



#### **September 2014 Temperature and Precipitation Summary**

**September 1<sup>st</sup> – 14<sup>th</sup>:** September began with clear skies, dry conditions and high temperatures as we continued in a monsoon “break” period where dry westerly flow dominated the state. The break began August 28<sup>th</sup>. Temperatures around the state peaked at 111 in Bullhead City, 109 in the Phoenix area, 104 in Tucson and 80 in Flagstaff. On the 4<sup>th</sup>, southerly flow returned, bringing moisture into the state and generally light rainfall to the higher elevations, though Wickenburg reported 0.30” on the 4<sup>th</sup>. As Tropical Storm Norbert moved up the coast of Mexico and Baja California on the 5<sup>th</sup> and 6<sup>th</sup>, southwesterly winds transported the moisture over Arizona, and widespread heavy rainfall was forecast for the 5<sup>th</sup> through the 8<sup>th</sup> in southern Arizona. At the same time, an upper level low pressure system was moving toward the state. A first wave of precipitation moved into southern Arizona on the 5<sup>th</sup> and 6<sup>th</sup>, with Douglas reporting 1.10” on the 5<sup>th</sup> and Coronado National Monument reporting 1.13” on the 6<sup>th</sup>. On the 8<sup>th</sup>, the skies opened up over south central Arizona with 1.93” at Davis-Monthan AFB, 1.86” at Tucson Airport, 1.99” in north Phoenix, 3.30” at Phoenix Airport, 2.49” at Scottsdale Airport, 2.14” at Carefree, 4.26” in East Mesa, 1.23” at Eloy, 2.80” at Lost Dutchman State Park, 1.22” at Wickenburg, and 2.63” at Youngtown. Interstates 10 and 17 through Phoenix were flooded and closed during morning rush hour, as were many other roadways in the Phoenix area. Many schools, particularly in south Phoenix and Laveen were closed. Most of the rain fell in less than 6 hours, and Sky Harbor airport set a new 24-hour rainfall record at 3.30”. On the 9<sup>th</sup>, Yuma Red Bluff reported 1.95” and Yuma Airport reported 1.44”. The entire storm brought 0.76” to Prescott and 0.67” to Flagstaff. Conditions dried out slightly over the next few days, returning to typical monsoon activity with scattered showers around the state. Bisbee had 0.10” on the 12<sup>th</sup> and on the 13<sup>th</sup> Sonora Desert Museum had 0.31” and Safford had 0.26”, and on the 14<sup>th</sup> Navajo National Monument had 0.01”, with dry conditions elsewhere.

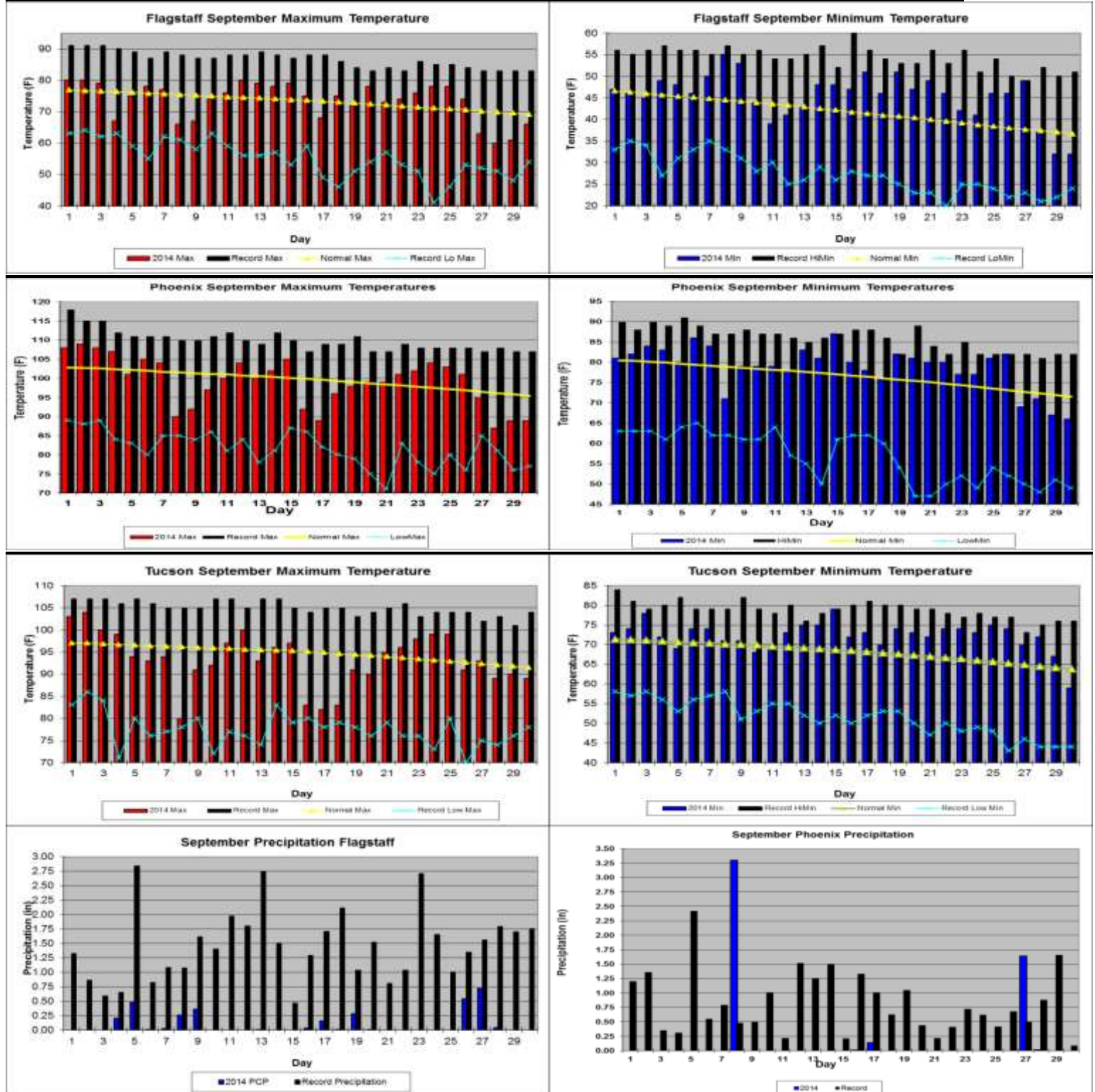
**September 15<sup>th</sup> – 30<sup>th</sup>:** The monsoon ramped back up on the 15<sup>th</sup> with thunderstorm activity in northern and eastern Arizona. On the 15<sup>th</sup>, Williams had 0.58”, Springerville had 0.62”, Grand Canyon North Rim had 0.53”, Window Rock had 0.29”, and Organ Pipe Cactus NM in southern Arizona had 0.50”. On the 16<sup>th</sup>, Safford had 0.41”. By the 17<sup>th</sup>, moisture from Hurricane Odile was moving into the state as the hurricane had moved across Baja California and weakened into a tropical storm moving up the Gulf of California. Once again there was widespread flooding as torrential rainfall hit southern Arizona, with Coronado National Monument receiving 1.29”, Bisbee had 1.25”, Safford had 0.94”, Nogales had 1.37”, and Elgin had 0.91” on the 17<sup>th</sup>. On the 18<sup>th</sup>, Bisbee-Douglas had 2.46”, Elgin 1.89”, Nogales 0.93”, Bisbee 3.90”, and Coronado National Monument had 3.10”. Moisture remained for the next few days bringing continued thunderstorms to the southeastern counties through the 23<sup>rd</sup>. High pressure returned for the 24<sup>th</sup> and 25<sup>th</sup>, with dry conditions. But a strong low pressure system moved into California on the 25<sup>th</sup>, pushing into Arizona by the 27<sup>th</sup>. Moisture from tropical storms Polo and Rachael interacted with the cold front and dumped another round of heavy rainfall on western, central and northern Arizona on the 27<sup>th</sup>. On the 27<sup>th</sup> Pinnacle Peak had 1.15”, Phantom Ranch in the Grand Canyon had 0.85”, Valle had 0.88”, Payson had 1.87”, North Rim of Grand Canyon had 1.14”, Bellemont had 1.12”, Lost Dutchman State Park had 1.96”, Scottsdale had 1.10”, Prescott had 1.34”, Phoenix had 1.66”, Deer Valley in north Phoenix had 1.53”, Youngtown had 1.30”, Carefree had 1.89”, Flagstaff had 1.27”, and Petrified Forest had 1.09”. The storm also brought widespread street flooding and downed trees and power lines. By the 29<sup>th</sup>, dry westerly flow returned and the monsoon season came to an end.

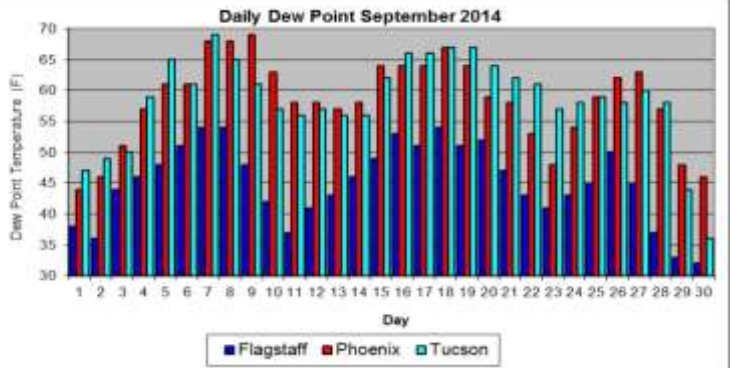
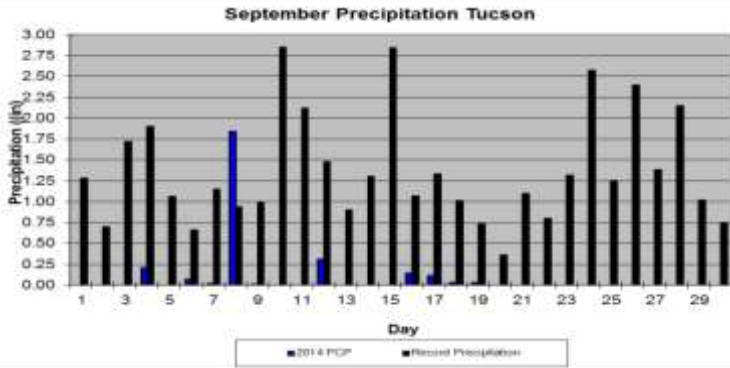
**In This Issue:** Overview of September, graphs of the September daily maximum and minimum temperatures, precipitation, mean daily dew points for Flagstaff, Phoenix, and Tucson; September climate statistics, maps of mean monthly maximum and minimum temperatures, precipitation, dew points, wind speeds for September; and graphs of the mean September temperature and precipitation for the period of record for Tucson, Phoenix, and Flagstaff, graphs of the cumulative precipitation for the calendar year for Flagstaff, Phoenix, and Tucson. Climate calendars for Flagstaff, Phoenix, Tucson, Prescott, Winslow and Yuma, including daily and monthly normals and extremes, for each month of the year, can be downloaded directly from the State Climate website. See p. 19 of this report for calendar abbreviations.

**Data are preliminary** and are from the National Weather Service Forecast Offices in Flagstaff, Phoenix and Tucson.

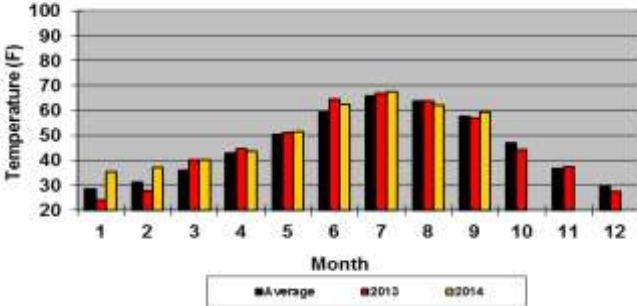
**\*\*Note:** The discrepancy between the Statewide Temperature and Precipitation values for Phoenix, Flagstaff and Tucson and the daily values in their graphs are due to the reporting times. Statewide Temperature and Precipitation values are taken at 5pm, while official daily records at the airports are taken from Midnight to Midnight.

**September 2014 Daily Temperature, Precipitation, & Dew Point for Flagstaff, Phoenix, and Tucson**

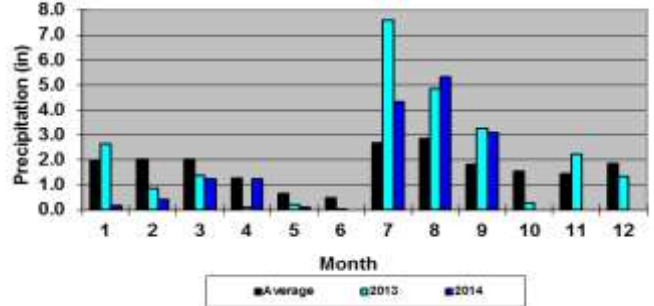




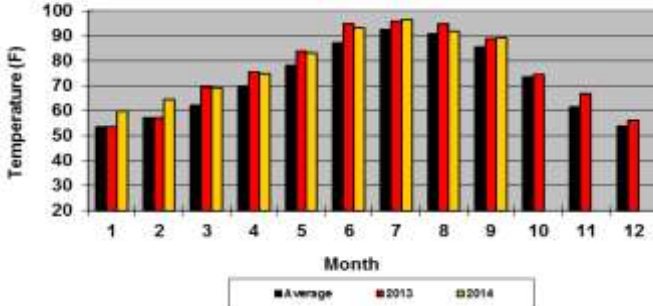
**Flagstaff Mean Monthly Temperature**  
Annual average (1899-2013) = 45.8°F



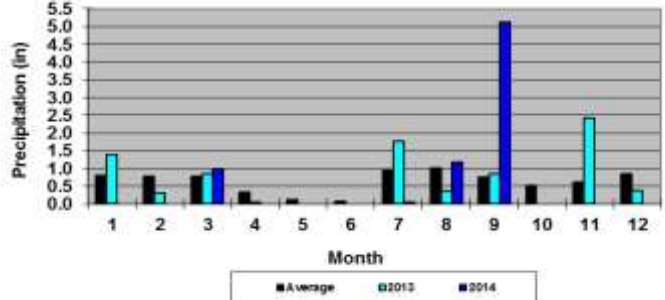
**Flagstaff Mean Monthly Precipitation**  
Annual average (1899-2013) = 20.09"



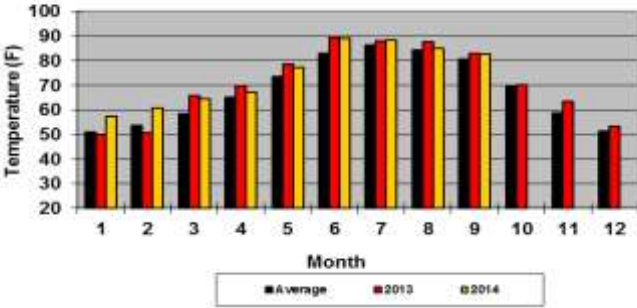
**Phoenix Mean Monthly Temperature**  
Annual Average (1896-2013) = 71.9"



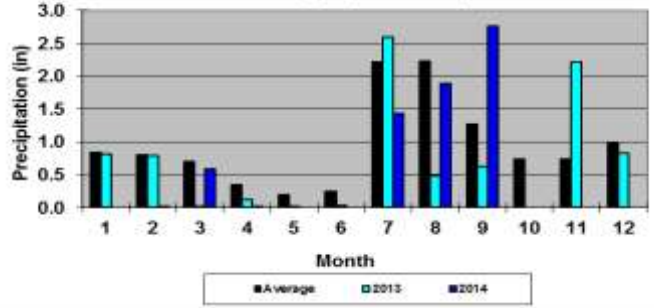
**Phoenix Mean Monthly Precipitation**  
Annual Average (1896-2013) = 7.04"



**Tucson Mean Monthly Temperature**  
Annual average (1895-2013) = 68.1°F



**Tucson Mean Monthly Precipitation**  
Annual average (1895-2013) = 11.13"



## FLAGSTAFF CLIMATE STATISTICS

September 2014

This September was the 23<sup>rd</sup> warmest and 27<sup>th</sup> wettest on record.

Avg Max Temp (F)	73.5	Normal	72.9
Avg Min Temp (F)	45.5	Normal	42.0
Avg Mean Temp (F)	59.5	Normal	57.4
Departure from Normal (F)	+2.1		

Highest Monthly Avg Temp (F)	62.1	in 1947
Lowest Monthly Avg Temp (F)	52.3	in 1912

Highest Temp this month (F): 80 on 1<sup>st</sup>, 2<sup>nd</sup>, 10<sup>th</sup>  
 Lowest Temp this month (F): 32 on 29<sup>th</sup>, 30<sup>th</sup>

Record High (F): 91 on 09/01,02,03/1948

Record Low (F): 20 on 09/22/1912

Temperature or precipitation records this month:  
 27<sup>th</sup> HiMin of 49 tied, first set in 1977

Flagstaff Number of Days of:

Minimum Temp 50°F or higher	5
Minimum Temp 40°F or lower	4

Maximum Temp 80°F or higher	3
Maximum Temp 70°F or lower	8

Heating Degree Days	158	Normal	229
Cooling Degree Days	0	Normal	3
Degree base 65°F			

Total September Precipitation	3.10"
Normal September Precipitation	2.38"
Departure from normal	0.72"
Greatest 24-Hr Precipitation	0.94" on 09/26-27
Total Precipitation Year-to-Date	15.94"
Departure from Normal	-0.63"

Number of Days:

Clear	20
Partly Cloudy	9
Cloudy	1

Greatest September Precipitation	6.75" in 1983
Least September Precipitation T -	1957, 1973, 1992

Average Wind Speed	4.4 mph
Highest Peak Gust	38 mph from 200° on 28 <sup>th</sup>

## PHOENIX CLIMATE STATISTICS

September 2014

This September was the 18<sup>th</sup> warmest and 2<sup>nd</sup> wettest on record.

Avg Max Temp(F)	99.2	Normal	99.8
Avg Min Temp(F)	78.8	Normal	76.9
Avg Mean Temp (F)	89.0	Normal	88.4
Departure from Normal (F)	+0.6		

Highest Monthly Avg Temp (F)	92.2	in 2001
Lowest Monthly Avg Temp (F)	78.9	in 1900

Highest Temp this month (F): 109 on 2<sup>nd</sup>  
 Lowest Temp this month (F): 66 on 30<sup>th</sup>

Record High (F): 113 on 09/05/1945  
 Record Low (F): 47 on 09/20-21/1965, 9/22/1895

Temperature or precipitation records this month:  
 8<sup>th</sup> Precip 3.30" set, previous record 0.48" in 1933  
 15<sup>th</sup> HiMin 87 tied, first set in 1969  
 26<sup>th</sup> HiMin 82 tied, first set in 2010  
 27<sup>th</sup> Precip 1.64" set, previous record 0.50" in 1977

Phoenix Number of Days of:

Minimum Temp 70°F or lower	3
Minimum Temp 80°F or higher	17
Maximum Temp 90°F or lower	4
Maximum Temp 105°F or higher	6

Heating Degree Days	0	Normal	0
Cooling Degree Days	728	Normal	700
Degree base 65°F			

Total September Precipitation 5.11"  
 Normal September Precipitation 0.64"  
 Departure from normal 4.47"  
 Greatest 24-Hr Precipitation (Record) 3.30" on 9/08  
 Total Precipitation Year-to-Date 7.33"  
 Departure from Normal +1.41"

Greatest September Precipitation 5.41" in 1939  
 Least September Precipitation 0.00" in 1906,  
 1973, and 14 other years

Average Wind Speed 6.3 mph  
 Highest Peak Gust 66 mph from 260° on 27<sup>th</sup>

Number of Days:

Clear 17  
 Partly Cloudy 11  
 Cloudy 2

TUCSON CLIMATE STATISTICS  
 September 2014

This September was the 20<sup>th</sup> warmest and 16<sup>th</sup> wettest.

Avg Max Temp(F) 93.4 Normal 94.5  
 Avg Min Temp(F) 72.2 Normal 68.6  
 Avg Mean Temp(F) 82.8 Normal 81.6  
 Departure from Normal (F) +1.2

Total September Precipitation 2.76"  
 Normal September Precipitation 1.29"  
 Departure from normal +1.47"  
 Greatest 24-Hr Precipitation 1.86" on 09/7-8  
 Total Precipitation Year-to-Date 6.69"  
 Departure from Normal -2.51"

Highest Monthly Avg Temp (F) 84.8 in 2000  
 Lowest Monthly Avg Temp (F) 76.3 in 1964

Greatest September Precipitation 5.60" in 2011  
 Least September Precipitation 0.00" in 1898,  
 1953 and 4 other years

Highest Temp this month (F): 104 on 2<sup>nd</sup>  
 Lowest Temp this month (F): 59 on 30<sup>th</sup>

Number of Days:

Clear 22  
 Partly Cloudy 3  
 Cloudy 1

Record High (F): 107 on 09/10,11/1990, 9/14/2000  
 Record Low (F): 43 on 09/26/1913

Average Wind Speed 7.2 mph  
 Highest Peak Gust 40 mph from 120° on 13<sup>th</sup>

Temperature or precipitation records this month:  
 8<sup>th</sup> Precip 1.84" set, previous record 0.94" in 1919  
 15<sup>th</sup> HiMin 79 tied, first set in 2000

Data are from the National Weather Service and the National Climatic Data Center and are **preliminary**.

Tucson Number of Days of:

Minimum Temp 70°F or lower 7  
 Minimum Temp 75°F or higher 5  
 Maximum Temp 90°F or lower 8  
 Maximum Temp 100°F or higher 4

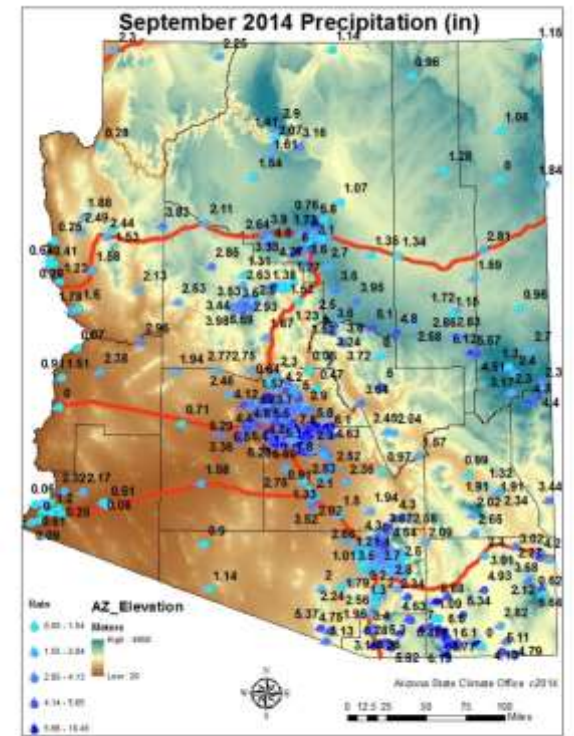
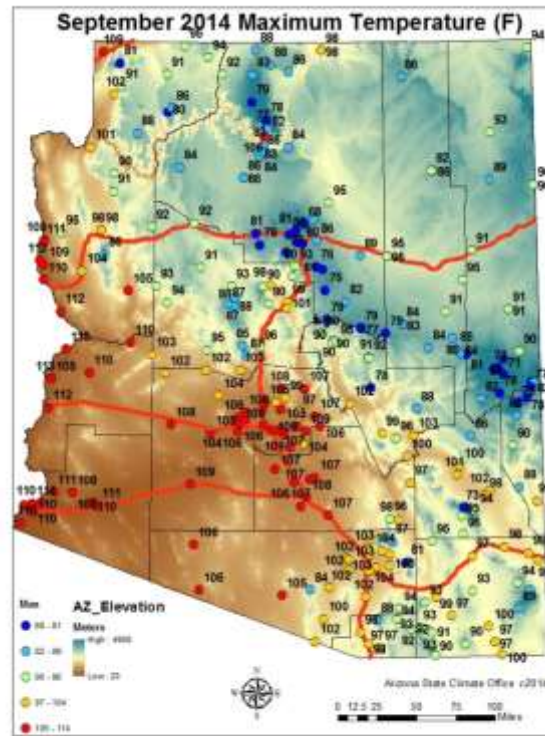
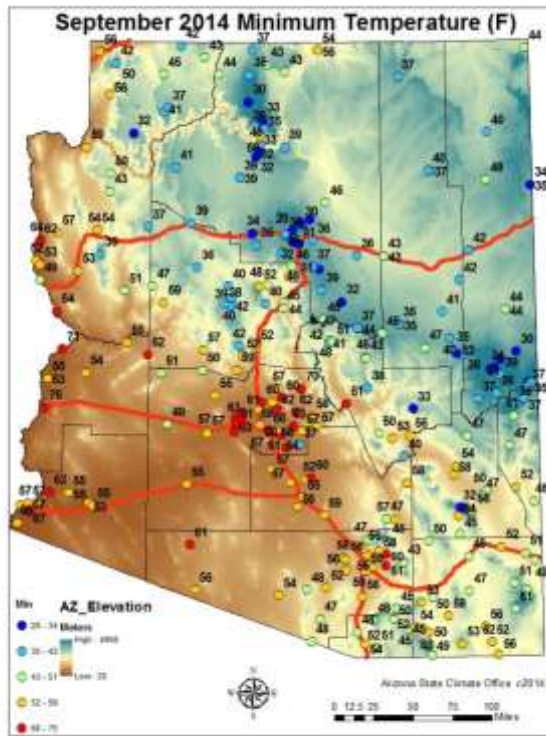
Heating Degree Days 0 Normal 0  
 Cooling Degree Days 542 Normal 497  
 Degree base 65°F

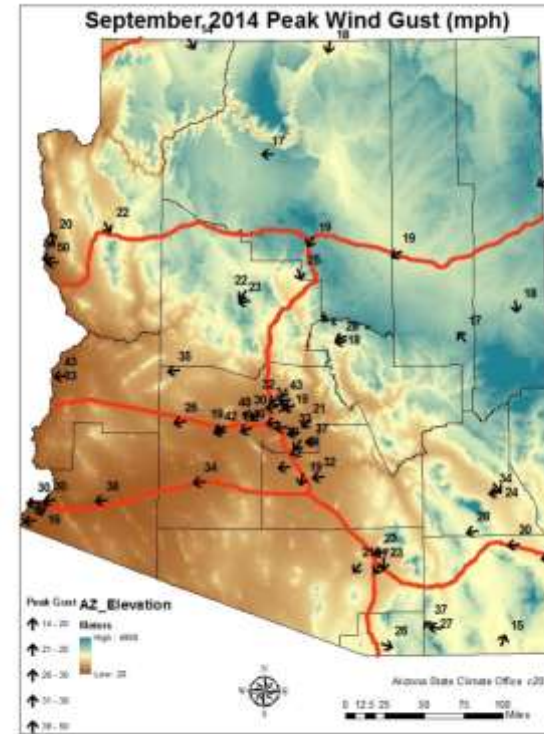
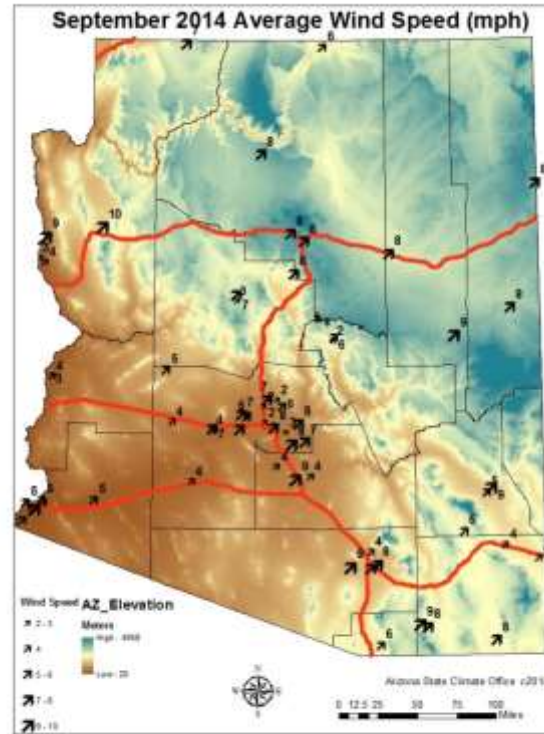
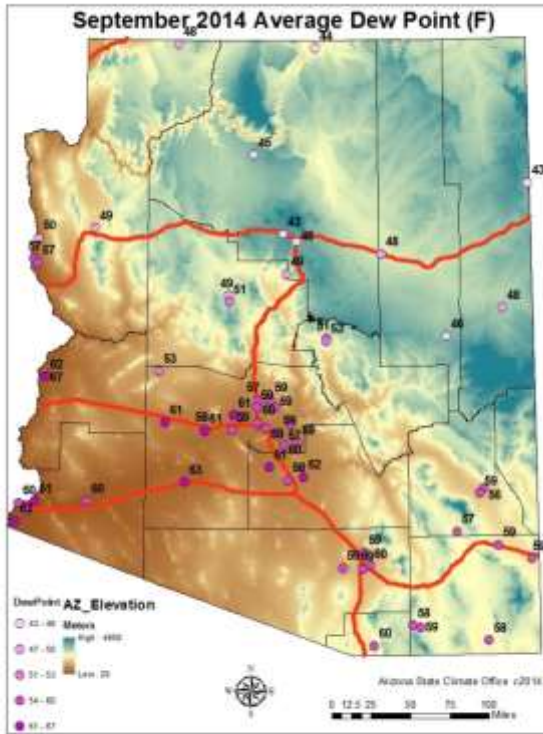
**Wind Speeds:**

Day	Phoenix		Flagstaff		Tucson	
	Avg	Max	Avg	Max	Avg	Max
1	6.4	16	5.2	25	6.6	20
2	5.3	17	4.7	23	6.1	20
3	5.4	14	6.7	32	6.8	27
4	7.9	32	4.1	20	8.2	37
5	5.7	17	3.2	22	5.6	16
6	9.5	38	2.5	20	5.4	32
7	7.9	27	3.6	22	9.5	27
8	8.1	37	6.5	20	4.6	15
9	5.9	24	11	30	5	18
10	3.8	14	2.5	19	5.6	15
11	5.5	17	2.7	18	6.2	19
12	6.4	22	2.3	16	5	36
13	9.6	28	2.3	16	16.2	40
14	6.1	20	3.3	19	10.9	34
15	6.9	21	3.1	19	9.9	27
16	10.4	28	3.2	23	8.4	27
17	8.1	23	3.6	23	8.9	25
18	4.8	16	3.2	17	3.8	14
19	4.7	17	2.8	14	3.7	18
20	5.4	20	3.3	23	5.6	19
21	5	18	5.7	24	6.2	25
22	5.5	19	3.7	25	6.6	19
23	4.5	21	2.9	21	6.8	22
24	3.6	17	1.8	15	6.8	21
25	5.6	15	4.9	24	9	23
26	6	27	5.8	25	7.6	22
27	10.8	66	7.6	33	11.9	31
28	5.8	21	9.6	38	8.5	27
29	4.2	12	4.5	25	4.6	23
30	4.6	16	4.7	21	5.6	20

**Dew Points for September:****Daily Average Dew Point (°F):**

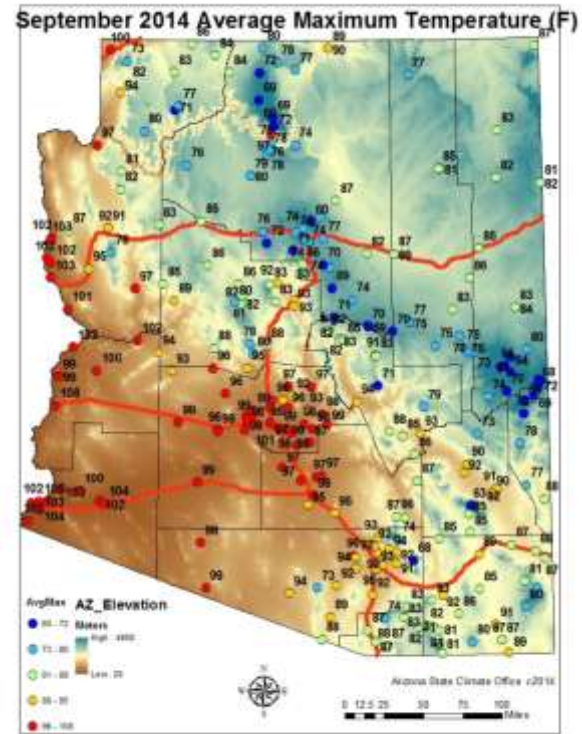
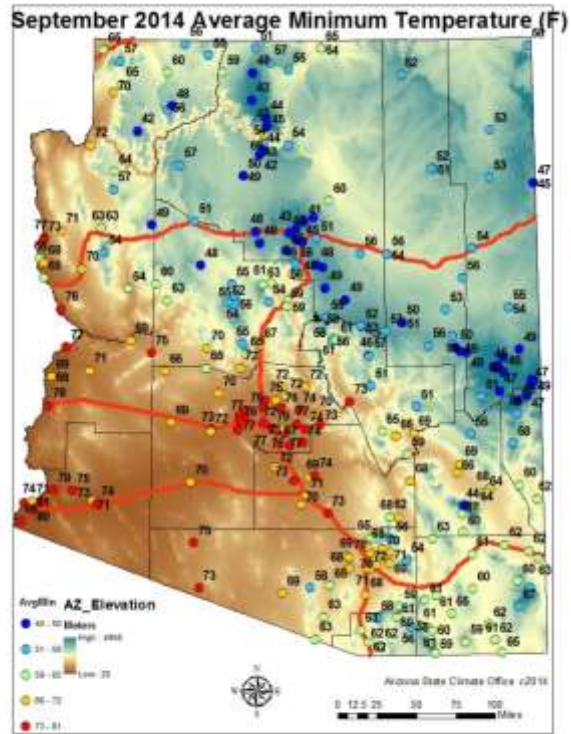
Day	Phx	Tuc	Flg
1	44	47	38
2	46	49	36
3	51	50	44
4	57	59	46
5	61	65	48
6	61	61	51
7	68	69	54
8	68	65	54
9	69	61	48
10	63	57	42
11	58	56	37
12	58	57	41
13	57	56	43
14	58	56	46
15	64	62	49
16	64	66	53
17	64	66	51
18	67	67	54
19	64	67	51
20	59	64	52
21	58	62	47
22	53	61	43
23	48	57	41
24	54	58	43
25	59	59	45
26	62	58	50
27	63	60	45
28	57	58	37
29	48	44	33
30	46	36	32





The lowest minimum temperature was 20°F at Fort Valley, and the highest minimum was 75°F at Ehrenberg. The lowest maximum temperature of 68°F was recorded at Snowslide Canyon, while the highest maximum temperature of 114°F was reported at Yuma. The lowest rainfall amount was 0.00” at several stations in Arizona and the highest was 10.45” at Bisbee. The lowest dew point was 43°F at Flagstaff and the highest was 67°F at Parker. The highest peak wind gust was 50 mph at Mohave.

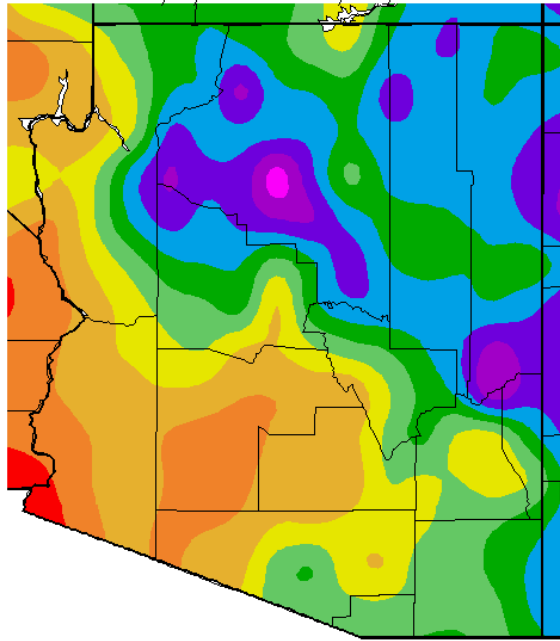




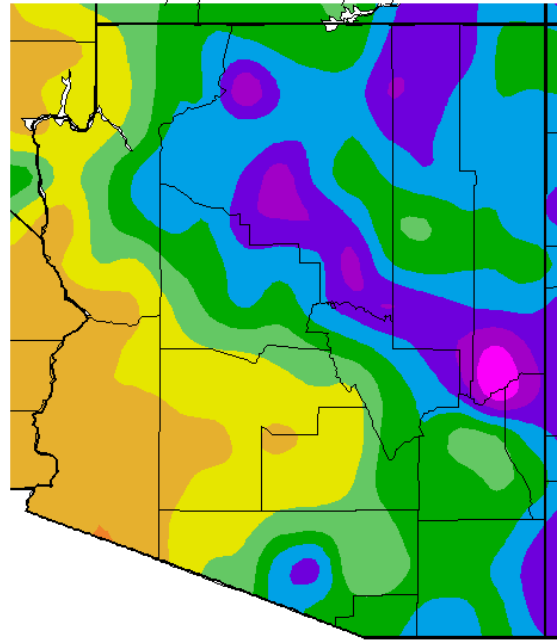
September 2014

The highest average minimum temperature was 81°F at Yuma and the lowest average minimum temperature was 40°F at Sunrise Mountain. The highest average maximum temperature was 108°F at Ehrenberg and lowest average maximum temperature was 60°F at Snowslide Canyon.

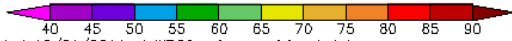
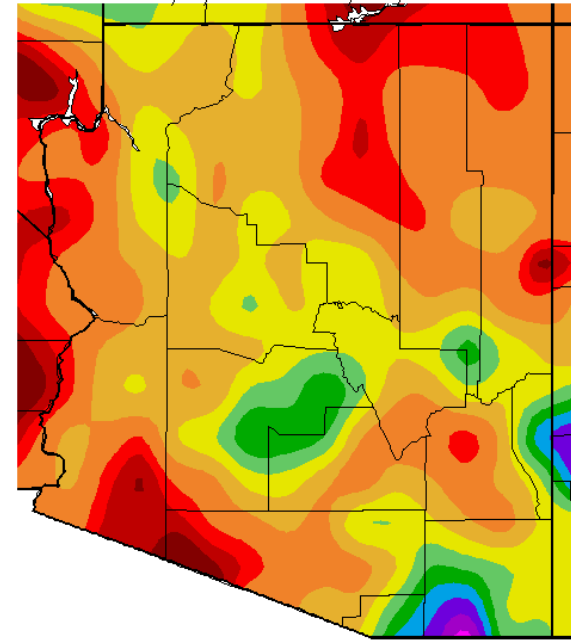
Av. Min. Temperature (deg. F)  
9/1/2014 - 9/30/2014



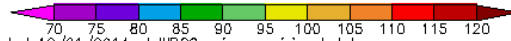
Av. Max. Temperature (deg. F)  
9/1/2014 - 9/30/2014



Total Precipitation (in.)  
9/1/2014 - 9/30/2014



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NOAA Regional Climate Centers

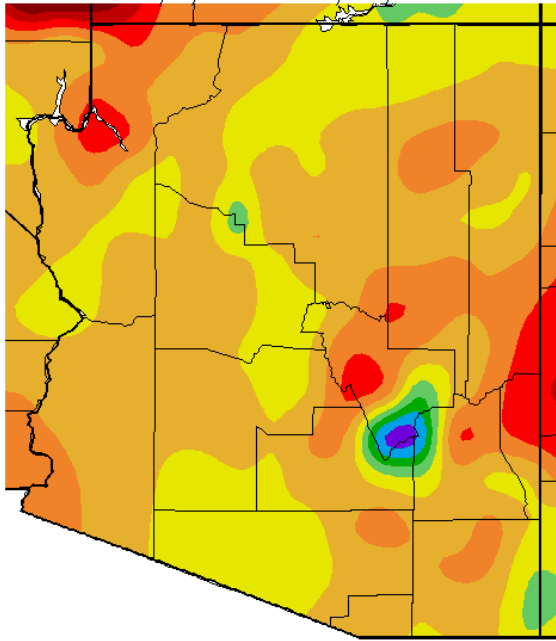


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NOAA Regional Climate Centers



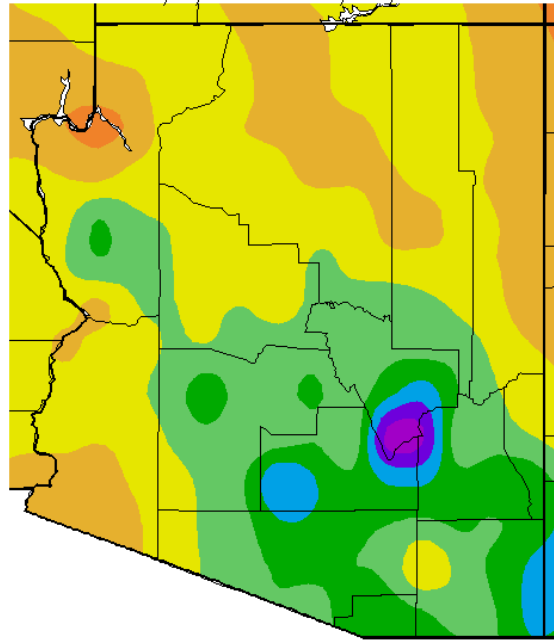
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NOAA Regional Climate Centers

Av. Min. Temperature dep from Ave (deg. F)  
9/1/2014 – 9/30/2014



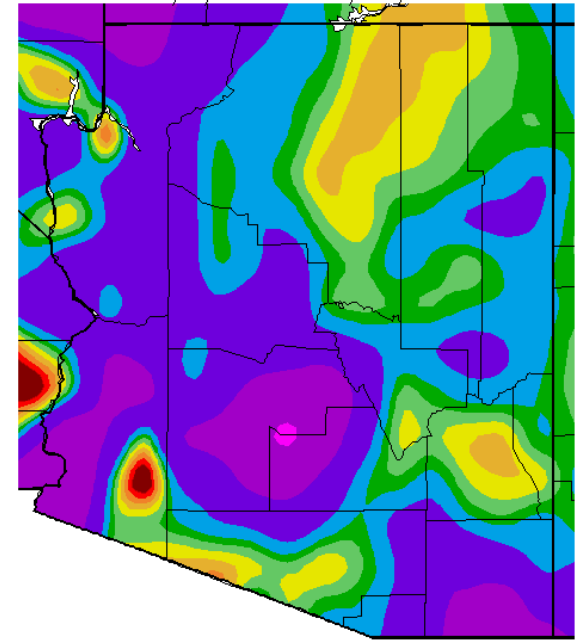
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NOAA Regional Climate Centers

Av. Max. Temperature dep from Ave (deg F)  
9/1/2014 – 9/30/2014



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NOAA Regional Climate Centers

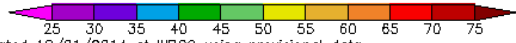
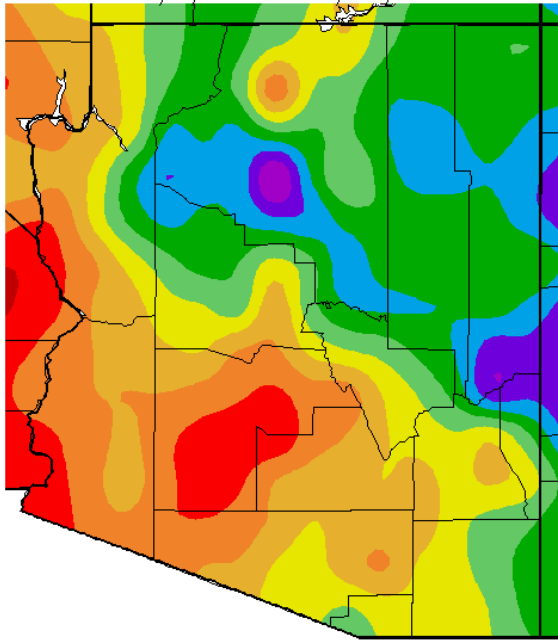
Percent of Average Precipitation (%)  
9/1/2014 – 9/30/2014



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NOAA Regional Climate Centers

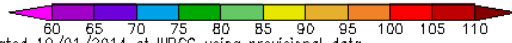
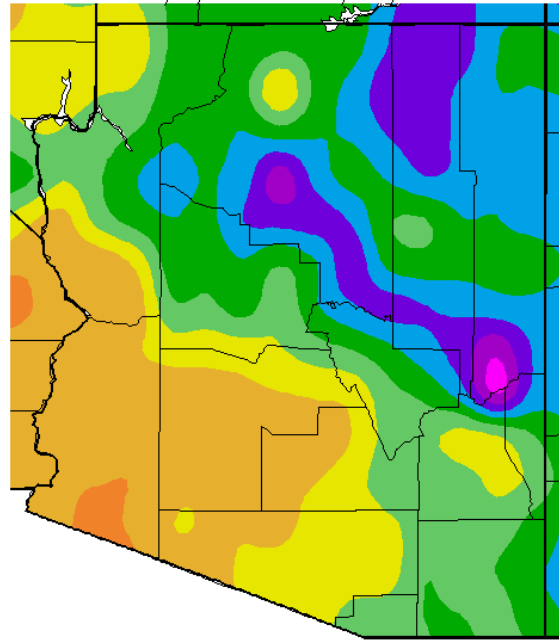
September minimum temperatures were 0-4°F warmer than normal statewide with cooler than average temperatures near the Gila, Pinal, Graham county borders. Daytime temperatures were 0-6°F cooler than normal in southern Arizona, and 0-4°F warmer than normal in northern and western Arizona. September precipitation was much higher than normal across most of the state. Exceptions were in Graham County, southern Pima, eastern Yuma and Coconino, and northern Navajo counties.

Av. Min. Temperature (deg. F)  
1/1/2014 – 9/30/2014



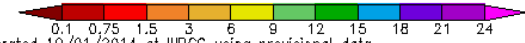
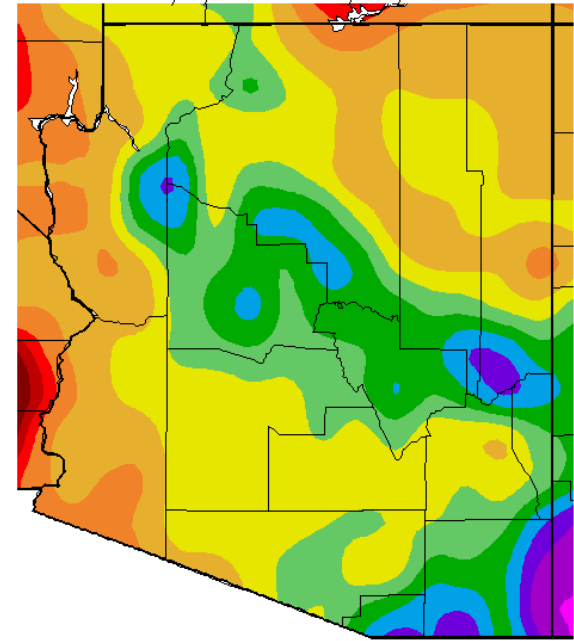
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NOAA Regional Climate Centers

Av. Max. Temperature (deg. F)  
1/1/2014 – 9/30/2014



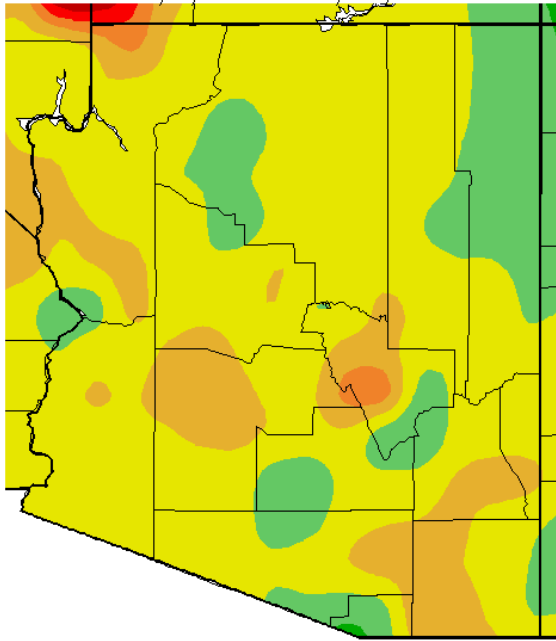
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NOAA Regional Climate Centers

Total Precipitation (in.)  
1/1/2014 – 9/30/2014



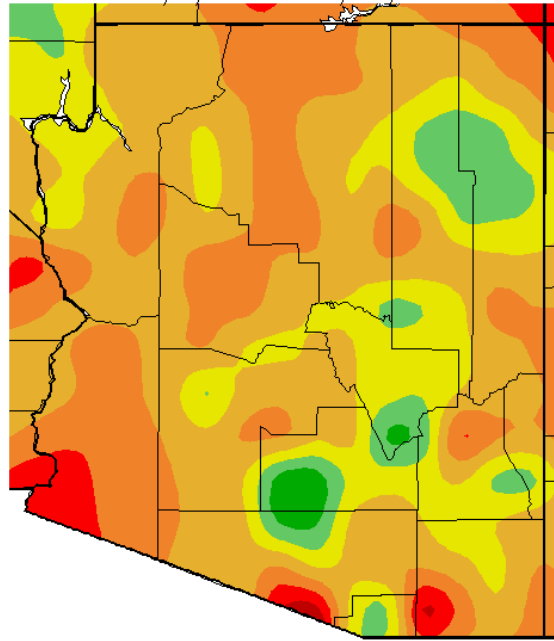
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Av. Min. Temperature dep from Ave (deg. F)  
1/1/2014 – 9/30/2014



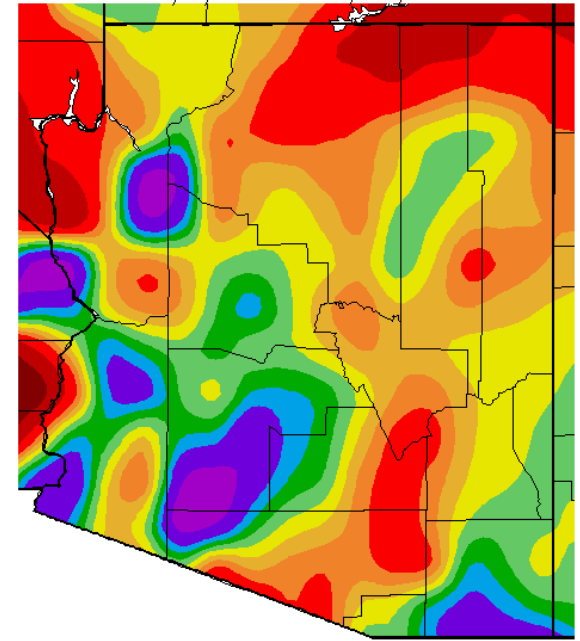
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Av. Max. Temperature dep from Ave (deg F)  
1/1/2014 – 9/30/2014



Generated 10/01/2014 at WRCC using provisional data.  
NOAA Regional Climate Centers

Percent of Average Precipitation (%)  
1/1/2014 – 9/30/2014

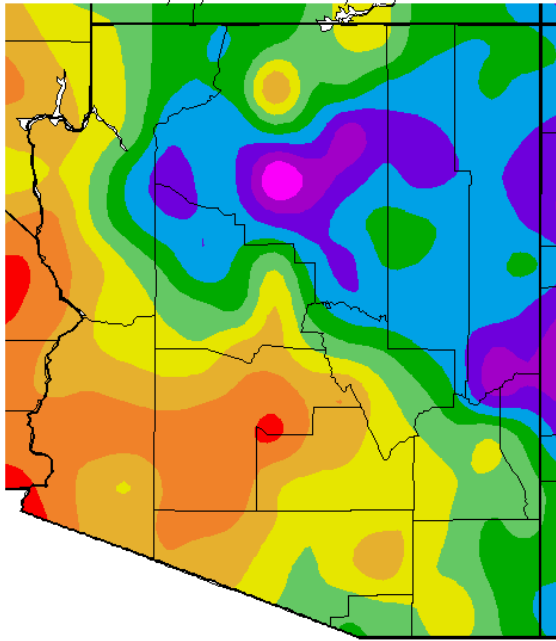


Generated 10/01/2014 at WRCC using provisional data.  
NOAA Regional Climate Centers

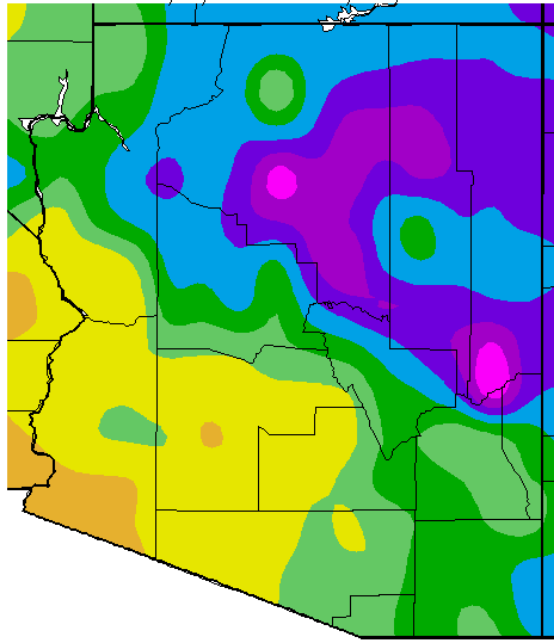
### Calendar Year 2014

Calendar year minimum temperatures were within 2°F of normal statewide with the coolest temperatures in Apache County and the warmest in Gila County. Daytime highs have been 0 to 3°F warmer than normal statewide, though western Pinal County has been slightly cooler than normal. Precipitation so far this year has been less than 90% of normal in eastern Arizona, and greater than 100% of normal in west central Arizona. Mohave County has seen both wetter than normal and drier than normal conditions.

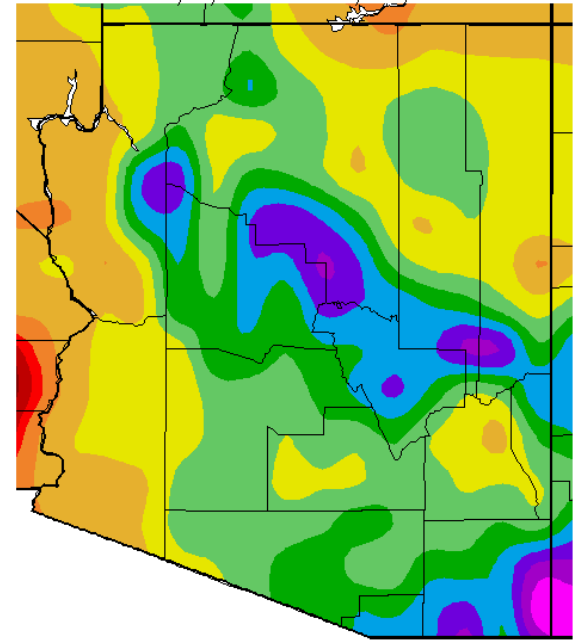
Av. Min. Temperature (deg. F)  
10/1/2013 - 9/30/2014



Av. Max. Temperature (deg. F)  
10/1/2013 - 9/30/2014



Total Precipitation (in.)  
10/1/2013 - 9/30/2014

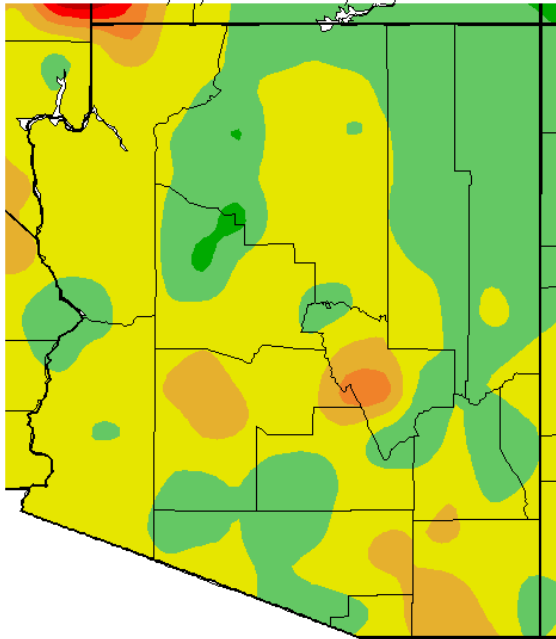


25 30 35 40 45 50 55 60 65 70 75  
Generated 10/01/2014 at WRCC using provisional data.  
NOAA Regional Climate Centers

60 65 70 75 80 85 90 95 100 105 110  
Generated 10/01/2014 at WRCC using provisional data.  
NOAA Regional Climate Centers

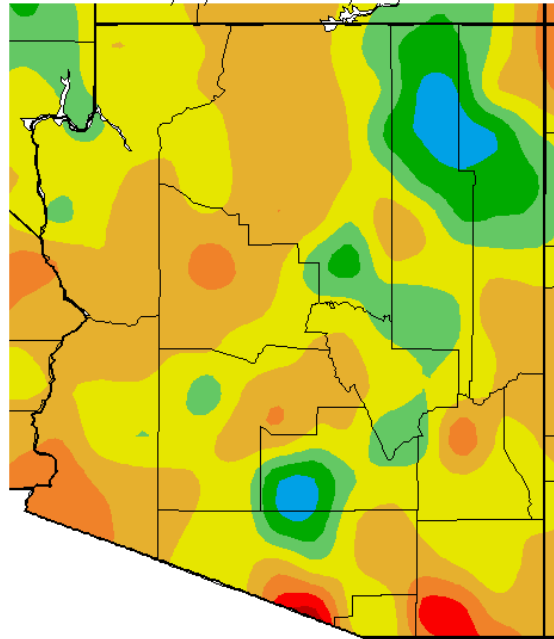
0.1 0.75 1.5 3 6 9 12 15 18 21 24  
Generated 10/01/2014 at WRCC using provisional data.  
NOAA Regional Climate Centers

Av. Min. Temperature dep from Ave (deg. F)  
10/1/2013 – 9/30/2014



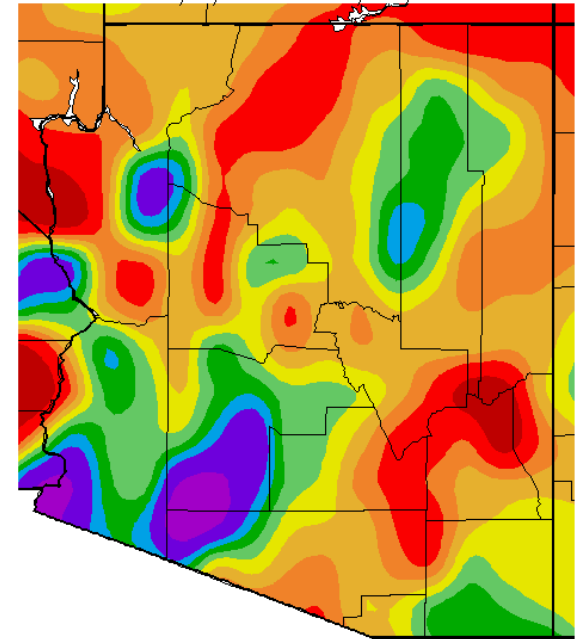
Generated 10/01/2014 at WRCC using provisional data.  
NOAA Regional Climate Centers

Av. Max. Temperature dep from Ave (deg F)  
10/1/2013 – 9/30/2014



Generated 10/01/2014 at WRCC using provisional data.  
NOAA Regional Climate Centers

Percent of Average Precipitation (%)  
10/1/2013 – 9/30/2014

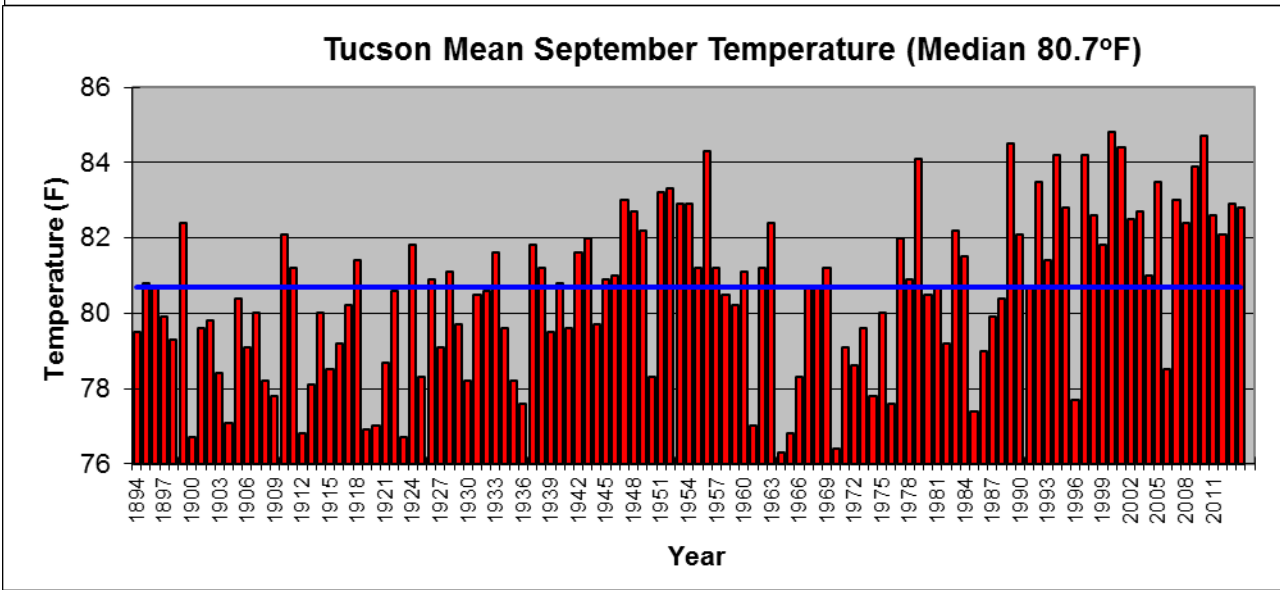
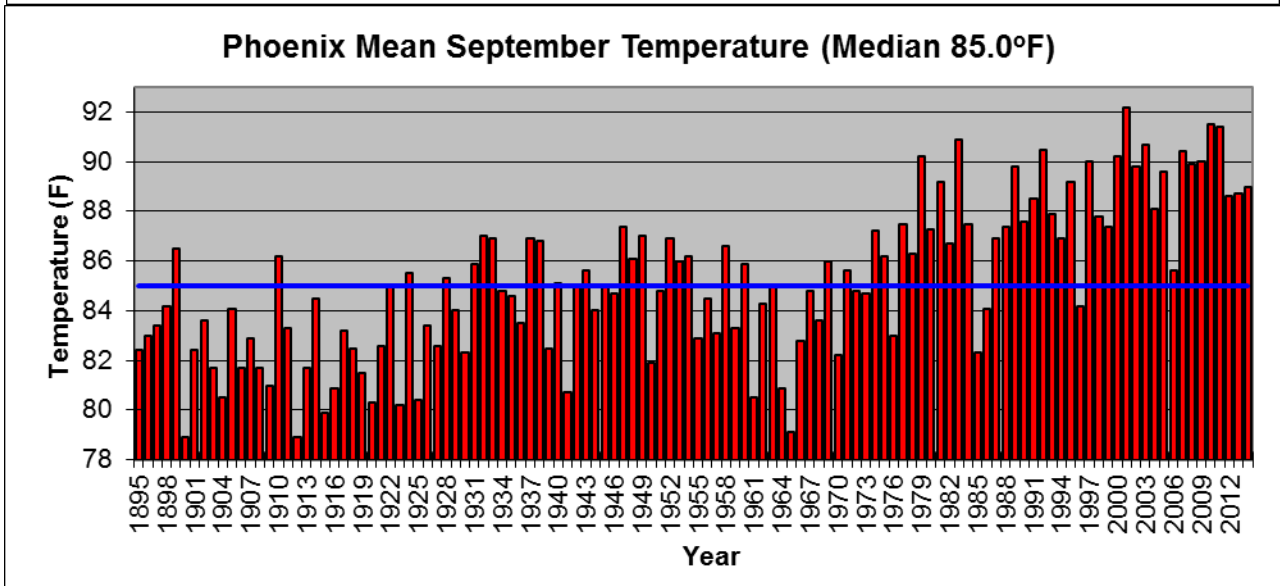
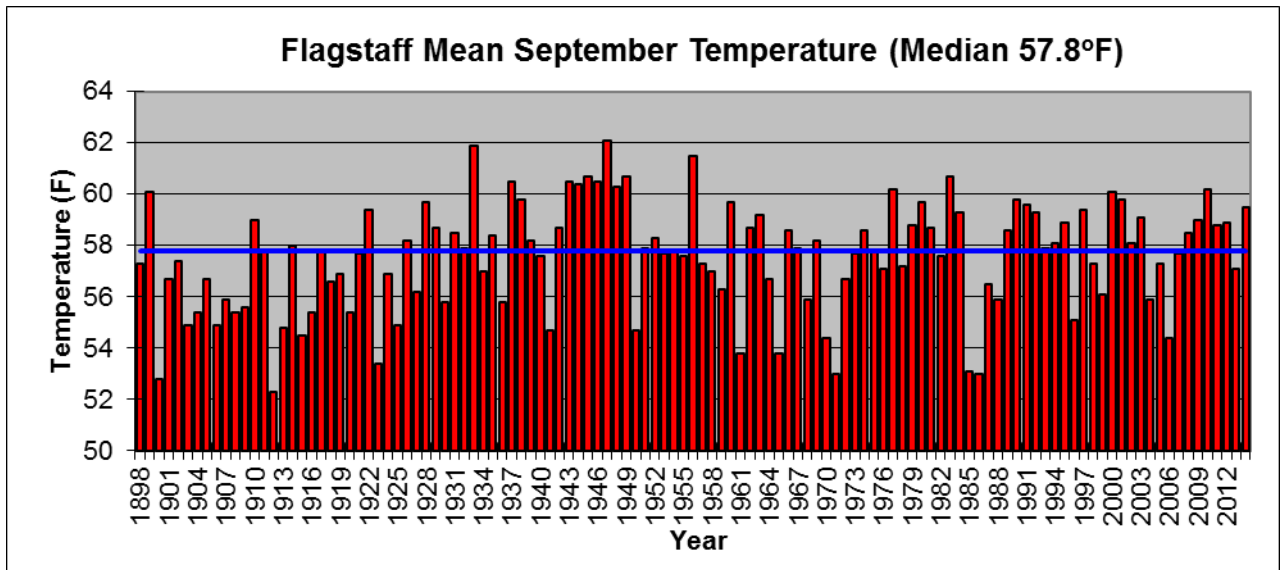


Generated 10/01/2014 at WRCC using provisional data.  
NOAA Regional Climate Centers

### 2014 Water Year

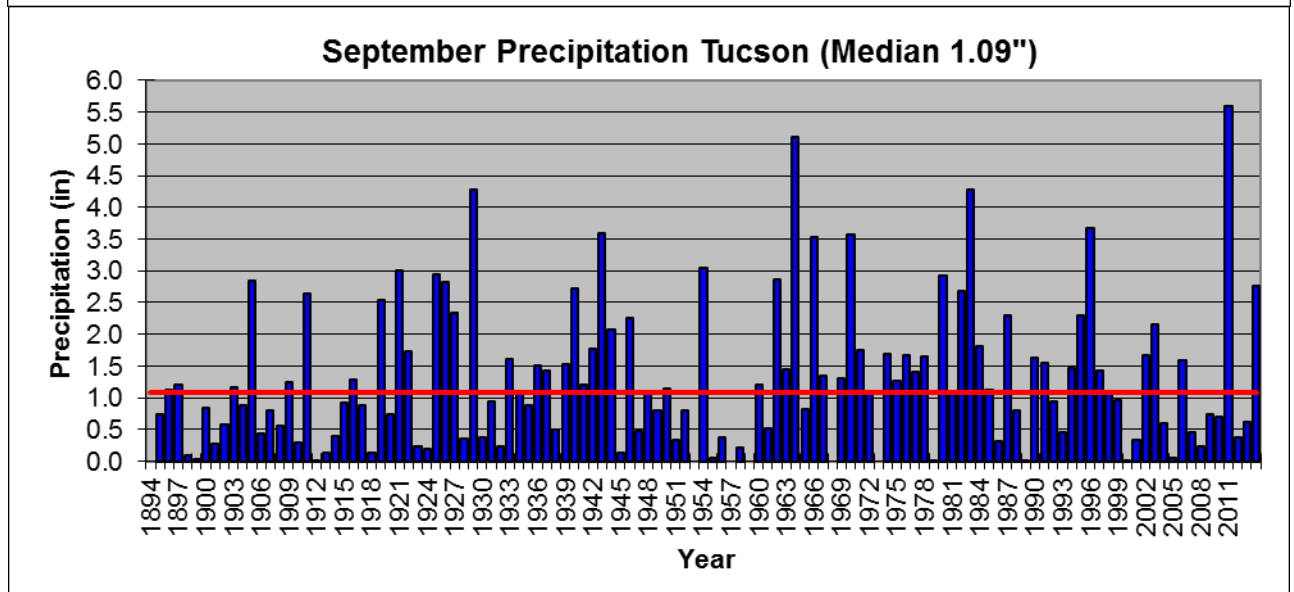
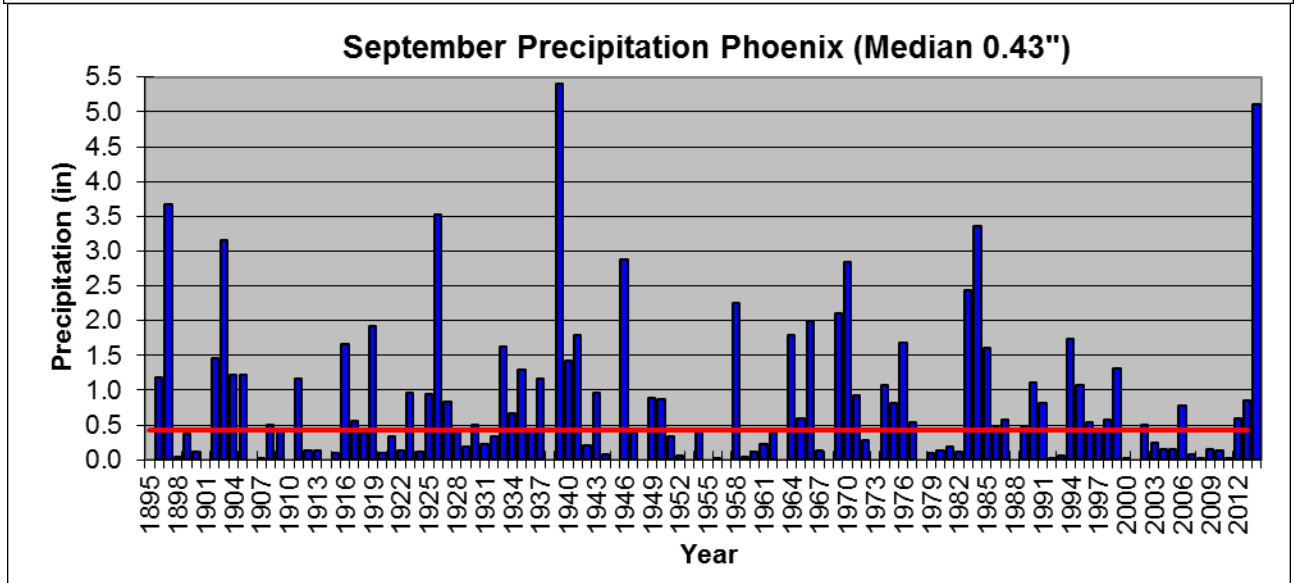
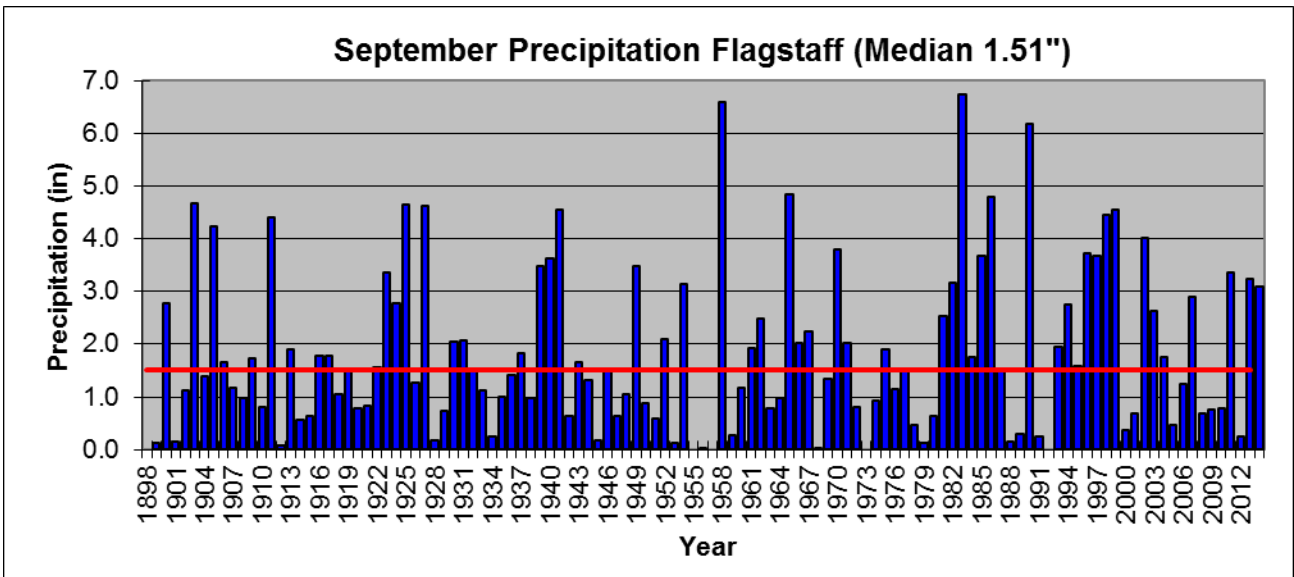
Minimum temperatures statewide have been within 2°F of normal. The cooler temperatures were on the eastern Colorado Plateau and western Coconino County. Daytime temperatures have also been within 2°F of normal across most of the state, with the northeastern corner and western Pinal County 0 to 3°F cooler than normal. Many areas of the state ended the water year at less than 80% of normal precipitation, particularly the Mogollon Rim and much of Coconino County. Wetter than normal conditions, due to a wet monsoon season, exist in southwestern Arizona and east central Mohave County.

**September Mean Temperature Graphs – Flagstaff, Phoenix, and Tucson 1895-2014:**



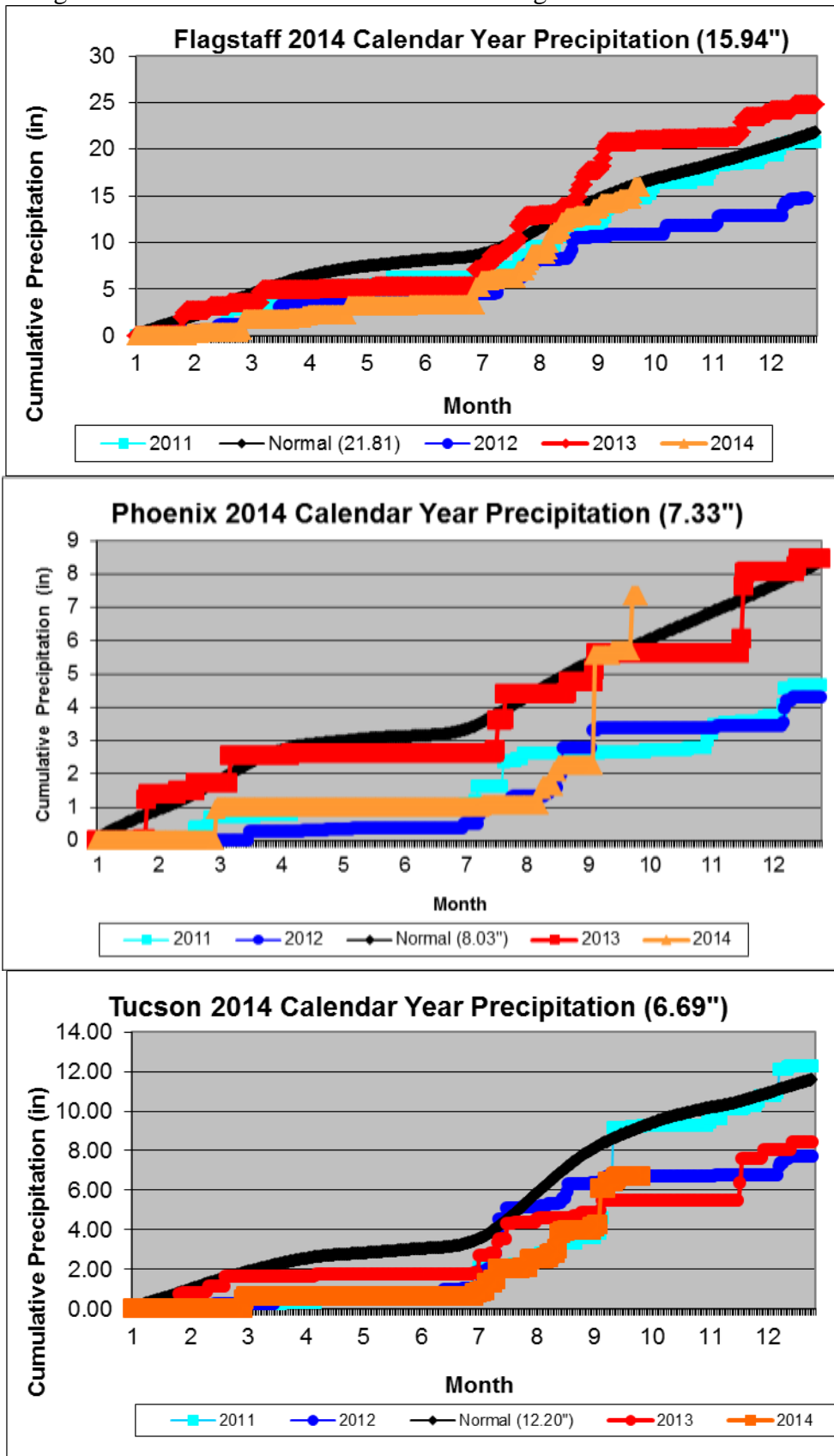


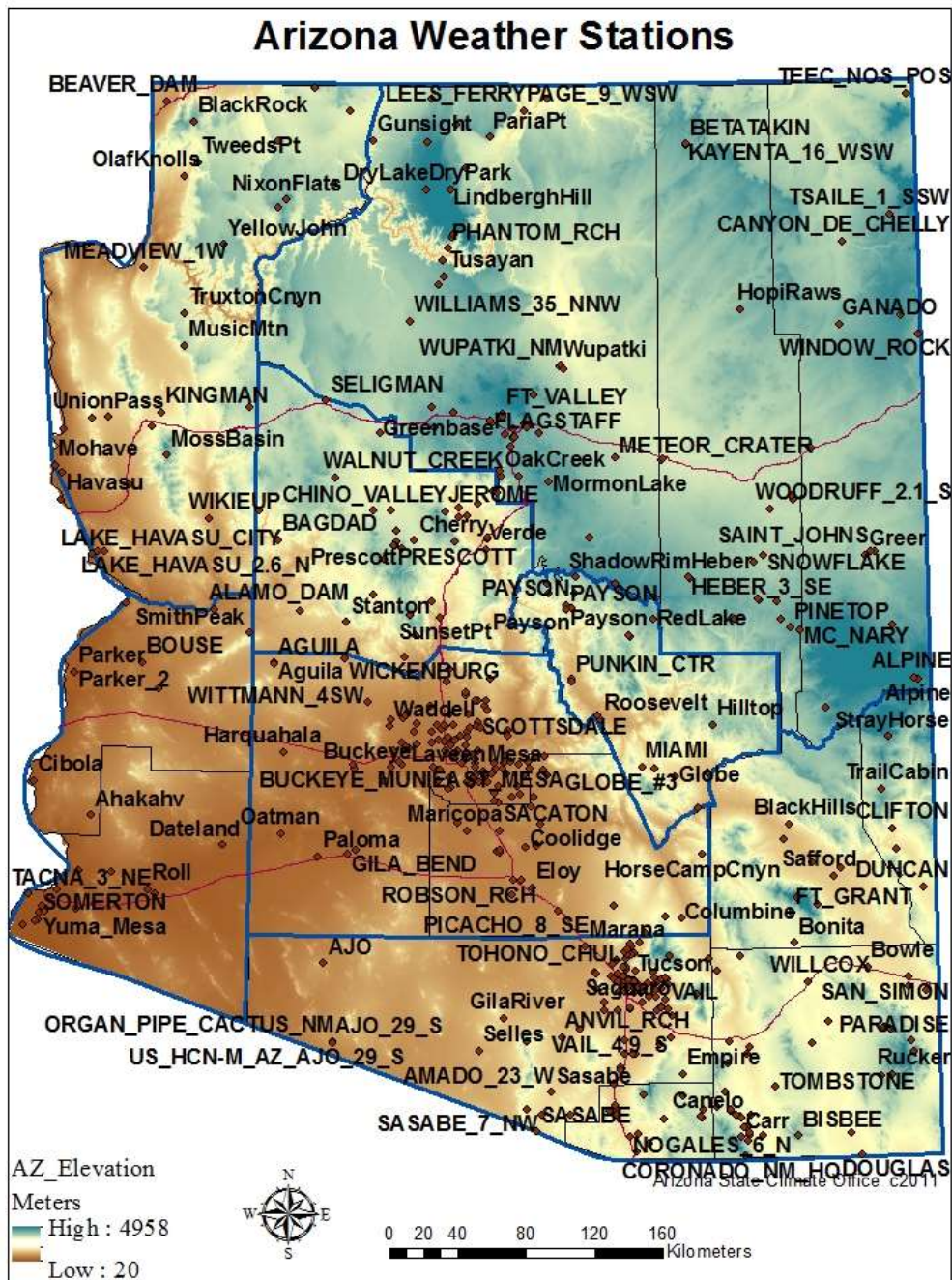
**September Mean Precipitation Graphs – Flagstaff, Phoenix, and Tucson 1895-2014:**



**2014 Cumulative Precipitation Graphs – Flagstaff, Phoenix and Tucson:**

Flagstaff is now near average while Phoenix is much wetter than average and Tucson is 2.5” below average.





The downloadable normals and extremes calendars use the following abbreviations:

NORM = 30 year (1971-2000) average value (degrees Fahrenheit (F))

OBS = The temperature observation for that day this year

AVG = Average daily temperature

HI MAX = Highest maximum temperature for that day (F)

LO MAX = Lowest maximum temperature for that day (F)

LO MIN = Lowest minimum temperature for that day (F)

HI MIN = Highest minimum temperature for that day (F)

Mx PCP = Maximum precipitation for that day (inches)

Mx SNO = Maximum snowfall for that day (inches)