

Database Management

Microsoft Excel - reservoir

File Edit View Insert Format Tools Data Window Help

Arial 10

Meta data for data used in the URGWOM modeling project--usr1/urgwom/data/basicdata4/reservoir.dss

| | A | B | C | D | E | F | |
|---|--|----------------------|---------------------------|--|------------------|---|--------------|
| 1 | <i>Meta data for data used in the URGWOM modeling project--usr1/urgwom/data/basicdata4/reservoir.dss</i> | | | | | | |
| 2 | Station Name | Data Comments | DSS record B-parts | Agency collecting data | Data type | Dimension of data | DSS F |
| 3 | Heron Reservoir near Los Ojos, NM | USBR data | HERON | U.S. Bureau of Reclamation (Reclamation) | precipitation | inches | reserv |
| 4 | Heron Reservoir near Los Ojos, NM | USBR data | HERON | Reclamation | pan evaporation | inches | reserv |
| 5 | Heron Reservoir near Los Ojos, NM | USBR data | HERON | Reclamation | pool elevation | ft (on the National Geodetic Vertical Datum of 1929) NGVD29 | reserv |
| 6 | Heron Reservoir near Los Ojos, NM | USBR data | HERON | Reclamation | inflow | cubic feet per second (cfs) | reserv |

URGWOM Technical Review

October 14, 2010

Data Needs

- Historical data needed for URGWOM runs are maintained in DSS files and include:
 - Stream Gage Data
 - Local Inflows
 - Calculated San Juan Tributary Flows
 - Reservoir Data
 - Diversions (MRGCD, Rio Chama)
 - Crop and Riparian ET Rates
 - Crop Areas
 - Deep Aquifer Heads
 - Shallow Aquifer Heads
 - Wastewater Returns
 - Synthetic and Assumed Values

Data File Format

- Database maintained in files having the format of the Corps' Hydrologic Engineering Center (HEC) Data Storage System (DSS)
- DSS files can be viewed (and edited) using HEC-DSSVue.
 - Free software can be downloaded from <http://www.hec.usace.army.mil/software/hec-dss/hecdssvue-download.htm>.

Data Management Interface (DMI)

- For Planning Model runs completed using historical hydrology, DMIs are used to import data from DSS.
- Historical data are also imported to the Forecast Model following each database update with a DMI
 - and then referenced when developing forecasted inputs for Water Operations Model runs.

Completed Database Work

- ✓ Historical database updated.
- ✓ Database DMIs set up.
- ✓ New Template spreadsheet and basic control file DMI established to import initial conditions.
- ✓ Separate DSS files and database DMIs set up for the synthetic hydrologic sequences.
- ✓ Database DMIs set up in the Accounting, Forecast, and Water Operations Models.

Historical Database Updated

- Historical database completely updated through 2006,
 - through 2007 for the Middle Valley portion.
- Update reflects new data needs for the new Middle Valley configuration in the model.
 - Additional ETRate and GWObject DSS files created.
- Excel Add-In used for updating DSS files.
- Metadata files updated.

Sources for Historical Data

- Updating the database entails obtaining the following:
 - gage data from the USGS or Colorado websites,
 - Corps and Reclamation reservoir data from the Acct Model,
 - Caballo and Elephant Butte data from Reclamation's El Paso office,
 - MRGCD diversion data from MRGCD,
 - Rio Chama diversions from OSE,
 - computed historical ungaged local inflows - *separate model*,
 - computed flows above diversions in the San Juan basin,
 - wastewater data from municipalities and the EPA,
 - riparian and crop ET data from the ET Toolbox,
 - crop areas from ISC, and
 - deep aquifer heads from OSE,
 - shallow aquifer storage and elevations - for initial conditions.

Crop Type Mapping

- Updates to ET data required work on crop mapping.
 - Crop types for the period through 1999 are based on the old Land Use Trend Analysis (LUTA) crop types and
 - Crop types for period starting in 2000 are based on crop types used with IKONOS data.
- ➔ Neither matches the crop types used in URGWOM.
- Due to the differences, different mapping used
 - between LUTA and URGWOM versus
 - between IKONOS and URGWOM.

Historical Database DMIs

- Database DMIs serve as a direct connection between RiverWare and DSS - a newer RiverWare capability.
 - Database DMIs were set up for importing historical data
- Allows for DMIs to now be invoked on RiverWare for Windows
 - as opposed to the previous control file/executable DMIs that ran on RiverWare for Solaris on Sun workstations.
- Database DMI also established for importing initial conditions based on historical values,
 - specifically needed for calibration models.

Template Spreadsheet -Initial Conditions

- A template spreadsheet was created for importing initial conditions to the Planning Model.
- Initial conditions for planning studies are often defined independent of the hydrology.
 - Initial conditions may be based on *current conditions* (not yet available in the URGWOM database);
 - current conditions are available in the Accounting Model; or
 - based on projected conditions for the beginning date defined for a planning study.

Separate DSS Files and Database DMIs

Synthetic Sequences

- Separate DSS files were set up for the synthetic sequences.
 - Historical data are sorted based on the sequences.
 - Script files used to take data from the historical database DSS files and create new DSS files - appropriately adjusting for leap years.
 - Files specifically set up for a 2010-2019 simulation period.
 - URGWOM runs with sequences set up for 2010-2019 run period.
- Separate Database DMIs established to import data for the synthetic sequences.

Database DMIs for AOP Runs

- Database DMIs were established in the Accounting, Forecast, and Water Operations Models for data transfers as part of completing AOP runs.