State of Arizona Exceptional Event Documentation for January 21-22, 2012, for the Phoenix PM10 Nonattainment Area

Produced by:

Arizona Department of Environmental Quality
Maricopa County Air Quality Department
Maricopa Association of Governments

Final Report
January 23, 2013

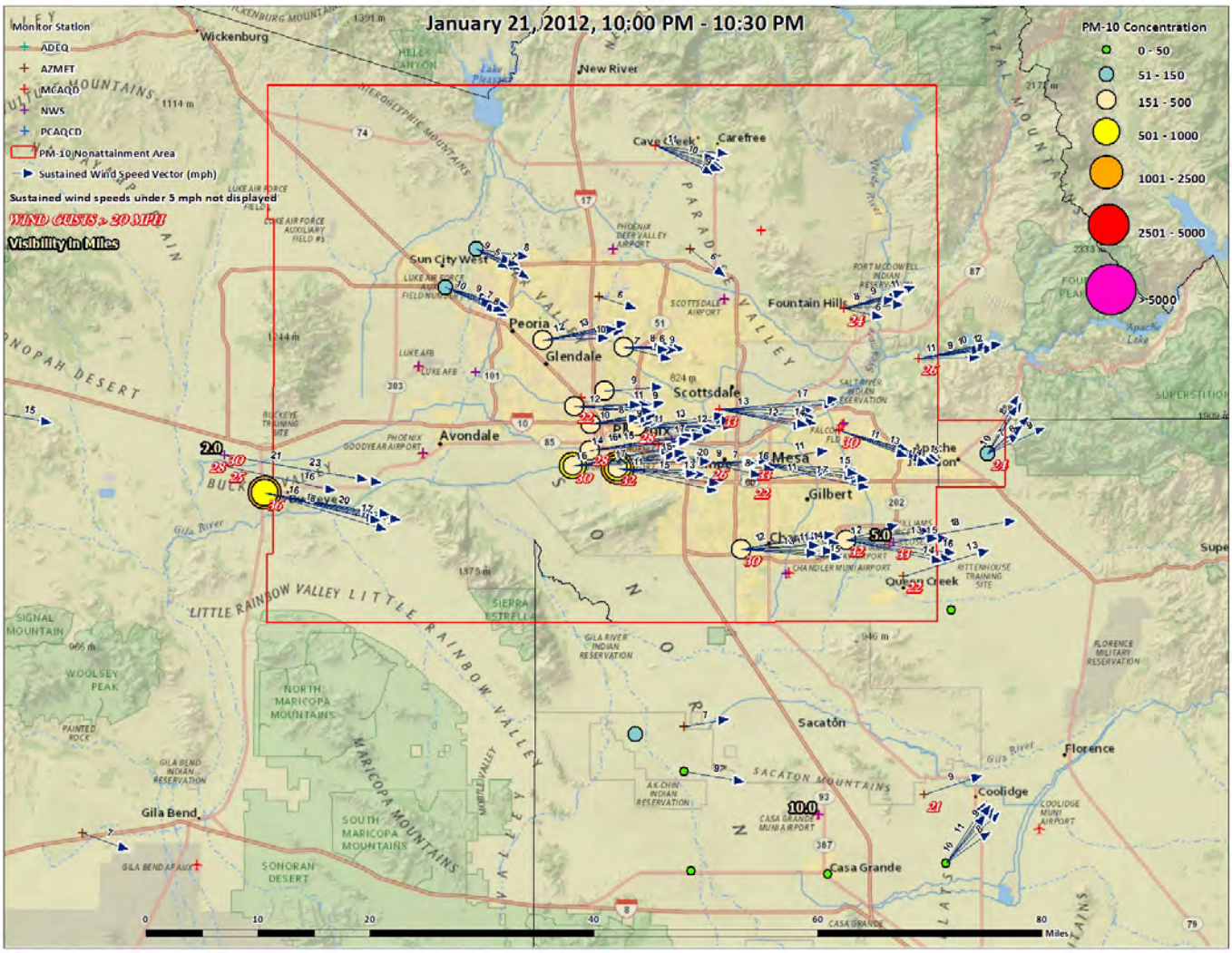


Table of Contents

List of Figures

List of Figures Continued

List of Tables

List of Appendices

I. EXCEPTIONAL EVENT RULE (EER) REQUIREMENTS

In addition to the technical requirements that are contained within the EER, procedural requirements must also be met in order for EPA to concur with the flagged air quality monitoring data. This section of the report lays out the requirements of the EER and associated guidance, and discusses how the Arizona Department of Environmental Quality (ADEQ) addressed those requirements.

Procedural Requirements

This section presents a review of the procedural requirements of the EER as required by 40 CFR 50.14 (Treatment of Air Quality Monitoring Data Influenced by Exceptional Events) and explains how ADEQ fulfills them. The Federal EER requirements include public notification that an event was occurring, the placement of informational flags on data in EPA's Air Quality System (AQS), the notification of EPA of the intent to flag through submission of initial event description, the documentation that the public comment process was followed, and the submittal of a demonstration supporting the exceptional events flag. ADEQ has addressed all of these procedural and documentation requirements.

Public notification that event was occurring (40 CFR 50.14(c)(1(i))

ADEQ issued Dust Control Action Forecasts and Ensemble Forecasts for the Greater Phoenix area advising citizens of the potential for high wind / dust events on January 21-22, 2012. More information on ADEQ's forecasting program can be found in Section IV. The forecast products that were issued for January 21-22, 2012 are included in Appendix A.

Place informational flag on data in AQS (40 CFR 50.14(c)(2)(ii))

ADEQ and other operating agencies in Arizona submit data into EPA's AQS. Data from both filter-based and continuous monitors operated in Arizona are submitted to AQS.

When ADEQ and/or another agency operating monitors in Arizona suspects that data may be influenced by an exceptional event, ADEQ and/or the other operating agency expedites analysis of the filters collected from the potentially-affected filter-based air monitoring instruments, quality assures the results and submits the data into AQS. ADEQ and/or other operating agencies also submit data from continuous monitors into AQS after quality assurance is complete.

If ADEQ and/or the operating agency have determined a potential exists that the monitor reading has been influenced by an exceptional event, a preliminary flag is submitted for the measurement in the AQS. The data are not official until they undergo more thorough quality assurance and quality control, leading to certification by May 1st of the year following the calendar year in which the data were collected (40 CFR 58.15(a)(2)). The presence of the flag can be confirmed in AQS.

Notify EPA of intent to flag through submission of initial event description by July 1 of calendar year following event (40 CFR 50.14(c)(2)(iii))

ADEQ submitted notice to EPA on August 29, 2012 listing all days from calendar year 2012 that ADEQ intends to analyze under the Exceptional Events Rule. The exceedances that occurred on January 21-22,

2012 within the Phoenix PM10 nonattainment area will be included on this list. This assessment report serves as both the initial notification to EPA of ADEQ's intention to flag these data, as well as the demonstration supporting the flagging of these data.

On January 21, 2012, one monitor within the boundaries of the Phoenix PM10 nonattainment area exceeded the 24-hour PM10 standard during the high wind event that occurred on that day. It was the West 43rd Avenue monitor (04-013-4009-81102-1) operated by MCAQD.

On January 22, 2012, one monitor within the boundaries of the Phoenix PM10 nonattainment area exceeded the 24-hour PM10 standard during the high wind event that occurred on that day. It was the Higley monitor (04-013-4006-81102-1) operated by MCAQD.

Document that the public comment process was followed for event documentation (40 CFR 50.14(c)(3)(iv))

ADEQ posted this assessment report 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 December 3, 2012. A copy of the public notice certification, along with any comments received, will be submitted to EPA, consistent with the requirements of 40 CFR 50.14(c)(3)(iv). See Appendix D for a copy of the affidavit of public notice.

Submit demonstration supporting exceptional event flag (40 CFR 50.14(a)(1-2))

At the close of the comment period, and after ADEQ has had the opportunity to consider any comments submitted on this document, ADEQ will submit this document, the comments received, and ADEQ's responses to those comments to EPA Region IX headquarters in San Francisco, California. The deadline for the submittal of this demonstration package is March 31, 2015.

Documentation Requirements

Section 50.14(c)(3)(iii) of the EER states that in order to justify excluding air quality monitoring data, evidence must be provided for the following elements:

a. The event satisfies the criteria set forth in 40 CFR 501(j) that:
   (1) the event affected air quality,
   (2) the event was not reasonably controllable or preventable, and
   (3) the event was caused by human activity unlikely to recur in a particular location or was a natural event;
b. There is a clear causal relationship between the measurement under consideration and the event;
c. The event is associated with a measured concentration in excess of normal historical fluctuations; and
d. There would have been no exceedance or violation but for the event.

Section II of this assessment introduces the conceptual model of the low pressure system wind events that transpired on January 21-22, 2012, providing a background narrative of the exceptional event and an overall explanation that 'the event affected air quality'. Further evidence that 'the event affected air quality' is provided in Section V. Sections II and V also provide evidence that the event was a natural event.

Section IV of this assessment details the existing area control measures and demonstrates that despite the presence and enforcement of these controls, the events on January 21-22, 2012 were not reasonably controllable or preventable.

Section V of this assessment establishes a clear causal connection between the natural event on January 21-22, 2012 and the exceedances of the 24-hour PM10 standard at the West 43rd Avenue and Higley monitoring stations. The evidence in this section (and the previous section on historical fluctuations) also confirms that the event in question both affected air quality and was the result of a natural event.

Section III of this assessment provides data summaries and time series graphs which help illustrate that the event on January 21-22, 2012 produced PM10 concentrations in excess of normal historical fluctuations.

Section VI of this assessment builds upon the demonstration showing a clear causal relationship between the natural event and the exceedances and concludes there would have been no exceedances on January 21-22, 2012 but for the presence of the natural event.

II. CONCEPTUAL MODEL

Geographic Setting and Climate

Geographic Setting

Phoenix is located in the Salt River Valley in south-central Arizona. It lies at a mean elevation of 1,090 feet above mean sea level (msl) in the northeastern part of the Sonoran Desert. Other than the mountains in and around the city, the topography of Phoenix is generally flat. The Phoenix area is surrounded by the McDowell Mountains (~4,200 ft msl) to the northeast, the foothills of the Bradshaw (~7,900 ft msl) and Mazataal (~7,900 ft msl) ranges to the north, the White Tank Mountains (~4,500 ft msl) to the west, the Sierra Estrella (~4,450 ft msl) to the southwest, and the Superstition Mountains (~5,000 ft msl) far to the east. Within the City are the Phoenix Mountains (~2,600 ft msl) and South Mountain (~2,600 ft msl). Current development is pushing north, west, and south into Pinal County. The Phoenix metropolitan area contains a fairly dense network of PM10 monitors throughout the area, with a much less dense network of monitors located throughout the rest of the state. Figure 2–1 shows the general geographic setting of Phoenix, as well as the locations of PM10 monitors throughout the state. It should be noted that some of the monitors shown in Figure 2-1 are filter-based monitors; therefore, monitoring data from all locations may only be available for select days (i.e. 1-in-6 run days).

Figure 2–2 depicts the drainage systems or watersheds for the State of Arizona. Many of the rivers that form Arizona's drainage system are dry for most of the year and, consequently, are sources of silt and fine soils that become suspended and add to regional PM10 loadings during high wind events. Much of this alluvial matter and fine soil is deposited in the low lying areas of central and southern Arizona, with larger depositional areas focused in and around the confluences of dry river channels.

Figure 2-1. Phoenix Geographic Setting and PM10 Monitor Locations (source: EPA AQS DataMart, NASA MODIS Satellite, Google Earth). PM10 monitor locations are indicated by white markers.

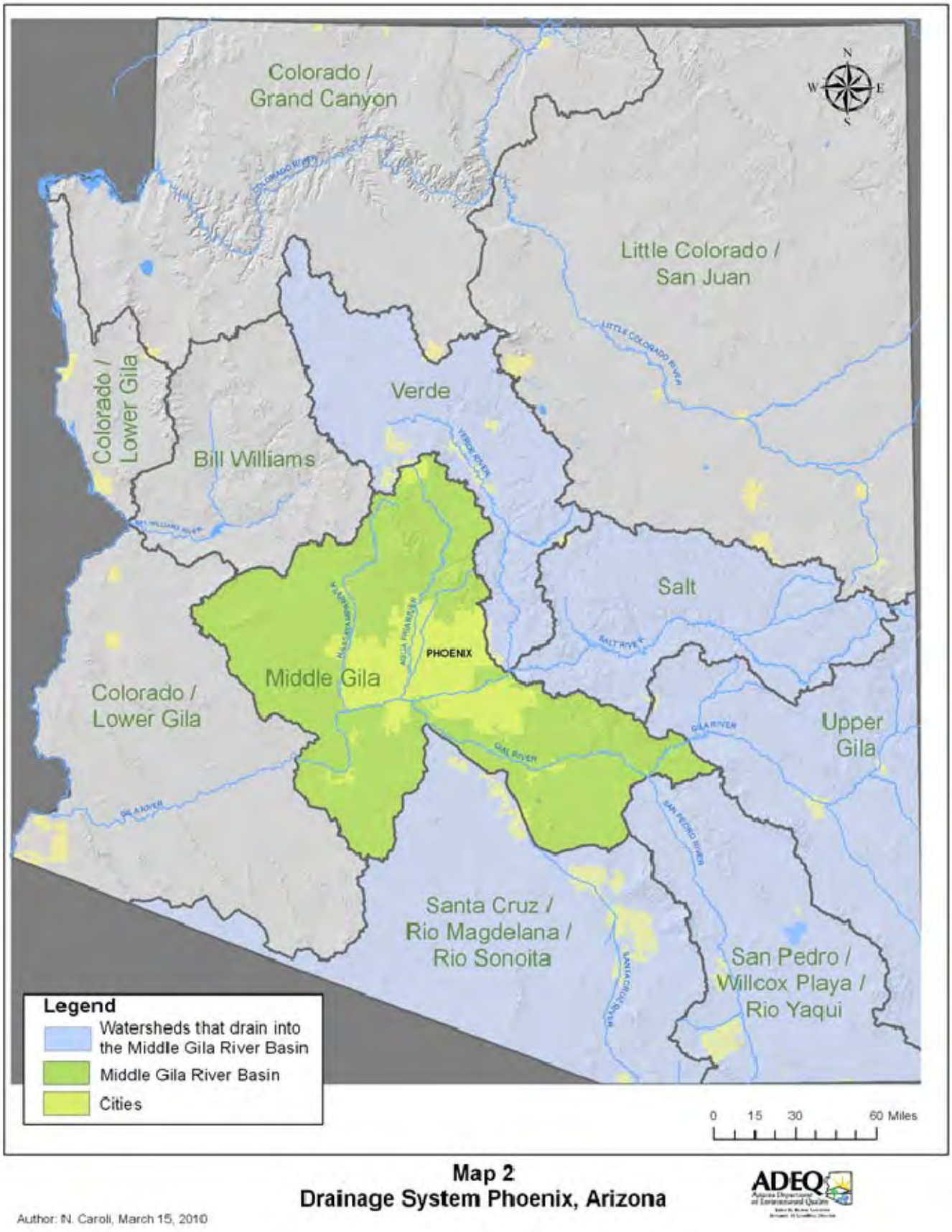


Figure 2-2. Drainage System of Phoenix, Arizona.

Climate

Phoenix has an arid climate, with very hot summers and temperate winters. The average summer high temperature is among the hottest of any populated area in the United States. The temperature reaches or exceeds 100ºF an average of 110 days during the year and highs top 110ºF an average of 18 days during the year. Phoenix receives an average of 7.66 inches of rain per year.

Precipitation is sparse during the first part of the summer, but the influx of monsoonal moisture, which generally begins in early July and lasts until mid-September, raises humidity levels and can cause heavy localized precipitation and flooding. Although thunderstorms are possible at any time of the year, they are most common during the monsoon season from July to mid-September as humid air is advected from the Gulf of California, Gulf of Mexico, and large thunderstorm complexes from the Sierra Madre Occidental Mountains in Mexico. This influx in moisture, combined with intense solar heating, often creates a very unstable environment that is ripe for thunderstorm development. These thunderstorms can bring strong winds and blowing dust, large hail, and heavy rain. Dust storms associated with these thunderstorms typically occur in the early part of the monsoon season (July) before soaking rains help keep soil particles bound to one another. However, depending on the amount of precipitation received during the monsoon season, extremely hot temperatures act to dry out the surface quickly, and dust storms can occur at any time. During the December through March period, winter storms moving inland from the Pacific Ocean can bring strong winds, blowing dust and significant rains throughout Arizona. This December – March time period, and July – August time period are typically the wettest parts of the year. Meanwhile, a distinct dry season occurs during the period April through June for Phoenix and the rest of Arizona. While these weather patterns describe the general climatology for the Phoenix area over a long period of time, Phoenix and the entire state of Arizona is also prone to a high degree of variability in these weather patterns from year to year.

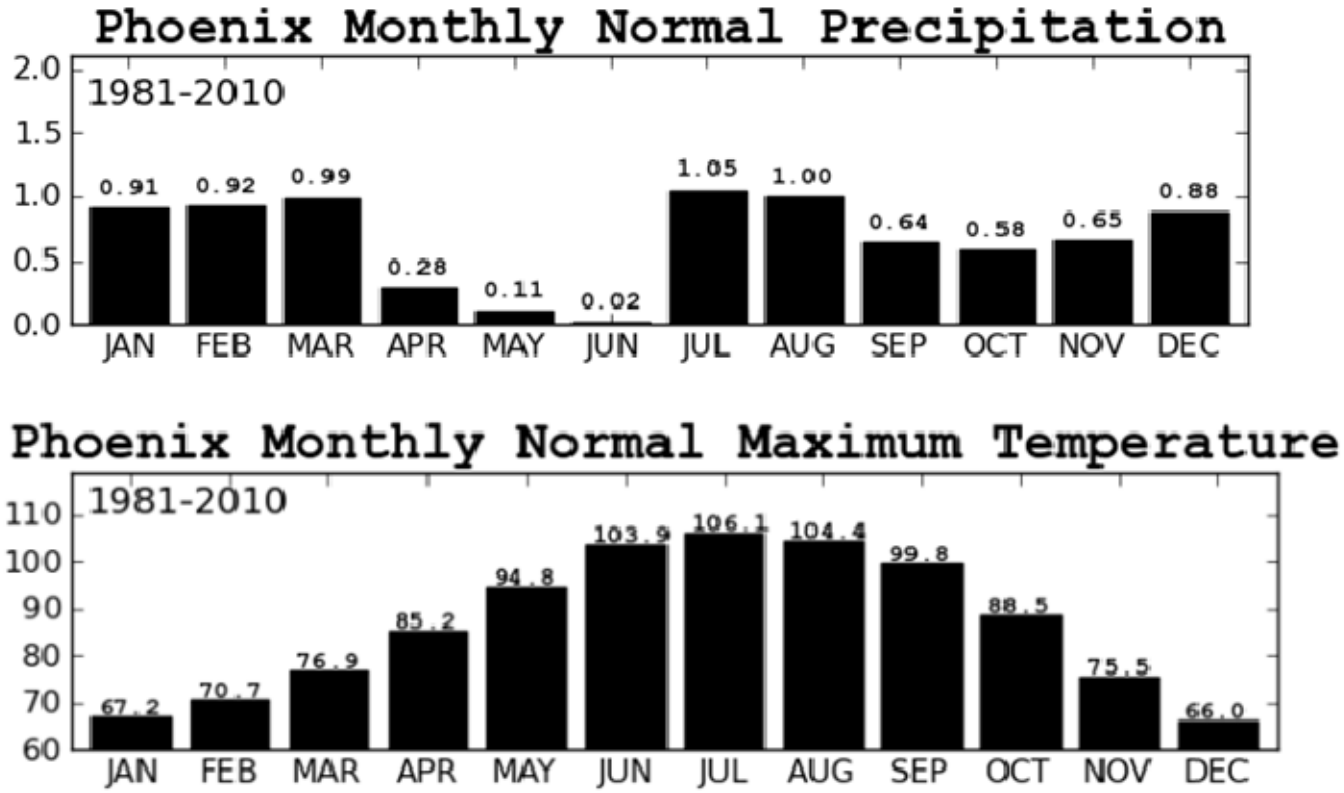


Figure 2-3 Phoenix Monthly Precipitation (top) and Maximum Temperature (bottom) Climatology (source: National Weather Service).

Low Pressure System Dust Storm Event Summary

On January 21, 2012, the Phoenix office of the National Weather Service (NWS) forecasted the arrival of a low pressure system into the Maricopa County region (See Appendix B for more detail). The southern end of this system was forecast to bring breezy and gusty conditions into the region. The cold front associated with this system can be seen in Figure 2–4 as it prepares to enter the region and in Figure 2–6 after it has passed through Arizona. Wind fields associated with the passing of the low pressure system over January 21-22 are displayed in Figures 2–5 and 2–7.

The low pressure system and cold front that entered the region on January 21, 2012 generated two periods of blowing dust through gusty conditions associated with the movement of the system from west to east across the nonattainment area. The first period can be seen during the hours of 4:30 PM – 7:00 PM when strong gusts up to 40 mph and sustained winds up to 30 mph overwhelmed local controls and generated windblown dust primarily in the southern portions of the nonattainment area. As a result of the blowing dust, visibilities as low as 0.8 miles were reported at Luke Air Force Base during this period. PM10 concentrations were elevated at monitors in the southern portions of the nonattainment area, with the West 43rd Avenue monitor recording the largest hourly spike in PM10 emissions in association with gusty winds up to 33 mph at the site. A second period of gusting winds and blowing dust was recorded during the hours of 9:30 PM – 11:00 PM. The NWS office noted strong gusts up to 35 knots (40 mph, Sky Harbor Airport) which were sufficient to again overwhelm local controls and generate a second round of high PM10 concentrations at monitors in the southern portions of the nonattainment area. The Buckeye monitor recorded the highest hourly spike in PM10 emissions during this period in association with wind gusts of 36 mph.

As a result of these two windblown dust periods generated by the passing of the low pressure system, the West 43rd Avenue monitor recorded an exceedance of the PM10 standard on January 21, 2012. Overall severe drought conditions in the nonattainment area (as shown in Figure 2–8) likely exacerbated the ability of the gusty winds to raise windblown dust. The particular location of the West 43rd Avenue monitor makes it more susceptible to windblown dust originating from west and southwest winds, as this monitor is on the edge of the urban area and has a larger proportion of upwind vacant and open areas than other nearby monitors located further into the developed urban areas.

By 12:00 AM on January 22, 2012, sustained winds from the passing low pressure system had subsided quickly. Winds were light and still generally from the west causing the earlier generated windblown dust to remain suspended until nearly 12:00 PM on January 22, 2012. Widespread hazy and reduced visibility conditions were reported throughout the nonattainment area in response to the suspended windblown dust. As a result of the slow deposition of the windblown dust, the eastern Higley monitor recorded an exceedance of the PM10 standard on January 22, 2012. Many other monitors within the nonattainment area had elevated PM10 concentrations in response to the deposition of the suspended windblown dust (Durango and South Phoenix monitors both had 24-hour average values of 144 $\mu g/m^3$.). It is likely the location of the Higley monitor in the southeastern most portion of the nonattainment area allowed the windblown dust to remain suspended longer at this monitor, as suspended dust from the western and southern portions of the nonattainment area took 12 hours to clear out on light westerly winds.

As a summary of the event, Figure 2–9 displays an hourly graph of PM10 concentrations throughout Maricopa County and the nonattainment area. Tables 2–1 and 2–2 contain PM10 concentration data from all recorded monitors throughout the State of Arizona.

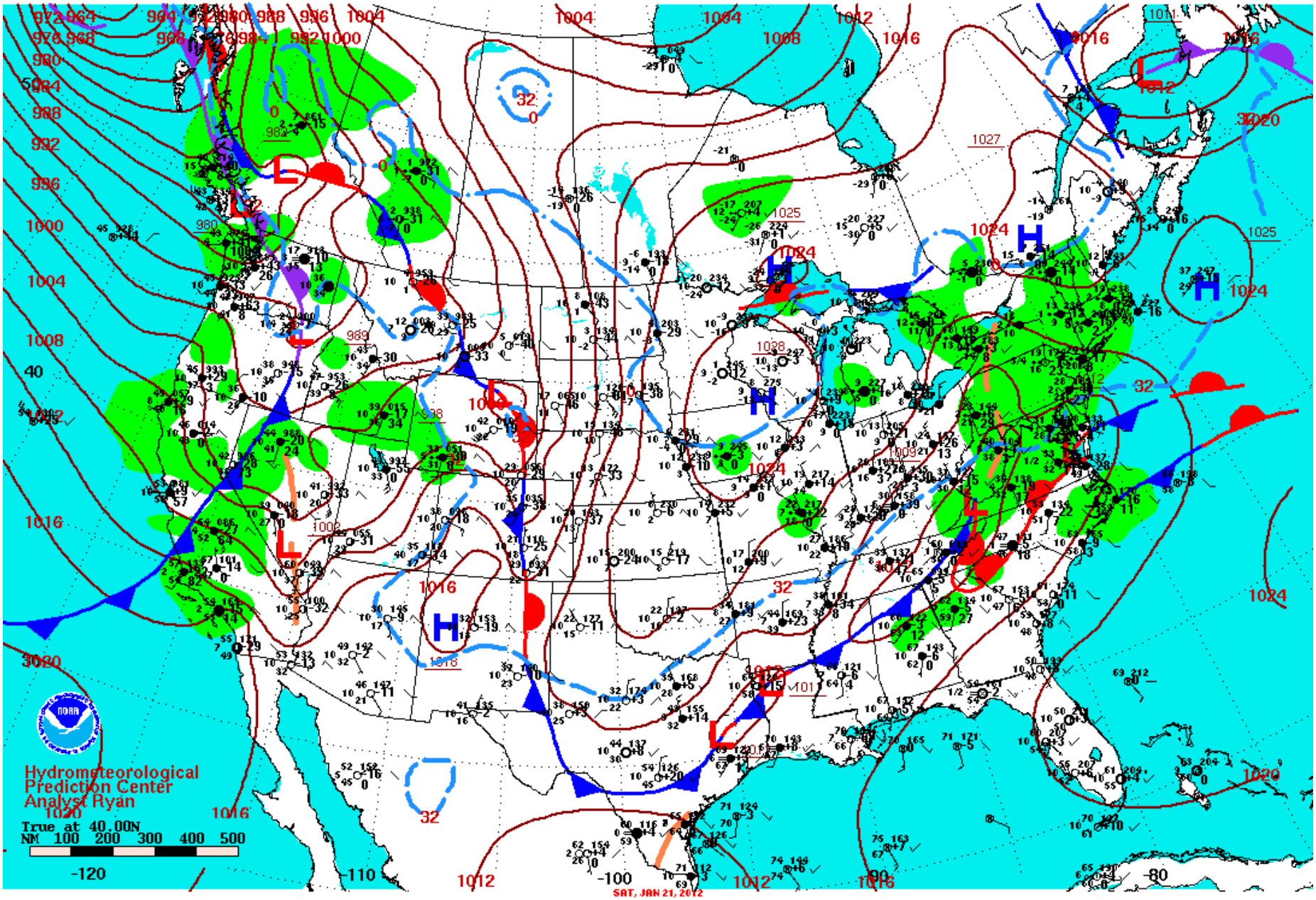


Figure 2-4 Location of low pressure system as of 5:00 AM Arizona time on January 21, 2012 (NOAA Daily Weather Map).

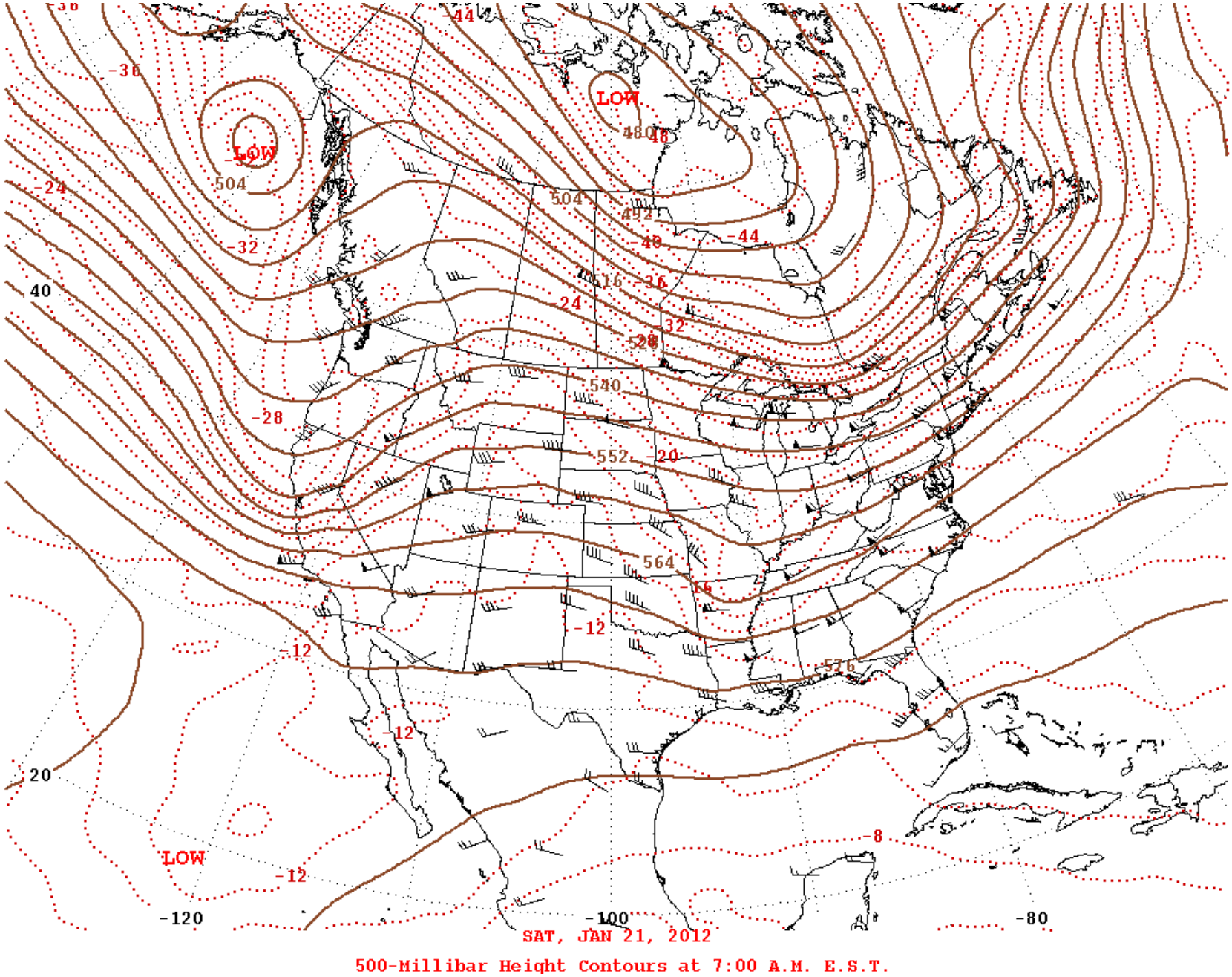


Figure 2-5. 500-Millibar wind field at 5:00 AM Arizona time on January 21, 2012. (NOAA Daily Weather Map).

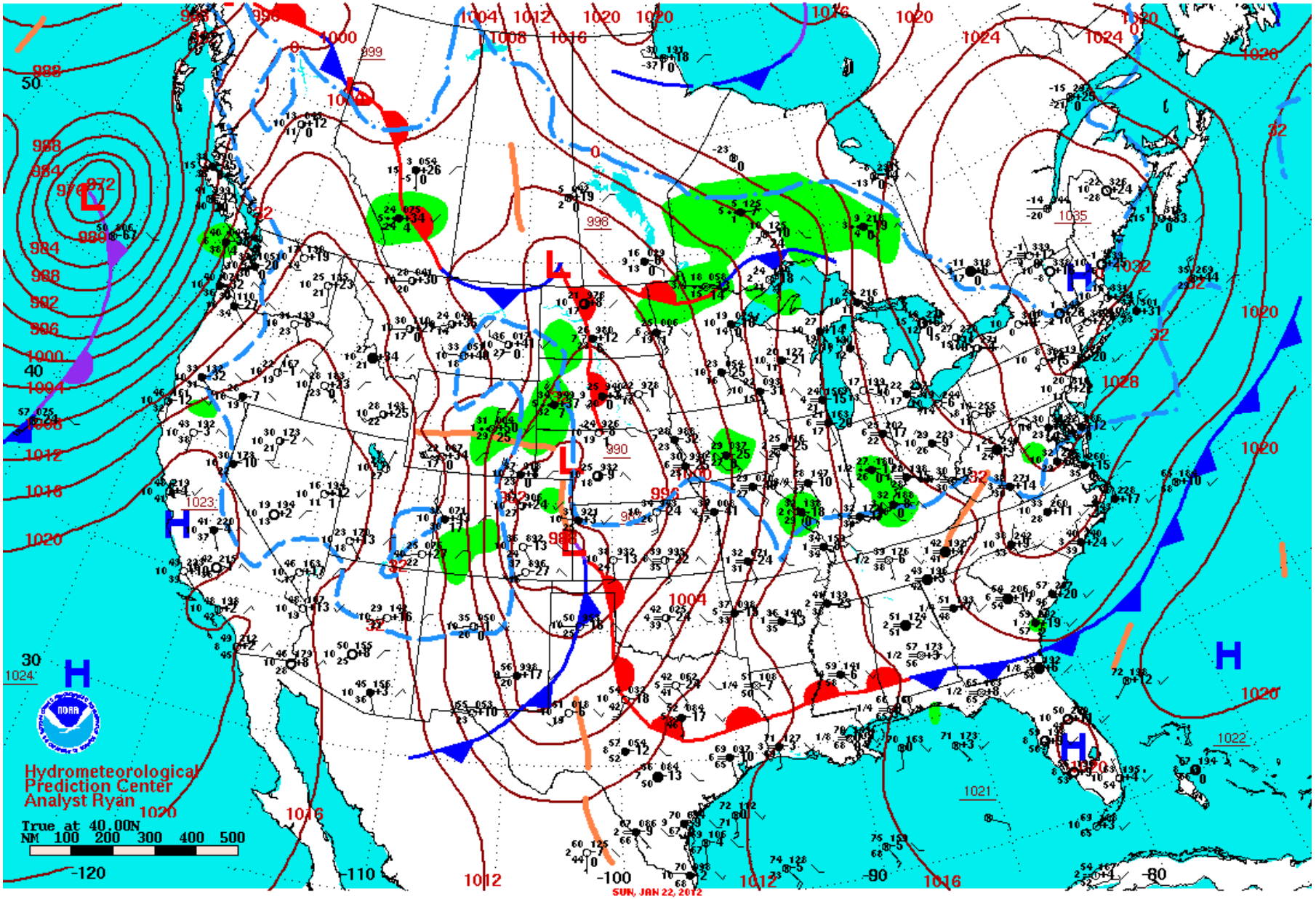


Figure 2-6. Location of low pressure system as of 5:00 AM Arizona time on January 22, 2012. (NOAA Daily Weather Map).

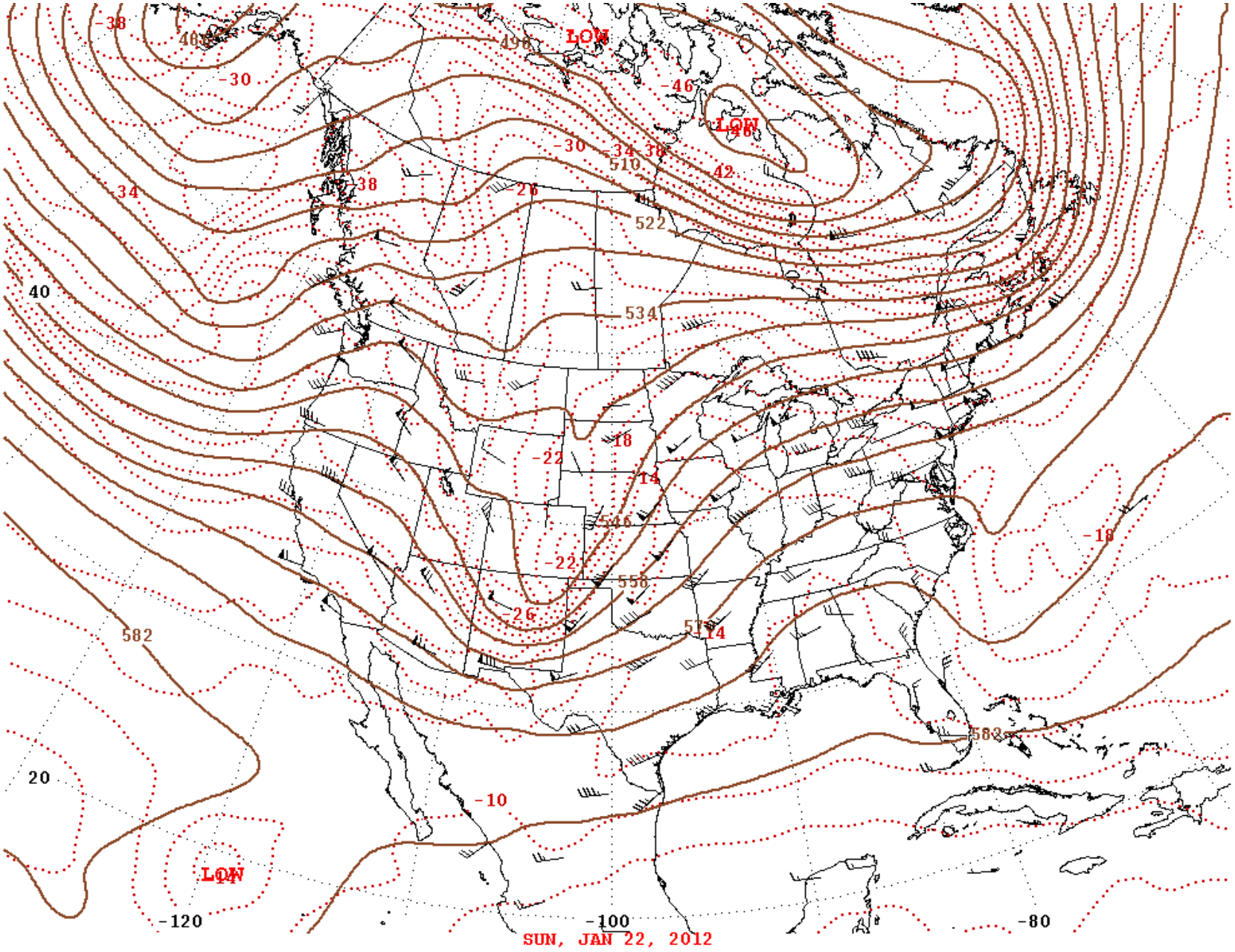


Figure 2-7. 500-Millibar wind field at 5:00 AM Arizona time on January 22, 2012. (NOAA Daily Weather Map).

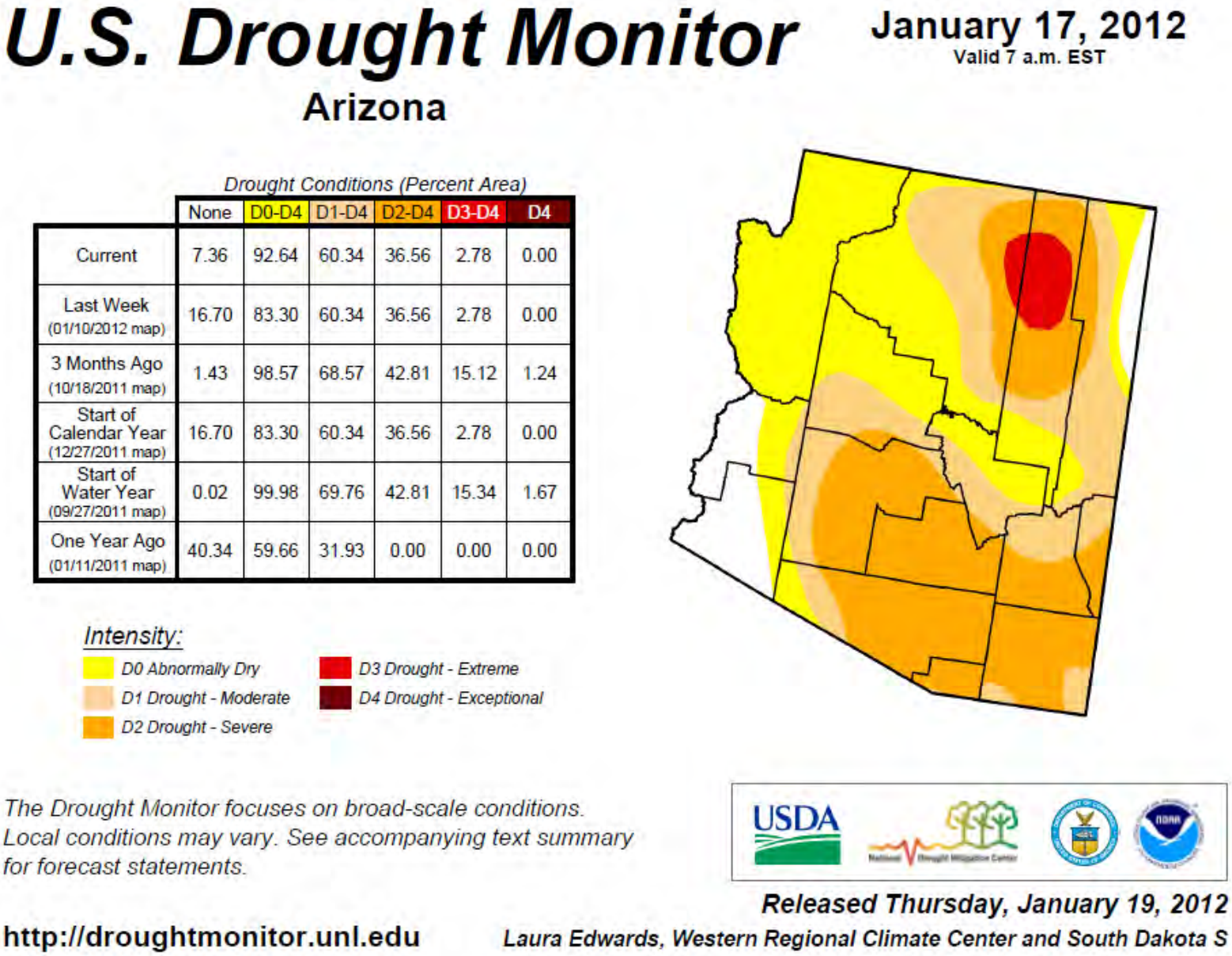


Figure 2-8. U.S. Drought Monitor analysis of Arizona released on January 17, 2012.

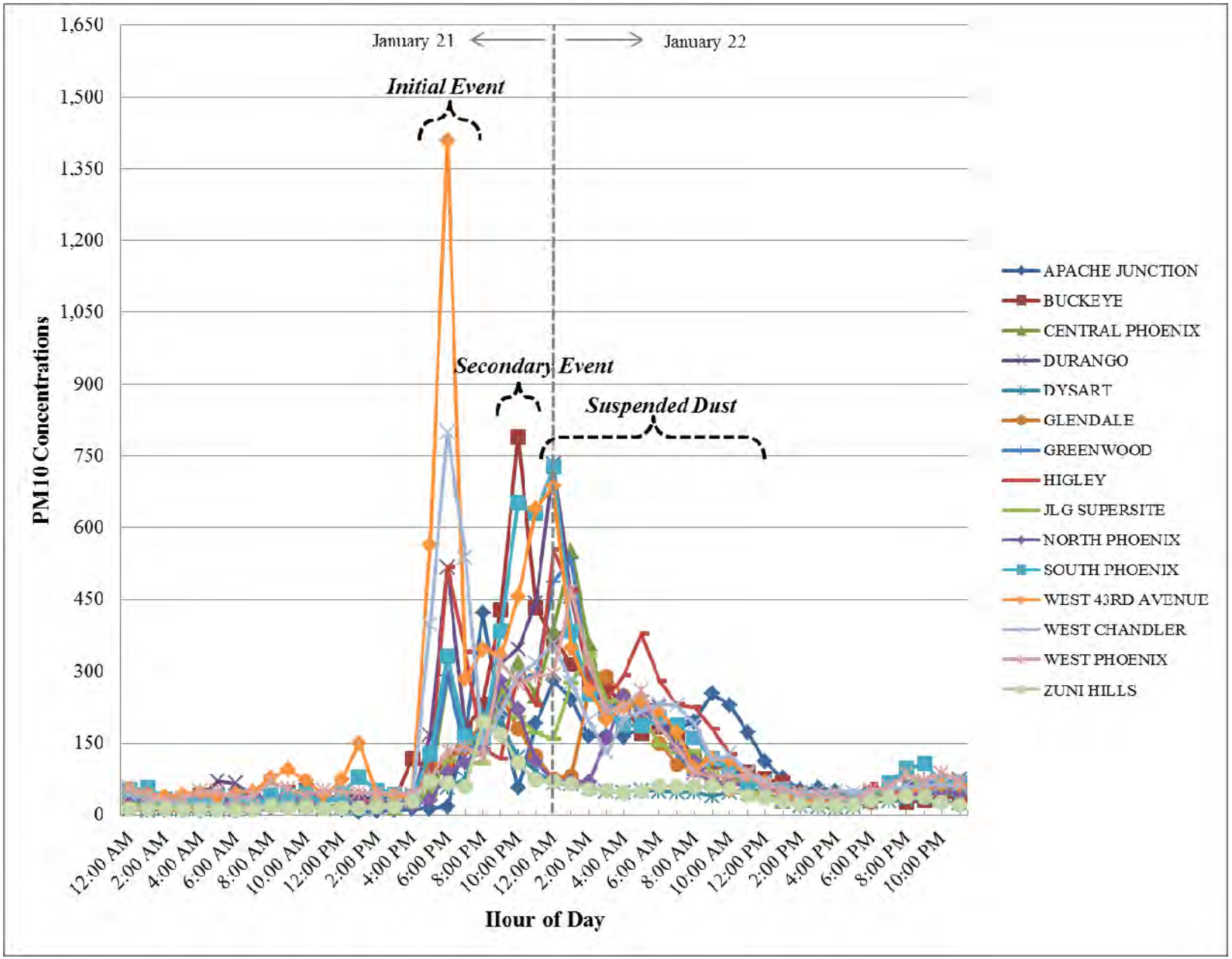


Figure 2-9. Timeline of PM10 concentrations at monitors in Maricopa County and the PM10 nonattainment area on January 21-22, 2012.

Table 2-1. Summary of Statewide PM10 Measurements for January 21, 2012.

Monitor	Monitor Type	Operator	AQS Monitor ID	24-hr Avg PM10 ($\mu g/m^3$)	1-hr Max PM10 ($\mu g/m^3$)	Max Time	AQS Qualifier Flag
Apache County							
N/A	N/A	WMAT	04-001-1003-81102-1	11.0	45	2300	
Cochise County							
Douglas Red Cross	N/A	ADEQ	04-003-1005-81102-1	No Data	N/A	N/A	
Paul Spur Chemical Lime Plant	N/A	ADEQ	04-003-0011-81102-1	No Data	N/A	N/A	
Paul Spur Chemical Lime Plant	N/A	ADEQ	04-003-0011-81102-2	No Data	N/A	N/A	
Coconino County							
Flagstaff Middle School	N/A	ADEQ	04-005-1008-81102-1	No Data	N/A	N/A	
N/A	N/A	NN	04-005-1237-81102-1	No Data	56	1900	
Gila County							
Hayden Old Jail	TEOM	ADEQ	04-007-1001-81102-3	25.0	64	2100	
Payson Well Site	N/A	ADEQ	04-007-0008-81102-1	No Data	N/A	N/A	
Payson Well Site	N/A	ADEQ	04-007-0008-81102-2	No Data	N/A	N/A	
Maricopa County							
Buckeye	TEOM	MC	04-013-4011-81102-1	121.0	790	2200	
Central Phoenix	TEOM	MC	04-013-3002-81102-4	74.0	319	2200	
Durango Complex	TEOM	MC	04-013-9812-81102-1	117.0	516	1800	
Dysart	TEOM	MC	04-013-4010-81102-1	45.0	211	2000	
Fort McDowell/ Yuma Frank	TEOM	FMIR	04-013-5100-8112-3	38.0	N/A	N/A	
Glendale	TEOM	MC	04-013-2001-81102-1	62.0	247	2100	
Greenwood	TEOM	MC	04-013-3010-81102-1	84.0	291	2300	
High School Air Monitoring Station	N/A	SRP-MIC	04-013-7024-81102-1	No Data	N/A	N/A	
Higley	TEOM	MC	04-013-4006-81102-1	84.0	519	1800	
JLG Supersite	BAM	ADEQ	04-013-9997-81102-3	66.0	289	2100	
JLG Supersite	TEOM	ADEQ	04-013-9997-81102-4	56.0	268	2100	
Lehi Air Monitoring Station	N/A	SRP-MIC	04-013-7022-81102-1	No Data	N/A	N/A	
Mesa	FRM	MC	04-013-1003-81102-1	No Data	N/A	N/A	
North Phoenix	FRM	MC	04-013-1004-81102-1	59.0	279	2100	
Senior Center Air Monitoring Station	N/A	SRP-MIC	04-013-7020-81102-1	No Data	N/A	N/A	
Senior Center Air Monitoring Station	N/A	SRP-MIC	04-013-7020-81102-2	No Data	N/A	N/A	
South Phoenix	TEOM	MC	04-013-4003-81102-1	132.0	652	2200	
South Scottsdale	FRM	MC	04-013-3003-81102-1	No Data	N/A	N/A	
West Chandler	TEOM	MC	04-013-4004-81102-1	127.0	799	1800	
West Forty Third	TEOM	MC	04-013-4009-81102-1	209.0	1408	1800	RJ
West Phoenix	TEOM	MC	04-013-0019-81102-1	88.0	319	2100	
Zuni Hills	TEOM	MC	04-013-4016-81102-1	41.0	195	2000	
Mohave County							
Bullhead City ADEQ	N/A	ADEQ	04-015-1003-81102-1	No Data	N/A	N/A	
Navajo County							
N/A	N/A	WMAT	04-017-1002-81102-1	20.0	106	1600	
Pima County							
Ajo	TEOM	ADEQ	04-019-0001-81102-3	23.0	104	2300	
Corona de Tucson	FRM	PCDEQ	04-019-0008-81102-1	No Data	N/A	N/A	
Geronimo	BAM	PCDEQ	04-019-1113-81102-1	18.0	54	0000	
Green Valley	BAM	PCDEQ	04-019-1030-81102-1	10.0	28	1600	
Orange Grove	FRM	PCDEQ	04-019-0011-81102-2	17.0	N/A	N/A	
Prince Road	FRM	PCDEQ	04-019-1009-81102-1	No Data	N/A	N/A	
Rillito	TEOM	ADEQ	04-019-0020-81102-3	32.0	169	1500	
Santa Clara	FRM	PCDEQ	04-019-1026-81102-1	No Data	N/A	N/A	
South Tucson	FRM	PCDEQ	04-019-1001-81102-1	22.0	N/A	N/A	

Monitor	Monitor Type	Operator	AQS Monitor ID	24-hr Avg PM10 (µg/m^3)	1-hr Max PM10 (µg/m^3)	Max Time	AQS Qualifier Flag
Tangerine	FRM	PCDEQ	04-019-1018-81102-1	No Data	N/A	N/A	
Pinal County							
Apache Junction Fire Stn.	TEOM	PCAQCD	04-021-3002-81102-3	53.0	421	2000	
Casa Grande Downtown	TEOM	PCAQCD	04-021-0001-81102-3	28.0	49	1600	
Coolidge	FRM	PCAQCD	04-021-3004-81102-1	No Data	N/A	N/A	
Combs School	TEOM	PCAQCD	04-021-3009-81102-3	37.0	190	1900	
Cowtown	FRM	PCAQCD	04-021-3013-81102-1	No Data	N/A	N/A	
Cowtown	TEOM	PCAQCD	04-021-3013-81102-3	74.0	357	2300	
Eloy	FRM	PCAQCD	04-021-3014-81102-1	No Data	N/A	N/A	
Maricopa	TEOM	PCAQCD	04-021-3010-81102-3	81.0	349	1900	
Pinal Air Park	N/A	PCAQCD	04-021-3007-81102-1	No Data	N/A	N/A	
Pinal County Housing	FRM	PCAQCD	04-021-3011-81102-1	No Data	N/A	N/A	
Pinal County Housing	FRM	PCAQCD	04-021-3011-81102-2	No Data	N/A	N/A	
Pinal County Housing	TEOM	PCAQCD	04-021-3011-81102-3	29.0	58	1800	
Stanfield	TEOM	PCAQCD	04-021-3008-81102-3	40.0	185	1600	
N/A	N/A	PCAQCD	04-021-7004-81102-1	No Data	N/A	N/A	
N/A	N/A	PCAQCD	04-021-7004-81102-2	No Data	N/A	N/A	
Santa Cruz County							
Nogales Post Office	BAM	ADEQ	04-023-0004-81102-1	No Data	N/A	N/A	
Nogales Post Office	BAM	ADEQ	04-023-0004-81102-3	58.0	145	0000	
Yavapai County							
Prescott Valley	FRM	ADEQ	04-025-2002-81102-1	No Data	N/A	N/A	
Yuma County							
Yuma Supersite	TEOM	ADEQ	04-027-8011-81102-3	86.0	342	1600	

Table 2-2. Summary of Statewide PM10 Measurements for January 22, 2012.

Monitor	Monitor Type	Operator	AQS Monitor ID	24-hr Avg PM10 ($\mu g/m^3$)	1-hr Max PM10 ($\mu g/m^3$)	Max Time	AQS Qualifier Flag
Apache County							
N/A	N/A	WMAT	04-001-1003-81102-1	27.0	56	0800	
Cochise County							
Douglas Red Cross	N/A	ADEQ	04-003-1005-81102-1	52.0	N/A	N/A	
Paul Spur Chemical Lime Plant	N/A	ADEQ	04-003-0011-81102-1	28.0	N/A	N/A	
Paul Spur Chemical Lime Plant	N/A	ADEQ	04-003-0011-81102-2	No Data	N/A	N/A	
Coconino County							
Flagstaff Middle School	N/A	ADEQ	04-005-1008-81102-1	9.0	N/A	N/A	
N/A	N/A	NN	04-005-1237-81102-1	10.0	30	2300	
Gila County							
Hayden Old Jail	TEOM	ADEQ	04-007-1001-81102-3	137.0	385	0200	
Payson Well Site	N/A	ADEQ	04-007-0008-81102-1	28.0	N/A	N/A	
Payson Well Site	N/A	ADEQ	04-007-0008-81102-2	28.0	N/A	N/A	
Maricopa County							
Buckeye	TEOM	MC	04-013-4011-81102-1	121.0	367	0000	
Central Phoenix	TEOM	MC	04-013-3002-81102-4	137.0	551	0100	
Durango Complex	TEOM	MC	04-013-9812-81102-1	144.0	733	0000	
Dysart	TEOM	MC	04-013-4010-81102-1	38.0	66	0000	
Fort McDowell/ Yuma Frank	TEOM	FMIR	04-013-5100-8112-3	52.0	N/A	N/A	
Glendale	TEOM	MC	04-013-2001-81102-1	88.0	290	0300	
Greenwood	TEOM	MC	04-013-3010-81102-1	134.0	533	0100	
High School Air Monitoring Station	N/A	SRP-MIC	04-013-7024-81102-1	90.0	N/A	N/A	
Higley	TEOM	MC	04-013-4006-81102-1	162.0	554	0000	RJ
JLG Supersite	BAM	ADEQ	04-013-9997-81102-3	120.0	371	0200	
JLG Supersite	TEOM	ADEQ	04-013-9997-81102-4	108.0	335	0200	
Lehi Air Monitoring Station	N/A	SRP-MIC	04-013-7022-81102-1	113.0	N/A	N/A	
Mesa	FRM	MC	04-013-1003-81102-1	No Data	N/A	N/A	
North Phoenix	FRM	MC	04-013-1004-81102-1	80.0	248	0400	
Senior Center Air Monitoring Station	N/A	SRP-MIC	04-013-7020-81102-1	103.0	N/A	N/A	
Senior Center Air Monitoring Station	N/A	SRP-MIC	04-013-7020-81102-2	106.0	N/A	N/A	
South Phoenix	TEOM	MC	04-013-4003-81102-1	144.0	728	0000	
South Scottsdale	FRM	MC	04-013-3003-81102-1	91.0	N/A	N/A	
West Chandler	TEOM	MC	04-013-4004-81102-1	125.0	358	0000	
West Forty Third	TEOM	MC	04-013-4009-81102-1	136.0	686	0000	
West Phoenix	TEOM	MC	04-013-0019-81102-1	130.0	467	0100	
Zuni Hills	TEOM	MC	04-013-4016-81102-1	41.0	70.0	0000	
Mohave County							
Bullhead City ADEQ	N/A	ADEQ	04-015-1003-81102-1	18.0	N/A	N/A	
Navajo County							
N/A	N/A	WMAT	04-017-1002-81102-1	36.0	136	0100	
Pima County							
Ajo	TEOM	ADEQ	04-019-0001-81102-3	97.0	248	0200	
Corona de Tucson	FRM	PCDEQ	04-019-0008-81102-1	69.0	N/A	N/A	
Geronimo	BAM	PCDEQ	04-019-1113-81102-1	102.0	192	0500	
Green Valley	BAM	PCDEQ	04-019-1030-81102-1	63.0	135	1000	
Orange Grove	FRM	PCDEQ	04-019-0011-81102-2	88.0	N/A	N/A	
Prince Road	FRM	PCDEQ	04-019-1009-81102-1	107.0	N/A	N/A	
Rillito	TEOM	ADEQ	04-019-0020-81102-3	113.0	235	1000	
Santa Clara	FRM	PCDEQ	04-019-1026-81102-1	75.0	N/A	N/A	
South Tucson	FRM	PCDEQ	04-019-1001-81102-1	89.0	N/A	N/A	

Monitor	Monitor Type	Operator	AQS Monitor ID	24-hr Avg PM10 (µg/m^3)	1-hr Max PM10 (µg/m^3)	Max Time	AQS Qualifier Flag
Tangerine	FRM	PCDEQ	04-019-1018-81102-1	102.0	N/A	N/A	
Pinal County							
Apache Junction Fire Stn.	TEOM	PCAQCD	04-021-3002-81102-3	128.0	282	0000	
Casa Grande Downtown	TEOM	PCAQCD	04-021-0001-81102-3	146.0	302	0100	
Coolidge	FRM	PCAQCD	04-021-3004-81102-1	85.0	N/A	N/A	
Combs School	TEOM	PCAQCD	04-021-3009-81102-3	150.0	285	0100	
Cowtown	FRM	PCAQCD	04-021-3013-81102-1	No Data	N/A	N/A	
Cowtown	TEOM	PCAQCD	04-021-3013-81102-3	167.0	337	0000	RJ
Eloy	FRM	PCAQCD	04-021-3014-81102-1	120.0	N/A	N/A	
Maricopa	TEOM	PCAQCD	04-021-3010-81102-3	162.0	404	0000	
Pinal Air Park	N/A	PCAQCD	04-021-3007-81102-1	95.0	N/A	N/A	
Pinal County Housing	FRM	PCAQCD	04-021-3011-81102-1	95.0	N/A	N/A	
Pinal County Housing	FRM	PCAQCD	04-021-3011-81102-2	100.0	N/A	N/A	
Pinal County Housing	TEOM	PCAQCD	04-021-3011-81102-3	142.0	284	0100	
Stanfield	TEOM	PCAQCD	04-021-3008-81102-3	141.0	241	0300	
N/A	N/A	PCAQCD	04-021-7004-81102-1	No Data	N/A	N/A	
N/A	N/A	PCAQCD	04-021-7004-81102-2	No Data	N/A	N/A	
Santa Cruz County							
Nogales Post Office	BAM	ADEQ	04-023-0004-81102-1	50.0	N/A	N/A	
Nogales Post Office	BAM	ADEQ	04-023-0004-81102-3	69.0	138	1000	
Yavapai County							
Prescott Valley	FRM	ADEQ	04-025-2002-81102-1	11.0	N/A	N/A	
Yuma County							
Yuma Supersite	TEOM	ADEQ	04-027-8011-81102-3	60.0	173	0500	

III. HISTORICAL FLUCTUATIONS

Figures 3–1 and 3–2 display time series plots of the 24-hour PM10 concentrations for the period July 1, 2007 through June 30, 2012 for the exceeding West 43rd Avenue and Higley monitors. Additionally, the West 43rd Avenue and Higley monitors have continuous data available for the same period, which allows for a time series plot of the daily maximum hourly average PM10 concentrations as shown in Figure 3–3 and 3–4. Both figures indicate that the PM10 concentrations seen at the West 43rd Ave and Higley monitors on January 21 and 22, 2012, respectively, were in excess of normal historical fluctuations.

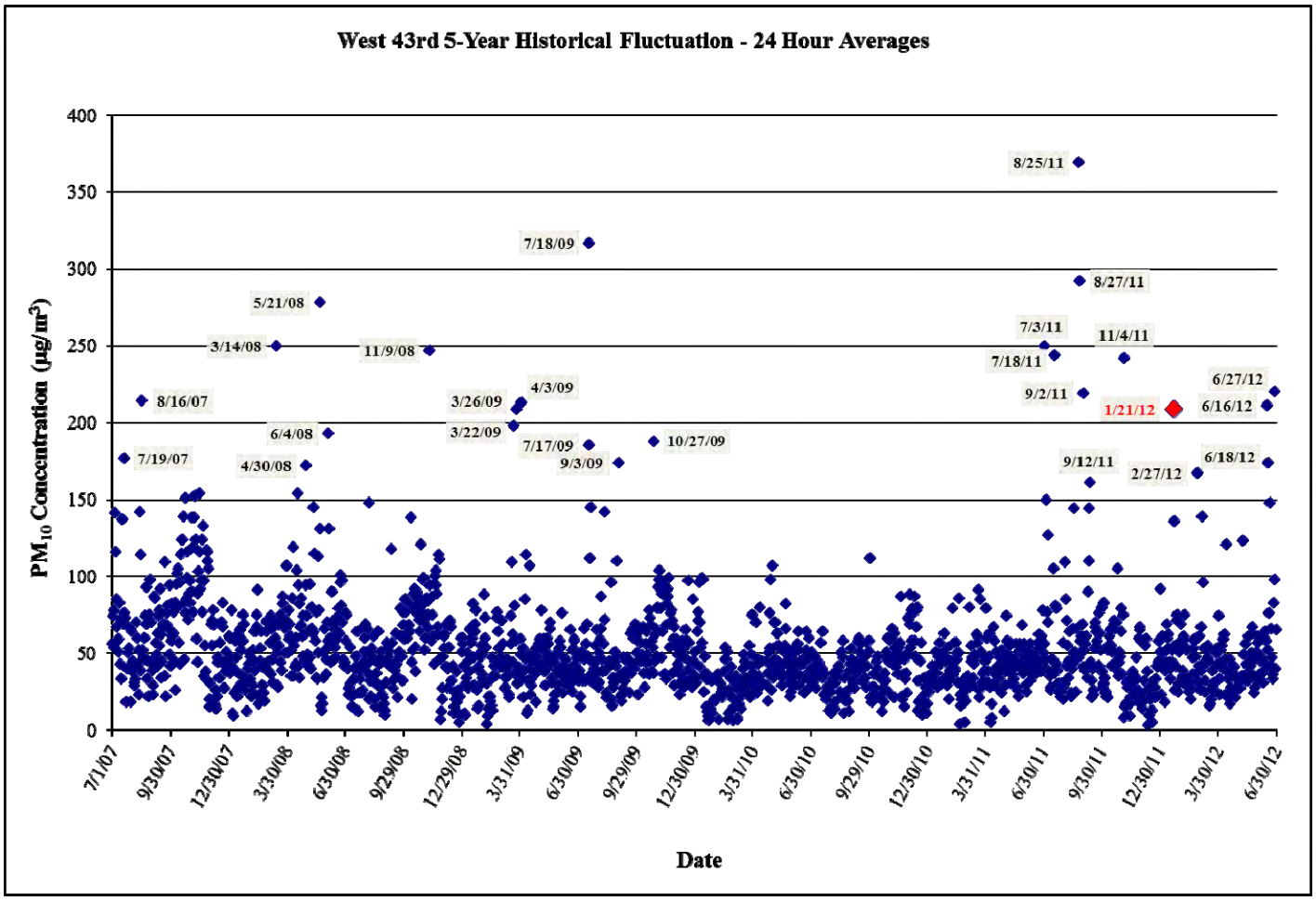


Figure 3-1. Plot of 24-hour average PM10 concentrations (July 2007 – June 2012) at the West 43rd Avenue monitor.

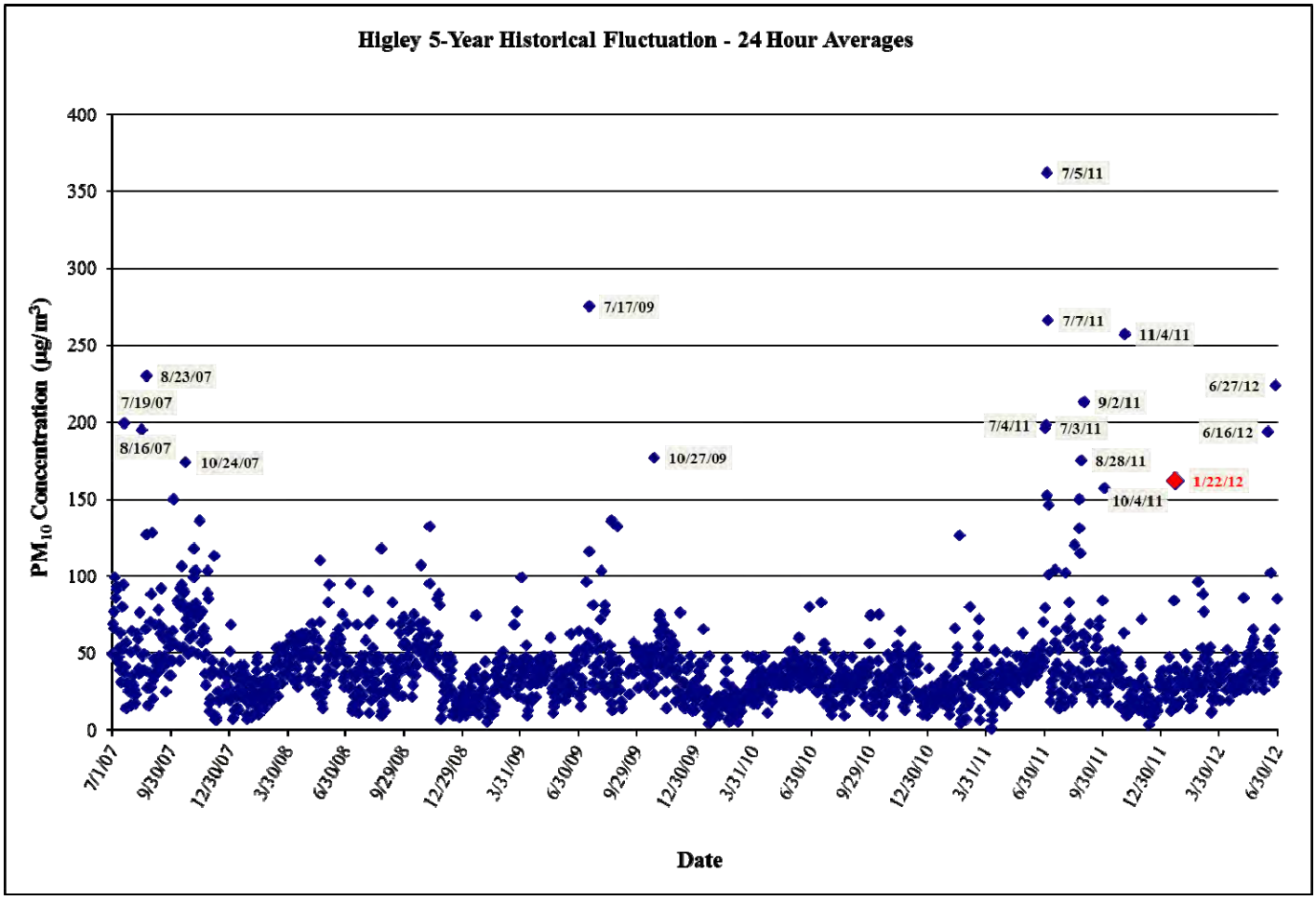


Figure 3-2. Plot of 24-hour average PM10 concentrations (July 2007 – June 2012) at the Higley monitor.

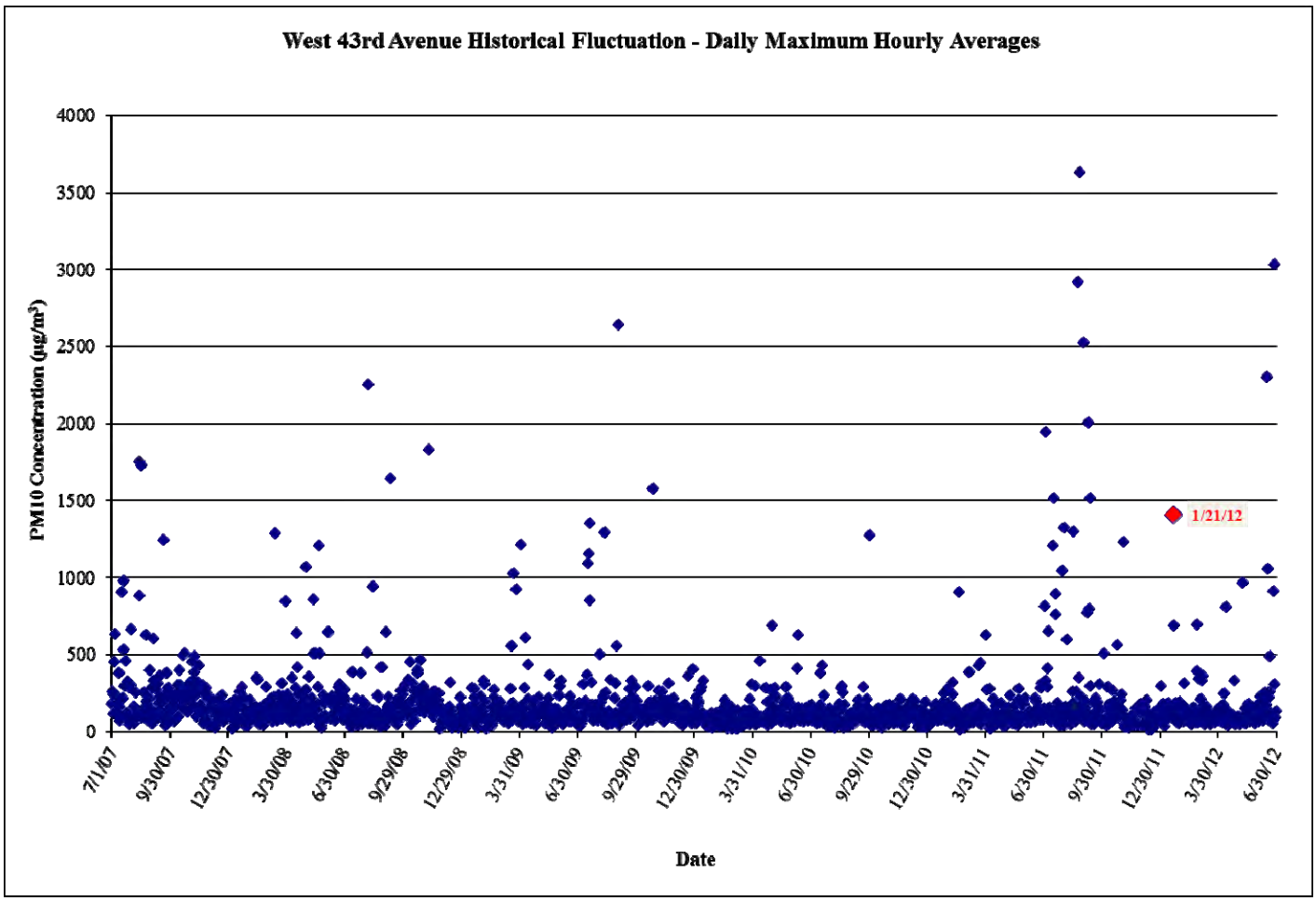


Figure 3-3. Plot of daily hourly maximum PM10 concentrations (July 2007 – June 2012) at the West 43rd Avenue monitor.

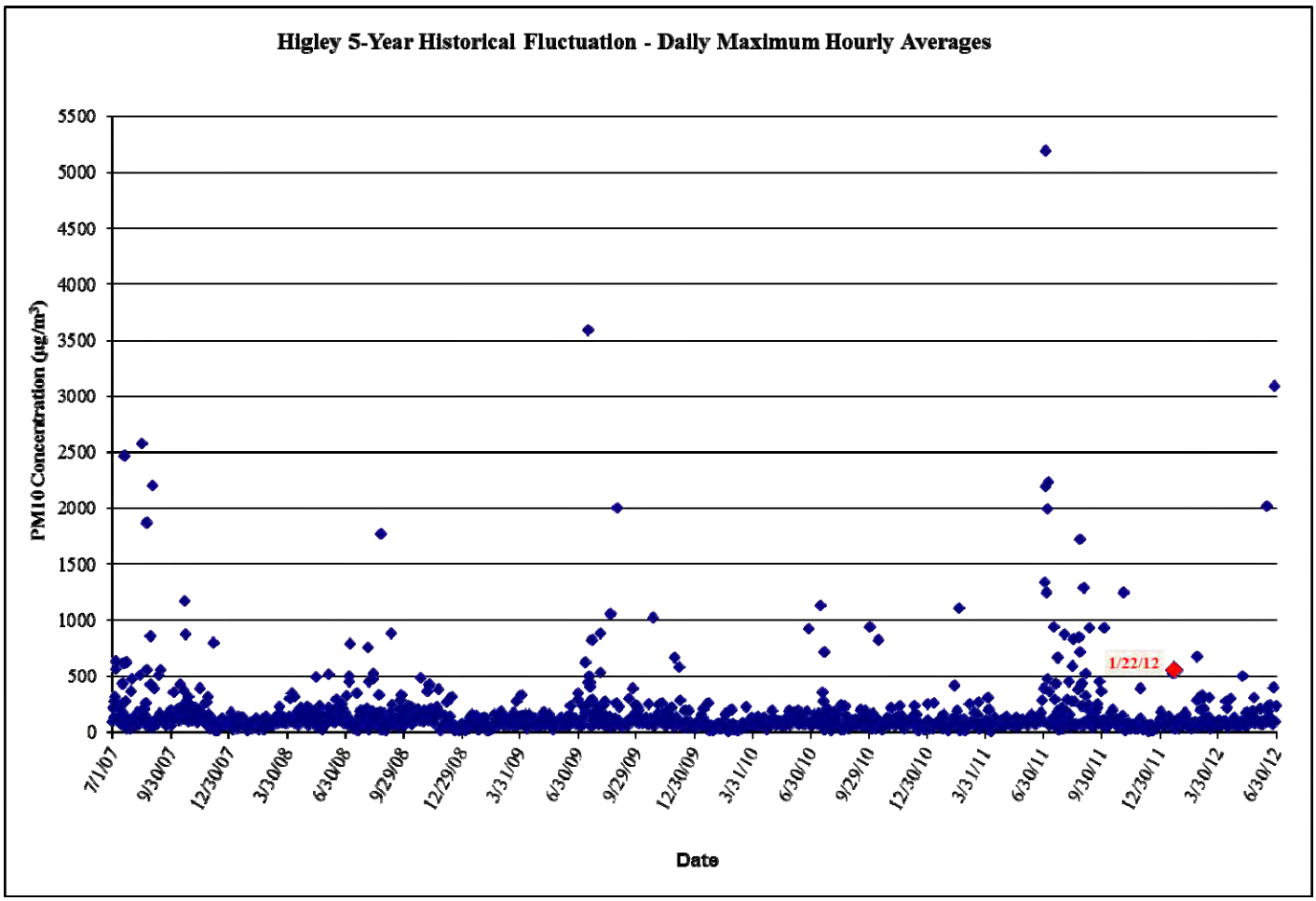


Figure 3-4. Plot of daily hourly maximum PM10 concentrations (July 2007 – June 2012) at the Higley monitor.

IV. NOT REASONABLY CONTROLLABLE OR PREVENTABLE

Section 50.1(j) of Title 40 CFR Part 50 requires that an event must be "not reasonably controllable or preventable" in order to be defined as an exceptional event. This requirement is met by demonstrating that despite reasonable control measures in place within Maricopa County and the nonattainment area, high wind conditions overwhelmed all reasonably available controls. The windblown dust and suspension event occurring on January 21-22, 2012 was directly related to strong and gusty winds generated by a passing low pressure system and associated cold front. For two episodes during the evening of January 21, 2012, gusty winds overwhelmed all reasonably available controls in the southern portions of the nonattainment area, causing a localized exceedance of the PM10 standard. Trapped, suspended windblown dust from these two episodes on January 21, 2012 subsequently caused the ensuing exceedance on January 22, 2012.

As shown in Section V, gusty winds during the evening of January 21, 2012 overwhelmed local controls and generated enough windblown dust to cause an exceedance of the 24-hour PM10 standard. Windblown dust generation in the nonattainment area was highest upwind of monitors where large sections of open and vacant land are located. The monitor that exceeded the standard on January 21, 2012 (West 43rd Avenue) is located in such an area on the fringe of the urbanized area. Windblown dust is more easily generated in these areas where resistance from surface roughness features of the built environment is limited. Nonattainment area-wide windblown dust generation from these two evening episodes on January 21, 2012 was significant enough to cause an exceedance of the PM10 standard on the following day, January 22, 2012, as trapped suspended dust took nearly 12 hours to exit and deposit out of the nonattainment area. Multiple monitors within the nonattainment area had PM10 concentrations within 10 $\mu g/m^3$ of the 24-hour PM10 standard, with one monitor (Higley) recording an exceedance with a concentration just 7 $\mu g/m^3$ over the effective PM10 standard of 155 $\mu g/m^3$.

Strict controls on local sources of fugitive windblown dust were in place and enforced during the event on January 21-22, 2012, but were ultimately overwhelmed by gusty low pressure system winds on January 21, 2012 and are not capable of addressing the subsequent trapped and suspended windblown dust that caused the exceedance on January 22, 2012. The event also occurred over a Saturday evening and Sunday morning, making contribution from industrial and commercial anthropogenic sources located in the areas around the exceeding monitors all the more unlikely.

The following sections describe the BACM- and MSM-level PM10 control measures in place on January 21-22, 2012, and the robustness of the programs designed to enforce these measures. Inspections of local sources performed before, during and after January 21-22, 2012, confirmed that no unusual anthropogenic PM10-producing activities occurred in Maricopa County, the Phoenix PM10 nonattainment area, nor the local areas surrounding the exceeding monitor.

Regulatory Measures and Control Programs

The Arizona Department of Environmental Quality (ADEQ) and the Maricopa County Air Quality Department (MCAQD) are responsible for implementing regulatory measures to control emissions from agricultural sources, stationary sources, fugitive dust sources, and open burning within Maricopa County. Three major programs provide or contribute to air pollution control measures for the Greater Phoenix area. These programs include:

1.) ADEQ's Agricultural Best Management Program (AgBMP)
2.) Maricopa County's Inspection and Compliance Program
3.) ADEQ's Air Quality Forecasting Program

Specifically, ADEQ is responsible for compliance assistance and enforcement of Agricultural Best Management Practices developed by the Governor's Agricultural Best Management Practices Committee, while MCAQD is responsible for compliance assurance for all other significant sources of PM10 emissions. In addition to routine inspections and inspections driven by complaints, inspections are often increased when 1.) ADEQ forecasters issue a High Risk for the Maricopa County Dust Control Forecast, 2.) ADEQ forecasters issue a High Pollution Advisory, or 3.) near real-time monitoring data indicate unique activity via high PM concentrations. The forecasting program and inspection / compliance programs work together so that resources can be best utilized during days that are of greatest risk for elevated PM emissions.

On July 25, 2002, EPA took initial action to finalize approval of the Best Available Control Measure (BACM) and the Most Stringent Measure (MSM) demonstrations in the Serious Area PM10 plan for the Maricopa County portion of the metropolitan Phoenix PM10 nonattainment area (67 FR 48718). These BACM and MSM demonstrations were again approved by EPA on July 14, 2006 (71 FR 43979). The Agricultural Best Management Practices General Permit rule and related definitions have been approved into the Arizona Administrative Code as R18-2-610 and R18-2-611 pursuant to Arizona Revised Statutes § 49-457[1] . Maricopa County regulations of PM10 emissions are listed in Table 4-1.

Table 4-1. Rules and Ordinances Regulating Particulate Matter Emissions in Maricopa County.

Rule/Ordinance Number & Title	Description
Rule 300: Visible Emissions	Establishes standards for visible emissions and opacity.
Rule 310: Fugitive Dust from Dust-Generating Operations	Establishes limits for the emissions of particulate matter into the ambient air from any property, operations, or activity that may serve as a fugitive dust source.
Rule 310.01: Fugitive Dust from Non-Traditional Sources of Fugitive Dust	Establishes limits for the emissions of particulate matter into the ambient air from open areas, vacant lots, unpaved parking lots, and unpaved roadways which are not regulated by Rule 310 and which are not required to have either a permit or a dust control plan.
Rule 311: Particulate Matter from Process Industries	Establishes emission rates based on process weight applicable to any affected operations not subject to Rule 316.
Rule 312: Abrasive Blasting	Establishes limits for particulate emissions from abrasive blasting operations.
Rule 314: Open Outdoor Fires and Indoor Fireplaces at Commercial and Institutional Establishments	Establishes limits for the emissions of air contaminants produced from open burning.
Rule 316: Nonmetallic Mineral Processing	Establishes limits for the emissions of particulate matter into the ambient air from any nonmetallic mining operation or rock product processing plant.

[1] Updates to the AgBMP program in December , 2011, clarified BMPs for crop and added BMPs for animal operations. Effective 12/29/2011, R18-2-611 was renumbered to R18-2-610.0,1 **Agricultural PM10 Genral Permit for Crop Operations** and R18-2-611.01, **Animal Operations PM10 General Permit** was added. Definitions for Crop Operations were revised at R18-2-610 and new definitions for Animal Operations were added at R18-2-611.

Rule/Ordinance Number & Title	Description
Rule 317: Hospital/Medical/ Infectious Waste Incinerators	Establishes limits for the emissions of air pollutants from medical waste incinerators.
Rule 322: Power Plant Operations	Establishes limits for the emissions of nitrogen oxides, sulfur oxides, carbon monoxide and particulate matter from existing power plants and cogeneration plants.
Rule 323: Fuel Burning Equipment from Industrial/Commercial/ Institutional (ICI) Sources	Establishes limits for the emissions of nitrogen oxides, sulfur oxides, carbon monoxide and particulate matter from ICI sources.
Rule 324: Stationary Internal Combustion (IC) Engines	Establishes limits for the emissions of carbon monoxide, nitrogen oxides, sulfur oxides, volatile organic compounds, and particulate matter from stationary internal combustion engines, including stationary IC engines used in cogeneration.
Rule 325: Brick and Structural Clay Products (BSCP) Manufacturing	Establishes limits for particulate matter emissions from the use of tunnel kilns for curing in the brick and structural clay product (BSCP) manufacturing processes.
Ordinance P-25: Leaf Blower Restriction	Establishes restrictions for leaf blowers in incorporated and unincorporated sections of Area A in Maricopa County.
Ordinance P-26: Residential Woodburning Restriction	Establishes restrictions for residential woodburning.
Ordinance P-27: Vehicle Parking and Use on Unstabilized Vacant Lots	Establishes restrictions for vehicle parking and use on unstabilized vacant lots in unincorporated sections of Area A in Maricopa County.
Ordinance P-28: Off-Road Vehicle Use in Unincorporated Areas of Maricopa County	Establishes restrictions for operating vehicles on unpaved property in unincorporated areas of Maricopa County.
Arizona Administrative Code R18-2-611 & 610: Agricultural PM10 General permit	Establishes a requirement for commercial farmers to implement best management practices and maintain a record demonstrating compliance

In addition to the rules and regulations listed in the above table, other PM10 reducing control measures (e.g., paving of unpaved roads, PM10 certified street sweepers, controlling unpaved parking lots, etc.) have been committed to, and implemented by, local jurisdictions throughout the PM10 nonattainment area, and incorporated into the Arizona SIP through PM10 plans such as the Revised MAG 1999 Serious Area Particulate Plan for PM10 for the Maricopa County Nonattainment Area. The Pinal County Air Quality Control District (PCAQCD) also implements regulatory control measures on emissions from existing and new non-point sources within Pinal County (see Table 4-2). Additionally, the PCAQCD implements specific nonattainment rules for that part of the Phoenix PM10 nonattainment area that resides in Pinal County (see Table 4-3).

Table 4-2. Pinal County Rules Regulating Existing and New Non-point Sources in Pinal County.

Article Number & Title	Description
Article 2: Fugitive Dust	Provides a mechanism to reasonably regulate operations which periodically may cause fugitive dust emissions into the atmosphere
Article 3: Construction Sites – Fugitive Dust	Improves the control of excessive fugitive dust emissions that have been traditionally associated with construction, earthwork, and land development, and thereby minimize nuisance impacts

Table 4-3. Pinal County Rules Regulating Fugitive Dust in Pinal County Portion of MC PM10 NAA.

Article Number & Title	Description
Article 4: Nonattainment Area Rules; Dustproofing for Commercial Parking, Drives and Yards	Establishes rules to avoid violations of the prevailing PM10 standard and additionally minimize nuisance impacts by improving control of excessive fugitive dust emissions from unpaved parking lots
Article 5: Nonattainment Area Rules; Stabilization for Residential Parking and Drives	Establishes rules for stabilizing residential properties
Article 6: Restrictions on Vehicle Parking and Use on Vacant Lots	Establishes rules for unpaved or unstabilized vacant lots
Article 7: Construction Sites in Nonattainment Areas – Fugitive Dust	Establishes rules to avoid violations of the prevailing PM10 standard and additionally minimize nuisance impacts by improving control of excessive fugitive dust emissions from activities associated with construction, earthwork, or land development.
Article 8: Nonattainment Area Rules, Requirement for Stabliazation of Disturbed Areas at Vacant Lots	Establishes rules for stabilizing disturbed areas at vacant lots

PM10 Rule Effectiveness

MCAQD analyzed the effectiveness of its fugitive dust rules (Rules 310, 310.01 and 316) in terms of permit compliance rates. This rule effectiveness (RE) study was designed to assess how many sources regulated by MCAQD during the subject time period received no PM10 emissions-related violations. As a basis for comparison, the percentage of permitted sources in compliance during calendar year 2007 was 76% for sources subject to Rule 310, 85% for Rule 310.01 sources, and 40% for Rule 316 sources. In early 2008, Rules 310, 310.01, and 316 were strengthened, and new ordinances (covering additional source categories such as leaf blowers, vacant lots, and off-road vehicles) were adopted. These enhancements resulted from MCAQD department's obligations under such agreements as the 2005 Revised PM10 State Implementation Plan for the Salt River Area and the Maricopa Association of Governments (MAG) 2007 Five Percent Plan for PM10 for the Maricopa County Nonattainment Area to reduce PM10 emissions throughout the county. Three major areas that contributed to increased compliance were an increase in departmental staffing (especially inspectors), a robust training program, and regulatory changes that broadened and strengthened control measures under Rules 310, 310.01, and 316.

Source compliance rates were re-assessed for FY 2009 (July 2008–June 2009), a period that allowed time for the new and revised regulations to take effect. The results showed significant increases in compliance compared with the earlier period: to 90% (from 76%) for Rule 310 sources, 95% compliance (from 85%) for Rule 310.01 sources, and 65% (from 40%) for Rule 316 sources. These improvements continued into calendar year 2010 with compliance rates of 94% for Rule 310 sources, 96% for Rule 310.01, and 73% for Rule 316 sources. The timeline below illustrates the improvements in RE over the last several years, and also points out significant revisions to previous rules, as well as newly adopted rules and ordinances.

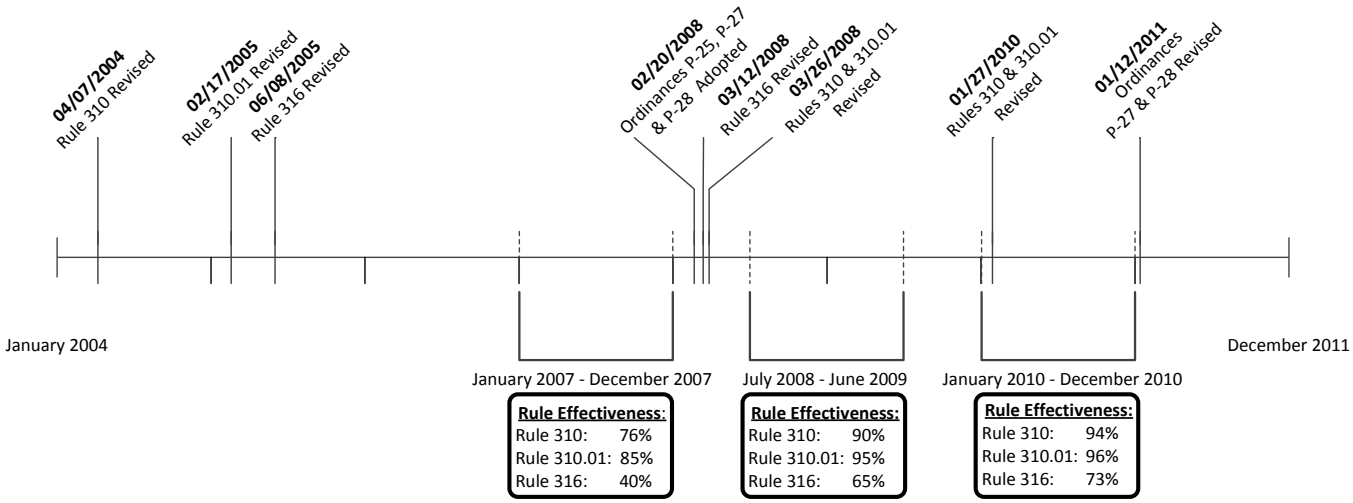


Figure 4-1. Timeline of Maricopa County fugitive dust rules and ordinances.

Compliance and Enforcement Activities

MCAQD is prepared to proactively respond to high wind events and protect human health and well-being. MCAQD's approach consists of two primary components: routine proactive inspections, as well as surveillance inspections, conducted both during and after significant events. MCAQD routinely inspects dust control-permitted sites and increases the frequency of inspections for permits covering areas of 10 acres or more. Rule 316 sources are also regularly inspected multiple times every year. Maricopa County also responds to the majority of complaints within 24 hours.

Maricopa County monitors the ADEQ Five-Day Dust Control Forecast to identify the potential for elevated PM_{10} pollution levels due to high winds or stagnant conditions. When a High Pollution Advisory (HPA) is issued for Maricopa County, MCAQD conducts additional increased surveillance before, during, and after the forecast event(s). MCAQD also conducts event surveillance and post-event activities during exceedance days that had not been forecast (i.e., those instances in which an HPA had not been issued).

Pre-event surveillance consists of surveying high-risk areas for any dust-generating activities, educating sources of the impending HPA event, and issuing violations for failure to comply with local, state, or federal regulations. During the event, MCAQD inspectors survey high-risk areas to confirm that control measures are in place, document any violations, and contact other regulatory agencies if necessary. Post-event activities include continued surveys of high-risk areas, re-inspecting sources that had received violations within two business days, and an internal MCAQD debriefing of event activities.

During 2011, a total of 14 MCAQD air monitoring sites have been upgraded with new equipment that allows the monitoring sites to automatically report monitored readings at 5-minute intervals. Previously, hourly readings were only available. The real-time data reporting system includes a mechanism to alert MCAQD field staff when PM10 concentrations are elevated. The system allows MCAQD responders to review concentrations at the monitor and to consult the National Weather Service website to check for weather event activity. This capability allows the MCAQD responder to identify regional events and

monitor specific issues. If necessary, the MCAQD responders can inform nearby stakeholders and local governments of the elevated PM10 concentrations.

For January 21, 2012, a Maricopa County Dust Control Forecast was issued by ADEQ indicating a low-risk level for unhealthy PM10. The Dust Control Forecast stated there was a potential for west winds of 5 to 15 mph and wind gusts up to 20 mph. In addition, a Maricopa County Dust Control Forecast was issued by ADEQ indicated a low-risk level of unhealthy PM10 for January 22, 2012.

An evaluation of all inspection reports, air quality complaints, compliance reports, and other documentation do not indicate any evidence of unusual anthropogenic-based PM10 emissions. During the time period of January 18 through January 25, 2012, MCAQD inspectors conducted a total of 331 inspections of permitted facilities, of which 141 were at fugitive dust sources. Additionally, MCAQD conducted 6 inspections on vacant lots and unpaved parking lots during this period.

During this 8-day period, a total of 13 violations were issued county-wide for PM10- and non-PM10-related violations. One violation was issued for PM10 emissions within a 4-mile radius of an exceeding monitor; West 43rd Ave.

On January 19, 2012, a violation was issued to an owner of a vacant lot for failure to stabilize surface areas that had been disturbed by vehicle activity. The vacant lot is located 3.5 miles northeast of the West 43rd Ave monitor, and the total disturbed surface area was 0.02 acres. The inspector noted that gravel had been placed on the vacant lot, but vehicle use had created some unstable disturbed areas. The violation was the result of a complaint MCAQD received on January 19, 2012. The inspector also met with the owner of the vacant lot in person on January 19, 2012 and explained the situation along with ways to remedy the violation.

MCAQD was prepared for any complaints received due to the high wind event. During the 8- day period from January 18 through January 25, 2012, MCAQD received 36 complaints, of which 22 were windblown dust-related. Each complaint was assigned to and investigated by a MCAQD inspector. A review of all pertinent records from this period indicates that MCAQD inspectors observed one PM10 emissions violation, as detailed in the previous paragraph, of local, state, or federal regulations within a 4-mile radius of an exceeding monitor; West 43rd Ave.

In addition to MCAQD's efforts in pre-event surveillance and proactive inspections, ADEQ's Agricultural Best Management Practice Program (Ag BMP) inspector also monitors the ADEQ Five-Day Dust Control Forecast and the MCAQD air monitoring sites that include real-time data. The ADEQ Ag BMP inspector uses specific knowledge of seasonal activities and associations with the local growers and dairymen to communicate the importance of limiting dust-generating activities, especially during high-wind events. Additional outreach is conducted with facility representatives prior to forecasted high-wind alert days. Should the PM10 readings at a MCAQD air monitoring site show notable increases, the ADEQ Ag BMP inspector is dispatched to contact the owners and operators of agriculture fields in the area to discern if their activities are causing negative impacts. The Ag BMP inspector is prepared to respond to most agriculture complaints within 24 hours.

Based on a review of the inspection reports and site visit documentation, there is no evidence to suggest that agricultural activities produced unusual PM10 emissions. From January 20 through January 22, 2011, the ADEQ Ag BMP inspector responded to two air quality complaints regarding agricultural dust observations on January 20, 2012. Both instances were determined to be normal agricultural operation after discussion with facility representatives.

Conclusions

The windblown dust and suspension event occurring on January 21-21, 2012 was directly related to strong and gusty winds generated by a passing low pressure system and associated cold front. For two episodes during the evening of January 21, 2012, gusty winds overwhelmed all reasonably available controls in the southern portions of the nonattainment area, causing a localized exceedance of the PM10 standard. Trapped, suspended windblown dust from these two episodes on January 21, 2012 subsequently caused the ensuing exceedance on January 22, 2012. The Maricopa County area is designated as a serious nonattainment area for PM10 and is required to have BACM for all significant sources of PM10. BACM-approved control measures on significant anthropogenic sources were in place and enforced during the event, and pro-active tracking and response to the event by regulatory agencies and local governments confirmed the uncontrollable nature of the windblown dust emissions. Therefore, these pre-existing/prior approved required controls are adequate for meeting the requirements of an exceptional event and should be considered "reasonable" for these purposes.

Despite the deployment of comprehensive control measures and sophisticated response programs, high wind conditions associated with the low pressure system winds generated and windblown dust on the evening of January 21, 2012, overwhelming controls within the nonattainment area. Sustained winds up to 30 mph and gusts over 40 mph overwhelmed all available efforts to limit windblown PM10 concentrations from the event. Subsequently trapped and suspended windblown dust on January 22, 2012 cannot be addressed by reasonably available controls and took over 12 hours to deposit out of the nonattainment area before causing an exceedance. The fact that this was a natural event involving low pressure system winds that generated windblown PM10 on January 21, 2012 and suspended that same windblown PM10 on January 22, 2012, provides strong evidence that the exceedances on January 21-22, 2012 recorded at the West 43rd Avenue and Higley monitors were not reasonably controllable or preventable.

V. CLEAR CAUSAL RELATIONSHIP

Introduction

A demonstration of the clear causal relationship between windblown dust generated by low pressure system winds and the exceedance at the West 43rd Avenue monitor on January 21, 2012, as well as the subsequent exceedance from trapped, suspended windblown dust at the Higley monitor on January 22, 2012, is provided in this section. A gusty low pressure system and associated cold front generated sustained winds up to 30 mph and gusts of 40 mph in the Maricopa nonattainment area on the evening of January 21, 2012 during two distinct episodes. PM10 concentrations were elevated in the southern portions of the nonattainment area in sync with the arrival of low pressure system winds. Although the monitors in the southern portions of the nonattainment area displayed elevated PM10 concentrations associated with the arrival of the low pressure system winds, the West 43rd Avenue monitor was the only monitor to exceed on January 21, 2012. This monitor is located in an area on the urbanized fringe that has more upwind sources of open and vacant land than other nearby monitors, allowing for the generation of more windblown dust without the resistance from surface roughness elements of the built environment. In this area, gusty winds overwhelmed local controls and were strong enough to generate the windblown dust that was the sole cause of the exceedance at the West 43rd Avenue monitor.

Winds from the passing low pressure system rapidly subsided over the midnight hour on January 21, 2012 and into the morning hours of January 22, 2012. This subsequently trapped and suspended the windblown dust that had been generated earlier in the evening of January 21, 2012. The suspended windblown dust took over 12 hours to fully deposit and exit the nonattainment area on January 22, 2012. Multiple monitors within the nonattainment area had PM10 concentrations within 10 $\mu g/m^3$ of the 24-hour PM10 standard, with one monitor (Higley) recording an exceedance with a concentration just 7 $\mu g/m^3$ over the effective PM10 standard of 155 $\mu g/m^3$.

A detailed description of the meteorology that caused the natural windblown dust exceedance event at the West 43rd Avenue and Higley monitors is described below in a series of time-stamped maps. Visibility photos from within the nonattainment area provide additional temporal evidence of the link between the blowing windblown dust (and subsequent suspended windblown dust) generated by the passing low pressure system winds and high PM10 concentrations. The weight of evidence from these sources provides the clear causal relationship between the windblown dust generated and suspended by low pressure system winds and the exceedances at the West 43rd Avenue and Higley monitors on January 21-22, 2012.

Time Series Maps and Visibility Photos.

Figures 5–1 through 5–20 provide a time series GIS-based visualization of the meteorology and PM10 concentrations associated with the storm system. The data displayed in the following maps were gathered from five data sources. All available meteorological and air quality data was used in order to present the most complete story of the event. Table 5–1 displays the types of data used from each agency in creating the maps.

Table 5-1. Data Sets Used in the Creation of Time Series GIS Maps.

Agency	Data Sets
Arizona Department of Environmental Quality (ADEQ)	Hourly PM10 Concentrations, Wind Speed, Wind Direction and Wind Gusts
Arizona Meteorological Network (AZMET)	Hourly Wind Speed, Wind Direction and Wind Gusts
Maricopa County Air Quality Department (MCAQD)	5-Minute PM10 Concentrations, Wind Speed, Wind Direction, and Wind Gusts (hourly data used when 5-minute was unavailable)
Pinal County Air Quality Control District (PCAQCD)	Hourly PM10 Concentrations, 5-Minute and Hourly Wind Speed, Wind Direction and Wind Gusts
National Weather Service (NWS)	Point in Time Wind Speed, Wind Direction, Wind Gusts, and Visibility

Map Description

A description of each time series map is provided to highlight important data in each map and explain the progression of the meteorology and PM10 concentrations through time. Taken as a whole, the maps and associated explanatory text describe the clear causal relationship between the windblown dust generated and suspended by low pressure system winds and the PM10 exceedances at the West 43rd Avenue and Higley monitors.

January 21, 4:00 PM – 4:30 PM

As the low pressure system enters the nonattainment area from the west, increased winds and PM10 concentrations are noted at the Buckeye monitor. Wind gusts up to 30 mph are recorded at the Buckeye monitor, reducing visibility in the area to 8.0 miles. PM10 concentrations are low and normal throughout the rest of the nonattainment area, indicating no unusual PM10-producing anthropogenic activities prior to the low pressure system arrival.

January 21, 5:00 PM – 5:30 PM

An hour later, winds have increased in intensity and duration in the western portion of the nonattainment area. Gusts up to 34 mph and sustained winds up to 29 mph recorded at Luke Air Force Base have generated significant windblown dust in the area, reducing visibility to as low as 0.8 miles. The southern Phoenix area monitors have begun to record high PM10 concentration in response to the arrival of the low pressure system winds. This is the beginning of two wind events during January 21, 2012 that will eventually lead to an exceedance at the West 43rd Avenue monitor. Located on the urban fringe, with substantial areas of vacant and open upwind land uses, the West 43rd Avenue monitor records both the highest PM10 concentrations and wind speeds of the southern Phoenix monitors.

January 21, 5:30 PM – 6:00 PM

The low pressure system continues to move eastward across the nonattainment area, with winds that have now reached the southeastern West Chandler and Higley monitors. The Chandler Municipal Airport records visibility reduced to 5.0 miles and registers gusts as high as 37 mph. Visibility remains reduced in the western nonattainment area (5.0 and 7.0 miles reported) in response to strong and gusty winds. PM10 concentrations continue to rise at the southern Phoenix area monitors as well, as the front of the low pressure system nears the monitors.

January 21, 6:00 PM – 6:30 PM

Both this period and the following half-hour period represent the peak wind speed and PM10 production periods for the southern Phoenix area monitors. Gusts up to 33 mph and sustained wind speeds of 23 mph generate significant windblown dust at these area monitors. The southeastern monitors also show increased PM10 production and stronger winds. The bulk of the PM10 production remains confined to the southern portions of the nonattainment area, as these areas have far more upwind vacant and open land uses than the urbanized monitors located in the central and northern portions of the nonattainment area.

January 21, 6:30 PM – 7:00 PM

Winds from the south-southwest continue to generate windblown dust in the southern portions of the nonattainment area. Gusts as high as 40 mph and sustained winds of 30 mph are reported at the Chandler Municipal Airport, with visibility reduced to 5.0 miles. The central Sky Harbor Airport also reports reduced visibility of 8.0 miles from windblown dust that had been generated near the southern Phoenix monitors in response to gusts as high as 33 mph.

January 21, 7:30 PM – 8:00 PM

PM10 concentrations from the first wind event have largely subsided across the nonattainment area, except at the southeastern monitors, since this area experienced the windblown dust from the first event later than the western and central portions of the nonattainment area. However, conditions remain unstable as sustained winds in the upper teens and gusts in the upper 20s continue to generate windblown dust from surfaces that have been disturbed form prior, stronger wind events. The western Buckeye monitor continues to show windblown dust activity, as visibility is only at 7.0 miles in the area. The National Weather Service earlier at 5:40 PM forecast the possibility of blowing dust from the California deserts impacting aviation visibilities throughout the night (see Appendix B), which may be a cause of the continued poor visibility conditions at the Buckeye monitor throughout the following periods.

January 21, 8:00 PM – 8:30 PM

A small burst of wind speed (30 mph gust) at the southern Phoenix monitors briefly increase PM10 concentrations. Some of the transported windblown dust that affected the Buckeye monitor a half hour earlier appears to now also affect the northern and central Dysart and Glendale monitors. The southeastern monitors continue to show reduced PM10 concentrations as the effects from the first wind event have subsided.

January 21, 8:30 PM – 9:00 PM

Winds remain elevated throughout the nonattainment area. PM10 concentrations remain high in the western and southern portions of the nonattainment area, but have begun to equalize due to the mixing effect of the strong winds.

January 21, 9:30 PM – 10:00 PM

The beginning of the second large windblown dust event is evident in this time period. Visibility has been further reduced to 5.0 miles at the western Buckeye monitor, due to wind gusts up to 34 mph and sustained speeds up to 23 mph. The southern and central Phoenix monitors show increased PM10 concentrations in response to the strong and uniform winds from the west. Concentrations greater than 500 $\mu g/m^3$ are noted at the West 43rd Avenue, Durango Complex and South Phoenix monitors under wind

gusts up to 31 mph. The southeastern nonattainment area monitors also show increased PM10 concentrations from the initiation of this second wind event.

January 21, 10:00 PM – 10:30 PM

Visibility is reduced to 2.0 miles at the Buckeye Municipal Airport as the strongest winds (36 mph gusts) from the second event generate PM10 concentrations over 1,000 $\mu g/m^3$ at the Buckeye monitor. PM10 from the western portions of the nonattainment area also transport into the central region of the nonattainment area, causing monitors such as the Glendale and North Phoenix monitors to remain elevated, despite having very little upwind windblown dust source areas. New windblown PM10 generation is seen at the South Phoenix monitor in response to strong winds picking up dust from source areas that have been previously disturbed by early evening wind events. The National Weather Service reports gusts up to 35 knots (40 mph) at the Sky Harbor Airport during this period. Windblown dust is being blown directly east across the entire nonattainment area, reducing visibility at the Williams Gateway Airport in the eastern portion of the nonattainment area to 5.0 miles.

January 21, 11:00 PM – 11:30 PM

The strong winds from the second wind event have begun to subside, and will dissipate quickly in the following periods. However, during this period the prevailing winds are strong enough to transport the suspended dust into the nonattainment from the still visibly affected Buckeye monitor. The central and southern portions of the nonattainment area all show high PM10 concentrations in response to the windblown dust generated an hour earlier during the second event.

January 21, 11:30 PM – 12:00 AM

Most of the prevailing winds during this period are less than 10 mph, with maximum gusts reported at 24 mph in the eastern portions of the nonattainment area. Windblown dust generated in the western portions is now slowing transporting across the central portion of the nonattainment area. The next few periods clearly show the slow movement of the suspended dust eastward as the winds speeds continue to decrease.

January 22, 12:30 AM – 1:00 AM

Trapped, suspended windblown dust in the central portions of the nonattainment area slowly moves east, keeping PM10 concentrations at the central and southern Phoenix monitors above 500 $\mu g/m^3$. Visibility has been reduced to 6.0 miles at Sky Harbor Airport in response to this trapped dust. Windblown dust that was generated in the southeast portion of the nonattainment area remains suspended over the Higley monitor during this and the following periods, reducing visibility at the Williams Gateway Airport to 5.0 miles. The western Buckeye monitor has lowered PM10 concentrations somewhat, but not yet back to normal levels. Visibility of 7.0 miles at the Buckeye Municipal Airport illustrates that suspended dust is present west to east across the whole southern portion of the nonattainment area.

January 22, 1:00 AM – 1:30 AM

Maximum sustained wind speeds only reach 9 mph, continuing to trap the suspended windblown dust over the southern portions of the nonattainment area. The slow march of the suspended windblown dust eastward can be seen by the fact that the eastern most central Phoenix monitor (Central Phoenix) now records the highest PM10 concentrations. Similar trapped, suspended windblown dust effects are also recorded at monitors in Pinal County to the south of the nonattainment area.

January 22, 1:30 AM – 2:00 AM

In addition to very low wind speeds, an inversion has settled over the nonattainment, preventing the suspended windblown dust from exiting the nonattainment area.

January 22, 2:30 AM – 3:00 AM

The nonattainment area air shed is equalizing in terms of PM10 concentrations as the suspended windblown dust remains trapped. Visibility is still poor in both the western and eastern portions of the nonattainment area with both the Buckeye Municipal and Williams Gateway Airports reporting visibilities of 5.0 miles.

January 22, 4:30 AM – 5:00 AM

All but the northernmost nonattainment area monitors show approximately the same, equally high PM10 concentrations. Wind speeds over 5 mph are largely absent, contributing to the uniform level of PM10 concentrations throughout the region. Windblown dust is still trapped and suspended, despite it being approximately five hours since the windblown dust was generated.

January 22, 6:30 AM – 7:00 AM

As the sun rises and the inversion begins to breakup, the suspended windblown dust from the evening of January 21, 2012 begins to settle out of the air. Visibility has improved to 8.0 miles at the Buckeye Municipal Airport and back to 10.0 miles or better throughout the rest of the nonattainment area. Lower PM10 concentrations are now noted at the state SuperSite monitor and the Glendale monitor.

January 22, 8:30 AM – 9:00 AM

Deposition of the suspended windblown dust continues throughout the nonattainment area, with only the Higley and Apache Junction monitors recording PM10 concentrations above 150 $\mu g/m^3$.

January 22, 10:30 AM – 11:00 AM

The last of the suspended windblown dust is nearly deposited out, almost 12 hours removed from the windblown event. PM10 concentrations will return to normal levels for the remainder of January 22, 2012.

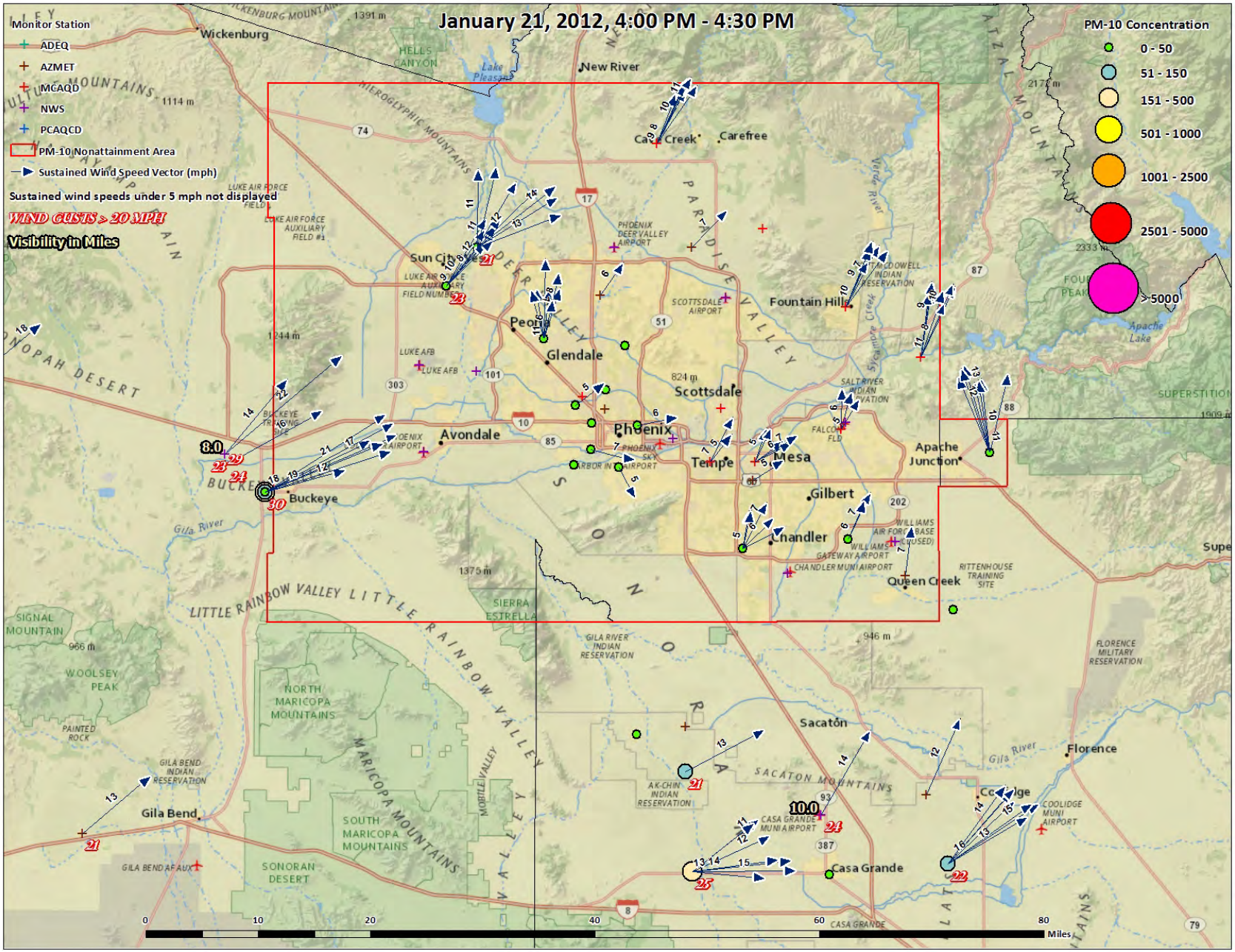


Figure 5-1. January 21, 2012, 4:00 PM – 4:30 PM.

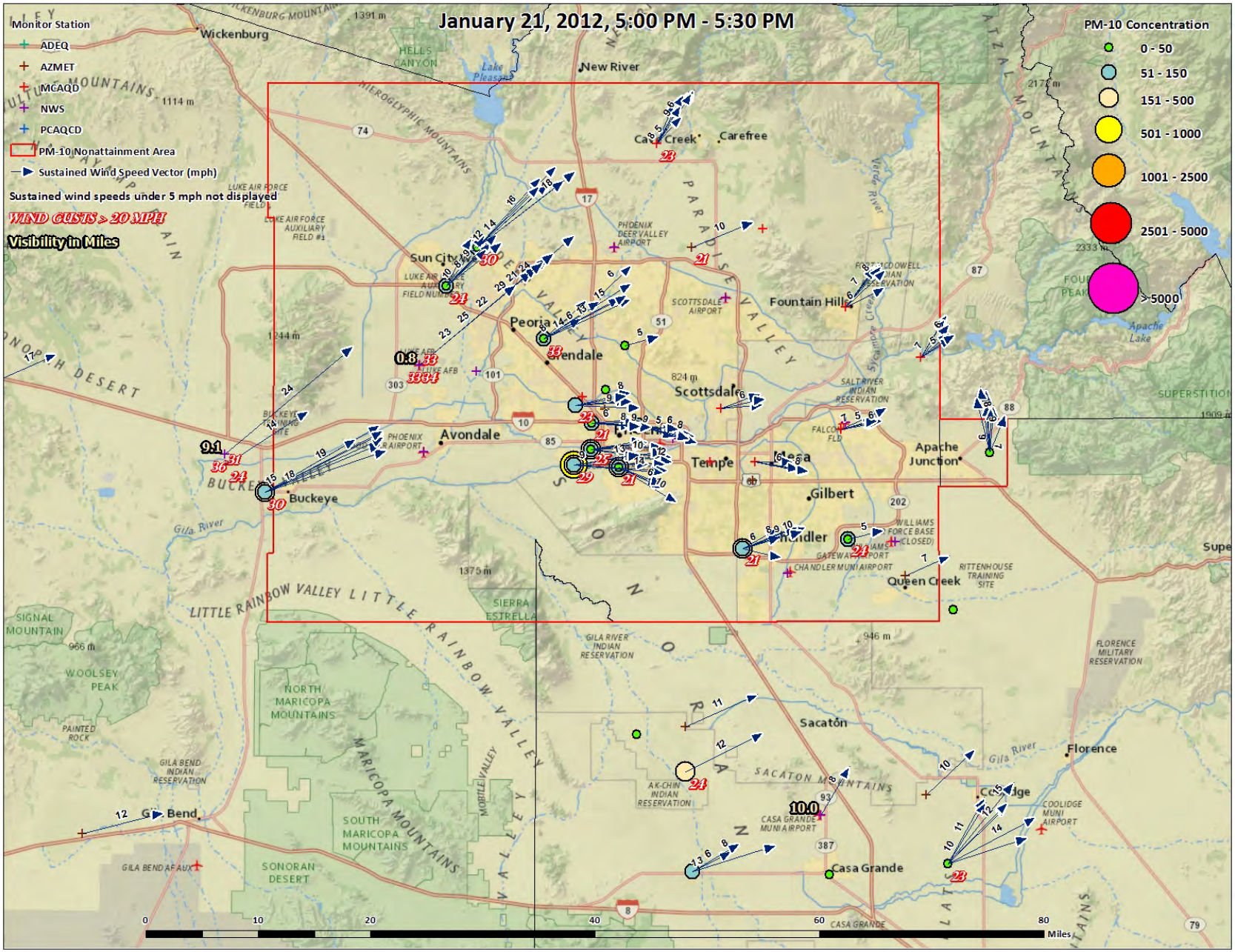


Figure 5-2. January 21, 2012, 5:00 PM – 5:30 PM.

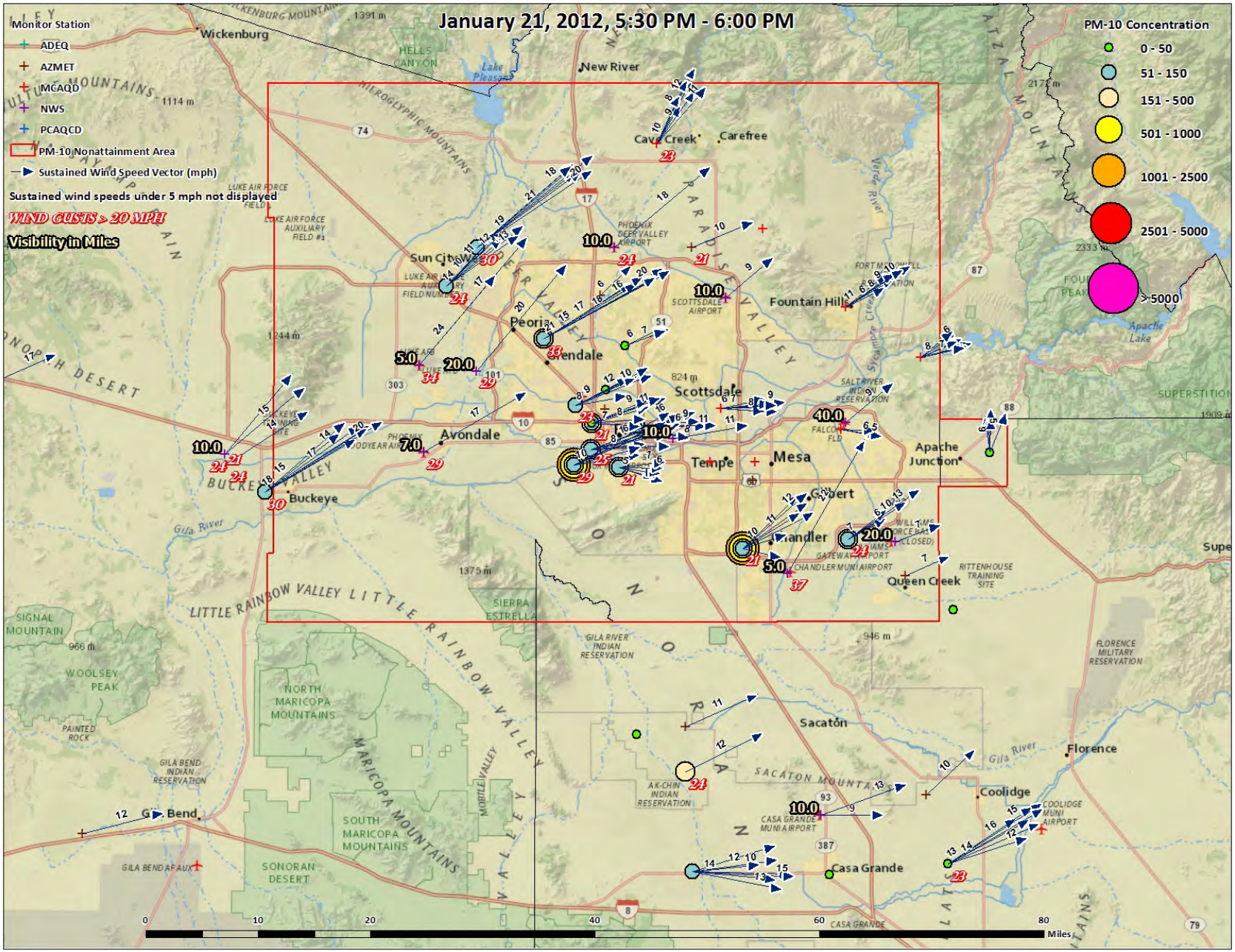


Figure 5-3. January 21, 2012, 5:30 PM – 6:00 PM.

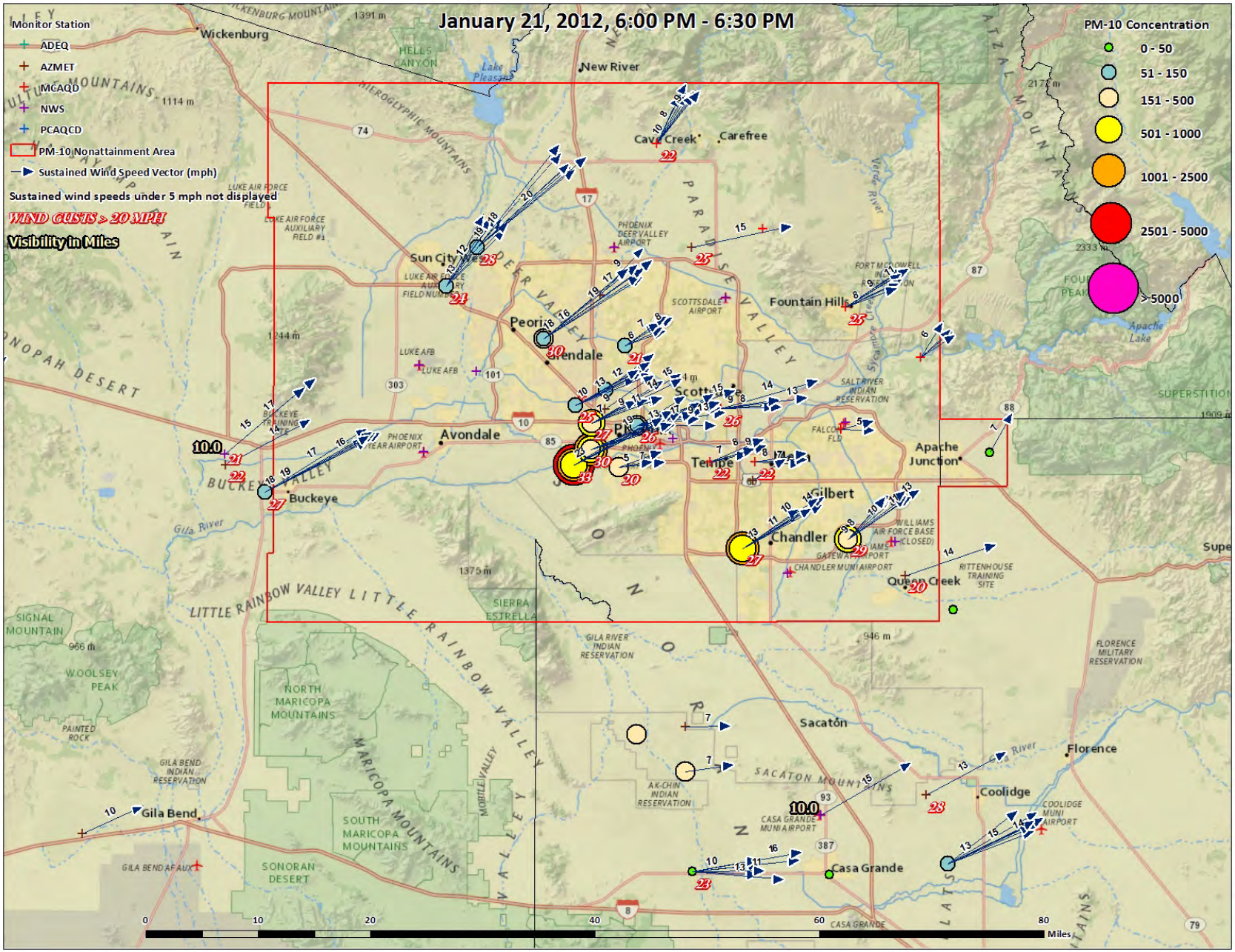


Figure 5-4. January 21, 2012, 6:00 PM – 6:30 PM.

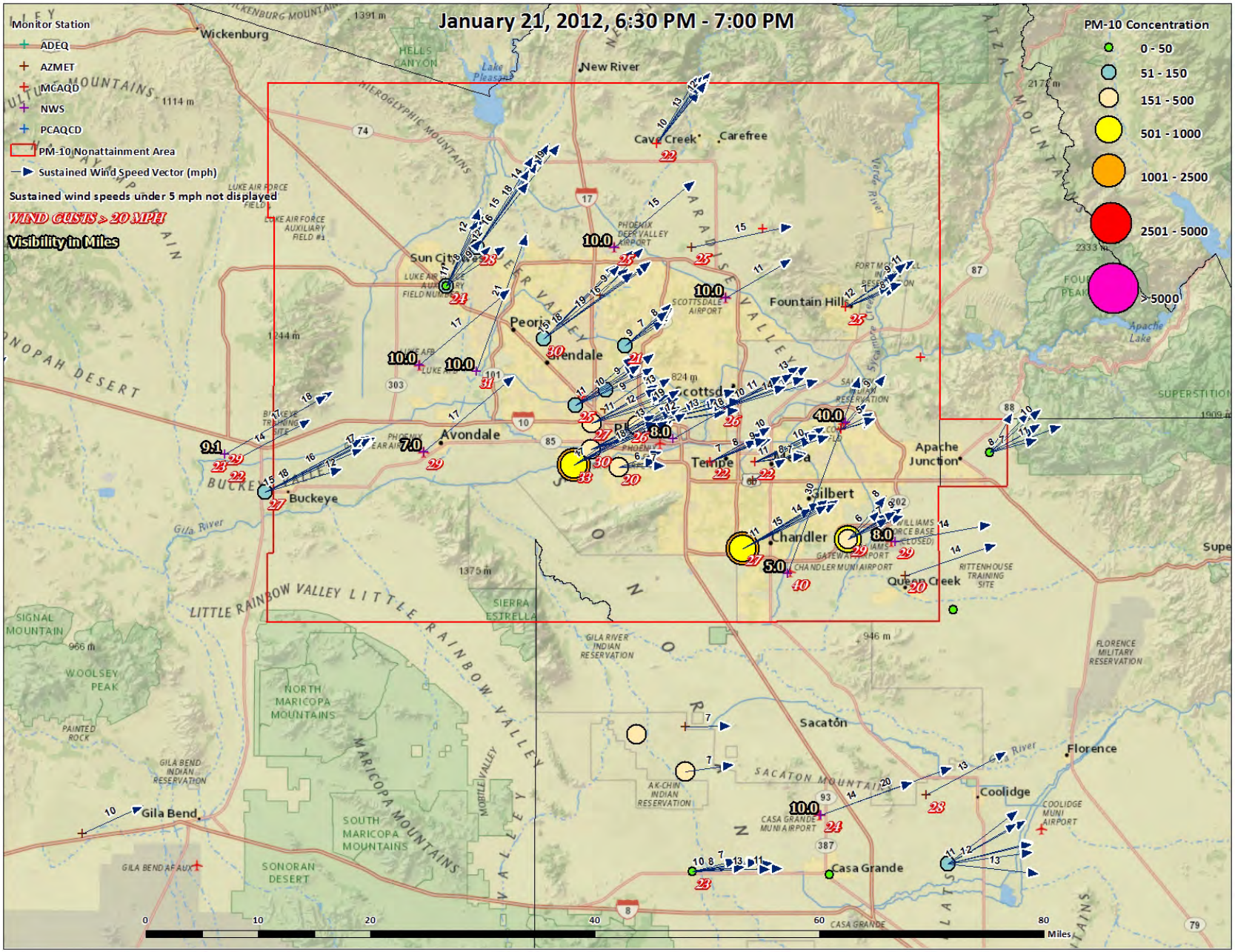


Figure 5-5. January 21, 2012, 6:30 PM – 7:00 PM.

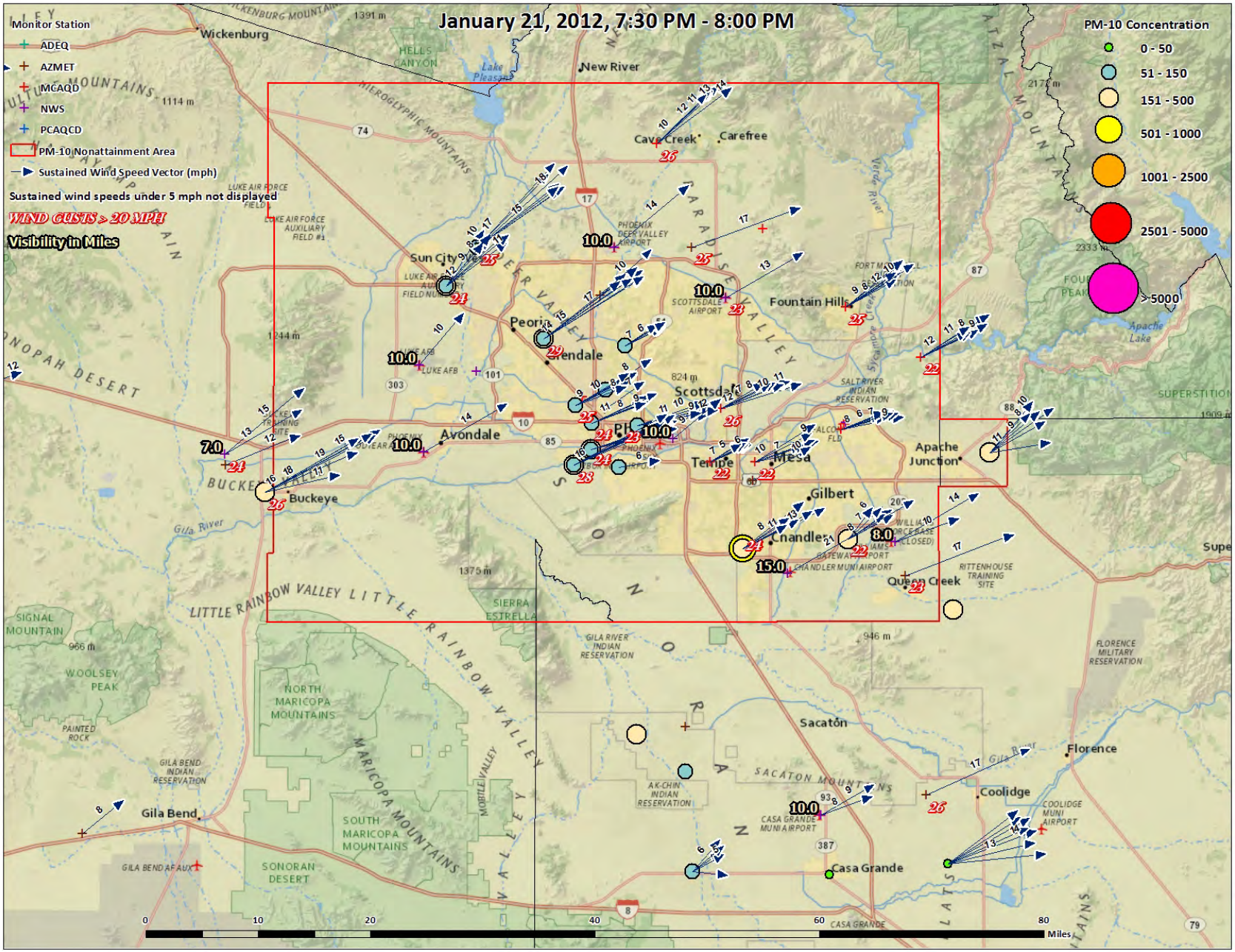


Figure 5-6. January 21, 2012, 7:30 PM – 8:00 PM.

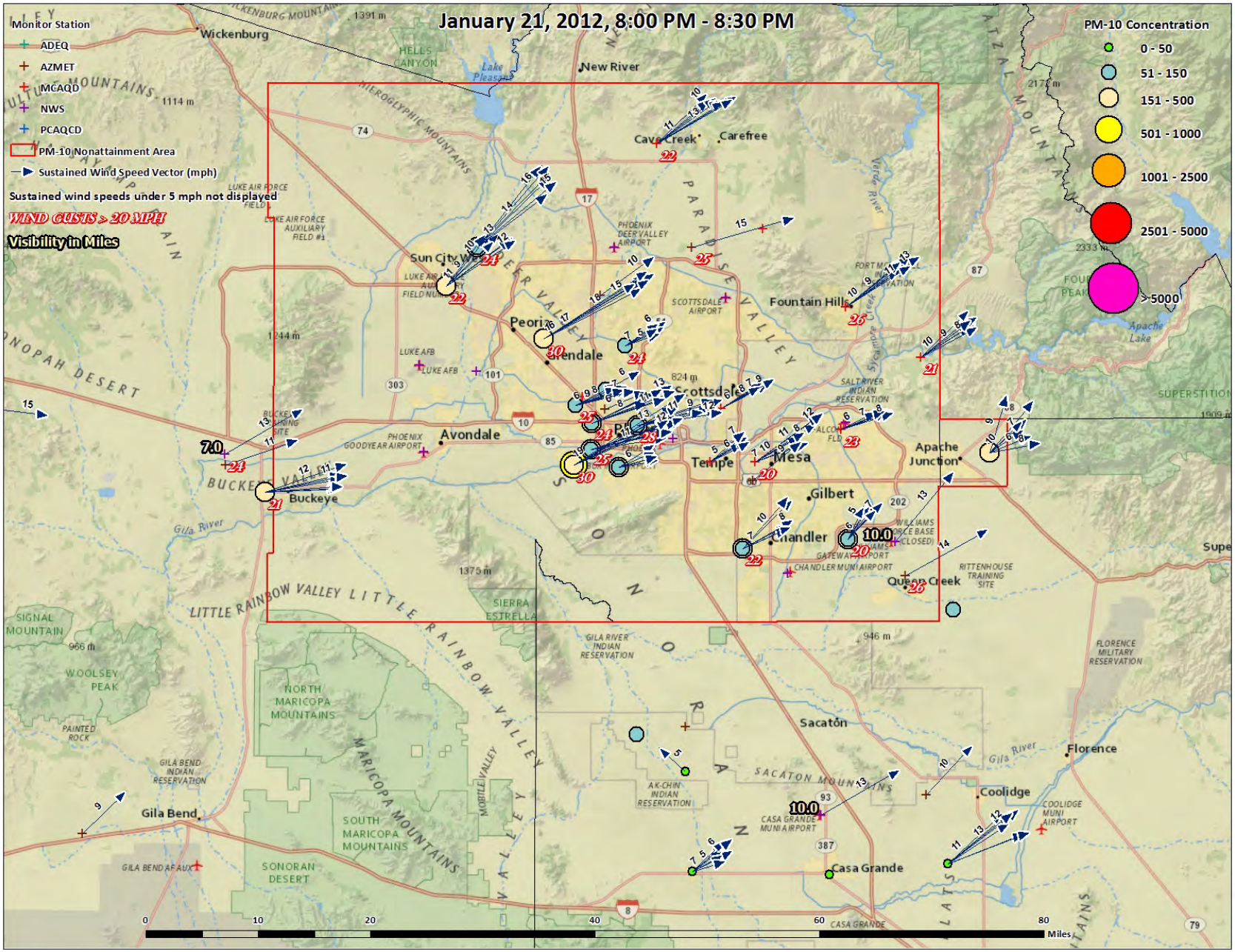


Figure 5-7. January 21, 2012, 8:00 PM – 8:30 PM.

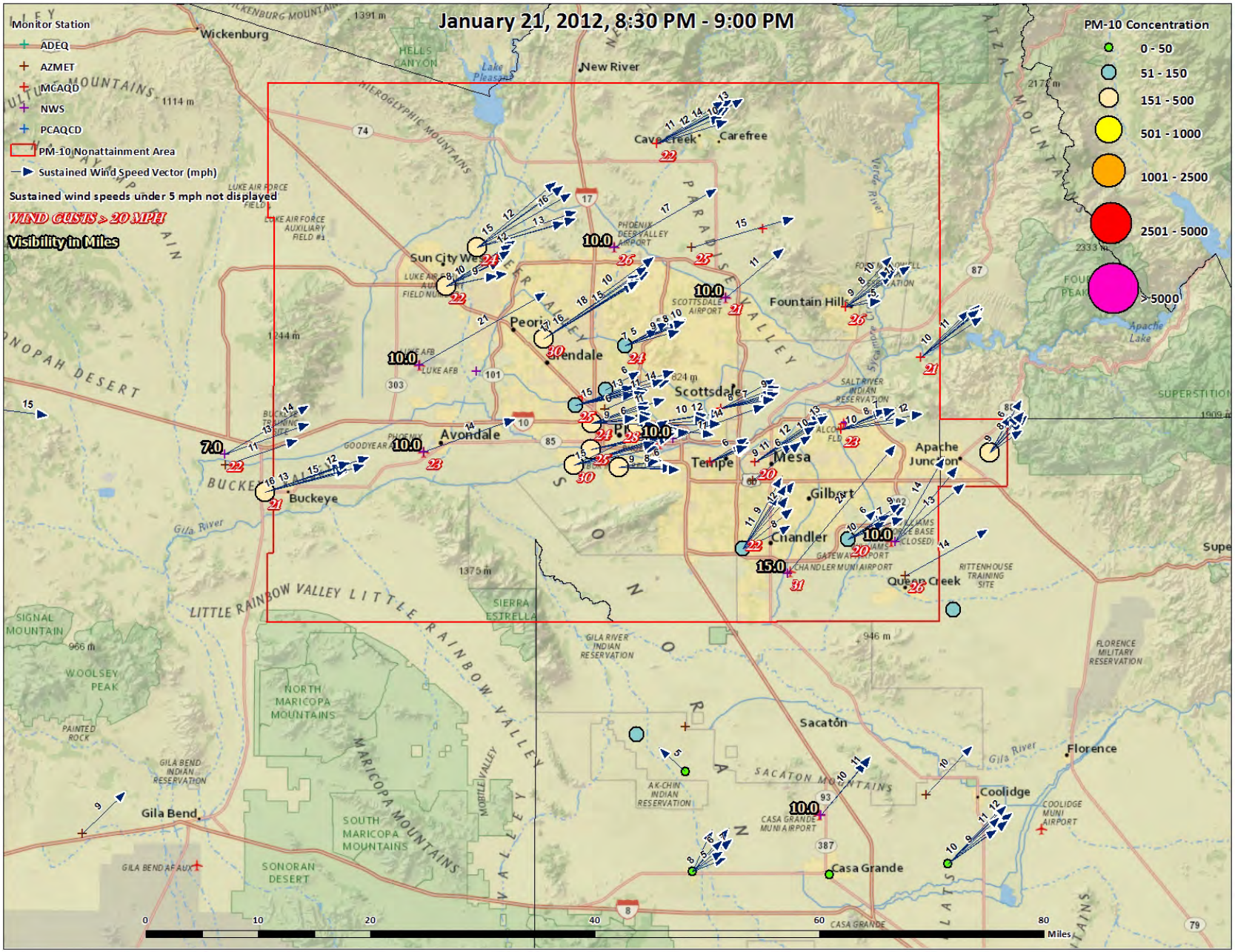


Figure 5-8. January 21, 2012, 8:30 PM – 9:00 PM.

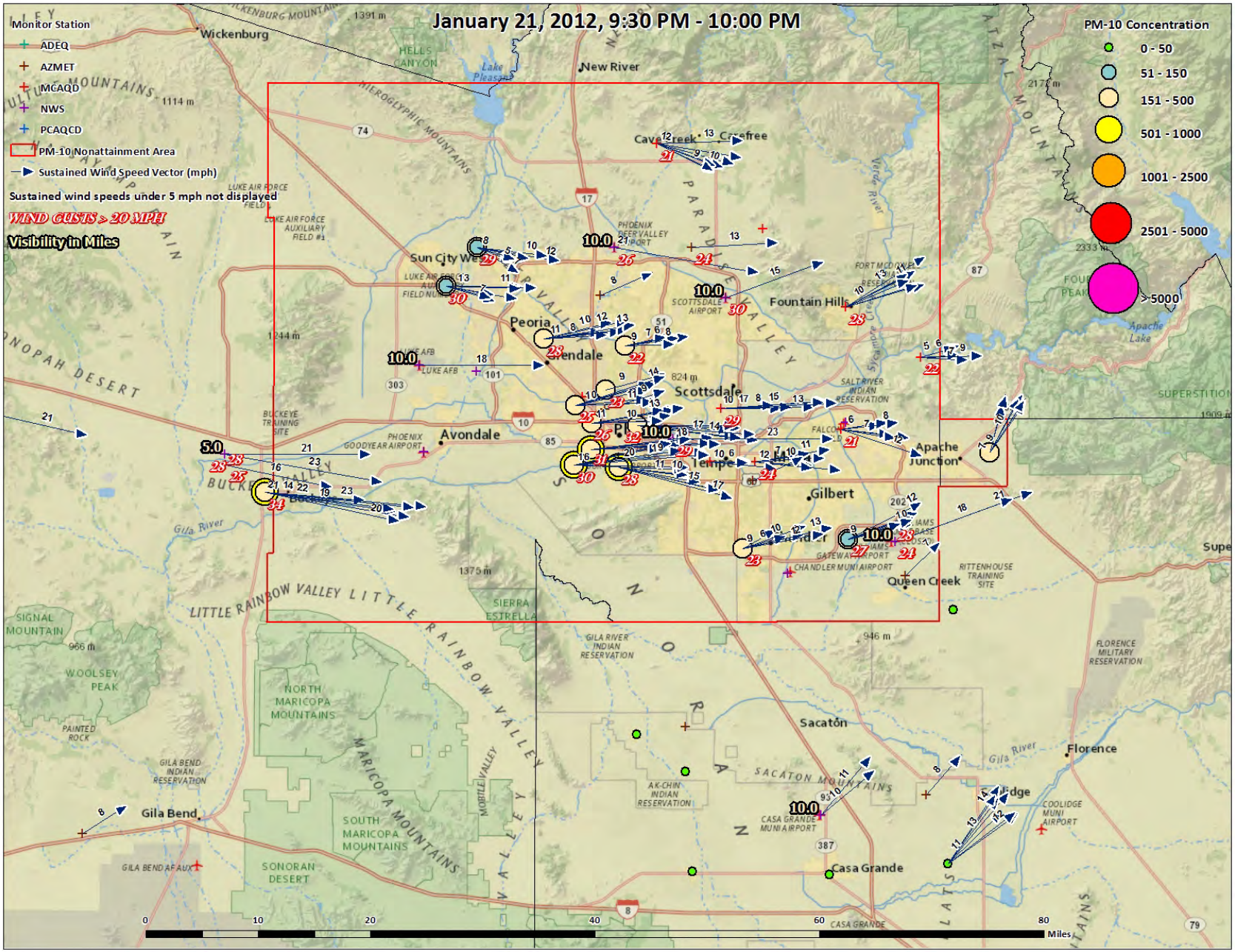


Figure 5-9. January 21, 2012, 9:30 PM – 10:00 PM.

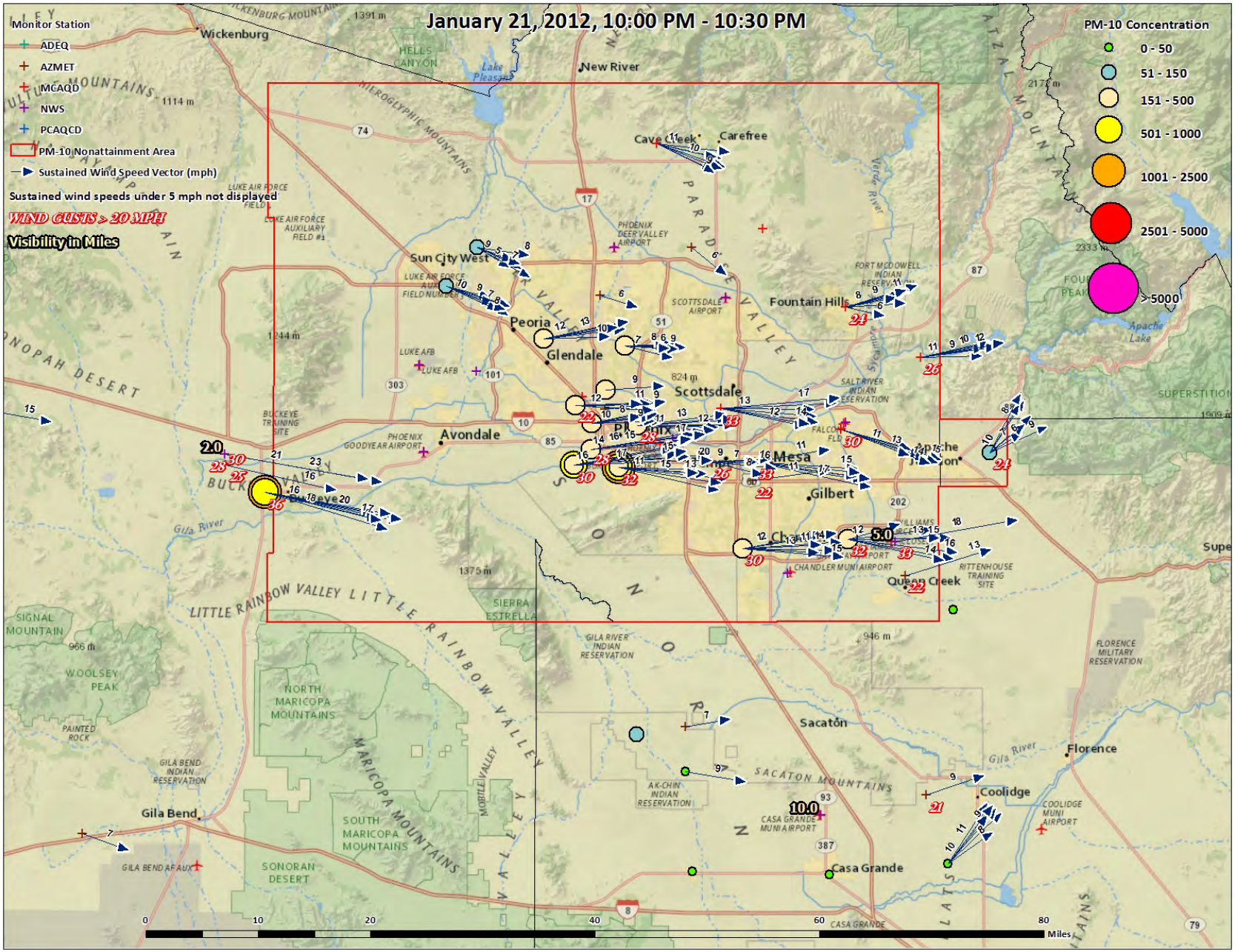


Figure 5-10. January 21, 2012, 10:00 PM – 10:30 PM.

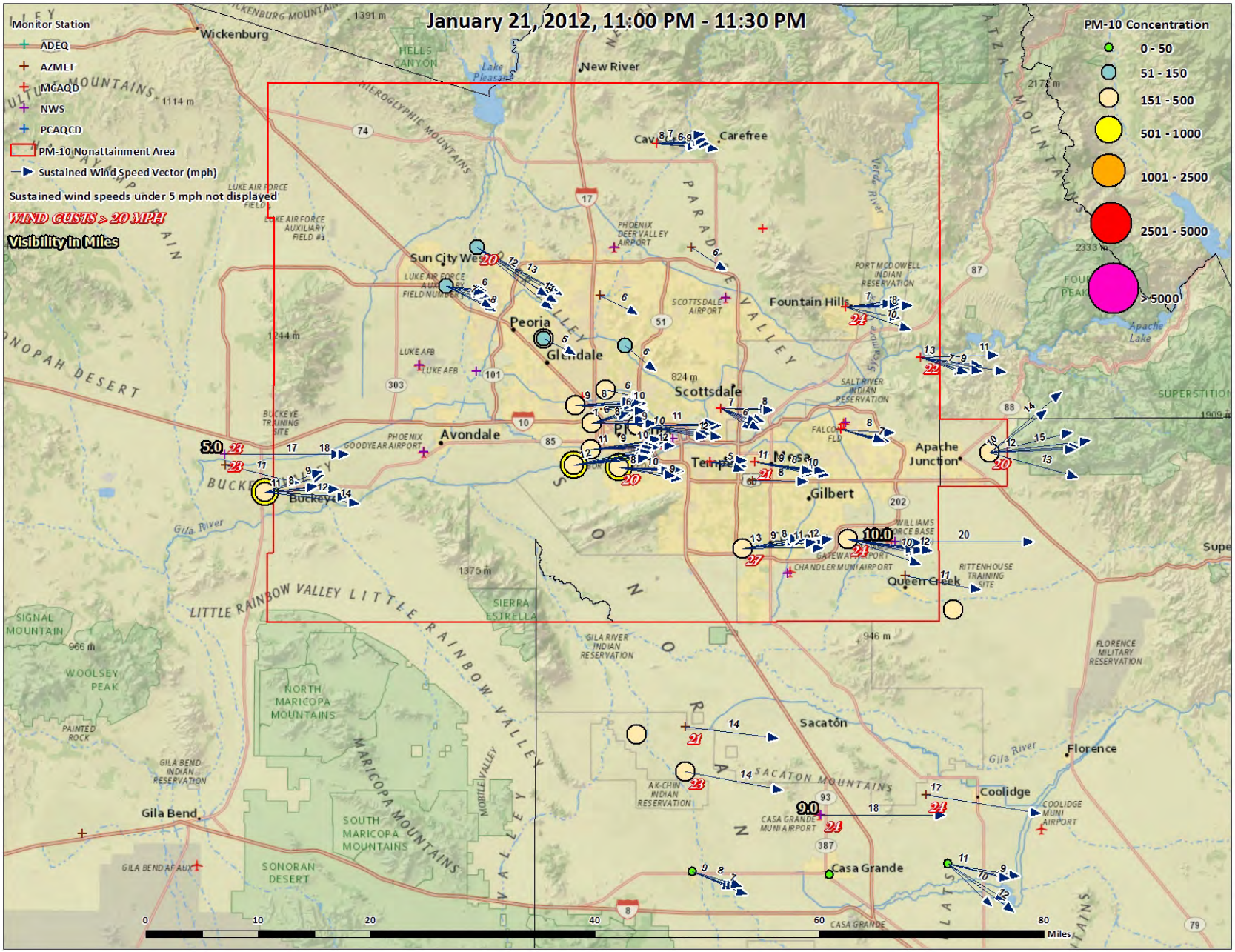


Figure 5-11. January 21, 2012, 11:00 PM – 11:30 PM.

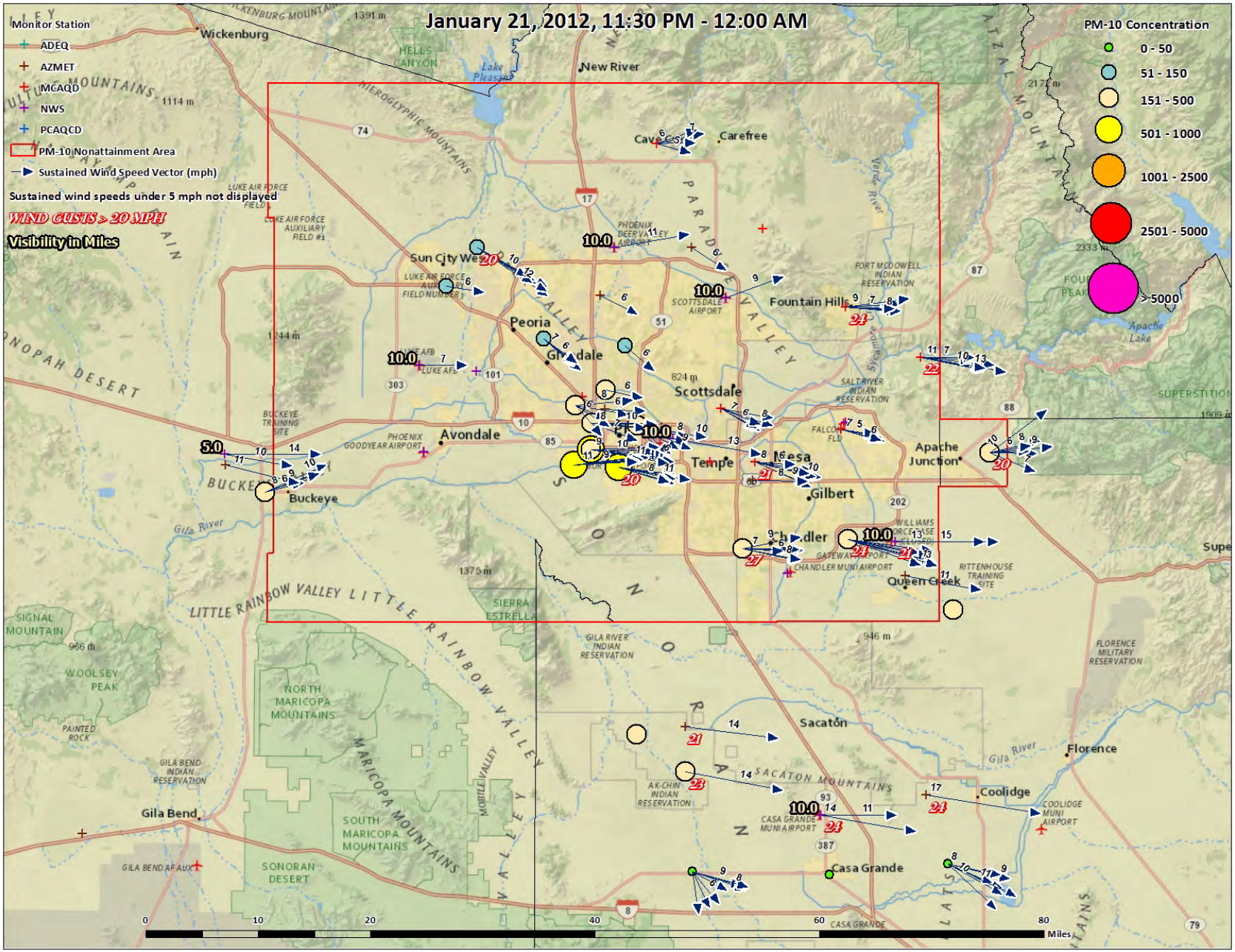


Figure 5-12. January 21, 2012, 11:30 PM – 12:00 AM.

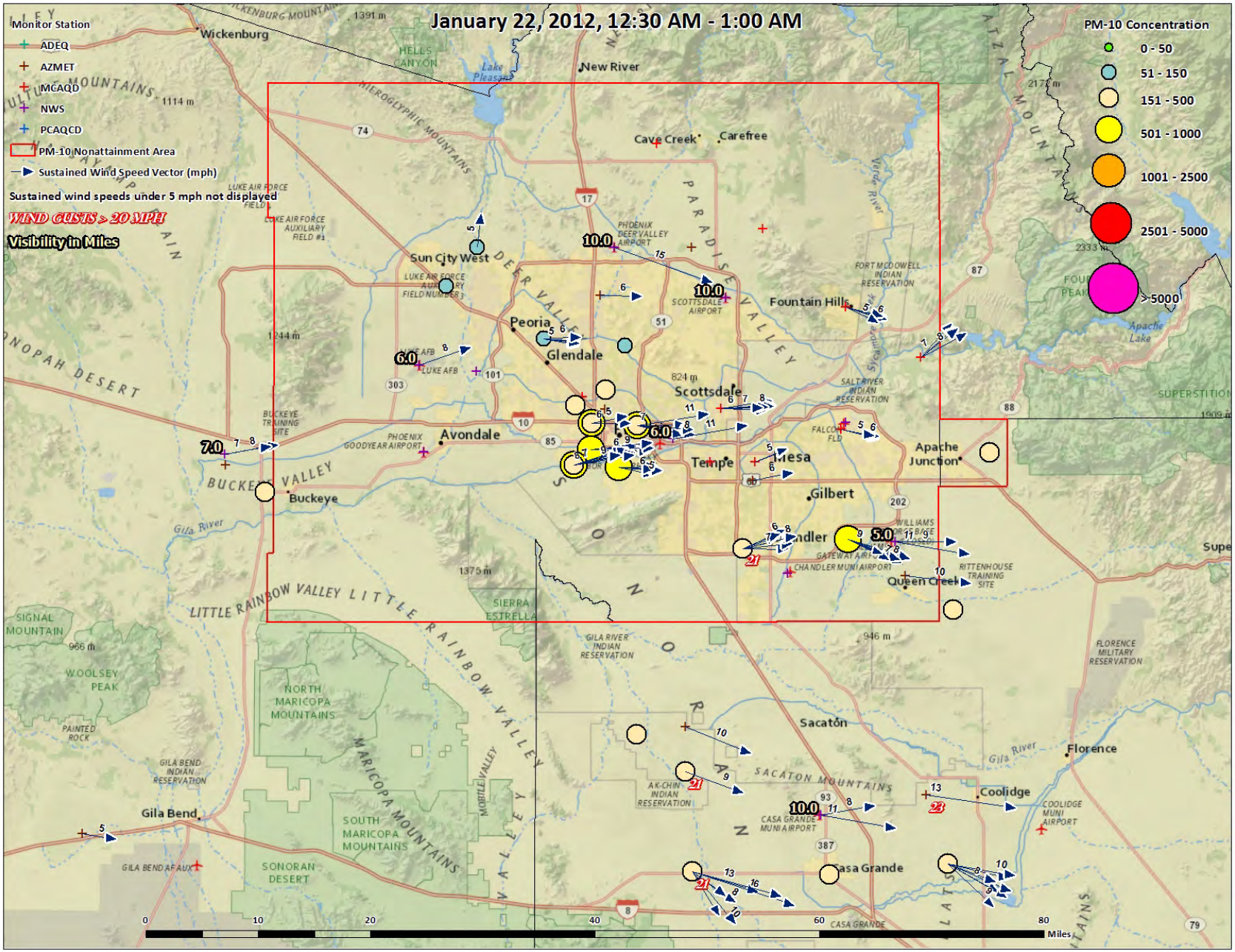


Figure 5-13. January 22, 2012, 12:30 AM – 1:00 AM.

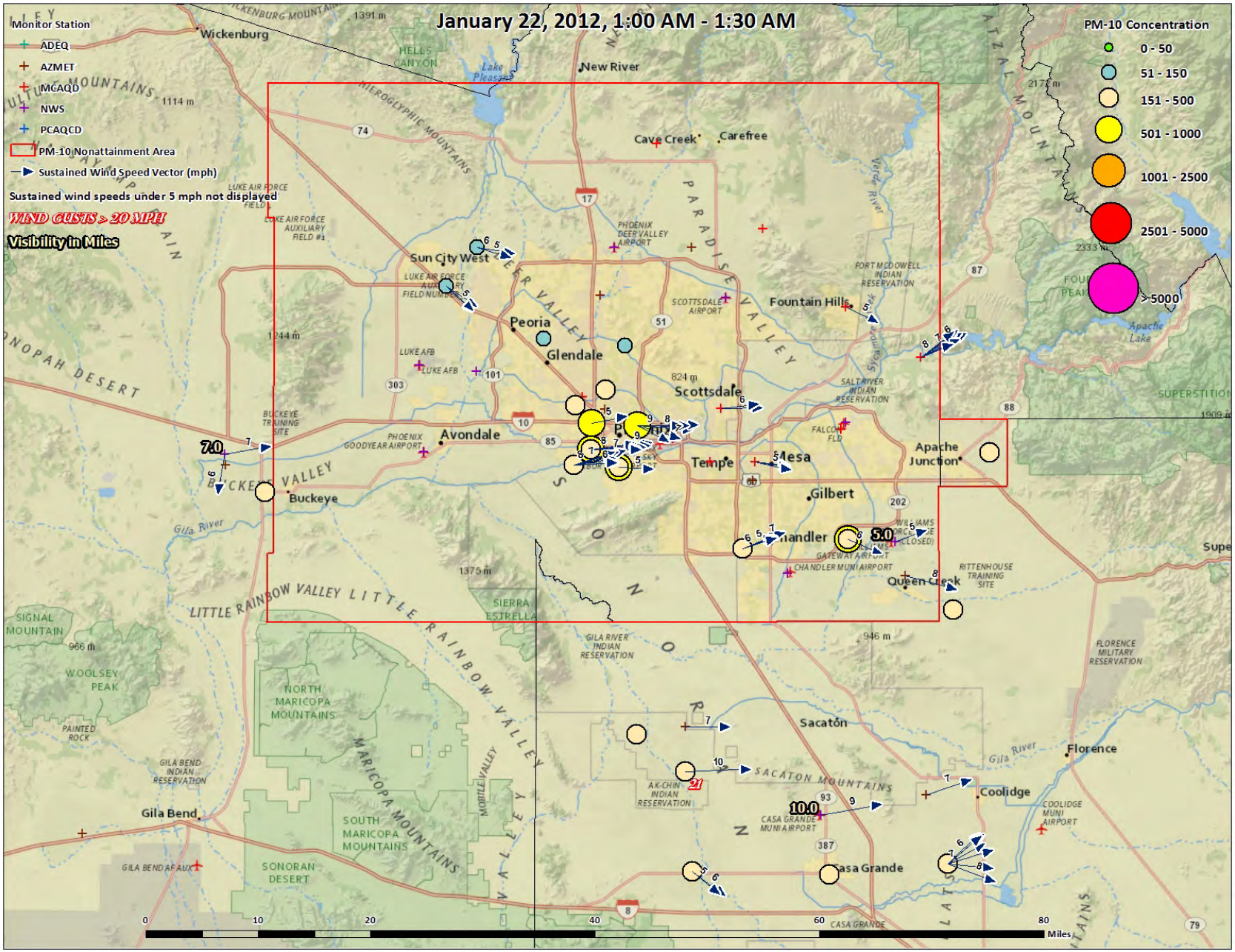


Figure 5-14. January 22, 2012, 1:00 AM – 1:30 AM.

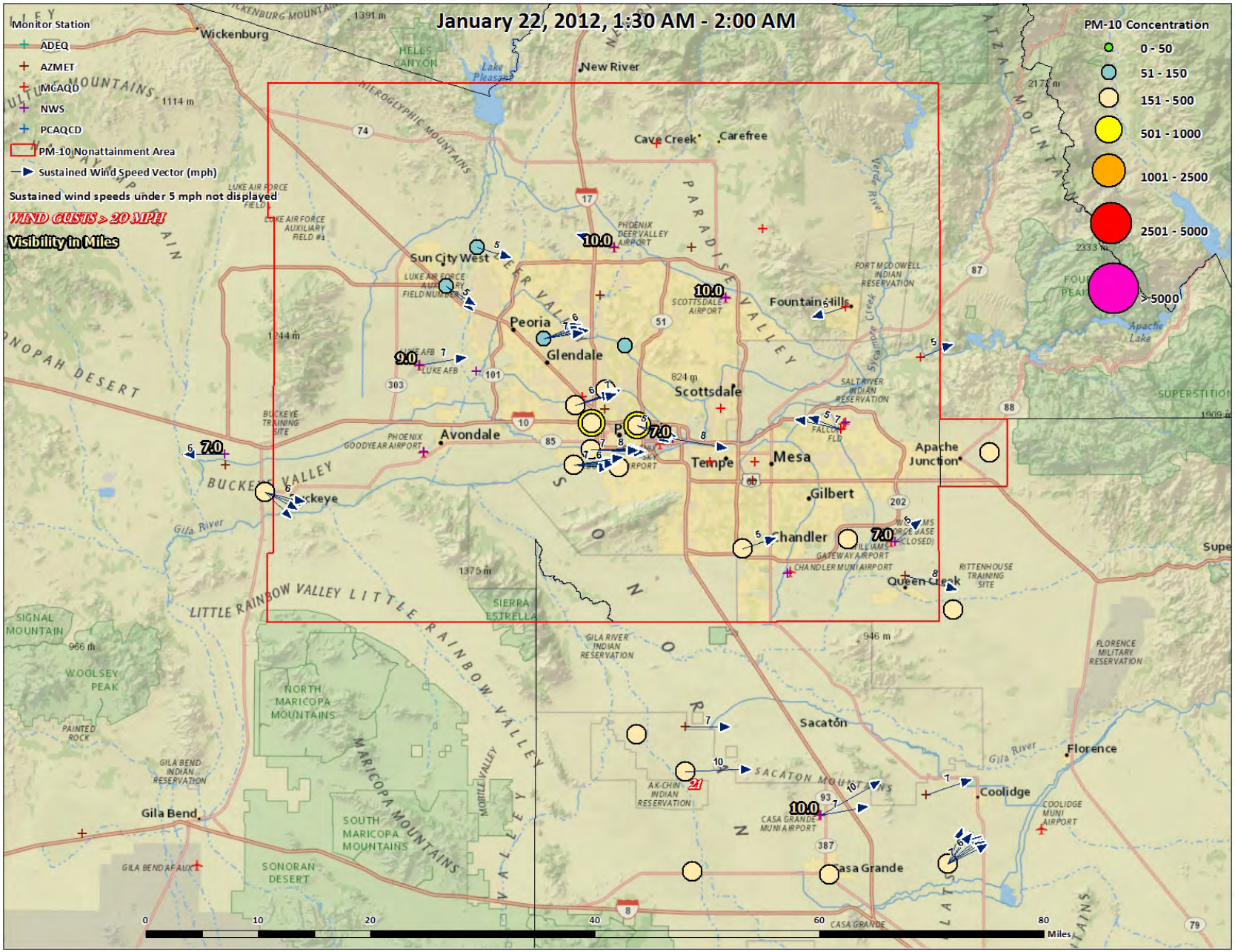


Figure 5-15. January 22, 2012, 1:30 AM – 2:00 AM.

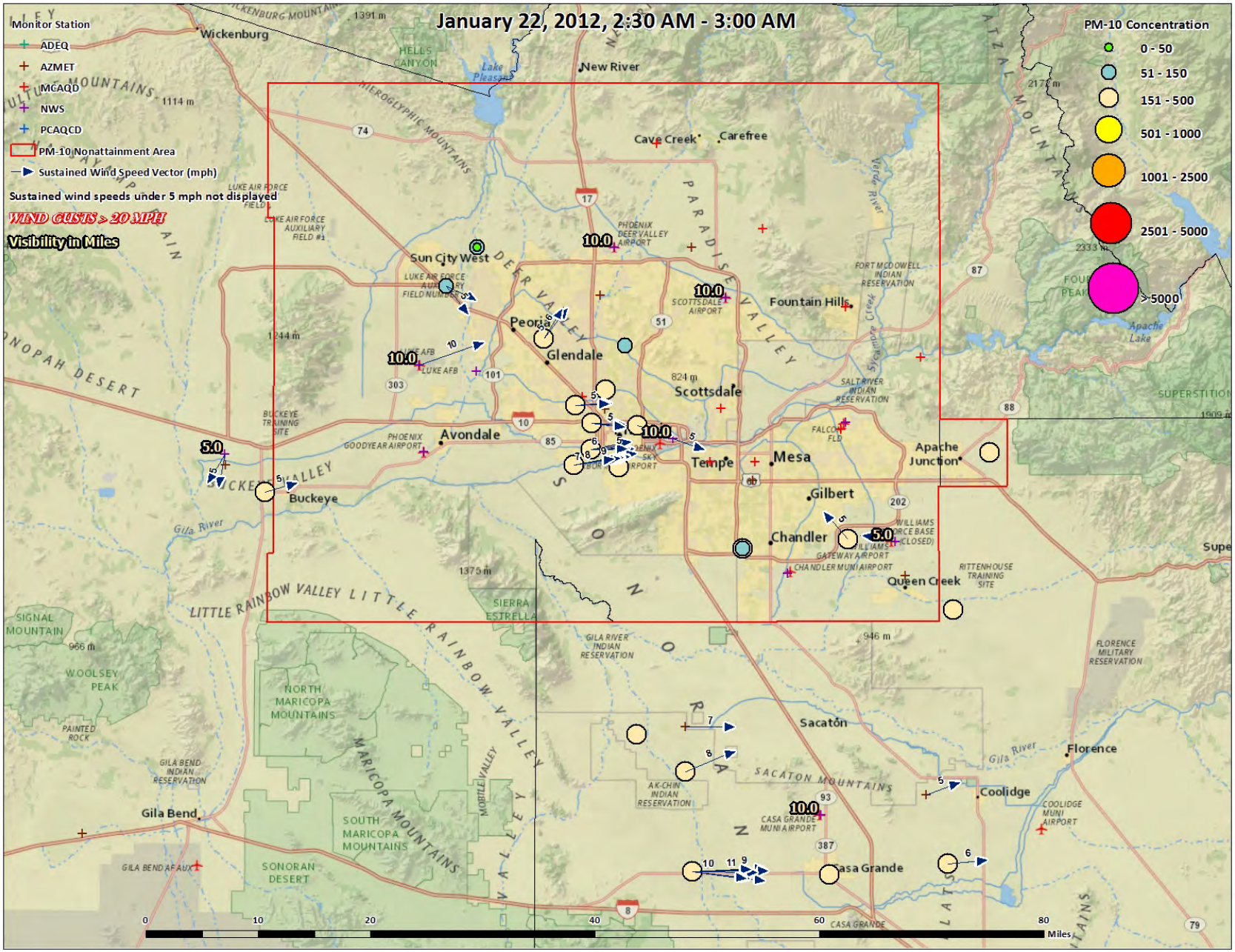


Figure 5-16. January 22, 2012, 2:30 AM – 3:00 AM.

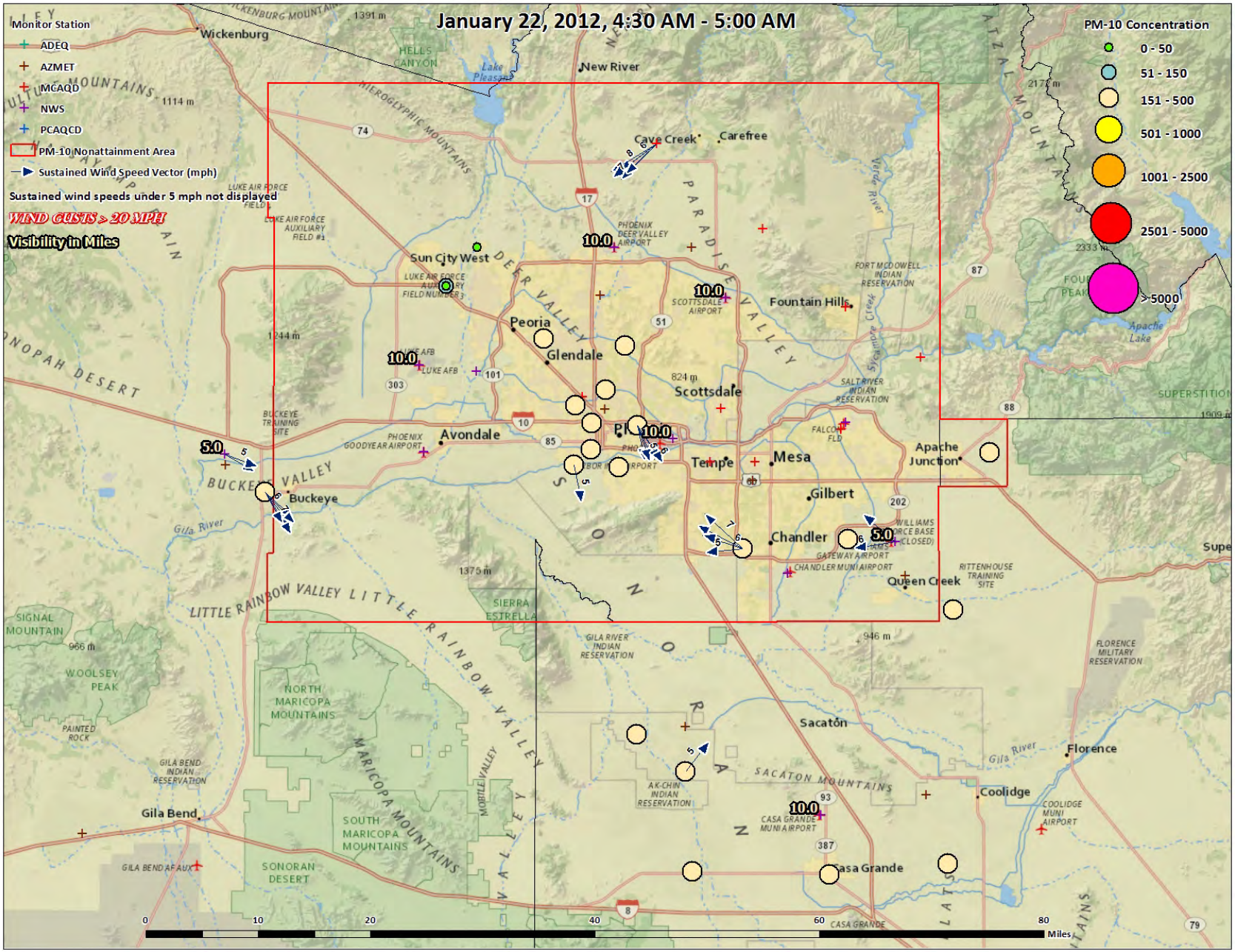


Figure 5-17. January 22, 2012, 4:30 AM – 5:00 AM.

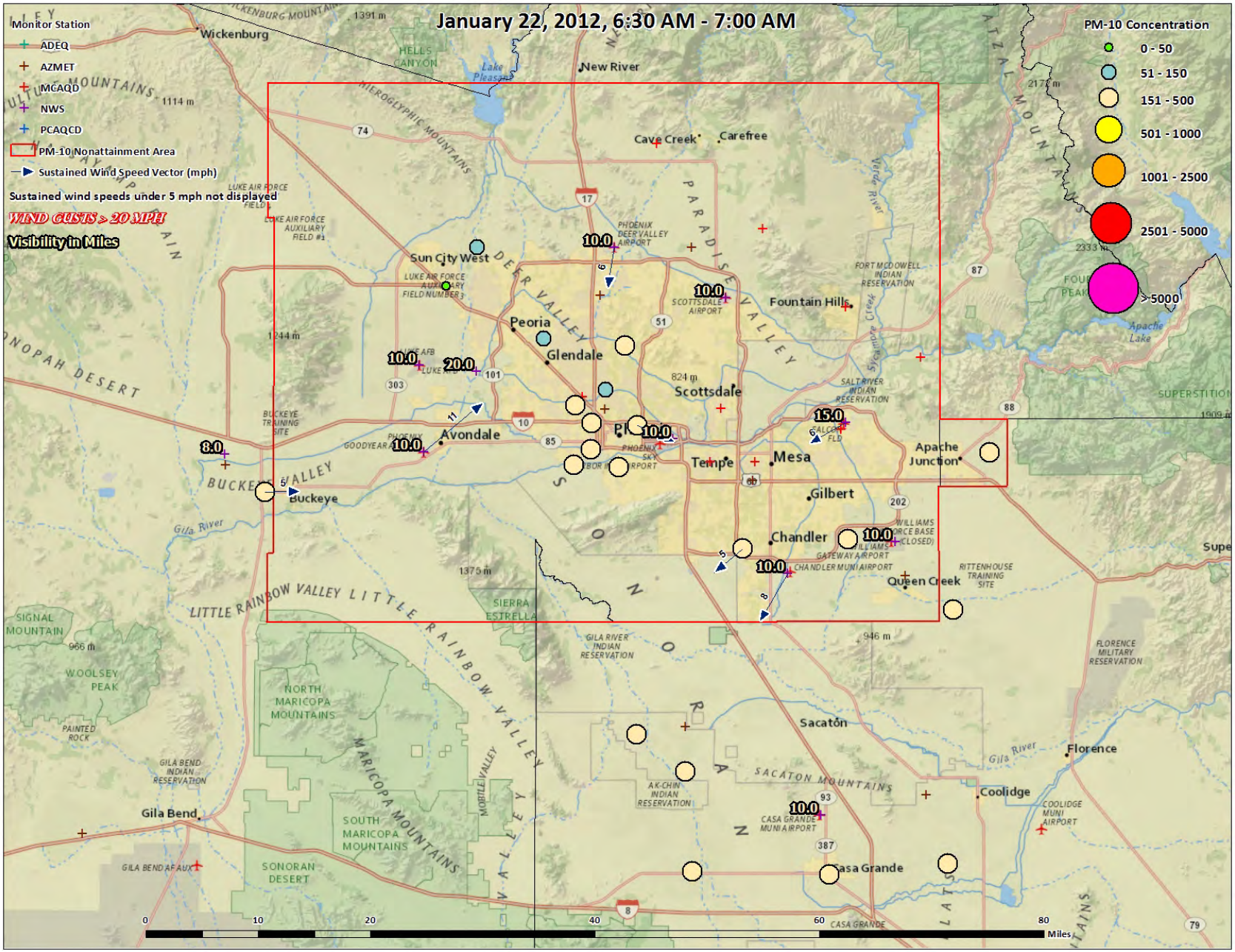


Figure 5-18. January 22, 2012, 6:30 AM – 7:00 AM.

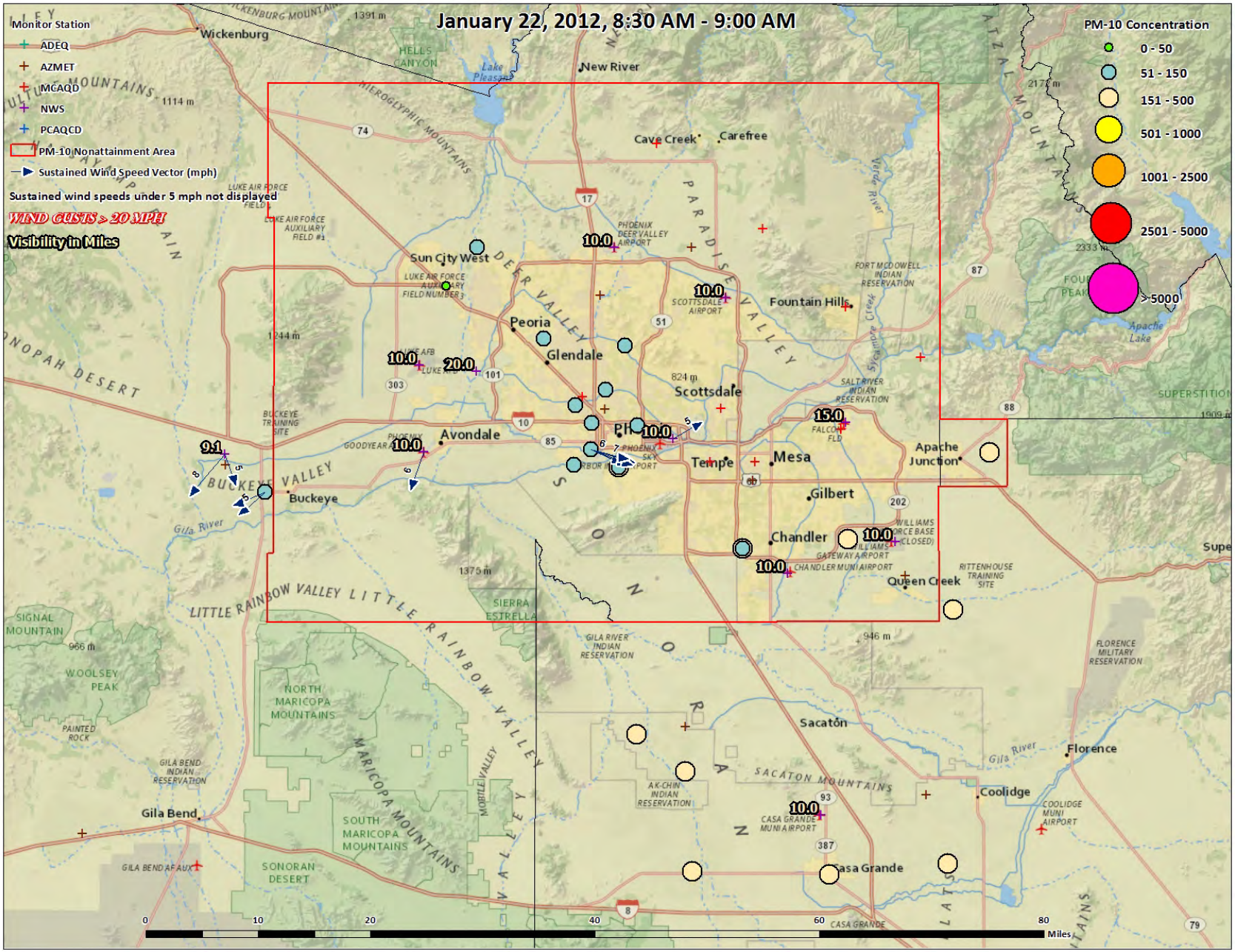


Figure 5-19. January 22, 2012, 8:30 AM – 9:00 AM.

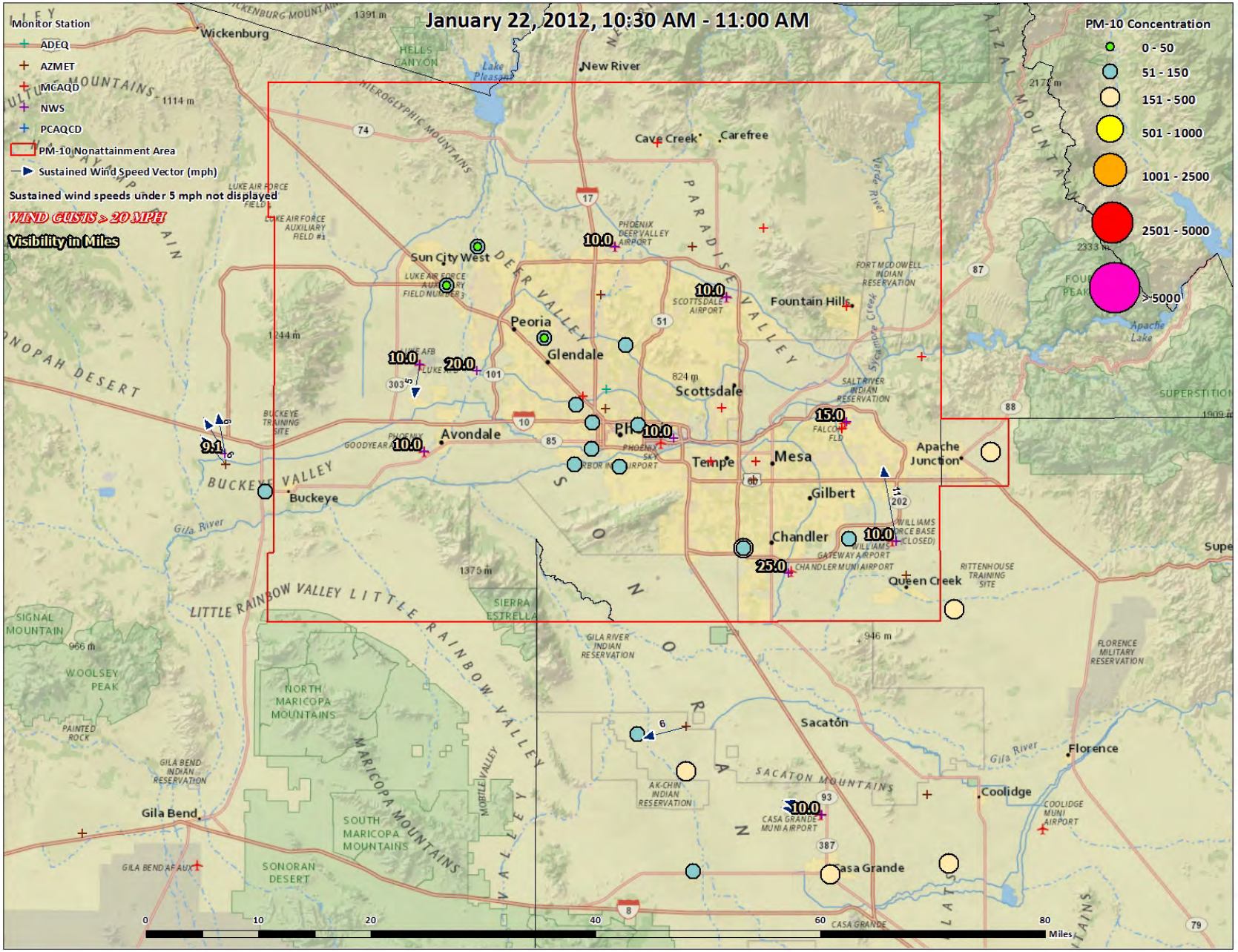


Figure 5-20. January 22, 2012, 10:30 AM – 11:00 AM.

Visibility Photos

Figures 5–21 through 5–23 display time-stamped photos taken by the South Mountain visibility camera during the events of January 21-22, 2012. A photo before the arrival of the low pressure system on January 21, 2012, a second photo during the first windblown dust event associated with the low pressure system on January 21, 2012, and a third photo during the suspended dust period on the morning of January 22, 2012 has been selected. These images clearly show the normal visibility conditions before the arrival of the low pressure system, the reduced visibility due to blowing dust during the first windblown event on January 21, 2012, and the subsequent suspended dust conditions on the morning of January 22, 2012. These images provide additional evidence of a clear causal relationship between the blowing dust generated and suspended by the low pressure system winds on January 21-22, 2012, with the high PM10 concentrations at monitors in the southern portions of the nonattainment area.

Figure 5-21. Visibility photo looking south to downtown Phoenix and South Mountain Park at 1:30 PM on January 21, 2012.

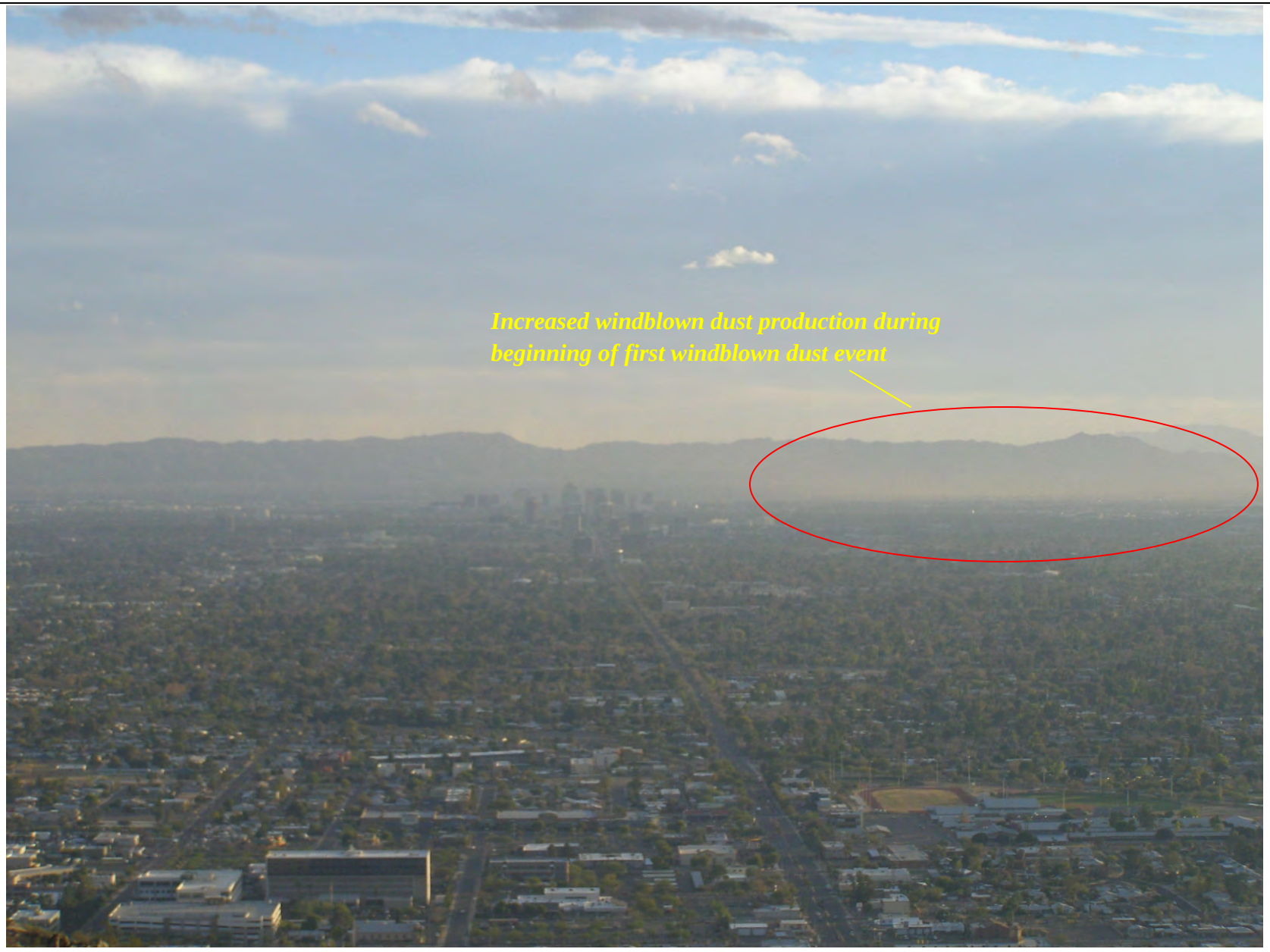


Figure 5-22. Visibility photo looking south to downtown Phoenix and South Mountain Park at 5:30 PM on January 21, 2012.

Figure 5-23. Visibility photo looking south to downtown Phoenix and South Mountain Park at 8:00 AM on January 22, 2012.

Conclusion

The information presented within this section has adequately demonstrated a clear causal relationship between the windblown PM10 emissions generated by uncontrollable natural events and the exceedances measured at the monitors. The maps and visibility photos provided in this section contain an illustration of the event as it unfolded. The series of maps for the event show a spatial and temporal representation of the low pressure system winds and associated windblown dust as they move throughout the Maricopa nonattainment area. These maps and visibility photos show a clear causal relationship between the windblown dust generated and suspended by low pressure system winds and the exceedances at the West 43rd Avenue and Higley monitors on January 21-22, 2012.

It is clear from these data that low pressure system winds with sustained speeds up to 30 mph and gusts up to 40 mph were strong enough to generate windblown PM10 emissions and demonstrate the clear causal relationship between the low pressure system winds and the recorded exceedance on January 21, 2012 at the West 43rd Avenue monitor. Similarly, trapped and suspended windblown dust generated by the windblown episodes on January 21, 2012, deposited slowly on January 22, 2012, establishing a clear causal relationship between the suspended windblown dust and the subsequent exceedance at the Higley monitor on January 22, 2012.

VI. "BUT FOR" ANALYSIS

Section 50.14(c)(3)(iv)(D) in 40 CFR part 50 requires that an exceptional event demonstration must satisfy that "[t]here would have been no exceedance or violation but for the event." The prior sections of this submittal have provided detailed information that the exceedances on January 21-22, 2012 were not reasonably controllable or preventable and there is a clear causal relationship between the windblown dust generated and suspended by low pressure system winds and the exceedances at the West 43rd Avenue and Higley monitors. The weight of evidence in these sections demonstrates that but for the existence of windblown dust emissions generated and suspended by low pressure system winds, there would have been no exceedances of the 24-Hour PM10 standard.

As detailed in Section IV, all reasonable control measures were in place and actively enforced before, during, and after the exceedances on January 21-22, 2012. Inspection and compliance data of local fugitive dust sources during this time period revealed that PM10 from anthropogenic activities was well controlled and constant. Local regulatory agencies, industry and the general public were alerted to the arrival of the storm through daily forecasts. Real-time surveillance of PM10 monitoring stations during the event established a clear link between rapidly rising PM10 concentrations and the arrival of the low pressure system winds. As shown in Figures 6–1 and 6–2, PM10 concentrations in the hours before the event at the exceeding West 43rd Avenue and Higley monitors were at normal levels, indicating no significant anthropogenic activities on January 21, 2012. PM10 concentrations in the hours after the suspended dust cleared out on January 22, 2012 show a return to normal PM10 concentrations at both monitors.

As shown in Section V, detailed, time series maps establish a clear causal relationship between the arrivals of windblown dust generated and suspended by low pressure system winds and elevated PM10 concentrations at the monitors. Low pressure system winds with sustained speeds up to 30 mph and gusts up to 40 mph were strong enough to generate windblown PM10 emissions and demonstrate the clear causal relationship between the low pressure system winds and the recorded exceedance on January 21, 2012 at the West 43rd Avenue monitor. Similarly, trapped and suspended windblown dust generated by the windblown episodes on January 21, 2012, deposited slowly on January 22, 2012, establishing a clear causal relationship between the suspended windblown dust and the subsequent exceedance at the Higley monitor on January 22, 2012.

The body of evidence presented in this submittal confirms that the exceedances on January 21-22, 2012 were a natural event and that there would have been no exceedances but for the presence of the uncontrollable windblown dust from the low pressure system winds.

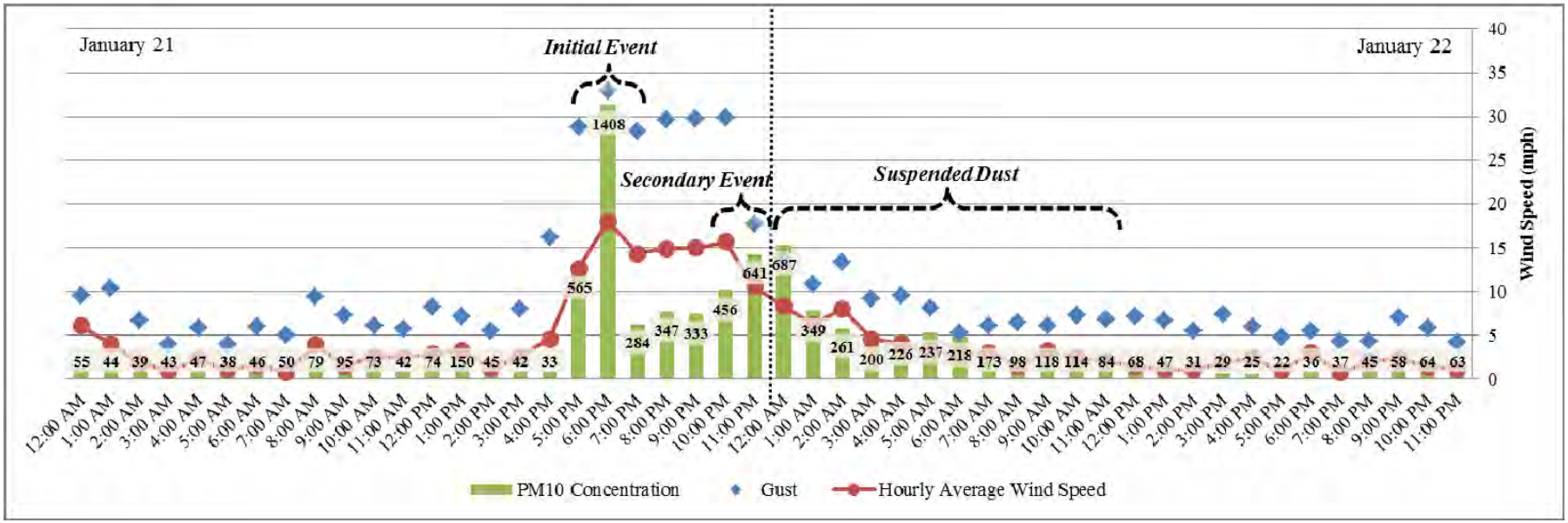


Figure 6-1. Hourly PM10 concentration, wind gust, and average wind speed as recorded at the exceeding West 43rd Avenue monitor.

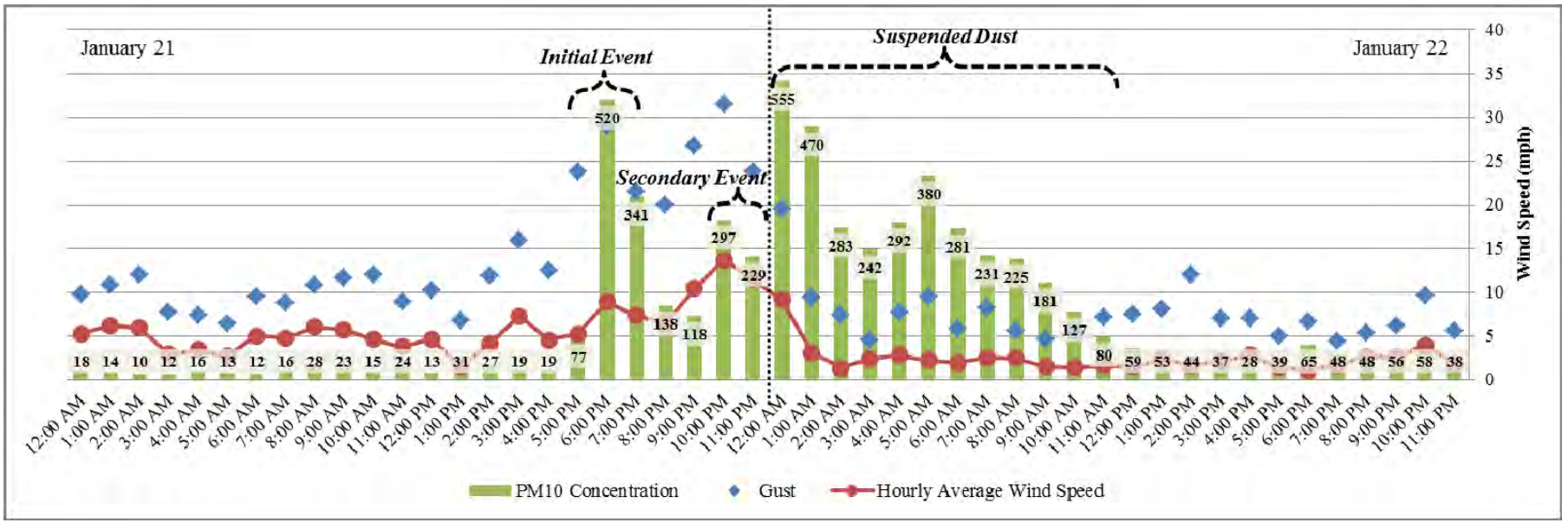


Figure 6-2. Hourly PM10 concentration, wind gust, and average wind speed as recorded at the exceeding Higley monitor.

VII. CONCLUSIONS

The exceedances that occurred on January 21-22, 2012 satisfy the criteria of 40 CFR 50.1(j) and meet the definition of an exceptional event. These criteria are:

- The event affects air quality.
- The event is not reasonably controllable or preventable.
- The event is unlikely to reoccur at a particular location or [is] a natural event.

A. Affects Air Quality

As stated in the preamble to the Exceptional Events Rule, the event in question is considered to have affected air quality if it can be shown that there is a clear causal relationship between the monitored exceedance and the event, and that the event is associated with a measured concentration in excess of normal historical fluctuations. Given the information presented in Sections II, III, IV and V, it is reasonable to conclude that the event in question affected air quality.

B. Not Reasonably Controllable or Preventable

Section 50.1(j) of Title 40 CFR Part 50 requires that an event must be "not reasonably controllable or preventable" in order to be defined as an exceptional event. This requirement is met by demonstrating that despite reasonable control measures in place within Maricopa nonattainment area, high wind conditions overwhelmed all reasonably available controls. Despite the deployment of comprehensive control measures and sophisticated response programs, high wind conditions associated with low pressure system winds generated and suspended high concentrations of PM10 emissions within the nonattainment area. Sustained winds up to 30 mph and gusts of 40 mph easily overwhelmed all available efforts to limit PM10 concentrations from the windblown dust event on January 21, 2012. Reasonable controls are also not capable of controlling the subsequent trapped and suspended windblown dust that caused the exceedance on January 22, 2012. The fact that this was a natural event involving low pressure system winds that generated and suspended PM10 emissions in the Maricopa nonattainment area provides strong evidence that the exceedances on January 21-22, 2012 recorded at the West 43rd Avenue and Higley monitors were not reasonably controllable or preventable.

C. Natural Event

As discussed above, the event shown to cause this exceedance was emissions of PM10 caused by low pressure system winds on January 21-22, 2012. The event therefore qualifies as natural event.

In summary, the exceedances of the federal 24-hour PM10 standard on January 21-22, 2012, would not have occurred but for the uncontrollable windblown dust emissions generated and suspended by low pressure system winds, based on the following weight of evidence:

- Section II explains the meteorology associated with a low pressure system and demonstrates how this type of system contains elevated winds which in turn generate significant quantities of windblown dust.

- The Historical Fluctuation analysis in Section III, showing five years of 24-hour average data for the West 43rd Avenue and Higley monitors, demonstrates the atypical values recorded at the monitors on January 21-22, 2012.

- Section IV discusses rules that are in place in the Maricopa nonattainment area as well as inspections that were conducted in the area to verify compliance with those rules in order to show that the event was not reasonably controllable or preventable and that no significant anthropogenic dust emissions were present during the event.

- Figures in Section V show that the timing of elevated PM10 concentrations at the West 43rd Avenue monitor on January 21, 2012 was tied to the presence of low pressure system winds containing sustained winds up to 30 mph and gusts of 40 mph as the system moved across the nonattainment area. Subsequently, slowly depositing suspended windblown dust generated late in the evening of January 21, 2012, was shown to be the cause of the PM10 exceedance at the Higley monitor on January 22, 2012.

- Visibility camera imagery displayed in Section V provides evidence of the low pressure system generated and suspended windblown dust and that high PM10 concentrations are linked to natural sources as opposed to specific anthropogenic sources of dust.

APPENDIX A

ADEQ FORECAST PRODUCTS FOR PHOENIX AND MARICOPA COUNTY

MARICOPA COUNTY DUST CONTROL FORECAST

ISSUED FRIDAY, JANUARY 20, 2012

Three-day weather outlook:

Two disturbances will move through Arizona over the next several days. The first system will brush northern Arizona, increasing winds across the region on Saturday. Calmer conditions resume Sunday before the second wave sweeps through the region Monday. This second system will bring clouds and even a slight chance for showers late Monday. Winds decrease again Tuesday and Wednesday as high pressure rebounds from the southwest. Daytime temperatures will drop into the lower 60s Tuesday, bouncing back to the upper 60s Wednesday. The risk of exceeding the 24-hr PM10 health standard in Phoenix is forecast to be **Low** through at least Wednesday of next week.

R I S K F A C T O R S

	WINDS		STAGNATION		UNHEALTHY PM-10 RISK LEVEL
Day 1: Sat 01/21/2012	West winds between 5 and 15 mph are expected during the afternoon, gusting to 20 mph at times.	+	Rather stagnant during the morning hours, ending by the afternoon.	=	***LOW***
Day 2: Sun 01/22/2012	Mostly light winds are expected.	+	Rather stagnant conditions are expected.	=	***LOW***
Day 3: Mon 01/23/2012	Southwest winds between 5 and 15 mph are expected.	+	Slightly stagnant conditions are expected.	=	***LOW***
EXTENDED OUTLOOK					
Day 4: Tue 01/24/2012	North winds between 5 and 15 mph are likely.	+	Slightly stagnant conditions are likely.	=	***LOW***
Day 5: Wed 01/25/2012	Northeast winds between 5 and 10 mph are likely.	+	Rather stagnant conditions are likely.	=	***LOW***

The Maricopa County Dust Control Action Forecast is issued to assist in the planning of work activities to help reduce dust pollution. A recorded message of this forecast can be accessed at 602-771-2368. To review the complete air quality forecast for the Phoenix metropolitan area, as well as the health impacts and reduction methods for different air pollutants, call 602-771-2367 for recorded forecast information or click on ADEQ's Air Quality Forecast at http://www.azdeq.gov/environ/air/ozone/ensemble.pdf.

JRP 04/28/2011

MARICOPA COUNTY DUST CONTROL FORECAST

ISSUED SUNDAY, JANUARY 22, 2012

Three-day weather outlook:

Another trough of low pressure will sweep through the region late Monday into Tuesday morning. There is about a 50% chance of showers late Monday decreasing to 20% early Tuesday with totals in the range of a tenth of an inch. Daytime temperatures will be in the mid 60s Tuesday, warming to the mid 70s by the end of the week as high pressure returns. Winds will be a bit breezy Monday night into Tuesday morning, but the rain should cancel any risk of blowing dust. Thus, the risk of exceeding the 24-hr PM10 health standard in Phoenix is forecast to be **Low** through at least Friday.

R I S K F A C T O R S

	WINDS		STAGNATION		UNHEALTHY PM-10 RISK LEVEL
Day 1: Mon 01/23/2012	East winds between 5 and 10 mph are expected (50% chance of showers late).	+	Somewhat stagnant conditions are expected.	=	***LOW***
Day 2: Tue 01/24/2012	Mostly light winds are expected (20% chance of early morning showers).	+	Slightly stagnant conditions are likely.	=	***LOW***
Day 3: Wed 01/25/2012	Mostly light winds are expected.	+	Rather stagnant conditions are likely.	=	***LOW***
EXTENDED OUTLOOK					
Day 4: Thu 01/26/2012	Mostly light winds are expected.	+	Rather stagnant conditions are likely.	=	***LOW***
Day 5: Fri 01/27/2012	Mostly light winds are expected.	+	Rather stagnant conditions are likely.	=	***LOW***

The Maricopa County Dust Control Action Forecast is issued to assist in the planning of work activities to help reduce dust pollution. A recorded message of this forecast can be accessed at 602-771-2368. To review the complete air quality forecast for the Phoenix metropolitan area, as well as the health impacts and reduction methods for different air pollutants, call 602-771-2367 for recorded forecast information or click on ADEQ's Air Quality Forecast at http://www.azdeq.gov/environ/air/ozone/ensemble.pdf.

JRP 04/28/2011

ADEQ Arizona Department of Environmental Quality

VERY UNHEALTHY (201-300)

UNHEALTHY (151-200)

UNHEALTHY FOR SENSITIVE GROUPS (101-150)

MODERATE (51-100)

GOOD (0-50)

For more information visit:
http://www.airnow.gov/index.cfm?action=aqibasics.aqi

LINK TO 2011 AIR POLLUTION EXCEEDANCE GRAPH

AIR QUALITY FORECAST FOR SATURDAY, JANUARY 21, 2012

This report is updated by 1:00 p.m. Sunday thru Friday and is valid
for areas within and bordering Maricopa County in Arizona

FORECAST DATE **NOTICES** (*SEE BELOW FOR DETAILS) **AIR POLLUTANT**	YESTERDAY THU 01/19/2012 Highest AQI Reading/Site (*Preliminary data only*)	TODAY FRI 01/20/2012	TOMORROW SAT 01/21/2012	EXTENDED SUN 01/22/2012
O3*	**29** **BLUE POINT & NORTH PHOENIX**	**32** ***GOOD***	**27** ***GOOD***	**26** ***GOOD***
CO*	**23** **WEST PHOENIX**	**18** ***GOOD***	**12** ***GOOD***	**15** ***GOOD***
PM-10*	**54** **WEST PHOENIX**	**55** ***MODERATE***	**50** ***GOOD***	**48** ***GOOD***
PM-2.5*	**60** **DURANGO**	**51** ***MODERATE***	**34** ***GOOD***	**33** ***GOOD***

* O3 = Ozone CO = Carbon Monoxide PM-10 = Particles 10 microns & smaller PM-2.5 = Particles smaller than 2.5 microns

*"Ozone Health Watch" means that the highest concentration of OZONE may approach the federal health standard.
"PM-10 or PM-2.5 Health Watch" means that the highest concentration of PM-10 or PM-2.5 may approach the federal health standard.
"High Pollution Advisory" means that the highest concentration of OZONE, PM-10, or PM-2.5 may exceed the federal health standard.
"DUST" means that short periods of high PM-10 concentrations caused by outflow from thunderstorms are possible.

Health message for Friday, January 20: Unusually Sensitive people should consider limiting prolonged exertion.
Health message for Saturday, January 21: No health impacts are expected.

A couple of disturbances will pass through the region this weekend. The first will bring breezes to the forecast area Saturday. Calmer winds are expected Sunday. The second wave will increase clouds and even present a slight chance for showers late Monday, along with more breezes. Daytime temperatures will take a dip from the lower 70s Saturday to the lower 60s by Tuesday. Warm air and lighter winds return Wednesday through next Friday as high pressure rebounds from the southwest.

Air quality levels will benefit from the passing systems as each wave will provide good surface mixing. Coarse and fine particulates (PM10 and PM2.5) levels should drop mostly into the Good range of the Air Quality Index (AQI) this weekend.

Check back on Sunday for more. Until then, have a great weekend! -J.Paul

MONITORING SITE MAPS	
STATIC MAP	http://www.azdeq.gov/environ/air/monitoring/images/map.jpg
INTERACTIVE MAPS	http://aqwww.maricopa.gov/AirMonitoring/SitePollutionMap.aspx http://156.42.96.39/alert/Google/air.html http://www.airnow.gov/

POLLUTION MONITOR READINGS FOR THURSDAY, JANUARY 19, 2012

O3 (OZONE)

Info on current 8-hour ozone standard: http://www.epa.gov/air/ozonepollution/pdfs/2008_03_aqi_changes.pdf
For archived AQI maps go to: http://www.airnow.gov/index.cfm?action=airnow.maps

SITE NAME	MAX 8-HR VALUE (PPB)	MAX AQI	AQI COLOR CODE
Apache Junction	28	24	
Blue Point	34	29	
Central Phoenix	25	21	
Fountain Hills	26	22	
North Phoenix	34	29	
Phoenix Supersite	27	23	
South Phoenix	19	16	
South Scottsdale	27	23	
West Phoenix	27	23	

CO (CARBON MONOXIDE)

SITE NAME	MAX 8-HR VALUE (PPM)	MAX AQI	AQI COLOR CODE
Buckeye	0.2	2	
Central Phoenix	1.3	15	
Dysart	0.3	3	
Glendale	0.8	9	
Greenwood	1.6	18	
Mesa	1.0	11	
North Phoenix	0.7	8	
South Phoenix	1.3	15	
South Scottsdale	0.9	10	
Tempe	0.9	10	
West Chandler	0.9	10	
West Phoenix	2.0	23	

PM-10 (PARTICLES)

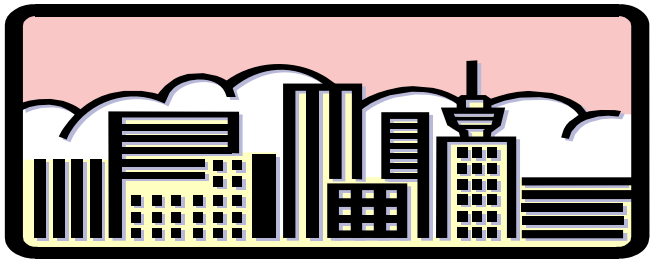
SITE NAME	MAX 24-HR VALUE (µg/m3)	MAX AQI	AQI COLOR CODE
Buckeye	42.6	39	
Central Phoenix	31.0	28	
Combs School (Pinal County)	31.2	29	
Durango	56.9	52	
Dysart	23.8	22	
Glendale	25.3	23	
Greenwood	52.0	47	
Higley	24.6	22	
Maricopa (Pinal County)	39.1	36	
North Phoenix	28.1	26	
Phoenix Supersite	32.5	30	
South Phoenix	44.3	40	
West Chandler	26.8	24	
West Forty Third	44.9	41	
West Phoenix	60.5	54	
Zuni Hills	15.7	14	

PM-2.5 (PARTICLES)

(Some data derived from light-scattering equipment)
For maps go to: **http://www.airnow.gov/**

SITE NAME	MAX 24-HR VALUE (µg/m3)	MAX AQI	AQI COLOR CODE
Durango	19.0	60	
Dysart	6.6	21	
Estrella Mountain Park	11.4	37	
Glendale	11.9	39	
Phoenix Supersite	12.5	41	
North Phoenix	11.8	38	
South Phoenix	14.7	48	
Vehicle Emissions Lab	6.9	22	
West Phoenix	16.9	54	

LOCAL AIR POLLUTANTS IN DETAIL



O3 (OZONE):

Description –
This is a secondary pollutant that is formed by the reaction of other primary pollutants (precursors) such as VOCs (volatile organic compounds) and NOx (Nitrogen Oxides) in the presence of heat and sunlight.
Sources – VOCs are emitted from motor vehicles, chemical plants, refineries, factories, and other industrial sources. NOx is emitted from motor vehicles, power plants, and other sources of combustion.
Potential health impacts – Exposure to ozone can make people more susceptible to respiratory infection, result in lung inflammation, and aggravate pre-existing respiratory diseases such as asthma. Other effects include decrease in lung function, chest pain, and cough.
Unit of measurement – Parts per billion (ppb).

Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight)
Reduction tips – Curtail daytime driving, refuel cars and use gasoline-powered equipment as late in the day as possible.

CO (CARBON MONOXIDE):

Description – A colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely.
Sources – In cities, as much as 95 percent of all CO emissions emanate from automobile exhaust. Other sources include industrial processes, non-transportation fuel combustion, and natural sources such as wildfires. Peak concentrations occur in colder winter months.
Potential health impacts – Reduces oxygen delivery to the body's organs and tissues. The health threat is most serious for those who suffer from cardiovascular disease.
Unit of measurement – Parts per million (ppm).
Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight)
Reduction tips – Keep motor vehicle tuned properly and minimize nighttime driving.

PM-10 & PM-2.5 (PARTICLES):

Description – The term "particulate matter" (PM) includes both solid particles and liquid droplets found in air. Many manmade and natural sources emit PM directly or emit other pollutants that react in the atmosphere to form PM. Particles less than 10 micrometers in diameter tend to pose the greatest health concern because they can be inhaled into and accumulate in the respiratory system. Particles less than 2.5 micrometers in diameter are referred to as "fine" particles and are responsible for many visibility degradations such as the "Valley Brown Cloud" (see http://www.phoenixvis.net/). Particles with diameters between 2.5 and 10 micrometers are referred to as "coarse".
Sources – Fine = All types of combustion (motor vehicles, power plants, wood burning, etc.) and some industrial processes. Coarse = crushing or grinding operations and dust from paved or unpaved roads.
Potential health impacts – PM can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases, such as asthma and chronic bronchitis.
Units of measurement – Micrograms per cubic meter (ug/m3)
Averaging interval – 24 hours (midnight to midnight).
Reduction tips – Stabilize loose soils, slow down on dirt roads, carpool, and use public transit.

{**Updated 12/19/2011**}

ADEQ Arizona Department of Environmental Quality

VERY UNHEALTHY (201-300)

UNHEALTHY (151-200)

UNHEALTHY FOR SENSITIVE GROUPS (101-150)

MODERATE (51-100)

GOOD (0-50)

For more information visit:
http://www.airnow.gov/index.cfm?action=aqibasics.aqi

LINK TO 2011 AIR POLLUTION EXCEEDANCE GRAPH

AIR QUALITY FORECAST FOR MONDAY, JANUARY 23, 2012

This report is updated by 1:00 p.m. Sunday thru Friday and is valid
for areas within and bordering Maricopa County in Arizona

FORECAST DATE **NOTICES** (*SEE BELOW FOR DETAILS) **AIR POLLUTANT**	YESTERDAY SAT 01/21/2012 Highest AQI Reading/Site (*Preliminary data only*)	TODAY SUN 01/22/2012	TOMORROW MON 01/23/2012	EXTENDED TUE 01/24/2012
O3*	**31** **MULTIPLE LOCATIONS**	**26** ***GOOD***	**27** ***GOOD***	**26** ***GOOD***
CO*	**18** **WEST PHOENIX**	**15** ***GOOD***	**19** ***GOOD***	**17** ***GOOD***
PM-10*	**128** **WEST 43rd**	**48** ***GOOD***	**50** ***GOOD***	**30** ***GOOD***
PM-2.5*	**48** **ESTRELLA MOUTAIN PARK**	**33** ***GOOD***	**34** ***GOOD***	**30** ***GOOD***

* O3 = Ozone CO = Carbon Monoxide PM-10 = Particles 10 microns & smaller PM-2.5 = Particles smaller than 2.5 microns

*"Ozone Health Watch" means that the highest concentration of OZONE may approach the federal health standard.
"PM-10 or PM-2.5 Health Watch" means that the highest concentration of PM-10 or PM-2.5 may approach the federal health standard.
"High Pollution Advisory" means that the highest concentration of OZONE, PM-10, or PM-2.5 may exceed the federal health standard.
"DUST" means that short periods of high PM-10 concentrations caused by outflow from thunderstorms are possible.

Health message for Sunday, January 22: **No health impacts are expected.**
Health message for Monday, January 23: **No health impacts are expected.**

The brief winds that high the Valley Saturday afternoon into evening kicked up enough dust over the dry desert to cause a preliminary exceedance of the PM10 health standard at the West 43rd monitor. Several other sites reached well into the Moderate category. Calmer conditions have since returned. However, there is another disturbance poised to move through the region late Monday into Tuesday. Models are not indicating that the Valley will experience strong winds like it did on Saturday. Rather the GFS model is suggesting that we could see some rain late Monday into early Tuesday morning. Totals will generally be no more than a tenth of an inch. But that should be enough to clear the air.

High pressure returns Wednesday through the weekend, allowing daytime highs to rebound from the mid 60s on Tuesday to the mid 70s by Friday.

For now, we expect the Valley pollution levels to remain mostly in the Good range of the Air Quality Index (AQI) through at least Tuesday.

Check back tomorrow for the latest. Until then, have a good day! -J.Paul

MONITORING SITE MAPS	
STATIC MAP	http://www.azdeq.gov/environ/air/monitoring/images/map.jpg
INTERACTIVE MAPS	http://agwww.maricopa.gov/AirMonitoring/SitePollutionMap.aspx http://156.42.96.39/alert/Google/air.html http://www.airnow.gov/

POLLUTION MONITOR READINGS FOR SATURDAY, JANUARY 21, 2012

O3 (OZONE)

Info on current 8-hour ozone standard: http://www.epa.gov/air/ozonepollution/pdfs/2008_03_aqi_changes.pdf
For archived AQI maps go to: http://www.airnow.gov/index.cfm?action=airnow.maps

SITE NAME	MAX 8-HR VALUE (PPB)	MAX AQI	AQI COLOR CODE
Apache Junction	32	27	
Blue Point	37	31	
Central Phoenix	34	29	
Fountain Hills	35	30	
North Phoenix	36	31	
Phoenix Supersite	32	27	
South Phoenix	34	29	
South Scottsdale	32	27	
West Phoenix	32	27	

CO (CARBON MONOXIDE)

SITE NAME	MAX 8-HR VALUE (PPM)	MAX AQI	AQI COLOR CODE
Buckeye	0.2	2	
Central Phoenix	1.1	13	
Dysart	0.4	5	
Glendale	0.9	10	
Greenwood	1.3	15	
Mesa	1.1	13	
North Phoenix	0.8	9	
South Phoenix	1.2	14	
South Scottsdale	0.9	10	
Tempe	1.2	14	
West Chandler	0.8	9	
West Phoenix	1.6	18	

PM-10 (PARTICLES)

SITE NAME	MAX 24-HR VALUE (µg/m3)	MAX AQI	AQI COLOR CODE
Buckeye	122.2	84	
Central Phoenix	74.8	61	
Combs School (Pinal County)	NOT AVBL	NOT AVBL	NOT AVBL
Durango	117.7	82	
Dysart	46.3	42	
Glendale	62.5	55	
Greenwood	85.2	66	
Higley	84.6	66	
Maricopa (Pinal County)	NOT AVBL	NOT AVBL	NOT AVBL
North Phoenix	NOT AVBL	NOT AVBL	NOT AVBL
Phoenix Supersite	66.5	57	
South Phoenix	132.5	89	
West Chandler	128.2	87	
West Forty Third	209.6	128	
West Phoenix	NOT AVBL	NOT AVBL	NOT AVBL
Zuni Hills	41.9	38	

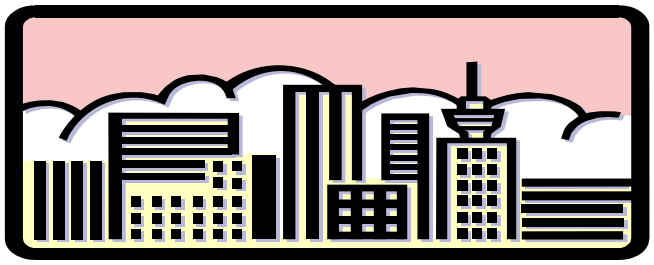
PM-2.5 (PARTICLES)

(Some data derived from light-scattering equipment)

For maps go to: **http://www.airnow.gov/**

SITE NAME	MAX 24-HR VALUE (µg/m3)	MAX AQI	AQI COLOR CODE
Durango	NOT AVBL	NOT AVBL	NOT AVBL
Dysart	7.0	23	
Estrella Mountain Park	14.9	48	
Glendale	NOT AVBL	NOT AVBL	NOT AVBL
Phoenix Supersite	9.9	32	
North Phoenix	NOT AVBL	NOT AVBL	NOT AVBL
South Phoenix	NOT AVBL	NOT AVBL	NOT AVBL
Vehicle Emissions Lab	9.6	31	
West Phoenix	NOT AVBL	NOT AVBL	NOT AVBL

LOCAL AIR POLLUTANTS IN DETAIL



O3 (OZONE):

Description –
This is a secondary pollutant that is formed by the reaction of other primary pollutants (precursors) such as VOCs (volatile organic compounds) and NOx (Nitrogen Oxides) in the presence of heat and sunlight.

Sources – VOCs are emitted from motor vehicles, chemical plants, refineries, factories, and other industrial sources. NOx is emitted from motor vehicles, power plants, and other sources of combustion.

Potential health impacts – Exposure to ozone can make people more susceptible to respiratory infection, result in lung inflammation, and aggravate pre-existing respiratory diseases such as asthma. Other effects include decrease in lung function, chest pain, and cough.

Unit of measurement – Parts per billion (ppb).
Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight)
Reduction tips – Curtail daytime driving, refuel cars and use gasoline-powered equipment as late in the day as possible.

CO (CARBON MONOXIDE):

Description – A colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely.
Sources – In cities, as much as 95 percent of all CO emissions emanate from automobile exhaust. Other sources include industrial processes, non-transportation fuel combustion, and natural sources such as wildfires. Peak concentrations occur in colder winter months.
Potential health impacts – Reduces oxygen delivery to the body's organs and tissues. The health threat is most serious for those who suffer from cardiovascular disease.
Unit of measurement – Parts per million (ppm).
Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight)
Reduction tips – Keep motor vehicle tuned properly and minimize nighttime driving.

PM-10 & PM-2.5 (PARTICLES):

Description – The term "particulate matter" (PM) includes both solid particles and liquid droplets found in air. Many manmade and natural sources emit PM directly or emit other pollutants that react in the atmosphere to form PM. Particles less than 10 micrometers in diameter tend to pose the greatest health concern because they can be inhaled into and accumulate in the respiratory system. Particles less than 2.5 micrometers in diameter are referred to as "fine" particles and are responsible for many visibility degradations such as the "Valley Brown Cloud" (see http://www.phoenixvis.net/). Particles with diameters between 2.5 and 10 micrometers are referred to as "coarse".
Sources – Fine = All types of combustion (motor vehicles, power plants, wood burning, etc.) and some industrial processes. Coarse = crushing or grinding operations and dust from paved or unpaved roads.
Potential health impacts – PM can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases, such as asthma and chronic bronchitis.
Units of measurement – Micrograms per cubic meter (ug/m3)
Averaging interval – 24 hours (midnight to midnight).
Reduction tips – Stabilize loose soils, slow down on dirt roads, carpool, and use public transit.

{**Updated 12/19/2011**}

APPENDIX B

NATIONAL WEATHER SERVICE METEOROLOGICAL OBSERVATIONS AND FORECASTS

AWS ID	WBAN ID	Name	Country	State	Latitude	Longitude	Elevation
720644	99999	BUCKEYE MUNI	UNITED STATES	ARIZONA	+33.417	-112.683	+0311.0 (meters)

USAF	WBAN	YR--MODAHRMN	DIR	SPD	GUS	CLG	SKC	L	M	H	VSB	MW	MW	MW	MW	AW	AW	AW	AW	W	TEMP	DEWP	SLP	ALT	STP	MAX	MIN	PCP01	PC
		GMT		MPH	MPH						Miles										F	F	Mb	inches	Mb	F	F	inches	in
720644	99999	201201210700	010	3	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	46	25	******	30.00	******	***	***	*****	**
720644	99999	201201210715	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	46	25	******	30.01	******	***	***	*****	**
720644	99999	201201210735	330	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	45	27	******	30.00	******	***	***	*****	**
720644	99999	201201210800	330	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	43	27	******	29.99	******	***	***	*****	**
720644	99999	201201210815	340	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	43	25	******	29.99	******	***	***	*****	**
720644	99999	201201210835	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	43	25	******	29.99	******	***	***	*****	**
720644	99999	201201210900	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	43	27	******	30.00	******	***	***	*****	**
720644	99999	201201210915	310	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	41	25	******	30.00	******	***	***	*****	**
720644	99999	201201210935	340	7	***	722	***	*	*	*	9.1	**	**	**	**	**	**	**	**	*	45	27	******	30.00	******	***	***	*****	**
720644	99999	201201211000	340	9	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	43	25	******	29.99	******	***	***	*****	**
720644	99999	201201211015	340	9	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	43	27	******	29.99	******	***	***	*****	**
720644	99999	201201211035	340	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	45	25	******	29.99	******	***	***	*****	**
720644	99999	201201211100	340	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	43	25	******	30.00	******	***	***	*****	**
720644	99999	201201211115	350	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	43	25	******	29.99	******	***	***	*****	**
720644	99999	201201211135	340	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	41	25	******	29.99	******	***	***	*****	**
720644	99999	201201211200	010	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	41	25	******	29.98	******	***	***	*****	**
720644	99999	201201211215	040	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	41	27	******	29.98	******	***	***	*****	**
720644	99999	201201211235	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	41	27	******	29.98	******	***	***	*****	**
720644	99999	201201211300	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	39	27	******	29.98	******	***	***	*****	**
720644	99999	201201211315	290	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	39	27	******	29.98	******	***	***	*****	**
720644	99999	201201211335	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	39	27	******	29.96	******	***	***	*****	**
720644	99999	201201211400	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	41	28	******	29.97	******	***	***	*****	**
720644	99999	201201211415	310	8	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	39	27	******	29.98	******	***	***	*****	**
720644	99999	201201211435	330	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	41	27	******	29.98	******	***	***	*****	**
720644	99999	201201211500	280	3	***	722	***	*	*	*	8.0	**	**	**	**	**	**	**	**	*	41	27	******	30.00	******	***	***	*****	**
720644	99999	201201211515	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	41	28	******	29.99	******	***	***	*****	**
720644	99999	201201211535	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	43	28	******	29.99	******	***	***	*****	**
720644	99999	201201211600	100	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	46	28	******	29.99	******	***	***	*****	**
720644	99999	201201211615	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	48	32	******	29.99	******	***	***	*****	**
720644	99999	201201211635	090	11	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	52	32	******	29.99	******	***	***	*****	**
720644	99999	201201211700	100	13	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	55	30	******	29.99	******	***	***	*****	**
720644	99999	201201211715	090	13	16	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	55	32	******	30.00	******	***	***	*****	**
720644	99999	201201211735	100	10	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	57	32	******	29.99	******	***	***	*****	**
720644	99999	201201211800	100	11	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	57	32	******	29.98	******	***	***	*****	**
720644	99999	201201211815	100	10	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	57	32	******	29.97	******	***	***	*****	**
720644	99999	201201211835	100	9	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	57	32	******	29.95	******	***	***	*****	**
720644	99999	201201211900	100	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	57	30	******	29.95	******	***	***	*****	**
720644	99999	201201211915	100	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	57	30	******	29.93	******	***	***	*****	**
720644	99999	201201211935	100	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	59	28	******	29.92	******	***	***	*****	**
720644	99999	201201212000	120	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	61	28	******	29.91	******	***	***	*****	**
720644	99999	201201212015	120	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	63	28	******	29.90	******	***	***	*****	**
720644	99999	201201212035	130	9	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	63	28	******	29.87	******	***	***	*****	**
720644	99999	201201212100	130	9	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	63	30	******	29.86	******	***	***	*****	**
720644	99999	201201212115	130	8	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	63	32	******	29.84	******	***	***	*****	**
720644	99999	201201212135	120	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	64	28	******	29.84	******	***	***	*****	**
720644	99999	201201212200	130	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	64	30	******	29.83	******	***	***	*****	**
720644	99999	201201212215	210	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	66	28	******	29.82	******	***	***	*****	**
720644	99999	201201212235	200	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	68	25	******	29.82	******	***	***	*****	**
720644	99999	201201212300	220	14	23	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	70	28	******	29.80	******	***	***	*****	**
720644	99999	201201212315	230	22	29	722	***	*	*	*	8.0	**	**	**	**	**	**	**	**	*	70	32	******	29.80	******	***	***	*****	**
720644	99999	201201212335	230	21	30	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	70	32	******	29.81	******	***	***	*****	**
720644	99999	201201220000	230	24	36	722	***	*	*	*	9.1	**	**	**	**	**	**	**	**	*	68	36	******	29.81	******	***	***	*****	**
720644	99999	201201220015	230	24	31	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	68	36	******	29.81	******	***	***	*****	**
720644	99999	201201220035	220	15	24	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	66	36	******	29.81	******	***	***	*****	**
720644	99999	201201220100	230	15	21	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	66	36	******	29.81	******	***	***	*****	**
720644	99999	201201220115	230	17	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	64	41	******	29.81	******	***	***	*****	**
720644	99999	201201220135	240	18	23	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	64	39	******	29.82	******	***	***	*****	**
720644	99999	201201220200	240	17	29	722	***	*	*	*	9.1	**	**	**	**	**	**	**	**	*	64	39	******	29.81	******	***	***	*****	**

720644	99999	201201220215	240	15	21	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	64	39	******	29.82	******	***	***	*****	**
720644	99999	201201220235	230	15	***	722	***	*	*	*	9.1	**	**	**	**	**	**	**	*	63	37	******	29.83	******	***	***	*****	**
720644	99999	201201220300	240	13	24	722	***	*	*	*	7.0	**	**	**	**	**	**	**	*	64	36	******	29.84	******	***	***	*****	**
720644	99999	201201220315	240	13	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	*	63	37	******	29.86	******	***	***	*****	**
720644	99999	201201220335	240	14	18	722	***	*	*	*	7.0	**	**	**	**	**	**	**	*	63	37	******	29.87	******	***	***	*****	**
720644	99999	201201220400	250	13	22	722	***	*	*	*	7.0	**	**	**	**	**	**	**	*	61	37	******	29.88	******	***	***	*****	**
720644	99999	201201220415	280	22	33	722	***	*	*	*	5.0	**	**	**	**	**	**	**	*	63	25	******	29.89	******	***	***	*****	**
720644	99999	201201220435	270	21	28	722	***	*	*	*	7.0	**	**	**	**	**	**	**	*	61	21	******	29.90	******	***	***	*****	**
720644	99999	201201220500	280	23	28	722	***	*	*	*	5.0	**	**	**	**	**	**	**	*	59	19	******	29.91	******	***	***	*****	**
720644	99999	201201220515	280	21	30	722	***	*	*	*	2.0	**	**	**	**	**	**	**	*	59	19	******	29.93	******	***	***	*****	**
720644	99999	201201220535	270	18	***	722	***	*	*	*	3.0	**	**	**	**	**	**	**	*	57	19	******	29.95	******	***	***	*****	**
720644	99999	201201220600	270	17	23	722	***	*	*	*	3.0	**	**	**	**	**	**	**	*	57	23	******	29.95	******	***	***	*****	**
720644	99999	201201220615	270	18	23	722	***	*	*	*	5.0	**	**	**	**	**	**	**	*	55	23	******	29.97	******	***	***	*****	**
720644	99999	201201220635	270	14	***	722	***	*	*	*	5.0	**	**	**	**	**	**	**	*	55	23	******	29.97	******	***	***	*****	**
720644	99999	201201220700	280	10	***	722	***	*	*	*	5.0	**	**	**	**	**	**	**	*	54	23	******	29.99	******	***	***	*****	**
720644	99999	201201220715	260	8	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	*	52	25	******	30.00	******	***	***	*****	**
720644	99999	201201220735	260	8	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	*	48	25	******	30.01	******	***	***	*****	**
720644	99999	201201220800	260	7	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	*	48	25	******	30.00	******	***	***	*****	**
720644	99999	201201220815	010	6	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	*	46	25	******	30.00	******	***	***	*****	**
720644	99999	201201220835	090	6	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	*	46	25	******	30.02	******	***	***	*****	**

AWS ID	WBAN ID	Name	Country	State	Latitude	Longitude	Elevation
720644	99999	BUCKEYE MUNI	UNITED STATES	ARIZONA	+33.417	-112.683	+0311.0 (meters)

USAF	WBAN	YR--MODAHRMN	DIR	SPD	GUS	CLG	SKC	L	M	H	VSB	MW	MW	MW	MW	AW	AW	AW	AW	W	TEMP	DEWP	SLP	ALT	STP	MAX	MIN	PCP01	PC
		GMT		MPH	MPH						Miles										F	F	Mb	inches	Mb	F	F	inches	in
720644	99999	201201220700	280	10	***	722	***	*	*	*	5.0	**	**	**	**	**	**	**	**	*	54	23	******	29.99	******	***	***	*****	**
720644	99999	201201220715	260	8	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	**	*	52	25	******	30.00	******	***	***	*****	**
720644	99999	201201220735	260	8	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	**	*	48	25	******	30.01	******	***	***	*****	**
720644	99999	201201220800	260	7	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	**	*	48	25	******	30.00	******	***	***	*****	**
720644	99999	201201220815	010	6	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	**	*	46	25	******	30.00	******	***	***	*****	**
720644	99999	201201220835	090	6	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	**	*	46	25	******	30.02	******	***	***	*****	**
720644	99999	201201220900	030	3	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	**	*	48	25	******	30.03	******	***	***	*****	**
720644	99999	201201220915	***	0	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	**	*	46	25	******	30.03	******	***	***	*****	**
720644	99999	201201220935	010	5	***	722	***	*	*	*	6.0	**	**	**	**	**	**	**	**	*	45	25	******	30.03	******	***	***	*****	**
720644	99999	201201221000	030	5	***	722	***	*	*	*	5.0	**	**	**	**	**	**	**	**	*	41	25	******	30.04	******	***	***	*****	**
720644	99999	201201221015	010	5	***	722	***	*	*	*	5.0	**	**	**	**	**	**	**	**	*	43	25	******	30.04	******	***	***	*****	**
720644	99999	201201221035	090	3	***	722	***	*	*	*	6.0	**	**	**	**	**	**	**	**	*	41	25	******	30.04	******	***	***	*****	**
720644	99999	201201221100	***	0	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	**	*	45	25	******	30.04	******	***	***	*****	**
720644	99999	201201221115	***	0	***	722	***	*	*	*	6.0	**	**	**	**	**	**	**	**	*	39	27	******	30.04	******	***	***	*****	**
720644	99999	201201221135	300	5	***	722	***	*	*	*	6.0	**	**	**	**	**	**	**	**	*	37	25	******	30.05	******	***	***	*****	**
720644	99999	201201221200	290	5	***	722	***	*	*	*	5.0	**	**	**	**	**	**	**	**	*	37	25	******	30.05	******	***	***	*****	**
720644	99999	201201221215	340	6	***	722	***	*	*	*	6.0	**	**	**	**	**	**	**	**	*	39	25	******	30.06	******	***	***	*****	**
720644	99999	201201221235	360	8	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	**	*	37	23	******	30.07	******	***	***	*****	**
720644	99999	201201221300	350	6	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	**	*	37	23	******	30.08	******	***	***	*****	**
720644	99999	201201221315	170	3	***	722	***	*	*	*	8.0	**	**	**	**	**	**	**	**	*	37	25	******	30.09	******	***	***	*****	**
720644	99999	201201221335	180	3	***	722	***	*	*	*	8.0	**	**	**	**	**	**	**	**	*	37	25	******	30.09	******	***	***	*****	**
720644	99999	201201221400	270	3	***	722	***	*	*	*	8.0	**	**	**	**	**	**	**	**	*	36	25	******	30.09	******	***	***	*****	**
720644	99999	201201221415	240	5	***	722	***	*	*	*	8.0	**	**	**	**	**	**	**	**	*	34	25	******	30.11	******	***	***	*****	**
720644	99999	201201221435	250	5	***	722	***	*	*	*	5.0	**	**	**	**	**	**	**	**	*	34	23	******	30.10	******	***	***	*****	**
720644	99999	201201221500	330	8	***	722	***	*	*	*	5.0	**	**	**	**	**	**	**	**	*	36	23	******	30.11	******	***	***	*****	**
720644	99999	201201221515	340	9	***	722	***	*	*	*	5.0	**	**	**	**	**	**	**	**	*	37	25	******	30.12	******	***	***	*****	**
720644	99999	201201221535	340	5	***	722	***	*	*	*	7.0	**	**	**	**	**	**	**	**	*	39	25	******	30.12	******	***	***	*****	**
720644	99999	201201221600	040	8	***	722	***	*	*	*	9.1	**	**	**	**	**	**	**	**	*	45	25	******	30.13	******	***	***	*****	**
720644	99999	201201221615	110	6	***	722	***	*	*	*	9.1	**	**	**	**	**	**	**	**	*	46	28	******	30.14	******	***	***	*****	**
720644	99999	201201221635	100	7	***	722	***	*	*	*	8.0	**	**	**	**	**	**	**	**	*	46	30	******	30.15	******	***	***	*****	**
720644	99999	201201221700	110	8	***	722	***	*	*	*	9.1	**	**	**	**	**	**	**	**	*	48	28	******	30.16	******	***	***	*****	**
720644	99999	201201221715	130	10	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	50	27	******	30.17	******	***	***	*****	**
720644	99999	201201221735	170	6	***	722	***	*	*	*	9.1	**	**	**	**	**	**	**	**	*	50	27	******	30.17	******	***	***	*****	**
720644	99999	201201221800	150	6	***	722	***	*	*	*	9.1	**	**	**	**	**	**	**	**	*	52	27	******	30.18	******	***	***	*****	**
720644	99999	201201221815	140	5	***	722	***	*	*	*	9.1	**	**	**	**	**	**	**	**	*	54	27	******	30.18	******	***	***	*****	**
720644	99999	201201221835	100	3	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	54	27	******	30.17	******	***	***	*****	**
720644	99999	201201221900	090	3	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	55	27	******	30.16	******	***	***	*****	**
720644	99999	201201221915	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	55	27	******	30.16	******	***	***	*****	**
720644	99999	201201221935	100	3	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	57	27	******	30.14	******	***	***	*****	**
720644	99999	201201222000	080	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	57	25	******	30.13	******	***	***	*****	**
720644	99999	201201222015	120	3	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	59	27	******	30.12	******	***	***	*****	**
720644	99999	201201222035	120	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	59	27	******	30.12	******	***	***	*****	**
720644	99999	201201222100	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	59	27	******	30.11	******	***	***	*****	**
720644	99999	201201222115	130	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	61	27	******	30.11	******	***	***	*****	**
720644	99999	201201222135	140	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	61	27	******	30.10	******	***	***	*****	**
720644	99999	201201222200	120	3	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	61	25	******	30.10	******	***	***	*****	**
720644	99999	201201222215	150	3	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	61	23	******	30.11	******	***	***	*****	**
720644	99999	201201222235	110	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	63	23	******	30.10	******	***	***	*****	**
720644	99999	201201222300	080	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	63	19	******	30.10	******	***	***	*****	**
720644	99999	201201222315	***	0	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	63	19	******	30.10	******	***	***	*****	**
720644	99999	201201222335	110	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	63	19	******	30.11	******	***	***	*****	**
720644	99999	201201230000	110	3	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	61	23	******	30.11	******	***	***	*****	**
720644	99999	201201230015	120	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	59	27	******	30.10	******	***	***	*****	**
720644	99999	201201230035	120	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	59	27	******	30.10	******	***	***	*****	**
720644	99999	201201230100	110	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	59	27	******	30.09	******	***	***	*****	**
720644	99999	201201230115	100	8	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	55	27	******	30.08	******	***	***	*****	**
720644	99999	201201230135	100	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	54	27	******	30.08	******	***	***	*****	**
720644	99999	201201230200	070	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	**	*	54	23	******	30.10	******	***	***	*****	**

720644	99999	201201230215	360	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	50	23	******	30.11	******	***	***	*****	**
720644	99999	201201230235	360	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	50	19	******	30.11	******	***	***	*****	**
720644	99999	201201230300	350	5	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	48	21	******	30.12	******	***	***	*****	**
720644	99999	201201230315	360	9	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	46	21	******	30.13	******	***	***	*****	**
720644	99999	201201230335	010	9	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	48	23	******	30.13	******	***	***	*****	**
720644	99999	201201230400	010	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	46	23	******	30.12	******	***	***	*****	**
720644	99999	201201230415	040	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	46	25	******	30.11	******	***	***	*****	**
720644	99999	201201230435	010	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	46	23	******	30.11	******	***	***	*****	**
720644	99999	201201230500	350	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	45	23	******	30.11	******	***	***	*****	**
720644	99999	201201230515	360	3	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	45	23	******	30.11	******	***	***	*****	**
720644	99999	201201230535	350	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	43	21	******	30.12	******	***	***	*****	**
720644	99999	201201230600	350	8	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	43	23	******	30.12	******	***	***	*****	**
720644	99999	201201230615	350	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	41	23	******	30.11	******	***	***	*****	**
720644	99999	201201230635	350	8	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	41	23	******	30.11	******	***	***	*****	**
720644	99999	201201230700	360	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	39	23	******	30.10	******	***	***	*****	**
720644	99999	201201230715	340	6	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	39	21	******	30.12	******	***	***	*****	**
720644	99999	201201230735	340	7	***	722	***	*	*	*	10.0	**	**	**	**	**	**	**	*	37	21	******	30.13	******	***	***	*****	**

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)
HOURLY OBSERVATIONS TABLE
CHANDLER MUNICIPAL AIRPORT (53128)
CHANDLER, AZ
(01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1243 ft. above sea level
Latitude: 33.268
Longitude: -111.812
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
21	0547	0	FEW200	15.00		39	4.0	35	1.8	30	-1.0	70	5	030		28.66			M	AA		29.98
21	0647	0	SCT250	15.00		41	5.0	38	3.3	34	1.0	76	7	060		28.67			M	AA		29.99
21	0850	0	SCT150 BKN200	40.00		46	8.0	42	5.5	37	3.0	71	6	280		28.68			M	AA		30.00
21	0950	0	SCT150 OVC200	40.00		48	9.0	43	6.0	37	3.0	66	3	VR		28.68			M	AA		30.00
21	1047	0	SCT150 OVC200	40.00		52	11.0	46	7.6	39	4.0	61	0	000		28.67			M	AA		29.99
21	1147	0	SCT150 OVC200	40.00		63	17.0	51	10.5	39	4.0	41	3	150		28.63			M	AA		29.95
21	1247	0	BKN150 OVC200	40.00		63	17.0	49	9.4	34	1.0	34	0	000		28.59			M	AA		29.91
21	1347	0	BKN120 OVC150	40.00		63	17.0	50	9.8	36	2.0	37	3	160		28.54			M	AA		29.86
21	1447	0	SCT120 BKN150	40.00		72	22.0	52	10.9	30	-1.0	21	11	130		28.50			M	AA		29.82
21	1550	0	SCT120	40.00		72	22.0	52	10.9	30	-1.0	21	11	210		28.48			M	AA		29.80
21	1647	0	SCT120	40.00		72	22.0	52	10.9	30	-1.0	21	11	190	20	28.46			M	AA		29.78
21	1750	0	SCT180	5.00	BLDU	66	19.0	51	10.5	36	2.0	33	22	210	37	28.47			M	AA		29.79
21	1847	0	SCT180	5.00	BLDU	66	19.0	51	10.5	36	2.0	33	30	200	40	28.48			M	AA		29.80
21	1947	0	SCT180	15.00		64	18.0	50	10.0	36	2.0	36	21	240		28.51			M	AA		29.83
21	2047	0	SCT180	15.00		63	17.0	50	10.0	37	3.0	38	24	220	31	28.52			M	AA		29.84

Dynamically generated Thu Nov 08 11:39:25 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final) HOURLY OBSERVATIONS TABLE CHANDLER MUNICIPAL AIRPORT (53128) CHANDLER, AZ (01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1243 ft. above sea level
Latitude: 33.268
Longitude: -111.812
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
22	0547	0	CLR	15.00		39	4.0	33	0.5	23	-5.0	53	6	080		28.71			M	AA		30.04
22	0647	0	FEW100 BKN200	10.00		37	3.0	32	0.2	25	-4.0	62	8	030		28.74			M	AA		30.07
22	0747	0	SCT120 BKN200	10.00		37	3.0	33	0.6	27	-3.0	67	5	030		28.77			M	AA		30.10
22	0850	0	FEW120 BKN200	10.00		45	7.0	38	3.3	28	-2.0	51	3	360		28.80			M	AA		30.13
22	0948	0	FEW120 BKN200	25.00		52	11.0	43	6.1	32	0.0	47	7	350		28.82			M	AA		30.15
22	1047	0	FEW120 SCT200 BKN250	25.00		57	14.0	46	7.5	32	0.0	39	0	000		28.83			M	AA		30.16
22	1148	0	FEW120 SCT200 BKN250	20.00		64	18.0	48	8.9	30	-1.0	28	3	040		28.82			M	AA		30.15
22	1247	0	SCT120 BKN200	15.00		64	18.0	48	8.9	30	-1.0	28	6	280		28.80			M	AA		30.13
22	1347	0	SCT150 BKN200	25.00		64	18.0	47	8.4	27	-3.0	25	7	260		28.78			M	AA		30.11
22	1447	0	OVC150	25.00		63	17.0	46	7.8	25	-4.0	24	5	220		28.77			M	AA		30.10
22	1550	0	OVC150	25.00		63	17.0	46	7.8	25	-4.0	24	0	000		28.77			M	AA		30.10
22	1647	0	OVC150	25.00		61	16.0	45	7.0	23	-5.0	23	0	000		28.77			M	AA		30.10
22	1747	0	OVC140	15.00		57	14.0	43	5.9	23	-5.0	27	0	000		28.77			M	AA		30.10
22	1850	0	BKN140	15.00		55	13.0	42	5.6	25	-4.0	31	7	090		28.76			M	AA		30.09
22	1947	0	BKN140	15.00		52	11.0	41	4.8	25	-4.0	35	7	100		28.75			M	AA		30.08
22	2047	0	BKN140	15.00		48	9.0	37	2.7	19	-7.0	32	7	340		28.78			M	AA		30.11

Dynamically generated Thu Nov 08 11:54:11 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)

HOURLY OBSERVATIONS TABLE
GLENDALE MUNICIPAL AIRPORT (53126)
GLENDALE, AZ
(01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1066 ft. above sea level
Latitude: 33.527
Longitude: -112.295
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
21	0647	0	SCT250	20.00		45	7.0	39	3.7	30	-1.0	56	6	350		28.85			M	AA		29.99
21	0750	0	SCT120 BKN200	20.00		45	7.0	39	4.1	32	0.0	60	5	330		28.86			M	AA		30.00
21	0847	0	SCT120 BKN200 BKN250	20.00		46	8.0	41	4.8	34	1.0	63	6	VR		28.87			M	AA		30.01
21	0955	0	SCT140 BKN200 OVC250	20.00		52	11.0	43	6.1	32	0.0	47	5	050		28.87			M	AA		30.01
21	1050	0	SCT150 BKN200 OVC250	20.00		54	12.0	44	6.7	32	0.0	43	0	000		28.86			M	AA		30.00
21	1147	0	SCT150 BKN200 OVC250	20.00		57	14.0	46	7.5	32	0.0	39	0	000		28.82			M	AA		29.96
21	1247	0	SCT100 BKN120 OVC250	20.00		57	14.0	46	7.5	32	0.0	39	0	000		28.78			M	AA		29.92
21	1347	0	SCT080 BKN120 BKN250	20.00		66	19.0	50	9.8	32	0.0	28	3	070		28.74			M	AA		29.87
21	1450	0	FEW060 SCT095 BKN180	20.00		64	18.0	48	8.9	30	-1.0	28	5	150		28.70			M	AA		29.83
21	1548	0	FEW060 FEW150 SCT200	20.00		68	20.0	49	9.6	28	-2.0	22	7	210		28.68			M	AA		29.81
21	1647	0	FEW060 SCT150 SCT200	20.00		68	20.0	50	9.9	30	-1.0	24	9	230		28.68			M	AA		29.81
21	1747	0	SCT080 BKN120 BKN250	20.00		68	20.0	52	11.0	36	2.0	31	20	220	29	28.67			M	AA		29.80
21	1850	0	SCT060 BKN100 BKN250	10.00		66	19.0	52	11.2	39	4.0	37	21	200	31	28.67			M	AA		29.80

Dynamically generated Thu Nov 08 11:40:46 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)
HOURLY OBSERVATIONS TABLE
GLENDALE MUNICIPAL AIRPORT (53126)
GLENDALE, AZ
(01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1066 ft. above sea level
Latitude: 33.527
Longitude: -112.295
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
22	0647	0	FEW200	20.00		43	6.0	37	2.7	28	-2.0	56	0	000		28.94			M	AA		30.08
22	0747	0	FEW200	20.00		45	7.0	38	3.1	27	-3.0	49	0	000		28.97			M	AA		30.11
22	0847	0	FEW150 SCT200	20.00		46	8.0	39	3.6	28	-2.0	50	3	VR		29.00			M	AA		30.14
22	0947	0	FEW150 SCT200	20.00		50	10.0	40	4.6	27	-3.0	41	6	300		29.02			M	AA		30.16
22	1047	0	SCT150 BKN200	20.00		52	11.0	42	5.3	28	-2.0	40	0	000		29.04			M	AA		30.18
22	1155	0	BKN150 BKN200	20.00		55	13.0	43	6.0	27	-3.0	34	3	330		29.02			M	AA		30.16
22	1247	0	BKN150 BKN200	20.00		57	14.0	44	6.6	27	-3.0	32	0	000		29.00			M	AA		30.14
22	1347	0	SCT150 BKN200	20.00		61	16.0	46	7.6	27	-3.0	27	0	000		28.98			M	AA		30.12
22	1447	0	SCT150 BKN200	20.00		61	16.0	45	7.3	25	-4.0	25	0	000		28.96			M	AA		30.10
22	1547	0	BKN150 OVC200	20.00		61	16.0	45	7.0	23	-5.0	23	0	000		28.96			M	AA		30.10
22	1650	0	BKN150 OVC200	20.00		61	16.0	45	7.0	23	-5.0	23	0	000		28.96			M	AA		30.10
22	1747	0	BKN150 BKN200	20.00		61	16.0	45	7.3	25	-4.0	25	3	090		28.97			M	AA		30.11
22	1847	0	BKN150 BKN200	20.00		59	15.0	46	7.6	30	-1.0	33	7	080		28.94			M	AA		30.08

Dynamically generated Thu Nov 08 11:55:32 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final) HOURLY OBSERVATIONS TABLE PHOENIX GOODYEAR AIRPORT (03186) GOODYEAR, AZ (01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 968 ft. above sea level
Latitude: 33.416
Longitude: -112.383
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
21	0547	0	FEW250	10.00		48	9.0	40	4.6	30	-1.0	50	7	060		28.97			M	AA		30.01
21	0650	0	BKN250	10.00		45	7.0	40	4.5	34	1.0	65	7	020		28.97			M	AA		30.01
21	0747	0	FEW150 OVC250	10.00		45	7.0	40	4.5	34	1.0	65	7	030		28.97			M	AA		30.01
21	0847	0	FEW150 SCT180 OVC250	10.00		48	9.0	42	5.4	34	1.0	59	7	070		28.97			M	AA		30.01
21	0947	0	SCT150 OVC200	10.00		50	10.0	43	6.0	34	1.0	54	6	060		28.98			M	AA		30.02
21	1047	0	BKN150 OVC250	10.00		55	13.0	45	7.3	34	1.0	45	8	040		28.97			M	AA		30.01
21	1147	0	BKN150 OVC250	10.00		57	14.0	46	7.9	34	1.0	42	8	050		28.94			M	AA		29.97
21	1247	0	BKN150 OVC200	10.00		59	15.0	47	8.0	32	0.0	36	6	040		28.91			M	AA		29.94
21	1350	0	SCT080 BKN120 BKN200	10.00		63	17.0	48	9.0	32	0.0	31	6	VR		28.85			M	AA		29.88
21	1447	0	FEW080 SCT120 BKN200	10.00		66	19.0	50	9.8	32	0.0	28	5	VR		28.82			M	AA		29.85
21	1547	0	FEW080 FEW120 SCT200	10.00		72	22.0	52	10.9	30	-1.0	21	9	270		28.78			M	AA		29.81
21	1647	0	FEW080 SCT120 BKN200	10.00		72	22.0	52	11.2	32	0.0	23	10	270		28.78			M	AA		29.81
21	1747	0	FEW080 SCT120 BKN200	7.00		70	21.0	53	11.7	37	3.0	30	17	240	29	28.78			M	AA		29.81
21	1847	0	FEW080 SCT120 BKN200	7.00		66	19.0	53	11.6	41	5.0	40	17	230	29	28.78			M	AA		29.81
21	1947	0	FEW080 SCT120 BKN200	10.00		64	18.0	51	10.7	39	4.0	40	14	240		28.81			M	AA		29.84
21	2047	0	FEW080 SCT120 BKN200	10.00		64	18.0	51	10.3	37	3.0	37	14	250	23	28.83			M	AA		29.86

Dynamically generated Thu Nov 08 11:43:53 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final) HOURLY OBSERVATIONS TABLE PHOENIX GOODYEAR AIRPORT (03186) GOODYEAR, AZ (01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 968 ft. above sea level
Latitude: 33.416
Longitude: -112.383
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
22	0550	0	CLR	10.00		46	8.0	38	3.4	27	-3.0	48	9	220		29.03			M	AA		30.07
22	0647	0	FEW250	10.00		46	8.0	38	3.4	27	-3.0	48	11	230		29.04			M	AA		30.08
22	0747	0	SCT120 BKN200	10.00		48	9.0	39	4.0	27	-3.0	44	7	240		29.07			M	AA		30.11
22	0847	0	SCT150 BKN200	10.00		48	9.0	39	4.0	27	-3.0	44	6	020		29.10			M	AA		30.14
22	1047	0	SCT150 BKN200	10.00		55	13.0	43	6.2	28	-2.0	36	6	VR		29.13			M	AA		30.17
22	1147	0	SCT150 BKN200 BKN250	10.00		57	14.0	44	6.6	27	-3.0	32	6	VR		29.12			M	AA		30.16
22	1247	0	SCT150 BKN200 BKN250	10.00		63	17.0	47	8.2	27	-3.0	26	5	VR		29.10			M	AA		30.14
22	1347	0	SCT150 BKN200 BKN250	10.00		63	17.0	46	7.9	25	-4.0	24	5	VR		29.08			M	AA		30.12
22	1447	0	SCT150 BKN200 BKN250	10.00		63	17.0	46	7.9	25	-4.0	24	5	VR		29.07			M	AA		30.11
22	1547	0	SCT150 BKN200 OVC250	10.00		63	17.0	46	7.9	25	-4.0	24	5	VR		29.07			M	AA		30.11
22	1647	0	BKN150 BKN200 OVC250	10.00		64	18.0	46	7.8	23	-5.0	21	0	000		29.07			M	AA		30.11
22	1747	0	BKN150 BKN200 BKN250	10.00		63	17.0	46	7.6	23	-5.0	22	0	000		29.07			M	AA		30.11
22	1847	0	SCT150 SCT200 BKN250	10.00		59	15.0	45	7.1	27	-3.0	29	5	VR		29.05			M	AA		30.09
22	1947	0	FEW150 SCT200 BKN250	10.00		55	13.0	42	5.7	25	-4.0	31	5	VR		29.08			M	AA		30.12
22	2047	0	FEW150 SCT250	10.00		48	9.0	36	2.3	16	-9.0	28	6	VR		29.09			M	AA		30.13

Dynamically generated Thu Nov 08 12:16:59 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final) HOURLY OBSERVATIONS TABLE LUKE AFB AIRPORT (23111) GLENDALE, AZ (01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1085 ft. above sea level
Latitude: 33.55
Longitude: -112.366
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
21	0055	0	CLR	10.00		45	7.4	40	4.5	34	1.0	65	8	340		28.83			30.00	AA		29.99
21	0155	0	CLR	10.00		44	6.9	39	4.0	33	0.4	65	3	350		28.83	6	009	30.00	AA		29.99
21	0255	0	CLR	10.00		44	6.7	39	3.8	32	0.1	63	3	330		28.83			30.00	AA		29.99
21	0355	0	CLR	10.00		43	6.2	39	3.7	33	0.3	68	6	360		28.82			29.98	AA		29.98
21	0455	0	CLR	10.00		44	6.4	38	3.6	31	-0.5	60	5	360		28.82	7	002	29.99	AA		29.98
21	0555	0	CLR	10.00		43	6.0	38	3.5	32	-0.2	65	3	030		28.81			29.98	AA		29.97
21	0655	0	CLR	10.00		44	6.4	38	3.6	31	-0.6	60	5	070		28.81			29.98	AA		29.97
21	0755	0	CLR	10.00		42	5.7	38	3.2	32	0.1	68	3	360		28.83	3	001	30.01	AA		29.99
21	0855	0	FEW130	10.00		46	7.5	41	5.0	35	1.8	66	3	350		28.84			30.02	AA		30.00
21	0955	0	SCT140	10.00		50	10.2	44	6.6	37	2.8	61	6	330		28.84			30.02	AA		30.00
21	1055	0	SCT140	10.00		55	12.8	44	6.5	30	-0.9	39	6	090		28.82	8	003	29.99	AA		29.98
21	1155	0	SCT100 BKN110	10.00		56	13.3	45	7.0	31	-0.6	39	0	000		28.77			29.95	AA		29.93
21	1159	0	BKN095 BKN110	10.00		55	13.0	44	6.5	30	-1.0	39	0	000		28.77			29.94	AA		29.93
21	1255	0	BKN085	10.00		57	14.1	46	7.7	33	0.6	40	0	000		28.75			29.92	AA		29.91
21	1352	0	SCT080	10.00		63	17.0	48	8.7	30	-1.0	29	5	VR		28.68			29.84	AA		29.83
21	1355	0	SCT080	10.00		62	16.8	47	8.4	30	-0.9	30	8	130		28.68	8	050	29.83	AA		29.83
21	1455	0	CLR	10.00		65	18.3	48	9.0	29	-1.6	26	0	000		28.66			29.82	AA		29.81
21	1555	0	CLR	10.00		67	19.4	49	9.3	28	-2.0	23	0	000		28.65			29.81	AA		29.80
21	1655	0	CLR	10.00		68	20.0	50	9.7	29	-1.4	23	11	240		28.64	6	010	29.80	AA		29.79
21	1659	0	CLR	4.00	HZ	68	20.0	50	9.9	30	-1.0	24	21	230	29	28.64	6	010	29.80	AA		29.79
21	1701	0	CLR	2.50	HZ	68	20.0	51	10.3	32	0.0	26	24	230	31	28.64			29.80	AA		29.79
21	1702	0	CLR	1.75	HZ	68	20.0	51	10.6	34	1.0	29	25	230	31	28.64			29.80	AA		29.79
21	1703	0	CLR	1.25	HZ	68	20.0	52	11.0	36	2.0	31	29	230		28.64			29.80	AA		29.79
21	1704	0	CLR	1.00	HZ	68	20.0	52	11.0	36	2.0	31	29	230	37	28.64			29.80	AA		29.79
21	1706	0	CLR	0.75	HZ	68	20.0	52	11.0	36	2.0	31	29	230	37	28.64			29.80	AA		29.79
21	1711	0	CLR	1.00	HZ	68	20.0	52	11.0	36	2.0	31	25	230	37	28.64			29.79	AA		29.79
21	1713	0	CLR	1.25	HZ	68	20.0	52	11.2	37	3.0	32	21	230	37	28.64			29.79	AA		29.79
21	1714	0	CLR	1.50	HZ	68	20.0	52	11.2	37	3.0	32	23	230	37	28.64			29.79	AA		29.79
21	1715	0	CLR	2.00	HZ	68	20.0	52	11.2	37	3.0	32	22	230	33	28.64			29.79	AA		29.79
21	1717	0	CLR	3.00	HZ	68	20.0	52	11.2	37	3.0	32	18	230	33	28.64			29.79	AA		29.79
21	1719	0	CLR	5.00	HZ	68	20.0	52	11.2	37	3.0	32	23	230	33	28.63			29.78	AA		29.78
21	1727	0	CLR	4.00	HZ	68	20.0	52	11.2	37	3.0	32	25	230	34	28.63			29.78	AA		29.78
21	1734	0	CLR	5.00	HZ	68	20.0	52	11.2	37	3.0	32	24	220	34	28.64			29.79	AA		29.79
21	1755	0	CLR	5.00	HZ	67	19.4	52	11.0	37	2.9	33	17	220		28.63			29.78	AA		29.78
21	1855	0	CLR	10.00		64	17.9	52	11.1	41	4.8	43	17	230		28.64			29.80	AA		29.79
21	1955	0	CLR	10.00		64	17.9	52	10.9	40	4.5	42	10	220		28.66	3	004	29.81	AA		29.81
21	2055	0	CLR	10.00		63	17.4	51	10.2	38	3.5	40	21	240		28.68			29.84	AA		29.83
21	2155	0	CLR	10.00		62	16.5	45	7.2	23	-4.8	22	18	270		28.72			29.88	AA		29.88
21	2255	0	CLR	10.00		59	14.8	43	6.3	22	-5.8	24	10	260		28.76	3	039	29.92	AA		29.92
21	2355	0	CLR	10.00		55	12.6	42	5.3	23	-5.0	29	7	270		28.81			29.97	AA		29.97

Dynamically generated Thu Nov 08 11:42:11 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final) HOURLY OBSERVATIONS TABLE LUKE AFB AIRPORT (23111) GLENDALE, AZ (01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1085 ft. above sea level
Latitude: 33.55
Longitude: -112.366
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
22	0055	0	CLR	6.00	HZ	51	10.6	40	4.5	25	-3.7	36	8	250		28.82			29.99	AA		29.98
22	0155	0	CLR	9.00		48	8.8	39	4.0	27	-2.7	44	7	260		28.84	1	025	30.01	AA		30.00
22	0255	0	CLR	10.00		47	8.5	38	3.5	26	-3.3	44	10	250		28.85			30.01	AA		30.01
22	0355	0	CLR	10.00		47	8.6	38	3.3	25	-3.8	42	7	180		28.84			30.00	AA		30.00
22	0455	0	CLR	10.00		44	6.7	37	2.6	26	-3.1	49	0	000		28.87	3	008	30.03	AA		30.03
22	0555	0	CLR	10.00		43	5.9	36	2.3	26	-3.1	51	3	230		28.89			30.05	AA		30.05
22	0655	0	CLR	10.00		41	5.2	35	1.7	26	-3.3	55	0	000		28.92			30.09	AA		30.08
22	0755	0	CLR	10.00		42	5.8	36	2.0	26	-3.5	53	7	060		28.94	1	024	30.11	AA		30.10
22	0855	0	CLR	10.00		46	7.7	38	3.0	25	-3.9	44	0	000		28.96			30.13	AA		30.12
22	0955	0	CLR	10.00		46	7.5	39	3.8	29	-1.9	52	6	040		28.99			30.16	AA		30.15
22	1055	0	FEW190	10.00		53	11.4	43	5.8	29	-1.7	40	5	010		29.00	1	020	30.16	AA		30.16
22	1155	0	FEW150 SCT180	10.00		56	13.5	43	6.1	26	-3.4	32	0	000		28.99			30.15	AA		30.15
22	1255	0	SCT150	10.00		58	14.2	44	6.7	26	-3.2	29	0	000		28.96			30.13	AA		30.12
22	1355	0	SCT140	10.00		60	15.3	45	7.2	26	-3.6	27	0	000		28.94	8	019	30.11	AA		30.10
22	1455	0	SCT140	10.00		61	16.0	45	7.2	24	-4.4	24	0	000		28.93			30.10	AA		30.09
22	1555	0	FEW140	10.00		61	16.1	45	7.0	23	-4.9	23	0	000		28.93			30.10	AA		30.09
22	1655	0	OVC140	10.00		61	16.2	45	7.0	23	-4.9	23	0	000		28.94	5	002	30.10	AA		30.10
22	1755	0	OVC130	10.00		61	15.9	44	6.9	22	-5.6	22	0	000		28.93			30.10	AA		30.09
22	1855	0	CLR	10.00		59	14.8	44	6.5	23	-4.9	25	3	110		28.92			30.09	AA		30.08
22	1955	0	CLR	10.00		50	10.0	42	5.3	31	-0.4	48	6	310		28.94	3	001	30.12	AA		30.10
22	2055	0	CLR	10.00		46	7.8	40	4.4	32	0.1	58	6	320		28.96			30.14	AA		30.12
22	2155	0	CLR	10.00		45	7.0	39	3.7	30	-1.2	56	7	350		28.94			30.12	AA		30.10
22	2255	0	CLR	10.00		43	5.9	38	3.1	30	-1.3	60	8	350		28.95	1	003	30.13	AA		30.11
22	2355	0	CLR	10.00		42	5.6	36	2.4	28	-2.1	58	9	340		28.94			30.11	AA		30.10

Dynamically generated Thu Nov 08 11:56:24 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final) HOURLY OBSERVATIONS TABLE PHOENIX SKY HARBOR INTL AIRPORT (23183) PHOENIX, AZ (01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1107 ft. above sea level
Latitude: 33.427
Longitude: -112.003
Data Version: VER3

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
21	0051	11	CLR	10.00		52	11.1	43	5.9	31	-0.6	45	7	100		28.80			29.96	AA		29.98
21	0151	11	CLR	10.00		51	10.6	42	5.6	31	-0.6	46	6	100		28.80	6	010	29.96	AA		29.98
21	0251	11	CLR	10.00		50	10.0	42	5.5	32	0.0	50	9	090		28.80			29.96	AA		29.98
21	0351	11	CLR	10.00		49	9.4	42	5.2	32	0.0	52	7	090		28.79			29.95	AA		29.97
21	0451	11	CLR	10.00		49	9.4	42	5.2	32	0.0	52	5	140		28.79	7	002	29.95	AA		29.97
21	0551	11	CLR	10.00		48	8.9	40	4.5	30	-1.1	50	5	100		28.79			29.95	AA		29.97
21	0651	11	BKN250	10.00		48	8.9	40	4.4	29	-1.7	48	7	100		28.79			29.95	AA		29.97
21	0751	11	FEW180 SCT210 BKN250	10.00		49	9.4	40	4.6	29	-1.7	46	7	120		28.80	3	001	29.96	AA		29.98
21	0851	11	FEW170 BKN200 OVC250	10.00		50	10.0	42	5.3	31	-0.6	48	8	120		28.82			29.98	AA		30.00
21	0951	11	SCT140 BKN190 BKN230	10.00		51	10.6	43	5.8	32	0.0	48	10	110		28.81			29.97	AA		29.99
21	1051	11	BKN140 BKN190 OVC230	10.00		55	12.8	44	6.7	31	-0.6	40	9	120		28.80	0	000	29.96	AA		29.98
21	1151	11	BKN140 OVC190	10.00		60	15.6	46	7.9	30	-1.1	32	8	120		28.75			29.91	AA		29.93
21	1251	11	BKN085 OVC120	10.00		59	15.0	46	7.6	30	-1.1	33	8	130		28.72			29.88	AA		29.90
21	1351	11	FEW060 BKN085 BKN120	10.00		62	16.7	48	8.6	31	-0.6	31	7	140		28.68	6	040	29.83	AA		29.85
21	1451	11	SCT090 BKN120 BKN250	10.00		68	20.0	50	10.1	31	-0.6	25	8	130		28.64			29.78	AA		29.81
21	1551	11	FEW060 SCT090 SCT120	10.00		71	21.7	51	10.3	28	-2.2	20	7	180		28.61			29.75	AA		29.78
21	1651	11	FEW060 SCT100 SCT250	10.00		70	21.1	50	10.2	29	-1.7	22	10	270		28.61	6	026	29.75	AA		29.78
21	1751	11	FEW060 SCT100 BKN200	10.00		68	20.0	51	10.3	32	0.0	26	11	260		28.61			29.75	AA		29.78
21	1851	11	FEW050 BKN100 BKN200	8.00		67	19.4	51	10.6	35	1.7	31	18	240		28.62			29.76	AA		29.79
21	1951	11	FEW050 BKN100 BKN200	10.00		64	17.8	50	10.1	36	2.2	36	9	230		28.64	3	010	29.78	AA		29.81
21	2051	11	FEW080 SCT100 BKN200	10.00		65	18.3	50	9.7	33	0.6	30	14	250		28.66			29.81	AA		29.83
21	2151	11	FEW050 SCT120 BKN200	10.00		64	17.8	50	9.9	35	1.7	34	23	270	29	28.69			29.85	AA		29.87
21	2251	11	FEW120 SCT200	10.00		62	16.7	45	7.2	23	-5.0	22	20	260		28.72	3	032	29.88	AA		29.90
21	2351	11	FEW120 SCT200	10.00		57	13.9	42	5.6	21	-6.1	25	13	280		28.77			29.93	AA		29.95

Dynamically generated Thu Nov 08 11:48:08 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final) HOURLY OBSERVATIONS TABLE PHOENIX SKY HARBOR INTL AIRPORT (23183) PHOENIX, AZ (01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1107 ft. above sea level
Latitude: 33.427
Longitude: -112.003
Data Version: VER3

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
22	0051	11	FEW120 SCT200	6.00	HZ	56	13.3	42	5.5	22	-5.6	27	11	260		28.79			29.95	AA		29.97
22	0151	11	SCT200	7.00		53	11.7	41	4.9	24	-4.4	32	8	280		28.81	1	028	29.97	AA		29.99
22	0251	11	FEW200	10.00		52	11.1	40	4.6	24	-4.4	34	5	290		28.82			29.98	AA		30.00
22	0351	11	CLR	10.00		51	10.6	40	4.5	25	-3.9	36	6	340		28.83			29.98	AA		30.01
22	0451	11	CLR	10.00		50	10.0	40	4.2	25	-3.9	38	0	000		28.83	1	008	29.99	AA		30.01
22	0551	11	CLR	10.00		49	9.4	39	3.9	25	-3.9	39	5	290		28.86			30.01	AA		30.04
22	0651	11	FEW100 SCT200	10.00		47	8.3	38	3.5	26	-3.3	44	0	000		28.88			30.04	AA		30.06
22	0751	11	FEW100 BKN200	10.00		46	7.8	38	3.2	26	-3.3	46	3	230		28.91	1	024	30.07	AA		30.09
22	0851	11	FEW140 BKN200	10.00		48	8.9	39	4.0	27	-2.8	44	5	240		28.93			30.09	AA		30.11
22	0951	11	FEW160 BKN200 BKN250	10.00		52	11.1	41	5.0	26	-3.3	37	0	000		28.96			30.12	AA		30.14
22	1051	11	SCT150 BKN200 BKN250	10.00		56	13.3	43	6.1	26	-3.3	32	0	000		28.97	1	021	30.13	AA		30.15
22	1151	11	SCT150 BKN200 BKN250	10.00		60	15.6	45	7.2	26	-3.3	27	0	000		28.96			30.12	AA		30.14
22	1251	11	SCT150 BKN200 BKN250	10.00		59	15.0	44	6.6	24	-4.4	26	3	350		28.94			30.10	AA		30.12
22	1351	11	SCT150 BKN190 BKN250	10.00		60	15.6	44	6.7	23	-5.0	24	3	300		28.92	8	018	30.07	AA		30.10
22	1451	11	BKN150 BKN190 BKN250	10.00		61	16.1	44	6.9	22	-5.6	22	0	000		28.91			30.06	AA		30.09
22	1551	11	BKN150 BKN190 OVC250	10.00		62	16.7	45	7.0	21	-6.1	21	5	240		28.91			30.06	AA		30.09
22	1651	11	BKN140 BKN190 OVC250	10.00		62	16.7	44	6.8	20	-6.7	20	0	000		28.91	5	001	30.07	AA		30.09
22	1751	11	BKN140 BKN190 BKN250	10.00		61	16.1	44	6.7	21	-6.1	21	0	000		28.91			30.07	AA		30.09
22	1851	11	BKN140 BKN190 BKN250	10.00		60	15.6	44	6.6	22	-5.6	23	5	110		28.89			30.06	AA		30.07
22	1951	11	SCT140 SCT190 BKN250	10.00		58	14.4	43	6.3	24	-4.4	27	0	000		28.91	5	001	30.07	AA		30.09
22	2051	11	FEW140 SCT250	10.00		56	13.3	43	5.8	24	-4.4	29	3	010		28.93			30.09	AA		30.11
22	2151	11	SCT250	10.00		52	11.1	41	5.0	26	-3.3	37	0	000		28.92			30.09	AA		30.10
22	2251	11	SCT250	10.00		50	10.0	40	4.6	27	-2.8	41	3	120		28.91	0	002	30.08	AA		30.09
22	2351	11	SCT250	10.00		49	9.4	40	4.3	27	-2.8	43	7	120		28.91			30.07	AA		30.09

Dynamically generated Thu Nov 08 12:42:10 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)
HOURLY OBSERVATIONS TABLE
WILLIAMS GATEWAY AIRPORT (23104)
PHOENIX, AZ
(01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1382 ft. above sea level
Latitude: 33.3
Longitude: -111.666
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
21	0015	0	CLR	10.00		48	9.0	43	5.8	36	2.0	63	6	120		28.56			M	AA		30.03
21	0035	0	CLR	10.00		46	8.0	42	5.4	37	3.0	71	7	130		28.56			M	AA		30.03
21	0055	0	CLR	10.00		46	8.0	42	5.4	37	3.0	71	7	130		28.55			M	AA		30.02
21	0115	0	CLR	10.00		46	8.0	42	5.4	37	3.0	71	7	130		28.55			M	AA		30.02
21	0135	0	CLR	10.00		46	8.0	42	5.4	37	3.0	71	8	140		28.53			M	AA		30.00
21	0155	0	CLR	10.00		45	7.0	41	5.2	37	3.0	74	6	140		28.53			M	AA		30.00
21	0215	0	CLR	10.00		46	8.0	42	5.4	37	3.0	71	8	150		28.54			M	AA		30.01
21	0235	0	CLR	10.00		46	8.0	42	5.4	37	3.0	71	6	140		28.54			M	AA		30.01
21	0255	0	CLR	10.00		46	8.0	41	5.2	36	2.0	68	0	000		28.54			M	AA		30.01
21	0315	0	CLR	10.00		45	7.0	41	4.9	36	2.0	71	6	110		28.54			M	AA		30.01
21	0335	0	CLR	10.00		45	7.0	41	4.9	36	2.0	71	0	000		28.53			M	AA		30.00
21	0355	0	CLR	10.00		45	7.0	41	4.9	36	2.0	71	5	080		28.53			M	AA		30.00
21	0415	0	CLR	10.00		45	7.0	41	4.9	36	2.0	71	5	110		28.53			M	AA		30.00
21	0435	0	CLR	10.00		45	7.0	41	4.9	36	2.0	71	0	000		28.54			M	AA		30.01
21	0455	0	CLR	10.00		45	7.0	41	4.9	36	2.0	71	5	120		28.53			M	AA		30.00
21	0515	0	CLR	10.00		43	6.0	40	4.3	36	2.0	76	7	100		28.54			M	AA		30.01
21	0547	0	SCT250	20.00		45	7.0	41	4.9	36	2.0	71	5	100		28.54			M	AA		30.01
21	0647	0	BKN250	20.00		46	8.0	41	5.2	36	2.0	68	7	120		28.53			M	AA		30.00
21	0847	0	FEW100 BKN200	35.00		50	10.0	44	6.4	36	2.0	59	9	140		28.54			M	AA		30.01
21	0947	0	SCT100 BKN200	35.00		54	12.0	47	8.1	39	4.0	57	8	150		28.55			M	AA		30.02
21	1047	0	SCT100 BKN200	35.00		59	15.0	49	9.4	39	4.0	48	10	140		28.53			M	AA		30.00
21	1147	0	SCT100 BKN200	35.00		64	18.0	51	10.3	37	3.0	37	11	140		28.50			M	AA		29.97
21	1347	0	SCT100 BKN200	35.00		66	19.0	51	10.5	36	2.0	33	11	120		28.42			M	AA		29.88
21	1447	0	SCT100 BKN200	35.00		70	21.0	53	11.7	37	3.0	30	9	150		28.38			M	AA		29.84
21	1547	0	FEW100 SCT200	35.00		73	23.0	53	11.4	32	0.0	22	10	210	15s	28.37			M	AA		29.83
21	1647	0	FEW100 SCT200	35.00		77	25.0	55	12.7	34	1.0	21	10	240		28.34			M	AA		29.80
21	1747	0	FEW100 SCT200	20.00		68	20.0	51	10.2	32	0.0	26	7	250		28.36			M	AA		29.82
21	1847	0	FEW100 BKN200	8.00		70	21.0	53	11.5	36	2.0	29	14	260	29	28.37			M	AA		29.83
21	1947	0	BKN	8.00		66	19.0	M	M	36	2.0	M	10	250	17	M			M	AA		29.85
21	1955	0	CLR	10.00		64	18.0	50	10.0	36	2.0	36	14	240		28.40			M	AA		29.86
21	2015	0	CLR	10.00		64	18.0	51	10.2	37	3.0	37	13	220		28.40			M	AA		29.86
21	2035	0	CLR	10.00		63	17.0	50	10.0	37	3.0	38	14	220		28.40			M	AA		29.86
21	2047	0	BKN	10.00		64	18.0	M	M	39	4.0	M	14	210		M			M	AA		29.86
21	2055	0	CLR	10.00		63	17.0	52	10.9	41	5.0	45	13	230	17	28.41			M	AA		29.87
21	2115	0	CLR	10.00		63	17.0	52	10.9	41	5.0	45	15	240	21	28.41			M	AA		29.87
21	2135	0	CLR	10.00		64	18.0	52	11.1	41	5.0	43	21	250	28	28.43			M	AA		29.89
21	2155	0	CLR	10.00		63	17.0	50	10.0	37	3.0	38	18	250	24	28.43			M	AA		29.89
21	2215	0	CLR	5.00	HZ	63	17.0	49	9.4	34	1.0	34	18	260	33	28.45			M	AA		29.91
21	2235	0	CLR	7.00		63	17.0	48	8.6	30	-1.0	29	22	280	29	28.46			M	AA		29.92
21	2255	0	CLR	5.00	HZ	63	17.0	47	8.1	27	-3.0	26	21	280	31	28.48			M	AA		29.94
21	2315	0	CLR	10.00		63	17.0	46	7.8	25	-4.0	24	20	270		28.48			M	AA		29.95
21	2335	0	CLR	10.00		61	16.0	44	6.7	21	-6.0	21	13	270		28.50			M	AA		29.97
21	2355	0	CLR	10.00		61	16.0	45	6.9	23	-5.0	23	15	270	21	28.51			M	AA		29.98

Dynamically generated Thu Nov 08 11:46:42 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)
HOURLY OBSERVATIONS TABLE
WILLIAMS GATEWAY AIRPORT (23104)
PHOENIX, AZ
(01/2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1382 ft. above sea level
Latitude: 33.3
Longitude: -111.666
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
22	0015	0	CLR	7.00		61	16.0	45	6.9	23	-5.0	23	13	290		28.52			M	AA		29.99
22	0035	0	SCT001	5.00	HZ	59	15.0	44	6.4	23	-5.0	25	11	280		28.53			M	AA		30.00
22	0055	0	SCT001	5.00	HZ	55	13.0	42	5.3	23	-5.0	29	9	270		28.53			M	AA		30.00
22	0115	0	SCT001	5.00	HZ	55	13.0	42	5.6	25	-4.0	31	5	250		28.54			M	AA		30.01
22	0135	0	CLR	5.00	HZ	55	13.0	43	6.0	27	-3.0	34	3	230		28.54			M	AA		30.01
22	0155	0	CLR	7.00		54	12.0	42	5.7	27	-3.0	35	5	230		28.55			M	AA		30.02
22	0215	0	CLR	7.00		54	12.0	43	5.9	28	-2.0	37	0	000		28.55			M	AA		30.02
22	0235	0	CLR	5.00	HZ	48	9.0	39	4.0	27	-3.0	44	5	100		28.56			M	AA		30.03
22	0255	0	CLR	5.00	HZ	48	9.0	39	4.0	27	-3.0	44	0	000		28.57			M	AA		30.04
22	0315	0	CLR	7.00		46	8.0	38	3.4	27	-3.0	48	0	000		28.57			M	AA		30.04
22	0335	0	CLR	7.00		48	9.0	39	4.0	27	-3.0	44	0	000		28.57			M	AA		30.04
22	0355	0	CLR	5.00	HZ	46	8.0	38	3.4	27	-3.0	48	7	090		28.57			M	AA		30.04
22	0415	0	CLR	5.00	HZ	45	7.0	38	3.3	28	-2.0	51	8	090		28.57			M	AA		30.04
22	0435	0	CLR	5.00	HZ	45	7.0	38	3.3	28	-2.0	51	6	080		28.56			M	AA		30.03
22	0455	0	CLR	5.00	HZ	45	7.0	38	3.3	28	-2.0	51	6	130		28.56			M	AA		30.03
22	0515	0	CLR	7.00		45	7.0	39	3.6	30	-1.0	56	9	140		28.58			M	AA		30.05
22	0547	0	FEW250	20.00		46	8.0	39	3.9	30	-1.0	54	6	080		28.59			M	AA		30.06
22	0647	0	FEW250	10.00		43	6.0	37	2.6	28	-2.0	56	5	VR		28.62			M	AA		30.09
22	0747	0	BKN250	10.00		43	6.0	38	3.0	30	-1.0	60	6	100		28.65			M	AA		30.12
22	0847	0	FEW120 BKN250	10.00	HZ	46	8.0	39	3.9	30	-1.0	54	3	110		28.67			M	AA		30.14
22	1047	0	SCT120 BKN250	10.00	HZ	55	13.0	42	5.6	25	-4.0	31	5	VR		28.71			M	AA		30.18
22	1100	0	OVC	1.50		43	6.0	M	M	M	M	M	11	170		M			M	AA		M
22	1147	0	SCT120 BKN250	10.00	HZ	55	13.0	43	6.0	27	-3.0	34	5	VR		28.71			M	AA		30.18
22	1247	0	SCT150 BKN200	15.00		61	16.0	46	7.6	27	-3.0	27	0	000		28.67			M	AA		30.14
22	1350	0	SCT150 BKN200	15.00		63	17.0	50	10.0	37	3.0	38	0	000		28.65			M	AA		30.12
22	1447	0	SCT150 BKN200	15.00		64	18.0	47	8.1	25	-4.0	23	6	360		28.65			M	AA		30.12
22	1547	0	SCT150 BKN200	15.00		64	18.0	46	7.8	23	-5.0	21	0	000		28.65			M	AA		30.12
22	1647	0	BKN150	15.00		64	18.0	47	8.1	25	-4.0	23	0	000		28.65			M	AA		30.12
22	1747	0	BKN200	30.00		63	17.0	46	7.5	23	-5.0	22	0	000		28.65			M	AA		30.12
22	1847	0	BKN200	20.00		61	16.0	46	7.6	27	-3.0	27	0	000		28.66			M	AA		30.13
22	1947	0	BKN	20.00		55	13.0	M	M	30	-1.0	M	5	VR		M			M	AA		30.10
22	1955	0	CLR	10.00		55	13.0	45	6.9	32	0.0	42	5	150		28.63			M	AA		30.10
22	2015	0	CLR	10.00		55	13.0	45	6.9	32	0.0	42	0	000		28.64			M	AA		30.11
22	2035	0	CLR	10.00		54	12.0	43	6.2	30	-1.0	40	0	000		28.65			M	AA		30.12
22	2047	0	BKN	20.00		54	12.0	M	M	30	-1.0	M	5	VR		M			M	AA		30.13
22	2055	0	CLR	10.00		52	11.0	42	5.7	30	-1.0	43	6	360		28.66			M	AA		30.13
22	2115	0	CLR	10.00		50	10.0	41	4.7	28	-2.0	43	5	030		28.66			M	AA		30.13
22	2135	0	CLR	10.00		50	10.0	41	4.7	28	-2.0	43	6	040		28.67			M	AA		30.14
22	2155	0	CLR	10.00		48	9.0	40	4.2	28	-2.0	46	7	050		28.67			M	AA		30.14
22	2215	0	CLR	10.00		48	9.0	40	4.2	28	-2.0	46	7	070		28.66			M	AA		30.13
22	2235	0	CLR	10.00		48	9.0	40	4.2	28	-2.0	46	8	080		28.65			M	AA		30.12
22	2255	0	CLR	10.00		46	8.0	38	3.6	28	-2.0	50	8	080		28.65			M	AA		30.12
22	2315	0	CLR	10.00		45	7.0	39	3.6	30	-1.0	56	5	130		28.65			M	AA		30.12
22	2335	0	CLR	10.00		45	7.0	39	3.6	30	-1.0	56	3	130		28.65			M	AA		30.12
22	2355	0	CLR	10.00		45	7.0	39	3.6	30	-1.0	56	5	140		28.65			M	AA		30.12

Dynamically generated Thu Nov 08 12:18:12 EST 2012 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

FXUS65 KPSR 220047
AFDPSR
AREA FORECAST DISCUSSION...UPDATED
NATIONAL WEATHER SERVICE PHOENIX AZ
540 PM MST SAT JAN 21 2012
.UPDATE...
UPDATED AVIATION SECTION.
&&
.SYNOPSIS...
A SERIES OF PACIFIC STORMS WILL CONTINUE TO MOVE ACROSS THE WESTERN STATES THROUGH TUESDAY. ONE SYSTEM WILL MOVE ACROSS NORTHERN ARIZONA TONIGHT...PRODUCING VARIABLE CLOUDS AND BREEZY TO WINDY CONDITIONS TO SOUTHEAST CALIFORNIA AND SOUTHWEST ARIZONA. A STRONGER STORM WILL MOVE INTO THE REGION LATE MONDAY AND MONDAY NIGHT...RESULTING IN A CHANCE OF SHOWERS AREA-WIDE. A SLIGHT CHANCE OF THUNDERSTORMS IS ALSO POSSIBLE. THE THREAT OF SHOWERS WILL END BY TUESDAY EVENING... WITH HIGH PRESSURE AND MUCH WARMER WEATHER DEVELOPING ACROSS THE REGION NEXT WEDNESDAY THROUGH FRIDAY.
&&
.DISCUSSION...
TONIGHT THROUGH SUNDAY NIGHT...
A FAST MOVING PACIFIC WEATHER DISTURBANCE WAS MOVING THROUGH NEVADA...UTAH...AND FAR NORTHERN AZ THIS AFTERNOON. THIS SYSTEM WILL EXIT THE AREA INTO COLORADO AND NEW MEXICO BY LATE TONIGHT. AGAIN... MOST STORM DYNAMICS ARE WELL NORTH OF OUR FORECAST AREA...SOUTHEAST CA TO SOUTH CENTRAL AZ...BUT THE SHEAR VOLUME OF PACIFIC MOISTURE THAT STREAMED INTO THE FORECAST AREA...CONTAINED SOME SPRINKLES OR A FEW VERY LIGHT SHOWERS PER RADAR RETURNS BETWEEN PARKER ALONG THE COLORADO RIVER TO JUST NORTH OF PHOENIX. THE SLIGHT CHANCE OF SHOWERS WILL END THIS AFTERNOON OVER THE LOWER ELEVATIONS...ENDING THIS EVENING OVER ZONE 24.
STRONG WINDS AND MOUNTAIN WAVE CONDITIONS HAD ALSO DEVELOPED ACROSS PORTIONS OF THE MOHAVE DESERTS NORTHWEST OF JOSHUA TREE NATIONAL PARK...DOWNWIND FROM THE SAN GABRIEL AND SAN BERNARDINO MOUNTAINS. FOR EXAMPLE PEAK WINDS HIT 97 MPH AT THE BURNS CANYON...AND 78 MPH IN JOHNSON VALLEY. CLOSER TO HOME IN OUR FORECAST AREA WHERE A WIND ADVISORY IS IN EFFECT FOR THE IMPERIAL VALLEY OF CA...AND JOSHUA TREE NATIONAL PARK THROUGH 7 PM MST...WINDS VARIED FROM 41 TO 48 MPH GUST IN THE IMPERIAL VALLEY TO 58 MPH GUSTS IN JOSHUA TREE AT 2 PM.
DRY WESTERLY FLOW ALOFT REPLETE WITH VARIABLE HIGH CLOUDS AND NEAR NORMAL TEMPERATURES WILL DEVELOP SUNDAY.
MONDAY AND TUESDAY...
THE NEXT PACIFIC STORM FORECAST TO MOVE INTO THE WESTERN STATES WILL TAKE A TURN SOUTH INTO AZ. THIS PROMISES TO BE A VERY DYNAMICAL STORM...WITH STRONG VERTICAL MOTION ACTING ON HIGHER BOUNDARY LAYER MOISTURE DEPOSITED ACROSS THE REGION SATURDAY AFTERNOON.
ALL MODELS ARE COMING AROUND TO THE IDEA OF A STRONGER AND DEEPER STORM FOR AZ FROM MONDAY AFTERNOON THROUGH TUESDAY MORNING. THE NEW GFS MODEL IS MUCH DEEPER WITH THE SYSTEM...TRACKING SOUTH INTO NORTHWEST MEXICO MONDAY NIGHT. THE EUROPEAN IS DEEP BUT FOLLOWS THE PREVIOUS GFS MODEL AS FAR AS TIMING AND INTENSITY. FOR NOW...WE WILL USE A MODEL BLEND WHICH EFFECTIVELY SPREADS A CHANCE OF SHOWERS EVERYWHERE ACROSS OUR FORECAST AREA FROM SOUTHEAST CA TO SOUTH CENTRAL AZ. PROBABILITY OF PRECIP WILL BE HIGHEST IN SOUTH CENTRAL AZ VICINITY PHOENIX AND MOUNTAINS OF SOUTHERN GILA COUNTY NEAR GLOBE. ALSO...STRONG 500 MB HEIGHT FALLS OF 140-150 METERS BY LATE MONDAY AFTERNOON/EVENING PORTEND A THREAT OF THUNDERSTORMS ALSO.
LATE TUESDAY THROUGH SATURDAY...
CLEARING TUESDAY WITH A HIGH PRESSURE SYSTEM REBUILDING BACK OVER THE REGION WEDNESDAY THROUGH SATURDAY. MUCH WARMER TEMPERATURES ARE ALSO EXPECTED WED THROUGH SAT...APPROACHING MID TO UPPER 70S ON THE SOUTHWEST DESERTS NEAR YUMA.
&&

.AVIATION...
SOUTH-CENTRAL ARIZONA INCLUDING KPHX AND KIWA...
SOUTHERN END OF STRONG LOW PRESSURE SYSTEM WILL LEAD TO BREEZY CONDITIONS THIS EVENING WITH SOUTHWEST AND WEST WIND GUSTS OF 20-25 KTS...LOCALLY UP TO 30 KTS...THROUGH 04Z BEFORE BEGINNING TO WEAKEN. WEST WINDS BELOW AOB 12 KTS WILL CONTINUE OVERNIGHT. IF SURFACE WINDS DROP BELOW 10 KTS BEFORE 09Z...LLWS CONDITIONS MAY BE PRESENT DUE TO STRONG WINDS ABOVE THE INVERSION. SOME SUSPENDED DUST FROM THE CALIFORNIA DESERTS MAY WAFT IN FOR AREAS OF 6SM BLDU...MORE LIKELY WEST OF PHOENIX AREA.
SOUTHEAST CALIFORNIA INCLUDING KIPL AND KBLH...
SOUTHERN END OF STRONG LOW PRESSURE SYSTEM WILL KEEP VERY STRONG WESTERLY WINDS GOING THROUGH 03Z...WITH GUSTS OF 35-45 KTS...BEFORE SLOWLY WEAKENING. AREAS OF BLOWING DUST WILL CAUSE LOCAL VISIBILITIES TO OCCASIONALLY DROP BELOW 1SM WITH BROADER AREAS OF 4-6SM. WINDS AND VIS WILL BE WORST OVER IMPERIAL COUNTY. AS WINDS WEAKEN...VISIBILITIES WILL IMPROVE BUT WILL BE SLOW TO CLIMB ABOVE 10SM.
AVIATION DISCUSSION NOT UPDATED FOR AMENDED TAFS.

FXUS65 KPSR 220511
AFDPSR
AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE PHOENIX AZ
1010 PM MST SAT JAN 21 2012
.SYNOPSIS...
A SERIES OF PACIFIC STORMS WILL CONTINUE TO MOVE ACROSS THE WESTERN STATES THROUGH TUESDAY. ONE SYSTEM WILL EXIT ARIZONA TONIGHT FOLLOWED BY A WEAK DISTURBANCE SUNDAY FOR THICK HIGH CLOUDS. A STRONGER STORM WILL MOVE ACROSS SOUTHEAST CALIFORNIA AND SOUTHERN ARIZONA MONDAY AND MONDAY NIGHT...RESULTING IN A CHANCE OF SHOWERS AREA-WIDE. A SLIGHT CHANCE OF THUNDERSTORMS IS ALSO POSSIBLE. THE THREAT OF SHOWERS WILL END BY TUESDAY AFTERNOON. HIGH PRESSURE AND MUCH WARMER WEATHER WILL DEVELOP ACROSS THE REGION NEXT WEDNESDAY THROUGH FRIDAY.
&&
.DISCUSSION...
UPPER TROUGH AXIS NEAR UTAH/NEVADA BORDER WITH THE TROUGH BOTTOMING OUT OVER ARIZONA AND SOUTHEAST CALIFORNIA. ASSOCIATED COLD FRONT EXTENDS FROM COLORADO SOUTHWESTWARD TO SOUTHERN ARIZONA...JUST SOUTH AND EAST OF THE PHOENIX AREA. WINDS HAVE WEAKENED GREATLY OVER OUR PORTION OF SOUTHEAST CALIFORNIA FROM WHAT THEY WERE THIS AFTERNOON AND EARLY EVENING. THUS THE WIND ADVISORY WAS ALLOWED TO EXPIRE. ACCORDINGLY...THE VISIBILITIES HAVE IMPROVED. THE JUMP IN WINDS LATE THIS AFTERNOON/EARLY EVENING WAS LIKELY ASSOCIATED WITH THE LEADING EDGE OF THE FRONT...THOUGH THERE WASNT A DISTINCT SHIFT IN WIND DIRECTIONS OR A BAND OF LOW CLOUDS. WITH THE RIDGE AXIS AND COLDER AIR ALOFT JUST TO THE NORTH...THERE WILL ONLY BE SLIGHT CHANCES FOR PRECIP OVER OUR EASTERNMOST FORECAST AREA IN THE FRONTAL ZONE. THIS IS EVIDENT IN THE WEAK RADAR ECHOES OVER GILA COUNTY...JUST NORTH OF OUR FORECAST AREA. 00Z MODELS SHOW THIS SYSTEM EXITING TONIGHT WITH A WEAK SHORT WAVE PASSING BY SUNDAY BRINGING THICK HIGH CLOUDS. THEN A STRONGER SHORT WAVE MOVES INTO OUR AREA MONDAY AND EXITS TUESDAY. LATEST NAM AND GFS INDICATE THAT POPS MAY NEED TO BE RAISED OVER SOUTH-CENTRAL ARIZONA MONDAY NIGHT DUE TO ALIGNMENT OF MOISTURE AND QG FORCING. OVERALL THOUGH...NO CHANGES NEED AT THIS TIME.

FXUS65 KPSR 221048
AFDPSR
AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE PHOENIX AZ

345 AM MST SUN JAN 22 2012
.SYNOPSIS...
A SERIES OF PACIFIC STORMS WILL CONTINUE TO MOVE ACROSS THE WESTERN STATES THROUGH TUESDAY. ONE WEAK DISTURBANCE IS EXPECTED TODAY THAT WILL BRING THICK HIGH CLOUDS. A STRONGER STORM WILL MOVE ACROSS SOUTHEAST CALIFORNIA AND SOUTHERN ARIZONA MONDAY AND MONDAY NIGHT...RESULTING IN A CHANCE OF SHOWERS AREA-WIDE. A SLIGHT CHANCE OF THUNDERSTORMS IS ALSO POSSIBLE FOR MAINLY MONDAY EVENING. THE THREAT OF SHOWERS WILL END BY TUESDAY AFTERNOON. HIGH PRESSURE AND MUCH WARMER WEATHER WILL DEVELOP ACROSS THE REGION WEDNESDAY THROUGH THE END OF THE WORK WEEK.
&&
.DISCUSSION...
VIGOROUS AND PROGRESSIVE LOW PRESSURE SYSTEM CONTINUED TO PUSH EAST AND INTO NEW MEXICO EARLY THIS MORNING...AND IN ITS WAKE A RATHER FLAT AND DIRTY SHORT WAVE RIDGE WILL BE MOVING ARIZONA. LATEST 00Z PLOT DATA SHOWED 160M HEIGHT FALLS AT FLAGSTAFF...AND THIS TURNED INTO A RATHER WINDY WEATHER SYSTEM FOR OUR CWA. WIND ADVISORY CRITERIA GUSTS OCCURRED OVER PORTIONS OF SERN CA YESTERDAY AFTERNOON...WITH PEAK WINDS TO NEAR 60 MPH AT LOST HORSE. 35 KNOT WESTERLY GUST AT SKY HARBOR AT 10 PM LAST NIGHT HELPED DEMONSTRATE THE STRENGTH OF THE SYSTEM. IN ANY CASE WINDS WILL BE MUCH LESS TODAY AS GRADIENTS RELAX. WRINKLE IN THE FLOW MOVING THROUGH THE RIDGE TODAY WILL BRING QUITE A BIT OF MAINLY HIGH CLOUDS WITH IT SO EXPECT PARTLY OR EVEN MOSTLY CLOUDY SKIES BY AFTERNOON. WE ARE ALSO LOOKING AT SEVERAL DEGREES OR MORE OF COOLING TODAY AS THE COOL AIR BEHIND THE EXITING LOW FILTERS ACROSS THE LOWER DESERTS. PHOENIX WILL LIKELY TOP OUT IN THE MID 60S TODAY.
LATEST GUIDANCE HAS COME INTO VERY GOOD AGREEMENT WITH REGARDS TO THE NEXT PACIFIC LOW PRESSURE SYSTEM THAT WILL AFFECT OUR AREA EARLY THIS WEEK. LAST SEVERAL SETS OF MOS GUIDANCE...INCLUDING MRA AND MEX NUMBERS...CONTINUE TO CALL FOR A CHANCE FOR SHOWERS ACROSS THE CENTRAL DESERTS MONDAY NIGHT. GFS AND ECMWF ARE VERY SIMILAR TO EACH OTHER AND HAVE BEEN FOR THE PAST FEW RUNS...AND THEY BOTH SUGGEST THAT THIS NEXT SYSTEM WILL BE MUCH WETTER THAN THE ONE NOW MOVING OFF TO THE EAST. FLOW WILL AMPLIFY ON MONDAY AND AS THE RIDGE OFFSHORE BUILDS...THE UPPER LOW WILL DEVELOP AND DROP TOWARDS THE SOUTHEAST ALONG THE CA COAST. STRONG PVA AND UPPER DIFLUENCE...AS WELL AS JET DYNAMICS...WILL COME INTO PLAY LEADING TO A CHANCE FOR SHOWERS OVER SERN CA AND THE FAR WESTERN DESERTS DURING THE DAY ON MONDAY. THE LOW WILL THEN PUSH EAST ACROSS THE STATE MONDAY NIGHT WITH THE TROF AXIS MOVING INTO FAR ERN AZ BY 12Z TUESDAY. THIS WILL GIVE A GOOD CHANCE FOR SHOWERS TO THE CENTRAL DESERTS...AND WE HAVE RAISED POPS IN THE PHOENIX AREA TO 50 PERCENT. WITH THE COOL AIR ALOFT MOVING INTO THE ARIZONA DESERTS THERE WILL BE SOME INSTABILITY AND WE WILL CONTINUE TO CALL FOR A SLIGHT CHANCE FOR EVENING THUNDERSTORMS MONDAY NIGHT. AT THIS TIME WE ARE NOT LOOKING FOR SIGNIFICANT QPF WITH THIS SYSTEM...MOST DESERT TOTALS SHOULD BE LESS THAN ONE QUARTER OF AN INCH. ALTHOUGH THIS WILL BE A COLDER AND WETTER SYSTEM THAN THE PREVIOUS ONE...WIND FIELDS LOOK TO BE A BIT WEAKER AND WE DO NOT EXPECT WIND ADVISORY CRITERIA TO BE MET IN OUR CWA.
AS THE LOW HEADS INTO NEW MEXICO TUESDAY...THERE WILL BE A LINGERING CHANCE FOR SHOWERS OVER THE HIGHER TERRAIN EAST OF PHOENIX...AS WELL AS A SLIGHT CHANCE FOR MAINLY MORNING SHOWERS OVER THE SOUTH CENTRAL DESERTS. HIGHS TUESDAY WILL FALL INTO THE LOW TO MID 60S OVER THE CENTRAL DESERTS...AND INTO THE MID 60S TO NEAR 70 OUT WEST.
HIGH PRESSURE ALOFT IS EXPECTED TO BUILD INTO THE DESERT SOUTHWEST FROM THE WEST WEDNESDAY INTO THE LATTER PART OF THE WORK WEEK...LEADING TO MOSTLY SUNNY SKIES AND A WARMING TREND. HIGH TEMPERATURES BY THURSDAY WILL CLIMB INTO THE 70S OVER MOST OF THE DESERTS WITH SOME OF THE WARMER DESERTS REACHING INTO THE UPPER 70S. ALTHOUGH THE RIDGE WILL FLATTEN A BIT FRIDAY INTO SATURDAY AS

DISTURBANCES PASS BY TO THE NORTH...HIGH TEMPERATURES WILL NOT CHANGE MUCH AND MANY OF THE WARMER DESERTS WILL STAY IN THE MIDDLE 70S.
&&
.AVIATION...
SOUTH-CENTRAL ARIZONA INCLUDING KPHX AND KIWA...
WEST WINDS LOCALLY GUSTING 20-25 KTS WITH ISOLATED GUSTS 30-35 KTS...WILL DECREASE BY 07Z. LOCAL AREAS OF 5-6SM WITH THE STRONGEST GUSTS. LINGERING WEST WINDS AOB 12 KTS WILL THEN DEVELOP BEFORE BECOMING LIGHT AND VARIABLE...FAVORING DOWNVALLEY DIRECTIONS...BY 10-12Z. STRONG LOW LEVEL WINDS ABOVE THE SURFACE WILL BEGIN TO WEAKEN BY 09Z. SOME SUSPENDED DUST FROM THE CALIFORNIA DESERTS MAY AFFECT SLANT VISIBILITIES NEAR SUNRISE. CLOUDS WILL CONTINUE TO DECREASE OVERNIGHT FOLLOWED BY INCREASING THICK HIGH CLOUDS SUNDAY AFTERNOON.
SOUTHEAST CALIFORNIA INCLUDING KIPL AND KBLH...
DRY COLD FRONT EAST OF THE AREA WILL LEAVE BEHIND NORTHWEST WINDS AOB 12 KTS OVERNIGHT AND SUNDAY MORNING. LOCALIZED GUSTS OF 25-30 KTS WILL DISSIPATE AFT 07Z. SOME MINOR CIRRUS CAN BE EXPECTED BEFORE HIGH CLOUDS THICKEN SUNDAY AFTERNOON.
AVIATION DISCUSSION NOT UPDATED FOR AMENDED TAFS.

FXUS65 KPSR 221134
AFDPSR
AREA FORECAST DISCUSSION...UPDATED
NATIONAL WEATHER SERVICE PHOENIX AZ
434 AM MST SUN JAN 22 2012
.UPDATE...UPDATED AVIATION AND FIRE WEATHER DISCUSSIONS...
&&
.SYNOPSIS...
A SERIES OF PACIFIC STORMS WILL CONTINUE TO MOVE ACROSS THE WESTERN STATES THROUGH TUESDAY. ONE WEAK DISTURBANCE IS EXPECTED TODAY THAT WILL BRING THICK HIGH CLOUDS. A STRONGER STORM WILL MOVE ACROSS SOUTHEAST CALIFORNIA AND SOUTHERN ARIZONA MONDAY AND MONDAY NIGHT...RESULTING IN A CHANCE OF SHOWERS AREA-WIDE. A SLIGHT CHANCE OF THUNDERSTORMS IS ALSO POSSIBLE FOR MAINLY MONDAY EVENING. THE THREAT OF SHOWERS WILL END BY TUESDAY AFTERNOON. HIGH PRESSURE AND MUCH WARMER WEATHER WILL DEVELOP ACROSS THE REGION WEDNESDAY THROUGH THE END OF THE WORK WEEK.
&&
.DISCUSSION...
VIGOROUS AND PROGRESSIVE LOW PRESSURE SYSTEM CONTINUED TO PUSH EAST AND INTO NEW MEXICO EARLY THIS MORNING...AND IN ITS WAKE A RATHER FLAT AND DIRTY SHORT WAVE RIDGE WILL BE MOVING ARIZONA. LATEST 00Z PLOT DATA SHOWED 160M HEIGHT FALLS AT FLAGSTAFF...AND THIS TURNED INTO A RATHER WINDY WEATHER SYSTEM FOR OUR CWA. WIND ADVISORY CRITERIA GUSTS OCCURRED OVER PORTIONS OF SERN CA YESTERDAY AFTERNOON...WITH PEAK WINDS TO NEAR 60 MPH AT LOST HORSE. 35 KNOT WESTERLY GUST AT SKY HARBOR AT 10 PM LAST NIGHT HELPED DEMONSTRATE THE STRENGTH OF THE SYSTEM. IN ANY CASE WINDS WILL BE MUCH LESS TODAY AS GRADIENTS RELAX. WRINKLE IN THE FLOW MOVING THROUGH THE RIDGE TODAY WILL BRING QUITE A BIT OF MAINLY HIGH CLOUDS WITH IT SO EXPECT PARTLY OR EVEN MOSTLY CLOUDY SKIES BY AFTERNOON. WE ARE ALSO LOOKING AT SEVERAL DEGREES OR MORE OF COOLING TODAY AS THE COOL AIR BEHIND THE EXITING LOW FILTERS ACROSS THE LOWER DESERTS. PHOENIX WILL LIKELY TOP OUT IN THE MID 60S TODAY.
LATEST GUIDANCE HAS COME INTO VERY GOOD AGREEMENT WITH REGARDS TO THE NEXT PACIFIC LOW PRESSURE SYSTEM THAT WILL AFFECT OUR AREA EARLY THIS WEEK. LAST SEVERAL SETS OF MOS GUIDANCE...INCLUDING MRA AND MEX NUMBERS...CONTINUE TO CALL FOR A CHANCE FOR SHOWERS ACROSS THE CENTRAL DESERTS MONDAY NIGHT. GFS AND ECMWF ARE VERY SIMILAR TO EACH OTHER AND HAVE BEEN FOR THE PAST FEW RUNS...AND THEY BOTH SUGGEST

THAT THIS NEXT SYSTEM WILL BE MUCH WETTER THAN THE ONE NOW MOVING OFF TO THE EAST. FLOW WILL AMPLIFY ON MONDAY AND AS THE RIDGE OFFSHORE BUILDS...THE UPPER LOW WILL DEVELOP AND DROP TOWARDS THE SOUTHEAST ALONG THE CA COAST. STRONG PVA AND UPPER DIFLUENCE...AS WELL AS JET DYNAMICS...WILL COME INTO PLAY LEADING TO A CHANCE FOR SHOWERS OVER SERN CA AND THE FAR WESTERN DESERTS DURING THE DAY ON MONDAY. THE LOW WILL THEN PUSH EAST ACROSS THE STATE MONDAY NIGHT WITH THE TROF AXIS MOVING INTO FAR ERN AZ BY 12Z TUESDAY. THIS WILL GIVE A GOOD CHANCE FOR SHOWERS TO THE CENTRAL DESERTS...AND WE HAVE RAISED POPS IN THE PHOENIX AREA TO 50 PERCENT. WITH THE COOL AIR ALOFT MOVING INTO THE ARIZONA DESERTS THERE WILL BE SOME INSTABILITY AND WE WILL CONTINUE TO CALL FOR A SLIGHT CHANCE FOR EVENING THUNDERSTORMS MONDAY NIGHT. AT THIS TIME WE ARE NOT LOOKING FOR SIGNIFICANT QPF WITH THIS SYSTEM...MOST DESERT TOTALS SHOULD BE LESS THAN ONE QUARTER OF AN INCH. ALTHOUGH THIS WILL BE A COLDER AND WETTER SYSTEM THAN THE PREVIOUS ONE...WIND FIELDS LOOK TO BE A BIT WEAKER AND WE DO NOT EXPECT WIND ADVISORY CRITERIA TO BE MET IN OUR CWA.
AS THE LOW HEADS INTO NEW MEXICO TUESDAY...THERE WILL BE A LINGERING CHANCE FOR SHOWERS OVER THE HIGHER TERRAIN EAST OF PHOENIX...AS WELL AS A SLIGHT CHANCE FOR MAINLY MORNING SHOWERS OVER THE SOUTH CENTRAL DESERTS. HIGHS TUESDAY WILL FALL INTO THE LOW TO MID 60S OVER THE CENTRAL DESERTS...AND INTO THE MID 60S TO NEAR 70 OUT WEST.
HIGH PRESSURE ALOFT IS EXPECTED TO BUILD INTO THE DESERT SOUTHWEST FROM THE WEST WEDNESDAY INTO THE LATTER PART OF THE WORK WEEK...LEADING TO MOSTLY SUNNY SKIES AND A WARMING TREND. HIGH TEMPERATURES BY THURSDAY WILL CLIMB INTO THE 70S OVER MOST OF THE DESERTS WITH SOME OF THE WARMER DESERTS REACHING INTO THE UPPER 70S. ALTHOUGH THE RIDGE WILL FLATTEN A BIT FRIDAY INTO SATURDAY AS DISTURBANCES PASS BY TO THE NORTH...HIGH TEMPERATURES WILL NOT CHANGE MUCH AND MANY OF THE WARMER DESERTS WILL STAY IN THE MIDDLE 70S.
&&
.AVIATION...
SOUTHEAST CALIFORNIA AND SOUTH-CENTRAL ARIZONA...INCLUDING KPHX KIWA KIPL AND KBLH AIRFIELDS...
IMPROVING CONDITIONS THIS MORNING WILL GIVE WAY TO A BROKEN HIGH DECK OF CLOUDS LATER THIS AFTERNOON. CIGS ARE EXPECTED TO REMAIN AOA 15KFT THROUGH THIS EVENING. WINDS WILL BE SIGNIFICANTLY LIGHTER TODAY THAN YESTERDAY...TYPICAL DIURNAL PATTERNS FAVORED AT ALL SITES.
AVIATION DISCUSSION NOT UPDATED FOR AMENDED TAFS.

FXUS65 KPSR 221617
AFDPSR
AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE PHOENIX AZ
910 AM MST SUN JAN 22 2012
.SYNOPSIS...
A SERIES OF PACIFIC STORMS WILL CONTINUE TO MOVE ACROSS THE WESTERN STATES THROUGH TUESDAY. ONE WEAK DISTURBANCE IS EXPECTED TODAY THAT WILL BRING THICK HIGH CLOUDS. A STRONGER STORM WILL MOVE ACROSS SOUTHEAST CALIFORNIA AND SOUTHERN ARIZONA MONDAY AND MONDAY NIGHT...RESULTING IN A CHANCE OF SHOWERS AREA-WIDE. A SLIGHT CHANCE OF THUNDERSTORMS IS ALSO POSSIBLE FOR MAINLY MONDAY EVENING. THE THREAT OF SHOWERS WILL END BY TUESDAY AFTERNOON. HIGH PRESSURE AND MUCH WARMER WEATHER WILL DEVELOP ACROSS THE REGION WEDNESDAY THROUGH THE END OF THE WORK WEEK.
&&
.DISCUSSION...
DRY WEATHER WITH NEAR SEASONAL TEMPERATURES WILL DEVELOP TODAY... REPLETE WITH CONSIDERABLE HIGH CLOUDS. HIGH CLOUDS ARE FORERUNNERS

OF ANOTHER STRONG PACIFIC STORM CURRENTLY BEARING DOWN ON ARIZONA. CURRENT FORECASTS REGARDING MONDAY AFTERNOON/EVENINGS STORM IN AZ STILL LOOK GOOD. STRONG UPPER LEVEL STORM SUPPORT WITH THIS SYSTEM BODES WELL FOR A GOOD CHANCE OF SHOWERS JUST ABOUT EVERYWHERE IN OUR FORECAST AREA...BUT PARTICULARLY SOUTH CENTRAL AZ VICINITY PHOENIX AND ADJACENT HIGHER TERRAIN. STRONGEST 500 MB HEIGHT FALLS OF NEAR 120 METERS CENTERED OVER PORTIONS OF SOUTH CENTRAL AZ EVEN BODE WELL FOR A RISK OF THUNDERSTORMS.
AS OF NOW...IT APPEARS THIS IS NOT AN OVERLY WET STORM. SNOW LEVEL ESTIMATES FOR THE HIGHER TERRAIN JUST NORTH...AND EAST OF PHOENIX IN MARICOPA AND SOUTHERN GILA COUNTIES ARE NEAR 5500 FEET BY MIDNIGHT MONDAY...AND AROUND 4800 FEET BY TUESDAY MORNING. IT IS POSSIBLE THERE COULD BE 2 TO 3 INCHES OF SNOW ABOVE 5500 FEET. THIS DOES NOT MEET WINTER WEATHER ADVISORY CRITERIA.
CURRENT FORECASTS LOOK OK. NO UPDATES PLANNED. PREVIOUS DISCUSSION BELOW STILL APPLIES.
PREVIOUS DISCUSSION...
VIGOROUS AND PROGRESSIVE LOW PRESSURE SYSTEM CONTINUED TO PUSH EAST AND INTO NEW MEXICO EARLY THIS MORNING...AND IN ITS WAKE A RATHER FLAT AND DIRTY SHORT WAVE RIDGE WILL BE MOVING ARIZONA. LATEST 00Z PLOT DATA SHOWED 160M HEIGHT FALLS AT FLAGSTAFF...AND THIS TURNED INTO A RATHER WINDY WEATHER SYSTEM FOR OUR CWA. WIND ADVISORY CRITERIA GUSTS OCCURRED OVER PORTIONS OF SERN CA YESTERDAY AFTERNOON...WITH PEAK WINDS TO NEAR 60 MPH AT LOST HORSE. 35 KNOT WESTERLY GUST AT SKY HARBOR AT 10 PM LAST NIGHT HELPED DEMONSTRATE THE STRENGTH OF THE SYSTEM. IN ANY CASE WINDS WILL BE MUCH LESS TODAY AS GRADIENTS RELAX. WRINKLE IN THE FLOW MOVING THROUGH THE RIDGE TODAY WILL BRING QUITE A BIT OF MAINLY HIGH CLOUDS WITH IT SO EXPECT PARTLY OR EVEN MOSTLY CLOUDY SKIES BY AFTERNOON. WE ARE ALSO LOOKING AT SEVERAL DEGREES OR MORE OF COOLING TODAY AS THE COOL AIR BEHIND THE EXITING LOW FILTERS ACROSS THE LOWER DESERTS. PHOENIX WILL LIKELY TOP OUT IN THE MID 60S TODAY.
LATEST GUIDANCE HAS COME INTO VERY GOOD AGREEMENT WITH REGARDS TO THE NEXT PACIFIC LOW PRESSURE SYSTEM THAT WILL AFFECT OUR AREA EARLY THIS WEEK. LAST SEVERAL SETS OF MOS GUIDANCE...INCLUDING MRA AND MEX NUMBERS...CONTINUE TO CALL FOR A CHANCE FOR SHOWERS ACROSS THE CENTRAL DESERTS MONDAY NIGHT. GFS AND ECMWF ARE VERY SIMILAR TO EACH OTHER AND HAVE BEEN FOR THE PAST FEW RUNS...AND THEY BOTH SUGGEST THAT THIS NEXT SYSTEM WILL BE STRONGER THAN THE ONE NOW MOVING OFF TO THE EAST. FLOW WILL AMPLIFY ON MONDAY AND AS THE RIDGE OFFSHORE BUILDS...THE UPPER LOW WILL DEVELOP AND DROP TOWARDS THE SOUTHEAST ALONG THE CA COAST. STRONG PVA AND UPPER DIFLUENCE...AS WELL AS JET DYNAMICS...WILL COME INTO PLAY LEADING TO A CHANCE FOR SHOWERS OVER SERN CA AND THE FAR WESTERN DESERTS DURING THE DAY ON MONDAY. THE LOW WILL THEN PUSH EAST ACROSS THE STATE MONDAY NIGHT WITH THE TROF AXIS MOVING INTO FAR ERN AZ BY 12Z TUESDAY. THIS WILL GIVE A GOOD CHANCE FOR SHOWERS TO THE CENTRAL DESERTS...AND WE HAVE RAISED POPS IN THE PHOENIX AREA TO 50 PERCENT. WITH THE COOL AIR ALOFT MOVING INTO THE ARIZONA DESERTS THERE WILL BE SOME INSTABILITY AND WE WILL CONTINUE TO CALL FOR A SLIGHT CHANCE FOR EVENING THUNDERSTORMS MONDAY NIGHT. AT THIS TIME WE ARE NOT LOOKING FOR SIGNIFICANT QPF WITH THIS SYSTEM...MOST DESERT TOTALS SHOULD BE LESS THAN ONE QUARTER OF AN INCH. ALTHOUGH THIS WILL BE A COLDER AND A LITTLE WETTER SYSTEM THAN THE PREVIOUS ONE...WIND FIELDS LOOK TO BE A BIT WEAKER AND WE DO NOT EXPECT WIND ADVISORY CRITERIA TO BE MET IN OUR CWA.
AS THE LOW HEADS INTO NEW MEXICO TUESDAY...THERE WILL BE A LINGERING CHANCE FOR SHOWERS OVER THE HIGHER TERRAIN EAST OF PHOENIX...AS WELL AS A SLIGHT CHANCE FOR MAINLY MORNING SHOWERS OVER THE SOUTH CENTRAL DESERTS. HIGHS TUESDAY WILL FALL INTO THE LOW TO MID 60S OVER THE CENTRAL DESERTS...AND INTO THE MID 60S TO NEAR 70 OUT WEST.
HIGH PRESSURE ALOFT IS EXPECTED TO BUILD INTO THE DESERT SOUTHWEST FROM THE WEST WEDNESDAY INTO THE LATTER PART OF THE WORK

WEEK...LEADING TO MOSTLY SUNNY SKIES AND A WARMING TREND. HIGH TEMPERATURES BY THURSDAY WILL CLIMB INTO THE 70S OVER MOST OF THE DESERTS WITH SOME OF THE WARMER DESERTS REACHING INTO THE UPPER 70S. ALTHOUGH THE RIDGE WILL FLATTEN A BIT FRIDAY INTO SATURDAY AS DISTURBANCES PASS BY TO THE NORTH...HIGH TEMPERATURES WILL NOT CHANGE MUCH AND MANY OF THE WARMER DESERTS WILL STAY IN THE MIDDLE 70S.
&&
.AVIATION...
SOUTH-CENTRAL AND SOUTHWEST ARIZONA AND SOUTHEAST CALIFORNIA...
INCLUDING KPHX...KIWA...KIPL AND KBLH...
LINGERING DUST IS RESULTING IN AREAS OF HAZE AND POOR VISIBILITY IN THE PHOENIX METRO AREA THIS MORNING. ALTHOUGH SURFACE VSBYS ARE GREATER THAN 10 MILES...REDUCTIONS IN SLANT VSBY ARE POSSIBLE THROUGH 17Z. OTHERWISE...EXPECT MID AND HIGH CLOUDS ALONG WITH LIGHT DIURNAL WINDS AT ALL TAF SITES.
AVIATION DISCUSSION NOT UPDATED FOR AMENDED TAFS.

APPENDIX C

NOTICE OF PUBLIC COMMENT PERIOD

ADEQ Arizona Department of Environmental Quality
Janice K. Brewer, Governor
Henry R. Darwin, Director

PUBLIC NOTICE

Request for Public Comments on Exceptional Events in the Greater Phoenix 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 May 2, 2011, EPA released draft guidance documents on the implementation of the EER 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 demonstrations of events that have caused elevated concentrations of PM_{10} in the Greater Phoenix area on February 19; July 18; August 3; August 18; August 25 through 28; September 2; October 4; November 4, 2011; January 21 – 22 and February 27, 2012. ADEQ has decided to flag these episodes based on these analyses. Copies of the demonstrations are available for review beginning Monday, December 3, 2012, on the ADEQ website at www.azdeq.gov/environ/air/plan/. Interested parties can submit written comments throughout the comment period which will end at 5:00 p.m. on Tuesday, January 1, 2013. Any comments received will be responded to and forwarded to EPA with the final demonstrations.

Written comments should be addressed, faxed, or e-mailed to:
Andra Juniel, Air Assessment Section, Arizona Department of Environmental Quality, 1110 W. Washington Street, 3415-A, Phoenix, AZ 85007, PHONE: (602) 771-4417; FAX: (602) 771-2366, E-mail: juniel.andra@azdeq.gov.

In addition to being available on-line, copies of the analyses are available for review, Monday through Friday, 8:30 a.m. to 4:30 p.m., at the ADEQ Records Center, 1110 W. Washington St., Phoenix, AZ, 85007, Attn: David Olivo, (602) 771-4380, email: olivo.david@azdeq.gov.

Persons with a disability may request reasonable accommodations by contacting Linda Morrison at (602) 771-4793 or 1-800-234-5677 ext. 771-4793. This document is available in alternative formats by contacting ADEQ TDD phone number at (602) 771-4829.