CRSS-Lite

An Annual Timestep Model for the Colorado River Stakeholders

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Introduction

- Motivation
  - Expressed need for an quick and accurate tool to be used for policy evaluation
- Background
  - Stakeholders interviewed for user requirements
  - Stakeholders and Reclamation part of development process
- Objectives
  - Fast and accurate
  - Easy to use

Major Features of Lite

- Annual Timestep
  - Objects require annual input and dispatch annually
- Data Requirements
  - Monthly and annual hydrologic data
  - Annual demand data with monthly percent for disagg
- Lower Basin Model
  - Lower Basin detail identical to CRSS (4 reservoirs, 46 diversions, 10 reach objects)
- Performance
  - Approximately 75% reduction in runtime
  - Very accurate

Major Features of Lite

- Reservoir Operational Policy
  - Rules perform monthly computations due to inherently monthly nature of rules such as Equalization and Mead Flood Control
  - Monthly storages for Mead and Powell are saved on each reservoir
  - Mead Flood Control implemented as user method on computational subbasin object
- Scheduling Rules
  - Normal, Shortage and Surplus rules perform annual computations
- Expression Slots for Multiple Runs

Interpreting & Viewing Model Output

- Many tools available to analyze model results
  - System Control Table (SCT): View current state of the model in compact, easy way
  - Data Management Interface (DMI) Routines, Output Manager and Individual Slot Export as a way to transfer model results to another application for analysis
  - Snapshots & Plotting: powerful tool for analysis within the model

Demonstration

- Increase 80P1050 Shortage Trigger
  - Run first with statistically determined triggers
  - Run twice more increasing trigger to 1150 ft & 1180 ft
  - Using Snapshot & Plotting tools, view changes in Mead's pool elevation
  - Using Model Run Analysis, view occurrence of shortages