



Arizona Climate Summary

February 2013

Summary of conditions for January 2013

January 2013 Temperature and Precipitation Summary

January 1st – 16th: The first week of January began as an upper level trough deepened over the southwest keeping average daily temperatures below normal across Arizona. Multiple cut-off low pressure systems moved through the state from the 1st-8th however there was not enough moisture in place for precipitation to occur. By the 11th, a strong cold front moved through Arizona dropping temperatures substantially and providing nominal precipitation at some locations. Precipitation totals were 0.14” at Davis-Monthan AFB, 0.09” in Show Low, 0.07” at Window Rock, and 0.05” in Flagstaff on the 11th. Average daily temperatures remained well below normal across the state from the 11th-16th as a deep trough persisted over the southwest. Many record low temperatures were broken during this stretch of days including -14.0 °F at Sunset Crater NM, 0.0 °F at Show Low AP, 14.0 °F at Page AP, 25.0 °F in Fountain Hills on the 12th; and -7.0 °F at Flagstaff AP, 7.0 °F at Bisbee AP, 36 °F at Yuma MCAS on the 13th; many more record lows occurred through the 16th. In total, 89 new low temperature records were set this January within Arizona. In addition, the prolonged cold spell brought temperatures well below zero to the Navajo Nation, causing water pipes to burst, even though they were buried nearly 3 feet underground. The northeast plateau has been declared a disaster area.

January 17th – 31st A warming trend began on the 17th as the large trough finally pushed eastward and a ridge of high pressure progressed into the western United States. Daily temperatures returned to near average on the 17th and by the 22nd-25th daily temperatures were well above average as the ridge strengthened. Average daily temperatures were 11 °F above normal in Tucson, 10 °F above normal in Phoenix, and 8 °F above normal in Yuma on the 22nd. A total of 23 new record daytime high temperatures were set from the 21st-25th including 83 °F in Ajo, 81 °F at Phoenix Sky Harbor, 67 °F in Springerville on the 23rd; and 85 °F in Ajo, 82 °F in Gila Bend on the 24th. By the 25th, a large pacific low pressure system moved in from California. The storm was a major rain producer because of above average temperatures statewide and the abundance of moisture within the storm system. Rainfall amounts were so considerable that many locations across the state received greater than average monthly precipitation over the course of a few days. On the 26th some of the greatest precipitation totals were 2.50” at Pinnacle Peak, 1.42” in Payson, 1.13” in Prescott, and 1.13” at Phoenix Sky Harbor. The low pressure system lingered over the state through the 29th generating more precipitation. Daily temperatures once again plummeted below normal in Arizona as the storm system exited the western U.S.

In This Issue: Overview of January, graphs of the January daily maximum and minimum temperatures, precipitation, mean daily dew points for Flagstaff, Phoenix, and Tucson; January climate statistics, maps of mean monthly maximum and minimum temperatures, precipitation, dew points, wind speeds for January; and graphs of the mean January 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. 17 of this report for calendar abbreviations.

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

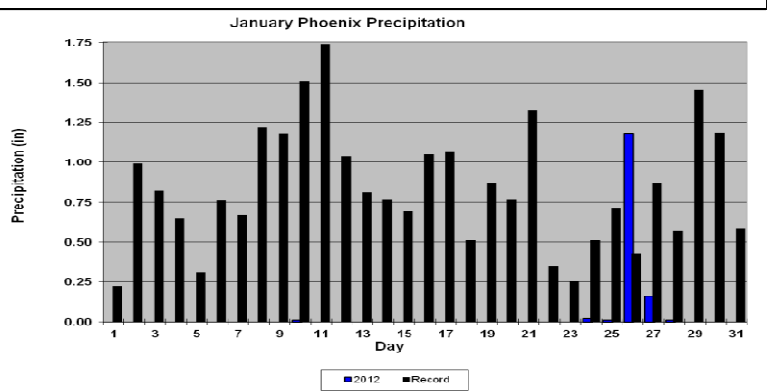
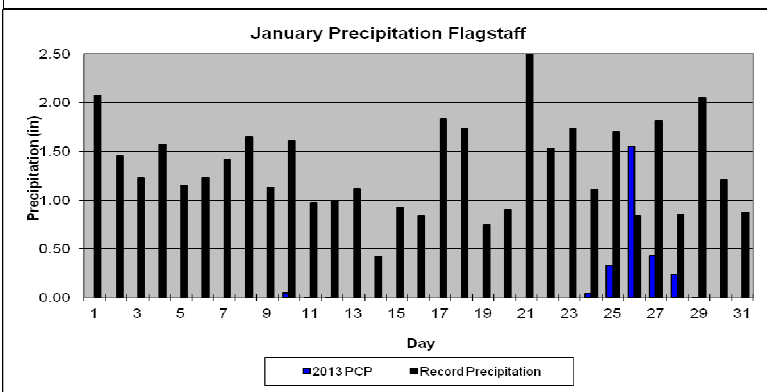
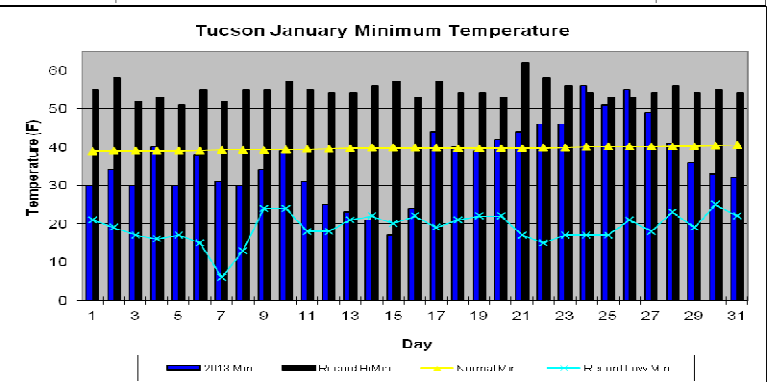
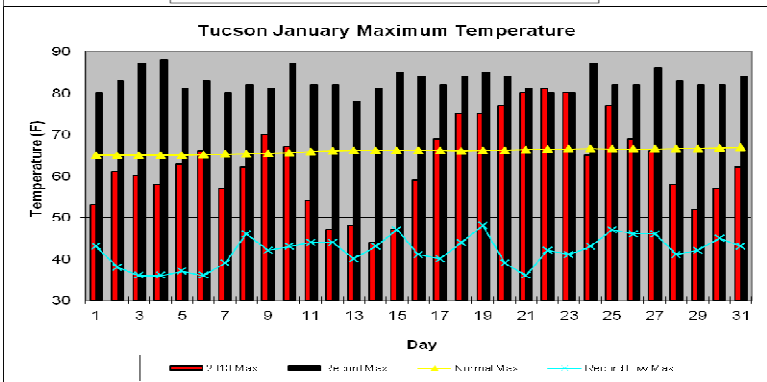
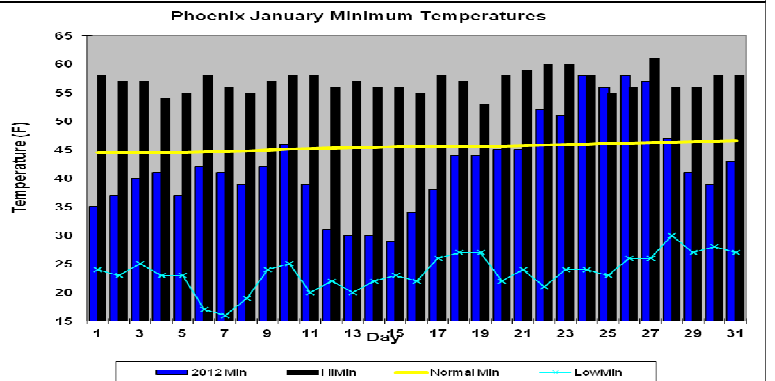
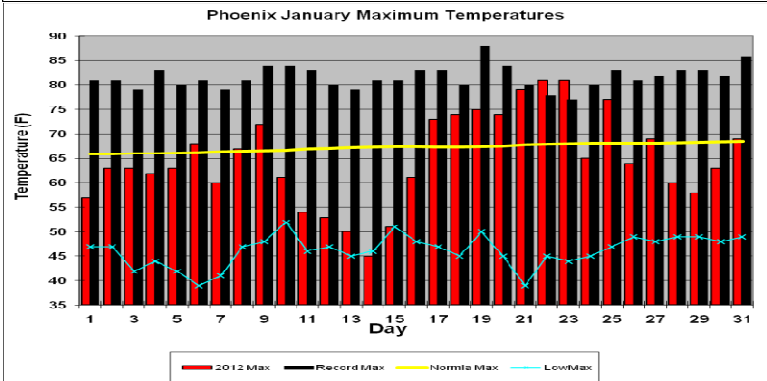
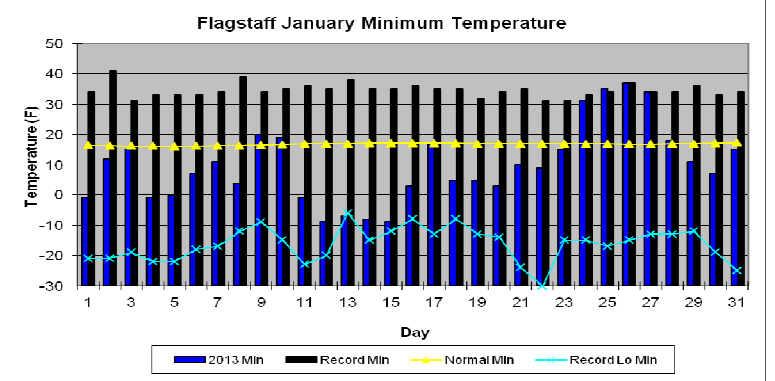
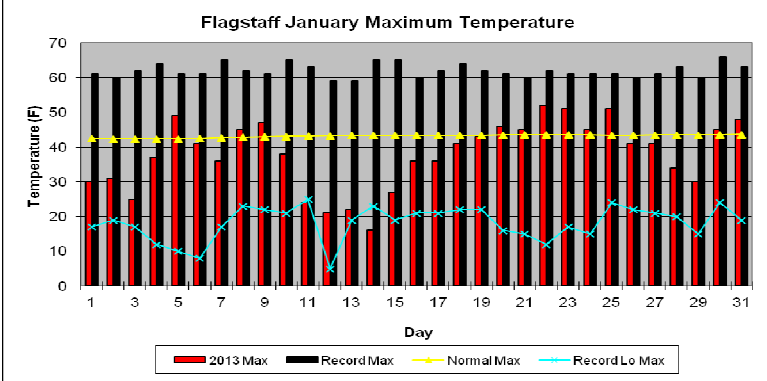
****Note:** The discrepancy between the Statewide Temperature and Precipitation values for Phoenix, Flagstaff and Tucson and the daily values in their graphs are due to the reporting times. Statewide Temperature and Precipitation values are taken at 5pm, while official daily records at the airports are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

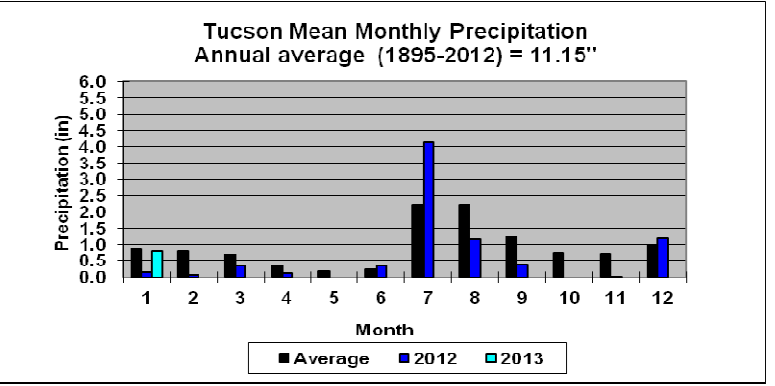
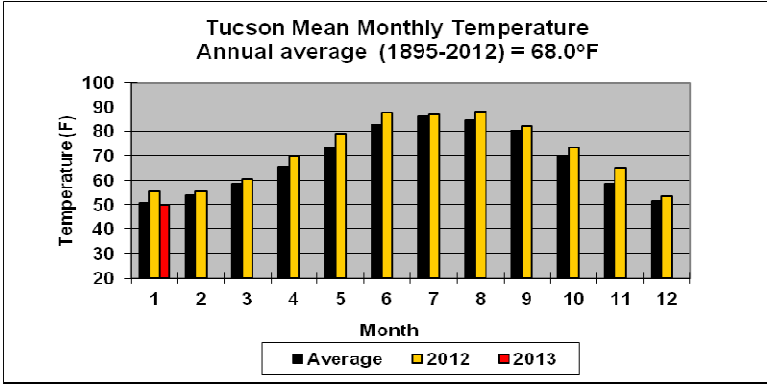
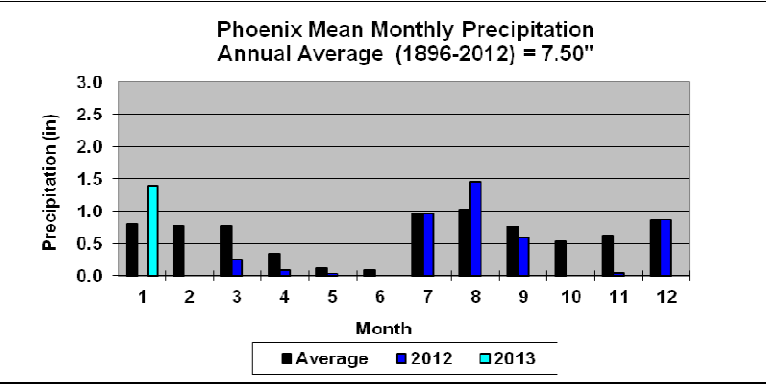
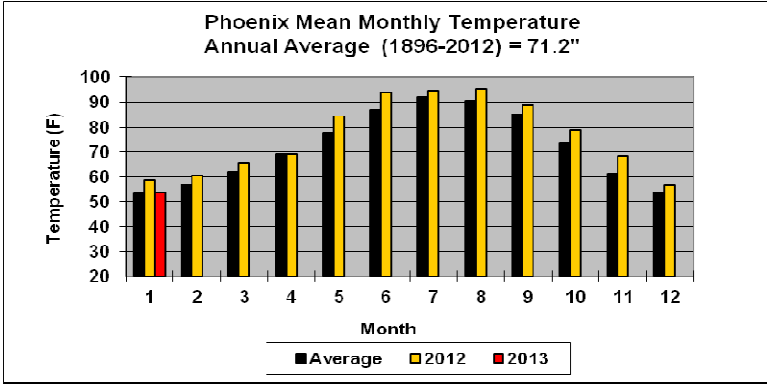
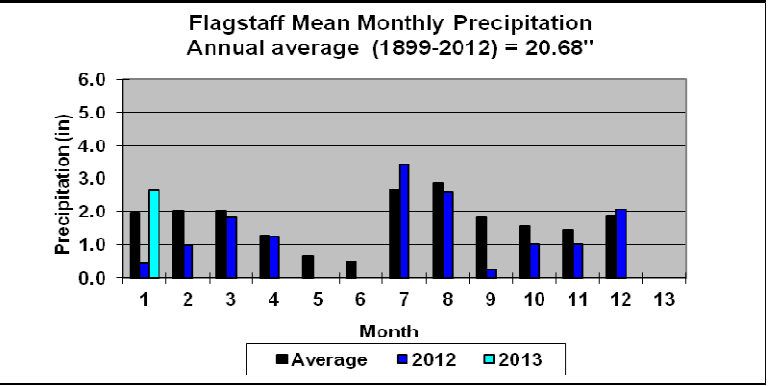
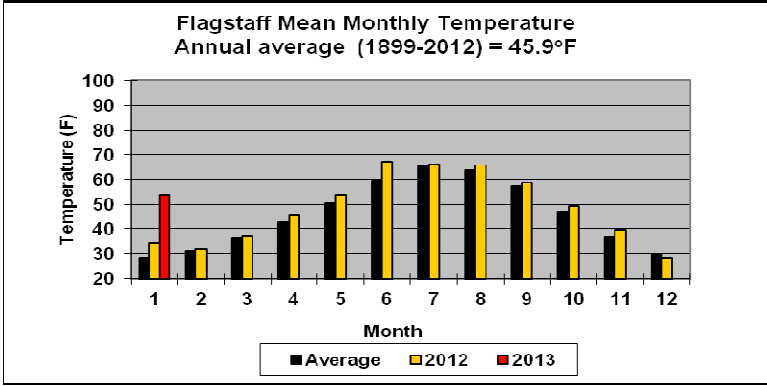
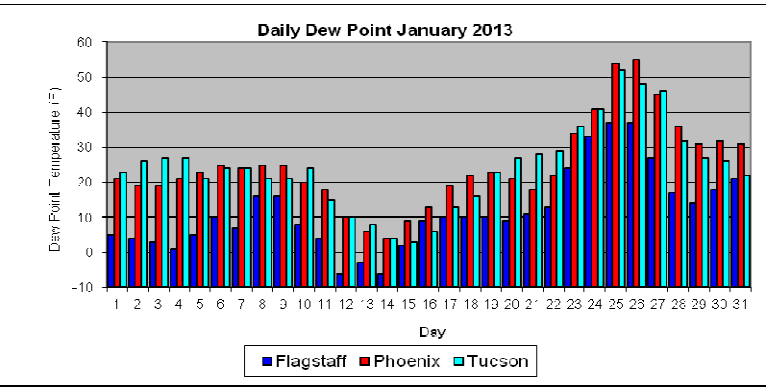
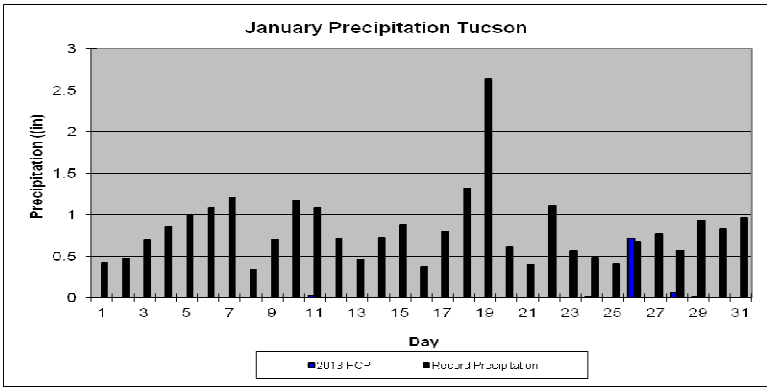
State Climate Office
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January 2013 Daily Temperature, Precipitation, & Dew Point for Flagstaff, Phoenix, and Tucson





FLAGSTAFF CLIMATE STATISTICS

January 2013

This January was the 16th coolest on record and had no significant ranking for precipitation.

Avg Max Temp (F) 37.9 Normal 42.5
 Avg Min Temp (F) 9.9 Normal 17.3
 Avg Mean Temp (F) 23.9 Normal 29.9
 Departure from Normal (F) -6.0

Highest Monthly Avg Temp (F) 37.1 in 2003
 Lowest Monthly Avg Temp (F) 12.7 in 1937
 Highest Temp this month (F): 52 on 22nd
 Lowest Temp this month (F): -9 on 12th, 15th

Record High (F): 66 on 01/30/1971
 Record Low (F): -30 on 01/22/1937

No temperature or precipitation records this month:

11th LoMax 24 set, previous record 25 in 1913
 14th LoMax 16 set, previous record 23 in 2007
 25th LoMax 51 set, previous record in
 26th HiMax 41 tied, first set in
 26th Precip 1.55" set, previous record in

Flagstaff Number of Days of:

Minimum Temp 20° or higher 5
 Minimum Temp 0° or lower 8

Maximum Temp 50° or higher 3
 Maximum Temp 30° or lower 8

Heating Degree Days 1266 Normal 1088
 Cooling Degree Days 0 Normal 0
 Degree base 65°F

Total January Precipitation 2.64"
 Normal January Precipitation 2.05"
 Departure from normal +0.59"
 Greatest 24-Hr Precipitation 1.79" on 1/25-26
 Total Precipitation Year-to-Date 2.64"
 Departure from Normal +0.59"

Number of Days:

Clear 22
 Partly Cloudy 5
 Cloudy 4

Greatest January Precipitation 9.55" in 1993
 Least January Precipitation 0.00" in 1972

Average Wind Speed 6.2 mph
 Highest Peak Gust 51 mph from 210° on 10th

PHOENIX CLIMATE STATISTICS

January 2013

This January had no significant ranking for temperature and was the 24th wettest on record.

Avg Max Temp(F) 64.9 Normal 67.2
 Avg Min Temp(F) 42.3 Normal 45.6
 Avg Mean Temp (F) 53.6 Normal 56.4
 Departure from Normal (F) -2.8

Highest Monthly Avg Temp (F) 62.0 in 2003
 Lowest Monthly Avg Temp (F) 43.1 in 1937

Highest Temp this month (F): 81 on 22nd, 23rd
 Lowest Temp this month (F): 29 on 15th

Record High (F): 88 on 01/19/1971
 Record Low (F): 16 on 01/07/1913

Temperature or precipitation records this month:

14th LoMax 45 set, previous record 46 in 2007
 22nd HiMax 81 set, previous record 78 in 1994
 23rd HiMax 81 set, previous record 77 in 1986
 24th HiMin 58 tied, first set in 2006
 25th HiMin 56 set, previous record 55 in 2005
 26th HiMin 58 set, previous record 56 in 2005
 26th Precip 1.18", previous record 0.43" in 1949

Phoenix Number of Days of:

Minimum Temp 30° or lower 3
 Minimum Temp 50° or higher 6
 Maximum Temp 60° or lower 9
 Maximum Temp 80° or higher 2

Heating Degree Days 351 Normal 269
 Cooling Degree Days 5 Normal 2

Degree base 65°F

Cloudy 3

Total January Precipitation	1.39"
Normal January Precipitation	0.91"
Departure from normal	+0.48"
Greatest 24-Hr Precipitation	1.18" on 26 th
Total Precipitation Year-to-Date	1.39"
Departure from Normal	+0.48"

Greatest January Precipitation	5.22" in 1993
Least January Precipitation	0.00" in 1903, 1912, 1924, 1928, 1948, 1970, 1972, 1976, 2006, 2012

Average Wind Speed	4.5 mph
Highest Peak Gust	38 mph from 270° on 11 th

Number of Days:

Clear	18
Partly Cloudy	10

TUCSON CLIMATE STATISTICS
January 2013

This January had no significant ranking for temperature or precipitation

Maximum Temp 50° or lower	4
Maximum Temp 70° or higher	8

Avg Max Temp(F)	63.2	Normal	65.5
Avg Min Temp(F)	36.5	Normal	39.8
Avg Mean Temp(F)	49.8	Normal	52.6
Departure from Normal (F)	-2.8		

Heating Degree Days	463	Normal	383
Cooling Degree Days	0	Normal	0
Degree base 65°F			

Highest Monthly Avg Temp (F)	58.6 in 1986
Lowest Monthly Avg Temp (F)	41.2 in 1937

Total January Precipitation	0.81"
Normal January Precipitation	0.94"
Departure from normal	-0.13"
Greatest 24-Hr Precipitation	0.71" on 01/26
Total Precipitation Year-to-Date	0.81"
Departure from Normal	-0.13"

Highest Temp this month (F):	81 on 22 nd
Lowest Temp this month (F):	17 on 15 th

Record High (F):	88 on 01/04/1927
Record Low (F):	6 on 01/07/1913

Greatest January Precipitation	4.81" in 1993
Least January Precipitation	0.00" in 1912, 1924, 1928, 1948, 1952, 1958, 1970, 1972, 2006

Temperature or precipitation records this month:

14th LoMin 21 set, previous record 22 in 1940
 15th LoMin 17 set, previous record 20 in 2007
 15th LoMax 47 tied, first set in 1947
 22nd HiMax 81 set, previous record 80 in 1986
 23rd HiMax 80 tied, first set in 1986
 24th HiMin 56 set, previous record 54 in 2006
 26th HiMin 55 set, previous record 53 in 2005
 26th Precip 0.71", previous record 0.67" in 1985

Number of Days:

Clear	25
Partly Cloudy	3
Cloudy	3

Average Wind Speed	6.5 mph
Highest Peak Gust	40 mph from 120° on 17 th

Tucson Number of Days of:

Minimum Temp 30° or lower	9
Minimum Temp 40° or higher	12

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

Winds for January:

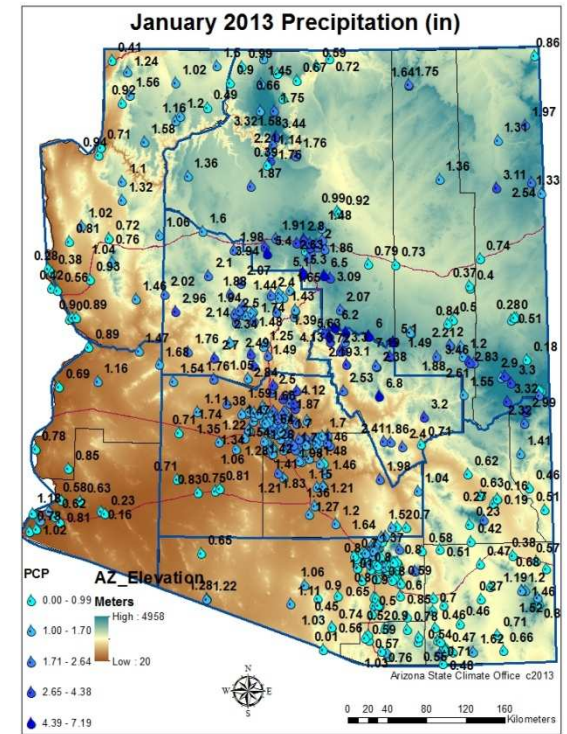
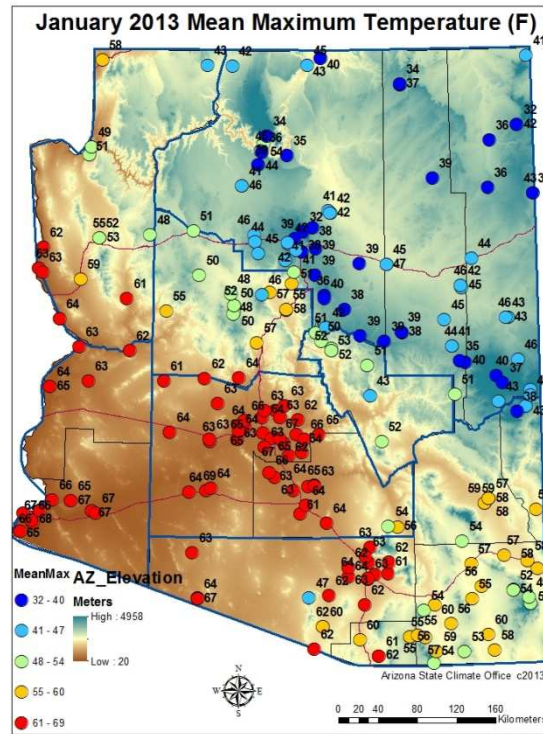
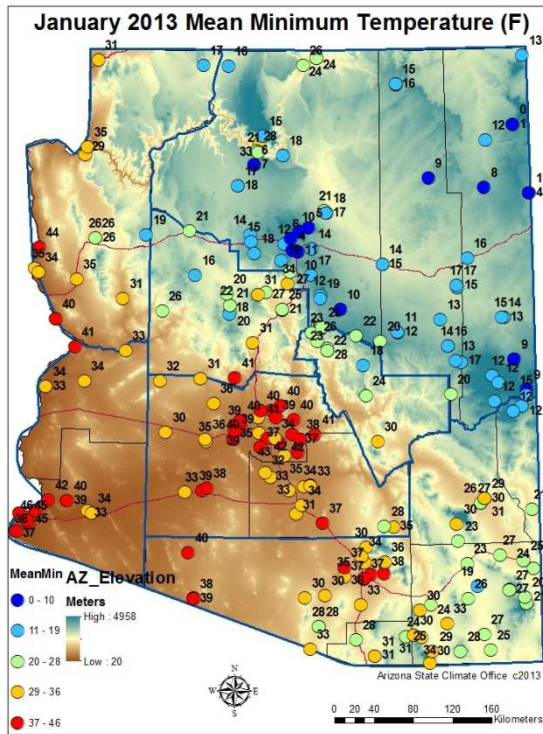
Day (mph)	Phoenix		Flagstaff		Tucson	
	Avg	Max	Avg	Max	Avg	Max
1	4.3	13	5.8	23	3.5	16
2	4.8	22	10.4	26	6.6	33
3	8.3	24	17.2	39	8.8	32
4	5.5	23	2.5	17	9.9	31
5	3	17	1.2	16	3.4	13
6	4.6	14	3.7	26	9	23
7	4.3	15	7.3	25	5.3	18
8	3.5	17	8.5	32	3	13
9	3.8	13	6.8	29	9.3	26
10	8.2	35	14.9	51	12.2	33
11	8.2	38	9.8	33	6.4	30
12	4.6	20	3.5	21	4.8	24
13	3.9	14	4.8	23	4.9	20
14	3.9	17	5.3	22	6.2	21
15	3.6	15	8	35	3.1	16
16	2.8	14	5.7	22	5.3	26
17	6.6	24	7.9	21	15.3	40
18	3.4	23	2.3	13	6.4	21
19	1.8	14	3	20	6.5	15
20	1.7	14	2.3	15	5.5	17
21	2.7	13	4.6	23	6.4	17
22	4.4	17	2.7	16	5.7	18
23	4.4	15	2	17	6.1	20
24	4	13	4.5	26	4.8	14
25	3	17	2	12	4.1	14
26	4.9	21	7.9	25	4.8	28
27	4.2	17	12.4	32	6.2	18
28	8.1	36	12.3	43	10.3	31
29	7.5	25	7.1	28	9.5	28
30	3.1	14	2.9	21	4	18
31	3.3	13	2.8	13	3.9	14

Dew Points for January:

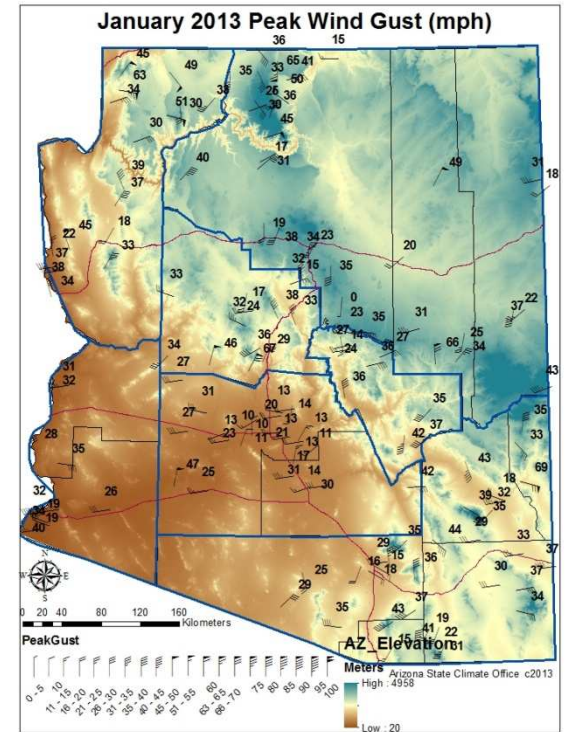
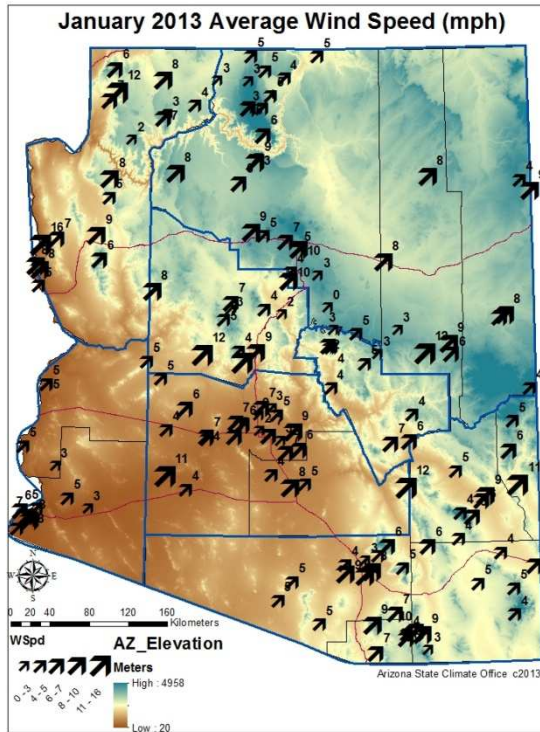
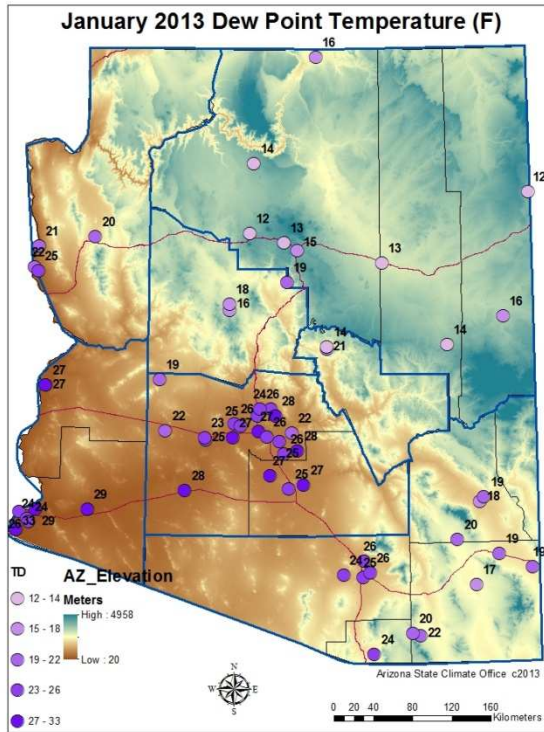
Daily Average Dew Point (°F):

Day	Phx	Tuc	Flg
1	21	23	5
2	19	26	4
3	19	27	3
4	21	27	1
5	23	21	5
6	25	24	10
7	24	24	7
8	25	21	16
9	25	21	16
10	20	24	8
11	18	15	4
12	10	10	-6
13	6	8	-3
14	4	4	-6
15	9	3	2
16	13	6	9
17	19	13	10
18	22	16	10
19	23	23	10
20	21	27	9
21	18	28	11
22	22	29	13
23	34	36	24
24	41	41	33
25	54	52	37
26	55	48	37
27	45	46	27
28	36	32	17
29	31	27	14
30	32	26	18
31	31	22	21

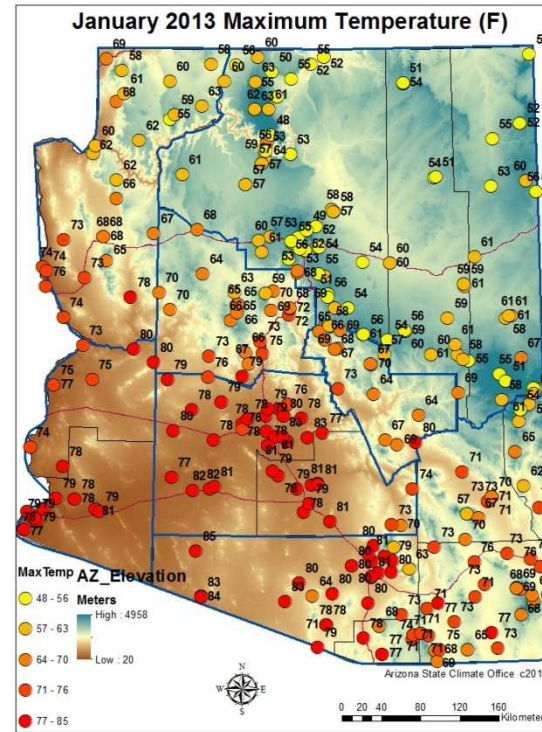
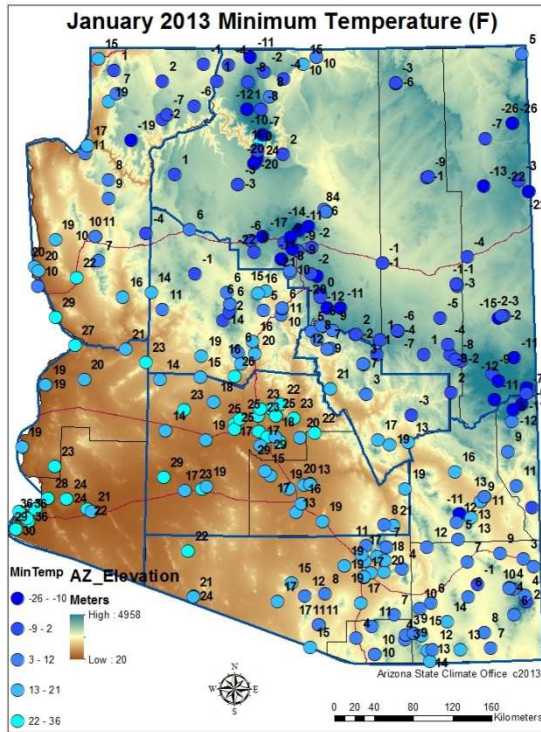
January 2013 Temperature, Dew Point, Wind Speed, and Precipitation Maps are based on **preliminary data** from the National Weather Service, the Arizona Meteorological Network (AZMet), operated by the University of Arizona College of Agriculture Cooperative Extension and the RAWS (Remote Automated Weather Station) network operated by the Bureau of Land Management and Forest Service, and the CoCoRaHS (Community Collaborative Rain, Hail and Snow) Network.



Average nighttime temperatures ranged from 0°F at Tsaille on the Navajo Nation, to 46°F at Yuma. Average daytime temperatures ranged from 32°F at Snowslide Canyon, to 69°F at Gila Bend. Precipitation values ranged from less than an inch at many locations in the southwest to 7.19" at Promontory and 6.80" at Workman Creek to 0.01" at Sasabe.

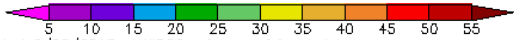
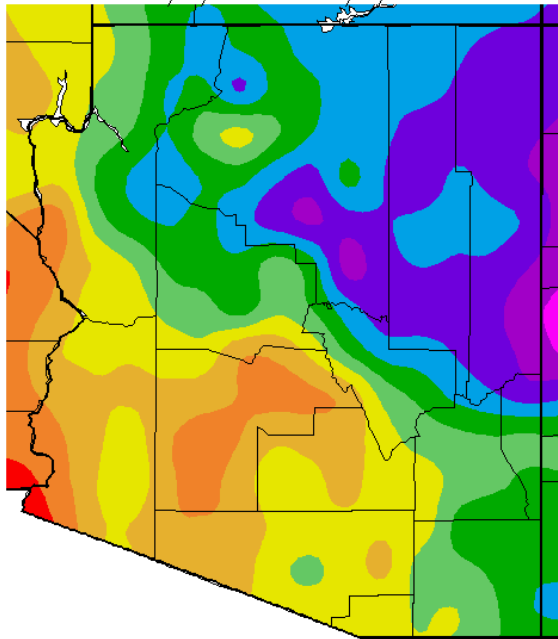


Average monthly dew points ranged from 12°F at Window Rock, to 33°F at Yuma. As in most months, average winds were light, with 16 mph as the highest average at Laughlin. The highest peak wind gust was 69 mph at Guthrie. Peak wind gusts blew in all different directions, which is typical as the high winds are generally attributed to thunderstorm outflows, which have no dominant direction. The arrows point to the direction the winds blow from.



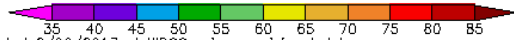
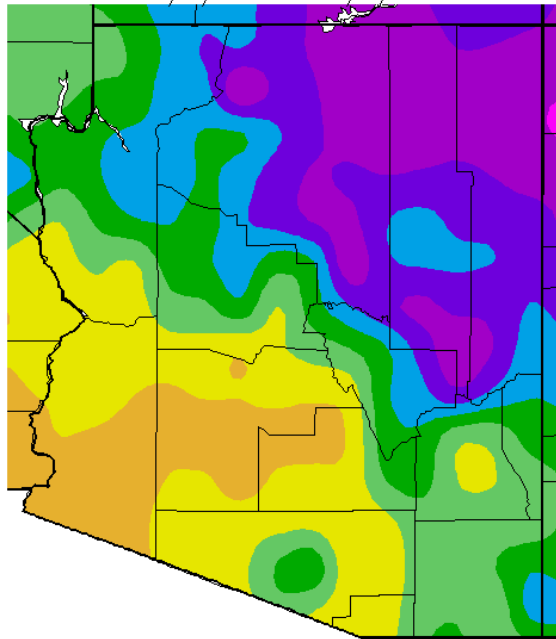
Lowest temperature in January was -26°F recorded at Tsaille on the Navajo Nation where the extreme cold in mid-January burst water pipes across the Navajo nation. The highest daytime temperature of the month was 85°F recorded at Ajo.

Av. Min. Temperature (deg. F)
1/1/2013 - 2/1/2013



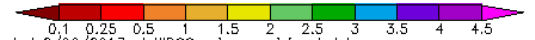
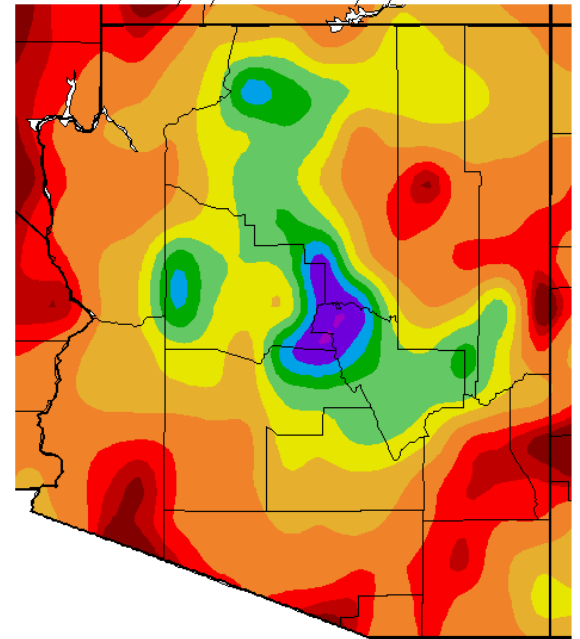
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Av. Max. Temperature (deg. F)
1/1/2013 - 2/1/2013



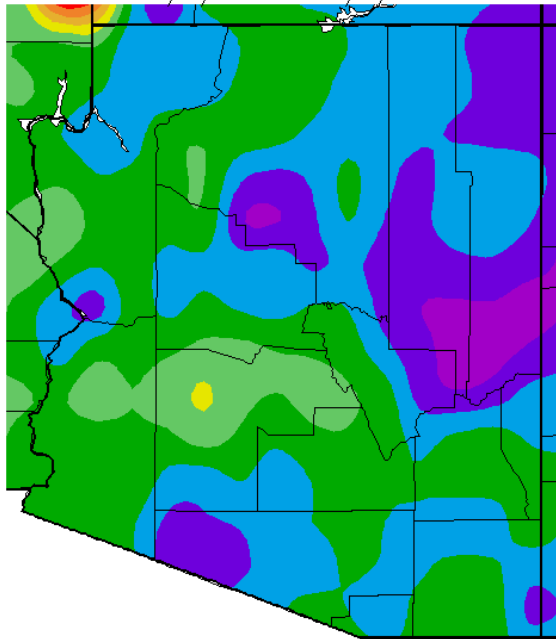
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Total Precipitation (in.)
1/1/2013 - 2/1/2013



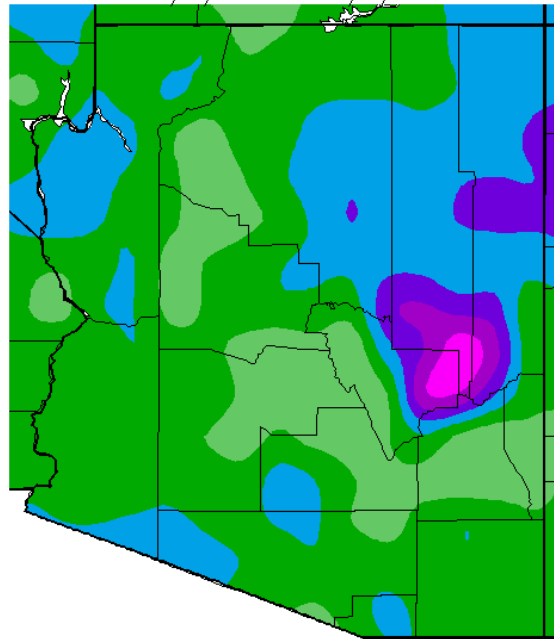
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Av. Min. Temperature dep from Ave (deg. F)
1/1/2013 – 2/1/2013



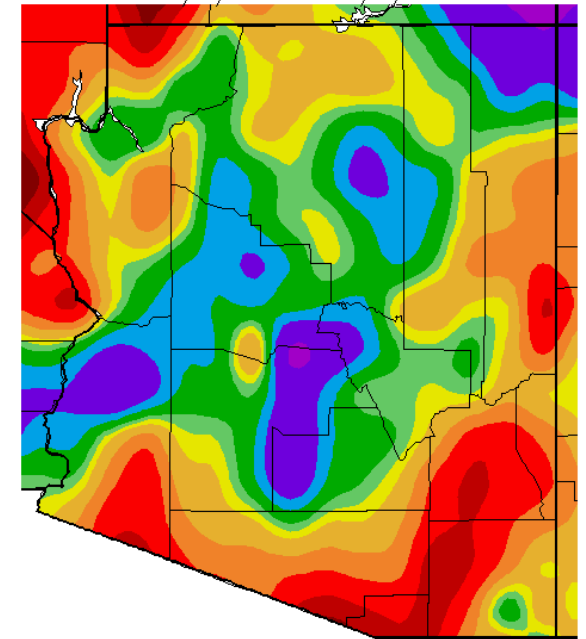
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Av. Max. Temperature dep from Ave (deg F)
1/1/2013 – 2/1/2013



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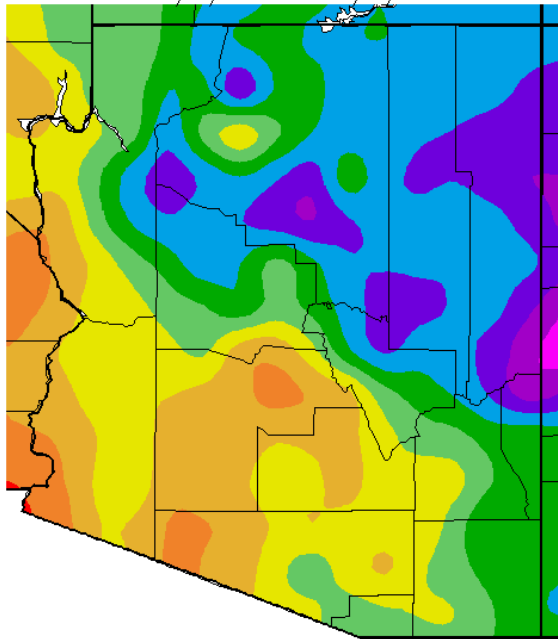
Percent of Average Precipitation (%)
1/1/2013 – 2/1/2013



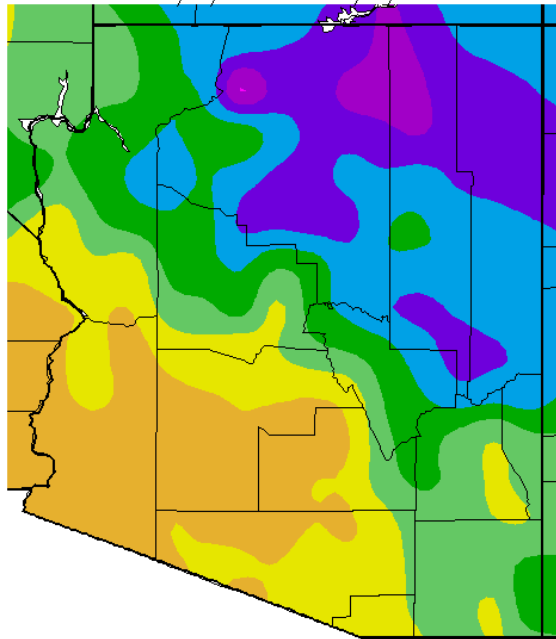
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January minimum temperatures were well below normal statewide, with the coldest conditions on the Colorado Plateau in Navajo and Apache counties, and in eastern Gila County. Daytime temperatures were also 2 to 8 degrees colder than normal, especially on the Colorado Plateau. These exceptionally cold temperatures caused water pipes to burst both across the Navajo Nation and in the southwestern deserts where water pipes are not frequently insulated. Precipitation ranged from 200-300% of normal in central, west central and northeastern Arizona to 5-25% of normal in the southeast and along the Mohave County border with California, Nevada, and Utah.

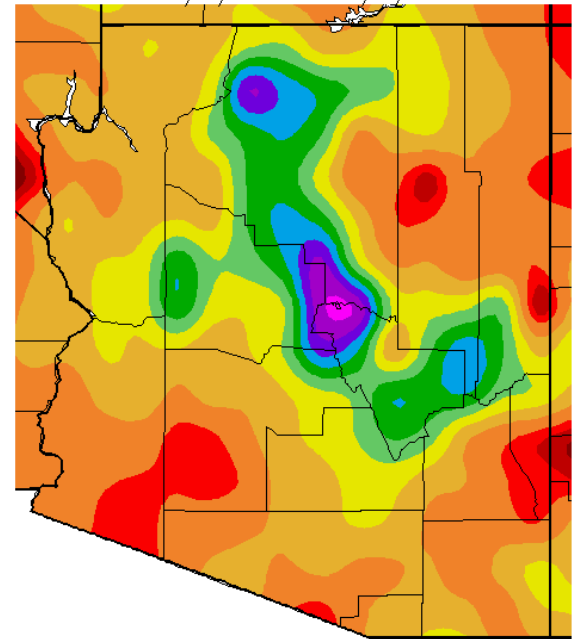
Av. Min. Temperature (deg. F)
10/1/2012 - 2/1/2013



Av. Max. Temperature (deg. F)
10/1/2012 - 2/1/2013



Total Precipitation (in.)
10/1/2012 - 2/1/2013

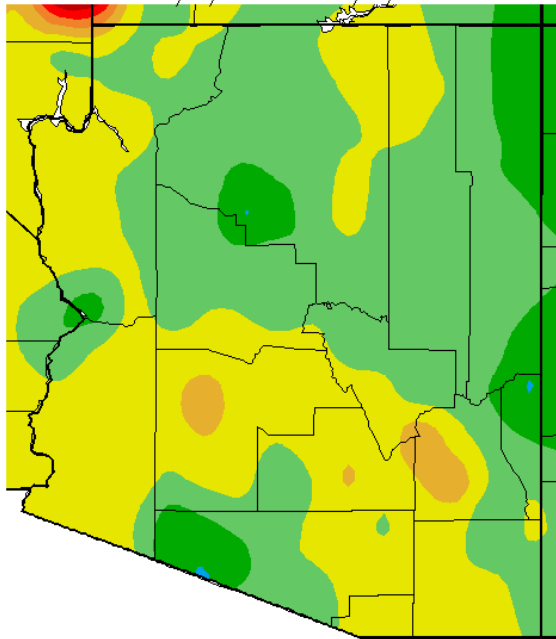


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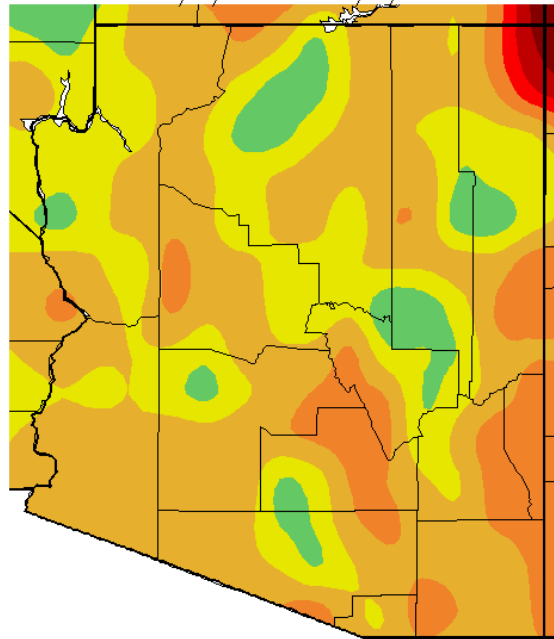
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Av. Min. Temperature dep from Ave (deg. F)
10/1/2012 - 2/1/2013



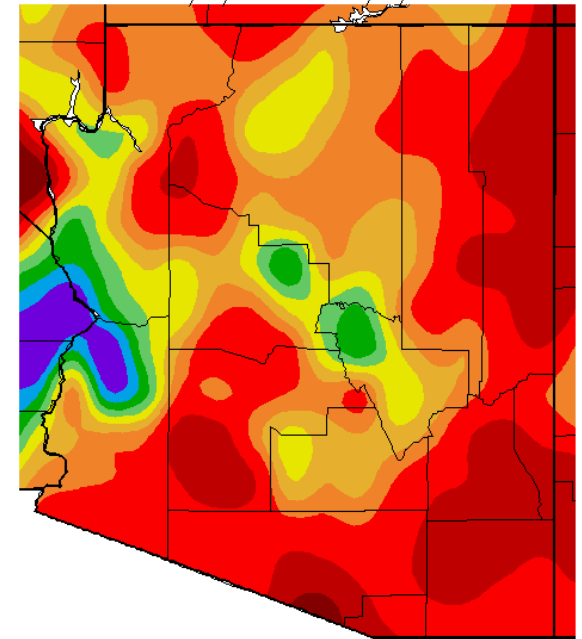
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NOAA Regional Climate Centers

Av. Max. Temperature dep from Ave (deg F)
10/1/2012 - 2/1/2013



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Percent of Average Precipitation (%)
10/1/2012 - 2/1/2013

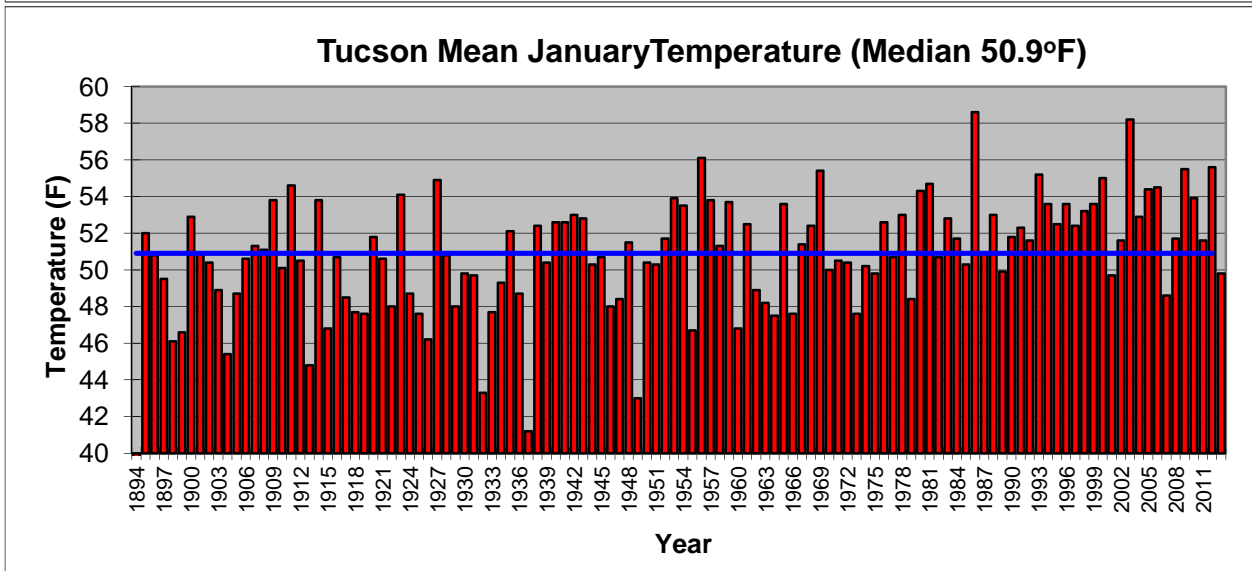
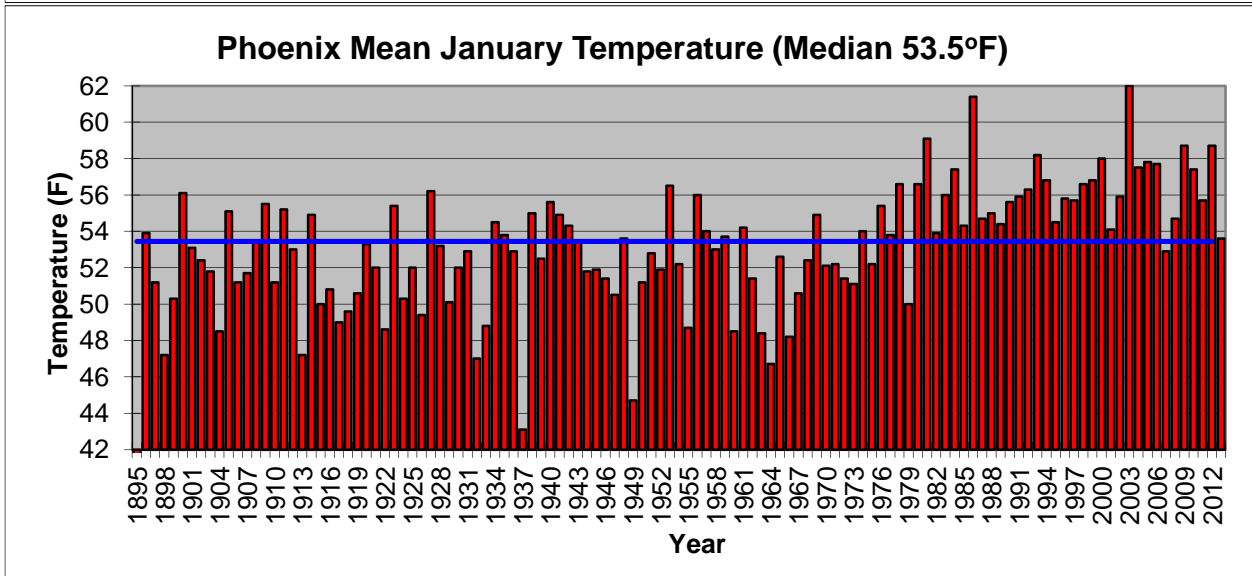
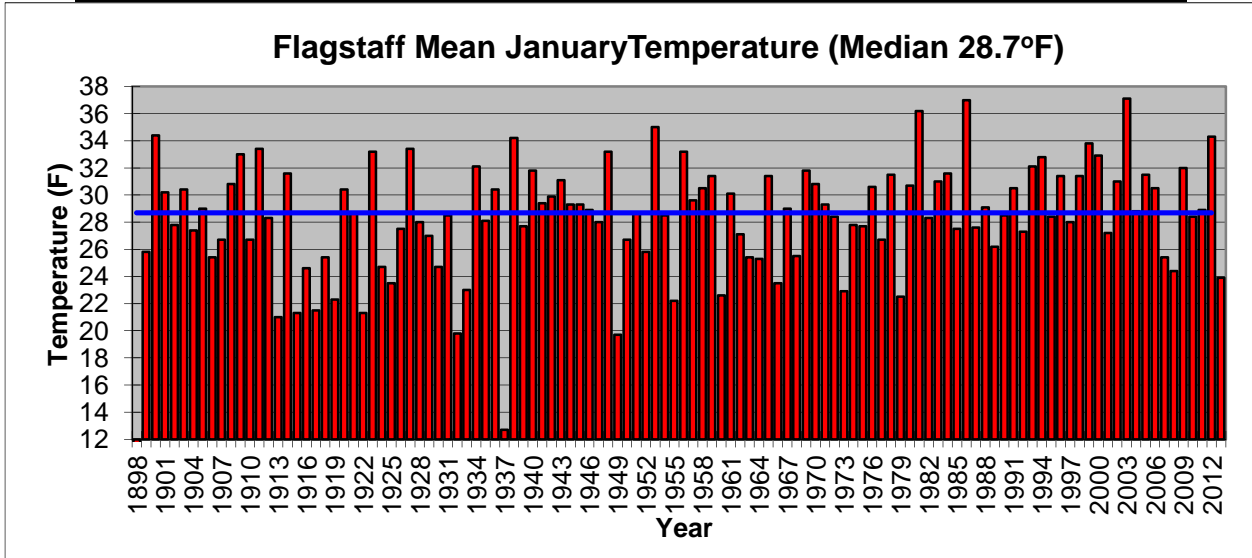


Generated 2/02/2013 at WRCC using provisional data.
NOAA Regional Climate Centers

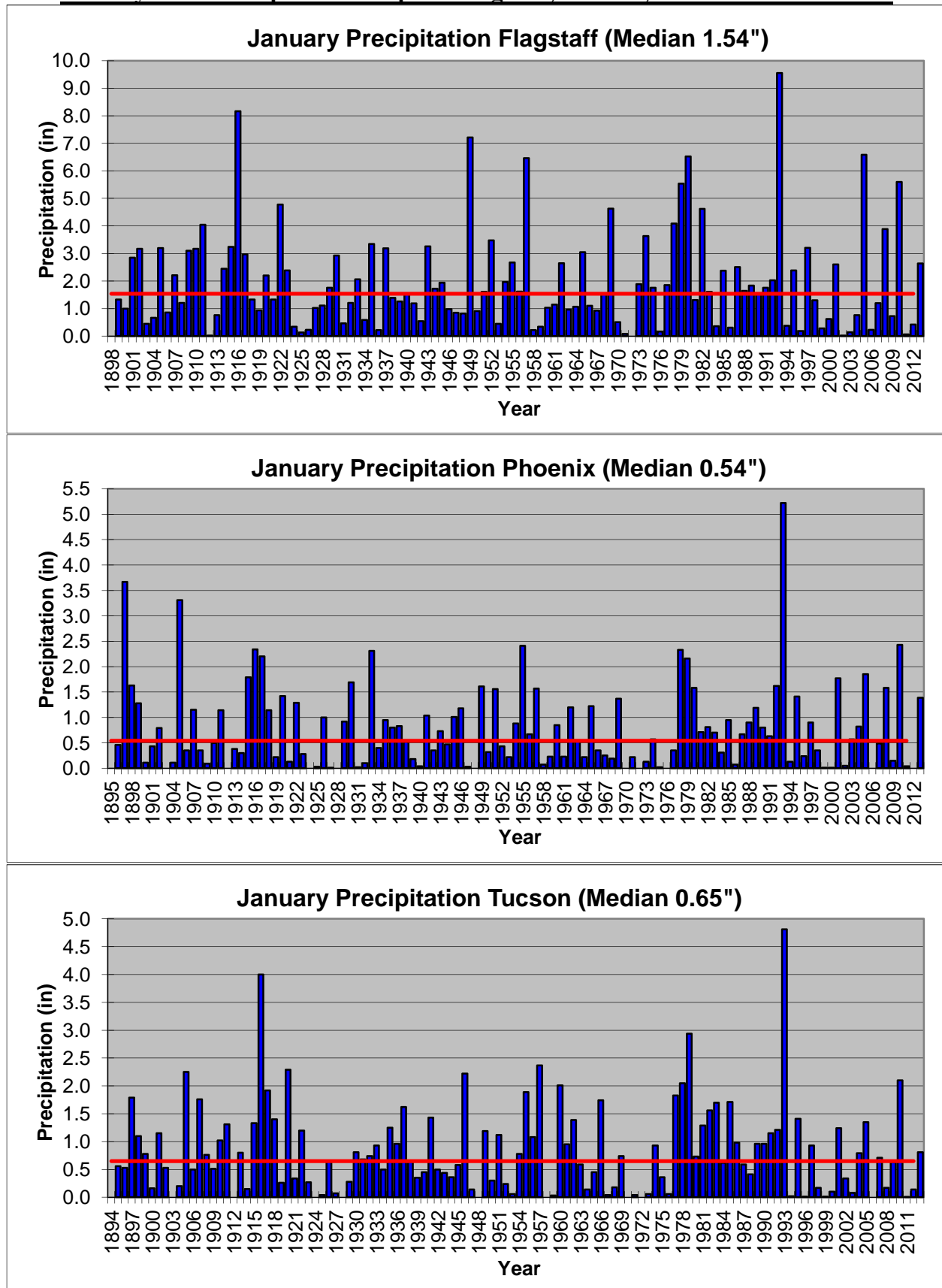
2013 Water Year

Minimum temperatures have been within 2 degrees of normal since October 1st, with January providing the cooler temperatures to balance out the warm fall season. The Colorado Plateau has become colder than normal. Maximum temperatures are still 1-3°F warmer than normal, as they had been as much as 4°F warmer than normal in the fall. Through the end of January, the water year remains much drier than normal, less than 70% of average across most of the southern part of the state. The only wet areas are the lower Colorado River valley in Mohave and La Paz counties and across parts of the central Mogollon Rim.

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

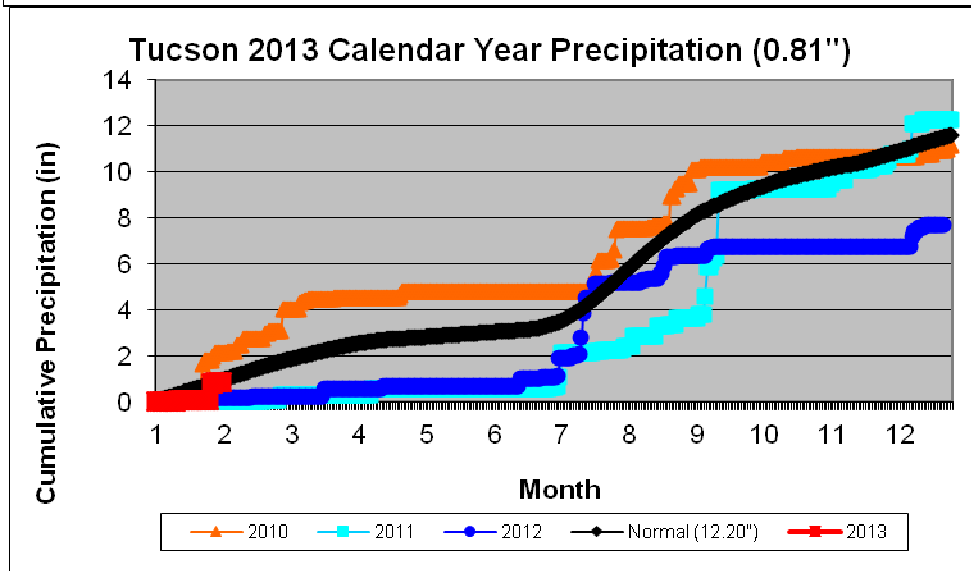
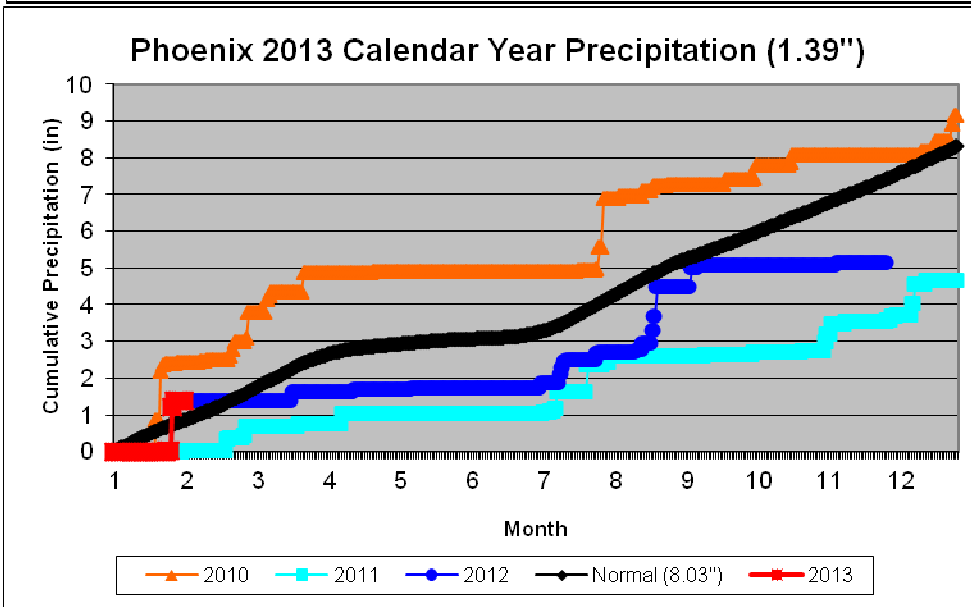
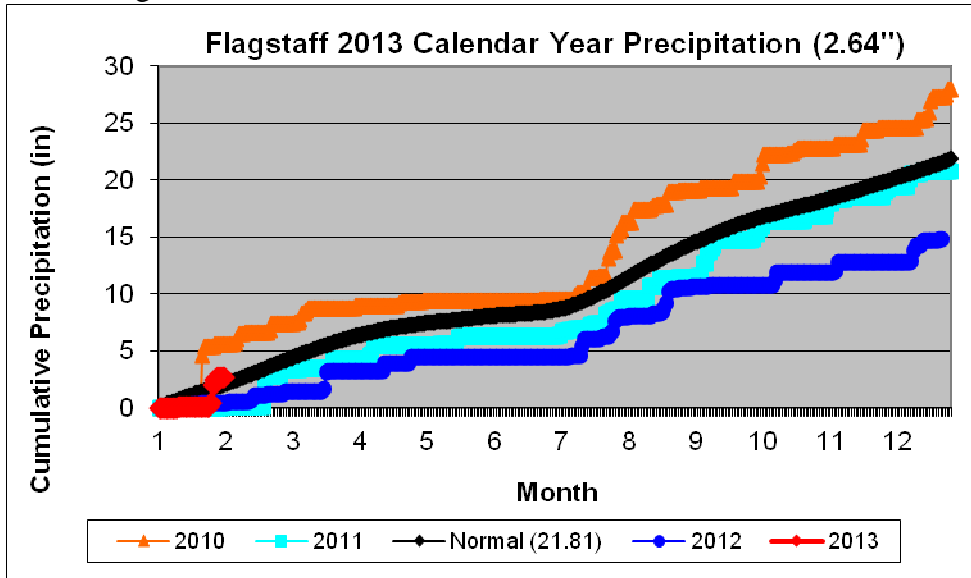


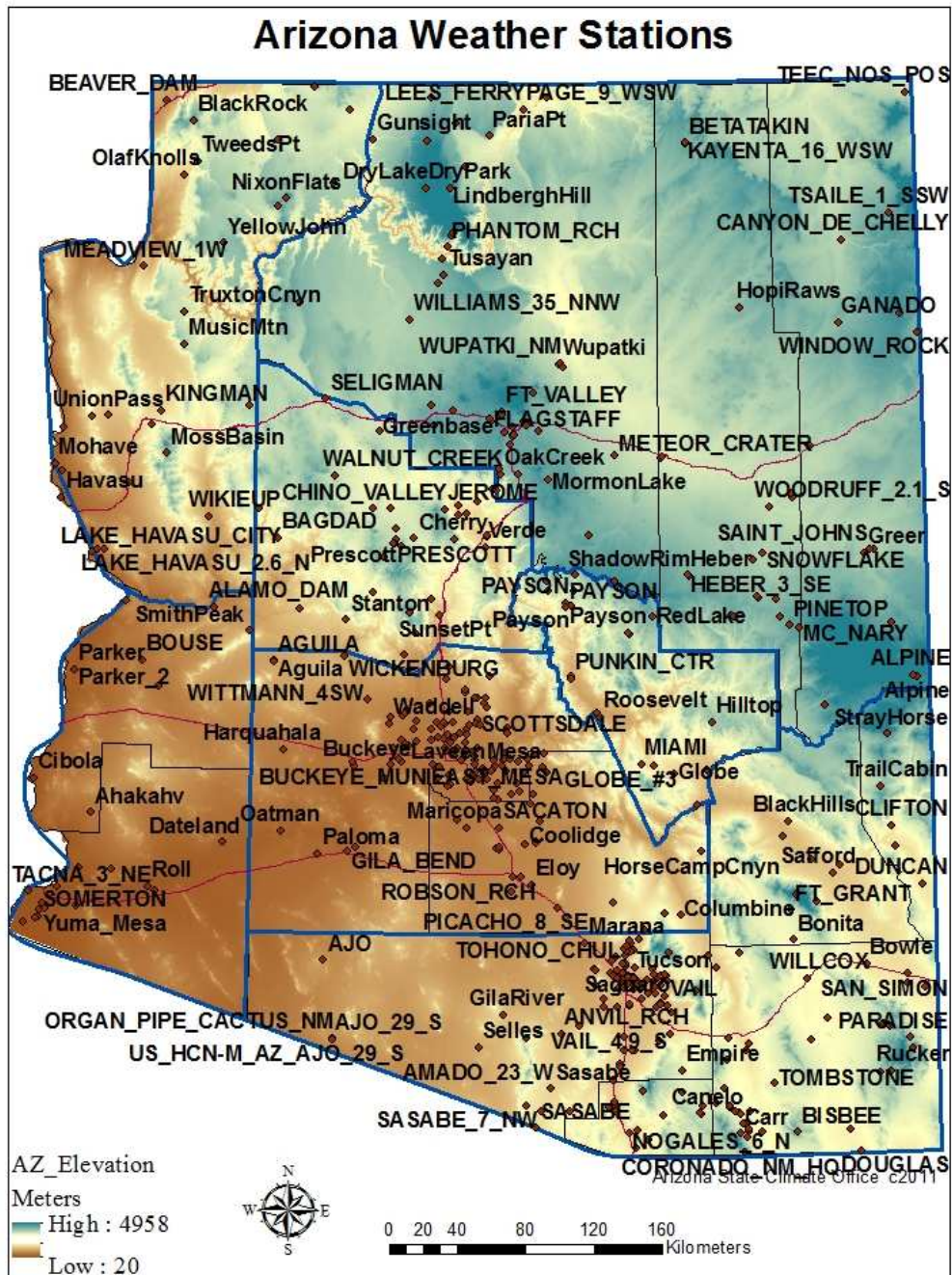
January Mean Precipitation Graphs – Flagstaff, Phoenix, and Tucson 1895-2013:



2013 Cumulative Precipitation Graphs – Flagstaff, Phoenix and Tucson:

Precipitation is well below average statewide.





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)