March 2018 Temperature and Precipitation Summary

March 1st – 16th: March began with rainfall in southeastern Arizona as the tail end of a low pressure system exited the state. Douglas reported 0.15”. The rest of the state was dry with cooler than normal temperatures. Highs in the SW deserts were in the low 70s and the mountains were in the mid to upper 30s. The next two days were dry, but cool, as the next low pressure system moved slowly across California and Nevada. On the 4th, the southern edge of that storm crossed northern Arizona, but only Flagstaff and the north rim of the Grand Canyon received rainfall, both less than 0.10”. High pressure moved in and remained in control through the 9th, raising temperatures back up into the lower 80s. A shortwave moved into the state on the 10th and remained through the morning of the 13th, bringing rain and cooler temperatures. Storm totals included 1.0” of snow at the north rim of the Grand Canyon, 0.31” of rain at Flagstaff, 0.44” at the Grand Canyon Airport, 0.30” at Kingman, 0.43” at Page, 0.04” at Phoenix, 0.24” at Prescott, 0.88” at St. Johns, 0.02” at Scottsdale, 0.39” at Valle, 0.37” at Window Rock, 0.08” at Winslow, 0.55” at Canyon de Chelly, 0.41” at Cottonwood, 0.05” at Apache Junction and East Mesa, 0.60” at Payson, 0.41” at Petrified Forest, 0.15” at Pine Mountain, 0.52” at Seligman, 0.12” at Show Low, and 0.82” at Springerville. Southern Arizona remained dry. The state remained dry on the 14th before the next system moved in on the 15th. A cold low pressure system crossed northern Arizona on the 15th and 16th, dropping snow on Flagstaff and Bellemont (1.0” each). Kingman had 0.09” of rain, while Prescott and St. Johns had 0.02”, Page had 0.04”, Window Rock and Payson had 0.08”, Show Low had 0.10”, Williams had 0.04” and the southern half of the state again remained dry.

March 17th – 31st: The 17th was dry across the state before the next system moved quickly through on the 18th, dropping rain and snow across the northern half of the state. Snow totals included 3.0” at Flagstaff AP, 0.2” at Bellemont, 4.8” at the north rim of the Grand Canyon, and 2.0” at Phantom Ranch. Rainfall totals were light and widely scattered, and generally less than 0.10”. The 19th, 20th and 21st were dry and temperatures rebounded to above normal levels, reaching the 80s in the southwest deserts. Another weak low pressure system passed across northern and central Arizona from the 22nd through the 24th, bringing scattered rain showers including 0.07” at Kingman, 0.16” at Page and 0.05” at Coronado National Monument. The 25th was dry between storms. The last storm system of the month moved through on the 26th through the 28th. Very little moisture was associated with this storm, as with most storms in March, but it did reach into southern Arizona. Grand Canyon AP had 0.03”, Safford had 0.20”, St. Johns, 0.26”, Alpine 0.20”, and Petrified Forest had 0.05”. High pressure moved in for the last three days of the month and into April raising temperatures into the upper 80s and lower 90s in the southwest deserts and upper 60s and lower 70s at the higher elevations.

In This Issue: Overview of March, graphs of the March daily maximum and minimum temperatures, precipitation, mean daily dew points for Flagstaff, Phoenix, and Tucson; March climate statistics, maps of mean monthly maximum and minimum temperatures, precipitation, dew points, wind speeds for March; short-term drought maps for the beginning and end of March 2018; Long-term Drought Map; and graphs of the mean March 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, are not yet updated through 2017. See p.21 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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Edited by Nancy J. Selover
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March 2018 Daily Temperature, Precipitation, & Dew Point for Flagstaff, Phoenix, and Tucson
FLAGSTAFF CLIMATE STATISTICS
March 2018

This March had no significant ranking for temperature or precipitation.

Avg Max Temp(F) 51.6 Normal 50.4
Avg Min Temp(F) 24.0 Normal 23.6
Avg Mean Temp(F) 37.8 Normal 37.0
Departure from Normal (F) +0.8

Highest Monthly Avg Temp (F) 44.9 in 1934
Lowest Monthly Avg Temp (F) 26.8 in 1973

Highest Temp this month (F): 69 on 31st
Lowest Temp this month (F): 14 on 7th

Record Low (F): -16 on 3/04/1966

No temperature or precipitation records this month:

Flagstaff Number of Days of:
Minimum Temp 25ºF or higher 15
Minimum Temp 20ºF or lower 9
Maximum Temp 60ºF or higher 6
Maximum Temp 50ºF or lower 16

Heating Degree Days 835 Normal 867
Cooling Degree Days 0 Normal 0
Degree base 65ºF

Total March Precipitation 0.93”
Normal March Precipitation 2.12”
Departure from normal -1.19”
Greatest 24-Hr Precipitation 0.25” on 15th

Total Precipitation Year-to-Date 5.01”
Departure from Normal -1.32”
Total March Snowfall 37.4” Normal 93.9”
Record March Snowfall 84.3” in 1901

Number of Days:
Clear 21
Partly Cloudy 9
Cloudy 1

Greatest March Precipitation 6.75” in 1970
Least March Precipitation: Trace in 1972

Average Wind Speed 8.6 mph
Highest Peak Gust 50 mph from 220º on 14th

PHOENIX CLIMATE STATISTICS
March 2018

This March was the 17th warmest and 19th driest on record. Phoenix has had 6 days of rain since January 1st and only 8 days of rain since Aug 23rd.

Avg Max Temp(F) 78.8 Normal 76.9
Avg Min Temp(F) 54.9 Normal 53.5
Avg Mean Temp (F) 66.8 Normal 65.2
Departure from Normal (F) +1.6

Highest Monthly Avg Temp (F) 72.3 in 2004
Lowest Monthly Avg Temp (F) 54.3 in 1897

Highest Temp this month (F): 92 on 31st
Lowest Temp this month (F): 44 on 1st

Record High (F): 100 on 3/26/1988
Record Low (F): 25 on 3/04/1966

No temperature or precipitation records this month:

Phoenix Number of Days of:
Minimum Temp 50ºF or lower 7
Minimum Temp 60ºF or higher 7
Maximum Temp 70ºF or lower 2
Maximum Temp 80ºF or higher 15

Heating Degree Days 35 Normal 81
Cooling Degree Days 100 Normal 87
Degree base 65ºF

Total March Precipitation 0.04”
Normal March Precipitation 0.99”
Departure from normal -0.95”
Greatest 24-Hr Precipitation 0.04” on 11th
This March was tied for 15th warmest with 2007 and
was the 9th driest on record.

Avg Max Temp(F)  77.0 Normal   74.1
Avg Min Temp(F)  48.9 Normal   46.2
Avg Mean Temp(F)  63.0 Normal   60.1
Departure from Normal (F)  +2.9

Highest Temp this month (F):     91 on 22nd
Lowest Temp this month (F):     34 on 1st

Record High (F):    99 on 3/26/1988
Record Low (F):    20 on 3/04/1965

Temperature or precipitation records this month:
14th  HiMin  58 set, previous record 57 in 2003
22nd  HiMax  91 set, previous record 90 in 1990

Tucson Number of Days of:
Minimum Temp  45°F or lower   10
Minimum Temp  55°F or higher  8
Maximum Temp  70°F or lower   7
Maximum Temp  80°F or higher  11
Number of Days:
Clear         8
Partly Cloudy 21
Cloudy        2

Average Wind Speed  6.2 mph
Highest Peak Gust  32 mph from 250° on 15th

TUCSON CLIMATE STATISTICS
March 2018

This March was tied for 15th warmest with 2007 and
was the 9th driest on record.

Avg Max Temp(F)  77.0 Normal   74.1
Avg Min Temp(F)  48.9 Normal   46.2
Avg Mean Temp(F)  63.0 Normal   60.1
Departure from Normal (F)  +2.9

Highest Temp this month (F):     91 on 22nd
Lowest Temp this month (F):     34 on 1st

Record High (F):    99 on 3/26/1988
Record Low (F):    20 on 3/04/1965

Temperature or precipitation records this month:
14th  HiMin  58 set, previous record 57 in 2003
22nd  HiMax  91 set, previous record 90 in 1990

Tucson Number of Days of:
Minimum Temp  45°F or lower   10
Minimum Temp  55°F or higher  8
Maximum Temp  70°F or lower   7
Maximum Temp  80°F or higher  11
Number of Days:
Clear         8
Partly Cloudy 21
Cloudy        2

Average Wind Speed  6.2 mph
Highest Peak Gust  32 mph from 250° on 15th

Heating Degree Days   103 Normal   179
Cooling Degree Days    44 Normal   29
Degree base 65°F

Total March Precipitation   0.00”
Normal March Precipitation  0.73”
Departure from normal      -0.73”
Greatest 24-Hr Precipitation Trace on 10th, 11th, 18th

Total Precipitation Year-to-Date   1.98”
Departure from Normal            -0.55”
Greatest March Precipitation     3.88” in 1905
Least March Precipitation        0.00” in 1984, 1956, 1933, and 5 other years.

Number of Days:
Clear         10
Partly Cloudy  0
Cloudy        0

Average Wind Speed  6.8 mph
Highest Peak Gust  37 mph from 220° on 24th

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

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## Dew Points for March:

### Daily Average Dew Point (°F):

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March 2018

The minimum temperatures ranged from -1°F at Lindbergh Hill and Snowslide Canyon to 51°F at Sedona. The lowest maximum temperature of 52°F was recorded at Sunrise Mountain and the highest was 96°F at Tacna and Roll. The highest rainfall totals were 2.70” at Snowslide Canyon and 2.59” at Sunset Crater, and the lowest was 0.00” at many stations. The lowest average dew point was 16°F at Flagstaff and the highest was 37°F at Paloma. The highest peak wind gust was 42 mph at San Simon. Average wind speeds ranged from 2 mph at Phoenix Encanto to 12 mph at Laughlin-Bullhead City, Show Low and Flagstaff Airports.
March 2018

The highest average minimum temperature was 56°F at Yuma, and the lowest average minimum temperature was 18°F at Sunrise Mountain. The highest average maximum temperature was 90°F at Clark Field and the lowest average maximum temperature was 43°F at Snowslide Canyon.
Short term drought maps for February 27th on left and March 27th on right. The relatively dry March led to an expansion of Severe Drought (D2) across Coconino, Yavapai, Mohave, La Paz and Yuma counties. Extreme Drought (D3) was introduced into central Arizona and expanded across the northeast counties. Extreme Drought (D3) increased from 9.27% of the state last month to 46.49% by the end of March.
Long-term drought map for March for Arizona shows hydrologic drought, and is based on both precipitation and evaporation using the Standardized Precipitation Index (SPI) and Standardized Precipitation Evaporative Index (SPEI) over the past 24-, 36-, and 48-months. While a few areas are shown as “No Drought”, these are mostly likely due to a lack of data, as the entire state is experiencing a long-term deficit of precipitation and reduced recharge to aquifers and reservoirs, as well as enhanced evaporation due to the high temperatures.
March minimum temperatures were within 2°F of average across the state with warmer than average temperatures in southeastern and west central Arizona where few winter storms ventured. Northeastern Arizona was cooler than average as the winter storms brushed across the northern third of the state, bringing more cool air than moisture. Daytime temperatures were also within 2°F of average across most of the state, with western Arizona cooler than normal and eastern Arizona warmer. March was even drier than February with most of the state receiving less than 50% of average March precipitation. Only southern Apache County had above average precipitation.
Calendar Year 2018

Calendar year minimum temperatures across Arizona were 0 to 3°F warmer than average except the northeast which was 0 to 3°F cooler than average. Daytime temperatures have been 3 to 5°F warmer than average. Since January most of the state has received less than 70% of average precipitation though the southwest quarter has received less than 50% of average. Southeastern Arizona and southern Apache County received over 110% of average precipitation, primarily in February.
Water Year 2018 minimum temperatures have been 0 to 4°F warmer than normal across the southern half of the state and within 2°F of normal in northern Arizona. La Paz County appears to have been much warmer than normal, but the bullseye may be due to bad data or a station move. Daytime temperatures have been 2 to 6°F warmer than normal statewide, with a few pockets that have been 6 to 8°F warmer than average. The entire state has received less than 50% of normal precipitation since October 1st in one of our driest winters on record.
March Mean Temperature Graphs – Flagstaff, Phoenix, and Tucson 1895-2018:

Flagstaff Mean March Temperature (Median 37.00°F)

Phoenix Mean March Temperature (Median 62.3°F)

Tucson Mean March Temperature (Median 58.8°F)
2018 Cumulative Precipitation Graphs – Flagstaff, Phoenix and Tucson:
Flagstaff is 1.32” below normal, Phoenix is 2.05” below normal, and Tucson is 0.55” 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)