2008

PROJECT DETAILS

The Missouri Basin River Forecast Center (MBRFC) of the U.S National Weather Service (NWS) is responsible for providing short-term and long-range streamflow forecast information as a part of their greater forecasting responsibilities.

The NWS contracted Riverside Technology, inc. (Riverside) to develop a strategy for addressing the various challenges in modeling the complexities of the South Platte River Basin. Riverside was then tasked with building systems of models to simulate the natural runoff response and the human-induced regulation of that natural flow to ultimately allow the MBRFC to forecast the total streamflow at over 50 points throughout the basin. Because of the varied nature of the MBRFC responsibilities, the forecast models had to be applicable both to short- and longrange forecasting.



Modeled South Platte Sub-basins

Riverside has utilized a wide range of information from the State of Colorado's South Platte Decision Support System (SPDSS) and other sources to understand and quantify regulation in the various sub-basins including:

- Historical time series data
- Water rights information
- Descriptive information of the water supply and delivery systems throughout the basin

The project has built on Riverside's involvement in and experience gained from various phases of the

Irrigated acreage and consumptive use data

SPDSS project. The modeling system has included hydrologic models, consumptive use models, reservoir models, and various tailor-made systems of models to capture unique system operations. All the models were developed from the suite of tools available within the National Weather Service River Forecasting System (NWSRFS) framework. The implementation strategy required developing the models to an appropriate level of complexity to capture the essential characteristics of the system to meet the forecasting requirements without creating overly

Riverside has completed the development work for the entire South Platte basin from the headwater streams downstream to the Colorado-Nebraska state line.

complex models that could not be maintained by the MBRFC.

RELATED PROJECTS

Colorado's Decision Support Systems

South Platte Decision Support System

Rio Grande Decision Support

South Platte Decision Support System Spatial Information Systems Component