

# Arizona Climate Summary January 2012 

## Summary of conditions for December 2011

## December 2011 Temperature and Precipitation Summary

December $\mathbf{1}^{\text {st }}-\mathbf{1 7}^{\text {th }}$ : November ended with clear, dry weather under the influence of high pressure off the southern California coast. The high broke down and gave way to a low pressure system which brought cold, wet conditions on December $1^{\text {st }}$. Temperatures the first week of December were 10-15 degrees below normal. The Flagstaff area had 6-8" of snow on the $1^{\text {st }}$, followed by another 10 inches on the $2^{\text {nd }}$ and $3^{\text {rd }}$. By the $5^{\text {th }}$ of December, this winter storm also dropped 5.2" of snow on Payson, 5.3" to Navajo National Monument, 3" at Prescott, 3" at Seligman, and 1.7" at Show Low, and 1 " at Williams. Rainfall was also widespread, with 1.16 " at Tonto Natural Bridge, 0.41 " a Cottonwood, 0.25 " at Window Rock, 0.52 " at Tucson, 0.16 " at Scottsdale, 0.17 " at Phoenix Airport, 0.29 " at Safford Airport, 0.33 " at Casa Grande, 0.48 " at Davis Monthan AFB, 0.38 " at Grand Canyon Airport, and 0.80 " at Kingman. By the $6^{\text {th }}$, the system had moved out of the state, leaving behind significantly cooler temperatures. The warmest daytime temperature on the $6^{\text {th }}$ was $59^{\circ} \mathrm{F}$ at Yuma and the coldest was $32^{\circ} \mathrm{F}$ at Fort Valley. Nighttime temperatures dropped into negative numbers with $-19^{\circ} \mathrm{F}$ at Bellemont. Temperatures over the next week remained in the low 70 s and upper 60 s as the high pressure ridge formed off the coast of Washington state. These temperatures were near average, but would soon drop again as another cold, winter storm system moved in on the $12^{\text {th }}$. Polar air dropped \daytime temperatures mid 60 s in the warmest locations. This storm tapped into a stream of subtropical moisture, resulting in significant rainfall totals. Bisbee received 0.68 ", Casa Grande had 1.38", Davis Monthan AFB had 1.46", Nogales had 1.84", Phoenix Deer Valley had 0.64 ", Phoenix Airport had $0.74 "$ ", Safford had $0.81 "$, Scottsdale had 1.01 ", Sierra Vista had 1.22 ", South Mountain Park had 0.83 ", Tucson Airport had 1.33", and Yuma had 1.13". Snow totals included 11.1" at Bellemont, 3 " at the Grand Canyon South Rim, 2" at the Grand Canyon North Rim, 3.8" at Payson, 1.5" at Navajo National Monument, and 1" at Seligman. Another upper air disturbance moved across the southwest on the $15^{\text {th }}$ and a cut-off low pressure system sat over our southwestern border on the $16^{\text {th }}$ and $17^{\text {th }}$. This system produced very little precipitation and allowed temperatures to rebound back to near average values.

December $\mathbf{1 8}^{\text {th }}-\mathbf{3 1}^{\text {st }}$ : On the $18^{\text {th }}$, the cut-off low began moving across Arizona, bringing rainfall to all parts of the state on the $18^{\text {th }}, 19^{\text {th }}$ and $20^{\text {th }}$. The greatest reported snowfall was 5 " at Show Low, and 0.1 " at Canyon de Chelly. The storm was relatively warm as it had been sitting off the southern California coast for several days. Rainfall totals included 0.39 " at Davis Monthan, 0.15 " at Flagstaff, 0.16 " at Gila Bend, 0.21 " at Nogales, 0.12 " at Phoenix Airport, 0.38 " at Safford, 0.12 " at Sierra Vista, 0.37 " at Tucson Airport, 0.20 " at Bisbee, 0.32 " at Bellemont, 0.55 " at Coronado National Monument, $0.16 "$ at East Mesa, 0.18 " at Lost Dutchman State Park, $0.32 "$ at Payson, 0.29 " at Sonora Desert Museum, 0.25 " at Wickenburg, and 0.74 " at Petrified Forest National Park. One last low pressure system moved through eh state on the $22^{\text {nd }}-23^{\text {rd }}$, dropping less than a quarter of an inch of precipitation on most places. This last system did have significantly colder air, lowering daytime temperatures to the lower 60 s in the warmest locations. These cooler than normal temperatures remained through Christmas. Nighttime lows dropped into the single digits in the coldest locations, and even Phoenix had nighttime lows in the 30s by Christmas weekend. By the $28^{\text {th }}$, high pressure settled off the Baja California coast keeping skies clear and allowing temperatures to rise to about $5^{\circ} \mathrm{F}$ above seasonal normals.

[^0]School of Geographical Sciences \& Urban Planning Arizona State University
Tempe, AZ 85287-1508
Edited by Nancy J. Selover \& Matt Salerno

In This Issue: Overview of December, and the year 2011, graphs of the December daily maximum and minimum temperatures, precipitation, mean daily dew points for Flagstaff, Phoenix, and Tucson; December climate statistics, maps of mean monthly maximum and minimum temperatures, precipitation, dew points, wind speeds for December; and graphs of the mean December 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.

## 2011 Annual Summary:

2011 was a year of contrasts across the state with northern and southern Arizona receiving near average precipitation while central Arizona was much drier than normal. Phoenix received just over half its normal precipitation of 8.03". Flagstaff had 20.67", just under their normal of 21.86", and Tucson had 12.23 ', just over their normal of 11.59 ". This August was the hottest ever in Phoenix and the $2^{\text {nd }}$ hottest for both Flagstaff and Tucson, as well as many other Arizona towns. August 2011 was also tied with July 2009 as the warmest month ever in Phoenix. The high temperatures were largely a result of a lack of thunderstorms which cool the air through evaporation. The high humidity levels also kept nighttime temperatures quite warm. In early July, the dry winter and spring contributed to a monster dust storm that moved northwest from Tucson all the way through Phoenix to Wickenburg. Significant rainfall did not come to central Arizona until the following week. Five more large dust storms moved through Phoenix before the monsoon ended its activity around September $17^{\text {th }}$. The first $100^{\circ} \mathrm{F}$ day in Phoenix was April $1^{\text {st }}$, which ranks $2^{\text {nd }}$, after March 26,1988 , the earliest $100^{\circ}$ day. The early heat did not last, as May had no special ranking in temperature, but once the monsoon began, things heated up across the valley. Fall was also relatively warm in Arizona, but several cold winter storm in early November and early December cooled things off with significant snowfalls around the state. By Christmas, the southwest had received more snowfall than anywhere else in the contiguous 48 states. Just after Christmas, the pattern turned dry just in time for the New Year.

|  | Tucson |  | Phoenix |  | Flagstaff |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Month | Temperature | Precipitation | Temperature | Precipitation | Temperature | Precipitation |
| Jan | No ranking | $10^{\text {th }}$ driest | $27^{\text {th }}$ warmest | $17^{\text {th }}$ driest | No ranking | $4^{\text {th }}$ driest |
| Feb | No ranking | No ranking | No ranking | No ranking | $26^{\text {th }}$ coolest | $18^{\text {th }}$ wettest |
| Mar | $5^{\text {th }}$ warmest | Tied $10{ }^{\text {th }}$ driest | $8^{\text {th }}$ warmest | $18^{\text {th }}$ driest | $20^{\text {th }}$ warmest | No ranking |
| Apr | $10^{\text {th }}$ warmest | No ranking | $10^{\text {th }}$ warmest tie | No ranking | No ranking | No ranking |
| May | No ranking | No ranking | No ranking | No ranking | $25^{\text {th }}$ coolest | No ranking |
| Jun | $15^{\text {th }}$ warmest | No ranking | $22^{\text {nd }}$ warmest | Tied as driest | $25^{\text {th }}$ coolest | Tied as driest |
| Jul | $16^{\text {th }}$ warmest | No ranking | $12^{\text {th }}$ warmest tie | $21^{\text {st }}$ wettest | No ranking | No ranking |
| Aug | $2^{\text {nd }}$ hottest | No ranking | $1^{\text {st }}$ hottest | $19^{\text {th }}$ driest | $2^{\text {nd }}$ hottest | No ranking |
| Sep | $22^{\text {nd }}$ warmest | $1^{\text {st }}$ wettest | $3^{\text {rd }}$ hottest | $19^{\text {th }}$ driest | No ranking | $23^{\text {rd }}$ wettest |
| Oct | $13^{\text {th }}$ warmest | $29^{\text {th }}$ driest | $8^{\text {th }}$ warmest | No ranking | No ranking | $9^{\text {th }}$ driest |
| Nov | No ranking | No ranking | $27^{\text {th }}$ warmest tie | No ranking | No ranking | No ranking |
| Dec | No ranking | $16^{\text {th }}$ wettest | No ranking | No ranking | No ranking | No ranking |
| Annual | $19^{\text {th }}$ warmest tie | No ranking | $14^{\text {th }}$ warmest | $21^{\text {st }}$ driest | No ranking | No ranking |

"No ranking" means the temperature or precipitation was not within the top 30 warmest, coolest, wettest or driest.



Tucson December Maximum Temperature


December Precipitation Flagstaff



Tucson December Minimum Temperature


December Phoenix Precipitation




Flagstaff Mean Monthly Temperature Annual average $(1899-2011)=45.8^{\circ} \mathrm{F}\left(2011=45.8^{\circ} \mathrm{F}\right)$


Phoenix Mean Monthly Temperature Annual Average (1896-2011) $=\mathbf{7 1 . 8}{ }^{\prime \prime}\left(2011=75.2^{\circ} \mathrm{F}\right)$


Tucson Mean Monthly Temperature Annual average $(1895-2011)=67.8^{\circ} \mathrm{F}(2011=69.8)$


Flagstaff Mean Monthly Precipitation Annual average (1899-2011) = 20.73" (2011 = 18.62')


Phoenix Mean Monthly Precipitation Annual Average (1896-2011) = 7.53" (2011 = 4.66")


Tucson Mean Monthly Precipitation Annual average (1895-2011) = 10.92" (2011 = 12.23')


## FLAGSTAFF CLIMATE STATISTICS <br> December 2011

This December was tied for $25^{\text {th }}$ coldest and had no significant ranking for precipitation.

Avg Max Temp (F) $\quad 39.2$ Normal 42.5
Avg Min Temp (F) $\quad$ 13.3 Normal 16.8
Avg Mean Temp (F) 26.3 Normal 29.6
Departure from Normal (F) -3.3
Highest Monthly Avg Temp (F) 39.8 in 1980
Lowest Monthly Avg Temp (F) 21.9 in 1972, 1932
Highest Temp this month $(\mathrm{F}): 61$ on $29^{\text {th }}$
Lowest Temp this month (F): 0 on $4^{\text {th }}$ and $6^{\text {th }}$
Record High (F): 68 on 12/11/1950
Record Low (F): -23 on 12/23/1990, 12/08/1978
Temperature or precipitation records this month:
$6^{\text {th }}$ LoMax 21 set, previous record 23 in 1912.
Flagstaff Number of Days of:
Minimum Temp $10^{\circ}$ or lower 14
Minimum Temp $20^{\circ}$ or higher 9
Maximum Temp $30^{\circ}$ or lower 4
Maximum Temp $50^{\circ}$ or higher 5

Cooling Degree Days 0 Normal 0 Degree base $65^{\circ} \mathrm{F}$

| Total December Precipitation | $2.16 "$ |
| :--- | :---: |
| Normal December Precipitation | $1.87 "$ |
| Departure from normal | $+0.29 "$ |
| Greatest 24-Hr Precipitation | 1.62 on $12 / 12-13$ |
| Total Precipitation Year-to-Date | $20.67 "$ |
| Departure from Normal | $-1.19 "$ |

## Number of Days:

Clear 17
Partly Cloudy 10
Cloudy 4
Greatest December Precipitation 7.30 " in 1967 Least December Precipitation $0.00^{\prime \prime}$ in 1999, 1917, 1958

Average Wind Speed 5.6 mph Highest Peak Gust $\quad 39 \mathrm{mph}$ from $30^{\circ}$ on $23^{\text {rd }}$

Heating Degree Days 1197 Normal 1097 PHOENIX CLIMATE STATISTICS

December 2011

This December had no significant ranking for temperature or precipitation.

Avg Max Temp(F) 63.0 Normal 66.0
Avg Min Temp(F) $\quad 43.4$ Normal 44.8
Avg Mean Temp (F) 53.2 Normal 55.4
Departure from Normal (F) -2.2
Highest Monthly Avg Temp (F) 61.3 in 1980
Lowest Monthly Avg Temp (F) 46.6 in 1911
Highest Temp this month (F): 75 on $30^{\text {th }}$
Lowest Temp this month (F): 36 on $6^{\text {th }}$
Record High (F): $\quad 87$ on 12/10/1950
Record Low (F): $\quad 22$ on 12/26/1911, 12/31/2900

No temperature or precipitation records were set this month:

Phoenix Number of Days of:
Minimum Temp $40^{\circ}$ or lower 11
Minimum Temp $50^{\circ}$ or higher 2
Maximum Temp $60^{\circ}$ or lower 12
Maximum Temp $80^{\circ}$ or higher 7
Heating Degree Days 359 Normal 294
Cooling Degree Days 0 Normal 1
Degree base $65^{\circ} \mathrm{F}$

| Normal December Precipitation | 0.88 " |  |
| :---: | :---: | :---: |
| Departure from normal | +0.22" | Greatest December Precipitation 3.98`" in 1967 |
| Greatest 24-Hr Precipitation | 0.60" on 12/12-13 | Least December Precipitation 0.00 " in 1900, |
| Total Precipitation Year-to-Date | 4.66 | 2000, 1896, and 14 other years |
| Departure from Normal | -3.37" |  |
|  |  | Average Wind Speed 4.6 mph |
| Number of Days: |  | Highest Peak Gust 26 mph from $270^{\circ}$ on $18^{\text {th }}$ |
| Clear 14 |  |  |
| Partly Cloudy 13 |  |  |
| Cloudy 4 |  |  |
|  | TUCSON CL | STATISTICS $2011$ |

This December was tied for $22^{\text {nd }}$ coolest and had no significant ranking for precipitation.

Avg Max Temp(F) 60.4 Normal 64.8
Avg Min Temp(F) 37.4 Normal 39.1
Avg Mean Temp(F) 48.9 Normal 51.9
Departure from Normal (F) -1.7
Highest Monthly Avg Temp (F) 58.1 in 1980
Lowest Monthly Avg Temp (F) 41.3 in 1915
Highest Temp this month (F): 79 on $30^{\text {th }}$
Lowest Temp this month (F): 28 on $6^{\text {th }} \& 8^{\text {th }}$
Record High (F): 85 on 12/08/1939, 12/29/1921, 12/02/1911
Record Low (F): 10 on 12/14/1901
Temperature or precipitation records this month:
$4^{\text {th }}$ LoMax 48 set, previous record 49 set in 1971
$5^{\text {th }}$ LoMax 48 set, previous record 51 set in 1953
$13^{\text {th }}$ Precip 1.14 " set, previous record $0.39 "$ in 1993.
Tucson Number of Days of:
Minimum Temp $30^{\circ}$ or lower
Minimum Temp $40^{\circ}$ or higher
Maximum Temp $70^{\circ}$ or higher

| Heating Degree Days | 490 | Normal | 405 |
| :--- | ---: | ---: | ---: |
| Cooling Degree Days | 0 | Normal | 0 |
| Degree base $65^{\circ} \mathrm{F}$ |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Total December Precipitation | $2.03 "$ |  |  |
| Normal December Precipitation | $0.93 "$ |  |  |
| Departure from normal | $+1.10 "$ |  |  |
| Greatest 24-Hr Precipitation | $1.64 "$ on $12 / 19-20$ |  |  |
| Total Precipitation Year-to-Date | $12.23 "$ |  |  |
| Departure from Normal | $+0.64 "$ |  |  |

Greatest December Precipitation $5.85 "$ in 1914 Least December Precipitation 0.00 " in 1898, 1996, 2000, and 8 other years.

## Number of Days:

Clear 18

Partly Cloudy 5
Cloudy 2
Average Wind Speed 5.5 mph
Highest Peak Gust 45 mph from $130^{\circ}$ on $17^{\text {th }}$

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

Winds for December:

| Day | Phoenix |  | Flagstaff |  | Tucson |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| (mph) | Avg | Max | Avg | Max | Avg | Max |
| 1 | 7 | 26 | 5.1 | 22 | 8.9 | 40 |
| 2 | 4.3 | 16 | 3 | 15 | 3.1 | 20 |
| 3 | 7 | 21 | 5.2 | 30 | 6.6 | 20 |
| 4 | 4.5 | 15 | 2.8 | 15 | 2 | 21 |
| 5 | 4.5 | 18 | 11.4 | 29 | 5 | 20 |
| 6 | 4.2 | 16 | 2.8 | 18 | 3.2 | 14 |
| 7 | 2 | 16 | 2.6 | 13 | 6 | 21 |
| 8 | 2.4 | 10 | 2.3 | 15 | 3.6 | 16 |
| 9 | 3.1 | 14 | 2.3 | 18 | 4.4 | 16 |
| 10 | 3.8 | 20 | 2.3 | 14 | 9.2 | 33 |
| 11 | 3.6 | 15 | 3.7 | 28 | 5.4 | 20 |
| 12 | 8.8 | 26 | 5.1 | 21 | 5.3 | 26 |
| 13 | 8.4 | 23 | 3.6 | 13 | 5.6 | 18 |
| 14 | 4.3 | 15 | 5.2 | 16 | 3.5 | 17 |
| 15 | 2.8 | 15 | 4.9 | 18 | 2.4 | 18 |
| 16 | 11.6 | 25 | 16.9 | 33 | 17.5 | 41 |
| 17 | 7.6 | 18 | 12.7 | 28 | 15.1 | 45 |
| 18 | 7.6 | 26 | 2.9 | 14 | 3.4 | 24 |
| 19 | 3.9 | 18 | 7.9 | 20 | 2 | 20 |
| 20 | 3.6 | 13 | 1.8 | 16 | 2.7 | 18 |
| 21 | 2.8 | 18 | 5.5 | 20 | 4.4 | 18 |
| 22 | 6.1 | 23 | 10.3 | 31 | 6.1 | 25 |
| 23 | 5.1 | 21 | 16.9 | 39 | 4.5 | 20 |
| 24 | 1.8 | 13 | 13.3 | 35 | 4.6 | 21 |
| 25 | 3.4 | 13 | 4.2 | 20 | 6 | 22 |
| 26 | 3 | 10 | 4 | 18 | 5.3 | 21 |
| 27 | 2.4 | 8 | 2.9 | 18 | 5.1 | 18 |
| 28 | 3.4 | 12 | 0.7 | 10 | 4.9 | 16 |
| 29 | 3.4 | 15 | 2.4 | 18 | 5.2 | 17 |
| 30 | 3.3 | 13 | 4.4 | 23 | 5.8 | 26 |
| 31 | 3.5 | 13 | 3.5 | 20 | 4.1 | 18 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

Dew Points for December:
Daily Average Dew Point ( ${ }^{\circ}$ F):

| Day | Phx | Tuc | Flg |
| ---: | ---: | ---: | ---: |
| 1 | 41 | 43 | 25 |
| 2 | 39 | 38 | 23 |
| 3 | 36 | 36 | 16 |
| 4 | 36 | 33 | 10 |
| 5 | 24 | 27 | 6 |
| 6 | 23 | 25 | 5 |
| 7 | 25 | 26 | 7 |
| 8 | 27 | 25 | 9 |
| 9 | 25 | 26 | 12 |
| 10 | 29 | 31 | 13 |
| 11 | 37 | 35 | 23 |
| 12 | 43 | 41 | 26 |
| 13 | 45 | 40 | 27 |
| 14 | 41 | 39 | 17 |
| 15 | 37 | 35 | 19 |
| 16 | 38 | 38 | 22 |
| 17 | 43 | 41 | 27 |
| 18 | 42 | 42 | 28 |
| 19 | 44 | 41 | 27 |
| 20 | 42 | 40 | 21 |
| 21 | 38 | 39 | 13 |
| 22 | 25 | 29 | 13 |
| 23 | 23 | 25 | 4 |
| 24 | 23 | 21 | 3 |
| 25 | 26 | 18 | 2 |
| 26 | 29 | 17 | 5 |
| 27 | 29 | 23 | 7 |
| 28 | 31 | 24 | 14 |
| 29 | 34 | 26 | 22 |
| 30 | 36 | 31 | 17 |
| 31 | 37 | 32 | 26 |

December 2011 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 $7^{\circ} \mathrm{F}$ at Sunrise Mountain, to $52^{\circ} \mathrm{F}$ at Bowie. Average daytime temperatures ranged from $34^{\circ} \mathrm{F}$ at Bright Angel at the bottom of the Grand Canyon, to $71^{\circ} \mathrm{F}$ at Bowie. Precipitation values ranged from 0 " in a few places in the southwest desert and along the lower Colorado River to 7.72 " at Bright Angel and 7.55 " at Kitt Peak. Most of the precipitation fell on the $12^{\text {th }}$ and $13^{\text {th }}$ during our first major winter storm. As is normal for this time of year, the warmest areas were in the southwest deserts and the coldest areas were just above the rim and at the higher elevations of the San

Francisco Peaks and the White Mountains.


Average monthly dew points ranged from $-6^{\circ} \mathrm{F}$ at Bright Angel in the Grand Canyon, to $37^{\circ} \mathrm{F}$ at Williams Gateway Airport in Mesa. Average winds were light, with 15 mph as the highest average at Laughlin-Bullhead City. The highest peak wind gust was 72 mph at Humbug Creek in southern Yavapai County. 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 unless the storms are steered by upper level winds. The arrows point to the direction the winds blow from.


| 10 | 15 | 20 | 25 | 30 | 35 | 1 | 1 | 1 |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | Generated 1/01/2012 at WRCC using provisional data. NOLA Regional Climate Centers

Av. Max. Temperature (deg. F) 12/1/2011 - 12/31/2011


|  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |

Generated 1/01/2012 at wRCC using provisional data. NOAA Reqional Climate Centers

Total Precipitation (in.)


| 0.1 | 0.25 | 0.5 | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | Generated 1/01/2012 at WRCC using provisional dato.

NOAA Reqional Climate Centers


December minimum temperatures were $0-3^{\circ} \mathrm{F}$ warmer than average across eastern Maricopa, Gila, Graham, Greenlee, and eastern Cochise counties, and $1-4^{\circ} \mathrm{F}$ colder than average across northern and western Arizona, Pinal, Pima and western Cochise counties. Daytime temperatures were much colder than normal everywhere in the state. Precipitation in December was again quite localized ranging from less than 5\% of average in northern Apache County, to over 200\% of average in Yavapai and western Pima counties. Northern Coconino and Mohave counties had between 25 and $90 \%$ of average precipitation.

$\begin{array}{lllllllllll}25 & 30 & 35 & 40 & 45 & 50 & 55 & 60 & 65 & 70 & 75\end{array}$
Generated 1/01/2012 at WRCC using provisional data.
NOAA Regional Climate Centers


Generated 1/01/2012 at WRCC using provisional dato, NOAA Reqional Climate Centers

Total Precipitation (in.)

$\begin{array}{lllllllllll}0.1 & 0.5 & 1 & 2 & 4 & 6 & 8 & 10 & 12 & 14 & 16\end{array}$ Generatad $21 / 2$ at wRCC using provisional dato.
NOAA Reqional Climate Centers


Av. Max. Temperature dep from Ave (deg F)


Generated $1 / 01 / 2012$ at WRCC using provisional dato. NOAA Reqional Climate Centers

Percent of Average Precipitation (\%)
 NOAA Reqional Climote Centers using provisional dato.

and Reqional Climate Centers

Since January $1^{\text {st }}$, nighttime temperatures have been within $2^{\circ} \mathrm{F}$ of average across the Colorado Plateau, and within $1^{\circ} \mathrm{F}$ of average across southern Arizona. The warmest area is in western Pinal County and central Maricopa County west of Phoenix at $2-5^{\circ} \mathrm{F}$ warmer than average. Daytime temperatures have been within $2^{\circ} \mathrm{F}$ of average statewide. The coldest areas are Mohave, western Yavapai, northern Maricopa and northern Gila counties. Precipitation for the calendar year is near average in most of Coconino County and in the Tucson area, while central Arizona has received less than $70 \%$ of average. Yuma and western Pima Counties have received significantly above average precipitation (120-150\% of average).

$\begin{array}{lllllllllllll}120 & 25 & 30 & 35 & 40 & 45 & 50 & 1 & 1 & 1 & 70 & 65 & 70\end{array}$ Generated 1/01/2012 at WRCC using provisional data. NOAA Regional Climate Centers


|  | 18 | 51 | 54 | 57 | 60 | 63 | 66 | 1 | 1 |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Generated 1/01/2012 at WRCC using provisional dato. NOAA Reqional Climate Centers

Total Precipitation (in.)

$\begin{array}{llllllllllll}0.1 & 0.25 & 0.5 & 1 & 1.75 & 2.5 & 3.25 & 4 & 4.75 & 5.5 & 6.25\end{array}$ Nour Rat
NOAA Reqional Climate Centers

Av. Min. Temperature dep from Ave (deg. F)

 Generated $1 / 01 / 2012$ at WRCC using provisional dato. NOAA Regional Climate Centers

Av. Max. Temperature dep from Ave (deg F)

 NOAA Reqional Climate Centers

Percent of Average Precipitation (\%)

$\begin{array}{llllllllllll}\text { Generated } 1 & 5 & 25 & 50 & 70 & 90 & 100 & 110 & 130 & 150 & 200 & 300\end{array}$
NOAA Reqional Climate Centers using provisional data.
Water Year 2012 (Oct 12011 - Sep 30 2012)

The new water year, 2012, which began October $1^{\text {st }}$, is a reflection of the fall weather in 2011. The nighttime lows have been within $1^{\circ} \mathrm{F}$ of average across the Colorado Plateau, while southern Arizona has generally been $0-3^{\circ} \mathrm{F}$ warmer than average. Western Pima County has been $1-3^{\circ} \mathrm{F}$ colder than average while Maricopa and western Pinal counties have been $2-5^{\circ} \mathrm{F}$ warmer than average. Daytime high temperatures have been within $2^{\circ} \mathrm{F}$ of the long-term average on the Colorado Plateau. Yavapai, Maricopa, and Pima counties were $0-4^{\circ} \mathrm{F}$ colder than average. So far this water year, the eastern $2 / 3$ of the state had had less than $90 \%$ if average precipitation while the western $1 / 3$ has had $100-200 \%$ of average precipitation. The exception is western Maricopa County which has been quite dry with $25-90 \%$ of average precipitation. Like the 2011 water year, this one has been wet through December, but turned dry just after Christmas.

Predictions are for the weak to moderate La Niña to bring dry conditions through March.

December Mean Temperature Graphs - Flagstaff, Phoenix, and Tucson 1895-2011:
Flagstaff Mean DecemberTemperature (Median $30.1^{\circ} \mathrm{F}$ )


Phoenix Mean DecemberTemperature (Median $53.7^{\circ} \mathrm{F}$ )


Tucson Mean DecemberTemperature (Median $51.6^{\circ} \mathrm{F}$ )


Year

December Mean Precipitation Graphs - Flagstaff, Phoenix, and Tucson 1895-2011:




## 2011 Cumulative Precipitation Graphs - Flagstaff, Phoenix and Tucson:

Precipitation is well below average in Phoenix and near average in Flagstaff and 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)


[^0]:    State Climate Office
    Dr. Nancy J. Selover, State Climatologist http://azclimate.asu.edu Tel: 480-965-6265 © 2012 Arizona State Climate Office

