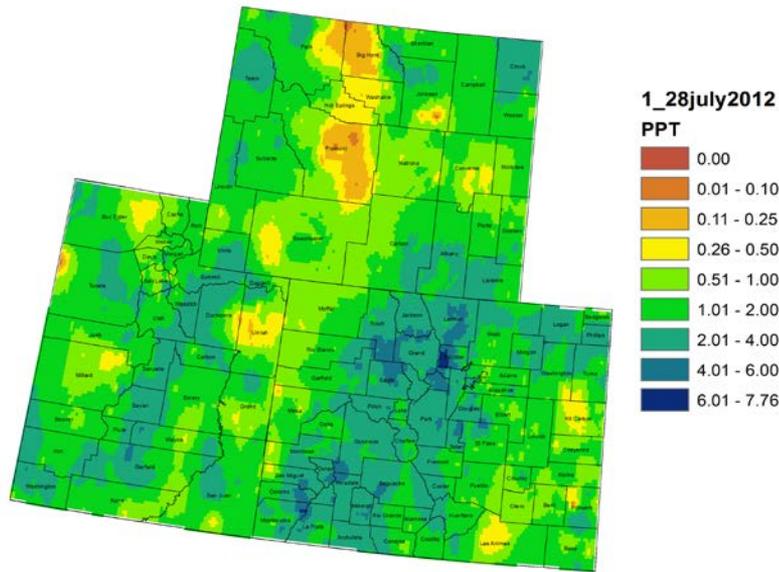


# NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

July 31, 2012

Colorado, Utah and Wyoming Month to Date Precipitation (in)  
1 - 28 July 2012



Snotel Water Year Precipitation Percentile Ranking for  
30 July 2012 (Stations with 15+ years of data only)

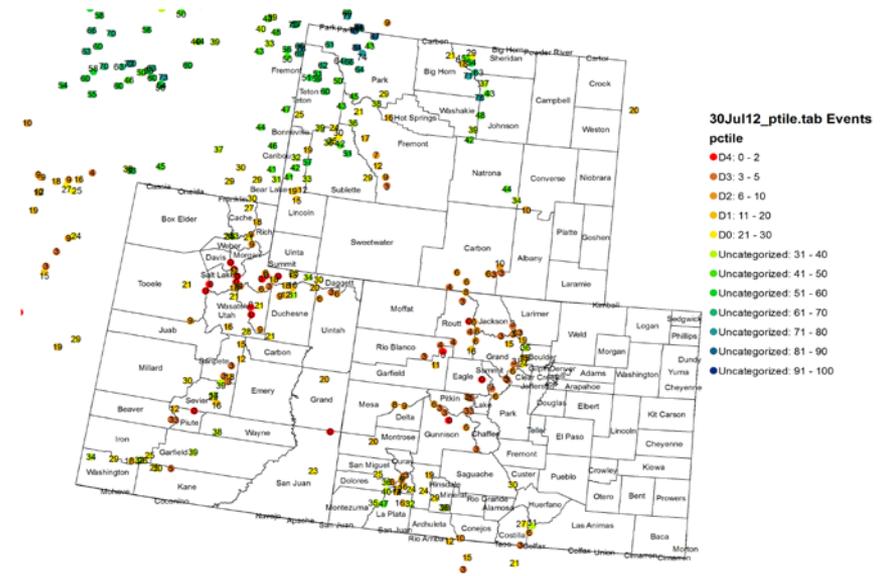


Fig. 1: July month-to-date precipitation in inches.

Fig. 2: SNOTEL WYTD precipitation percentiles (50% is median, 21 - 30% is Drought Monitor D0 category).

## Precipitation

For the month of July so far, widespread precipitation has fallen over most of the Upper Colorado River Basin (UCRB, Fig. 1). Most areas have received between a .5 to 2 inches for the month. With monsoonal flow through the central Rockies, over 1 inch fell in southern Routt, Eagle, Grand and southern Jackson counties. July totals are now in the 2 to 4 inch for the eastern part of the USB. Parts of eastern UT, the western slope of Colorado and southwest Wyoming have been a bit drier, receiving less than an inch of precipitation, month-to-date. East of the basin, most of CO has received between an inch to over two inches of precipitation. The Front Range of CO has seen more than 2 inches in July, with western Boulder County above 6 inches. Isolated areas in southeast CO and far eastern CO have seen less precipitation, receiving less than an inch month-to-date.

Water-year-to-date (WYTD), SNOTEL precipitation percentiles have increased for much of the UCRB, however the Yampa and Gunnison basins in CO, and the Wasatch range in UT remain in the lowest 10<sup>th</sup> percentile or below (Fig. 2). The northern mountains of CO are still reporting precipitation percentiles in the teens and single digits

# Streamflow

As of July 29<sup>th</sup>, about 38% of the USGS streamgages in the UCRB recorded normal (25<sup>th</sup> – 75<sup>th</sup> percentile) or above normal 7-day average streamflows (Fig. 3). There are two gages in the UCRB recording above normal flows, while about 30% percent of the gages in the basin are recording much below normal or low (i.e. lowest on record) streamflows (improved from 50% two weeks ago). Much below normal flows are concentrated in the middle Green River basin and around the Colorado River headwaters region. Near normal flows are concentrated around the Upper Green River and the Colorado River just above Lake Powell. The remainder of the basin is mostly in the below normal flows range.

There were only minor changes in flows at three key gages in the UCRB last week (Fig. 4). Flows on the Colorado River near the CO-UT state line are in the near normal range at the 28<sup>th</sup> percentile. Flows on the Green River at Green River, UT are still in the much below normal range at the 9<sup>th</sup> percentile. Flows on the San Juan River near Bluff, UT are near normal at the 36<sup>th</sup> percentile.

Explanation - Percentile classes							
	●	●	●	●	●	●	○
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Fig. 3: 7-day average discharge compared to historical discharge for July 29<sup>th</sup>.

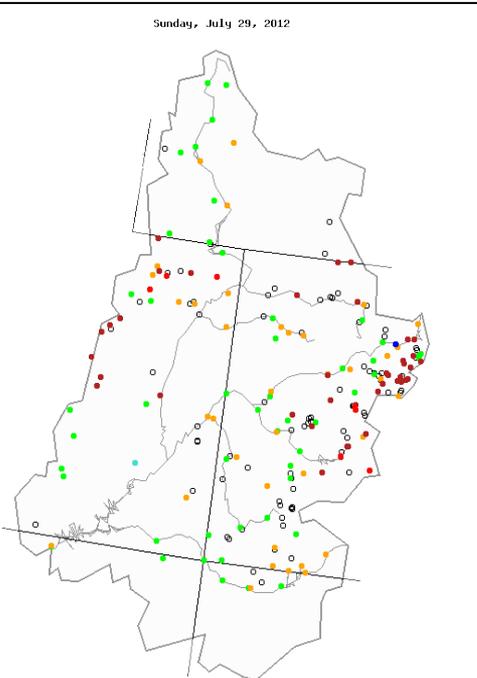
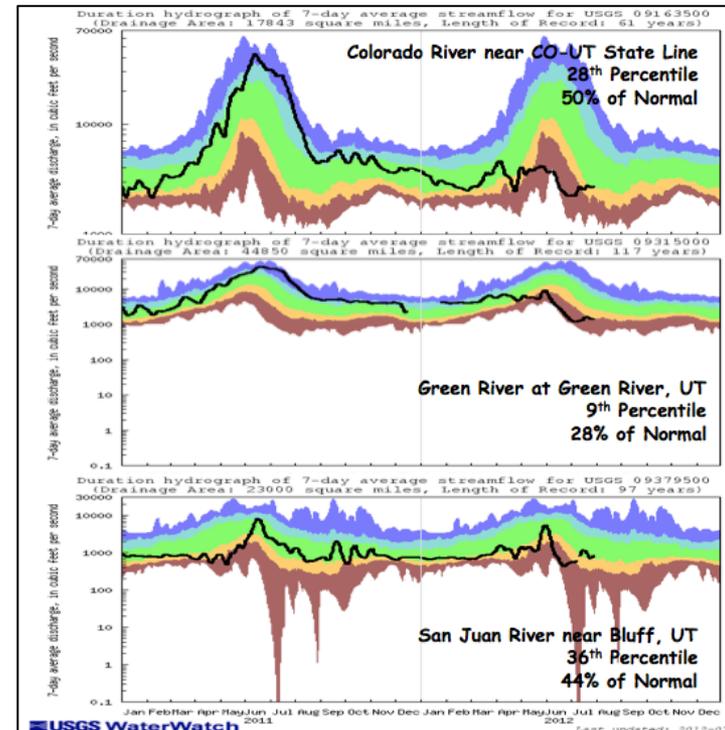


Fig. 4: USGS 7-day average discharge over time at the CO-UT stateline (top), Green River, UT (middle) and Bluff, UT (bottom).



# Water Supply and Demand

Last week, temperatures across the UCRB were near average to slightly above average. East of the basin, the rest of CO experienced temperatures 4 to 8 degrees above average for the week. Satellite vegetation conditions show the driest vegetation over northwest CO and northeast UT, with dry conditions extending into southern WY and into the Four Corners region (Fig. 5). Very dry vegetation is also showing up over northeast CO and along the Arkansas valley in southeast CO. Reference ET rates throughout the basin have stabilized over the past couple weeks, with daily rates less than .25 inches. East of the basin, reference ET rates are very high (with daily rates as high as .50 inches), with some of the highest seasonal accumulations observed at many sites (Fig. 6).

For the month of July so far, all of the reservoirs have seen volume decreases with McPhee, Blue Mesa and Green Mountain seeing the largest decreases. Volume decreases are normal for this time of year, though all reservoirs are seeing larger decreases than what is normal for this time of year. All of the major reservoirs are below their July storage averages, with Blue Mesa at 61% of average, Green Mountain at 65% of average, and Lake Powell currently at 71% of average.

## Precipitation Forecast

The monsoonal pattern will remain in place through the middle of the week as a large high pressure system located to the east of Colorado continues to pump moist sub-tropical air over much of the UCRB. This will lead to daily rounds of afternoon showers and thunderstorms with some storms capable of producing heavy rain. Expect the heaviest precipitation to occur in the southern and central mountains of CO where upwards of an inch of liquid accumulation is possible by Friday morning. Amounts will generally remain below 0.5 inches to the north and west in areas further away from the center of the monsoonal plume. By Friday a trough of low pressure moving across the US/Canadian border will begin to push much of the monsoonal moisture to the south and lead to a reduction in storm coverage. This drying trend is expected to continue through the weekend as the high pressure center redevelops immediately over CO and effectively cuts off the transport of sub-tropical moisture from the south. Precipitation chances will remain low through the weekend with some hints at a return of monsoonal moisture by early next week.

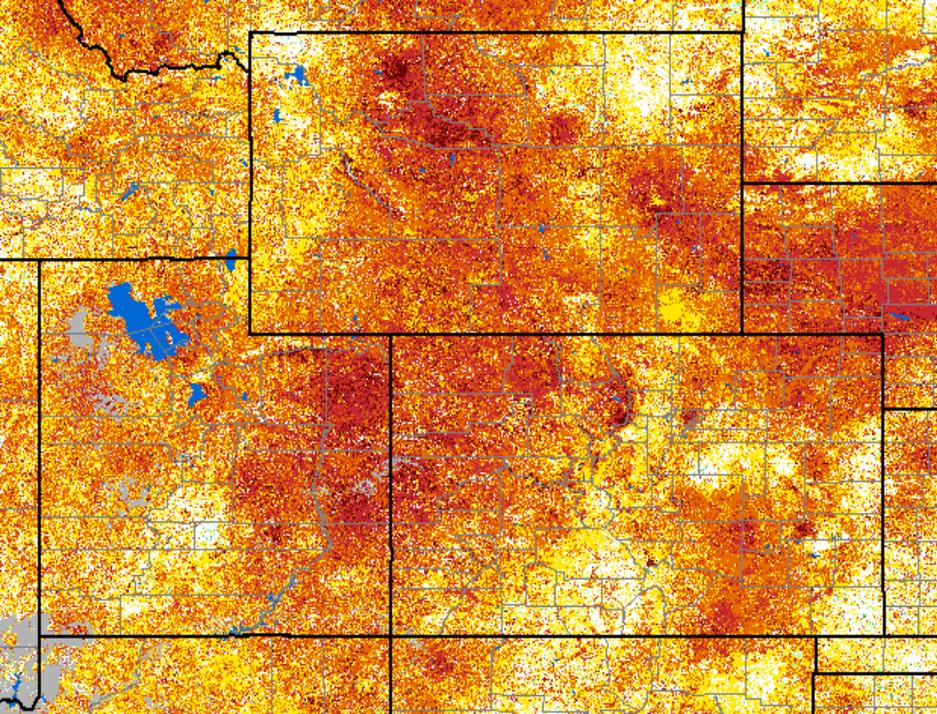


Fig. 5: eMODIS VegDRI satellite vegetation conditions as of July 29<sup>th</sup>.

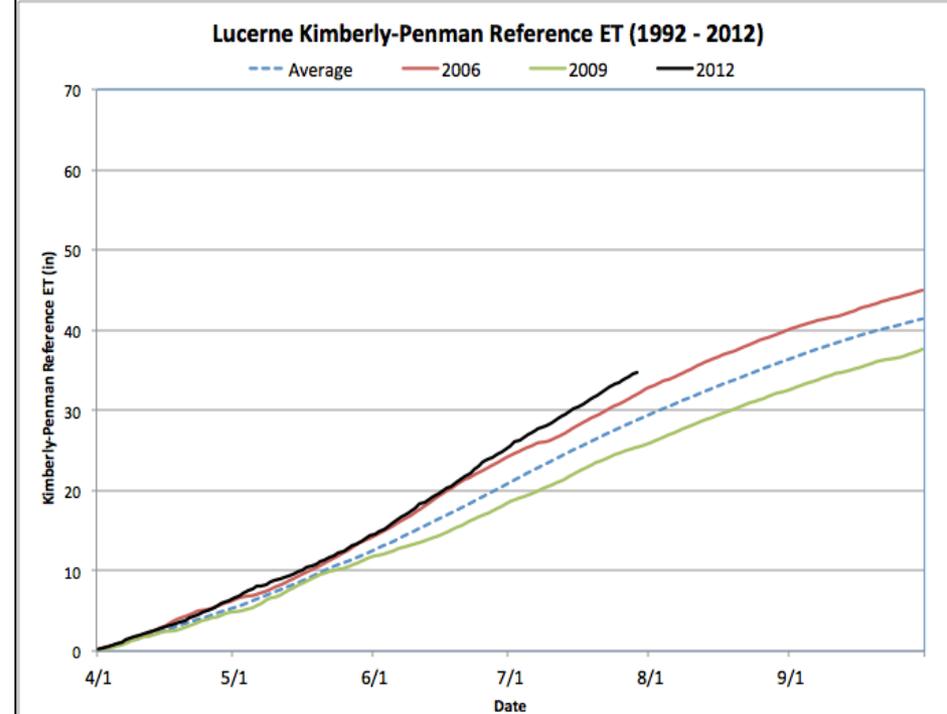
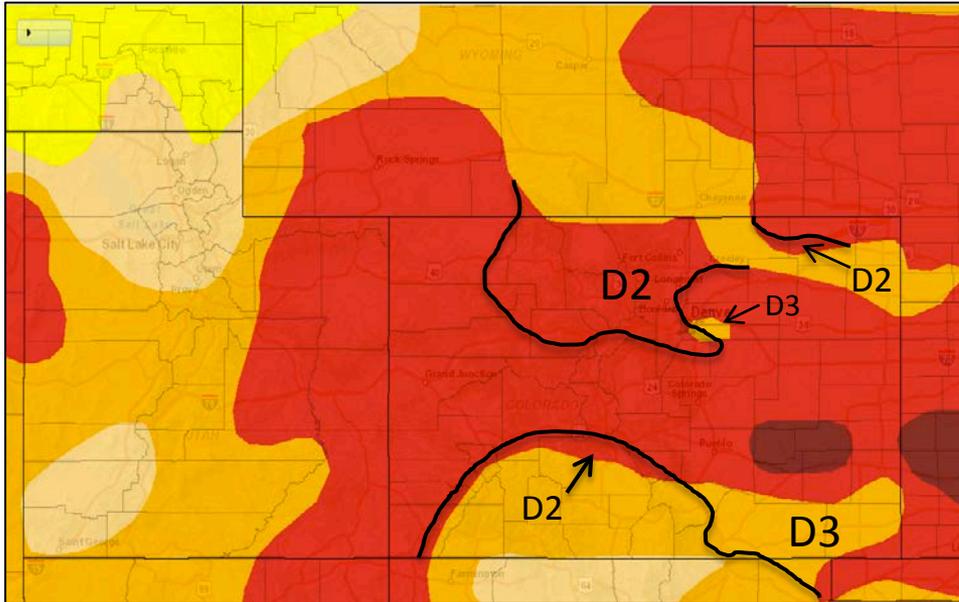


Fig. 6: Accumulated reference ET (black line) at Lucerne, CO in the northeast region, compared to the max year (red), min year (green), and average (dashed line).

# Drought and Water Discussion



Drought – Exceptional	0 to 2 (D4)
Drought – Extreme	2 to 5 (D3)
Drought – Severe	5 to 10 (D2)
Drought – Moderate	10 to 20 (D1)
Abnormally Dry	20 to 30 (D0)

Drought categories and their associated percentiles

Fig. 7: July 24<sup>th</sup> release of U.S. Drought Monitor for the UCRB with recommendations.

**UCRB:** Beneficial rains have fallen in the basin through July prompting improvements from D3 to D2 (See Fig.7) in the north-central Colorado Rockies, extending to the northern Front Range of Colorado. The D2 in southwest CO has also been pushed northward thanks to the monsoonal plume. It has also been mentioned in past weeks the D3 extends too far west into Utah, again we leave this up to the USDM author.

**Eastern CO:** With the improvements in the UCRB, D3 should also be removed from the much of the northern Front Range (Fig. 7). There is also proposed trimming of the D3 in northeastern Weld and southern Logan counties. D3 should cover central Arapahoe and southwestern Adams counties. With much below normal July rain, D3 will be added in southeastern CO to fill in the notch of D2, extending into much of Las Animas County and eastern Huerfano County. There was discussion about connecting the D4 in southern CO and Kansas, however that will be held off for this week and re-evaluated next week.