ADDENDUM TO:

STATE OF ARIZONA EXCEPTIONAL EVENT DOCUMENTATION FOR WILDFIRE-CAUSED EXCEEDANCES ON JUNE 20, 2015 IN THE MARICOPA NONATTAINMENT AREA – SEPTEMBER 2016

Additional Evidence that Ozone and Ozone Precursor Emissions From the Lake Fire Reached and Affected Ozone Monitors Within the Maricopa Nonattainment Area

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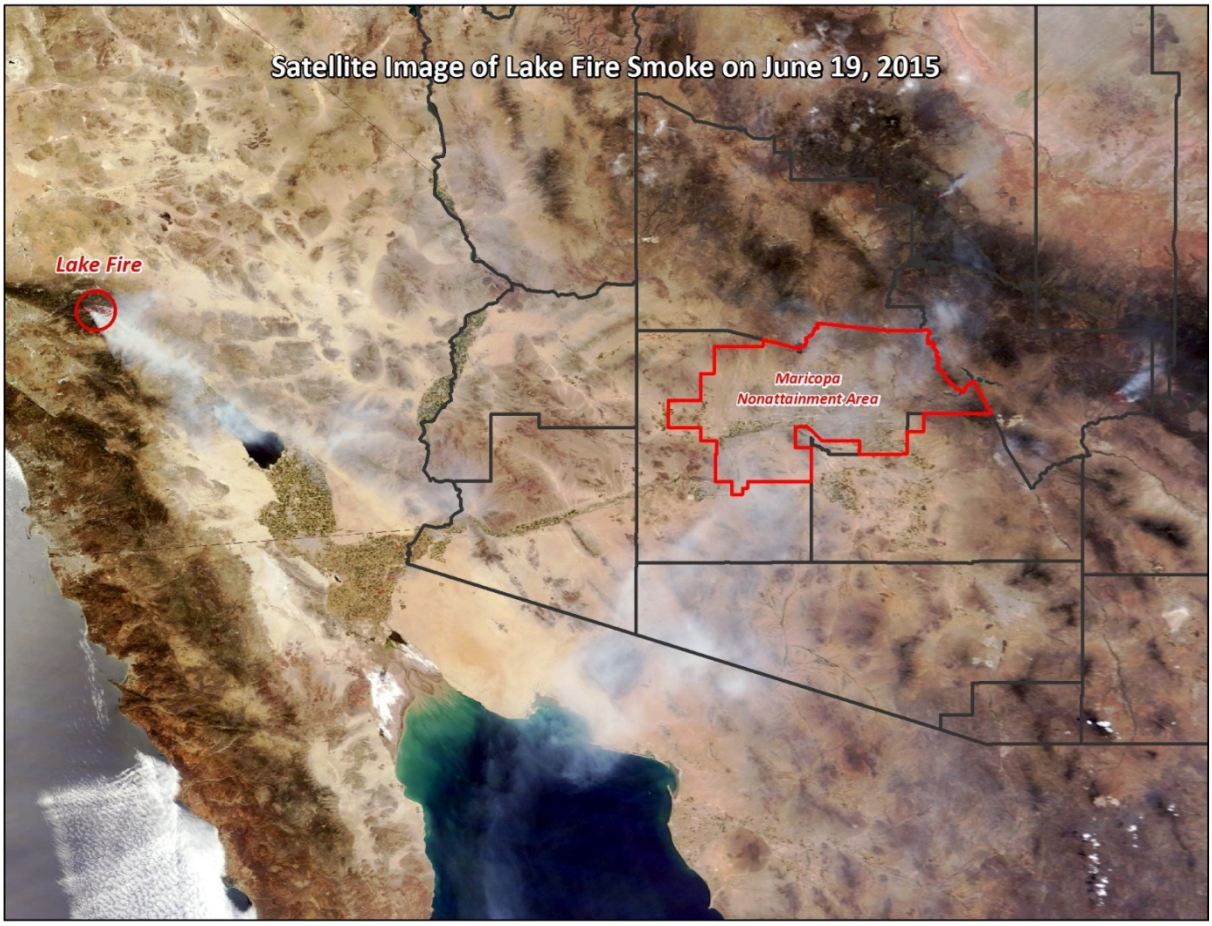
Final Report
May 2018



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INTRODUCTION

The exceptional event documentation submitted to the Environmental Protection Agency (EPA) in September 2016 by the Arizona Department of Environmental Quality (ADEQ) provided substantial evidence that exceedances of the 2008 ozone standard on June 20, 2015 in (or very near) the Maricopa nonattainment area were caused by transported ozone and ozone precursor emissions from the Southern California Lake Fire, qualifying the exceedances for exclusion as exceptional events. The documentation satisfied the statutory and regulatory requirements for excluding exceedances as exceptional events and followed the suggestions for presenting evidence of a wildfire-caused exceptional event as described in EPA's guidance document on wildfire exceptional events.

Since submittal of the documentation to EPA, EPA has requested additional evidence and analyses that ozone and ozone precursor emissions from the Lake Fire reached and affected (i.e., ground-level ozone impacts) the six monitors which recorded exceedances of the 2008 ozone standard on June 20, 2015. The additional evidence and analyses serve to further strengthen the clear causal relationship between the exceedances and the transported ozone and ozone precursor emissions from the Lake Fire presented in the prior documentation. This addendum provides the additional evidence and analyses requested by EPA in four sections.

The first section includes diurnal ozone data for each of the six exceeding monitors in order to present a complete picture of ozone concentration behavior at all exceeding monitors on June 20, 2015. The diurnal data includes 5th, 50th, and 95th percentiles for each hour, calculated from one-hour ozone data in years 2010-2015. For each of the six exceeding monitors, the 95th percentile ozone concentration is exceeded on June 20, 2015 during several hours, showing how the transported ozone and ozone precursor emissions from the Lake Fire reached and affected the exceeding monitors on an hourly basis.

The second section presents evidence of the Maricopa nonattainment area monitors being affected by emissions from the Lake Fire through elevated organic carbon concentrations as measured by speciated $PM_{2.5}$ monitor data at the JLG Phoenix Supersite monitor on June 20, 2015. A high organic carbon concentration has been identified as a wildfire emission tracer in several academic journal articles. This additional analysis confirms that emissions from the Lake Fire reached and affected the Maricopa nonattainment area monitors at the ground-level.

The third section expands upon the NO_2 concentration data presented in the prior documentation by showing that the diurnal NO_2 concentrations measured on June 20, 2015 were unusually high as compared to the prior six years. The diurnal data analysis also highlights the atypical rise in NO_2 concentrations seen on a Saturday (June 20, 2015), when NO_2 concentrations are normally expected to decrease from the prior day due to less anthropogenic activity on the weekends. This additional analysis confirms that either ozone or ozone precursor emissions from the Lake Fire reached and affected the Maricopa nonattainment area monitors at ground-level as measured in the form of elevated NO_2 concentrations.

The fourth and final section presents additional evidence of the uniqueness of the June 20, 2015 exceedance through matching day analyses that (1) provide a comparison of the meteorological

conditions present on June 20, 2015 to other days in June 2010-2015; (2) provide a comparison of the other exceedance days in June 2010-2015 to June 20, 2015; and (3) provide a comparison of the frequency of exceedances by weekday during the ozone season in 2010-2015. The first comparison finds no convincing evidence that the meteorological conditions present on June 20, 2015 were the primary cause of the exceedances. The second and third comparisons highlight the uniqueness of the June 20, 2015 exceedance when compare to prior exceedances, providing additional evidence of the influence of an outside emissions source such as transported ozone or ozone precursor emissions from the Lake Fire as the cause of the exceedances on June 20, 2015.

Taken together, the additional data and analyses presented in this addendum provide extensive evidence of the clear causal relationship between ozone and ozone precursor emissions from the Lake Fire and the exceedances of the 2008 ozone standard on June 20, 2015 in the Maricopa nonattainment area, qualifying the exceedances for exclusion as exceptional events.

Public Comment Period

The Arizona Department of Environmental Quality posted this addendum on the ADEQ webpage and placed a hardcopy of the report in the ADEQ Records Management Center for public review. ADEQ opened a 30-day public comment period on May 17, 2018. In order to speed the review and approval of this exceptional event demonstration by EPA Region 9, ADEQ is following a parallel processing procedure whereby this addendum was submitted to EPA for review and approval on the same day as the opening of the public comment period. ADEQ will respond promptly to any comments received during the comment period and provide EPA with a list of comments received and responses to those comments. A copy of the public notice certification is included in Appendix B.

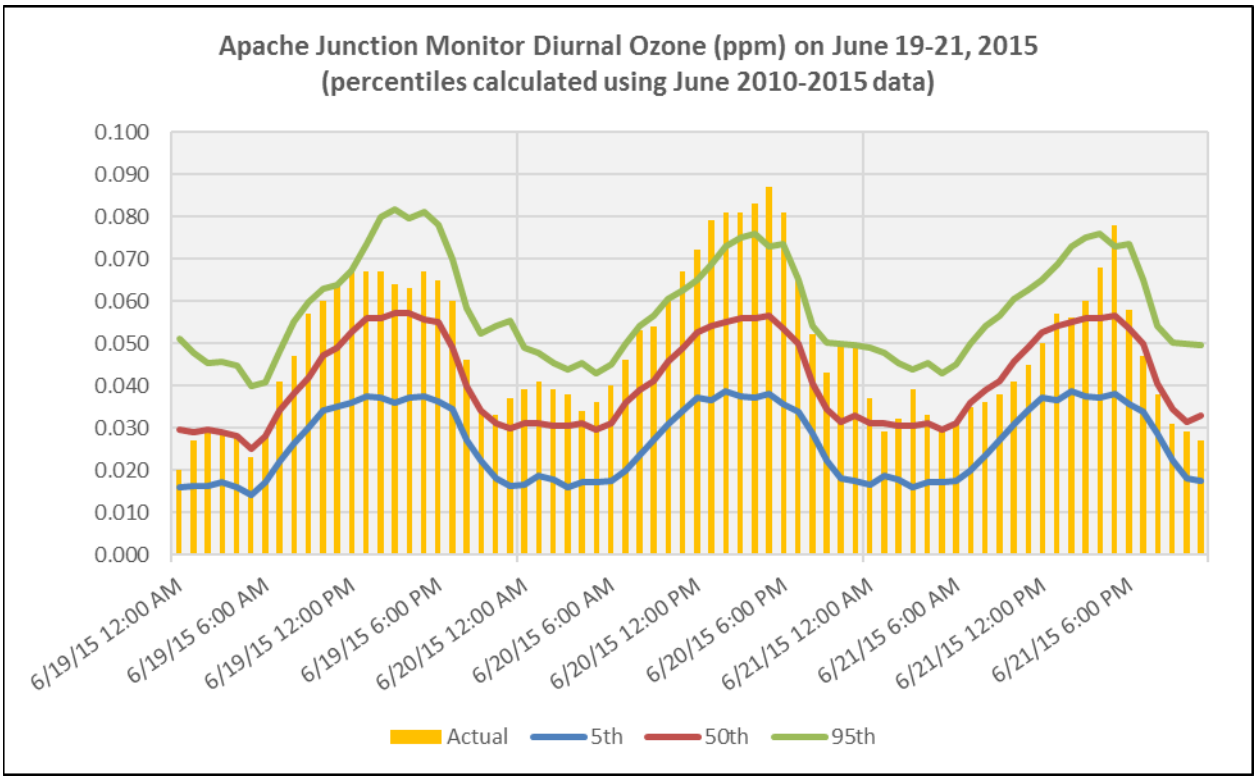
OZONE DIURNAL DATA AT EXCEEDING MONITORS

Six ozone monitors within (or very nearby) the Maricopa nonattainment area exceeded the 2008 ozone standard on June 20, 2015 as a result of transported ozone and ozone precursor emissions from the southern California Lake Fire: Apache Junction, Blue Point, Falcon Field, Mesa, Pinnacle Peak, and Tonto National Monument. The figures below display the diurnal ozone concentrations at each of the six monitors as compared to the 5th, 50th and 95th percentile ozone concentrations from 2010-2015 at each monitoring site. The percentiles at each monitor are calculated using two sets of data: data from the month of June in 2010-2015 (to compare days with similar meteorology) and data from May-August 2010-2015 (to compare against data that contains over 90% of the ozone exceedances). In calculating the percentiles, the diurnal data was also grouped by workdays (Monday-Friday) and weekend days (Saturday-Sunday) in both data sets to account for the reduction in anthropogenic emissions of ozone precursors (NOx and VOCs) that occurs on weekend days as compared to workdays in the Maricopa nonattainment area.

Both data sets show several hours at each monitor where the 95th percentile is exceeded on June 20, 2015, indicating that ozone or ozone precursor emissions reached and affected the exceeding monitors on June 20, 2015. Ozone concentrations are less on both June 19 and Jun 21, 2015, indicating that exceeding concentrations of ozone were limited to June 20, 2015. As explained further in the matching day analyses section, the ozone concentration patterns during the June 19-21, 2015 event run contrary to the two other historical June, Saturday exceedances observed during 2010-2015 (June 1, 2013 and June 7, 2014). In these prior exceedances, ozone concentrations were higher on the day (Friday) preceding the Saturday exceedance (May 31, 2013 and June 6, 2014) at monitors that recorded an exceedance, indicating that the Saturday exceedances in these events were likely due to a carry-over of built-up ozone from the preceding Friday. This pattern is expected when meteorological conditions do not change significantly from day to day (allowing for the build-up of ozone) and when anthropogenic emissions are suspected as the main cause of an exceedance, as anthropogenic emissions of NOx and VOC are higher on Fridays than on Saturdays, primarily due to the decrease in vehicle travel and industrial activities that occur on Saturday.

On June 20, 2015, the Saturday ozone concentrations are markedly higher than the Friday ozone concentrations at all exceeding monitors, indicating the likely transport of an outside emissions source, as there is no evidence of increased anthropogenic activities on Saturday as compared to Friday. This contrary emissions/concentrations trend is also markedly present and noticeable in the NO_2 data discussed in a later section. Given the other information presented throughout this addendum and the prior documentation, the most likely source of the increased ozone and ozone precursor emissions observed on June 20, 2015 at the exceeding ozone monitors are transported emissions from the Lake Fire.

Figure 1. Diurnal Ozone Concentrations at the Apache Junction Monitor on June 19-21, 2015.



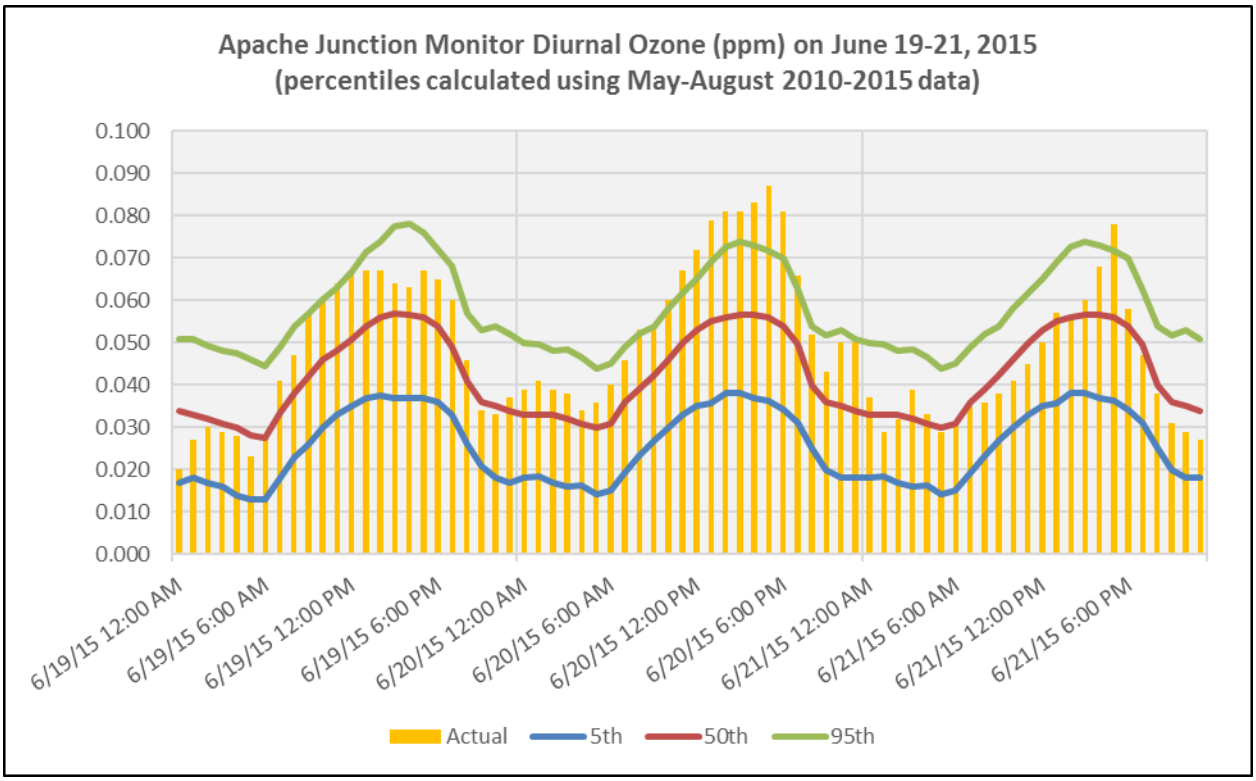
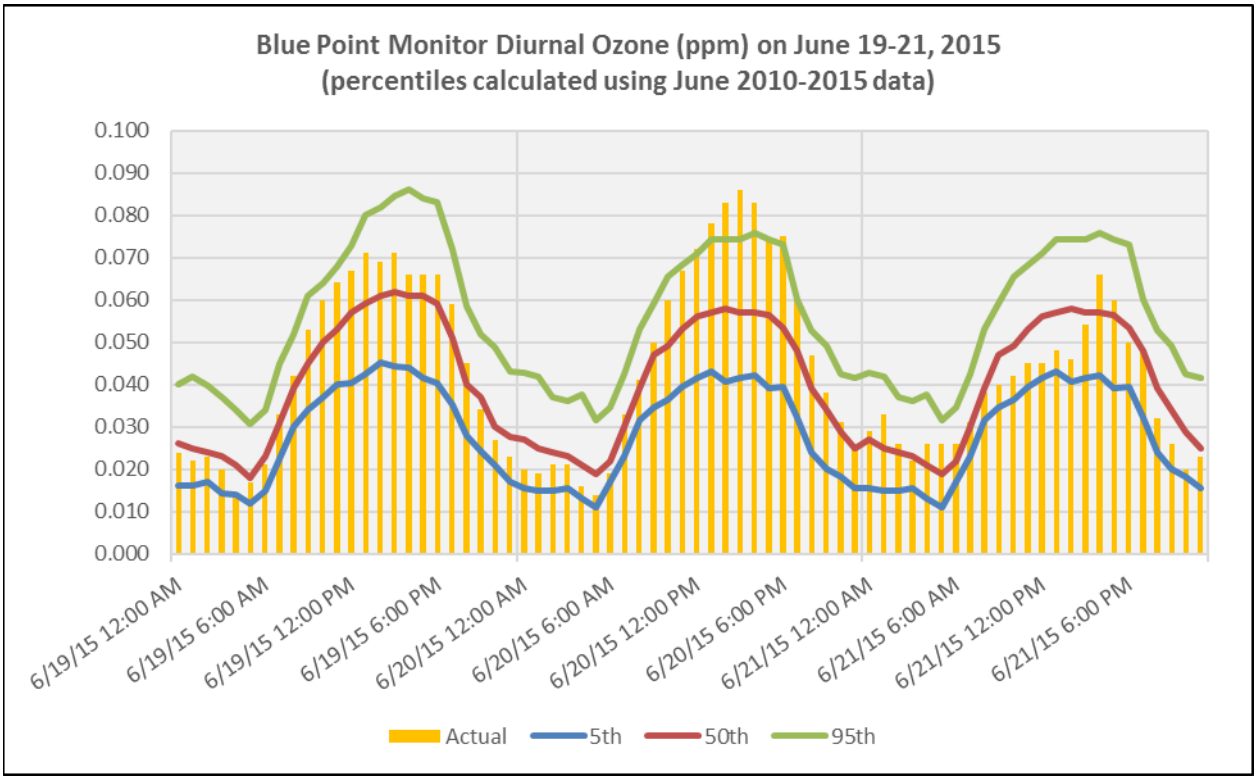


Figure 2. Diurnal Ozone Concentrations at the Blue Point Monitor on June 19-21, 2015.



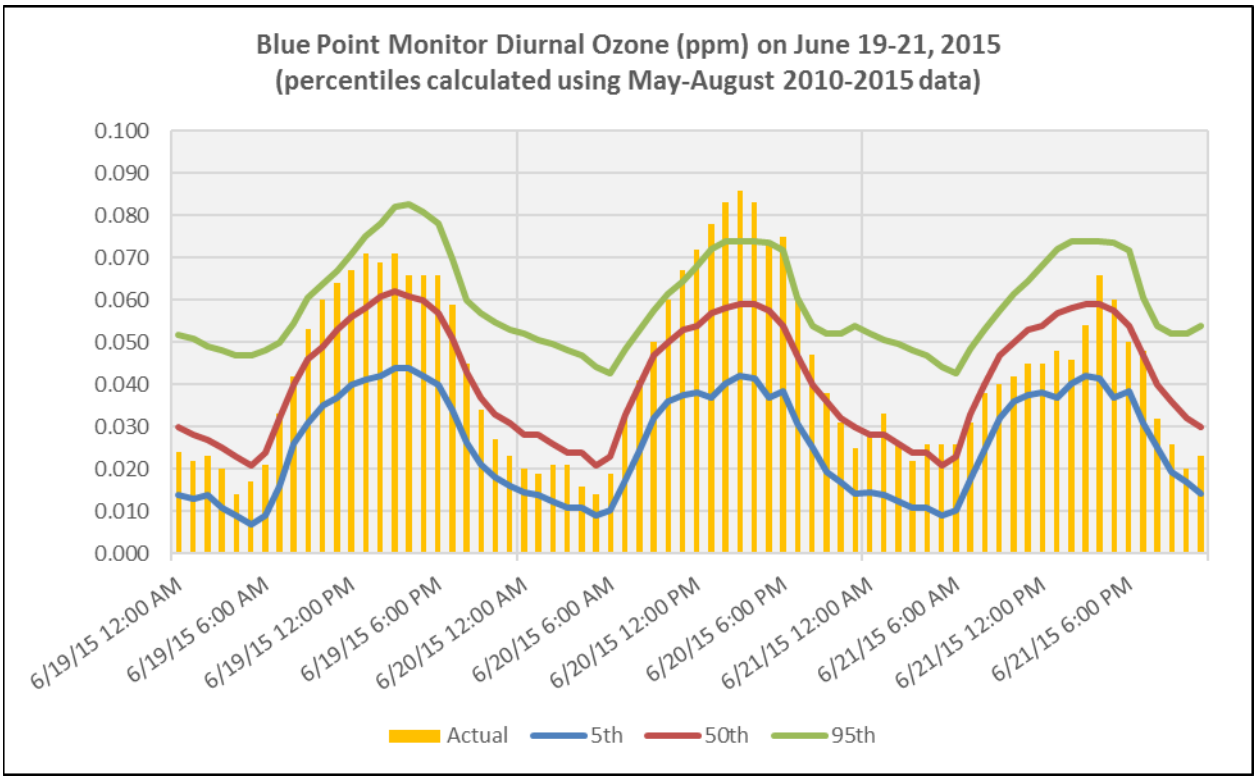
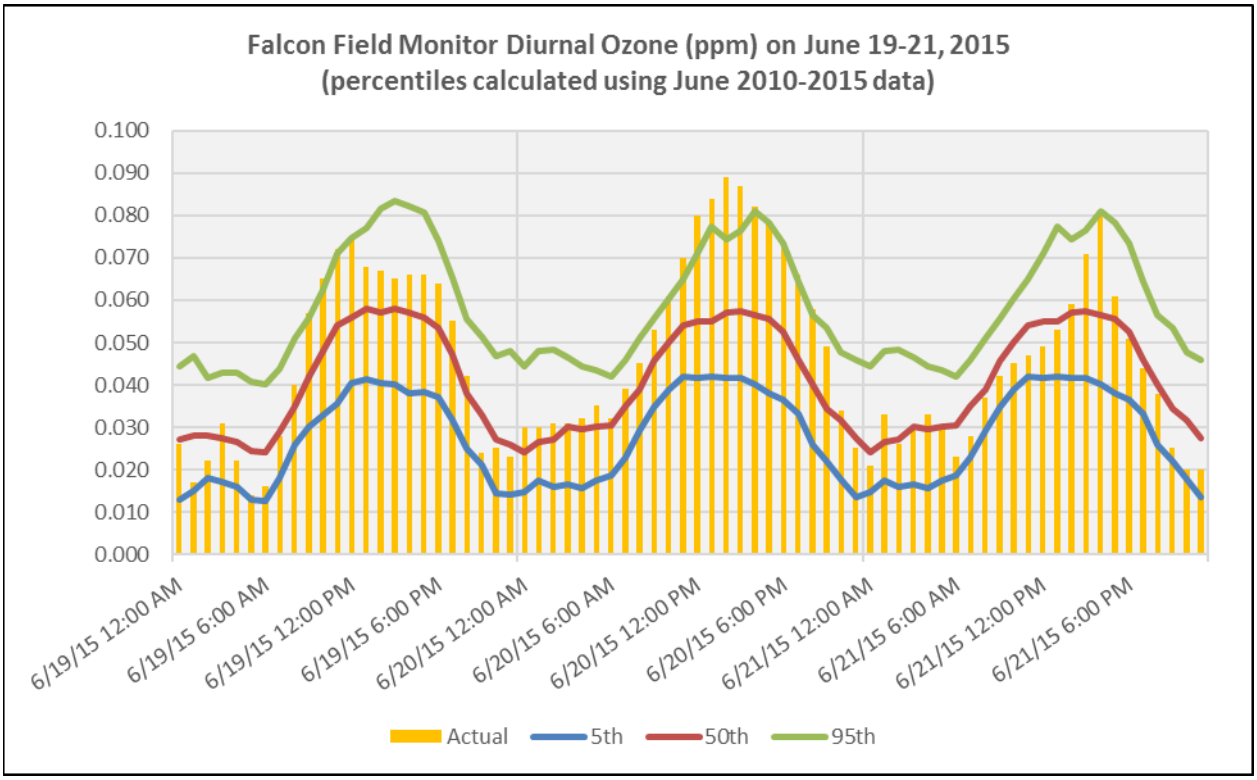


Figure 3. Diurnal Ozone Concentrations at the Falcon Field Monitor on June 19-21, 2015.



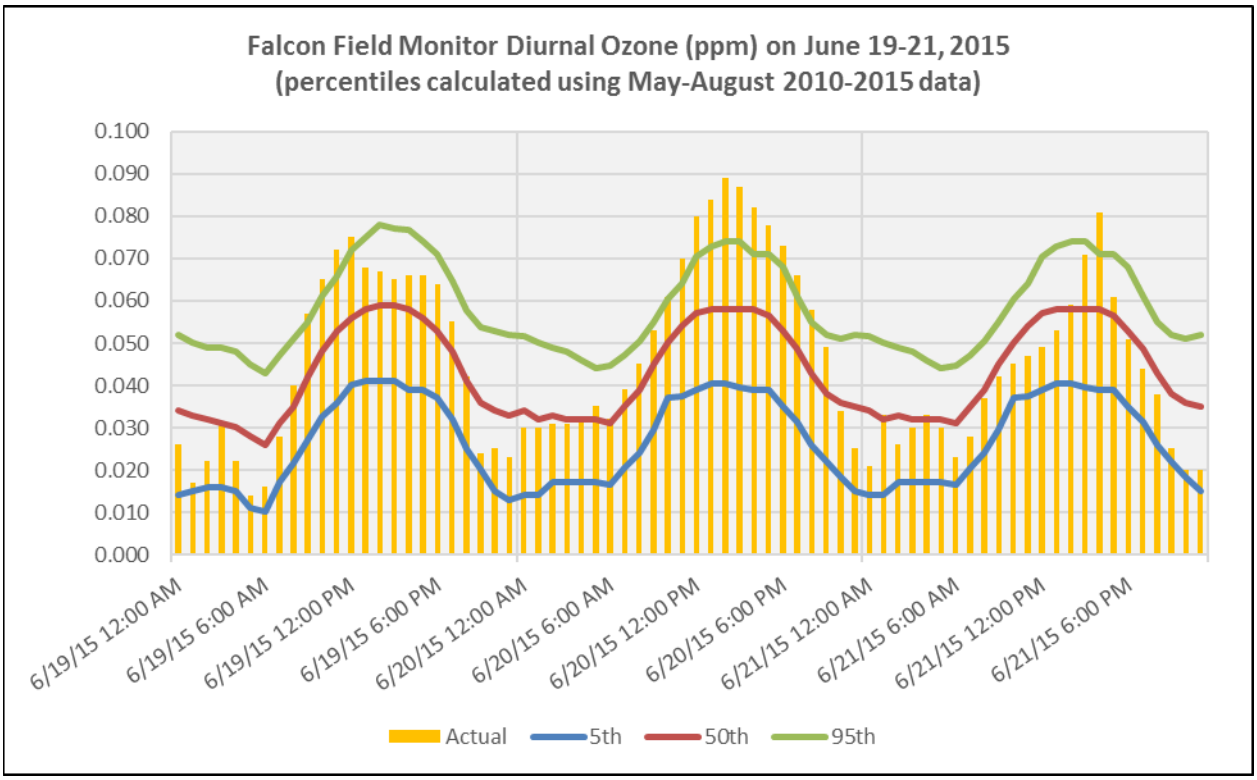
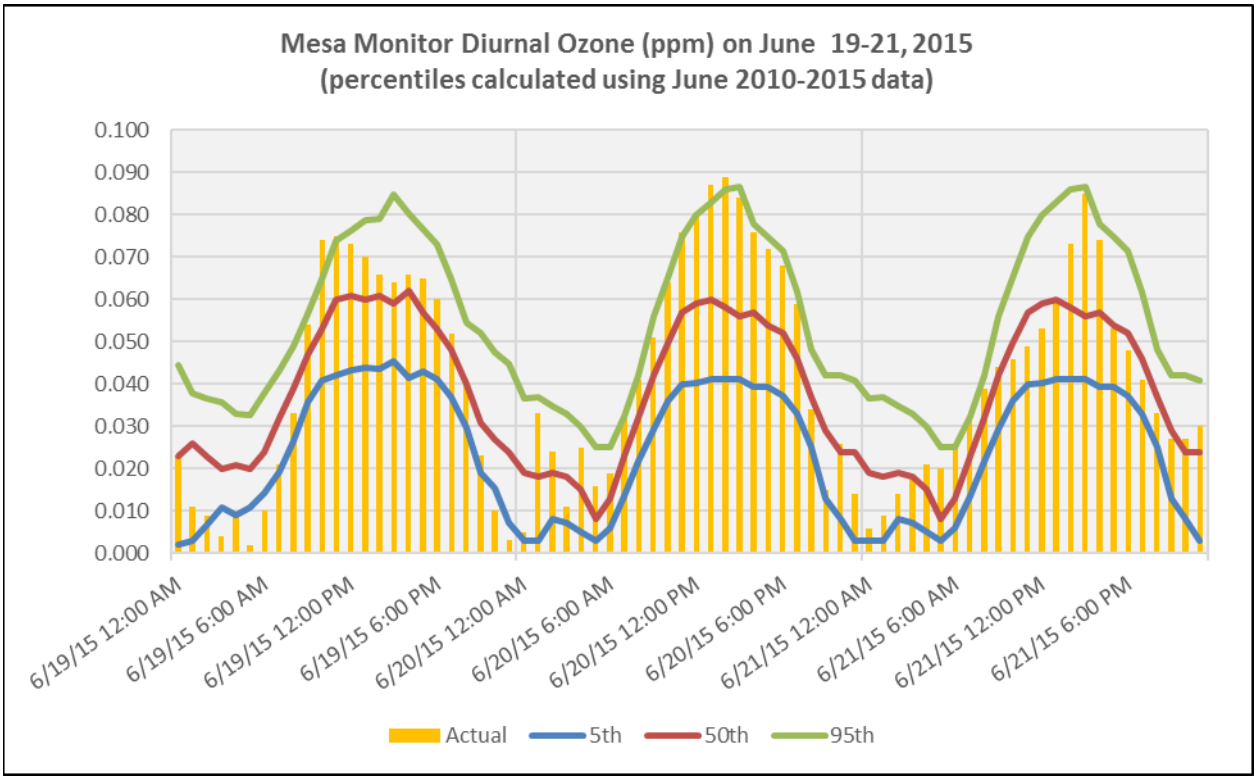
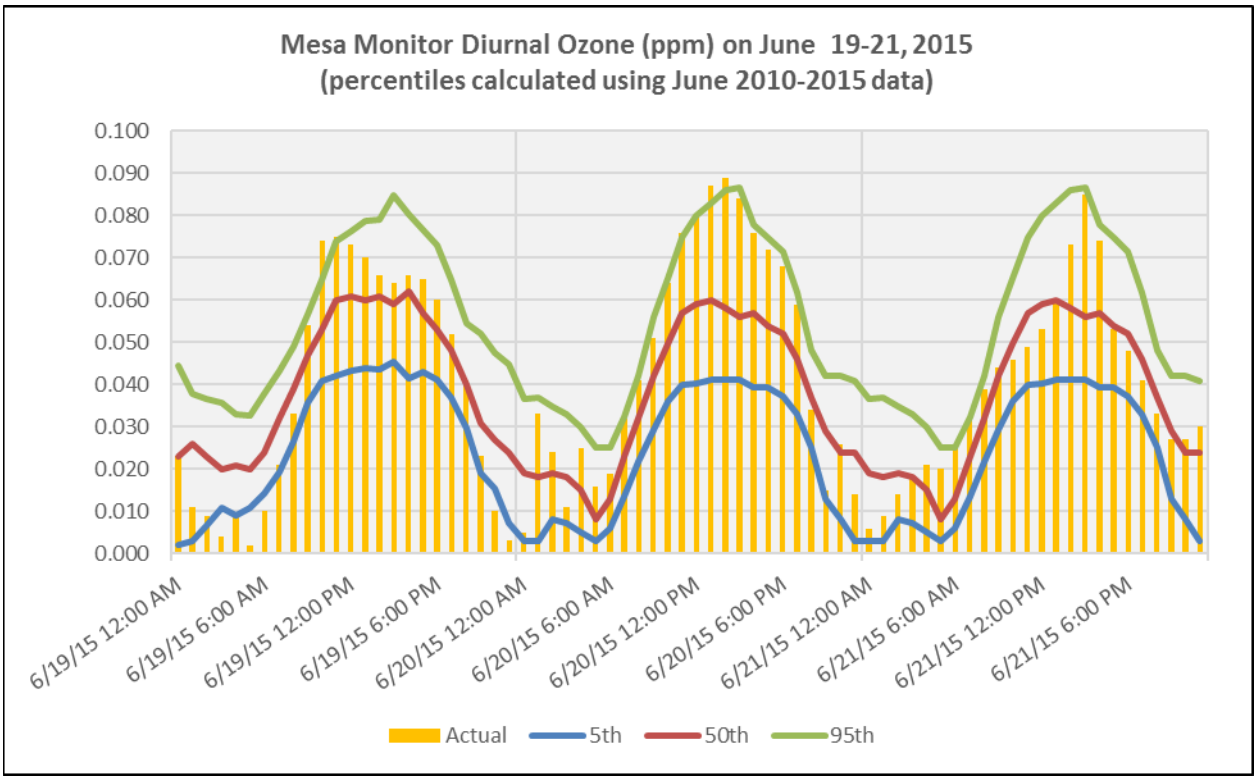


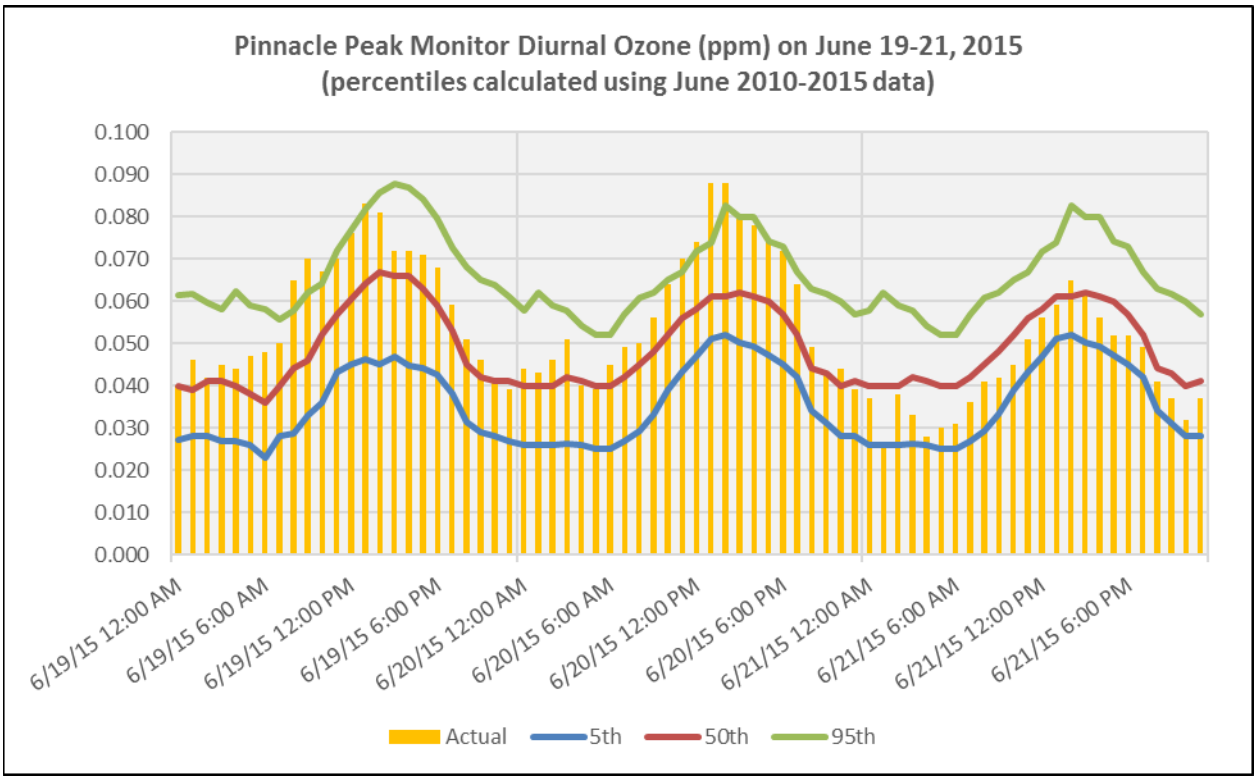
Figure 4. Diurnal Ozone Concentrations at the Mesa Monitor on June 19-21, 2015.





**Note: Data is only available for 2013-2015 for the Mesa monitor.*

Figure 5. Diurnal Ozone Concentrations at the Pinnacle Peak Monitor on June 19-21, 2015.



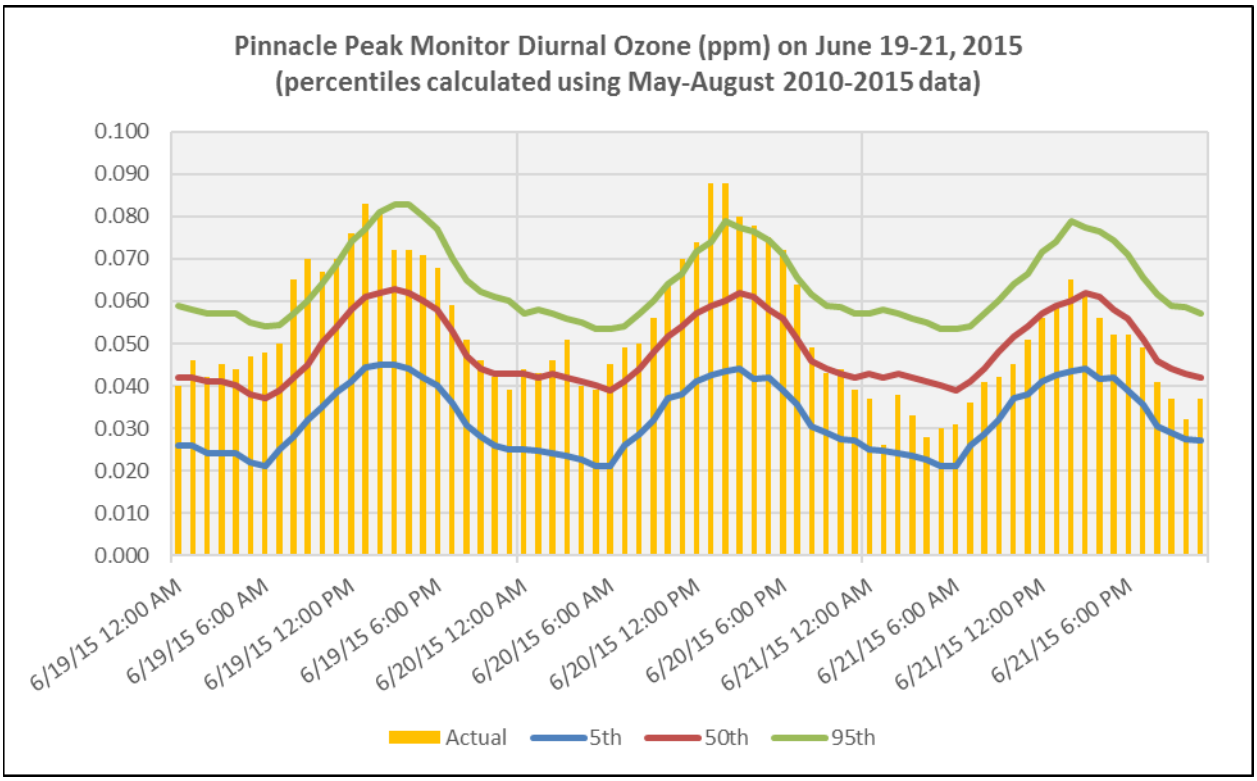
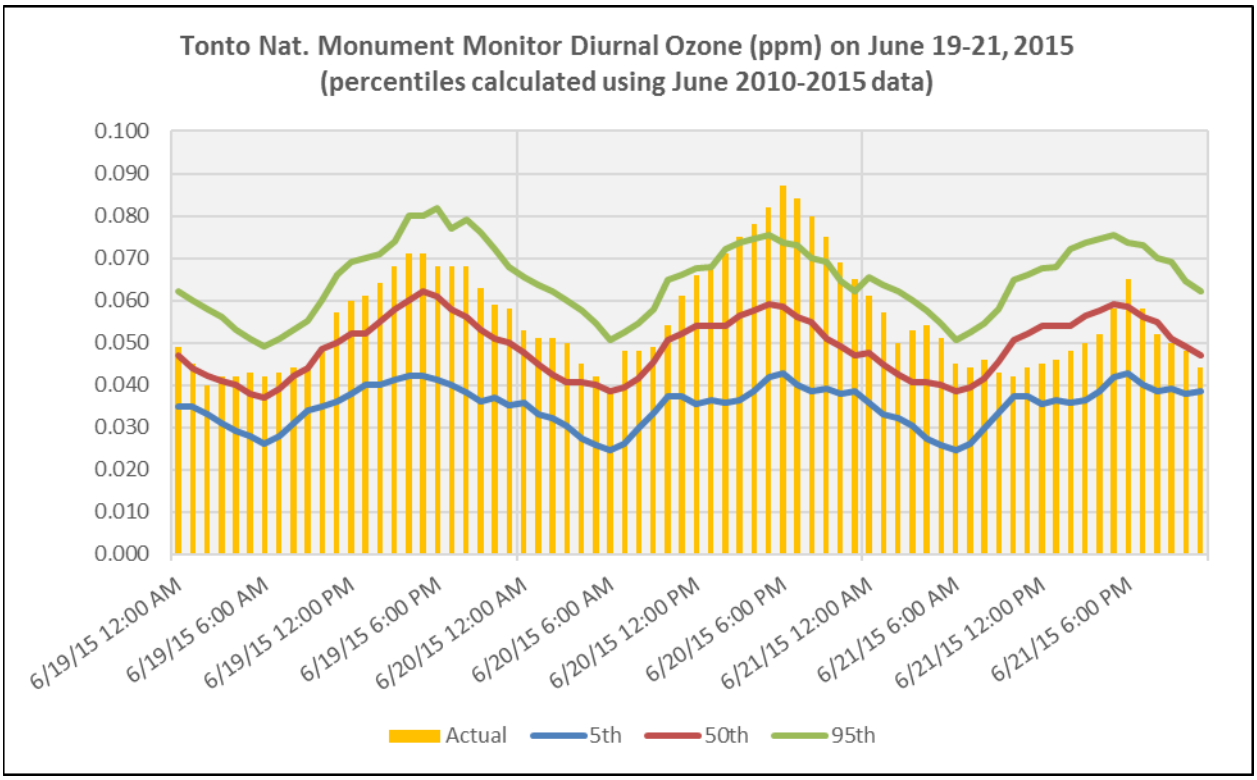
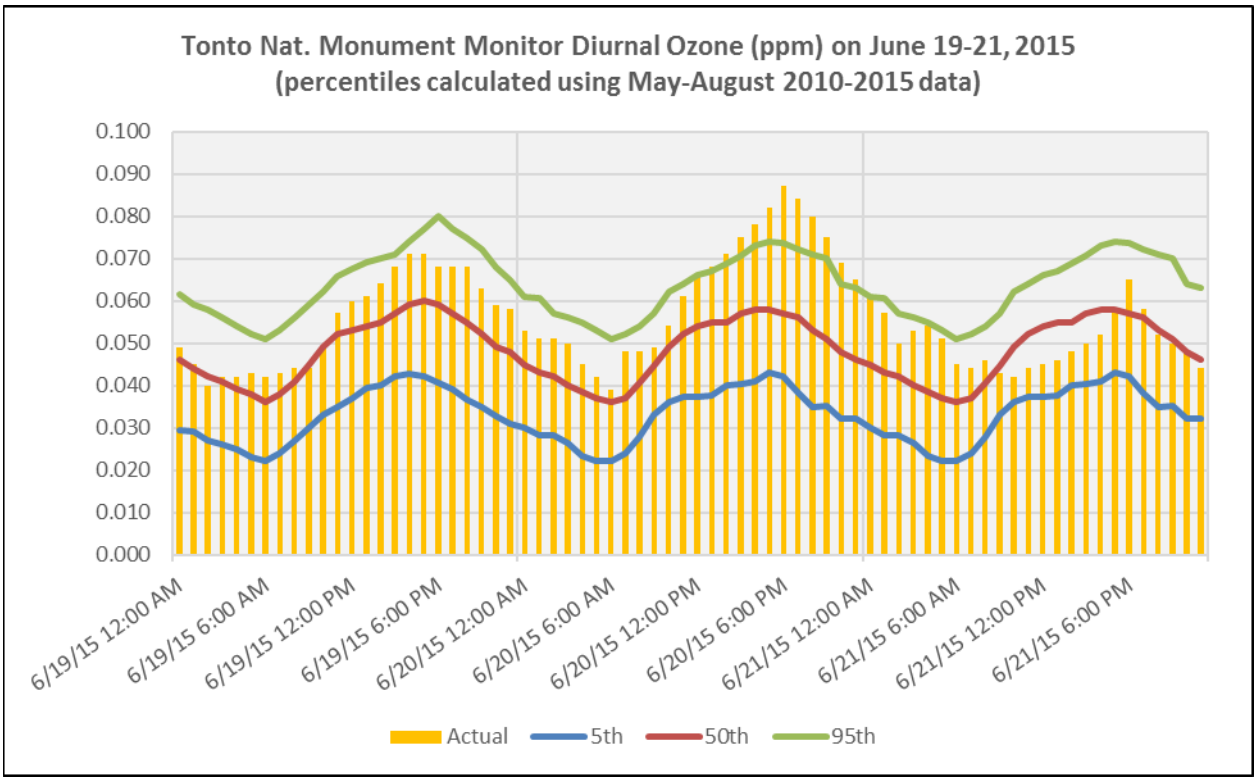


Figure 6. Diurnal Ozone Concentrations at the Tonto National Monument Monitor on June 19-21, 2015.





SPECIATED $PM_{2.5}$ ORGANIC AND ELEMENTAL CARBON CONCENTRATIONS

In the prior documentation, observations of total $PM_{2.5}$ concentrations were presented that showed a marked increase in $PM_{2.5}$ at the Yuma and Alamo Lake monitors in western Arizona coinciding with the arrival of transported emissions from the Lake Fire (see pages 57-61 of prior documentation). Increases in total $PM_{2.5}$ concentrations were less noticeable in the Maricopa nonattainment area, which is not surprising given that academic research finds that $PM_{2.5}$ is expected to decrease with distance from the fire, while ozone and ozone precursor emissions may increase with distance from the fire. However, the prior documentation did note an increase in the organic and elemental carbon portion of $PM_{2.5}$ within the nonattainment area, both in terms of actual increases and as a percentage of total $PM_{2.5}$.

In this addendum, speciated $PM_{2.5}$ organic carbon (OC) and elemental carbon (EC) concentrations are examined in detail as additional evidence that ozone and ozone precursor emissions from the Lake Fire reached and affected the nonattainment area monitors. Organic carbon in particular, has been identified as a tracer for wildfire emissions in several academic journal articles[1].

Both OC and EC can be directly emitted from the burning of biomass during a wildfire, and OC can also be produced through secondary processes like the oxidation of biogenic hydrocarbons. Elevated OC concentrations have been predominantly linked to the burning of biomass, as opposed to elevated EC concentrations, which are more regularly linked to the burning of other fossils fuels (e.g., combustion from vehicles). Jaffe et al. (2008) found that, "*using OC we found a statistically significant relationship with fire biomass burned in all regions. This reflects the fact that OC is a better tracer of fires than PM2.5, which has a greater array of sources*". Additionally, Spracklen et al. (2007) found that, "*[t]here is less interannual variability in EC, for which fossil fuel combustion is the dominant source, even in summer"* and "*[i]n the western U.S., summertime OC concentrations are dominated by emissions from wildfires and vegetation*."

The ratio of EC to OC can also be used as a marker for wildfires. Jaffe et al. (2008) states that, "*[i]n one study the elemental carbon (EC) to organic carbon ratio was found to be a good tracer of smoke from fires (17). The EC/OC emission ratio from wildfires is in the ranges of 0.065-0.14*." Hand et al. (2013) states further that, "*[m]obile sources have EC/OC ratios around 1 [62], while rural [20, 24, 25] and biomass burning aerosols [63, 64] have much lower ratios (~0.1). Organic aerosols with significant secondary contributions are around 0.1-0.2 [65]. In contrast, EC/OC ratios of urban aerosols are relatively high depending on primary and secondary sources (~0.47-1.5) [15, 20]*."

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[1] Hand, J. L., et al. (2013). Spatial and Temporal Trends in $PM_{2.5}$ Organic and Elemental Carbon across the United States, *Advances in Meteorology*, Article ID 367674, 13 pages.

Jaffe, D., et al. (2008). Interannual Variations in PM2.5 due to Wildfires in the Western United States, *Environmental Science and Technology, 42,* 2812-2818.

Spracklen, D. V., et al. (2007). Wildfires drive interannual variability of organic carbon in the western U.S. in summer, *Geophysical Research Letters, 34,* L16816.

The JLG Phoenix Supersite monitor located in the center of the Maricopa nonattainment area samples speciated $PM_{2.5}$ concentrations, including EC and OC, on a 1-in-3 day schedule. June 20, 2015 occurred on a run-day for the speciation monitor. The monitor used in this analysis is part of the IMPROVE network and owned by the National Park Service. This monitor provides adjusted measurements of total organic carbon and total elemental carbon based upon the IMPROVE algorithm, and total $PM_{2.5}$ for comparison purposes[2].

Similar to the approach used in calculating the ozone diurnal concentrations, the percentiles at the monitor are calculated using two sets of data: data from the month of June in 2010-2015 (to compare days with similar meteorology) and data from May-August 2010-2015 (to compare against data that contains over 90% of the ozone exceedances). Since data is only collected on a 1-in-3 day schedule, data was not separated by workdays and weekend days.

Data from June 20, 2015 show that the OC concentrations were the highest recorded in the month of June over the six-year period of 2010-2015. Similarly, the June 20, 2015 OC concentration exceeded the 95th percentile when compared to data from May-August 2010-2015. Figure 7 displays these data, with the wildfire event on June 20, 2015 highlighted in red. This data confirms that an unusual amount of organic carbon was present in the nonattainment area on June 20, 2015, which is likely a tracer for transported wildfire emissions from the Lake Fire. The ratio of OC to total $PM_{2.5}$ is shown in Figure 8. The Figure reveals that not only were absolute OC concentrations elevated on June 20, 2015, but that as a percentage of total $PM_{2.5}$, OC was elevated to near the 95th percentile value, providing additional evidence of the presence of wildfire emissions in the speciated $PM_{2.5}$ concentrations.

Figures 9 and 10 examine the amount of elemental carbon present in the speciated $PM_{2.5}$ concentrations for the period of 2010-2015. Figure 9 indicates that absolute EC was slightly elevated above normal levels (50th percentile), but was not particularly unusual. Figure 10 indicates that the percentage of EC to total $PM_{2.5}$ was also near normal levels. The near-normal levels of EC on June 20, 2015 indicate that combustion from fossil fuels other than biomass was likely normal on June 20, 2015, and that the increase seen in ozone, NO_2, and organic carbon on June 20, 2015 in the Maricopa nonattainment area was due to the presence of a non-normal emission sources, such as transported emissions from the Lake Fire. Lastly, Figure 11 shows the ratio of EC to OC for the period of 2010-2015. On June 20, 2015, the EC/OC ratio is low (0.18), very near the 5th percentile value when compared against the June 2010-2015 data. A ratio of 0.18 is near the wildfire tracer ratio ranges identified in Jaffe et al. (2008) and Hand et al. (2013), and is well below the 50th percentile ratio of 0.28 and 0.25 seen at the Phoenix Supersite monitor. The EC/OC ratio provides further evidence that ozone and ozone precursor emissions reached and affected the monitors within the Maricopa nonattainment area through the presence of elevated organic carbon concentrations alongside near-normal elemental carbon concentrations.

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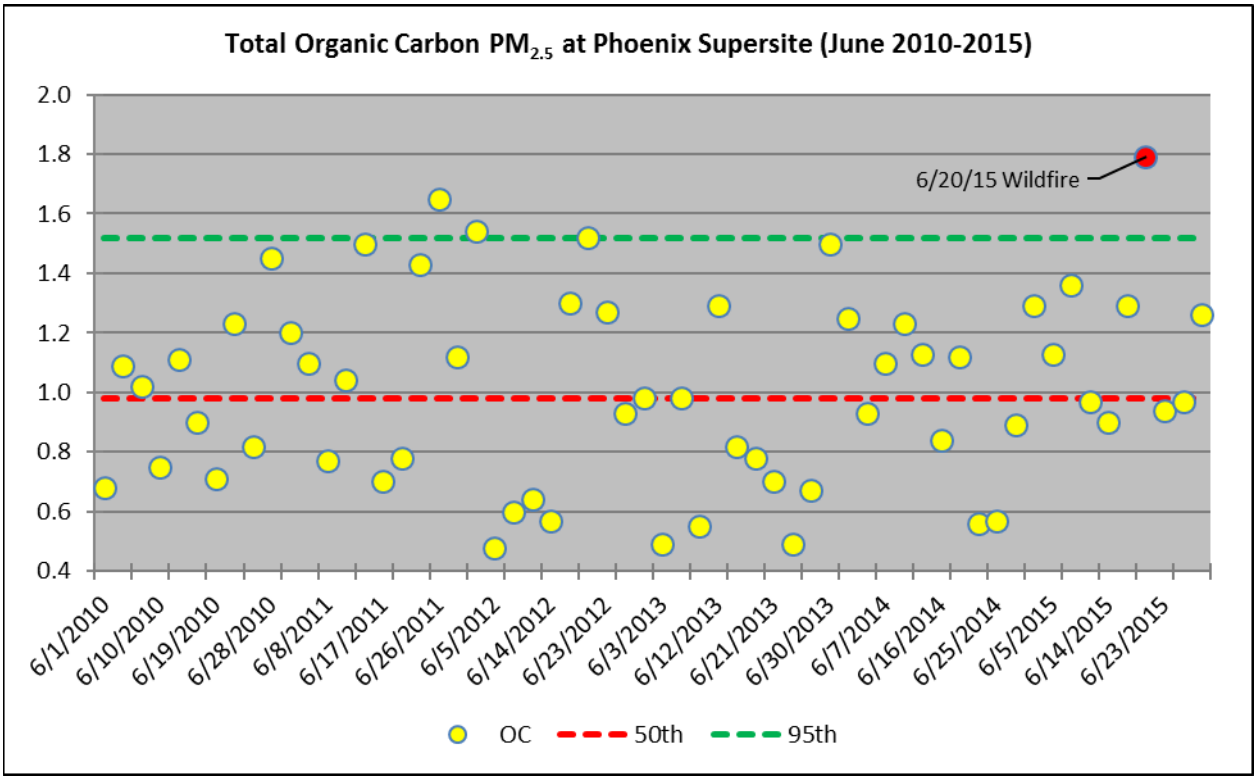
[2] Within the AQS database, three POCs (POC 1, POC 2, and POC 7) provide speciated $PM_{2.5}$ data at the Phoenix supersite monitor (04-013-9997). Data from POC 1 correspond to the National Park Service (NPS) primary monitor for the IMPROVE network and is used in this analysis. POC 2 data is from the secondary monitor for the NPS IMPROVE network and generally match the concentration patterns seen in POC 1. POC 7 is the Chemical Speciation Network (CSN) monitor owned by ADEQ. POC 7 does not use the IMPROVE algorithm for calculating carbon concentrations and does not provide adjusted total organic and total elemental carbon concentrations.

Figure 7. Total Organic Carbon $PM_{2.5}$ Concentrations at the Phoenix Supersite Monitor.



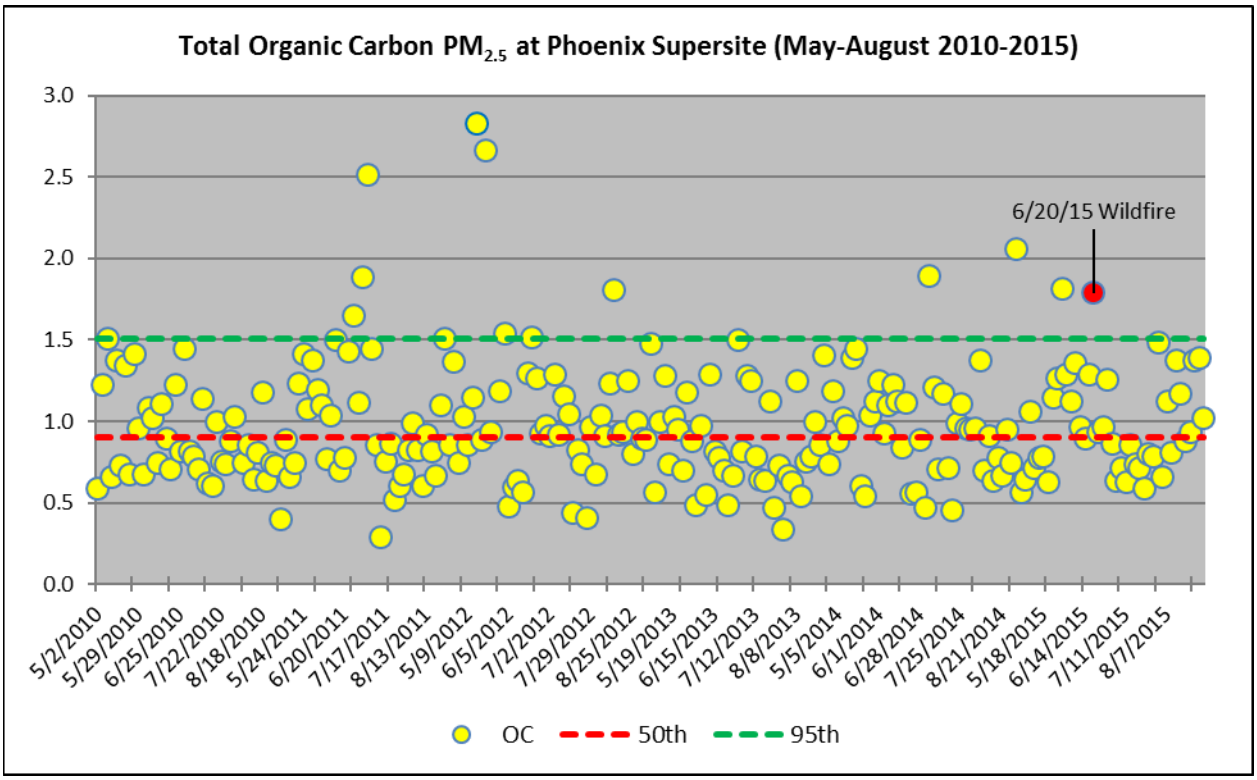
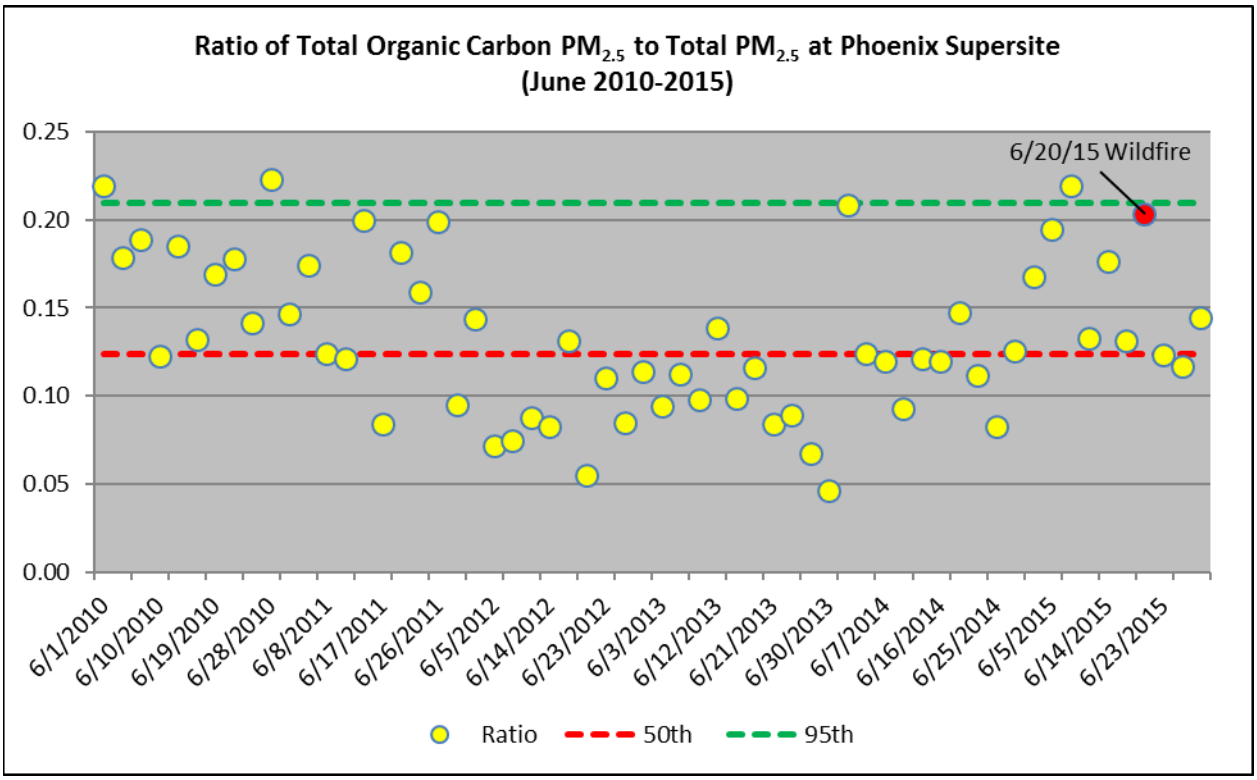


Figure 8. Ratio of Total Organic Carbon $PM_{2.5}$ to Total $PM_{2.5}$ at the Phoenix Supersite Monitor.



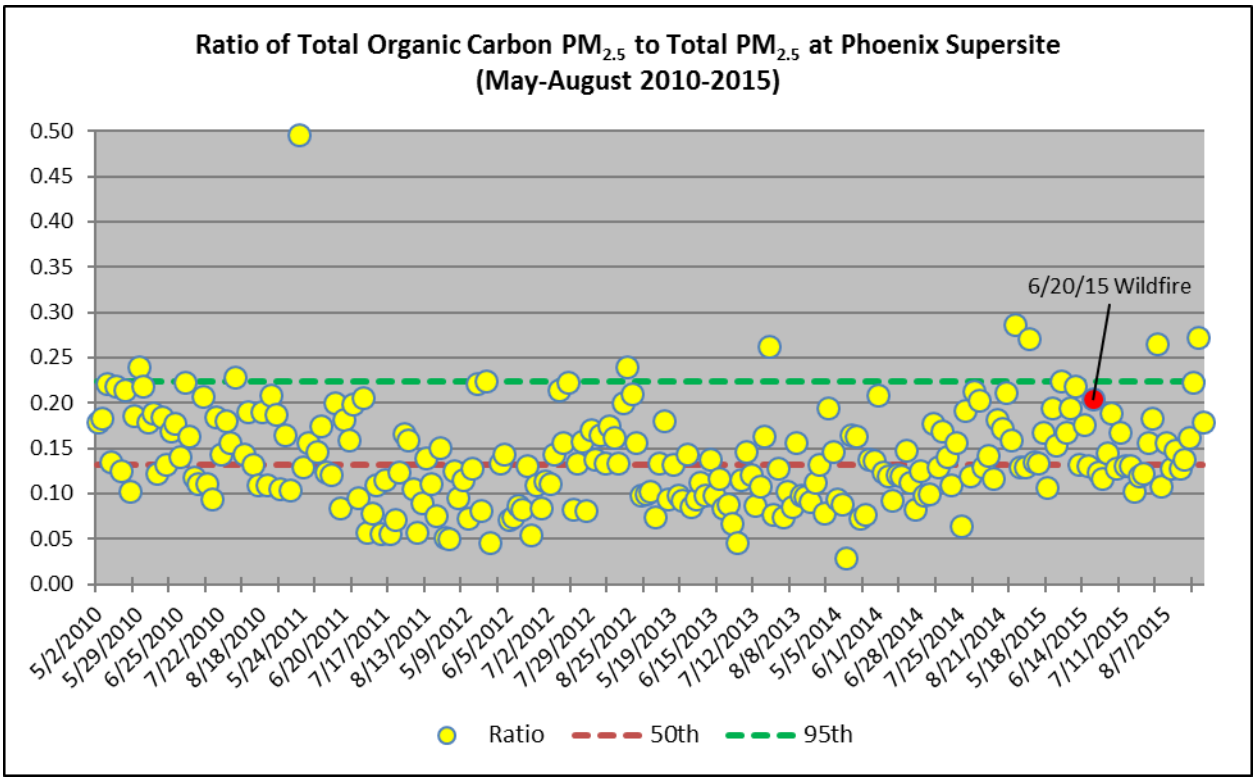
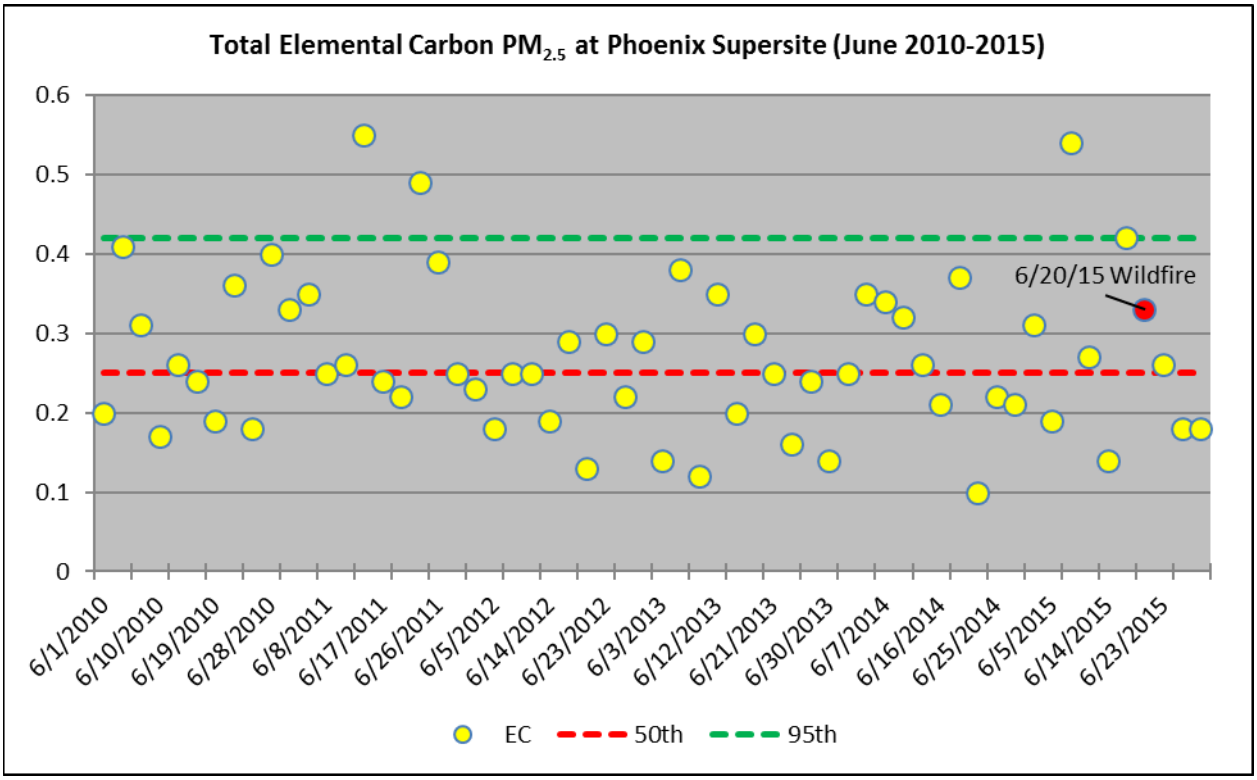


Figure 9. Total Elemental Carbon $PM_{2.5}$ Concentrations at the Phoenix Supersite Monitor.



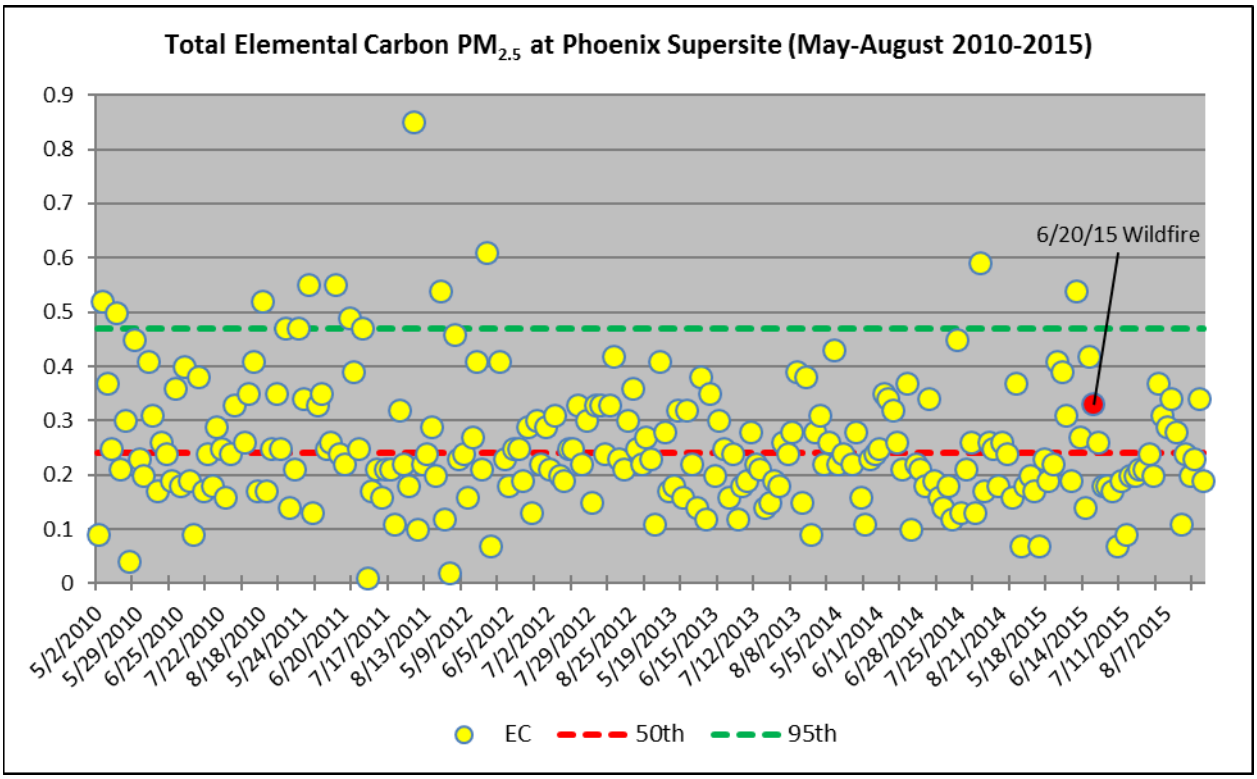
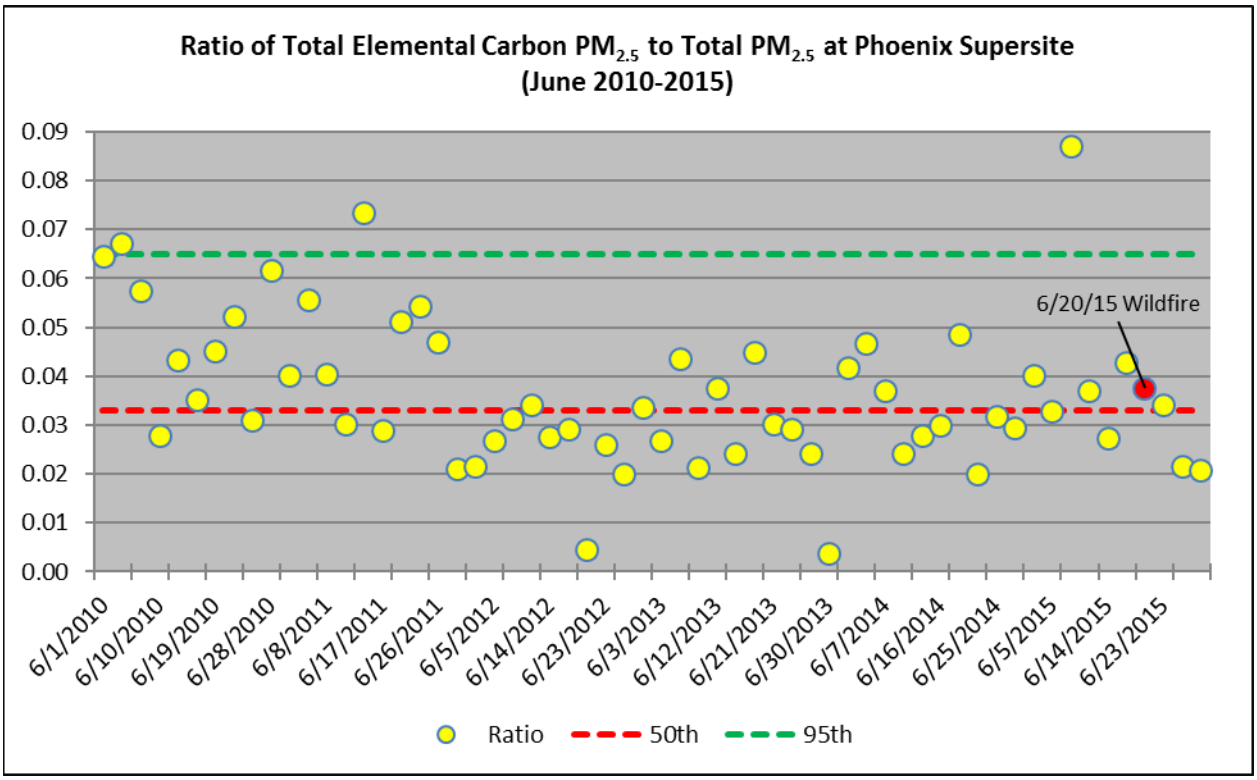


Figure 10. Ratio of Total Elemental Carbon $PM_{2.5}$ to Total $PM_{2.5}$ at the Phoenix Supersite monitor.



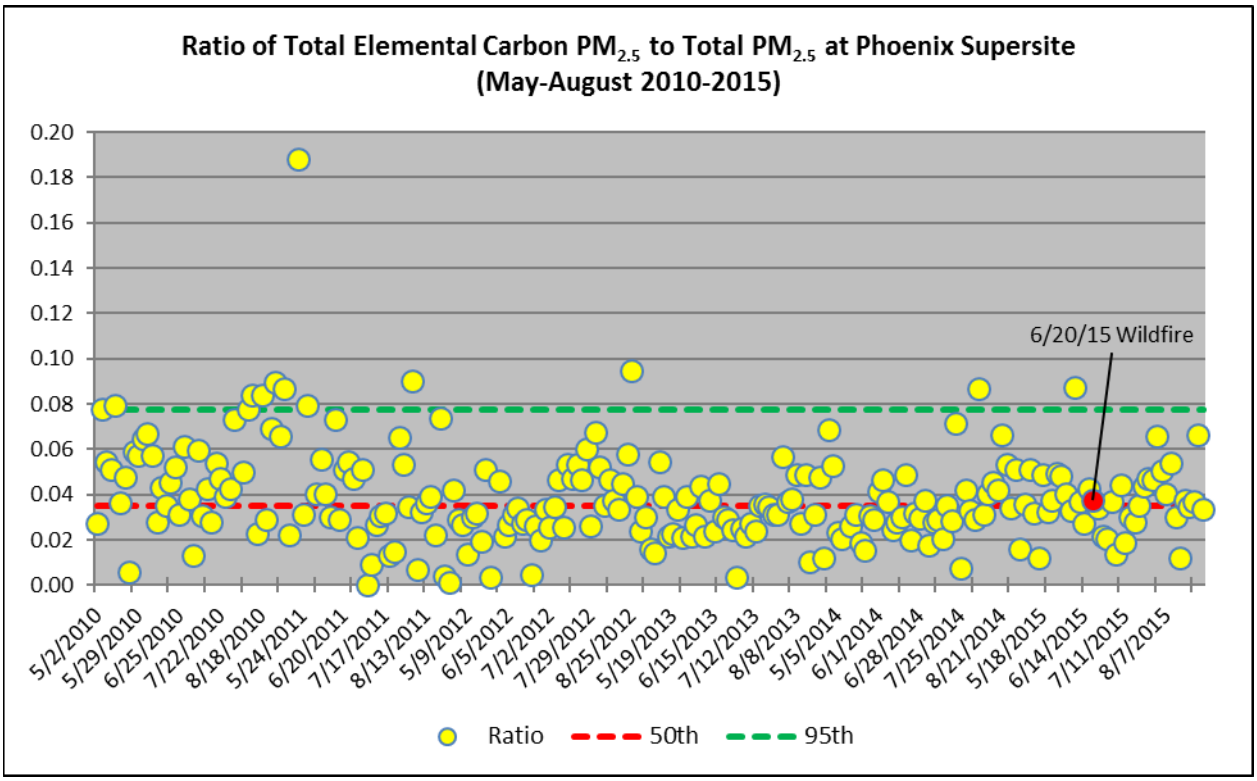
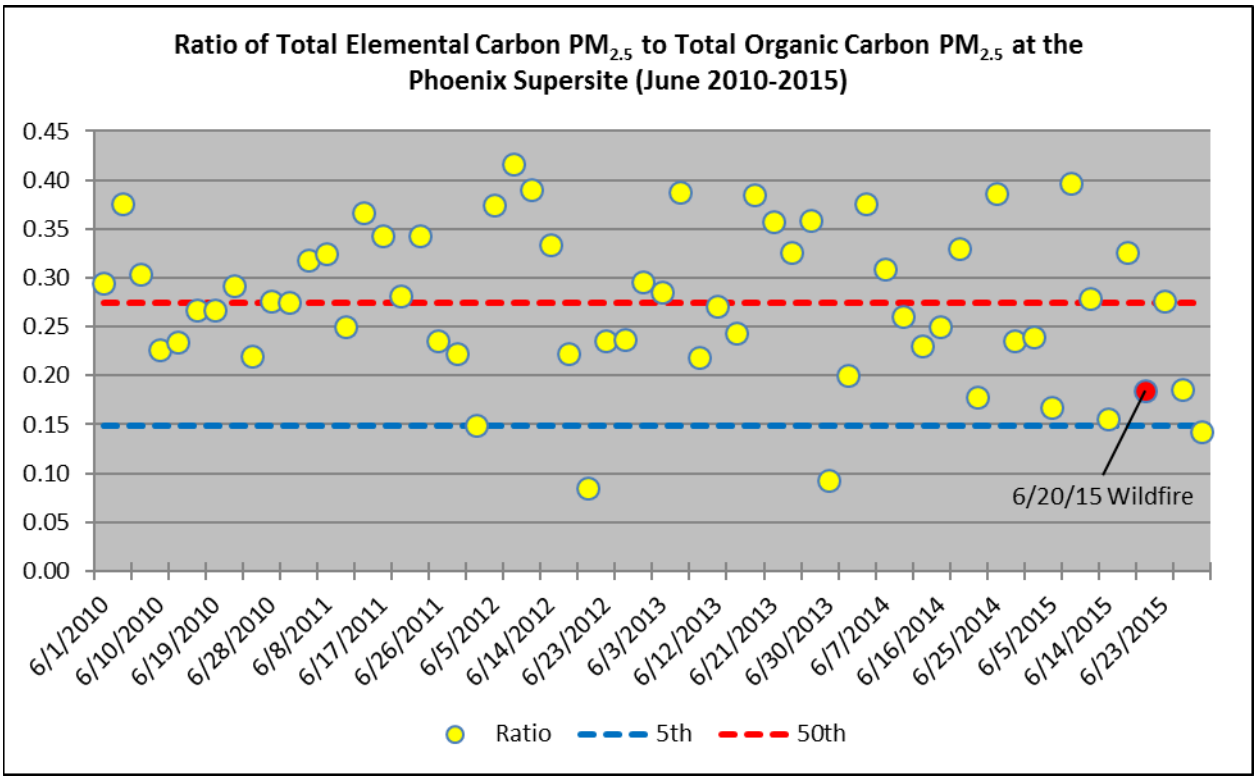
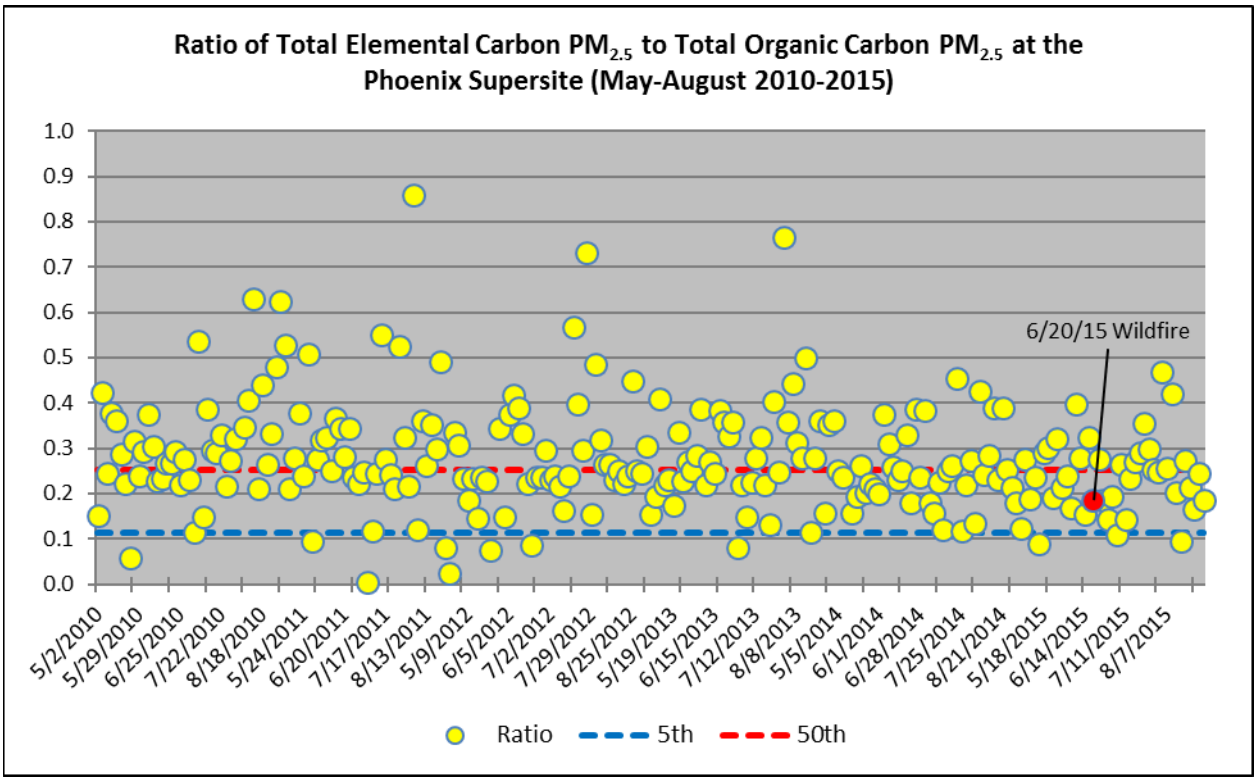


Figure 11. Ratio of Total Elemental Carbon $PM_{2.5}$ to Total Organic Carbon $PM_{2.5}$ at the Phoenix Supersite Monitor.





NO_2 DIURNAL DATA ANALYSIS

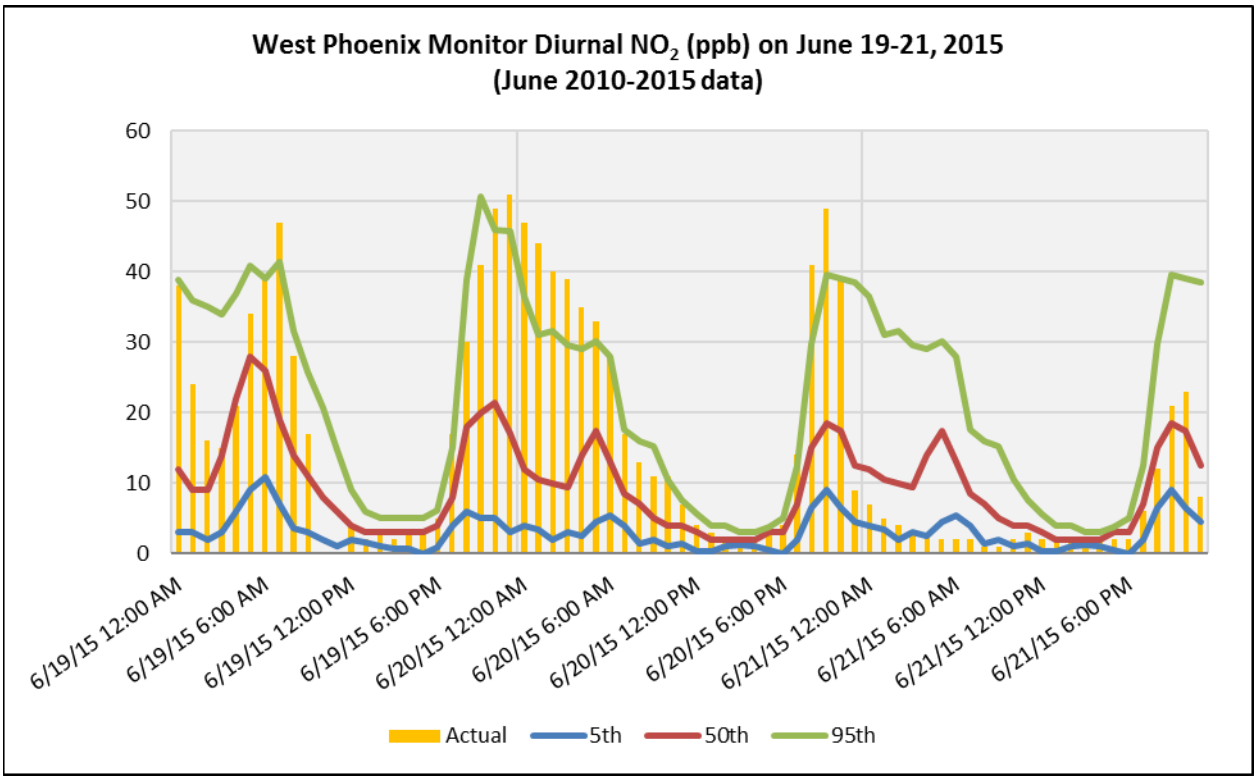
Within the Maricopa nonattainment area, six monitoring sites record diurnal NO_2 concentrations (Buckeye, Central Phoenix, Diablo, Phoenix Supersite, Thirty-Third Avenue, and West Phoenix). None of the exceeding ozone monitoring sites on June 20, 2015 record NO_2 concentrations. For this expanded look at diurnal NO_2 concentrations, data from three sites (Central Phoenix, Phoenix Supersite, and West Phoenix) is analyzed. NO_2 data from Buckeye was not included, as this site is located on the western edge of the nonattainment area and upwind of the exceeding monitors. NO_2 data from Diablo and Thirty-Third Avenue were also excluded as these sites are designed to measure near-road NO_2 concentrations and are located within 50 meters of major freeways. Data from the three sites included below show (1) an atypical rise in NO_2 concentrations from a Friday to a Saturday (June 19 to June 20, 2015) and (2) show NO_2 concentrations on the exceedance day at or above the 95th percentile.

Similar to the approach used in calculating the ozone diurnal concentrations, the percentiles at the monitoring sites are calculated using two sets of data: data from the month of June in 2010-2015 (to compare days with similar meteorology) and data from May-August 2010-2015 (to compare against data that contains over 90% of the ozone exceedances). In calculating the percentiles, the diurnal data was also grouped by workdays (Monday-Friday) and weekend days (Saturday-Sunday) in both data sets to account for the reduction in anthropogenic NO_2 emissions that occurs on weekend days as compared to workdays in the Maricopa nonattainment area.

As shown in Figures 12-14, examination of hourly NO_2 in comparison to all prior data for the six-year period of 2010-2015, reveals that several of the recorded hourly NO_2 concentrations were at or above the 95th percentile on June 20, 2015. At the West Phoenix monitor, some of the NO_2 concentrations were the highest ever recorded for the period of 2010-2015 when compared against data from the month of June. In the prior documentation's discussion of NO_2 concentrations, daily NO_2 concentrations were found to normally be lowest on Saturdays and Sundays in the Maricopa nonattainment area, due to reduced activity from the anthropogenic sources that generate NO_2 (see Figure 3-33 on page 62 of prior documentation). June 20, 2015, is a Saturday, yet it still recorded very high hourly NO_2 concentrations when compared to Friday, June 19, 2015 at the three monitoring sites. Given that (1) the Maricopa County Air Quality Department reported no unusual anthropogenic activity during the week of June 14-20; and (2) that hourly NO_2 concentrations peaked on Saturday, June 20, 2015, the most reasonable explanation for the atypical increased hourly NO_2 concentrations in the nonattainment area on June 20, 2015 is due to transported ozone and ozone precursor emissions from an outside emissions source, such as the Lake Fire.

Additionally, the Electric Power Research Institute (EPRI) provides further evidence of transported ozone and ozone precursors, such as NO_2, into the Maricopa nonattainment area on June 20, 2015 in an October 2017 Technical Report entitled: *Overview of Exceptional Event Analysis Techniques and Data Sources. Methods and Case Study Examples for Wildfire and Stratospheric Ozone Intrusion Events.* This report includes an independent analysis (e.g., use of satellite data to identify an increase of transported NO_2) of the transport of ozone and ozone precursor emissions from the Lake Fire into the Maricopa nonattainment area, leading to the wildfire-caused exceedances on June 20, 2015.

Figure 12. Diurnal NO_2 Concentrations at the West Phoenix Monitor on June 19-21, 2015.



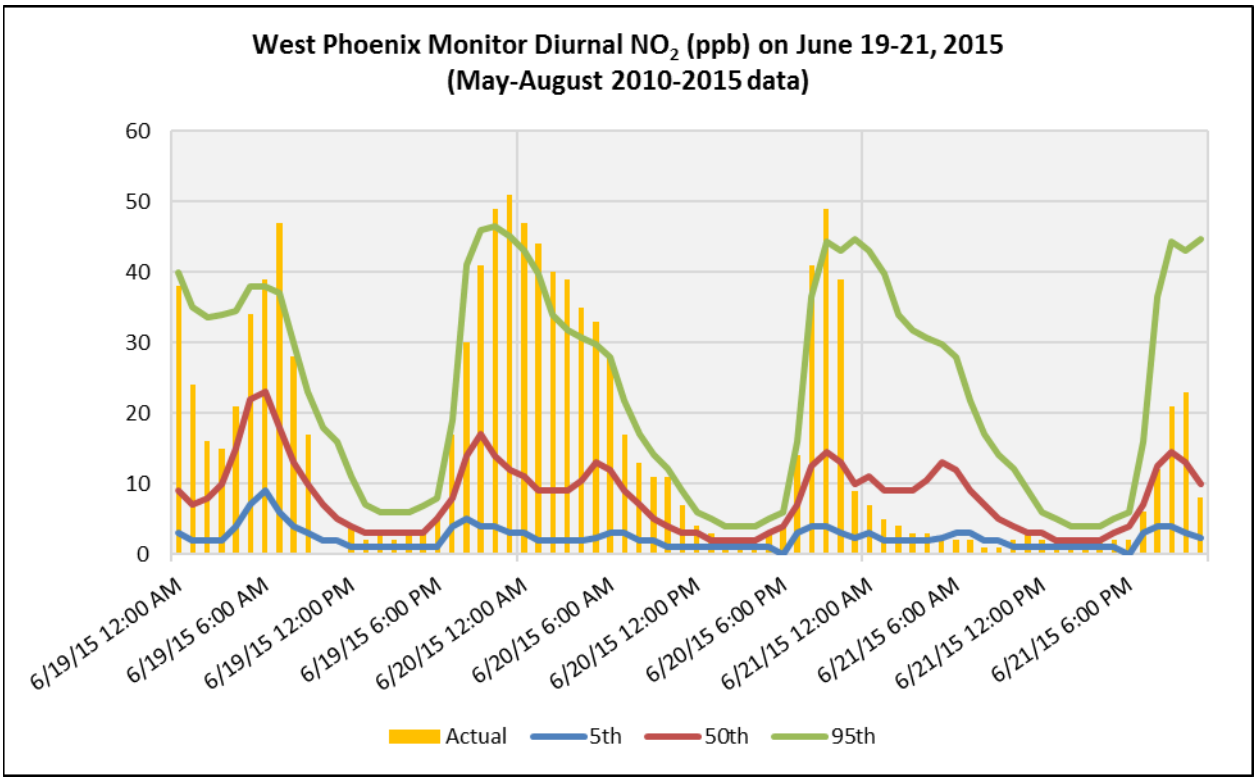
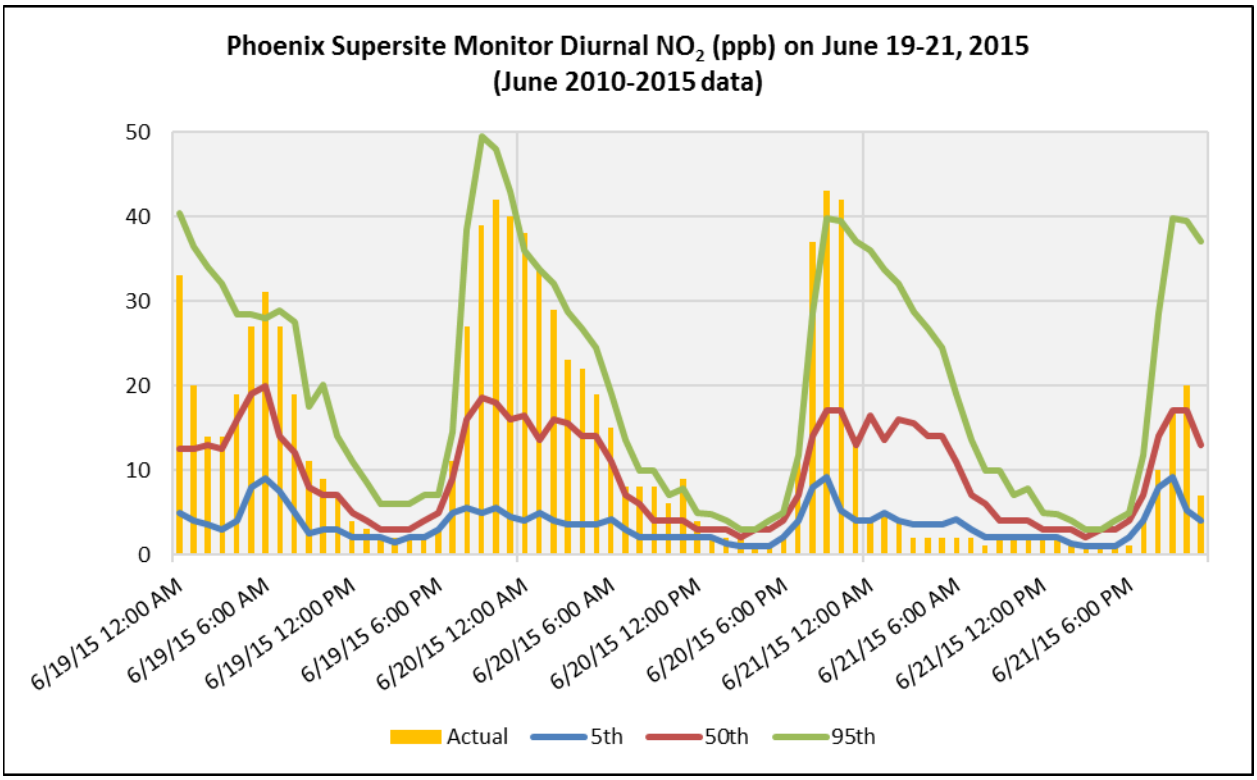


Figure 13. Diurnal NO_2 Concentrations at the Phoenix Supersite Monitor on June 19-21, 2015.



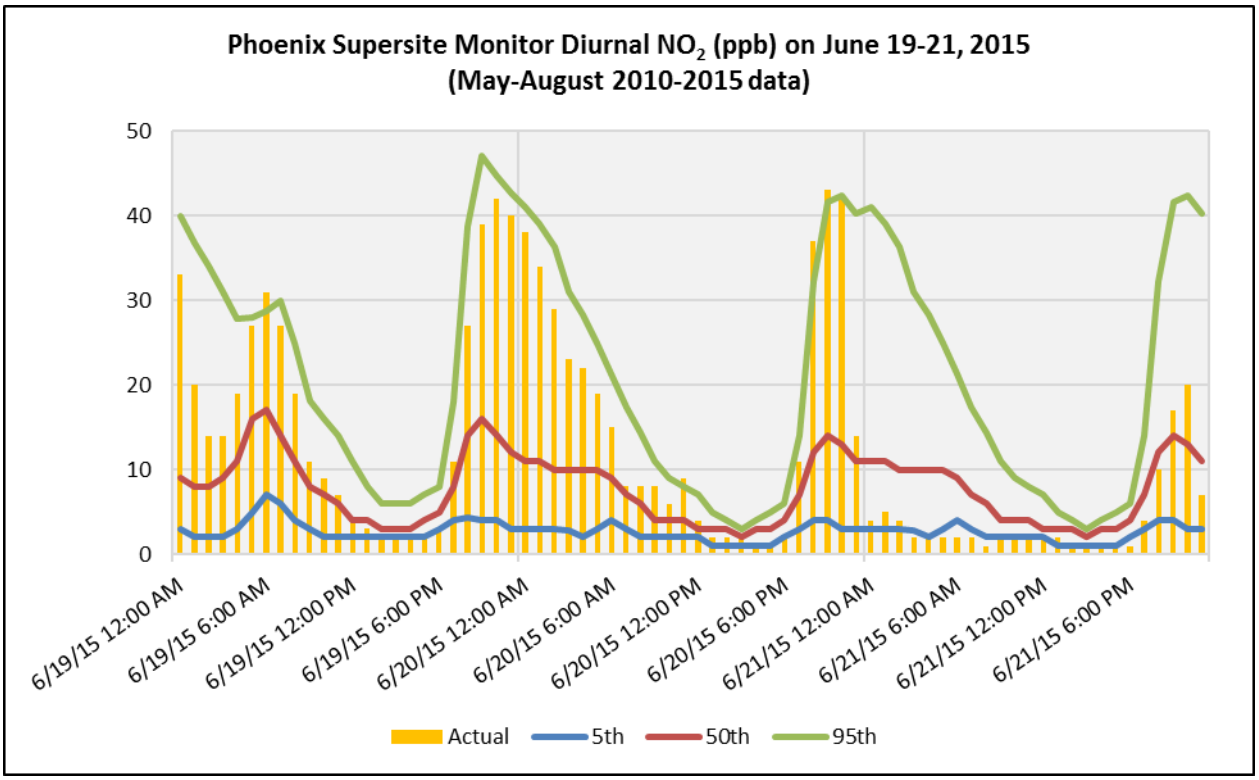
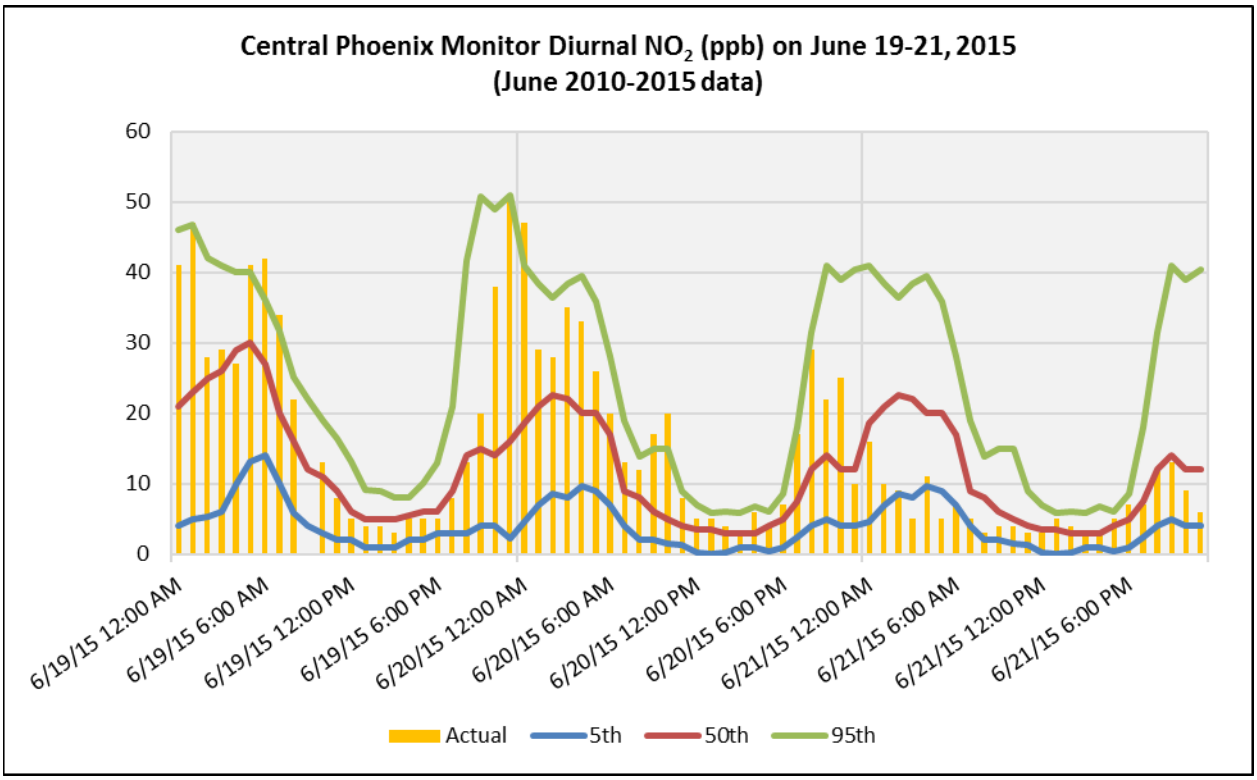
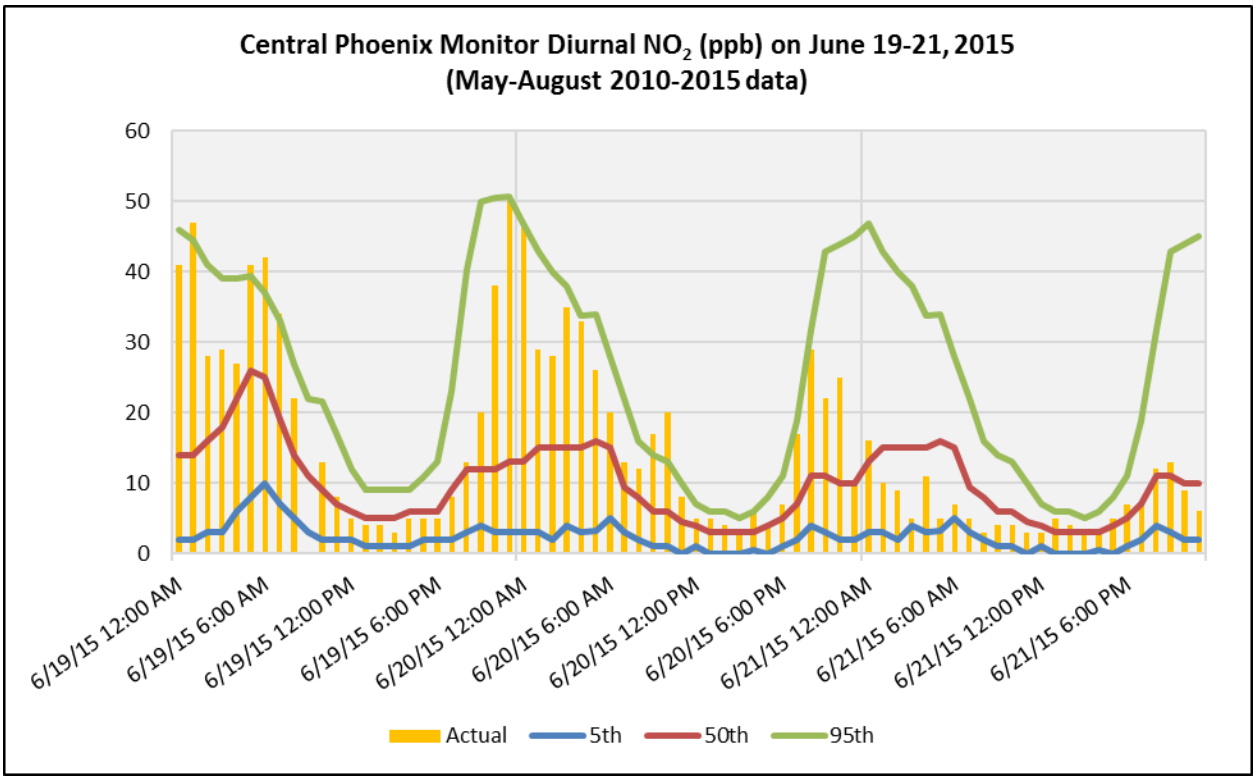


Figure 14. Diurnal NO_2 Concentrations at the Central Phoenix Monitor on June 19-21, 2015.





MATCHING DAY ANALYSES

In the prior documentation, an extensive statistical analysis was performed to demonstrate what the ozone concentrations of the exceeding monitors would normally be under the meteorological conditions that were present on June 20, 2015. That analysis predicted that all of the six exceeding monitors would normally have maximum eight-hour average ozone concentrations of 0.070 ppm or less, without the influence of transported ozone and ozone precursor emissions from the Lake Fire.

The analyses presented in this section compliment the statistical work performed earlier by (1) examining specific days in June 2010-2015 with similar meteorological conditions to June 20, 2015, (2) examining the characteristics of other exceedance days in June 2010-2015, and by (3) explaining the relative rareness of Saturday exceedances in the Maricopa nonattainment area. Theses analyses both bolster the findings of the regression analysis in the prior documentation and contribute to the weight of evidence showing a clear causal relationship between the transported ozone and ozone precursor emissions from the Lake Fire and the exceedances on June 20, 2015.

Days with Similar Meteorological Conditions

For this analysis, meteorological data from NOAA's Local Climatological Data report for the month of June in 2010-2015 was evaluated to identify days with similar meteorological conditions as the June 20, 2015 exceedance day. NOAA's report includes daily summaries of temperature, humidity, wind speed, wind direction, precipitation, pressure, cloud cover, visibility and observable weather as recorded at the Phoenix Sky Harbor International Airport, located in the center of the Maricopa nonattainment area. Copies of the NOAA reports are included in Appendix A. Out of the 180 available days, the top ten matching days with the most similar meteorological conditions were evaluated for comparison to June 20, 2015.

Meteorological conditions on June 20, 2015 were not extreme (i.e., no measured condition over the 95th percentile or below the 5th percentile), with many days in June 2011-2015 having similar characteristics to June 20, 2015. Because of this, the top ten matching days were chosen (95th percentile of days) for comparison, instead of limiting a comparison to the top five or fewer days.

The top ten matching days were chosen using the following criteria: (1) Resultant wind direction was found to be a good approximation of the back trajectory of winds. Matching days were limited to be within +/- 20° (230° to 270°) of the resultant wind direction on June 20, 2015. (2) Resultant wind speed was limited to a maximum of 2.5 mph. (3) Average wind speed was limited to +/- 1.2 mph. (4) Average temperature was limited to between +/- 2°F. (5) Maximum and minimum temperatures were limited to +/- 5°F. Days with significant weather events (large dust storms, heavy rain) were excluded from consideration as the weather on June 20, 2015 was generally calm. Additional meteorological variables such as pressure, maximum wind speeds, cloud cover and visibility were found to be less important than the prior discussed variables and did not substantially vary on average between exceedance days and non-exceedance days.

Table 1 provides a summary of important meteorological variables for the top ten matching days along with the maximum daily 8-hour ozone concentration at the monitors which recorded exceedances on June 20, 2015. Of the top ten matching days, eight of the ten days resulted in no exceedances of the 2008 ozone standard (0.075 ppm), with two days (June 1, 2012; and June 9, 2014) recording exceedances. Importantly, none of the two matching exceedance days occurred on a Saturday.

Table 2 provides a percentile ranking of the meteorological parameters and ozone concentrations in Table 1 for June 20, 2015 as compared to all 180 days in June 2010-2015. This table shows that the meteorological parameters on June 20, 2015 were not exceptional while all of the ozone concentrations were either at or above the 94th percentile. Since all meteorological parameters fell within a normal range for a June day, there is no convincing evidence that the meteorological conditions on June 20, 2015 were the primary cause of the exceedances seen on June 20, 2015.

In summary, Tables 1 and 2 demonstrate that the meteorological conditions that existed on June 20, 2015 would not normally be enough to be the sole cause of an exceedance of the 2008 ozone standard at the monitors that recorded exceedances on June 20, 2015. The two exceedance days identified in Table 1 were on workdays when anthropogenic emissions of NOx and VOC are normally higher than on the weekends and were also part of multi-day exceedance episodes, compared to the singular exceedance on June 20, 2015 (i.e., The exceedance on June 1, 2012 was preceded by exceedances on May 31, 2012 and the exceedance on June 9, 2014 was preceded by exceedances on June 5-7, 2014). The evidence presented in Tables 1 and 2 add weight to the assertion that the influence of transported ozone and ozone precursor emissions caused the exceedances on June 20, 2015, as opposed to the singular assertion that the exceedances were caused simply by normal anthropogenic emissions in the presence of the meteorological conditions that existed on June 20, 2015.

Table 1. Top Ten Matching Meteorological Days to June 20, 2015.

Date	Max. Temp. (°F)	Min. Temp. (°F)	Avg. Temp. (°F)	Depart from Normal (°F)	Avg. Dew Point (°F)	Avg. Station Press. (in.)	Resultant Wind Speed (mph)	Resultant Wind Speed Direction (°)	Average Wind Speed (mph)	Weekday	Maximum Daily 8-Hour Ozone Concentration (ppb)					
											AJ	BP	FF	ME	PP	TO
6/20/2015	**112**	**80**	**96**	**6**	**28**	**28.58**	**1.2**	**250**	**6.2**	**Saturday**	**0.078**	**0.077**	**0.080**	**0.079**	**0.078**	**0.079**
6/7/2010	108	82	95	9	41	28.61	2.1	270	5.5	Monday	0.051	0.049	0.048	NA	0.050	0.054
6/8/2010	107	81	94	7	42	28.63	2.5	260	7.3	Tuesday	0.052	0.050	0.050	NA	0.049	0.060
6/1/2012	111	79	95	11	26	28.51	1.4	240	7.0	Friday	0.065	0.070	0.063	NA	NA	0.077
6/17/2012	110	82	96	7	44	28.61	2.2	270	5.4	Sunday	0.055	0.055	0.055	NA	NA	0.057
6/23/2012	107	81	94	2	37	28.51	2.5	270	6.8	Saturday	0.056	0.061	0.053	NA	NA	0.061
6/10/2013	109	82	96	9	26	28.61	2.4	260	7.3	Monday	0.049	0.058	0.056	0.052	0.058	0.058
6/3/2014	108	81	95	10	26	28.55	1.6	240	5.8	Tuesday	0.056	0.071	0.073	0.069	0.068	0.057
6/9/2014	110	79	95	8	33	28.54	1.1	240	5.0	Monday	0.069	0.076	0.078	0.078	0.080	0.073
6/12/2014	107	80	94	6	38	28.61	2.2	270	7.4	Thursday	0.044	0.057	0.055	0.054	0.064	0.052
6/22/2014	107	83	95	4	27	28.60	1.7	250	6.6	Sunday	0.035	0.042	0.044	0.044	0050	0.042

Table 2. Percentile Rank of Meteorological Variables and Ozone Concentrations on June 20, 2015 as Compared to All Days in June 2010-2015.

Date	Max. Temp.	Min. Temp.	Avg. Temp.	Depart from Normal	Avg. Dew Point	Avg. Station Press.	Resultant Wind Speed	Average Wind Speed	Maximum Daily 8-Hour Ozone Concentration (ppb)					
									AJ	BP	FF	ME	PP	TO
6/20/2015	91st	51st	67th	57th	25th	40th	13th	28th	98th	96th	99th	97th	94th	99th

AJ = Apache Junction BP = Blue Point FF = Falcon Field
ME = Mesa PP = Pinnacle Peak TO = Tonto National Monument

Days with Monitored Non-Event Exceedances

In June 2010-2015, there were 22 other exceedance days (besides June 20, 2015) where exceedances occurred at one or more of the six monitors that exceeded on June 20, 2015. Table 3 lists the 22 exceedance days and is ordered chronologically. Many of the exceedances listed in Table 3 occurred on successive days, and are considered to be the result of a single episode. Where applicable, exceedance episodes are indicated by alternating grey and white shading in Table 3. Major meteorological conditions on the exceedance days are also included in Table 3.

June 9, 2014 has been identified as the non-event exceedance day that is most similar to the exceedances seen on June 20, 2015 based upon the (1) number of monitored exceedances; (2) the magnitude of the exceedances; and (3) matching meteorology (June 9, 2014 was identified as a matching day in Table 1). However, despite these similarities, there are two major differences between the non-event exceedance on June 9, 2014 and the wildfire-cause exceedances on June 20, 2015. As can be seen in Table 3, the June 9, 2014 exceedance day is considered to be part of a larger episode event that spans June 5-9, 2014. This episode period was marked by stagnant air conditions that allowed ozone to keep accumulating in the nonattainment area, leading to multiple and successive ozone exceedances. Ozone concentrations were highest on June 6, 2014, (Friday) during the episode, and then began to decline as anthropogenic emissions decreased on Saturday and Sunday. When anthropogenic emissions increased again on Monday (June 9, 2014), the additional emissions combined with the prior build-up from previous episode days allowed for the exceedances to occur on June 9, 2014. The exceedances on June 20, 2015 were not part of a larger episode event and were preceded by lower ozone concentrations on the day before the event (Friday, June 19, 2015). The increased ozone on June 20, 2015 occurred on a Saturday, which is unexpected given the typical decrease in anthropogenic emissions from a Friday to a Saturday.

June 20, 2015 is also unique when compared to prior Saturday exceedance days. Table 3 lists two other prior Saturday exceedance days in June 2010-2015: June 1, 2013 and June 7, 2014. Both of these exceedance days were part of a multi-day episodes and were preceded by higher exceedances on the day before (Friday). The exceedance at the Mesa monitor on June 1, 2013 was preceded by a higher exceedance value at the Mesa monitor on May 31, 2013. The exceedances at the Falcon Field, Mesa and Pinnacle Peak monitors on June 7, 2014 were preceded by higher exceedance values on June 6, 2014 at these monitors. Because June 20, 2015 is not a part of a prior episode event, and shows an increase of ozone from a Friday to Saturday, the event is unique when compared to the prior six years of exceedance data and strongly suggests that an outside source of ozone or ozone precursor emissions caused the exceedances on June 20, 2015. The uniqueness of the exceedances seen on June 20, 2015 as compared to non-event exceedances in June 2010-2015 further serves to strengthen the clear causal relationship between transported ozone and ozone precursor emissions from the Lake Fire and the exceedances on June 20, 2015.

Table 3. Exceedance Days of the 2008 Ozone Standard in June 2010-2015.

Date	Max. Temp. (°F)	Min. Temp. (°F)	Avg. Temp. (°F)	Depart from Normal (°F)	Avg. Dew Point (°F)	Avg. Station Press. (in.)	Resultant Wind Speed (mph)	Resultant Wind Speed Direction (°)	Average Wind Speed (mph)	Weekday	Maximum Daily 8-Hour Ozone Concentration (ppb)					
											AJ	BP	FF	ME	PP	TO
6/20/2015	**112**	**80**	**96**	**6**	**28**	**28.58**	**1.2**	**250**	**6.2**	**Saturday**	**0.078**	**0.077**	**0.080**	**0.079**	**0.078**	**0.079**
6/22/2010	104	75	90	-1	27	28.69	0.3	310	5.8	Tuesday	0.075	0.072	0.072	NA	0.080	0.081
6/23/2010	109	76	93	1	23	28.66	0.5	230	4.6	Wednesday	0.077	0.067	0.074	NA	0.077	0.070
6/24/2010	113	79	96	4	24	28.63	1.5	280	6.2	Thursday	0.078	0.066	0.073	NA	0.071	0.070
6/9/2011	98	71	85	-2	24	28.64	0.7	290	5.1	Thursday	0.079	0.092	0.074	NA	0.088	0.083
6/10/2011	100	73	87	0	30	28.61	2.2	270	6.2	Friday	0.070	0.081	0.066	NA	0.080	0.073
6/14/2011	106	74	90	2	24	28.65	0.6	170	5.5	Tuesday	0.067	0.076	0.065	NA	0.073	0.072
6/15/2011	110	78	94	6	32	28.53	1.4	200	6.1	Wednesday	0.063	0.077	0.066	NA	0.070	0.065
6/20/2011	103	78	91	1	27	28.50	3.8	270	6.2	Monday	0.075	0.080	0.068	NA	0.071	0.075
6/21/2011	109	78	94	3	26	28.53	0.4	60	4.9	Tuesday	0.069	0.077	0.067	NA	0.077	0.071
6/22/2011	112	81	97	6	32	28.56	3.4	250	6.2	Wednesday	0.075	0.080	0.069	NA	0.072	0.074
6/1/2012	111	79	95	11	26	28.51	1.4	240	7.0	Friday	0.065	0.070	0.063	NA	NA	0.077
6/1/2013	108	80	94	10	38	28.54	0.5	280	4.9	Saturday	0.073	0.066	0.075	0.078	0.075	0.067
6/20/2013	106	79	93	3	27	28.55	1.8	90	5.9	Thursday	0.055	0.062	0.061	0.063	0.077	0.061
6/28/2013	116	82	99	7	41	28.61	1.8	110	5.8	Friday	0.054	0.074	0.079	0.070	0.080	0.055
6/5/2014	107	76	92	7	14	28.50	1.2	260	5.5	Thursday	0.069	0.074	0.078	0.078	0.081	0.074
6/6/2014	107	75	91	6	18	28.48	0.3	80	7.0	Friday	0.074	0.088	0.088	0.086	0.088	0.085
6/7/2014	105	76	91	5	23	28.50	2.1	300	6.9	Saturday	0.062	0.075	0.076	0.077	0.081	0.069
6/9/2014	110	79	95	8	33	28.54	1.1	240	5	Monday	0.069	0.076	0.078	0.078	0.080	0.073
6/11/2015	100	82	91	4	48	28.53	4.2	260	5.7	Thursday	0.074	0.074	0.072	0.069	0.071	0.077
6/12/2015	104	78	91	3	39	28.51	1.6	28	5.7	Friday	0.073	0.077	0.079	0.082	0.083	0.073
6/16/2015	112	85	99	10	41	28.61	4.3	280	6.7	Tuesday	0.073	0.069	0.065	0.077	0.068	0.064
6/29/2015	110	86	98	6	60	28.65	2.1	260	7.2	Monday	0.080	0.073	0.084	0.080	0.074	NA

Historical Ozone Exceedance Days by Exceeding Monitor and Weekday

The prior subsections have discussed the uniqueness of the June 20, 2015 exceedance occurring on a Saturday as a singular exceedance, and not a part of a multi-day episode event. The following tables provide additional data on the frequency of Saturday exceedances as recorded in the prior six years (2010-2015). Table 4 lists the number of exceedance days by day of the week, for each of the six exceeding monitors using data from the entire ozone season (April-October) in years 2010-2015. Table 5 also lists the number of exceedance days, but limits the data to the month of June in years 2010-2015 to compare against days with similar meteorological conditions.

The tables show that Saturday has the second fewest number of exceedance days, behind Sunday exceedance days, which are the rarest. Averaged across the six exceeding monitors, Saturday exceedances occur only 7% of the time when looking at data from the entire ozone season in 2010-2015, and only 9% of the time when looking at data from the month of June in 2010-2015. Saturday exceedances are more common at the Mesa monitor, however this may be due to a small sample size as the monitor only operated in 2013-2015. For the Apache Junction, Blue Point and Tonto National Monument monitors, June 20, 2015 is the only Saturday exceedance recorded in 2010-2015. These data confirm the uniqueness of the Saturday exceedance on June 20, 2015 and add to the weight of evidence that an outside, non-normal source of emissions such as the Lake Fire emissions, was transported into the nonattainment area to cause the exceedances seen on June 20, 2015.

Table 4. Exceedance Days of the 2008 Ozone Standard by Weekday and Monitor in April-October 2010-2015.

Weekday	Count of Exceedance Days Per Monitor						
	AJ	BP	FF	ME	PP	TO	All Six Monitors
Sunday	0	2	0	0	0	1	2
Monday	1	5	3	3	5	1	9
Tuesday	1	5	1	2	4	4	10
Wednesday	2	5	1	1	4	1	7
Thursday	4	6	1	3	7	4	14
Friday	0	4	4	4	5	4	9
Saturday	0	0	1	2	3	0	4
Total	8	27	11	15	28	15	55
Weekday	**Percentage of Exceedance Days Per Monitor**						
	AJ	**BP**	**FF**	**ME**	**PP**	**TO**	**All Six Monitors**
Sunday	0%	7%	0%	0%	0%	7%	4%
Monday	13%	19%	27%	20%	18%	7%	16%
Tuesday	13%	19%	9%	13%	14%	27%	18%
Wednesday	25%	19%	9%	7%	14%	7%	13%
Thursday	50%	22%	9%	20%	25%	27%	25%
Friday	0%	15%	36%	27%	18%	27%	16%
Saturday	0%	0%	9%	13%	11%	0%	**7%**

Note: June 20, 2015 exceedance day not included in table to show historical occurrences of Saturday exceedances. Mesa monitor only includes data from 2013-2015.

AJ = Apache Junction BP = Blue Point FF = Falcon Field
ME = Mesa PP = Pinnacle Peak TO = Tonto National Monument

Table 5. Exceedance Days of the 2008 Ozone Standard by Weekday and Monitor in June 2010-2015.

Weekday	Count of Exceedance Days Per Monitor						
	AJ	BP	FF	ME	PP	TO	All Six Monitors
Sunday	0	0	0	0	0	0	0
Monday	1	2	2	2	1	0	3
Tuesday	0	2	0	1	2	1	4
Wednesday	1	2	0	0	1	0	3
Thursday	2	1	1	1	3	2	5
Friday	0	3	3	2	4	2	5
Saturday	0	0	1	2	1	0	2
Total	4	10	7	8	12	5	22
Weekday	**Percentage of Exceedance Days Per Monitor**						
	AJ	**BP**	**FF**	**ME**	**PP**	**TO**	**All Six Monitors**
Sunday	0%	0%	0%	0%	0%	0%	0%
Monday	25%	20%	29%	25%	8%	0%	14%
Tuesday	0%	20%	0%	13%	17%	20%	18%
Wednesday	25%	20%	0%	0%	8%	0%	14%
Thursday	50%	10%	14%	13%	25%	40%	23%
Friday	0%	30%	43%	25%	33%	40%	23%
Saturday	0%	0%	14%	25%	8%	0%	**9%**

Note: June 20, 2015 exceedance day not included in table to show historical occurrences of Saturday exceedances. Mesa monitor only includes data from 2013-2015.

AJ = Apache Junction BP = Blue Point FF = Falcon Field
ME = Mesa PP = Pinnacle Peak TO = Tonto National Monument

SUMMARY

The focus of the data and analyses presented in this addendum is to provide evidence (above and beyond what was submitted to EPA in the September 2016 documentation) that ozone and ozone precursor emissions from the Lake Fire in Southern California reached and affected the monitors in the Maricopa nonattainment area. When taken together, the additional evidence summarized below provides a strong weight of evidence of the clear causal relationship between the transported ozone and ozone precursor emissions from the Lake Fire and the exceedances of the 2008 ozone standard on June 20, 2015 in the Maricopa nonattainment area, qualifying the exceedances for exclusion as exceptional events.

The first section of the addendum provides ozone diurnal data from each of the six exceeding monitors which indicates that the 95th percentile ozone concentration is exceeded on June 20, 2015 during several hours. This provides evidence showing how the transported ozone and ozone precursor emissions from the Lake Fire reached and affected the exceeding monitors on an hourly basis.

The second section of the addendum provides evidence of the Maricopa nonattainment area monitors being affected by emissions from the Lake Fire through elevated organic carbon concentrations as measured by speciated $PM_{2.5}$ monitor data at the JLG Phoenix Supersite monitor on June 20, 2015. A high organic carbon concentration has been identified as a wildfire emission tracer in several academic journal articles. This additional analysis confirms that emissions from the Lake Fire reached and affected the Maricopa nonattainment area monitors at the ground-level.

The third section expands upon the NO_2 concentration data presented in the prior documentation by showing that the diurnal NO_2 concentrations measured on June 20, 2015 were unusually high as compared to the prior six years. The diurnal data analysis also highlights the atypical rise in NO_2 concentrations seen on a Saturday (June 20, 2015), when NO_2 concentrations are normally expected to decrease from the prior day due to less anthropogenic activity on the weekends. This additional analysis confirms that either ozone or ozone precursor emissions from the Lake Fire reached and affected the Maricopa nonattainment area monitors at ground-level as measured in the form of elevated NO_2 concentrations.

The fourth and final section presents additional evidence of the uniqueness of the June 20, 2015 exceedance through matching day analyses that (1) provide a comparison of the meteorological conditions present on June 20, 2015 to other days in June 2010-2015; (2) provide a comparison of the other exceedance days in June 2010-2015 to June 20, 2015; and (3) provide a comparison of the frequency of exceedances by weekday during the ozone season in 2010-2015. The first comparison finds no convincing evidence that the meteorological conditions present on June 20, 2015 were the primary cause of the exceedances. The second and third comparisons highlight the uniqueness of the June 20, 2015 exceedance when compare to prior exceedances, providing additional evidence of the influence of an outside emissions source such as transported ozone or ozone precursor emissions from the Lake Fire as the cause of the exceedances on June 20, 2015.

APPENDIX A

NOAA LOCAL CLIMATOLOGICAL DATA

JUNE 2015
LOCAL CLIMATOLOGICAL DATA
NOAA, National Centers for Environmental Information

PHOENIX, AZ
PHOENIX SKY HARBOR INTL AIRPORT (KPHX)
Lat:33° 25'N Long: 112° 0'W Elev (Ground) 1107 Feet
Time Zone : MOUNTAIN WBAN: 23183 ISSN#: 0198-0475

Date	Temperature °F MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	Deg Days BASE 65° HEATING	COOLING	WEATHER	SNOW/ICE ON GND(IN) 0500 LST DEPTH	1100 LST WATER-EQUIV	PRECIPITATION ON GND(IN) 2400 LST SNOW-FALL	2400 LST WATER EQUIV	PRESSURE (INCHES OF HG) AVERAGE STATION	AVERAGE SEA LEVEL	WIND SPEED = MPH DIR = TENS OF DEGREES RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM 3-SEC SPEED	DIR	2-MIN SPEED	DIR	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
01	105	78	92	8	28	60	0	27					0.00	28.66	29.78	3.1	24	9.1	28	30	21	30	01
02	104	76	90	6	28	59	0	25					0.00	28.64	29.76	2.9	27	8.8	24	26	18	29	02
03	102	74	88	3	21	57	0	23					0.00	28.58	29.69	2.8	27	7.9	29	28	23	27	03
04	97	73	85	0	32	58	0	20					0.00	28.59	29.70	6.7	14	9.4	38	16	30	16	04
05	90	72	81*	-4	62	68	0	16	TS TSRA RA				0.16	28.59	29.73	9.0	08	10.9	28	08	24	09	05
06	97	73	85	0	47	64	0	20	RA				0.03	28.60	29.72	1.6	22	7.9	21	28	18	28	06
07	100	71*	86	0	35	60	0	21					0.00	28.64	29.75	2.2	08	5.6	20	29	15	28	07
08	105	78	92	5	38	62	0	27					0.00	28.63	29.74	2.0	27	5.3	17	27	14	27	08
09	95	83	89	2	59	69	0	24	RA				T	28.64	29.76	3.1	21	6.8	28	16	20	18	09
10	95	80	88	1	64	71	0	23	RA				T	28.59	29.71	7.3	28	8.3	20	28	17	27	10
11	100	82	91	4	48	66	0	26					0.00	28.53	29.65	4.2	26	5.7	21	30	16	29	11
12	104	78	91	3	39	63	0	26					0.00	28.51	29.62	1.6	28	5.7	21	27	17	26	12
13	105	80	93	5	39	63	0	28					0.00	28.48	29.59	3.3	26	7.9	22	31	16	26	13
14	107	83	95	7	43	65	0	30					0.00	28.50	29.60	3.7	26	6.0	19	27	16	28	14
15	112	86	99	11	42	66	0	34					0.00	28.54	29.65	4.7	28	7.6	26	27	21	27	15
16	112	85	99	10	41	65	0	34					0.00	28.61	29.72	4.3	28	6.7	24	29	14	29	16
17	114	86	100	11	41	66	0	35					0.00	28.59	29.71	4.3	26	8.9	27	27	22	27	17
18	115*	86	101*	12	37	65	0	36					0.00	28.59	29.70	4.6	26	7.6	27	28	21	26	18
19	114	85	100	10	28	63	0	35					0.00	28.56	29.67	2.4	23	6.7	28	27	22	27	19
20	112	80	96	6	28	61	0	31					0.00	28.58	29.68	1.2	25	6.2	22	32	15	27	20
21	109	88	99	8	50	68	0	34					0.00	28.64	29.75	4.4	28	6.6	20	30	17	29	21
22	109	85	97	6	44	66	0	32					0.00	28.66	29.77	4.6	28	6.8	22	30	18	28	22
23	111	87	99	7	42	66	0	34					0.00	28.61	29.73	5.9	27	7.2	26	28	22	30	23
24	112	87	100	8	39	65	0	35					0.00	28.61	29.71	0.5	06	6.6	21	08	18	07	24
25	110	90	100	8	49	69	0	35					0.00	28.64	29.75	6.1	27	9.2	24	27	20	27	25
26	107	89	98	6	55	71	0	33					0.00	28.66	29.77	8.3	28	10.1	25	29	18	27	26
27	108	90	99	7	58	71	0	34	TS RA BLDU				0.01	28.71	29.81	2.8	32	8.9	51*	08	44*	08	27
28	110	87	99	7	56	71	0	34					0.00	28.67	29.78	1.4	21	7.4	27	28	23	29	28
29	110	86	98	6	60	73	0	33	TS TSRA RA				0.05	28.65	29.76	2.1	26	7.2	24	34	18	09	29
30	107	85	96	4	63	74	0	31					0.00	28.62	29.74	6.5	26	10.9	26	29	21	27	30
	105.9	82.1	94.0	¤	43.9	65.5	0.0	29.2	< MONTHLY AVERAGES | TOTALS >				0.25	28.60	29.72	2.6	26	7.7	< MONTHLY AVERAGES				
	2.0	4.4	3.2		<---------- DEPARTURE FROM NORMAL ---------->								0.23	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									

DEGREE DAYS

	MONTHLY TOTAL	MONTHLY DEPARTURE	SEASON TO DATE TOTAL	SEASON TO DATE DEPARTURE
HEATING :	0	0	520	-415
COOLING :	876	102	1901	241

GREATEST 24-HR PRECIPITATION : 0.19 DATE : 05-06
GREATEST 24-HR SNOWFALL : DATE :
GREATEST SNOW DEPTH : DATE :

SEA LEVEL PRESSURE		DATE	TIME
MAXIMUM :	29.89	27	1005
MIMIMUM :	29.52	13	1829

NUMBER OF DAYS WITH ->

MAXIMUM TEMP >= 90 :	30	MINIMUM TEMP <= 32 :	0	PRECIPITATION >= 0.01 INCH:	4
MAXIMUM TEMP <= 32 :	0	MINIMUM TEMP <= 0 :	0	PRECIPITATION >= 0.10 INCH:	1
THUNDERSTORMS :	3	HEAVY FOG :	0	SNOWFALL >= 1.0 INCH :	

JUNE 2015
PHOENIX, AZ

HOURLY PRECIPITATION
(WATER EQUIVALENT IN INCHES)

PHOENIX, AZ (KPHX)
JUNE 2015

WBAN # 23183

Date	FOR HOUR (LST) ENDING AT												Date	FOR HOUR (LST) ENDING AT												Date	Sum of Hourly Data	2400 LST Water Equiv.
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24			
01													01													01	0.00	0.00
02													02													02	0.00	0.00
03													03													03	0.00	0.00
04													04													04	0.00	0.00
05				T	T	T	0.01	0.01		T		T	05	0.01			T	T	0.04	T	T		0.05	T	0.04	05	0.16	0.16
06	0.03			T	T								06													06	0.03	0.03
07													07													07	0.00	0.00
08													08													08	0.00	0.00
09					T	T		T					09													09	T	T
10							T						10													10	T	T
11													11													11	0.00	0.00
12													12													12	0.00	0.00
13													13													13	0.00	0.00
14													14													14	0.00	0.00
15													15													15	0.00	0.00
16													16													16	0.00	0.00
17													17													17	0.00	0.00
18													18													18	0.00	0.00
19													19													19	0.00	0.00
20													20													20	0.00	0.00
21													21													21	0.00	0.00
22													22													22	0.00	0.00
23													23													23	0.00	0.00
24													24													24	0.00	0.00
25													25													25	0.00	0.00
26													26													26	0.00	0.00
27			0.01										27								T					27	0.01	0.01
28													28													28	0.00	0.00
29													29											0.02	0.03	29	0.05	0.05
30													30													30	0.00	0.00

*** Indicates sum of Hourly and Daily disagree.**

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.07	0.09	0.09	0.09	0.12
Ending Date	05	29	29	29	29	29	29	06	05	05	05	06
Ending Time (Hr/Min)	2138	2304	2304	2304	2304	2304	2304	0017	2311	2311	2311	0017

Date and time are not entered for TRACE amounts.

Note : The hourly and daily precipitation totals are printed in the last 2 columns and hi-lighted in red when they disagree. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

*** = Extreme for the month (last occurence if more than one).**

T = Trace precipitation amount.

+ = also occurs on earlier date.

FG+ = Heavy fog, visibility .25 miles or less.

BLANK entries denote missing or unreported data.

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24-hour period ending at the time indicated in the column heading.

Ceilometer (30-second) data are used to derive cloudiness at or below 12,000 feet. This cloudiness is the mean cloud cover detected during sunrise to sunset (SR-SS), or midnight to midnight (MN-MN).

WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
DESCRIPTOR	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DU Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Well-Developed Dust/Sand Whirls
MI Shallow	PL Ice Pellets	HZ Haze	
PR Partial	RA Rain		
SH Shower(s)	SG Snow Grains	PY Spray	SQ Squalls
TS Thunderstorm	SN Snow	SA Sand	SS Sandstorm
VC In the Vicinity	UP Unkown Precipitation	VA Volcanic Ash	GL Glaze

Intensity (as indicated on pages 4 to 6):
'+' = Heavy ' ' = Moderate '-' = Light

PHOENIX, AZ
JUNE 2015

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet.

Clear = 0-2 oktas, Partly Cloudy = 3-6 oktas, Cloudy = 7-8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

NORMALS ARE FOR THE YEARS 1981-2010

ADDITIONAL NOTES & ERRATA:

```
Station Augmentation-CONTRACTOR
  Lat/Lon:33.44417/-112.02472 Elevation:1107FT
  Distance:.5 MI Dir:N
  Augmented Elements:Temp, Precip
  Equipment:MXMN, SRG
```

Date	VISIBILITY (MILES) MINIMUM	VISIBILITY (MILES) MAXIMUM
01	10.00	10.00
02	10.00	10.00
03	10.00	10.00
04	9.00	10.00
05	10.00	10.00
06	10.00	10.00
07	10.00	10.00
08	10.00	10.00
09	9.00	10.00
10	10.00	10.00
11	10.00	10.00
12	10.00	10.00
13	10.00	10.00
14	10.00	10.00
15	10.00	10.00
16	10.00	10.00
17	10.00	10.00
18	10.00	10.00
19	10.00	10.00
20	10.00	10.00
21	10.00	10.00
22	10.00	10.00
23	10.00	10.00
24	10.00	10.00
25	10.00	10.00
26	10.00	10.00
27	10.00	10.00
28	6.00	10.00
29	10.00	10.00
30	10.00	10.00
AVGS	9.80	10.00

MINIMUM VISIBILTY (MILES)

<= .25	<= 3.0	>= 7.0
0	0	29

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2015 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
				SUNRISE: 0519 JUN 01 SUNSET: 1932								
02	CLR	NC	10.00		85	33	58	15	6	13	28.66	29.77
05	CLR	NC	10.00		80	34	56	19	8	12	28.68	29.78
08	FEW	100	10.00		85	31	57	14	9	13	28.71	29.83
11	FEW	170	10.00		96	28	61	9	7	19	28.72	29.83
14	CLR	NC	10.00		101	27	62	7	3	10	28.66	29.78
17	FEW	250	10.00		105	22	63	5	13	25	28.62	29.73
20	BKN	250	10.00		99	20	60	6	15	29	28.62	29.73
23	BKN	250	10.00		89	30	58	12	3	20	28.66	29.76
				SUNRISE: 0519 JUN 02 SUNSET: 1933								
02	BKN	250	10.00		85	33	58	15	3	04	28.66	29.77
05	SCT	250	10.00		78	36	56	22	7	10	28.68	29.79
08	FEW	250	10.00		84	38	59	19	6	14	28.71	29.83
11	FEW	250	10.00		96	33	62	11	6	15	28.70	29.81
14	CLR	NC	10.00		101	30	63	8	3	VR	28.64	29.75
17	CLR	NC	10.00		102	21	61	5	14	28	28.59	29.70
20	CLR	NC	10.00		97	18	59	6	10	30	28.58	29.68
23	CLR	NC	10.00		90	18	56	7	10	26	28.61	29.72
				SUNRISE: 0519 JUN 03 SUNSET: 1933								
02	CLR	NC	10.00		84	22	55	10	7	15	28.62	29.72
05	CLR	NC	10.00		76	33	54	21	7	08	28.62	29.73
08	CLR	NC	10.00		80	33	56	18	5	10	28.65	29.76
11	FEW	250	10.00		92	27	59	10	6	03	28.64	29.74
14	FEW	250	10.00		101	21	61	6	10	25	28.58	29.68
17	CLR	NC	10.00		100	13	59	4	15	26	28.52	29.63
20	FEW	210	10.00		94	11	57	4	15	29	28.53	29.64
23	CLR	NC	10.00		87	12	54	6	7	27	28.55	29.66
				SUNRISE: 0519 JUN 04 SUNSET: 1934								
02	CLR	NC	10.00		81	20	53	10	8	13	28.56	29.66
05	CLR	NC	10.00		73	31	52	21	9	08	28.58	29.69
08	FEW	220	10.00		80	28	54	15	9	10	28.61	29.72
11	BKN	250	10.00		91	25	58	9	10	13	28.60	29.71
14	BKN	220	10.00		97	18	59	6	14	22	28.57	29.68
17	BKN	220	10.00		93	29	60	10	11	18	28.59	29.70
20	BKN	220	10.00		83	55	66	38	11	11	28.61	29.72
23	BKN	250	10.00		83	53	65	36	10	13	28.61	29.72
				SUNRISE: 0518 JUN 05 SUNSET: 1934								
02	BKN	250	10.00		82	52	64	35	5	12	28.60	29.71
05	BKN	200	10.00		79	57	65	47	13	15	28.59	29.70
08	BKN	110	10.00		73	64	67	74	15	09	28.66	29.78
11	BKN	170	10.00		80	64	70	58	15	08	28.65	29.77
14	BKN	120	10.00		87	61	70	42	16	06	28.61	29.72
17	BKN	110	10.00		85	61	69	45	11	36	28.57	29.69
20	BKN	090	10.00		77	69	72	77	0	00	28.60	29.72
23	BKN	100	10.00		76	65	69	69	8	08	28.60	29.72
				SUNRISE: 0518 JUN 06 SUNSET: 1935								
02	BKN	110	10.00		73	68	70	84	6	19	28.60	29.72
05	BKN	120	10.00		74	65	68	74	9	09	28.60	29.72
08	BKN	120	10.00		76	65	69	69	6	10	28.64	29.77
11	BKN	170	10.00		85	50	64	30	5	VR	28.66	29.78
14	SCT	180	10.00		92	41	63	17	6	VR	28.62	29.73
17	SCT	180	10.00		96	23	59	7	14	28	28.56	29.67
20	SCT	100	10.00		93	27	59	9	10	32	28.57	29.68
23	BKN	120	10.00		87	35	59	16	0	00	28.61	29.72

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
				SUNRISE: 0518 JUN 07 SUNSET: 1935								
02	CLR	NC	10.00		81	43	60	26	5	09	28.61	29.72
05	CLR	NC	10.00		73	47	58	40	6	09	28.63	29.75
08	FEW	160	10.00		80	45	60	29	8	10	28.68	29.79
11	CLR	NC	10.00		91	26	58	9	7	10	28.69	29.80
14	FEW	180	10.00		97	24	60	7	7	26	28.65	29.76
17	FEW	250	10.00		99	27	61	8	0	00	28.61	29.72
20	FEW	250	10.00		96	27	60	8	5	36	28.62	29.73
23	CLR	NC	10.00		88	40	61	18	3	12	28.65	29.76
				SUNRISE: 0518 JUN 08 SUNSET: 1936								
02	FEW	220	10.00		82	42	60	24	6	09	28.66	29.77
05	BKN	150	10.00		79	41	58	26	0	00	28.68	29.79
08	BKN	180	10.00		83	45	61	26	5	09	28.70	29.82
11	BKN	170	10.00		94	38	63	14	3	VR	28.69	29.80
14	BKN	200	10.00		104	33	65	8	3	31	28.63	29.74
17	BKN	200	10.00		105	37	66	10	7	32	28.57	29.67
20	OVC	210	10.00		101	37	65	11	10	26	28.56	29.66
23	OVC	200	10.00		96	37	63	13	7	25	28.61	29.71
				SUNRISE: 0518 JUN 09 SUNSET: 1936								
02	OVC	200	10.00		93	42	64	17	6	VR	28.66	29.76
05	OVC	200	10.00	-RA	86	56	67	36	5	15	28.69	29.80
08	OVC	120	10.00		84	60	69	44	9	17	28.71	29.82
11	OVC	100	9.00		86	62	70	45	0	00	28.69	29.80
14	BKN	120	10.00		88	63	71	43	6	36	28.64	29.75
17	BKN	120	10.00		89	62	71	41	10	25	28.59	29.70
20	OVC	110	10.00		88	60	70	39	7	27	28.60	29.71
23	OVC	150	10.00		85	65	72	51	11	24	28.64	29.75
				SUNRISE: 0518 JUN 10 SUNSET: 1937								
02	BKN	120	10.00		83	63	70	51	10	29	28.62	29.73
05	OVC	100	10.00		82	66	71	58	7	29	28.63	29.74
08	BKN	085	10.00		81	66	71	61	9	27	28.66	29.78
11	BKN	085	10.00		85	67	73	55	9	28	28.66	29.78
14	BKN	065	10.00		90	65	73	44	11	31	28.61	29.72
17	FEW	065	10.00		94	59	71	31	10	29	28.54	29.65
20	FEW	065	10.00		90	61	71	38	8	23	28.53	29.64
23	CLR	NC	10.00		88	62	71	42	5	24	28.55	29.66
				SUNRISE: 0518 JUN 11 SUNSET: 1937								
02	FEW	120	10.00		86	59	69	40	0	00	28.55	29.65
05	BKN	080	10.00		82	56	66	41	7	25	28.56	29.67
08	SCT	085	10.00		86	51	65	30	7	30	28.61	29.72
11	SCT	200	10.00		92	49	66	23	5	VR	28.60	29.70
14	SCT	090	10.00		97	49	67	20	13	28	28.55	29.65
17	FEW	090	10.00		98	39	64	13	7	20	28.50	29.61
20	FEW	090	10.00		96	38	63	13	5	25	28.50	29.60
23	CLR	NC	10.00		89	46	64	23	0	00	28.51	29.62
				SUNRISE: 0518 JUN 12 SUNSET: 1938								
02	CLR	NC	10.00		89	35	60	15	9	28	28.51	29.62
05	CLR	NC	10.00		79	46	60	31	9	08	28.53	29.64
08	CLR	NC	10.00		83	41	60	23	5	11	28.58	29.69
11	CLR	NC	10.00		93	38	62	14	3	VR	28.58	29.68
14	FEW	110	10.00		100	37	64	11	0	00	28.51	29.61
17	FEW	110	10.00		102	36	65	10	8	30	28.45	29.55
20	FEW	110	10.00		100	36	64	11	0	00	28.45	29.56
23	CLR	NC	10.00		93	41	63	16	14	26	28.49	29.59

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2015 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
				SUNRISE: 0518 JUN 13 SUNSET: 1938								
02	CLR	NC	10.00		90	33	60	13	7	34	28.49	29.59
05	FEW	110	10.00		82	43	60	25	6	09	28.52	29.62
08	FEW	130	10.00		85	36	59	17	8	10	28.56	29.66
11	FEW	130	10.00		95	35	62	12	7	VR	28.55	29.65
14	FEW	110	10.00		103	42	67	12	11	25	28.47	29.57
17	SCT	250	10.00		104	40	66	11	13	25	28.43	29.53
20	SCT	250	10.00		101	39	65	12	8	26	28.43	29.53
23	CLR	NC	10.00		94	44	65	18	13	25	28.46	29.56
				SUNRISE: 0518 JUN 14 SUNSET: 1938								
02	CLR	NC	10.00		91	44	64	20	10	30	28.48	29.58
05	FEW	140	10.00		87	41	61	20	0	00	28.51	29.61
08	CLR	NC	10.00		87	45	63	23	6	10	28.56	29.66
11	FEW	090	10.00		96	43	65	16	3	23	28.56	29.66
14	FEW	250	10.00		104	44	68	13	6	VR	28.50	29.60
17	FEW	250	10.00		106	40	67	10	8	27	28.43	29.53
20	FEW	250	10.00		103	38	65	11	7	26	28.45	29.55
23	FEW	110	10.00		99	42	65	14	13	29	28.51	29.61
				SUNRISE: 0518 JUN 15 SUNSET: 1939								
02	CLR	NC	10.00		93	44	64	18	9	32	28.52	29.62
05	FEW	150	10.00		89	44	63	21	5	01	28.55	29.65
08	CLR	NC	10.00		90	42	63	19	8	12	28.61	29.72
11	FEW	120	10.00		99	42	66	14	3	35	28.60	29.70
14	FEW	250	10.00		108	44	69	12	8	21	28.55	29.65
17	FEW	250	10.00		110	41	69	10	15	26	28.49	29.59
20	FEW	250	10.00		107	38	67	9	13	27	28.52	29.61
23	CLR	NC	10.00		100	36	64	11	10	29	28.58	29.67
				SUNRISE: 0518 JUN 16 SUNSET: 1939								
02	CLR	NC	10.00		95	41	64	15	7	31	28.59	29.69
05	FEW	140	10.00		87	46	63	24	0	00	28.63	29.73
08	FEW	130	10.00		90	46	64	22	6	10	28.69	29.79
11	FEW	150	10.00		101	41	66	13	6	32	28.69	29.78
14	FEW	120	10.00		110	38	68	9	5	22	28.63	29.72
17	FEW	110	10.00		110	34	67	7	11	31	28.57	29.66
20	FEW	200	10.00		107	38	67	9	11	27	28.56	29.66
23	CLR	NC	10.00		101	39	65	12	14	28	28.60	29.70
				SUNRISE: 0518 JUN 17 SUNSET: 1939								
02	CLR	NC	10.00		92	44	64	19	7	25	28.61	29.71
05	FEW	130	10.00		90	45	64	21	0	00	28.63	29.72
08	FEW	180	10.00		93	46	65	20	8	12	28.68	29.78
11	FEW	120	10.00		103	46	68	15	7	14	28.68	29.78
14	FEW	120	10.00		111	32	67	6	11	33	28.62	29.72
17	FEW	250	10.00		112	36	68	7	11	27	28.54	29.64
20	BKN	250	10.00		107	37	67	9	13	26	28.54	29.63
23	CLR	NC	10.00		104	37	66	10	13	29	28.58	29.67
				SUNRISE: 0518 JUN 18 SUNSET: 1940								
02	CLR	NC	10.00		97	40	64	14	9	32	28.59	29.68
05	FEW	150	10.00		88	45	63	22	5	11	28.61	29.71
08	CLR	NC	10.00		93	43	64	18	5	10	28.66	29.77
11	CLR	NC	10.00		106	39	67	10	0	00	28.68	29.77
14	FEW	120	10.00		111	33	67	7	6	26	28.61	29.70
17	FEW	210	10.00		114	33	68	6	14	25	28.54	29.64
20	BKN	250	10.00		108	36	67	8	9	25	28.54	29.64
23	FEW	250	10.00		100	31	63	9	7	27	28.58	29.68

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
				SUNRISE: 0518 JUN 19 SUNSET: 1940								
02	CLR	NC	10.00		97	36	63	12	7	34	28.57	29.67
05	SCT	250	10.00		87	43	62	21	3	18	28.59	29.70
08	BKN	250	10.00		92	45	64	20	8	09	28.63	29.73
11	BKN	250	10.00		105	35	65	9	7	12	28.63	29.72
14	BKN	250	10.00		111	26	65	5	11	23	28.57	29.67
17	SCT	250	10.00		111	13	64	3	14	23	28.52	29.62
20	FEW	250	10.00		105	7	61	3	8	25	28.52	29.62
23	CLR	NC	10.00		100	6	59	3	0	00	28.56	29.65
				SUNRISE: 0519 JUN 20 SUNSET: 1940								
02	CLR	NC	10.00		85	32	57	15	5	12	28.55	29.65
05	CLR	NC	10.00		82	30	56	15	3	13	28.59	29.69
08	CLR	NC	10.00		89	30	58	12	8	11	28.65	29.75
11	CLR	NC	10.00		102	28	63	7	6	VR	28.66	29.75
14	CLR	NC	10.00		108	27	65	6	8	24	28.60	29.70
17	CLR	NC	10.00		111	23	65	4	5	VR	28.53	29.63
20	CLR	NC	10.00		107	20	63	4	5	26	28.53	29.63
23	CLR	NC	10.00		97	37	63	12	6	24	28.56	29.66
				SUNRISE: 0519 JUN 21 SUNSET: 1941								
02	CLR	NC	10.00		94	54	69	26	10	32	28.60	29.70
05	CLR	NC	10.00		89	53	67	29	5	02	28.66	29.76
08	CLR	NC	10.00		90	52	67	27	6	30	28.73	29.84
11	CLR	NC	10.00		97	53	69	23	7	01	28.73	29.84
14	CLR	NC	10.00		104	49	70	16	6	24	28.66	29.77
17	CLR	NC	10.00		107	49	70	14	9	25	28.61	29.71
20	CLR	NC	10.00		105	45	68	13	11	29	28.58	29.68
23	CLR	NC	10.00		98	45	66	16	8	26	28.62	29.72
				SUNRISE: 0519 JUN 22 SUNSET: 1941								
02	CLR	NC	10.00		94	46	65	19	15	30	28.65	29.75
05	FEW	250	10.00		87	51	65	29	0	00	28.70	29.81
08	FEW	250	10.00		91	51	66	26	6	01	28.74	29.85
11	FEW	250	10.00		97	48	67	19	3	VR	28.72	29.84
14	FEW	250	10.00		108	40	68	10	6	VR	28.66	29.77
17	SCT	250	10.00		108	31	65	7	15	29	28.60	29.70
20	SCT	250	10.00		105	39	66	10	13	27	28.59	29.69
23	FEW	250	10.00		98	41	65	14	0	00	28.64	29.75
				SUNRISE: 0519 JUN 23 SUNSET: 1941								
02	CLR	NC	10.00		94	48	66	21	5	36	28.66	29.76
05	FEW	200	10.00		89	50	65	26	3	22	28.69	29.79
08	SCT	210	10.00		92	48	66	22	6	27	28.71	29.82
11	SCT	250	10.00		100	40	65	13	3	VR	28.70	29.81
14	BKN	210	10.00		106	41	67	11	3	VR	28.64	29.74
17	SCT	230	10.00		110	35	67	8	17	27	28.54	29.64
20	FEW	110	10.00		106	35	66	9	13	26	28.53	29.63
23	FEW	090	10.00		96	39	64	14	5	24	28.56	29.67
				SUNRISE: 0519 JUN 24 SUNSET: 1941								
02	CLR	NC	10.00		95	37	63	13	6	13	28.59	29.69
05	SCT	100	10.00		89	41	62	19	8	11	28.61	29.71
08	SCT	220	10.00		94	44	65	18	5	VR	28.66	29.77
11	FEW	220	10.00		105	31	64	7	5	01	28.68	29.78
14	FEW	220	10.00		110	29	66	6	9	26	28.61	29.71
17	SCT	190	10.00		112	33	67	7	11	25	28.55	29.65
20	SCT	170	10.00		102	50	69	17	13	09	28.58	29.68
23	FEW	120	10.00		98	51	69	20	7	08	28.63	29.73

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2015 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
			SUNRISE: 0520	JUN 25			SUNSET: 1941					
02	SCT	170	10.00		97	50	68	20	7	06	28.64	29.73
05	SCT	170	10.00		91	53	67	27	5	04	28.68	29.78
08	SCT	190	10.00		94	54	69	26	7	31	28.72	29.84
11	FEW	200	10.00		101	53	70	20	8	21	28.72	29.83
14	SCT	250	10.00		107	51	71	15	8	24	28.66	29.76
17	SCT	250	10.00		109	46	70	12	13	26	28.58	29.68
20	BKN	210	10.00		107	38	67	9	14	26	28.56	29.66
23	BKN	250	10.00		99	48	68	18	9	24	28.61	29.71
			SUNRISE: 0520	JUN 26			SUNSET: 1941					
02	FEW	250	10.00		96	52	68	23	6	34	28.64	29.74
05	SCT	250	10.00		90	56	68	32	10	29	28.69	29.80
08	FEW	250	10.00		91	62	72	38	9	28	28.75	29.85
11	FEW	250	10.00		98	56	71	24	10	32	28.73	29.84
14	FEW	250	10.00		103	57	73	22	13	29	28.66	29.78
17	FEW	250	10.00		107	50	71	15	13	28	28.60	29.70
20	SCT	250	10.00		105	52	71	17	6	20	28.60	29.70
23	FEW	250	10.00		99	56	71	24	16	27	28.66	29.76
			SUNRISE: 0520	JUN 27			SUNSET: 1942					
02	BKN	200	10.00		95	58	71	29	16	29	28.68	29.78
05	BKN	220	10.00		91	61	71	37	9	35	28.73	29.84
08	BKN	250	10.00		92	60	71	34	10	33	28.77	29.88
11	BKN	200	10.00		96	60	72	30	5	31	28.77	29.88
14	BKN	200	10.00		102	56	72	22	3	VR	28.69	29.79
17	BKN	200	10.00		107	53	72	17	8	28	28.59	29.69
20	BKN	190	10.00		97	53	69	23	21	08	28.68	29.79
23	OVC	180	10.00		93	56	69	29	8	09	28.74	29.86
			SUNRISE: 0521	JUN 28			SUNSET: 1942					
02	OVC	200	10.00		93	57	70	30	8	03	28.69	29.80
05	BKN	220	10.00		89	58	69	35	9	07	28.72	29.83
08	BKN	250	10.00		92	59	70	33	9	11	28.75	29.86
11	SCT	250	10.00		103	55	72	20	0	00	28.73	29.84
14	SCT	180	10.00		107	53	72	17	3	VR	28.65	29.75
17	SCT	180	10.00		110	49	71	13	7	23	28.58	29.67
20	BKN	180	10.00		103	57	73	22	6	17	28.60	29.70
23	BKN	200	10.00		94	60	72	32	9	26	28.69	29.79
			SUNRISE: 0521	JUN 29			SUNSET: 1942					
02	FEW	250	10.00		94	61	72	33	3	30	28.68	29.78
05	SCT	130	10.00		88	62	71	42	8	15	28.68	29.78
08	FEW	250	10.00		92	63	73	38	3	VR	28.72	29.83
11	FEW	250	10.00		99	60	73	28	6	08	28.71	29.82
14	FEW	250	10.00		106	58	74	21	8	22	28.65	29.75
17	BKN	250	10.00		108	55	73	17	5	26	28.57	29.67
20	BKN	180	10.00		105	56	73	20	9	24	28.57	29.67
23	OVC	150	10.00	-TSRA	90	67	74	47	14	08	28.68	29.78
			SUNRISE: 0521	JUN 30			SUNSET: 1942					
02	BKN	220	10.00		88	73	77	61	6	10	28.64	29.75
05	BKN	200	10.00		86	71	76	61	7	09	28.66	29.76
08	SCT	250	10.00		92	63	73	38	13	15	28.72	29.83
11	SCT	250	10.00		98	60	73	28	16	27	28.72	29.83
14	SCT	250	10.00		102	61	74	26	9	26	28.65	29.75
17	BKN	250	10.00		104	59	74	23	14	28	28.55	29.65
20	BKN	250	10.00		101	59	73	25	17	26	28.50	29.61
23	OVC	250	10.00		97	60	72	29	15	24	28.58	29.68

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL

3-HOURLY OBSERVATION NOTES

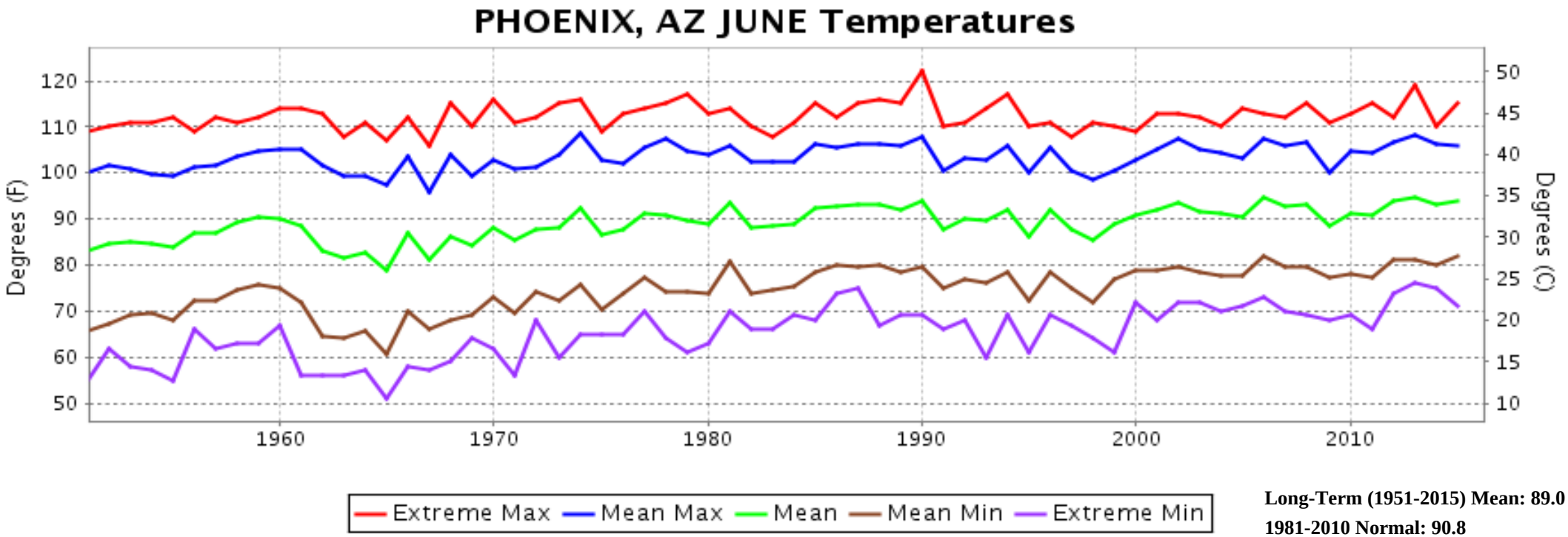
Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8-2/8, SCT = 3/8-4/8, BKN = 5/8-7/8, OVC = 8/8, W = Vertical Visibility = 8/8

Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC = No Ceiling detected.

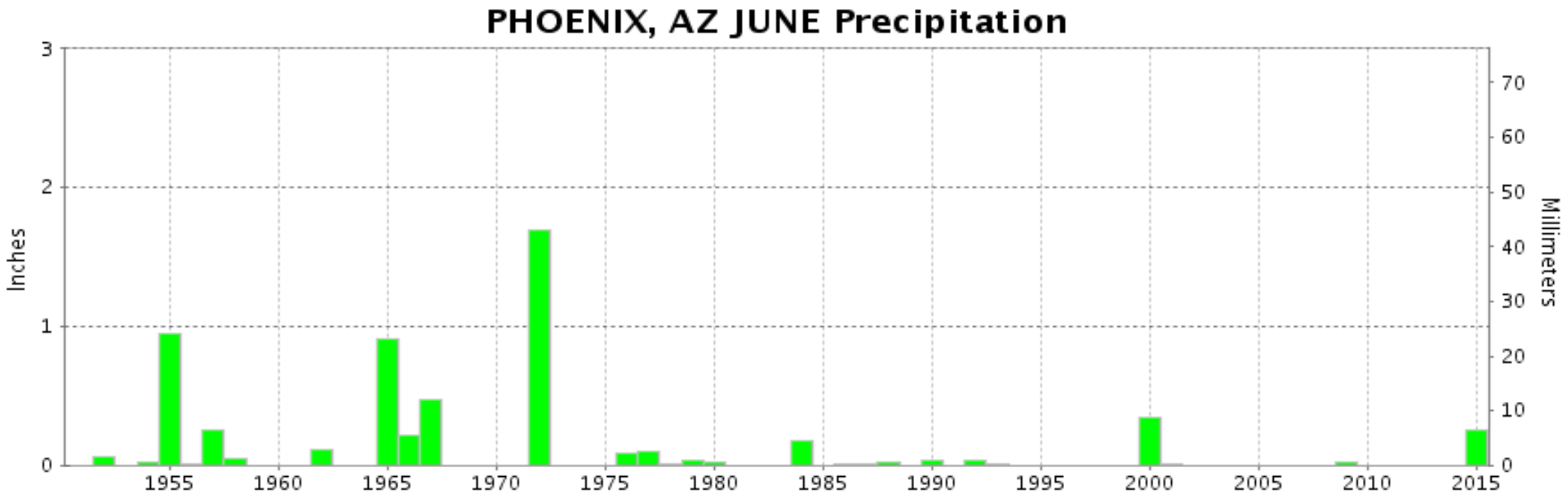
& = Original observation containted additional weather elements. See page 3 for additional notes.

SUMMARY BY HOUR

HOUR (LST)	AVERAGES DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (Inches, HG) STATION	SEA LEVEL	VISIBILITY (Miles)	WIND SPEED (MPH)	RESULTANT WIND (MPH) SPEED	DIRECTION
01	91	45	64	23	28.60	29.71	10.00	6	3	26
02	89	45	64	25	28.61	29.71	10.00	7	1	25
03	87	47	64	27	28.61	29.71	10.00	6	1	11
04	86	48	64	29	28.62	29.72	10.00	5	3	10
05	84	49	63	31	28.63	29.74	10.00	6	3	10
06	83	50	64	34	28.65	29.76	10.00	7	3	10
07	84	49	64	32	28.66	29.77	10.00	8	4	10
08	87	49	65	29	28.67	29.78	10.00	7	3	10
09	91	47	65	25	28.68	29.79	10.00	5	3	10
10	93	46	66	22	28.68	29.78	10.00	5	2	12
11	96	44	66	20	28.67	29.78	9.97	6	1	15
12	99	43	67	18	28.66	29.76	10.00	6	2	25
13	101	43	67	17	28.64	29.74	10.00	7	4	26
14	103	42	67	15	28.61	29.72	10.00	8	5	26
15	104	40	67	14	28.59	29.69	10.00	9	9	27
16	104	39	67	13	28.57	29.67	10.00	11	9	27
17	104	38	67	13	28.55	29.65	10.00	11	9	27
18	103	39	67	13	28.54	29.64	9.87	11	10	27
19	102	39	67	14	28.55	29.65	9.97	12	10	27
20	100	40	66	16	28.56	29.66	10.00	10	6	27
21	98	41	66	17	28.57	29.67	10.00	8	5	27
22	95	42	65	19	28.59	29.69	10.00	8	6	27
23	94	43	65	21	28.60	29.70	10.00	8	5	26
24	92	45	65	23	28.60	29.71	10.00	7	6	27



Long-Term (1951-2015) Mean: 89.0
1981-2010 Normal: 90.8



Long-Term (1951-2015) Mean Monthly Total: 0.09 **1981-2010 Normal: 0.02**

Published By:National Centers for Environmental Information

JUNE 2015
PHOENIX, AZ

LOCAL CLIMATOLOGICAL DATA

NOAA, National Centers for Environmental Information

I certify that this is an official publication of the National Oceanic and Atmospheric Administration (NOAA). It is compiled using information from weather observing sites operated by NOAA-National Weather Service / Department Of Transportation-Federal Aviation Administration and received at the National Centers for Environmental Information (NCEI), Asheville, North Carolina 28801.

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JUNE 2014
LOCAL CLIMATOLOGICAL DATA
NOAA, National Climatic Data Center

PHOENIX, AZ
PHOENIX SKY HARBOR INTL AIRPORT (KPHX)
Lat:33° 25'N Long: 112° 0'W Elev (Ground) 1107 Feet
Time Zone : MOUNTAIN WBAN: 23183 ISSN#: 0198-0475

Date	Temperature °F MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	Deg Days BASE 65° HEATING	COOLING	WEATHER	SNOW/ICE ON GND(IN) 0500 LST DEPTH	1100 LST WATER-EQUIV	PRECIPITATION ON GND(IN) 2400 LST SNOW-FALL	2400 LST WATER EQUIV	PRESSURE (INCHES OF HG) AVERAGE STATION	AVERAGE SEA LEVEL	WIND SPEED = MPH DIR = TENS OF DEGREES RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM 3-SEC SPEED	DIR	2-MIN SPEED	DIR	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
01	106	78	92	8	28	60	0	27					0.00	28.58	29.69	2.6	25	6.9	20	32	16	29	01
02	110	77	94	10	26	60	0	29					0.00	28.56	29.67	1.1	10	6.0	19	34	14	27	02
03	108	81	95	10	26	60	0	30					0.00	28.55	29.66	1.6	24	5.8	19	26	16	26	03
04	107	76	92	7	14	57	0	27					0.00	28.53	29.64	1.9	26	6.2	25	28	20	28	04
05	107	76	92	7	14	57	0	27					0.00	28.50	29.61	1.2	26	5.5	23	30	15	23	05
06	107	75	91	6	18	57	0	26					0.00	28.48	29.59	0.3	08	7.0	28	24	16	29	06
07	105	76	91	5	23	58	0	26					0.00	28.50	29.60	2.1	30	6.9	22	29	18	27	07
08	105	79	92	5	32	61	0	27					0.00	28.53	29.64	1.2	28	4.6	19	29	14	29	08
09	110*	79	95	8	33	62	0	30					0.00	28.54	29.65	1.1	24	5.0	21	29	14	27	09
10	109	83	96	9	42	65	0	31					0.00	28.53	29.63	4.8	27	9.3	29	27	24	27	10
11	106	85	96	9	34	62	0	31					0.00	28.58	29.69	5.0	25	7.6	29	27	22	24	11
12	107	80	94	6	38	63	0	29					0.00	28.61	29.73	2.2	27	7.4	21	27	16	30	12
13	108	85	97	9	45	66	0	32					0.00	28.56	29.68	5.1	27	8.3	29	27	23	27	13
14	103	83	93	5	16	58	0	28					0.00	28.53	29.64	8.0	26	8.7	31	28	24	27	14
15	101	75	88*	0	26	58	0	23					0.00	28.55	29.66	1.4	20	7.2	24	27	20	27	15
16	105	75*	90	1	24	58	0	25					0.00	28.59	29.69	4.7	27	9.8	35*	27	24	28	16
17	104	83	94	5	33	61	0	29					0.00	28.59	29.69	8.6	25	11.7	30	28	25*	27	17
18	100	79	90	1	34	60	0	25					0.00	28.61	29.72	6.8	27	9.5	30	27	23	27	18
19	103	76	90	0	34	61	0	25					0.00	28.66	29.77	0.8	33	5.9	24	31	16	32	19
20	109	79	94	4	35	62	0	29					0.00	28.61	29.73	6.5	26	7.3	25	27	20	27	20
21	108	83	96	5	40	64	0	31					0.00	28.59	29.71	6.6	27	9.6	32	27	21	31	21
22	107	83	95	4	27	61	0	30					0.00	28.60	29.71	1.7	25	6.6	24	26	20	27	22
23	107	78	93	1	24	59	0	28					0.00	28.61	29.73	1.4	18	7.0	20	21	14	30	23
24	105	80	93	1	27	60	0	28					0.00	28.64	29.76	1.6	08	6.3	19	35	13	33	24
25	107	81	94	2	32	62	0	29					0.00	28.61	29.72	1.7	19	8.3	23	02	15	19	25
26	105	80	93	1	34	61	0	28					0.00	28.56	29.67	1.5	22	7.8	27	26	23	27	26
27	103	84	94	2	41	64	0	29					0.00	28.52	29.63	6.2	26	8.3	23	26	17	27	27
28	107	82	95	3	44	65	0	30					0.00	28.56	29.67	1.4	28	6.8	19	32	15	27	28
29	109	86	98	6	49	68	0	33					0.00	28.62	29.73	5.0	26	8.1	21	17	17	29	29
30	109	87	98*	6	47	67	0	33					0.00	28.59	29.70	3.2	26	7.3	22	33	16	29	30
	106.2	80.1	93.2	¤	31.3	61.2	0.0	28.5	< MONTHLY AVERAGES | TOTALS >				0.00	28.57	29.68	2.9	26	7.4	< MONTHLY AVERAGES				
	2.3	2.4	2.4		<---------- DEPARTURE FROM NORMAL ---------->								-0.02	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									

DEGREE DAYS

	MONTHLY TOTAL	MONTHLY DEPARTURE	SEASON TO DATE TOTAL	SEASON TO DATE DEPARTURE
HEATING :	0	0	546	-389
COOLING :	855	81	1930	270

GREATEST 24-HR PRECIPITATION : 0.00 DATE :
GREATEST 24-HR SNOWFALL : DATE :
GREATEST SNOW DEPTH : DATE :

SEA LEVEL PRESSURE		DATE	TIME
MAXIMUM :	29.85	24	1114
MIMIMUM :	29.53	06	1822

NUMBER OF DAYS WITH ->

MAXIMUM TEMP >= 90 :	30	MINIMUM TEMP <= 32 :	0	PRECIPITATION >= 0.01 INCH:	0
MAXIMUM TEMP <= 32 :	0	MINIMUM TEMP <= 0 :	0	PRECIPITATION >= 0.10 INCH:	0
THUNDERSTORMS :	0	HEAVY FOG :	0	SNOWFALL >= 1.0 INCH :	

JUNE 2014
PHOENIX, AZ

HOURLY PRECIPITATION
(WATER EQUIVALENT IN INCHES)

PHOENIX, AZ (KPHX)
JUNE 2014

WBAN # 23183

Date	FOR HOUR (LST) ENDING AT												Date	FOR HOUR (LST) ENDING AT												Date	Sum of Hourly Data	2400 LST Water Equiv.
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24			
01													01													01	0.00	0.00
02													02													02	0.00	0.00
03													03													03	0.00	0.00
04													04													04	0.00	0.00
05													05													05	0.00	0.00
06													06													06	0.00	0.00
07													07													07	0.00	0.00
08													08													08	0.00	0.00
09													09													09	0.00	0.00
10													10													10	0.00	0.00
11													11													11	0.00	0.00
12													12													12	0.00	0.00
13													13													13	0.00	0.00
14													14													14	0.00	0.00
15													15													15	0.00	0.00
16													16													16	0.00	0.00
17													17													17	0.00	0.00
18													18													18	0.00	0.00
19													19													19	0.00	0.00
20													20													20	0.00	0.00
21													21													21	0.00	0.00
22													22													22	0.00	0.00
23													23													23	0.00	0.00
24													24													24	0.00	0.00
25													25													25	0.00	0.00
26													26													26	0.00	0.00
27													27													27	0.00	0.00
28													28													28	0.00	0.00
29													29													29	0.00	0.00
30													30													30	0.00	0.00

*** Indicates sum of Hourly and Daily disagree.**

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)												
Ending Date												
Ending Time (Hr/Min)												

Date and time are not entered for TRACE amounts.

Note : The hourly and daily precipitation totals are printed in the last 2 columns and hi-lighted in red when they disagree. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

*** = Extreme for the month (last occurence if more than one).**

T = Trace precipitation amount.

+ = also occurs on earlier date.

FG+ = Heavy fog, visibility .25 miles or less.

BLANK entries denote missing or unreported data.

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24-hour period ending at the time indicated in the column heading.

Ceilometer (30-second) data are used to derive cloudiness at or below 12,000 feet. This cloudiness is the mean cloud cover detected during sunrise to sunset (SR-SS), or midnight to midnight (MN-MN).

WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
DESCRIPTOR	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DU Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Well-Developed Dust/Sand Whirls
MI Shallow	PL Ice Pellets	HZ Haze	
PR Partial	RA Rain		
SH Shower(s)	SG Snow Grains	PY Spray	SQ Squalls
TS Thunderstorm	SN Snow	SA Sand	SS Sandstorm
VC In the Vicinity	UP Unkown Precipitation	VA Volcanic Ash	GL Glaze

Intensity (as indicated on pages 4 to 6):
'+' = Heavy ' ' = Moderate '-' = Light

PHOENIX, AZ
JUNE 2014

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet.

Clear = 0-2 oktas, Partly Cloudy = 3-6 oktas, Cloudy = 7-8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

NORMALS ARE FOR THE YEARS 1981-2010

ADDITIONAL NOTES & ERRATA:

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Station Augmentation-CONTRACTOR
  Lat/Lon:33.44417/-112.02472 Elevation:1107FT
  Distance:.5 MI Dir:N
  Augmented Elements:Temp, Precip
  Equipment:MXMN, SRG
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Date	VISIBILITY (MILES) MINIMUM	VISIBILITY (MILES) MAXIMUM
01	10.00	10.00
02	10.00	10.00
03	9.00	10.00
04	10.00	10.00
05	10.00	10.00
06	10.00	10.00
07	10.00	10.00
08	10.00	10.00
09	10.00	10.00
10	10.00	10.00
11	10.00	10.00
12	10.00	10.00
13	10.00	10.00
14	10.00	10.00
15	10.00	10.00
16	10.00	10.00
17	9.00	10.00
18	10.00	10.00
19	10.00	10.00
20	10.00	10.00
21	10.00	10.00
22	10.00	10.00
23	10.00	10.00
24	10.00	10.00
25	10.00	10.00
26	10.00	10.00
27	10.00	10.00
28	10.00	10.00
29	10.00	10.00
30	10.00	10.00
AVGS	9.93	10.00

MINIMUM VISIBILTY (MILES) <= .25	<= 3.0	>= 7.0
0	0	30

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2014 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
				SUNRISE: 0519 JUN 01 SUNSET: 1932								
02	CLR	NC	10.00		89	28	58	11	8	26	28.58	29.68
05	FEW	250	10.00		80	36	57	20	6	11	28.60	29.70
08	CLR	NC	10.00		84	37	59	19	8	11	28.64	29.75
11	FEW	220	10.00		98	28	61	8	3	VR	28.64	29.74
14	FEW	250	10.00		101	26	62	7	5	33	28.59	29.69
17	FEW	250	10.00		104	18	62	4	11	23	28.54	29.64
20	BKN	250	10.00		101	19	61	5	11	29	28.54	29.64
23	CLR	NC	10.00		92	24	58	8	3	22	28.57	29.67
				SUNRISE: 0519 JUN 02 SUNSET: 1933								
02	CLR	NC	10.00		84	35	58	17	8	08	28.57	29.68
05	SCT	200	10.00		79	32	55	18	9	08	28.58	29.68
08	BKN	250	10.00		87	32	58	14	5	11	28.63	29.74
11	BKN	250	10.00		101	24	62	6	5	20	28.62	29.72
14	BKN	250	10.00		106	19	62	4	7	VR	28.57	29.67
17	OVC	250	10.00		108	21	63	4	6	01	28.50	29.60
20	OVC	250	10.00		105	21	62	5	13	27	28.51	29.61
23	OVC	250	10.00		95	28	60	9	0	00	28.55	29.65
				SUNRISE: 0519 JUN 03 SUNSET: 1933								
02	BKN	250	10.00		87	37	60	17	8	10	28.54	29.65
05	BKN	250	10.00		83	33	57	17	5	11	28.57	29.67
08	BKN	250	10.00		87	35	59	16	5	11	28.62	29.72
11	BKN	250	10.00		97	23	60	7	0	00	28.62	29.72
14	BKN	250	10.00		104	24	63	6	9	32	28.56	29.66
17	BKN	250	10.00		106	21	63	5	8	28	28.51	29.61
20	SCT	250	10.00		102	16	61	4	6	25	28.50	29.60
23	SCT	250	10.00		95	12	57	5	6	26	28.53	29.64
				SUNRISE: 0519 JUN 04 SUNSET: 1934								
02	FEW	180	10.00		90	12	55	5	5	32	28.54	29.65
05	FEW	180	10.00		78	27	53	15	8	09	28.56	29.66
08	FEW	250	10.00		86	27	57	12	7	11	28.60	29.70
11	FEW	250	10.00		99	9	59	3	3	VR	28.60	29.70
14	FEW	250	10.00		104	4	60	2	6	VR	28.54	29.65
17	FEW	250	10.00		105	7	61	3	10	28	28.49	29.59
20	FEW	250	10.00		101	15	60	4	9	26	28.48	29.59
23	CLR	NC	10.00		93	7	56	4	6	24	28.51	29.61
				SUNRISE: 0518 JUN 05 SUNSET: 1934								
02	CLR	NC	10.00		87	15	54	7	3	29	28.50	29.61
05	CLR	NC	10.00		77	27	53	16	3	12	28.52	29.63
08	CLR	NC	10.00		84	25	55	11	6	12	28.57	29.68
11	CLR	NC	10.00		98	14	59	4	3	18	28.57	29.67
14	CLR	NC	10.00		104	6	60	3	5	28	28.51	29.61
17	CLR	NC	10.00		105	2	61	2	9	31	28.44	29.54
20	CLR	NC	10.00		102	3	59	2	9	29	28.44	29.54
23	CLR	NC	10.00		91	19	57	7	3	25	28.47	29.57
				SUNRISE: 0518 JUN 06 SUNSET: 1935								
02	CLR	NC	10.00		82	21	53	10	7	09	28.47	29.57
05	CLR	NC	10.00		76	23	51	14	7	09	28.49	29.59
08	CLR	NC	10.00		82	22	54	11	6	10	28.54	29.65
11	CLR	NC	10.00		94	19	58	6	3	VR	28.54	29.65
14	CLR	NC	10.00		102	15	60	4	6	VR	28.49	29.59
17	CLR	NC	10.00		105	12	61	3	5	32	28.43	29.54
20	CLR	NC	10.00		102	9	60	3	10	28	28.44	29.54
23	CLR	NC	10.00		90	22	57	8	5	25	28.47	29.58
				SUNRISE: 0518 JUN 07 SUNSET: 1935								
02	CLR	NC	10.00		87	20	55	8	5	31	28.48	29.58
05	CLR	NC	10.00		78	32	55	19	7	09	28.50	29.61
08	CLR	NC	10.00		84	27	56	12	8	11	28.55	29.66
11	CLR	NC	10.00		96	28	61	9	3	VR	28.55	29.66
14	CLR	NC	10.00		101	21	61	6	3	VR	28.50	29.61
17	CLR	NC	10.00		103	11	60	3	3	VR	28.45	29.55
20	CLR	NC	10.00		100	15	60	4	14	29	28.46	29.56
23	CLR	NC	10.00		94	28	60	9	11	28	28.51	29.61
				SUNRISE: 0518 JUN 08 SUNSET: 1936								
02	CLR	NC	10.00		87	31	58	13	8	33	28.50	29.61
05	CLR	NC	10.00		82	37	58	20	0	00	28.54	29.65
08	CLR	NC	10.00		86	35	59	16	8	11	28.61	29.71
11	CLR	NC	10.00		97	31	62	10	3	VR	28.60	29.70
14	CLR	NC	10.00		104	33	64	8	0	00	28.54	29.65
17	CLR	NC	10.00		105	29	64	7	9	32	28.48	29.58
20	CLR	NC	10.00		101	26	62	7	7	25	28.48	29.58
23	CLR	NC	10.00		93	31	60	11	0	00	28.52	29.62
				SUNRISE: 0518 JUN 09 SUNSET: 1936								
02	CLR	NC	10.00		87	38	60	18	3	13	28.54	29.64
05	FEW	180	10.00		81	36	57	20	3	12	28.59	29.69
08	FEW	250	10.00		87	44	62	22	5	11	28.64	29.75
11	FEW	250	10.00		100	28	62	8	6	15	28.63	29.74
14	FEW	250	10.00		105	31	64	7	9	32	28.56	29.66
17	BKN	250	10.00		108	30	65	7	9	26	28.48	29.58
20	SCT	250	10.00		105	21	62	5	8	29	28.47	29.57
23	FEW	250	10.00		94	34	61	12	0	00	28.50	29.60
				SUNRISE: 0518 JUN 10 SUNSET: 1937								
02	CLR	NC	10.00		90	41	62	18	6	24	28.50	29.61
05	FEW	180	10.00		85	48	63	28	6	10	28.54	29.64
08	FEW	250	10.00		88	45	63	22	6	11	28.59	29.70
11	BKN	250	10.00		98	46	67	17	5	11	28.60	29.70
14	BKN	250	10.00		107	42	68	11	10	16	28.54	29.63
17	BKN	250	10.00		107	42	68	11	14	29	28.47	29.57
20	SCT	250	10.00		101	36	64	10	22	26	28.49	29.59
23	BKN	200	10.00		94	41	64	16	13	29	28.54	29.64
				SUNRISE: 0518 JUN 11 SUNSET: 1937								
02	BKN	200	10.00		91	37	61	15	5	31	28.56	29.66
05	BKN	200	10.00		87	36	59	16	0	00	28.58	29.69
08	BKN	250	10.00		89	42	62	19	6	12	28.64	29.74
11	SCT	250	10.00		97	40	64	14	5	VR	28.64	29.74
14	SCT	170	10.00		103	28	63	7	7	26	28.59	29.69
17	SCT	210	10.00		103	26	63	6	16	24	28.55	29.65
20	SCT	210	10.00		100	27	62	7	15	27	28.55	29.65
23	FEW	210	10.00		91	30	59	11	6	24	28.60	29.70
				SUNRISE: 0518 JUN 12 SUNSET: 1938								
02	SCT	210	10.00		89	30	58	12	3	36	28.62	29.72
05	SCT	210	10.00		81	36	57	20	5	08	28.65	29.75
08	FEW	170	10.00		87	38	60	18	8	10	28.69	29.80
11	FEW	170	10.00		99	35	63	11	3	VR	28.69	29.80
14	FEW	170	10.00		105	33	65	8			28.64	29.74
17	FEW	170	10.00		106	37	66	9	9	30	28.56	29.66
20	CLR	NC	10.00		102	51	70	18	10	26	28.55	29.65
23	CLR	NC	10.00		97	50	68	20	10	26	28.59	29.69

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2014 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
				SUNRISE: 0518 JUN 13 SUNSET: 1938								
02	FEW	200	10.00		93	51	67	24	5	30	28.60	29.70
05	FEW	180	10.00		88	53	66	30	6	08	28.61	29.72
08	SCT	170	10.00		90	53	67	28	5	08	28.65	29.76
11	FEW	160	10.00		100	48	68	17	5	25	28.65	29.75
14	FEW	160	10.00		106	42	68	11	6	VR	28.58	29.68
17	FEW	160	10.00		106	42	68	11	17	24	28.50	29.60
20	SCT	210	10.00		102	35	64	10	21	27	28.49	29.59
23	CLR	NC	10.00		96	30	61	10	10	26	28.51	29.62
				SUNRISE: 0518 JUN 14 SUNSET: 1938								
02	CLR	NC	10.00		89	33	59	14	6	23	28.51	29.62
05	CLR	NC	10.00		88	27	57	11	8	27	28.53	29.63
08	CLR	NC	10.00		89	28	58	11	5	35	28.58	29.68
11	CLR	NC	10.00		98	13	59	4	15	25	28.59	29.69
14	CLR	NC	10.00		102	5	60	3	15	24	28.55	29.65
17	CLR	NC	10.00		102	2	59	2	18	28	28.50	29.60
20	FEW	250	10.00		96	7	57	3	7	24	28.49	29.59
23	FEW	250	10.00		91	10	55	5	8	26	28.52	29.62
				SUNRISE: 0518 JUN 15 SUNSET: 1939								
02	FEW	250	10.00		82	21	54	10	8	08	28.52	29.62
05	SCT	250	10.00		76	23	51	14	9	10	28.55	29.66
08	BKN	250	10.00		82	36	58	19	9	10	28.59	29.70
11	BKN	250	10.00		93	35	61	13	6	19	28.60	29.70
14	BKN	250	10.00		99	29	62	8	7	28	28.58	29.68
17	BKN	200	10.00		99	17	60	5	13	26	28.54	29.64
20	BKN	250	10.00		96	22	59	7	9	28	28.53	29.63
23	BKN	250	10.00		89	24	57	9	3	09	28.55	29.65
				SUNRISE: 0518 JUN 16 SUNSET: 1939								
02	FEW	200	10.00		81	32	56	17	7	09	28.57	29.67
05	FEW	200	10.00		76	34	55	22	8	10	28.60	29.71
08	FEW	200	10.00		83	28	56	13	6	09	28.64	29.74
11	FEW	200	10.00		95	22	59	7	3	VR	28.65	29.75
14	BKN	230	10.00		102	26	62	7	14	27	28.60	29.71
17	BKN	230	10.00		102	16	61	4	20	28	28.55	29.65
20	SCT	150	10.00		98	15	59	5	16	27	28.54	29.65
23	SCT	180	10.00		91	19	57	7	6	22	28.57	29.68
				SUNRISE: 0518 JUN 17 SUNSET: 1939								
02	SCT	180	10.00		91	27	58	10	10	23	28.58	29.68
05	BKN	180	10.00		84	33	57	16	7	08	28.61	29.71
08	SCT	160	10.00		88	34	59	15	13	15	28.66	29.76
11	SCT	160	10.00		97	29	61	9	0	00	28.66	29.77
14	SCT	160	10.00		102	36	65	10	16	26	28.60	29.70
17	SCT	160	10.00		103	38	66	11	15	25	28.54	29.64
20	SCT	160	10.00		99	34	63	10	22	27	28.52	29.63
23	FEW	150	10.00		92	39	62	16	13	26	28.56	29.66
				SUNRISE: 0518 JUN 18 SUNSET: 1940								
02	FEW	130	10.00		87	34	59	15	9	26	28.57	29.67
05	FEW	150	10.00		81	37	58	21	6	08	28.60	29.70
08	FEW	120	10.00		87	37	60	17	6	08	28.64	29.74
11	FEW	120	10.00		93	33	61	12	3	VR	28.65	29.75
14	FEW	090	10.00		98	37	64	12	8	26	28.63	29.73
17	FEW	090	10.00		99	30	62	9	24	28	28.58	29.69
20	FEW	090	10.00		95	30	61	10	14	30	28.59	29.70
23	CLR	NC	10.00		87	31	58	13	3	23	28.63	29.74

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
				SUNRISE: 0518 JUN 19 SUNSET: 1940								
02	CLR	NC	10.00		84	34	58	17	0	00	28.63	29.73
05	CLR	NC	10.00		78	38	57	24	10	09	28.66	29.77
08	CLR	NC	10.00		83	36	58	19	7	08	28.71	29.83
11	FEW	120	10.00		94	31	61	11	5	VR	28.73	29.85
14	FEW	120	10.00		99	36	64	11	0	00	28.69	29.79
17	FEW	120	10.00		102	35	64	10	5	VR	28.63	29.74
20	CLR	NC	10.00		99	30	62	9	14	29	28.62	29.73
23	FEW	180	10.00		92	36	61	14	3	26	28.64	29.74
				SUNRISE: 0519 JUN 20 SUNSET: 1940								
02	CLR	NC	10.00		85	38	59	19	6	24	28.64	29.74
05	CLR	NC	10.00		79	39	58	24	6	14	28.65	29.76
08	CLR	NC	10.00		86	34	59	15	0	00	28.69	29.80
11	FEW	250	10.00		98	31	62	9	3	VR	28.69	29.80
14	FEW	250	10.00		106	30	64	7	10	30	28.63	29.73
17	SCT	250	10.00		106	33	65	8	14	29	28.57	29.67
20	SCT	250	10.00		103	35	65	9	11	26	28.56	29.66
23	CLR	NC	10.00		94	39	63	15	7	26	28.59	29.69
				SUNRISE: 0519 JUN 21 SUNSET: 1941								
02	CLR	NC	10.00		92	41	63	17	8	27	28.59	29.69
05	FEW	250	10.00		89	42	62	19	8	30	28.63	29.73
08	FEW	250	10.00		88	44	63	22	8	11	28.69	29.79
11	FEW	250	10.00		100	39	65	12	6	20	28.66	29.77
14	SCT	250	10.00		106	40	67	10	9	23	28.61	29.70
17	SCT	250	10.00		107	37	67	9	11	25	28.54	29.65
20	SCT	250	10.00		102	37	65	10	16	27	28.55	29.65
23	FEW	250	10.00		97	37	63	12	13	29	28.58	29.68
				SUNRISE: 0519 JUN 22 SUNSET: 1941								
02	FEW	200	10.00		92	37	62	14	8	31	28.60	29.70
05	SCT	200	10.00		86	40	60	20	3	09	28.64	29.74
08	FEW	200	10.00		88	40	61	18	7	12	28.68	29.78
11	FEW	230	10.00		98	27	61	8	7	10	28.66	29.77
14	FEW	200	10.00		103	19	61	5	5	VR	28.61	29.71
17	CLR	NC	10.00		105	18	62	4	7	VR	28.54	29.64
20	FEW	250	10.00		100	23	61	6	11	25	28.54	29.65
23	CLR	NC	10.00		94	13	57	5	7	26	28.58	29.68
				SUNRISE: 0519 JUN 23 SUNSET: 1941								
02	CLR	NC	10.00		89	23	57	9	5	01	28.60	29.70
05	CLR	NC	10.00		82	33	57	17	7	06	28.62	29.73
08	CLR	NC	10.00		85	31	57	14	7	10	28.69	29.79
11	CLR	NC	10.00		97	27	61	8	6	09	28.69	29.79
14	FEW	250	10.00		103	20	62	5	8	23	28.63	29.74
17	FEW	250	10.00		106	10	61	3	13	21	28.57	29.67
20	FEW	250	10.00		102	25	62	6	13	29	28.58	29.68
23	CLR	NC	10.00		92	27	59	10	5	23	28.62	29.72
				SUNRISE: 0519 JUN 24 SUNSET: 1941								
02	FEW	250	10.00		86	36	59	17	8	10	28.63	29.74
05	CLR	NC	10.00		82	25	54	12	9	12	28.66	29.78
08	FEW	250	10.00		85	28	56	13	10	11	28.73	29.85
11	FEW	250	10.00		96	23	60	7	8	02	28.73	29.85
14	SCT	250	10.00		101	24	62	6	10	30	28.68	29.78
17	FEW	200	10.00		104	22	62	5	3	VR	28.60	29.70
20	CLR	NC	10.00		101	24	61	6	7	35	28.58	29.68
23	CLR	NC	10.00		93	33	61	12	7	25	28.60	29.70

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2014 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
			SUNRISE: 0520	JUN 25			SUNSET: 1941					
02	CLR	NC	10.00		90	35	60	14	7	01	28.60	29.70
05	CLR	NC	10.00		83	40	59	22	5	14	28.64	29.75
08	CLR	NC	10.00		85	43	61	23	9	13	28.69	29.80
11	CLR	NC	10.00		99	27	61	8	7	17	28.69	29.79
14	CLR	NC	10.00		105	30	64	7	9	18	28.62	29.72
17	CLR	NC	10.00		106	29	64	7	9	35	28.55	29.65
20	CLR	NC	10.00		102	31	63	8	7	02	28.53	29.63
23	CLR	NC	10.00		95	19	58	6	10	24	28.58	29.68
			SUNRISE: 0520	JUN 26			SUNSET: 1941					
02	CLR	NC	10.00		88	27	57	11	0	00	28.59	29.69
05	CLR	NC	10.00		82	37	58	20	6	09	28.62	29.72
08	FEW	250	10.00		86	39	60	19	10	10	28.66	29.77
11	BKN	250	10.00		97	30	61	9	7	14	28.64	29.75
14	BKN	250	10.00		104	28	63	7	5	VR	28.57	29.67
17	BKN	250	10.00		103	31	64	8	10	29	28.50	29.60
20	BKN	290	10.00		99	38	64	12	10	24	28.48	29.58
23	BKN	250	10.00		93	37	62	14	3	22	28.49	29.59
			SUNRISE: 0520	JUN 27			SUNSET: 1942					
02	BKN	250	10.00		90	44	63	20	14	25	28.51	29.61
05	SCT	250	10.00		85	44	62	24	6	15	28.53	29.63
08	FEW	250	10.00		87	44	62	22	6	25	28.59	29.69
11	CLR	NC	10.00		95	43	65	17	10	24	28.59	29.70
14	CLR	NC	10.00		100	39	65	12	9	30	28.54	29.64
17	CLR	NC	10.00		102	37	65	10	13	28	28.48	29.58
20	CLR	NC	10.00		99	41	65	14	11	29	28.48	29.58
23	CLR	NC	10.00		94	40	63	15	3	24	28.52	29.62
			SUNRISE: 0521	JUN 28			SUNSET: 1942					
02	CLR	NC	10.00		89	44	63	21	0	00	28.52	29.62
05	CLR	NC	10.00		84	45	62	25	8	09	28.55	29.66
08	CLR	NC	10.00		87	44	62	22	8	11	28.61	29.72
11	CLR	NC	10.00		98	46	67	17	3	18	28.63	29.73
14	CLR	NC	10.00		105	44	68	13	3	30	28.59	29.69
17	CLR	NC	10.00		106	45	69	13	8	23	28.53	29.63
20	CLR	NC	10.00		103	39	66	11	9	30	28.54	29.64
23	CLR	NC	10.00		96	48	67	19	10	26	28.59	29.69
			SUNRISE: 0521	JUN 29			SUNSET: 1942					
02	CLR	NC	10.00		93	50	67	23	13	30	28.61	29.71
05	CLR	NC	10.00		87	50	65	28	0	00	28.66	29.77
08	CLR	NC	10.00		91	50	66	25	3	10	28.70	29.82
11	CLR	NC	10.00		102	53	71	19	7	VR	28.69	29.80
14	CLR	NC	10.00		108	51	71	15	8	15	28.63	29.73
17	CLR	NC	10.00		107	50	71	15	9	26	28.56	29.66
20	CLR	NC	10.00		105	44	68	13	13	29	28.56	29.66
23	CLR	NC	10.00		98	44	66	16	10	26	28.60	29.70
			SUNRISE: 0521	JUN 30			SUNSET: 1942					
02	CLR	NC	10.00		93	56	69	29	14	30	28.61	29.71
05	CLR	NC	10.00		88	57	68	35	3	13	28.65	29.75
08	CLR	NC	10.00		92	56	69	30	6	11	28.69	29.80
11	CLR	NC	10.00		102	43	67	13	6	22	28.68	29.78
14	FEW	120	10.00		106	38	66	10	5	VR	28.61	29.70
17	FEW	120	10.00		106	36	66	9	9	27	28.54	29.64
20	FEW	250	10.00		105	40	67	11	11	28	28.51	29.61
23	CLR	NC	10.00		96	45	66	17	5	24	28.53	29.63

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL

3-HOURLY OBSERVATION NOTES

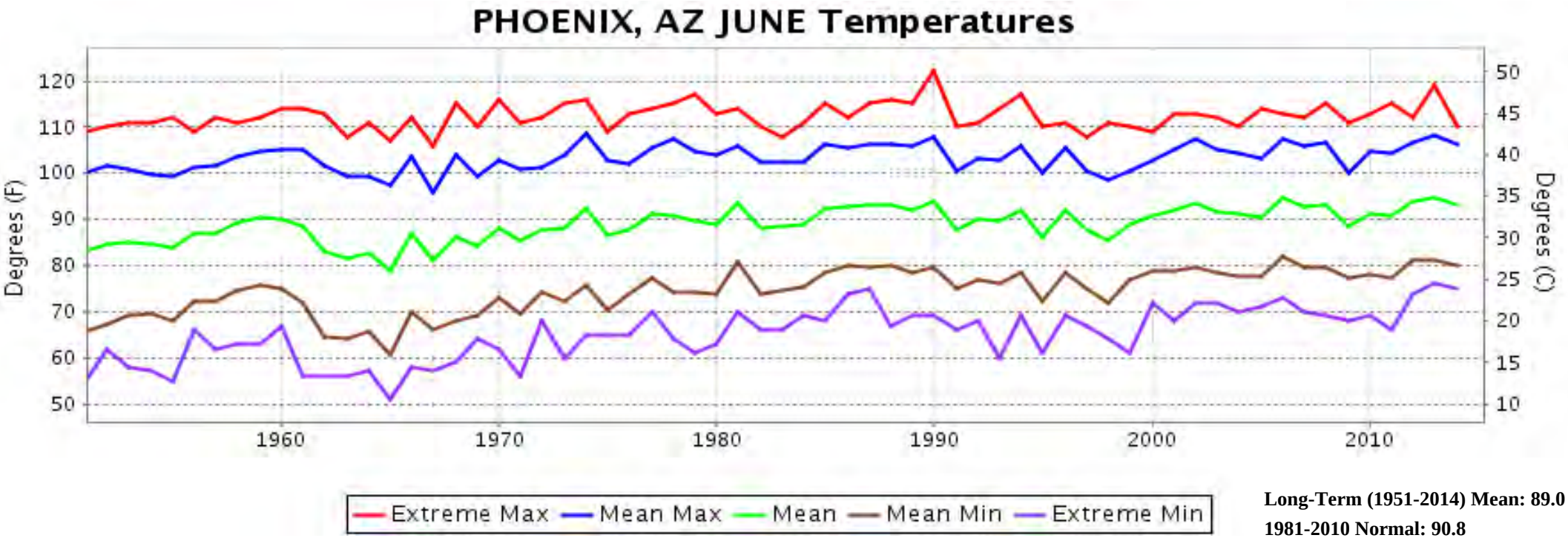
Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8-2/8, SCT = 3/8-4/8, BKN = 5/8-7/8, OVC = 8/8, W = Vertical Visibility = 8/8

Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC = No Ceiling detected.

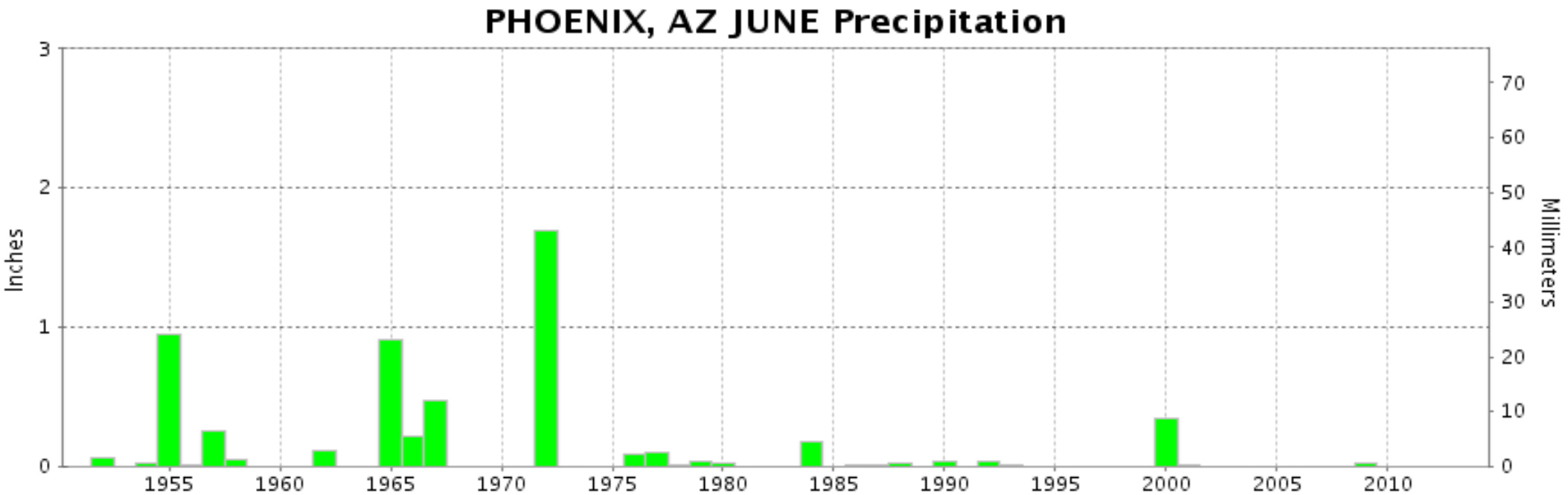
& = Original observation containted additional weather elements. See page 3 for additional notes.

SUMMARY BY HOUR

HOUR (LST)	AVERAGES DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (Inches, HG) STATION	SEA LEVEL	VISIBILITY (Miles)	WIND SPEED (MPH)	RESULTANT WIND (MPH) SPEED	DIRECTION
01	90	32	60	13	28.56	29.66	10.00	6	4	27
02	88	34	59	15	28.56	29.67	10.00	7	2	27
03	85	35	59	18	28.57	29.67	10.00	5	1	10
04	84	36	58	19	28.58	29.68	10.00	5	3	09
05	82	37	58	20	28.59	29.70	10.00	6	5	09
06	81	37	58	21	28.61	29.72	10.00	7	6	09
07	83	37	59	20	28.63	29.73	10.00	7	6	09
08	86	37	60	18	28.64	29.75	10.00	7	6	09
09	90	36	61	15	28.65	29.75	9.97	6	4	09
10	94	34	62	13	28.64	29.75	10.00	5	2	09
11	98	31	62	10	28.64	29.74	10.00	5	0	25
12	100	29	63	9	28.63	29.73	10.00	7	3	27
13	102	28	63	8	28.61	29.71	10.00	6	6	27
14	103	29	64	8	28.59	29.69	10.00	7	6	27
15	104	28	64	8	28.56	29.66	10.00	8	8	27
16	105	27	64	7	28.54	29.64	10.00	11	9	27
17	105	26	64	7	28.52	29.63	10.00	11	10	27
18	104	27	64	7	28.51	29.62	10.00	11	10	27
19	103	27	63	8	28.51	29.62	10.00	13	12	27
20	101	27	63	8	28.52	29.62	10.00	12	11	27
21	98	28	62	9	28.53	29.63	9.97	9	8	27
22	95	30	61	11	28.55	29.65	10.00	6	7	27
23	93	30	60	11	28.55	29.66	10.00	6	6	27
24	92	31	60	12	28.56	29.66	10.00	6	6	27



Long-Term (1951-2014) Mean: 89.0
1981-2010 Normal: 90.8



Long-Term (1951-2014) Mean Monthly Total: 0.09 **1981-2010 Normal: 0.02**

Published By: National Climatic Data Center

JUNE 2014
PHOENIX, AZ

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

I certify that this is an official publication of the National Oceanic and Atmospheric Administration (NOAA). It is compiled using information from weather observing sites operated by NOAA-National Weather Service / Department Of Transportation-Federal Aviation Administration and received at the National Climatic Data Center (NCDC), Asheville, North Carolina 28801.

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NOAA\National Climatic Data Center
Attn: User Engagement & Services Branch
151 Patton Avenue
Asheville, NC 28801-5001

JUNE 2013
LOCAL CLIMATOLOGICAL DATA
NOAA, National Climatic Data Center

PHOENIX, AZ
PHOENIX SKY HARBOR INTL AIRPORT (KPHX)
Lat:33° 25'N Long: 112° 0'W Elev (Ground) 1107 Feet
Time Zone : MOUNTAIN WBAN: 23183 ISSN#: 0198-0475

Date	Temperature °F MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	Deg Days BASE 65° HEATING	COOLING	WEATHER	SNOW/ICE ON GND(IN) 0500 LST DEPTH	1100 LST WATER-EQUIV	PRECIPITATION ON GND(IN) 2400 LST SNOW-FALL	2400 LST WATER EQUIV	PRESSURE (INCHES OF HG) AVERAGE STATION	AVERAGE SEA LEVEL	WIND SPEED = MPH DIR = TENS OF DEGREES RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM 3-SEC SPEED	DIR	2-MIN SPEED	DIR	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
01	108	80	94	10	38	63	0	29				0.0	0.00	28.54	29.66	0.5	28	4.9	20	31	15	30	01
02	109	82	96	12	37	63	0	31				0.0	0.00	28.50	29.61	1.9	27	7.7	28	27	22	26	02
03	105	79	92	7	30	60	0	27				0.0	0.00	28.56	29.66	2.7	22	9.1	23	18	17	18	03
04	104	79	92	7	31	60	0	27				0.0	0.00	28.59	29.71	2.5	26	7.3	25	28	22	28	04
05	108	79	94	9	30	60	0	29				0.0	0.00	28.59	29.71	0.7	20	5.2	18	23	13	28	05
06	110	79	95	10	30	61	0	30				0.0	0.00	28.53	29.65	3.5	27	7.0	26	30	21	29	06
07	111	81	96	10	31	62	0	31				0.0	0.00	28.49	29.60	3.3	27	7.4	25	27	20	28	07
08	110	83	97	10	30	62	0	32				0.0	0.00	28.55	29.65	6.5	27	10.4	31	30	24	27	08
09	108	79	94	7	28	61	0	29				0.0	0.00	28.61	29.73	5.0	27	5.8	23	29	20	29	09
10	109	82	96	9	26	61	0	31				0.0	0.00	28.61	29.72	2.4	26	7.3	22	28	20	28	10
11	109	81	95	8	30	61	0	30				0.0	0.00	28.62	29.73	2.3	28	6.1	26	30	20	30	11
12	110	84	97	9	36	64	0	32				0.0	0.00	28.63	29.74	3.7	28	7.1	26	31	18	28	12
13	106	85	96	8	45	65	0	31				0.0	0.00	28.63	29.74	5.6	28	8.6	26	27	18	28	13
14	106	84	95	7	44	65	0	30				0.0	0.00	28.59	29.70	3.6	28	6.0	21	29	16	29	14
15	107	84	96	8	37	63	0	31				0.0	0.00	28.61	29.72	5.3	27	6.9	26	28	21	28	15
16	108	84	96	7	32	62	0	31				0.0	0.00	28.65	29.76	4.0	29	7.5	25	28	18	27	16
17	108	81	95	6	28	61	0	30				0.0	0.00	28.63	29.74	1.4	28	5.4	22	23	15	23	17
18	108	80	94	5	25	60	0	29				0.0	0.00	28.56	29.68	1.0	21	6.6	23	19	16	28	18
19	106	77	92	2	25	59	0	27				0.0	0.00	28.51	29.62	1.1	15	7.3	25	31	17	28	19
20	106	79	93	3	27	60	0	28				0.0	0.00	28.55	29.66	1.8	09	5.9	19	35	14	33	20
21	107	77	92	1	27	60	0	27				0.0	0.00	28.58	29.69	0.5	20	6.7	22	28	20	29	21
22	105	78	92	1	28	59	0	27				0.0	0.00	28.58	29.69	1.5	12	6.2	22	28	14	28	22
23	107	76*	92	0	23	59	0	27				0.0	0.00	28.52	29.63	4.1	19	8.7	25	19	20	26	23
24	104	78	91*	-1	30	60	0	26				0.0	0.00	28.59	29.69	1.9	20	7.7	22	28	20	28	24
25	106	79	93	1	33	61	0	28				0.0	0.00	28.66	29.78	1.7	12	6.7	20	19	14	17	25
26	107	79	93	1	32	61	0	28				0.0	0.00	28.73	29.85	1.2	18	6.5	18	30	14	29	26
27	110	83	97	5	34	63	0	32				0.0	0.00	28.73	29.85	4.7	27	7.2	25	27	20	28	27
28	116	82	99	7	41	66	0	34				0.0	0.00	28.61	29.72	1.8	11	5.8	20	29	14	29	28
29	119*	91	105*	13	42	68	0	40				0.0	0.00	28.54	29.65	3.1	20	10.6	29	27	22	28	29
30	115	91	103	11	51	70	0	38				0.0	0.00	28.56	29.65	5.8	26	9.7	48*	19	37*	18	30
	108.4	81.2	94.8	¤	32.7	62.0	0.0	30.1	< MONTHLY AVERAGES | TOTALS >			0.0	0.00	28.59	29.70	2.0	26	7.2	< MONTHLY AVERAGES				
	4.5	3.5	4.0		<---------- DEPARTURE FROM NORMAL ---------->								-0.02	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									

DEGREE DAYS

	MONTHLY TOTAL	MONTHLY DEPARTURE	SEASON TO DATE TOTAL	SEASON TO DATE DEPARTURE
HEATING :	0	0	881	-54
COOLING :	902	128	2000	340

GREATEST 24-HR PRECIPITATION : 0.00 DATE :
GREATEST 24-HR SNOWFALL : 0.0 DATE :
GREATEST SNOW DEPTH : DATE :

SEA LEVEL PRESSURE		DATE	TIME
MAXIMUM :	29.96	27	0902
MIMIMUM :	29.51	07	1919

NUMBER OF DAYS WITH ->

MAXIMUM TEMP >= 90 :	30	MINIMUM TEMP <= 32 :	0	PRECIPITATION >= 0.01 INCH:	0
MAXIMUM TEMP <= 32 :	0	MINIMUM TEMP <= 0 :	0	PRECIPITATION >= 0.10 INCH:	0
THUNDERSTORMS :	0	HEAVY FOG :	0	SNOWFALL >= 1.0 INCH :	

JUNE 2013
PHOENIX, AZ

HOURLY PRECIPITATION
(WATER EQUIVALENT IN INCHES)

PHOENIX, AZ (KPHX)
JUNE 2013

WBAN # 23183

Date	FOR HOUR (LST) ENDING AT												Date	FOR HOUR (LST) ENDING AT												Date	Sum of Hourly Data	2400 LST Water Equiv.
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24			
01													01													01	0.00	0.00
02													02													02	0.00	0.00
03													03													03	0.00	0.00
04													04													04	0.00	0.00
05													05													05	0.00	0.00
06													06													06	0.00	0.00
07													07													07	0.00	0.00
08													08													08	0.00	0.00
09													09													09	0.00	0.00
10													10													10	0.00	0.00
11													11													11	0.00	0.00
12													12													12	0.00	0.00
13													13													13	0.00	0.00
14													14													14	0.00	0.00
15													15													15	0.00	0.00
16													16													16	0.00	0.00
17													17													17	0.00	0.00
18													18													18	0.00	0.00
19													19													19	0.00	0.00
20													20													20	0.00	0.00
21													21													21	0.00	0.00
22													22													22	0.00	0.00
23													23													23	0.00	0.00
24													24													24	0.00	0.00
25													25													25	0.00	0.00
26													26													26	0.00	0.00
27													27													27	0.00	0.00
28													28													28	0.00	0.00
29													29													29	0.00	0.00
30													30													30	0.00	0.00

*** Indicates sum of Hourly and Daily disagree.**

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)												
Ending Date												
Ending Time (Hr/Min)												

Date and time are not entered for TRACE amounts.

Note : The hourly and daily precipitation totals are printed in the last 2 columns and hi-lighted in red when they disagree. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

*** = Extreme for the month (last occurence if more than one).**

T = Trace precipitation amount.

+ = also occurs on earlier date.

FG+ = Heavy fog, visibility .25 miles or less.

BLANK entries denote missing or unreported data.

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24-hour period ending at the time indicated in the column heading.

Ceilometer (30-second) data are used to derive cloudiness at or below 12,000 feet. This cloudiness is the mean cloud cover detected during sunrise to sunset (SR-SS), or midnight to midnight (MN-MN).

WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
DESCRIPTOR	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DU Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Well-Developed Dust/Sand Whirls
MI Shallow	PL Ice Pellets	HZ Haze	
PR Partial	RA Rain		
SH Shower(s)	SG Snow Grains	PY Spray	SQ Squalls
TS Thunderstorm	SN Snow	SA Sand	SS Sandstorm
VC In the Vicinity	UP Unkown Precipitation	VA Volcanic Ash	GL Glaze

Intensity (as indicated on pages 4 to 6):
'+' = Heavy ' ' = Moderate '-' = Light

PHOENIX, AZ
JUNE 2013

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet.

Clear = 0-2 oktas, Partly Cloudy = 3-6 oktas, Cloudy = 7-8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

NORMALS ARE FOR THE YEARS 1981-2010

ADDITIONAL NOTES & ERRATA:

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Station Augmentation-CONTRACTOR
  Lat/Lon:33.44417/-112.02472 Elevation:1107FT
  Distance:.5 MI Dir:N
  Augmented Elements:Temp, Precip
  Equipment:MXMN, SRG

Beginning with the January 2013 LCD, monthly mean temperature
calculations have changed to the National Data Stewardship
Team standard. Monthly maximum and minimum temperature are
not rounded until after monthly mean temperature is calculated.
This is the most accurate outcome, but may be slightly different
from the mean derived from rounded monthly maximum and minimum.

Beginning in Jun 2013 Monthly Max & Min SLP is being calculated
from hourly data received and Not from Monthly Summary Message
from ASOS.
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Date	VISIBILITY (MILES) MINIMUM	VISIBILITY (MILES) MAXIMUM
01	10.00	10.00
02	10.00	10.00
03	10.00	10.00
04	10.00	10.00
05	10.00	10.00
06	10.00	10.00
07	10.00	10.00
08	10.00	10.00
09	10.00	10.00
10	10.00	10.00
11	9.00	10.00
12	10.00	10.00
13	10.00	10.00
14	9.00	10.00
15	10.00	10.00
16	10.00	10.00
17	10.00	10.00
18	10.00	10.00
19	10.00	10.00
20	10.00	10.00
21	10.00	10.00
22	10.00	10.00
23	10.00	10.00
24	10.00	10.00
25	10.00	10.00
26	10.00	10.00
27	10.00	10.00
28	10.00	10.00
29	10.00	10.00
30	1.50	10.00
AVGS	9.65	10.00

MINIMUM VISIBILTY (MILES)

<= .25	<= 3.0	>= 7.0
0	1	29

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2013 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
			SUNRISE: 0519	JUN 01			SUNSET: 1932					
02	CLR	NC	10.00		86	45	62	24	0	00	28.57	29.67
05	CLR	NC	10.00		82	45	61	27	8	08	28.59	29.69
08	CLR	NC	10.00		87	45	63	23	5	08	28.63	29.74
11	FEW	250	10.00		99	31	62	9	0	00	28.61	29.71
14	BKN	250	10.00		106	25	63	6	3	VR	28.55	29.65
17	BKN	250	10.00		107	30	65	7	9	24	28.48	29.59
20	BKN	250	10.00		103	37	65	10	10	29	28.49	29.59
23	BKN	250	10.00		97	41	65	14	3	29	28.52	29.62
			SUNRISE: 0519	JUN 02			SUNSET: 1933					
02	BKN	250	10.00		89	43	63	20	3	22	28.52	29.62
05	SCT	250	10.00		84	39	59	20	7	08	28.53	29.63
08	FEW	230	10.00		88	43	62	21	8	11	28.57	29.67
11	CLR	NC	10.00		100	43	66	14	5	VR	28.57	29.67
14	FEW	120	10.00		107	36	66	9	3	VR	28.50	29.60
17	FEW	120	10.00		107	31	65	7	0	00	28.43	29.53
20	CLR	NC	10.00		101	31	63	8	16	25	28.45	29.54
23	CLR	NC	10.00		95	31	61	10	8	28	28.49	29.59
			SUNRISE: 0519	JUN 03			SUNSET: 1933					
02	CLR	NC	10.00		85	38	59	19	8	13	28.51	29.61
05	CLR	NC	10.00		82	37	58	20	9	12	28.55	29.65
08	CLR	NC	10.00		87	35	59	16	9	13	28.61	29.71
11	CLR	NC	10.00		97	28	61	9	11	17	28.62	29.73
14	CLR	NC	10.00		101	27	62	7	10	30	28.57	29.67
17	CLR	NC	10.00		104	25	63	6	7	24	28.51	29.62
20	CLR	NC	10.00		100	24	61	7	11	29	28.53	29.63
23	CLR	NC	10.00		93	25	59	8	9	29	28.58	29.68
			SUNRISE: 0519	JUN 04			SUNSET: 1934					
02	CLR	NC	10.00		85	31	57	14	0	00	28.58	29.68
05	BKN	180	10.00		80	36	57	20	7	08	28.61	29.71
08	FEW	180	10.00		85	36	59	17	7	09	28.65	29.76
11	FEW	150	10.00		96	30	61	10	3	VR	28.66	29.77
14	FEW	120	10.00		102	28	63	7	5	VR	28.61	29.71
17	FEW	120	10.00		102	28	63	7	6	31	28.55	29.65
20	CLR	NC	10.00		100	35	64	10	14	29	28.56	29.66
23	CLR	NC	10.00		91	31	59	12	9	25	28.60	29.70
			SUNRISE: 0518	JUN 05			SUNSET: 1934					
02	CLR	NC	10.00		86	33	58	15	3	09	28.61	29.72
05	FEW	200	10.00		79	38	57	23	3	10	28.63	29.74
08	FEW	250	10.00		85	33	58	15	9	09	28.68	29.79
11	FEW	250	10.00		96	32	62	10	6	VR	28.68	29.78
14	FEW	250	10.00		103	25	62	6	13	20	28.61	29.71
17	FEW	250	10.00		104	21	62	5	0	00	28.54	29.65
20	FEW	250	10.00		99	24	61	7	5	23	28.54	29.64
23	CLR	NC	10.00		95	26	60	8	6	27	28.57	29.68
			SUNRISE: 0518	JUN 06			SUNSET: 1935					
02	CLR	NC	10.00		87	35	59	16	0	00	28.57	29.67
05	FEW	150	10.00		80	37	57	21	6	09	28.57	29.67
08	FEW	180	10.00		86	32	58	14	7	07	28.61	29.72
11	FEW	180	10.00		98	29	61	9	5	VR	28.60	29.70
14	FEW	120	10.00		107	28	64	6	10	26	28.54	29.65
17	FEW	120	10.00		109	25	64	5	15	27	28.47	29.57
20	FEW	120	10.00		103	29	63	7	9	24	28.46	29.57
23	CLR	NC	10.00		98	30	62	9	7	29	28.51	29.62
			SUNRISE: 0518	JUN 07			SUNSET: 1935					
02	CLR	NC	10.00		93	32	60	11	6	33	28.51	29.61
05	FEW	120	10.00		84	38	59	19	9	09	28.53	29.64
08	FEW	140	10.00		88	33	59	14	9	11	28.58	29.68
11	FEW	170	10.00		100	32	63	9	0	00	28.57	29.67
14	FEW	170	10.00		109	30	65	6	8	26	28.50	29.60
17	FEW	170	10.00		111	23	65	4	15	26	28.42	29.52
20	FEW	170	10.00		106	29	64	7	10	26	28.42	29.52
23	CLR	NC	10.00		99	29	62	8	11	27	28.46	29.56
			SUNRISE: 0518	JUN 08			SUNSET: 1936					
02	CLR	NC	10.00		95	31	61	10	11	27	28.48	29.58
05	CLR	NC	10.00		85	36	59	17	3	12	28.52	29.62
08	CLR	NC	10.00		88	32	59	13	6	10	28.58	29.69
11	CLR	NC	10.00		100	27	62	7	8	23	28.60	29.70
14	CLR	NC	10.00		107	27	64	6	17	27	28.56	29.66
17	CLR	NC	10.00		107	26	64	6	17	26	28.52	29.62
20	CLR	NC	10.00		101	31	63	8	11	25	28.53	29.63
23	CLR	NC	10.00		97	28	61	9	11	28	28.59	29.69
			SUNRISE: 0518	JUN 09			SUNSET: 1936					
02	CLR	NC	10.00		90	29	59	11	5	25	28.62	29.72
05	CLR	NC	10.00		81	37	58	21	3	22	28.65	29.76
08	CLR	NC	10.00		87	37	60	17	3	09	28.69	29.80
11	CLR	NC	10.00		97	31	62	10	0	00	28.69	29.80
14	FEW	250	10.00		105	22	63	5	9	26	28.64	29.74
17	FEW	250	10.00		108	14	63	3	14	26	28.57	29.67
20	FEW	250	10.00		103	23	62	6	10	27	28.56	29.67
23	CLR	NC	10.00		96	32	62	10	8	27	28.59	29.69
			SUNRISE: 0518	JUN 10			SUNSET: 1937					
02	CLR	NC	10.00		90	32	59	13	8	32	28.60	29.70
05	FEW	150	10.00		84	33	57	16	3	10	28.63	29.73
08	FEW	250	10.00		88	35	60	15	8	11	28.68	29.78
11	FEW	250	10.00		101	22	61	6	7	VR	28.68	29.78
14	FEW	250	10.00		107	15	62	4	5	VR	28.62	29.72
17	FEW	250	10.00		108	12	62	3	10	29	28.55	29.65
20	CLR	NC	10.00		103	24	62	6	13	26	28.54	29.64
23	CLR	NC	10.00		96	20	59	6	0	00	28.60	29.70
			SUNRISE: 0518	JUN 11			SUNSET: 1937					
02	CLR	NC	10.00		89	27	58	11	7	34	28.62	29.72
05	FEW	150	10.00		83	35	58	18	3	11	28.62	29.73
08	FEW	220	10.00		88	30	58	12	8	08	28.69	29.80
11	FEW	220	10.00		100	25	61	7	3	VR	28.69	29.80
14	FEW	250	10.00		107	29	65	6	9	24	28.64	29.74
17	FEW	250	9.00		108	27	65	6	17	29	28.58	29.68
20	BKN	250	10.00		104	31	64	8	9	26	28.59	29.69
23	BKN	250	10.00		99	31	62	9	6	30	28.62	29.72
			SUNRISE: 0518	JUN 12			SUNSET: 1938					
02	SCT	250	10.00		93	36	62	13	3	35	28.62	29.72
05	SCT	180	10.00		86	39	60	19	7	13	28.63	29.73
08	FEW	250	10.00		90	42	63	19	6	10	28.69	29.80
11	SCT	250	10.00		100	33	63	10	5	VR	28.70	29.81
14	SCT	250	10.00		108	34	66	8	5	VR	28.65	29.75
17	SCT	250	10.00		109	28	65	6	16	30	28.59	29.69
20	SCT	250	10.00		106	32	65	8	16	27	28.58	29.69
23	FEW	250	10.00		96	39	64	14	8	26	28.61	29.72

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2013 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
				SUNRISE: 0518 JUN 13 SUNSET: 1938								
02	CLR	NC	10.00		92	42	63	18	14	25	28.60	29.70
05	FEW	180	10.00		88	45	63	22	0	00	28.66	29.77
08	SCT	250	10.00		90	44	63	20	8	07	28.73	29.84
11	SCT	250	10.00		96	44	65	17	7	VR	28.72	29.83
14	FEW	250	10.00		102	44	67	14			28.66	29.76
17	FEW	250	10.00		105	45	68	13	13	29	28.57	29.67
20	FEW	250	10.00		102	45	67	14	14	29	28.57	29.67
23	CLR	NC	10.00		94	50	67	22	7	24	28.60	29.70
				SUNRISE: 0518 JUN 14 SUNSET: 1938								
02	CLR	NC	10.00		91	49	66	24	3	32	28.61	29.71
05	FEW	250	9.00		86	52	65	31	5	10	28.63	29.73
08	FEW	120	10.00		89	51	66	27	5	32	28.68	29.78
11	FEW	140	10.00		95	44	65	17	6	VR	28.66	29.77
14	FEW	160	10.00		103	45	68	14	5	VR	28.60	29.70
17	FEW	140	10.00		103	37	65	10	0	00	28.52	29.62
20	FEW	110	10.00		102	36	65	10	7	29	28.52	29.62
23	FEW	110	10.00		96	39	64	14	11	26	28.57	29.67
				SUNRISE: 0518 JUN 15 SUNSET: 1939								
02	CLR	NC	10.00		91	45	64	20	3	02	28.58	29.68
05	SCT	150	10.00		85	38	59	19	7	23	28.63	29.73
08	SCT	150	10.00		89	42	62	19	3	10	28.68	29.78
11	FEW	180	10.00		98	39	64	13	5	21	28.68	29.78
14	FEW	160	10.00		104	36	65	9	8	29	28.63	29.73
17	FEW	160	10.00		106	34	65	8	16	27	28.56	29.66
20	FEW	160	10.00		102	34	64	9	13	27	28.59	29.69
23	CLR	NC	10.00		95	32	61	11	8	26	28.63	29.73
				SUNRISE: 0518 JUN 16 SUNSET: 1939								
02	CLR	NC	10.00		90	36	61	15	6	06	28.65	29.75
05	FEW	150	10.00		85	37	59	18	3	08	28.66	29.78
08	FEW	180	10.00		89	38	61	16	7	06	28.71	29.82
11	CLR	NC	10.00		97	35	63	11	3	26	28.71	29.82
14	FEW	120	10.00		105	30	64	7	8	24	28.66	29.77
17	FEW	120	10.00		106	27	64	6	14	28	28.61	29.71
20	CLR	NC	10.00		103	27	63	7	14	29	28.61	29.71
23	CLR	NC	10.00		94	32	61	11	8	26	28.64	29.74
				SUNRISE: 0518 JUN 17 SUNSET: 1939								
02	CLR	NC	10.00		92	30	60	11	8	30	28.64	29.74
05	CLR	NC	10.00		84	38	59	19	8	10	28.66	29.77
08	CLR	NC	10.00		88	37	60	16	8	08	28.70	29.81
11	CLR	NC	10.00		99	23	61	6	0	00	28.70	29.81
14	CLR	NC	10.00		106	25	63	6	10	22	28.65	29.75
17	CLR	NC	10.00		104	21	62	5	0	00	28.59	29.69
20	CLR	NC	10.00		103	21	62	5	9	30	28.57	29.67
23	CLR	NC	10.00		95	30	61	10	0	00	28.59	29.69
				SUNRISE: 0518 JUN 18 SUNSET: 1940								
02	CLR	NC	10.00		91	29	59	11	7	33	28.58	29.68
05	FEW	130	10.00		81	37	58	21	6	12	28.62	29.72
08	FEW	250	10.00		87	30	58	13	7	10	28.66	29.76
11	FEW	250	10.00		99	28	62	8	0	00	28.65	29.75
14	CLR	NC	10.00		104	23	62	6	5	VR	28.59	29.69
17	CLR	NC	10.00		105	18	62	4			28.51	29.62
20	FEW	250	10.00		102	13	60	4	14	28	28.49	29.59
23	CLR	NC	10.00		92	24	58	8	5	25	28.51	29.62

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
				SUNRISE: 0518 JUN 19 SUNSET: 1940								
02	CLR	NC	10.00		85	30	57	14	5	11	28.50	29.60
05	CLR	NC	10.00		79	33	55	19	7	09	28.53	29.63
08	CLR	NC	10.00		85	26	56	12	10	10	28.58	29.69
11	FEW	250	10.00		98	26	61	8	8	13	28.58	29.68
14	FEW	250	10.00		103	20	61	5	6	VR	28.52	29.63
17	FEW	250	10.00		105	19	62	4	9	28	28.46	29.57
20	FEW	250	10.00		101	22	61	6	13	28	28.46	29.57
23	CLR	NC	10.00		93	26	59	9	3	VR	28.50	29.61
				SUNRISE: 0519 JUN 20 SUNSET: 1940								
02	CLR	NC	10.00		90	24	57	9	0	00	28.51	29.61
05	CLR	NC	10.00		80	33	56	18	7	10	28.54	29.65
08	CLR	NC	10.00		85	31	57	14	11	14	28.61	29.72
11	CLR	NC	10.00		94	26	59	9	3	06	28.62	29.73
14	CLR	NC	10.00		100	24	61	7	6	02	28.58	29.68
17	CLR	NC	10.00		106	24	63	5	6	VR	28.51	29.62
20	CLR	NC	10.00		101	29	63	8	7	35	28.51	29.61
23	CLR	NC	10.00		93	24	59	8	6	24	28.55	29.66
				SUNRISE: 0519 JUN 21 SUNSET: 1941								
02	CLR	NC	10.00		85	34	58	16	7	15	28.57	29.68
05	CLR	NC	10.00		78	35	56	21	8	08	28.60	29.71
08	FEW	250	10.00		85	33	58	15	8	13	28.65	29.76
11	BKN	250	10.00		96	26	60	8	0	00	28.66	29.76
14	BKN	280	10.00		103	21	62	5	9	19	28.61	29.71
17	SCT	280	10.00		104	21	62	5	6	27	28.53	29.64
20	FEW	280	10.00		101	19	61	5	15	27	28.52	29.63
23	CLR	NC	10.00		95	25	59	8	6	27	28.55	29.66
				SUNRISE: 0519 JUN 22 SUNSET: 1941								
02	CLR	NC	10.00		85	31	57	14	6	09	28.57	29.67
05	SCT	250	10.00		79	35	56	20	9	08	28.60	29.70
08	BKN	250	10.00		85	32	58	15	9	12	28.65	29.75
11	BKN	250	10.00		94	25	59	8	5	11	28.66	29.77
14	SCT	250	10.00		101	22	61	6	3	VR	28.60	29.70
17	FEW	250	10.00		103	21	62	5	3	30	28.52	29.63
20	FEW	250	10.00		101	27	62	7	9	31	28.51	29.62
23	CLR	NC	10.00		92	31	60	11	5	26	28.54	29.65
				SUNRISE: 0519 JUN 23 SUNSET: 1941								
02	CLR	NC	10.00		84	33	57	16	7	10	28.55	29.65
05	CLR	NC	10.00		78	34	55	20	8	11	28.57	29.67
08	CLR	NC	10.00		84	30	57	14	8	10	28.61	29.72
11	FEW	250	10.00		96	24	60	7	3	VR	28.59	29.70
14	FEW	200	10.00		104	18	62	4	13	19	28.52	29.62
17	SCT	250	10.00		106	15	62	4	13	18	28.44	29.55
20	BKN	250	10.00		97	13	58	4	16	25	28.46	29.56
23	BKN	250	10.00		93	20	58	7	7	26	28.50	29.61
				SUNRISE: 0519 JUN 24 SUNSET: 1941								
02	BKN	250	10.00		84	25	55	11	3	20	28.54	29.64
05	FEW	180	10.00		79	33	55	19	8	10	28.58	29.69
08	FEW	250	10.00		85	30	57	14	8	10	28.63	29.74
11	BKN	250	10.00		96	24	60	7	8	15	28.64	29.74
14	BKN	250	10.00		98	25	61	7	6	VR	28.59	29.69
17	BKN	250	10.00		102	25	62	6	8	27	28.55	29.65
20	BKN	250	10.00		97	37	63	12	14	26	28.55	29.66
23	BKN	250	10.00		92	40	63	16	5	27	28.61	29.71

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2013 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL
			SUNRISE: 0520	JUN 25			SUNSET: 1941					
02	BKN	250	10.00		86	42	61	21	3	11	28.64	29.74
05	SCT	250	10.00		80	34	56	19	7	10	28.66	29.78
08	FEW	250	10.00		84	37	59	19	8	11	28.72	29.84
11	FEW	250	10.00		93	39	63	15	8	09	28.73	29.84
14	FEW	250	10.00		100	30	62	8	6	12	28.69	29.79
17	FEW	250	10.00		105	25	63	6	8	17	28.62	29.72
20	CLR	NC	10.00		100	30	62	8	7	34	28.61	29.71
23	CLR	NC	10.00		93	30	60	10	8	25	28.66	29.77
			SUNRISE: 0520	JUN 26			SUNSET: 1941					
02	CLR	NC	10.00		87	29	57	12	3	08	28.70	29.81
05	CLR	NC	10.00		81	34	57	18	7	09	28.74	29.86
08	CLR	NC	10.00		84	27	56	12	9	13	28.79	29.91
11	CLR	NC	10.00		96	28	61	9	6	23	28.80	29.91
14	CLR	NC	10.00		103	32	64	8	3	VR	28.75	29.86
17	CLR	NC	10.00		104	29	64	7	3	VR	28.69	29.80
20	CLR	NC	10.00		103	30	64	8	8	29	28.68	29.79
23	CLR	NC	10.00		95	33	62	11	3	26	28.71	29.83
			SUNRISE: 0520	JUN 27			SUNSET: 1942					
02	CLR	NC	10.00		91	41	63	17	9	33	28.74	29.85
05	FEW	250	10.00		87	39	61	18	5	33	28.77	29.88
08	FEW	200	10.00		89	42	62	19	8	15	28.83	29.94
11	BKN	200	10.00		98	38	64	12	0	00	28.82	29.93
14	BKN	270	10.00		107	39	67	10	10	28	28.76	29.87
17	BKN	270	10.00		109	27	65	6	13	27	28.68	29.78
20	SCT	270	10.00		104	22	62	5	9	25	28.66	29.76
23	CLR	NC	10.00		99	25	61	7	8	28	28.69	29.79
			SUNRISE: 0521	JUN 28			SUNSET: 1942					
02	CLR	NC	10.00		90	38	61	16	3	11	28.68	29.78
05	SCT	250	10.00		85	42	61	22	6	08	28.68	29.78
08	FEW	250	10.00		91	40	62	17	5	09	28.70	29.81
11	SCT	250	10.00		103	38	66	11	5	VR	28.69	29.79
14	SCT	250	10.00		113	42	70	9	11	29	28.61	29.70
17	BKN	250	10.00		114	39	69	8	3	VR	28.54	29.64
20	BKN	250	10.00		109	43	69	11	8	13	28.54	29.64
23	FEW	280	10.00		102	46	68	15	7	09	28.57	29.67
			SUNRISE: 0521	JUN 29			SUNSET: 1942					
02	SCT	210	10.00		97	45	66	17	6	09	28.57	29.66
05	BKN	250	10.00		91	46	64	21	6	10	28.58	29.68
08	BKN	200	10.00		95	42	64	16	8	11	28.63	29.73
11	BKN	250	10.00		110	38	68	9	11	14	28.62	29.71
14	OVC	250	10.00		116	35	69	6	14	21	28.56	29.65
17	BKN	250	10.00		117	37	70	7	22	27	28.49	29.58
20	BKN	250	10.00		110	42	69	10	10	26	28.49	29.59
23	SCT	250	10.00		103	52	70	18	11	27	28.53	29.62
			SUNRISE: 0521	JUN 30			SUNSET: 1942					
02	SCT	250	10.00		99	54	70	22	10	29	28.55	29.64
05	SCT	250	10.00		91	56	69	31	0	00	28.56	29.66
08	BKN	250	10.00		96	55	70	25	3	VR	28.62	29.72
11	SCT	250	10.00		104	53	71	18	3	12	28.61	29.70
14	FEW	180	10.00		112	45	70	11	8	28	28.53	29.63
17	BKN	250	10.00		113	44	70	10	18	30	28.46	29.56
20	OVC	250	10.00		109	46	70	12	8	25	28.47	29.57
23	OVC	250	1.50		98	57	71	25	31	18	28.61	29.71

HOUR (LST)	SKY COVER	CEILING 100's of FT.	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	SEA LEVEL

3-HOURLY OBSERVATION NOTES

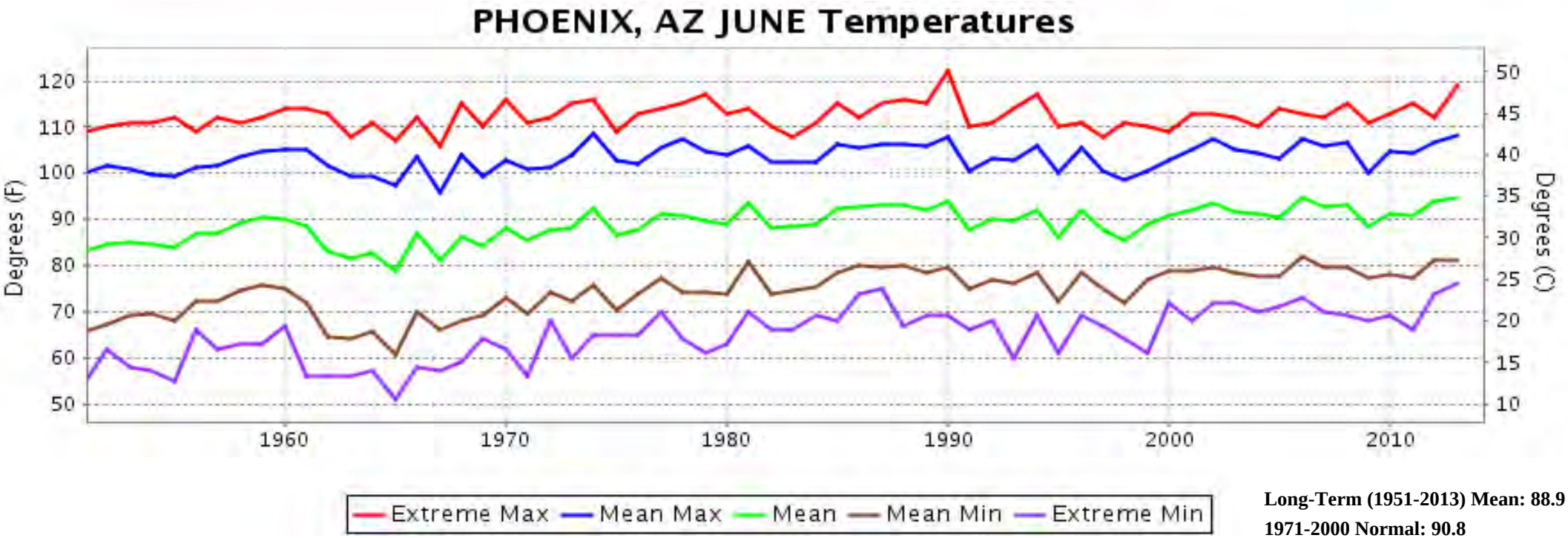
Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8-2/8, SCT = 3/8-4/8, BKN = 5/8-7/8, OVC = 8/8, W = Vertical Visibility = 8/8

Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC = No Ceiling detected.

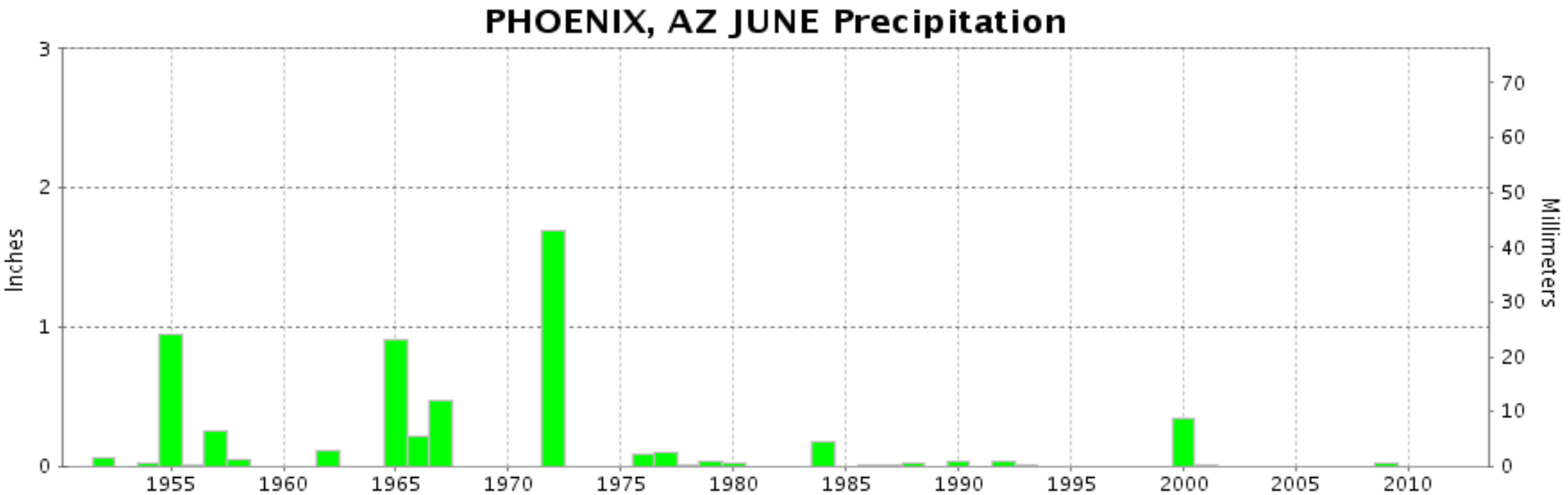
& = Original observation containted additional weather elements. See page 3 for additional notes.

SUMMARY BY HOUR

HOUR (LST)	AVERAGES DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (Inches, HG) STATION	SEA LEVEL	VISIBILITY (Miles)	WIND SPEED (MPH)	RESULTANT WIND (MPH) SPEED	DIRECTION
01	92	34	61	13	28.58	29.69	10.00	5	3	28
02	89	36	60	15	28.59	29.69	10.00	5	1	31
03	87	37	60	17	28.59	29.70	10.00	5	3	08
04	85	38	59	19	28.60	29.70	10.00	6	4	08
05	83	38	59	21	28.61	29.72	9.97	6	5	08
06	82	39	59	22	28.63	29.74	10.00	6	7	09
07	84	38	59	19	28.65	29.75	10.00	7	6	09
08	88	37	60	17	28.66	29.77	10.00	7	6	09
09	91	36	61	14	28.67	29.78	10.00	6	4	08
10	95	34	62	12	28.66	29.77	10.00	6	2	07
11	98	32	63	10	28.66	29.76	10.00	4	2	06
12	101	31	63	9	28.65	29.75	10.00	5	2	30
13	103	30	64	8	28.63	29.73	10.00	7	4	28
14	105	29	64	7	28.60	29.70	10.00	8	6	28
15	106	29	64	7	28.58	29.68	10.00	8	6	28
16	107	28	64	7	28.56	29.66	10.00	9	8	27
17	107	27	64	6	28.54	29.64	9.97	10	10	27
18	106	27	64	7	28.53	29.63	10.00	11	11	27
19	105	29	64	7	28.53	29.63	10.00	12	11	27
20	103	30	63	8	28.54	29.64	10.00	11	9	27
21	100	30	63	9	28.55	29.65	10.00	8	7	27
22	97	32	62	10	28.57	29.67	10.00	6	6	27
23	96	33	62	11	28.58	29.68	9.72	8	6	27
24	94	33	62	12	28.58	29.68	9.80	8	5	28



Long-Term (1951-2013) Mean: 88.9
1971-2000 Normal: 90.8



Long-Term (1951-2013) Mean Monthly Total: 0.09 **1971-2000 Normal: 0.02**

Published By: National Climatic Data Center

JUNE 2013
PHOENIX, AZ

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

I certify that this is an official publication of the National Oceanic and Atmospheric Administration (NOAA). It is compiled using information from weather observing sites operated by NOAA-National Weather Service / Department Of Transportation-Federal Aviation Administration and received at the National Climatic Data Center (NCDC), Asheville, North Carolina 28801.

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Attn: User Engagement & Services Branch
151 Patton Avenue
Asheville, NC 28801-5001

JUNE 2012
LOCAL CLIMATOLOGICAL DATA
NOAA, National Climatic Data Center

PHOENIX, AZ
PHOENIX SKY HARBOR INTL AIRPORT (KPHX)
Lat:33° 25'N Long: 112° 0'W Elev (Ground) 1107 Feet
Time Zone : MOUNTAIN WBAN: 23183 ISSN#: 0198-0475

Date	Temperature °F MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	Deg Days BASE 65° HEATING	COOLING	WEATHER	SNOW/ICE ON GND(IN) 0500 LST DEPTH	1100 LST WATER-EQUIV	PRECIPITATION ON GND(IN) 2400 LST SNOW-FALL	2400 LST WATER EQUIV	PRESSURE (INCHES OF HG) AVERAGE STATION	AVERAGE SEA LEVEL	WIND SPEED = MPH DIR = TENS OF DEGREES RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM 3-SEC SPEED	DIR	2-MIN SPEED	DIR	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
01	111	79	95	11	26	60	0	30					0.00	28.51	29.62	1.4	24	7.0	28	27	23	27	01
02	107	79	93	9	29	60	0	28					0.00	28.56	29.67	4.1	27	8.9	28	28	22	27	02
03	103	75	89	4	31	59	0	24					0.00	28.61	29.73	2.2	16	7.8	23	16	17	18	03
04	102	76	89	4	34	60	0	24					0.00	28.61	29.74	1.8	22	7.1	21	29	16	29	04
05	101	77	89	4	35	60	0	24					0.00	28.57	29.68	4.4	28	8.7	26	30	22	28	05
06	101	74*	88*	3	26	58	0	23					0.00	28.53	29.64	1.5	26	5.5	23	31	16	29	06
07	103	76	90	4	31	59	0	25					0.00	28.59	29.70	2.4	19	8.1	22	18	15	21	07
08	104	77	91	4	29	59	0	26					0.00	28.57	29.68	2.1	27	6.8	23	30	17	26	08
09	103	75	89	2	29	59	0	24					0.00	28.50	29.61	1.9	21	8.6	23	28	20	27	09
10	102	76	89	2	31	59	0	24					0.00	28.58	29.69	0.8	09	5.2	16	33	13	28	10
11	104	79	92	5	33	61	0	27					0.00	28.65	29.76	1.7	25	7.5	22	17	15	27	11
12	107	79	93	5	31	61	0	28					0.00	28.63	29.74	2.2	28	6.5	20	28	16	27	12
13	107	77	92	4	28	60	0	27					0.00	28.53	29.64	1.9	24	7.0	23	27	16	27	13
14	107	78	93	5	30	60	0	28					0.00	28.53	29.64	3.7	20	9.2	31	20	23	27	14
15	103	78	91	3	34	61	0	26					0.00	28.56	29.67	3.3	22	7.9	26	27	23	27	15
16	106	78	92	3	38	62	0	27	BLDU				0.00	28.63	29.74	1.9	18	5.9	33	14	28	14	16
17	110	82	96	7	44	66	0	31					0.00	28.61	29.73	2.2	27	5.4	24	32	17	28	17
18	112*	87	100	11	35	64	0	35					0.00	28.51	29.62	8.9	26	10.4	33	27	26	26	18
19	108	81	95	5	22	59	0	30					0.00	28.46	29.57	3.4	26	7.5	26	27	23	27	19
20	109	79	94	4	21	59	0	29					0.00	28.51	29.62	0.1	34	7.3	21	28	15	28	20
21	109	80	95	4	36	63	0	30					0.00	28.58	29.69	2.9	30	6.3	20	29	15	30	21
22	107	85	96	5	37	64	0	31					0.00	28.53	29.64	4.9	29	6.0	24	27	18	27	22
23	107	81	94	2	37	63	0	29					0.00	28.51	29.62	2.5	27	6.8	24	29	21	29	23
24	105	87	96	4	49	67	0	31					0.00	28.64	29.75	7.8	28	9.0	26	31	20	27	24
25	108	89	99	7	46	67	0	34					0.00	28.64	29.76	6.5	28	7.4	23	27	15	29	25
26	110	89	100	8	50	69	0	35					0.00	28.53	29.65	4.5	26	6.3	35	16	26	17	26
27	110	89	100	8	56	71	0	35	BLDU				0.00	28.59	29.69	2.6	13	7.5	44*	20	30*	18	27
28	110	89	100	8	55	71	0	35					0.00	28.69	29.80	4.3	27	7.1	25	27	20	28	28
29	110	90	100*	8	51	69	0	35					0.00	28.66	29.77	5.9	27	7.9	25	29	20	27	29
30	109	89	99	7	44	66	0	34					0.00	28.58	29.69	7.2	28	9.0	29	27	25	27	30
	106.5	81.0	93.8	¤	35.9	62.5	0.0	29.0	< MONTHLY AVERAGES | TOTALS >				0.00	28.57	29.68	2.7	26	7.4	< MONTHLY AVERAGES				
	2.6	3.3	3.0		<---------- DEPARTURE FROM NORMAL ---------->								-0.02	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									

JUNE 2012
PHOENIX, AZ

DEGREE DAYS

	MONTHLY TOTAL	MONTHLY DEPARTURE	SEASON TO DATE TOTAL	SEASON TO DATE DEPARTURE
HEATING :	0	0	837	-98
COOLING :	869	95	1921	261

GREATEST 24-HR PRECIPITATION : 0.00 DATE :
GREATEST 24-HR SNOWFALL : DATE :
GREATEST SNOW DEPTH : DATE :

SEA LEVEL PRESSURE		DATE	TIME
MAXIMUM :	29.88	28	0919
MIMIMUM :	29.50	19	1852

NUMBER OF DAYS WITH ->

MAXIMUM TEMP >= 90 :	30	MINIMUM TEMP <= 32 :	0	PRECIPITATION >= 0.01 INCH:	0
MAXIMUM TEMP <= 32 :	0	MINIMUM TEMP <= 0 :	0	PRECIPITATION >= 0.10 INCH:	0
THUNDERSTORMS :	0	HEAVY FOG :	0	SNOWFALL >= 1.0 INCH :	

HOURLY PRECIPITATION
(WATER EQUIVALENT IN INCHES)

PHOENIX, AZ (KPHX)
JUNE 2012

WBAN # 23183

Date	FOR HOUR (LST) ENDING AT												Date	FOR HOUR (LST) ENDING AT												Date	Sum of Hourly Data	2400 LST Water Equiv.
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24			
01													01													01	0.00	0.00
02													02													02	0.00	0.00
03													03													03	0.00	0.00
04													04													04	0.00	0.00
05													05													05	0.00	0.00
06													06													06	0.00	0.00
07													07													07	0.00	0.00
08													08													08	0.00	0.00
09													09													09	0.00	0.00
10													10													10	0.00	0.00
11													11													11	0.00	0.00
12													12													12	0.00	0.00
13													13													13	0.00	0.00
14													14													14	0.00	0.00
15													15													15	0.00	0.00
16													16													16	0.00	0.00
17													17													17	0.00	0.00
18													18													18	0.00	0.00
19													19													19	0.00	0.00
20													20													20	0.00	0.00
21													21													21	0.00	0.00
22													22													22	0.00	0.00
23													23													23	0.00	0.00
24													24													24	0.00	0.00
25													25													25	0.00	0.00
26													26													26	0.00	0.00
27													27													27	0.00	0.00
28													28													28	0.00	0.00
29													29													29	0.00	0.00
30													30													30	0.00	0.00

*** Indicates sum of Hourly and Daily disagree.**

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)												
Ending Date												
Ending Time (Hr/Min)												

Date and time are not entered for TRACE amounts.

Note : The hourly and daily precipitation totals are printed in the last 2 columns and hi-lighted in red when they disagree. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

PHOENIX, AZ
JUNE 2012

*** = Extreme for the month (last occurence if more than one).**

T = Trace precipitation amount.

+ = also occurs on earlier date.

FG+ = Heavy fog, visibility .25 miles or less.

BLANK entries denote missing or unreported data.

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24-hour period ending at the time indicated in the column heading.

Water Equivalent of snow on the ground is reported only when the depth is 2 or more inches.

NORMALS ARE FOR THE YEARS 1981-2010

WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
DESCRIPTOR	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DU Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Well-Developed Dust/Sand Whirls
MI Shallow	PL Ice Pellets	HZ Haze	
PR Partial	RA Rain		
SH Shower(s)	SG Snow Grains	PY Spray	SQ Squalls
TS Thunderstorm	SN Snow	SA Sand	SS Sandstorm
VC In the Vicinity	UP Unkown Precipitation	VA Volcanic Ash	GL Glaze

Intensity (as indicated on pages 4 to 6):
'+' = Heavy ' ' = Moderate '-' = Light

Ceilometer (30-second) data are used to derive cloudiness at or below 12,000 feet. This cloudiness is the mean cloud cover detected during sunrise to sunset (SR-SS), or midnight to midnight (MN-MN).

Satellite data are used to derive cloudiness above 12,000 feet. Effective Cloud Amount is based on the cloud cover and the transparency of the clouds within the satellite field of view (approx. 31x31 miles).

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet. Both ceilometer and satellite data must be present to compute Sky Condition. Clear = 0-2 oktas, Partly Cloudy = 3-6 oktas, Cloudy = 7-8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Dew Point is the temperature to which the air must be cooled to achieve 100% relative humidity. Wet Bulb is the temperature the air would have if cooled to saturation at constant pressure by evaporation of water into it.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

ADDITIONAL NOTES:

```
Station Augmentation-CONTRACTOR
  Lat/Lon:33.44417/-112.02472 Elevation:1107FT
  Distance:.5 MI Dir:N
  Augmented Elements:Temp, Precip
  Equipment:MXMN, SRG
```

Date	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
			SR-SS		MN-MN				
	TOTAL MINUTES	PERCENT POSSIBLE	Sky Cover	Satellite	Sky Cover	Satellite	MINIMUM	MAXIMUM	
01							10.00	10.00	
02							10.00	10.00	
03							10.00	10.00	
04							10.00	10.00	
05							10.00	10.00	
06							10.00	10.00	
07							10.00	10.00	
08							10.00	10.00	
09							10.00	10.00	
10							10.00	10.00	
11							10.00	10.00	
12							10.00	10.00	
13							10.00	10.00	
14							10.00	10.00	
15							10.00	10.00	
16							8.00	10.00	
17							10.00	10.00	
18							10.00	10.00	
19							10.00	10.00	
20							10.00	10.00	
21							10.00	10.00	
22							10.00	10.00	
23							10.00	10.00	
24							10.00	10.00	
25							10.00	10.00	
26							6.00	10.00	
27							1.00	10.00	
28							8.00	10.00	
29							10.00	10.00	
30							10.00	10.00	
MONTHLY AVGS							9.43	10.00	

SUNSHINE (Minutes)

Total : 0 **Possible : 25785**
Percent Possible : 0

NUMBER OF DAYS WITH :

SKY CONDITION

Clear	Partly CLDY	Cloudy	Missing

MINIMUM VISIBILTY (MILES)

<= .25	<= 3.0	>= 7.0
0	1	28

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2012 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0519	JUN 01			SUNSET: 1932					
02	CLR	NC			10.00		85	36	59	17	0	00	28.48	29.59
05	CLR	NC			10.00		79	32	55	18	7	11	28.52	29.62
08	FEW	250			10.00		86	28	57	12	8	10	28.58	29.68
11	FEW	250			10.00		99	26	61	7	0	00	28.57	29.67
14	CLR	NC			10.00		107	24	64	5	5	17	28.52	29.62
17	CLR	NC			10.00		110	22	64	4	14	28	28.47	29.57
20	CLR	NC			10.00		103	21	62	5	11	26	28.47	29.57
23	CLR	NC			10.00		97	23	60	7	3	33	28.51	29.61
					SUNRISE: 0519	JUN 02			SUNSET: 1933					
02	FEW	250			10.00		91	25	58	9	8	30	28.53	29.63
05	SCT	250			10.00		81	36	57	20	6	08	28.55	29.65
08	BKN	250			10.00		85	35	58	17	10	10	28.61	29.72
11	BKN	250			10.00		97	29	61	9	7	27	28.62	29.72
14	SCT	250			10.00		103	26	63	6	5	VR	28.57	29.67
17	SCT	250			10.00		105	28	64	7	14	23	28.51	29.61
20	SCT	250			10.00		98	27	61	8	17	27	28.53	29.63
23	CLR	NC			10.00		89	24	57	9	6	24	28.58	29.68
					SUNRISE: 0519	JUN 03			SUNSET: 1933					
02	CLR	NC			10.00		81	29	55	15	3	08	28.58	29.69
05	FEW	250			10.00		78	32	55	19	11	08	28.61	29.72
08	SCT	250			10.00		82	36	58	19	10	09	28.66	29.78
11	SCT	250			10.00		93	37	62	14	7	13	28.68	29.79
14	SCT	200			10.00		100	26	62	7	11	18	28.64	29.75
17	SCT	200			10.00		101	26	62	7	9	23	28.58	29.69
20	FEW	250			10.00		98	26	61	8	10	28	28.59	29.70
23	CLR	NC			10.00		92	30	60	11	9	29	28.62	29.72
					SUNRISE: 0519	JUN 04			SUNSET: 1934					
02	CLR	NC			10.00		84	35	58	17	0	00	28.64	29.74
05	FEW	200			10.00		78	35	56	21	6	11	28.66	29.78
08	CLR	NC			10.00		82	36	58	19	6	14	28.70	29.82
11	CLR	NC			10.00		93	32	61	11	8	16	28.70	29.81
14	CLR	NC			10.00		99	31	62	9	7	VR	28.64	29.75
17	CLR	NC			10.00		100	32	63	9	0	00	28.55	29.66
20	CLR	NC			10.00		98	34	63	11	14	28	28.53	29.64
23	CLR	NC			10.00		90	37	61	15	9	26	28.58	29.68
					SUNRISE: 0518	JUN 05			SUNSET: 1934					
02	CLR	NC			10.00		86	41	61	20	0	00	28.58	29.68
05	FEW	250			10.00		78	39	57	25	8	10	28.61	29.72
08	CLR	NC			10.00		82	42	60	24	7	11	28.65	29.75
11	CLR	NC			10.00		91	41	63	17	3	VR	28.65	29.75
14	CLR	NC			10.00		99	34	63	10	9	25	28.58	29.68
17	CLR	NC			10.00		98	31	62	9	13	30	28.51	29.62
20	CLR	NC			10.00		95	31	61	10	18	28	28.51	29.62
23	CLR	NC			10.00		88	13	55	6	7	26	28.55	29.65
					SUNRISE: 0518	JUN 06			SUNSET: 1935					
02	CLR	NC			10.00		84	12	53	6	9	25	28.54	29.65
05	CLR	NC			10.00		76	28	53	17	6	08	28.57	29.68
08	CLR	NC			10.00		80	33	56	18	6	07	28.58	29.69
11	FEW	250			10.00		92	22	58	8	0	00	28.56	29.67
14	CLR	NC			10.00		97	22	60	7	0	00	28.52	29.62
17	CLR	NC			10.00		99	24	61	7	5	VR	28.48	29.58
20	CLR	NC			10.00		96	30	61	10	14	28	28.49	29.59
23	CLR	NC			10.00		87	33	59	14	3	23	28.53	29.64
					SUNRISE: 0518	JUN 07			SUNSET: 1935					
02	CLR	NC			10.00		86	30	57	13	7	33	28.54	29.64
05	CLR	NC			10.00		77	36	56	23	8	10	28.58	29.69
08	CLR	NC			10.00		81	35	57	19	9	14	28.64	29.75
11	FEW	250			10.00		94	29	60	10	9	17	28.65	29.75
14	FEW	250			10.00		100	27	62	7	10	17	28.61	29.71
17	CLR	NC			10.00		100	28	62	8	13	27	28.56	29.67
20	CLR	NC			10.00		97	29	61	9	6	33	28.57	29.67
23	CLR	NC			10.00		91	28	59	10	9	26	28.60	29.70
					SUNRISE: 0518	JUN 08			SUNSET: 1936					
02	CLR	NC			10.00		85	31	57	14	5	09	28.60	29.70
05	CLR	NC			10.00		79	37	57	22	3	13	28.62	29.73
08	CLR	NC			10.00		83	36	58	19	3	VR	28.65	29.76
11	CLR	NC			10.00		95	27	60	9	5	VR	28.65	29.75
14	CLR	NC			10.00		101	24	61	6	6	VR	28.58	29.68
17	CLR	NC			10.00		103	31	64	8	8	27	28.51	29.61
20	CLR	NC			10.00		99	21	60	6	17	28	28.50	29.60
23	CLR	NC			10.00		91	22	57	8	7	27	28.53	29.63
					SUNRISE: 0518	JUN 09			SUNSET: 1936					
02	CLR	NC			10.00		82	31	56	16	5	08	28.54	29.65
05	CLR	NC			10.00		77	34	55	21	8	10	28.55	29.66
08	FEW	250			10.00		82	31	56	16	10	11	28.58	29.69
11	CLR	NC			10.00		96	25	60	8	13	17	28.56	29.66
14	CLR	NC			10.00		100	27	62	7	9	26	28.49	29.59
17	CLR	NC			10.00		101	28	62	7	8	34	28.42	29.53
20	CLR	NC			10.00		97	33	62	10	16	28	28.43	29.53
23	CLR	NC			10.00		91	28	59	10	7	26	28.48	29.59
					SUNRISE: 0518	JUN 10			SUNSET: 1937					
02	CLR	NC			10.00		82	29	55	14	7	09	28.52	29.62
05	CLR	NC			10.00		77	29	53	17	6	09	28.56	29.67
08	CLR	NC			10.00		82	30	56	15	5	13	28.62	29.73
11	CLR	NC			10.00		93	29	60	10	0	00	28.64	29.74
14	CLR	NC			10.00		98	33	62	10	9	21	28.59	29.70
17	CLR	NC			10.00		100	30	62	8	3	VR	28.55	29.66
20	CLR	NC			10.00		98	31	62	9	10	31	28.56	29.66
23	CLR	NC			10.00		89	37	61	16	5	24	28.61	29.72
					SUNRISE: 0518	JUN 11			SUNSET: 1937					
02	CLR	NC			10.00		87	38	60	18	8	33	28.62	29.72
05	FEW	250			10.00		82	40	59	22	5	08	28.65	29.75
08	FEW	250			10.00		84	37	59	19	7	10	28.70	29.82
11	FEW	250			10.00		96	30	61	10	7	VR	28.70	29.82
14	FEW	120			10.00		102	33	64	9	8	17	28.66	29.77
17	FEW	120			10.00		102	31	63	8	13	32	28.62	29.72
20	CLR	NC			10.00		100	23	61	6	9	30	28.63	29.73
23	CLR	NC			10.00		90	32	59	13	3	25	28.66	29.77
					SUNRISE: 0518	JUN 12			SUNSET: 1938					
02	CLR	NC			10.00		88	32	59	13	6	32	28.66	29.77
05	FEW	250			10.00		81	37	58	21	5	10	28.69	29.79
08	FEW	250			10.00		85	33	58	15	6	10	28.72	29.83
11	FEW	250			10.00		96	32	62	10	5	15	28.69	29.81
14	SCT	250			10.00		105	29	64	7	5	VR	28.63	29.73
17	SCT	250			10.00		105	27	63	6	8	32	28.57	29.67
20	FEW	250			10.00		102	26	62	7	10	29	28.56	29.66
23	FEW	250			10.00		93	28	59	10	7	26	28.58	29.68

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2012 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0518	JUN 13			SUNSET: 1938					
02	FEW	250			10.00		86	27	57	12	0	00	28.57	29.67
05	BKN	250			10.00		80	34	56	19	6	08	28.57	29.67
08	FEW	250			10.00		85	31	57	14	9	11	28.59	29.70
11	FEW	250			10.00		97	26	60	8	3	36	28.59	29.69
14	FEW	250			10.00		103	21	62	5	11	26	28.53	29.63
17	FEW	250			10.00		105	24	63	6	10	25	28.46	29.57
20	FEW	250			10.00		102	25	62	6	10	28	28.45	29.55
23	CLR	NC			10.00		93	28	59	10	8	25	28.51	29.61
					SUNRISE: 0518	JUN 14			SUNSET: 1938					
02	CLR	NC			10.00		89	27	58	11	3	03	28.53	29.63
05	CLR	NC			10.00		80	31	55	17	8	12	28.56	29.67
08	CLR	NC			10.00		86	32	58	14	10	15	28.61	29.71
11	CLR	NC			10.00		98	27	61	8	8	17	28.60	29.70
14	CLR	NC			10.00		103	28	63	7	8	16	28.54	29.64
17	CLR	NC			10.00		106	24	63	5	8	20	28.47	29.58
20	CLR	NC			10.00		99	28	62	8	18	27	28.47	29.58
23	CLR	NC			10.00		92	43	64	18	10	29	28.52	29.62
					SUNRISE: 0518	JUN 15			SUNSET: 1939					
02	CLR	NC			10.00		85	41	60	21	3	19	28.54	29.65
05	FEW	250			10.00		80	38	58	22	6	11	28.58	29.69
08	CLR	NC			10.00		85	34	58	16	7	15	28.64	29.74
11	CLR	NC			10.00		95	30	61	10	11	17	28.63	29.73
14	CLR	NC			10.00		98	30	62	9	5	28	28.57	29.67
17	CLR	NC			10.00		101	32	63	9	13	21	28.50	29.60
20	CLR	NC			10.00		100	30	62	8	8	29	28.48	29.59
23	CLR	NC			10.00		90	36	61	15	17	27	28.55	29.66
					SUNRISE: 0518	JUN 16			SUNSET: 1939					
02	CLR	NC			10.00		85	35	58	17	7	29	28.59	29.70
05	CLR	NC			10.00		80	34	56	19	5	22	28.64	29.75
08	SCT	250			10.00		85	32	58	15	3	20	28.69	29.79
11	SCT	250			10.00		96	34	62	11	5	31	28.68	29.78
14	SCT	250			10.00		102	39	66	11	3	VR	28.62	29.73
17	SCT	250			10.00		106	37	66	9	13	14	28.57	29.67
20	SCT	250			10.00		96	45	66	17	14	14	28.62	29.73
23	SCT	250			10.00		93	44	64	18	3	16	28.68	29.78
					SUNRISE: 0518	JUN 17			SUNSET: 1939					
02	SCT	250			10.00		87	49	64	27	0	00	28.66	29.77
05	FEW	250			10.00		83	53	65	36	0	00	28.68	29.78
08	CLR	NC			10.00		89	47	64	23	5	08	28.71	29.83
11	CLR	NC			10.00		100	45	67	15	0	00	28.69	29.80
14	FEW	090			10.00		106	41	67	11	7	VR	28.62	29.72
17	FEW	090			10.00		108	37	67	9	5	28	28.54	29.64
20	CLR	NC			10.00		104	40	66	11	10	26	28.52	29.62
23	CLR	NC			10.00		98	43	66	15	9	29	28.55	29.65
					SUNRISE: 0518	JUN 18			SUNSET: 1940					
02	CLR	NC			10.00		95	43	65	17	11	27	28.54	29.64
05	CLR	NC			10.00		92	42	63	18	7	28	28.56	29.66
08	CLR	NC			10.00		92	45	64	20	3	12	28.59	29.70
11	CLR	NC			10.00		104	41	67	12	7	24	28.58	29.67
14	CLR	NC			10.00		111	28	66	5	16	25	28.50	29.60
17	CLR	NC			10.00		111	26	65	5	18	26	28.44	29.54
20	CLR	NC			10.00		105	27	63	6	16	27	28.44	29.54
23	CLR	NC			10.00		94	27	60	9	9	24	28.49	29.59

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0518	JUN 19			SUNSET: 1940					
02	CLR	NC			10.00		92	25	58	9	5	29	28.48	29.58
05	FEW	250			10.00		83	34	57	17	5	09	28.49	29.59
08	CLR	NC			10.00		88	31	58	13	6	05	28.52	29.62
11	CLR	NC			10.00		97	24	60	7	0	00	28.53	29.63
14	CLR	NC			10.00		104	18	62	4	10	21	28.48	29.58
17	CLR	NC			10.00		107	13	62	3	14	24	28.41	29.51
20	CLR	NC			10.00		101	17	60	5	10	23	28.41	29.51
23	CLR	NC			10.00		95	16	58	5	8	24	28.45	29.55
					SUNRISE: 0519	JUN 20			SUNSET: 1940					
02	CLR	NC			10.00		86	28	57	12	9	08	28.47	29.57
05	CLR	NC			10.00		81	25	54	13	8	08	28.50	29.61
08	CLR	NC			10.00		86	27	57	12	7	10	28.56	29.67
11	CLR	NC			10.00		98	23	60	7	6	14	28.56	29.66
14	CLR	NC			10.00		107	16	62	4	9	16	28.52	29.62
17	CLR	NC			10.00		107	18	63	4	10	31	28.47	29.58
20	SCT	250			10.00		103	16	61	4	8	26	28.49	29.59
23	FEW	250			10.00		96	19	59	6	7	27	28.54	29.64
					SUNRISE: 0519	JUN 21			SUNSET: 1941					
02	CLR	NC			10.00		89	38	61	17	6	36	28.57	29.67
05	CLR	NC			10.00		81	41	59	24	5	11	28.61	29.71
08	CLR	NC			10.00		89	39	61	17	6	09	28.66	29.76
11	CLR	NC			10.00		99	35	63	11	0	00	28.66	29.76
14	FEW	250			10.00		106	31	65	7	3	33	28.60	29.70
17	FEW	250			10.00		108	31	65	7	8	25	28.53	29.63
20	CLR	NC			10.00		105	36	66	9	6	30	28.52	29.62
23	CLR	NC			10.00		97	44	66	16	11	27	28.55	29.65
					SUNRISE: 0519	JUN 22			SUNSET: 1941					
02	CLR	NC			10.00		93	41	63	16	5	32	28.55	29.65
05	CLR	NC			10.00		89	38	61	17	3	32	28.58	29.68
08	CLR	NC			10.00		90	43	63	19	6	34	28.61	29.72
11	CLR	NC			10.00		99	42	66	14	0	00	28.60	29.70
14	CLR	NC			10.00		106	41	67	11	8	31	28.54	29.64
17	CLR	NC			10.00		107	36	66	9	11	25	28.47	29.57
20	CLR	NC			10.00		102	26	62	7	11	29	28.46	29.56
23	CLR	NC			10.00		94	34	61	12	0	00	28.48	29.58
					SUNRISE: 0519	JUN 23			SUNSET: 1941					
02	CLR	NC			10.00		88	37	60	16	3	23	28.48	29.58
05	CLR	NC			10.00		84	42	60	23	3	09	28.50	29.60
08	FEW	250			10.00		87	37	60	17	7	08	28.56	29.66
11	BKN	250			10.00		98	30	62	9	7	12	28.57	29.67
14	FEW	250			10.00		105	32	65	8	7	17	28.52	29.62
17	SCT	250			10.00		106	31	65	7	13	27	28.48	29.58
20	SCT	250			10.00		103	38	66	11	11	30	28.49	29.59
23	CLR	NC			10.00		96	49	67	20	9	26	28.55	29.65
					SUNRISE: 0519	JUN 24			SUNSET: 1941					
02	FEW	180			10.00		91	44	64	20	3	27	28.59	29.69
05	SCT	150			10.00		88	46	63	23	5	33	28.65	29.75
08	SCT	250			10.00		91	48	65	23	9	30	28.70	29.82
11	SCT	180			10.00		98	43	66	15	6	VR	28.70	29.82
14	SCT	200			10.00		102	49	69	17	8	24	28.66	29.77
17	SCT	230			10.00		105	54	72	18	15	27	28.60	29.70
20	SCT	220			10.00		101	54	71	21	11	30	28.60	29.70
23	SCT	220			10.00		98	52	69	21	14	28	28.64	29.74

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2012 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0520	JUN 25			SUNSET: 1941					
02	SCT	220			10.00		93	52	68	25	7	26	28.66	29.77
05	FEW	250			10.00		90	45	64	21	6	33	28.70	29.82
08	FEW	120			10.00		91	37	61	15	6	30	28.74	29.86
11	SCT	150			10.00		98	43	66	15	0	00	28.72	29.83
14	FEW	120			10.00		104	47	69	15	9	31	28.66	29.75
17	FEW	120			10.00		105	47	69	14	11	32	28.57	29.67
20	SCT	250			10.00		102	51	70	18	11	29	28.57	29.67
23	SCT	250			10.00		97	49	67	20	9	26	28.58	29.69
					SUNRISE: 0520	JUN 26			SUNSET: 1941					
02	SCT	180			10.00		95	49	67	21	9	27	28.58	29.68
05	FEW	180			10.00		89	50	65	26	5	22	28.58	29.69
08	FEW	150			10.00		94	47	66	20	0	00	28.62	29.72
11	FEW	120			10.00		101	45	67	15	6	25	28.60	29.70
14	FEW	120			10.00		109	51	72	15	5	VR	28.53	29.63
17	FEW	120			10.00		108	49	71	14	14	28	28.46	29.56
20	BKN	250			10.00		104	51	70	17	10	22	28.49	29.59
23	BKN	250			10.00		100	54	70	21	3	19	28.51	29.61
					SUNRISE: 0520	JUN 27			SUNSET: 1942					
02	FEW	250			10.00		94	55	69	27	6	11	28.52	29.62
05	FEW	200			10.00		90	57	69	33	6	11	28.56	29.66
08	FEW	150			10.00		93	57	70	30	5	11	28.61	29.71
11	SCT	150			10.00		101	54	71	21	3	VR	28.63	29.72
14	FEW	120			10.00		107	52	71	16	5	33	28.58	29.68
17	FEW	120			10.00		110	52	72	15	11	33	28.53	29.63
20	BKN	250			1.00	BLDU	99	57	71	25	31	15	28.62	29.72
23	SCT	180			6.00	BLDU	92	60	71	34	8	10	28.66	29.76
					SUNRISE: 0521	JUN 28			SUNSET: 1942					
02	SCT	190			10.00		91	59	70	34	5	23	28.66	29.77
05	BKN	190			10.00		91	58	70	33	5	09	28.69	29.80
08	FEW	200			10.00		91	59	70	34	6	11	28.75	29.86
11	SCT	200			10.00		101	56	72	22	0	00	28.76	29.87
14	FEW	120			10.00		107	55	73	18	9	31	28.70	29.81
17	FEW	120			10.00		109	53	72	16	10	28	28.64	29.74
20	SCT	250			10.00		107	48	70	14	14	27	28.64	29.74
23	CLR	NC			10.00		99	53	70	21	7	24	28.68	29.78
					SUNRISE: 0521	JUN 29			SUNSET: 1942					
02	CLR	NC			10.00		96	54	69	24	10	29	28.69	29.80
05	CLR	NC			10.00		94	55	69	27	0	00	28.70	29.81
08	FEW	120			10.00		94	57	70	29	3	08	28.75	29.86
11	FEW	200			10.00		101	55	71	22	6	05	28.74	29.85
14	SCT	200			10.00		107	51	71	15	5	VR	28.68	29.78
17	SCT	200			10.00		109	45	70	12	14	28	28.59	29.69
20	FEW	120			10.00		105	45	68	13	13	26	28.57	29.67
23	CLR	NC			10.00		99	45	67	16	9	26	28.61	29.70
					SUNRISE: 0521	JUN 30			SUNSET: 1942					
02	CLR	NC			10.00		96	46	66	18	9	28	28.62	29.72
05	CLR	NC			10.00		90	46	64	22	6	07	28.65	29.75
08	SCT	250			10.00		92	48	66	22	3	VR	28.69	29.80
11	FEW	180			10.00		98	50	68	20	7	30	28.66	29.77
14	SCT	250			10.00		105	41	67	11	6	26	28.60	29.70
17	SCT	250			10.00		108	38	67	9	17	29	28.52	29.62
20	SCT	250			10.00		105	38	66	10	14	27	28.49	29.59
23	FEW	180			10.00		99	45	67	16	9	27	28.51	29.61

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL

3-HOURLY OBSERVATION NOTES

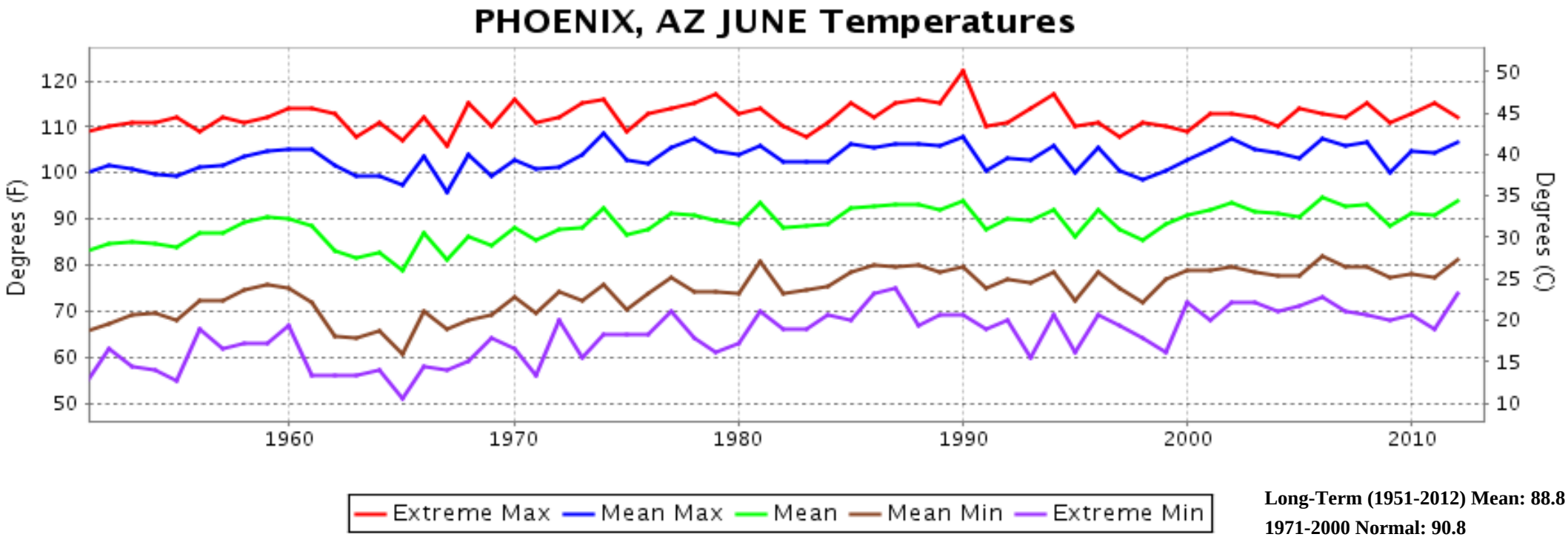
Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8-2/8, SCT = 3/8-4/8, BKN = 5/8-7/8, OVC = 8/8, W = Vertical Visibility = 8/8

Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC = No Ceiling detected.

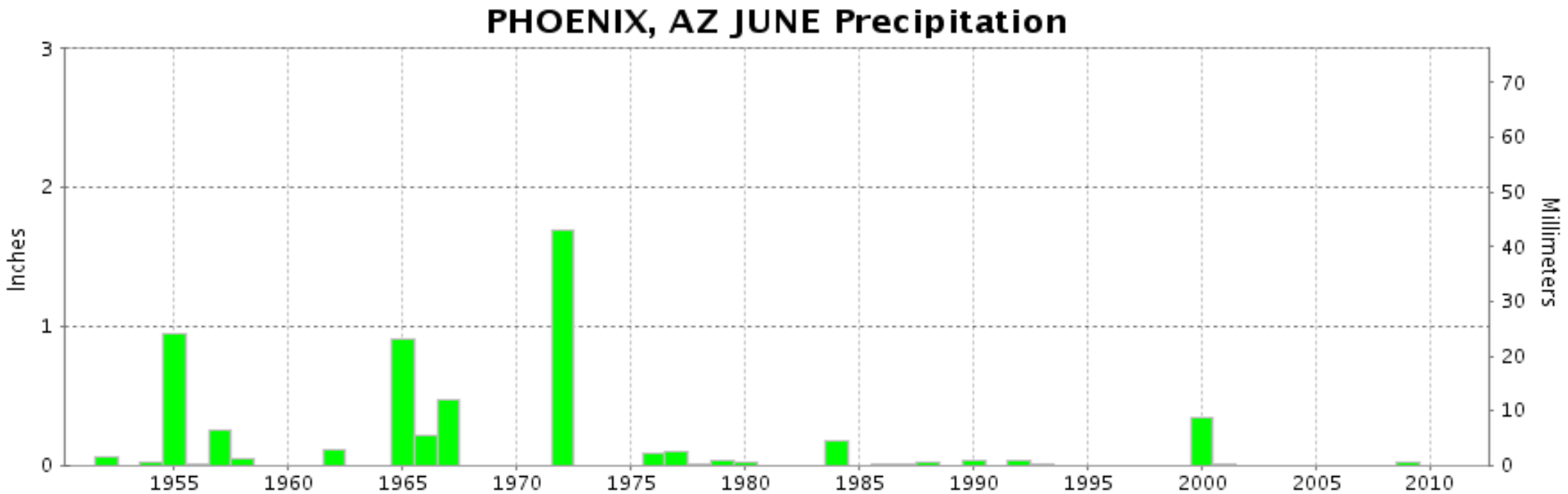
& = Original observation containted additional weather elements. See page 3 for additional notes.

SUMMARY BY HOUR

HOUR (LST)	AVERAGES CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (Inches, HG) STATION	PRESSURE (Inches, HG) SEA LEVEL	VISIBILITY (Miles)	WIND SPEED (MPH)	RESULTANT WIND (MPH) SPEED	RESULTANT WIND (MPH) DIRECTION
01			90	36	61	16	28.57	29.67	9.93	6	4	27
02			88	37	61	17	28.57	29.67	10.00	5	2	26
03			87	38	60	19	28.58	29.68	10.00	5	1	11
04			84	39	60	20	28.59	29.69	10.00	5	3	10
05			83	39	59	22	28.60	29.71	10.00	6	4	09
06			82	40	59	23	28.62	29.72	10.00	6	5	09
07			83	39	59	21	28.63	29.74	10.00	7	6	09
08			87	39	61	19	28.64	29.75	10.00	6	4	09
09			91	38	62	16	28.65	29.76	10.00	6	3	10
10			94	37	63	14	28.64	29.75	10.00	5	2	10
11			97	35	63	12	28.64	29.74	10.00	5	0	15
12			100	35	64	11	28.62	29.73	10.00	6	2	25
13			102	34	65	10	28.60	29.71	10.00	6	2	26
14			103	34	65	9	28.58	29.68	10.00	7	4	27
15			104	33	65	9	28.56	29.66	10.00	8	7	27
16			105	33	65	9	28.54	29.64	10.00	9	8	27
17			105	33	65	9	28.52	29.62	10.00	11	9	27
18			105	32	65	9	28.51	29.61	10.00	13	11	27
19			103	33	65	9	28.51	29.62	9.93	13	10	27
20			101	33	64	10	28.52	29.63	9.70	13	9	27
21			98	35	64	12	28.54	29.64	9.59	10	8	27
22			95	36	63	13	28.56	29.66	9.87	8	7	27
23			94	36	62	14	28.56	29.66	9.87	8	6	27
24			92	36	62	15	28.56	29.67	9.93	6	5	27



Long-Term (1951-2012) Mean: 88.8
1971-2000 Normal: 90.8



Long-Term (1951-2012) Mean Monthly Total: 0.09 **1971-2000 Normal: 0.02**

Published By: National Climatic Data Center

JUNE 2012
PHOENIX, AZ

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

I certify that this is an official publication of the National Oceanic and Atmospheric Administration (NOAA). It is compiled using information from weather observing sites operated by NOAA-National Weather Service / Department Of Transportation-Federal Aviation Administration and received at the National Climatic Data Center (NCDC), Asheville, North Carolina 28801.

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NOAA\National Climatic Data Center
Attn: User Engagement & Services Branch
151 Patton Avenue
Asheville, NC 28801-5001

JUNE 2011
LOCAL CLIMATOLOGICAL DATA
NOAA, National Climatic Data Center

PHOENIX, AZ
PHOENIX SKY HARBOR INTL AIRPORT (KPHX)
Lat:33 ° 26'N Long: 111° 59'W Elev (Ground) 1105 Feet
Time Zone : MOUNTAIN WBAN: 23183 ISSN#: 0198-0475

Date	Temperature °F MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	Deg Days BASE 65° HEATING	COOLING	WEATHER	SNOW/ICE ON GND(IN) 0500 LST DEPTH	1100 LST WATER-EQUIV	PRECIPITATION ON GND(IN) 2400 LST SNOW-FALL	2400 LST WATER EQUIV	PRESSURE (INCHES OF HG) AVERAGE STATION	AVERAGE SEA LEVEL	WIND SPEED = MPH DIR = TENS OF DEGREES RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM 3-SEC SPEED	DIR	2-MIN SPEED	DIR	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
01	94	73	84	0	22	55	0	19					0.00	28.69	29.81	1.5	29	5.6	22	31	15	29	01
02	95	68	82	-2	16	53	0	17					0.00	28.64	29.77	4.8	28	6.6	28	27	20	27	02
03	97	66*	82*	-3	11	53	0	17					0.00	28.63	29.75	0.4	07	4.6	20	35	15	16	03
04	102	69	86	1	13	54	0	21					0.00	28.71	29.83	0.4	19	6.8	22	20	16	28	04
05	105	73	89	4	18	57	0	24					0.00	28.70	29.83	2.4	29	5.2	21	29	17	30	05
06	96	75	86	1	23	56	0	21					0.00	28.64	29.77	8.0	27	11.9	30	27	26	27	06
07	96	70	83	-3	23	55	0	18					0.00	28.61	29.74	0.6	04	5.6	21	34	14	31	07
08	97	72	85	-2	25	56	0	20					0.00	28.62	29.74	4.2	26	8.7	28	29	22	28	08
09	98	71	85	-2	24	56	0	20					0.00	28.64	29.76	0.7	29	5.1	20	26	16	27	09
10	100	73	87	0	30	58	0	22					0.00	28.61	29.72	2.2	27	6.2	21	24	14	26	10
11	101	74	88	1	26	58	0	23					0.00	28.56	29.69	1.1	15	5.5	17	23	14	26	11
12	103	74	89	1	23	57	0	24					0.00	28.56	29.67	2.1	27	7.1	25	27	22	28	12
13	101	73	87	-1	17	56	0	22					0.00	28.66	29.77	1.0	06	5.0	18	28	14	15	13
14	106	74	90	2	24	58	0	25					0.00	28.65	29.77	0.6	17	5.5	17	32	12	30	14
15	110	78	94	6	32	61	0	29					0.00	28.53	29.65	1.4	20	6.1	23	29	18	29	15
16	105	78	92	3	32	61	0	27					0.00	28.48	29.58	3.8	24	7.6	28	22	21	25	16
17	105	80	93	4	34	61	0	28					0.00	28.54	29.65	3.9	24	7.5	26	28	22	27	17
18	106	77	92	3	28	60	0	27					0.00	28.56	29.68	2.8	23	8.4	25	28	21	28	18
19	100	76	88	-2	28	58	0	23					0.00	28.46	29.57	5.1	24	9.0	32	29	28*	27	19
20	103	78	91	1	27	59	0	26					0.00	28.50	29.61	3.8	27	6.2	23	26	17	28	20
21	109	78	94	3	26	60	0	29					0.00	28.53	29.63	0.4	06	4.9	18	33	14	26	21
22	112	81	97	6	32	62	0	32					0.00	28.56	29.67	3.4	25	6.2	23	27	18	27	22
23	111	84	98	6	40	65	0	33					0.00	28.59	29.69	3.6	27	6.1	32*	26	21	28	23
24	110	85	98	6	46	67	0	33					0.00	28.56	29.67	4.7	27	6.8	24	28	21	27	24
25	111	85	98	6	41	65	0	33					0.00	28.53	29.64	1.8	27	5.4	21	26	17	27	25
26	112	86	99	7	34	64	0	34					0.00	28.52	29.63	3.3	27	5.7	24	27	18	27	26
27	115*	85	100	8	31	63	0	35					0.00	28.52	29.63	2.6	26	6.4	22	31	17	26	27
28	111	86	99	7	41	66	0	34					0.00	28.53	29.63	4.7	29	6.5	23	31	17	28	28
29	112	90	101*	9	49	68	0	36					0.00	28.53	29.64	4.3	25	7.6	30	27	25	27	29
30	105	86	96	4	36	63	0	31					0.00	28.58	29.69	5.3	27	7.1	22	27	16	27	30
	104.3	77.3	90.8	¤	28.4	59.5	0.0	26.1	< MONTHLY AVERAGES | TOTALS >				0.00	28.58	29.70	2.5	26	6.6	< MONTHLY AVERAGES				
	0.4	1.7	1.0		<---------- DEPARTURE FROM NORMAL ---------->								-0.09	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									

DEGREE DAYS

	MONTHLY TOTAL	MONTHLY DEPARTURE	SEASON TO DATE TOTAL	SEASON TO DATE DEPARTURE
HEATING :	0	0	893	-232
COOLING :	783	38	1647	183

GREATEST 24-HR PRECIPITATION : 0.00 DATE :
GREATEST 24-HR SNOWFALL : DATE :
GREATEST SNOW DEPTH : DATE :

SEA LEVEL PRESSURE		DATE	TIME
MAXIMUM :	29.92	05	0851
MIMIMUM :	29.51	19	1851

NUMBER OF -> DAYS WITH					
MAXIMUM TEMP >= 90 :	30	MINIMUM TEMP <= 32 :	0	PRECIPITATION >= 0.01 INCH:	0
MAXIMUM TEMP <= 32 :	0	MINIMUM TEMP <= 0 :	0	PRECIPITATION >= 0.10 INCH:	0
THUNDERSTORMS :	0	HEAVY FOG :	0	SNOWFALL >= 1.0 INCH :	

JUNE 2011
PHOENIX, AZ

HOURLY PRECIPITATION
(WATER EQUIVALENT IN INCHES)

PHOENIX, AZ (KPHX)
JUNE 2011

WBAN # 23183

Date	FOR HOUR (LST) ENDING AT												Date	FOR HOUR (LST) ENDING AT												Date	Sum of Hourly Data	2400 LST Water Equiv.
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24			
01													01													01	0.00	0.00
02													02													02	0.00	0.00
03													03													03	0.00	0.00
04													04													04	0.00	0.00
05													05													05	0.00	0.00
06													06													06	0.00	0.00
07													07													07	0.00	0.00
08													08													08	0.00	0.00
09													09													09	0.00	0.00
10													10													10	0.00	0.00
11													11													11	0.00	0.00
12													12													12	0.00	0.00
13													13													13	0.00	0.00
14													14													14	0.00	0.00
15													15													15	0.00	0.00
16													16													16	0.00	0.00
17													17													17	0.00	0.00
18													18													18	0.00	0.00
19													19													19	0.00	0.00
20													20													20	0.00	0.00
21													21													21	0.00	0.00
22													22													22	0.00	0.00
23													23													23	0.00	0.00
24													24													24	0.00	0.00
25													25													25	0.00	0.00
26													26													26	0.00	0.00
27													27													27	0.00	0.00
28													28													28	0.00	0.00
29													29													29	0.00	0.00
30													30													30	0.00	0.00

*** Indicates sum of Hourly and Daily disagree.**

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)												
Ending Date												
Ending Time (Hr/Min)												

Date and time are not entered for TRACE amounts.

Note : The hourly and daily precipitation totals are printed in the last 2 columns and hi-lighted in red when they disagree. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

PHOENIX, AZ JUNE 2011

*** = Extreme for the month (last occurence if more than one).**

T = Trace precipitation amount.

+ = also occurs on earlier date.

FG+ = Heavy fog, visibility .25 miles or less.

BLANK entries denote missing or unreported data.

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24-hour period ending at the time indicated in the column heading.

Water Equivalent of snow on the ground is reported only when the depth is 2 or more inches.

NORMALS ARE FOR THE YEARS 1971-2000

WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
DESCRIPTOR	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DU Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Well-Developed Dust/Sand Whirls
MI Shallow	PL Ice Pellets	HZ Haze	
PR Partial	RA Rain		
SH Shower(s)	SG Snow Grains	PY Spray	SQ Squalls
TS Thunderstorm	SN Snow	SA Sand	SS Sandstorm
VC In the Vicinity	UP Unkown Precipitation	VA Volcanic Ash	GL Glaze

Intensity (as indicated on pages 4 to 6):
'+' = Heavy ' ' = Moderate '-' = Light

Ceilometer (30-second) data are used to derive cloudiness at or below 12,000 feet. This cloudiness is the mean cloud cover detected during sunrise to sunset (SR-SS), or midnight to midnight (MN-MN).

Satellite data are used to derive cloudiness above 12,000 feet. Effective Cloud Amount is based on the cloud cover and the transparency of the clouds within the satellite field of view (approx. 31x31 miles).

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet. Both ceilometer and satellite data must be present to compute Sky Condition. Clear = 0-2 oktas, Partly Cloudy = 3-6 oktas, Cloudy = 7-8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Dew Point is the temperature to which the air must be cooled to achieve 100% relative humidity. Wet Bulb is the temperature the air would have if cooled to saturation at constant pressure by evaporation of water into it.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

ADDITIONAL NOTES:

Date	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
			SR-SS		MN-MN				
	TOTAL MINUTES	PERCENT POSSIBLE	Sky Cover	Satellite	Sky Cover	Satellite	MINIMUM	MAXIMUM	
01							10.00	10.00	
02							10.00	10.00	
03							10.00	10.00	
04							10.00	10.00	
05							10.00	10.00	
06							10.00	10.00	
07							10.00	10.00	
08							10.00	10.00	
09							10.00	10.00	
10							10.00	10.00	
11							10.00	10.00	
12							10.00	10.00	
13							10.00	10.00	
14							10.00	10.00	
15							10.00	10.00	
16							10.00	10.00	
17							10.00	10.00	
18							10.00	10.00	
19							10.00	10.00	
20							9.00	10.00	
21							10.00	10.00	
22							10.00	10.00	
23							10.00	10.00	
24							10.00	10.00	
25							10.00	10.00	
26							10.00	10.00	
27							10.00	10.00	
28							10.00	10.00	
29							10.00	10.00	
30							10.00	10.00	
MONTHLY AVGS							9.97	10.00	

SUNSHINE (Minutes)

Total : 0 **Possible : 25785**
Percent Possible : 0

NUMBER OF DAYS WITH :

SKY CONDITION

Clear	Partly CLDY	Cloudy	Missing

MINIMUM VISIBILTY (MILES)

<= .25	<= 3.0	>= 7.0
0	0	30

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2011 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0519	JUN 01			SUNSET: 1932					
02	BKN	230			10.00		80	22	53	12	0	00	28.70	29.82
05	BKN	230			10.00		75	30	53	19	8	08	28.72	29.84
08	BKN	250			10.00		78	29	54	17	7	09	28.74	29.87
11	BKN	250			10.00		85	22	55	10	6	32	28.74	29.87
14	BKN	250			10.00		91	23	58	8	0	00	28.69	29.81
17	BKN	250			10.00		92	16	57	6	10	29	28.65	29.77
20	BKN	250			10.00		89	18	56	7	7	33	28.64	29.75
23	BKN	250			10.00		83	19	54	9	9	23	28.66	29.78
					SUNRISE: 0519	JUN 02			SUNSET: 1933					
02	SCT	170			10.00		77	20	51	12	0	00	28.66	29.78
05	FEW	180			10.00		70	35	52	28	7	09	28.68	29.80
08	FEW	250			10.00		76	23	52	14	0	00	28.71	29.84
11	FEW	250			10.00		85	26	56	12	3	31	28.70	29.83
14	FEW	250			10.00		90	15	56	6	7	VR	28.68	29.79
17	FEW	250			10.00		92	5	55	4	16	29	28.61	29.72
20	CLR	NC			10.00		89	6	54	4	9	29	28.59	29.70
23	CLR	NC			10.00		81	8	51	6	8	26	28.62	29.74
					SUNRISE: 0519	JUN 03			SUNSET: 1933					
02	CLR	NC			10.00		75	12	49	9	0	00	28.63	29.74
05	FEW	250			10.00		67	27	49	22	7	10	28.65	29.77
08	FEW	200			10.00		75	19	50	12	7	12	28.69	29.80
11	FEW	250			10.00		87	9	54	5	3	VR	28.68	29.80
14	FEW	250			10.00		95	2	57	3	11	15	28.64	29.76
17	FEW	250			10.00		95	-0	56	3	3	VR	28.58	29.70
20	FEW	250			10.00		91	7	55	4	8	33	28.58	29.70
23	FEW	250			10.00		84	15	53	7	0	00	28.64	29.75
					SUNRISE: 0519	JUN 04			SUNSET: 1934					
02	CLR	NC			10.00		75	26	52	16	7	09	28.68	29.80
05	FEW	250			10.00		69	21	48	16	8	09	28.71	29.84
08	CLR	NC			10.00		77	21	51	12	5	09	28.75	29.88
11	CLR	NC			10.00		92	7	56	4	8	14	28.76	29.88
14	CLR	NC			10.00		99	5	58	3	7	24	28.72	29.84
17	CLR	NC			10.00		100	5	59	3	7	29	28.68	29.80
20	CLR	NC			10.00		96	5	57	3	9	30	28.69	29.80
23	CLR	NC			10.00		87	15	55	7	3	28	28.72	29.84
					SUNRISE: 0518	JUN 05			SUNSET: 1934					
02	CLR	NC			10.00		80	18	52	10	0	00	28.72	29.84
05	FEW	250			10.00		74	34	54	23	5	09	28.76	29.88
08	CLR	NC			10.00		81	22	53	11	8	11	28.80	29.92
11	CLR	NC			10.00		96	12	58	4	0	00	28.78	29.90
14	CLR	NC			10.00		102	8	60	3	3	03	28.71	29.82
17	CLR	NC			10.00		104	14	61	4	13	27	28.65	29.75
20	CLR	NC			10.00		100	19	60	5	10	27	28.63	29.73
23	CLR	NC			10.00		92	21	58	7	7	26	28.65	29.75
					SUNRISE: 0518	JUN 06			SUNSET: 1935					
02	CLR	NC			10.00		84	27	56	12	5	07	28.65	29.76
05	FEW	250			10.00		77	31	54	19	9	10	28.66	29.77
08	CLR	NC			10.00		83	28	56	13	7	30	28.70	29.82
11	CLR	NC			10.00		92	23	58	8	15	27	28.70	29.81
14	CLR	NC			10.00		94	27	60	9	22	28	28.66	29.78
17	CLR	NC			10.00		93	26	59	9	11	24	28.61	29.72
20	CLR	NC			10.00		89	17	56	7	21	27	28.61	29.72
23	CLR	NC			10.00		84	14	53	7	7	24	28.65	29.76
					SUNRISE: 0518	JUN 07			SUNSET: 1935					
02	CLR	NC			10.00		77	20	51	12	0	00	28.64	29.75
05	CLR	NC			10.00		71	31	52	23	6	08	28.66	29.77
08	CLR	NC			10.00		76	27	53	16	7	10	28.69	29.81
11	CLR	NC			10.00		87	18	55	8	6	VR	28.68	29.80
14	CLR	NC			10.00		95	19	58	6	10	14	28.63	29.75
17	CLR	NC			10.00		95	20	59	6	9	33	28.57	29.68
20	CLR	NC			10.00		92	23	58	8	8	33	28.57	29.68
23	CLR	NC			10.00		84	28	56	13	3	23	28.60	29.71
					SUNRISE: 0518	JUN 08			SUNSET: 1936					
02	CLR	NC			10.00		81	33	56	18	6	28	28.59	29.70
05	CLR	NC			10.00		74	33	53	22	8	08	28.63	29.74
08	CLR	NC			10.00		78	28	54	16	8	13	28.66	29.78
11	CLR	NC			10.00		90	22	57	8	9	21	28.66	29.77
14	CLR	NC			10.00		92	21	58	7	9	27	28.61	29.72
17	CLR	NC			10.00		94	20	58	7	15	28	28.59	29.70
20	CLR	NC			10.00		90	21	57	8	20	29	28.61	29.72
23	CLR	NC			10.00		84	23	55	11	0	00	28.65	29.76
					SUNRISE: 0518	JUN 09			SUNSET: 1936					
02	CLR	NC			10.00		78	31	54	18	0	00	28.64	29.75
05	CLR	NC			10.00		73	31	52	21	5	08	28.66	29.78
08	CLR	NC			10.00		78	28	54	16	7	10	28.69	29.82
11	CLR	NC			10.00		89	22	57	9	0	00	28.69	29.80
14	CLR	NC			10.00		96	20	59	6	5	VR	28.64	29.75
17	FEW	250			10.00		96	16	58	5	5	25	28.60	29.71
20	CLR	NC			10.00		93	22	58	8	11	28	28.60	29.71
23	CLR	NC			10.00		88	25	57	10	7	28	28.62	29.73
					SUNRISE: 0518	JUN 10			SUNSET: 1937					
02	CLR	NC			10.00		83	29	56	14	6	32	28.62	29.73
05	CLR	NC			10.00		74	33	53	22	6	11	28.64	29.75
08	CLR	NC			10.00		80	33	56	18	6	10	28.69	29.81
11	CLR	NC			10.00		91	31	60	12	5	VR	28.69	29.80
14	CLR	NC			10.00		97	26	60	8	10	30	28.61	29.72
17	CLR	NC			10.00		98	25	61	7	6	26	28.55	29.66
20	CLR	NC			10.00		96	25	60	8	9	32	28.53	29.64
23	CLR	NC			10.00		88	33	59	14	11	26	28.58	29.69
					SUNRISE: 0518	JUN 11			SUNSET: 1937					
02	CLR	NC			10.00		85	32	58	15	3	31	28.59	29.69
05	CLR	NC			10.00		77	34	55	21	8	10	28.60	29.71
08	CLR	NC			10.00		80	32	56	17	8	14	28.65	29.76
11	CLR	NC			10.00		92	21	58	7	9	16	28.65	29.75
14	CLR	NC			10.00		96	23	59	7	0	00	28.60	29.70
17	CLR	NC			10.00		98	20	60	6	5	VR	28.53	29.64
20	CLR	NC			10.00		96	23	59	7	8	01	28.50	29.60
23	CLR	NC			10.00		90	21	57	8	7	27	28.52	29.63
					SUNRISE: 0518	JUN 12			SUNSET: 1938					
02	CLR	NC			10.00		83	23	54	11	0	00	28.52	29.62
05	CLR	NC			10.00		77	34	55	21	8	09	28.55	29.66
08	FEW	180			10.00		81	31	56	16	7	14	28.60	29.70
11	FEW	210			10.00		92	23	58	8	3	VR	28.61	29.71
14	FEW	210			10.00		99	16	59	5	0	00	28.57	29.67
17	SCT	210			10.00		99	21	60	6	5	29	28.53	29.64
20	SCT	250			10.00		95	17	58	6	18	27	28.56	29.67
23	FEW	210			10.00		90	19	56	7	7	31	28.61	29.71

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2011 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0518	JUN 13			SUNSET: 1938					
02	CLR	NC			10.00		79	32	55	18	6	10	28.63	29.74
05	FEW	180			10.00		74	27	52	17	6	09	28.66	29.78
08	CLR	NC			10.00		80	26	54	14	6	08	28.72	29.84
11	FEW	200			10.00		91	12	56	5	5	VR	28.72	29.83
14	CLR	NC			10.00		98	6	58	3	3	VR	28.66	29.78
17	CLR	NC			10.00		100	7	59	3	7	32	28.61	29.72
20	CLR	NC			10.00		96	8	57	4	9	30	28.61	29.72
23	CLR	NC			10.00		87	23	56	10	3	20	28.66	29.77
					SUNRISE: 0518	JUN 14			SUNSET: 1938					
02	CLR	NC			10.00		82	27	55	13	0	00	28.66	29.78
05	CLR	NC			10.00		75	26	52	16	7	08	28.70	29.82
08	CLR	NC			10.00		83	20	54	10	9	10	28.75	29.87
11	CLR	NC			10.00		94	26	59	9	6	27	28.73	29.84
14	CLR	NC			10.00		102	22	62	6	7	19	28.66	29.77
17	CLR	NC			10.00		105	21	62	5	6	VR	28.60	29.71
20	CLR	NC			10.00		100	21	61	6	6	25	28.59	29.69
23	CLR	NC			10.00		94	29	60	10	3	30	28.60	29.71
					SUNRISE: 0518	JUN 15			SUNSET: 1939					
02	CLR	NC			10.00		85	34	58	16	7	07	28.59	29.70
05	CLR	NC			10.00		80	31	55	17	10	08	28.60	29.70
08	CLR	NC			10.00		85	35	58	17	5	09	28.64	29.74
11	CLR	NC			10.00		97	34	62	11	0	00	28.62	29.72
14	FEW	250			10.00		103	31	64	8	3	14	28.55	29.65
17	FEW	250			10.00		107	28	64	6	14	24	28.47	29.58
20	CLR	NC			10.00		102	26	62	7	8	26	28.44	29.55
23	CLR	NC			10.00		94	30	60	10	5	25	28.48	29.58
					SUNRISE: 0518	JUN 16			SUNSET: 1939					
02	CLR	NC			10.00		89	34	60	14	0	00	28.47	29.57
05	CLR	NC			10.00		80	38	57	22	7	08	28.49	29.59
08	FEW	250			10.00		86	34	58	16	6	13	28.51	29.62
11	FEW	250			10.00		94	32	61	11	3	VR	28.53	29.63
14	FEW	250			10.00		103	30	63	8	13	25	28.49	29.59
17	FEW	250			10.00		105	25	63	6	16	25	28.43	29.53
20	FEW	250			10.00		99	29	62	8	10	24	28.42	29.53
23	FEW	250			10.00		93	32	60	11	5	25	28.48	29.59
					SUNRISE: 0518	JUN 17			SUNSET: 1939					
02	CLR	NC			10.00		86	35	59	16	3	09	28.50	29.60
05	CLR	NC			10.00		82	36	58	19	7	07	28.52	29.62
08	FEW	250			10.00		84	40	60	21	3	06	28.58	29.68
11	FEW	250			10.00		95	38	63	14	0	00	28.59	29.69
14	FEW	250			10.00		103	24	62	6	13	20	28.54	29.64
17	FEW	250			10.00		102	29	63	8	10	26	28.51	29.61
20	FEW	250			10.00		97	35	63	11	13	25	28.52	29.62
23	CLR	NC			10.00		92	37	62	14	7	26	28.56	29.67
					SUNRISE: 0518	JUN 18			SUNSET: 1940					
02	CLR	NC			10.00		85	38	59	19	6	08	28.59	29.69
05	FEW	120			10.00		79	39	58	24	7	09	28.61	29.72
08	FEW	160			10.00		84	37	59	19	9	12	28.65	29.75
11	CLR	NC			10.00		97	30	61	9	9	19	28.64	29.74
14	CLR	NC			10.00		103	19	61	5	11	29	28.58	29.68
17	CLR	NC			10.00		104	19	62	5	18	26	28.52	29.62
20	CLR	NC			10.00		99	22	60	6	11	29	28.51	29.61
23	FEW	180			10.00		90	26	58	10	3	23	28.52	29.62

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0518	JUN 19			SUNSET: 1940					
02	FEW	180			10.00		86	31	58	14	5	06	28.49	29.60
05	FEW	180			10.00		76	30	53	18	7	10	28.49	29.60
08	SCT	250			10.00		84	24	55	11	3	10	28.50	29.61
11	SCT	250			10.00		94	25	59	8	11	23	28.49	29.59
14	FEW	250			10.00		99	22	60	6	17	24	28.44	29.54
17	FEW	250			10.00		99	27	61	8	20	26	28.41	29.52
20	FEW	250			10.00		94	32	61	11	13	23	28.41	29.52
23	CLR	NC			10.00		90	35	60	14	6	25	28.44	29.55
					SUNRISE: 0519	JUN 20			SUNSET: 1940					
02	CLR	NC			9.00		87	38	60	18	9	29	28.47	29.58
05	CLR	NC			10.00		81	40	59	23	0	00	28.51	29.62
08	CLR	NC			10.00		85	32	58	15	3	17	28.56	29.67
11	CLR	NC			10.00		92	22	58	8	6	34	28.56	29.66
14	CLR	NC			10.00		98	24	60	7	3	VR	28.51	29.62
17	CLR	NC			10.00		101	17	60	5	3	VR	28.45	29.56
20	CLR	NC			10.00		97	20	59	6	7	24	28.45	29.56
23	CLR	NC			10.00		91	24	58	9	7	26	28.50	29.60
					SUNRISE: 0519	JUN 21			SUNSET: 1941					
02	CLR	NC			10.00		84	33	57	16	0	00	28.49	29.59
05	CLR	NC			10.00		79	34	56	20	9	09	28.53	29.63
08	CLR	NC			10.00		86	26	56	11	8	10	28.58	29.68
11	CLR	NC			10.00		100	25	61	7	3	VR	28.59	29.70
14	CLR	NC			10.00		105	20	62	5	7	34	28.54	29.64
17	FEW	250			10.00		109	21	64	4	9	27	28.49	29.59
20	FEW	250			10.00		103	22	62	5	6	25	28.49	29.59
23	CLR	NC			10.00		96	28	61	9	0	00	28.52	29.62
					SUNRISE: 0519	JUN 22			SUNSET: 1941					
02	CLR	NC			10.00		86	41	61	20	0	00	28.53	29.63
05	CLR	NC			10.00		83	39	59	21	6	10	28.56	29.67
08	FEW	250			10.00		89	30	58	12	9	10	28.62	29.72
11	FEW	250			10.00		100	29	62	8	0	00	28.62	29.72
14	FEW	250			10.00		110	28	65	6	9	26	28.57	29.67
17	FEW	250			10.00		111	25	65	5	9	27	28.53	29.63
20	FEW	250			10.00		106	27	64	6	8	26	28.52	29.62
23	CLR	NC			10.00		98	34	63	11	7	28	28.56	29.66
					SUNRISE: 0519	JUN 23			SUNSET: 1941					
02	CLR	NC			10.00		93	37	62	14	7	31	28.56	29.66
05	CLR	NC			10.00		86	43	62	22	0	00	28.59	29.69
08	CLR	NC			10.00		90	40	62	17	5	09	28.65	29.75
11	CLR	NC			10.00		100	38	65	12	0	00	28.66	29.76
14	CLR	NC			10.00		108	36	67	8	5	26	28.61	29.71
17	CLR	NC			10.00		109	37	67	8	15	25	28.55	29.65
20	CLR	NC			10.00		105	39	66	10	13	27	28.54	29.64
23	CLR	NC			10.00		97	44	66	16	7	25	28.58	29.68
					SUNRISE: 0519	JUN 24			SUNSET: 1941					
02	CLR	NC			10.00		93	51	67	24	7	33	28.57	29.67
05	CLR	NC			10.00		88	52	66	29	3	29	28.58	29.68
08	CLR	NC			10.00		92	49	66	23	0	00	28.63	29.73
11	CLR	NC			10.00		101	46	68	15	5	VR	28.63	29.73
14	CLR	NC			10.00		108	45	69	12	14	30	28.58	29.68
17	CLR	NC			10.00		107	41	68	11	3	VR	28.52	29.62
20	CLR	NC			10.00		103	39	66	11	10	25	28.51	29.61
23	CLR	NC			10.00		97	44	66	16	8	26	28.54	29.64

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2011 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0520	JUN 25			SUNSET: 1941					
02	CLR	NC			10.00		90	48	65	24	5	09	28.53	29.63
05	CLR	NC			10.00		89	47	64	23	3	32	28.53	29.63
08	CLR	NC			10.00		90	47	64	23	6	08	28.59	29.69
11	CLR	NC			10.00		102	45	67	14	6	VR	28.60	29.70
14	CLR	NC			10.00		107	41	68	11	3	VR	28.55	29.65
17	CLR	NC			10.00		109	31	66	7	15	27	28.50	29.60
20	CLR	NC			10.00		106	28	64	6	11	28	28.50	29.60
23	CLR	NC			10.00		98	34	63	11	0	00	28.53	29.63
					SUNRISE: 0520	JUN 26			SUNSET: 1941					
02	CLR	NC			10.00		95	39	63	14	3	27	28.52	29.62
05	CLR	NC			10.00		87	45	63	23	3	10	28.52	29.63
08	FEW	140			10.00		90	46	64	22	5	09	28.58	29.69
11	FEW	150			10.00		103	36	65	10	5	VR	28.59	29.69
14	FEW	140			10.00		110	30	66	6	7	25	28.54	29.64
17	FEW	120			10.00		110	24	65	5	17	28	28.49	29.59
20	FEW	120			10.00		107	25	64	5	9	28	28.49	29.59
23	CLR	NC			10.00		101	30	63	8	9	30	28.51	29.61
					SUNRISE: 0520	JUN 27			SUNSET: 1942					
02	CLR	NC			10.00		94	31	61	11	7	26	28.51	29.60
05	FEW	150			10.00		86	42	61	21	0	00	28.52	29.62
08	FEW	130			10.00		91	35	61	14	8	10	28.57	29.67
11	CLR	NC			10.00		104	29	64	7	3	VR	28.58	29.67
14	CLR	NC			10.00		114	25	66	4	7	24	28.53	29.63
17	FEW	120			10.00		113	24	66	4	13	28	28.49	29.59
20	FEW	140			10.00		109	30	65	6	13	28	28.50	29.59
23	CLR	NC			10.00		99	36	64	11	0	00	28.53	29.62
					SUNRISE: 0521	JUN 28			SUNSET: 1942					
02	CLR	NC			10.00		92	41	63	17	0	00	28.51	29.60
05	FEW	140			10.00		87	40	61	19	0	00	28.52	29.62
08	BKN	190			10.00		93	36	62	13	0	00	28.59	29.69
11	BKN	190			10.00		101	40	66	12	10	35	28.60	29.70
14	BKN	220			10.00		108	40	68	10	10	30	28.55	29.65
17	BKN	230			10.00		110	40	68	9	13	28	28.49	29.59
20	BKN	230			10.00		107	41	68	11	13	29	28.46	29.56
23	SCT	230			10.00		98	52	69	21	7	24	28.52	29.62
					SUNRISE: 0521	JUN 29			SUNSET: 1942					
02	BKN	230			10.00		94	52	68	24	6	06	28.56	29.66
05	FEW	230			10.00		92	51	67	25	7	31	28.56	29.66
08	FEW	180			10.00		94	52	68	24	0	00	28.61	29.71
11	FEW	180			10.00		103	52	70	18	5	21	28.61	29.71
14	FEW	180			10.00		106	50	70	15	3	VR	28.54	29.64
17	SCT	180			10.00		109	51	72	15	10	18	28.45	29.54
20	CLR	NC			10.00		103	46	68	14	20	26	28.45	29.55
23	FEW	140			10.00		97	39	64	13	6	26	28.51	29.61
					SUNRISE: 0521	JUN 30			SUNSET: 1942					
02	FEW	140			10.00		92	40	63	16	0	00	28.55	29.65
05	FEW	140			10.00		88	37	60	16	9	26	28.60	29.70
08	FEW	220			10.00		90	34	60	14	8	28	28.66	29.77
11	FEW	250			10.00		96	35	62	12	3	03	28.66	29.77
14	FEW	120			10.00		102	38	65	11	11	30	28.60	29.70
17	FEW	120			10.00		104	36	65	9	9	24	28.53	29.63
20	FEW	120			10.00		102	31	63	8	9	28	28.52	29.62
23	CLR	NC			10.00		93	36	62	13	3	23	28.55	29.65

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL

3-HOURLY OBSERVATION NOTES

Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8-2/8, SCT = 3/8-4/8, BKN = 5/8-7/8, OVC = 8/8, W = Vertical Visibility = 8/8

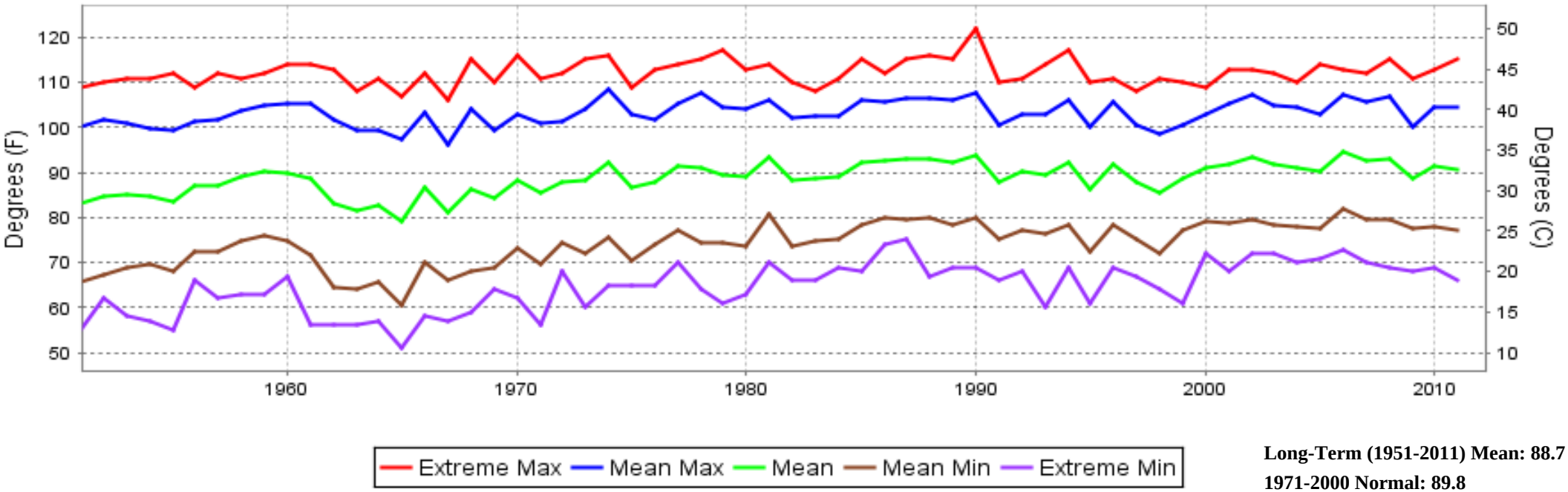
Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC = No Ceiling detected.

& = Original observation containted additional weather elements. See page 3 for additional notes.

SUMMARY BY HOUR

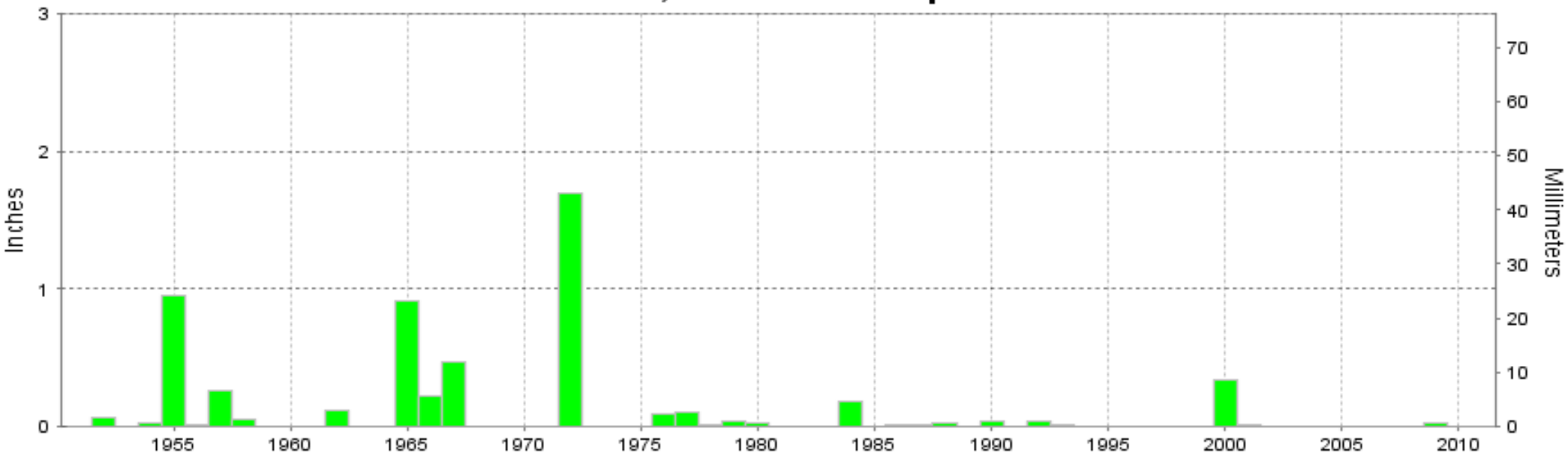
HOUR (LST)	AVERAGES CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (Inches, HG) STATION	PRESSURE (Inches, HG) SEA LEVEL	VISIBILITY (Miles)	WIND SPEED (MPH)	RESULTANT WIND (MPH) SPEED	RESULTANT WIND (MPH) DIRECTION
01			88	30	58	13	28.58	29.69	10.00	3	3	29
02			85	33	58	16	28.58	29.69	9.97	3	1	03
03			82	34	57	18	28.59	29.69	10.00	4	4	08
04			81	34	57	19	28.59	29.70	10.00	6	4	08
05			79	36	56	21	28.60	29.71	10.00	6	5	08
06			78	35	56	21	28.62	29.73	10.00	6	5	08
07			80	34	56	19	28.63	29.74	10.00	6	5	08
08			84	32	57	16	28.65	29.76	10.00	6	5	08
09			88	31	59	13	28.65	29.76	10.00	5	3	08
10			92	29	60	11	28.65	29.76	10.00	3	1	02
11			95	28	60	10	28.65	29.75	10.00	5	3	29
12			97	26	61	8	28.63	29.74	10.00	6	4	28
13			100	25	62	7	28.61	29.72	10.00	6	5	28
14			101	25	62	7	28.59	29.70	10.00	8	6	28
15			102	23	62	6	28.58	29.68	10.00	7	8	28
16			102	23	62	6	28.55	29.66	10.00	10	9	27
17			102	23	62	6	28.54	29.65	10.00	10	10	27
18			102	23	62	6	28.53	29.64	10.00	11	11	27
19			100	23	62	7	28.53	29.64	10.00	12	11	27
20			98	24	61	7	28.53	29.64	10.00	11	9	27
21			96	26	60	9	28.55	29.65	10.00	8	7	27
22			93	28	60	10	28.57	29.67	10.00	6	7	28
23			91	28	59	11	28.57	29.68	10.00	5	5	28
24			90	29	59	11	28.57	29.68	10.00	5	5	28

PHOENIX, AZ JUNE Temperatures



Long-Term (1951-2011) Mean: 88.7
1971-2000 Normal: 89.8

PHOENIX, AZ JUNE Precipitation



Long-Term (1951-2011) Mean Monthly Total: 0.09 **1971-2000 Normal: 0.09**

Published By: National Climatic Data Center

JUNE 2011
PHOENIX, AZ

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

I certify that this is an official publication of the National Oceanic and Atmospheric Administration (NOAA). It is compiled using information from weather observing sites operated by NOAA-National Weather Service / Department Of Transportation-Federal Aviation Administration and received at the National Climatic Data Center (NCDC), Asheville, North Carolina 28801.

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JUNE 2010
LOCAL CLIMATOLOGICAL DATA
NOAA, National Climatic Data Center

PHOENIX, AZ
PHOENIX SKY HARBOR INTL AIRPORT (KPHX)
Lat:33 ° 26'N Long: 111° 59'W Elev (Ground) 1105 Feet
Time Zone : MOUNTAIN WBAN: 23183 ISSN#: 0198-0475

Date	Temperature °F MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	Deg Days BASE 65° HEATING	COOLING	WEATHER	SNOW/ICE ON GND(IN) 0500 LST DEPTH	1100 LST WATER-EQUIV	PRECIPITATION ON GND(IN) 2400 LST SNOW-FALL	2400 LST WATER EQUIV	PRESSURE (INCHES OF HG) AVERAGE STATION	AVERAGE SEA LEVEL	WIND SPEED = MPH DIR = TENS OF DEGREES RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM 3-SEC SPEED	DIR	2-MIN SPEED	DIR	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
01	99	71	85	1	20	56	0	20					0.00	28.67	29.79	3.6	28	8.3	25	20	21	29	01
02	97	71	84	0	23	55	0	19					0.00	28.67	29.80	1.2	27	5.2	18	29	14	28	02
03	100	74	87	2	33	59	0	22					0.00	28.63	29.75	2.2	30	6.3	21	29	15	29	03
04	103	76	90	5	33	60	0	25					0.00	28.64	29.75	2.8	28	5.0	20	28	15	29	04
05	107	80	94	9	40	63	0	29					0.00	28.64	29.76	3.8	28	6.1	23	28	16	28	05
06	109	83	96	11	39	64	0	31					0.00	28.66	29.77	5.4	28	6.8	26	26	18	28	06
07	108	82	95	9	41	64	0	30					0.00	28.61	29.73	2.1	27	5.5	24	27	18	28	07
08	107	81	94	7	42	64	0	29					0.00	28.63	29.74	2.5	26	7.3	24	29	20	28	08
09	106	82	94	7	46	66	0	29					0.00	28.61	29.73	3.4	26	6.0	22	08	17	27	09
10	103	80	92	5	44	64	0	27					0.00	28.53	29.64	2.9	23	7.7	32	27	28	27	10
11	96	77	87	0	40	61	0	22					0.00	28.49	29.60	5.0	23	8.4	30	21	24	29	11
12	87	69*	78*	-10	37	56	0	13	TS RA				T	28.64	29.76	3.6	26	8.2	40*	28	36*	28	12
13	93	70	82	-6	41	59	0	17					0.00	28.74	29.87	3.6	25	5.3	24	27	20	26	13
14	101	73	87	-1	38	60	0	22					0.00	28.66	29.78	1.2	14	3.8	18	28	14	17	14
15	104	76	90	2	35	61	0	25					0.00	28.57	29.68	1.8	20	6.2	24	26	17	28	15
16	104	77	91	2	35	61	0	26					0.00	28.58	29.69	4.0	22	9.2	30	17	21	26	16
17	105	77	91	2	32	60	0	26					0.00	28.62	29.72	1.0	26	5.9	20	21	14	29	17
18	108	76	92	3	28	59	0	27					0.00	28.61	29.72	1.3	18	6.5	24	17	18	27	18
19	104	75	90	0	25	58	0	25					0.00	28.69	29.80	2.0	08	5.7	20	33	15	10	19
20	105	78	92	2	34	61	0	27					0.00	28.66	29.77	0.6	35	5.8	21	30	14	29	20
21	105	77	91	0	29	60	0	26					0.00	28.64	29.75	1.4	23	7.8	23	28	18	28	21
22	104	75	90	-1	27	58	0	25					0.00	28.69	29.81	0.3	31	5.8	21	25	14	29	22
23	109	76	93	1	23	59	0	28					0.00	28.66	29.78	0.5	23	4.6	21	32	15	33	23
24	113	79	96	4	24	60	0	31					0.00	28.63	29.74	1.5	28	6.2	24	30	16	32	24
25	110	88	99	7	39	66	0	34					0.00	28.60	29.71	2.5	16	8.2	24	28	22	28	25
26	107	80	94	2	33	61	0	29					0.00	28.58	29.69	1.6	17	7.7	26	17	20	17	26
27	108	79	94	2	34	62	0	29					0.00	28.53	29.64	2.4	12	5.4	22	16	13	17	27
28	112	81	97	5	36	63	0	32					0.00	28.53	29.64	3.7	12	5.7	29	10	24	11	28
29	111	84	98	6	46	66	0	33					0.00	28.57	29.68	6.6	09	7.6	23	09	18	07	29
30	113*	89	101*	9	49	68	0	36					0.00	28.56	29.67	7.5	09	9.1	28	08	23	08	30
	104.6	77.9	91.3	¤	34.9	61.1	0.0	26.5	< MONTHLY AVERAGES | TOTALS >				T	28.61	29.73	1.0	23	6.6	< MONTHLY AVERAGES				
	0.7	2.3	1.5		<---------- DEPARTURE FROM NORMAL ---------->								-0.09	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									

DEGREE DAYS

	MONTHLY TOTAL	MONTHLY DEPARTURE	SEASON TO DATE TOTAL	SEASON TO DATE DEPARTURE
HEATING :	0	0	912	-213
COOLING :	794	49	1446	-18

GREATEST 24-HR PRECIPITATION : T DATE : 12
GREATEST 24-HR SNOWFALL : DATE :
GREATEST SNOW DEPTH : DATE :

SEA LEVEL PRESSURE		DATE	TIME
MAXIMUM :	29.94	13	1045
MIMIMUM :	29.54	11	1821

NUMBER OF DAYS WITH ->

MAXIMUM TEMP >= 90 :	29	MINIMUM TEMP <= 32 :	0	PRECIPITATION >= 0.01 INCH:	0
MAXIMUM TEMP <= 32 :	0	MINIMUM TEMP <= 0 :	0	PRECIPITATION >= 0.10 INCH:	0
THUNDERSTORMS :	1	HEAVY FOG :	0	SNOWFALL >= 1.0 INCH :	

JUNE 2010
PHOENIX, AZ

HOURLY PRECIPITATION
(WATER EQUIVALENT IN INCHES)

PHOENIX, AZ (KPHX)
JUNE 2010

WBAN # 23183

Date	FOR HOUR (LST) ENDING AT												Date	FOR HOUR (LST) ENDING AT												Date	Sum of Hourly Data	2400 LST Water Equiv.
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24			
01													01													01	0.00	0.00
02													02													02	0.00	0.00
03													03													03	0.00	0.00
04													04													04	0.00	0.00
05													05													05	0.00	0.00
06													06													06	0.00	0.00
07													07													07	0.00	0.00
08													08													08	0.00	0.00
09													09													09	0.00	0.00
10													10													10	0.00	0.00
11													11													11	0.00	0.00
12													12	T												12	T	T
13													13													13	0.00	0.00
14													14													14	0.00	0.00
15													15													15	0.00	0.00
16													16													16	0.00	0.00
17													17													17	0.00	0.00
18													18													18	0.00	0.00
19													19													19	0.00	0.00
20													20													20	0.00	0.00
21													21													21	0.00	0.00
22													22													22	0.00	0.00
23													23													23	0.00	0.00
24													24													24	0.00	0.00
25													25													25	0.00	0.00
26													26													26	0.00	0.00
27													27													27	0.00	0.00
28													28													28	0.00	0.00
29													29													29	0.00	0.00
30													30													30	0.00	0.00

*** Indicates sum of Hourly and Daily disagree.**

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)												
Ending Date												
Ending Time (Hr/Min)												

Date and time are not entered for TRACE amounts.

Note : The hourly and daily precipitation totals are printed in the last 2 columns and hi-lighted in red when they disagree. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

*** = Extreme for the month (last occurence if more than one).**

T = Trace precipitation amount.

+ = also occurs on earlier date.

FG+ = Heavy fog, visibility .25 miles or less.

BLANK entries denote missing or unreported data.

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24-hour period ending at the time indicated in the column heading.

Water Equivalent of snow on the ground is reported only when the depth is 2 or more inches.

NORMALS ARE FOR THE YEARS 1971-2000

WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
DESCRIPTOR	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DU Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Well-Developed Dust/Sand Whirls
MI Shallow	PL Ice Pellets	HZ Haze	
PR Partial	RA Rain	PY Spray	SQ Squalls
SH Shower(s)	SG Snow Grains	SA Sand	SS Sandstorm
TS Thunderstorm	SN Snow	VA Volcanic Ash	GL Glaze
VC In the Vicinity	UP Unkown Precipitation		

Intensity (as indicated on pages 4 to 6):
'+' = Heavy ' ' = Moderate '-' = Light

PHOENIX, AZ
JUNE 2010

Ceilometer (30-second) data are used to derive cloudiness at or below 12,000 feet. This cloudiness is the mean cloud cover detected during sunrise to sunset (SR-SS), or midnight to midnight (MN-MN).

Satellite data are used to derive cloudiness above 12,000 feet. Effective Cloud Amount is based on the cloud cover and the transparency of the clouds within the satellite field of view (approx. 31x31 miles).

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet. Both ceilometer and satellite data must be present to compute Sky Condition. Clear = 0-2 oktas, Partly Cloudy = 3-6 oktas, Cloudy = 7-8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Dew Point is the temperature to which the air must be cooled to achieve 100% relative humidity. Wet Bulb is the temperature the air would have if cooled to saturation at constant pressure by evaporation of water into it.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

ADDITIONAL NOTES:

```
Station Augmentation-CONTRACTOR
  Lat/Lon:33.44417/-112.02472 Elevation:1107FT
  Distance:.5 MI Dir:N
  Augmented Elements:Temp, Precip
  Equipment:MXMN, SRG
```

Date	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
			SR-SS		MN-MN				
	TOTAL MINUTES	PERCENT POSSIBLE	Sky Cover	Satellite	Sky Cover	Satellite	MINIMUM	MAXIMUM	
01							10.00	10.00	
02							10.00	10.00	
03							10.00	10.00	
04							10.00	10.00	
05							10.00	10.00	
06							10.00	10.00	
07							10.00	10.00	
08							10.00	10.00	
09							10.00	10.00	
10							10.00	10.00	
11							10.00	10.00	
12							10.00	10.00	
13							10.00	10.00	
14							10.00	10.00	
15							10.00	10.00	
16							10.00	10.00	
17							10.00	10.00	
18							10.00	10.00	
19							10.00	10.00	
20							10.00	10.00	
21							10.00	10.00	
22							10.00	10.00	
23							10.00	10.00	
24							10.00	10.00	
25							10.00	10.00	
26							10.00	10.00	
27							10.00	10.00	
28							8.00	10.00	
29							10.00	10.00	
30							10.00	10.00	
MONTHLY AVGS							9.93	10.00	

SUNSHINE (Minutes)

Total : 0 **Possible : 25785**
Percent Possible : 0

NUMBER OF DAYS WITH :

SKY CONDITION

Clear	Partly CLDY	Cloudy	Missing

MINIMUM VISIBILTY (MILES)

<= .25	<= 3.0	>= 7.0
0	0	30

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2010 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0519	JUN 01			SUNSET: 1932					
02	CLR	NC			10.00		82	20	53	10	5	30	28.69	29.80
05	FEW	130			10.00		73	30	52	20	6	11	28.71	29.83
08	FEW	130			10.00		80	28	54	15	6	12	28.75	29.87
11	SCT	250			10.00		91	21	57	8	7	15	28.74	29.85
14	SCT	250			10.00		95	22	59	7	3	VR	28.68	29.78
17	BKN	250			10.00		97	19	59	6	14	29	28.61	29.72
20	BKN	250			10.00		92	10	56	5	16	27	28.61	29.72
23	SCT	250			10.00		86	12	54	6	7	29	28.66	29.76
					SUNRISE: 0519	JUN 02			SUNSET: 1933					
02	FEW	200			10.00		76	20	51	12	0	00	28.66	29.78
05	FEW	150			10.00		72	29	51	20	6	08	28.70	29.83
08	SCT	250			10.00		77	29	54	17	5	11	28.74	29.86
11	FEW	250			10.00		89	21	56	8	5	20	28.73	29.85
14	FEW	250			10.00		96	15	58	5	7	22	28.69	29.80
17	SCT	250			10.00		95	19	58	6	6	29	28.63	29.74
20	FEW	250			10.00		92	24	58	8	8	29	28.63	29.74
23	CLR	NC			10.00		88	29	58	12	9	28	28.65	29.76
					SUNRISE: 0519	JUN 03			SUNSET: 1933					
02	BKN	250			10.00		82	32	56	16	7	34	28.65	29.76
05	BKN	250			10.00		75	36	55	24	5	11	28.66	29.78
08	SCT	200			10.00		80	35	57	20	7	10	28.71	29.83
11	FEW	250			10.00		91	34	60	13	6	04	28.69	29.81
14	BKN	250			10.00		96	33	62	11	5	VR	28.64	29.75
17	SCT	250			10.00		99	33	63	10	9	27	28.57	29.68
20	SCT	250			10.00		95	24	59	8	10	29	28.57	29.68
23	SCT	250			10.00		87	37	60	17	6	26	28.62	29.73
					SUNRISE: 0519	JUN 04			SUNSET: 1934					
02	FEW	250			10.00		85	35	58	17	8	31	28.63	29.74
05	FEW	250			10.00		78	37	56	23	0	00	28.65	29.76
08	SCT	250			10.00		82	42	60	24	3	10	28.69	29.81
11	SCT	250			10.00		95	34	62	12	6	21	28.69	29.80
14	FEW	250			10.00		102	32	64	9	3	VR	28.63	29.73
17	FEW	250			10.00		101	19	61	5	14	27	28.59	29.70
20	FEW	250			10.00		99	26	61	7	8	28	28.59	29.70
23	FEW	250			10.00		92	32	60	12	0	00	28.62	29.73
					SUNRISE: 0518	JUN 05			SUNSET: 1934					
02	FEW	250			10.00		87	39	60	18	3	31	28.64	29.74
05	CLR	NC			10.00		83	44	61	25	6	36	28.65	29.75
08	CLR	NC			10.00		85	40	60	20	7	12	28.70	29.82
11	CLR	NC			10.00		97	42	65	15	3	24	28.70	29.82
14	CLR	NC			10.00		102	35	64	10	8	23	28.66	29.77
17	FEW	100			10.00		107	30	65	7	13	26	28.61	29.71
20	FEW	150			10.00		102	38	65	11	10	26	28.61	29.71
23	CLR	NC			10.00		96	44	65	17	3	28	28.65	29.75
					SUNRISE: 0518	JUN 06			SUNSET: 1935					
02	CLR	NC			10.00		91	41	63	17	10	30	28.66	29.77
05	FEW	250			10.00		84	43	61	24	0	00	28.69	29.80
08	FEW	250			10.00		87	44	62	22	0	00	28.73	29.85
11	FEW	250			10.00		98	41	65	14	0	00	28.72	29.84
14	FEW	130			10.00		106	39	67	10	10	26	28.66	29.76
17	SCT	250			10.00		107	27	64	6	16	29	28.60	29.70
20	SCT	250			10.00		103	36	65	10	10	27	28.60	29.70
23	CLR	NC			10.00		95	38	63	14	8	25	28.63	29.73

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0518	JUN 07			SUNSET: 1935					
02	CLR	NC			10.00		91	40	62	17	6	31	28.63	29.73
05	CLR	NC			10.00		84	45	62	26	0	00	28.66	29.76
08	BKN	250			10.00		87	43	62	21	3	08	28.70	29.81
11	BKN	250			10.00		98	38	64	12	6	08	28.69	29.80
14	BKN	250			10.00		103	39	66	11	5	VR	28.63	29.73
17	BKN	250			10.00		106	38	66	10	9	29	28.55	29.65
20	BKN	250			10.00		103	40	66	11	9	29	28.54	29.64
23	FEW	250			10.00		91	48	65	23	5	21	28.59	29.69
					SUNRISE: 0518	JUN 08			SUNSET: 1936					
02	SCT	250			10.00		92	41	63	17	5	30	28.60	29.70
05	SCT	250			10.00		83	45	61	26	7	08	28.64	29.74
08	SCT	250			10.00		88	40	61	18	7	09	28.70	29.81
11	FEW	250			10.00		98	39	64	13	5	19	28.69	29.80
14	SCT	250			10.00		101	38	65	11	0	00	28.64	29.74
17	FEW	250			10.00		105	39	66	10	16	29	28.58	29.68
20	FEW	250			10.00		102	40	66	12	9	28	28.59	29.69
23	FEW	250			10.00		94	47	66	20	9	25	28.63	29.73
					SUNRISE: 0518	JUN 09			SUNSET: 1936					
02	FEW	250			10.00		89	49	65	25	3	02	28.65	29.75
05	SCT	250			10.00		85	53	65	33	7	26	28.66	29.78
08	SCT	250			10.00		86	53	66	32	5	VR	28.71	29.83
11	FEW	250			10.00		95	49	67	21	6	01	28.70	29.81
14	FEW	250			10.00		103	43	67	13	9	20	28.64	29.74
17	FEW	250			10.00		105	43	68	12	11	30	28.55	29.65
20	FEW	250			10.00		101	37	65	11	14	27	28.53	29.63
23	FEW	250			10.00		94	44	65	18	6	26	28.57	29.67
					SUNRISE: 0518	JUN 10			SUNSET: 1937					
02	FEW	250			10.00		87	46	63	24	5	13	28.57	29.67
05	FEW	150			10.00		81	45	61	28	5	08	28.60	29.71
08	FEW	150			10.00		85	46	62	26	5	10	28.62	29.72
11	SCT	200			10.00		94	43	64	17	8	30	28.60	29.70
14	CLR	NC			10.00		100	43	66	14	6	14	28.54	29.64
17	CLR	NC			10.00		102	42	66	13	13	28	28.45	29.55
20	SCT	200			10.00		94	45	65	18	13	24	28.45	29.56
23	FEW	200			10.00		90	37	61	15	7	19	28.48	29.59
					SUNRISE: 0518	JUN 11			SUNSET: 1937					
02	BKN	200			10.00		84	40	60	21	7	15	28.48	29.59
05	BKN	200			10.00		81	43	60	26	3	02	28.49	29.59
08	SCT	200			10.00		83	45	61	26	0	00	28.54	29.65
11	BKN	200			10.00		86	48	64	27	6	25	28.53	29.64
14	SCT	250			10.00		92	44	64	19	10	28	28.49	29.60
17	BKN	250			10.00		93	38	62	15	20	29	28.44	29.55
20	SCT	250			10.00		87	28	57	12	11	23	28.45	29.57
23	FEW	190			10.00		80	32	56	17	3	16	28.51	29.62
					SUNRISE: 0518	JUN 12			SUNSET: 1938					
02	CLR	NC			10.00		74	25	51	16	3	08	28.52	29.63
05	FEW	150			10.00		70	32	51	25	8	14	28.55	29.66
08	SCT	150			10.00		75	42	57	31	13	17	28.60	29.72
11	SCT	250			10.00		79	39	58	24	10	29	28.68	29.80
14	SCT	250			10.00		84	37	59	19	13	27	28.66	29.79
17	BKN	250			10.00		85	37	59	18	10	29	28.66	29.78
20	SCT	250			10.00		81	37	58	21	13	32	28.69	29.83
23	SCT	250			10.00		76	43	58	31	6	23	28.73	29.86

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2010 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0518	JUN 13			SUNSET: 1938					
02	FEW	250			10.00		72	48	58	43	5	24	28.73	29.87
05	FEW	180			10.00		70	46	57	42	0	00	28.75	29.88
08	FEW	150			10.00		76	40	57	27	6	11	28.80	29.93
11	SCT	120			10.00		85	39	60	20	3	VR	28.80	29.93
14	BKN	100			10.00		91	37	61	15	11	27	28.75	29.88
17	SCT	100			10.00		92	40	63	16	10	26	28.70	29.83
20	FEW	100			10.00		89	38	61	17	7	22	28.70	29.83
23	CLR	NC			10.00		83	39	59	21	3	25	28.72	29.84
					SUNRISE: 0518	JUN 14			SUNSET: 1938					
02	CLR	NC			10.00		82	41	59	23	0	00	28.69	29.82
05	CLR	NC			10.00		73	44	57	35	6	10	28.70	29.83
08	CLR	NC			10.00		81	42	59	25	6	09	28.74	29.86
11	FEW	120			10.00		92	39	62	16	3	VR	28.73	29.85
14	FEW	120			10.00		95	33	61	11	3	VR	28.66	29.78
17	CLR	NC			10.00		97	31	62	10	9	28	28.60	29.72
20	CLR	NC			10.00		95	35	62	12	3	22	28.57	29.68
23	CLR	NC			10.00		89	36	60	15	0	00	28.61	29.71
					SUNRISE: 0518	JUN 15			SUNSET: 1939					
02	CLR	NC			10.00		82	39	59	22	6	10	28.59	29.70
05	CLR	NC			10.00		78	40	57	26	6	11	28.60	29.71
08	CLR	NC			10.00		83	37	58	19	10	13	28.64	29.75
11	CLR	NC			10.00		97	34	62	11	5	VR	28.63	29.73
14	CLR	NC			10.00		102	31	63	8	5	24	28.58	29.69
17	CLR	NC			10.00		103	29	63	7	16	26	28.52	29.63
20	CLR	NC			10.00		100	28	62	8	7	27	28.51	29.61
23	CLR	NC			10.00		91	35	61	14	11	26	28.55	29.65
					SUNRISE: 0518	JUN 16			SUNSET: 1939					
02	CLR	NC			10.00		88	38	60	17	3	04	28.56	29.66
05	CLR	NC			10.00		79	42	59	27	7	10	28.61	29.71
08	CLR	NC			10.00		85	39	60	20	9	10	28.65	29.76
11	CLR	NC			10.00		96	34	62	11	9	18	28.64	29.75
14	CLR	NC			10.00		101	26	62	7	5	22	28.59	29.69
17	CLR	NC			10.00		103	33	64	9	17	27	28.53	29.64
20	CLR	NC			10.00		97	33	62	10	14	26	28.54	29.64
23	CLR	NC			10.00		89	35	60	15	5	19	28.58	29.69
					SUNRISE: 0518	JUN 17			SUNSET: 1939					
02	CLR	NC			10.00		86	34	58	16	9	28	28.60	29.71
05	CLR	NC			10.00		79	41	58	26	0	00	28.63	29.74
08	CLR	NC			10.00		84	38	59	19	8	08	28.69	29.79
11	CLR	NC			10.00		96	34	62	11	8	15	28.68	29.79
14	CLR	NC			10.00		101	24	62	6	7	VR	28.63	29.73
17	CLR	NC			10.00		102	26	62	7	13	31	28.57	29.68
20	CLR	NC			10.00		99	26	61	7	6	33	28.56	29.67
23	CLR	NC			10.00		89	37	61	16	0	00	28.59	29.69
					SUNRISE: 0518	JUN 18			SUNSET: 1940					
02	CLR	NC			10.00		83	39	59	21	5	10	28.59	29.70
05	CLR	NC			10.00		77	33	55	20	7	09	28.62	29.72
08	CLR	NC			10.00		83	34	57	17	7	11	28.66	29.78
11	CLR	NC			10.00		96	30	61	10	6	07	28.66	29.78
14	CLR	NC			10.00		106	25	63	6	10	17	28.62	29.72
17	CLR	NC			10.00		104	24	63	6	0	00	28.57	29.67
20	CLR	NC			10.00		100	15	60	4	15	27	28.57	29.67
23	CLR	NC			10.00		93	20	58	7	8	26	28.64	29.74
					SUNRISE: 0518	JUN 19			SUNSET: 1940					
02	CLR	NC			10.00		81	31	56	16	5	09	28.66	29.77
05	FEW	200			10.00		77	23	52	13	11	09	28.69	29.81
08	FEW	200			10.00		82	27	55	13	8	10	28.77	29.88
11	SCT	250			10.00		95	24	59	8	6	12	28.78	29.89
14	FEW	180			10.00		101	18	61	5	6	05	28.70	29.81
17	FEW	200			10.00		103	19	61	5	5	36	28.64	29.75
20	CLR	NC			10.00		100	21	61	6	7	36	28.62	29.73
23	CLR	NC			10.00		94	28	60	9	5	27	28.66	29.77
					SUNRISE: 0519	JUN 20			SUNSET: 1940					
02	CLR	NC			10.00		85	41	60	21	5	23	28.66	29.78
05	CLR	NC			10.00		80	39	58	23	9	08	28.70	29.81
08	CLR	NC			10.00		83	39	59	21	8	07	28.75	29.86
11	CLR	NC			10.00		93	36	62	13	0	00	28.73	29.85
14	FEW	110			10.00		99	29	62	8	0	00	28.66	29.78
17	FEW	110			10.00		102	29	63	8	8	30	28.60	29.70
20	CLR	NC			10.00		100	30	62	8	9	28	28.58	29.68
23	CLR	NC			10.00		92	30	60	11	5	24	28.61	29.72
					SUNRISE: 0519	JUN 21			SUNSET: 1941					
02	CLR	NC			10.00		86	34	58	16	0	00	28.62	29.72
05	CLR	NC			10.00		78	42	58	28	10	08	28.66	29.77
08	FEW	250			10.00		83	35	58	18	7	11	28.69	29.80
11	CLR	NC			10.00		95	30	61	10	5	21	28.69	29.80
14	FEW	120			10.00		103	21	62	5	11	14	28.64	29.74
17	CLR	NC			10.00		103	23	62	6	14	29	28.58	29.68
20	CLR	NC			10.00		98	16	59	5	14	26	28.59	29.69
23	CLR	NC			10.00		86	37	59	18	5	22	28.64	29.75
					SUNRISE: 0519	JUN 22			SUNSET: 1941					
02	CLR	NC			10.00		83	31	56	15	3	14	28.66	29.78
05	CLR	NC			10.00		76	29	53	18	6	11	28.70	29.82
08	FEW	150			10.00		82	27	55	13	7	08	28.76	29.88
11	FEW	250			10.00		93	26	59	9	3	06	28.76	29.88
14	SCT	250			10.00		100	23	61	6	0	00	28.70	29.82
17	FEW	200			10.00		102	24	62	6	11	27	28.65	29.76
20	FEW	200			10.00		99	19	60	5	7	26	28.66	29.76
23	CLR	NC			10.00		90	30	59	12	0	00	28.69	29.80
					SUNRISE: 0519	JUN 23			SUNSET: 1941					
02	CLR	NC			10.00		83	32	57	16	0	00	28.68	29.79
05	CLR	NC			10.00		77	30	54	18	5	11	28.70	29.82
08	CLR	NC			10.00		86	27	57	12	6	10	28.74	29.86
11	CLR	NC			10.00		97	22	60	7	0	00	28.72	29.84
14	CLR	NC			10.00		105	14	62	4	3	VR	28.68	29.78
17	CLR	NC			10.00		108	16	63	4	7	27	28.61	29.71
20	CLR	NC			10.00		103	16	61	4	6	26	28.61	29.71
23	CLR	NC			10.00		93	30	60	11	3	23	28.65	29.75
					SUNRISE: 0519	JUN 24			SUNSET: 1941					
02	CLR	NC			10.00		87	34	59	15	5	23	28.64	29.74
05	FEW	180			10.00		82	35	57	18	7	09	28.66	29.78
08	SCT	180			10.00		88	31	58	13	6	07	28.71	29.82
11	FEW	160			10.00		100	19	60	5	0	00	28.70	29.81
14	SCT	160			10.00		109	7	62	2	8	28	28.63	29.73
17	SCT	250			10.00		110	15	63	3	11	33	28.56	29.66
20	SCT	250			10.00		106	23	63	5	9	27	28.56	29.66
23	BKN	170			10.00		99	17	60	5	5	30	28.62	29.72

OBSERVATIONS AT 3-HOURLY INTERVALS

PHOENIX, AZ

JUNE 2010 KPHX WBAN # 23183

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL
					SUNRISE: 0520	JUN 25			SUNSET: 1941					
02	SCT	170			10.00		95	54	69	25	13	12	28.64	29.74
05	SCT	150			10.00		89	42	62	19	7	14	28.66	29.76
08	SCT	250			10.00		92	57	70	31	6	08	28.68	29.78
11	SCT	170			10.00		102	49	69	17	8	13	28.66	29.77
14	SCT	180			10.00		108	23	64	5	6	VR	28.61	29.71
17	SCT	150			10.00		109	26	65	5	9	24	28.54	29.64
20	SCT	150			10.00		103	28	63	7	14	28	28.54	29.64
23	FEW	150			10.00		97	28	61	9	5	28	28.58	
					SUNRISE: 0520	JUN 26			SUNSET: 1941					
02	CLR	NC			10.00		87	38	60	18	6	09	28.60	29.70
05	CLR	NC			10.00		82	40	59	22	7	08	28.62	29.72
08	CLR	NC			10.00		87	35	59	16	7	09	28.66	29.76
11	CLR	NC			10.00		101	24	62	6	15	17	28.65	29.75
14	CLR	NC			10.00		103	21	62	5	5	VR	28.59	29.69
17	CLR	NC			10.00		102	30	63	8	9	28	28.52	29.63
20	CLR	NC			10.00		99	33	63	10	9	29	28.52	29.62
23	CLR	NC			10.00		92	41	63	17	0	00	28.54	29.65
					SUNRISE: 0520	JUN 27			SUNSET: 1942					
02	CLR	NC			10.00		86	37	59	18	3	19	28.54	29.64
05	FEW	130			10.00		81	35	57	19	6	09	28.56	29.67
08	FEW	130			10.00		86	35	59	16	7	09	28.61	29.71
11	FEW	090			10.00		96	37	63	13	5	09	28.59	29.70
14	FEW	090			10.00		105	31	64	7	8	11	28.53	29.64
17	FEW	090			10.00		104	26	63	6	5	VR	28.47	29.58
20	FEW	090			10.00		102	27	62	7	6	03	28.46	29.57
23	CLR	NC			10.00		92	44	64	19	3	23	28.50	29.61
					SUNRISE: 0521	JUN 28			SUNSET: 1942					
02	FEW	180			10.00		86	42	61	21	7	09	28.51	29.61
05	SCT	150			10.00		82	36	58	19	7	09	28.54	29.65
08	SCT	150			10.00		88	37	60	16	8	10	28.60	29.70
11	SCT	150			10.00		100	35	64	10	0	00	28.59	29.70
14	SCT	250			10.00		109	26	65	5	6	VR	28.52	29.62
17	SCT	250			10.00		110	27	65	5	6	12	28.47	29.57
20	SCT	250			10.00		104	38	66	10	5	14	28.49	29.59
23	SCT	250			10.00		96	40	64	14	7	15	28.56	29.66
					SUNRISE: 0521	JUN 29			SUNSET: 1942					
02	SCT	250			10.00		90	45	64	21	6	10	28.57	29.67
05	FEW	120			10.00		85	47	63	27	6	09	28.60	29.70
08	FEW	140			10.00		93	50	67	23	9	10	28.64	29.74
11	SCT	170			10.00		102	47	68	16	9	13	28.64	29.74
14	SCT	250			10.00		107	45	69	12	6	13	28.58	29.68
17	SCT	250			10.00		108	41	68	10	0	00	28.51	29.62
20	SCT	250			10.00		103	45	68	14	17	07	28.52	29.62
23	FEW	180			10.00		96	47	66	19	7	13	28.57	29.67
					SUNRISE: 0521	JUN 30			SUNSET: 1942					
02	FEW	130			10.00		92	50	66	24	5	07	28.58	29.67
05	SCT	150			10.00		89	50	65	26	8	09	28.59	29.69
08	CLR	NC			10.00		94	52	68	24	11	07	28.65	29.75
11	SCT	150			10.00		103	53	71	19	14	11	28.63	29.72
14	CLR	NC			10.00		111	49	71	13	15	15	28.55	29.65
17	SCT	250			10.00		110	38	68	9	6	29	28.49	29.59
20	CLR	NC			10.00		103	49	69	16	23	08	28.50	29.60
23	SCT	250			10.00		97	50	68	20	7	10	28.55	29.65

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE Observation Time (LST)	SATELLITE Eff Cld Amt Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F DRY BULB	TEMPERATURE °F DEW POINT	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION Tens of Deg	PRESSURE (INCHES, HG) STATION	PRESSURE (INCHES, HG) SEA LEVEL

3-HOURLY OBSERVATION NOTES

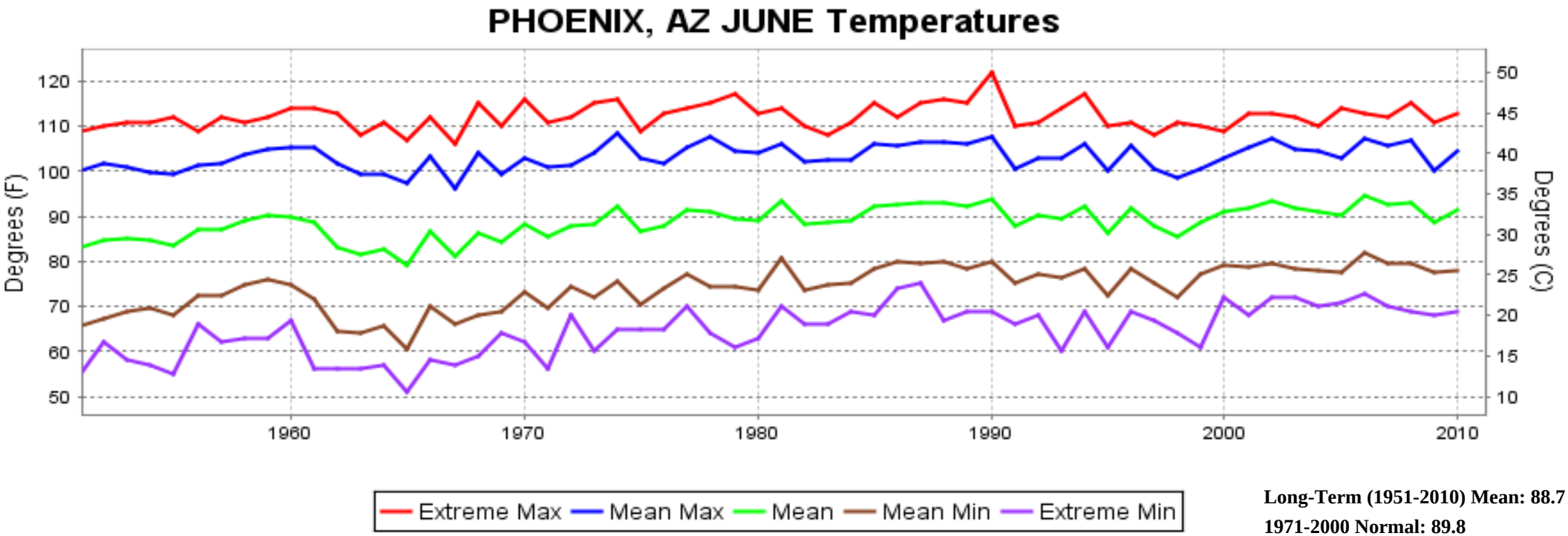
Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8-2/8, SCT = 3/8-4/8, BKN = 5/8-7/8, OVC = 8/8, W = Vertical Visibility = 8/8

Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC = No Ceiling detected.

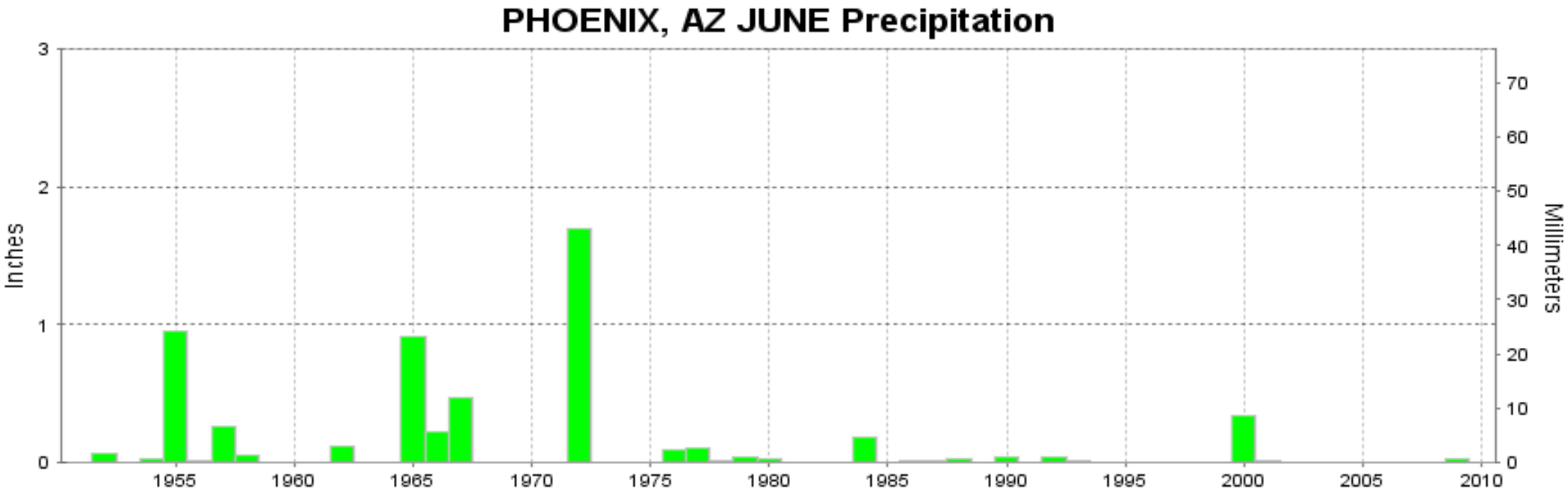
& = Original observation containted additional weather elements. See page 3 for additional notes.

SUMMARY BY HOUR

HOUR (LST)	AVERAGES CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (Inches, HG) STATION	PRESSURE (Inches, HG) SEA LEVEL	VISIBILITY (Miles)	WIND SPEED (MPH)	RESULTANT WIND (MPH) SPEED	RESULTANT WIND (MPH) DIRECTION
01			88	37	60	17	28.61	29.72	10.00	5	2	26
02			85	38	59	19	28.62	29.72	10.00	5	1	14
03			83	39	59	21	28.62	29.73	10.00	4	4	10
04			81	40	59	24	28.63	29.74	10.00	5	4	10
05			79	39	58	24	28.64	29.75	10.00	6	5	10
06			79	40	58	26	28.66	29.77	10.00	6	5	10
07			81	39	58	23	28.67	29.79	10.00	7	6	09
08			84	39	60	21	28.69	29.80	10.00	7	6	09
09			88	38	61	18	28.69	29.80	10.00	6	6	10
10			92	36	62	15	28.69	29.80	10.00	5	3	10
11			95	35	62	13	28.68	29.79	10.00	6	2	11
12			98	33	63	11	28.67	29.78	10.00	6	1	21
13			100	32	63	10	28.65	29.76	10.00	7	1	19
14			101	30	63	9	28.63	29.73	10.00	6	2	25
15			102	30	64	9	28.61	29.71	10.00	7	4	26
16			103	30	64	8	28.58	29.69	10.00	8	6	26
17			102	29	63	8	28.57	29.67	10.00	10	10	27
18			102	30	63	9	28.56	29.66	9.93	10	9	27
19			100	30	63	9	28.56	29.66	10.00	10	8	27
20			98	30	62	10	28.57	29.67	10.00	10	6	27
21			95	34	62	12	28.58	29.69	10.00	8	4	26
22			92	36	62	15	28.60	29.71	10.00	6	4	26
23			91	36	61	15	28.61	29.71	10.00	5	3	26
24			89	36	61	16	28.61	29.72	10.00	5	4	26



Long-Term (1951-2010) Mean: 88.7
1971-2000 Normal: 89.8



Long-Term (1951-2010) Mean Monthly Total: 0.10 **1971-2000 Normal: 0.09**

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JUNE 2010
PHOENIX, AZ

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

I certify that this is an official publication of the National Oceanic and Atmospheric Administration (NOAA). It is compiled using information from weather observing sites operated by NOAA-National Weather Service / Department Of Transportation-Federal Aviation Administration and received at the National Climatic Data Center (NCDC), Asheville, North Carolina 28801.

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APPENDIX B

PUBLIC COMMENT PERIOD

ADEQ Arizona Department of Environmental Quality

PUBLIC NOTICE

Request for Public Comments on Exceptional Events in the Maricopa County (Greater Phoenix) O3 Nonattainment Area

In 2005, Congress identified a need to account for events that result in exceedances of the National Ambient Air Quality Standards (NAAQS) that are exceptional in nature (e.g., not expected to reoccur or caused by acts of nature beyond man-made controls.) In response, EPA promulgated the Exceptional Events Rule (EER) to address exceptional events in 40 CFR Parts 50 and 51 on March 22, 2007 (72 FR 13560). On November 20, 2015, EPA released guidance on the preparation of exceptional events demonstrations for wildfire events that may influence ozone concentrations to State, tribal and local air agencies for review. The EER allows for states and tribes to "flag" air quality monitoring data as an exceptional event. If flagged, these data can be excluded from consideration in air quality planning if EPA concurs with the demonstration submitted by the flagging agency documenting that all procedural and technical requirements have been met.

Pursuant to 40 CFR 50.14(c)(3)(i), the Arizona Department of Environmental Quality (ADEQ) is soliciting comments on its final demonstration of an event that has caused elevated concentrations of Ozone (O3) in the Maricopa County (Greater Phoenix) O3 Nonattainment area on July 7, 2017. Additional, ADEQ is soliciting comments on its final addendum to the previously submitted demonstration for the event on June 20, 2015. ADEQ has decided to flag exceedance concentrations based on these analyses. A copy of these demonstrations and addendum are available for review beginning Thursday, May 17, 2018, on the ADEQ website at http://azdeq.gov/PN/o3_NAA. Interested parties can submit written comments throughout the comment period which will end at 5:00 p.m. on Saturday, June 16, 2016. Any comments received will be responded to and forwarded to EPA with the final demonstration.

Written comments should be addressed or E-mailed to:
Air Assessment Section, Arizona Department of Environmental Quality, 1110 W. Washington Street, Phoenix, AZ 85007, E-mail: exceptionalevents@azdeq.gov.

In addition to being available on-line, a copy of the analysis is available for review, Monday through Friday, 8:30 a.m. to 4:30 p.m., at the ADEQ Records Management Center 1110 W. Washington St., Phoenix, AZ, 85007, Attn: Records Center, (602) 771-4380, E-mail: recordscenter@azdeq.gov.

To request an auxiliary aid or service for accessible communication, please contact (602) 771-2215 or at ej2@azdeq.gov or dial 7-1-1 for TTY/TTD Services.