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REAL-TIME WATERSHED MODELING & FORECASTING USING HEC-HMS and URGWOM

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ABSTRACT: The Upper Rio Grande Water Operations Model (URGWOM) is used extensively by a number of federal, state and tribal agencies throughout the basin to predict water availability and timing, track water use throughout the year, estimate supplemental flows for endangered species targets, and provide an overall water conservation tool. URGWOM is a collection of inter-related models used for forecasting, accounting, water operations and planning. More information about URGWOM is available at http://www.spa.usace.army.mil/urgwom. Daily water operations conference calls between the US Bureau of Reclamation, US Army Corps of Engineers and other stakeholders are currently being conducting to direct control of the dams along the Rio Grande in New Mexico. To assist in the water operations, a hydrologic model within HEC-HMS is proposed to provide spatially distributed rainfall runoff into real-time modeling and short-term forecasting purposes for URGWOM rule-based simulations. Reservoir releases and monsoonal rain events drive the hydrology of the Upper and Middle Rio Grande basin during the irrigation season. With few rain gages in the watershed, remotely sensed hydrologic inputs must be used for rainfall-runoff modeling. Precipitation grids are provided to the Corps of Engineers by the National Weather Service for use in the Corps Water Management System (CWMS), which visualizes precipitation and streamflow in real-time and has the capability to execute HEC-HMS models. Incorporating precipitation hydrology into CWMS will enable engineers to operate URGWOM, with its full suite of logic for water policy and reservoir regulation, in nearly real-time.

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