COLORADO'S DECISION SUPPORT SYSTEMS

2009 ANNUAL REPORT

January 2010

This year's annual report for CDSS, the water resources management system developed by the Colorado Water Conservation Board (CWCB) and the Colorado Division of Water Resources (DWR) covers the following topics:

- Purpose and Coverage of CDSS
- 2009 Legislative Actions and Funding
- Accomplishments of CDSS in the past year
- Goals for 2010

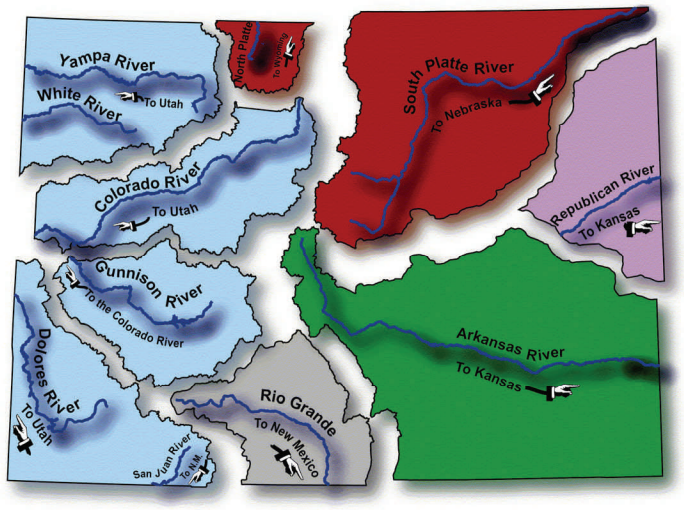
CDSS Purpose

The CDSS water resources management system exists to assist water users and managers to make timely, informed decisions regarding historical and future use of Colorado's water. The goals of CDSS include the following:

- Develop accurate, user-friendly databases that are helpful in the administration and allocation of the water resources of the State of Colorado
- Provide data and models to evaluate alternative water administration strategies, which can maximize utilization of available resources in all types of hydrologic conditions
- Be a functional system that can be used by decision-makers and others and be maintained and upgraded by the State
- Have the capability to accurately represent current and potential federal and state administrative and operating policies and laws
- Promote information sharing among government agencies and water users

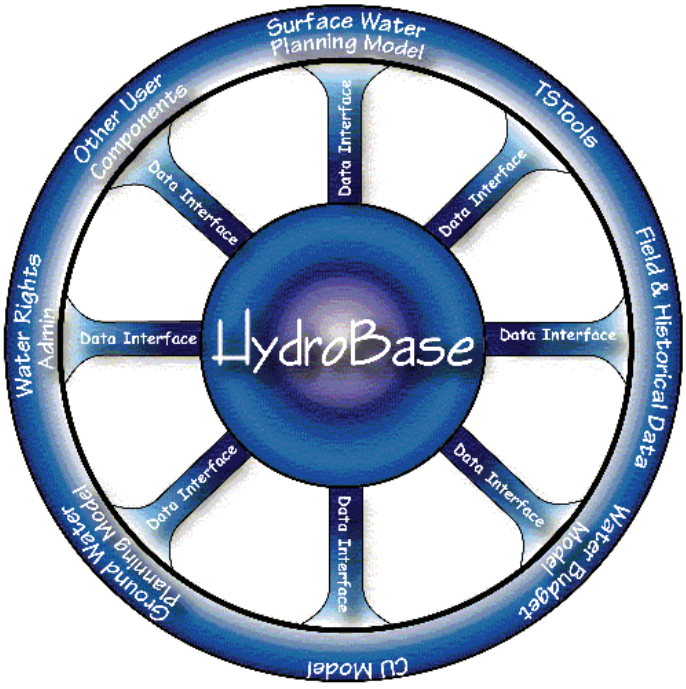
CDSS Coverage

Portions of the CDSS database cover the entire state. Currently there are complete systems, including data, tools and models, for the Colorado (blue) and Rio Grande (grey) Basins. Work continues on the South Platte Basin (red) system along with the initial feasibility stage for the Arkansas River Basin (green) beginning in 2010.



A DSS in the Republican River Basin (purple) is not planned at this time.

CDSS Components



2009 CDSS Legislative Actions, Decision Items, and Funding

2009 saw new funding requests for the SPDSS, at $150,000, to continue the implementation. The intent of this appropriation was to help with the implementation of the surface water modeling. Funding was also approved for Phase 2 of the Colorado River Water Availability Study (CRWAS), at 1 million dollars, to finish the work originally authorized in Senate Bill 07-122. Under CDSS, $50,000 was authorized to make needed enhancements to an existing groundwater model program (MODFLOW) to make the groundwater modeling process more efficient and compatible with the existing CDSS.

2009 Accomplishments

Bill Title	Section	DSS System	Amount	Notes
SB 01-212		RGDSS	$180,458/ 1.0 FTE	DWR
SB 01-157	8	SPDSS	$2,000,000	Data collection & Design
HB 02-1152	12	SPDSS	$2,000,000	Development
HB 04-1221	12	SPDSS	$2,500,000	Development
SB 05-209		SPDSS	$1,500,000	Development
HB 06-1313		SPDSS	$2,000,000	Development
SB 07-122		CDSS	$200,000	Support
SB 07-122		ARKDSS	$200,000	Feasibility Study
HB 08-1346		SPDSS	$1,000.000	Development

Statewide

CDSS had another successful year in 2009, with the major accomplishment being the enhancement of the CDSS webpage data viewing capabilities.

All but one of the western slope river basin models have been updated, using the latest versions of StateDMI and StateMod. New models and documentation are available on our website for the Gunnison, Yampa, San Juan, Colorado and Rio Grande Basins.

Western slope irrigated acreage updates for 2005 are near completion. This is the first time that such an update was done entirely by CWCB staff. With the help of water commissioners, ground truth data was collected for crops in 2005 across the entire western slope.

Implementation of the Flood DSS (FloodDSS) was initiated and is near completion. This tool is intended to be a clearinghouse of flood hazard information and other flood related data, to be used by staff, engineers, floodplain managers and emergency response agencies.

The CDSS Internet Map Server (IMS) website that came online in 2005 has been quite successful in making mapping developed under CDSS available to the public. The site allows the user to view all of the available CDSS GIS data via a map server. The data viewing option has been enhanced to provide more complete access to the data stored at DWR. This site is available through the Map Viewer link on the CDSS website.

Rio Grande Basin

The RGDSS went from a DSS in progress to a fully functional DSS that is being used by DWR, as well as by various entities in the San Luis Valley. The surface water planning model has been updated, with the modeling period being extended to 2006. A new irrigated acreage snapshot was added for 2005, and the groundwater model was one tool used by the DWR in its Rio Grande rules and regulation hearings.

Colorado River Basin

The Colorado, Gunnison, Yampa and San Juan River Basins' surface water planning models have been updated with new monthly datasets, which are available for downloading on the CDSS website. All of these models are being used in estimating water availability under different hydrologic settings. This is the first time that the CDSS surface water modeling tools have been used to help in the

CDSS provides a key component to the planning process associated with future water construction projects in Colorado. Currently, before any CWCB construction loans can be given, applicants must complete the water supply component of a feasibility report. The CDSS system allows CWCB staff to quickly and accurately evaluate the feasibility of future water projects. The net result is less startup cost, time savings, and a consistent approach to water supply studies.

Interbasin Compact Committee (IBCC) process, as well as providing the CWCB Board members with additional information to help them in their planning process.

South Platte River Basin

Much of the year was focused on the development and calibration of the alluvial groundwater model; however, the modeling of the surface water system in the lower South Platte (Water District 64) has also been initiated. All the water resource data collected is available for viewing and download on the CDSS website. CDM, the groundwater contractor, is in the final stages of model calibration of the alluvial system, which is following a data-centered approach. This methodology will make the updating and implementation of a groundwater model, in any basin, more efficient and maintainable by the State in the future.

Arkansas River Basin

The initial stage of implementing a DSS in the basin has begun, with Brown and Caldwell selected as the primary contractor. They will carry out the feasibility study to see what the basin needs are in terms of data and tools.

2010 Goals

Five years have passed since the last irrigated acreage refresh was performed for the western slope. In 2010, ground truthing of certain irrigated parcels will be performed, to obtain the actual crop type being irrigated. This will be used to later assign correct crop types to other irrigated parcels, using Landsat imagery for 2010 once it is available. The same techniques used in the SPDSS will be implemented with this update; however, this refresh will be done in-house. Our goal this year is to complete the 2010 ground truth effort for the entire state, with the help of DWR.

Groundwater modeling will be completed in 2010 for the South Platte alluvium. The Denver Basin bedrock modeling was completed in 2009, in cooperation with the USGS, and the report should be ready in the next few months for public viewing. The South Platte alluvial model is being developed and calibrated by our groundwater contractor, CDM, and will encompass the alluvial systems of the mainstem and significant tributaries of the South Platte Calibration includes efforts for both steady state and transient simulations. The steady state calibration is mostly complete, and the focus in the next several months will be on the transient calibration, with the model being completed later in 2010.

Another Peer Review Committee meeting will be held for the SPDSS groundwater component in 2010. The purpose of these meetings is to provide a technical forum for the water community, so they can provide review, comments, and suggestions on the technical aspects of CDSS.

The CDSS team will also continue to support the SWSI and HB-1177 efforts, as well as other interagency activities where CDSS can be of assistance.

Visit CDSS on the web:
http://cdss.state.co.us