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Water-Level Monitoring and Current Groundwater Conditions in Colorado

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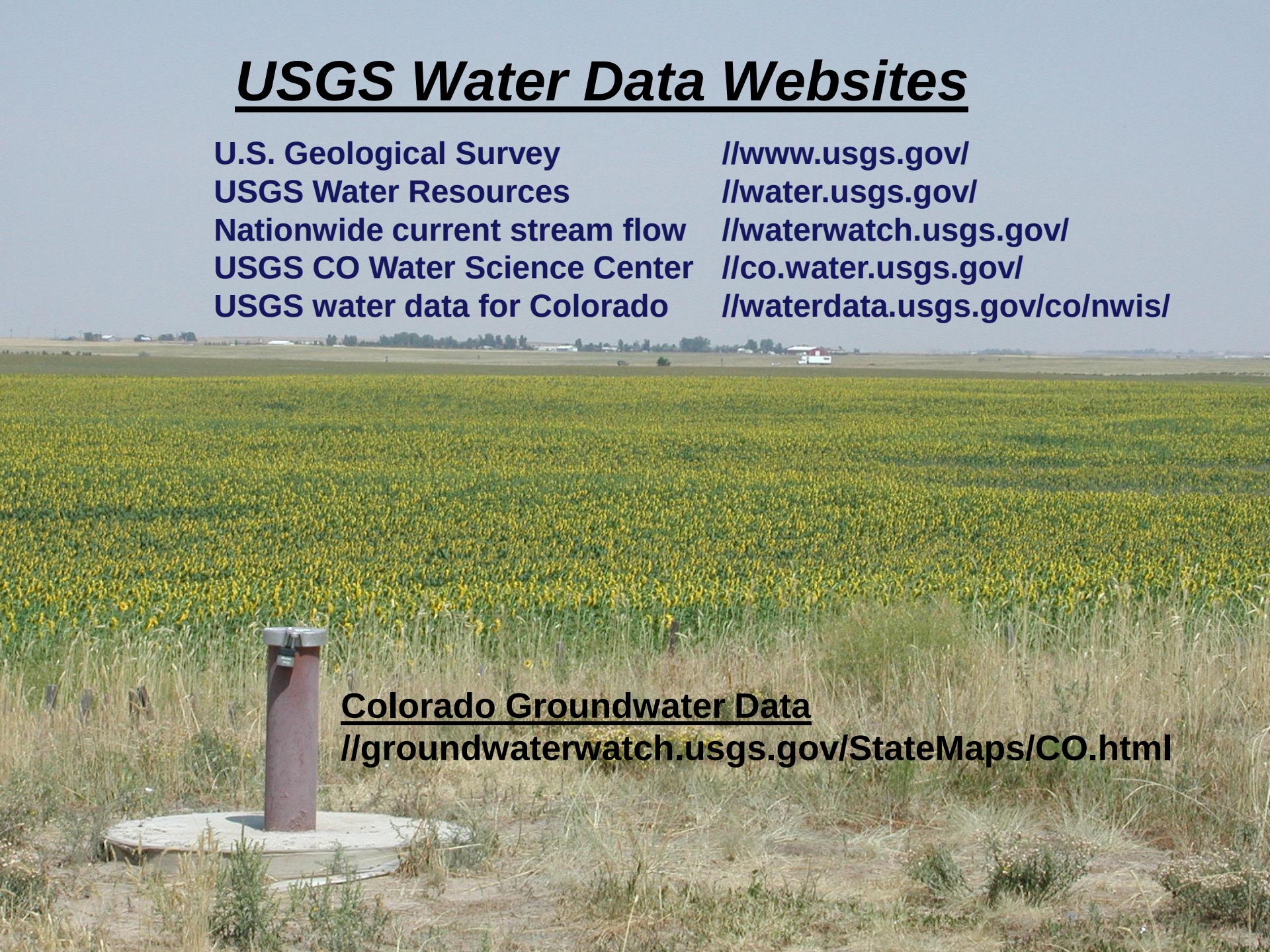
U.S. Geological Survey
Denver, CO

CWCB
Water Availability Task Force
February 25, 2010

U.S. Department of the Interior
U.S. Geological Survey

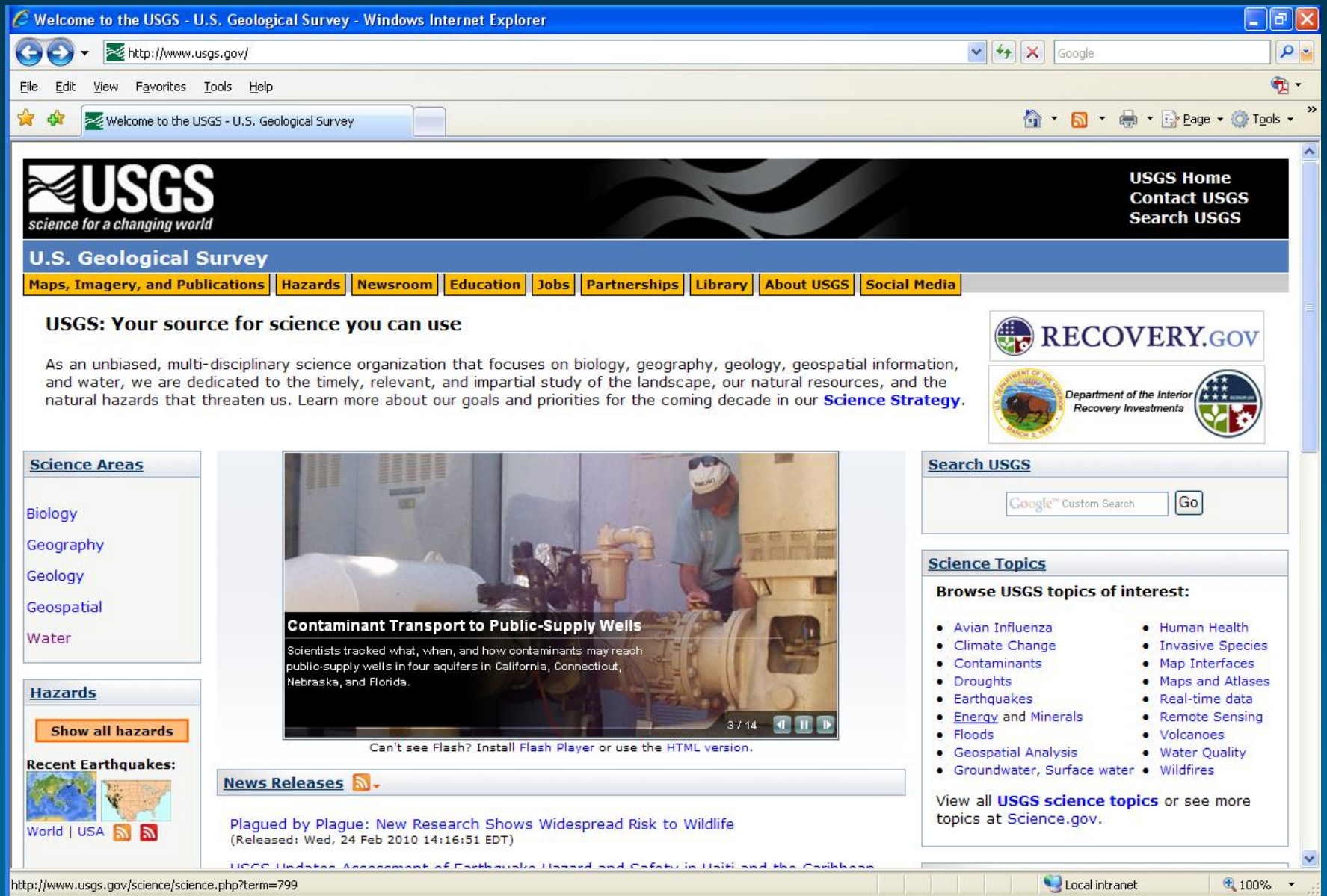
USGS Water Data Websites

U.S. Geological Survey	//www.usgs.gov/
USGS Water Resources	//water.usgs.gov/
Nationwide current stream flow	//waterwatch.usgs.gov/
USGS CO Water Science Center	//co.water.usgs.gov/
USGS water data for Colorado	//waterdata.usgs.gov/co/nwis/

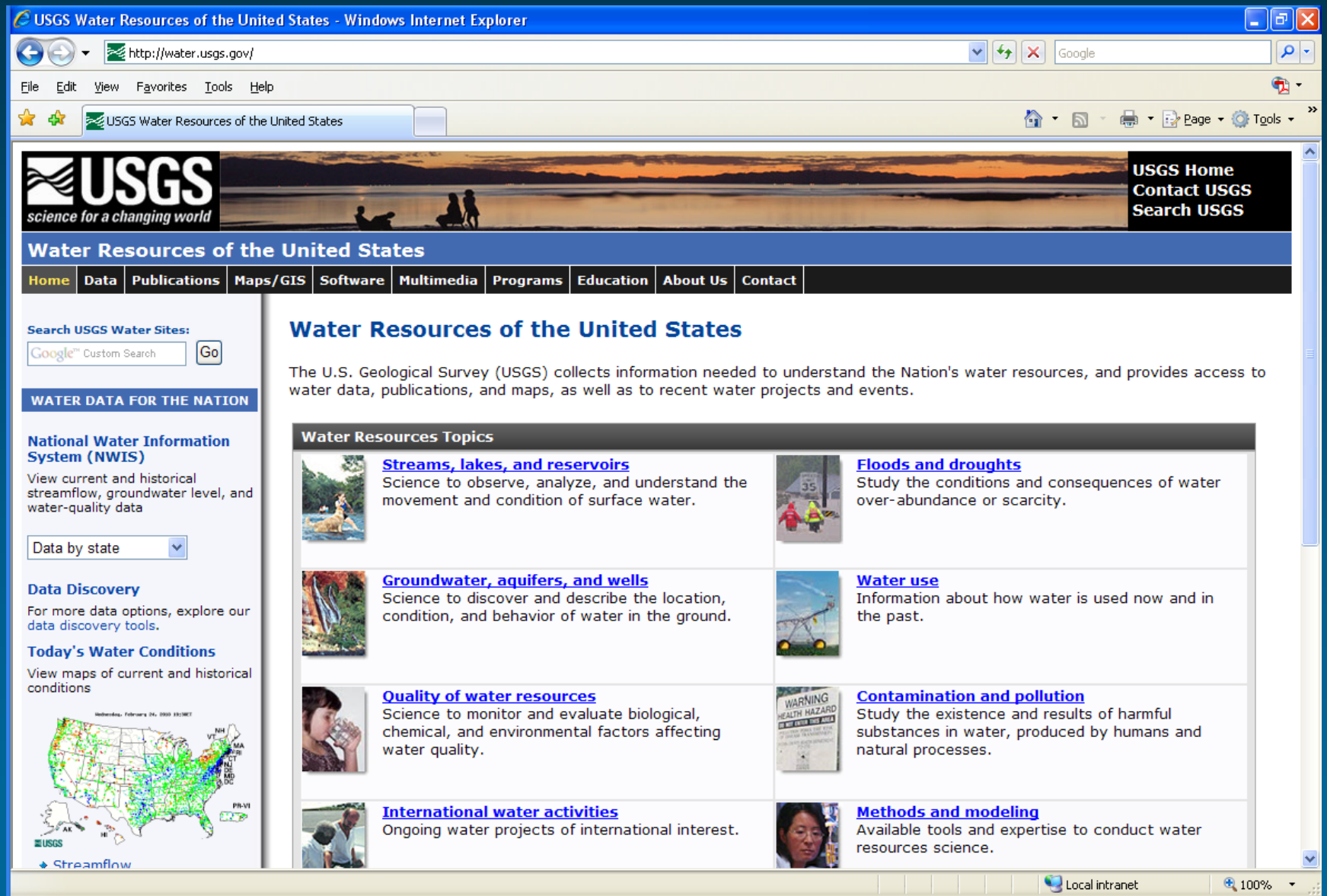


Colorado Groundwater Data
//groundwaterwatch.usgs.gov/StateMaps/CO.html

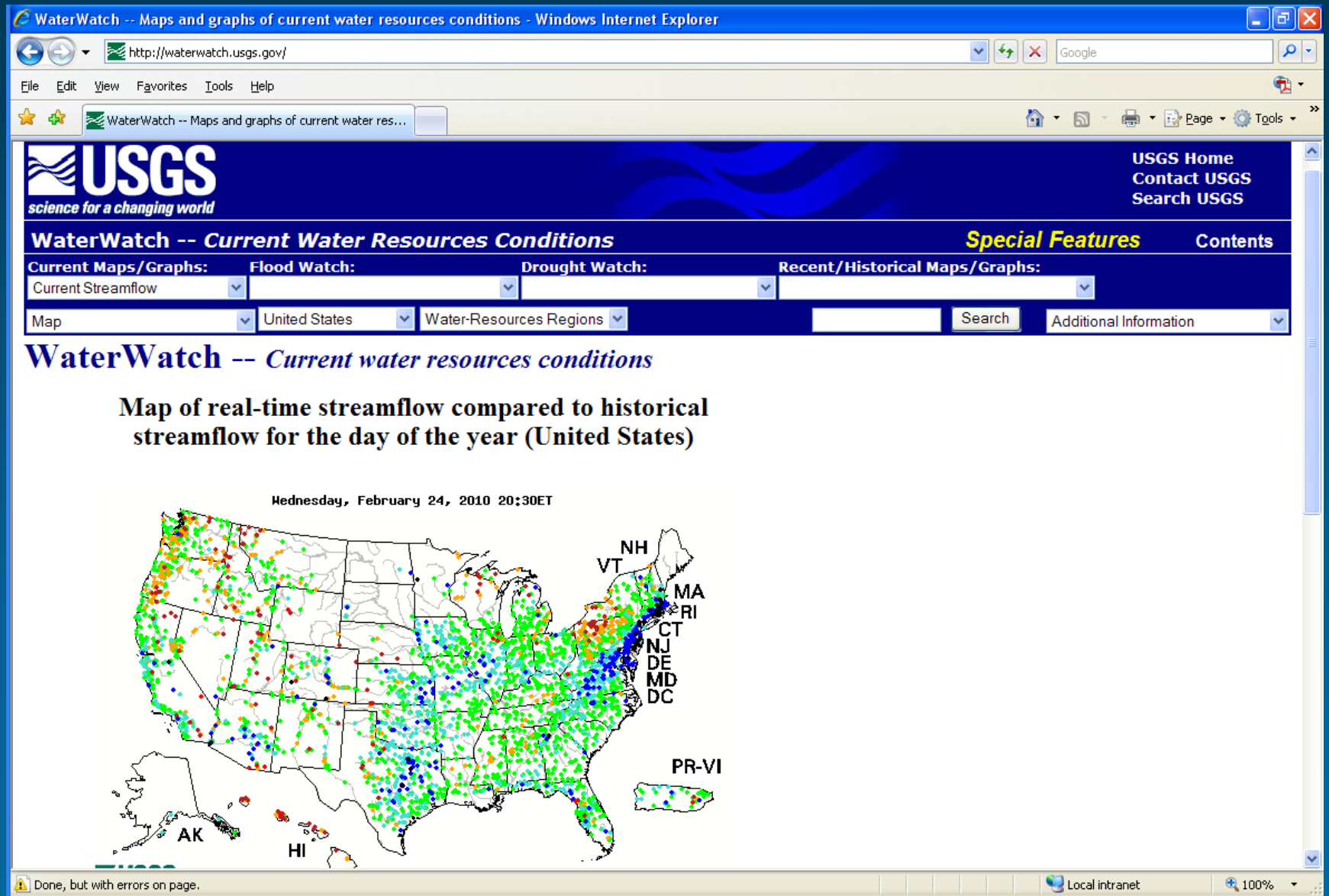
U.S. Geological Survey //www.usgs.gov/



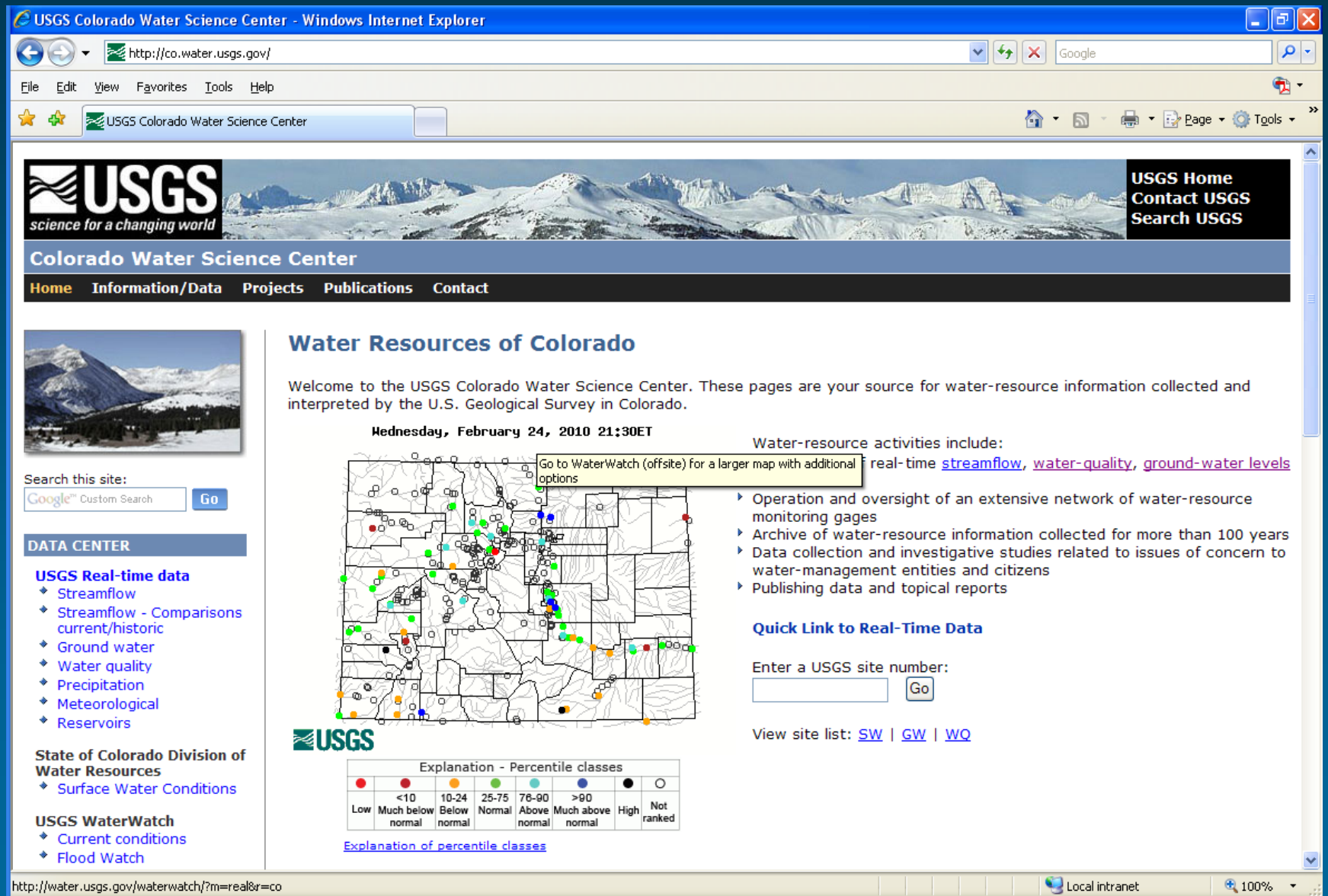
USGS Water Resources
//water.usgs.gov/



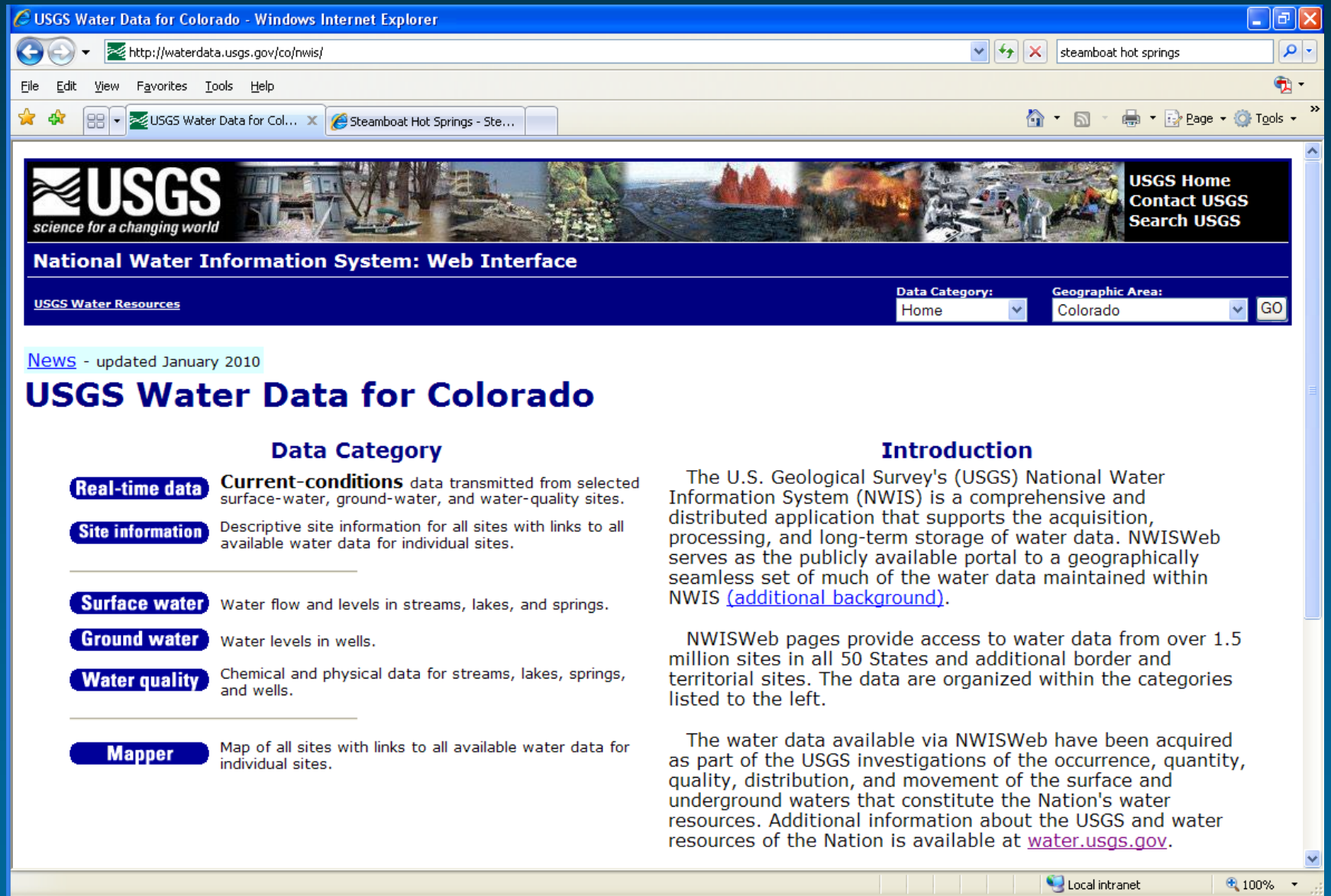
Nationwide current streamflow //waterwatch.usgs.gov/



USGS CO Water Science Center //co.water.usgs.gov/

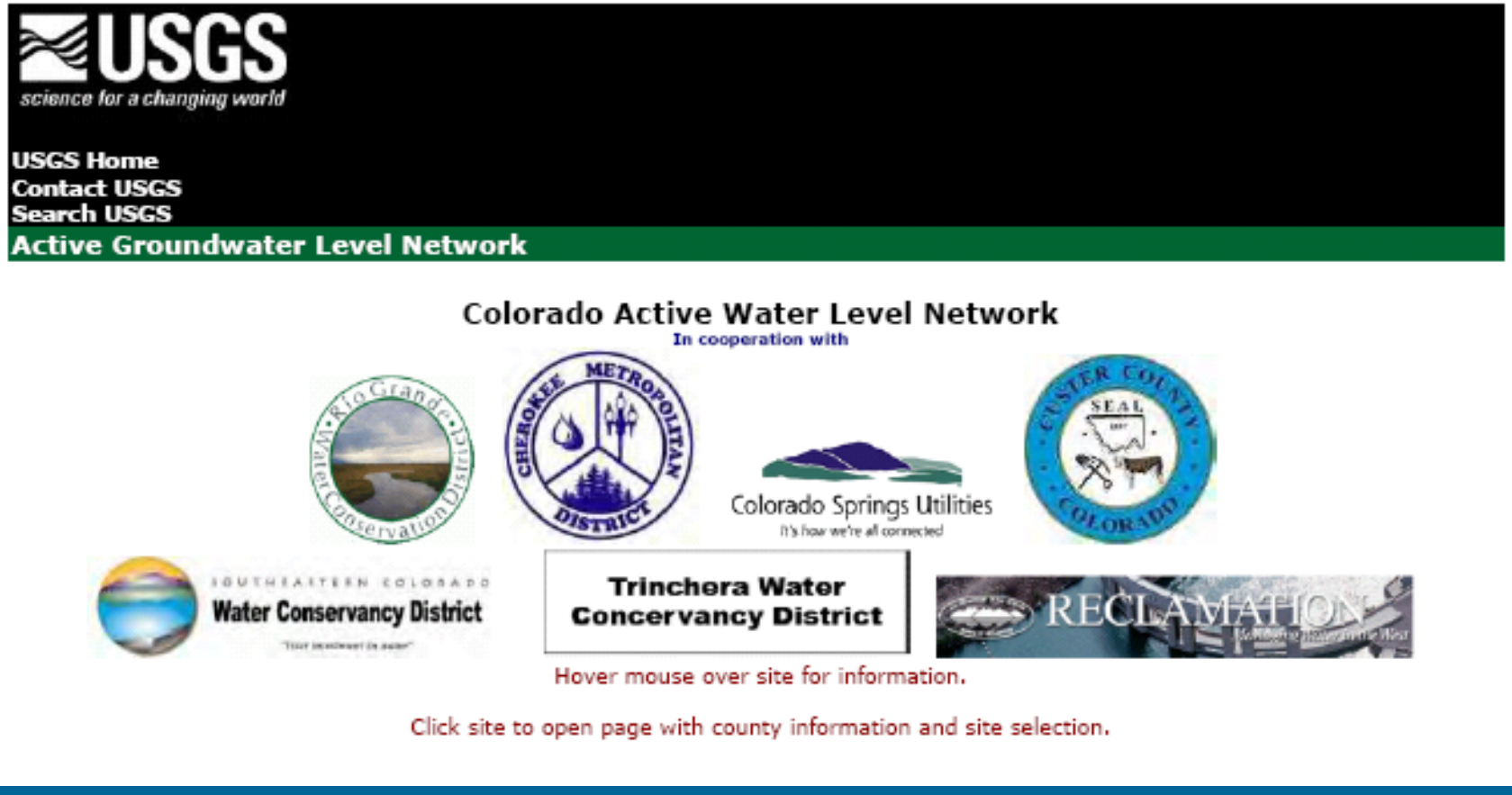


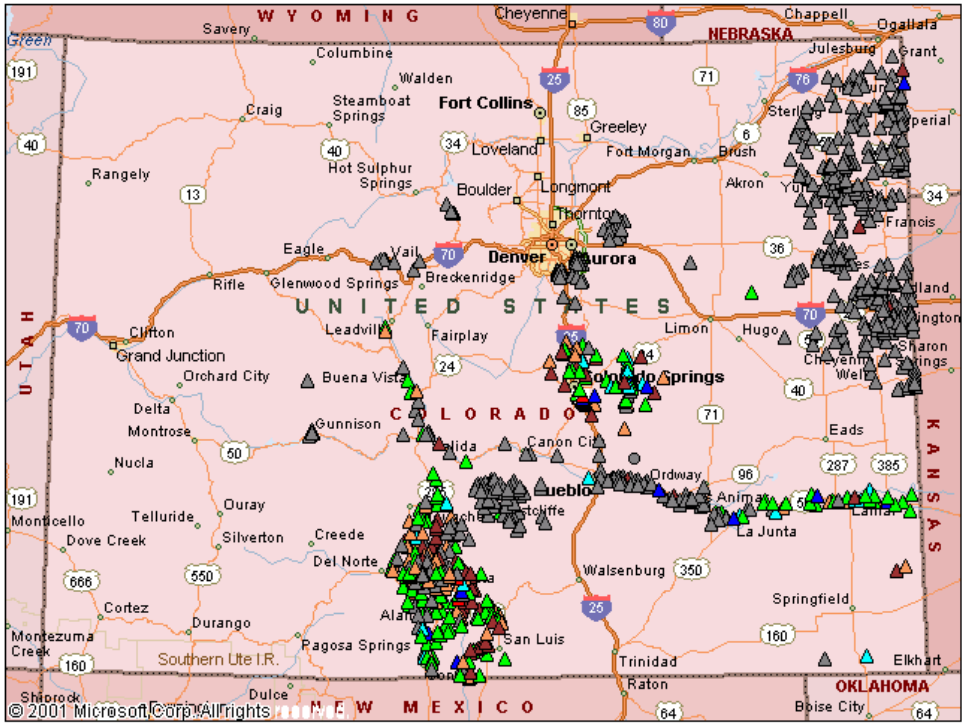
USGS Water Data for Colorado //waterdata.usgs.gov/co/nwis/



Web Serving of Shared Water-Level Data

USGS groundwater data available from National Water Information System (NWIS):
http://groundwaterwatch.usgs.gov/StateMaps/CO.html





Explanation - Percentile classes (symbol color based on most recent measurement)

Low	<10 Much Below Normal	10-24 Below Normal	25-75 Normal	76-90 Above Normal	>90 Much Above Normal	High	Not Ranked

Real Time
Continuous
Periodic Measurements

Map generated 2/24/2010 8:23:02 AM

Groundwater Watch Help Page | Download Google Earth Version | Google Maps Display interactive map

Colorado Counties depicted on the state location map with active wells

Counties	Well Count	Real-Time	Continuous	Periodic
Adams County	17	-	-	17
Alamosa County	98	-	-	98
Arapahoe County	19	-	-	19
Baca County	3	-	-	3

Interactive map and county list of water-level monitoring sites

Colorado Counties depicted on the state location map with active wells

Counties	Well Count	Real-Time	Continuous	Periodic
Adams County	17	-	-	17
Alamosa County	98	-	-	98
Arapahoe County	19	-	-	19
Baca County	3	-	-	3
Bent County	13	-	-	13
Chaffee County	12	-	-	12
Cheyenne County	18	-	-	18
Conejos County	28	-	-	28
Costilla County	41	-	-	41
Crowley County	4	-	-	4
Custer County	59	-	-	59
Douglas County	25	-	-	25
Eagle County	5	-	-	5
El Paso County	126	-	-	126
Fremont County	7	-	-	7
Grand County	5	-	-	5
Gunnison County	6	-	-	6
Kit Carson County	102	-	-	102
Lake County	2	-	-	2
Lincoln County	1	-	-	1
Logan County	6	-	-	6
Otero County	25	-	-	25
Phillips County	40	-	-	40
Prowers County	19	-	-	19
Pueblo County	34	1	-	33
Rio Grande County	53	-	-	53
Saguache County	84	-	-	84
Sedgwick County	7	-	-	7
Summit County	2	-	-	2
Washington County	18	-	-	18

Interactive county list of data availability

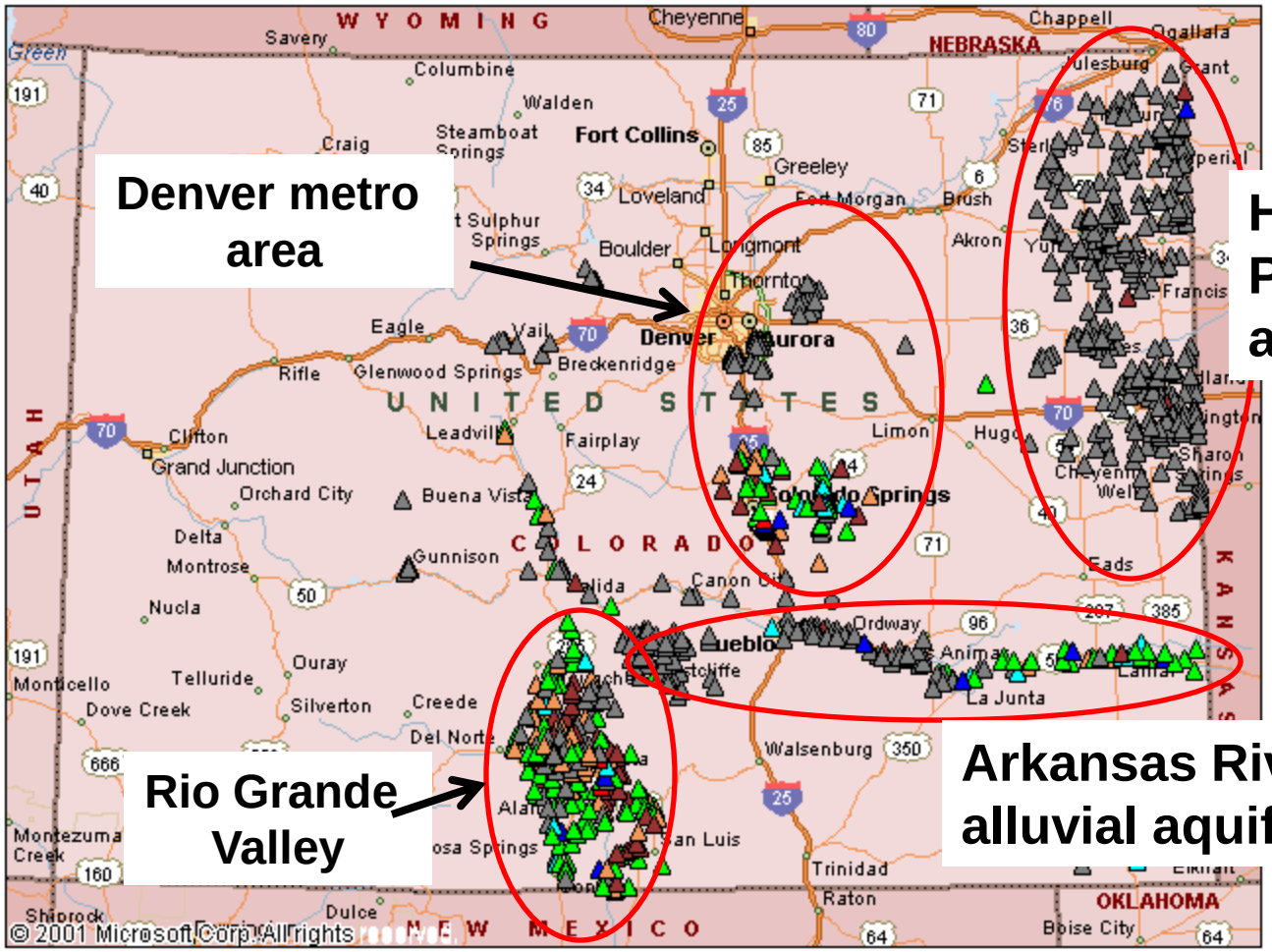
USGS -- Water Resources of the United States - Windows Internet Explorer

http://groundwaterwatch.usgs.gov/StateMaps/CO.html

File Edit View Favorites Tools Help

USGS -- Water Resources... | Steamboat Hot Springs - Ste...

Hover mouse over site for information.
Click site to open page with county information and site selection.

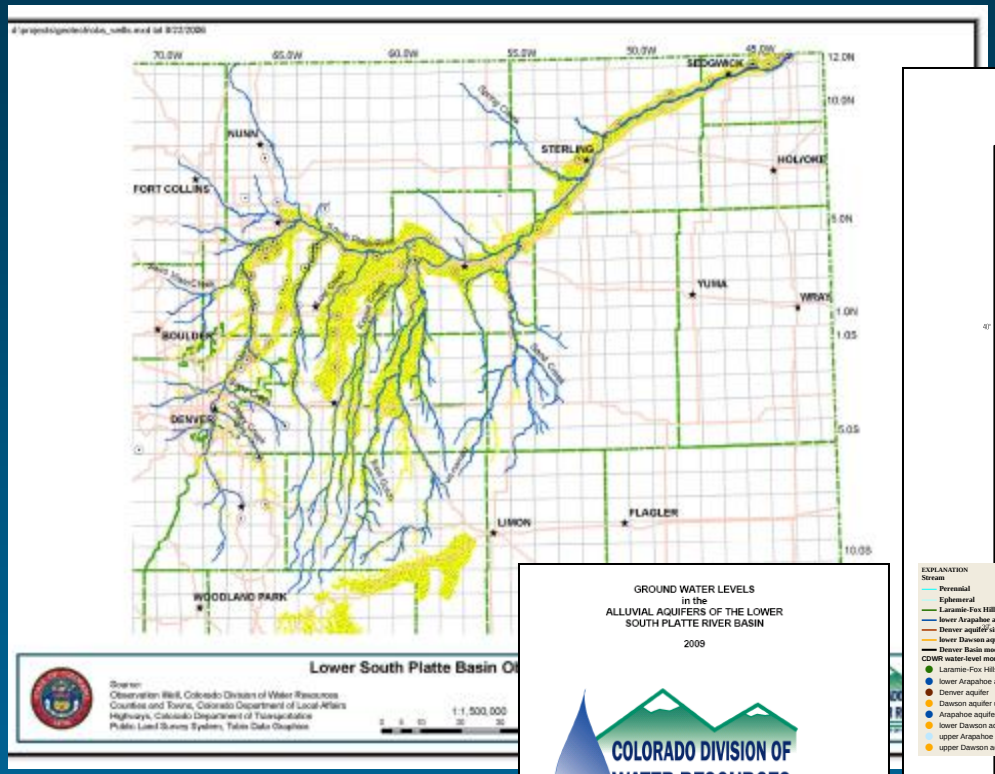


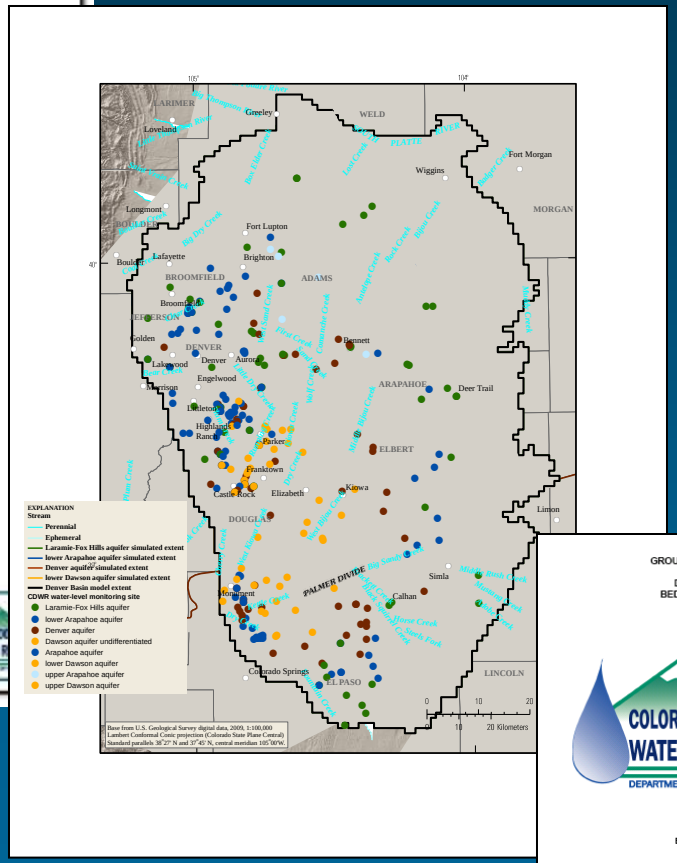
Explanation - Percentile classes (symbol color based on most recent measurement)

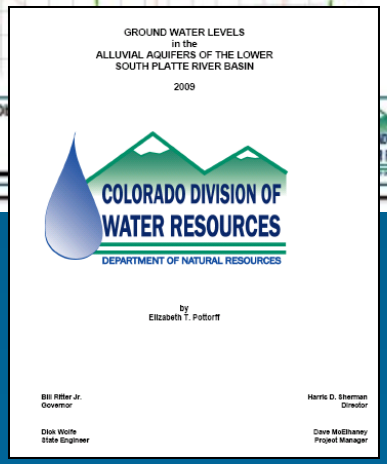
Low	<10	10-24	25-75	76-90	>90	High	Not

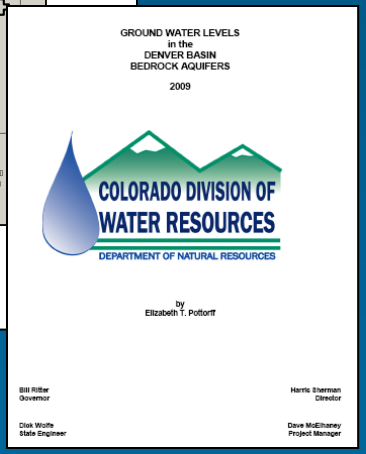
- Real Time
- Continuous
- Periodic

CDWR South Platte and Denver Basin Water-Level Networks









USGS

Yuma County, Colorado

In cooperation with

Rio Grande Water Conservation District

Cherokee Metropolitan District

Colorado Springs Utilities
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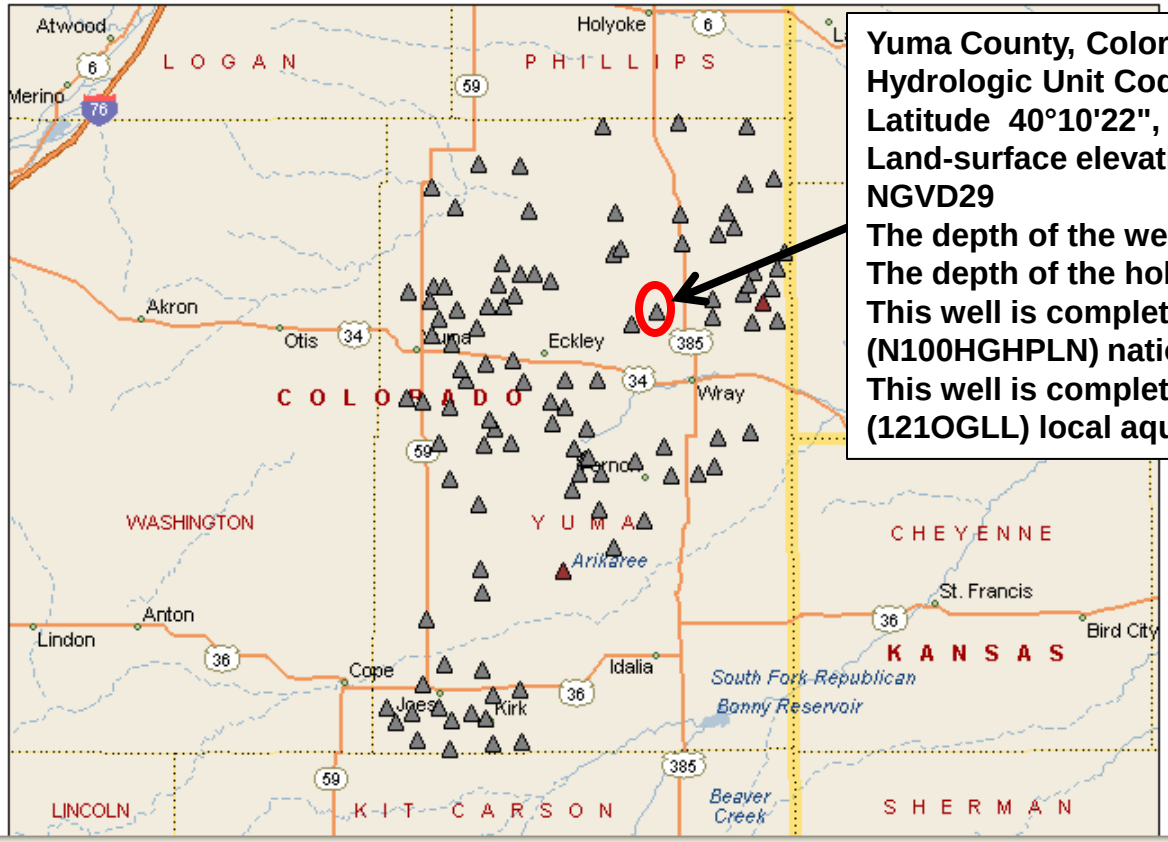
Custer County Colorado Seal

Southeastern Colorado Water Conservancy District

Trinchera Water Concervancy District

Reclamation
Managing Water in the West

Hover mouse over site for information. Click site to open page with information and data.



Yuma County, Colorado
Hydrologic Unit Code 10250002
Latitude 40°10'22", Longitude 102°17'45" NAD27
Land-surface elevation 3,761.00 feet above sea level NGVD29
The depth of the well is 355 feet below land surface.
The depth of the hole is 355 feet below land surface.
This well is completed in the High Plains aquifer (N100HGHPLN) national aquifer.
This well is completed in the Ogallala Formation (121OGLL) local aquifer.

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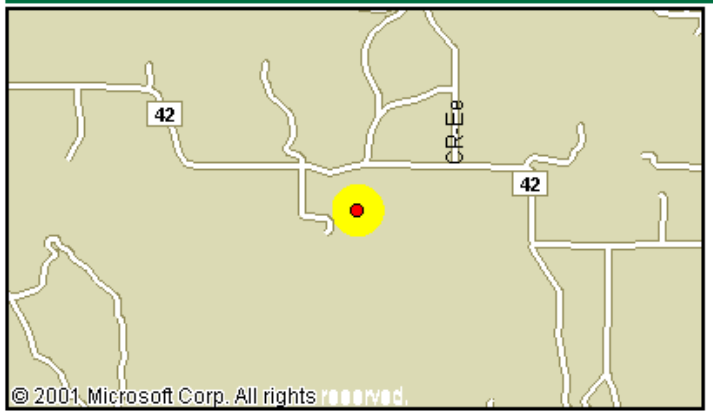
Groundwater Watch

**** Due to NWISWeb being unavailable this weekend, continuous groundwater data will not be updated until the weekend of Feb 27. ****

Site Number: 401020102172000 - SB00204404BDB



Groundwater Watch Help Page

DESCRIPTION:

Latitude 40°10'22", Longitude 102°17'45" NAD27
Yuma County, Colorado, Hydrologic Unit 10250002
Land surface altitude: 3,761.00 feet above sea level NGVD29.
Well completed in "High Plains aquifer" (N100HGHPLN) national aquifer.
Well completed in "OGALLALA FORMATION" (121OGLL) local aquifer

AVAILABLE DATA FROM NWISWeb:

Field ground-water-level measurements
Field/Lab water-quality samples

OPERATION:

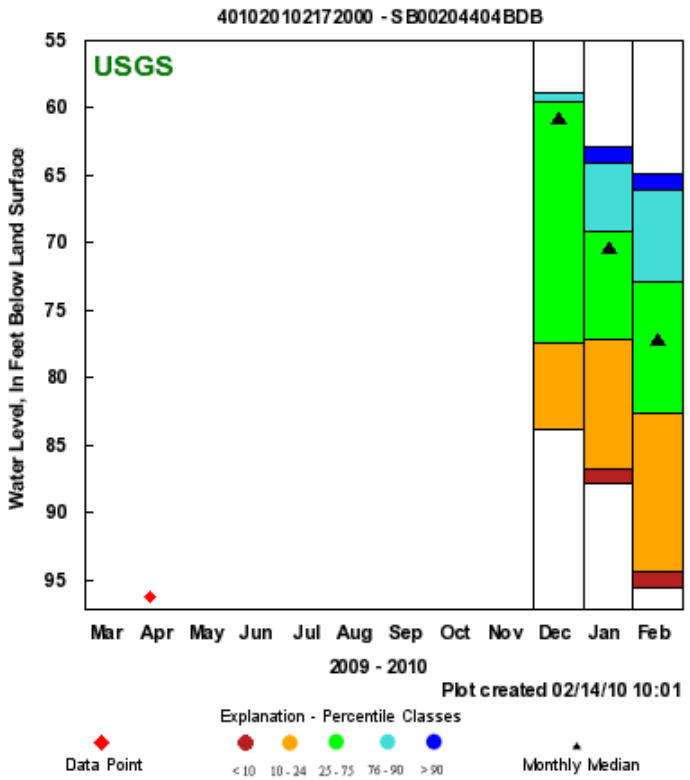
Record for this site is maintained by the USGS Colorado Water Science Center
Email questions about this site to Colorado Water-Data Inquiries

Site Statistics

Most recent data value: 96.20 on 4/10/2009
Period of Record Monthly Statistics for 401020102172000
Depth to water level, feet below land surface
All Approved Continuous & Periodic Data Used In Analysis
Note: Bold values in the table indicate closest statistic to the most recent data value.

Month	Lowest	10th	25th	50th	75th	90th	Highest	Number of

Site Statistics



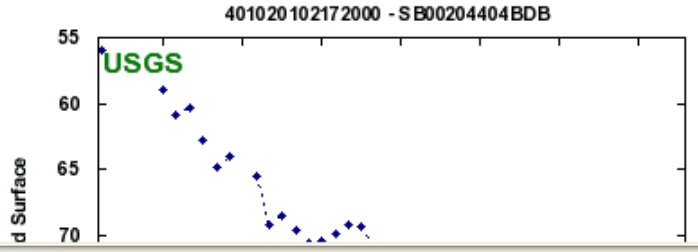
Most recent data value: 96.20 on 4/10/2009
Period of Record Monthly Statistics for 401020102172000
Depth to water level, feet below land surface
All Approved Continuous & Periodic Data Used In Analysis
Note: Bold values in the table indicate closest statistic to the most recent data value.

Month	Lowest Median	10th %ile	25th %ile	50th %ile	75th %ile	90th %ile	Highest Median	Number of Years
Jan	87.90	86.80	77.20	70.50	69.20	64.04	62.86	19
Feb	95.60	94.38	82.70	77.26	72.84	66.11	64.90	11
Mar								0
Apr								0
May								0
Jun								0
Jul								0
Aug								0
Sep								0
Oct								0
Nov								0
Dec	83.80	-	-	-	-	-	58.90	5

Statistics Options

View month/year statistics

Periodic Groundwater Data



Summary for Period of Record Periodic Water Levels
Depth to water level, feet below land surface
Approved Periodic Water Level Values

Begin Date	End Date	Number of Values
05/01/65	04/10/09	39

Highest WL	Date of Highest WL	Lowest WL	Date of Lowest WL

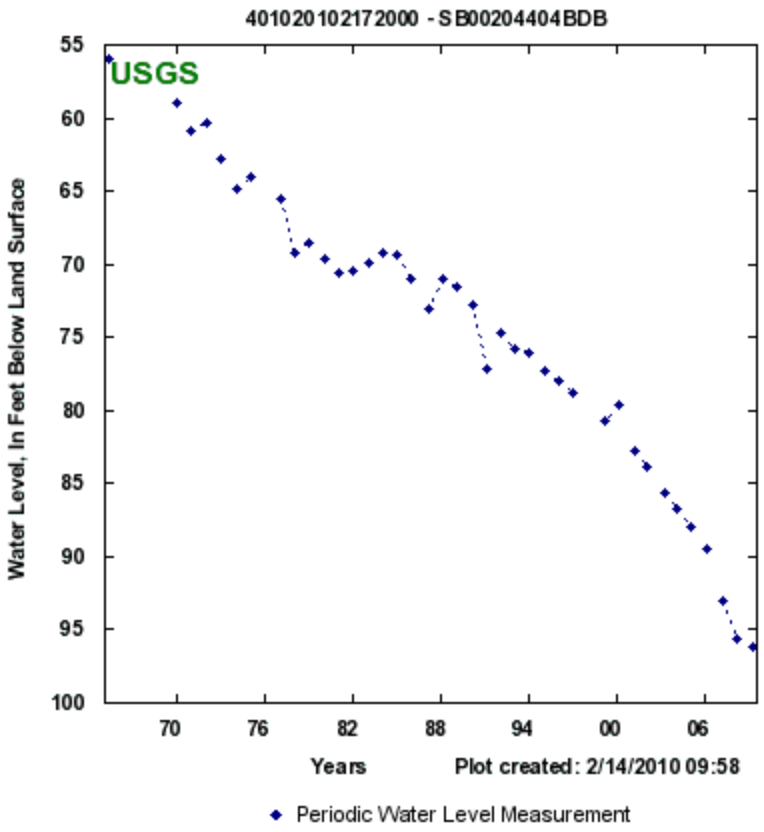
USGS -- Water Resources of the United States - Windows Internet Explorer

http://groundwaterwatch.usgs.gov/AWLSites.asp?S=401020102172000

File Edit View Favorites Tools Help

USGS -- Water Resources... | Steamboat Hot Springs - Ste...

Periodic Groundwater Data



Summary for Period of Record Periodic Water Levels
Depth to water level, feet below land surface
Approved Periodic Water Level Values

Begin Date	End Date	Number of Values
05/01/65	04/10/09	39

Highest WL	Date of Highest WL	Lowest WL	Date of Lowest WL
56.00	05/01/65	96.20	04/10/09

Groundwater Levels Options

- View NWISWeb Groundwater levels page
- View annual monthly statistics for all data types
- Download Groundwater levels in text format

Long-term water-level decline in response to pumping
About 40 feet of water-level decline 1965-2009 (44 years) ~ 1 ft/year

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Active Groundwater Level Network

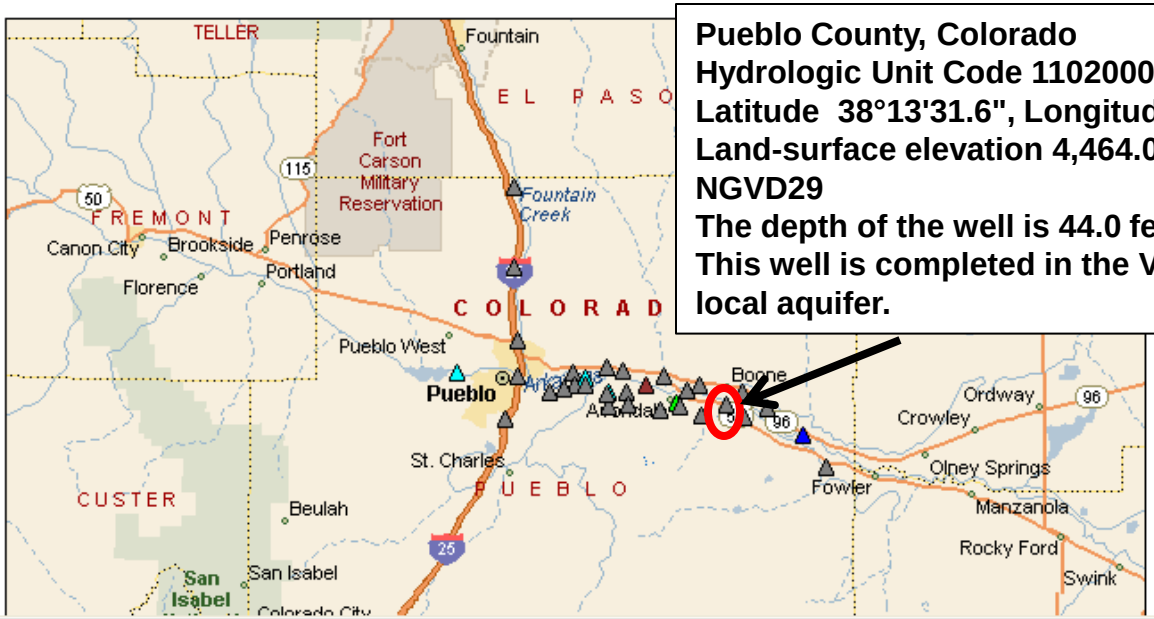
**** Due to NWISWeb being unavailable this weekend, continuous groundwater data will not be updated until the weekend of Feb 27. ****

Pueblo County, Colorado

In cooperation with

Rio Grande Water Conservation District
Cherokee Metropolitan District
Colorado Springs Utilities — It's how we're all connected
Custer County Colorado Seal
Southeastern Colorado Water Conservancy District
Trinchera Water Concervancy District
Reclamation — Managing Water in the West

Hover mouse over site for information. Click site to open page with information and data.



Pueblo County, Colorado
Hydrologic Unit Code 11020005
Latitude 38°13'31.6", Longitude 104°15'59.1" NAD83
Land-surface elevation 4,464.00 feet above sea level NGVD29
The depth of the well is 44.0 feet below land surface.
This well is completed in the Valley-Fill Deposits (111VLFL) local aquifer.

USGS -- Water Resources of the United States - Windows Internet Explorer

http://groundwaterwatch.usgs.gov/AWLSites.asp?S=381347104155600

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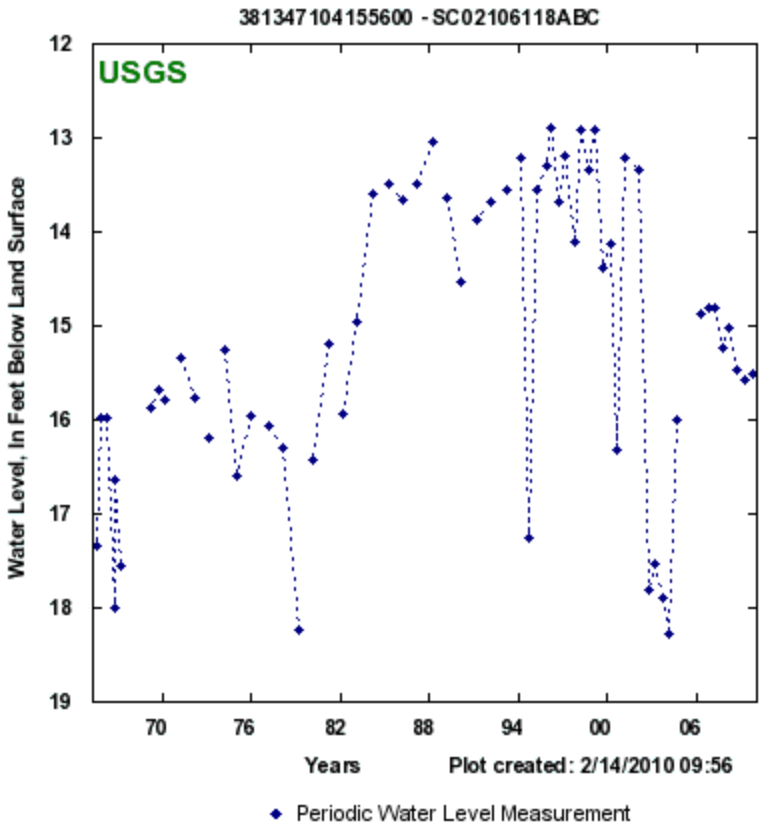
USGS -- Water Resources... | Steamboat Hot Springs - Ste...

Periodic Groundwater Data



Summary for Period of Record Periodic Water Levels
Depth to water level, feet below land surface
Approved Periodic Water Level Values

Begin Date	End Date	Number of Values
07/22/65	11/12/09	61

Highest WL	Date of Highest WL	Lowest WL	Date of Lowest WL
12.90	03/15/96	18.28	03/12/04

Groundwater Levels Options

- View NWISWeb Groundwater levels page
- View annual monthly statistics for all data types
- Download Groundwater levels in text format

Alluvial aquifer water levels exhibit seasonal and long-term variation in response to climate and local recharge conditions

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GS -- Water Resources of the United States - Windows Internet Explorer

http://groundwaterwatch.usgs.gov/countymaps/CO_041.html

Edit View Favorites Tools Help

USGS -- Water Resources... | Steamboat Hot Springs - Ste...

* Due to NWISWeb being unavailable this weekend, continuous groundwater data will not be updated until the weekend of Feb 27. ****

El Paso County, Colorado

In cooperation with

Rio Grande Water Conservation District

Cherokee Metropolitan District

Colorado Springs Utilities
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Custer County Seal Colorado

Southeastern Colorado Water Conservancy District

Trinchera Water Concervancy District

Reclamation
Managing Water in the West

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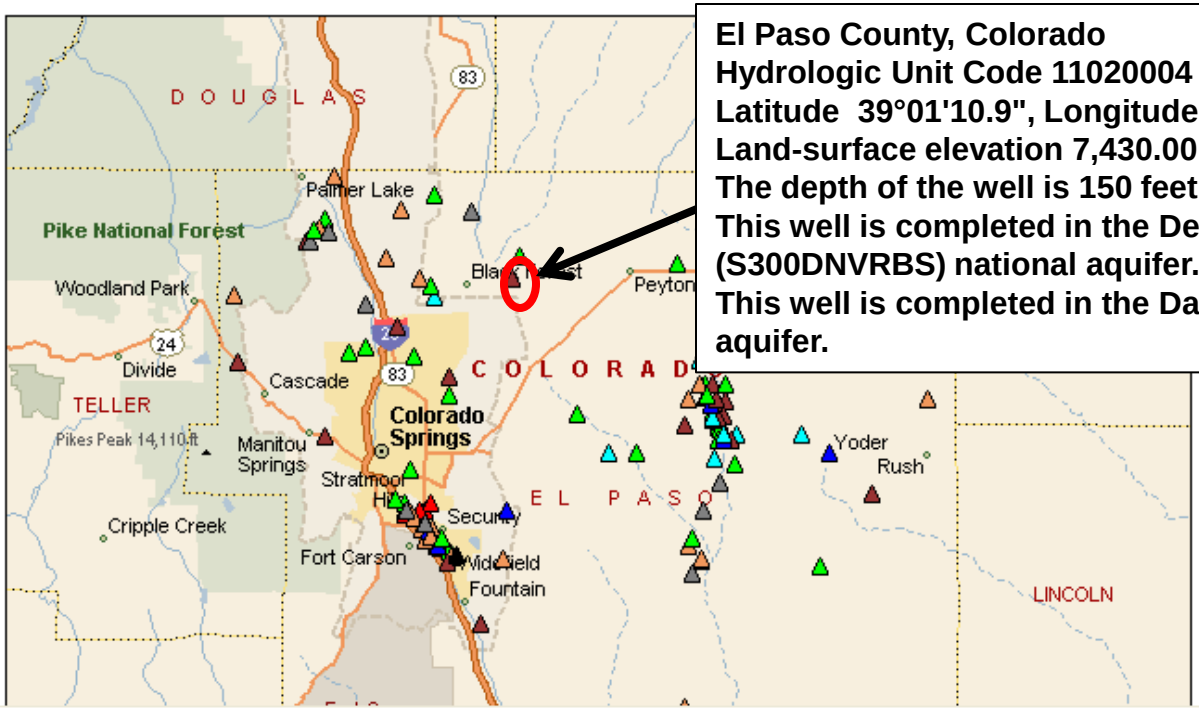


El Paso County, Colorado
Hydrologic Unit Code 11020004
Latitude 39°01'10.9", Longitude 104°38'25.6" NAD83
Land-surface elevation 7,430.00 feet above sea level NGVD29
The depth of the well is 150 feet below land surface.
This well is completed in the Denver Basin aquifer system (S300DNVRBS) national aquifer.
This well is completed in the Dawson Arkose (124DWSN) local aquifer.

USGS -- Water Resources of the United States - Windows Internet Explorer

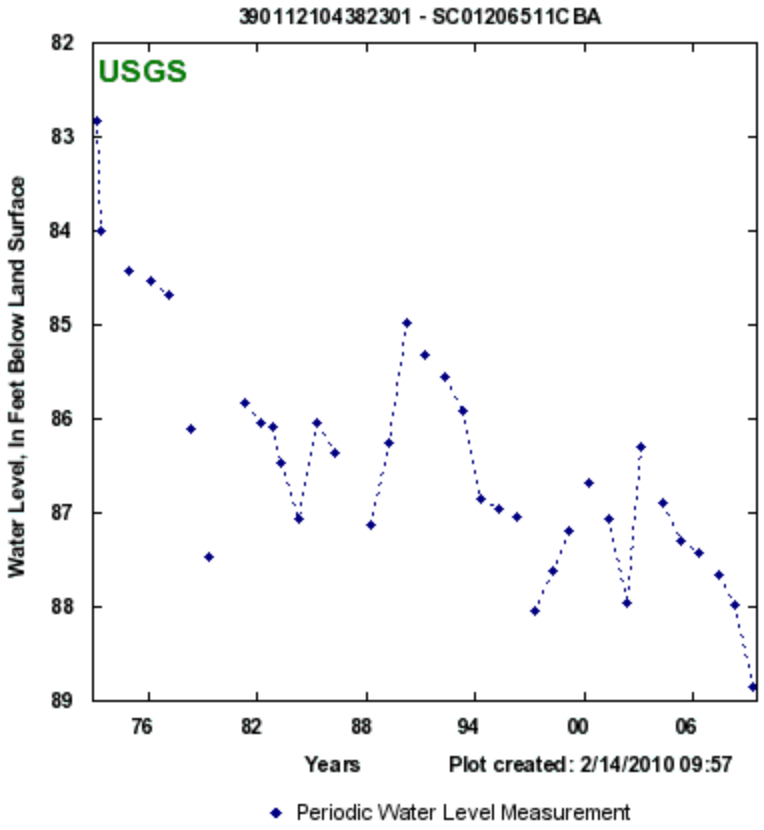
http://groundwaterwatch.usgs.gov/AWLSites.asp?S=390112104382301

File Edit View Favorites Tools Help

USGS -- Water Resources... | Steamboat Hot Springs - Ste...

Data Point < 10 10 - 24 25 - 75 76 - 90 > 90 Monthly Median

Periodic Groundwater Data



Summary for Period of Record Periodic Water Levels
Depth to water level, feet below land surface
Approved Periodic Water Level Values

Begin Date	End Date	Number of Values
03/05/73	04/08/09	36

Highest WL	Date of Highest WL	Lowest WL	Date of Lowest WL
82.83	03/05/73	88.85	04/08/09

Groundwater Levels Options

- View NWISWeb Groundwater levels page
- View annual monthly statistics for all data types
- Download Groundwater levels in text format

Denver Basin bedrock water levels exhibit seasonal variation in response to pumping and climate
Long-term water-level declines in some areas and aquifers

Return to County Page | Return to State Page

Accessibility FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey
URL: http://groundwaterwatch.usgs.gov/AWLSites.asp

USA.gov

Conclusions

- Shared data on USGS web sites. Opportunities for collaboration - South Platte River Basin, Denver Basin, and West Slope.

- Water levels in Ogallala (High Plains) Aquifer exhibit long-term decline in response to pumping

- Water levels in alluvial aquifers respond rapidly to climati and local recharge conditions including surface water and irrigation return flows

- Water levels in confined aquifers can exhibit seasonal variation in response pumping and long-term water-level decline in some locations


Questions?
spaschke@usgs.gov