Arizona Climate Summary

June 2013

Summary of conditions for May 2013

May 2013 Temperature and Precipitation Summary

May 1st – 16th: May began with above normal daily temperatures and breezy conditions statewide. A dry frontal system moved through the state on the 2nd causing wind speeds to increase. Average wind speeds on the 2nd were 13.2mph with a peak gust of 26mph in Yuma, 17.9mph with a peak gust of 31mph in Douglas, and 19.6mph with a peak gust of 33mph in Flagstaff. As the surface front exited the state, daily temperatures from the 4th-5th remained near normal across northern AZ, and above normal in the lower desert areas. On the 6th, a slow moving trough of low pressure entered the state and remained over Arizona through the 11th. Daily average temperatures dropped below normal at many locations including 7°F below normal in Flagstaff on the 8th-9th, 6°F below normal in Yuma on the 7th-9th, and 5°F below normal in Phoenix on the 8th. The trough of low pressure also brought a slight influx of moisture to northern and eastern portions of the state. The highest precipitation amounts occurred on the 6th-8th including 0.75" in Alpine on the 6th, 0.22" in Bellemont on the 8th, 0.09" at Grand Canyon AP on the 8th, and 0.07" at Lee's Ferry on the 7th. A ridge of high pressure returned to the southwestern U.S. by the 11th, and remained through the 16th causing daily temperatures to increase above normal.

May 17th – 31st: Once the ridge of high pressure progressed eastward, an upper level trough moved over the state. A dry surface stationary front set up over northern Arizona on the 18th and remained through the 21st. The frontal system helped suppress daily temperatures especially in northern parts of the state. Average temperatures were 5°F below normal in Flagstaff and Winslow on the 20th, and 2°F below normal in Safford on the 21st. Daily temperatures were near normal in lower desert areas as well. Another dry surface front brushed across northern AZ on the 22nd-23rd allowing for breezy conditions. Average wind speeds were 15.1mph with a peak gust 35mph in Winslow on the 22nd, and 16.4mph with a peak gust of 38mph in Flagstaff on the 23rd. A trace of precipitation was recorded at Winslow AP on the 24th. After the frontal system moved out of the state, a trough of low pressure deepened over the southwest. Temperatures were once again at or below normal from the 26th-29th. Daily temperatures were 3°F below normal in Yuma on the 26th, 2°F below normal in Phoenix on the 27th-28th, and 3°F below normal in Douglas on the 28th. High pressure returned to the state from the 30th-31st and daily temperatures increased above normal statewide.

In This Issue: Overview of May, graphs of the May daily maximum and minimum temperatures, precipitation, mean daily dew points for Flagstaff, Phoenix, and Tucson; May climate statistics, maps of mean monthly maximum and minimum temperatures, precipitation, dew points, wind speeds for May; and graphs of the mean May 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.

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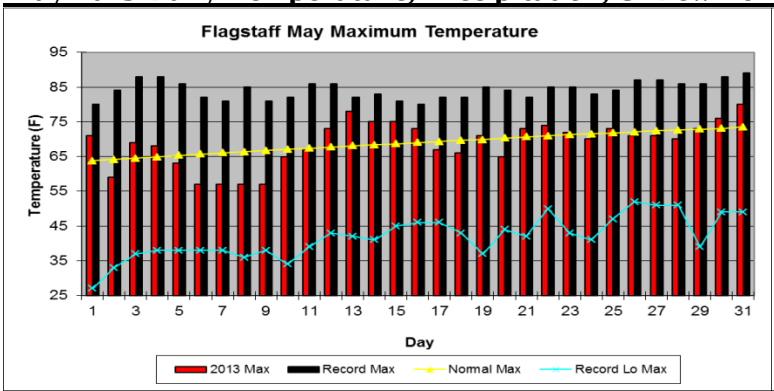
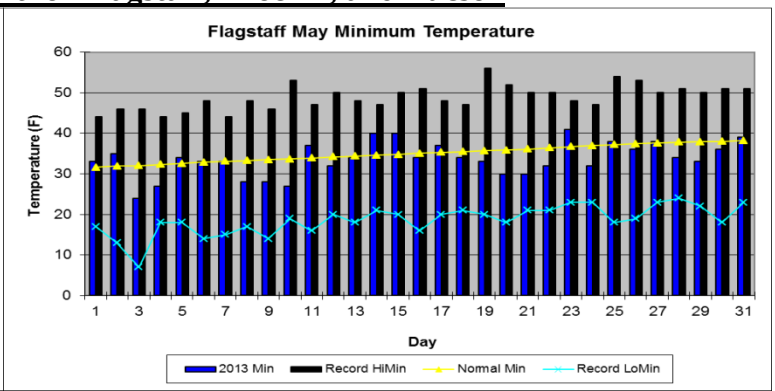
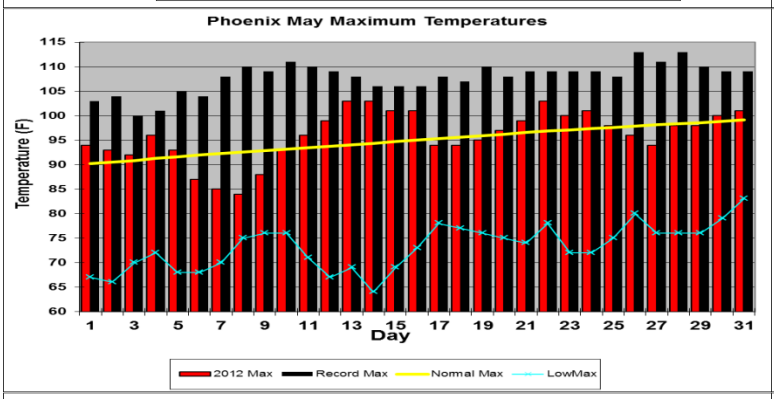
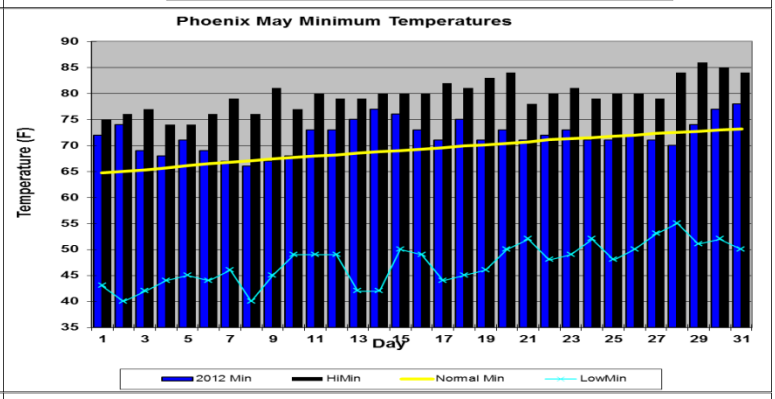
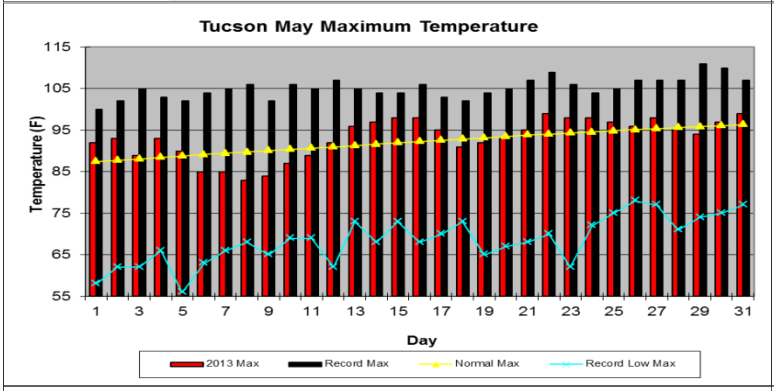
May 2013 Daily Temperature, Precipitation, & Dew Point for Flagstaff, Phoenix, and Tucson

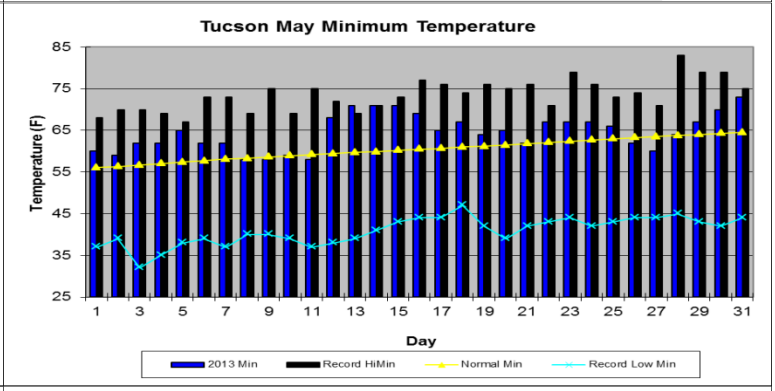


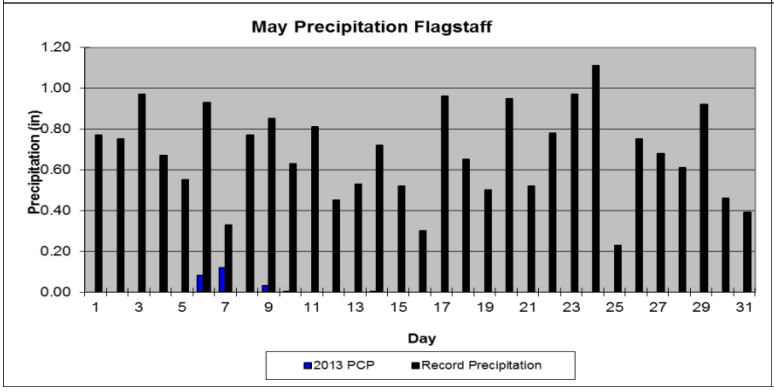


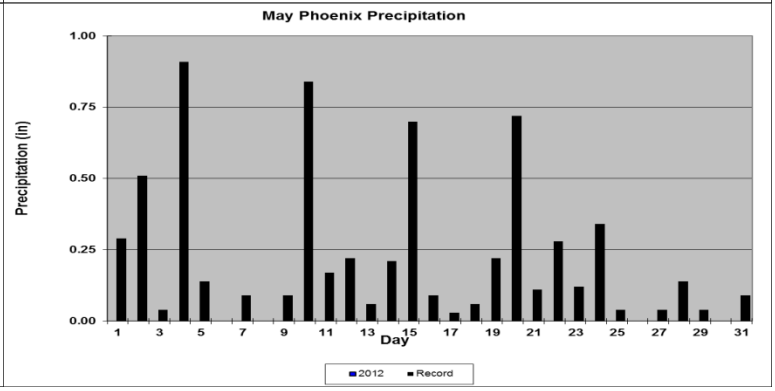


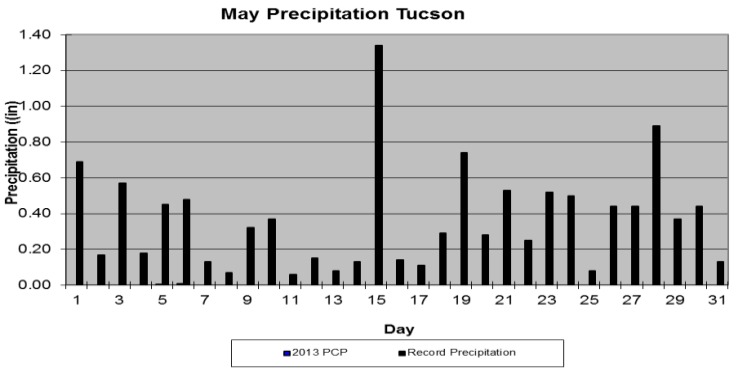


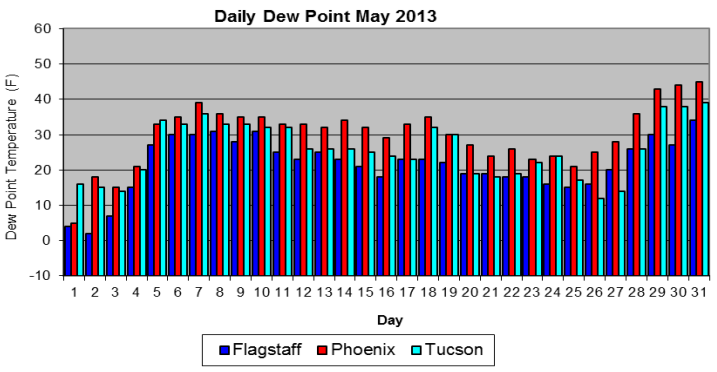


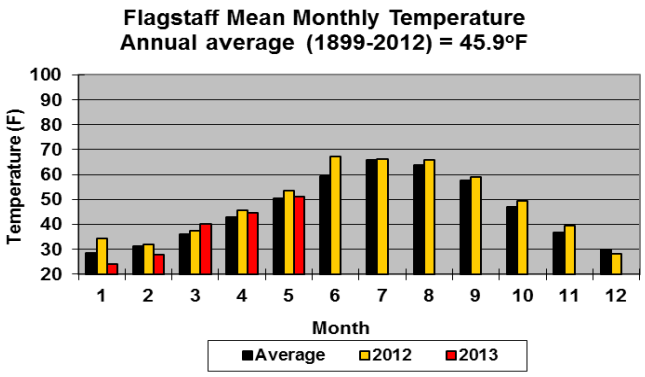


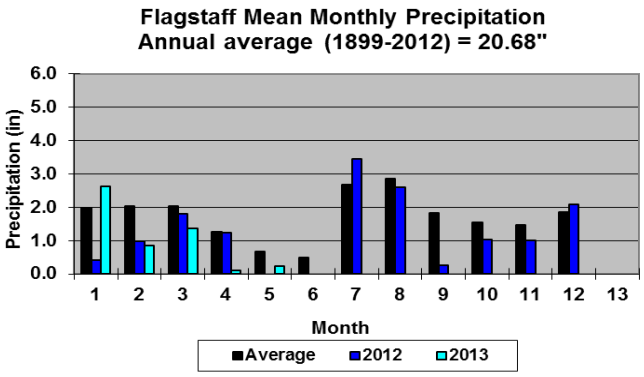


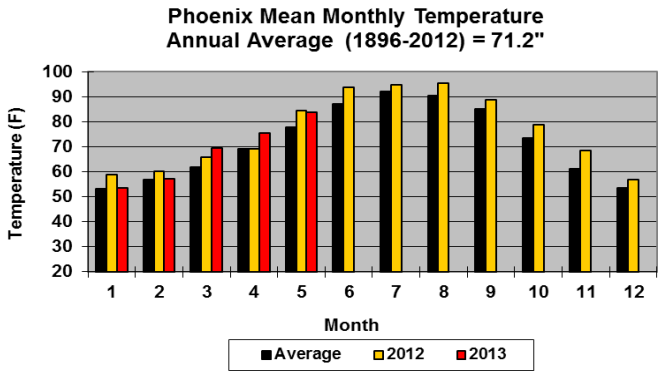


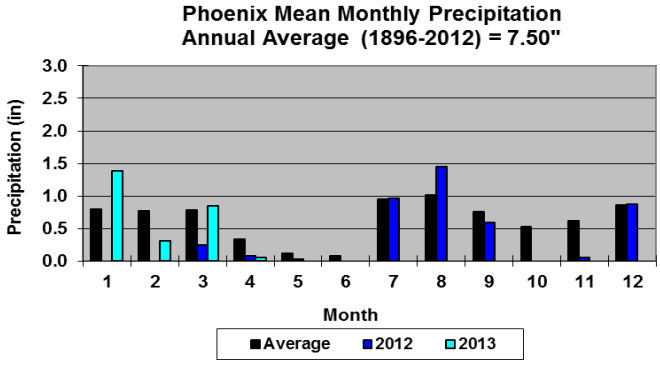

May Precipitation Tucson
Precipitation (in)
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31
Day
2013 PCP
Record Precipitation

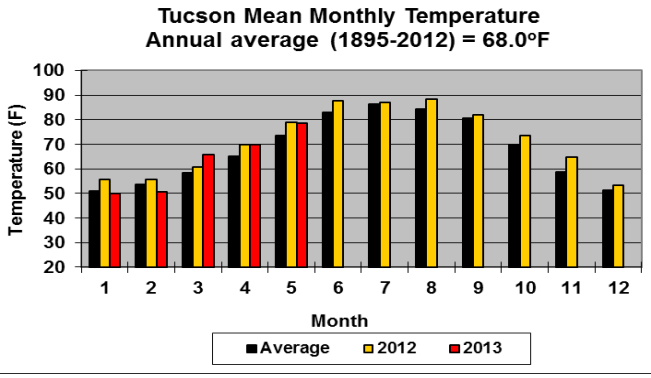

Daily Dew Point May 2013
Dew Point Temperature (F)
60
50
40
30
20
10
0
-10
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Day
Flagstaff
Phoenix
Tucson

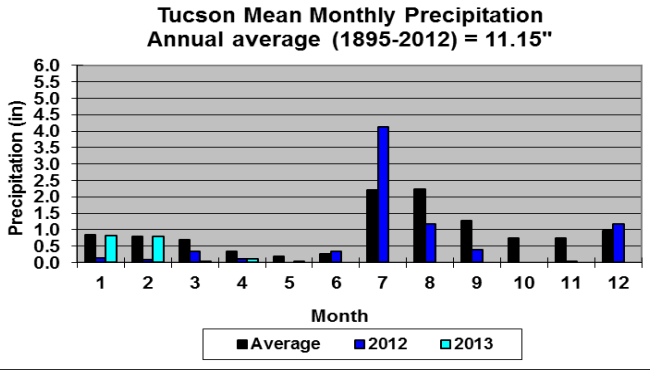

Flagstaff Mean Monthly Temperature
Annual average (1899-2012) = 45.9°F
Temperature (F)
100
90
80
70
60
50
40
30
20
1 2 3 4 5 6 7 8 9 10 11 12
Month
Average
2012
2013


Flagstaff Mean Monthly Precipitation
Annual average (1899-2012) = 20.68"
Precipitation (in)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13
Month
Average
2012
2013


Phoenix Mean Monthly Temperature
Annual Average (1896-2012) = 71.2"
Temperature (F)
100
90
80
70
60
50
40
30
20
1 2 3 4 5 6 7 8 9 10 11 12
Month
Average
2012
2013


Phoenix Mean Monthly Precipitation
Annual Average (1896-2012) = 7.50"
Precipitation (in)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1 2 3 4 5 6 7 8 9 10 11 12
Month
Average
2012
2013


Tucson Mean Monthly Temperature
Annual average (1895-2012) = 68.0°F
Temperature (F)
100
90
80
70
60
50
40
30
20
1 2 3 4 5 6 7 8 9 10 11 12
Month
Average
2012
2013


Tucson Mean Monthly Precipitation
Annual average (1895-2012) = 11.15"
Precipitation (in)
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1 2 3 4 5 6 7 8 9 10 11 12
Month
Average
2012
2013

FLAGSTAFF CLIMATE STATISTICS
May 2013

This May had no significant ranking for temperature or precipitation.

Avg Max Temp (F)	68.9	Normal	68.1
Avg Min Temp (F)	33.6	Normal	35.0
Avg Mean Temp (F)	51.3	Normal	51.6
Departure from Normal (F)	-0.3		

Highest Monthly Avg Temp (F)	56.8 in 1984
Lowest Monthly Avg Temp (F)	44.6 in 1917

Highest Temp this month (F): 80 on 31st
Lowest Temp this month (F): 24 on 3rd

Record High (F): 89 on 05/31/2002

Record Low (F): 7 on 05/03/1915

No temperature or precipitation records this month:

Flagstaff Number of Days of:

Minimum Temp 40°F or higher	3
Minimum Temp 30°F or lower	7
Maximum Temp 75°F or higher	5
Maximum Temp 60°F or lower	5

Heating Degree Days	418	Normal	417
Cooling Degree Days	0	Normal	0

Degree base 65°F

Total May Precipitation	0.23”
Normal May Precipitation	0.63”
Departure from normal	-0.40”
Greatest 24-Hr Precipitation	0.12” on 5/6-5/7
Total Precipitation Year-to-Date	5.23”
Departure from Normal	-2.89”

Number of Days:

Clear	27
Partly Cloudy	4
Cloudy	0

Greatest May Precipitation	4.14” in 1992
Least May Precipitation	0.00” in 2012 and 11 other years

Average Wind Speed	8.7 mph
Highest Peak Gust	48 mph from 210° on 23rd

PHOENIX CLIMATE STATISTICS
May 2013

This May was the 10th warmest on record and had no significant ranking for precipitation.

Avg Max Temp(F)	96.0	Normal	94.8
Avg Min Temp(F)	71.9	Normal	69.4
Avg Mean Temp (F)	83.9	Normal	82.1
Departure from Normal (F)	+1.8		

Highest Monthly Avg Temp (F)	87.0 in 1987
Lowest Monthly Avg Temp (F)	69.0 in 1967

Highest Temp this month (F): 103.0 on 13th, 14th, and 22nd
Lowest Temp this month (F): 66.0 on 8th

Record High (F): 114 on 05/30/1910

Record Low (F): 39 on 05/03/1899

No temperature or precipitation records this month.

Phoenix Number of Days of:

Minimum Temp 70°F or lower	7
Minimum Temp 75°F or higher	6
Maximum Temp 80°F or lower	4
Maximum Temp 100°F or higher	9

Heating Degree Days	0	Normal	1
Cooling Degree Days	594	Normal	531

Degree base 65°F

Total May Precipitation	0.00”
Normal May Precipitation	0.11”
Departure from normal	-0.11”
Greatest 24-Hr Precipitation	0.00”
Total Precipitation Year-to-Date	2.61”
Departure from Normal	-0.60”

Number of Days:

Clear	17
Partly Cloudy	14
Cloudy	0

Greatest May Precipitation 1.31" in 1930

Least May Precipitation 0.00" in 2013 and 58 other years

Average Wind Speed 7.5 mph
Highest Peak Gust 49 mph from 30° on 10th

TUCSON CLIMATE STATISTICS
May 2013

This May was the 10th warmest on record and had no significant ranking for precipitation.

Avg Max Temp(F)	93.0	Normal	91.6
Avg Min Temp(F)	64.5	Normal	60.5
Avg Mean Temp(F)	78.9	Normal	76.0
Departure from Normal (F)	+2.9		

Highest Monthly Avg Temp (F) 80.2 in 2000
Lowest Monthly Avg Temp (F) 64.6 in 1905

Highest Temp this month (F): 99 on 31st, 22nd
Lowest Temp this month (F): 58 on 11th, 9th,8th

Record High (F): 111 on 05/29/1910

Record Low (F): 32 on 05/03/1899

Temperature or precipitation records this month:
13th HiMin 71 set, previous record 69 in 1996
14th HiMin 71 tied, first set in 1996

Tucson Number of Days of:

Minimum Temp 60°F or lower	6
Minimum Temp 70°F or higher	5
Maximum Temp 90°F or lower	8
Maximum Temp 95°F or higher	15

Heating Degree Days	0	Normal	5
Cooling Degree Days	438	Normal	348

Degree base 65°F

Total May Precipitation 0.01"
Normal May Precipitation 0.23"
Departure from normal -0.22"
Greatest 24-Hr Precipitation 0.01" on 5/6-5/6; 5/9-5/9; 5/31-5/31
Total Precipitation Year-to-Date 1.74"
Departure from Normal -1.33"

Greatest May Precipitation 1.34" in 1905
Least May Precipitation 0.00" in 2012 and 47 other years

Number of Days:

Clear	31
Partly Cloudy	0
Cloudy	0

Average Wind Speed 8.6 mph
Highest Peak Gust 44 mph from 120° on 3rd

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

Winds for May:

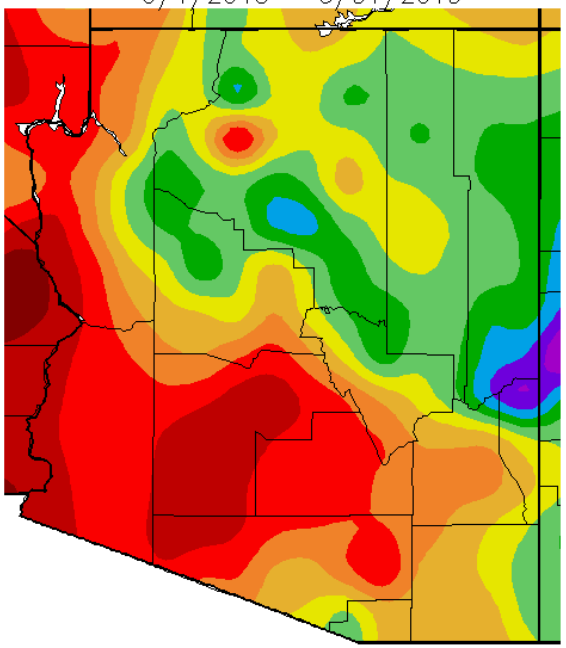
Day	Phoenix		Flagstaff		Tucson	
(mph)	Avg	Max	Avg	Max	Avg	Max
1	7.8	21	7.5	35	5.8	23
2	10.2	29	19.6	43	8.5	33
3	8.4	24	7	25	15.6	44
4	6	23	7.5	36	10.4	32
5	9.8	31	8.4	30	12.3	37
6	7.6	23	9.4	35	9.6	25
7	10.3	30	11.8	37	9.3	29
8	4.6	20	4.1	23	5.8	22
9	6.1	23	3.4	21	5.7	18
10	6.7	49	4.4	24	7.8	32
11	7.8	25	7.7	26	9.1	29
12	4.9	18	4.5	26	10.8	30
13	6.1	15	2.8	26	11.3	29
14	8.6	26	7.1	441	7.1	22
15	9	30	11.3	46	10.7	27
16	8.9	26	12	39	9.2	26
17	7.3	23	11.1	45	9.2	28
18	6.9	26	8.3	33	8	30
19	8	28	8.5	41	6.7	24
20	10.3	36	4.7	29	9.8	31
21	5.6	18	6.9	29	6.6	20
22	9.6	29	13.8	45	9.2	25
23	8.7	25	16.4	48	9.7	27
24	9	29	8	32	7.8	23
25	5.5	24	11.2	38	8.8	26
26	5.3	18	11.3	32	8.2	27
27	5.5	17	8.1	32	6.1	23
28	8.9	31	9.9	36	7.6	32
29	8.2	29	9.9	43	7	26
30	8.1	26	10.1	36	6.9	27
31	4.6	19	3.8	25	6.9	22

Dew Points for May:

Daily Average Dew Point (^{o}F):

Day	Phx	Tuc	Flg
1	5	16	4
2	18	15	2
3	15	14	7
4	21	20	15
5	33	34	27
6	35	33	30
7	39	36	30
8	36	33	31
9	35	33	28
10	35	32	31
11	33	32	25
12	33	26	23
13	32	26	25
14	34	26	23
15	32	25	21
16	29	24	18
17	33	23	23
18	35	32	23
19	30	30	22
20	27	19	19
21	24	18	19
22	26	19	18
23	23	22	18
24	24	24	16
25	21	17	15
26	25	12	16
27	28	14	20
28	36	26	26
29	43	38	30
30	44	38	27
31	45	39	34

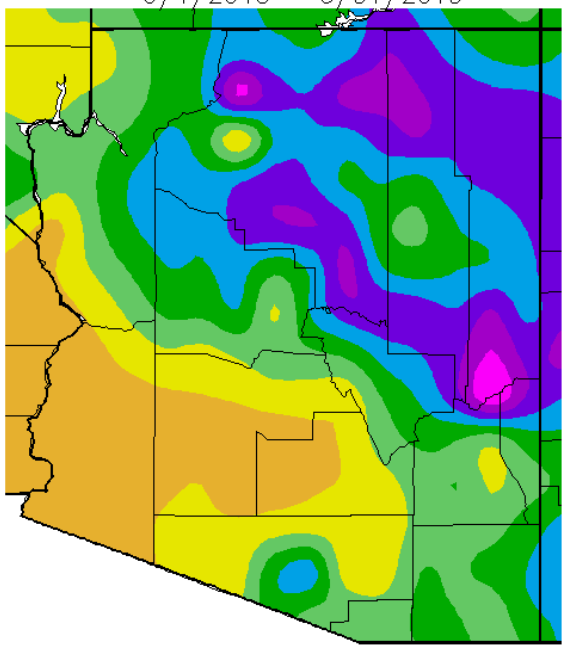
Av. Min. Temperature (deg. F)
5/1/2013 – 5/31/2013



20 25 30 35 40 45 50 55 60 65 70

Generated 6/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

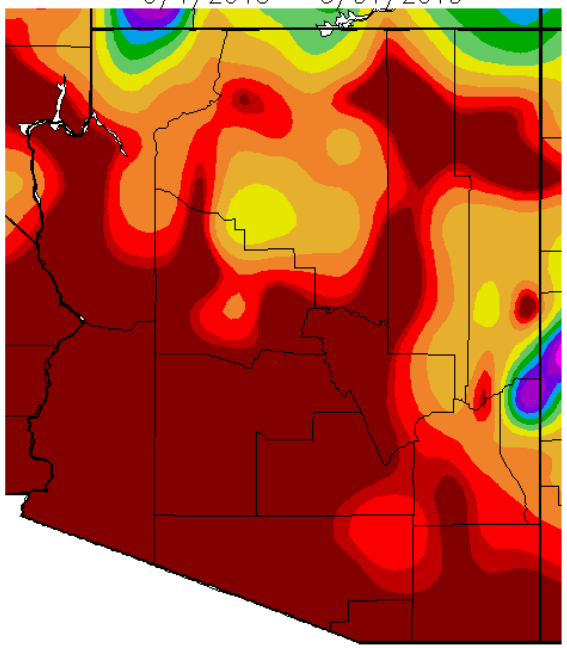
Av. Max. Temperature (deg. F)
5/1/2013 – 5/31/2013



65 70 75 80 85 90 95 100 105 110 115

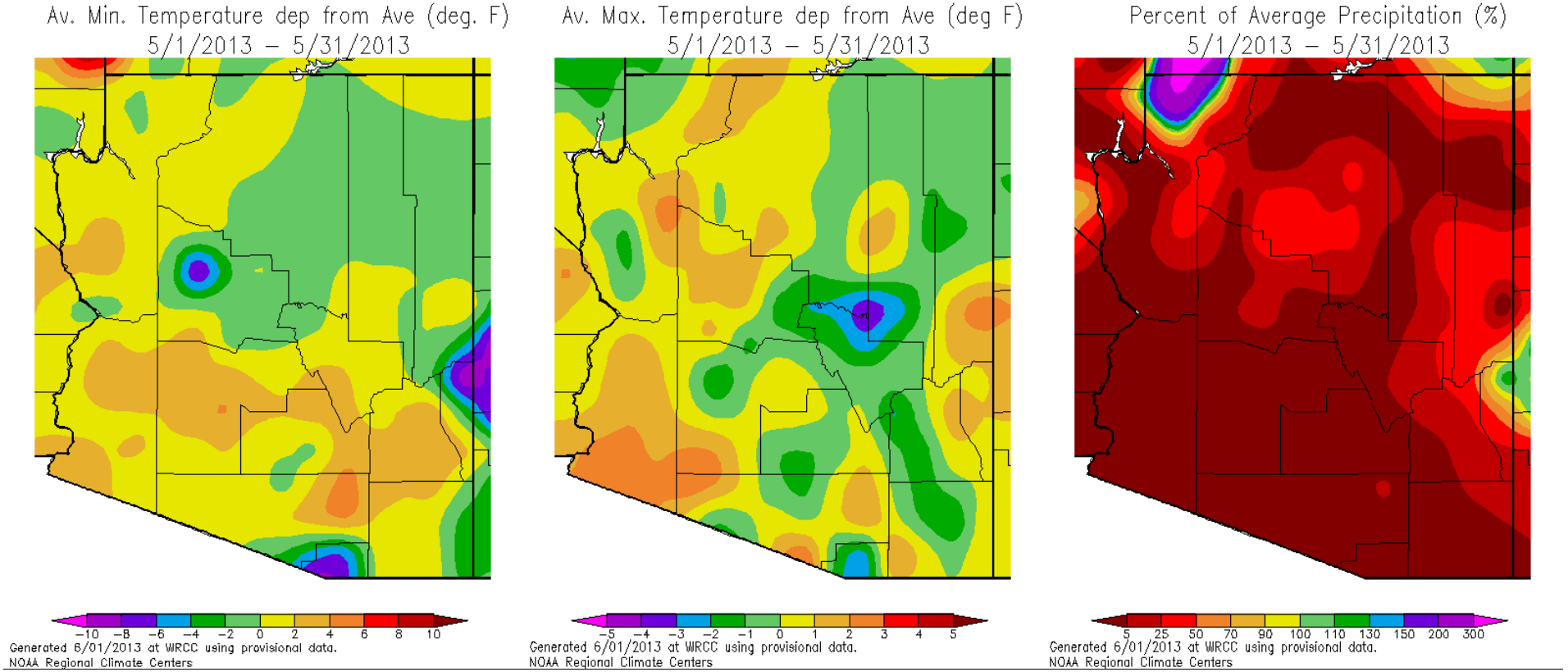
Generated 6/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

Total Precipitation (in.)
5/1/2013 – 5/31/2013



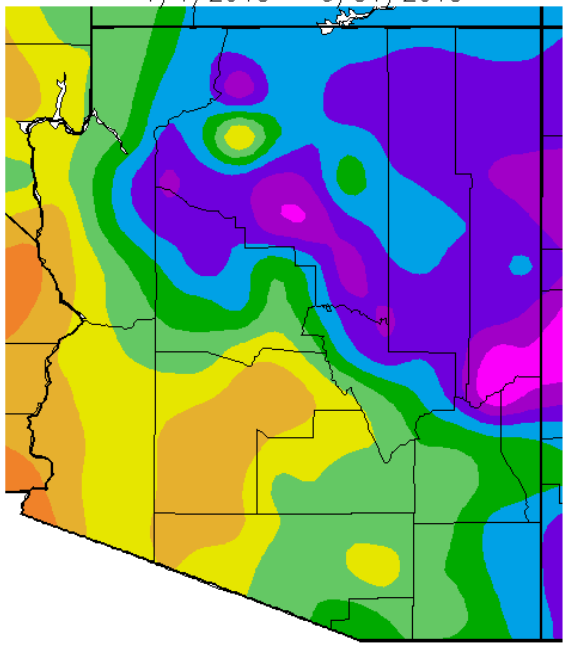
0.01 0.02 0.05 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

Generated 6/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers



May minimum temperatures were 2°F cooler than normal on the Colorado Plateau. The 8°F cooler bull's-eye in western Yavapai County is a bad data point at Bagdad, where a station move causes the minimum temperatures departures from normal to be colder than they actually are. The White Mountains in the far west actually had much colder than normal conditions. The southern half of the state was 0-4°F warmer than normal with 8°F warmer conditions in northwestern Pima County. Daytime temperatures were 0 to 4°F cooler than normal in much of the eastern half of the state, though the White Mountains were 0 to 3°F warmer than normal. The eastern half also ranged from 0 to 3°F warmer than normal. Precipitation was less than 5% across most of the state, the southwest half and up on the Colorado Plateau as well. Northern Mohave County got some rain in a storm event that swung through southern Utah, and the White Mountains also has some rainfall.

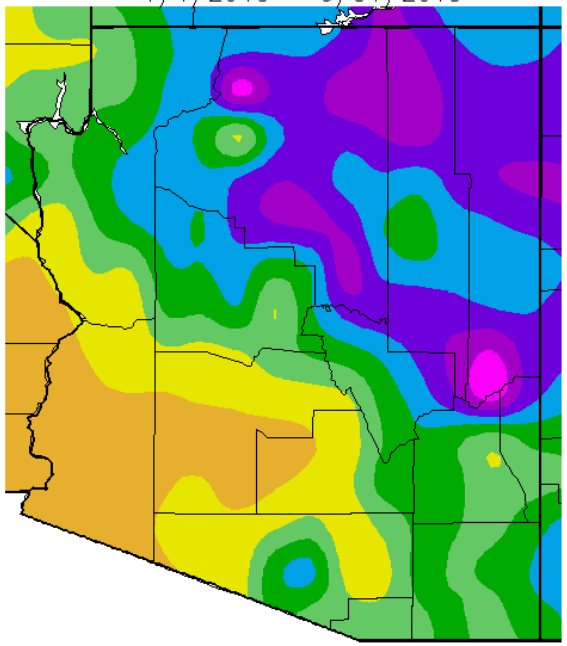
Av. Min. Temperature (deg. F)
1/1/2013 – 5/31/2013



20 25 30 35 40 45 50 55 60 65 70

Generated 6/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

Av. Max. Temperature (deg. F)
1/1/2013 – 5/31/2013



50 55 60 65 70 75 80 85 90 95 100

Generated 6/01/2013 at WRCC using provisional data.
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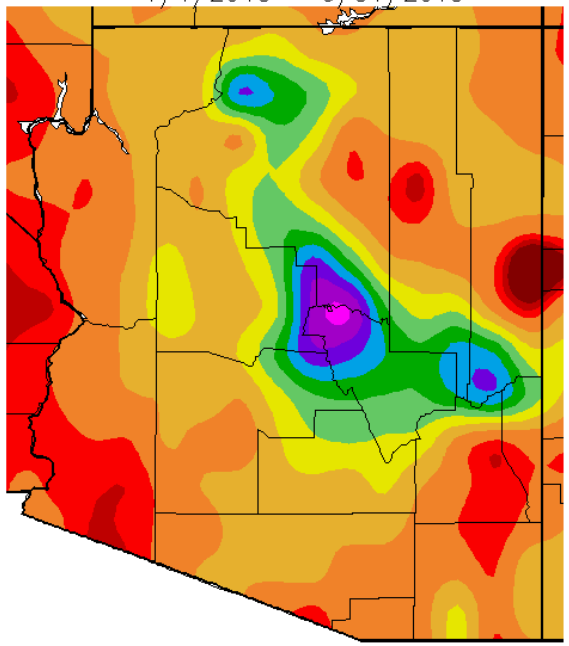
Total Precipitation (in.)
1/1/2013 – 5/31/2013



0.1 0.5 1 2 3 4 5 6 7 8 9

Generated 6/01/2013 at WRCC using provisional data.
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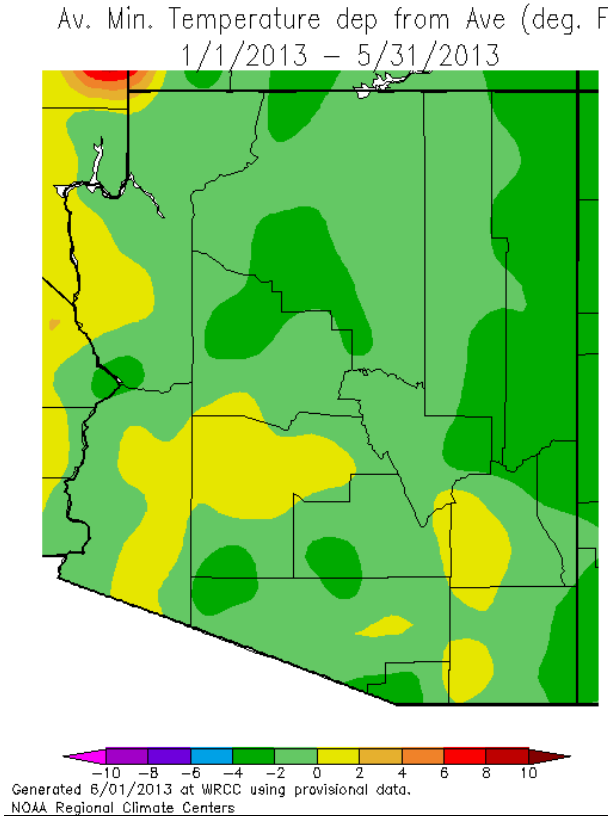
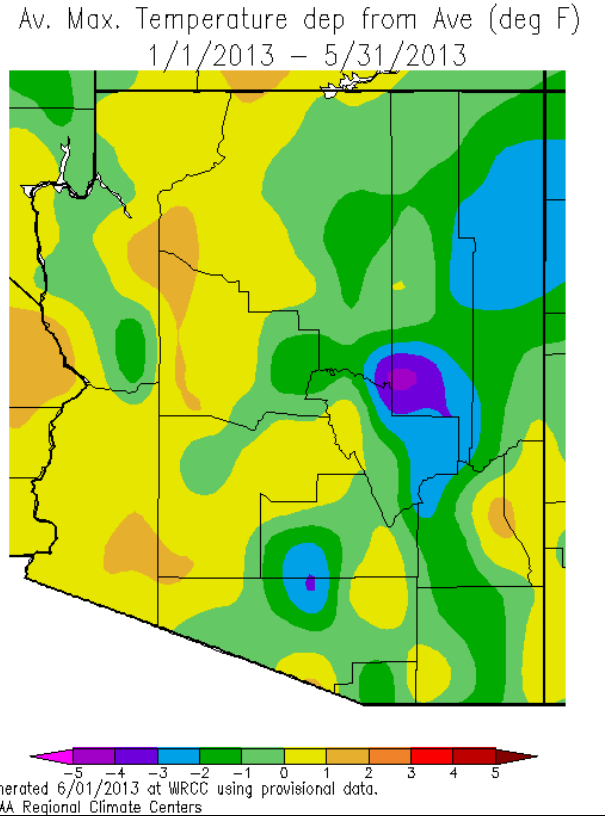
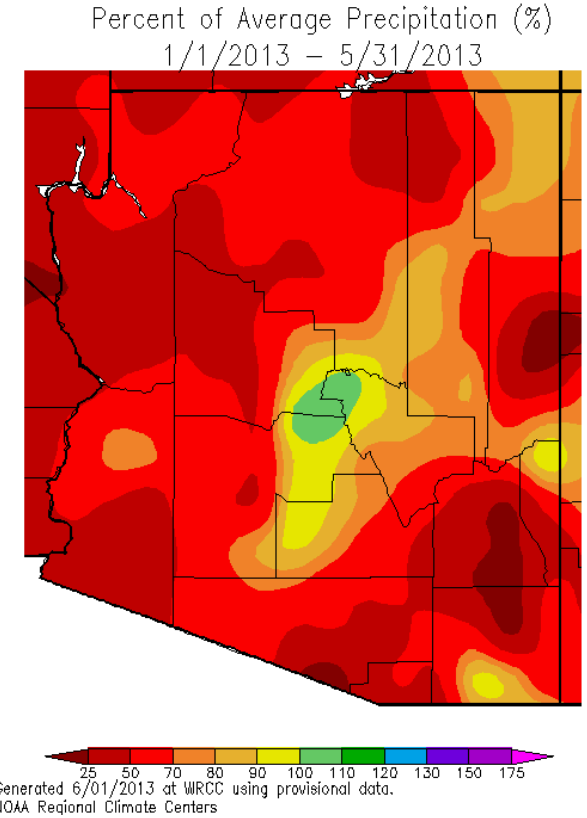


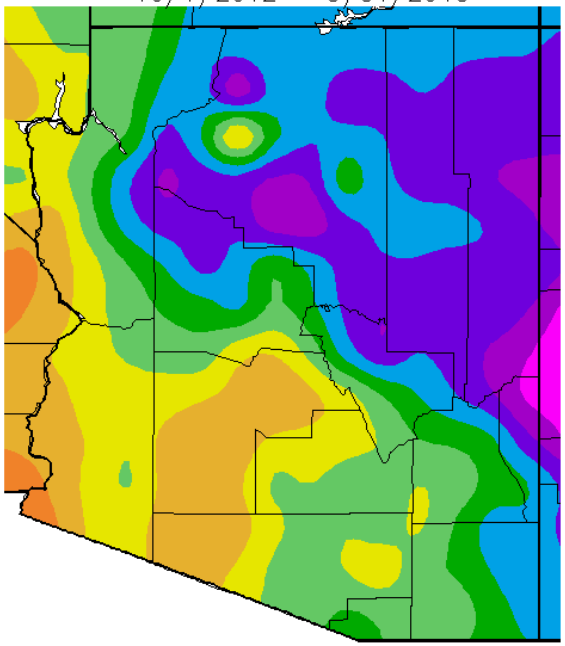




Calendar Year 2013

So far the calendar year has been colder than average for nighttime temperatures everywhere except western Maricopa, Graham and Cochise counties, and eastern Yuma County. Daytime temperatures have been warmer than normal in the western half of Arizona, and colder than normal in eastern Arizona. Precipitation is near average only in the center of the state.. Elsewhere it has been below 80% of average, and even drier in Mohave and Graham counties.

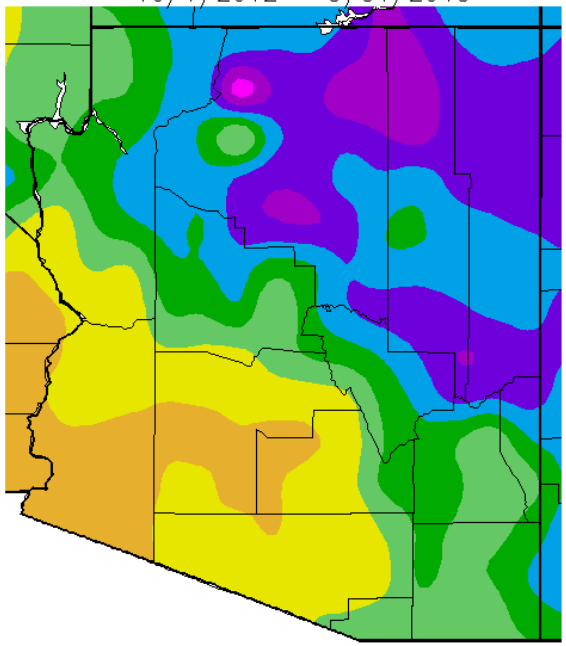
Av. Min. Temperature (deg. F)
10/1/2012 – 5/31/2013



20 25 30 35 40 45 50 55 60 65 70

Generated 6/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

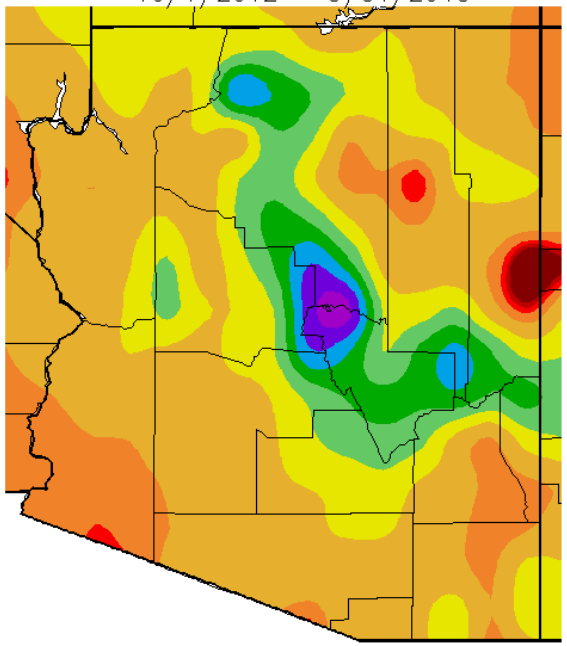
Av. Max. Temperature (deg. F)
10/1/2012 – 5/31/2013



50 55 60 65 70 75 80 85 90 95 100

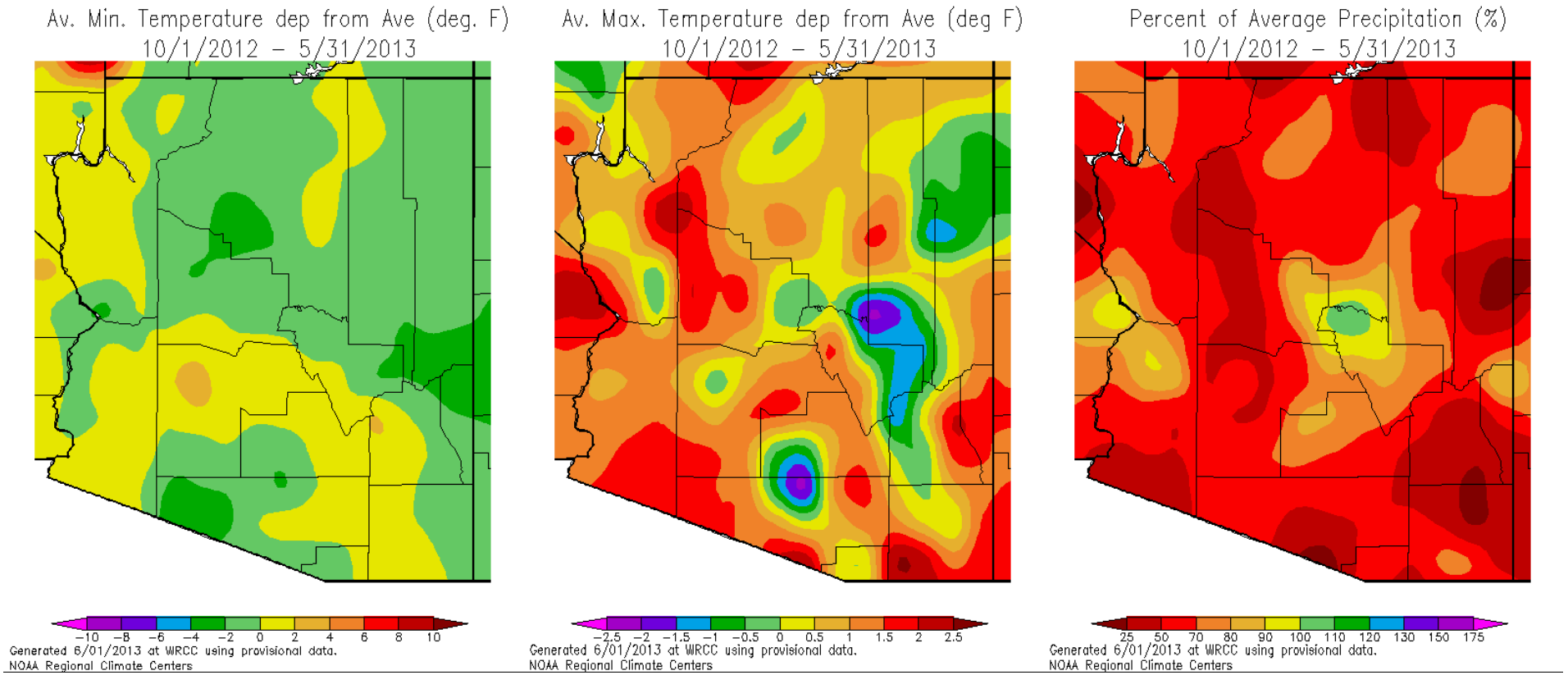
Generated 6/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

Total Precipitation (in.)
10/1/2012 – 5/31/2013



0.1 0.5 1 2 4 6 8 10 12 14 16

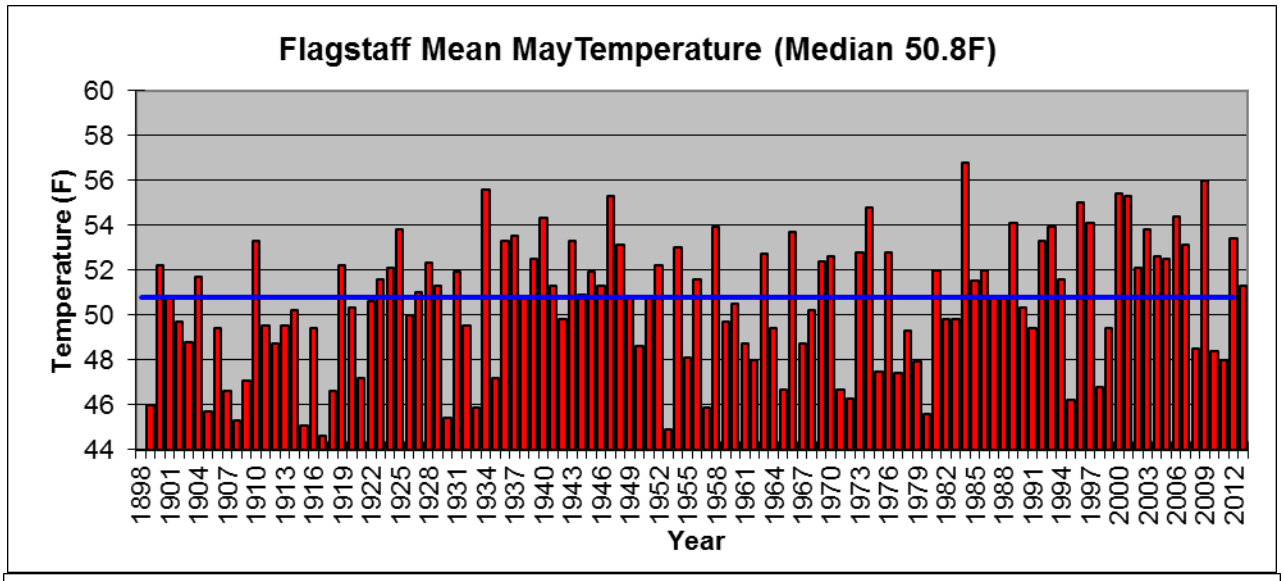
Generated 6/01/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

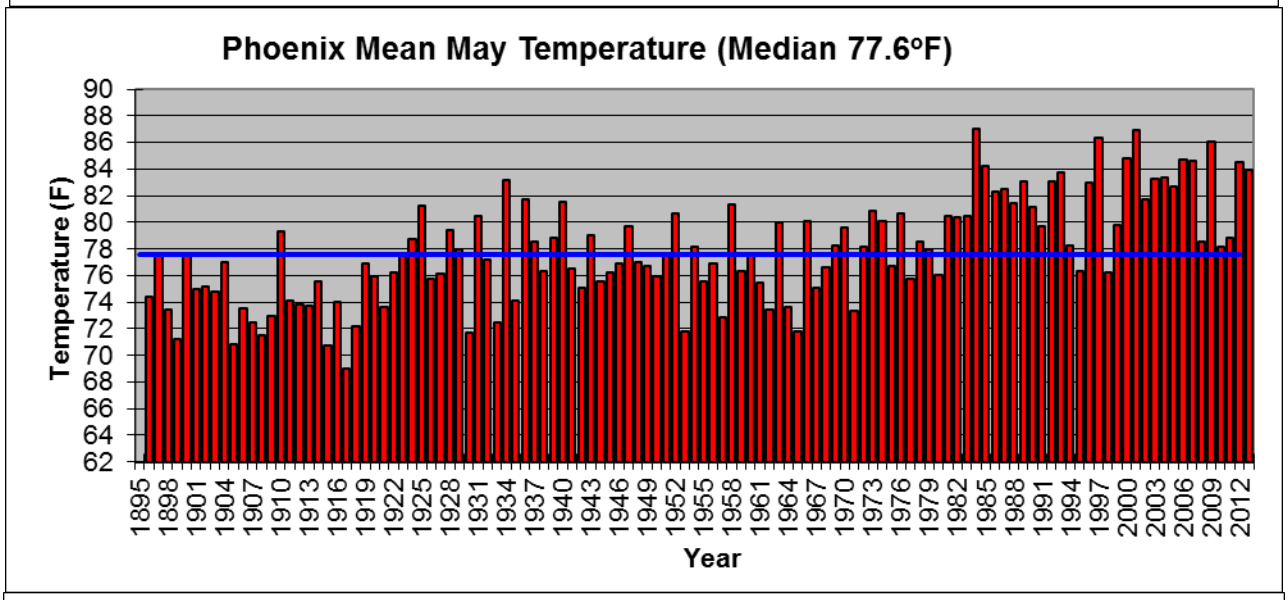


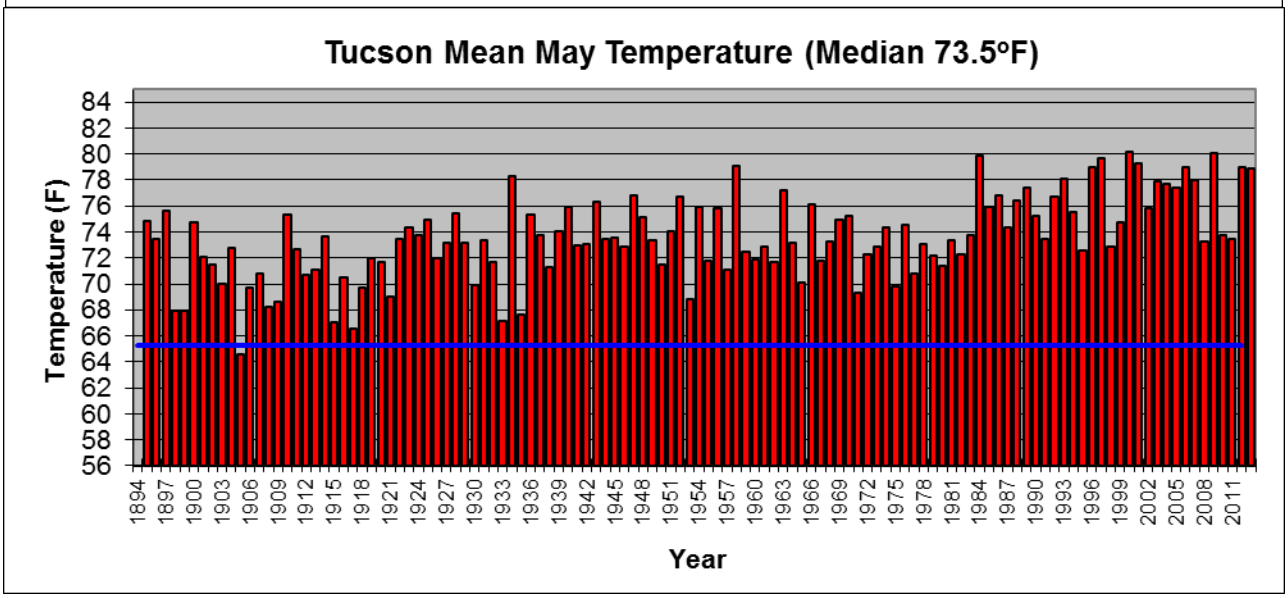
2013 Water Year

Minimum temperatures continue to be within 2°F of normal across the state, while maximum temperatures have been within 1.5°F of normal except southern Navajo County and east of Tucson in Pima and Pinal counties, where daytime temperatures have been a little colder. Through the end of May, the water year remains much drier than normal, generally less than 70% of average, with a few areas less than 50% of average. Northern Gila County continues to be near or slightly wetter than average.

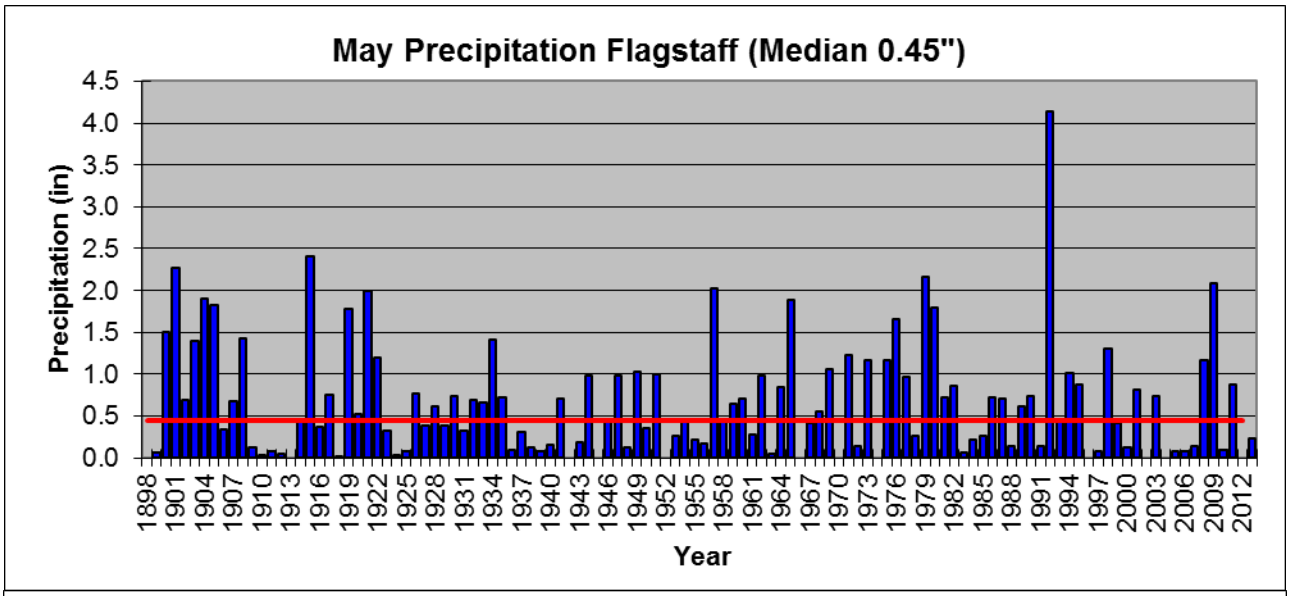
May Mean Temperature Graphs – Flagstaff, Phoenix, and Tucson 1895-2013:

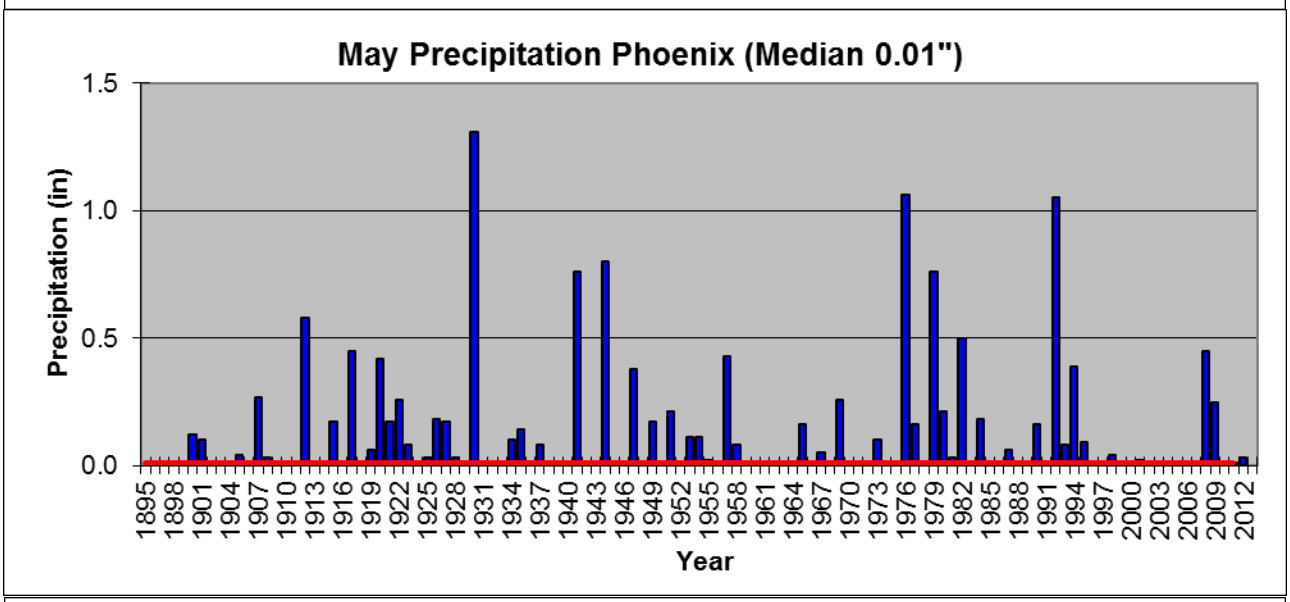


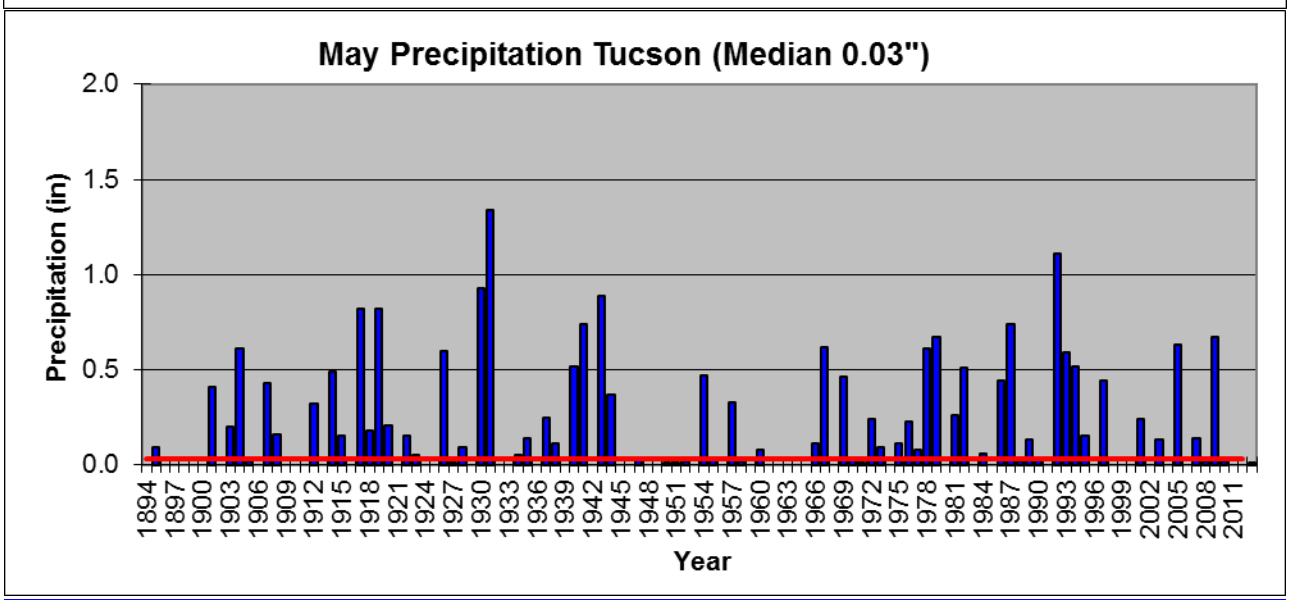




May Mean Precipitation Graphs – Flagstaff, Phoenix, and Tucson 1895-2013:

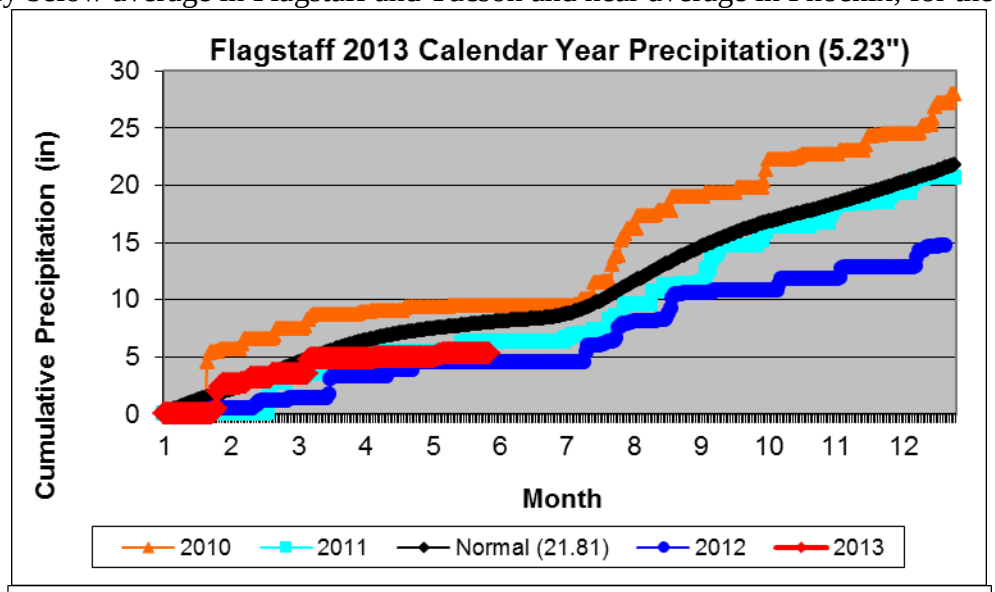


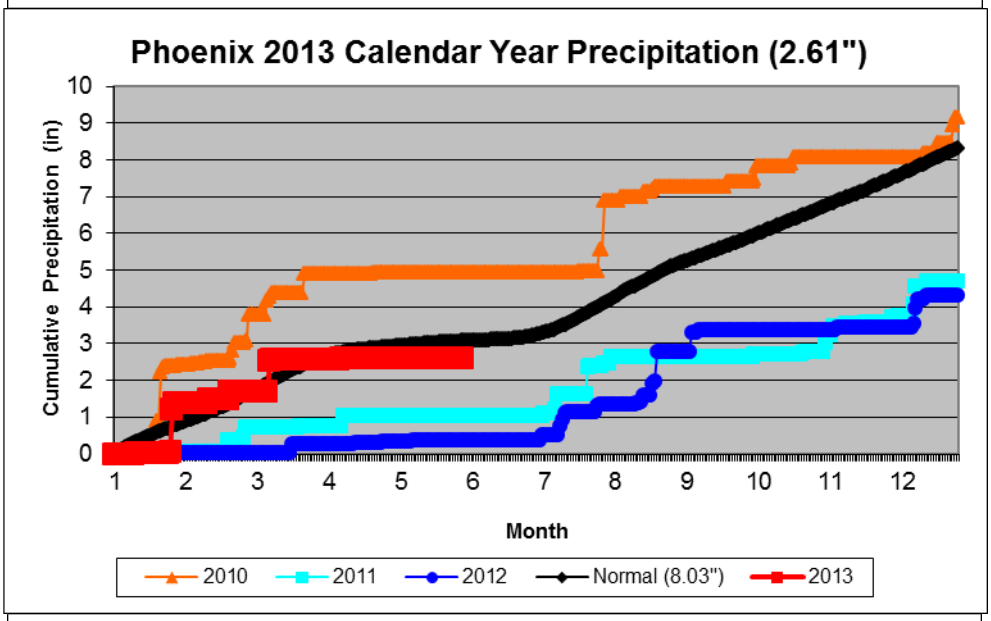


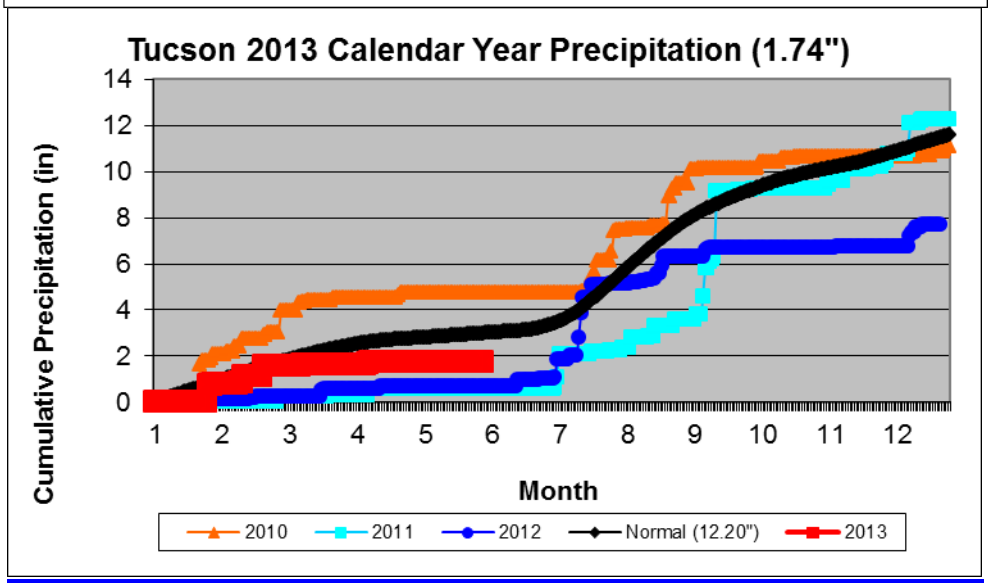


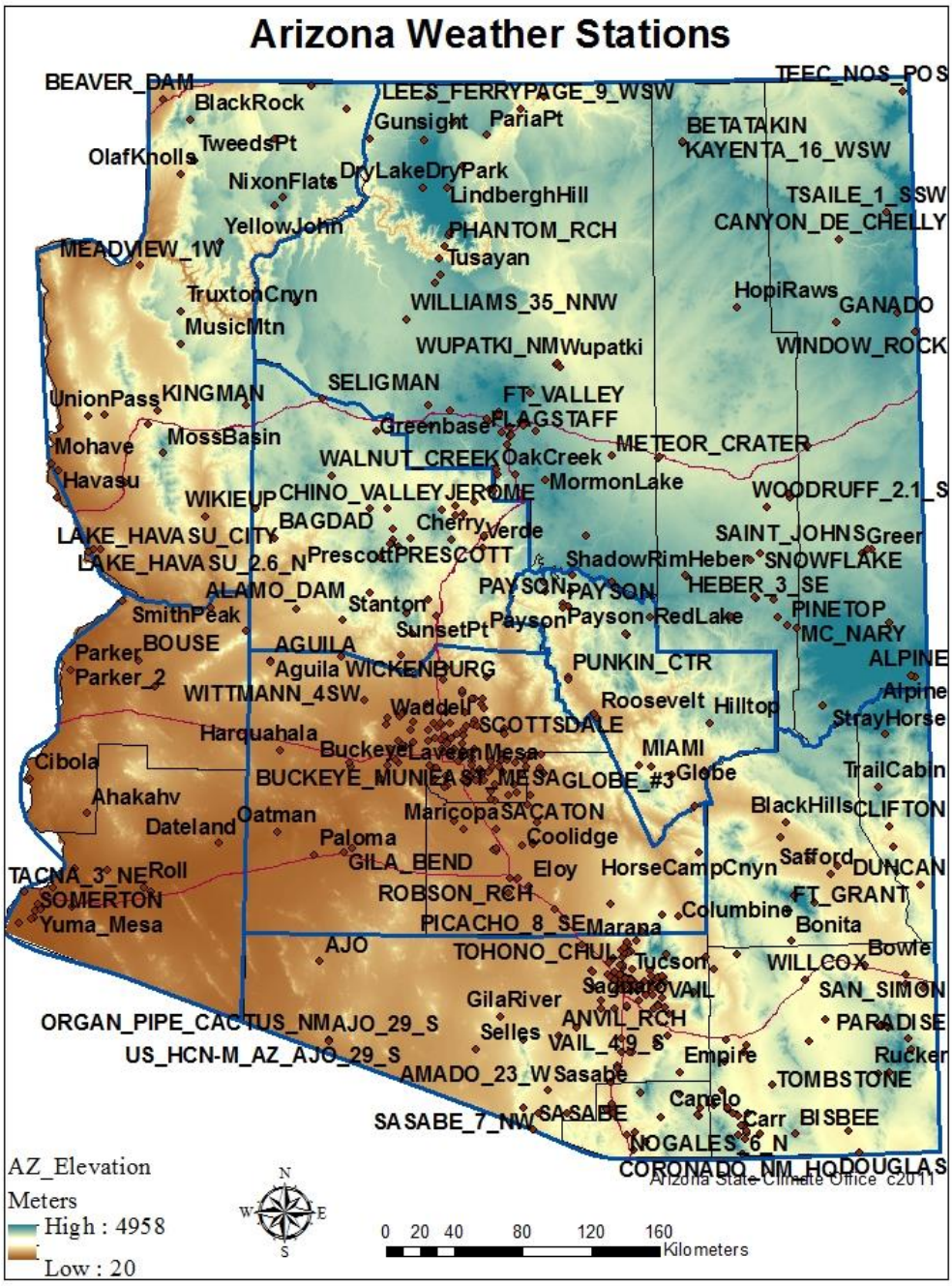
2013 Cumulative Precipitation Graphs – Flagstaff, Phoenix and Tucson:

Precipitation is slightly below average in Flagstaff and Tucson and near average in Phoenix, for the calendar year.









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)