



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 Area on May 4, 2007

Background

The Arizona Department of Environmental Quality (ADEQ) issues Dust Control Action Forecasts for the Yuma and Phoenix areas as part of their Natural Events Action Plan. On Thursday May 3, 2007, in response to an approaching intense but dry mid-latitude trough, ADEQ air quality forecasters issued the Yuma and Maricopa County Dust Control Action Forecasts which called for a high risk of wind-blown dust for Friday May 4th for both Yuma and Maricopa county. The forecast called for breezy west-northwesterly winds ahead of the approaching system. Sustained wind speeds of 15-25 mph were expected in the early afternoon, with gusts to 35 mph through the evening hours (see attachments). This potential wind-blown dust event equated to a high risk of exceeding the PM₁₀ National Ambient Air Quality Standards (NAAQS) in Yuma and Maricopa County. In addition, as early as Tuesday May 2nd, ADEQ Pollution Ensemble Forecasts for Maricopa County mentioned the likelihood for strong winds to occur as an upper level trough was forecasted to dig south toward the State. This forecast also mentioned the strong possibility for both residual and widespread blowing dust on Friday May 4th throughout Maricopa County, with the issuance of a PM₁₀ health watch likely to be necessary. A PM₁₀ High Pollution Advisory was issued on Thursday, May 3, 2007 in anticipation of the wind and blowing dust event for the

following day (see attachments). The forecasts/advisories satisfy the requirement in 40 CFR 51.920(a)(1).

Strong winds were observed throughout the state on May 4th, 2007 with the strongest winds occurring in western and southwestern Arizona. The initialization of the wind-blown dust event is evident in the Phoenix visible camera images as well as the Arizona Meteorological Network (AzMET) and National Weather Service (NWS) monitors (see Fig. 1). 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.”

The significant wind event in the central and southern portions of Arizona brought elevated ambient concentrations of PM₁₀ to the Yuma and Phoenix areas that exceeded the NAAQS at the Yuma Courthouse and Mexico Supersite monitors operated by ADEQ as well as the West 43rd monitor operated by Maricopa County. 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**
YUMA AREA					
Yuma Courthouse (ADEQ/BAM)	04-027-0004*	186	577	1800	A or RJ
Mexico Supersite (ADEQ/BAM)	80-026-8012*	222	589	1600	A or RJ
PHOENIX METRO AREA					
West 43 rd Ave (MC/TEOM)	04-013-4009*	197	570	1700	A or RJ
Durango Complex (MC/TEOM)	04-013-9812*	126	450	1700	None
Greenwood (MC/TEOM)	04-013-3010*	99	278	1700	None
Higley (MC/TEOM)	04-013-4006*	110	238	1400	None
West Phoenix (MC/TEOM)	04-013-0019*	103	234	1800	None
Central Phoenix (MC/TEOM)	04-013-3002*	98	305	1800	None

* EPA Air Quality System Identification Number

** 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).

CENTRAL PHOENIX

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	71	14	-	2	5	SW
2	69	19	-	1	3	W
3	67	21	-	1	6	W
4	69	20	-	3	8	SW
5	66	27	-	2	7	S
6	64	31	-	2	5	W
7	64	39	-	2	4	N
8	68	31	-	4	7	NW
9	70	28	-	5	11	W
10	74	24	-	5	13	W
11	75	24	-	7	14	W
12	77	23	-	8	14	SW
1	78	19	-	9	17	SW
2	80	18	-	10	18	SW
3	81	16	-	10	19	W
4	81	16	-	11	21	W
5	80	16	-	12	21	W
6	78	16	-	14	25	W
7	77	18	-	14	24	SW
8	76	19	-	11	22	W
9	75	20	-	10	18	W
10	73	23	-	9	17	W
11	71	26	-	7	15	W
12	43	65	-	3	7	E

SOUTHEAST PHOENIX

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	64	24	-	3	5	SW
2	60	34	-	4	6	SE
3	59	37	-	4	6	SE
4	59	32	-	3	5	E
5	58	34	-	4	7	E
6	58	36	-	5	7	SE
7	62	38	-	4	7	SE
8	65	42	-	4	7	SE
9	69	36	-	5	8	SE
10	74	26	-	5	10	S
11	76	22	-	10	18	SW
12	78	22	-	11	20	W
1	78	21	-	13	24	W
2	79	21	-	12	22	W
3	80	20	-	10	19	W
4	80	17	-	12	19	W
5	80	16	-	12	21	W
6	79	16	-	14	24	W
7	75	17	-	12	22	W
8	72	22	-	7	13	W
9	69	27	-	3	9	W
10	70	26	-	6	15	W
11	70	27	-	12	19	W
12	68	30	-	9	17	W

NWS-Yuma MCAS

Hr	T(F)	VR	Dust	Spd	Gust	Dir
1	68	10	-	15	15	NW
2	67	10	-	14	14	W
3	67	10	-	21	31	NW
4	66	10	-	18	28	NW
5	65	10	-	20	25	NW
6	64	10	-	16	16	NW
7	65	10	-	14	25	W
8	66	10	-	13	13	NW
9	69	10	-	14	14	W
10	73	10	-	15	15	W
11	75	10	-	13	13	W
12	79	10	-	10	10	W
1	81	10	-	17	24	W
2	82	10	-	18	25	W
3	86	10	-	23	29	W
4	85	8	-	26	32	W
5	82	7	-	29	34	W
6	78	5	-	32	38	W
7	74	5	-	29	40	W
8	71	8	-	31	45	W
9	68	10	-	25	34	W
10	66	8	-	22	31	W
11	65	10	-	18	18	W
12	64	10	-	11	17	W

Event Contrib. Analysis

Hourly PM₁₀ Conc. (µg/m³)

MONITORS:	Hr	1	2	3
1-W43RD	1	26	126	94
2-YUMA-CH	2	20	69	
3-MEX-SS	3	27	193	
24-Hr. Avg PM ₁₀	4	51	156	152
with w/o	5	83	96	167
Monitor: Event	6	117	117	164
1-W43RD	7	82	148	119
2-YUMA-CH	8	74	92	124
3-MEX-SS	9	73	100	104
> NAAQS	10	144	63	62
Pink=Event Contrib.	11	147	36	74
Conclusion: As shown above, the PM ₁₀ concentration would have been below the NAAQS "BUT FOR" the event contribution (hours highlighted in pink).	12	197	40	85
	1	521	118	104
	2	452	121	228
	3	450	299	454
	4	311	248	589
	5	570	568	562
	6	357	577	430
	7	204	404	449
	8	175	208	406
	9	149	184	123
	10	281	166	90
	11	206	211	154

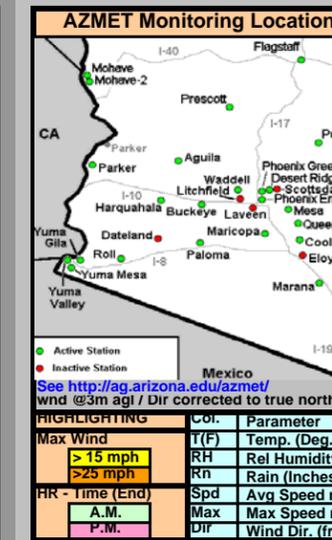
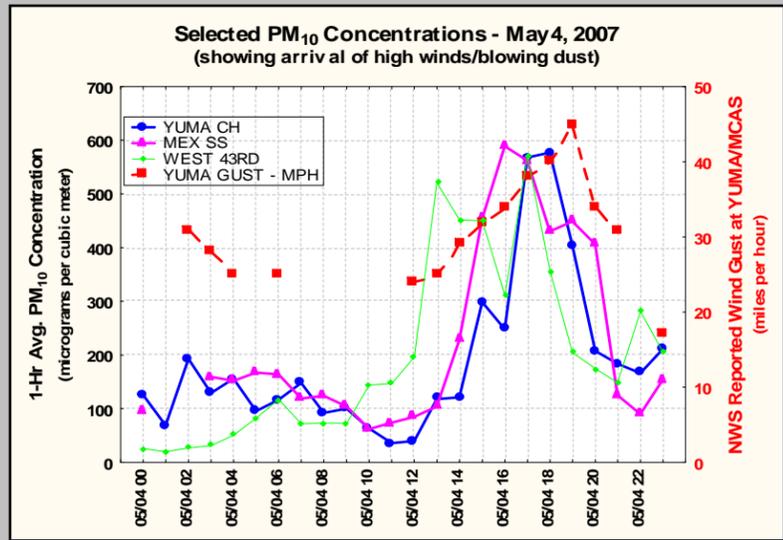


Figure 1. Key Data for Event of May 4, 2007

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

SUMMARY OF EVENT
A frontal system generated high winds, transporting dust over the entire middle and southern portions of Arizona. Winds and diminished visibility were noted as far away as El Centro from this system. Air quality in Phoenix was also impacted.



PARKER

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	66	47	-	7	15	SW
2	71	18	-	4	9	SW
3	68	26	-	7	15	SW
4	65	34	-	4	9	SW
5	65	41	-	6	13	SW
6	61	54	-	2	5	W
7	59	62	-	2	5	SE
8	64	56	-	5	10	S
9	68	45	-	5	8	SW
10	71	32	-	4	9	S
11	75	27	-	8	13	S
12	78	24	-	9	17	S
1	79	22	-	14	18	SW
2	80	24	-	14	20	SW
3	80	26	-	13	21	S
4	80	26	-	17	26	S
5	79	26	-	16	22	S
6	78	28	-	15	22	S
7	74	33	-	12	18	SW
8	70	40	-	12	25	S
9	68	42	-	15	23	S
10	69	35	-	9	18	W
11	71	23	-	10	21	W
12	70	20	-	16	27	NW

BUCKEYE

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	66	22	-	2	6	SW
2	65	26	-	2	10	SW
3	64	30	-	3	7	SW
4	61	39	-	1	6	SE
5	60	42	-	1	4	NW
6	56	62	-	2	5	W
7	60	53	-	2	7	SW
8	64	51	-	3	7	SW
9	68	38	-	5	9	SW
10	71	36	-	4	12	W
11	75	28	-	4	11	SW
12	77	20	-	8	15	SW
1	78	21	-	8	16	SW
2	77	25	-	10	20	SW
3	78	26	-	12	20	SW
4	76	23	-	17	27	SW
5	76	22	-	19	29	SW
6	75	22	-	17	26	W
7	75	22	-	15	24	W
8	73	24	-	12	20	W
9	72	25	-	12	19	W
10	69	29	-	9	17	W
11	64	40	-	6	11	W
12	60	55	-	5	11	W

MARICOPA

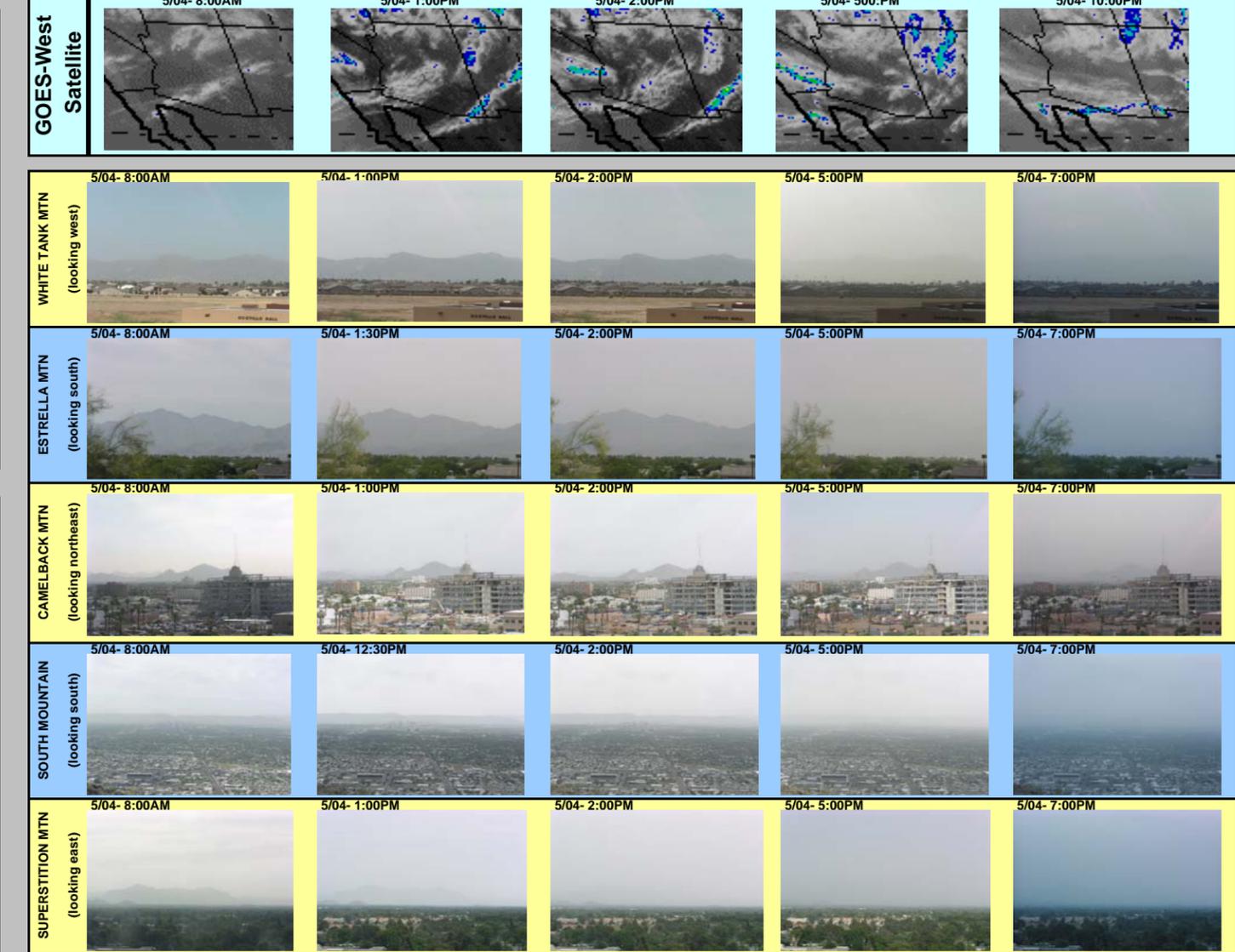
Hr	T(F)	RH	Rn	Spd	Max	Dir
1	67	21	-	3	6	SW
2	62	30	-	4	8	S
3	61	30	-	5	8	S
4	59	37	-	5	7	SW
5	60	35	-	6	9	SW
6	58	43	-	4	7	S
7	61	42	-	5	7	SW
8	67	36	-	4	6	S
9	72	27	-	5	11	SW
10	75	24	-	9	17	SW
11	77	18	-	12	20	SW
12	79	17	-	11	18	W
1	81	14	-	14	22	W
2	82	13	-	13	21	W
3	83	12	-	14	22	W
4	83	13	-	14	22	W
5	83	12	-	13	21	W
6	81	12	-	14	23	W
7	78	15	-	9	16	W
8	75	19	-	5	13	W
9	74	21	-	6	15	W
10	73	24	-	12	19	W
11	71	26	-	10	17	W
12	69	29	-	9	16	W

Historical Distribution

5-Yr. Dist. of Values (µg/m³)

MONITORS:	Column Index
1-W43RD	Yr - All Data (5-Yrs)
2-YUMA-CH	Sea - Data for Spring season only (5-Yrs)
3-MEX-SS	
Cum. Freq.	Mon 1 Mon 2 Mon 3
	Yr Sea Yr Sea Yr Sea
5%	5 8 8 8 13 13
10%	9 9 12 9 29 21
25%	11 11 14 14 35 26
50%	15 13 16 16 46 38
75%	19 19 19 19 54 48
90%	29 28 23 22 62 58
95%	44 46 31 29 79 74
97.5%	65 63 42 40 104 96
99.0%	91 82 57 51 149 127
99.5%	121 107 77 76 206 180
Max	313 313 349 349 446 446
Flagged Value	197 186 222

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



YUMA

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	67	37	-	16	26	NW
2	67	35	-	19	29	NW
3	67	32	-	19	33	NW
4	65	34	-	16	26	NW
5	64	35	-	14	23	NW
6	63	36	-	15	23	NW
7	64	33	-	16	27	NW
8	65	33	-	17	25	NW
9	68	30	-	14	22	NW
10	71	26	-	14	20	NW
11	75	22	-	12	19	NW
12	77	20	-	12	19	NW
1	79	21	-	14	20	NW
2	80	21	-	14	24	NW
3	83	18	-	16	28	W
4	83	19	-	21	30	NW
5	81	21	-	22	31	NW
6	77	24	-	25	34	NW
7	74	28	-	23	33	NW
8	70	33	-	20	31	NW
9	68	38	-	23	31	NW
10	65	41	-	23	33	W
11	65	39	-	23	32	NW
12	64	38	-	21	32	NW

PALOMA

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	56	50	-	6	9	SW
2	59	36	-	6	9	SW
3	58	46	-	4	7	SW
4	57	47	-	6	8	SW
5	54					

Assessment under the Technical Criteria Document (TCD)

1. Properly qualify and validate the air quality measurement to be flagged. As this was not a filter sampling date (1-in-6 run day), only data from the continuous analyzers were examined. The air quality monitoring data were reviewed by the agency responsible for operation of the monitor. All hourly PM₁₀ readings from the Yuma Courthouse and Mexico Supersite were valid for May 4th, with the exception of two hours at the Mexico Supersite in which an instrument malfunction occurred. Audits of the analyzers revealed operations were within acceptable tolerance. No local sources were reported as significantly contributing to the air quality episode. Exceedances of the NAAQS were recorded at the Yuma Courthouse and Mexico Supersite monitors operated by ADEQ and the West 43rd monitor operated by Maricopa County.

2. Review suspected contributing sources. The NWS and AzMET surface data for Arizona, along with the visible camera images in Phoenix, provide a good explanation as to the meteorological conditions that were in place on May 4th. Strong, NW down river winds were occurring in the Yuma area ahead of an approaching frontal boundary during the morning of May 4th, while for the rest of the State, southwesterly winds were reported ahead of the approaching frontal system. The plot of hourly PM₁₀ concentration data in the upper right corner of Figure 1 confirm the identical timing of elevated PM₁₀ concentrations at both Yuma Courthouse and Mexico Supersite. PM₁₀ concentrations also spiked at West 43rd Ave, though slightly earlier than the two Yuma area sites, likely due to its being located further northeast.

3. Examine all air quality monitoring information. Data from all monitors in the network were reviewed. Monitors from 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 readings greater than that of the NAAQS on May 4th, 2007, which should be flagged, include the Yuma Courthouse, Mexico Supersite and West 43rd Ave. 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. Yuma experienced hourly max wind speeds greater than 15 mph for the entire day, with portions of the morning, and the entire late afternoon and evening, having hourly max wind speeds greater than 25 mph. As can be seen in Figure 1, wind speeds did not pick up in central Arizona until approximately 11 a.m., when several stations reported gusty winds that approached 30 mph at times. This timing corresponds to the onset of elevated PM₁₀ concentrations recorded at West 43rd Ave.

5. Perform a qualitative attribution to emission source(s). All evidence indicates the elevated PM₁₀ concentrations in the Yuma and Phoenix 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 occurring on May 4th. Observational reports of haze and blowing dust from trained officials in southeastern California (upwind from the Yuma area) along with reduced visibility in Yuma, are further proof that the elevated PM₁₀ concentrations in the Yuma area were attributed to soil emissions transported from southeastern California. Blowing dust and reduced visibility was also reported throughout various NWS stations in and around the Phoenix area (see attachments). These reports, in addition to the visual evidence of reduced visibility seen in the lower right portion of figure 1, provide proof that elevated PM₁₀ concentrations in Phoenix are attributable to soil emissions.

6. Estimation of Contribution from Source or Event. The primary source appears to be wind-blown dust over central and southwestern Arizona 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 a 40 CFR 50.14(c)(3)(iii)(B) requirement. 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 Higley monitoring site were attributed to a natural event.

Conclusion

Long-range transport of dust from soils. The region wide elevated PM₁₀ event on May 4, 2007 in Yuma and Maricopa County was the result of the transport of dust and soils from 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 monitor would have been below the NAAQS but for the contribution of the event.



**MARICOPA COUNTY
 DUST CONTROL ACTION FORECAST
 ISSUED THURSDAY, MAY 03 2007**

Three-day weather outlook:

Windy conditions are likely on Friday due to even stronger gradients as an intense trough moves over the forecast area. There is the potential for widespread blowing dust to occur for a lengthy period of time so a HIGH risk of unhealthy PM-10 levels is warranted.

R I S K F A C T O R S

	<u>WINDS</u>	+	<u>STAGNATION</u>	=	<u>RISK LEVEL</u>
Day #1: Fri 05/04/2007	Southwest to westerly 15-30 mph with gusts to 40 mph by the afternoon.		Minimal stagnation expected.		HIGH
Day #2: Sat 05/05/2007	West to northwesterly 15-25 mph.		Minimal stagnation expected.		MODERATE
Day #3: Sun 05/06/2007	West to northwesterly 10-20 mph.		Minimal stagnation expected.		LOW

The Maricopa County Dust Control Action Forecast is issued to assist in the planning of work activities to help reduce dust pollution. To review the complete air quality forecast for the Phoenix metropolitan area and the health effects of air pollution, please see ADEQ's Air Quality Forecast at <http://www.azdeq.gov/envirom/air/ozone/ensemble.pdf>, or call 602-771-2367 for recorded forecast information.



NEW!!! CLICK HERE FOR UPDATED 2007 OZONE SEASON STATS NEW!!!
AIR QUALITY FORECAST FOR THURSDAY, MAY 03, 2007

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	YESTERDAY <u>TUE 05/01/2007</u>	TODAY <u>WED 05/02/2007</u>	TOMORROW <u>THU 05/03/2007</u>	EXTENDED <u>FRI 05/04/2007</u>
NOTICES (*SEE BELOW FOR DETAILS)	PM-10 HEALTH WATCH DUST	NONE	NONE	OZONE HEALTH WATCH POSSIBLE PM-10 HEALTH WATCH LIKELY
AIR POLLUTANT	Highest AQI Reading/Site (Preliminary data only)			
O3*	48 QUEEN VALLEY	72 MODERATE	77 MODERATE	90 MODERATE
CO*	09 GREENWOOD	08 GOOD	06 GOOD	05 GOOD
PM-10*	64 COYOTE LAKES	63 MODERATE	81 MODERATE	96 MODERATE
PM-2.5*	41 DURANGO	36 GOOD	43 GOOD	52 MODERATE

* 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 Wednesday, May 02: Unusually sensitive people should consider limiting prolonged or heavy exertion outdoors.

Health message for Thursday, May 03: Unusually sensitive people should consider limiting prolonged or heavy exertion outdoors.

Synopsis and Discussion

APRIL 30 THRU MAY 04 IS AIR QUALITY AWARENESS WEEK

Outflow winds from a cluster of showers and thunderstorms last evening generated dense blowing dust over the southeast valley; the Higley site registered an hourly PM-10 concentration of 455.4ug/m3 at 9:00 p.m. A short distance away in Queen Creek an unhealthy level of coarse particles was recorded. Settled weather is underway today – accompanied by a modest increase in ozone production under sunny skies and lighter wind speeds. A large and deep trough aloft in the mid-latitude storm track is poised to impact the local forecast area into the weekend. A surface cold frontal passage will occur on Thursday morning and increased gradients will result in very breezy conditions by afternoon; localized areas of blowing dust are possible. Even stronger winds are predicted for Friday as the parent trough amplifies over the state. Due to some residual suspended dust, and the potential for widespread blowing dust on Friday, a PM-10 Health Watch issuance is likely and a High Pollution Advisory a possibility. Ozone and precursor transport from California by Thursday afternoon may contribute to high local ozone levels on Friday as well. -Reith

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://www.airnow.gov/>



POLLUTION MONITOR READINGS FOR TUESDAY, MAY 01, 2007



O3 (OZONE)

For maps go to: <http://www.airnow.gov/index.cfm?action=airnow.currentconditions>

SITE NAME	MAX 8-HR VALUE (PPB)	MAX AQI	AQI COLOR CODE
Alamo Lake (La Paz County)	57	45	
Apache Junction (Pinal County)	57	45	
Blue Point	46	36	
Buckeye	47	37	
Casa Grande (Pinal County)	50	39	
Cave Creek	56	44	
Central Phoenix	46	36	
Dysart	43	34	
Falcon Field	51	40	
Fountain Hills	57	45	
Glendale	56	44	
Humboldt Mountain	59	46	
Maricopa (Pinal County)	38	30	
North Phoenix	55	43	
Phoenix Supersite	53	41	
Pinal Air Park (Pinal County)	NOT AVBL	NOT AVBL	NOT AVBL
Pinnacle Peak	55	43	
Queen Creek (Pinal County)	47	37	
Queen Valley (Pinal County)	62	48	
Rio Verde	58	45	
South Phoenix	53	41	
South Scottsdale	46	36	
Tempe	51	40	
Tonto Nat'l Mon. (Gila County)	59	46	
West Chandler	57	45	
West Phoenix	56	44	
Yuma (Yuma County)	55	43	

CO (CARBON MONOXIDE)

SITE NAME	MAX 8-HR VALUE (PPM)	MAX AQI	AQI COLOR CODE
Central Phoenix	0.4	05	
Greenwood	0.8	09	
Phoenix Supersite	0.5	06	
West Indian School	0.7	08	
West Phoenix	0.7	08	

PM-10 (PARTICLES)

SITE NAME	MAX 24-HR VALUE (ug/m3)	MAX AQI	AQI COLOR CODE
Buckeye	49	45	
Central Phoenix	36	33	
Coyote Lakes	82	64	
Durango	65	56	
Greenwood	48	44	
Higley	75	61	
Maricopa (Pinal County)	94	70	
Phoenix Supersite	30	28	
Queen Creek (Pinal County)	206	126	
Stanfield (Pinal County)	76	60	
West Forty Third	82	64	
West Phoenix	43	40	

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 (ug/m3)	MAX AQI	AQI COLOR CODE
Durango	12.6	41	
Dysart	7.6	25	
Estrella Mountain Park	6.0	19	
Phoenix Supersite	7.4	24	
Vehicle Emissions Lab	7.3	24	
West Phoenix	10.0	32	

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 NO_x (Nitrogen Oxides) in the presence of heat and sunlight.

Sources – VOCs are emitted from motor vehicles, chemical plants, refineries, factories, and other industrial sources. NO_x 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 03/01/2007}



ADEQ
 Arizona Department
 of Environmental Quality

Janet Napolitano, Governor
 Stephen A. Owens, ADEQ Director

**YUMA AND VICINITY
 DUST CONTROL ACTION FORECAST
 ISSUED THURSDAY, MAY 03, 2007**

Three-day weather outlook:

Low-level gradients associated with an intense but dry mid-latitude trough will cause winds to become strong again by Friday afternoon; widespread blowing dust is likely to occur into the nighttime hours. The trough will linger over central Arizona during the weekend and result in a very breezy down-river component Saturday and Sunday.

WINDS

WIND-BLOWN DUST RISK

Day #1: Fri 05/04/2007	West to northwesterly 15-25 mph with gusts to 35 mph from the afternoon into the evening hours.	HIGH
Day #2: Sat 05/05/2007	Northwest to northerly 15-25 mph.	MODERATE
Day #3: Sun 05/06/2007	Northerly 15-25 mph.	MODERATE

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.

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

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA**
(may be updated)
HOURLY OBSERVATIONS TABLE
NAF (23199)
EL CENTRO , CA
(05/2007)

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

Elevation: -43 ft. below sea level
Latitude: 32.817
Longitude: -115.667
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
04	0056	5	CLR	10.00		67	19.4	50	9.8	30	-1.1	25	13	290		29.78	8	006	29.78	AA		29.74
04	0156	5	CLR	10.00		66	18.9	49	9.6	30	-1.1	26	11	300		29.78			29.78	AA		29.74
04	0256	5	CLR	10.00		66	18.9	49	9.2	28	-2.2	24	10	290		29.77			29.78	AA		29.73
04	0356	5	CLR	10.00		63	17.2	47	8.4	28	-2.2	27	6	270		29.78	5	001	29.78	AA		29.74
04	0456	5	FEW060 SCT120 BKN200	10.00		65	18.3	49	9.7	32	0.0	29	15	270		29.78			29.79	AA		29.74
04	0556	5	SCT200	10.00		65	18.3	49	9.5	31	-0.6	28	5	340		29.81			29.82	AA		29.77
04	0656	5	FEW200	10.00		69	20.6	52	11.0	34	1.1	28	7	290		29.81	1	012	29.82	AA		29.77
04	0756	5	FEW200	10.00		74	23.3	53	11.9	32	0.0	21	16	260		29.80			29.81	AA		29.76
04	0856	5	CLR	10.00		78	25.6	57	13.7	37	2.8	23	11	230		29.81			29.81	AA		29.77
04	0956	5	BKN200	10.00		80	26.7	56	13.4	33	0.6	18	11	300		29.81	6	002	29.81	AA		29.77
04	1056	5	BKN200	10.00		82	27.8	57	14.0	34	1.1	18	16	280	26	29.79			29.79	AA		29.75
04	1156	5	BKN200	10.00		83	28.3	59	14.8	37	2.8	19	20	300	26	29.77			29.78	AA		29.73
04	1256	5	BKN200	10.00		84	28.9	59	15.2	38	3.3	19	28	250	39	29.75	6	019	29.75	AA		29.71
04	1356	5	BKN200	10.00		83	28.3	59	15.1	39	3.9	21	33	250	45	29.75			29.75	AA		29.71
04	1456	5	BKN200	10.00		81	27.2	59	14.9	40	4.4	23	26	260	41	29.73			29.73	AA		29.69
04	1556	5	BKN200	10.00		78	25.6	57	14.1	39	3.9	25	31	260	40	29.72	8	012	29.72	AA		29.68
04	1656	5	BKN200	5.00	HZ	73	22.8	57	13.8	43	6.1	34	33	250	45	29.73			29.74	AA		29.69
04	1756	5	FEW060 BKN200	10.00		69	20.6	55	12.9	43	6.1	39	37	250	47	29.73			29.73	AA		29.69
04	1856	5	FEW060 BKN200	10.00		67	19.4	54	12.4	43	6.1	42	34	250	44	29.74			29.75	AA		29.70
04	1956	5	FEW060 BKN200	3.00	BLDU	66	18.9	53	11.5	40	4.4	39	38	260	47	29.77			29.77	AA		29.73
04	1958	5	FEW005	2.50	BLDU	66	19.0	52	11.3	39	4.0	37	33	260	47	29.77			M	SP		29.73
04	2008	5	FEW005	4.00	BLDU	64	18.0	52	11.2	41	5.0	43	33	260	47	29.77			M	SP		29.73
04	2056	5	FEW060 BKN200	10.00		65	18.3	52	11.3	40	4.4	40	28	260	37	29.81			29.81	AA		29.77
04	2156	5	CLR	10.00		64	17.8	52	10.8	39	3.9	40	16	260	28	29.78	0	014	29.79	AA		29.74
04	2256	5	CLR	10.00		65	18.3	52	10.8	38	3.3	37	13	280		29.81			29.81	AA		29.77
04	2356	5	CLR	10.00		64	17.8	52	10.8	39	3.9	40	11	270		29.80			29.80	AA		29.76

Dynamically generated Tue Oct 30 09:45:01 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
IMPERIAL COUNTY AIRPORT (03144)
IMPERIAL , CA
(05/2007)**

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

Elevation: -59 ft. below sea level
Latitude: 32.834
Longitude: -115.579
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
04	0053	12	CLR	10.00		65	18.3	49	9.5	31	-0.6	28	3	350		29.81	8	001	29.75	AA		29.75
04	0153	12	CLR	9.00		65	18.3	51	10.2	35	1.7	33	5	350		29.80			29.74	AA		29.74
04	0253	12	CLR	10.00		66	18.9	49	9.6	30	-1.1	26	13	300		29.80			29.74	AA		29.74
04	0353	12	CLR	10.00		65	18.3	49	9.7	32	0.0	29	6	340		29.80	5	002	29.74	AA		29.74
04	0453	12	CLR	10.00		63	17.2	48	8.8	30	-1.1	29	3	060		29.81			29.75	AA		29.75
04	0553	12	CLR	10.00		63	17.2	49	9.5	34	1.1	34	7	270		29.82			29.76	AA		29.76
04	0653	12	CLR	10.00		69	20.6	52	11.0	34	1.1	28	10	290		29.82	0	007	29.76	AA		29.76
04	0753	12	CLR	10.00		72	22.2	53	11.7	34	1.1	25	5	300		29.82			29.76	AA		29.76
04	0853	12	CLR	10.00		78	25.6	57	13.7	37	2.8	23	17	250		29.81			29.75	AA		29.75
04	0953	12	CLR	10.00		81	27.2	57	14.0	35	1.7	19	13	260	21	29.82	5	000	29.76	AA		29.76
04	1053	12	CLR	10.00		82	27.8	57	14.0	34	1.1	18	18	270	29	29.80			29.73	AA		29.74
04	1153	12	CLR	10.00		84	28.9	59	14.8	36	2.2	18	21	280	28	29.77			29.71	AA		29.71
04	1253	12	CLR	8.00		85	29.4	60	15.7	40	4.4	20	26	240	38	29.76	6	019	29.70	AA		29.70
04	1353	12	CLR	7.00		84	28.9	60	15.5	40	4.4	21	32	270	44	29.72			29.66	AA		29.66
04	1453	12	CLR	10.00		82	27.8	59	15.1	40	4.4	22	24	260	37	29.73			29.67	AA		29.67
04	1553	12	CLR	10.00		78	25.6	58	14.3	40	4.4	26	26	250	41	29.72	6	014	29.66	AA		29.66
04	1653	12	CLR	8.00		74	23.3	57	13.8	42	5.6	32	32	260	46	29.73			29.66	AA		29.67
04	1753	12	CLR	10.00		70	21.1	56	13.1	43	6.1	38	37	250	46	29.72			29.65	AA		29.66
04	1853	12	CLR	9.00		68	20.0	54	12.4	42	5.6	39	34	250	46	29.74	3	006	29.68	AA		29.68
04	1951	12	FEW005	4.00	HZ	66	19.0	53	11.7	41	5.0	40	31	260	44	29.78			M	SP		29.72
04	1953	12	FEW005	3.00	HZ	66	18.9	53	11.7	41	5.0	40	31	260	44	29.78			29.72	AA		29.72
04	1958	12	SCT005 BKN010	2.00	HZ	66	19.0	52	11.3	39	4.0	37	25	260	44	29.78			M	SP		29.72
04	2008	12	BKN005 BKN010	2.50	HZ	66	19.0	52	11.3	39	4.0	37	31	260	41	29.79			M	SP		29.73
04	2022	12	SCT005	3.00	HZ	66	19.0	53	11.7	41	5.0	40	28	260	38	29.79			M	SP		29.73
04	2053	12	CLR	8.00		65	18.3	52	11.3	40	4.4	40	33	260	41	29.79			29.72	AA		29.73
04	2153	12	CLR	10.00		65	18.3	52	11.1	39	3.9	39	17	270	25	29.81	1	022	29.75	AA		29.75
04	2253	12	CLR	10.00		64	17.8	52	10.8	39	3.9	40	16	280		29.81			29.75	AA		29.75
04	2353	12	CLR	10.00		64	17.8	52	10.8	39	3.9	40	13	280		29.81			29.75	AA		29.75

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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
(05/2007)

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

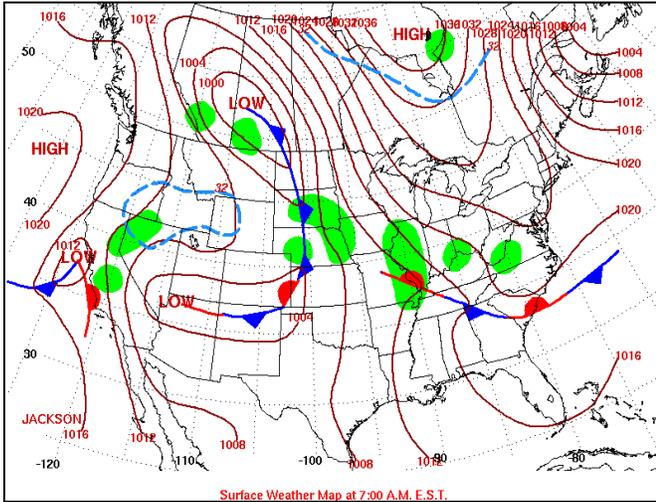
Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. 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
04	0051	5	CLR	10.00		68	20.0	54	12.4	42	5.6	39	15	300		29.51			29.72	AA		29.74
04	0151	5	CLR	10.00		67	19.4	53	11.7	40	4.4	37	14	290		29.49	8	006	29.71	AA		29.72
04	0251	5	CLR	10.00		67	19.4	52	11.1	37	2.8	33	21	310	31	29.48			29.70	AA		29.71
04	0351	5	CLR	10.00		66	18.9	52	11.1	38	3.3	36	18	300	28	29.49			29.71	AA		29.72
04	0451	5	CLR	10.00		65	18.3	51	10.6	37	2.8	36	20	300	25	29.49	6	003	29.70	AA		29.72
04	0551	5	CLR	10.00		64	17.8	51	10.4	37	2.8	37	16	300		29.50			29.71	AA		29.73
04	0651	5	FEW050 SCT100 BKN200	10.00		65	18.3	50	10.2	35	1.7	33	14	290	25	29.52			29.74	AA		29.75
04	0751	5	SCT100 SCT200	10.00		66	18.9	51	10.6	36	2.2	33	13	320		29.54	3	016	29.75	AA		29.77
04	0851	5	FEW100 SCT200	10.00		69	20.6	52	11.2	35	1.7	29	14	290		29.54			29.76	AA		29.77
04	0951	5	SCT200	10.00		73	22.8	54	12.3	36	2.2	26	15	290		29.54			29.76	AA		29.77
04	1051	5	BKN200	10.00		75	23.9	55	12.6	35	1.7	23	13	290		29.53	8	000	29.75	AA		29.76
04	1151	5	OVC200	10.00		79	26.1	56	13.3	34	1.1	20	10	270		29.53			29.75	AA		29.76
04	1251	5	OVC200	10.00		81	27.2	57	13.9	35	1.7	19	17	260	24	29.50			29.72	AA		29.73
04	1351	5	OVC200	10.00		82	27.8	58	14.3	36	2.2	19	18	290	25	29.47	8	021	29.69	AA		29.70
04	1451	5	BKN200	10.00		86	30.0	59	14.8	34	1.1	16	23	270	29	29.45			29.66	AA		29.68
04	1551	5	BKN200	8.00		85	29.4	58	14.6	34	1.1	16	26	290	32	29.42			29.64	AA		29.65
04	1651	5	OVC200	7.00		82	27.8	58	14.5	37	2.8	20	29	280	34	29.41	6	022	29.63	AA		29.64
04	1751	5	OVC200	5.00		78	25.6	57	14.0	39	3.9	25	32	290	38	29.41			29.62	AA		29.64
04	1851	5	OVC200	5.00		74	23.3	56	13.3	40	4.4	29	29	290	40	29.41			29.62	AA		29.64
04	1951	5	CLR	8.00		71	21.7	56	13.1	42	5.6	35	31	280	45	29.41	3	002	29.63	AA		29.64
04	2051	5	OVC200	10.00		68	20.0	54	12.4	42	5.6	39	25	290	34	29.46			29.67	AA		29.69
04	2151	5	OVC200	8.00		66	18.9	54	11.9	42	5.6	42	22	270	31	29.48			29.70	AA		29.71
04	2251	5	CLR	10.00		65	18.3	52	11.2	40	4.4	40	18	270		29.49	1	026	29.71	AA		29.72
04	2351	5	CLR	10.00		64	17.8	51	10.8	39	3.9	40	11	290	17	29.51			29.73	AA		29.74

Dynamically generated Tue Oct 30 10:06:07 EST 2007 via <http://cdo.ncdc.noaa.gov/qclcd/QCLCD>

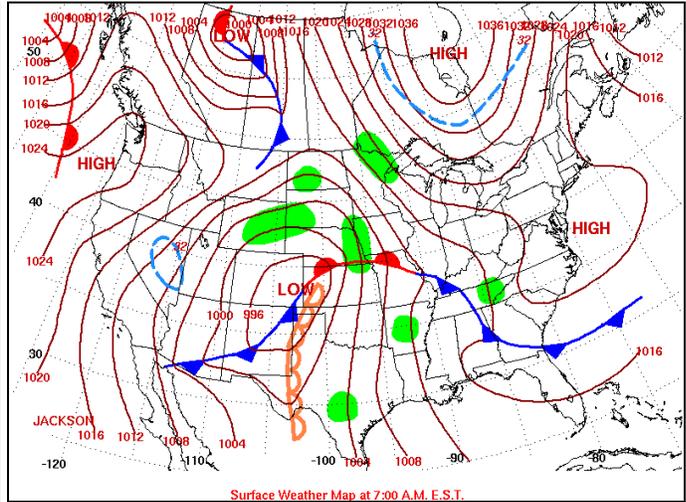
Weather Charts for May 4-5, 2007

Surface Analyses

05/04 - 4:00 AM

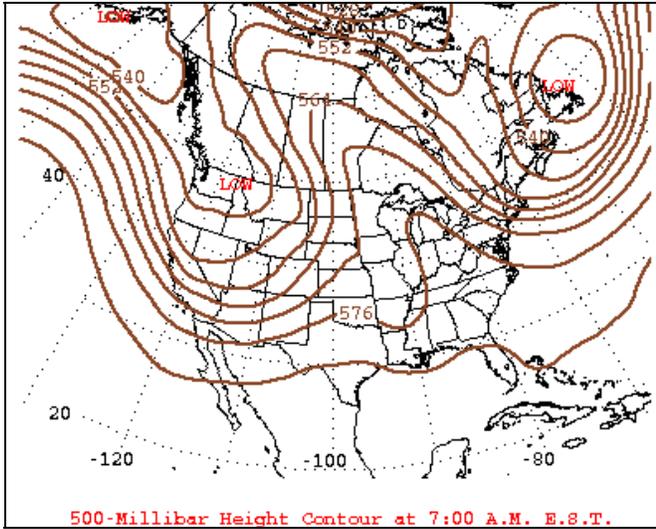


05/05 - 4:00 AM



500mb Charts

05/04 - 04:00 AM



05/05 - 4:00 AM

