Assessment under the Technical Criteria Document (TCD)

1. Properly qualify and validate the air quality measurement to be flagged. The two day event occurred during a period that included a scheduled 1-in-6 run day (04/12/07). Only data from the continuous analyzers were examined for April 11th, but filter data were included in the analysis for April 12th. The air quality monitoring data were reviewed by the agencies responsible for operation of the monitors. Data from the Mexico Supersite monitor operated by ADEQ were found to be invalid due to a failed flow check that occurred on May 3rd. All data prior to this flow check were invalidated. While the accuracy of these data is suspect, the raw data do indicate elevated levels of PM_{10}. All hourly PM_{10} readings from Yuma Courthouse were valid for April 11th, as well as readings from Buckeye, West 43rd, and Yuma Courthouse for April 12th. Audits of the analyzers revealed operations were within acceptable tolerance. No local sources were reported as significantly contributing to the air quality episode.

2. Review suspected contributing sources. The AzMET and NWS surface data from the Phoenix metro, southwestern, and southeastern Arizona areas provide a good explanation of what meteorological conditions were in place during the night of April 11th in Yuma and throughout the entire day of April 12th in Arizona. Strong winds allowed for dry and loose soils to be easily picked up and transported. The Yuma area was the first to be impacted during the evening and overnight hours of April 11th. The event became more widespread during the afternoon of April 12th. Particulate transport is evident in the visibility camera images for the Phoenix metro area. It can be clearly seen that visibility across the Phoenix metro area severely degraded throughout the day of April 12th as winds increased. While no such visibility network exists for the Yuma area, such images can be inferred by comparing the meteorological data from Yuma and Phoenix. Additionally, blowing dust reports from multiple NWS stations throughout southwest Arizona and southeast California are proof that strong winds picked up and transported dust and soils in the Yuma area. The plot of hourly PM_{10} 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 PM_{10} concentrations. Finally, high winds, blowing dust, and reduced visibilities reported at the Yuma Marine Corp Air Station were coincident with elevated PM_{10} concentrations measured at the Yuma Courthouse.

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. Monitors with elevated PM_{10} readings, which should be flagged, include the Yuma Courthouse monitor for April 11th and the Yuma Courthouse, Buckeye, West 43rd Ave, and Rillito monitors for April 12th.

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. An upper level trough and passing frontal system caused strong, gusty winds over much of Arizona beginning with Yuma on April 11th and continuing throughout the state on April 12th. As a result, elevated PM_{10} values occurred first in the southwestern portion of the state (Yuma) during the evening hours of April 11th, followed by elevated PM_{10} values in the Yuma, Phoenix Metro, and Rillito areas on April 12th.

5. Perform a qualitative attribution to emission source(s). All evidence indicates the elevated PM_{10} concentrations in the Phoenix Metro, Rillito, 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 major wind-blown dust event over the two day period. Observational reports of haze and blowing dust from trained officials is further proof that the elevated PM_{10} concentrations were attributed to soil emissions.

6. Estimation of Contribution from Source or Event. 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. PM_{10} concentrations at the Yuma Courthouse, Buckeye, West 43rd Ave., and Rillito monitors would have been below the NAAQS if the event had not occurred. This is evident in the Event Contribution Analysis tables in Figure 1. The first ECA table shows the wind-blown dust contribution in Yuma for April 11th and 12th. The second table represents the region wide event of April 12th, and it shows that had the event not occurred, PM_{10} concentrations would have decreased by 40% at the Geronimo site. A similar decrease can be inferred at Rillito despite the absence of hourly data. Thus, consistent with the guidance in the TCD, no source contribution analysis would be appropriate for these measurements.

7. Determination that a Natural or Exceptional Event Contributed To an Exceedance. Based on the evidence collected, the elevated concentrations in Yuma, Maricopa, and Pima Counties were attributed to a high-wind event.

Conclusion

Long-range transport of dust from soils. The region wide elevated PM_{10} event on April 11th in Yuma and April 12th 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 with Best Available Control Measures and should be flagged for air quality planning purposes. The "high wind" flag (A) 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.

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Governor

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Assessment of Qualification for Treatment under the Arizona Natural and Exceptional Events Policy for the High Particulate (PM_{10}) Concentration Events in the Yuma Area on April 11, 2007 and Statewide on April 12, 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 Tuesday April 10th 2007, in response to an approaching upper level trough and frontal system forecast to pass through the state of Arizona, ADEQ air quality forecasters issued the Yuma and Vicinity Dust Control Action forecast calling for a high risk of exceeding the PM_{10} NAAQS in the Yuma area for Wednesday April 11th and Thursday April 12th. In addition to this forecast, a High Wind forecast was issued for Green Valley and a High Pollution Advisory was issued for the Phoenix Metropolitan area for Thursday April 12th in anticipation of strong winds with the capability of transporting coarse particulate matter (see attachments). High winds were observed during the evening hours of April 11th in Yuma, into the early morning hours of April 12th, and continuing throughout most of the day over much of the Phoenix Metro, Pima County and Yuma Areas. The high wind and blowing dust episode was a region-wide event affecting all of these areas. The event brought significant wind and elevated ambient concentrations of PM_{10} that exceeded the National Ambient Air Quality Standards (NAAQS) at the Yuma Courthouse monitor operated by ADEQ and the Buckeye and West 43rd Ave monitors operated by Maricopa County. In addition, the Rillito filter based monitor recorded elevated PM_{10} values during a 24-hour period on April 12th due to strong and gusty winds associated with the system. While the 24-hour measurement is below the NAAQS, the value will be flagged as Rillito is eligible for a Limited Maintenance Plan. The following are the key PM_{10} monitor readings for the monitors examined in this report:

Monitor (Operator/Type)	AQS/AAAD ID	24-hr Avg PM_{10}		1-hr Max PM_{10}		Time of Max 1-hr		Flag(A)***	
YUMA AREA		4/11	4/12	4/11	4/12	4/11	4/12	4/11	4/12
Yuma Courthouse (ADEQ/BAM)	04-027-0004*	212	212	679	995	2300	1600	Yes	Yes
Mexico Supersite (ADEQ/BAM)	80-026-8012*	177**	330**	935	1000	2000	1500	No**	No**
BUCKEYE AREA		4/12		4/12		4/12		4/12	
Buckeye (Maricopa Co.[MC]/TEOM)	04-013-4011*	152.5		486		1500		Yes	
PHOENIX METRO AREA									
West 43rd Ave (MC/TEOM)	04-013-4009*	202.8		775		1600		Yes	
Durango Complex (MC/TEOM)	04-013-9812*	78.7		379		1600		No	
Greenwood (MC/TEOM)	04-013-3010*	113.9		494		1600		No	
Higley (MC/TEOM)	04-013-4006*	123		520		1700		No	
West Phoenix (MC/TEOM)	04-013-0019*	103.9		467		1600		No	
Central Phoenix (MC/TEOM)	04-013-3002*	107.8		570		1600		No	
JLG Supersite (ADEQ/TEOM)	04-013-9997*	83.7		338		1600		No	
Coyote Lakes	04-013-4014*	100.6		270		1600		No	
PIMA COUNTY AREA									
Rillito (ADEQ/FRM)	04-019-0020*	123.6		N/A		N/A		Yes	

* EPA Air Quality System Identification Number
** Data invalidated due to failed flow check
*** 24-hr PM_{10} concentration influenced by natural or exceptional event to be flagged
**** Non-Yuma data provided for information only
Type Abbreviations: BAM – Beta-Attenuation Mass Monitor (Continuous monitor)
TEOM – Tapered Element Oscillating Microbalance Monitor (Continuous monitor)
FRM – Federal Reference Method

Based on the elevated concentrations that were reported over a wide geographic area, this analysis was prepared to determine the applicability for treatment under the Arizona Natural and Exceptional Events Policy. A large quantity of information was assimilated and digested for this analysis. The preliminary finding of this analysis for Yuma was reviewed at a stakeholder meeting for the Arizona NEP Stakeholders held on November 16, 2007. ADEQ received no comments on the proposal to flag this event during the 30-day comment period which closed on November 30, 2007.

For Buckeye, West 43rd Ave., and Rillito, this document serves as a public review draft report. The preliminary findings of this analysis are being provided for public review during a comment period that will run from April 16th to May 16th and will be presented and discussed at a stakeholder meeting for the Rillito stakeholders scheduled for May 15, 2008. For Rillito, ADEQ will finalize this analysis and take the appropriate action to flag and submit this report to EPA, or elect not to flag and submit this report to EPA, based on feedback received during the comment period.

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NWS-Yuma MCAS 4/11

Hr	T(F)	VR	Dust	Spd	Gust	Dir
1	66	10		13	13	S
2	65	10		14	14	SE
3	65	10		11	11	SE
4	63	10		10	10	S
5	62	10		10	10	SE
6	62	10		9	9	SE
7	62	10		M	M	M
8	64	10		14	14	SE
9	70	10		14	14	S
10	74	10		13	13	S
11	78	10		11	11	SW
12	81	10		10	20	S
1	85	10		13	21	SW
2	88	10		16	16	SW
3	88	10		11	11	SW
4	90	10		16	24	W
5	88	10		22	22	W
6	84	10		30	37	W
7	81	10	BLDU	24	36	W
8	77	10	BLDU	14	26	NW
9	75	10	BLDU	25	38	W
10	73	10	BLDU	26	36	W
11	70	10	BLDU	32	38	W
12	70	10	BLDU	33	43	W

NWS-Yuma MCAS 4/12

Hr	T(F)	VR	Dust	Spd	Gust	Dir
1	65	7	BLDU	24	36	NW
2	64	8	BLDU	21	28	NW
3	62	9	BLDU	18	25	W
4	62	10	BLDU	16	24	NW
5	60	10	BLDU	15	15	W
6	59	10	BLDU	15	15	W
7	59	10		13	13	W
8	61	10		14	14	W
9	66	10		17	17	W
10	69	10		22	22	W
11	73	9		29	34	W
12	76	10		22	29	W
1	77	10		25	31	SW
2	79	10		22	26	W
3	76	4		29	40	NW
4	73	3		29	40	NW
5	65	2		34	45	N
6	64	3	BLDU	20	40	NW
7	63	7		17	22	NW
8	62	10		13	13	W
9	61	10		11	11	W
10	60	10		13	13	W
11	59	10		9	9	W
12	57	10		3	3	SW

Event Contrib. Analysis

Hourly PM_{10} Conc. (ug/m³) for Yuma

Hr	1	2
1	25	300
2	16	290
3	18	210
4	20	179
5	22	138
6	37	121
7	29	91
8	40	41
9	52	60
10	58	55
11	60	83
12	75	137
1	45	168
2	42	92
3	38	645
4	60	607
5	519	995
6	663	314
7	346	104
8	473	121
9	648	97
10	488	86
11	630	81
12	679	74

MONITORS:

1-Yuma CH - 4/11
2-Yuma CH - 4/12

24-Hr. Avg PM_{10} Conc		
Monitor:	with Event	w/o Event
Yuma 4/11	212	40
Yuma 4/12	212	94
> NAAQS		< NAAQS

Pink=Event Contrib.

Conclusion: The PM contribution during the event significantly exceeded the NAAQS. The concentration without the event was below the NAAQS. Thus, NAAQS would have been met "But

Event Contrib. Analysis

Hourly PM_{10} Conc. (ug/m³) for 4/12/07

Hr	1	2	3
1	44	156	34
2	77	135	39
3	94	101	32
4	106	87	44
5	104	76	34
6	150	75	32
7	113	78	35
8	128	98	31
9	157	109	33
10	148	115	49
11	154	101	34
12	202	119	30
1	249	171	36
2	236	101	51
3	295	278	67
4	681	486	117
5	775	324	132
6	603	130	108
7	147	148	72
8	140	119	124
9	59	114	101
10	67	126	87
11	64	207	982
12	75	207	208

MONITORS:

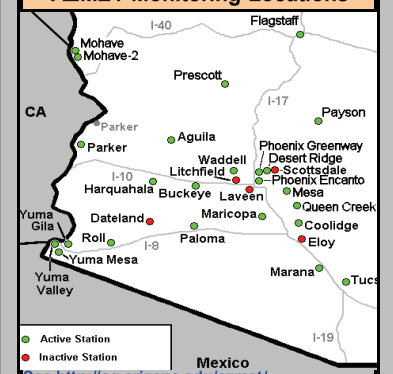
1-West 43rd Ave
2-Buckeye
3-Geronimo

24-Hr. Avg PM_{10} Conc		
Monitor:	with Event	w/o Event
1-W43rd	203	90
2-Buckeye	153	118
3-Geronimo	105	60
> NAAQS		< NAAQS

Pink=Event Contrib.

Conclusion: The PM contribution during the event significantly exceeded the NAAQS. The concentration without the event was below the NAAQS. Thus, NAAQS would have been met "But

AZMET Monitoring Locations



See http://aq.arizona.edu/azmet/
wnd @3m agl / Dir corrected to true north

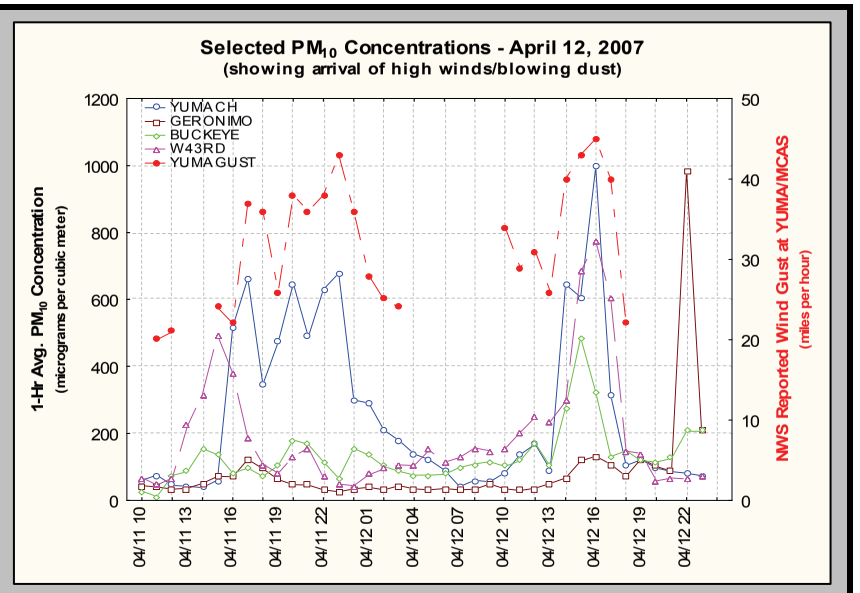
HIGHLIGHTING	Col.	Parameter
Max Wind	T(F)	Temp. (Deg. F.)
> 15 mph	RH	Rel Humidity %
>25 mph	Rn	Rain (Inches/hr)
HR - Time (End)	Spd	Avg Speed mph
A.M.	Max	Max Speed mph
P.M.	Dir	Wind Dir. (from)

Figure 1. Key Data for Event of April 12, 2007

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

SUMMARY OF EVENT

The wind-blown dust event started in the late evening of April 11th in Yuma and continued on April 12th as a region wide event. An upper level trough and frontal system brought wind gusts of up to 50 mph, affecting air quality in the Yuma, Phoenix, and Rillito areas



All AZMET data below is for 4/12/07

08-Parker

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	69	24	-	16	25	NW
2	68	24	-	18	26	NW
3	66	26	-	18	30	NW
4	64	26	-	15	26	W
5	63	28	-	5	13	SE
6	62	28	-	5	14	W
7	61	30	-	4	15	SW
8	64	27	-	10	17	W
9	67	26	-	7	20	W
10	69	21	-	6	18	W
11	72	21	-	8	16	SW
12	73	21	-	12	29	SW
1	70	21	-	17	28	NW
2	67	21	-	22	36	NW
3	67	17	-	19	34	NW
4	66	19	-	24	34	NW
5	64	26	-	14	21	W
6	64	37	-	12	18	N
7	63	36	-	11	16	NW
8	62	39	-	8	17	N
9	62	38	-	13	43	N
10	63	36	-	15	32	N
11	59	44	-	5	7	NW
12	60	41	-	7	13	NW

26-Buckeye

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	69	30	-	11	18	SW
2	67	34	-	7	12	SW
3	65	34	-	6	11	SW
4	62	43	-	4	7	SW
5	58	48	-	5	9	SW
6	57	47	-	6	9	SW
7	57	46	-	7	11	SW
8	59	52	-	5	9	SW
9	63	44	-	6	10	SW
10	67	37	-	7	12	SW
11	68	35	-	8	17	SW
12	69	31	-	12	24	SW
1	71	29	-	14	21	SW
2	72	28	-	13	25	SW
3	71	31	-	13	26	W
4	66	41	-	16	37	W
5	61	49	-	20	29	NW
6	60	48	0.01	14	25	NW
7	56	55	-	8	18	N
8	56	61	-	2	5	SE
9	53	72	-	1	3	W
10	54	69	-	2	5	S
11	52	66	-	4	7	W
12	55	54	-	8	17	N

06-Maricopa

Hr	(F)	RH	Rn	Spd	Max	Dir
1	72	23	-	9	13	SW
2	70	27	-	8	13	SW
3	69	28	-	6	10	W
4	67	27	-	7	13	W
5	65	32	-	5	9	SW
6	62	35	-	6	11	W
7	62	34	-	8	14	W
8	63	38	-	4	10	NW
9	65	32	-	9	15	W
10	68	26	-	8	14	W
11	71	23	-	11	20	SW
12	73	23	-	13	21	SW
1	75	19	-	13	22	W
2	77	14	-	13	24	W
3	78	11	-	17	29	W
4	78	12	-	18	28	W
5	74	18	-	18	29	W
6	68	30	-	18	27	NW
7	61	41	-	18	28	NW
8	54	74	0.01	13	23	NW
9	52	84	0.04	4	12	W
10	52	87	-	6	10	S
11	52	88	-	7	11	S
12	51	88	-	9	15	S

05-Coolidge

Hr	(F)	RH	Rn	Spd	Max	Dir
1	65	39	-	4	7	SE
2	63	46	-	4	6	SW
3	62	47	-	4	6	SW
4	62	41	-	5	8	S
5	60	53	-	4	6	SW
6	59	58	-	4	8	SW
7	57	64	-	4	6	SW
8	60	60	-	4	12	SW
9	66	48	-	8	12	SW
10	68	45	-	9	19	SW
11	69	41	-	11	20	SW
12	71	36	-	11	20	SW
1	73	30	-	11	20	SW
2	74	24	-	14	24	SW
3	74	22	-	14	25	SW
4	74	20	-	16	24	SW
5	72	20	-	15	26	W
6	69	26	-	16	29	NW
7	62	40	-	20	29	NW
8	58	49	-	18	27	NW
9	53	71	-	10	23	NW
10	50	88	0.08	5	14	E
11	50	87	-	4	9	SE
12	49	91	-	3	4	S

02-YumaValley

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	65	38	-	19	28	NW
2	63	39	-	16	27	NW
3	62	37	-	17	27	NW
4	61	32	-	12	19	NW
5	60	32	-	11	20	NW
6	59	37	-	17	26	NW
7	59	45	-	14	22	NW
8	60	46	-	13	20	NW
9	64	41	-	16	24	NW
10	67	34	-	18	26	NW
11	71	29	-	20	28	W
12	74	24	-	18	27	W
1	76	24	-	19	28	SW
2	78	17	-	20	31	W
3	76	22	-	24	35	NW
4	74	22	-	26	36	NW
5	66	27	-	23	36	N
6	63	30	-	23	34	NW
7	62	35	-	15	23	NW
8	62	34	-	13	21	NW
9	60	36	-	11	17	NW
10	60	35	-	11	20	NW
11	60	36	-	14	21	NW
12	60	33	-	15	23	NW

19-Paloma

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	68	34	-	10	15	SW
2	66	32	-	10	15	SW
3	64	35	-	12	17	SW
4	63	37	-	10	16	SW
5	60	41	-	10	15	W
6	57	47	-	9	14	SW
7	57	48	-	10	15	W
8	61	44	-	9	13	SW
9	65	36	-	11	17	SW
10	68	30	-	14	20	SW
11	71	24	-	14	20	W
12	73	23	-	15	20	W
1	75	21	-	17	27	SW
2	76	19	-	21	30	SW
3	76	19	-	20	31	W
4	76	17	-	18	28	W
5	67	31	-	19	33	NW
6	60	44	-	13	26	NW
7	58	40	-	10	24	N
8	58	42	-	5	17	SW
9	57	46	-	5	9	SW
10	56	40	-	7	11	W
11	56	40	-	9	16	W
12	54	41	-	9	13	W

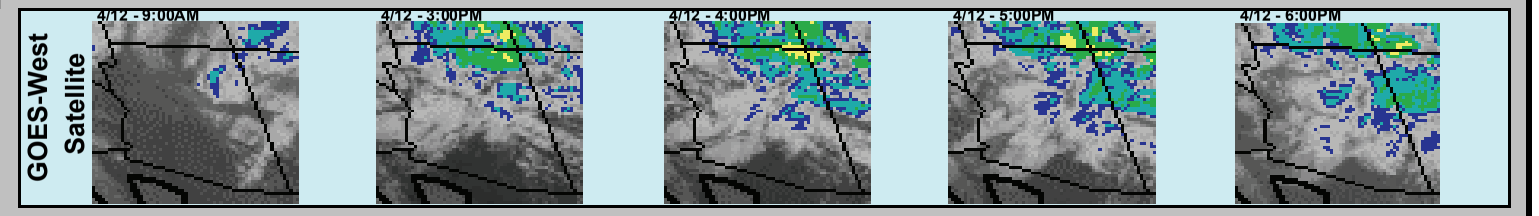
13-Marana

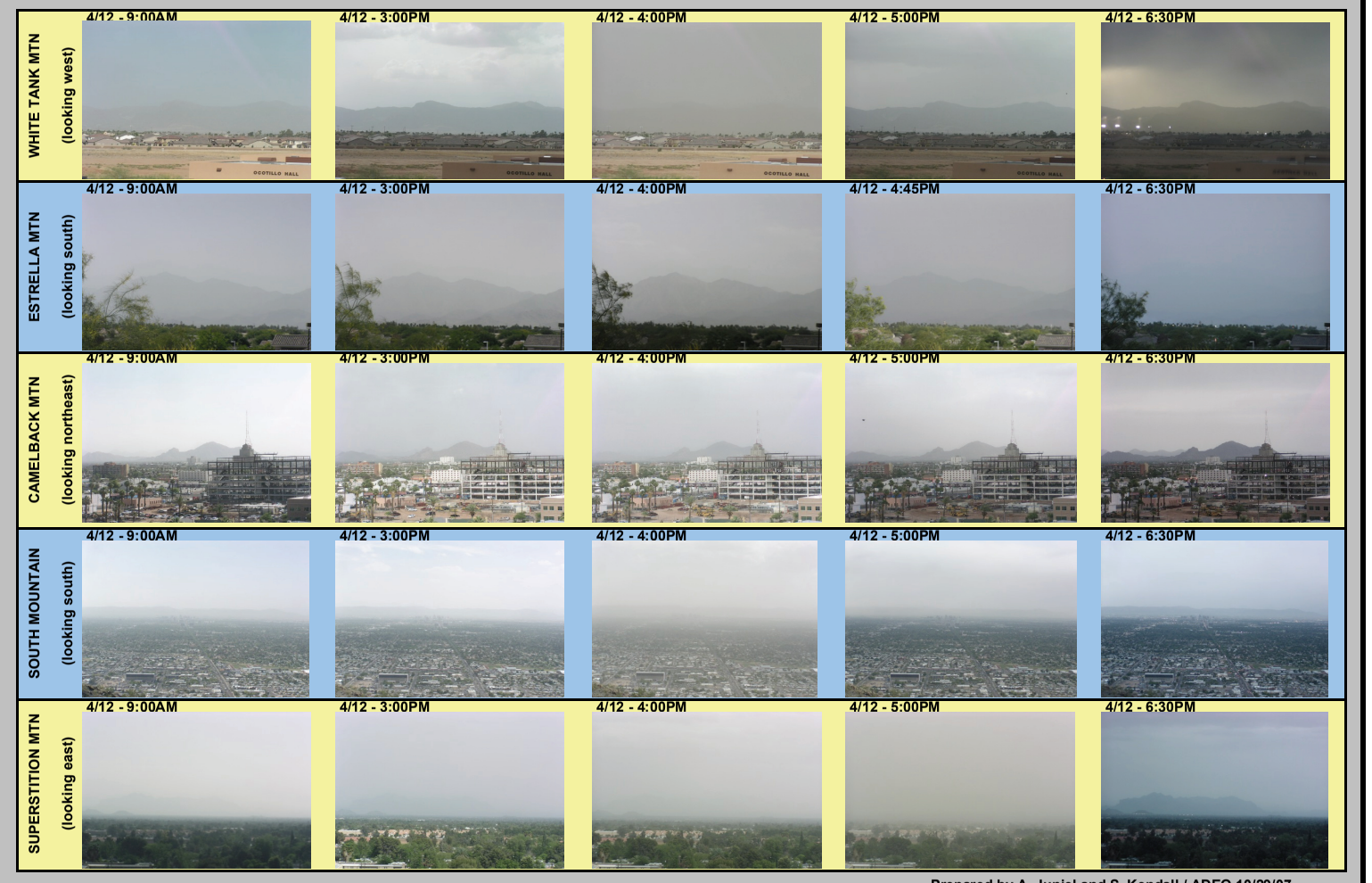
Hr	(F)	RH	Rn	Spd	Max	Dir
1	69	19	-	3	6	S
2	68	22	-	3	8	S
3	64	26	-	4	9	SW
4	63	29	-	1	4	E
5	62	28	-	2	5	SE
6	61	30	-	1	4	NW
7	60	33	-	1	4	N
8	64	33	-	4	11	W
9	67	31	-	4	9	SE
10	71	27	-	8	17	SW
11	73	22	-	11	23	W
12	76	17	-	18	27	W
1	77	16	-	20	30	W
2	78	14	-	20	30	SW
3	79	14	-	23	32	SW
4	78	14	-	21	30	SW
5	77	11	-	22	30	W
6	75	10	-	20	29	W
7	71	13	-	20	29	W
8	64	27	-	22	32	NW
9	55	52	-	20	31	NW
10	52	63	0.02	16	26	NW
11	48	89	0.09	7	15	NE
12	49	84	-	4	10	SE

01-Tucson

Hr	(F)	RH	Rn	Spd	Max	Dir
1	66	27	-	2	6	SE
2	66	28	-	2	7	S
3	68	24	-	3	9	S
4	66	23	-	4	8	S
5	64	27	-	3	9	S
6	62	31	-	1	6	SE
7	60	37	-	1	7	SW
8	64	32	-	7	14	W
9	65	33	-	5	10	SW
10	69	30	-	6	16	S
11	71	26	-	6	16	S
12	73	19	-	9	17	SW
1	74	18	-	10	24	SW
2	76	17	-	11	22	SW
3	77	15	-	13	28	W
4	76	15	-	11	22	SW
5	76	15	-	11	22	SW
6	74	12	-	11	23	SW
7	71	11	-	13	22	W
8	67	16	-	15	25	W
9	58	42	-	18	29	NW
10	53	57	-	18	27	NW
11	49	78	0.09	14	24	NW
12	46	85	0.01	4	13	NW

GOES-West Satellite





Prepared by A. Juniel and S. Kendall / ADEQ 10/29/07

ADEQ
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Stephen A. Owens, ADEQ Director

YUMA AND VICINITY
DUST CONTROL ACTION FORECAST
ISSUED WEDNESDAY, APRIL 11, 2007
Three-day weather outlook:

A very strong trough of low pressure will push into the southwest U.S. Thursday resulting in a very windy day state-wide Thursday. The strongest winds will be in the late afternoon and evening Thursday into the first part of Friday. Afternoon temperatures in the deserts will be in the low 80s Thursday and Friday, increasing a few degrees Saturday as high pressure returns. The risk of wind-blown dust in Yuma will be HIGH on Thursday, decreasing to "Moderate" Friday, and "Low" by Saturday.

	WINDS	WIND BLOWN DUST RISK
Day #1: Thu 04/12/2007	West winds 15-25 mph are expected early, becoming 25-35 mph by the afternoon.	**HIGH**
Day #2: Fri 04/13/2007	Northwest winds 10-20 mph are expected much of the day.	**MODERATE**
Day #3: Sat 04/14/2007	Mostly light winds are expected much of the day.	**LOW**

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.

CKR 05/09/2005

ADEQ
Arizona Department of Environmental Quality
Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

MARICOPA COUNTY
DUST CONTROL ACTION FORECAST

ISSUED WEDNESDAY, APRIL 11, 2007

Three-day weather outlook:

A very strong trough of low pressure will push into the southwest U.S. Thursday resulting in a very windy day state-wide Thursday. The strongest winds will be in the late afternoon and evening Thursday into the first part of Friday. Afternoon temperatures in the deserts will be in the low 80s Thursday and Friday, increasing a few degrees Saturday as high pressure returns. The risk of exceeding the 24-hr PM-10 health standard in Phoenix due to blowing dust will be HIGH on Thursday, decreasing to "Moderate" Friday, and "Low" by Saturday.

R I S K F A C T O R S

	WINDS		STAGNATION		RISK LEVEL
Day #1: Thu 04/12/2007	Southwest winds 15-25 mph are expected early, becoming 20-30 mph with gusts near 40 mph at times..	+	Little to no stagnation is expected.	=	HIGH
Day #2: Fri 04/13/2007	Southwest winds 5-15 mph are likely much of the day.	+	Somewhat stagnant conditions are expected early, with improvement by the afternoon.	=	MODERATE
Day #3: Sat 04/14/2007	East winds 5-15 mph are likely early, becoming southwest by the afternoon.	+	Somewhat stagnant conditions are expected early, with some improvement by the afternoon.	=	LOW

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
Arizona Department of Environmental Quality
Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

GREEN VALLEY AND VICINITY
DUST RE-ENTRAINMENT RISK WIND FORECAST
ISSUED WEDNESDAY, APRIL 11, 2007

Three-day weather outlook:

A very strong trough of low pressure will push into the southwest U.S. Thursday resulting in a very windy day state-wide Thursday. The strongest winds will be in the late afternoon and evening Thursday into the first part of Friday. Afternoon temperatures in the deserts will be in the low 80s Thursday and Friday, increasing a few degrees Saturday as high pressure returns. The risk of re-entrained dust in Green Valley will be **HIGH** on Thursday, decreasing to "Low" by Friday and Saturday.

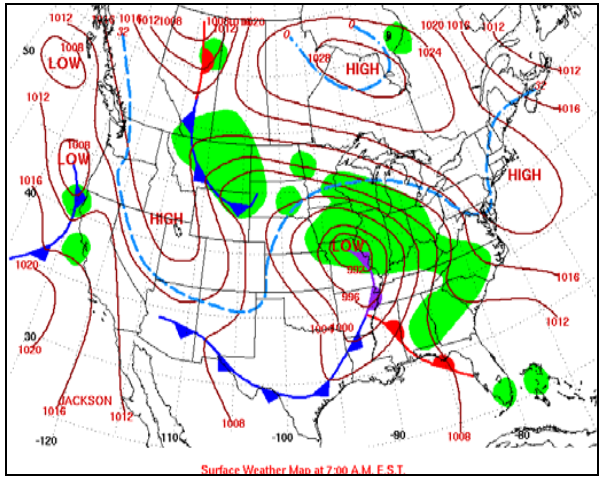
	WINDS	RE-ENTRAINMENT RISK
Day #1: Thu 04/12/07	South winds 10-15 mph are expected early, becoming southwest 25-35 mph with gusts near 45 mph at times.	**HIGH**
Day #2: Fri 04/13/07	Southwest winds 5-10 mph are expected early, becoming northwest 10-15 mph.	**LOW**
Day #3: Sat 04/14/07	No significant winds are expected.	**LOW**

CKR 09/07/2006

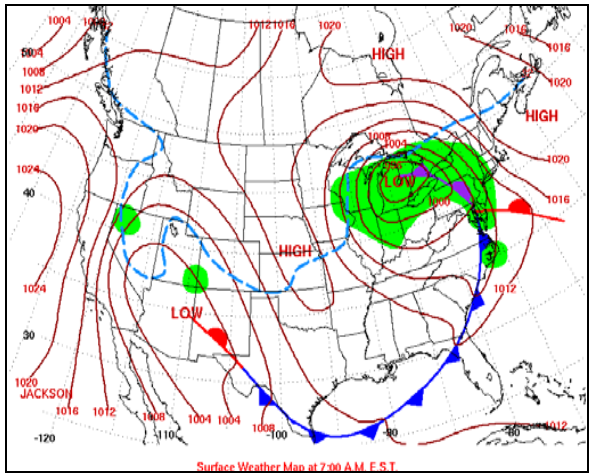
Weather Charts for April 11-13, 2007

Surface Analyses

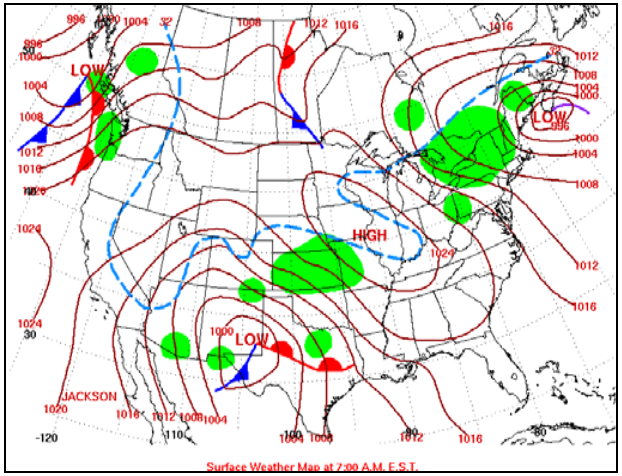
04/11 – 12z



04/12 – 12z

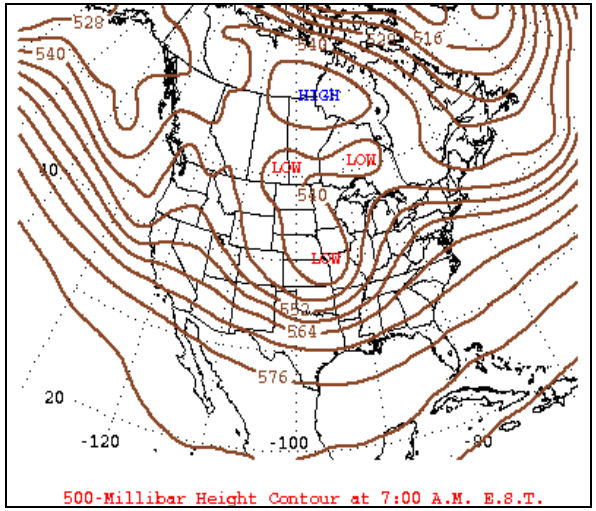


04/13 – 12z

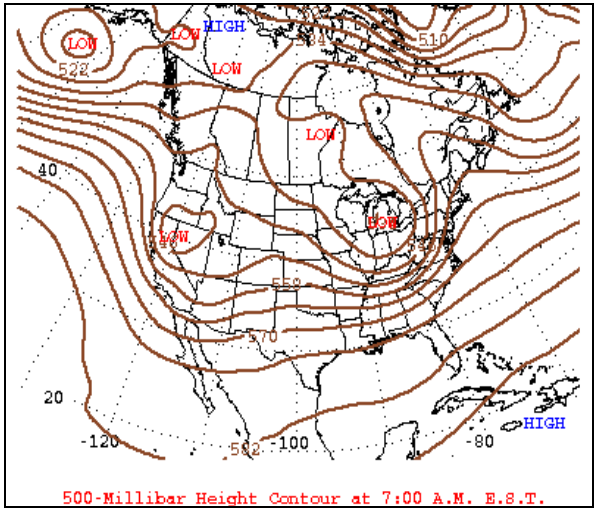


500mb Charts

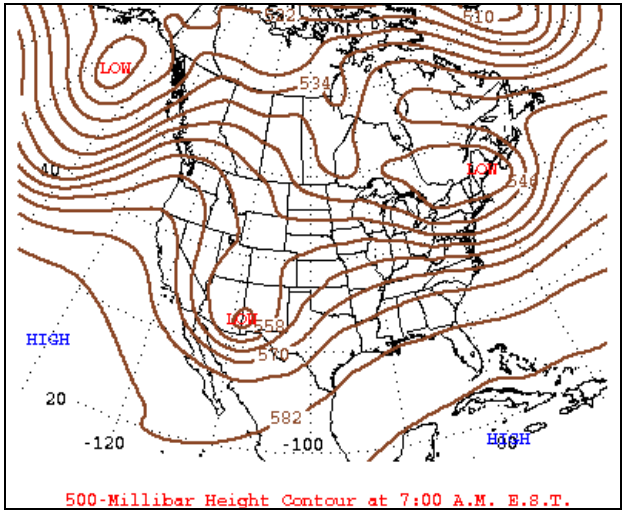
04/11 – 12z



04/12 – 12z



04/13 – 12z



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 (04/2007)

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
12	0051	5	CLR	7.00	BLDU	65	18.3	53	11.5	41	5.0	42	24	300	36	29.47			29.69	AA		29.70
12	0151	5	CLR	8.00	BLDU	64	17.8	51	10.8	39	3.9	40	21	300	28	29.48	3	012	29.70	AA		29.71
12	0251	5	CLR	9.00	BLDU	62	16.7	50	9.8	37	2.8	40	18	290	25	29.47			29.69	AA		29.70
12	0351	5	CLR	10.00	BLDU	62	16.7	48	8.9	32	0.0	32	16	300	24	29.48			29.70	AA		29.71
12	0451	5	CLR	10.00	BLDU	60	15.6	47	8.1	31	-0.6	34	15	290		29.49	3	003	29.71	AA		29.72
12	0551	5	CLR	10.00	BLDU	59	15.0	47	8.5	34	1.1	39	15	290		29.50			29.72	AA		29.73
12	0651	5	FEW200	10.00		59	15.0	49	9.3	38	3.3	46	13	290		29.51			29.72	AA		29.74
12	0751	5	FEW200	10.00		61	16.1	51	10.3	40	4.4	46	14	280		29.52	3	010	29.74	AA		29.75
12	0851	5	FEW200	10.00		66	18.9	53	11.5	40	4.4	39	17	290		29.52			29.73	AA		29.75
12	0951	5	SCT200	10.00		69	20.6	53	11.8	38	3.3	32	22	270		29.52			29.73	AA		29.75
12	1051	5	SCT200	9.00		73	22.8	55	12.5	37	2.8	27	29	260	34	29.50	8	007	29.72	AA		29.73
12	1151	5	BKN200	10.00		76	24.4	55	12.8	35	1.7	23	22	250	29	29.45			29.67	AA		29.68
12	1251	5	FEW060 SCT200	10.00		77	25.0	55	12.7	33	0.6	20	25	230	31	29.41			29.62	AA		29.64
12	1351	5	FEW060 SCT100 SCT200	10.00		79	26.1	55	12.9	32	0.0	18	22	260	26	29.38	6	040	29.59	AA		29.61
12	1443	5	FEW001	4.00		75	24.0	55	12.8	36	2.0	24	28	290	39	29.37			M	SP		29.60
12	1451	5	SCT060 SCT100 BKN200	4.00		76	24.4	55	13.0	36	2.2	23	29	300	40	29.37			29.59	AA		29.60
12	1531	5	FEW001	4.00		75	24.0	54	12.0	32	0.0	21	32	300	43	29.38			M	SP		29.61
12	1551	5	SCT060 SCT100 BKN200	3.00		73	22.8	54	11.9	34	1.1	24	29	310	40	29.39			29.60	AA		29.62
12	1638	5	BKN060	1.50		64	18.0	48	9.0	30	-1.0	28	34	350	45	29.44			M	SP		29.67
12	1651	5	BKN060	1.50		65	18.3	49	9.4	31	-0.6	28	34	340	45	29.45	3	025	29.67	AA		29.68
12	1741	5	BKN060	2.50	BLDU	64	18.0	48	9.0	30	-1.0	28	20	310	40	29.48			M	SP		29.71
12	1749	5	BKN060	3.00	BLDU	64	18.0	48	9.0	30	-1.0	28	24	320	40	29.48			M	SP		29.71
12	1751	5	SCT060	7.00	BLDU	65	18.3	49	9.4	31	-0.6	28	26	310	40	29.48			29.70	AA		29.71
12	1851	5	SCT100	7.00		63	17.2	50	9.7	35	1.7	35	17	300	22	29.47			29.69	AA		29.70
12	1951	5	FEW100	10.00		62	16.7	49	9.4	35	1.7	37	13	280		29.49	1	014	29.72	AA		29.72
12	2051	5	FEW100	10.00		61	16.1	49	9.2	35	1.7	38	11	280		29.52			29.73	AA		29.75
12	2151	5	FEW100	10.00		60	15.6	48	8.7	34	1.1	38	13	290		29.54			29.76	AA		29.77
12	2251	5	CLR	10.00		59	15.0	47	8.5	34	1.1	39	9	270		29.57	3	024	29.78	AA		29.80
12	2351	5	CLR	10.00		57	13.9	47	8.1	35	1.7	44	3	220		29.58			29.80	AA		29.81

Dynamically generated Tue Oct 30 10:06:54 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
(04/2007)

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
12	0053	12	CLR	7.00		63	17.2	50	9.7	35	1.7	35	29	260	40	29.77	8	005	29.71	AA		29.71
12	0153	12	CLR	10.00		62	16.7	49	9.5	35	1.7	37	32	270	39	29.77			29.71	AA		29.71
12	0253	12	CLR	9.00		61	16.1	50	9.8	38	3.3	43	29	260	34	29.78			29.72	AA		29.72
12	0353	12	CLR	10.00		60	15.6	50	10.0	40	4.4	48	20	260	33	29.79	3	008	29.73	AA		29.73
12	0453	12	CLR	10.00		60	15.6	51	10.2	41	5.0	50	20	260	29	29.79			29.73	AA		29.73
12	0553	12	CLR	10.00		60	15.6	51	10.5	42	5.6	52	14	270		29.81			29.74	AA		29.75
12	0653	12	CLR	10.00		65	18.3	53	11.5	41	5.0	42	16	270		29.81	3	006	29.75	AA		29.75
12	0753	12	CLR	10.00		69	20.6	54	12.0	39	3.9	34	15	270	23	29.81			29.75	AA		29.75
12	0853	12	CLR	10.00		71	21.7	55	12.5	39	3.9	31	33	260	39	29.80			29.74	AA		29.74
12	0953	12	CLR	5.00	HZ	71	21.7	55	12.7	40	4.4	33	34	250	47	29.76	8	018	29.70	AA		29.70
12	1053	12	CLR	10.00		73	22.8	55	12.9	39	3.9	29	29	240	39	29.71			29.65	AA		29.65
12	1153	12	CLR	10.00		77	25.0	57	13.8	39	3.9	26	29	250	38	29.71			29.65	AA		29.65
12	1253	12	BKN080	10.00		75	23.9	56	13.4	39	3.9	27	31	240	37	29.70	6	019	29.64	AA		29.64
12	1348	12	SCT013 BKN080	2.50	HZ	72	22.0	53	11.7	34	1.0	25	23	310	38	29.71			M	SP		29.65
12	1351	12	BKN011 BKN080	1.75	HZ	72	22.0	53	11.4	32	0.0	23	28	310	39	29.70			M	SP		29.64
12	1353	12	BKN015 BKN080	1.75	HZ	72	22.2	53	11.6	33	0.6	24	21	270	39	29.72			29.66	AA		29.66
12	1407	12	OVC012	1.25	HZ	72	22.0	53	11.4	32	0.0	23	32	300	43	29.71			M	SP		29.65
12	1425	12	BKN008	1.75	HZ	73	23.0	52	11.3	30	-1.0	20	22	310	41	29.72			M	SP		29.66
12	1440	12	OVC010	1.75	HZ	72	22.0	51	10.7	28	-2.0	19	24	310	43	29.74			M	SP		29.68
12	1447	12	VV008	1.00	HZ	66	19.0	52	11.3	39	4.0	37	37	340	52	29.76			M	SP		29.70
12	1453	12	VV007	1.00	-RA	65	18.3	53	11.5	41	5.0	42	36	350	48	29.76			29.70	AA	T	29.70
12	1506	12	SCT008	2.00	HZ	64	18.0	52	10.8	39	4.0	40	32	350	45	29.78			M	SP		29.72
12	1514	12	FEW006	5.00	HZ	64	18.0	51	10.4	37	3.0	37	30	340	40	29.78			M	SP		29.72
12	1553	12	BKN090 BKN110	10.00		64	17.8	50	10.2	36	2.2	36	11	350		29.79	3	031	29.73	AA		29.73
12	1653	12	FEW085 BKN110	10.00		67	19.4	51	10.3	33	0.6	28	17	280	23	29.78			29.71	AA		29.72
12	1753	12	CLR	10.00		63	17.2	50	9.9	36	2.2	37	21	270	30	29.78			29.72	AA		29.72
12	1853	12	CLR	10.00		62	16.7	48	8.9	32	0.0	32	15	270		29.79	5	001	29.73	AA		29.73
12	1953	12	CLR	10.00		62	16.7	49	9.5	35	1.7	37	26	260	32	29.82			29.75	AA		29.76
12	2053	12	CLR	10.00		61	16.1	48	9.0	34	1.1	36	22	260	28	29.83			29.77	AA		29.77
12	2153	12	CLR	10.00		60	15.6	47	8.4	32	0.0	35	13	260		29.85	1	019	29.79	AA		29.79
12	2253	12	CLR	10.00		60	15.6	46	7.5	27	-2.8	28	11	280		29.87			29.80	AA		29.81
12	2353	12	CLR	10.00		61	16.1	46	7.8	27	-2.8	27	13	290		29.89			29.83	AA		29.83

Dynamically generated Tue Oct 30 09:51:45 EST 2007 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

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

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (may be updated) HOURLY OBSERVATIONS TABLE NAF (23199) EL CENTRO , CA (04/2007)

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
12	0056	5	CLR	5.00		63	17.2	49	9.5	34	1.1	34	29	270	45	29.78	3	001	29.78	AA		29.74
12	0156	5	CLR	10.00		61	16.1	49	9.4	36	2.2	39	32	270	43	29.77			29.78	AA		29.73
12	0238	5	FEW005	3.00		61	16.0	49	9.6	37	3.0	41	31	260	39	29.77			M	SP		29.73
12	0256	5	CLR	7.00		60	15.6	50	9.8	39	3.9	46	30	260	38	29.78			29.78	AA		29.74
12	0356	5	CLR	10.00		60	15.6	50	10.0	40	4.4	48	26	250	37	29.78	3	000	29.78	AA		29.74
12	0456	5	CLR	10.00		60	15.6	51	10.2	41	5.0	50	24	260		29.79			29.79	AA		29.75
12	0556	5	CLR	10.00		61	16.1	51	10.7	42	5.6	50	14	260		29.79			29.80	AA		29.75
12	0656	5	FEW060	10.00		66	18.9	53	11.5	40	4.4	39	17	270	28	29.80	1	006	29.80	AA		29.76
12	0756	5	FEW060 SCT200	10.00		69	20.6	54	12.0	39	3.9	34	32	260	38	29.81			29.81	AA		29.77
12	0856	5	FEW060 SCT200	9.00		71	21.7	54	12.1	37	2.8	29	36	260	41	29.79			29.79	AA		29.75
12	0956	5	FEW060 SCT200	10.00		72	22.2	56	13.1	41	5.0	33	31	240	38	29.78	8	005	29.79	AA		29.74
12	1056	5	FEW060 SCT200	6.00	BLDU	74	23.3	55	13.0	38	3.3	27	39	240	49	29.70			29.70	AA		29.66
12	1156	5	FEW060 SCT200	5.00	BLDU	76	24.4	56	13.4	38	3.3	25	33	250	48	29.69			29.70	AA		29.65
12	1256	5	SCT050 SCT200	6.00	BLDU	76	24.4	56	13.4	38	3.3	25	28	260	39	29.69	5	030	29.70	AA		29.65
12	1356	5	SCT065 BKN090	4.00	BLDU	73	22.8	53	11.8	33	0.6	23	23	300	38	29.71			29.71	AA		29.67
12	1400	5	BKN041 BKN090	1.50	BLDU	73	23.0	53	11.6	32	0.0	22	33	300	40	29.71			M	SP		29.67
12	1409	5	FEW010 BKN028 OVC090	0.75	BLDU	72	22.0	52	11.0	30	-1.0	21	40	320	49	29.71			M	SP		29.67
12	1418	5	BKN009 OVC014	0.75	BLDU	72	22.0	52	11.0	30	-1.0	21	33	310	52	29.71			M	SP		29.67
12	1427	5	BKN006 OVC012	1.25	BLDU	73	23.0	52	11.0	28	-2.0	19	30	290	41	29.72			M	SP		29.68
12	1431	5	BKN012	2.00	BLDU	73	23.0	52	11.0	28	-2.0	19	31	300	41	29.72			M	SP		29.68
12	1440	5	BKN012	3.00	BLDU	73	23.0	52	10.8	27	-3.0	18	31	320	38	29.73			M	SP		29.69
12	1444	5	FEW010 SCT019	2.50	BLDU	73	23.0	52	11.0	28	-2.0	19	34	340	49	29.74			M	SP		29.70
12	1454	5	FEW010 SCT019 SCT045	1.75	BLDU	66	19.0	53	11.7	41	5.0	40	37	340	48	29.76			M	SP		29.72
12	1456	5	SCT019 SCT045	2.00	BLDU	66	18.9	53	11.7	41	5.0	40	31	350	46	29.77			29.77	AA		29.73
12	1509	5	FEW019 SCT070	4.00	BLDU	64	18.0	51	10.4	37	3.0	37	33	360	46	29.76			M	SP		29.72
12	1556	5	BKN080	10.00	BLDU	63	17.2	51	10.3	38	3.3	40	20	350		29.78	1	029	29.78	AA		29.74
12	1606	5	BKN080 BKN100	10.00	-RA	63	17.0	51	10.6	39	4.0	41	10	360		29.78			M	SP		29.74
12	1620	5	BKN085	10.00		64	18.0	50	10.2	36	2.0	36	21	320	25	29.78			M	SP		29.74
12	1656	5	FEW085 SCT100	8.00		65	18.3	51	10.6	37	2.8	36	28	270	38	29.77			29.78	AA		29.73
12	1756	5	CLR	10.00		63	17.2	49	9.5	34	1.1	34	18	270		29.77			29.77	AA	T	29.73
12	1856	5	CLR	10.00		64	17.8	48	8.9	29	-1.7	27	21	260	26	29.79	3	003	29.79	AA		29.75
12	1956	5	CLR	10.00		62	16.7	49	9.5	35	1.7	37	24	250	32	29.82			29.82	AA		29.78
12	2056	5	CLR	10.00		62	16.7	48	8.9	32	0.0	32	21	260		29.83			29.83	AA		29.79
12	2156	5	CLR	10.00		61	16.1	46	7.9	28	-2.2	29	14	270		29.84	1	017	29.84	AA		29.80
12	2256	5	CLR	10.00		64	17.8	47	8.1	24	-4.4	22	15	290		29.86			29.86	AA		29.82
12	2356	5	CLR	10.00		63	17.2	46	8.0	25	-3.9	24	15	290	21	29.88			29.88	AA		29.84

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