



Colorado CoCoRaHS

Because Every Drop Counts!

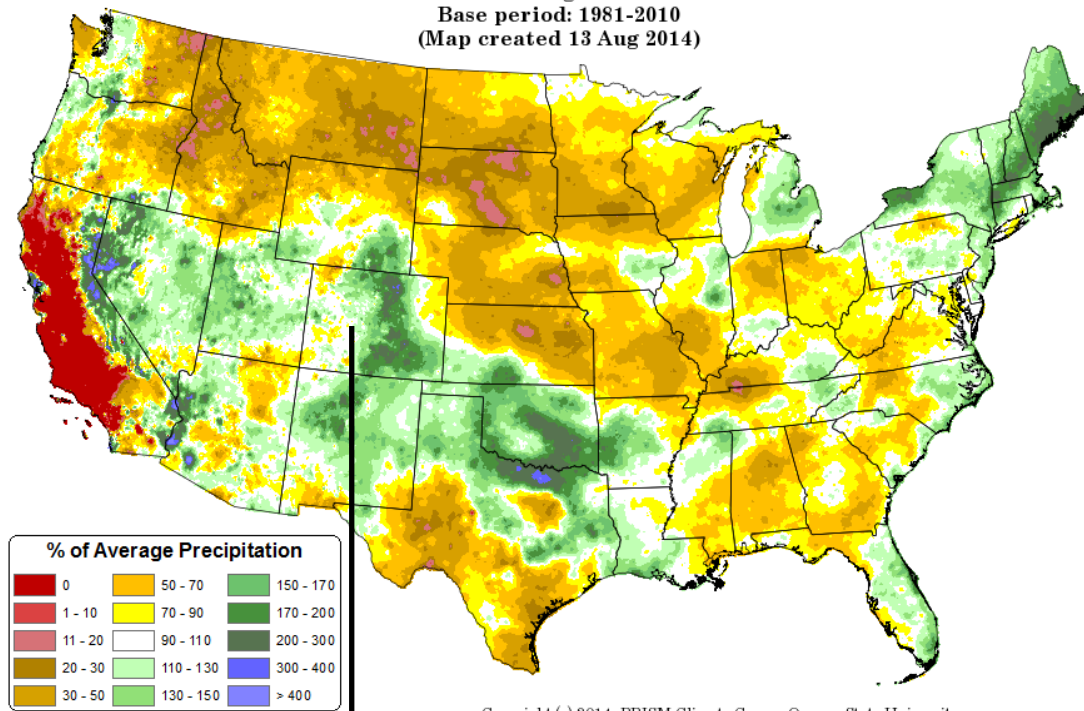
August 2014
Volume 2, Issue 8

U.S. PRECIPITATION (% OF AVERAGE) – JULY 2014

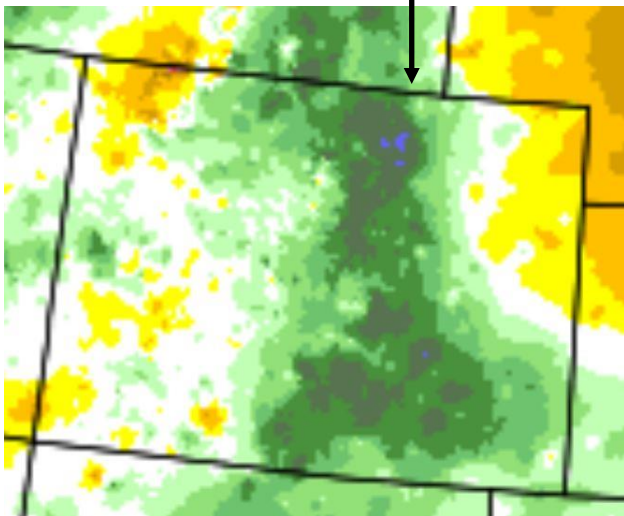
The month of July was dry for a large portion of the lower 48 U.S. states with a few exceptions, one of those, being Colorado. Heavy rain fell along much of the Front Range and across some of drought stricken counties in the southeast. There were pockets of dry weather in July on the western slope, especially in southwest and northwest Colorado.

Total Precipitation Anomaly: July 2014

Period ending 31 Jul 2014
Base period: 1981-2010
(Map created 13 Aug 2014)



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	July Precip (in.)	Departure From Average
Alamosa	1.52	+ 0.55
Aspen	1.90	+ 0.19
Co. Springs	4.63	+ 1.79
Denver	3.85	+ 1.69
Durango	1.30	- 0.42
Fort Collins	3.04	+ 1.33
Grand Junction	1.02	+ 0.41
Lamar	3.87	+ 0.98
Pueblo	3.28	+ 1.22



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U.S. TEMPERATURES (ANOMALY) – JULY 2014

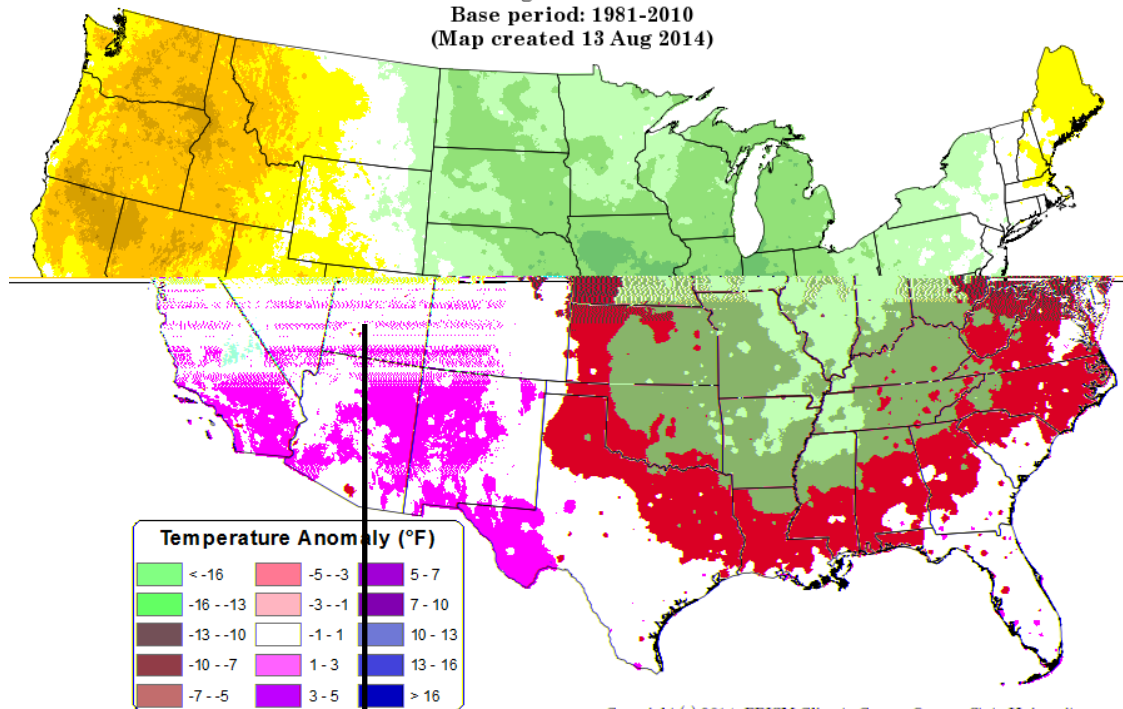
Colorado was caught between much warmer-than-normal weather to the west and cooler-than-normal conditions in the central and eastern United States during July. Most locations were at or slightly above their normal July average temperature, with the warmest weather found west of the Continental Divide.

Daily Mean Temperature Anomaly: July 2014

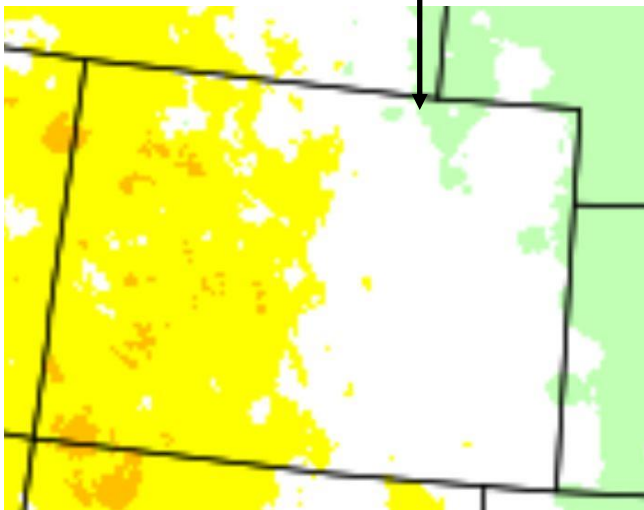
Period ending 7 AM EST 31 Jul 2014

Base period: 1981-2010

(Map created 13 Aug 2014)



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	July Mean Temp. (°F)	Anomaly
Alamosa	66.0	1.4
Aspen	65.7	2.2
Co. Springs	70.3	- 0.6
Denver	74.5	0.3
Durango	71.3	2.7
Fort Collins	72.1	- 0.5
Grand Junction	79.2	1.0
Lamar	77.6	0.3
Pueblo	75.1	- 0.7



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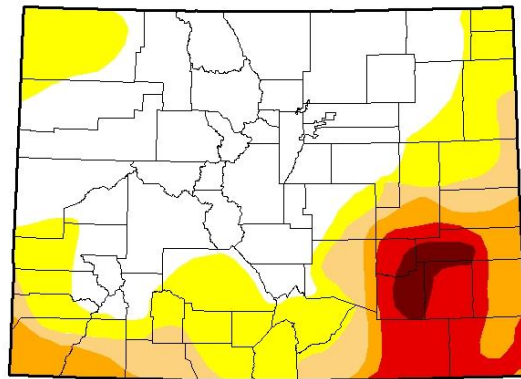
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COLORADO DROUGHT UPDATE

Monsoon rains have been good to most of Colorado this season. As of August 12th, there is no longer D4 drought left in the state. D4 is the worst category of drought. While the rain is great news, there is a downside. It has caused several episodes of flash flooding, with some damage reported in places like Eads and La Junta. Drought is expanding in southwest Colorado.

U.S. Drought Monitor Colorado



June 10, 2014

(Released Thursday, Jun. 12, 2014)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	50.86	49.14	25.38	16.56	9.33	1.89
Last Week 05/20/14	50.27	49.73	30.04	18.85	12.49	1.89
3 Months Ago 3/11/2014	38.90	61.10	21.36	13.54	4.23	1.47
Start of Calendar Year 12/31/2013	32.04	67.96	22.33	13.56	4.01	1.47
Start of Water Year 10/1/2013	24.91	75.09	37.88	12.01	4.01	1.47
One Year Ago 6/11/2013	0.00	100.00	93.18	72.19	26.51	15.91

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

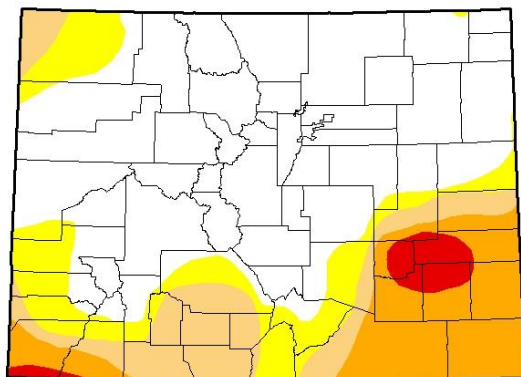
Author:

Matthew Rosencrans
CPC/NCEP/NWS/NOAA



<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor Colorado



August 12, 2014

(Released Thursday, Aug. 14, 2014)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	59.90	40.10	26.95	15.58	2.67	0.00
Last Week 05/20/14	59.92	40.08	26.96	15.52	2.67	0.52
3 Months Ago 5/13/2014	44.71	55.29	32.79	18.86	12.49	1.91
Start of Calendar Year 12/31/2013	32.04	67.96	22.33	13.56	4.01	1.47
Start of Water Year 10/1/2013	24.91	75.09	37.88	12.01	4.01	1.47
One Year Ago 8/13/2013	1.53	98.47	93.82	68.72	26.33	3.04

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Richard Tinker
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<http://droughtmonitor.unl.edu/>



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AUGUST'S FEATURED COLORADO COUNTY – GRAND

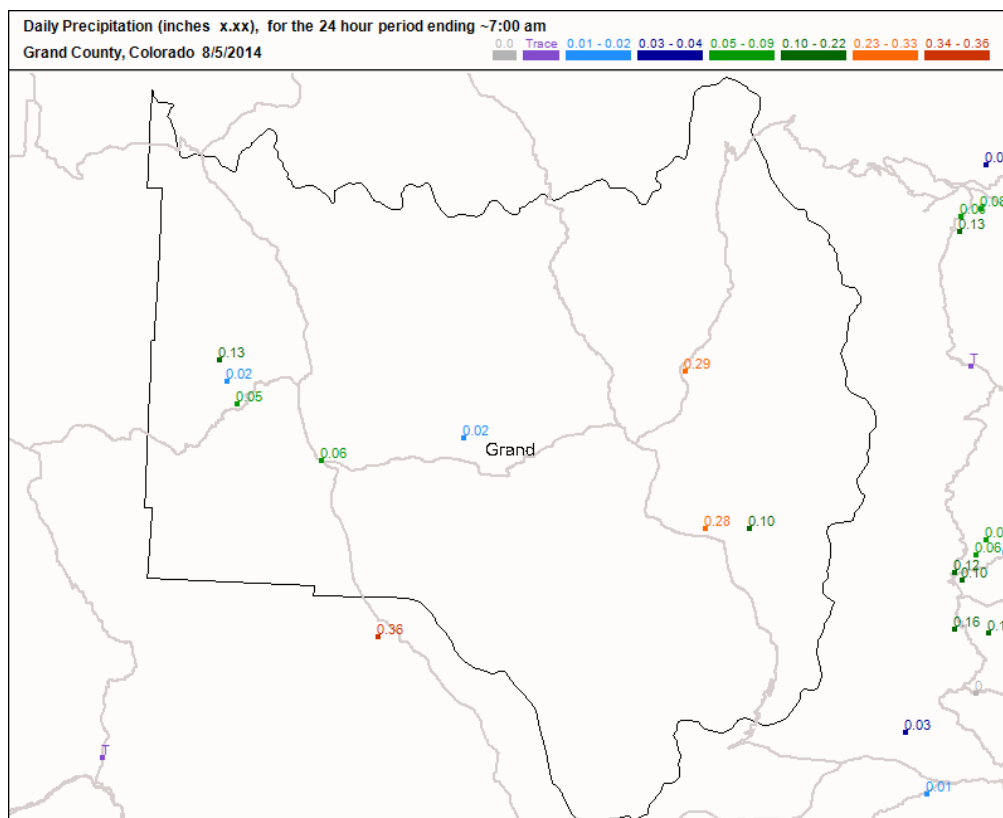
Of the more than 3,100 counties and county equivalents across the United States, there are only about 250 that border more than seven other U.S. counties. Grand County is in that elite group, bordering eight other counties! Gunnison, Las Animas, Logan, Pueblo and Weld counties are also in that group.

Grand County is located in north-central Colorado and borders Larimer, Boulder, Gilpin, Clear Creek, Summit, Eagle, Jackson and Routt counties. It has about 1,870 square miles with 23 square miles of water.

The largest communities are Fraser, Granby, Grand Lake, Hot Sulphur Springs, Kremmling, Tabernash, Winter Park, Parshall and Radium.

Grand County is home to the headwaters of the Colorado River, and a very important location in Colorado for tracking precipitation patterns with several key reservoirs that provide drinking water to thousands.

There is a good network of CoCoRaHS observers in Grand County, considering there are only about 15,000 residents. But there's always room to grow! In populated areas, we'd love to see one or more observers per square mile, and in rural locations, one or more per every 36 square miles. If you know someone who lives in Grand County, who would enjoy being a part of CoCoRaHS, encourage them to join!





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JULY FUN FACTS FROM AROUND COLORADO (*As of 3 pm, 8/15/2014)

- 1,252 stations filed at least one daily report
- 897 stations reported at least half of the month
- 364 stations filed a report every day
- Wettest station: CO-EP-65 (Widefield 13.7 ESE) with 9.89” of precipitation
- Driest station that reported all 31 days: CO-DL-8 (Hotchkiss 9.0 WNW) with 0.32” of rain.
- 80 stations filed a multi-day accumulation report
- No stations reported snow during the month of July

TOP 20 WETTEST STATIONS IN JULY

Station	Location	July Precip
CO-EP-65	Widefield 13.7 ESE	9.89
CO-PU-76	Rye 1.1 WSW	8.47
CO-KW-26	Eads 0.3 NE	8.15
CO-KW-4	Eads .45 E	7.95
CO-EP-62	Black Forest 3.4 NNE	7.87
CO-DG-80	Castle Rock 7.3 NNW	7.60
CO-EP-234	Colorado Springs 7.0 NNE	7.46
CO-DG-157	Castle Rock 6.5 NNW	7.42
CO-TL-14	Woodland Park 0.2 ESE	7.39
CO-DG-67	Beverly Hills 2.0 WNW	7.06
CO-JF-81	Conifer 3.9 SE	7.06
CO-CU-28	Westcliffe 6.2 W	7.04
CO-HF-40	Walsenburg 0.5 W	6.97
CO-DG-218	The Pinery 1.2 ESE	6.94
CO-EP-66	Black Forest 3.9 NNE	6.93
CO-JF-146	Evergreen 3.6 SSW	6.85
CO-DG-25	Castle Pines 2.2 NNE	6.84
CO-EP-325	Colorado Springs 6.1 NNW	6.84
CO-PW-32	Holly 10.9 S	6.63
CO-PU-99	Rye 1.0 SSE	6.58



HEAT BURST RECORDED IN EASTERN COLORADO

An astute forecaster at the National Weather Service office in Goodland, Kan., observed an interesting weather event during the early morning hours on July 22, 2014.

At 12:41 a.m., the weather station 2 miles west of Yuma, Colo., reported an air temperature of 67 degrees. By 3:31 a.m., the temperature had risen to 87. It dropped back to 70 just after sunrise. This phenomena is one that is known to happen, but isn't always documented. It's called a heat burst.

Just as humans breathe in and exhale air, so do thunderstorms. Typically, high inside the cloud of a storm, there is a pocket of colder air, cooled by evaporation; much like the evaporation of sweat has a cooling effect on skin. As this air cools, it becomes heavier than the air surrounding it, and sinks.

As the air sinks, another process takes place, called compression. This warms the temperature of the sinking air. If the air around the thunderstorm is very dry, then rapid evaporation can take place. This will cause a large amount of cooling, causing the air inside the thunderstorm to sink at a higher speed. This is called a downburst.

In a dying thunderstorm, the cooling of the air by evaporation offsets the warming caused by compression. So, as long as there is still evaporation taking place inside the cloud, the cooling and sinking process will continue. Sometimes, all the water in the sinking air can evaporate before it reaches the ground.

When this happens, compression takes over, and the air temperature will begin to rise. This warming process will begin to slow the speed of the downdraft, but, if there is enough momentum built up, the now warmer, drier air will continue to push toward the ground.

The result is a sudden burst of hot, dry, gusty wind felt at the surface, called a heat burst. When the heat burst was recorded in Yuma early Tuesday, the relative humidity went from 76 percent at 12:41 a.m., to 20 percent when the warmest temperature was measured.

Heat bursts probably happen more than we know, but they have to occur over a weather station to be documented.

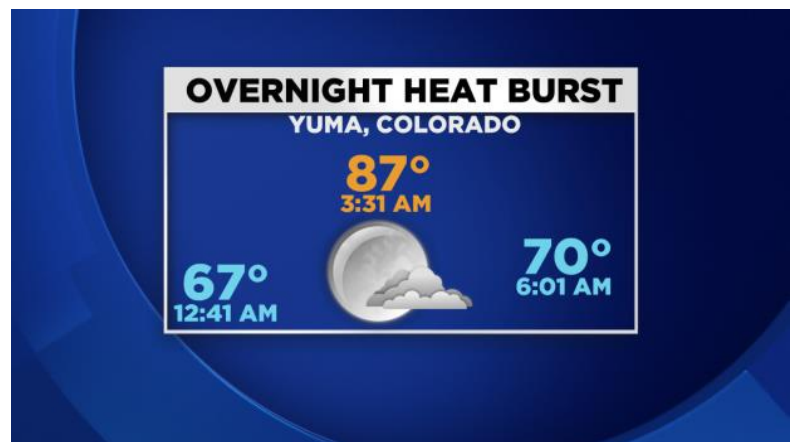


Image Credit: Chris Spears/CBS4



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One of the most talked about recent heat bursts happened in Wichita, Kan., on June 9, 2011.

During that event, the temperature rose from 85 degrees to 102 in just 20 minutes, shortly after midnight.

Location	County, ST	SID	Elev	Provider	Time	T	Td	RH	HI	Vis	Dir	Spd	Gust	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 12:41	74	55	52	74		46	7	14	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 12:31	74	54	49	74		44	11	18	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 12:21	75	55	49	75		39	13	22	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 12:11	72	54	53	72		23	15	28	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 12:01	70	57	64	70		269	6	14	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 11:51	71	58	63	71		240	10	16	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 11:41	71	58	63	71		234	11	18	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 11:31	71	57	62	71		246	14	18	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 11:21	71	57	62	71		248	13	20	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 11:11	72	58	62	72		240	12	16	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 11:01	72	57	60	72		244	10	17	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 10:51	73	58	59	73		233	15	19	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 10:41	73	57	58	73		231	14	17	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 10:31	74	57	55	74		231	11	16	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 10:21	75	56	52	75		219	11	16	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 10:11	77	55	46	77		214	13	15	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 10:01	81	51	35	80		200	15	20	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 09:51	83	45	26	83		119	11	12	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 09:41	86	43	22	86		86	12	21	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 09:31	87	41	20	87		58	17	23	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 09:21	85	42	22	85		56	18	22	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 09:11	84	45	26	84		68	13	19	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 09:01	83	46	27	83		53	14	23	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 08:51	83	45	26	83		350	8	32	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 08:41	79	46	31	79		304	27	33	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 08:31	76	50	40	76		339	17	22	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 08:21	75	52	44	75		19	10	19	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 08:11	75	53	47	75		25	6	11	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 08:01	75	55	49	75		349	4	12	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 07:51	75	58	55	75		290	6	13	
2 W YUMA	Yuma, CO	CW3459	4,173	CWOP	07/22 07:41	75	57	53	75		293	6	11	
	Yuma, CO	CW3459	4,173	CWOP	07/22 07:31	74	58	57	74		262	9	24	2 W YUMA
	Yuma, CO	CW3459	4,173	CWOP	07/22 07:21	72	58	61	72		232	13	32	2 W YUMA
	Yuma, CO	CW3459	4,173	CWOP	07/22 07:11	70	58	65	70		179	2	12	2 W YUMA
	Yuma, CO	CW3459	4,173	CWOP	07/22 07:01	70	59	67	70		208	10	12	2 W YUMA
	Yuma, CO	CW3459	4,173	CWOP	07/22 06:51	69	59	70	69		193	11	16	2 W YUMA
	Yuma, CO	CW3459	4,173	CWOP	07/22 06:41	67	59	76	67		204	9	13	2 W YUMA
	Yuma, CO	CW3459	4,173	CWOP	07/22 06:31	67	59	76	67		137	5	13	2 W YUMA

The temperature record from a weather station near Yuma, Colo., on July 22, 2014, showing an overnight heat burst. (credit: NWS Goodland)



FORT COLLINS WEATHER STATION CELEBRATES 125 YEARS

Monday, July 28, was a very special day for Colorado State University and the City of Fort Collins as the community came together to celebrate 125 years of daily weather observations at the campus weather station.

Several weather experts were on hand for the presentation of a historic plaque.

“The Weather Station is an historical part of the University,” said State Climatologist Nolan Doesken. “Data collection began near the site of the former ‘Old Main’ in the 1870s. Daily climate records since Jan. 1, 1889, are complete and available in a variety of digital and hardcopy forms, making this one of Colorado’s oldest weather stations and an incredible scientific resource.”

The Fort Collins weather station is located on the CSU campus, next to the CSU Transit Center, just northwest of the Lory Student Center, off Plum Street.

While it has shifted locations a few times over its history due to a growing campus, the collection of daily weather data has never been interrupted.

There are a host of weather instruments on site, including multiple rain gauges and wind sensors.

Other data collected includes the frost level in the ground during the cold season and evapotranspiration.



Image Credit: Colorado Climate Center



FORECASTERS TRY TO PREDICT WHERE LIGHTNING WILL STRIKE NEXT

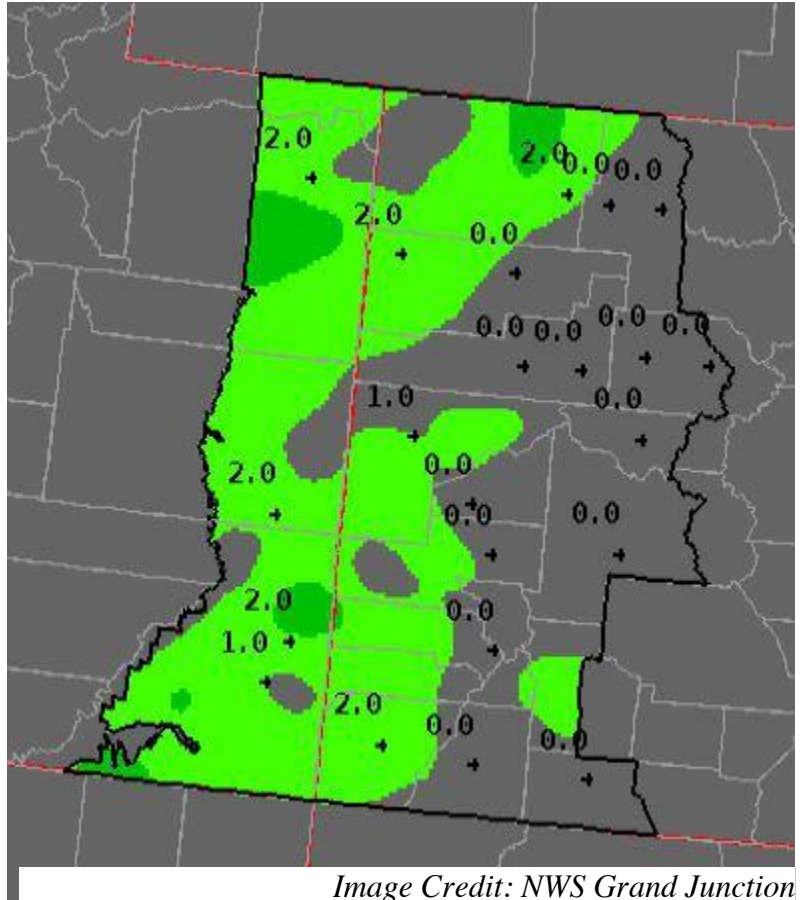
Where will the next cloud-to-ground bolt of lightning strike in Colorado? Good question! An effort is underway to try and predict that next strike with an experimental forecast product for those planning outdoor activities in western Colorado and eastern Utah.

It's called the Lightning Potential Index, or LPI, and was developed by forecasters at the National Weather Service office in Grand Junction. The LPI provides a 60-hour forecast for potential lightning strikes. It's updated every 3 hours and will be available year-round. The LPI can be accessed using the following link...

<http://www.crh.noaa.gov/gjt/?n=lightninpotentialindex>

Currently, the LPI is only available for the forecast area covered by the Grand Junction office of the National Weather Service, which is eastern Utah and western Colorado. But, after more testing, they hope to be able to roll the LPI forecast product out to National Weather Service offices in other parts of the country.

The index has four categories of risk, ranging from low to extreme.



A low risk means the potential for cloud-to-ground lightning may either be negligible or low. Isolated thunderstorms may occur, but the probability of thunderstorms is low.

Moderate risk means that isolated thunderstorms are expected within the area and lightning could pose a risk.

Areas given a high risk can expect scattered thunderstorms. Those planning to be outside should plan accordingly and be aware of lightning safety guidelines.

The highest category is extreme risk, meaning lightning is imminent in that area and safety rules should be practiced.