SEPTEMBER 2014
Weather Digest

Weather Summary

Significant Events

Special Features

Temperature & Precipitation

Severe Weather

September 2014 Weather Summary

Well for the second year in a row September made up for what was a well below normal rainfall pattern for the majority of the monsoon season. Last year rainfall totals were well below the monsoon season normal heading into September. However in about one week of rain most areas were able to catch up and pass normal readings. Much the same this September except most areas were even further behind normal than last year heading into September. Thanks to two tropical surges, one starting on the 15th involving Hurricane Odile (see write up following pages), and another surge starting on the 22nd. Both events cause serious flooding for many places around the Borderland (see photo gallery on following pages). On the positive side, the consistent tropical airmass meant there was little in the way of severe weather, such as damaging winds or hail.

The month started out much like August ended with very little rain other than some of the mountain areas. Odile changed all that when her remains moved over the area beginning late on September 14th. Odile was one of the strongest hurricanes to ever impact the Baja Peninsula. Fortunately, she lost much strength before reaching Arizona and New Mexico. However a lot of rain fell over a four day period due to the remnants of Odile. In fact that period brought most areas back to near normal, with the second surge then pushing rainfall amounts to well above normal. For the monthmost areas around the Borderland ranged from 200% to 400% of normal, except for southern Hudspeth County, which still was able to reach near normal.

Weather Summary (continued)

For the monsoon season, the majority of the area ran about 150% to 300% of normal, except for far eastern Hudspeth County and far western Hidalgo and Grant Counties, which were just slightly above normal.

Looking at temperatures, the September pattern behaved much like one would expect, given the heavy rainfall. Average high temperatures across the region were anywhere from two to four degrees below normal. However most low temperatures were near normal to around two degrees above normal. This pattern is typical as the clouds and rain hold daytime highs down, but don't allow night time lows to drop due to clouds and humidity.

For further information on the 2014 Monsoon season visit:
http://www.wrh.noaa.gov/twc/monsoon/monsoon_elp.php

September 2014 feature - Odile

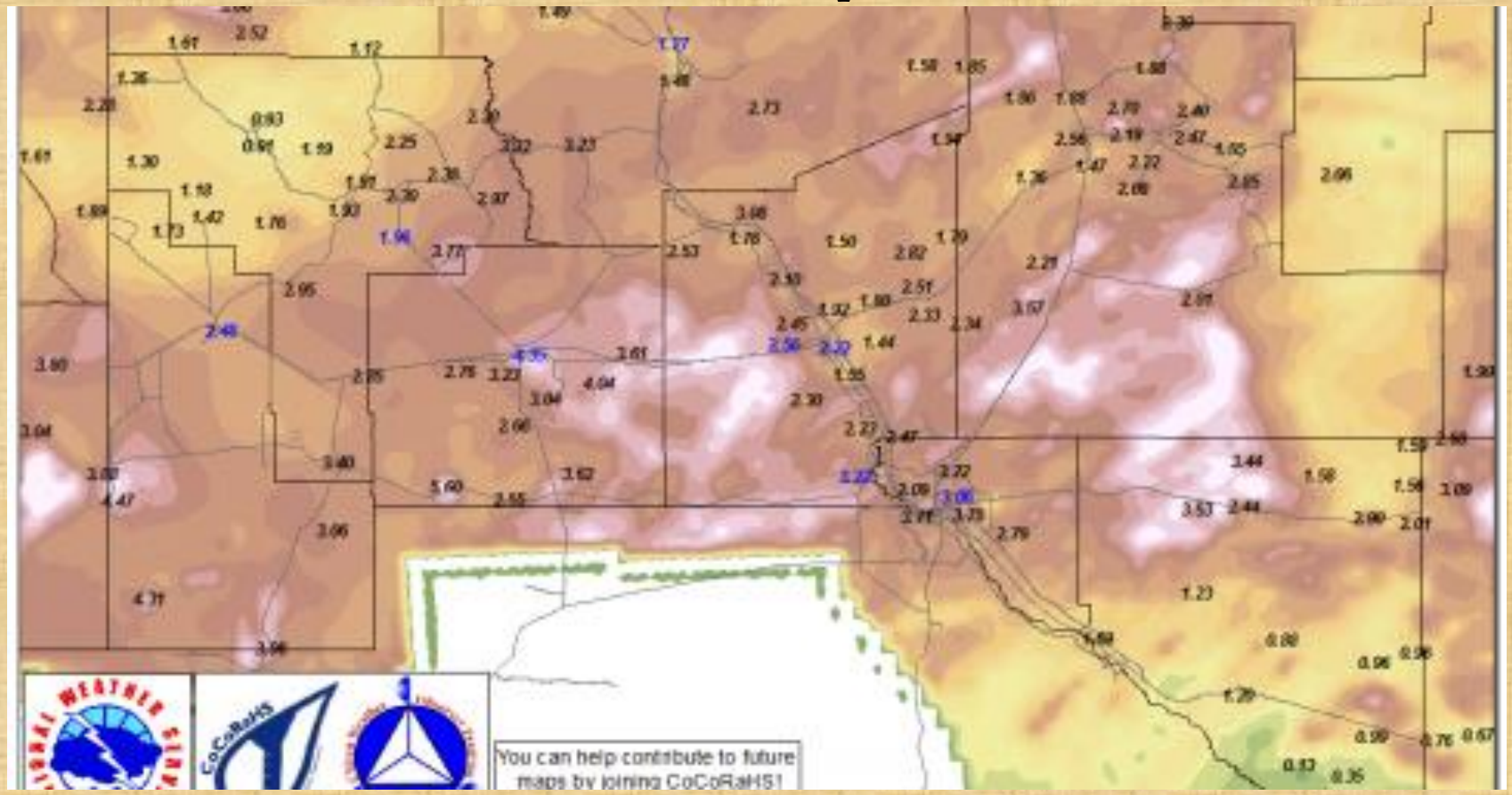
One of the characteristics of September weather is the increased risk of tropical storms impacting the area. On average about 1 tropical storm a year impacts our area and September gives us the best chance, with October the next best month for tropical storm impact. (See slide #1). Odile formed in the Eastern Pacific west of Costa Rica and Nicaragua. It then gained strength and reached hurricane status on September 13, not too far southwest of Puerto Vallarta, Mexico. At it's maximum strength, Odile reached Category 4, still well out to sea. Odile finally made landfall as a Category 3 hurricane over the southern tip of the Baja Peninsula on the evening of September 14. It is believed that Odile contained the strongest winds to ever hit the southern Baja Peninsula. Winds were estimated to be as high as 120 mph.

Odile continued a northwest movement along the spine of the peninsula, finally turning north and crossing the Gulf of California near Isla Àngel de la Guarda. It then turned more northeast and moved across the Sonoran Desert of Mexico on September 16. By September 17, the storm moved over the New Mexico bootheel, but had weakened considerably and was no longer a tropical storm. However, the system still had plenty of moisture and on the night of September 15, the first convective band from Odile moved across the Borderland with heavy rain. The heavy rainfall continued over the next several days as one or two other convective bands moved over the area. By early on September 18, the actual remains of the storm moved over the El Paso area. Heavy rainfall continued into September 19 before tapering off. (See slide #2 for satellite history of storm)

Odile (continued)

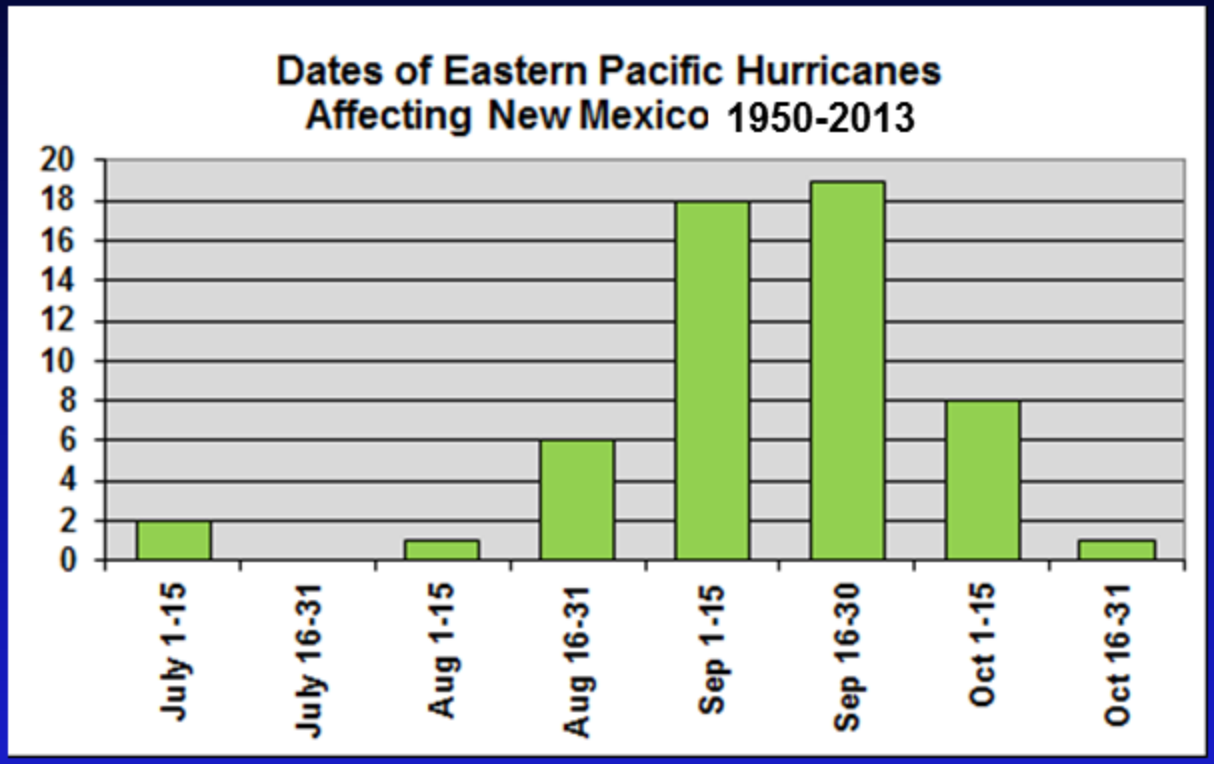
Despite moving over near Midland, Texas by September 19 and 20, Odile was not finished impacting the area. Strong southerly flow aloft developed on September 21 and by the next day, leftover moisture from Odile, along with new moisture over central Mexico moved up to the Borderland and produced two more days of heavy widespread rain on September 22 and 23.

Rainfall totals Sep 15-19



Dates of Impact

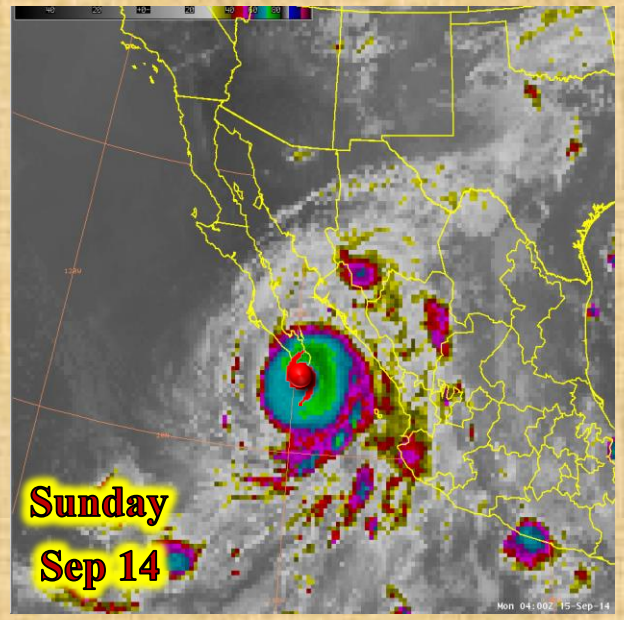
Slide #1

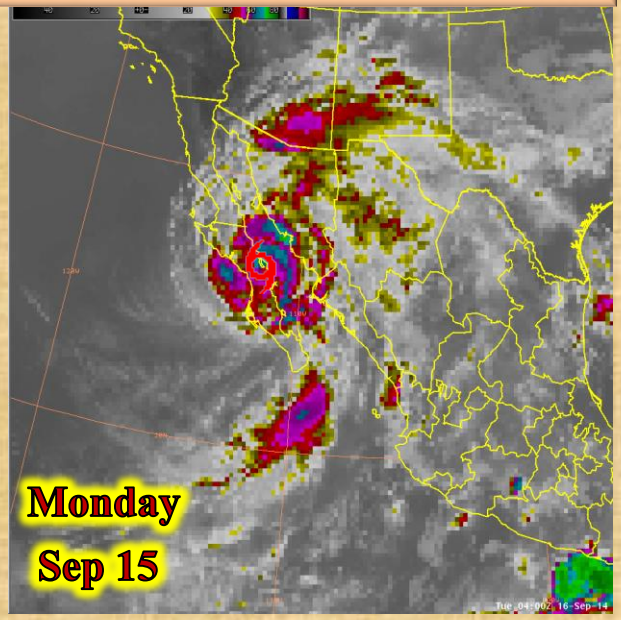


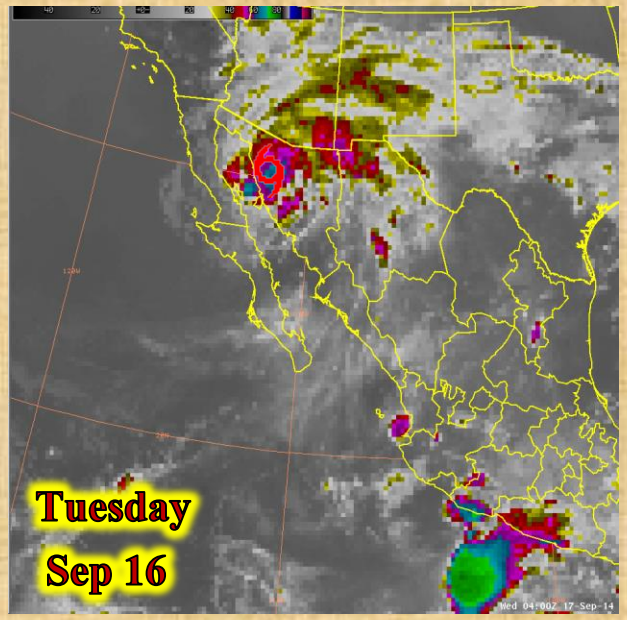
Since 1950, September is the preferred month for tropical storm impacts, with a slight preference for the latter half of the month.

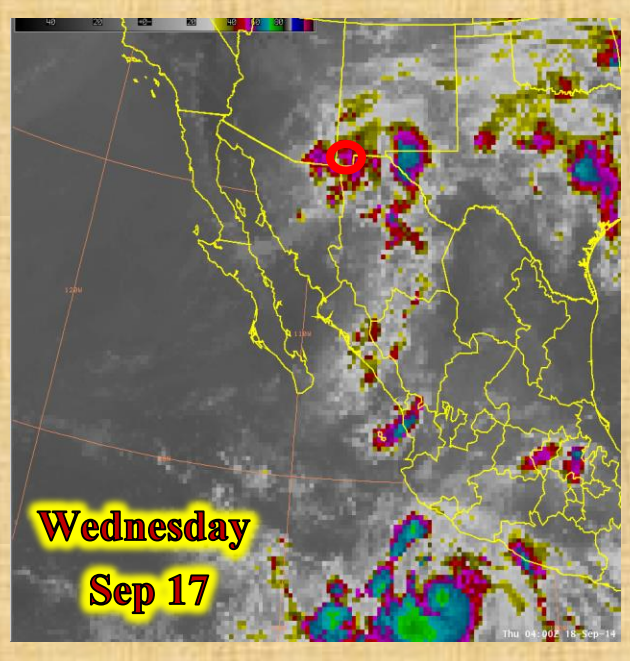
Odile Sep 14-19

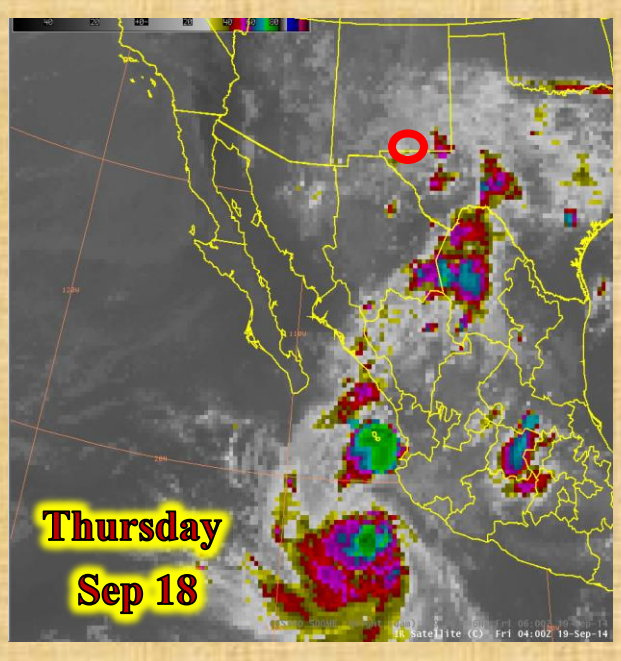
Slide #2

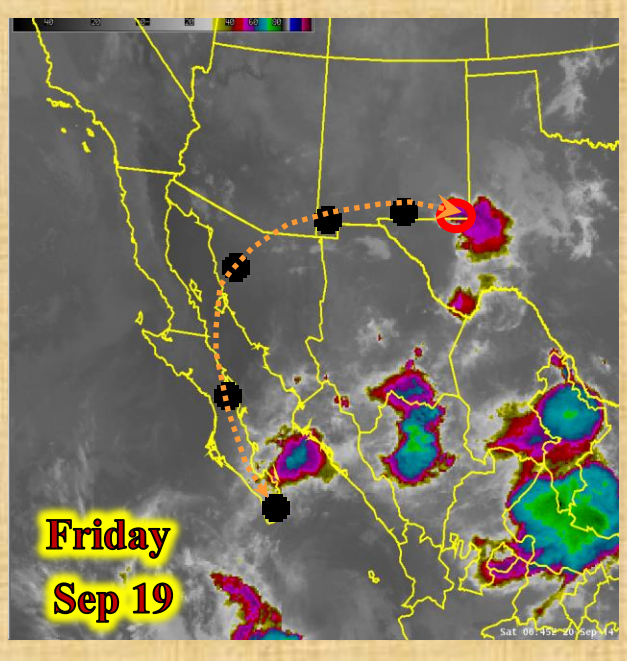












Near Deming
Sep 16
Required water rescue

Near Deming
Sep 16

Columbus
Sep 17

Near Las Cruces
Sep 17
Supercell with wall cloud

Near Lordsburg
Sep 17

Las Cruces
Sep 22

El Paso
Sep 22
Fatality on Diana Street

El Paso
Sep 22

El Paso
Sep 22

El Paso
Sep 22

El Paso
Sep 22

El Paso
Sep 22

El Paso
Sep 22
VR
VERONICA RUIZ PHOTOGRAPHY

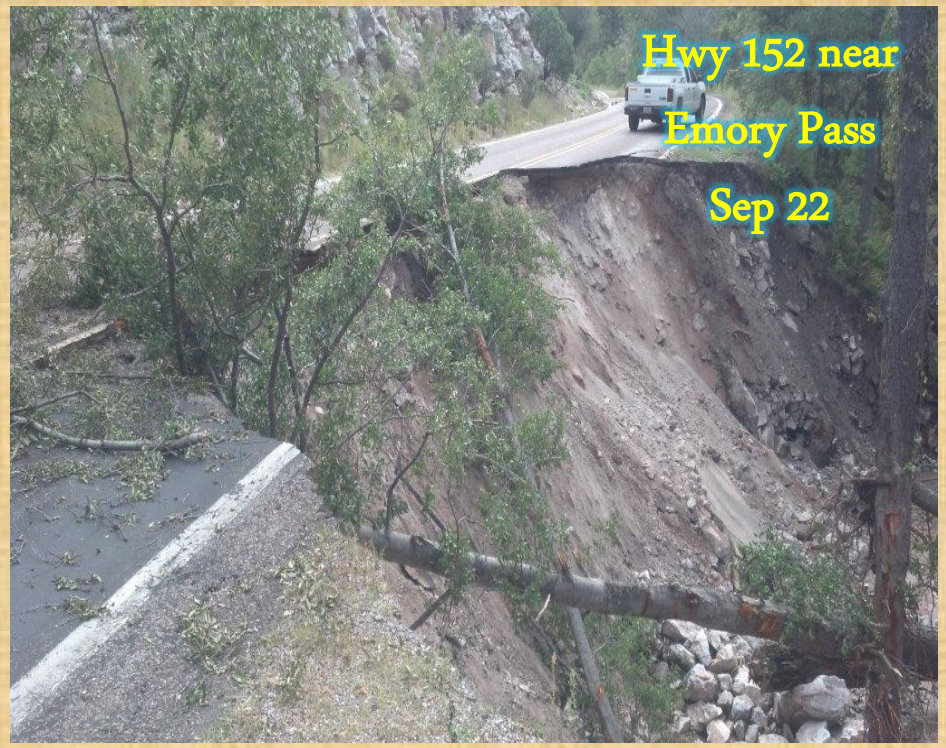
Silver City
Sep 22

High Rolls
Sep 22

La Union
Sep 22

Las Cruces
Sep 22

Chaparral
Sep 22


Hwy 152 near
Emory Pass
Sep 22

Hwy 152 near
Emory Pass
Sep 22

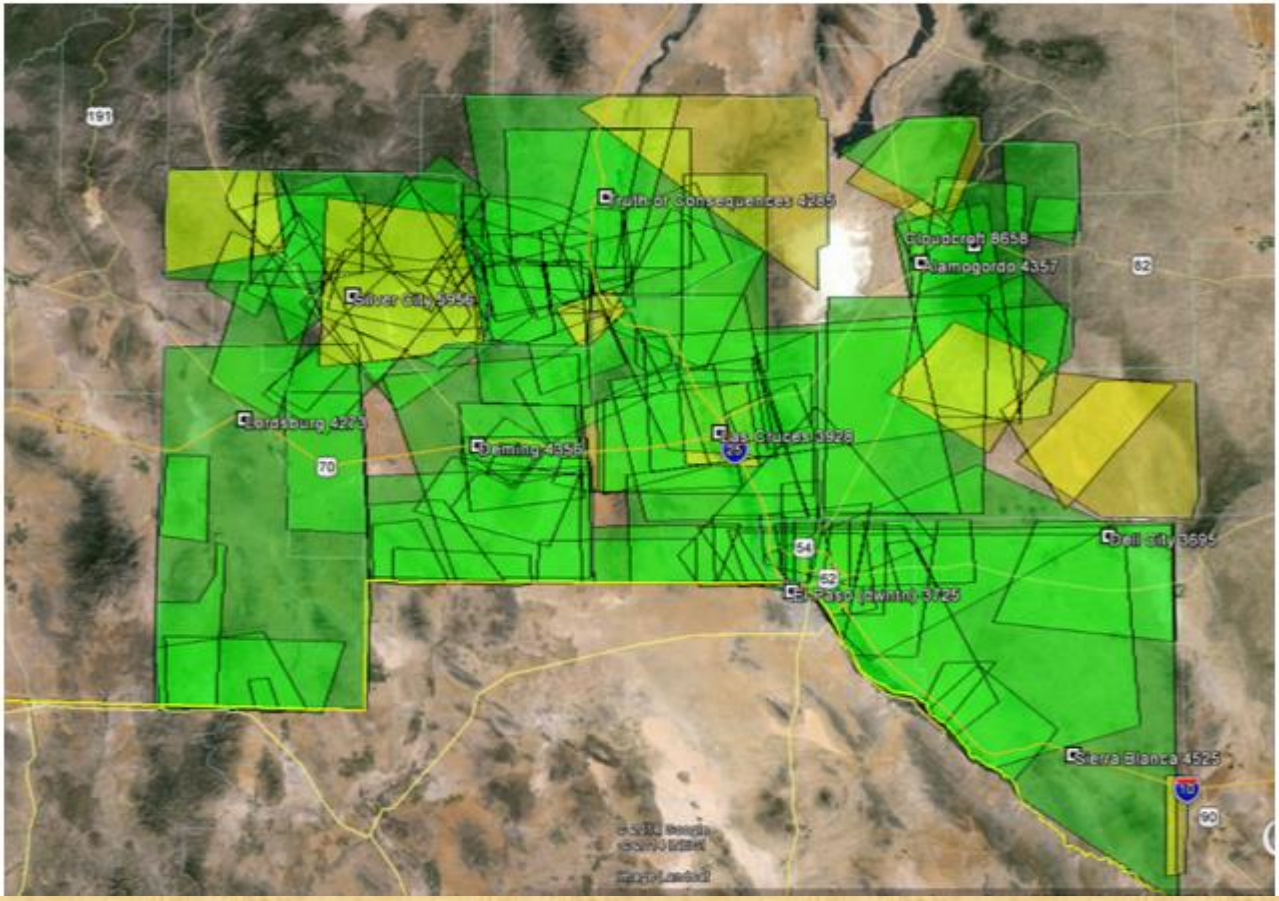
Las Cruces
Sep 22

Anthony
Sep 22

Salt Flats
Sep 25

Flash Flood warnings…Flood Advisories…Special Weather Statements were often the norm
Especially after mid September
Covering some 80% to 90% of our forecast area.

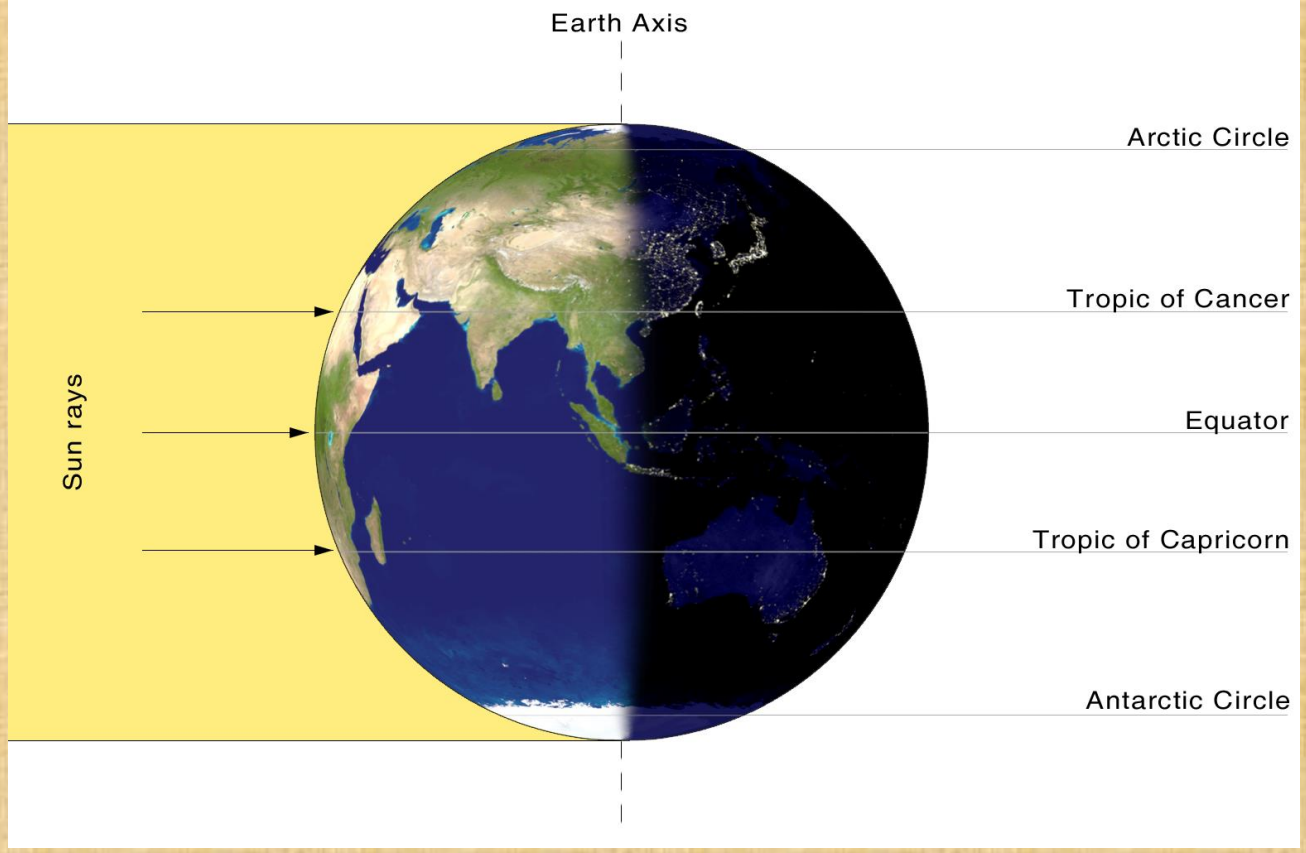
All Weather Products issued between September 14 through 28th 2014



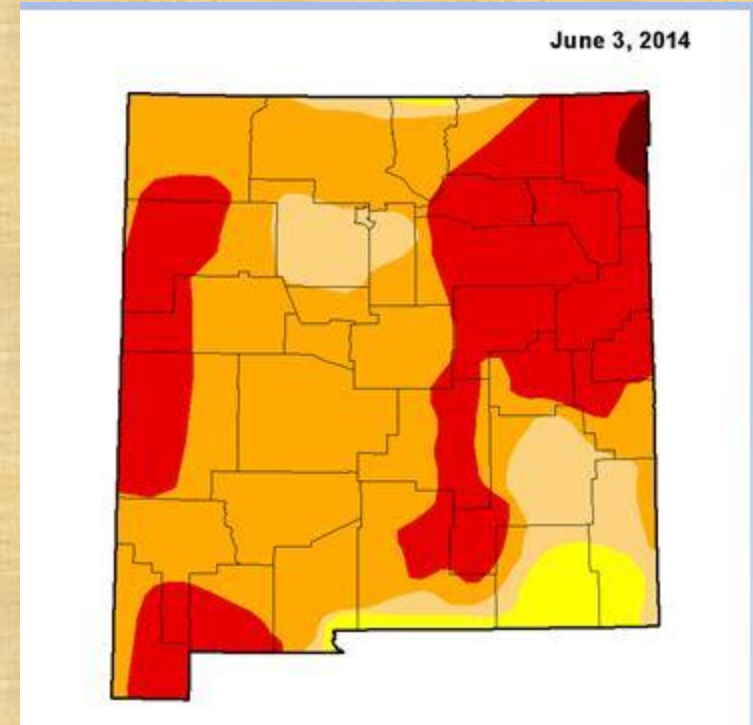
SOME SEPTEMBER MONSOON HIGHLIGHTS!

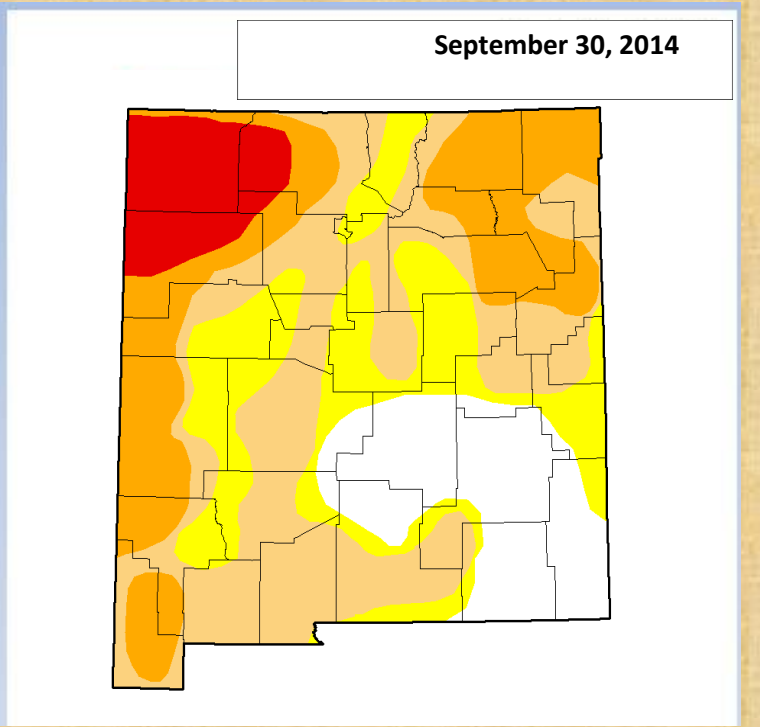
- **September 12** --- Flash flooding washed out NM 152 west of Emory Pass and NM 27 south of Hillsboro. These roads were closed at those locations for several days.
- **September 16** --- Floodwaters washed a car off a road southeast of Deming, NM near Rock Hound State Park.
- **September 17** --- A line of thunderstorms out ahead of the remnants of Hurricane Odile produced very heavy rain at intense rainfall rates in the El Paso area. One report was 3.11 inches within an hour in east El Paso. More than a dozen roads were closed, and numerous cars were swept away or submerged in central and east El Paso with several water rescues performed.
- **September 19** --- 4.31 inches of rain in two days resulted in flooded roads around Cloverdale in the New Mexico boot heel.
- **September 22** --- Several areas experienced serious flash flooding.
  El Paso County: Up to 6.5 inches of rain fell across northeast El Paso. Several water rescues were performed but there was one fatality. Numerous roads were closed.
  Grant County: A flash flood swept a car off of Highway 211 near Gila. All roads in Silver City that cross arroyos were closed due to flooding.
  Sierra County: Several roads around Caballo and Arrey were closed from flooding.
  Doña Ana County: Thunderstorms dropped more than 2 inches of rain from Dripping Springs to Picacho Hills in the Las Cruces area. 2.1 inches fell in 25 minutes at Doña Ana. Several homes were flooded west of Doña Ana resulting in much damage.
- **September 23** --- Heavy rains overnight resulted in flooded roads around Truth or Consequences (T or C). Downtown T or C was flooded.
- **September 24** --- Flash floods occurred in the southern Sacramento Mountains. Highway 82 was closed west of High Rolls due to a rockslide, and the west bound lane was closed at Cloudcroft. A road was also closed in La Luz.

Flash Flooding Greeted the Borderland On the First Day of Fall… September 22 829 P.M.



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

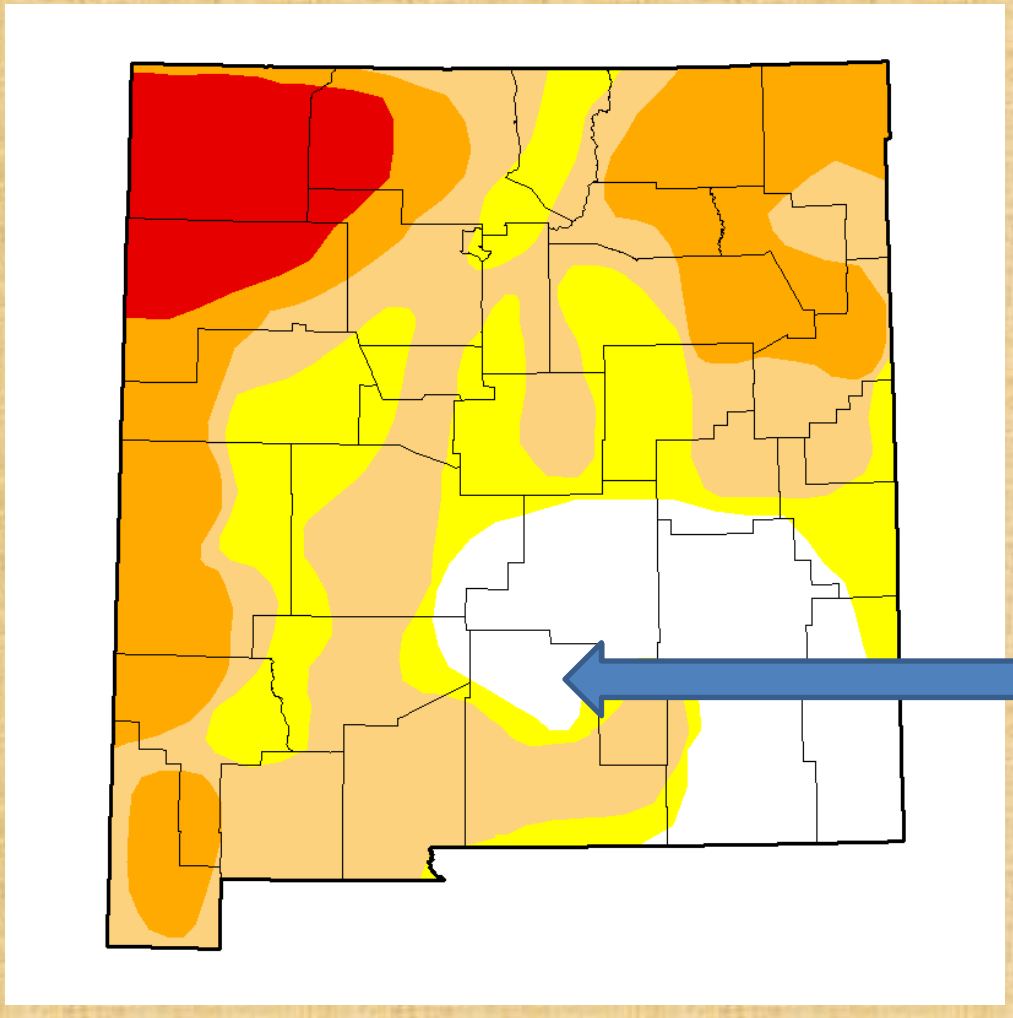




The September monsoon rains provided the area with some welcome Drought relief!

Current drought conditions for New Mexico as of Sept. 30

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

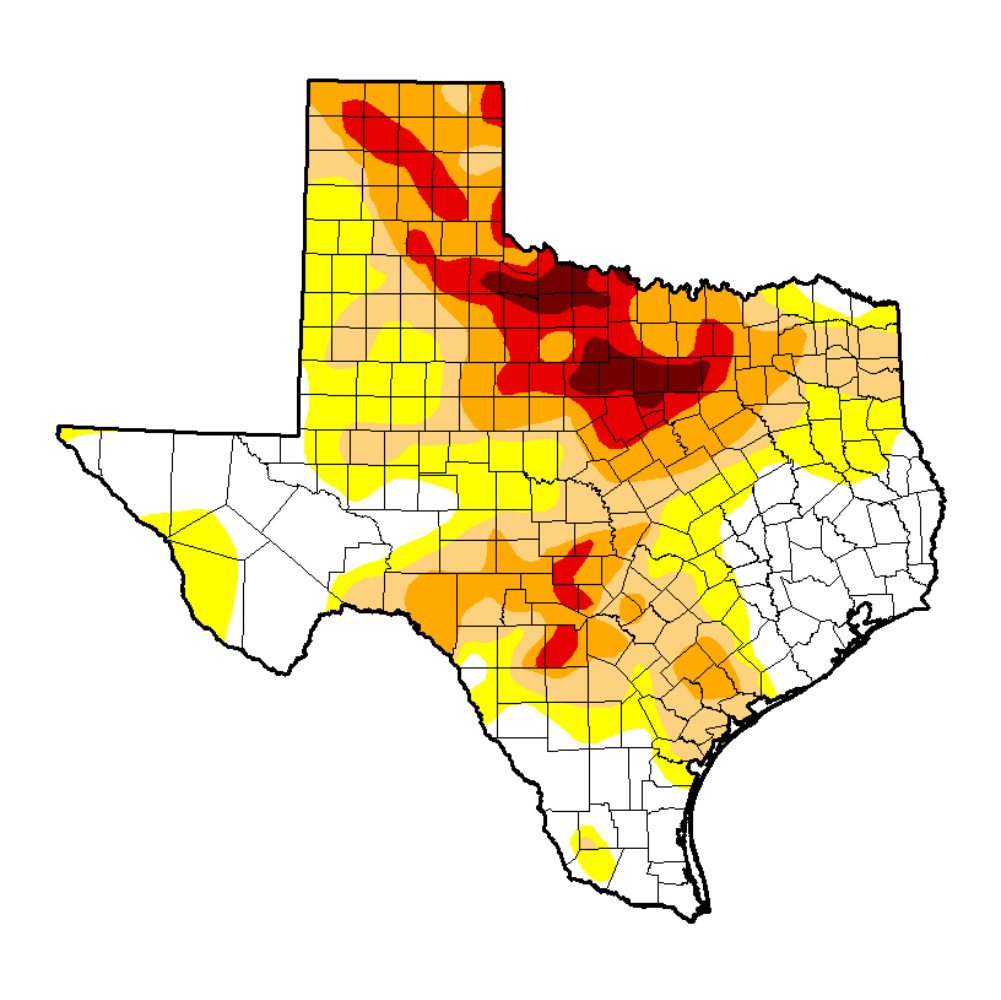


Welcome drought Removal!

Current drought conditions for Texas as of Sept. 30

Intensity:

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

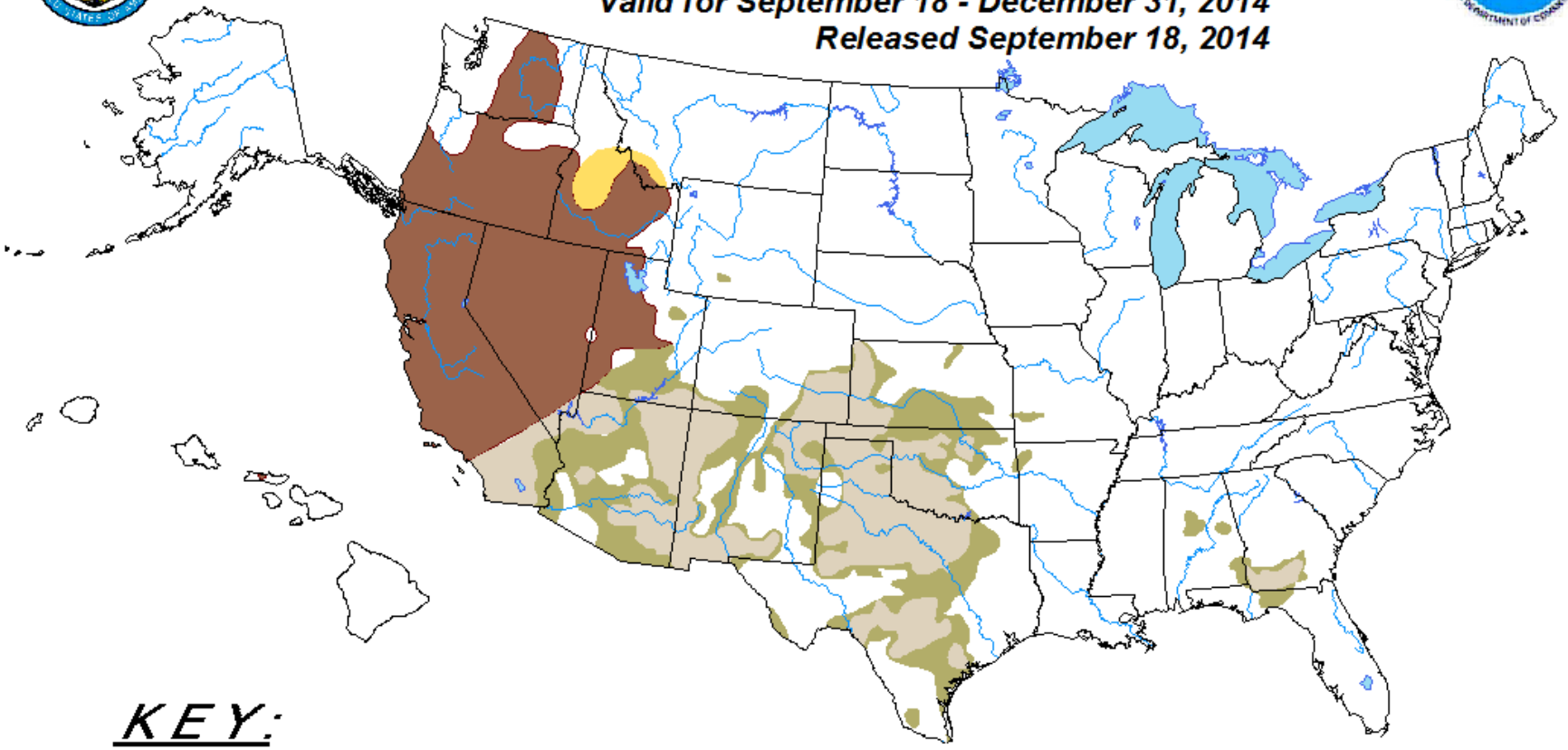


U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for September 18 - December 31, 2014

Released September 18, 2014



KEY:

- **Drought persists or intensifies**
- **Drought remains but improves**
- **Drought removal likely**
- **Drought development likely**

Author: Anthony Artusa, Climate Prediction Center, NOAA

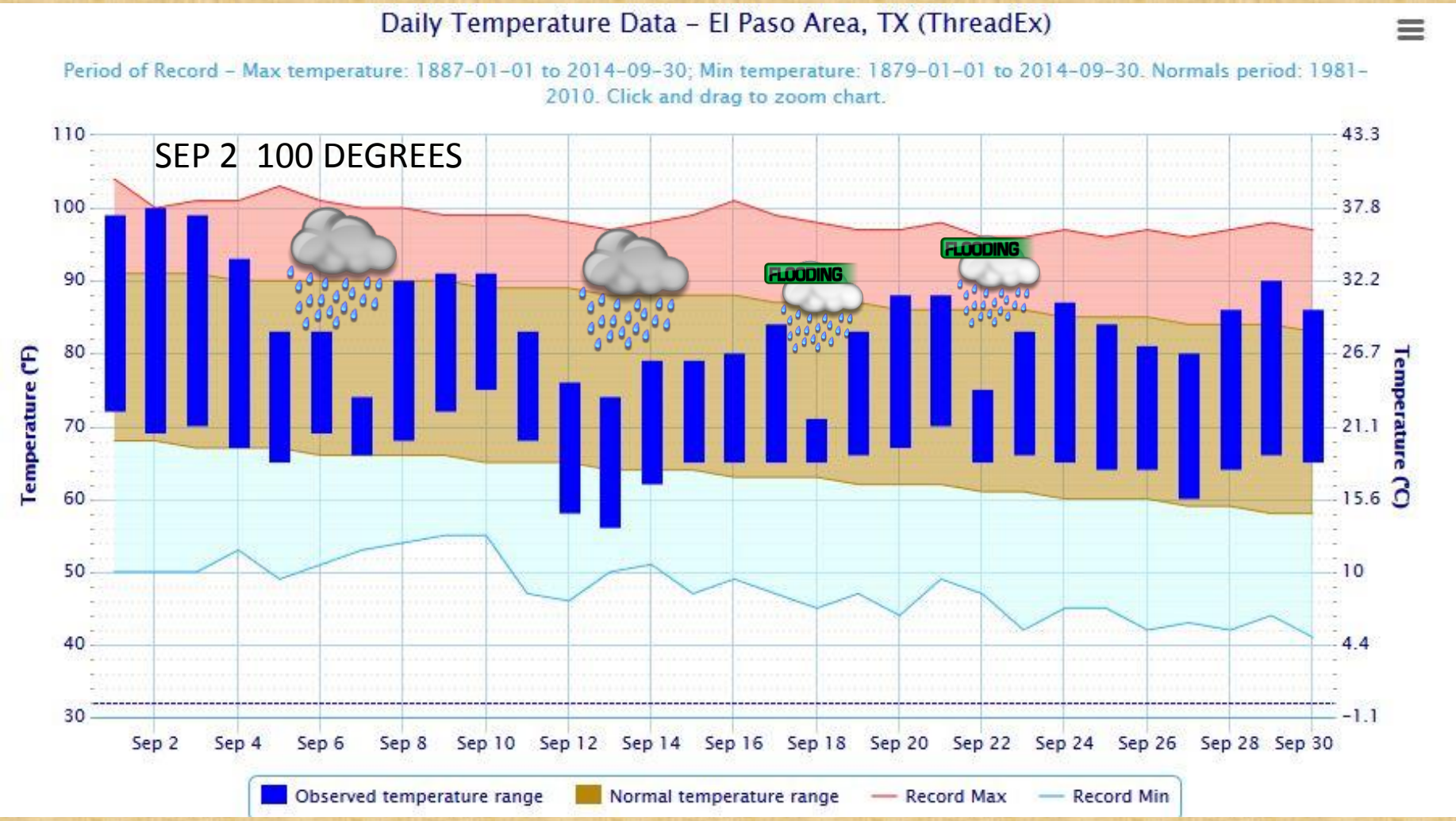
http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.html

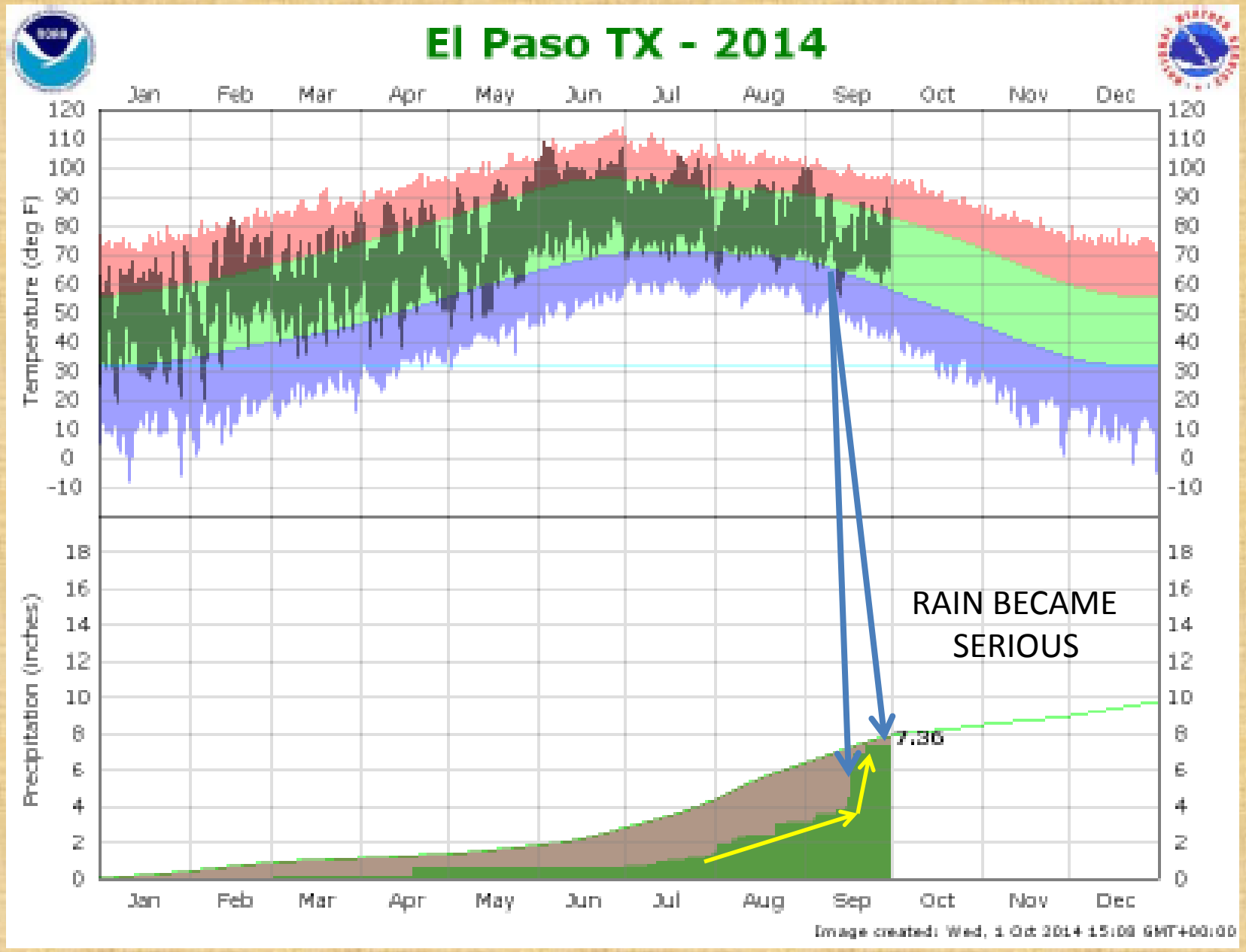
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity).

For weekly drought updates, see the latest U.S. Drought Monitor.

NOTE: The tan area areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain.

The Green areas imply drought removal by the end of the period (D0 or none)


Daily Temperature Data – El Paso Area, TX (ThreadEx)
Period of Record – Max temperature: 1887-01-01 to 2014-09-30; Min temperature: 1879-01-01 to 2014-09-30. Normals period: 1981-2010. Click and drag to zoom chart.
SEP 2 100 DEGREES
FLOODING
FLOODING
Temperature (°F)
110
100
90
80
70
60
50
40
30
Temperature (°C)
43.3
37.8
32.2
26.7
21.1
15.6
10
4.4
-1.1
Sep 2
Sep 4
Sep 6
Sep 8
Sep 10
Sep 12
Sep 14
Sep 16
Sep 18
Sep 20
Sep 22
Sep 24
Sep 26
Sep 28
Sep 30
Observed temperature range
Normal temperature range
Record Max
Record Min

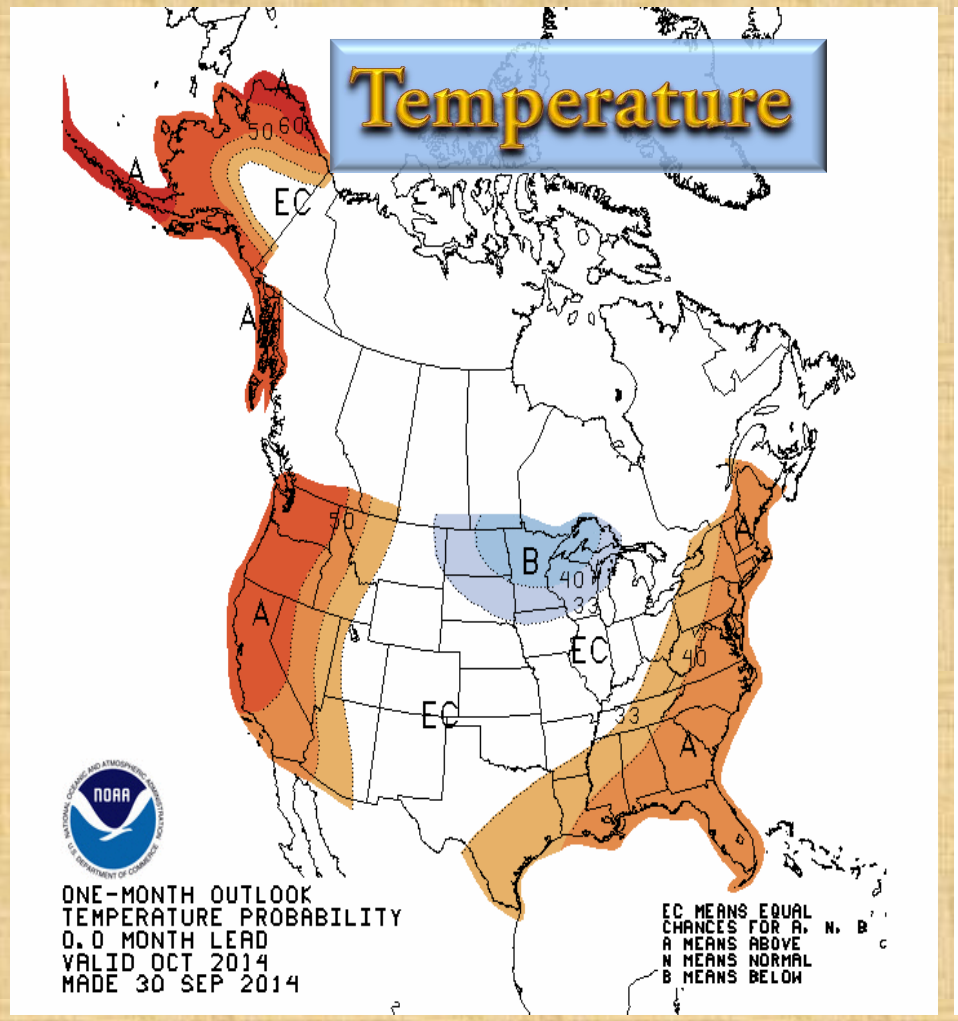

El Paso TX - 2014
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Temperature (deg F)
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
Precipitation (inches)
18
16
14
12
10
8
6
4
2
0
7.36
RAIN BECAME SERIOUS
Image created: Wed, 1 Oct 2014 15:08 GMT+00:00

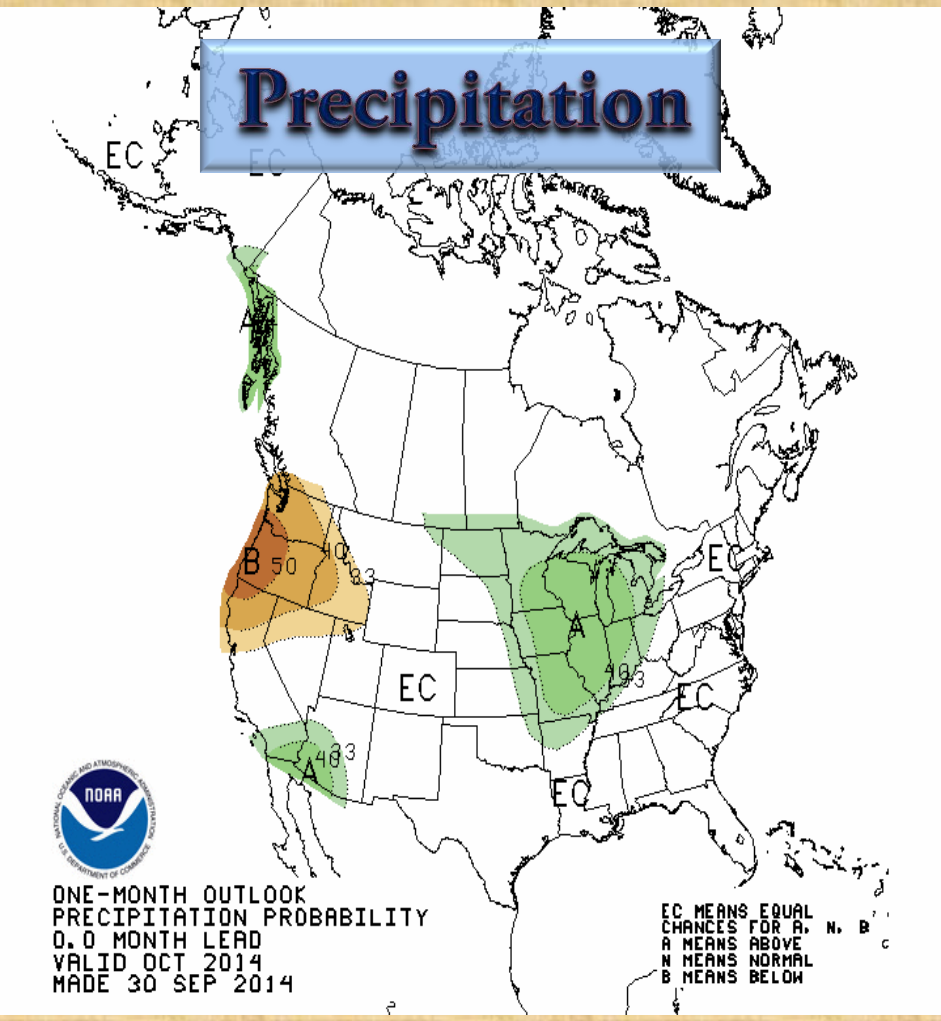
LAST 30 YEARS OF MONSOON STATS FOR EL PASO

Top 10 Wettest Monsoon		Top 10 Driest Monsoon	
1) 15.28"/2006	6) 9.88"/1974	1) 0.23"/1994	6) 1.66"/1953
2) 12.78"/1881	7) 9.68"/1984	2) 0.82"/1891	7) 1.78"/2003
3) 11.94"/1880	8) 9.40"/1990	3) 0.96"/1934	8) 1.85"/1969
4) 10.08"/1958	9) 8.95"/2008	4) 1.33"/1892	9) 2.19"/1963
5) 10.04"/1897	10) 8.33"/1988	5) 1.46"/1945	10) 2.28"/1937

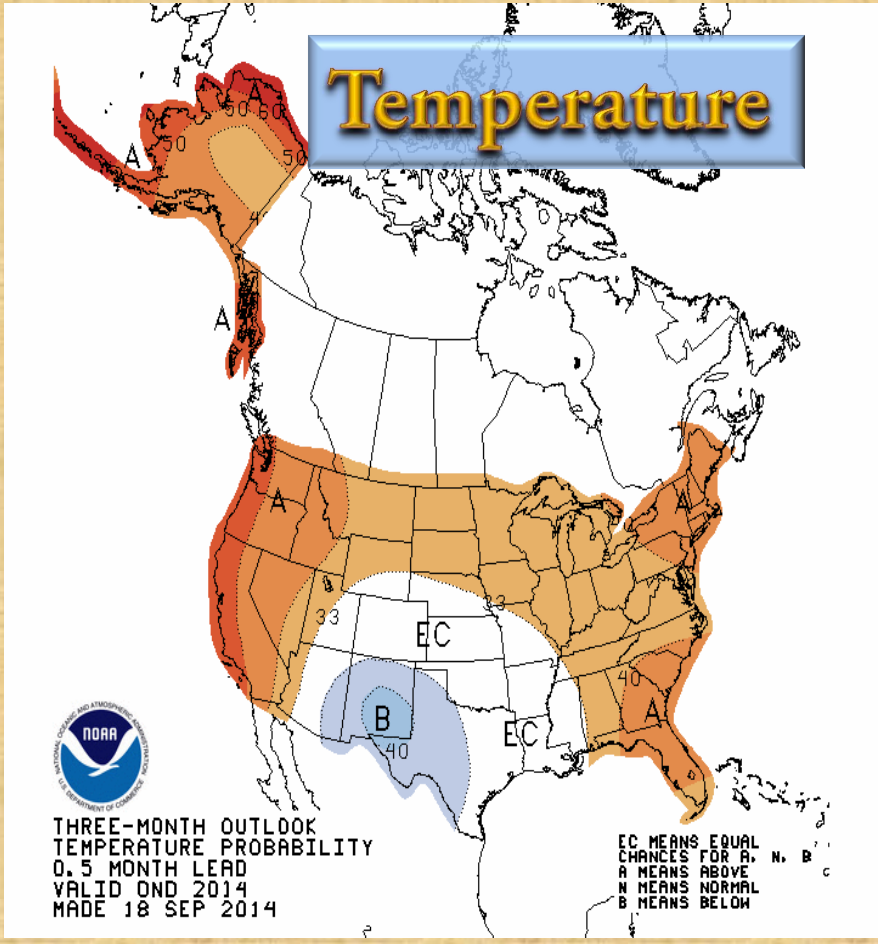
YEAR	Month by month rainfall				
	June (15-30)	July	August	September	Total
AVG	0.51"	1.66"	1.61"	1.36"	5.14"
2014	0.01"	0.69"	1.79"	4.23"	6.72"
2013	0.06"	3.13"	1.12"	3.85"	8.16"
2012	Trace	2.39"	0.65"	1.41"	4.45"
2011	0.00"	2.59"	1.11"	0.43"	4.13"
2010	1.08"	1.07"	0.31"	1.62"	4.08"
2009	2.24"	0.49"	0.59"	2.50"	5.82"
2008	0.48"	4.34"	2.61"	1.52"	8.95"
2007	0.51"	2.08"	0.57"	1.71"	4.87"
2006	0.27"	3.17"	6.85"	4.99"	15.28"
2005	0.00"	0.66"	4.35"	2.77"	7.78'
2004	0.93"	1.70"	3.04"	0.89"	6.56"
2003	0.49"	0.55"	0.66"	0.08"	1.78"
2002	0.17"	1.34"	0.76"	0.48"	2.75"
2001	0.19"	0.36"	1.72"	0.30"	2.57"
2000	0.75"	1.59"	0.70"	Trace	3.04"
1999	1.44"	2.00"	1.43"	1.94"	6.81"
1998	Trace	2.07"	0.53"	0.66"	3.26"
1997	0.27"	0.91"	1.41"	1.55"	4.14"
1996	2.23"	2.48"	1.55"	1.24"	7.50"
1995	1.74"	0.28"	0.76"	3.18"	5.96"
1994	0.00"	0.18"	0.02"	0.03"	0.23"
1993	1.47"	0.95"	2.73"	1.32"	6.47"
1992	0.15"	0.65"	2.11"	0.15"	3.06"
1991	0.01"	2.69"	2.06"	1.82"	6.58"
1990	Trace	3.96"	1.98"	3.46"	9.40"
1989	Trace	1.23"	3.06"	0.48"	4.77"
1988	Trace	3.35"	3.46"	1.52"	8.33"
1987	0.72"	0.64"	2.22"	0.89"	4.47"
1986	3.02"	2.66"	0.70"	0.85"	7.23"
1985	0.10"	1.32"	1.46"	1.47"	4.35"
1984	2.84"	0.69"	5.57"	0.58"	9.68"

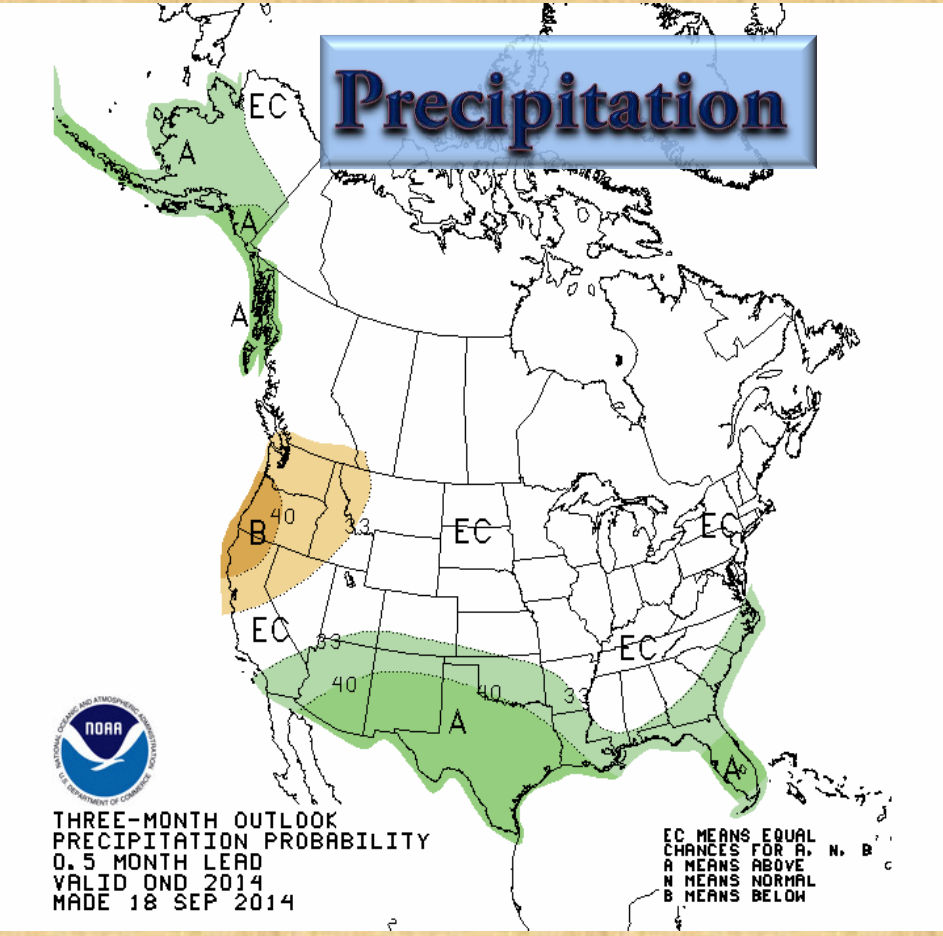
Temperature and precipitation outlook for October 2014



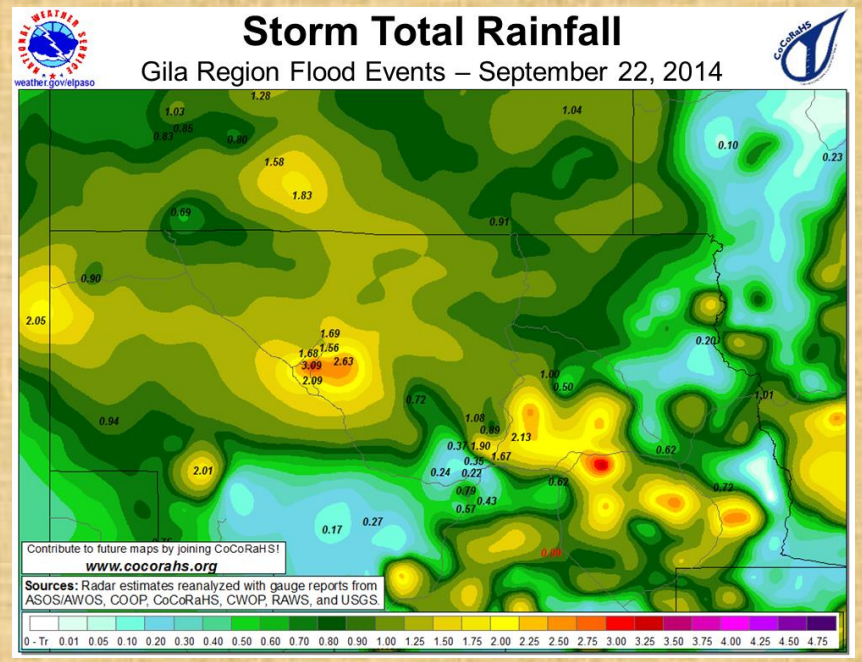


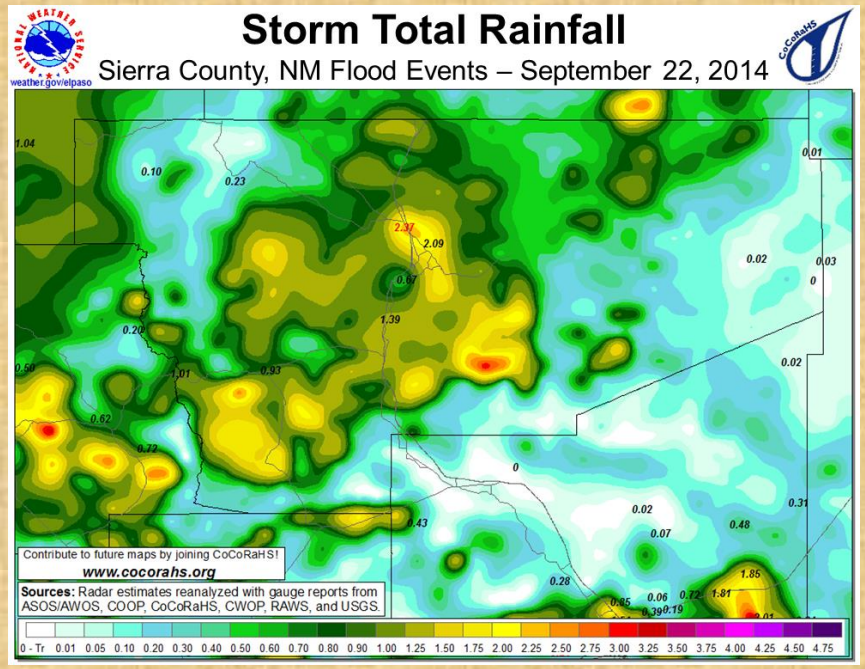
The Climate Prediction Center of the National Weather Service is predicting cooler and wetter than normal for the Borderland for the months of October through December Courtesy of a forecast El Nino event.

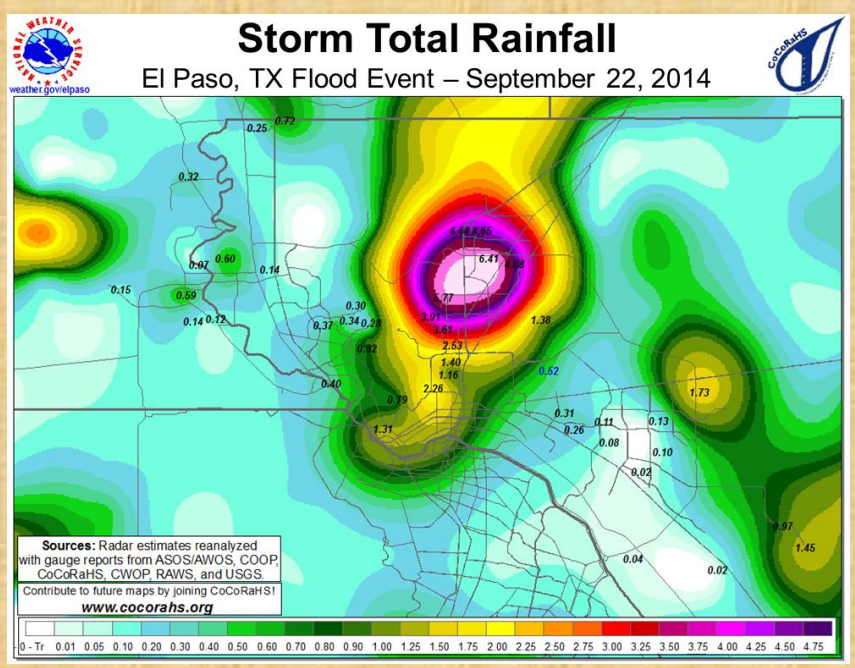


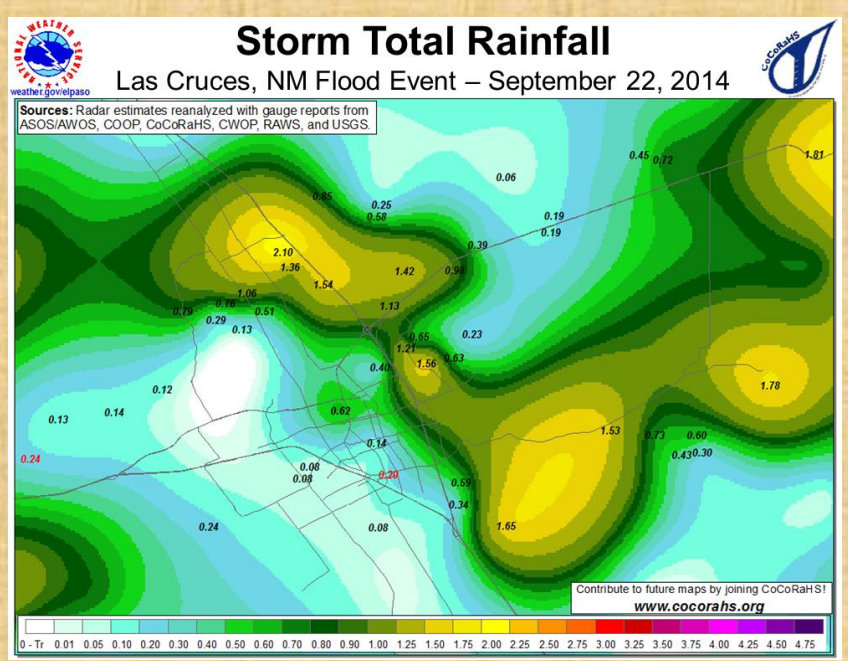


SOME OF THE INTENSE RAINFALL AMOUNTS FOR SEPTEMBER 22

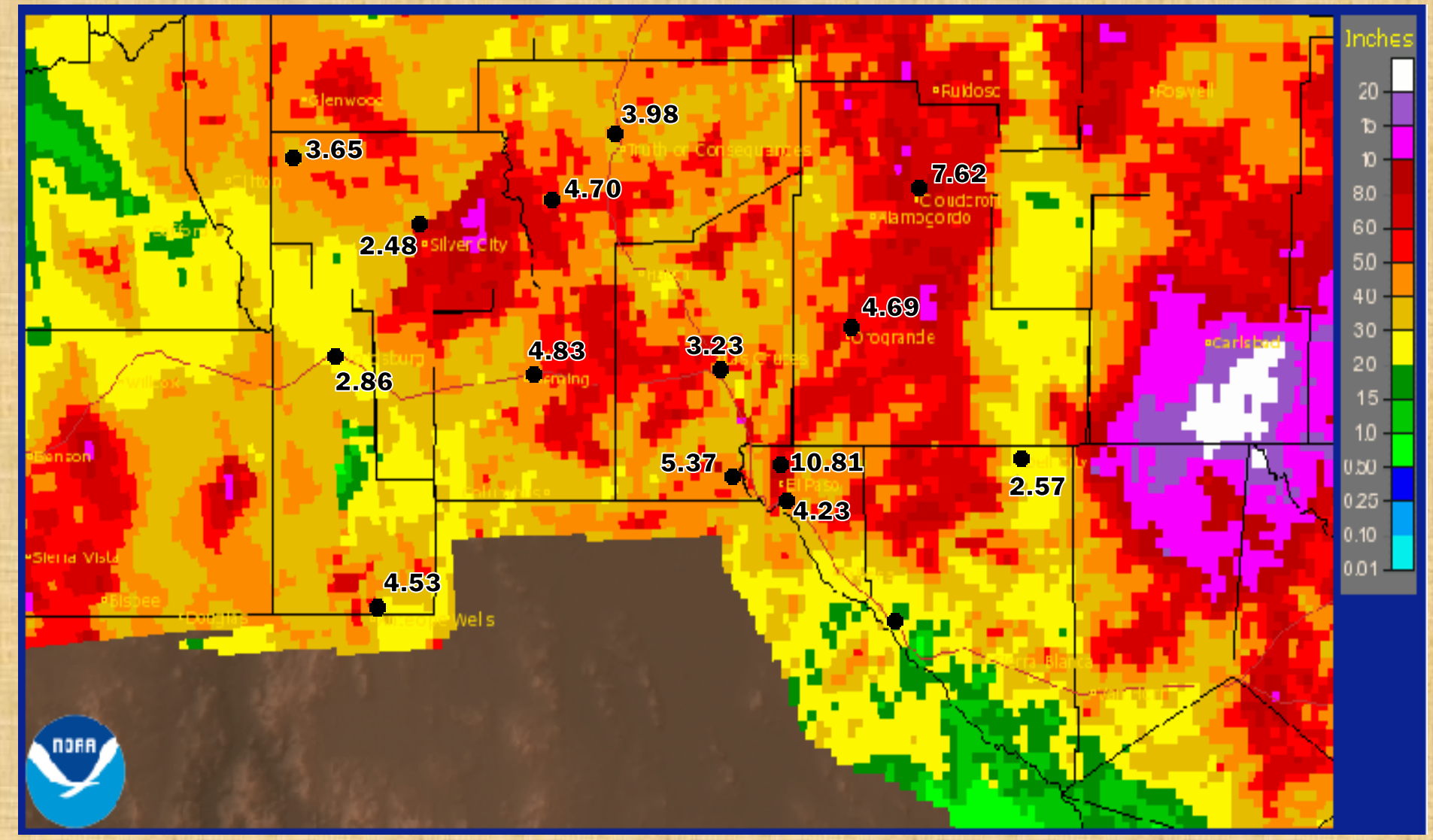




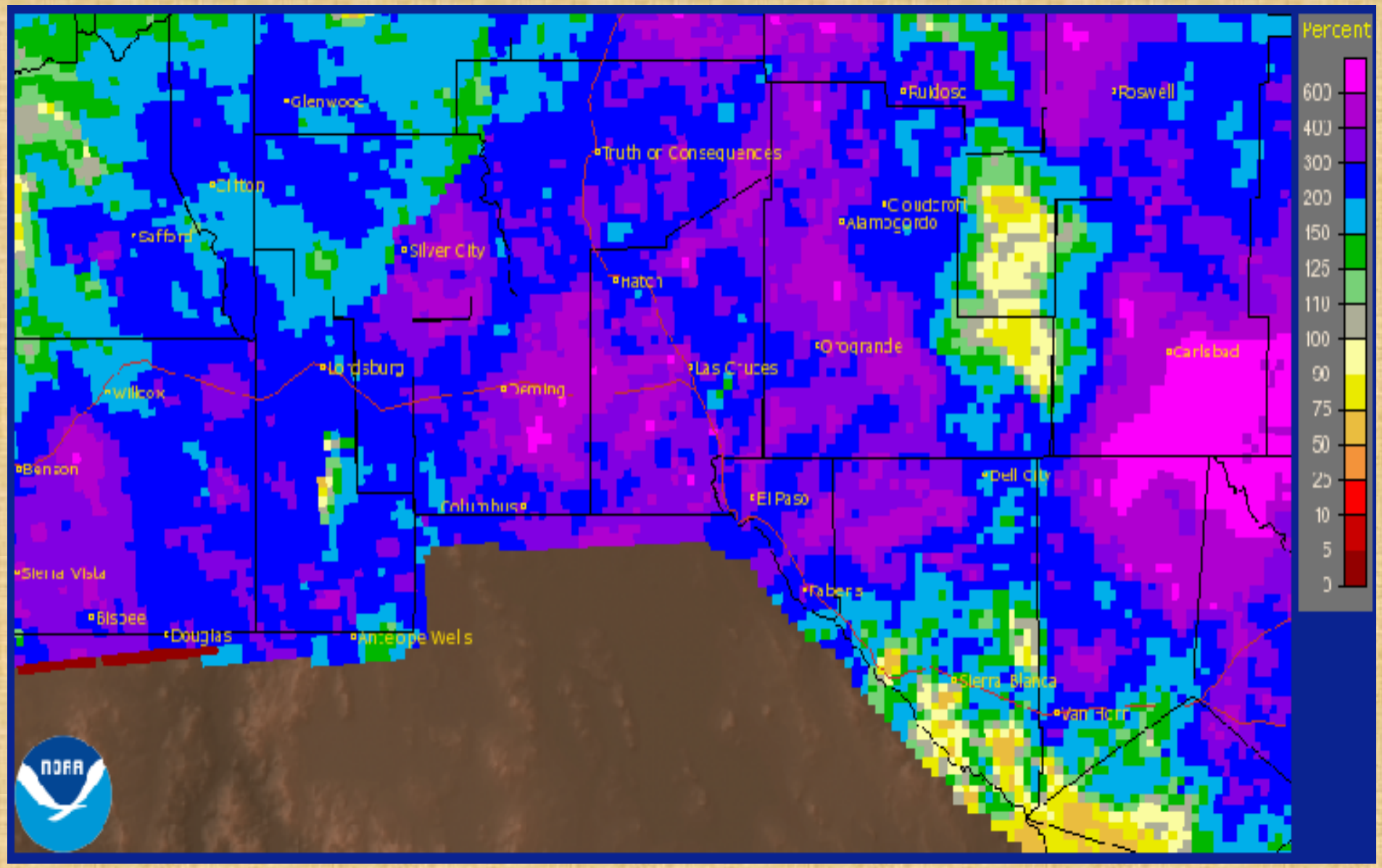




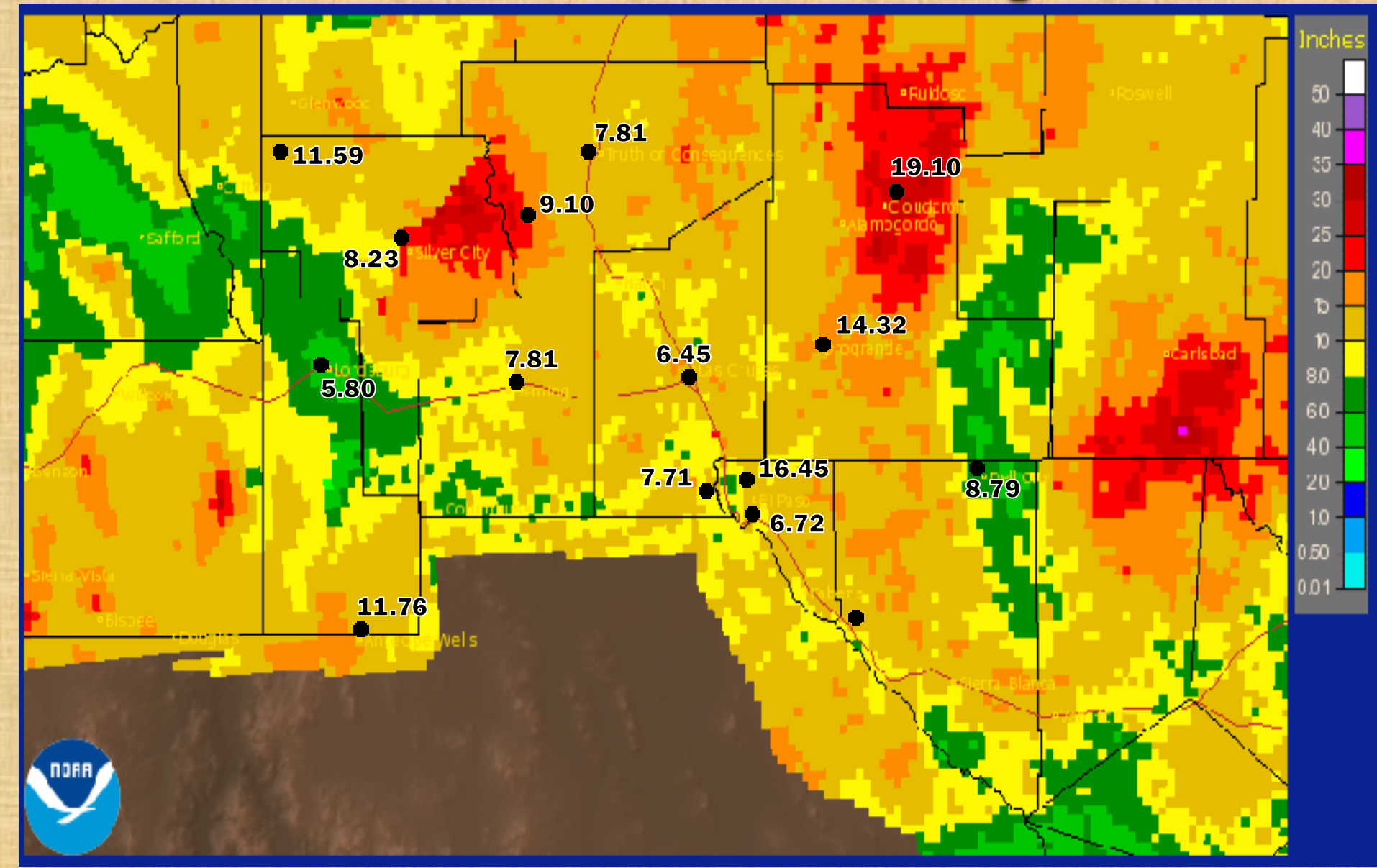
September 2014 radar rainfall estimate with surface rainfall reports



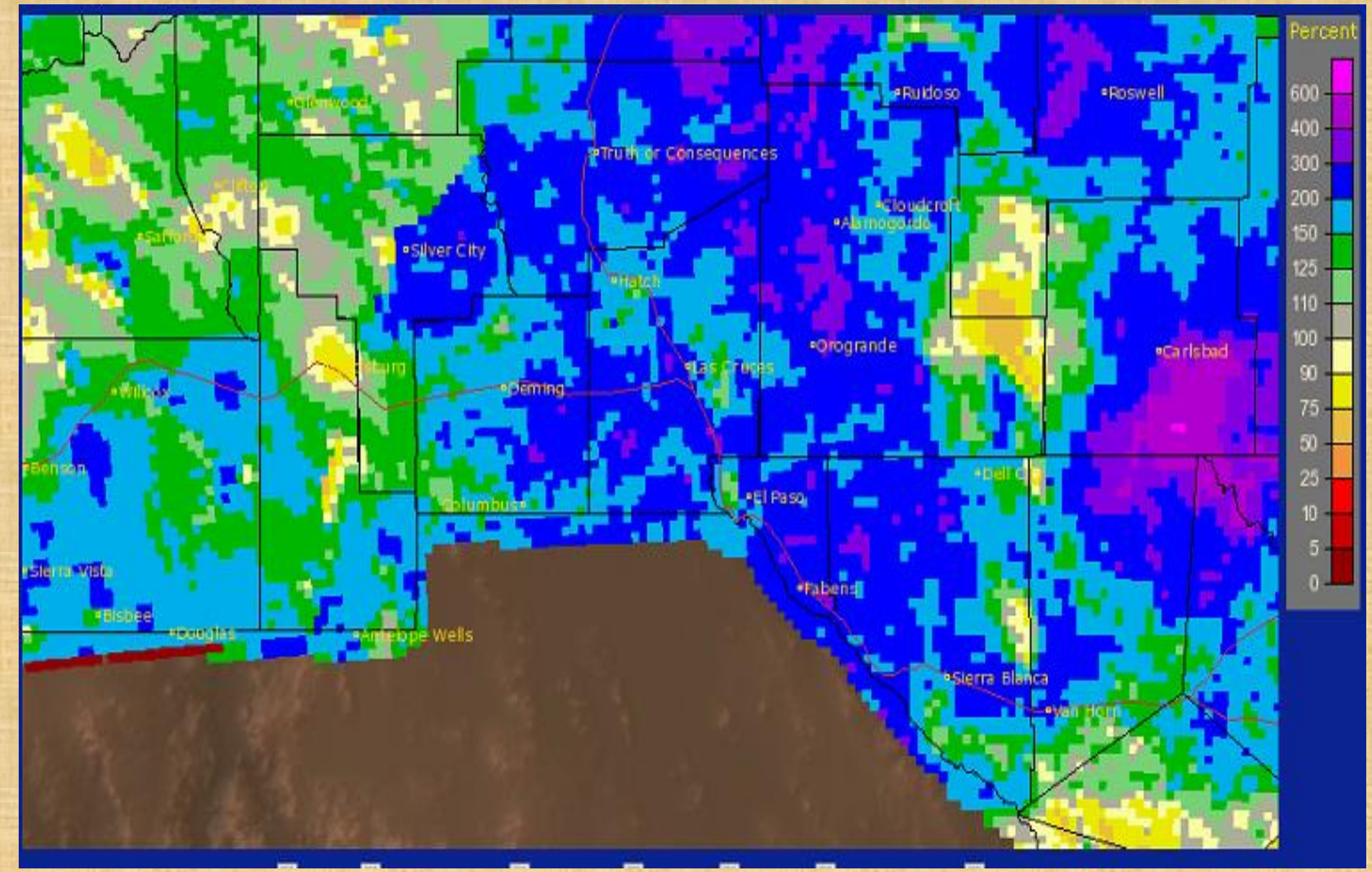
September 2014 Radar Rainfall Estimate
(Percent of normal)



Monsoon season (Jun 15-Sep 30) 2014 radar rainfall estimate; with surface reports

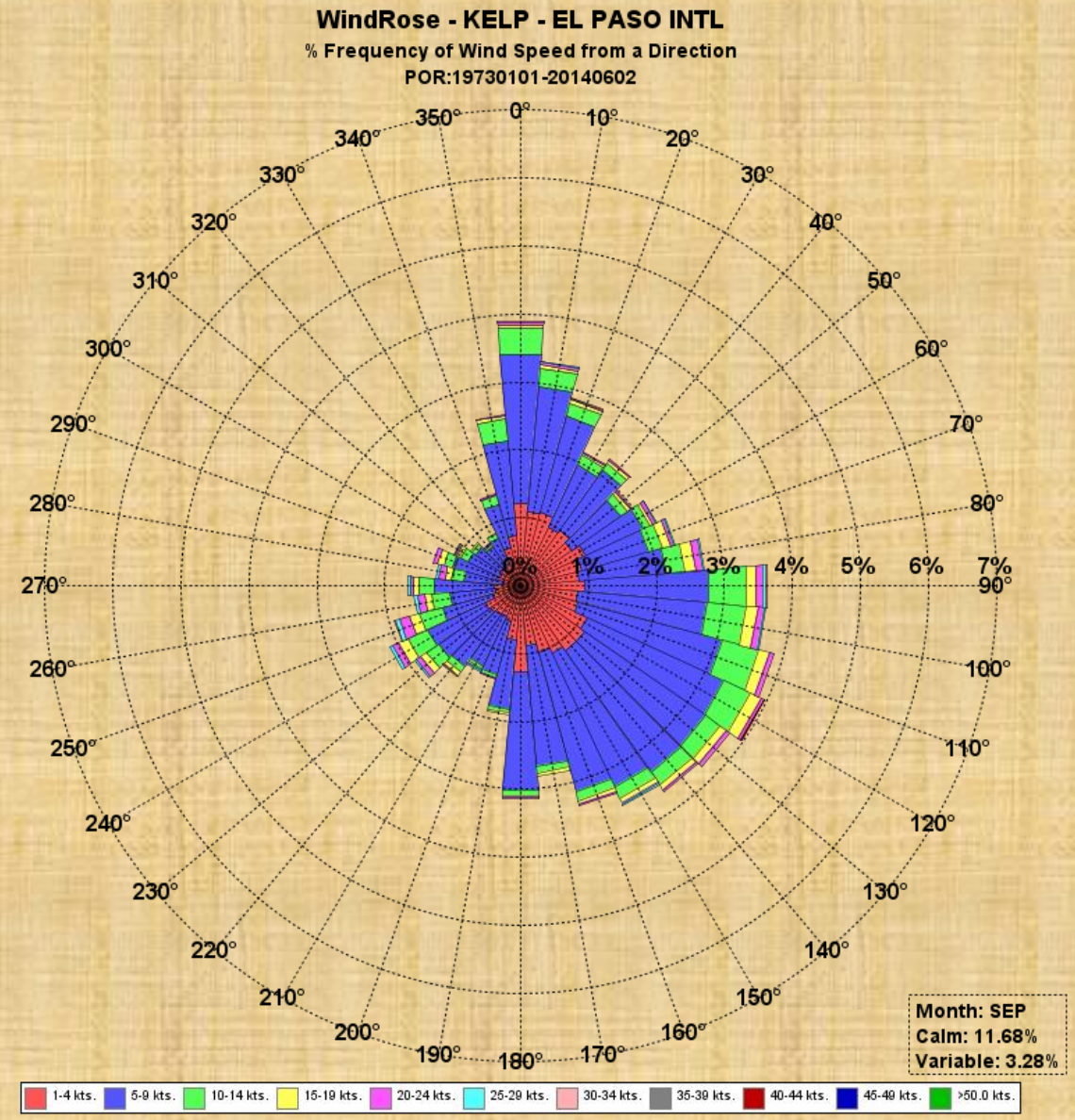


Monsoon season radar rainfall estimate
(Percent of normal)



Special Features

http://www.srh.noaa.gov/epz/?n=elpwindrosedata



Severe weather reports September 2014

Date/Time	Location	Event
9/5/2014 740 AM	WEED-OTERO CO.	HEAVY RAIN-4.00 INCHES
9/5/2014 727 AM	2 E ALAMOGORDO	HEAVY RAIN-1.05 INCHES
9/14/2014 619 PM	CLOUDCROFT	HEAVY RAIN-1.20 INCHES
9/16/2014 400 PM	1 SW ROCKHOUND ST PARK-LUNA CO.	FLOODING-CAR WASHED OFF ROAD
9/17/2014 1022 AM	ARREY & CABALLO, SIERRA CO.	FLOODING OF LOW WATER CROSSINGS
9/17/2014 855 PM	EL PASO: I-10 AND PIEDRAS	FLOODING-TRAFFIC STOPPED
9/17/2014 911 PM	EL PASO: ELM STREET	FLOODING-CAR SWEPT AWAY BY WATER. RESCUE REQUIRED.
9/17/2014 948 PM	EL PASO: EAST EL PASO	FIVE CARS WASHED INTO DITCH. RESCUE REQUIRED.
9/17/2014 1031 PM	EL PASO: EAST EL PASO	FLOODING-WATER RESCUE AT FIERRO AND BYWOOD
9/17/2014 337 AM	HILLSBORO-SIERRA CO.	HEAVY RAIN-1.14 INCHES
9/17/2014 909 PM	9 NNE EL PASO	HEAVY RAIN-1.17 INCHES
9/17/2014 1000 PM	8 E EL PASO	HEAVY RAIN-3.11 INCHES

Severe weather reports September 2014

Date/Time	Location	Event
9/17/2014 1000 PM	8 E EL PASO	HEAVY RAIN-3.11 INCHES
9/18/2014 700 AM	4 NE MONTANA VIST-EL PASO CO	HEAVY RAIN-2.20 INCHES
9/18/2014 704 AM	13 SE DEMING	HEAVY RAIN-1.31 INCHES
9/18/2014 924 AM	CHAPARRAL-OTERO CO	HEAVY RAIN- 1.50 INCHES
9/18/2014 1015 AM	5 N CLOVERDALE-HIDALGO CO	HEAVY RAIN-2.80 INCHES
9/18/2014 1015 AM	SANTA TERESA-DONA ANA CO	HEAVY RAIN-2.07 INCHES
9/18/2014 513 PAM	13 SE DEMING	HEAVY RAIN-1.60 INCHES
9/18/2014 534 PM	COLUMBUS-LUNA CO	HEAVY RAIN-2.15 INCHES
9/19/2014 910 AM	CLOVERDALE-HIDALGO CO.	FLOODING-LOCAL ROADS IMPASSABLE
9/19/2014 835 AM	9 NNE EL PASO	HEAVY RAIN-1.07 INCHES
9/19/2014 911 AM	CLOVERDALE-HIDALOGO CO	HEAVY RAIN-4.31 INCHES
9/22/2014 644 AM	9 NNE EL PASO	HEAVY RAIN-3.84 INCHES
9/22/2014 702 AM	9 NNE EL PASO	HEAVY RAIN-4.06 INCHES
9/22/2014 819 AM	9 NNE EL PASO	HEAVY RAIN-5.37 INCHES

Severe weather reports September 2014

Date/Time	Location	Event
9/22/2014 400 PM	EL PASO	FLOODING-NUMEROUS WATER RESCUES AND ROAD CLOSURES
9/22/2014 155 PM	CABALLO-SIERRA CO.	FLOODING-HWY 187 CLOSED
9/22/2014 158 PM	ARREY-SIERRA CO.	FLOODING-HWY 187 CLOSED
9/22/2014 516 PM	SILVER CITY-GRANT CO.	FLOODING-ALL ROADS THAT CROSS ARROYOS ARE CLOSED
9/22/2014 520 PM	LAS CRUCES	FLOODING-PORTIONS OF DEL RAY CLOSED
9/22/2014 607 PM	DONA ANN-DONA ANA CO.	FLOODING- CAMINO DEL FLORES CLOSED
9/22/2014 1214 AM	2 S CABALLO-SIERRA CO.	FLOODING-HIGHWAY 187
9/22/2014 520 AM	1 S GILA-GRANT CO.	FLOODING-CAR SWEPT OFF ROAD. RESCUE REQUIRED
9/22/2014 407 PM	3 NW DRIPPING SPRINGS	HEAVY RAIN-2.68 INCHES
9/22/2014 530 PM	1 SE DONA ANA-DONA ANA CO	HEAVY RAIN-2.10 INCHES
9/22/2014 541 PM	2 S DONA ANA-DONA ANA CO	HEAVY RAIN-1.16 INCHES

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Date/Time	Location	Event
9/23/2014 103 AM	6 NW T or C	HEAVY RAIN-1.64 INCHES
9/23/2014 218 AM	TRUTH OR CONSEQUENCES	FLOODING-ROADS IN T OR C AND NEAR ANIMAS CREEK
9/24/2014 230 PM	LA LUZ-OTERO CO	FLOODING-LUZ CREEK CROSSING CLOSED
9/24/2014 503 PM	HIGH ROLLS-OTERO CO	FLOODING-HWY 82 CLOSED NEAR THE TUNNEL

SUMMING IT ALL UP FOR SEPTEMBER

EASTWOOD (ALBUM) PARK EL PASO 09/18/2014