



Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Stephen A. Owens
Director

Assessment of Qualification for Treatment under the Arizona Natural and Exceptional Events Policy for the High Particulate (PM₁₀) Concentration Events in the Yuma and Phoenix Areas on October 21, 2007

Background

The Arizona Department of Environmental Quality (ADEQ) issues Dust Control Action Forecasts for the Yuma and Phoenix areas as part of the Natural Events Action Plan for these areas. On Friday, October 19, 2007, ADEQ air quality forecasters were tracking an upper level trough that was forecasted to dig south across the region on Saturday, October 20th. While the trough axis moved across the state on Saturday, a trailing cold front oriented in a northeast to southwest direction was forecast to sweep through the region early Sunday. In anticipation of high winds and the potential for blowing dust associated with this surface frontal passage, ADEQ air quality forecasters issued the Yuma and Maricopa County Dust Control Forecasts calling for a high risk of wind blown dust for the Phoenix and Yuma areas on Sunday, October 21st. In addition to the issuance of a high risk for wind blown dust, a PM₁₀ Health Watch was also issued for the Phoenix Metro area for Sunday, October 21st. The forecasts/advisories satisfy the requirement in 40 CFR 51.920(a)(1).

As the surface frontal boundary approached the region during the early morning hours of October 21st, winds increased in magnitude. Behind the frontal boundary, surface high pressure settled in across northern Nevada

with surface low pressure located near Baja, Mexico. The combination of the passing frontal boundary and the tight pressure gradient between the high and low pressure areas led to a prolonged period of high winds across much of the state. Strong north to northeasterly winds were observed during the early morning hours of October 21st in Yuma and continued throughout most of the day for much of the state, including the entire Phoenix Metro area. All appropriate state implementation plan (SIP) control measures were in place during the event demonstrating, per 40 CFR 50.1(j), that the event “is not reasonably controllable or preventable.”

This high wind event was a region-wide event which created dense blowing dust in numerous locations across the south central and southwestern low deserts of Arizona. The event brought significant wind and elevated ambient concentrations of PM₁₀ that exceeded the National Ambient Air Quality Standards (NAAQS) at the Yuma Courthouse and Coyote Lakes monitors. The fact that ambient concentrations exceed the NAAQS satisfies the criteria in 40 CFR 50.1(j) that the event “affects air quality.”

The following are the key PM₁₀ monitor readings for the monitors examined in this report:

| Monitor (Operator/Type) | AQS ID | 24-hr Avg PM ₁₀ | 1-hr Max PM ₁₀ | Max Time | Flag(A)*** |
|-------------------------------------|--------------|----------------------------|---------------------------|----------|------------|
| YUMA AREA | | | | | |
| Yuma Courthouse (ADEQ/BAM) | 04-027-0004* | 214 | 853 | 0200 | A or RJ |
| Yuma Courthouse (ADEQ/FRM) | 04-027-0004* | 137 | N/A | N/A | A or RJ |
| Yuma Courthouse (ADEQ/CO-FRM) | 04-027-0004* | 165 | N/A | N/A | A or RJ |
| PHOENIX METRO AREA | | | | | |
| Coyote Lakes (MC/TEOM)** | 04-013-4014* | 312** | 1569** | 0700 | A or RJ** |
| West 43 rd Ave (MC/TEOM) | 04-013-4009* | 139 | 496 | 0400 | None |
| Buckeye | 04-013-4011* | 137 | 535 | 0900 | None |
| Bethune Elementary School | 04-013-8006* | 132 | N/A | N/A | None |
| West Phoenix (MC/TEOM) | 04-013-0019* | 110 | 758 | 0300 | None |
| Greenwood (MC/TEOM) | 04-013-3010* | 90 | 472 | 0300 | None |
| Durango Complex (MC/TEOM) | 04-013-9812* | 81 | 244 | 0400 | None |

* EPA Air Quality System Identification Number

** Readings likely affected by local sources

*** 24-hr PM₁₀ concentration influenced by natural or exceptional event to be flagged.

Type Abbreviations: BAM – Beta-Attenuation Mass Monitor (Continuous monitor)

TEOM – Tapered Element Oscillating Microbalance Monitor (Continuous monitor).

The preliminary findings from this analysis for the Yuma area were presented at a stakeholders meeting on November 13, 2007. ADEQ presented and discussed this final demonstration at a stakeholder meeting in Yuma on May 28, 2008. A separate stakeholder meeting was held in Phoenix on June 11, 2008. ADEQ has finalized this

demonstration, which was made available for public comment from August 11, 2008 through September 10, 2008. Any comments that were received were forwarded to EPA with this demonstration pursuant to 40 CFR 51.14(c)(3)(i).

NORTH PHOENIX

| Hr | T(F) | RH | Rn | Spd | Max | Dir |
|----|------|----|----|-----|-----|-----|
| 1 | 67 | 34 | - | 1 | 3 | E |
| 2 | 65 | 39 | - | 1 | 3 | S |
| 3 | 69 | 21 | - | 7 | 20 | N |
| 4 | 71 | 11 | - | 11 | 19 | N |
| 5 | 70 | 11 | - | 11 | 20 | N |
| 6 | 67 | 12 | - | 9 | 22 | N |
| 7 | 66 | 14 | - | 9 | 18 | N |
| 8 | 65 | 14 | - | 6 | 15 | N |
| 9 | 68 | 12 | - | 7 | 18 | N |
| 10 | 71 | 8 | - | 9 | 19 | NE |
| 11 | 74 | 6 | - | 10 | 18 | N |
| 12 | 75 | 6 | - | 11 | 20 | NE |
| 1 | 75 | 7 | - | 10 | 17 | NE |
| 2 | 76 | 7 | - | 9 | 19 | NE |
| 3 | 76 | 7 | - | 11 | 20 | NE |
| 4 | 76 | 7 | - | 9 | 17 | NE |
| 5 | 74 | 7 | - | 9 | 16 | NE |
| 6 | 73 | 7 | - | 10 | 17 | NE |
| 7 | 71 | 8 | - | 9 | 16 | NE |
| 8 | 69 | 9 | - | 8 | 14 | N |
| 9 | 68 | 10 | - | 7 | 14 | N |
| 10 | 67 | 11 | - | 7 | 11 | N |
| 11 | 66 | 11 | - | 5 | 12 | N |
| 12 | 65 | 12 | - | 5 | 9 | NE |

NWS-YUMA MCAS

| Hr | T(F) | VR | Dust | Spd | Gust | Dir |
|----|------|----|------|-----|------|-----|
| 1 | 77 | 7 | - | 16 | 26 | N |
| 2 | 76 | 4 | HZ | 21 | 32 | N |
| 3 | 75 | 4 | HZ | 24 | 32 | N |
| 4 | 73 | 7 | - | 22 | 33 | N |
| 5 | 71 | 6 | HZ | 23 | 38 | N |
| 6 | 70 | 4 | HZ | 23 | 38 | N |
| 7 | 68 | 5 | HZ | 20 | 39 | N |
| 8 | 68 | 7 | - | 22 | 33 | N |
| 9 | 70 | 5 | HZ | 20 | 33 | N |
| 10 | 71 | 9 | - | 22 | 32 | N |
| 11 | 73 | 10 | - | 21 | 29 | N |
| 12 | 75 | 10 | - | 20 | 32 | N |
| 1 | 77 | 10 | - | 22 | 30 | N |
| 2 | 78 | 10 | - | 18 | 31 | N |
| 3 | 79 | 10 | - | 18 | 29 | N |
| 4 | 79 | 10 | - | 18 | 26 | N |
| 5 | 78 | 10 | - | 18 | 26 | N |
| 6 | 75 | 10 | - | 18 | 26 | N |
| 7 | 73 | 10 | - | 16 | 24 | N |
| 8 | 72 | 10 | - | 16 | 16 | N |
| 9 | 73 | 10 | - | 16 | 24 | N |
| 10 | 70 | 10 | - | 18 | 18 | N |
| 11 | 69 | 10 | - | 13 | 13 | N |
| 12 | 66 | 10 | - | 14 | 14 | N |

NWS-LUKE AFB

| Hr | T(F) | VR | Dust | Spd | Gust | Dir |
|----|------|----|------|-----|------|-----|
| 1 | 73 | 10 | - | 0 | 0 | N |
| 2 | 69 | 10 | - | 7 | 7 | NW |
| 3 | 73 | 10 | - | 18 | 18 | NE |
| 4 | 70 | 10 | - | 16 | 16 | NE |
| 5 | 68 | 9 | - | 14 | 14 | NE |
| 6 | 64 | 10 | - | 5 | 5 | N |
| 7 | 66 | 10 | - | 11 | 11 | N |
| 8 | 66 | 3 | HZ | 25 | 32 | NE |
| 9 | 69 | 1 | HZ | 29 | 40 | NE |
| 10 | 72 | 10 | - | 29 | 34 | NE |
| 11 | 73 | 3 | HZ | 30 | 37 | NE |
| 12 | 78 | 9 | - | 23 | 32 | NE |
| 1 | 79 | 10 | - | 22 | 30 | NE |
| 2 | 79 | 10 | - | 24 | 31 | NE |
| 3 | 78 | 7 | - | 26 | 37 | NE |
| 4 | 77 | 8 | - | 28 | 34 | NE |
| 5 | 77 | 3 | HZ | 28 | 37 | NE |
| 6 | 72 | 10 | - | 18 | 18 | NE |
| 7 | 68 | 10 | - | 11 | 11 | NE |
| 8 | 70 | 10 | - | 21 | 21 | NE |
| 9 | 67 | 10 | - | 20 | 20 | N |
| 10 | 67 | 10 | - | 14 | 14 | N |
| 11 | 66 | 10 | - | 14 | 14 | NE |
| 12 | 62 | 10 | - | 13 | 13 | N |

Event Contrib. Analysis

Hourly PM₁₀ Conc. (µg/m³)

| MONITORS: | Hr | 1 | 2 |
|----------------|----|-----|------|
| 1-YUMA CH | 1 | 254 | 47 |
| 2-COYOTE LAKES | 2 | 506 | 64 |
| | 3 | 853 | 960 |
| | 4 | 719 | 1010 |
| | 5 | 430 | 1119 |
| | 6 | 449 | 308 |
| | 7 | 305 | 266 |
| | 8 | 190 | 1569 |
| | 9 | 292 | 565 |
| | 10 | 224 | 266 |
| | 11 | 166 | 505 |
| | 12 | 97 | 303 |
| | 1 | 83 | 71 |
| | 2 | 63 | 80 |
| | 3 | 74 | 113 |
| | 4 | 55 | 44 |
| | 5 | 78 | 52 |
| | 6 | 121 | 51 |
| | 7 | 56 | 27 |
| | 8 | 40 | 33 |
| | 9 | 29 | 17 |
| | 10 | 18 | 16 |
| | 11 | 18 | 15 |
| | 12 | 24 | 11 |

24-Hr. Avg PM₁₀ with w/o: 5 430 1119
 Monitor: Event Even 6 449 308
 1-YUMA CH 214 58 8 190 1569
 2-COYOTE 313 45 9 292 565
 > NAAQS < NAAQS 11 166 505
 Pink=Event Contrib. 12 97 303

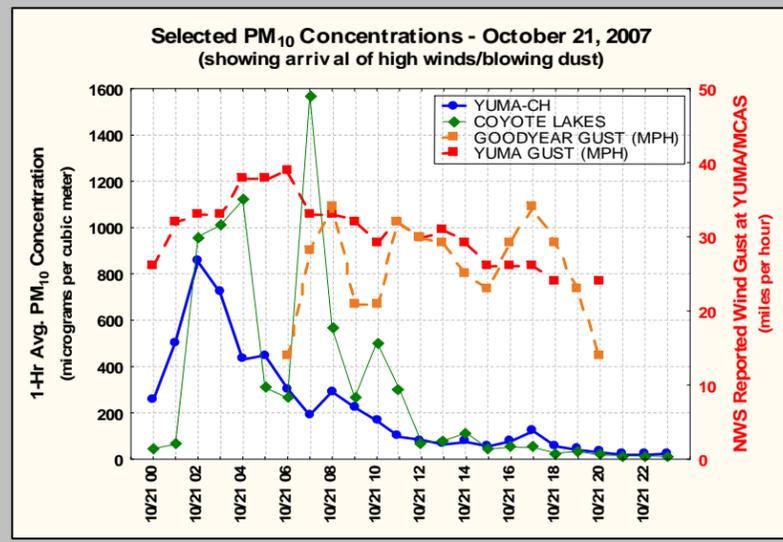
Conclusion: As shown above, the PM₁₀ concentrations would have been below the NAAQS "BUT FOR" the event contribution (hours highlighted in pink).



Figure 1. Key Data for Event of October 21, 2007

| MISC DATA | KEY | PM10 PLOT |
|---------------|------------------|-----------|
| CEN. AZ WINDS | SAT IMAGES | |
| SO AZ WINDS | PHX VIS. CAMERAS | |

SUMMARY OF EVENT
 A passing frontal boundary and a tight pressure gradient led to a prolonged period of high winds across much of the state of Arizona. The risk of wind-blown dust in both the Yuma and Coyote Lakes areas was high on Sunday Oct. 21, and both experienced elevated PM₁₀ concentrations



PARKER

| Hr | T(F) | RH | Rn | Spd | Max | Dir |
|----|------|----|----|-----|-----|-----|
| 1 | 74 | 11 | - | 24 | 31 | N |
| 2 | 71 | 12 | - | 24 | 34 | N |
| 3 | 69 | 13 | - | 20 | 30 | N |
| 4 | 66 | 13 | - | 16 | 26 | N |
| 5 | 65 | 15 | - | 18 | 27 | N |
| 6 | 63 | 17 | - | 18 | 26 | N |
| 7 | 63 | 19 | - | 19 | 26 | N |
| 8 | 63 | 21 | - | 15 | 22 | N |
| 9 | 65 | 21 | - | 14 | 24 | N |
| 10 | 68 | 18 | - | 16 | 23 | N |
| 11 | 71 | 15 | - | 15 | 22 | N |
| 12 | 73 | 13 | - | 18 | 25 | N |
| 1 | 75 | 12 | - | 20 | 27 | N |
| 2 | 77 | 11 | - | 19 | 27 | N |
| 3 | 77 | 11 | - | 18 | 26 | N |
| 4 | 77 | 11 | - | 21 | 34 | N |
| 5 | 76 | 11 | - | 20 | 27 | N |
| 6 | 72 | 13 | - | 16 | 23 | N |
| 7 | 69 | 14 | - | 17 | 24 | N |
| 8 | 69 | 13 | - | 19 | 27 | N |
| 9 | 69 | 14 | - | 19 | 25 | N |
| 10 | 67 | 15 | - | 14 | 24 | N |
| 11 | 64 | 19 | - | 10 | 14 | NE |
| 12 | 60 | 23 | - | 8 | 11 | N |

BUCKEYE

| Hr | T(F) | RH | Rn | Spd | Max | Dir |
|----|------|----|----|-----|-----|-----|
| 1 | 68 | 33 | - | 6 | 8 | NW |
| 2 | 67 | 28 | - | 5 | 9 | NW |
| 3 | 64 | 33 | - | 2 | 6 | W |
| 4 | 66 | 22 | - | 4 | 13 | N |
| 5 | 66 | 15 | - | 5 | 9 | NW |
| 6 | 65 | 13 | - | 7 | 12 | N |
| 7 | 62 | 20 | - | 7 | 13 | NW |
| 8 | 63 | 14 | - | 6 | 10 | N |
| 9 | 69 | 13 | - | 4 | 9 | NE |
| 10 | 73 | 10 | - | 2 | 8 | E |
| 11 | 76 | 8 | - | 3 | 7 | NE |
| 12 | 77 | 6 | - | 4 | 10 | NE |
| 1 | 79 | 6 | - | 5 | 14 | E |
| 2 | 80 | 6 | - | 8 | 16 | E |
| 3 | 80 | 5 | - | 9 | 19 | NE |
| 4 | 79 | 6 | - | 9 | 17 | E |
| 5 | 78 | 6 | - | 10 | 20 | NE |
| 6 | 75 | 6 | - | 11 | 22 | NE |
| 7 | 73 | 6 | - | 13 | 31 | NE |
| 8 | 71 | 7 | - | 10 | 26 | NE |
| 9 | 69 | 9 | - | 10 | 19 | NE |
| 10 | 68 | 10 | - | 12 | 21 | NE |
| 11 | 67 | 10 | - | 11 | 17 | NE |
| 12 | 66 | 11 | - | 11 | 22 | NE |

MARICOPA

| Hr | T(F) | RH | Rn | Spd | Max | Dir |
|----|------|----|----|-----|-----|-----|
| 1 | 73 | 19 | - | 4 | 7 | W |
| 2 | 71 | 24 | - | 3 | 8 | NW |
| 3 | 72 | 26 | - | 8 | 16 | W |
| 4 | 72 | 23 | - | 7 | 14 | NW |
| 5 | 69 | 15 | - | 8 | 15 | N |
| 6 | 67 | 14 | - | 9 | 16 | N |
| 7 | 66 | 13 | - | 12 | 19 | N |
| 8 | 66 | 14 | - | 12 | 19 | N |
| 9 | 69 | 15 | - | 10 | 18 | N |
| 10 | 73 | 13 | - | 10 | 19 | N |
| 11 | 76 | 7 | - | 12 | 19 | N |
| 12 | 77 | 5 | - | 14 | 21 | N |
| 1 | 78 | 5 | - | 13 | 21 | N |
| 2 | 79 | 6 | - | 14 | 22 | N |
| 3 | 78 | 5 | - | 14 | 23 | N |
| 4 | 77 | 6 | - | 13 | 21 | N |
| 5 | 75 | 6 | - | 11 | 21 | N |
| 6 | 73 | 7 | - | 13 | 22 | N |
| 7 | 70 | 8 | - | 15 | 24 | N |
| 8 | 67 | 9 | - | 8 | 14 | N |
| 9 | 65 | 10 | - | 7 | 13 | N |
| 10 | 64 | 11 | - | 6 | 13 | N |
| 11 | 63 | 12 | - | 6 | 14 | N |
| 12 | 61 | 14 | - | 4 | 9 | NE |

Historical Distribution

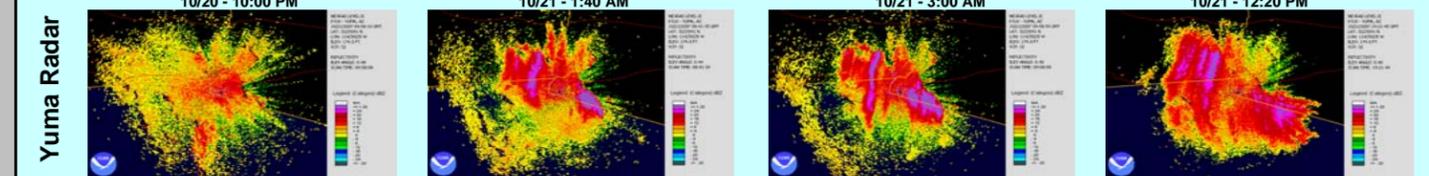
5-Yr. Dist. of Values (µg/m³)

| MONITORS: | Column Index |
|----------------|---|
| 1-YUMA CH | Yr - All Data (5-Yrs) |
| 2-COYOTE LAKES | Sea - Data for Autumn season only (5-Yrs) |

| Cum. Freq. | Mon 1 | Mon 2 |
|------------|-------|-------|
| Min | 8 | 12 |
| 0.5% | 12 | 13 |
| 1.0% | 14 | 15 |
| 2.5% | 16 | 20 |
| 5% | 19 | 22 |
| 10% | 23 | 26 |
| 25% | 31 | 34 |
| 50% | 42 | 46 |
| 75% | 57 | 58 |
| 90% | 77 | 73 |
| 95% | 96 | 86 |
| 97.5% | 127 | 94 |
| 99.0% | 186 | 131 |
| 99.5% | 211 | 204 |
| Max | 349 | 320 |

Flagged Value: 214 (Mon 1), 313 (Mon 2)

Conclusion: Flagged Value is exceptional in nature (eg. greater than 95% of all data)



YUMA

| Hr | T(F) | RH | Rn | Spd | Max | Dir |
|----|------|----|----|-----|-----|-----|
| 1 | 76 | 16 | - | 5 | 17 | NE |
| 2 | 76 | 16 | - | 16 | 30 | NE |
| 3 | 74 | 11 | - | 20 | 30 | NE |
| 4 | 71 | 13 | - | 20 | 28 | NE |
| 5 | 69 | 13 | - | 22 | 33 | N |
| 6 | 69 | 11 | - | 22 | 32 | N |
| 7 | 67 | 11 | - | 21 | 32 | N |
| 8 | 67 | 12 | - | 17 | 27 | N |
| 9 | 68 | 13 | - | 19 | 28 | NE |
| 10 | 70 | 13 | - | 19 | 29 | N |
| 11 | 72 | 12 | - | 16 | 24 | N |
| 12 | 73 | 13 | - | 16 | 25 | N |
| 1 | 75 | 12 | - | 17 | 25 | N |
| 2 | 76 | 11 | - | 18 | 28 | N |
| 3 | 77 | 10 | - | 16 | 24 | N |
| 4 | 78 | 9 | - | 16 | 24 | N |
| 5 | 77 | 8 | - | 16 | 26 | N |
| 6 | 75 | 9 | - | 16 | 26 | N |
| 7 | 73 | 10 | - | 12 | 23 | N |
| 8 | 72 | 10 | - | 12 | 22 | N |
| 9 | 71 | 11 | - | 14 | 22 | N |
| 10 | 71 | 11 | - | 14 | 23 | N |
| 11 | 69 | 12 | - | 15 | 22 | N |
| 12 | 69 | 12 | - | 15 | 24 | N |

PALOMA

| Hr | T(F) | RH | Rn | Spd | Max | Dir |
|----|------|----|----|-----|-----|-----|
| 1 | 65 | 40 | - | 5 | 8 | SW |
| 2 | 60 | 51 | - | 5 | 7 | SW |
| 3 | 60 | 46 | - | 3 | 7 | SW |
| 4 | 61 | 42 | - | 4 | 7 | W |
| 5 | 63 | 30 | - | 4 | 10 | N |

Assessment under the Technical Criteria Document (TCD)

1. Properly qualify and validate the air quality measurement to be flagged. This high wind event occurred during a period that included a scheduled 1-in-6 run day. Both continuous analyzers and filter based monitors were examined for the October 21st event. The air quality monitoring data were reviewed by the agencies responsible for operation of the monitors. All filter based and hourly PM₁₀ readings from the Yuma Courthouse monitors operated by ADEQ and the Coyote Lakes monitor operated by Maricopa County were valid for October 21st. Audits of the analyzers revealed operations were within acceptable tolerance. It is highly likely that local sources significantly contributed to the air quality episode at the Coyote Lakes site. Conversely, no local sources were reported as significantly contributing to the air quality episode in the Yuma area.

2. Review suspected contributing sources. The Arizona Meteorological Network (AzMET) and National Weather Service (NWS) surface data, along with the Yuma radar images provide a good explanation as to what meteorological conditions were in place throughout the day on October 21, 2007. Strong winds associated with a passing frontal boundary and a tight pressure gradient allowed for dry and loose soils to be easily picked up and transported. The dense, blowing dust can be seen quite clearly in the Yuma clear-air mode radar images. The heaviest concentrations of blowing dust appear to have been located to the northwest and southeast of the Yuma area, as evident in the brightly colored returns oriented in a north / south direction. NWS reports of reduced visibility and haze in Yuma were coincident with strong winds and elevated concentrations of PM₁₀ measured at the Yuma Courthouse. Particulate transport also occurred in the Phoenix Metro area as a number of monitors recorded elevated concentrations of PM₁₀. Strong winds were recorded for much of the day in Phoenix with blowing dust observed at the Goodyear Airport between 7:00 am and 10:00 a.m. The plot of hourly PM₁₀ concentration data in the upper right corner of Figure 1, in conjunction with the wind data, confirms the identical timing of the wind and elevated PM₁₀ concentrations in Yuma and the Phoenix Metro areas.

3. Examine all air quality monitoring information. Data from all monitors in the network were reviewed. Data from monitors in the affected areas are summarized in the table in the Background section of this assessment. Pursuant to 40 CFR 50.14(c)(3)(iii)(C), the "Historical Distribution" Table in Figure 1 has been included to demonstrate that the event is associated with measured concentrations in excess

of normal historical fluctuations, including background (i.e., concentrations greater than the 95th percentile). Monitors with elevated PM₁₀ readings, which should be flagged, include the Yuma Courthouse and Coyote Lakes monitors.

4. Examine the meteorological conditions before and during the event. The AzMET meteorological data are summarized in Figure 1. The wind data are highlighted yellow if the max wind speed in the hour exceeds 15 mph and orange if it exceeds 25 mph. A passing frontal system, in conjunction with a tight pressure gradient, caused strong, gusty winds over much of Arizona beginning in the early morning hours of October 21st and continuing throughout much of the day. As a result, elevated PM₁₀ values occurred in both the Yuma and Phoenix Metro areas.

5. Perform a qualitative attribution to emission source(s). All evidence indicates the elevated PM₁₀ concentrations in the Phoenix and Yuma areas can be attributed to soil emissions that were transported over a broad area. No source-specific emission allocation is possible based on the data available for analysis. The hourly concentration data do not show any significant source other than the wind-blown dust event. Observational reports of haze and blowing dust from trained officials are further proof that the elevated PM₁₀ concentrations were attributed to soil emissions.

6. Estimation of Contribution from Source or Event. For the Yuma area, the primary source appears to be wind-blown dust over a wide geographic region for which there is not an effective or efficient method to estimate the relative contributions from specific sources. The demonstration analysis contained in this report establishes the linkage between the measurements to be flagged and the event, thus satisfying the requirement in 40 CFR 50.14(c)(3)(iii)(B). The Event Contribution Analysis was performed to show the impact the event had on the BAM and TEOM instrument measurements. Pursuant to 40 CFR 50.14(c)(3)(iii)(D), the "Event Contrib. Analysis" Table in Figure 1 has been included to demonstrate that there would have been no exceedances or violations but for the event (i.e., the contribution during the event overwhelmed the 24-hour averages).

7. Determination that a Natural or Exceptional Event Contributed To an Exceedance. Based on this analysis, the event satisfies the requirement in 40 CFR 50.1(j) that the elevated concentrations at the flagged monitoring sites were attributed to a natural event.

Conclusion

Long-range transport of dust from soils. The region wide elevated PM₁₀ event on October 21, 2007 throughout the state of Arizona was the result of long-range transport of dust and soils from high winds that suspended natural soils and soils from areas where Best Available Control Measures are in place and should be flagged for air quality

planning purposes. The "high wind" flag (A or RJ) should be applied to the monitor readings indicated in the table at the beginning of this report, as the monitors would have been below the NAAQS but for the contribution of the event.



Janet Napolitano, Governor
 Stephen A. Owens, ADEQ Director

**YUMA AND VICINITY
 DUST CONTROL ACTION FORECAST
 ISSUED FRIDAY, OCTOBER 19, 2007**

Three-day weather outlook:

It's going to be a very windy end to the weekend as a trough of low pressure digs south into the middle part of the country on Sunday. Winds will be strongest at this time as they dive south through Arizona on the backside of the trough. Cooler air will also filter into the region with afternoon desert temperatures dropping into the low to mid 80s on Sunday and Monday. High pressure will be held at bay much of next week as the low pressure system cuts off and lingers over Texas. Winds will decrease by late Monday into Tuesday as it edges slight east. As a result, the risk of wind-blown dust in Yuma will be **HIGH** on Sunday and Monday.

| | <u>WINDS</u> | <u>WIND BLOWN DUST RISK</u> |
|-------------------------------|--|-----------------------------|
| Day #1: Sat 10/20/2007 | West winds 10 to 20 mph are expected much of the day. | LOW |
| Day #2: Sun 10/21/2007 | North winds 20 to 30 mph are expected early, becoming 25 to 35 mph in the afternoon with possible gusts near 45 mph. | HIGH |
| Day #3: Mon 10/22/2007 | North winds 15 to 25 mph are likely much of the day, decreasing late. | HIGH |

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 (brown cloud). 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, minimize travel on dirt roads, utilize tarps on haul trucks, limit use of leaf-blowers, and on high-wind days reduce outdoor activities.



MARICOPA COUNTY DUST CONTROL ACTION FORECAST

ISSUED FRIDAY, OCTOBER 19, 2007

Three-day weather outlook:

It's going to be a very windy end to the weekend as a trough of low pressure digs south into the middle part of the country on Sunday. Winds will be strongest at this time as they dive south through Arizona on the backside of the trough. Cooler air will also filter into the region with afternoon desert temperatures dropping into the low to mid 80s on Sunday and Monday. High pressure will be held at bay much of next week as the low pressure system cuts off and lingers over Texas. Winds will decrease by late Monday into Tuesday as it edges slight east. As a result, the risk of exceeding the 24-hr PM10 health standard in Phoenix will be **HIGH** on Sunday, dropping back to "Moderate" on Monday.

R I S K F A C T O R S

| | <u>WINDS</u> | + | <u>STAGNATION</u> | = | <u>RISK LEVEL</u> |
|-------------------------------|--|---|---|---|-------------------|
| Day #1: Sat 10/20/2007 | Southeast winds 5 to 15 mph are expected early, becoming southwest 10 to 20 mph by the afternoon. | + | Somewhat stagnant conditions are expected early, with improvement by the afternoon. | = | LOW |
| Day #2: Sun 10/21/2007 | Northwest winds 10 to 20 mph are expected early, becoming 15 to 25 mph in the afternoon with possible gusts near 35 mph. | + | Little to no stagnation is expected. | = | HIGH |
| Day #3: Mon 10/22/2007 | North winds 15 to 25 mph are possible early, decreasing by the late afternoon. | + | Little to no stagnation is expected. | = | MODERATE |

To review the complete air quality forecast for the Phoenix metropolitan area visit www.azdeq.gov or call 602-771-2367 for recorded forecast information.



ADEQ AIR POLLUTION HEALTH WATCH ISSUANCE NOTICE

Issuance Date and Time: Friday, October 19, 2007 11:00 a.m.

Valid for Date(s): Sunday, October 21, 2007

Pollutant: Course Particulates (PM-10)

Message: Elevated particulate levels combined with breezy to windy conditions Sunday may lead to concentrations approaching the health standard on Sunday.

Detailed air quality forecast information is available on:

- The internet at www.azdeq.gov
- A telephone recording at 602-771-2367

Duty Forecaster: Christopher Reith 520-770-3172
Joe Paul 602-771-2363

CKR 01/18/2005

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

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA**
(may be updated)
HOURLY OBSERVATIONS TABLE
YUMA MCAS (03145)
YUMA , AZ
(10/2007)

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

Elevation: 213 ft. above sea level
Latitude: 32.650
Longitude: -114.617
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 | 0051 | 5 | CLR | 7.00 | | 77 | 25.0 | 54 | 12.0 | 29 | -1.7 | 17 | 16 | 020 | 26 | 29.55 | | 29.77 | AA | | 29.78 | |
| 21 | 0151 | 5 | CLR | 4.00 | HZ | 76 | 24.4 | 52 | 11.2 | 25 | -3.9 | 15 | 21 | 010 | 32 | 29.58 | 1 | 027 | AA | | 29.81 | |
| 21 | 0236 | 5 | FEW001 | 4.00 | HZ | 75 | 24.0 | 49 | 9.5 | 12 | -11.0 | 9 | 24 | 020 | 32 | 29.59 | | M | SP | | 29.82 | |
| 21 | 0251 | 5 | FEW001 | 5.00 | HZ | 75 | 23.9 | 50 | 9.7 | 14 | -10.0 | 10 | 25 | 010 | 33 | 29.60 | | 29.82 | AA | | 29.83 | |
| 21 | 0351 | 5 | FEW001 | 7.00 | | 73 | 22.8 | 49 | 9.5 | 17 | -8.3 | 12 | 22 | 020 | 33 | 29.61 | | 29.83 | AA | | 29.84 | |
| 21 | 0451 | 5 | CLR | 6.00 | HZ | 71 | 21.7 | 48 | 8.8 | 15 | -9.4 | 12 | 23 | 010 | 38 | 29.65 | 3 | 024 | AA | | 29.88 | |
| 21 | 0537 | 5 | FEW001 | 4.00 | HZ | 70 | 21.0 | 46 | 7.9 | 9 | -13.0 | 9 | 23 | 010 | 38 | 29.68 | | M | SP | | 29.91 | |
| 21 | 0551 | 5 | CLR | 6.00 | HZ | 69 | 20.6 | 46 | 7.8 | 10 | -12.2 | 10 | 24 | 010 | 37 | 29.69 | | 29.91 | AA | | 29.92 | |
| 21 | 0651 | 5 | CLR | 5.00 | HZ | 68 | 20.0 | 46 | 7.7 | 12 | -11.1 | 11 | 20 | 010 | 39 | 29.73 | | 29.95 | AA | | 29.96 | |
| 21 | 0751 | 5 | CLR | 7.00 | | 68 | 20.0 | 46 | 7.9 | 14 | -10.0 | 12 | 22 | 010 | 33 | 29.79 | 3 | 047 | AA | | 30.02 | |
| 21 | 0851 | 5 | CLR | 5.00 | HZ | 70 | 21.1 | 48 | 8.6 | 16 | -8.9 | 13 | 20 | 020 | 33 | 29.84 | | 30.06 | AA | | 30.07 | |
| 21 | 0858 | 5 | FEW001 | 5.00 | HZ | 70 | 21.0 | 48 | 8.6 | 16 | -9.0 | 13 | 23 | 020 | 33 | 29.84 | | M | SP | | 30.07 | |
| 21 | 0951 | 5 | FEW200 | 9.00 | | 71 | 21.7 | 49 | 9.1 | 18 | -7.8 | 13 | 22 | 010 | 32 | 29.86 | | 30.09 | AA | | 30.09 | |
| 21 | 1051 | 5 | SCT200 | 10.00 | | 73 | 22.8 | 50 | 9.8 | 19 | -7.2 | 13 | 21 | 360 | 29 | 29.88 | 1 | 030 | AA | | 30.11 | |
| 21 | 1151 | 5 | SCT200 | 10.00 | | 75 | 23.9 | 50 | 9.8 | 15 | -9.4 | 10 | 20 | 010 | 32 | 29.88 | | 30.10 | AA | | 30.11 | |
| 21 | 1251 | 5 | SCT200 | 10.00 | | 77 | 25.0 | 51 | 10.3 | 15 | -9.4 | 9 | 22 | 360 | 30 | 29.86 | | 30.09 | AA | | 30.09 | |
| 21 | 1351 | 5 | CLR | 10.00 | | 78 | 25.6 | 51 | 10.6 | 15 | -9.4 | 9 | 18 | 350 | 31 | 29.85 | 8 | 010 | AA | | 30.08 | |
| 21 | 1451 | 5 | SCT200 | 10.00 | | 79 | 26.1 | 51 | 10.7 | 14 | -10.0 | 8 | 18 | 350 | 29 | 29.83 | | 30.05 | AA | | 30.06 | |
| 21 | 1551 | 5 | SCT200 | 10.00 | | 79 | 26.1 | 51 | 10.6 | 13 | -10.6 | 8 | 18 | 360 | 26 | 29.83 | | 30.06 | AA | | 30.06 | |
| 21 | 1651 | 5 | CLR | 10.00 | | 78 | 25.6 | 51 | 10.3 | 12 | -11.1 | 8 | 18 | 360 | 26 | 29.84 | 5 | 001 | AA | | 30.07 | |
| 21 | 1751 | 5 | CLR | 10.00 | | 75 | 23.9 | 49 | 9.6 | 13 | -10.6 | 9 | 18 | 350 | 26 | 29.87 | | 30.09 | AA | | 30.10 | |
| 21 | 1851 | 5 | CLR | 10.00 | | 73 | 22.8 | 49 | 9.2 | 14 | -10.0 | 10 | 16 | 350 | 24 | 29.89 | | 30.12 | AA | | 30.12 | |
| 21 | 1951 | 5 | CLR | 10.00 | | 72 | 22.2 | 48 | 9.0 | 14 | -10.0 | 11 | 16 | 360 | | 29.91 | 1 | 024 | AA | | 30.14 | |
| 21 | 2051 | 5 | CLR | 10.00 | | 73 | 22.8 | 49 | 9.3 | 15 | -9.4 | 11 | 16 | 360 | 24 | 29.94 | | 30.16 | AA | | 30.17 | |
| 21 | 2151 | 5 | CLR | 10.00 | | 70 | 21.1 | 48 | 8.7 | 16 | -8.9 | 13 | 18 | 360 | | 29.97 | | 30.19 | AA | | 30.20 | |
| 21 | 2251 | 5 | CLR | 10.00 | | 69 | 20.6 | 47 | 8.5 | 17 | -8.3 | 14 | 13 | 360 | | 29.98 | 1 | 024 | AA | | 30.21 | |
| 21 | 2351 | 5 | CLR | 10.00 | | 68 | 20.0 | 47 | 8.1 | 16 | -8.9 | 13 | 14 | 360 | | 30.00 | | 30.22 | AA | | 30.23 | |

Dynamically generated Tue Oct 30 10:00:45 EST 2007 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
(10/2007)**

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

Elevation: 0 ft. above sea level

Latitude: 33.423

Longitude: -112.376

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 | CLR | 10.00 | BLDU BLDU | 70 | 21.0 | 47 | 8.0 | 12 | -11.0 | 10 | 14 | 030 | | 28.85 | | | M | AA | | 29.88 | |
| 21 | 0647 | 0 | BKN250 | 15.00 | | 66 | 19.0 | M | M | M | M | | M | 17 | 010 | 28 | 28.89 | | | M | AA | | 29.92 |
| 21 | 0747 | 0 | BKN250 | 6.00 | | 68 | 20.0 | 47 | 8.3 | 19 | -7.0 | 15 | 21 | 010 | 34 | 28.93 | | | M | AA | | 29.96 | |
| 21 | 0847 | 0 | BKN250 | 4.00 | | 70 | 21.0 | 51 | 10.4 | 30 | -1.0 | 23 | 21 | 030 | | 28.97 | | | M | AA | | 30.01 | |
| 21 | 0947 | 0 | BKN250 | 20.00 | | 73 | 23.0 | 49 | 9.5 | 18 | -8.0 | 12 | 21 | 010 | | 28.98 | | | M | AA | | 30.02 | |
| 21 | 1047 | 0 | BKN250 | 20.00 | | 79 | 26.0 | 52 | 11.3 | 21 | -6.0 | 11 | 21 | 020 | 32 | 28.98 | | | M | AA | | 30.02 | |
| 21 | 1147 | 0 | SCT250 | 20.00 | | 81 | 27.0 | 53 | 11.8 | 21 | -6.0 | 11 | 21 | 020 | 30 | 28.97 | | | M | AA | | 30.01 | |
| 21 | 1247 | 0 | BKN250 | 50.00 | | 81 | 27.0 | M | M | 25 | -4.0 | M | 17 | 020 | 29 | M | | | M | AA | | M | |
| 21 | 1347 | 0 | BKN250 | 50.00 | | 82 | 28.0 | 55 | 12.8 | 27 | -3.0 | 13 | 14 | 030 | 25 | 28.97 | | | M | AA | | 30.00 | |
| 21 | 1447 | 0 | BKN250 | 60.00 | | 81 | 27.0 | 53 | 11.8 | 21 | -6.0 | 11 | 11 | 010 | 23 | 28.97 | | | M | AA | | 30.00 | |
| 21 | 1547 | 0 | BKN250 | 40.00 | | 79 | 26.0 | 52 | 11.3 | 21 | -6.0 | 11 | 17 | 020 | 29 | 28.97 | | | M | AA | | 30.01 | |
| 21 | 1647 | 0 | BKN250 | 40.00 | | 79 | 26.0 | 52 | 11.3 | 21 | -6.0 | 11 | 23 | 020 | 34 | 28.98 | | | M | AA | | 30.02 | |
| 21 | 1747 | 0 | BKN250 | 40.00 | | 75 | 24.0 | 50 | 9.8 | 16 | -9.0 | 11 | 17 | 030 | 29 | 29.03 | | | M | AA | | 30.07 | |
| 21 | 1847 | 0 | BKN250 | 0.00 | | 73 | 23.0 | 48 | 9.1 | 14 | -10.0 | 10 | 11 | 030 | 23 | 29.06 | | | M | AA | | 30.10 | |
| 21 | 1947 | 0 | SCT250 | 20.00 | | 72 | 22.0 | 48 | 8.6 | 12 | -11.0 | 10 | 14 | 030 | | 29.10 | | | M | AA | | 30.14 | |

Dynamically generated Wed Oct 24 12:27:11 EDT 2007 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
CASA GRANDE MUNICIPAL ARPT (03914)
CASA GRANDE , AZ
(10/2007)**

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

Elevation: 1463 ft. above sea level
Latitude: 32.955
Longitude: -111.767
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 | | 64 | 18.0 | 47 | 8.5 | 28 | -2.0 | 26 | 3 | 240 | | 28.25 | | | M | AA | | 29.79 |
| 21 | 0155 | 0 | CLR | 10.00 | | 66 | 19.0 | 49 | 9.4 | 30 | -1.0 | 26 | 6 | 280 | | 28.25 | | | M | AA | | 29.80 |
| 21 | 0255 | 0 | CLR | 10.00 | | 70 | 21.0 | 52 | 11.1 | 34 | 1.0 | 27 | 8 | 260 | | 28.25 | 2 | 014 | M | AA | | 29.80 |
| 21 | 0355 | 0 | CLR | 10.00 | | 70 | 21.0 | 52 | 11.1 | 34 | 1.0 | 27 | 10 | 280 | | 28.27 | | | M | AA | | 29.81 |
| 21 | 0455 | 0 | CLR | 10.00 | | 68 | 20.0 | 50 | 9.9 | 30 | -1.0 | 24 | 6 | 300 | | 28.29 | | | M | AA | | 29.84 |
| 21 | 0555 | 0 | CLR | 10.00 | | 68 | 20.0 | 47 | 8.5 | 21 | -6.0 | 17 | 13 | 330 | | 28.33 | 2 | 014 | M | AA | | 29.88 |
| 21 | 0655 | 0 | CLR | 6.00 | | 66 | 19.0 | 46 | 7.6 | 18 | -8.0 | 16 | 10 | 310 | | 28.35 | | | M | AA | | 29.90 |
| 21 | 0755 | 0 | CLR | 6.00 | | 70 | 21.0 | 48 | 8.6 | 18 | -8.0 | 14 | 16 | 330 | | 28.39 | | | M | AA | | 29.94 |
| 21 | 0855 | 0 | CLR | 1.00 | | 70 | 21.0 | 48 | 8.7 | 19 | -7.0 | 14 | 26 | 330 | 32 | 28.43 | 2 | 034 | M | AA | | 29.98 |
| 21 | 0955 | 0 | CLR | 6.00 | | 73 | 23.0 | 50 | 9.7 | 21 | -6.0 | 14 | 16 | 340 | | 28.47 | | | M | AA | | 30.02 |
| 21 | 1055 | 0 | CLR | 8.00 | | 73 | 23.0 | 49 | 9.5 | 19 | -7.0 | 13 | 14 | 350 | 22 | 28.48 | 2 | 030 | M | AA | | 30.03 |
| 21 | 1155 | 0 | CLR | 8.00 | | 75 | 24.0 | 50 | 9.9 | 18 | -8.0 | 11 | 17 | 350 | 23 | 28.48 | | | M | AA | | 30.03 |
| 21 | 1255 | 0 | CLR | 5.00 | | 79 | 26.0 | 52 | 10.8 | 18 | -8.0 | 10 | 21 | 340 | 26 | 28.47 | | | M | AA | | 30.02 |
| 21 | 1355 | 0 | CLR | 5.00 | | 79 | 26.0 | 52 | 10.8 | 18 | -8.0 | 10 | 20 | 340 | 28 | 28.46 | 7 | 007 | M | AA | | 30.01 |
| 21 | 1455 | 0 | CLR | 7.00 | | 77 | 25.0 | 51 | 10.4 | 18 | -8.0 | 11 | 17 | 350 | 26 | 28.47 | | | M | AA | | 30.02 |
| 21 | 1555 | 0 | CLR | 9.00 | | 75 | 24.0 | 50 | 9.9 | 18 | -8.0 | 11 | 16 | 350 | | 28.48 | | | M | AA | | 30.04 |
| 21 | 1655 | 0 | CLR | 8.00 | | 73 | 23.0 | 49 | 9.2 | 16 | -9.0 | 11 | 22 | 350 | 28 | 28.49 | 2 | 014 | M | AA | | 30.05 |
| 21 | 1755 | 0 | CLR | 7.00 | | 72 | 22.0 | 48 | 8.7 | 14 | -10.0 | 11 | 17 | 350 | 24 | 28.52 | | | M | AA | | 30.08 |
| 21 | 1855 | 0 | CLR | 10.00 | | 68 | 20.0 | 46 | 7.5 | 12 | -11.0 | 11 | 14 | 350 | | 28.56 | 2 | 034 | M | AA | | 30.12 |
| 21 | 1955 | 0 | CLR | 10.00 | | 64 | 18.0 | 43 | 6.1 | 9 | -13.0 | 11 | 7 | 360 | | 28.59 | | | M | AA | | 30.15 |
| 21 | 2055 | 0 | CLR | 9.00 | | 64 | 18.0 | 43 | 6.2 | 10 | -12.0 | 12 | 8 | 020 | | 28.61 | | | M | AA | | 30.17 |
| 21 | 2155 | 0 | CLR | 10.00 | | 63 | 17.0 | 43 | 5.8 | 9 | -13.0 | 12 | 11 | 360 | | 28.63 | 2 | 024 | M | AA | | 30.19 |
| 21 | 2255 | 0 | CLR | 10.00 | | 61 | 16.0 | 42 | 5.4 | 10 | -12.0 | 13 | 8 | 350 | | 28.66 | | | M | AA | | 30.22 |
| 21 | 2355 | 0 | CLR | 10.00 | | 63 | 17.0 | 43 | 6.1 | 12 | -11.0 | 13 | 13 | 020 | | 28.67 | | | M | AA | | 30.23 |

Dynamically generated Wed Oct 24 11:45:03 EDT 2007 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
(10/2007)**

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

Elevation: 0 ft. above sea level

Latitude: 33.535

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 |
| 21 | 0055 | 0 | M | 10.00 | | 73 | 22.9 | 53 | 11.8 | 34 | 1.2 | 24 | 0 | 000 | | 28.60 | | | 29.68 | AA | | 29.75 |
| 21 | 0155 | 0 | M | 10.00 | | 69 | 20.3 | 53 | 11.7 | 38 | 3.5 | 32 | 7 | 330 | | 28.62 | | | 29.70 | AA | | 29.77 |
| 21 | 0255 | 0 | M | 10.00 | | 73 | 22.8 | 49 | 9.3 | 17 | -8.3s | 12 | 18 | 030 | | 28.65 | | | 29.72 | AA | | 29.80 |
| 21 | 0355 | 0 | M | 10.00 | | 70 | 20.9 | 48 | 8.9 | 20 | -6.4 | 15 | 16 | 030 | | 28.67 | | | 29.75 | AA | | 29.82 |
| 21 | 0455 | 0 | M | 9.00 | | 68 | 20.1 | 47 | 8.1 | 18 | -8.0 | 15 | 14 | 040 | | 28.71 | 3 | 013 | 29.79 | AA | | 29.86 |
| 21 | 0555 | 0 | M | 10.00 | | 64 | 17.7 | 47 | 8.4 | 27 | -2.8 | 25 | 5 | 340 | | 28.74 | | | 29.84 | AA | | 29.90 |
| 21 | 0655 | 0 | CLR | 10.00 | | 66 | 18.9 | 45 | 7.4 | 16 | -9.0 | 14 | 11 | 020 | | 28.77 | | | 29.88 | AA | | 29.93 |
| 21 | 0751 | 0 | CLR | 2.50 | | 66 | 19.0 | 45 | 7.2 | 14 | -10.0 | 13 | 25 | 030 | | 28.82 | 3 | 032 | 29.93 | AA | | 29.98 |
| 21 | 0752 | 0 | CLR | 3.00 | HZ | 66 | 19.0 | 45 | 7.2 | 14 | -10.0 | 13 | 22 | 030 | | 28.83 | | | 29.93 | AA | | 29.99 |
| 21 | 0755 | 0 | CLR | 3.00 | HZ | 66 | 19.1 | 45 | 7.3 | 15 | -9.7 | 14 | 25 | 030 | 32 | 28.83 | | | 29.93 | AA | | 29.99 |
| 21 | 0828 | 0 | CLR | 2.50 | HZ | 68 | 20.0 | 46 | 7.7 | 14 | -10.0 | 12 | 28 | 030 | 34 | 28.85 | | | 29.96 | AA | | 30.01 |
| 21 | 0831 | 0 | CLR | 1.75 | HZ | 68 | 20.0 | 46 | 7.7 | 14 | -10.0 | 12 | 29 | 040 | 37 | 28.86 | 3 | 041 | 29.96 | AA | | 30.02 |
| 21 | 0833 | 0 | CLR | 1.25 | HZ | 68 | 20.0 | 46 | 7.7 | 14 | -10.0 | 12 | 29 | 030 | 39 | 28.86 | | | 29.96 | AA | | 30.02 |
| 21 | 0834 | 0 | CLR | 1.00 | HZ | 68 | 20.0 | 46 | 7.7 | 14 | -10.0 | 12 | 32 | 040 | 40 | 28.86 | | | 29.96 | AA | | 30.02 |
| 21 | 0835 | 0 | CLR | 0.75 | HZ | 68 | 20.0 | 46 | 7.7 | 14 | -10.0 | 12 | 32 | 040 | 40 | 28.86 | | | 29.96 | AA | | 30.02 |
| 21 | 0844 | 0 | CLR | 1.00 | HZ | 68 | 20.0 | 46 | 7.7 | 14 | -10.0 | 12 | 32 | 040 | 40 | 28.85 | | | 29.95 | AA | | 30.01 |
| 21 | 0845 | 0 | CLR | 0.75 | HZ | 68 | 20.0 | 46 | 7.7 | 14 | -10.0 | 12 | 34 | 040 | 40 | 28.85 | | | 29.95 | AA | | 30.01 |
| 21 | 0855 | 0 | CLR | 0.75 | HZ | 69 | 20.3 | 47 | 8.1 | 15 | -9.4 | 12 | 29 | 030 | 40 | 28.86 | | | 29.96 | AA | | 30.02 |
| 21 | 0856 | 0 | CLR | 1.00 | HZ | 68 | 20.0 | 46 | 7.9 | 16 | -9.0 | 13 | 29 | 030 | 37 | 28.86 | | | 29.96 | AA | | 30.02 |
| 21 | 0857 | 0 | CLR | 1.50 | HZ | 68 | 20.0 | 46 | 7.9 | 16 | -9.0 | 13 | 28 | 040 | 37 | 28.86 | | | 29.96 | AA | | 30.02 |
| 21 | 0859 | 0 | CLR | 2.00 | HZ | 68 | 20.0 | 46 | 7.9 | 16 | -9.0 | 13 | 24 | 030 | 37 | 28.87 | | | 29.97 | AA | | 30.03 |
| 21 | 0901 | 0 | CLR | 3.00 | HZ | 70 | 21.0 | 47 | 8.2 | 14 | -10.0 | 11 | 26 | 040 | 37 | 28.87 | | | 29.97 | AA | | 30.03 |
| 21 | 0955 | 0 | CLR | 10.00 | HZ | 72 | 22.3 | 47 | 8.3 | 9 | -12.8 | 9 | 29 | 040 | 34 | 28.89 | | | 29.98 | AA | | 30.05 |
| 21 | 1013 | 0 | CLR | 2.50 | | 73 | 23.0 | 47 | 8.4 | 7 | -14.0 | 8 | 31 | 050 | | 28.89 | | | 29.99 | AA | | 30.05 |
| 21 | 1015 | 0 | CLR | 1.75 | | 73 | 23.0 | 47 | 8.4 | 7 | -14.0 | 8 | 30 | 050 | | 28.89 | | | 29.98 | AA | | 30.05 |
| 21 | 1021 | 0 | CLR | 2.00 | | 73 | 23.0 | 47 | 8.4 | 7 | -14.0 | 8 | 26 | 050 | | 28.88 | | | 29.98 | AA | | 30.04 |
| 21 | 1023 | 0 | CLR | 3.00 | | 73 | 23.0 | 47 | 8.4 | 7 | -14.0 | 8 | 26 | 050 | 33 | 28.89 | | | 29.98 | AA | | 30.05 |
| 21 | 1031 | 0 | CLR | 2.50 | | 73 | 23.0 | 47 | 8.2 | 3 | -16.0 | 6 | 30 | 050 | 37 | 28.89 | | | 29.98 | AA | | 30.05 |
| 21 | 1041 | 0 | M | 3.00 | | 75 | 24.0 | 48 | 8.7 | 3 | -16.0 | 6 | 29 | 050 | 37 | 28.89 | | | 29.98 | AA | | 30.05 |
| 21 | 1055 | 0 | M | 7.00 | | 75 | 24.1 | 48 | 8.6 | 1 | -17.3 | 5 | 29 | 040 | 34 | 28.89 | 1 | 021 | 29.98 | AA | | 30.05 |
| 21 | 1155 | 0 | M | 9.00 | | 78 | 25.3 | 49 | 9.4 | 2 | -16.8 | 5 | 23 | 030 | 32 | 28.88 | | | 29.98 | AA | | 30.04 |

| | | | | | | | | | | | | | | | | | | | | | |
|----|------|---|-----|-------|----|----|------|----|-----|----|-------|----|----|-----|----|-------|---|-----|-------|----|-------|
| 21 | 1255 | 0 | M | 10.00 | | 79 | 26.2 | 50 | 9.7 | 3 | -16.2 | 5 | 22 | 050 | 30 | 28.88 | 8 | 010 | 29.98 | AA | 30.04 |
| 21 | 1355 | 0 | M | 10.00 | | 79 | 26.1 | 50 | 9.8 | 5 | -14.9 | 6 | 24 | 050 | 31 | 28.86 | | | 29.96 | AA | 30.02 |
| 21 | 1455 | 0 | M | 7.00 | | 78 | 25.5 | 50 | 9.7 | 7 | -14.1 | 6 | 26 | 050 | 37 | 28.87 | | | 29.97 | AA | 30.03 |
| 21 | 1555 | 0 | M | 8.00 | HZ | 77 | 25.0 | 49 | 9.4 | 6 | -14.5 | 6 | 28 | 050 | 34 | 28.88 | | | 29.99 | AA | 30.04 |
| 21 | 1601 | 0 | M | 2.50 | HZ | 77 | 25.0 | 49 | 9.3 | 5 | -15.0 | 6 | 28 | 040 | 37 | 28.89 | 3 | 014 | 29.99 | AA | 30.05 |
| 21 | 1602 | 0 | M | 3.00 | | 77 | 25.0 | 49 | 9.3 | 5 | -15.0 | 6 | 30 | 040 | 37 | 28.89 | | | 29.99 | AA | 30.05 |
| 21 | 1655 | 0 | M | 8.00 | | 76 | 24.6 | 48 | 9.1 | 5 | -15.1 | 6 | 29 | 040 | 33 | 28.90 | | | 30.01 | AA | 30.06 |
| 21 | 1755 | 0 | M | 10.00 | | 72 | 22.1 | 47 | 8.3 | 9 | -12.6 | 9 | 18 | 050 | | 28.94 | 1 | 035 | 30.06 | AA | 30.10 |
| 21 | 1855 | 0 | M | 10.00 | | 68 | 20.1 | 45 | 7.3 | 9 | -12.8 | 10 | 11 | 050 | | 28.98 | | | 30.10 | AA | 30.14 |
| 21 | 1955 | 0 | M | 10.00 | | 70 | 20.9 | 46 | 8.0 | 11 | -11.7 | 10 | 21 | 040 | | 29.00 | | | 30.13 | AA | 30.17 |
| 21 | 2055 | 0 | M | 10.00 | | 67 | 19.5 | 45 | 7.4 | 13 | -10.5 | 12 | 20 | 020 | | 29.03 | 1 | 024 | 30.16 | AA | 30.20 |
| 21 | 2155 | 0 | CLR | 10.00 | | 67 | 19.3 | 45 | 7.4 | 13 | -10.6 | 12 | 14 | 020 | | 29.05 | | | 30.17 | AA | 30.22 |
| 21 | 2255 | 0 | CLR | 10.00 | | 66 | 18.7 | 45 | 7.2 | 14 | -10.1 | 13 | 14 | 030 | | 29.07 | | | 30.20 | AA | 30.24 |
| 21 | 2355 | 0 | CLR | 10.00 | | 62 | 16.6 | 44 | 6.5 | 17 | -8.4 | 17 | 13 | 350 | | 29.08 | | | 30.20 | AA | 30.25 |

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