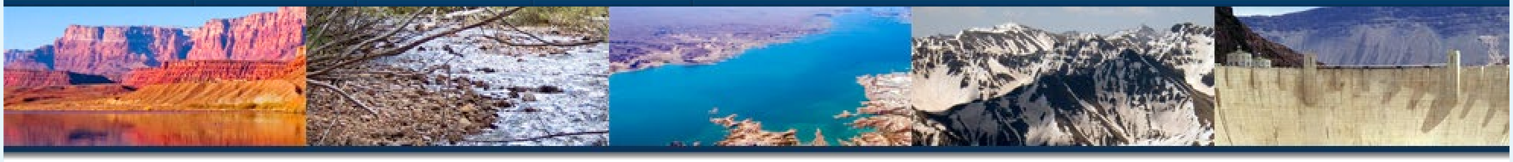

Issued May 26, 2009, Vol. 5, Issue 4

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May 2009 Summary

Hydrological Conditions *— Drought persists in the northwest corner and in eastern Colorado and the southwest corner of Wyoming. Drought emerged in the southeast corner of Utah and diminished throughout most of Wyoming and parts of northeastern Colorado since mid-April.*

Temperature *— Monthly average temperatures for April 2009 were 2Ð4¼F above average throughout most of the Intermountain West region, with anomalies 0Ð2¼F below average pockets in each state. Utah had several broken records for daily max and min temperatures.*

Precipitation *— Precipitation in April 2008 was below average throughout most of Utah, with the exception of the north-central mountains, which brought the southeast corner into drought status. On the other hand, the north-central mountains of Utah, the northern half of Colorado and most of Wyoming received over 2 inches of precipitation during April. This helped decrease drought status in parts of both Colorado and Wyoming.*

ENSO *— During April 2009, the equatorial Pacific Ocean transitioned from La Ni–a to ENSO-neutral conditions, ending the 2008Ð09 La Ni–a. The probability of a switch to El Ni–o conditions rises to higher than climatological odds, starting with the JuneÐAugust 2009 season.*

Climate Forecasts *— The IMW region has increased chances for above average temperatures throughout the summer, especially between June and August. Most of Wyoming and the northern half of Utah have increased changes for below average precipitation in June. The four corners region (including western Colorado and eastern Utah) has increased chances for above average precipitation especially between June and September due to the projections of an early onset of the monsoon.*

Announcements & News

WWA Receives Department of Interior Partners in Conservation Award

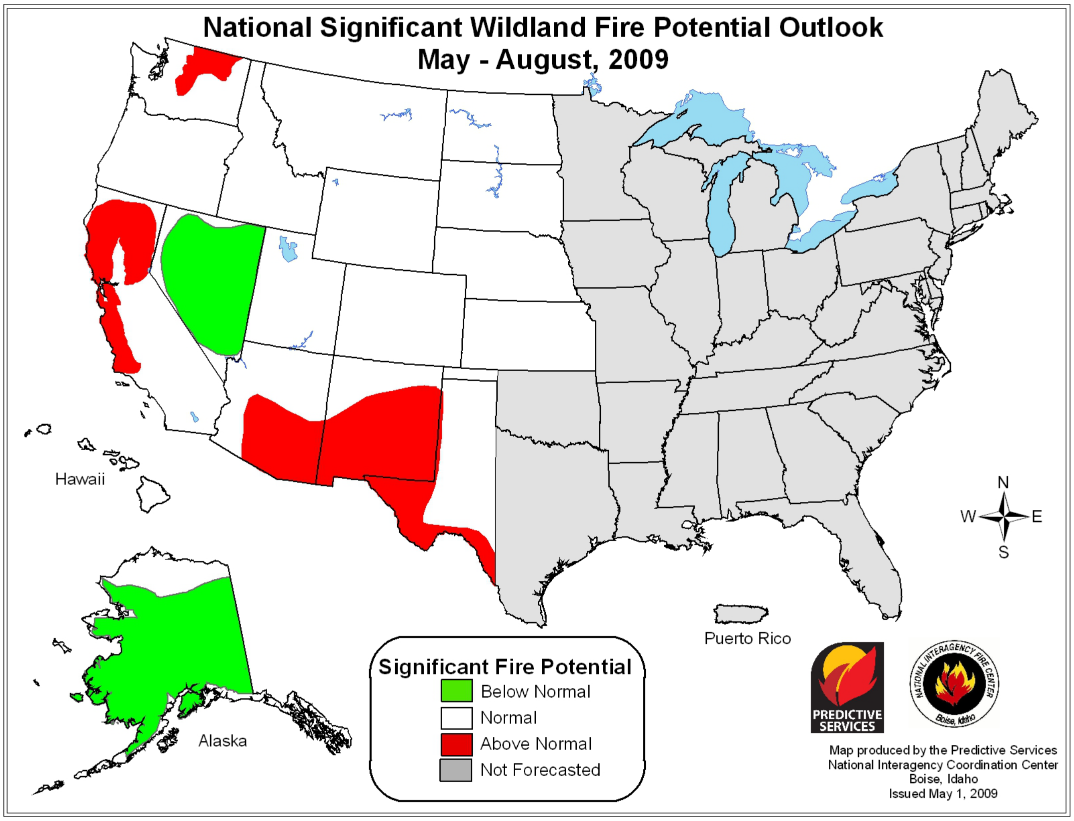
Brad Udall, Director of Western Water Assessment was one of the recipients of the **ÒPartners in ConservationÓ** award from the U.S. Department of Interior for his contribution to the agreement known as the Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead. Brad contributed largely to Appendix U of this document, which assesses the state of knowledge with regard to climate change on the Basin and prioritizes future research and development needs. See the January 2009 IWCS feature article for more information about the ÒShortage SharingÓ agreement and Appendix U.

Seasonal Wildland Fire Potential Outlook

On April 14Ð16, 2009 fire, weather, and climate specialists convened at the NOAA Earth System Research

Laboratory in Boulder, Colorado for the seventh annual National Seasonal Assessment Workshop. Below is the forecast they produced showing the seasonal significant fire potential for the western states and Alaska. The workshop results indicate there will be above average significant fire potential across portions of California, the Southwest, and the Northwest. Below average significant fire potential is forecast for most of Alaska and Nevada. Elsewhere, significant fire potential is expected to be average through August.

Workshop participants, in consultation with other specialists unable to attend the workshop, considered a variety of factors when making their assessments. Significant fire potential outlooks are primarily based on interactions between climate factors, fuel types and conditions, long-range predictions for climate and fire, and the persistence of disturbance factors, such as drought and insect-induced forest mortality. A detailed briefing document that includes a description of existing climate forecasts, fuels conditions, and influences on resource requirements is available at http://www.predictiveservices.nifc.gov/outlooks/outlooks.htm.



Upcoming Conference:

ÒWestern Water Law, Policy and ManagementÓ June 3-5, 2009 by the Natural Resources Law Center at the University of Colorado Law School, Boulder, CO. http://www.colorado.edu/law/centers/nrlc/

Feature Article

Water Resources Decision-Makers and Their Needs for Decadal Climate Prediction

Prediction of climate variability on decadal time scales is a particularly rich arena for applications as many natural resource management decisions are made in the context of decadal and multi-year variations in climate. This is because the resources themselves have decadal-scale lifecycles. The U.S. Climate Variability and Predictability Research Program (CLIVAR) seeks to identify the potential for predictions of the upcoming decade and through 2018. This article describes two examples of interactions with Colorado reservoir managers and municipal water managers, and reflects on some of their needs and opportunities for use of decadal information.

By Andrea J. Ray, NOAA Earth Systems Research Lab & NOAA-CIRES Western Water Assessment

(download pdf)

Focus Article

The Colorado Avalanche Information Center (CAIC)

Given the widespread exposure to risk, timely and accurate information about avalanche danger is critical. The CAIC (http://avalanche.state.co.us/index.php) issues avalanche forecasts covering mountain zones statewide from the main office in Boulder, co-located with the National Weather Service, and field offices in Breckenridge, Aspen, and the Northern San Juans. The CAIC offices provide these forecasts twice daily during the winter season (typically late October through April).

By Julie Malmberg, Western Water Assessment

(download pdf)

Recent Climate Conditions

Average temperatures across the Intermountain West region (IMW) ranged between 35¼F at high elevations in central **Colorado** and northwestern **Wyoming** up to 60¼F in southern **Utah** (Figure RC-1), translating to average temperatures of up to 4¼F above and below average for April (Figure RC-2). Variations from average are reflected in the record minima and maxima temperature recorded throughout the IMW region during April (Table RC-1).

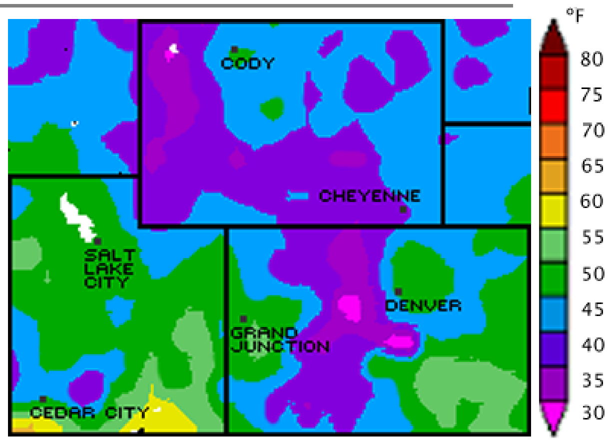


Figure RC-1. Average temperature for the month of April 2009 in ¡F. (Source: High Plains Regional Climate Center)

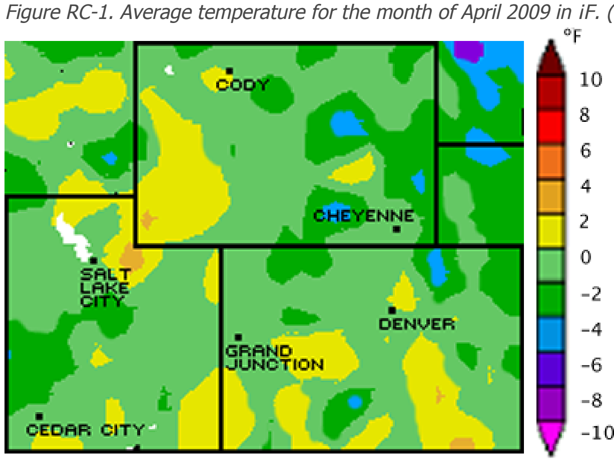


Figure RC-2. Departure from average temperature for the month of April 2009 in ¡F. (Source: High Plains Regional Climate Center)

Location	Record	New	Old	Year
April 3				
Cedar City, UT	Daily Max Precipitation	0.58 inches	0.32 inches	1981
Grand Junction, CO	Daily Max Rainfall	0.45 inches	0.36 inches	1934
April 4				
Cedar City, UT	Low Max Temperature	40°	40°	1958
Cedar City, UT	Low Min Temperature	14°	15°	1955
Grand Junction, CO	Low Max Temperature	40°	41°	1918
Rawlins, WY	Daily Max Rainfall	0.29 inches	0.23 inches	1981
April 11				
Alamosa, CO	Daily Max Precipitation	0.22 inches	0.18 inches	1969

April 12				
Alamosa, CO	Daily Max Snowfall	6.6 inches	6.3 inches	1987
April 15				
Bryce Canyon Airport, UT	Low Max Temperature	34º	37º	1976
Cedar City , UT	Low Max Temperature	40º	44º	1969
Coalsville, UT	Low Max Temperature	40º	44º	1945
Hanksville, UT	Low Max Temperature	45º	48º	1938
Provo BYU, UT	Low Max Temperature	40º	42º	1921
Salt Lake City, UT	Low Max Temperature	43º	43º	1998
Spanish Fork, UT	Low Max Temperature	39º	44º	1945
Alpine, UT	Max Daily Precipitation	1.87 inches	1.22 inches	2006
Brigham City, UT	Max Daily Precipitation	1.19 inches	1.15 inches	1967
Bryce Canyon Airport, UT	Max Daily Precipitation	0.21 inches	0.12 inches	1976
Coalsville, UT	Max Daily Precipitation	0.88 inches	0.82 inches	1969
Provo BYU, UT	Max Daily Precipitation	1.44 inches	0.96 inches	2006
Salt Lake City Airport, UT	Max Daily Precipitation	0.74 inches	0.65 inches	2006
Spanish Fork, UT	Max Daily Precipitation	1.08 inches	0.97 inches	1922
Alpine, UT	Max Daily Snowfall	6.5 inches	5 inches	1998
April 16				
Bryce Canyon Airport, UT	Low Min Temperature	13º	14º	1977
Capitol Reef National Park, UT	Low Min Temperature	16º	31º	1970
April 17				
Bountiful Val Verde, UT	Low Min Temperature	29º	29º	1975
Capitol Reef National Park, UT	Low Min Temperature	26º	31º	1975
Denver International Airport, CO	24-hour Precipitation Record	1.16 inches	1.00 inches	1920
Cheyenne, WY	Max Daily Rainfall	0.79 inches	0.58 inches	1940
April 18				
Cheyenne, WY	Max Daily Snowfall	9.8 inches	6.5 inches	1920
April 22				
Cedar City Airport, UT	High Max Temperature	80º	80º	1954
Delta, UT	High Max Temperature	87º	83º	1986
Zion National Park, UT	High Max Temperature	89º	89º	1994
April 24				
Bryce Canyon Airport, UT	High Min Temperature	37º	33º	1956
Richfield, UT	High Min Temperature	53º	50º	1998
April 26				
Rock Springs, WY	Max Rainfall	0.58 inches	0.25 inches	1991
Casper, WY	Max Rainfall	0.5 inches	0.37 inches	1983
April 27				
Brigham City, UT	Low Min Temperature	26º	26º	1942

Table RC-1. Record temperature and precipitation events in the Intermountain West during April 2009. (Source: NOAA National Weather Service)

In general, April was a wet month throughout the Intermountain West. Precipitation varied significantly throughout the region (Figure RC-3). There was little to no accumulation in southern **Utah**, whereas over 3 inches of precipitation was measured across wide swaths of northern **Colorado**, **Wyoming**, and northern **Utah**. Throughout the month, record setting rain and snowfall events occurred at locations throughout **Utah** and **Colorado** (Table RC-1). These records coincide with regions where average precipitation exceeded 120% of average (Figure RC-4).

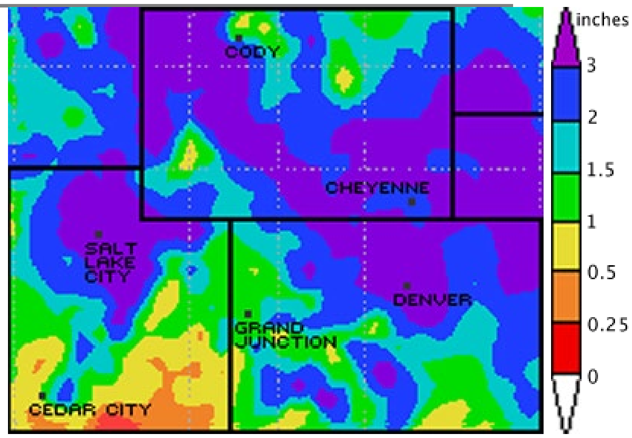


Figure RC-3. Average precipitation for the month of April 2009 (inches). (Source: NOAA ESRL Physical Science Division)

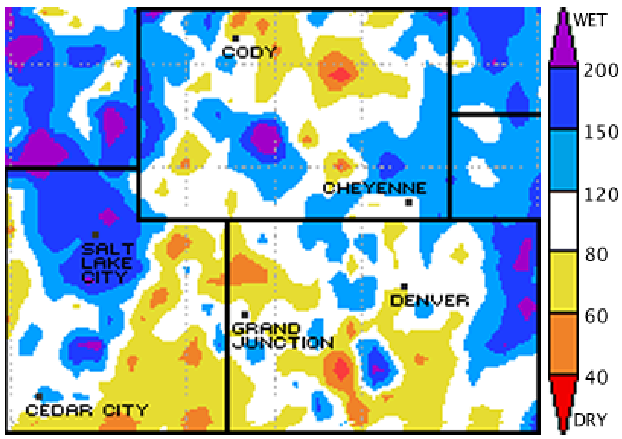


Figure RC-4. Percent of average precipitation for the month of April 2009. (Source: NOAA ESRL Physical Science Division)

Precipitation events across **Colorado** and **Wyoming** provided relief to some drought areas in those states, as reflected by the 3-month and 36-month SPI diagrams (Figure RC-5, Figure RC-6), as well as the US Drought Monitor (Figure RC-7). Both the SPI and Drought Monitor are used as drought indicators, but they are developed using different data. The SPI is solely a function of precipitation, while the Drought Monitor incorporates a broader scope of factors including precipitation, temperature, the Palmer Drought Severity Index, soil moisture, streamflow, vegetation stress, and socioeconomic impacts. The 3-month SPI reflects short-term precipitation patterns, and can therefore vary from month-to-month in response to changes in monthly average precipitation. Long-term precipitation trends are indicated by the 36-month SPI maps and the Drought Monitor, however the Drought Monitor is more sensitive to changes in monthly average precipitation than the 36-month SPI.

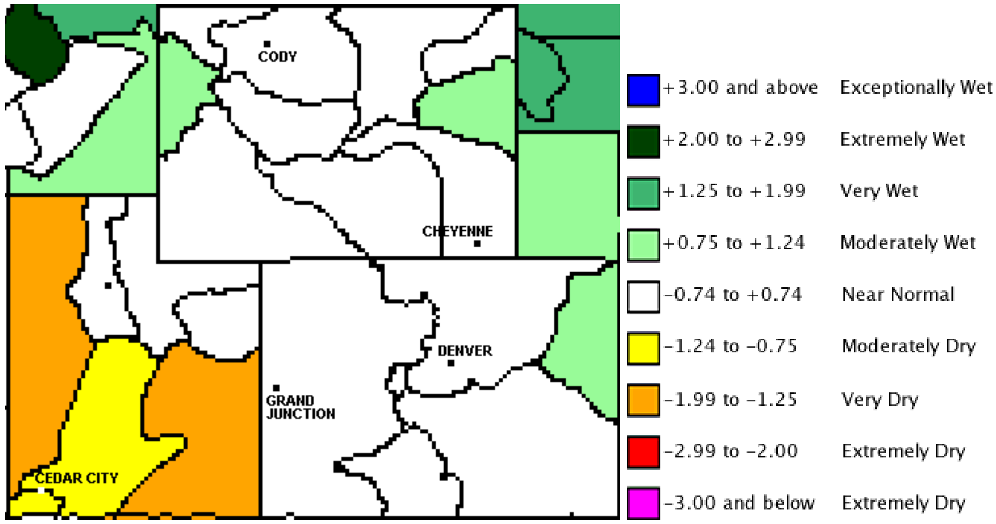


Figure RC-5. 3-month Intermountain West regional Standardized Precipitation Index as of the end of April 2009 (data from 2/01/09Ð 4/30/09). (Source: Western Regional Climate Center)

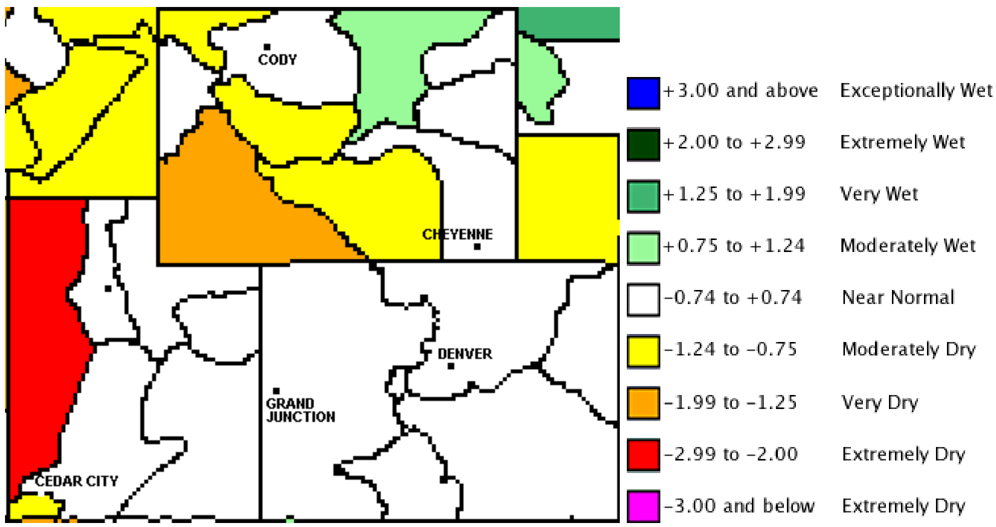


Figure RC-6. 36-month Intermountain West regional Standardized Precipitation Index as of the end of April 2009 (data from 05/01/06Ð4/30/09). (Source: Western Regional Climate Center)

The relatively high precipitation as a percent of average across **Wyoming** in April resulted in an improvement in the 3-month SPI (Figure RC-5) in most climate divisions since the last IWCS was issued in March. Now the entire state is in the near normal to moderately wet categories. The below average precipitation in southern **Utah** in April led to increased drying in that part of the state, where all the climate divisions are in the moderately dry to very dry categories. The 36-month SPI (Figure RC-6) shows most of the climate divisions in the IMW region remain in the very dry (-1.99 to -1.25) to near average (-0.74 to 0.74) categories. The Western climate division in Utah is now in the extremely dry category (-2.99 to -2.00).

The U.S. Drought Monitor (Figure RC-7) indicates that near average temperatures (Figure RC-2) in combination with above average precipitation (Figure RC-4) across **Utah**, **Wyoming**, and **Colorado** in April provided drought relief for expanses along the Front Range of **Colorado** into **Wyoming**, across **Wyoming** toward the Idaho border, and eastern **Utah**. In all these areas drought is no longer indicated. The only area in the IMW region that did not see an improvement in drought conditions was the San Juan region of southwest **Utah** and southeastern **Colorado**, where conditions are abnormally dry (D0). This is consistent with SWE measurements in the area and SNOTEL data (see below: Figure SP-1 and SP-2).

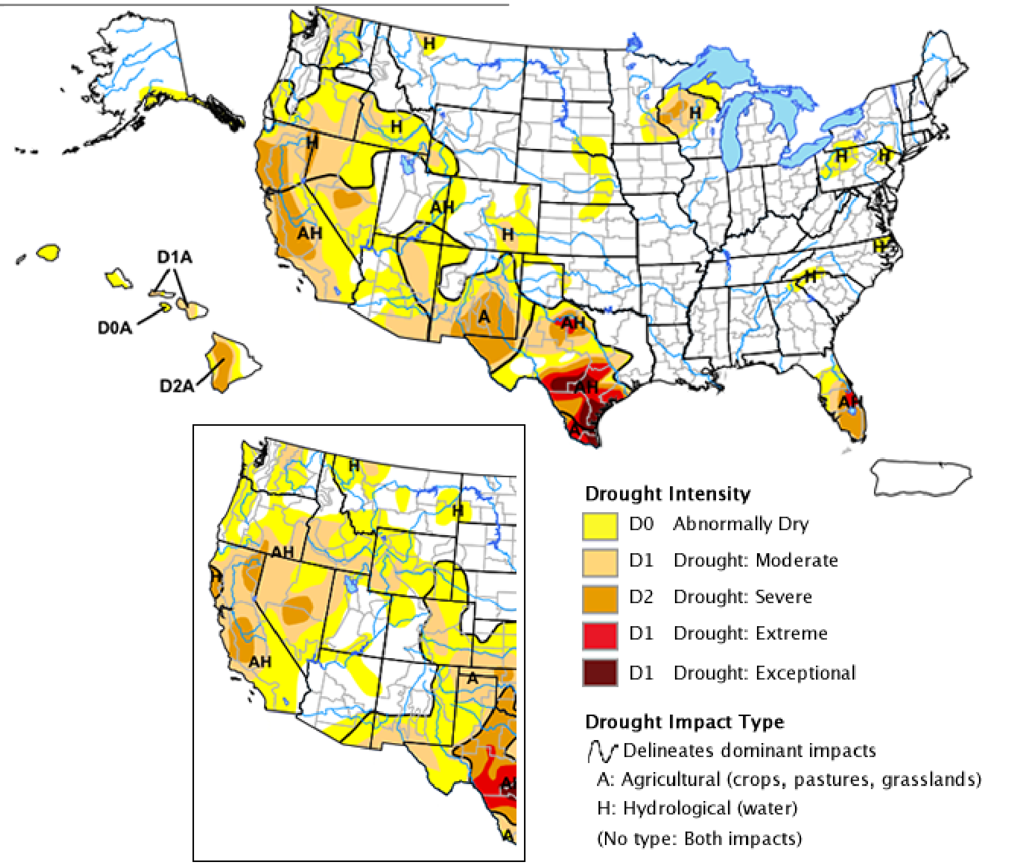


Figure RC-7. Drought Monitor from May 19, 2009 (full size) and April 14, 2009 (inset, lower left) for comparison. (Source: National Drought Mitigation Center)

Intermountain West Snowpack

Precipitation in April was above average in the IMW region. As a result, snowpack as a percent of average increased in most of the region, with exceptions in southwest **Colorado** and south-central **Utah**. (Figure SP-1). As of May 4, 2009, SWE values were close to average in most of **Colorado**, near to below average in **Utah**, and near to above average in **Wyoming** (Figure SP-2).

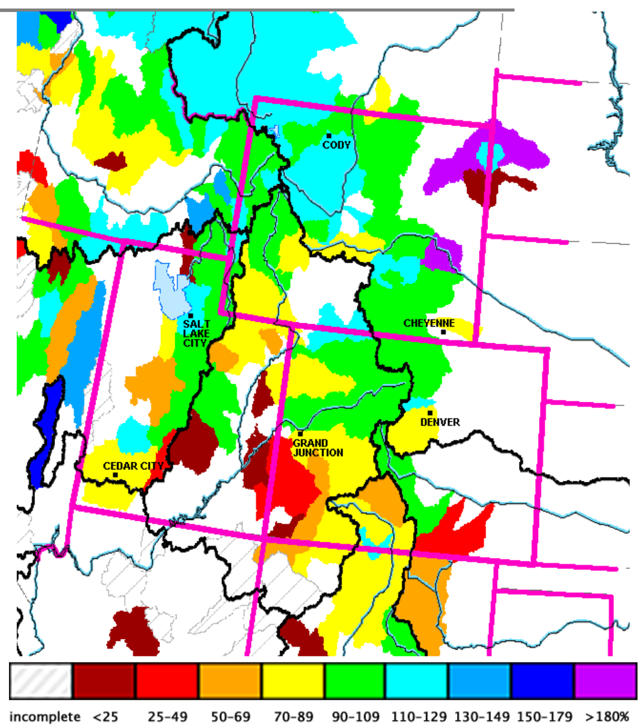


Figure SP-1. Snow water equivalent (SWE) as a percent of average for available SNOTEL and snow course sites in the Intermountain West as of May 1, 2009. (Source: Natural Resource Conservation Service)

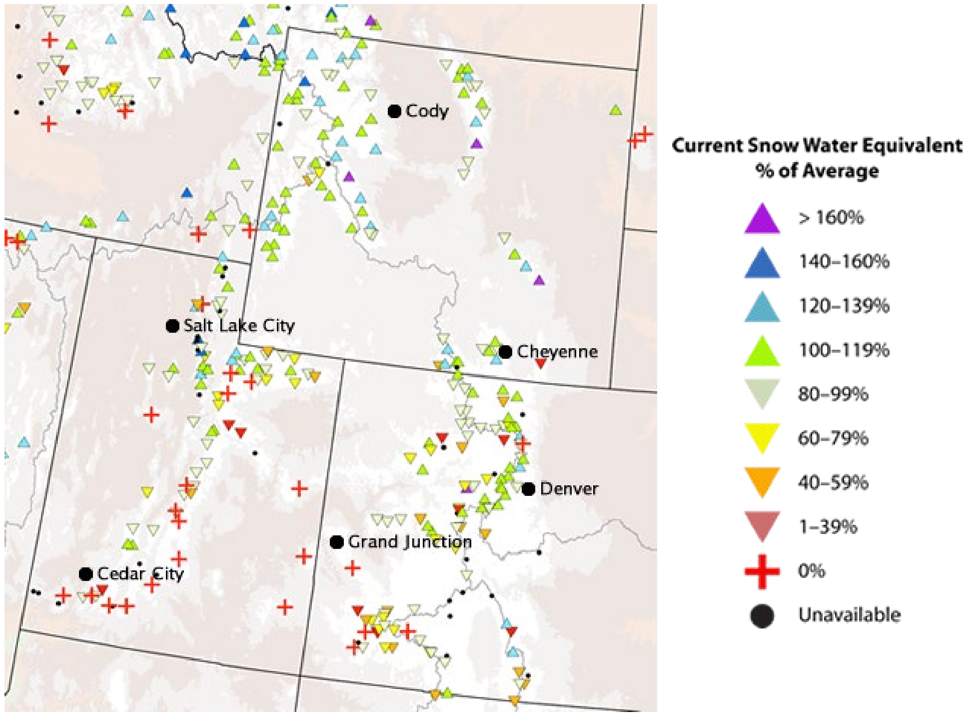


Figure SP-2. Current snow water equivalent (SWE) as a percent of average for SNOTEL sites as of May 4, 2009 (Source: Natural Resources Conservation Service).

The wet weather pattern that started in late March continued into late April with improvements to snowpack percentages in **Colorado**. By April 19 most basins had reached their maximum snowpack totals for the season, which were above average in all basins except for the San Juan, Animas, Dolores and San Miguel. By May 1 the SWE had decreased to below average levels in all basins except the South Platte, which was still reporting 100% of average.

Cool and wet conditions added to snowpacks and slowed melting rates in **Utah**. Currently snowpacks on the Bear, Weber and Provo watersheds were near average as of May 1. Snowpacks are below average on the Uintas, SE, SW **Utah** and the Sevier River areas. Southern **Utah** was melting faster than normal and northern **Utah** was melting slower than average.

Snow water equivalent across **Wyoming** is slightly above average for this time of year. SWE in the northwest portion of Wyoming is now about 106% of average . Northeast **Wyoming** SWE is currently about 104% of average. The southeast **Wyoming** SWE is currently about 103% of average. The southwest **Wyoming** SWE is about 99% of average.

[The majority of the text on this page comes from the NRCS State Basin Outlook Reports: http://www.wcc.nrcs.usda.gov/cgibin/bor.pl.]

Spring and Summer Streamflow Forecasts for the 2009 Runoff Season

Streamflow projections are below average to much below average in most of **Colorado** and **Utah** and near to above average in most of **Wyoming** (Figure STRM-1). Average to above average precipitation during April for most of the IMW region lead to some increases in reservoir storage as of May 1.

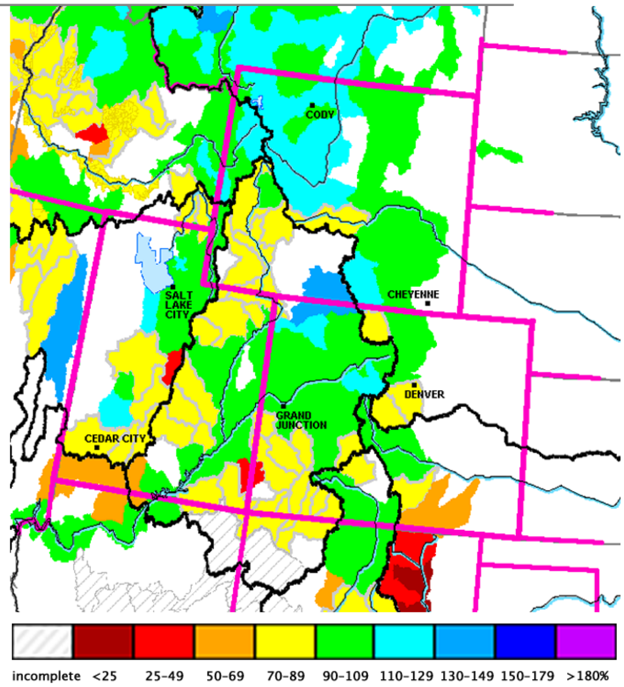


Figure STRM-1. NRCS outlook for natural streamflows for spring and summer in the Intermountain West region as a percent of average streamflows as of May 1, 2009. (Source: Natural Resource Conservation Service)

Runoff forecasts changed only slightly during April at most locations across **Colorado**. The only basins significantly benefiting from April's storms were those along the northern portion of the Front Range. Despite these improvements, runoff forecasts in the South Platte Basin remain below average. Even those basins in the South Platte showing the greatest increases ended up slightly below average. Elsewhere across **Colorado**, the additional moisture received during April produced no significant improvements, allowing forecasts to remain close to those issued on April 1 at many locations.

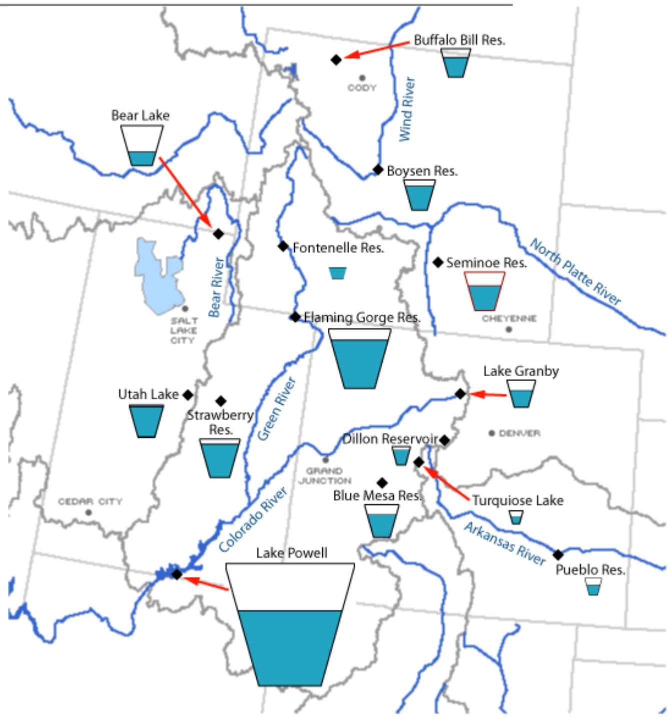
Across **Wyoming,** most probable yield varies from 76 to 129% of average. The highest expected streamflows (about 129% of average) are in the Little Snake Basin in south-central **Wyoming**. The lowest expected streamflows (about 80% of average) are in the Green River Basin in southwestern **Wyoming.** Reservoir storage varies widely across **Wyoming**.

Streamflows are expected to have a wide range from much below average to above average across **Utah.** The lowest forecasted streamflows are 18% for South Creek above Lloyd's Reservoir in southeast **Utah**; the highest forecasted streamflows are 125% of average on South Willow Creek in central **Utah**.

[The majority of the text on this page comes from the NRCS State Basin Outlook Reports: http://www.wcc.nrcs.usda.gov/cgibin/bor.pl.]

Reservoir Supply

Reservoirs are at their low point at the beginning of May in order to have room for snowmelt streamflows (Figure RES-1), however, most reservoir storage in the Intermountain West Region is higher than it was in May of 2008. While streamflow and reservoir inflow forecasts decreased between March 1 and April 1, most went back up slightly as of May 1 due to a wet and cool April across the region.



	RESERVOIR	current water level (af)	capacity (af)	% full	average
COLORADO	Dillon Reservoir	225,800	254,036	89%	212,800
	Turquiose Lake	58,168	129,390	45%	72,520
	Lake Granby	283,843	539,758	53%	284,164
	Blue Mesa	580,101	829,500	70%	404,700
	Pueblo	231,281	354,000	65%	163,500
WYOMING	Strawberry	958,900	1,106,500	87%	663,700
	Utah Lake	882,000	870,900	101%	872,600
	Bear Lake	337,400	1,302,000	26%	852,000
	Lake Powell	12,882,895	24,322,000	53%	17,551,000
UTAH	Fontenelle	144,653	344,800	42%	143,500
	Flaming Gorge	3,022,553	3,749,000	81%	2,952,000
	Seminoe	534,164	1,017,273	53%	484,610
	Boysen	601,615	741,594	81%	491,550
	Buffalo Bill	436,096	644,126	68%	316,016

Figure RES-1. Tea-cup diagram and table of several large reservoirs in the Intermountain West Region. The size of each Òtea-cupÓ is proportional to the size of the reservoir, and the amount the tea-cup is relative to the current storage as a percent of capacity (% full in table). All reservoir content data is from April 30ÐMay 1, 2009. Percent full ranges are color coded as follows: green:80Ð100%; light green: 60Ð79%; yellow: 40Ð59%; orange: 20Ð39%; red: 0Ð19%.

April brought increased reservoir storage to most basins in **Colorado**, according to NRCS. The only exceptions were the Colorado and Arkansas Basins, which saw storage volumes decrease slightly during the month. The Gunnison Basin continues to report the highest percent of average storage at 130% this month. Meanwhile, the lowest percent of average storage was reported in the Rio Grande at 90%. The only other basins reporting below average volumes are the Arkansas (at 94% of average) and the Colorado (at 99% of average). The statewide storage volumes are the greatest since August 2007, and are already greater than at any time during the 2008 water year. NOAA and NRCS joint Òmost probableÓ AprilÐJuly reservoir inflow projections are between 96% and 108% of average for the four Colorado reservoirs in Figure RES-1 (there is no forecast for Turquoise).

Storage in 41 of **Utah's** key irrigation reservoirs is at 70% of capacity up 9% compared to May of last year year. The Sevier Watershed is the only area of the state that currently has less reservoir storage than last year. Overall, most small and medium sized reservoirs should easily fill. Reservoirs such as Bear Lake will not.

Reservoir storage varies widely across the **Wyoming**. Reservoirs on the North Platte River (e.g. Seminoe) are well below average at 84% of average. Reservoirs in the northeast are above average in storage at 109%. Reservoirs in the Wind River Basin (e.g. Boysen) are about average at 107%. Reservoirs on the Big Horn are above average at 110%. The Buffalo Bill Reservoir on the Shoshone is above average at 124%. Reservoirs on the Green River are about average at 103%.

[The majority of the above text comes from the NRCS State Basin Outlook Reports: http://www.wcc.nrcs.usda.gov/cgibin/bor.pl.]

The Bureau of Reclamation published the following information about current operations in Flaming Gorge and Fontinelle Reservoirs (http://www.usbr.gov/uc/):

Flaming Gorge Reservoir is in the average hydrologic classification for spring releases as outlined in the Flaming Gorge Record of Decision. Flaming Gorge Dam began ramping up for spring releases on Monday, May 11, 2009 and reached powerplant capacity releases of approximately 4,300 cfs on Tuesday, May 12, 2009. It is anticipated that Flaming Gorge will remain at powerplant capacity of 4,300 cfs for five to ten days until the spring objectives have been met. Spring objectives for 2009 are measured on the Green River at Jensen, **Utah** and are (1) five consecutive days of 15,000 cfs or greater and (2) an instantaneous peak release of 18,600 cfs. Once the spring objectives have been met, Flaming Gorge will decrease at a rate of 500 cfs/day to an average daily base flow release. The base flow release has not yet been determined.

Based on the April 1 reservoir storage forecast of 87% of average for Fontinelle Reservoir, models project the reservoir will fill this runoff season and it is likely that bypasses (releases above 1,700 cfs) will be required to safely route the inflow to the reservoir. In addition, the **Wyoming** Game and Fish Department and the Seedskadee National Wildlife Refuge have requested that these bypasses be consolidated into a peak release of 6,000 cfs or more for three to five days. Given the forecast, current models project a peak release of 4,000 cfs to 6,000 cfs for three to five days is attainable and potentially necessary for safe routing. These releases would likely occur in June or early July. Basin snowpack conditions and reservoir inflows will be monitored and bypass releases will only be made if and when it is clear that the reservoir will fill. If very high inflows occur, it is possible that releases could go above 6,000 cfs.

ENSO Status and Forecast

During April 2009, the equatorial Pacific Ocean transitioned from La Ni–a to ENSO-neutral conditions (Figure EN-1), ending the 2008-09 La Ni–a, according to according to the NOAA Climate Prediction Center and its partner, the International Research Institute for Climate and Society (IRI).

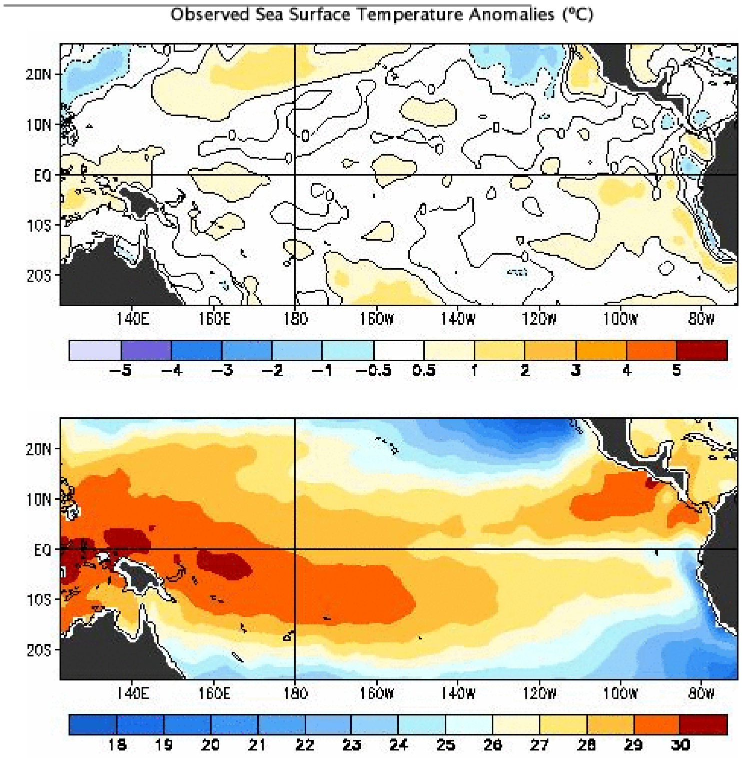


Figure EN-1. Observed SST (upper) and the observed SST anomalies (lower) in the Pacific Ocean. The Ni–o 3.4 region encompasses the area between 120iWÐ170iW and 5iNÐ5iS. The graphics represent the 7-day average centered on May 13, 2009. (Source: NOAA Climate Prediction Center)

Based on current observations, recent trends, and model forecasts, ENSO-neutral conditions are expected to continue into the summer (Figure EN-2). Beyond the summer, the dynamical and statistical models provide different perspectives, with most dynamical model forecasts predicting El Ni–o conditions by the end of summer 2009 continuing into next winter, while statistical models show ENSO-neutral conditions persisting. This difference between forecasts may be due to the fact that statistical models do not incorporate subsurface ocean information, in particular upper ocean heat content. On the other hand, statistical models have been trained on historical data, which include several multi-year La Ni–a events, thus favoring the persistence of long-lived La Ni–a-like conditions such as the recent one that got started back in 2007.

While the current situation is easily classified as ENSO-neutral, the probability of a switch to El Ni–o conditions rises to higher than climatological odds, starting with the June-August 2009 season. According to the latest IRI assessment, El Ni–o conditions are almost equally likely from July-September 2009 through January-March 2010 (around 45%), while the odds for a return of La Ni–a remain below 10% throughout this period. The NOAA ENSO Diagnostic Discussion will be updated on the first Thursday of June 2009.

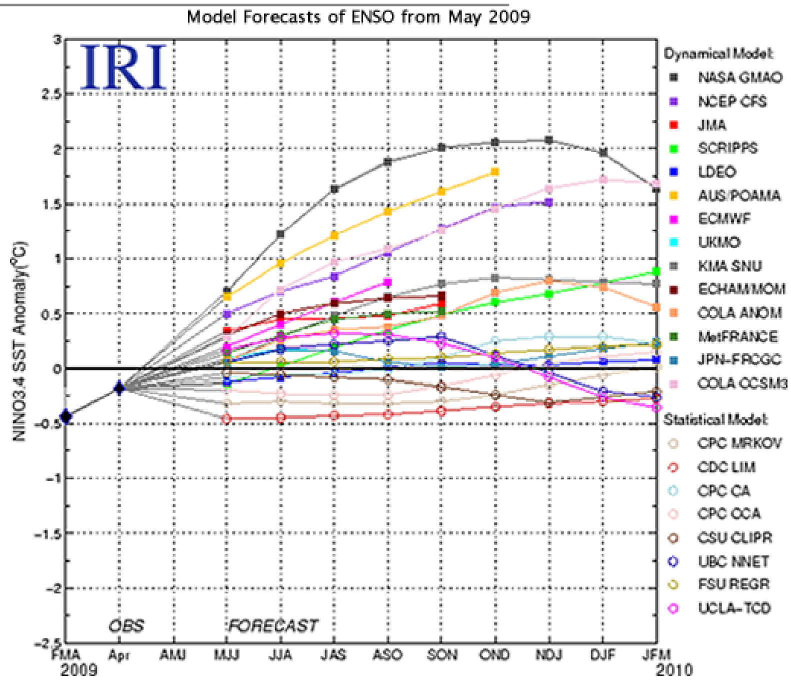


Figure EN-2. Forecasts made by dynamical and statistical models for sea surface temperatures (SST) in the Ni–o 3.4 region for nine overlapping 3-month periods from MayÐJune 2009 to JanuaryÐMay 2010 (released May 21, 2009). (Source: International Research Institute (IRI) for Climate and Society)

Temperature Outlook
June–October 2009 (Released May 21, 2009)

The latest temperature outlooks from the NOAA Climate Prediction Center (CPC) indicate an enhanced probability of above median temperatures for all or part of the IMW region for June and subsequent seasons through AugustÐOctober 2009 (Figures TEMP-1,2,3,4). The area of increased odds of above average temperatures shifts south to cover only southern **Colorado** and **Utah** for the AugustÐOctober season (Figure TEMP-4). The CPC forecast considers positive temperature trends in the last several decades as represented in the consolidated forecast tools, as well as model output from NOAA and its partners.

The June 2009 temperature forecast will be updated on May 31st on the CPC web page. The Seasonal Outlooks are updated on the third Thursday of the month, and the next one will be issued on June 18th.

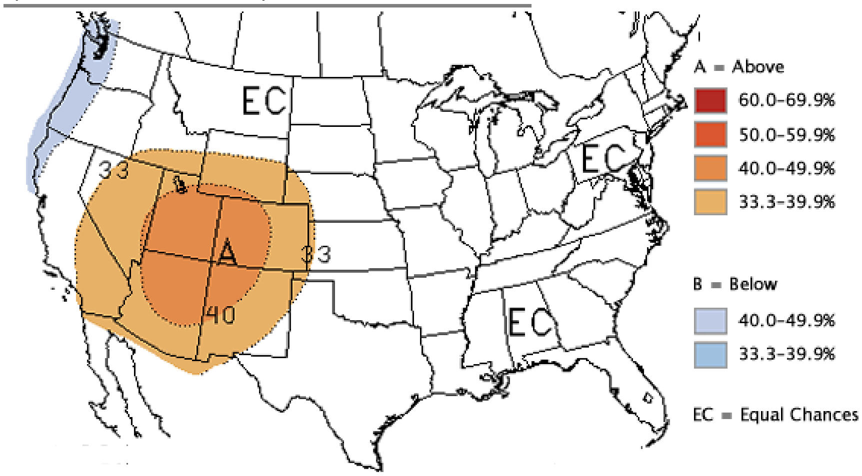


Figure TEMP-1. Long-lead national temperature forecast for June 2009. (Source: NOAA Climate Prediction Center)

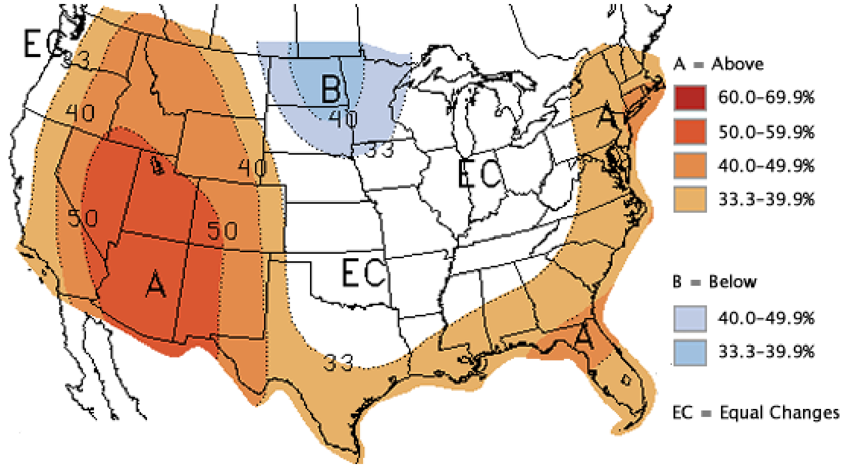


Figure TEMP-2. Long-lead national temperature forecast for JuneÐAugust 2009. (Source: NOAA Climate Prediction Center)

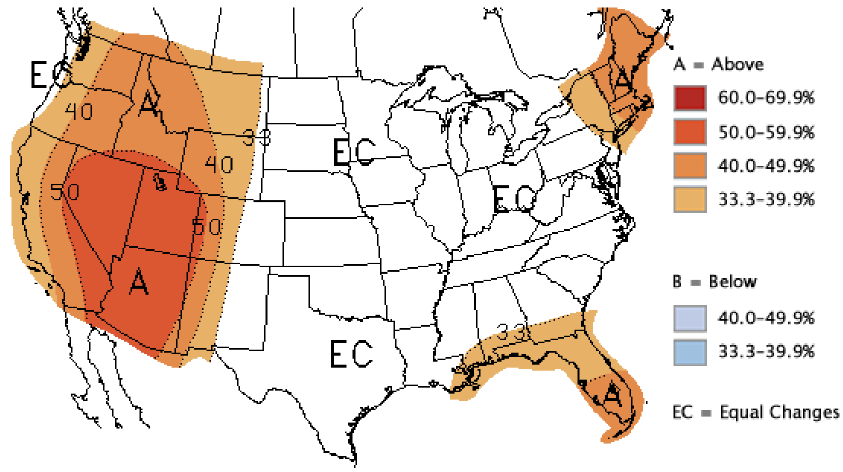


Figure TEMP-3. Long-lead national temperature forecast for JulyÐSeptember 2009. (Source: NOAA Climate Prediction Center)

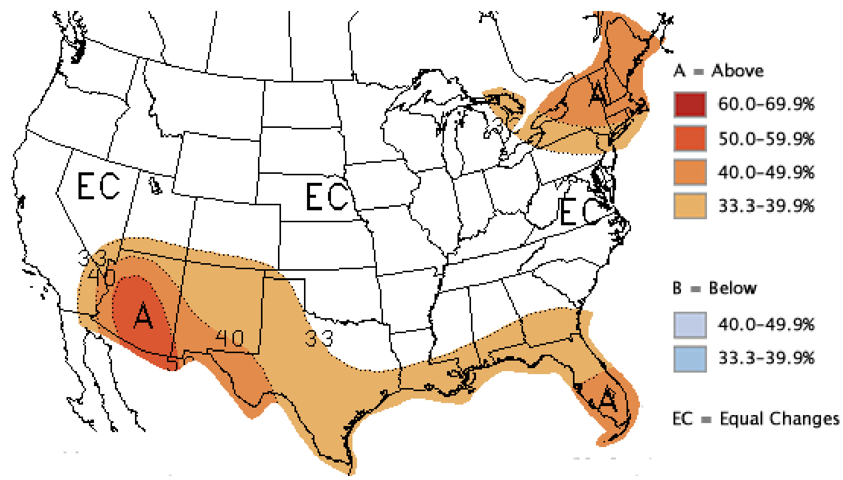


Figure TEMP-4. Long-lead national temperature forecast for AugustÐOctober 2009. (Source: NOAA Climate Prediction Center)

Precipitation Outlook
June–October 2009 (Released on May 21, 2009)

The CPC precipitation outlook for June 2009 shows below-average precipitation for a region including most of **Wyoming**, northern **Utah** and northwestern most **Colorado** (Figure PPT-1). Parts of southern **Colorado** and Utah are in an area with an enhanced probability of above average precipitation, with a suggestion of an early onset of the North American monsoon for this period and region, which extends northward for the JuneÐAugust (Figure PPT-2) and JulyÐSeptember (Figure PPT-3) seasons. While consolidated forecast tools were used for these maps, local monsoon experts and the early disappearance of below-average southern Rocky Mountain snowpack also shaped forecasts this spring, which favors an early onset of the monsoon. The outlook for AugustÐOctober shows above median precipitation for the eastern plains of **Wyoming** and **Colorado** (Figure PPT-4).

The June 2009 precipitation forecast will be updated on May 31st on the CPC web page. The Seasonal Outlooks are updated on the third Thursday of the month, and the next one will be issued on June18th.

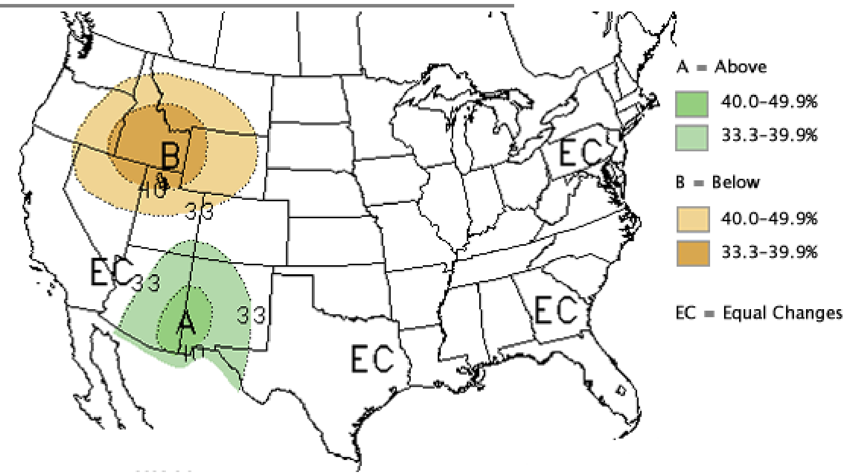


Figure PPT-1. Long-lead national precipitation forecast for June 2009. (Source: NOAA Climate Prediction Center)

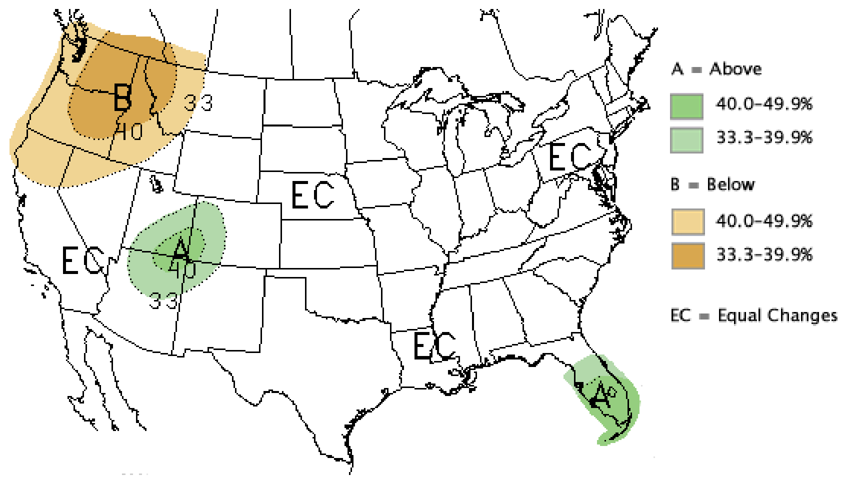


Figure PPT-2. Long-lead national precipitation forecast for JuneÐAugust 2009. (Source: NOAA Climate Prediction Center)

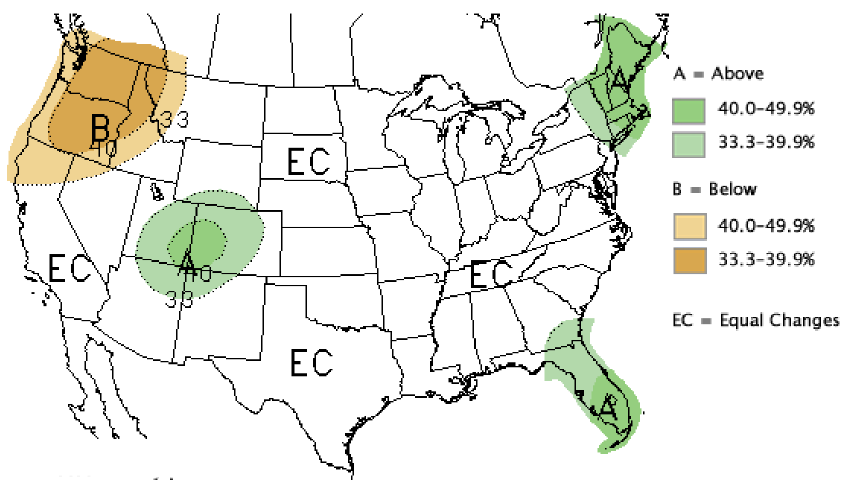


Figure PPT-3. Long-lead national precipitation forecast for JulyÐSeptember 2009. (Source: NOAA Climate Prediction Center)

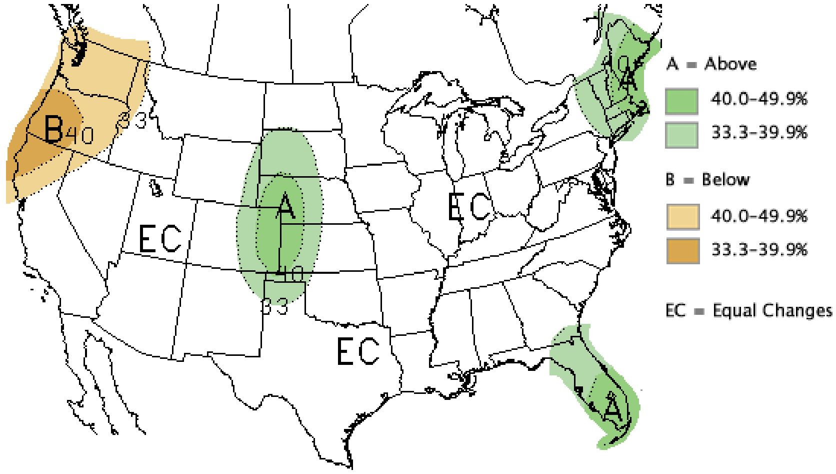


Figure PPT-4. Long-lead national precipitation forecast for AugustÐOctober 2009. (Source: NOAA Climate Prediction Center)

Seasonal Drought Outlook
through August 2009 (Released May 21)

The U.S. Seasonal Drought Outlook (DO) builds on the Drought Monitor categories to project how these drought areas might change or where new drought areas might develop. Only a few areas of the Intermountain West are categorized as in drought as of May 19th (see Figure RC-7 above). The DO projects some improvement in a small area on the **Utah-Wyoming** border and improvement in southeastern **Colorado** in the Arkansas basin (Figure DO-1). This latter projection of improvement indicates at least a one-category change in drought status.

Readers interested in the next 5 and 6-10 days can consult the ÒLooking AheadÓ section of each weekÕs DM for near-term drought outlook conditions. The next Seasonal Drought Outlook will be issued June 4th.

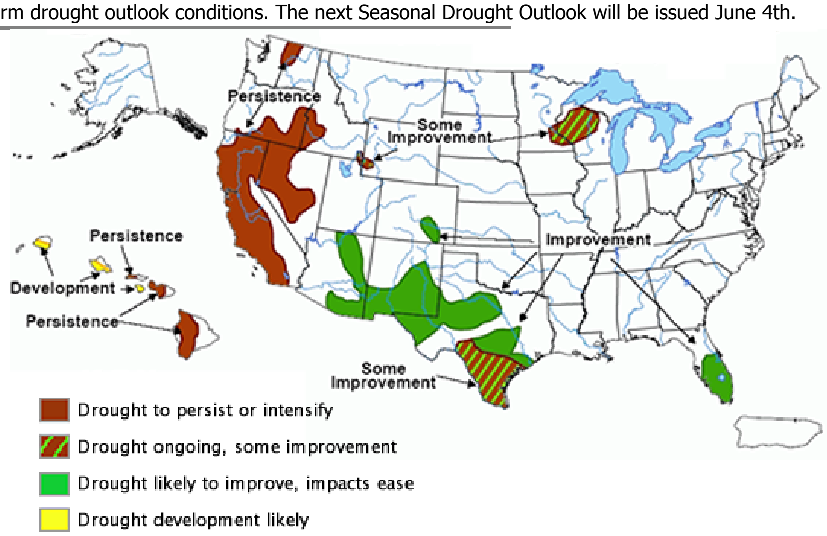


Figure DO-1. Seasonal Drought Outlook for May 21, 2009ÐAugust 2009. (Source: NOAA Climate Prediction Center)

The Intermountain West Climate Summary is published periodically by Western Water Assessment (WWA), a joint project of the UNiversity of Colorado Cooperative Institute for Research in Environmental Sciences (CIRES) and the National Oceanic and Atmospheric Administration (NOAA) Earth System Research Laboratory (ESRL) researching water, climate, and societal interaction.

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