Colorado’s Water Data Initiatives

Colorado River Basin Data and Modeling Roundtable
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Colorado’s Decision Support Systems (CDSS) History


- Enhancements have typically come through Basin DSS efforts
  - CRDSS (CO River) in 1993
  - RGDSS (Rio Grande) in 1998
  - SPDSS (South Platte River) in 2001
  - ArkDSS (Arkansas River) in 2011

- The CDSS was created to streamline data and tools statewide
Basin DSS Approach

CDSS (Statewide)

Basin DSSs
- CRDSS
- RGDSS
- SPDSS
- ArkDSS

HydroBase
- Diversion records
- Water Rights transactions
- Groundwater levels
- Climate data

Software
- StateMod
- StateCU
- StateDMI
- TSTool
- Map Viewer

GIS Layers
- Interviews/Task Memos
- CU models
- Surface water models
- Groundwater models
- Administration tools
*Basin-specific issues*
Joint program between Colorado Water Conservation Board (CWCB) and Colorado Division of Water Resources (DWR)

Approximately 120 water commissioners (from Colorado’s DWR) gather data and administer rivers

The CWCB performs planning studies and uses water data for use in modeling and quantification of water use and demands.
CDSS Tools

- HydroBase
- Online Data Tools
- GIS / Map Viewer
- Crop Consumptive Use Modeling (StateCU) Datasets
- Water Allocation Modeling (StateMod) Datasets
- Supporting software (TSTool, StateDMI, StateDGI, Lease Fallow Tool, etc.)

Publicly available at: Colorado.gov/CDSS
HydroBase Data Types

- Diversions
- Well Metering
- Streamflow
- Reservoir Stage and Releases
- Water Rights
- Call Chronology
- Aquifer Levels
- GIS
Online Data Tools

- Query and visualization of HydroBase
- Call Analysis Tool
- Aquifer Determination Tool
- My Stations / Alerts
- Colors of Water
- REST Web services

dwr.state.co.us/Tools
Structure Ditch CENTENNIAL D

Name = CENTENNIAL D
WDID = 2000558
Current-in-Use = Active Structure with contemporary diversion records (A)
Water Source = RIO GRANDE (01385432)
Assoc Permit =
Assoc Case No = 05/01/1896, 79CW00091
Location Accuracy = GPS

Add to Results | View Additional Details
2017 Irrigated Land POTATOES

Description
Crop type = POTATOES
Irrig type = SPRINKLER
Acres = 119,8007

Details
CAL_YEAR
2017
DIV
3
DISTRICT
20
PARCEL_ID
32001249
MASTER_ID
1109
CROP_TYPE
POTATOES
CROP_SRC
NASS
StateCU (CU Modeling)

- Consumptive Use modeling software produced by Colorado
- Monthly Modified Blaney-Criddle or Daily Penman-Monteith

**Inputs:**
- GIS coverage of acreage, crop type, irrigation type, and structure association
- Climate data

**Outputs:**
- Potential consumptive use
- Supply-limited consumptive use
- Unlagged return flow
- Effective Precipitation

Open source licensing and source code:

http://opencdss.state.co.us/opencdss/
https://github.com/opencdss
StateMod (Water Allocation Modeling)

- Water allocation modeling software produced by Colorado
- Prior appropriation and Colorado operations (Compacts, augmentation, etc.)

**Inputs:**
- Crop/municipal/industrial demands
- Water Rights
- Natural Flows

**Outputs:**
- Streamflow
- Diversions
- Well pumping

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Colorado Initiatives

- Colorado Water Plan Analysis & Technical Update
- Colorado participation in WaDE
- Colorado participation in OpenET
- Drought Contingency Plan
THANK YOU

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