



Arizona Climate Summary

October 2013

Summary of conditions for September 2013

September 2013 Temperature and Precipitation Summary

September 1st – 16th: With moist conditions still present throughout the state, September started off with a fair amount of precipitation. Toward the end of the first week and into the second week of the month, major cities recorded their greatest 24-hour precipitation value with Flagstaff reporting 1.01” of rainfall, and Phoenix and Tucson both reporting half an inch of rainfall on the 9th. Much drier conditions following the first two weeks, with only 0.03” of precipitation recorded in Flagstaff on the 14th and 0.02” on the 15th and 16th. Phoenix and Tucson did not report precipitation. Flagstaff set new record of 63 degrees for lowest maximum on the 10th, beating the previous record of 65 degrees in 1996. Phoenix set new records for highest minimum on the 6th and precipitation on the 9th. The new highest minimum for Phoenix on the 6th is 89 degrees, where the previous record was 87 degrees in 2010. The newest precipitation record for Phoenix on the 9th is 0.50” from the previous record of 0.32” in 2006. Tucson set a new record of 80 degrees for highest minimum, from the previous record of 77degrees in 1998.

September 17th – 30th: A large high pressure ridge in the jet stream settled over the Midwest allowing for dry air to be pulled in from the west into Arizona. Drier conditions persisted for the rest of the month and throughout most of the state. Nighttime lows began to drop as a result of the dry air as well as the daytime highs. A deep trough in the jet stream over the west coast and into northern Arizona produced strong winds at the surface, but the atmosphere remained relatively stable due to the diminished amount of atmospheric moisture. On the 18th, dew point temperatures dropped into the 30s and never recovered, so the monsoon activity was essentially over. A maximum peak wind gust of 64 mph was reported in Flagstaff on the 26th. On the 16th, Phoenix reported a highest minimum of 88 degrees, beating the previous record of 86 degrees in 1998, and, on the 17th, Phoenix reported a highest minimum temperature of 88 degrees, beating the previous record of 85 degrees in 1992. The last 8 days of the month were dry over most of the state. Southern Arizona continued to have rain through the 22nd, and Flagstaff had 0.19” on the 27th. The first freezing day of the year was the 23rd when Flagstaff, Grand Canyon and Window Rock all had freezing temperatures.

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. 16 of this report for calendar abbreviations.

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

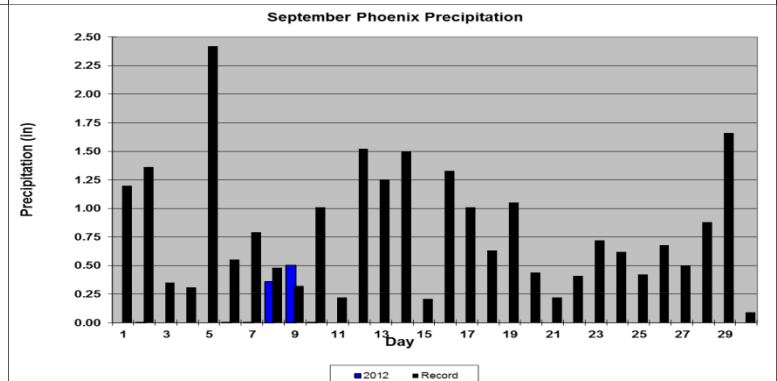
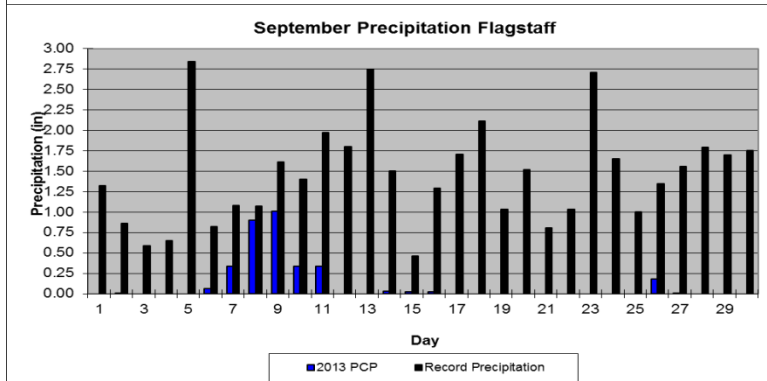
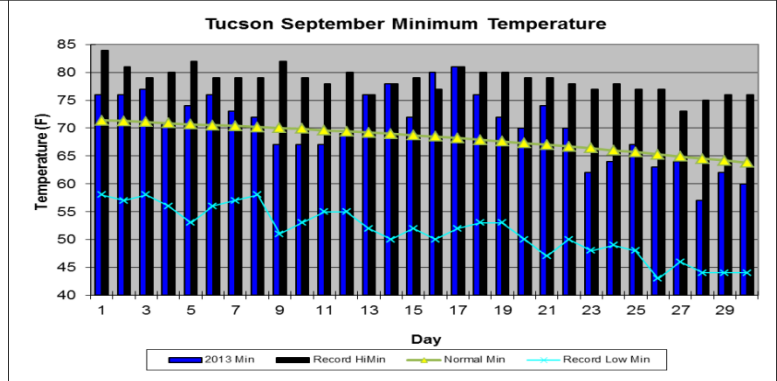
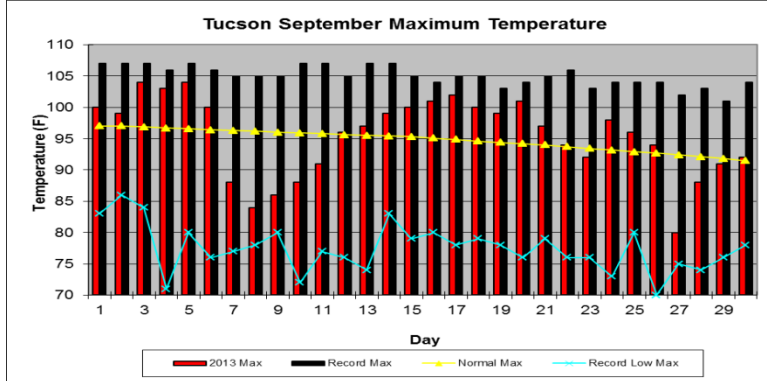
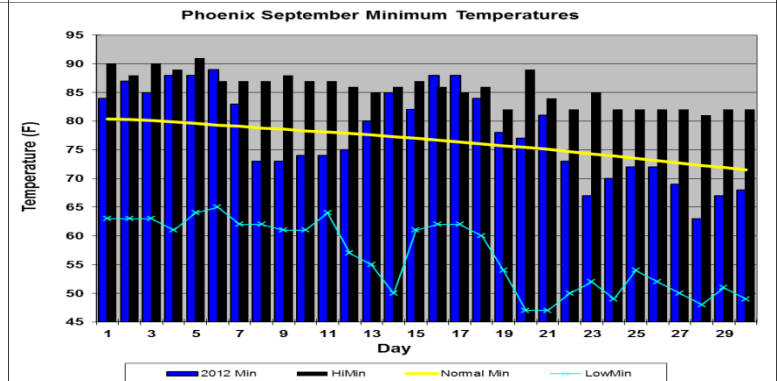
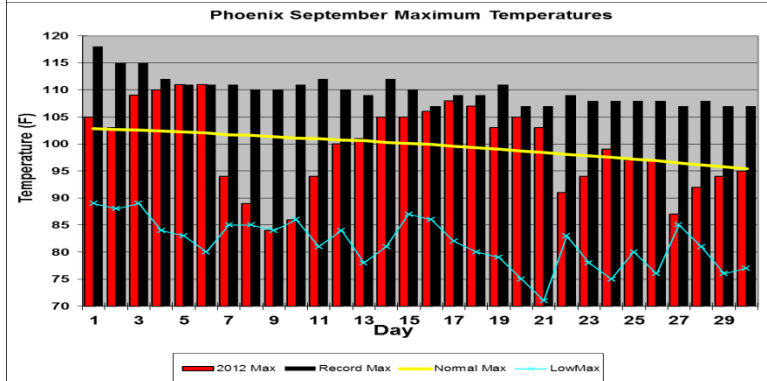
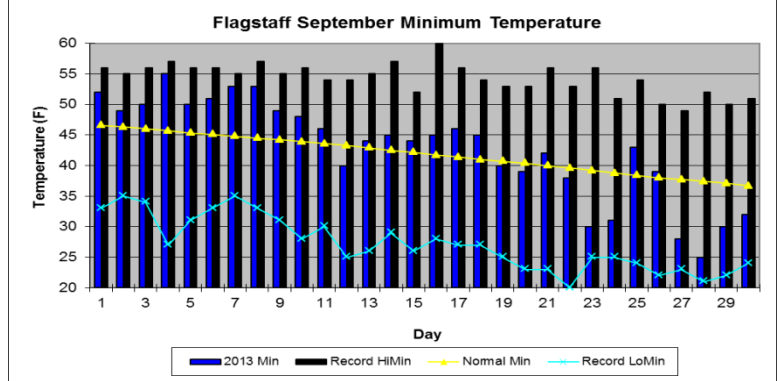
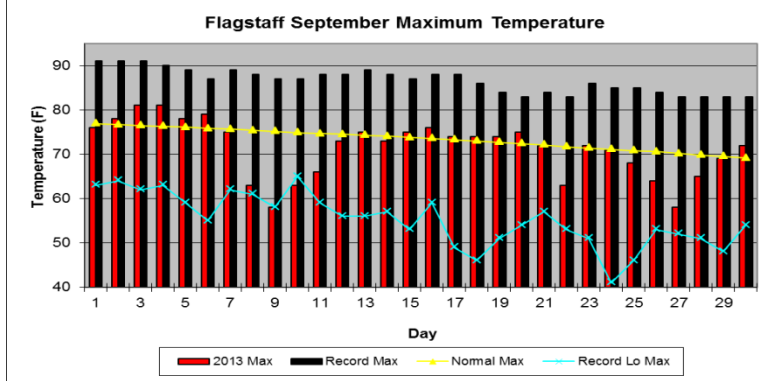
****Note:** The discrepancy between the Statewide Temperature and Precipitation values for Phoenix, Flagstaff and Tucson and the daily values in their graphs are due to the reporting times. Statewide Temperature and Precipitation values are taken at 5pm, while official daily records at the airports are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

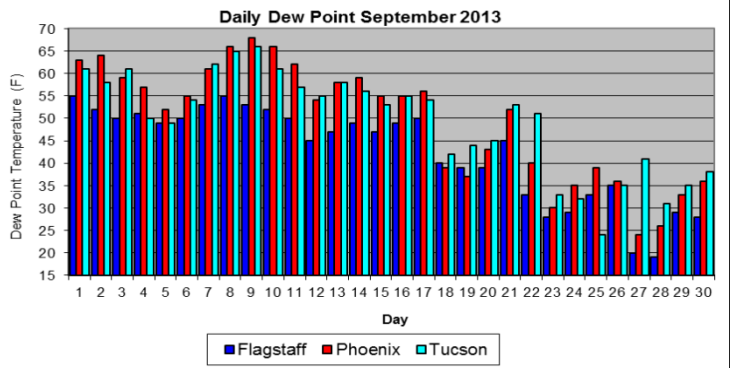
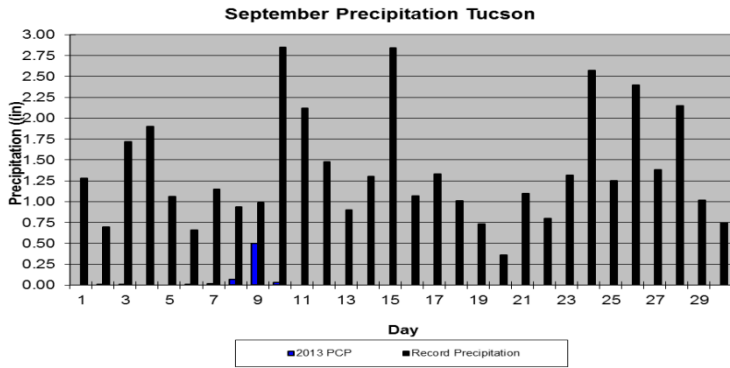
State Climate Office
Dr. Nancy J. Selover, State Climatologist
<http://azclimate.asu.edu> Tel: 480-965-6265
© 2013 Arizona State Climate Office



School of Geographical Sciences & Urban Planning
Arizona State University
Tempe, AZ 85287-1508
Edited by Nancy J. Selover & Richard Ames

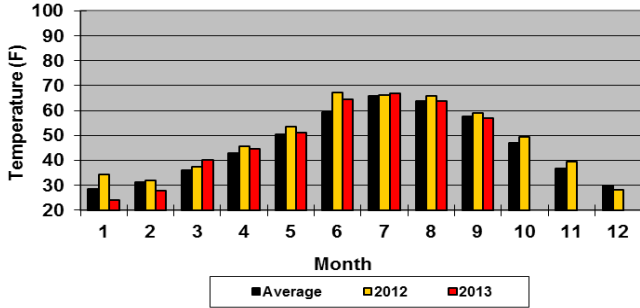
September 2013 Daily Temperature, Precipitation, & Dew Point for Flagstaff, Phoenix, and Tucson





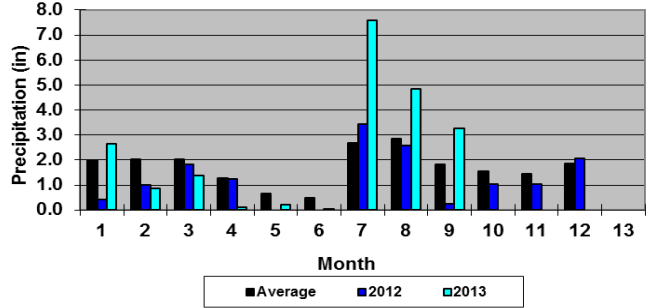
Flagstaff Mean Monthly Temperature

Annual average (1899-2012) = 45.9°F



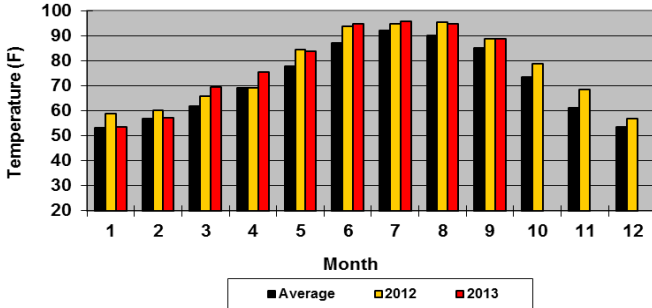
Flagstaff Mean Monthly Precipitation

Annual average (1899-2012) = 20.68"



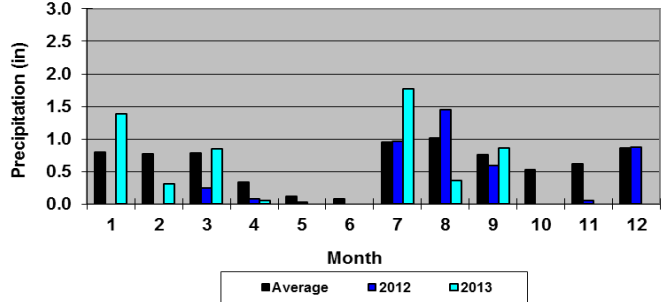
Phoenix Mean Monthly Temperature

Annual Average (1896-2012) = 71.2"



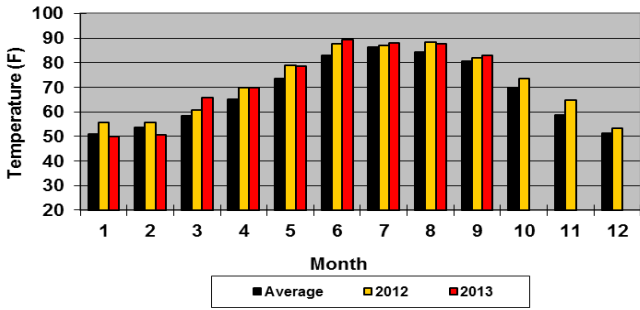
Phoenix Mean Monthly Precipitation

Annual Average (1896-2012) = 7.50"



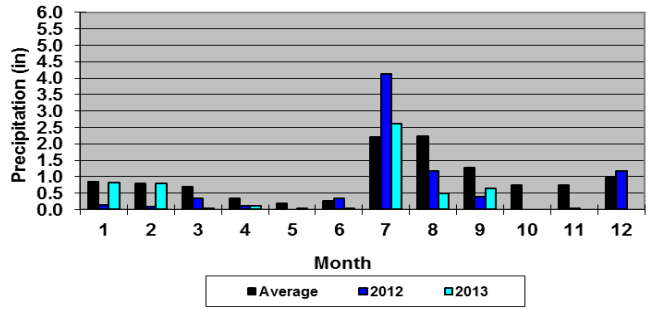
Tucson Mean Monthly Temperature

Annual average (1895-2012) = 68.0°F



Tucson Mean Monthly Precipitation

Annual average (1895-2012) = 11.15"



FLAGSTAFF CLIMATE STATISTICS

September 2013

This September had no significant ranking in temperature and precipitation.

Avg Max Temp (F)	71.4	Normal	72.9
Avg Min Temp (F)	42.7	Normal	42.0
Avg Mean Temp (F)	57.1	Normal	57.4
Departure from Normal (F)	-0.3		

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

Highest Temp this month (F):	81	on 3 rd and 4 th
Lowest Temp this month (F):	25	on 8 th

Record High (F):	91	on 09/03/1948
Record Low (F):	20	on 09/22/1912

Temperature or precipitation records this month:
 6th LoMax 58 tied, first set in 1912
 10th LoMax 63 set, previous record 65 in 1996

Flagstaff Number of Days of:

Minimum Temp 50°F or higher	7
Minimum Temp 30°F or lower	4
Maximum Temp 80°F or higher	2

Maximum Temp 65°F or lower	7
----------------------------	---

Heating Degree Days	236	Normal	229
Cooling Degree Days	4	Normal	3
Degree base 65°F			

Total September Precipitation	3.25"
Normal September Precipitation	2.38"
Departure from normal	0.87"
Greatest 24-Hr Precipitation	1.60" on 09/08-09/09
Total Precipitation Year-to-Date	20.93"
Departure from Normal	4.36"

Number of Days:

Clear	24
Partly Cloudy	4
Cloudy	2

Greatest September Precipitation	6.75" in 1983
Least September Precipitation	0.00" in 1992 and 4 other years

Average Wind Speed	5.0 mph
Highest Peak Gust	64 mph from 230° on 26 th

PHOENIX CLIMATE STATISTICS

September 2013

This September had no significant ranking in temperature and precipitation.

Avg Max Temp(F)	99.5	Normal	99.8
Avg Min Temp(F)	77.9	Normal	76.9
Avg Mean Temp (F)	88.7	Normal	88.4
Departure from Normal (F)	0.3		

Highest Monthly Avg Temp (F)	92.2	in 2001
Lowest Monthly Avg Temp (F)	78.9	in 1912

Highest Temp this month (F):	111	on 6 th and 7 th
Lowest Temp this month (F):	63	on 28 th

Record High (F):	116	on 09/01/1950
Record Low (F):	47	on 09/21/1965

Temperature and precipitation records this month:

5 th HiMax	111	tied, first set in 1933
6 th HiMax	111	tied, first set in 1986
6 th HiMin	89	set, previous record 87 in 2010
9 th LoMax	84	tied, first set in 2002
9 th Precip	0.50"	set, previous record 0.32" 2006
10 th LoMax	86	tied, first set in 1933
16 th HiMin	88	set, previous record 86 in 1998
17 th HiMin	88	set, previous record 85 in 1992

Phoenix Number of Days of:

Minimum Temp 70°F or lower	6
Minimum Temp 85°F or higher	8
Maximum Temp 90°F or lower	4
Maximum Temp 110°F or higher	3

Heating Degree Days	0	Normal	0
Cooling Degree Days	719	Normal	700
Degree base 65°F			

Total September Precipitation	0.86"
Normal September Precipitation	0.64"
Departure from normal	0.22"
Greatest 24-Hr Precipitation	0.50" on 09/09-09/09
Total Precipitation Year-to-Date	5.60"
Departure from Normal	-0.32"

Number of Days:

Clear	20
Partly Cloudy	10
Cloudy	0

Greatest September Precipitation	5.41" in 1939
Least September Precipitation	0.00" in 2001 and 15 other years

Average Wind Speed	6.5 mph
Highest Peak Gust	35 mph from 200° on 2 nd

TUCSON CLIMATE STATISTICS September 2013

This September had no significant ranking in temperature and precipitation.

Avg Max Temp(F)	95.5	Normal	94.5
Avg Min Temp(F)	70.4	Normal	68.6
Avg Mean Temp(F)	82.9	Normal	81.6
Departure from Normal (F)	1.3		

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

Highest Temp this month (F):	104 on 3 rd and 5 th
Lowest Temp this month (F):	57 on 28 th

Record High (F): 107 on 09/14/2000
Record Low (F): 43 on 09/26/1913

Temperature or precipitation records this month:
13th HiMin 76 tied, first set in 1946
14th HiMin 78 tied, first set in 1905
16th HiMin 80 set, previous record 77 in 1998
17th HiMin 81 tied, first set in 1928

Tucson Number of Days of:

Minimum Temp 60°F or lower	2
Minimum Temp 80°F or higher	2
Maximum Temp 80°F or lower	1
Maximum Temp 100°F or higher	10

Heating Degree Days	0	Normal	0
Cooling Degree Days	547	Normal	497
Degree base 65°F			

Total September Precipitation	0.63"
Normal September Precipitation	1.29"
Departure from normal	-0.66"
Greatest 24-Hr Precipitation	0.53" on 09/09-09/10

Total Precipitation Year-to-Date	5.48"
Departure from Normal	-3.72"
Greatest September Precipitation	5.60" in 2011
Least September Precipitation	0.00" in 1968 and 5 other years

Number of Days:

Clear	26
Partly Cloudy	4
Cloudy	0

Average Wind Speed	7.6 mph
Highest Peak Gust	40 mph from 230° on 26 th

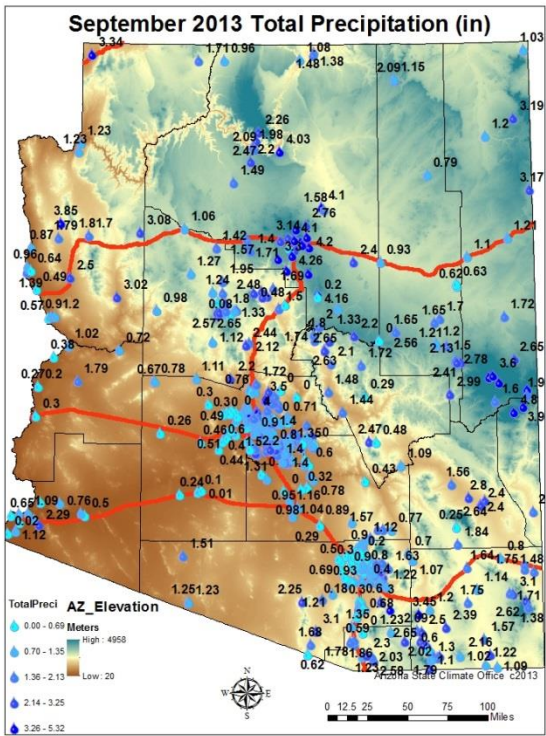
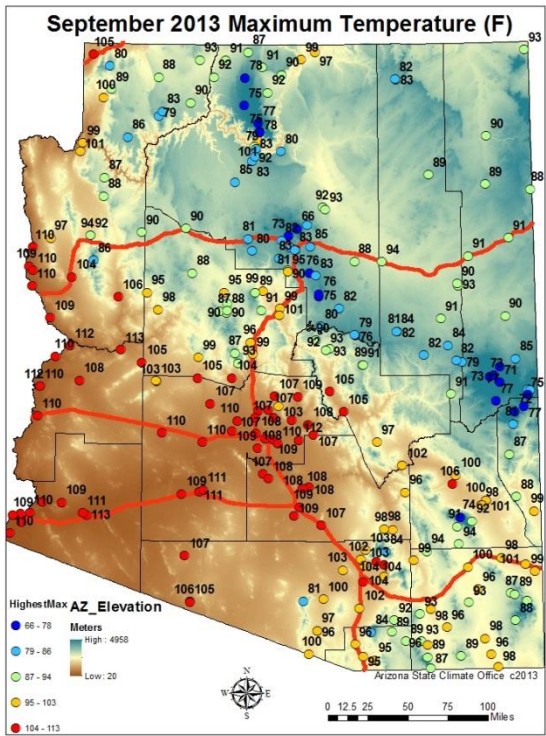
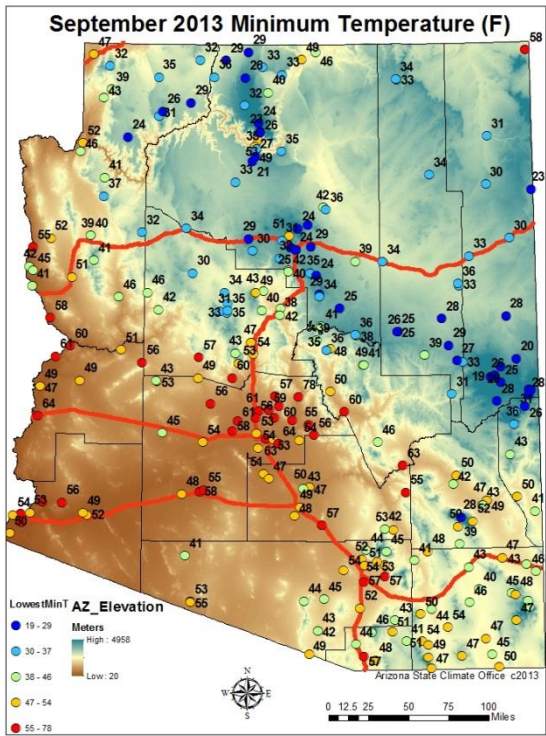
Data are from the National Weather Service and the National Climatic Data Center and are **preliminary**.

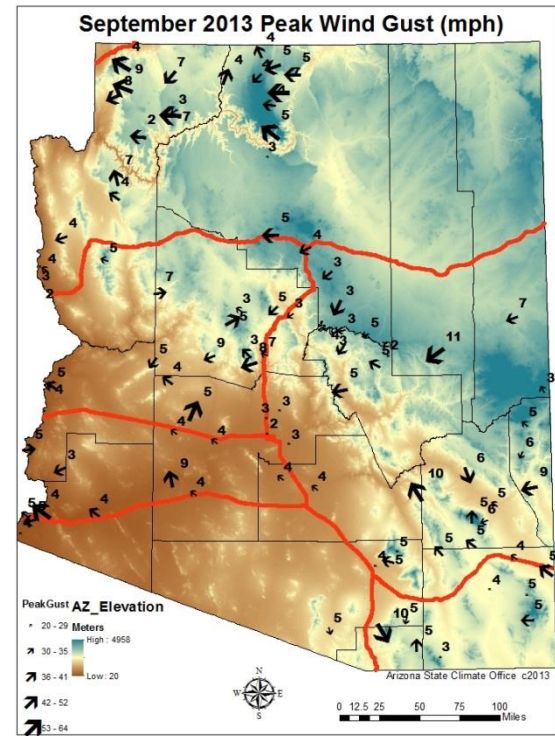
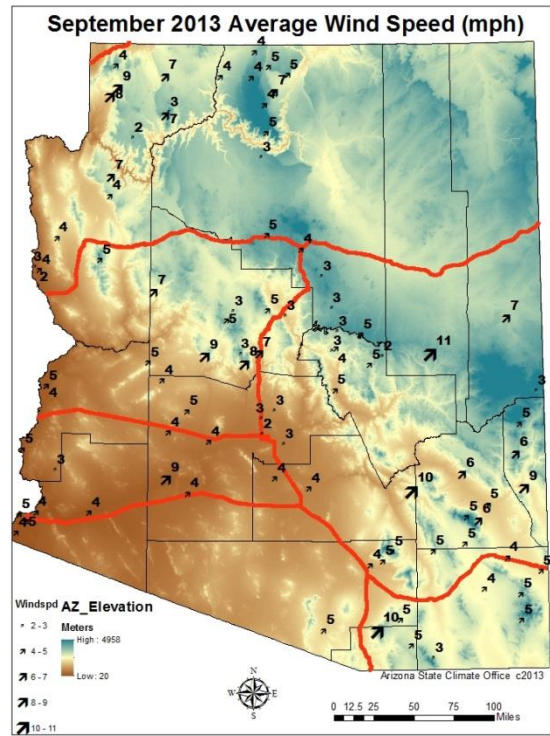
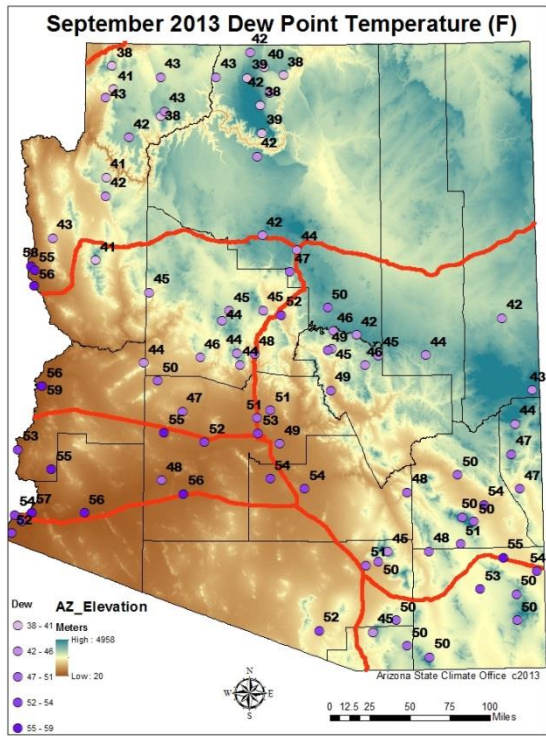
Winds for September:

Day	Phoenix		Flagstaff		Tucson	
	Avg	Max	Avg	Max	Avg	Max
1	6	19	3.6	21	5.5	21
2	6.2	35	3.7	23	7.2	36
3	5.9	19	3.1	18	7.4	38
4	5.8	19	2.4	26	6.3	29
5	5.7	22	2.3	18	8.9	31
6	8	34	3.2	18	7.9	25
7	7.1	25	3.6	21	7.8	24
8	5.4	25	2.2	16	8.4	20
9	7.3	23	1.9	14	5.4	21
10	7.9	32	5.3	23	5.8	21
11	5	17	5.5	23	6.6	22
12	4.5	22	1.7	16	6.2	27
13	4.1	16	2.1	17	8.9	24
14	8.5	21	4.1	21	8.5	29
15	4.4	18	1.3	17	7.9	30
16	7.8	21	1.4	18	11.3	29
17	9.2	27	5.7	30	10.4	29
18	8.9	24	8.3	39	5.5	19
19	5.6	19	3	22	6	18
20	6	19	4.4	23	7.5	30
21	6.9	20	6.9	33	7.4	22
22	11.7	32	13.8	49	10.5	33
23	4.2	13	1.7	14	5.2	16
24	5.2	15	M	25	7.1	19
25	7.1	21	17.4	46	10.4	28
26	13	32	21.3	64	12.2	40
27	6.6	26	4.3	20	7.6	22
28	3.2	24	2.5	18	6.1	18
29	4.2	17	5	23	5.7	16
30	5	16	4.1	20	5.9	17

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

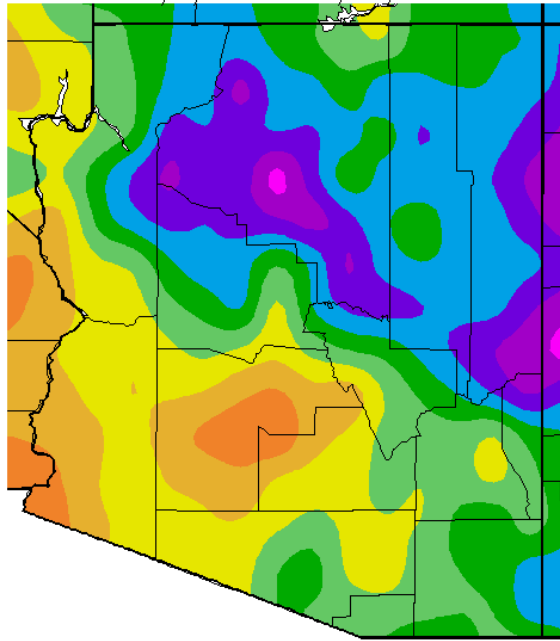
Day	Phx	Tuc	Flg
1	63	61	55
2	64	58	52
3	59	61	50
4	57	50	51
5	52	49	49
6	55	54	50
7	61	62	53
8	66	65	55
9	68	66	53
10	66	61	52
11	62	57	50
12	54	55	45
13	58	58	47
14	59	56	49
15	55	53	47
16	55	55	49
17	56	54	50
18	39	42	40
19	37	44	39
20	43	45	39
21	52	53	45
22	40	51	33
23	30	33	28
24	35	32	29
25	39	24	33
26	36	35	35
27	24	41	20
28	26	31	19
29	33	35	29
30	36	38	28





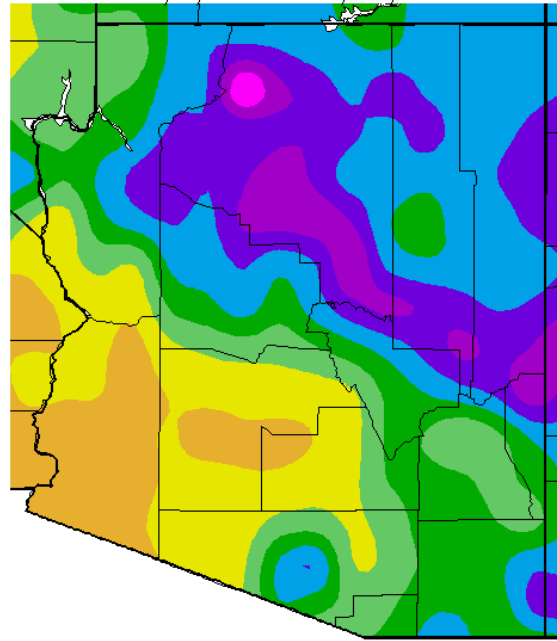
The lowest minimum temperature was 20°F at Springerville, and the highest minimum was 89°F at Phoenix Sky Harbor airport. The lowest maximum temperature of 65°F was recorded at Lindberg Hill, while the highest maximum temperature of 112°F was reported at Parker and East Mesa. The lowest rainfall amount was 0.02” at Yuma and the highest was 6.43” at Mount Logan. The lowest dew point was 19°F at Flagstaff and the highest was 68°F at Phoenix. The highest peak wind gust was 64 mph at both Tweeds Point and Horse camp Canyon.

Av. Min. Temperature (deg. F)
9/1/2013 – 9/30/2013



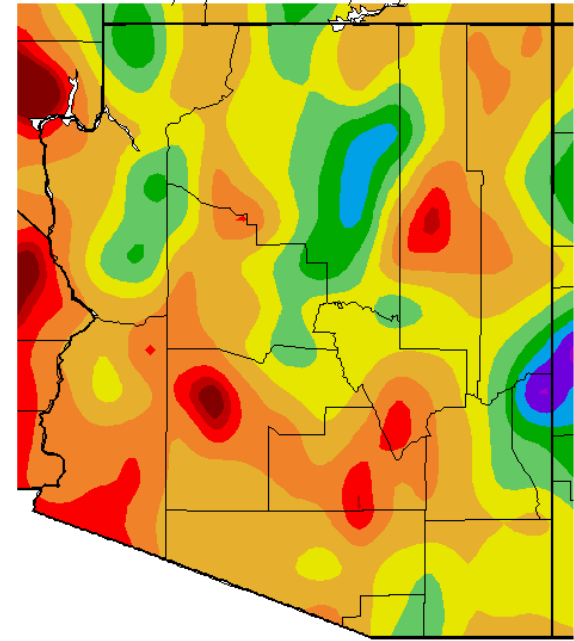
Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

Av. Max. Temperature (deg. F)
9/1/2013 – 9/30/2013



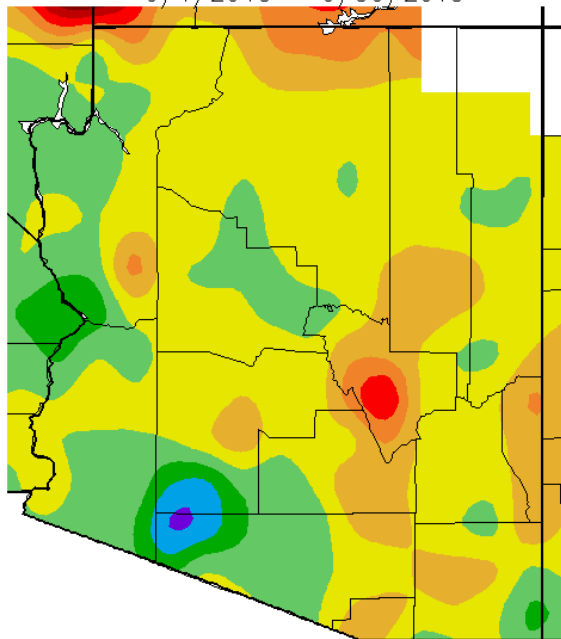
Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

Total Precipitation (in.)
9/1/2013 – 9/30/2013



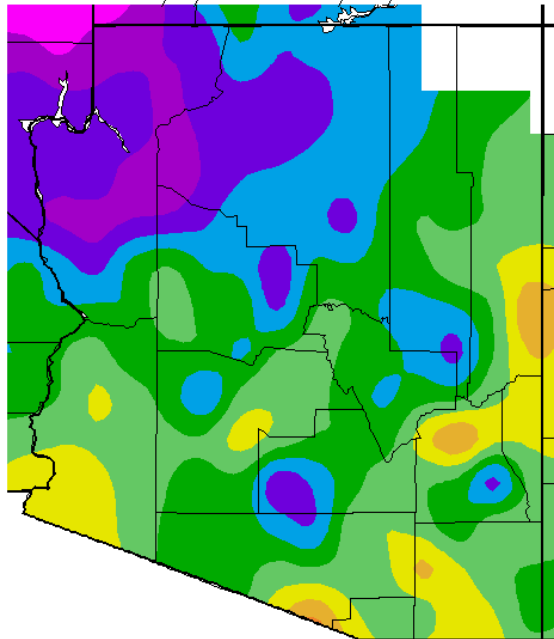
Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

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



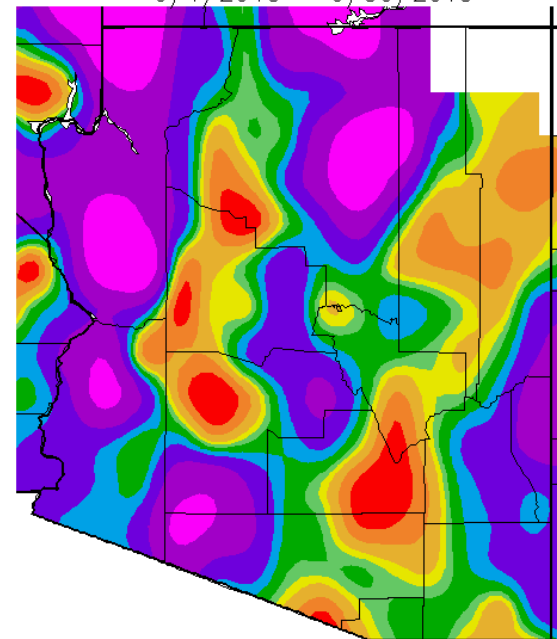
Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

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



Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

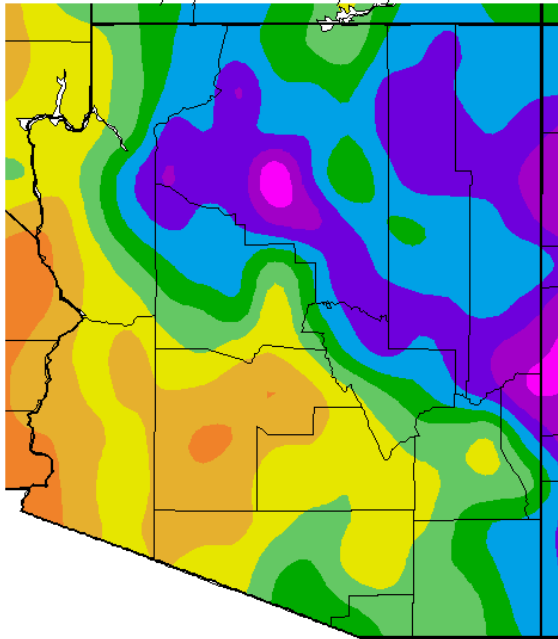
Percent of Average Precipitation (%)
9/1/2013 – 9/30/2013



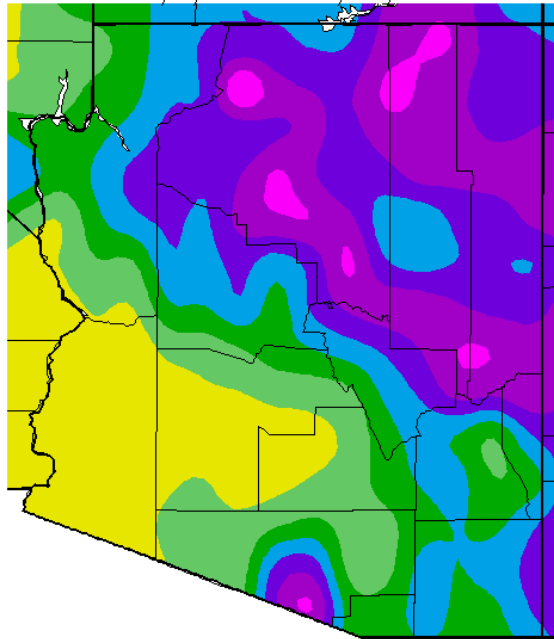
Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

September minimum temperatures were generally within 2°F of normal statewide, with two significant exceptions. Western Pima County was as much as 8 degrees cooler than normal and Gila County was as much as 8 degrees warmer than normal. However, since Gila County was also much warmer than normal last month, it is possible that there has been an instrument move or some other change to the reporting station. Daytime temperatures were generally cooler than normal, but the variation ranges from 2 or 3°F cooler in central Arizona to 5°F cooler in the northwest corner of the state. Northern Graham and Greenlee and southern Apache counties were slightly warmer than normal. September precipitation was extremely variable, just as it was in August with most areas receiving more rainfall than normal but a few areas of western Maricopa, Yavapai and Coconino, and eastern Pinal county much drier than normal.

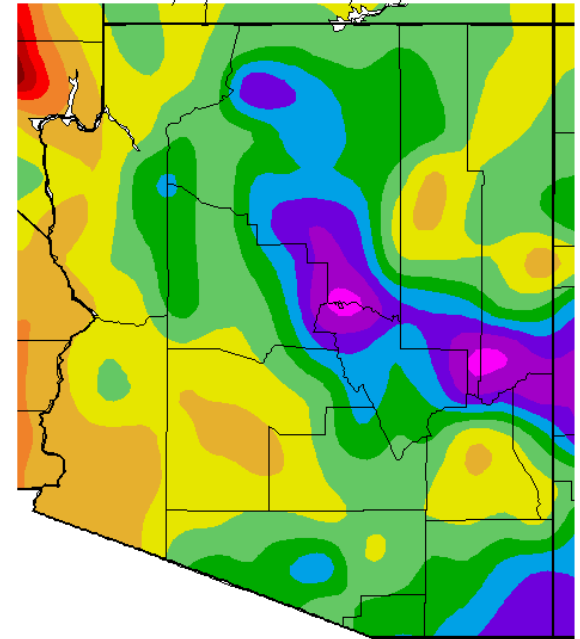
Av. Min. Temperature (deg. F)
1/1/2013 - 9/30/2013



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



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

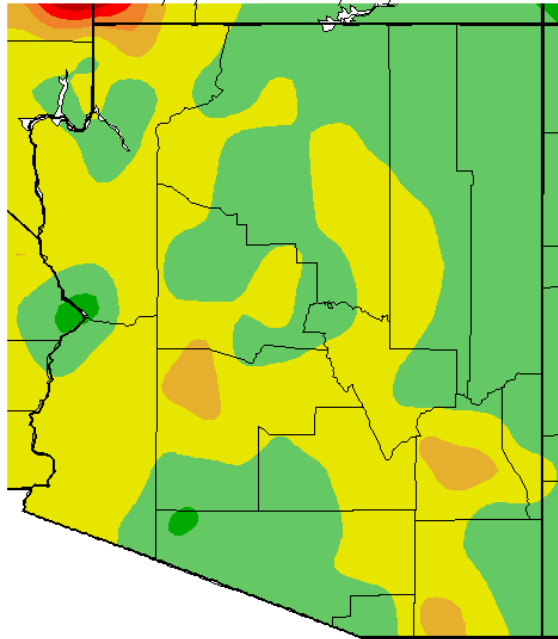


30 35 40 45 50 55 60 65 70 75 80
Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

65 70 75 80 85 90 95 100 105 110 115
Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

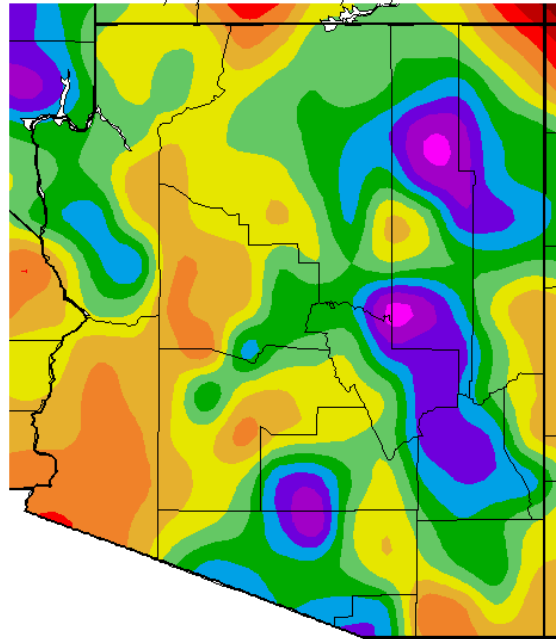
0.1 0.5 1 2 4 7 10 13 16 19 22
Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

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



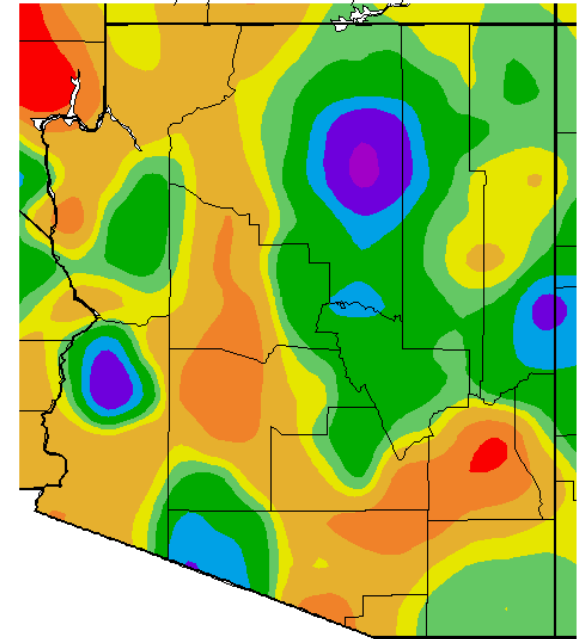
Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

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



Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

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

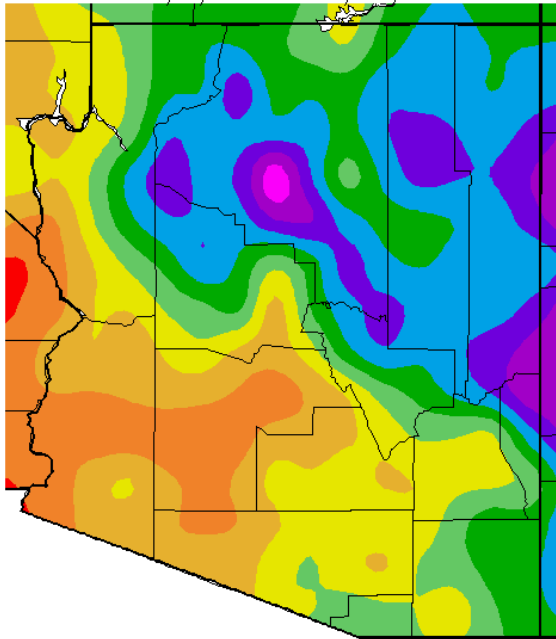


Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

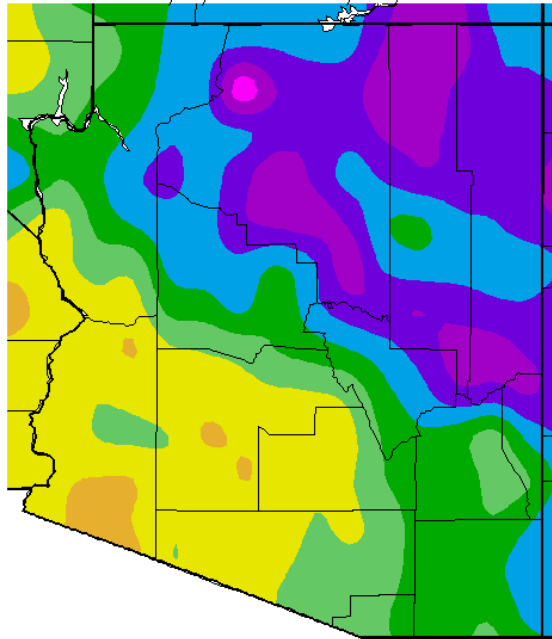
Calendar Year 2013

Nighttime temperatures for the calendar year continue to be within 2°F of normal for this time of year, with cooler temperatures on the Colorado Plateau and in Pima County, and warmer temperatures along the Colorado River Valley and in the southeastern counties. Daytime temperatures have been more variable around the state. Yuma, La Paz, western Yavapai, and southern Cochise counties were 0.5-1.5°F warmer than normal while the eastern Gila, southern and central Navajo, central Apache, central Pima and Pinal counties, were 0.5 to 1.5°F cooler than normal. Precipitation has been less than 70% of normal in western Maricopa, western Yavapai, eastern Pima, and Graham counties. The wet spots for the year are now east central Coconino County, and La Paz County.

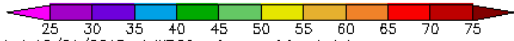
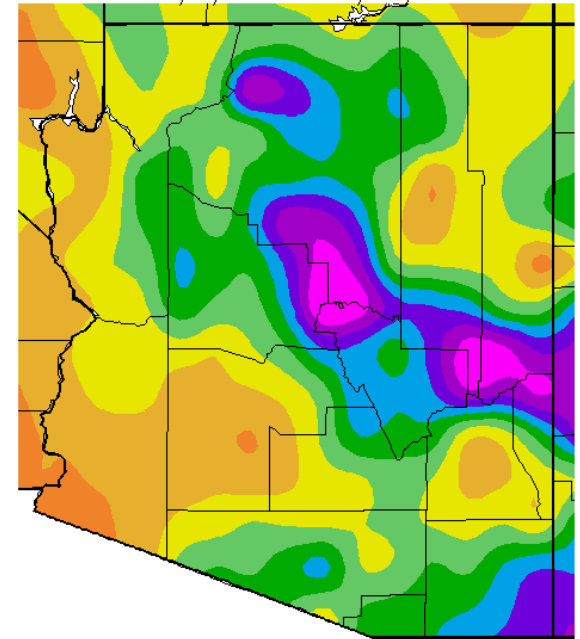
Av. Min. Temperature (deg. F)
10/1/2012 - 9/30/2013



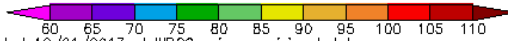
Av. Max. Temperature (deg. F)
10/1/2012 - 9/30/2013



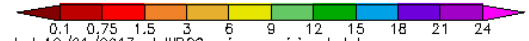
Total Precipitation (in.)
10/1/2012 - 9/30/2013



Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

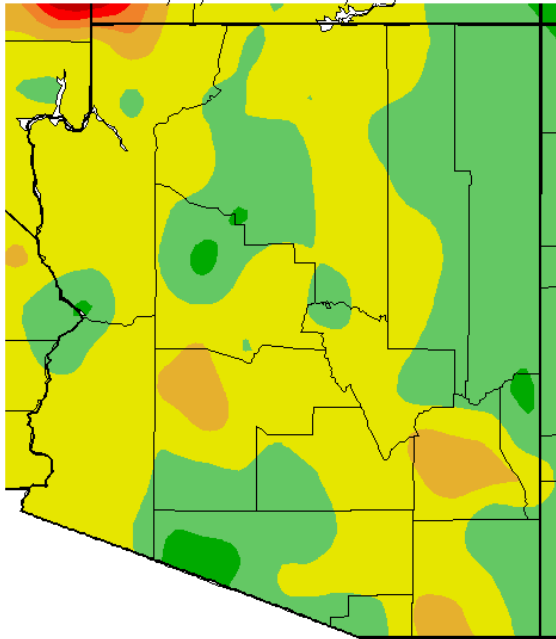


Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers



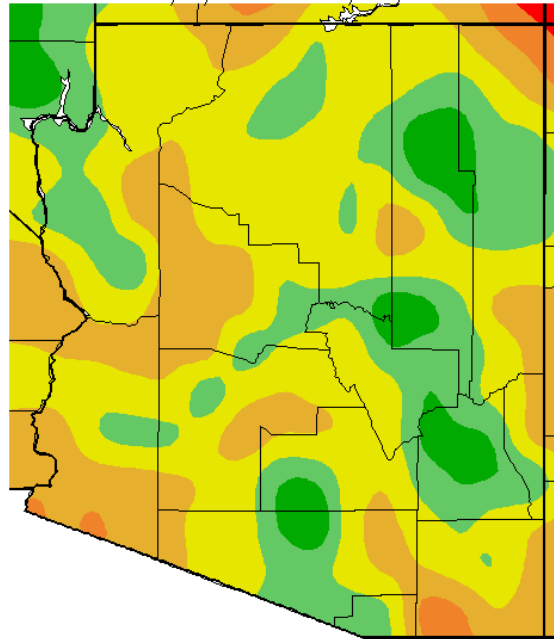
Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

Av. Min. Temperature dep from Ave (deg. F)
10/1/2012 – 9/30/2013



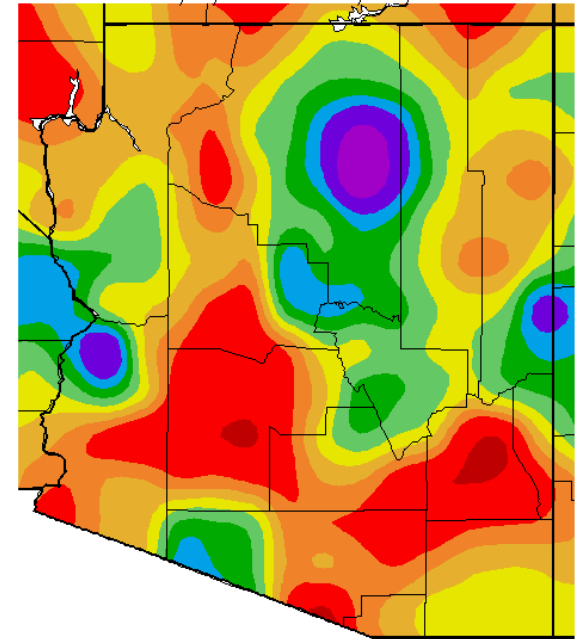
Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

Av. Max. Temperature dep from Ave (deg F)
10/1/2012 – 9/30/2013



Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

Percent of Average Precipitation (%)
10/1/2012 – 9/30/2013

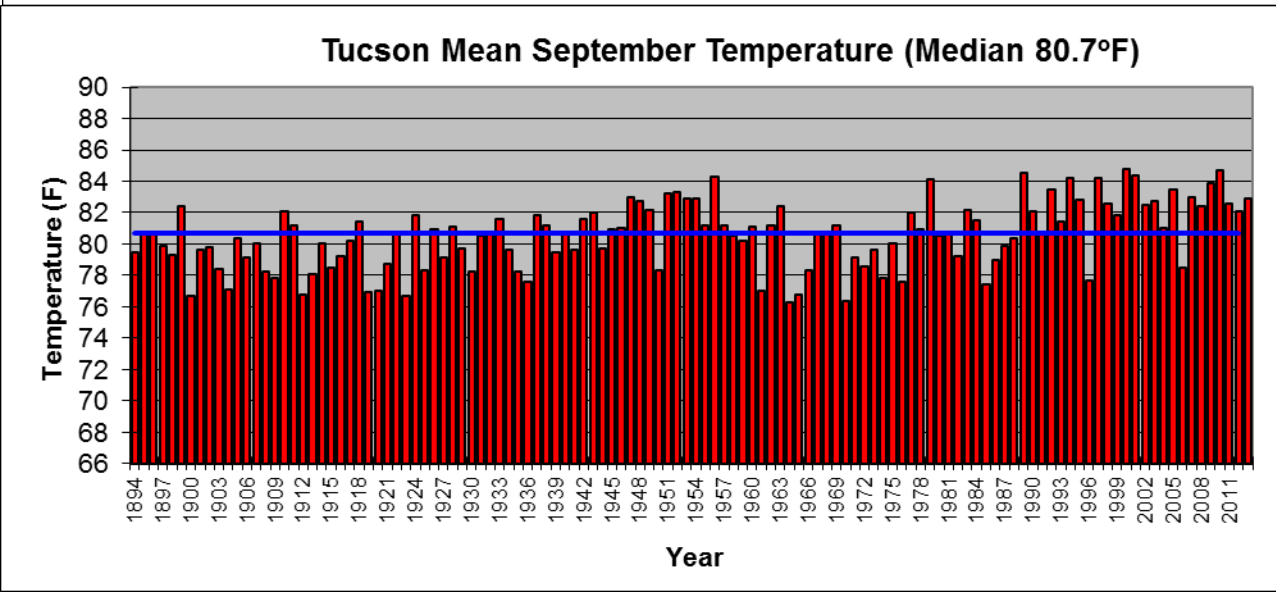
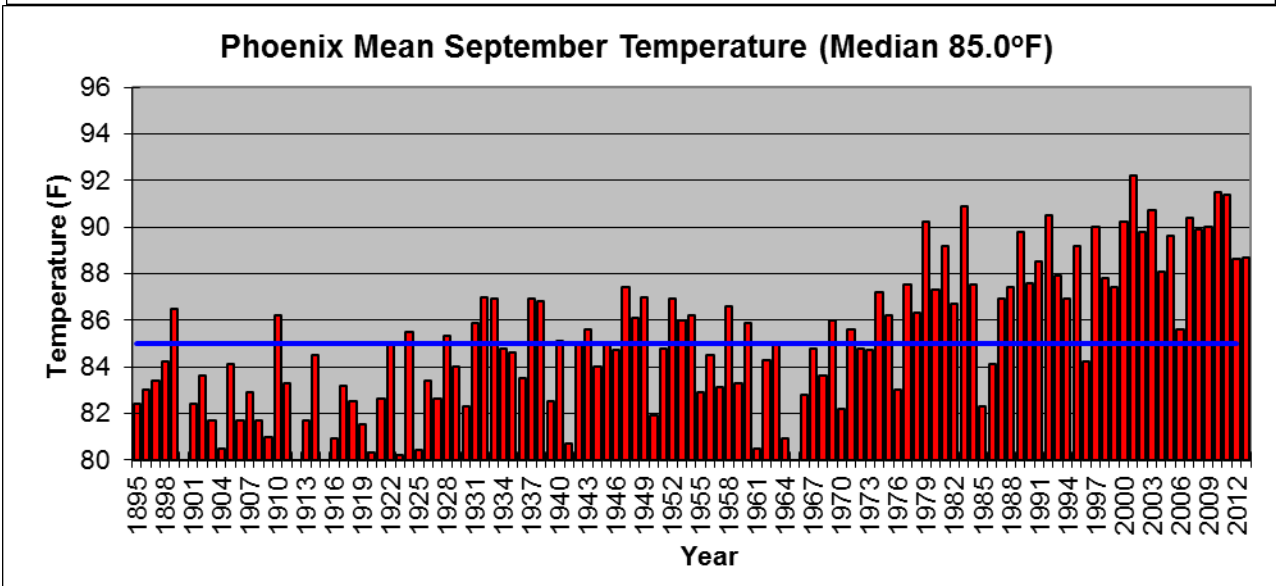
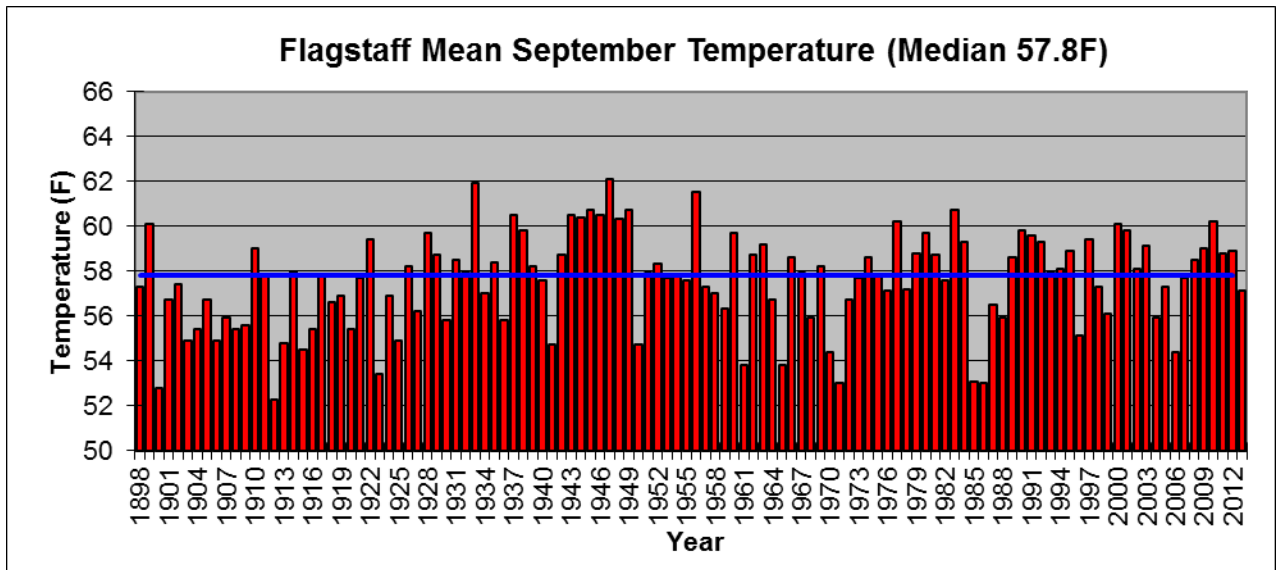


Generated 10/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

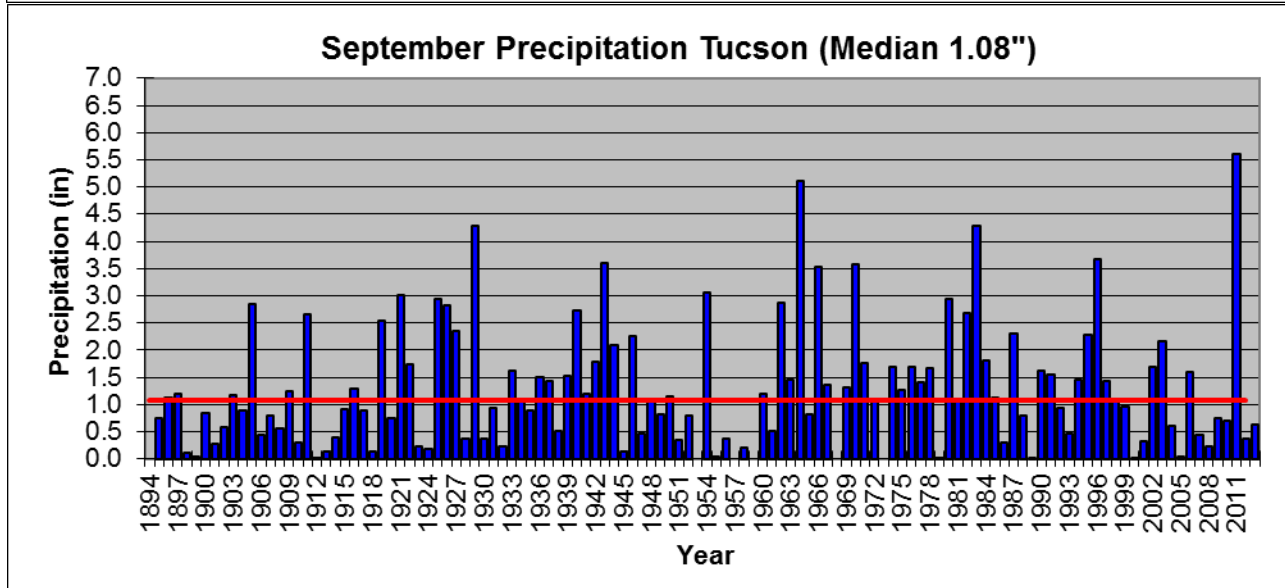
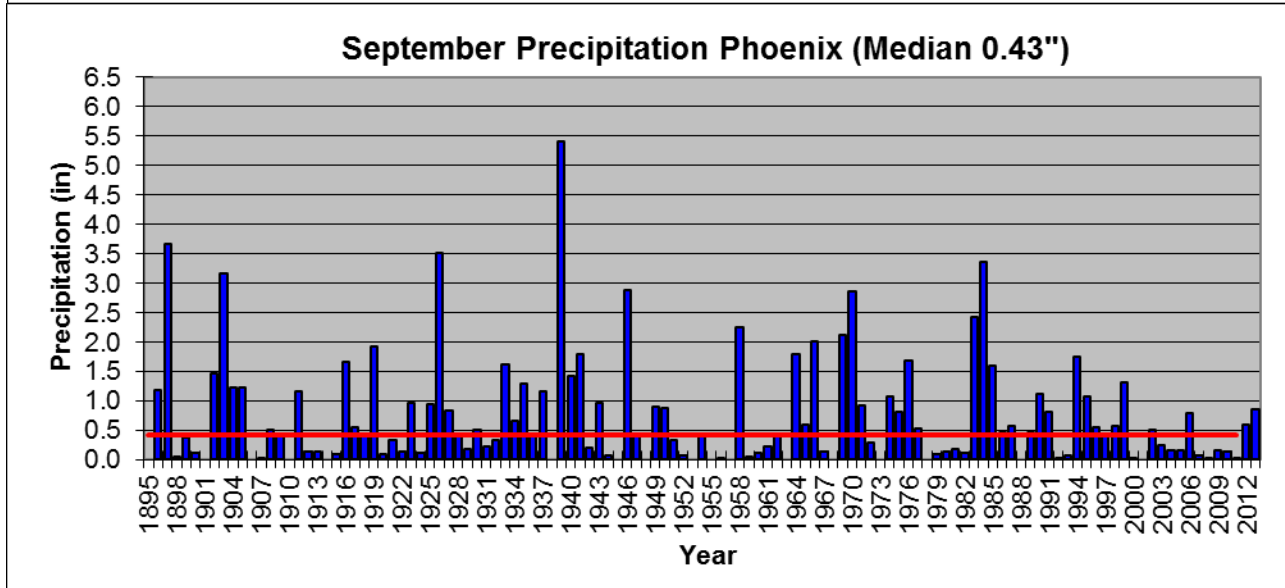
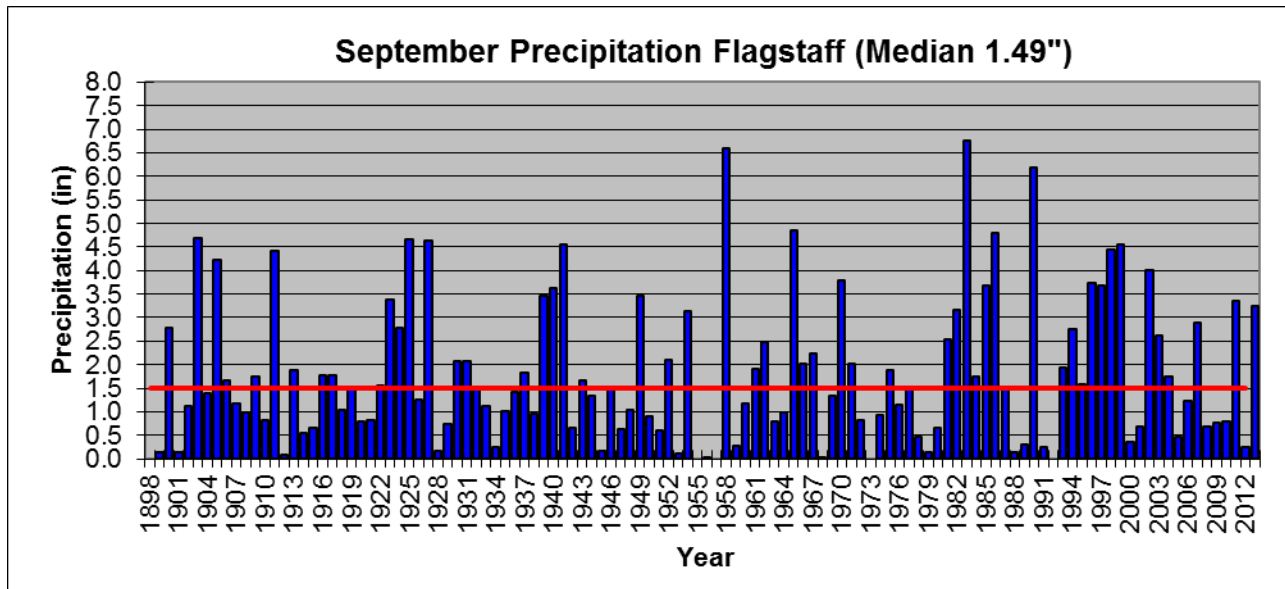
2013 Water Year

Minimum temperatures ended up within 2°F of normal across the state, with the cooler locations in Coconino, Apache, Navajo, and western Pima counties. Maximum temperatures were within 2°F of normal in statewide, with warmer conditions in the west and southeast, and cooler conditions in northeast, south central and east central Arizona. The water year precipitation totals are above average in north central Arizona and La Paz County, but continue to be much drier than average in western Maricopa and Graham counties as well as northern Mohave and Apache counties, western Coconino and eastern Pima County.

September Mean Temperature Graphs – Flagstaff, Phoenix, and Tucson 1895-2013:

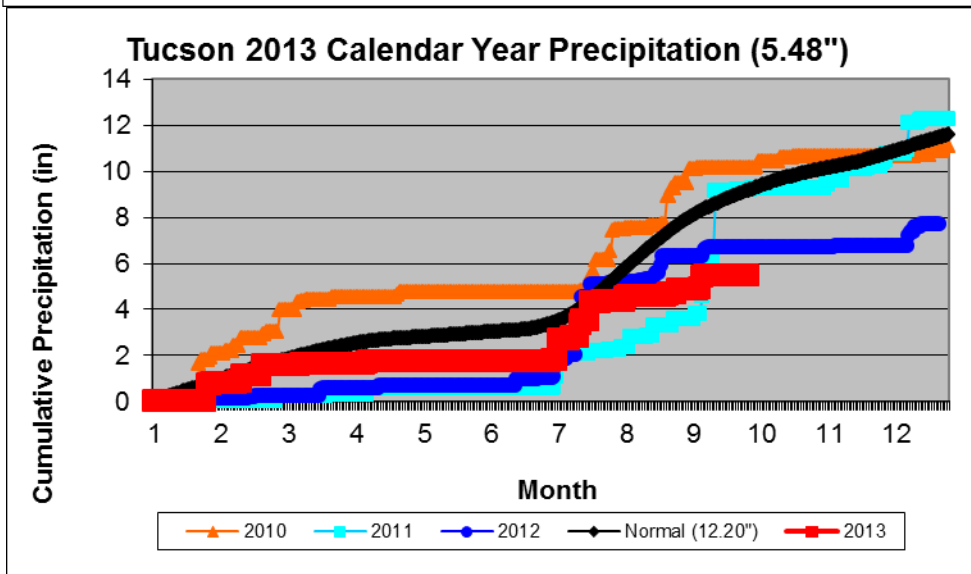
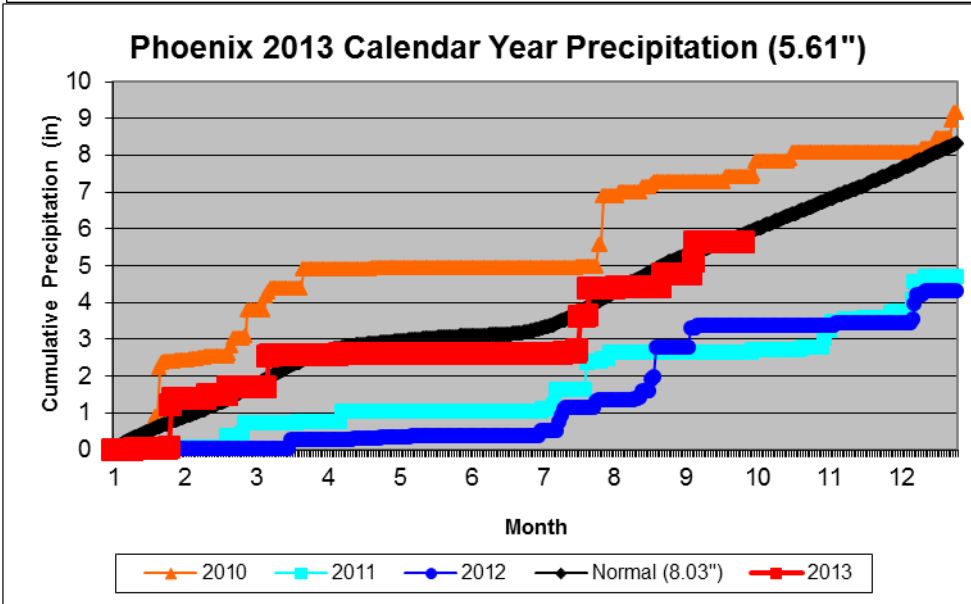
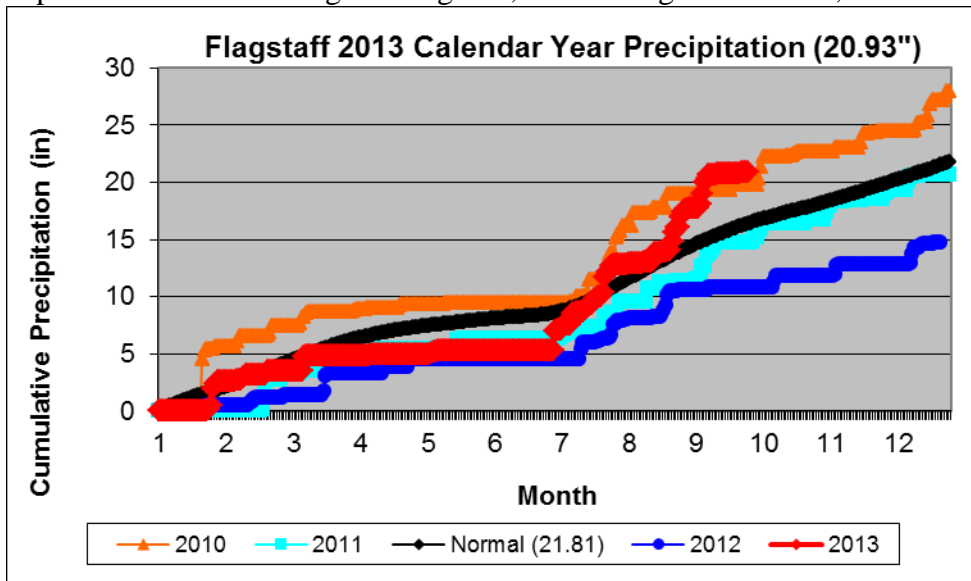


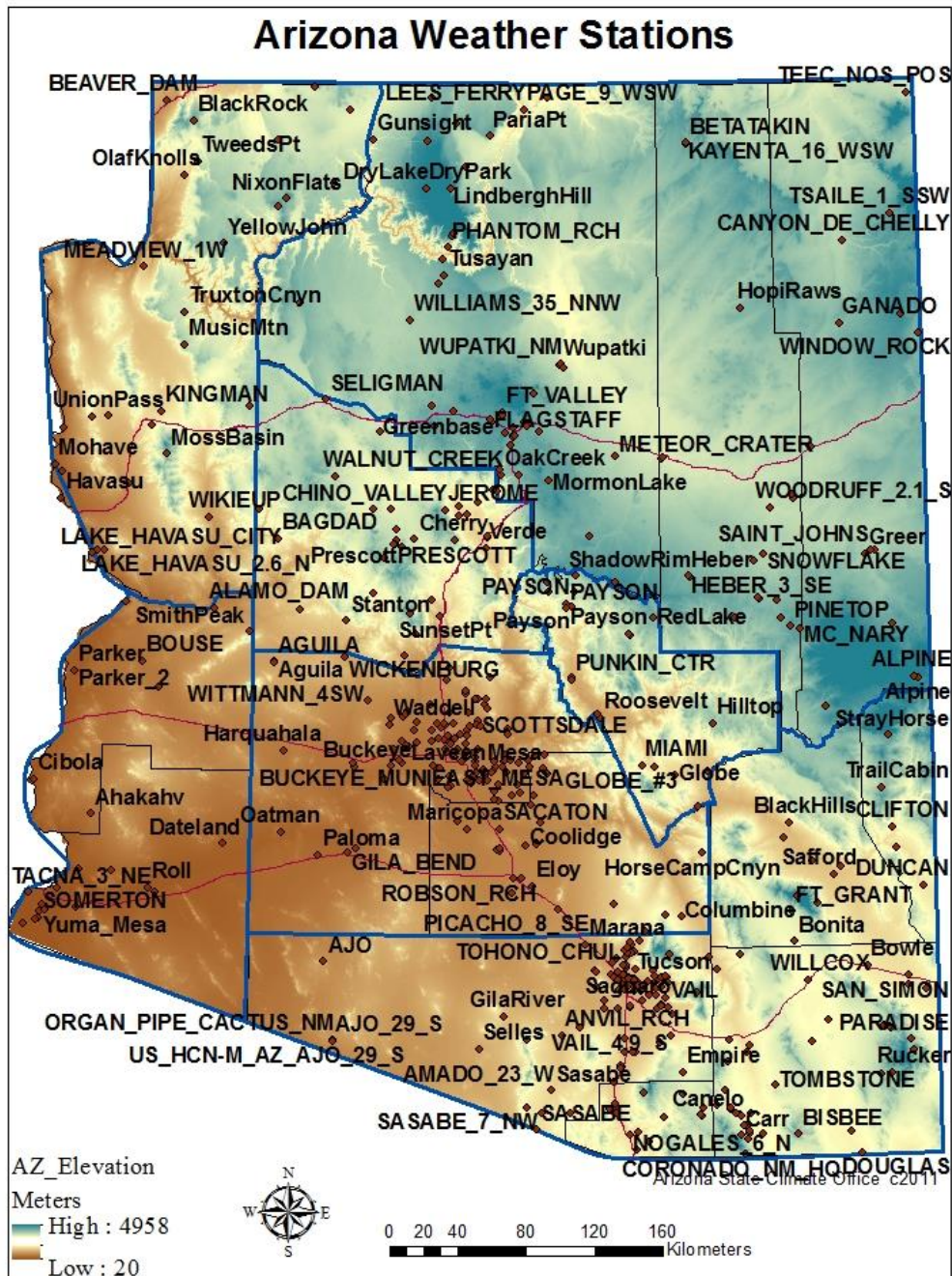
September Mean Precipitation Graphs – Flagstaff, Phoenix, and Tucson 1895-2013:



2013 Cumulative Precipitation Graphs – Flagstaff, Phoenix and Tucson:

After the monsoon, precipitation is above average in Flagstaff, near average in Phoenix, and below average in Tucson.





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)