October 2016 Temperature and Precipitation Summary

October 1st – 16th: October began with high pressure over Mexico, bringing subtropical moisture into the state and an easterly wave over Arizona, triggering widespread thunderstorms across the state. Most of the rainfall fell in the southeast and in Yavapai and Coconino counties in northern Arizona, and totals were near half an inch each day through the 3rd. This tropical moisture was the final act of the 2016 monsoon season. Temperatures dropped to the mid-90s and upper 80s through the 6th. Rainfall totals for the 3 days included 0.07” at Davis Monthan AFB, 0.12” at Elgin, 0.02” at Flagstaff, 0.21” at Phoenix Deer Valley, 0.20” at Phoenix Sky Harbor, 0.23” at Scottsdale, 0.10” at Tucson Airport, 0.23” at Window Rock, 0.54” at Carefree, 0.50” at Douglas, 0.40” at East Mesa, 0.18” at Eloy, 0.29” at Apache Junction, 0.20” at Petrified Forest, 0.31” at Show Low, 0.02 at Springerville, and 0.06” at Williams. By the 4th, the high pressure moved westward over the Pacific Ocean, bringing dry westerly flow to Arizona, and temperatures climbed back into the upper 90s by the 7th in central Arizona and the southwest deserts. On the 8th and 9th, the high pressure migrated over Texas drawing more subtropical moisture into the state, resulting in some scattered storms on the 8th and 9th. Flagstaff had 0.34” of rain, Cottonwood had 0.11”, Prescott had 0.58”, Safford had 0.32”, Show Low had 0.16”, and Sonoran Desert Museum had 0.47”. In addition to the rainfall, Safford had a major hailstorm on the night of the 8th into the 9th. Cotton and other crops suffered severe damage. By the 10th, the moisture had moved on to New Mexico and westerly flow brought more dry air. Daytime temperatures remained in the mid to upper 90s in the warmest desert locations and the mid-60s in the coldest locations through the 16th. Nighttime temperatures dropped to the mid-20s at the higher elevations and finally dropped into the upper-60s in the southwest deserts.

October 17th – 31st: On the 17th, an upper level low pressure system moving across the northwest flattened the ridge somewhat allowing slightly cooler air to enter the state, dropping the daytime and nighttime temperatures by about 5 degrees. Conditions remained dry, but the slightly cooler weather was short-lived. By the 20th, temperatures were back up near 100°F in the deserts and nighttime lows in the higher elevations were nearing 30°F, up from 23°F. Between the 23rd and 25th a strong low pressure system off the central California coast brought some cooler temperature sand showers to the northern 1/3 of the state. Flagstaff had 031”, Grand Canyon Airport had 0.45”, Kingman had 0.50”, Prescott had 0.19”, Valle had 0.25”, Window Rock had 0.08”, Winslow had 0.13”, Bellemont had 0.58”, Cottonwood had 0.06”, Grand Canyon North Rim had 0.67”, Payson had 0.20”, Phantom Ranch had 0.32”, Seligman had 0.19” and Williams had 0.65” of rain. Temperatures rose again on the 26th as high pressure moved back over the state and on the 27th, Phoenix set a new record for the latest date of 100°F. The previous latest date for 100°F was October 23, 2003. The high daytime temperatures were accompanied by very warm nights in the low and mid-70s. Nighttime temperatures in the higher elevations were in the mid to upper-30s. By the 29th and 30th, the high pressure broke down and moved eastward as another low pressure system approached off the California coast. That system brought rain (and snow down to 5500 feet) to northern and Central California and may bring some precipitation to northern Arizona. October ended with unseasonably warm temperatures and continued dry conditions. This October was the warmest on record for Tucson, the 3rd warmest on record for Phoenix, and 12th warmest for Flagstaff.

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

October 2016 Daily Temperature, Precipitation, & Dew Point for Flagstaff, Phoenix, and Tucson
FLAGSTAFF CLIMATE STATISTICS
October 2016

This October was the 12th warmest had no significant ranking for precipitation.

Avg Max Temp (F) 66.4 Normal 62.0
Avg Min Temp (F) 34.9 Normal 31.5
Avg Mean Temp (F) 50.6 Normal 46.8
Departure from Normal (F) +3.8

Highest Monthly Avg Temp (F) 52.5 in 1988
Lowest Monthly Avg Temp (F) 38.6 in 1971

Highest Temp this month (F): 73 on 21st
Lowest Temp this month (F): 26 on 19th

Record High (F): 85 on 10/1/1980
Record Low (F): -2 on 10/30/1971

Temperature or precipitation records this month:
17th – HiMin 47 set, previous record 44 in 2004
31st – HiMin 42 tied, first set in 2003

Flagstaff Number of Days of:
Minimum Temp 40°F or higher 5
Minimum Temp 32°F or lower 9
Maximum Temp 70°F or higher 5
Maximum Temp 60°F or lower 1

Heating Degree Days 438 Normal 566
Cooling Degree Days 0 Normal 0
Degree base 65°F

Total October Precipitation 0.67”
Normal October Precipitation 1.66”
Departure from normal -0.99”
Greatest 24-Hr Precipitation 0.34” on 10/8-9
Total Precipitation Year-to-Date 19.40”
Departure from Normal +1.17”
Total October Snowfall 0.0” Normal 1.5”
Record October Snowfall 24.7” 1971

Number of Days:
Clear 28
Partly Cloudy 3
Cloudy 0

Greatest October Precipitation 9.86” in 1972
Least October Precipitation: 0.00” in 1917, 1902,
and 6 other years

Average Wind Speed 6.8 mph
Highest Peak Gust 42 mph from 210º on 3rd

PHOENIX CLIMATE STATISTICS
October 2016

This October was the 3rd warmest and had no significant ranking for precipitation.

Avg Max Temp(F) 93.4 Normal 88.5
Avg Min Temp(F) 68.6 Normal 64.8
Avg Mean Temp (F) 81.0 Normal 76.7
Departure from Normal (F) +4.3

Highest Monthly Avg Temp (F) 82.7 in 2003
Lowest Monthly Avg Temp (F) 66.1 in 1916

Highest Temp this month (F) 100 on 27th
Lowest Temp this month (F): 59 on 4th

Record High (F): 107 on 10/1 & 2/1980
Record Low (F): 34 on 10/30/1971

Temperature or precipitation records this month:
27th – HiMax 100 set, previous record 98 in 2001
27th – new latest 100°F day, previous 10/23/2003
28th – HiMin 76 set, previous record 70 in 1985
29th – HiMax 96 set, previous record 95 in 2007
31st – HiMin 68 tied, first set in 2001

Phoenix Number of Days of:
Minimum Temp 65°F or lower 5
Minimum Temp 70°F or higher 12
Maximum Temp 90°F or lower 8
Maximum Temp 95°F or higher 15

Heating Degree Days 0 Normal 6
Cooling Degree Days 502 Normal 367
Degree base 65°F
Total October Precipitation 0.20”
Normal October Precipitation 0.58”
Departure from normal -0.38”
Greatest 24-Hr Precipitation 0.20” on 1st-2nd
Total Precipitation Year-to-Date 4.56”
Departure from Normal -1.94”

Greatest October Precipitation 4.40” in 1972
Least October Precipitation 0.00” in 1973, 1995, and 1999 and 18 other years.

Number of Days:
Clear 22
Partly Cloudy 8
Cloudy 1

Average Wind Speed 5.5 mph
Highest Peak Gust 24 mph from 280° on 3rd

TUCSON CLIMATE STATISTICS
October 2016

This October was the warmest on record and had no significant ranking for precipitation.

Avg Max Temp(F)  92.5 Normal 84.8
Avg Min Temp(F)  62.5 Normal 57.3
Avg Mean Temp(F)  77.5 Normal 71.0
Departure from Normal (F) +6.5

Highest Monthly Avg Temp (F)  77.5 in 2016
Lowest Monthly Avg Temp (F)  63.1 in 1920

Highest Temp this month (F):  97 on 27th
Lowest Temp this month (F):  54 on 4th

Record High (F):  102 on 10/03/1993, 10/01/2010
Record Low (F):  26 on 10/30/1971

Temperature and precipitation records this month:
21st HiMin 71 set, previous record 66 in 1951
21st HiMax 96 tied, first set in 2003
22nd HiMin 64 set, previous record 63 in 1998
22nd HiMax 96 set, previous record 95 in 2003
23rd HiMin 67 set, previous record 66 in 1992
27th HiMax 97 set, previous record 94 in 1937
28th HiMin 68 tied, first set in 2014
29th HiMax 94 tied, first set in 2010
31st HiMin 65 set, previous record 64 in 2014

Tucson Number of Days of:
Minimum Temp 60°F or lower 9
Minimum Temp 70°F or higher 1
Maximum Temp 90°F or lower 7
Maximum Temp 95°F or higher 10

Heating Degree Days 0 Normal 24
Cooling Degree Days 397 Normal 212
Degree base 65°F

Total October Precipitation 0.10”
Normal October Precipitation 0.89”
Departure from normal -0.79”
Greatest 24-Hr Precipitation 0.09” on 2nd
Total Precipitation Year-to-Date 10.23”
Departure from Normal +0.14”

Greatest October Precipitation 4.98” in 2000, 1983
Least October Precipitation 0.00” in 1973, 1982, 2013 and 16 other years.

Number of Days:
Clear 27
Partly Cloudy 0
Cloudy 0

Average Wind Speed 7.2 mph
Highest Peak Gust 35 mph from 120° on 21st

Data are from the National Weather Service and the National Climatic Data Center and are preliminary.
### Wind Speeds for October:

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### Dew Points for October:

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The minimum temperatures ranged from 16°F at Fort Valley near Flagstaff to 72°F at Falcon Field in Mesa. The lowest maximum temperature of 62°F was recorded at Snowslide Canyon, while the highest maximum temperature was 102°F at Yuma. The highest rainfall amount was 2.33” at Safford Airport. Hail also fell at Safford contributing to the precipitation total. The lowest average dew point was 29°F at Flagstaff and the highest was 53°F at Paloma. The highest peak wind gust was 37 mph at Mohave. Average wind speeds ranged from 2 mph at many locations in central Arizona to 11 mph at Kingman, Laughlin-Bullhead City and Flagstaff.
October 2016

The highest average minimum temperature was 72°F at Falcon Field in Mesa, and the lowest average minimum temperature was 25°F at Flagstaff. The highest average maximum temperature was 96°F at Tacna and lowest average maximum temperature was 56°F at Snowslide Canyon.
October minimum temperatures were 2 to 6°F warmer than average across most of the state, and 6 to 8°F warmer than normal in northern Coconino County and parts of Gila, southern Navajo and western La Paz counties. Much of Graham and northern Cochise counties and the intersection of Yavapai, Gila and Coconino counties were a few degrees cooler than normal. Daytime temperatures were also 2 to 4°F warm than average across western Arizona and 4 to 6°F warmer than normal across central and eastern Arizona. Central Navajo and Apache counties and eastern Pima and southwestern Cochise counties were 6 to 8°F warmer than normal. Virtually the entire state had less than 50% of normal October rainfall, with southern Arizona and the Colorado Plateau below 25% of normal. The wettest location was Safford which was hit by a significant hailstorm that dropped over 300% of normal precipitation, and caused crop damage.
Calendar Year 2016

Calendar year minimum temperatures are still within 2°F of average across most of the state, with the cooler temperatures in the southeast and western Pima County. Daytime temperatures remain 1 to 3°F warmer than average statewide, with slightly cooler conditions in southern Navajo and western Pinal counties. Precipitation is below 70% of normal across east central and southwestern Arizona. Northern Mohave, eastern Coconino and the southwestern counties are wetter than average so far this year.
The 2017 Water Year began with minimum temperatures 2 to 6°F warmer than average across most of the state, and 6 to 8°F warmer than normal in northern Coconino County and parts of Gila, southern Navajo and western La Paz counties. Much of Graham and northern Cochise counties and the intersection of Yavapai, Gila and Coconino counties were a few degrees cooler than normal. Daytime temperatures were also 2 to 4°F warm than average across western Arizona and 4 to 6°F warmer than normal across central and eastern Arizona. Central Navajo and Apache counties and eastern Pima and southwestern Cochise counties were 6 to 8°F warmer than normal. Virtually the entire state had less than 50% of normal October rainfall, with southern Arizona and the Colorado Plateau below 25% of normal. Safford got a head start on the Water Year precipitation with a significant hailstorm that dropped over 300% of normal precipitation, causing extensive crop damage.
October Mean Temperature Graphs – Flagstaff, Phoenix, and Tucson 1895-2016:

Flagstaff Mean October Temperature (Median 47.3°F)

Phoenix Mean October Temperature (Median 73.5°F)

Tucson Mean October Temperature (Median 70.0 °F)
October Mean Precipitation Graphs – Flagstaff, Phoenix, and Tucson 1895-2016

October Precipitation Flagstaff (Median 1.12")

October Precipitation Phoenix (Median 0.23")

October Precipitation Tucson (Median 0.38")
2016 Cumulative Precipitation Graphs – Flagstaff, Phoenix and Tucson:
Flagstaff is 1.17” above normal, Tucson is 0.14” above normal, and Phoenix is 1.94” below normal.
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)