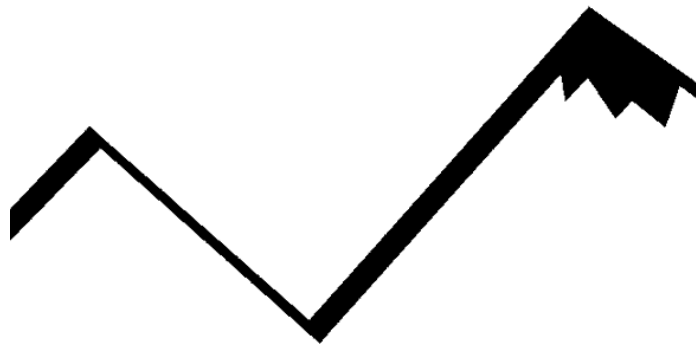
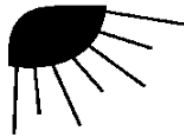


Natural Event Documentation

Bakersfield and Corcoran, California
May 21 and 22, 2008



San Joaquin Valley Unified
Air Pollution Control District

June 24, 2008

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1. SUMMARY

The PM10 exceedances recorded in the San Joaquin Valley on May 21 and 22, 2008 meet the criteria for natural events as defined by federal policies. A high wind event occurred throughout the San Joaquin Valley, entraining dust from the desiccated soil in the area for a period of four days, May 20 through 23, 2008. The valley-wide high wind event caused elevated PM10 levels everywhere in the District. This report will focus on the exceedance locations.

This report demonstrates that without the high wind event, there would not have been the exceedances of the PM10 National Ambient Air Quality Standard (NAAQS) on May 21 and 22, 2008.

Both Corcoran and Bakersfield had experienced a dry Spring, with seasonal precipitation totals running well below normal. A very strong, dry cold front passed over the region on May 20 through 21 that caused the high wind event. In Bakersfield the high maximum temperature on May 20 was 97 degrees Fahrenheit. The following day on May 21 the temperature dropped 20 degrees showing a significant weather pattern change. This change ushered in stronger winds which led to the May 21 and 22, 2008 exceedances.

Strong northwesterly winds caused blowing dust to occur throughout the San Joaquin Valley. These strong winds were illustrated in the local observations near the exceedance locations. The Lemoore Naval Air Station reported NNW wind gusts of 31 mph or greater from 8:00 AM to 7:00 PM Pacific Standard Time (PST) on May 21, 2008, with peak winds gusting to 48 miles per hour (MPH) at 3:56 PM PST. The Bakersfield Meadows Field Airport reported NW to NNW wind gusts of 20 MPH or greater from 08:00 AM to 07:00 PM PST on May 21, 2008, with peak winds gusting to 33 MPH at 04:54 PM PST. The Lemoore Naval Air Station reported NW wind gusts of 29 MPH or greater from 12:00 AM to 07:00 PM PST on May 22, 2008, with peak winds gusting to 48 MPH at 08:56 AM PST.

District Compliance Inspectors and television news coverage from May 21 and 22, 2008 confirmed the blowing dust as an exceptional event with video footage, pictures, and eyewitness accounts.

The District investigated emission-generating activities during the episode, and found PM10 emissions for BACM controlled sources were approximately constant before, during and after the event. The District concludes that the PM10 exceedance would not have occurred without the high winds and wind-entrained dust.



Image near Fresno, CA on May 22, 2008

2. FRAMEWORK FOR EXCEPTIONAL EVENT DETERMINATION

The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Natural Events Action Plan (NEAP) for High Wind Events in the San Joaquin Valley Air Basin* in February 2006. The 1996 EPA memorandum, *Areas Affected by PM10 Natural Events*, describes the requirements for natural event data flagging as well as the requirements for a NEAP. The policy allows air quality data to be flagged so that it does not count toward an area's attainment status if it can be shown that there was a clear, causal relationship between the data and one of three categories of natural events: volcanic and seismic activity, unwanted wildland fires, and high wind events.

EPA notes that natural events, which are one form of exceptional events according to this definition, may recur, sometimes frequently (e.g., western wildfires). For the purposes of this rule, EPA defines "natural event" as an event in which human activity plays little or no direct causal role to the event in question. The EPA recognizes that over time, certain human activities may have had some impact on the conditions which later give rise to a "natural" air pollution event. However, EPA does not believe that small historical human contributions should preclude an event from being deemed "natural." In March 22, 2007, EPA adopted a rule that superseded all previous flagging and excluding data documentation.

The March 22, 2007 EPA Final Rule, *Treatment of Data Influenced by Exceptional Events*, finalized the rule to govern the review and handling of air quality monitoring data influenced by exceptional events. In this rule, the demonstration to exclude data included a clear casual relationship between the measurement under consideration and the event that is claimed to have affected air quality in the area and there would have been no exceedance or violation "but for" the event.

Exceptional events are events for which the normal planning and regulatory process established by the Clean Air Act (CAA) is not appropriate. In this rulemaking action, EPA finalized the proposal to:

- Implement section 319(b)(3)(B) and section 107(d)(3) authority to exclude air quality monitoring data from regulatory determinations related to exceedances or violations of the NAAQS; and,
- Avoid designating an area as nonattainment, redesignating an area as nonattainment, or reclassifying an existing nonattainment area to a higher classification if a State adequately demonstrates that an exceptional event has caused an exceedance or violation of a NAAQS.

The EPA requires states to take reasonable measures to mitigate the impacts of an exceptional event. In accordance with the language in section 319, EPA defines the term "exceptional event" to mean an event that:

- (i) Affects air quality;
- (ii) Is not reasonably controllable or preventable;
- (iii) Is an event caused by human activity that is unlikely to recur at a particular location or a natural event; and
- (iv) Is determined by EPA through the process established in the regulations to be an exceptional event.

This report demonstrates that there was a clear, causal relationship between the exceedances of the PM10 standard on May 21 and 22, 2008 in the San Joaquin Valley Air Basin and a high wind and blowing dust event. The evidence presented shows that there would not have been an exceedance of the PM10 NAAQS in Corcoran on May 21 and 22, 2008 and Bakersfield on May 21, 2008, "but for" the presence of high winds.

Data flagging serves multiple purposes. The major thrust of a data flagging system is information exchange, and data flags are meant to prevent the misuse of data. Flagging the May 21 and 22, 2008 exceedances will ensure that the data is not misinterpreted as being caused by regulated activities or relevant for determining compliance with the air quality standards.

3. NEAP CRITERIA FOR HIGH WIND EVENTS IN THE SAN JOAQUIN VALLEY AIR BASIN

The NEAP requires the District to forecast a high wind episode if criteria five and most or all of criteria one through four are met:

- 1. There has been no recent, measurable precipitation in the potential source region for fugitive dust**
- 2. The National Weather Service in Hanford and/or Sacramento has issued either a High Wind Warning, Wind Advisory, or Blowing Dust Advisory for certain parts of the San Joaquin Valley, and the predicted duration of high winds is sufficient to establish a NEAP episode**
- 3. The surface weather maps show a potential for high winds to occur in the near future**
- 4. Strong winds exist higher in the atmosphere in conjunction with other weather phenomena that can drive the higher wind speeds closer to the surface**
- 5. The 24-hour average PM10 level is forecast to be above the National Ambient Air Quality Standard at one or more San Joaquin Valley sites**

On May 21, 2008 all of the NEAP criteria were met:

Criteria 1. No measureable precipitation had been reported in Bakersfield and Hanford for 86 consecutive days prior to the May 21, 2008 event.

Criteria 2. The National Weather Service in Hanford and Sacramento issued a Wind Advisory for the San Joaquin Valley.

Criteria 3. The morning and afternoon surface weather maps showed a strong pressure gradient between Oakland and Las Vegas of +16.9 millibars (mb) and +18 mb, respectively over California. This strong pressure gradient caused peak wind gusts at Lemoore of 48 MPH at 03:56 PM PST and at Bakersfield of 33 MPH at 4:54 PM PST.

Criteria 4. A strong 140 MPH Jet-stream at 300 mb was positioned over California through the day transferring stronger winds toward the surface. 300 mb is located approximately 30,000 feet above ground level.

Criteria 5. The PM10 NAAQS was exceeded in Bakersfield and Corcoran. The District forecast a NAAQS exceedance for Corcoran, on May 21, 2008. A press release was issued on May 20, 2008 describing the potential for high winds and blowing dust. The press release included the following, "Winds in the San Joaquin Valley may produce areas of localized blowing dust throughout the

Valley. Blowing dust can result in unhealthy concentrations of particulate matter 10 microns and smaller, or PM10.”

On May 22, 2008 all of the NEAP criteria were met:

Criteria 1. No measureable precipitation had been reported in Hanford for 87 consecutive days prior to the May 22, 2008 event.

Criteria 2. The National Weather Service in Sacramento issued a Wind Advisory for the northern San Joaquin Valley.

Criteria 3. The morning and afternoon surface weather maps showed a strong pressure gradient between Oakland and Las Vegas of +12.5 mb and +12.2 mb, respectively over California. This moderately strong pressure gradient caused peak wind gusts at Lemoore of 48 MPH at 08:56 AM PST.

Criteria 4. A strong 160 MPH Jet-stream at 300 MB was positioned over California in the morning and afternoon transferring stronger winds toward the surface.

Criteria 5. The PM10 NAAQS was exceeded in Corcoran. The District forecast a NAAQS exceedance for Corcoran and Bakersfield, on May 22, 2008. A press release was issued on May 20, 2008 describing the potential for high winds and blowing dust. The press release included the following, “Winds in the San Joaquin Valley may produce areas of localized blowing dust throughout the Valley. Blowing dust can result in unhealthy concentrations of particulate matter 10 microns and smaller, or PM10.”

3.1 NEAP Criteria - Meteorological Data

The following meteorological information is presented to demonstrate that the NEAP meteorological flagging criteria were met.

Criteria 1 - No recent, measurable precipitation in the potential source region for fugitive dust

Precipitation data showed that the period preceding the blowing dust event was not wet enough in the Bakersfield and Corcoran area to limit blowing dust. Moisture content of soils is a very significant factor in a blowing dust event. Soils that have lower than normal moisture content during the driest time of the year would be more easily entrained by strong winds.

Precipitation

During the 86 consecutive days prior to the May 21, 2008 event, Bakersfield and Hanford (Corcoran) received no measurable precipitation. Because precipitation in the

Central and Southern San Joaquin Valley was minimal before the dust event, soils were dry enough to become entrained into the atmosphere during the high winds.

Figure 1 is a map of annual precipitation for the San Joaquin Valley Air Basin. The map demonstrates that the west side of the Central and Southern San Joaquin Valley has the lowest annual precipitation of any area west of the desert areas of Owens Valley, Mojave Desert and Antelope Valley. Since the west side of Kern County has the lowest annual precipitation in the San Joaquin Valley, the undisturbed soils, on the average, are drier than other parts of the valley.

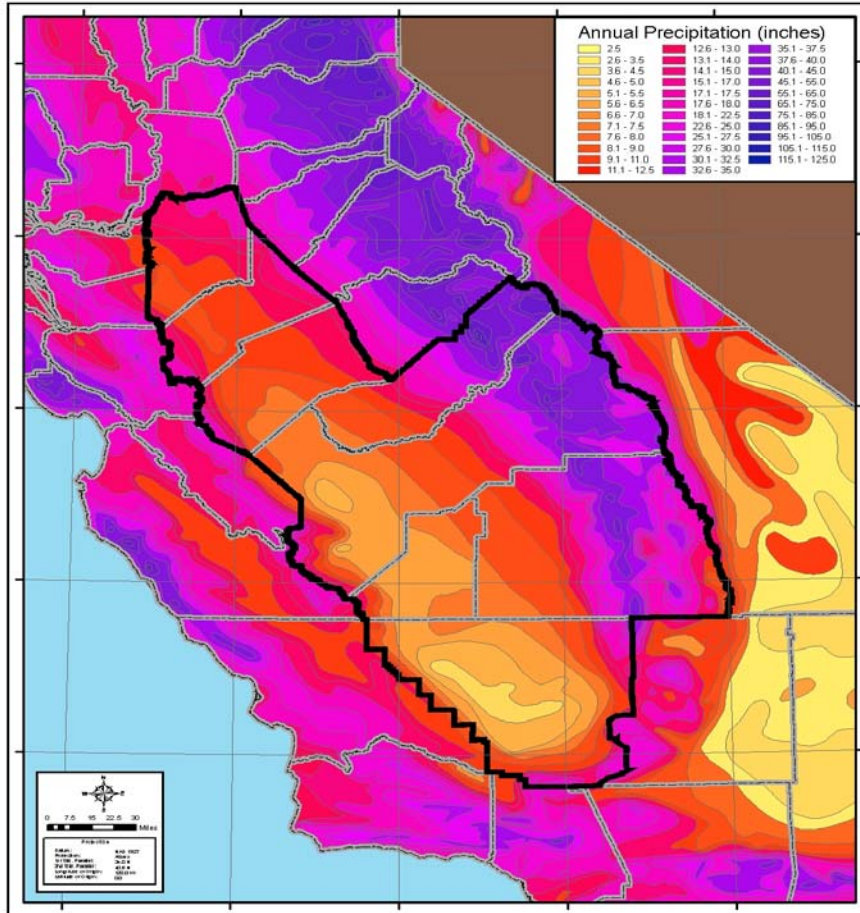


Figure 1. Central California Annual Average Precipitation in Inches. The San Joaquin Valley Air Basin is outlined in black.

Criteria 2 – Wind Advisory issued by the National Weather Service

The National Weather Service in Hanford, CA issued a Wind Advisory at 2:44 PM PDT on May 20, 2008 to notify the public of gusty winds throughout the central and southern San Joaquin Valley and surrounding mountains and deserts (see Figure 2). The National Weather Service in Sacramento, CA issued a Wind Advisory at 4:48 AM PDT on May 21, 2008 to notify the public of gusty winds throughout the northern San Joaquin

Valley (see Figure 3). The National Weather Service in Sacramento, CA continued the Wind Advisory at 5:35 AM PDT on May 22, 2008 (see Figure 4). The National Weather Service in Hanford, CA covered the wind event on May 22, 2008 with three short term forecasts that were issued at 06:05 AM, 08:08 AM, and 11:57 AM (see Figure 5, 6, and 7).

Figure 2. Wind Advisory issued by the National Weather Service in Hanford, CA on May 20, 2008.

URGENT - WEATHER MESSAGE

NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY - HANFORD CA

244 PM PDT TUE MAY 20 2008

CAZ089>092-210545-

/O.EXB.KHNX.WI.Y.0019.080521T0100Z-080521T2300Z/

WEST CENTRAL SAN JOAQUIN VALLEY-EAST CENTRAL SAN JOAQUIN VALLEY-

SOUTHWESTERN SAN JOAQUIN VALLEY-SOUTHEASTERN SAN JOAQUIN VALLEY-

244 PM PDT TUE MAY 20 2008

...WIND ADVISORY IN EFFECT FROM 6 PM THIS EVENING TO 4 PM PDT
WEDNESDAY FOR THE CENTRAL AND SOUTHERN SAN JOAQUIN VALLEY...

THE NATIONAL WEATHER SERVICE IN HANFORD HAS ISSUED A WIND
ADVISORY FOR THE CENTRAL AND SOUTHERN SAN JOAQUIN VALLEY...WHICH
IS IN EFFECT FROM 6 PM THIS EVENING TO 4 PM PDT WEDNESDAY.

SUSTAINED NORTHWEST WINDS OF 15 TO 25 MPH WILL OCCUR TONIGHT AND
WEDNESDAY. OCCASIONAL GUSTS OF 35 TO 40 MPH ARE POSSIBLE AT
TIMES...ESPECIALLY ON THE WEST SIDE OF THE VALLEY. AREAS OF
BLOWING DUST WILL OCCUR...AND THERE COULD BE SOME LOCAL
VISIBILITIES OF 2 TO 3 MILES AT TIMES ALONG THE I-5 CORRIDOR.

A WIND ADVISORY MEANS THAT SUSTAINED WIND SPEEDS OF AT LEAST 25
MPH OR GUSTS OF 35 MPH OR MORE ARE EXPECTED. WINDS THIS STRONG
CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR HIGH PROFILE VEHICLES.
USE EXTRA CAUTION.

Figure 3. Wind Advisory issued by the National Weather Service in Sacramento, CA on May 21, 2008.

Wind Advisory

URGENT - WEATHER MESSAGE
NATIONAL WEATHER SERVICE SACRAMENTO CA
448 AM PDT WED MAY 21 2008

...GUSTY NORTH WINDS THROUGH THE CENTRAL VALLEY AND DELTA TODAY..

.A WEATHER SYSTEM MOVED THROUGH NORTHERN CALIFORNIA ON TUESDAY AND TUESDAY NIGHT BRINGING SHOWERS TO THE NORTHERN CALIFORNIA MOUNTAINS WITH CLOUDS AND MUCH COOLER TEMPERATURES ELSEWHERE.PRESSURE PATTERNS DEVELOPING BEHIND THIS WEATHER SYSTEM WILL BRING ANOTHER PERIOD OF GUSTY NORTH WINDS TO INTERIOR NORTHERN CALIFORNIA. THE WINDS ARE EXPECTED TO INCREASE THROUGH THE MORNING HOURS WITH STRONG WINDS DOWN THE CENTRAL VALLEY AND THROUGH THE DELTA THIS AFTERNOON AND EVENING. THE WINDS ARE EXPECTED TO DECREASE SLIGHTLY TONIGHT BEFORE PICKING BACK UP AGAIN POSSIBLY EVEN STRONGER ON THURSDAY. IT IS THEREFORE LIKELY THAT ANOTHER WIND ADVISORY WILL BE ISSUED FOR THURSDAY IF PRESSURE PATTERNS CONTINUE TO DEVELOP AS FORECAST.

Figure 4. Wind Advisory issued by the National Weather Service in Sacramento, CA on May 22, 2008.

Wind Advisory

URGENT - WEATHER MESSAGE
NATIONAL WEATHER SERVICE SACRAMENTO CA
535 AM PDT THU MAY 22 2008

...STRONG WIND TO CONTINUE OVER INTERIOR NORTHERN CALIFORNIA TODAY...

.FLOW BETWEEN HIGH PRESSURE OVER THE EASTERN PACIFIC AND LOW PRESSURE OVER THE GREAT BASIN IS BRINGING STRONG NORTHERLY WINDS TO MUCH OF INTERIOR NORTHERN CALIFORNIA. BREEZY NORTH WINDS EARLY THIS MORNING WILL STRENGTHEN THROUGH THE LATER MORNING HOURS AS STRONGER WINDS FROM ALOFT MIX DOWN TO THE GROUND. THE WIND WILL BE STRONGEST IN THE CENTRAL VALLEY AND SURROUNDING FOOTHILLS WHERE THE NORTHERLY WINDS ARE CHANNELED. WIND ADVISORY CRITERIA SHOULD BE MET AT MOST VALLEY AND FOOTHILL LOCATIONS MID MORNING THROUGH MUCH OF THE DAY AND INTO THE EVENING HOURS. DECREASING WINDS ARE EXPECTED LATE THIS EVENING AND OVERNIGHT.

Figure 5. Short Term Forecast issued by the National Weather Service in Hanford, CA on May 22, 2008.

CAZ089>091-221515-
WEST CENTRAL SAN JOAQUIN VALLEY-EAST CENTRAL SAN JOAQUIN VALLEY-
SOUTHWESTERN SAN JOAQUIN VALLEY-
605 AM PDT THU MAY 22 2008

.NOW...NORTHWEST WINDS OF 15 TO 25 MPH WITH LOCAL GUSTS TO AROUND 35 MPH WILL CONTINUE TO AFFECT PARTS OF THE CENTRAL SAN JOAQUIN VALLEY AND THE WEST SIDE OF THE SOUTH VALLEY THROUGH 800 AM PDT. THESE WINDS WILL AFFECT PORTIONS OF THE I-5 AND HIGHWAY 99 CORRIDORS WHERE AREAS OF BLOWING DUST WILL BE POSSIBLE. MOTORISTS SHOULD REMAIN ALERT FOR REDUCED VISIBILITIES IN BLOWING DUST.

Figure 6. Short Term Forecast issued by the National Weather Service in Hanford, CA on May 22, 2008.

NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY - HANFORD CA
808 AM PDT THU MAY 22 2008

CAZ089>091-221700-
WEST CENTRAL SAN JOAQUIN VALLEY-EAST CENTRAL SAN JOAQUIN VALLEY-
SOUTHWESTERN SAN JOAQUIN VALLEY-
808 AM PDT THU MAY 22 2008

.NOW...
NORTHWEST WINDS OF 15 TO 25 MPH WITH GUSTS TO AROUND 35 MPH WILL CONTINUE TO AFFECT PARTS OF THE CENTRAL SAN JOAQUIN VALLEY AND THE WEST SIDE OF THE SOUTH VALLEY THROUGH 1000 AM PDT. THESE WINDS WILL AFFECT PORTIONS OF THE I-5 AND HIGHWAY 99 CORRIDORS WHERE AREAS OF BLOWING DUST WILL BE POSSIBLE. MOTORISTS SHOULD REMAIN ALERT FOR REDUCED VISIBILITIES IN BLOWING DUST.

BEAN

Figure 7. Short Term Forecast issued by the National Weather Service in Hanford, CA on May 22, 2008.

WEATHER.GOV/HANFORD

SHORT TERM FORECAST
NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY - HANFORD CA
1157 AM PDT THU MAY 22 2008

CAZ089>091-222230-
WEST CENTRAL SAN JOAQUIN VALLEY-EAST CENTRAL SAN JOAQUIN VALLEY-
SOUTHWESTERN SAN JOAQUIN VALLEY-
1157 AM PDT THU MAY 22 2008

.NOW...

...GUSTY WINDS AND AREAS OF BLOWING DUST CONTINUE ACROSS PARTS OF THE SAN JOAQUIN VALLEY...

NORTHWEST WINDS OF 20 TO 25 MPH WITH GUSTS UP TO 40 MPH WILL CONTINUE TO AFFECT PARTS OF THE SAN JOAQUIN VALLEY...ESPECIALLY ALONG THE WEST SIDE OF THE VALLEY...THROUGH 3 PM PDT. THESE WINDS WILL AFFECT PORTIONS OF THE I-5 AND HIGHWAY 99 CORRIDORS WHERE AREAS OF BLOWING DUST WILL CONTINUE TO OCCUR. THESE STRONG WINDS WILL DIMINISH AFTER 3 PM THIS AFTERNOON.

MOTORISTS SHOULD REMAIN ALERT FOR REDUCED VISIBILITY IN BLOWING DUST...AND KEEP A FIRM GRIP ON THE STEERING WHEEL IF YOU ARE DRIVING A HIGH-PROFILE VEHICLE.

JMB

Criteria 3 and 4 - Strong winds

As shown in Table 2, 3, and 4, strong gusty winds occurred in Bakersfield and Lemoore during the May 21 and 22, 2008 blowing dust event. Observations at Bakersfield Meadows Field Airport on May 21 indicate 9 hours of sustained winds greater than 18 mph and 10 hours with gusts greater than 23 mph. The highest recorded gust was 33 mph. Observations at Lemoore Naval Air Station on May 21 indicate 13 hours of sustained winds greater than 18 mph and 11 hours with gusts greater than 31 mph. The highest recorded gust was 46 mph. Observations at Lemoore Naval Air Station on May 22 indicate 19 hours of sustained winds greater than 18 mph and 16 hours with gusts greater than 26 mph. Some of the wind data from Lemoore is not available for May 22, 2008. The highest recorded gust was 48 mph. The high wind event resulted in entrainment of dust and reports of blowing dust throughout the San Joaquin Valley. Television news coverage and Compliance Inspector visual reports from May 21 and 22, 2008 documented the high winds with video footage, photographs, and eyewitness reports.

Wind profiles documenting strong winds aloft in the San Joaquin Valley on May 21 and 22, 2008 are provided in the appendix.

Surface weather maps for the event are provided in the Appendix. Closely packed isobars, which are indicators of strong surface winds, are evident on these maps.

Criteria 5 – PM10 level is forecast to be above the NAAQS

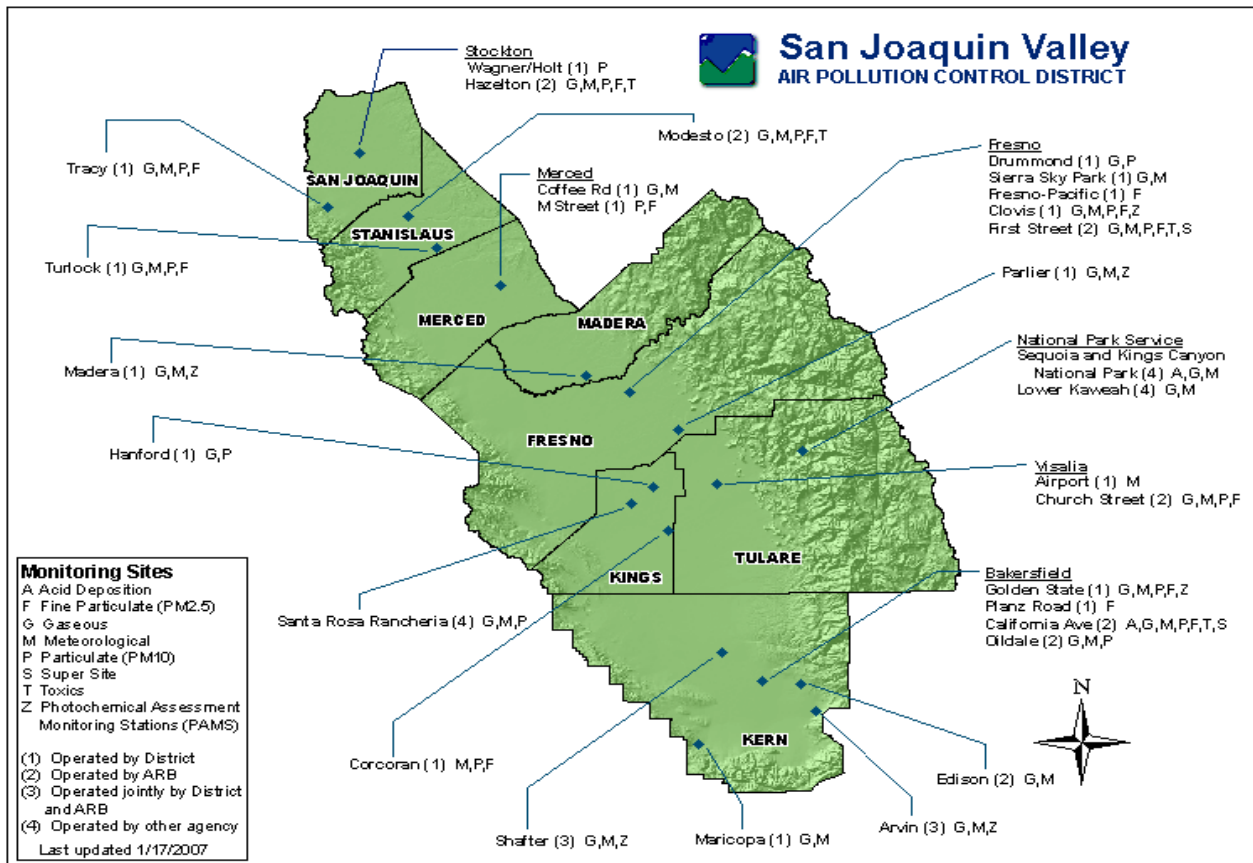
The District issued a press release on May 20 and May 22 highlighting the potential for blowing dust and elevated PM10 levels due to high winds. The agricultural burn allocation was set to 0 tons of PM10 for both May 21 and May 22 in anticipation of high PM10 concentrations.

4. SUMMARY OF NATURAL EVENT

4.1 PM10 Data Summary

On May 21 and 22, Federal Equivalent Method (FEM) samplers recorded concentrations in excess of the 24-hour NAAQS for PM10 in the San Joaquin Valley. The NAAQS is $150 \mu\text{g}/\text{m}^3$ rounded to the nearest $10 \mu\text{g}/\text{m}^3$, which equates to $155 \mu\text{g}/\text{m}^3$. A map of San Joaquin Valley monitoring stations is provided in Figure 8.

Figure 8. San Joaquin Valley PM10 monitors.



The District and ARB collect hourly PM10 concentrations recorded by PM10 Tapered Element Oscillating Microbalance (TEOM) type monitors and Beta Attenuation Mass (BAM) type monitors. PM10 concentrations recorded by these types of monitors are shown in Table 1. On May 21, 2008, the 24-hour averaged PM10 concentration reached $264 \mu\text{g}/\text{m}^3$ at Corcoran and $174 \mu\text{g}/\text{m}^3$ at Bakersfield Golden State Highway TEOM type monitor. On May 22, 2008, the 24-hour averaged PM10 concentration reached $196 \mu\text{g}/\text{m}^3$ at Corcoran for a TEOM type monitor.

The District also collects Federal Reference Method (FRM) filter based 24-hour PM10 concentrations using Grasby Andersen / GMW Model 1200 High – Volume Air Sampler. PM10 concentrations recorded by filter-based samplers on May 21 are presented in Table 1. On May 21, 2008, the 24-hour averaged PM10 concentration reached 208 $\mu\text{g}/\text{m}^3$ at Corcoran FRM type monitor. This type of monitor uses one filter for each day and the sampler is operated once every three days.

EPA certifies TEOM type monitors to be equivalent to Federal Reference Method (FRM) samplers making them Federal Equivalent Method (FEM) samplers (EQPM-1090-079). TEOM monitors are located at Tracy, Corcoran and Bakersfield-Golden State. A BAM monitor is operated by CARB at the Fresno-First Street monitoring station (EQPM-0798-122).

Table 1 shows that PM10 was low in Bakersfield and Corcoran from May 18 to May 19 due to good dispersion conditions. A frontal passage on May 20 accompanied by high winds, created blowing dust in the San Joaquin Valley. The high wind event continued through May 23. The high wind event was widespread and caused elevated PM10 levels at other monitoring locations across the San Joaquin Valley on May 21 and 22 as is evident in Table 1.

Table 1. PM10 daily averages in $\mu\text{g}/\text{m}^3$ recorded by samplers.

Station	Type	May 18	May 19	May 20	May 21	May 22	May 23	May 24
Tracy	TEOM	3	9	49	68	115	40	24
Fresno - First Street	BAM	34	41	76	103	80	45	28
Fresno-First Street	FRM	*						*
Corcoran	TEOM	41	54	125	264	196	53	30
Corcoran	FRM	*			208 ¹			*
Bakersfield – Golden State	TEOM	38	49	140	174	118	142	25
Bakersfield – Golden State	FRM	*						*

* - Filter analysis not available at this time.

¹ – Filter based measurements take precedence on real-time FEM sites when both FRM and FEM data are available.

4.2 Analysis of PM10 NAAQS Exceedance

As described in the District's NEAP and in EPA Rule, the following sources of documentation, if available, may be used to establish a clear, causal relationship between an exceedance and a natural event:

- Meteorological data (e.g., wind speed and wind direction to support a source receptor relationship)
- Modeling and receptor analysis
- Videos and/or photographs of the event and the resulting emissions
- Maps of the areas showing sources of emissions and the area affected by the event
- News accounts of the event
- Filter analysis
- In the case of high-wind events, states must document that BACM were required for anthropogenic sources at the time of the high-wind event

The District compiled documentation of the causal relationship between the PM10 NAAQS exceedance and the natural event. The District has determined that the cause of this PM10 event was wind-entrained dust from local sources. The high wind event was widespread and caused blowing dust and elevated PM10 levels throughout the entire San Joaquin Valley. PM10 activity related emissions for BACM controlled sources were approximately constant before, during and after the event, indicating the significant increase in PM10 concentrations was caused by the wind entrained dust. This report provides evidence of high winds in the San Joaquin Valley on May 21 and 22, 2008, coinciding with observations of blowing dust and an increase in PM10 at Bakersfield and Corcoran.

PM10 at Corcoran rapidly increased from $45 \mu\text{g}/\text{m}^3$ at hour 7 to $256 \mu\text{g}/\text{m}^3$ at hour 9 on May 21, 2008, as shown in Table 2 and Figure 9. The increase in Corcoran PM10 concentrations coincided with a significant increase in wind speed at Lemoore, which reported NNW wind gusts of 31 mph or greater starting during hour 8 and continuing to hour 18. Lemoore was chosen as the meteorology site because it is approximately 25 miles upwind of Corcoran and is an official weather observation station. A peak wind gust of 44 mph was reported during hour 13. With afternoon heating, strong winds aloft mixed to the surface causing gusty winds and areas of blowing dust. The Lemoore Naval Air Station reported weather observations of blowing dust from hour 9 to hour 17. PM10 concentrations then decreased to $26 \mu\text{g}/\text{m}^3$ by hour 21.

PM10 at Bakersfield increased from 81 $\mu\text{g}/\text{m}^3$ at hour 8 to 142 $\mu\text{g}/\text{m}^3$ at hour 12 on May 21, 2008, as shown in Table 3 and Figure 10. Upwind at Lemoore (approximately 47 miles away), the winds were 23 mph and gusty. At the surface, the dust would arrive approximately two hours later in Bakersfield. In addition, gusty winds at Bakersfield caused PM10 levels to climb. At hour 11 on May 21, 2008, the PM10 concentrations climbed to 107 $\mu\text{g}/\text{m}^3$. NNW winds at Bakersfield Meadows Field Airport were gusting above 23 MPH from hour 8 and continuing to hour 18. A peak wind gust of 33 mph was reported during hour 17. The Bakersfield Meadows Field Airport observation showed reduced visibilities (haze) between hours 16 and 18.

PM10 concentrations at Corcoran on May 22, 2008, lowered during the overnight hours when a weak surface temperature inversion formed. This inversion was present in the lower air profiler at Lost Hills (see Appendix). With the sunrise around 5:45 PDT, the surface inversion began to disappear. The absence of the surface inversion along with the presence of strong northwesterly winds caused the PM10 levels to climb from 53 $\mu\text{g}/\text{m}^3$ at hour 3 to 198 $\mu\text{g}/\text{m}^3$ at hour 5 on May 22, 2008, as shown in Table 4 and Figure 11. Lemoore reported NW to NNW wind gusts of 28 mph or greater starting during hour 1 and continuing to hour 18. A peak wind gust of 48 mph was reported during hour 9. The Lemoore Naval Air Station reported weather observations of blowing dust from hour 9 to hour 15. Meteorological data from Lemoore during hours 7, 8, 11, and 23 on May 22, 2008 are not available.

Television and news paper coverage and District Compliance inspector reports confirmed high winds and blowing dust through pictures, video documentation and eyewitness accounts from across the San Joaquin Valley. These reports verified that high winds were widespread and causing blowing dust on May 20 through 23. The PM10 monitors measured PM10 exceedances in Corcoran on May 21 and 22 and in Bakersfield on May 22.

Table 2. May 21, 2008 hourly PM10, wind speed, wind direction and weather observations.

Hour (PST)	Corcoran PM10 ($\mu\text{g}/\text{m}^3$) TEOM Monitor	Lemoore, Naval Air Station			
		Wind Speed (mph)	Wind Direction	Wind Gust (mph)	Weather Observation
0	27	0	Calm	-	Clear
1	24	8	WNW	-	Clear
2	24	0	Calm	-	Clear
3	31	12	NNW	-	Clear
4	34	13	NNW	-	Clear
5	40	15	NW	-	Clear
6	44	12	NNW	-	Clear
7	45	16	NNW	-	Clear
8	130	23	NNW	31	Clear
9	256	29	NNW	35	Blowing Dust
10	406	30	NNW	39	Blowing Dust
11	484	31	NNW	39	Blowing Dust
12	358	29	NNW	40	Blowing Dust
13	640	33	NW	44	Blowing Dust
14	845	31	NNW	41	Blowing Dust
15	899	38	NNW	46	Blowing Dust
16	595	38	NNW	48	Blowing Dust
17	479	32	NNW	40	Blowing Dust
18	425	35	NW	43	Clear
19	362	26	NNW	-	Clear
20	107	14	NW	-	Clear
21	26	10	WNW	-	Clear
22	20	15	WNW	-	Clear
23	26	20	NNW	-	Clear
Avg.	264				

Hour 0 is Midnight to 12:59:59 AM, Pacific Standard Time. Data is preliminary. Gust is a peak 3 second average and wind speed is a 10 minute average ending on the hour. Weather data at Lemoore Naval Air Station was obtained from the Mesowest website and the National Weather Service. A dash indicates data was not available.

Table 3. May 21, 2008 hourly PM10, wind speed, wind direction and weather observations.

Hour (PST)	Bakersfield – Golden State PM10 ($\mu\text{g}/\text{m}^3$) TEOM Monitor	Bakersfield Meadows Field Airport			
		Wind Speed (mph)	Wind Direction	Wind Gust (mph)	Weather Observation
0	37	17	NNW	-	Clear
1	9	13	NW	-	Clear
2	18	10	NNW	-	Clear
3	23	12	N	-	Clear
4	-	13	N	-	Clear
5	29	16	N	-	Clear
6	57	18	N	-	Clear
7	68	17	NNW	-	Clear
8	81	18	NW	28	Clear
9	80	16	NNW	25	Clear
10	98	13	NW	25	Clear
11	107	16	WNW	24	Clear
12	142	13	NW	23	Clear
13	253	14	NNW	24	Clear
14	288	18	NNW	23	Clear
15	398	20	NW	-	Clear
16	548	21	NNW	25	Haze
17	670	20	NNW	33	Haze
18	342	22	N	31	Haze
19	229	18	NNW	-	Clear
20	276	13	NNW	-	Clear
21	175	15	NNW	-	Clear
22	48	10	NW	-	Clear
23	33	5	NW	-	Clear
Avg.	174				

Hour 0 is Midnight to 12:59:59 AM, Pacific Standard Time. Data is preliminary. Gust is a peak 3 second average and wind speed is a 10 minute average ending on the hour. Weather data at Bakersfield-Meadows was obtained from the Mesowest website and the National Weather Service. A dash indicates data was not available.

Table 4. May 22, 2008 hourly PM10, wind speed, wind direction and weather observations.

Hour (PST)	Corcoran PM10 ($\mu\text{g}/\text{m}^3$) TEOM Monitor	Lemoore, Naval Air Station			
		Wind Speed (mph)	Wind Direction	Wind Gust (mph)	Weather Observation
0	23	21	NW	-	Clear
1	26	29	NW	37	Clear
2	34	24	NW	32	Clear
3	53	30	NW	40	Clear
4	105	29	NW	41	Clear
5	198	24	NNW	33	Clear
6	177	28	NNW	33	Clear
7	347	-	-	-	-
8	513	-	-	-	-
9	491	40	NNW	48	Blowing Dust
10	480	28	NNW	41	Blowing Dust
11	421	-	-	-	-
12	437	29	NNW	36	Blowing Dust
13	317	23	NNW	39	Blowing Dust
14	175	25	NW	35	Blowing Dust
15	205	22	NW	29	Blowing Dust
16	183	22	NW	28	Partly Cloudy
17	142	24	NW	32	Partly Cloudy
18	128	18	NW	29	Partly Cloudy
19	80	18	WNW	-	Partly Cloudy
20	57	15	WNW	-	Partly Cloudy
21	45	16	WNW	26	Partly Cloudy
22	33	18	WNW	-	Partly Cloudy
23	31	-	-	-	-
Avg.	196				

Hour 0 is Midnight to 12:59:59 AM, Pacific Standard Time. Data is preliminary. Gust is a peak 3 second average and wind speed is a 10 minute average ending on the hour. Weather data at Lemoore Naval Air Station was obtained from the Mesowest website and the National Weather Service. A dash indicates data was not available.

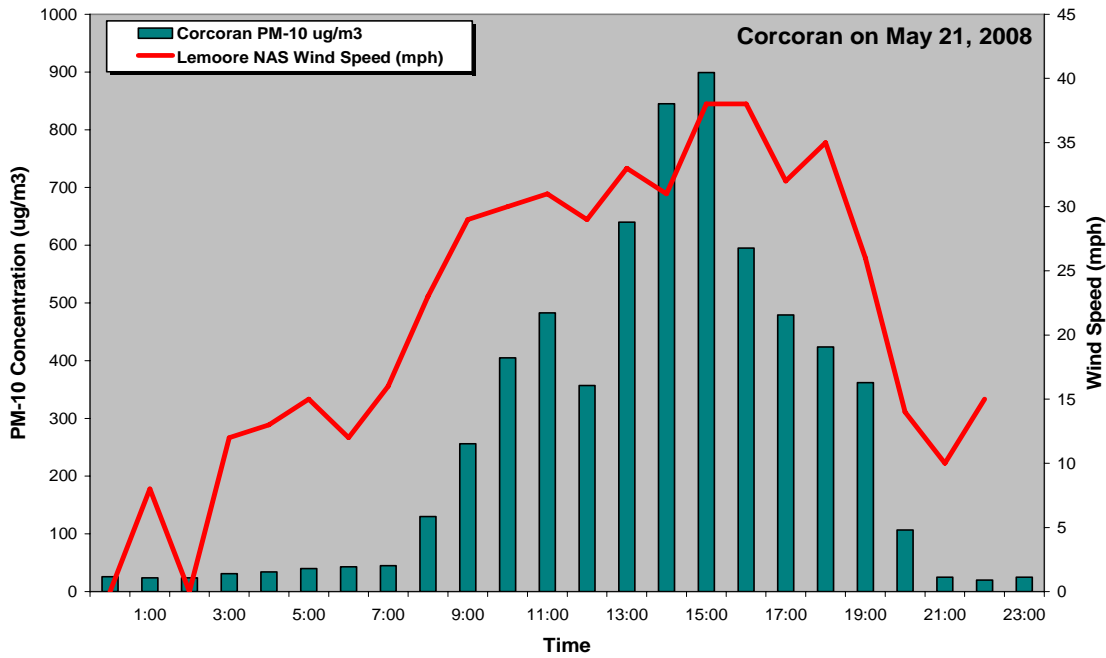


Figure 9. Hourly PM10 concentrations at Corcoran and hourly wind speed at Lemoore Naval Air Station on May 21, 2008. All times in PST.

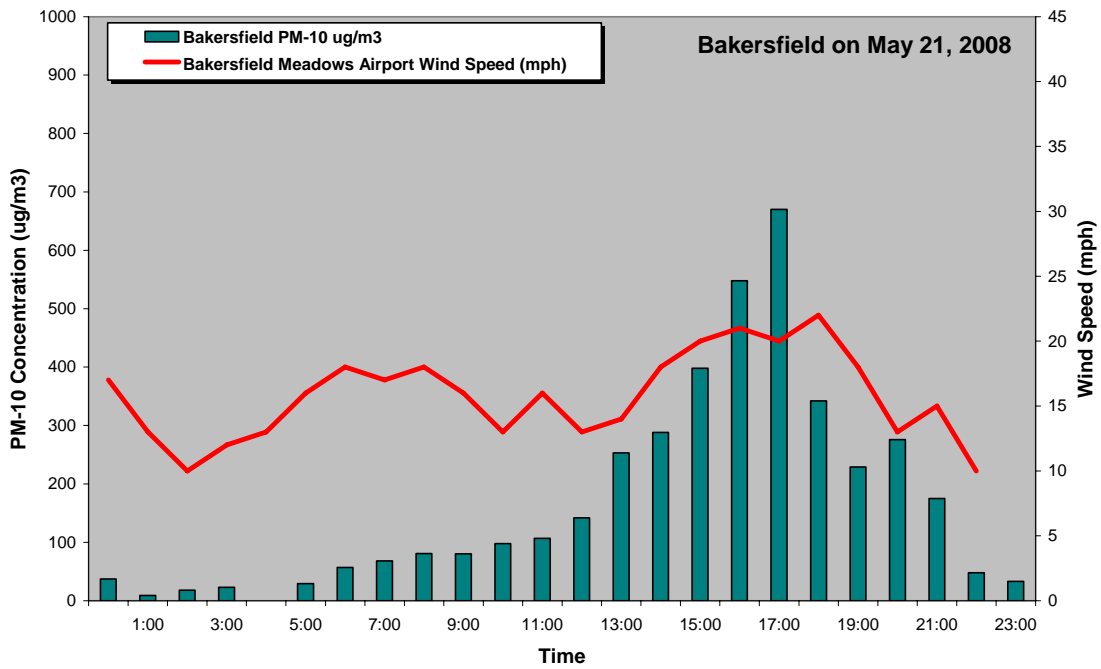


Figure 10. Hourly PM10 concentrations at Bakersfield and hourly wind speed at Bakersfield Meadows Field Airport on May 21, 2008. All times in PST.

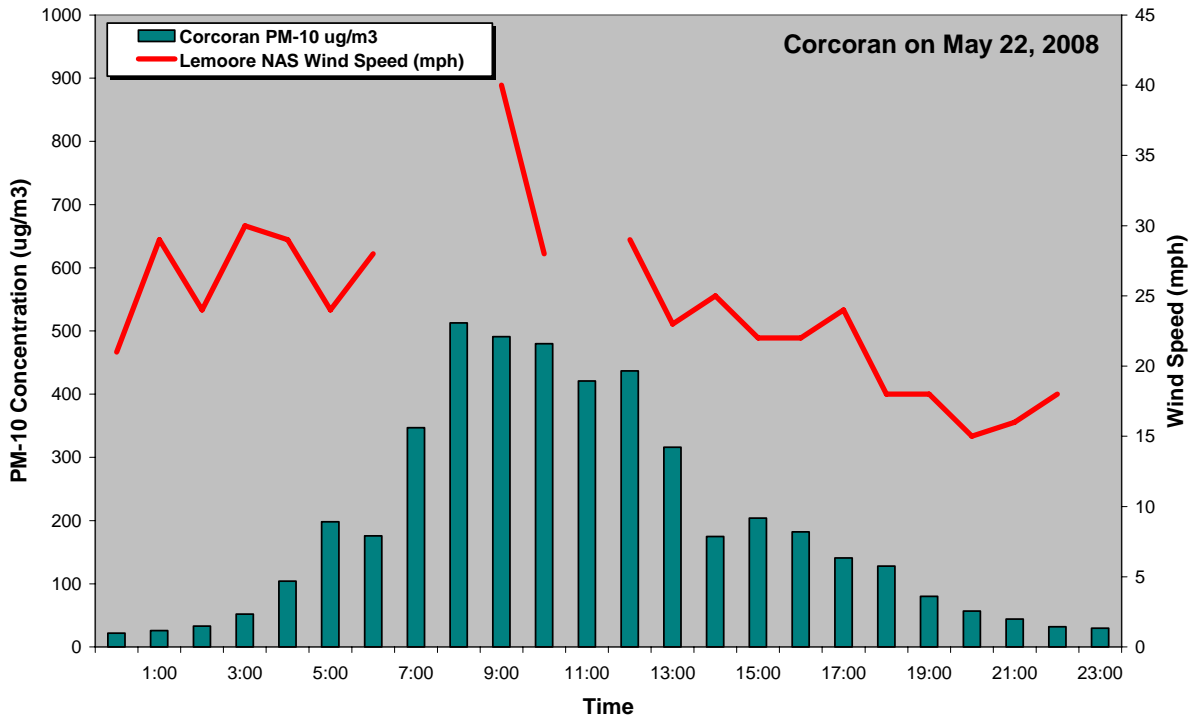


Figure 11. Hourly PM10 concentrations at Corcoran and hourly wind speed at Lemoore Naval Air Station on May 22, 2008. All times in PST.

Note some wind data was missing from Lemoore on May 22, 2008.

5. EMISSIONS SOURCES AND ACTIVITY DATA

The District has best available control measures (BACM) in place as described in the *2006 PM10 Plan*, the NEAP, and previous plans. Most notable among the District's dust controls are Regulation VIII (the fugitive dust rules, which were last amended in August 2004), and Conservation Management Practices (CMPs, District Rule 4550, adopted May 2004 and re-adopted August 2004), through which the District has documented CMPs on over three million acres of agricultural land in the San Joaquin Valley Air Basin. A summary of the District-wide routine inspections reported on May 21 and 22, 2008 in the San Joaquin Valley Air Basin is shown in the Appendix.

Agricultural burning was not permitted in the San Joaquin Valley on May 21 and 22, 2008 as part of the District's Smoke Management Allocation System (Rule 4103). Zero tons of PM10 emissions occurred for the entire San Joaquin Valley for those days from agricultural burning.

Based on a survey of the available information, there is no evidence of unusual emissions on May 21 and 22, 2008, other than the blowing dust event. However, several fires were reported occurring in various locations of the District those days.

BACM controls were in place during the event. PM10 was emitted from BACM controlled sources because BACM controls were overwhelmed by the high winds. Activities that generated anthropogenic fugitive PM10 were approximately constant before, during and after the event. The significant increase in PM10 concentrations was caused by the wind entrained dust.

6. HISTORICAL PM10 PRIMARY MONITOR VALUES FOR THE MONTH OF MAY

Historically, 24-Hour PM10 primary monitor concentrations have been relatively low in the month of May. The following table shows the maximum 24-Hour PM10 concentration during the month of May for the years 1986 through 2008.

Table 5. Maximum Primary PM10 Values in the Month of May by year since 1986

Year	Max PM10 Value ($\mu\text{g}/\text{m}^3$)	Location	Date
May-86	40	Merced, 18th	5/14/1986
May-87	64	Madera-Library	5/7/1987
May-88	80	Oildale	5/12/1988
May-89	58	Visalia-Church	5/4/1989
May-90	129	Oildale	5/23/1990
May-91	124	Corcoran-Van Dorsten	5/30/1991
May-92	71	Kettleman City-CalTrans	5/30/1992
May-93	67	Visalia-Church	5/1/1993
May-94	67	Fresno-Drummond	5/14/1994
May-95	49	Oildale	5/27/1995
May-96	59	Bakersfield-Gold	5/9/1996
May-97	87	Bakersfield-Calif	5/19/1997
May-98	31	Bakersfield-Gold	5/23/1998
May-99	116	Fresno-Drummond	5/6/1999
May-00	50	Visalia-Church	5/6/2000
May-01	106	Hanford	5/1/2001
May-02	189*	Bakersfield-Gold	5/20/2002
May-03	76	Bakersfield-Gold	5/27/2003
May-04	79	Bakersfield-Calif	5/3/2004
May-05	47	Bakersfield-Gold	5/28/2005
May-06	93	Bakersfield-Gold	5/17/2006
May-07	54	Santa Rosa Rancheria	5/1/2007
May-08	208	Corcoran	5/21/2008

* Documentation of the wind blown dust event causing this exceedance can be found in the appendix of this document.

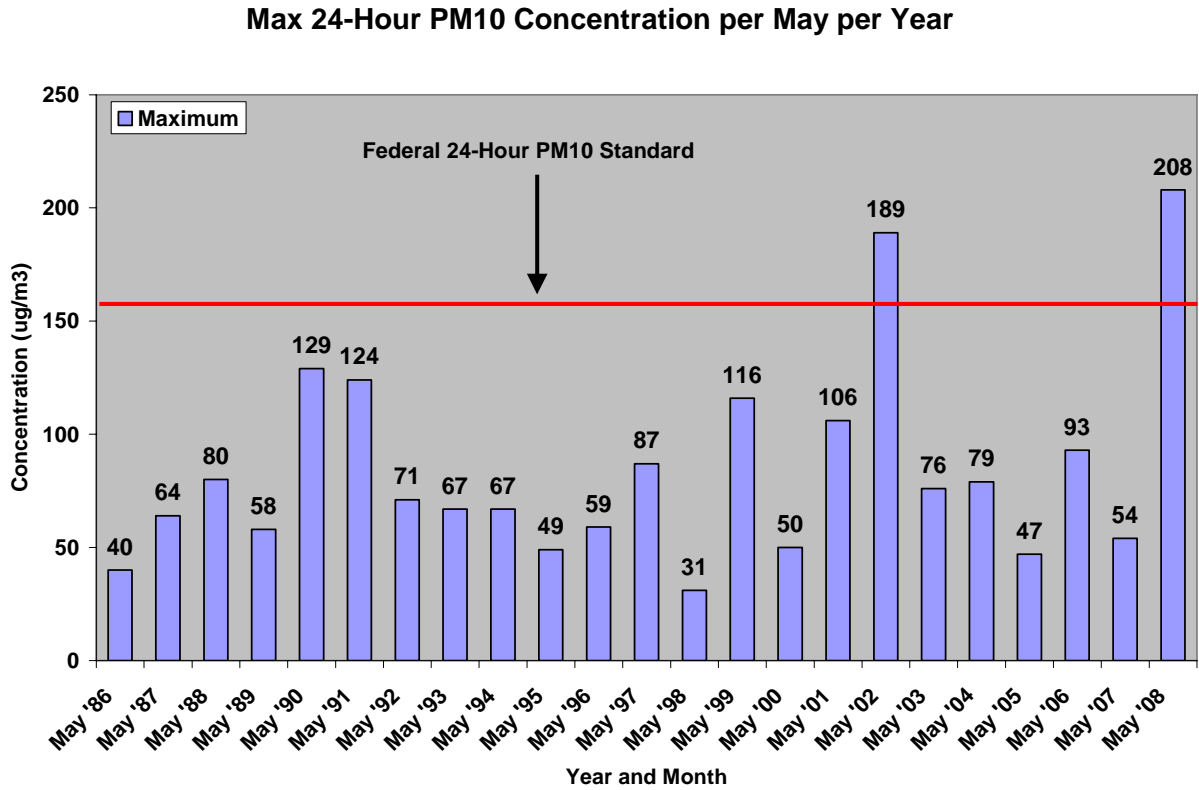
As the table shows, there has only been one exceedance of the Federal 24-Hour PM10 standard in the month of May over the past 22 years, from 1986 to 2007. This exceedance occurred on May 20, 2002, when a concentration of $189 \mu\text{g}/\text{m}^3$ was recorded at the Bakersfield-Golden monitoring site. This high value was due to a wind blown dust event that occurred in the San Joaquin Valley on May 19-20, 2002. A weather discussion was written up on this event on December 31, 2002, and can be found in the appendix section of this document.

The second highest 24-Hour PM10 concentration in May of 2002 was only $65 \mu\text{g}/\text{m}^3$, which was also measured on May 20th, 2002. Since 1986, there have only been three exceedances of the Federal 24-Hour PM10 standard during the month of May (May 20,

2002, May 21, 2008 and May 22, 2008). Therefore, the San Joaquin Valley clearly does not have a history of high PM10 events during the month of May, and this recent exceedance on May 21-22, 2008 is certainly an uncommon incident.

As represented in the previous table, the following chart shows the maximum 24-Hour PM10 concentration per year during the month of May.

Figure 12. Historical Analysis of PM10 from 1986 to 2008



7. A REVIEW OF MAY 21 AND 22, 2008 IN CONSIDERATION OF THE EXCEPTIONAL EVENT CRITERIA

The following discussion examines the circumstances of events on May 21 and 22, 2008, and why the District believes this should be classified as an exceptional event. The District must review air quality monitoring data for regulatory determinations related to exceedances or violations of the NAAQS and demonstrate that an exceptional event has caused an exceedance or violation of the NAAQS. As described in Section 2 in this document, the EPA requires states to take reasonable measures to mitigate the impacts of an exceptional event. In accordance with the language in section 319, EPA defines the term "exceptional event" to mean an event that:

- (i) Affects air quality;
- (ii) Is not reasonably controllable or preventable;
- (iii) Is an event caused by human activity that is unlikely to recur at a particular location or a natural event; and
- (iv) Is determined by EPA through the process established in the regulations to be an exceptional event.

7.1 Exceptional Event Criteria Summary for May 21, 2008

The District demonstrated that the exceedance of the PM10 NAAQS in Bakersfield and Corcoran on May 21, 2008 satisfied the following exceptional event criteria referenced in the previous section:

1) The event affected air quality.

Table 1 shows that PM10 concentrations in Bakersfield and Corcoran were low on days before and after the high wind event. Table 2 & 3 and Figure 9 & 10 show that PM10 concentrations increased with the arrival of high winds.

2) The event is not reasonably controllable or preventable.

As described in Section 6 there were no unusual emission activities on May 21, 2008 that if controlled would have prevented the event. The event overcame BACM controls.

3) There is a clear causal connection between the exceedances and the claimed exceptional event.

The causal connection was demonstrated by showing the dramatic increase in hourly PM10 concentrations that coincided with high winds.

4) The event is associated with measured concentration in excess of normal historical fluctuations including background.

The 24-hour average PM10 concentration of 208 $\mu\text{g}/\text{m}^3$ at Corcoran and 174 $\mu\text{g}/\text{m}^3$ at Bakersfield on May 21, 2008 were the 1st and 4th highest 24-hour average PM10 concentration recorded for the month of May in the San Joaquin Valley Air Basin for the period 1986 to 2008. The 3rd highest concentration recorded was a wind event that occurred May 20, 2002, where Bakersfield recorded a 189 $\mu\text{g}/\text{m}^3$ measurement. The District concludes that the natural event was unusual because the concentration was the 1st and 4th highest 24-hour average PM10 concentration recorded during the month of May in a 23-year period.

There would have been no exceedance “but for” the event.

The evidence presented in this report shows that there would not have been an exceedance of the PM10 NAAQS in Corcoran and Bakersfield on May 21, 2008, but for the presence of high winds. Data presented in this report presents the impact of high winds on air quality on May 21, 2008. PM10 concentrations in Corcoran and Bakersfield were low until winds began to increase in the area beginning on May 20 and peaking on May 21 and 22.

Based on the data provided in this report, the District concludes that there would not have been an exceedance of the PM10 NAAQS in Bakersfield and Corcoran on May 21, 2008 if high winds were not present.

7.2 Exceptional Event Criteria Summary for May 22, 2008

The District demonstrated that the exceedance of the PM10 NAAQS in Corcoran on May 22, 2008 satisfied the following exceptional event criteria referenced in the previous section:

1) The event affected air quality.

Table 1 shows that PM10 concentrations in Corcoran were low on days before and after the high wind event. Table 4 and Figure 11 show that PM10 concentrations increased with the continuation of the high winds.

2) The event is not reasonably controllable or preventable.

As described in Section 6 there were no unusual emission activities on May 22, 2008 that if controlled would have prevented the event. The event overcame BACM controls.

3) There is a clear causal connection between the exceedances and the claimed exceptional event.

The causal connection was demonstrated by showing the dramatic increase in hourly PM10 concentrations that coincided with high winds.

- 4) The event is associated with measured concentration in excess of normal historical fluctuations including background.

The 24-hour average PM10 concentration of 196 $\mu\text{g}/\text{m}^3$ at Corcoran on May 22, 2008 was the 2nd highest 24-hour average PM10 concentration recorded for the month of May in the San Joaquin Valley Air Basin for the period 1986 to 2008. The District concludes that the natural event was unusual because the concentration was the 2nd highest 24-hour average PM10 concentration recorded during the month of May in a 23-year period.

There would have been no exceedance “but for” the event.

The evidence presented in this report shows that there would not have been an exceedance of the PM10 NAAQS in Corcoran on May 22, 2008, but for the presence of high winds. Data presented in this report presents the impact of high winds on air quality on May 22, 2008. PM10 concentrations in Corcoran were low until winds began to increase in the area beginning on May 20 and peaking on May 21 and 22.

Based on the data provided in this report, the District concludes that there would not have been an exceedance of the PM10 NAAQS in Corcoran on May 22, 2008 if high winds were not present.

8. REFERENCES

Desert Research Institute (DRI), Western Regional Climate Center, <http://www.wrcc.dri.edu> , *Western Climate Summaries*

Environmental Protection Agency (EPA). *Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events*. July 1986.

Environmental Protection Agency (EPA). *Memorandum: Areas Affected by PM10 Natural Events*. May 1996.

Environmental Protection Agency (EPA). *Treatment of Data Influenced by Exceptional Events; Final Rule*. March 2007.

Mesowest historical meteorological data, *Mesowest*, <http://www.met.utah.edu/mesowest>

National Oceanic and Atmospheric Administration (NOAA): ESRL/Physical Sciences Division, Profiler Data

Department of Earth and Atmospheric Sciences, University at Albany, State University of New York, <http://www.atmos.albany.edu/weather/difax.html> : Surface weather maps

National Oceanic and Atmospheric Administration (NOAA): Weather data, <http://www.weather.gov>

Naval Postgraduate School, Department of Meteorology, Profiler Data, <http://www.weather.nps.navy.mil/profiler/coastprof.html>

KFSN Channel 30 (ABC), Fresno: Television news coverage

KGET Channel 17 (NBC), Bakersfield: Television news coverage

APPENDIX A

SUPPORTING DOCUMENTS

A.1 District Press Release on May 20, 2008 for high winds.

News Release

05-20-08

For Immediate Release

TO:

Local News, Health and Weather sections



North District Media Contact - Modesto
Anthony Presto
(209) 557-6400

Central District Media Contact - Fresno
Maricela Velásquez
(559) 230-6000

South District Media Contact - Bakersfield
Brenda Turner
(661) 326-6900

Winds prompt health warning

Air District cautions that there is potential for blowing dust

Gusty winds in the San Joaquin Valley have prompted local air-pollution officials to issue a health cautionary statement through Wednesday evening.

Winds in the San Joaquin Valley may produce areas of localized blowing dust throughout the Valley. Blowing dust can result in unhealthy concentrations of particulate matter 10 microns and smaller, or PM10.

"The stagnant conditions quickly came to an end this afternoon, as a cold front is bringing gusty winds and blowing dust to the San Joaquin Valley," said Valley Air District Senior Air Quality Specialist Shawn Ferreria.

Exposure to dust and other particle pollution can cause serious health problems, aggravate lung disease, cause asthma attacks and acute bronchitis, and increase risk of respiratory infections.

People with heart or lung diseases should follow their doctors' advice for dealing with episodes of unhealthy air quality when dust is present. Additionally, older adults and children should avoid prolonged exposure, strenuous activities or heavy exertion in affected areas. Everyone else should reduce prolonged exposure, strenuous activities or heavy exertion.

The Valley Air District covers eight counties including San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and San Joaquin Valley air basin portions of Kern. For more information, visit <http://www.valleyair.org/> or call the nearest District office: Modesto (209) 557-6400, Fresno (559) 230-6000 and Bakersfield (661) 326-6900.

A.2 District Press Release on May 22, 2008 for high winds.



News Release

05-22 -08

For Immediate Release

TO:

Local News, Health and Weather sections

North District Media Contact - Modesto
Anthony Presto
(209) 557-6400

Central District Media Contact - Fresno
Maricela Velásquez
(559) 290-6000

South District Media Contact - Bakersfield
Brenda Turner
(661) 326-6900

Winds prompt health warning

Air District cautions residents to limit exposure to wind-blown dust

Gusty winds in the San Joaquin Valley have prompted local air-pollution officials to extend a health cautionary statement through Thursday evening.

Winds in the San Joaquin Valley may produce areas of localized blowing dust throughout the Valley. Blowing dust can result in unhealthy concentrations of particulate matter 10 microns and smaller, or PM10.

"The dry and windy conditions are causing blowing dust throughout the San Joaquin Valley," said Valley Air District Senior Air Quality Specialist Shawn Ferreria.

Exposure to dust and other particle pollution can cause serious health problems, aggravate lung disease, cause asthma attacks and acute bronchitis, and increase risk of respiratory infections.

A.3 Air Quality Alert Message

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT
 RELAYED BY NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY CA
 350 AM PDT WED MAY 21 2008

THE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT HAS ISSUED
 AN AIR QUALITY ALERT FOR THE VALLEY PORTIONS OF FRESNO...KERN...
 KINGS...MADERA...MERCED...AND TULARE COUNTIES THROUGH
 WEDNESDAY EVENING MAY 21 DUE TO BLOWING DUST CAUSED BY WINDY
 CONDITIONS.

EXPOSURE TO PARTICLE POLLUTION CAN CAUSE SERIOUS HEALTH
 PROBLEMS...AGGRAVATE LUNG DISEASE...CAUSE ASTHMA ATTACKS AND
 ACUTE BRONCHITIS AND INCREASE RISK OF RESPIRATORY INFECTIONS. IN
 PEOPLE WITH HEART DISEASE...SHORT-TERM EXPOSURE TO PARTICLE
 POLLUTION HAS BEEN LINKED TO HEART ATTACKS AND ARRHYTHMIAS...
 ACCORDING TO THE U.S. ENVIRONMENTAL PROTECTION AGENCY. CHILDREN
 AND ELDERLY PEOPLE ARE ALSO MORE SUSCEPTIBLE TO CONSEQUENCES OF
 HIGH PARTICULATE LEVELS.

A.4 Routine Inspections from May 21 and 22, 2008

For May 21, 2008 there were a total of 85 inspections.

Activity	Project Type	Region
Required Compliance Inspection - Field	Title V	South
Required Compliance Inspection - Field	Title V	South
Required Compliance Inspection - Field	Title V	South
Required Compliance Inspection - Field	Title V	South
Required Compliance Inspection - Field	Minor Source	Central
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	South
Required Compliance Inspection - Field	Minor Source	South
Required Compliance Inspection - Field	Minor Source	South
Required Compliance Inspection - Field	Minor Source	South

Required Compliance Inspection - Field	Minor Source	South
Required Compliance Inspection - Field	Minor Source Ag	Central
Required Compliance Inspection - Field	Minor Source Ag	South
Required Compliance Inspection - Field	Minor Source Ag	South
Required Compliance Inspection - Field	Automotive Coating	Central
Required Compliance Inspection - Field	State PERP	South
Required Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Required Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Required Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Required Compliance Inspection - Field	Gasoline Vapor Recovery	North
Required Compliance Inspection - Field	Gasoline Vapor Recovery	North
Required Compliance Inspection - Field	CMP Ag	Central
Other Compliance Inspection - Field	Title V	South
Other Compliance Inspection - Field	Minor Source	Central
Other Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Other Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Other Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Other Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Other Compliance Inspection - Field	Gasoline Vapor Recovery	North
Other Compliance Inspection - Field	Gasoline Vapor Recovery	North
Other Compliance Inspection - Field	Non-Permitted Sources	Central
Other Compliance Inspection - Field	Asbestos	Central
Other Compliance Inspection - Field	Asbestos	North
Follow-up/Reinspections - Field	Minor Source	South
Follow-up/Reinspections - Field	Minor Source Ag	South
Follow-up/Reinspections - Field	Minor Source Ag	South
Follow-up/Reinspections - Field	District Portable Equipment	P
Follow-up/Reinspections - Field	Grant Program Inspections Ag	Central
Follow-up/Reinspections - Field	Open Burning	Central
Complaint Investigation - Field	Title V	South
Complaint Investigation - Field	Minor Source	North
Complaint Investigation - Field	Non-Permitted Sources	North
Complaint Investigation - Field	Regulation 8	Central
Complaint Investigation - Field	Regulation 8	North
Complaint Investigation - Field	Open Burning	Central
Source Test/Performance Test - Field	Title V	Central
Source Test/Performance Test - Field	Title V	North
Source Test/Performance Test - Field	Title V	South
Source Test/Performance Test - Field	Minor Source	Central
Source Test/Performance Test - Field	Gasoline Vapor Recovery	Central
Surveillance/Survey - Field	Minor Source	North
Surveillance/Survey - Field	Non-Permitted Sources	North
Surveillance/Survey - Field	Regulation 8	North
Breakdown Investigation - Field	Title V	North
Breakdown Investigation - Field	Title V	South
Breakdown Investigation - Field	Minor Source	North

Legal Action - Field Activity	Minor Source	South
Service/Info - Field	Minor Source	Central
Service/Info - Field	Other	South
ATC/PTO Startup - Field	Title V	South
ATC/PTO Startup - Field	Minor Source	South
ATC/PTO Startup - Field	Minor Source Ag	South
ATC/PTO Startup - Field	Gasoline Vapor Recovery	North
ATC/PTO Startup - Field	Gasoline Vapor Recovery	North
ATC/PTO Startup - Field	Gasoline Vapor Recovery	South
Training - Field	Title V	South
Training - Field	Minor Source	South
Training - Field	Minor Source	South
Training - Field	Minor Source Ag	South
Training - Field	Minor Source Ag	South
Training - Field	Gasoline Vapor Recovery	Central
Training - Field	Gasoline Vapor Recovery	South
Special Project - Field	Other	North
Special Project - Field	Other	South
Meeting - Field	Title V	South
Meeting - Field	Other	South
District Conducted Testing - Field	Non-Permitted Sources	South

For May 22, 2008 there were a total of 90 inspections.

Activity	Project Type	Region
Required Compliance Inspection - Field	Title V	North
Required Compliance Inspection - Field	Title V	South
Required Compliance Inspection - Field	Title V	South
Required Compliance Inspection - Field	Title V	South
Required Compliance Inspection - Field	Title V	South
Required Compliance Inspection - Field	Minor Source	Central
Required Compliance Inspection - Field	Minor Source	Central
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	North
Required Compliance Inspection - Field	Minor Source	South
Required Compliance Inspection - Field	Minor Source	South
Required Compliance Inspection - Field	Minor Source	South
Required Compliance Inspection - Field	Minor Source Ag	Central
Required Compliance Inspection - Field	Minor Source Ag	Central
Required Compliance Inspection - Field	Minor Source Ag	North
Required Compliance Inspection - Field	Minor Source Ag	South
Required Compliance Inspection - Field	State PERP	South

Required Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Required Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Required Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Required Compliance Inspection - Field	Gasoline Vapor Recovery	North
Required Compliance Inspection - Field	Grant Program Inspections Ag	Central
Required Compliance Inspection - Field	CMP Ag	Central
Required Compliance Inspection - Field	CMP Ag	South
Other Compliance Inspection - Field	Title V	Central
Other Compliance Inspection - Field	Title V	South
Other Compliance Inspection - Field	Title V	South
Other Compliance Inspection - Field	Title V	South
Other Compliance Inspection - Field	Minor Source	North
Other Compliance Inspection - Field	Minor Source	South
Other Compliance Inspection - Field	Minor Source Ag	Central
Other Compliance Inspection - Field	State PERP	North
Other Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Other Compliance Inspection - Field	Gasoline Vapor Recovery	Central
Other Compliance Inspection - Field	Gasoline Vapor Recovery	North
Other Compliance Inspection - Field	Grant Program Inspections Ag	Central
Other Compliance Inspection - Field	Grant Program Inspections Ag	Central
Other Compliance Inspection - Field	Grant Program Inspections Ag	North
Other Compliance Inspection - Field	Open Burning	North
Other Compliance Inspection - Field	Asbestos	Central
Other Compliance Inspection - Field	Asbestos	North
Follow-up/Reinspections - Field	Title V	South
Follow-up/Reinspections - Field	Title V	South
Follow-up/Reinspections - Field	Minor Source	North
Follow-up/Reinspections - Field	Minor Source	North
Follow-up/Reinspections - Field	Minor Source	North
Follow-up/Reinspections - Field	Minor Source	South
Follow-up/Reinspections - Field	Minor Source Ag	South
Follow-up/Reinspections - Field	Gasoline Vapor Recovery	Central
Follow-up/Reinspections - Field	Gasoline Vapor Recovery	North
Follow-up/Reinspections - Field	Gasoline Vapor Recovery	South
Follow-up/Reinspections - Field	Gasoline Vapor Recovery	South
Follow-up/Reinspections - Field	Non-Permitted Sources	North
Follow-up/Reinspections - Field	Grant Program Inspections	North
Follow-up/Reinspections - Field	Grant Program Inspections	South
Follow-up/Reinspections - Field	Asbestos	North
Complaint Investigation - Field	Title V	South
Complaint Investigation - Field	Minor Source	A
Complaint Investigation - Field	Minor Source	North
Complaint Investigation - Field	Minor Source	South
Complaint Investigation - Field	Minor Source	South
Complaint Investigation - Field	Non-Permitted Sources	North
Complaint Investigation - Field	Non-Permitted Sources Ag	North

Complaint Investigation - Field	Regulation 8	Central
Complaint Investigation - Field	Regulation 8	North
Complaint Investigation - Field	Regulation 8	South
Complaint Investigation - Field	Open Burning	South
Complaint Investigation - Field	Asbestos	North
Complaint Investigation - Field	Other	Central
Source Test/Performance Test - Field	Title V	Central
Source Test/Performance Test - Field	Gasoline Vapor Recovery	Central
Source Test/Performance Test - Field	Gasoline Vapor Recovery	North
Surveillance/Survey - Field	Regulation 8	Central
Surveillance/Survey - Field	Regulation 8	North
Legal Action - Field Activity	Title V	North
Service/Info - Field	Asbestos	North
ATC/PTO Startup - Field	Minor Source	Central
ATC/PTO Startup - Field	Minor Source	South
ATC/PTO Startup - Field	Minor Source Ag	Central
ATC/PTO Startup - Field	Minor Source Ag	South
ATC/PTO Startup - Field	Gasoline Vapor Recovery	South
Training - Field	Title V	South
Training - Field	Other	Central
Special Project - Field	Other	South
District Conducted Testing - Field	Non-Permitted Sources	South
Supervision/Lead Duties - Field	Title V	South

A.5 Climate Summaries

BAKERSFIELD WSO AIRPORT, CALIFORNIA (040442)

Period of Record Monthly Climate Summary

Period of Record: 10/1/1937 to 12/31/2005

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	57.4	63.6	68.8	75.8	84.2	92.1	98.6	96.6	90.9	80.7	67.3	57.9	77.8
Average Min. Temperature (F)	38.5	42.1	45.4	49.7	56.5	63.1	69.0	67.5	62.9	54.0	44.0	38.5	52.6
Average Total Precipitation (in.)	1.08	1.17	1.16	0.66	0.22	0.08	0.01	0.04	0.11	0.30	0.61	0.80	6.23
Average Total SnowFall (in.)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record:

Max. Temp.: 99.6% Min. Temp.: 99.6% Precipitation: 99.7% Snowfall: 92.4% Snow Depth: 92.2%

Source: Western Regional Climate Center

FRESNO WSO AIRPORT, CALIFORNIA (043257)

Period of Record Monthly Climate Summary

Period of Record: 7/ 1/1948 to 12/31/2005

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	54.4	61.5	66.9	74.6	83.4	91.6	98.1	96.2	90.5	79.8	65.2	54.6	76.4
Average Min. Temperature (F)	37.6	40.6	43.7	47.8	54.1	60.2	65.4	63.7	59.3	50.9	42.2	37.2	50.2
Average Total Precipitation (in.)	2.13	1.88	1.94	1.00	0.37	0.15	0.01	0.01	0.17	0.53	1.17	1.58	10.94
Average Total SnowFall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record:

Max. Temp.: 100% Min. Temp.: 100% Precipitation: 100% Snowfall: 91.2% Snow Depth: 91.3% Source:

Western Regional Climate Center

HANFORD 1 S, CALIFORNIA (043747)

Period of Record Monthly Climate Summary

Period of Record: 12/1/1927 to 12/31/2005

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	54.4	61.5	67.6	75.3	83.7	91.0	97.4	95.7	90.1	80.4	66.2	55.2	76.6
Average Min. Temperature (F)	35.7	38.8	42.4	46.6	52.7	58.3	62.6	60.6	55.8	47.8	38.8	35.0	47.9
Average Total Precipitation (in.)	1.58	1.53	1.46	0.72	0.24	0.08	0.01	0.01	0.13	0.37	0.82	1.28	8.22
Average Total SnowFall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record

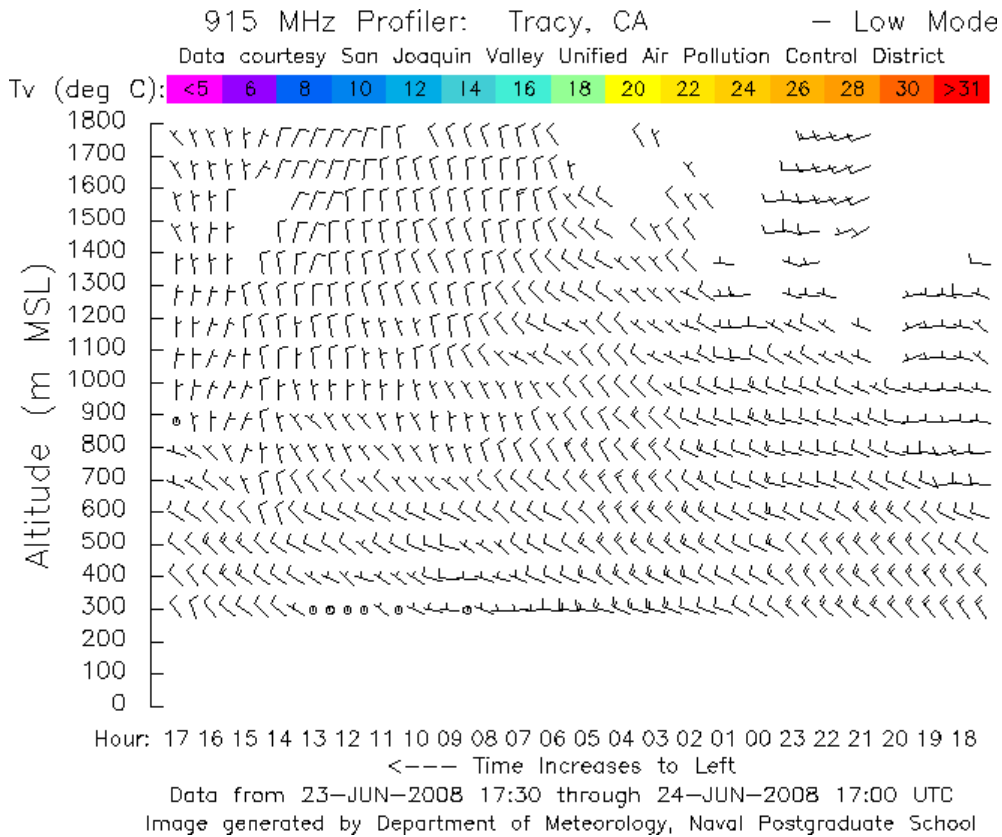
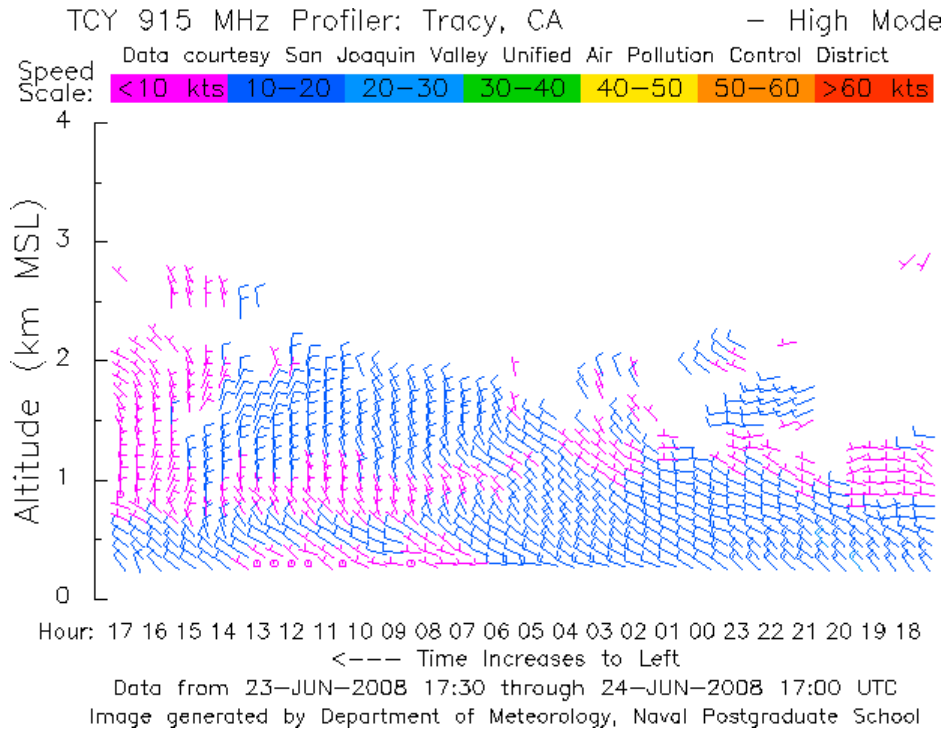
Max. Temp.: 98.4% Min. Temp.: 98.1% Precipitation: 98.8% Snowfall: 98.2% Snow Depth: 98.2%

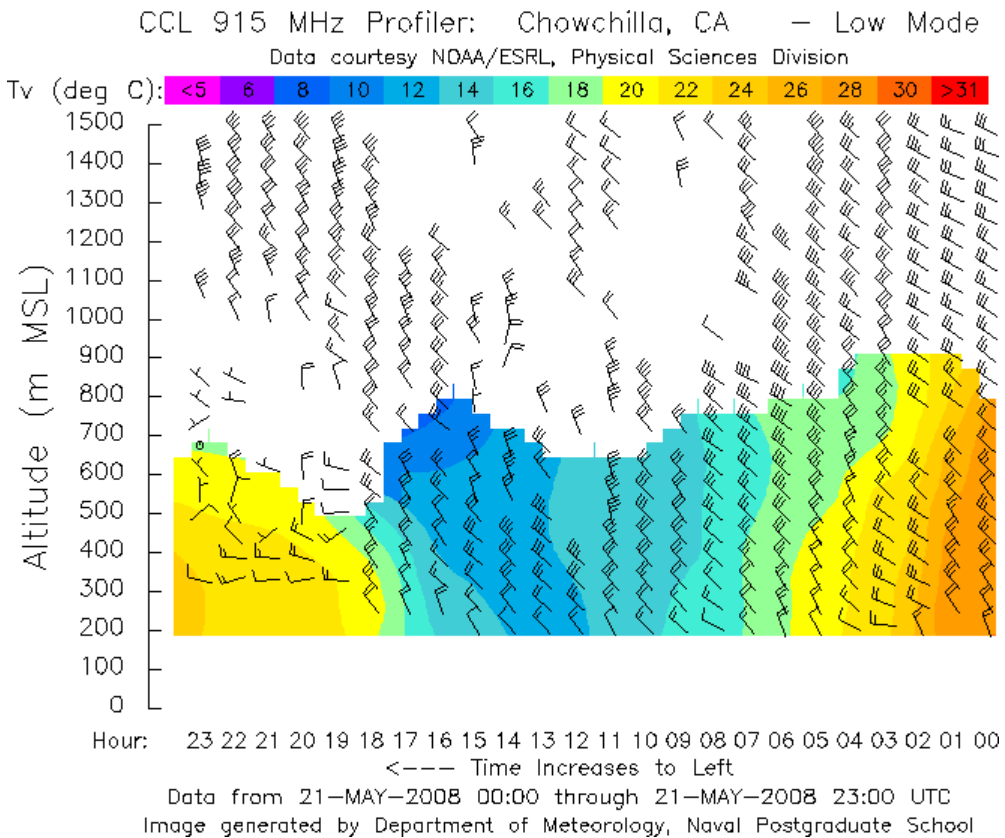
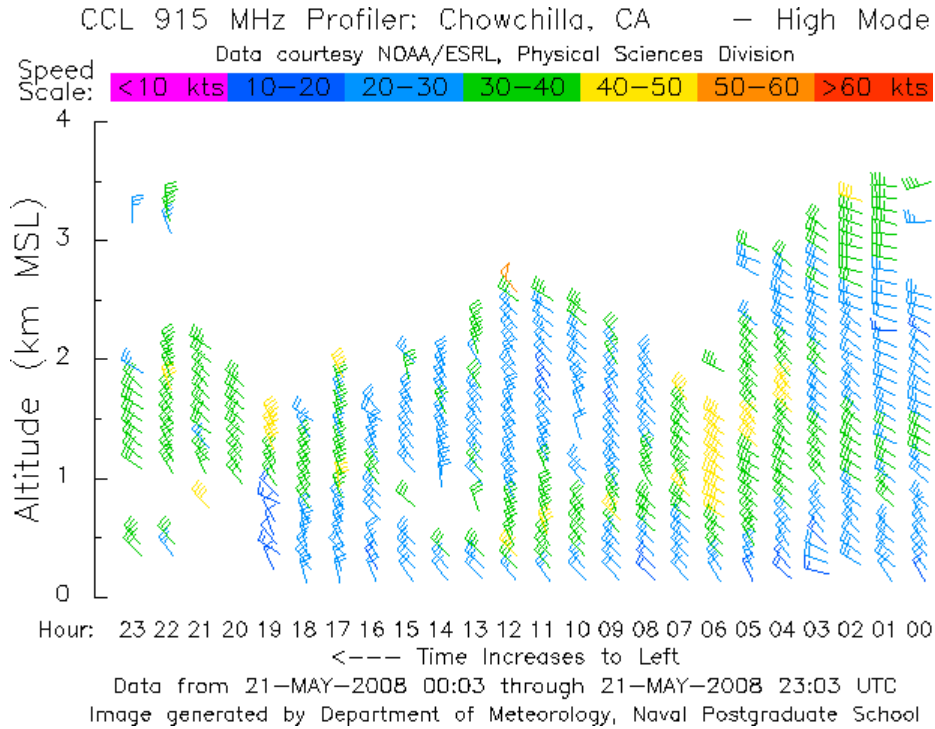
Source: Western Regional Climate Center

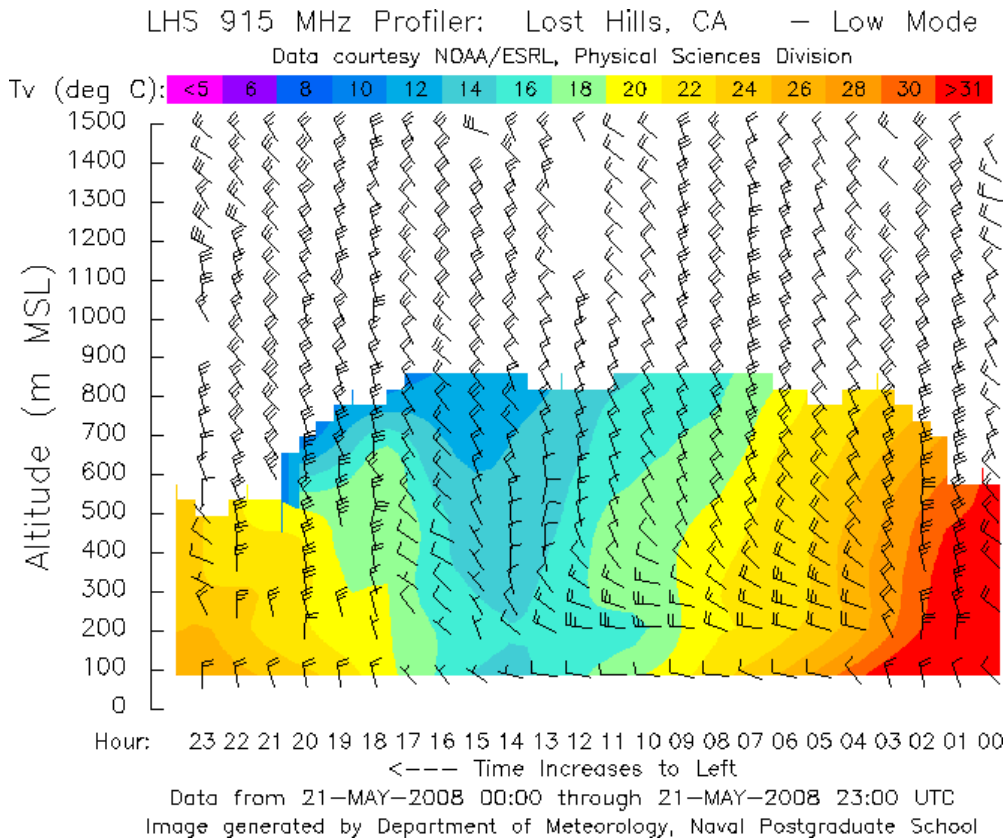
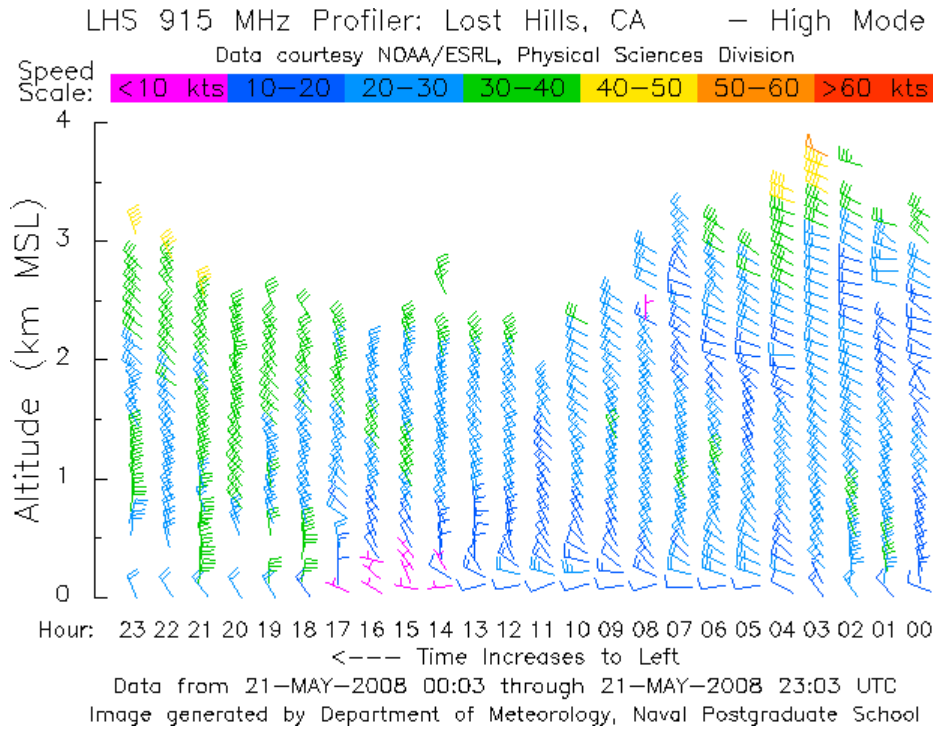
A.6 Wind Profiles

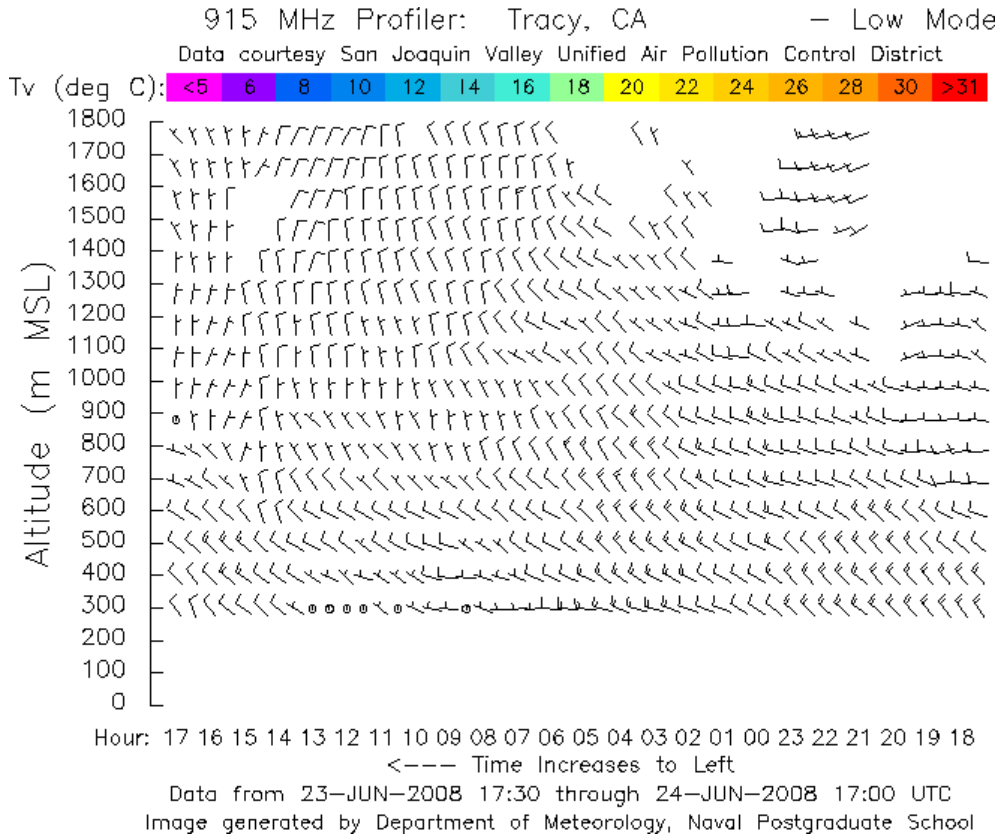
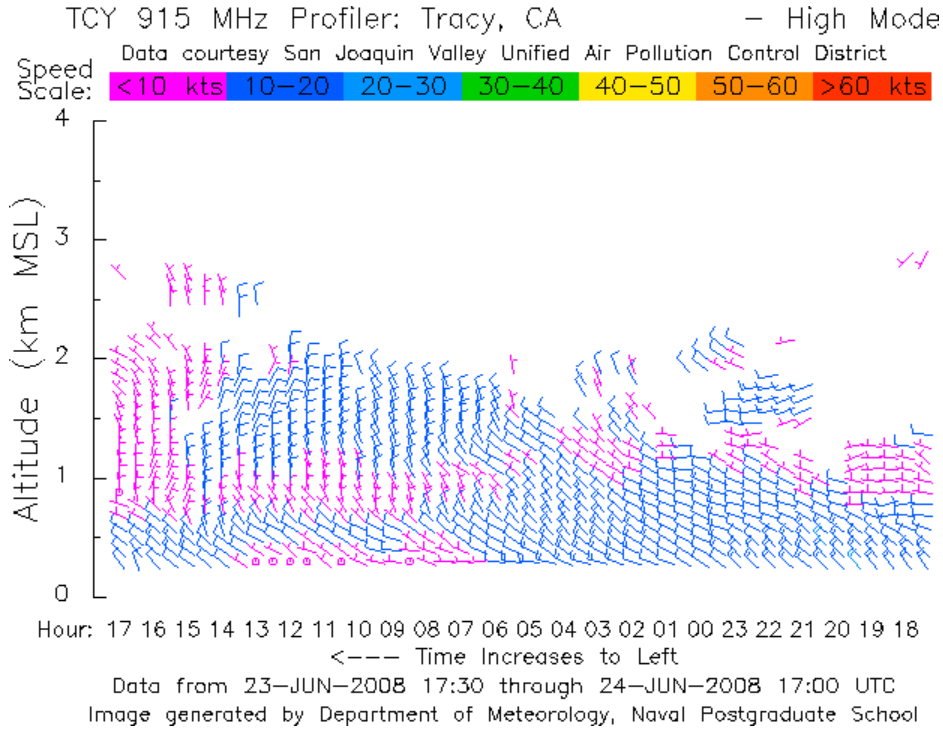
Time in UTC (Coordinated Universal Time, also abbreviated with "Z" or "GMT") is also called Greenwich Mean Time (Mean Solar Time at the Royal Observatory in Greenwich, England). Greenwich Mean Time is seven hours ahead of Pacific Daylight Time (PDT). For example, 12 UTC or 12 Z is 4 AM PST or 5 AM PDT. The lower air profilers were located in Tracy, Chowchilla, and Lost Hills.

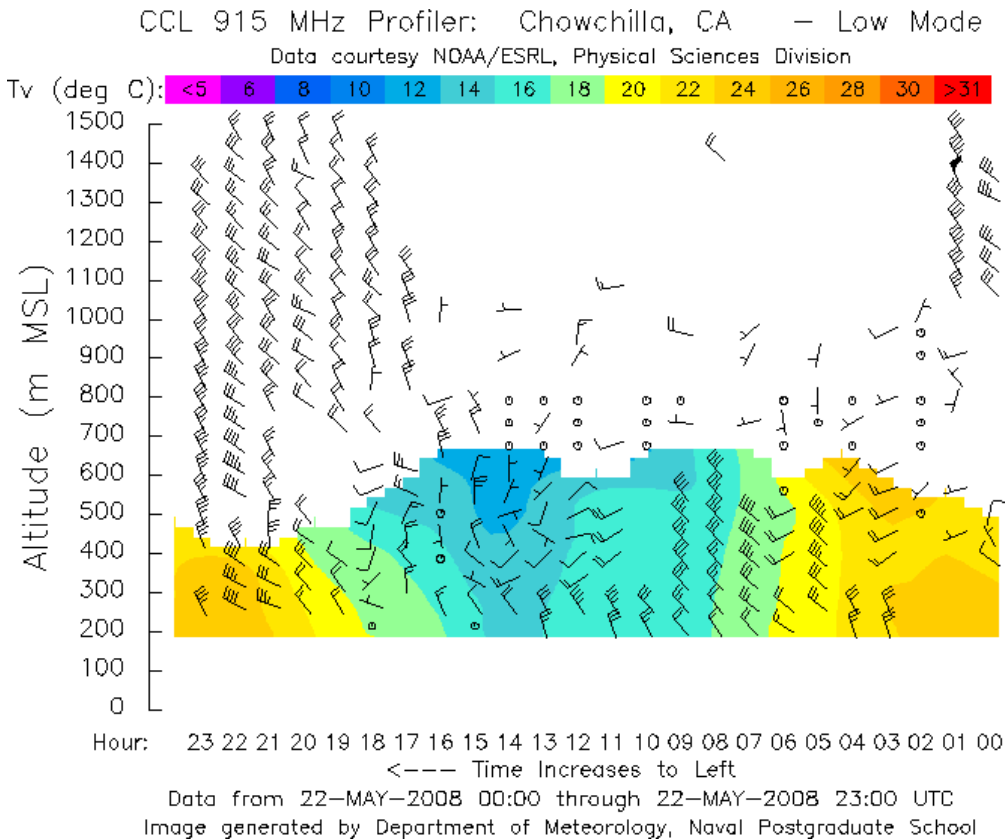
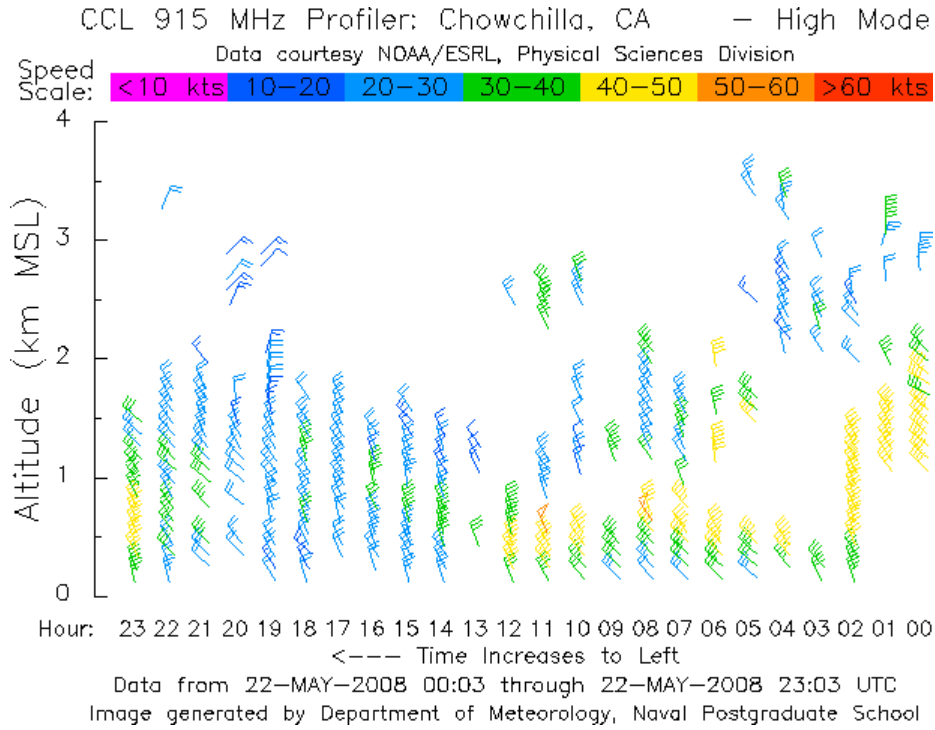
Wind barbs point in the direction "from" which the wind is blowing. A circle represents calm conditions. Flags (straight lines) attached at the end of the wind barbs indicate wind speed. Each short flag represents 5 knots, and each long flag represents 10 knots. A long flag and a short flag represent 15 knots, simply by adding the value of each flag together (10 knots + 5 knots = 15 knots). The color-coded speed scale is also provided on top of the plot. A triangular flag at the end of a wind barb represents a 50-knot wind. This wind barb is color-coded orange in the plot shown above.

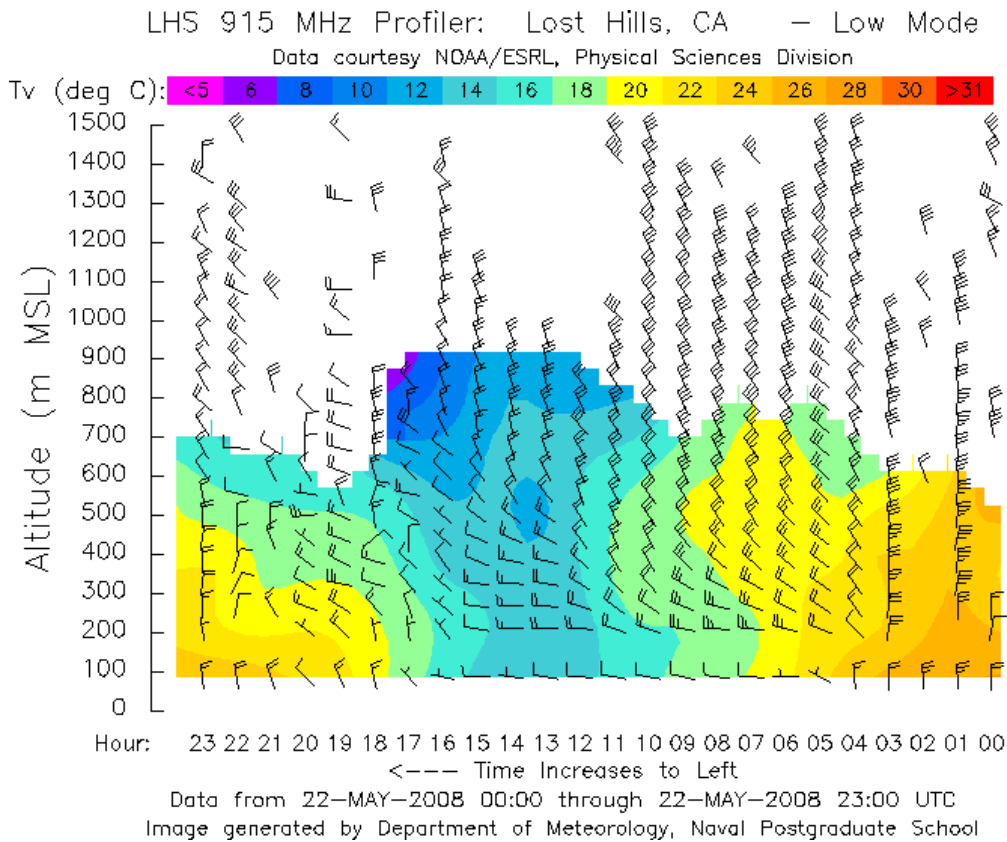
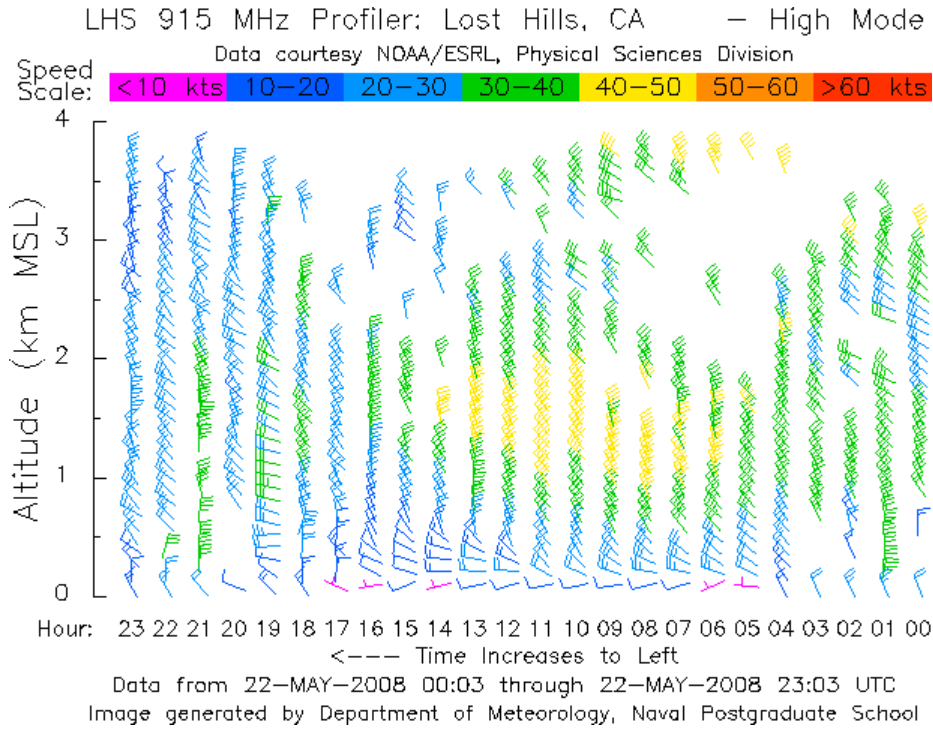


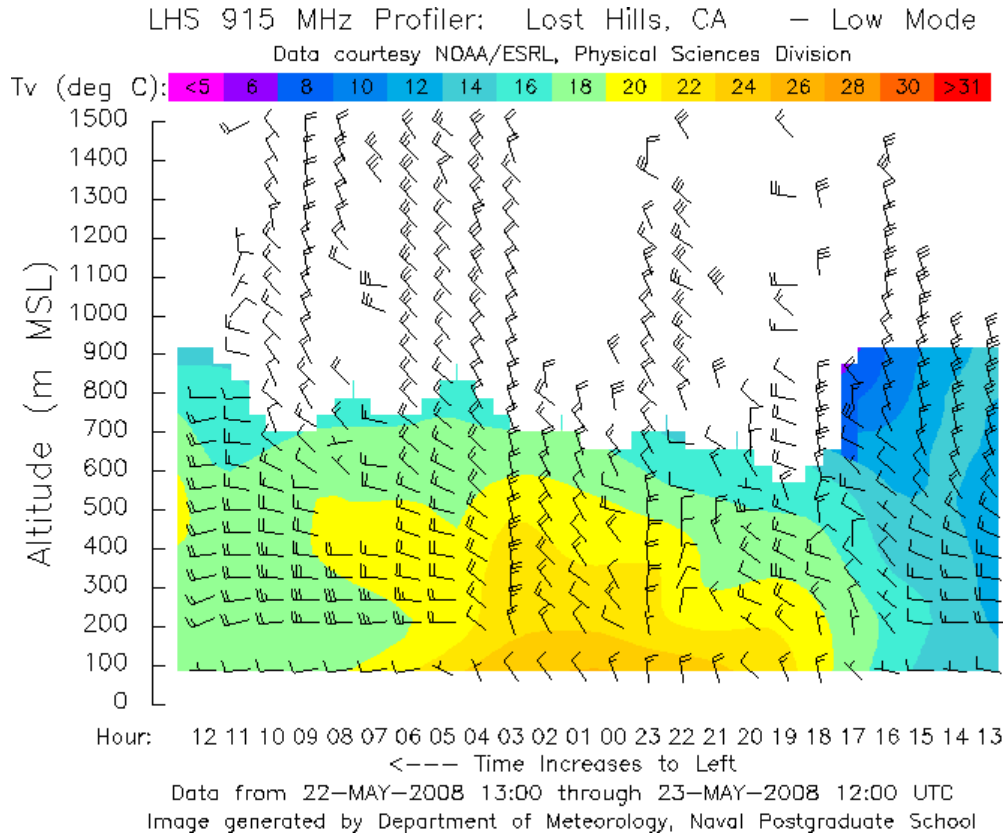
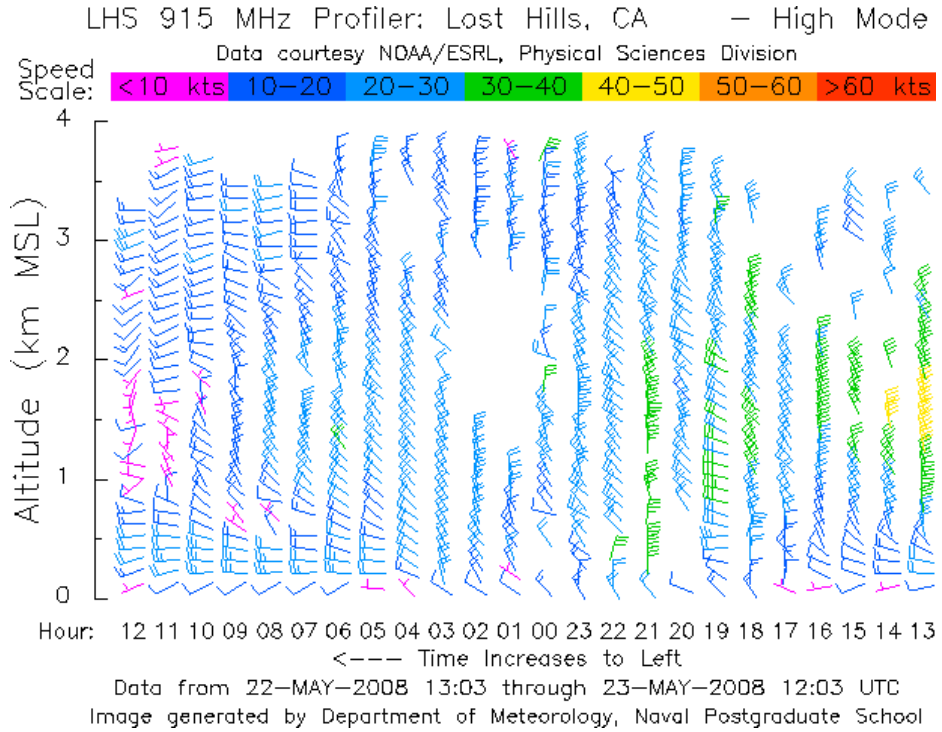










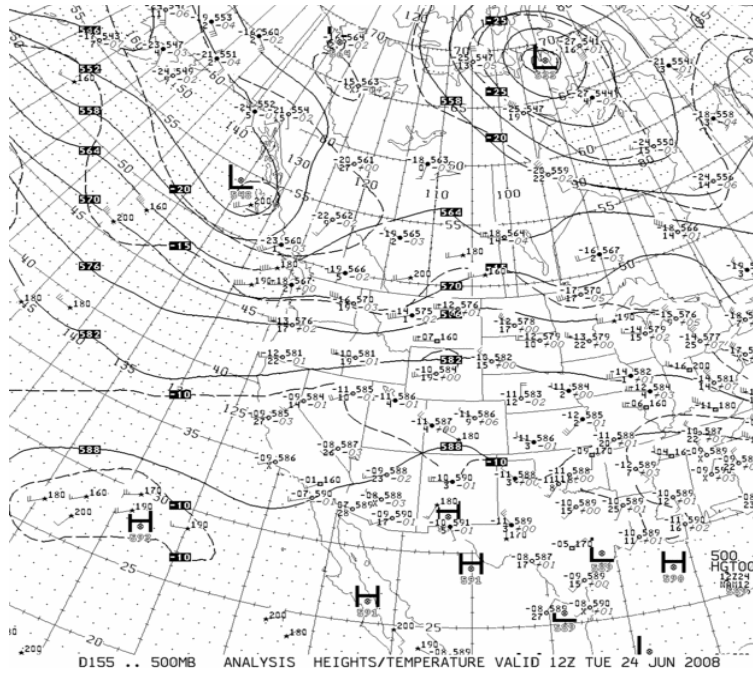


A.7 Weather Charts

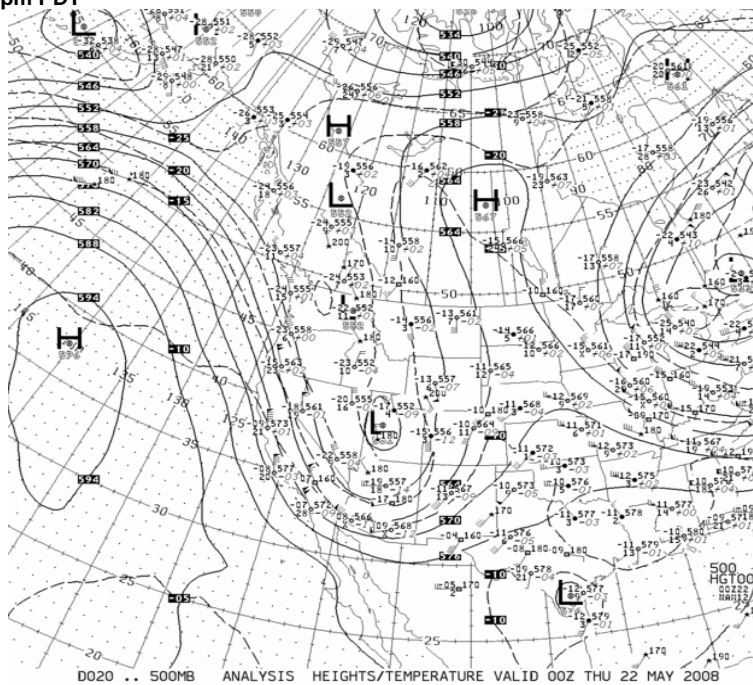
Upper-air analysis (approximately 18,000 feet above ground level) on May 21, 2008

The upper air analysis showed an unseasonably strong trough over the Great Basin. Strong winds were evident on the left-side of the trough over northern California.

5:00 am PDT



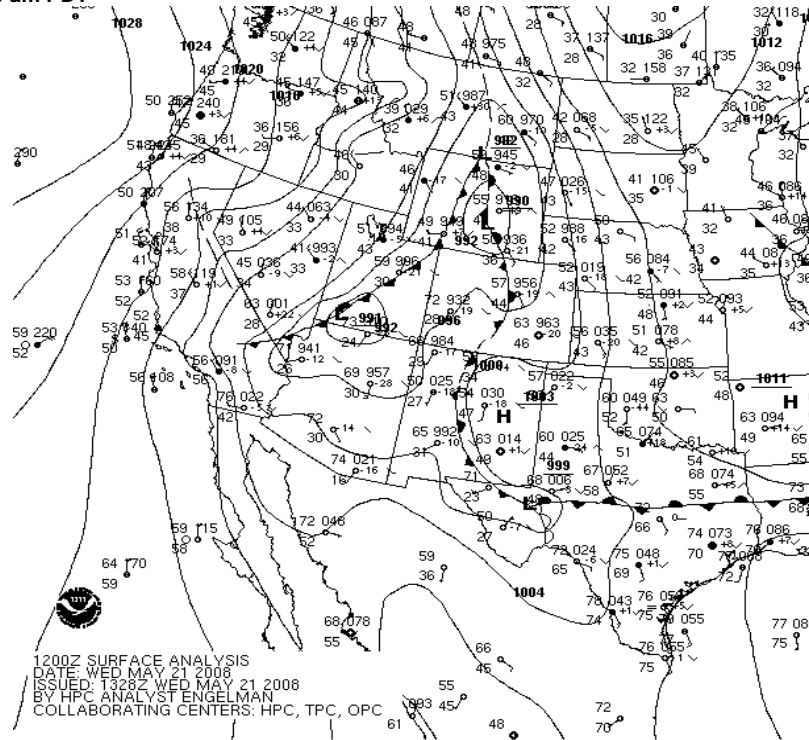
5:00 pm PDT



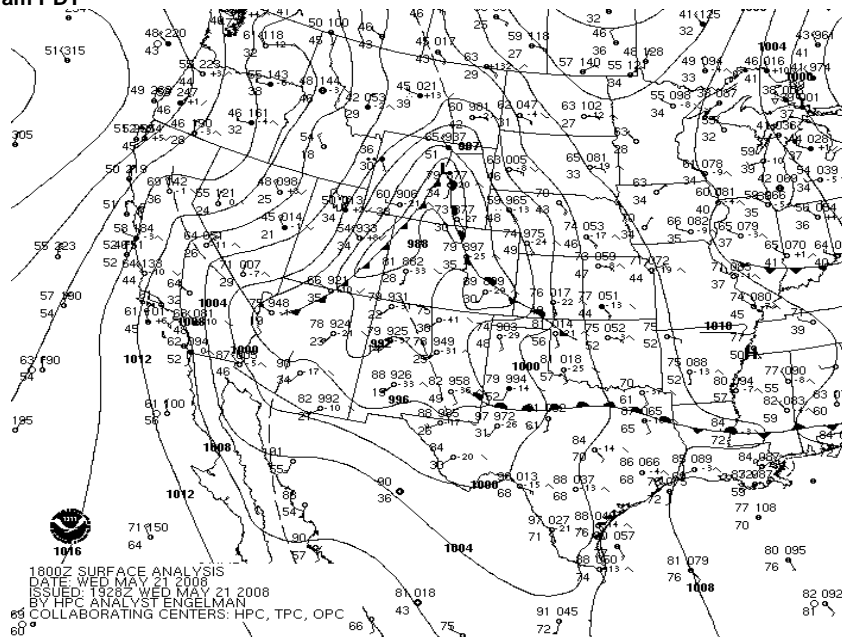
Surface Analysis on May 21, 2008

The surface analysis charts from May 21, 2008 showed packed isobars, which indicated strong winds over the San Joaquin Valley.

5:00 am PDT

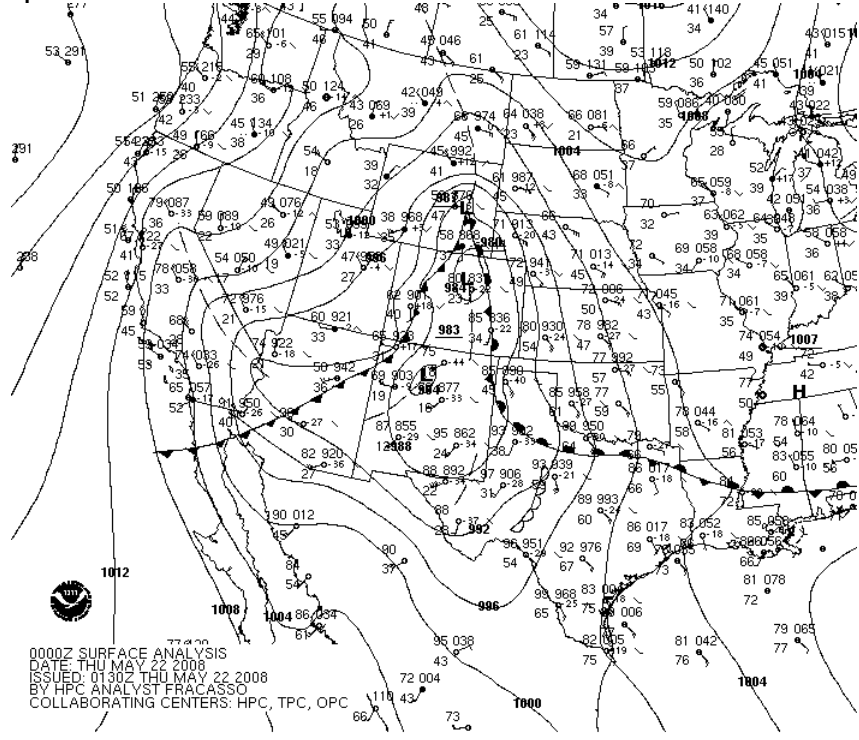


11:00 am PDT

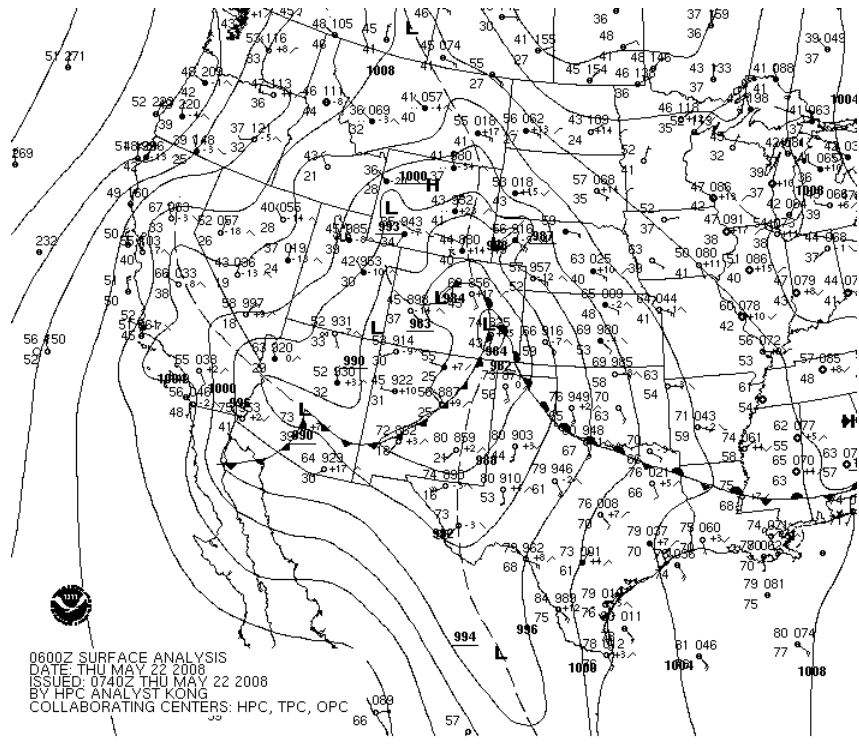


Surface Analysis on May 21, 2008

5:00 pm PDT



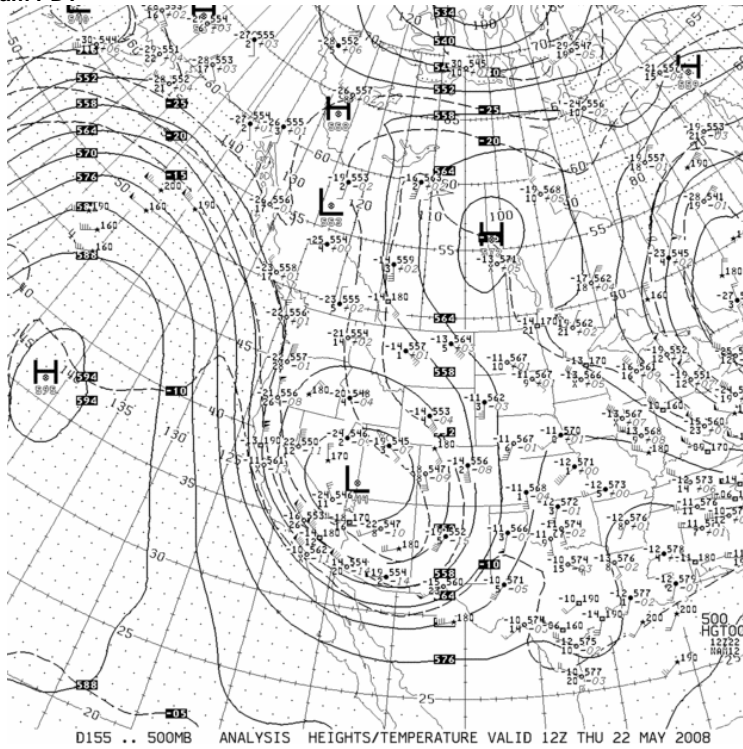
11:00 pm PDT



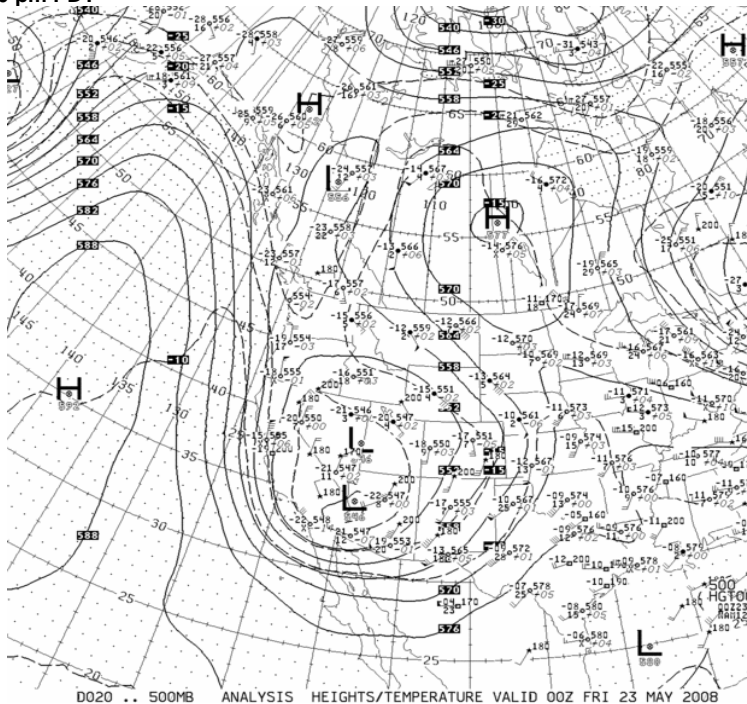
Upper-air analysis (approximately 18,000 feet above ground level) on May 22, 2008

The upper air analysis showed an unseasonably strong trough over the Great Basin. Strong winds were evident on the left-side of the trough over northern California.

5:00 am PDT

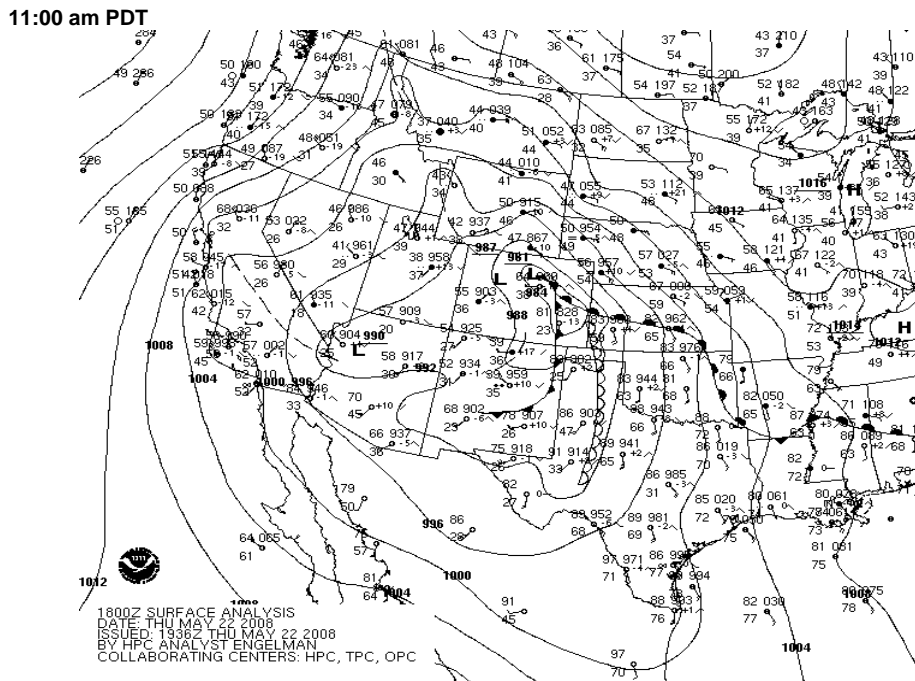
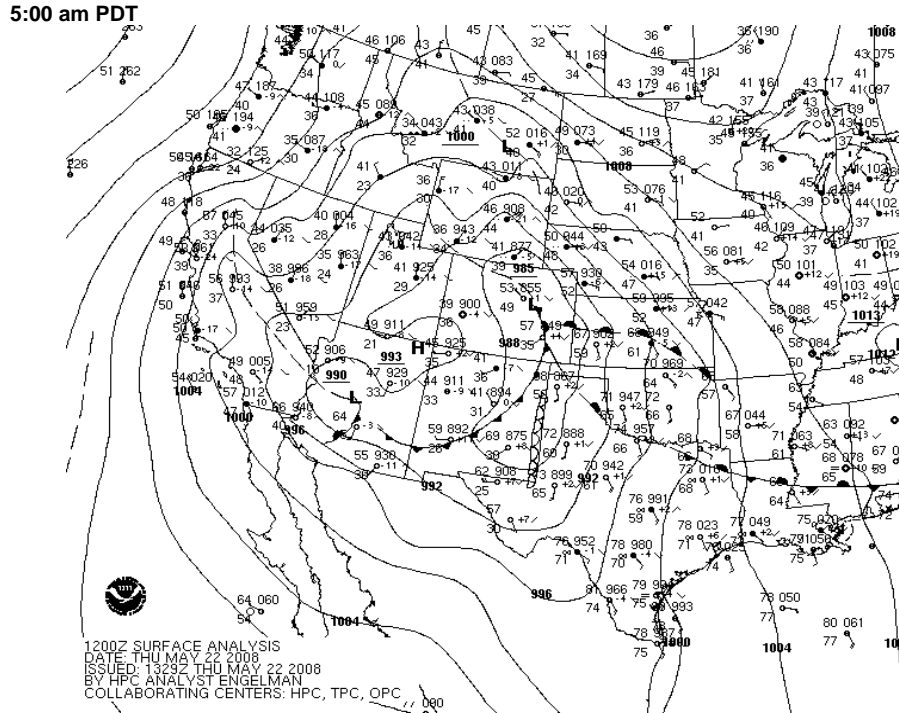


5:00 pm PDT



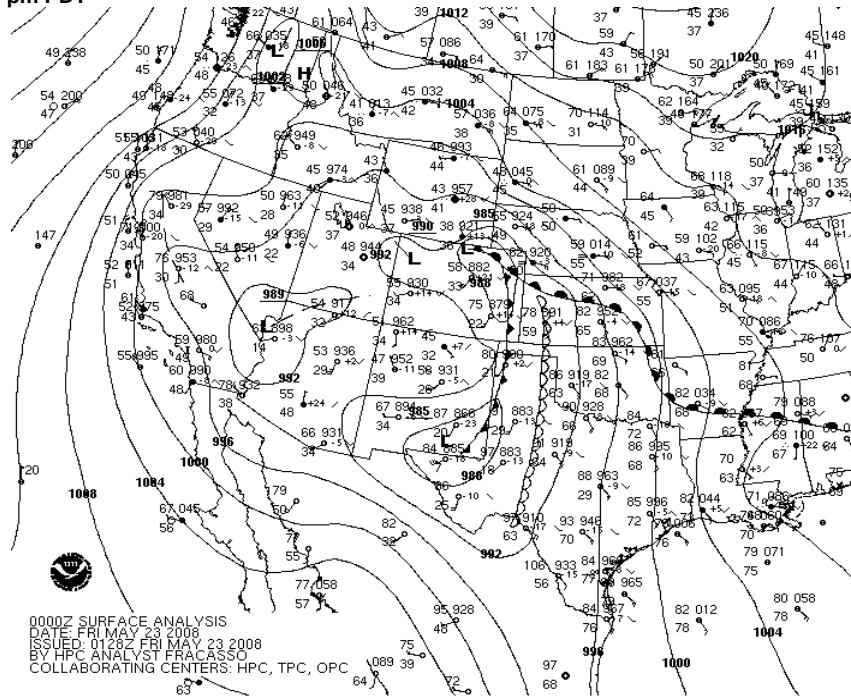
Surface Analysis on May 22, 2008

The surface analysis charts from May 22, 2008 showed packed isobars, which indicated strong winds over the San Joaquin Valley.

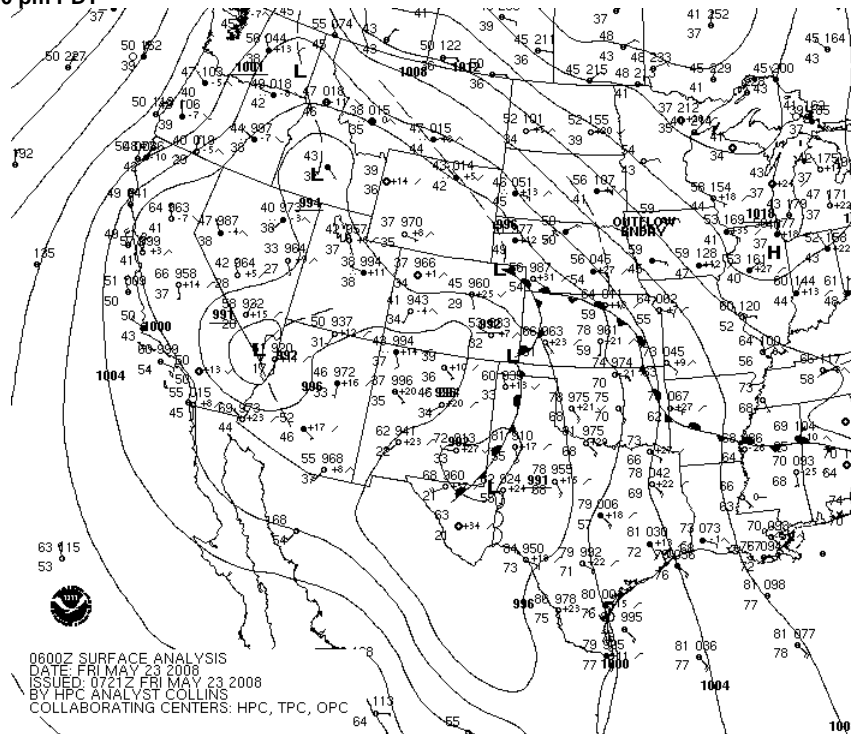


Surface Analysis on May 22, 2008

5:00 pm PDT



11:00 pm PDT



A.8 Surface Weather Observations

Weather Conditions for:

Bakersfield, Meadows Field Airport, CA (KBFL)

Elev: 509 ft; Latitude: 35.43361; Longitude: -119.05667

Time (PDT)	Temp. (f)	Dew (f)	Relative Humidity (%)	Wind Direction	Wind Speed (mph)	Visibility (miles)	WX	Clouds	Sea Level Pressure (mb)	Altimeter Setting (inches)	Station Pressure (inches)	6 Hr Temp Max	6 Hr Temp Min	24 Hr Temp Max	24 Hr Temp Min	Quality Control
22 May 11:54 pm	65	32	29	NW	12	10.00	CLR		997.1	29.46	28.929					OK
22 May 10:54 pm	68	36	30	WNW	6	10.00	CLR		997.0	29.46	28.929	75	67			OK
22 May 9:54 pm	70	35	28	CALM		10.00	CLR		996.8	29.45	28.919					OK
22 May 8:54 pm	70	34	26	CALM		10.00	CLR		996.3	29.44	28.910					OK
22 May 7:54 pm	71	34	26	WNW	5	10.00	CLR		996.0	29.43	28.900					OK
22 May 6:54 pm	72	33	24	NW	7	10.00	SCT110		995.9	29.43	28.900					OK
22 May 5:54 pm	74	34	23	NW	16	10.00	CLR		995.9	29.42	28.890					OK
22 May 4:54 pm	73	33	23	NW	12	8.00	CLR		995.9	29.43	28.900	74	65			OK
22 May 3:54 pm	74	33	22	NW	8	7.00	CLR		996.3	29.44	28.910					OK
22 May 2:54 pm	72	32	23	NW	13G24	6.00	HZ	CLR	997.0	29.46	28.929					OK
22 May 1:54 pm	72	32	23	NNW	10G21	5.00	HZ	CLR	997.7	29.48	28.949					OK
22 May 12:54 pm	70	31	23	WNW	9G23	7.00	CLR		998.6	29.50	28.969					OK
22 May 11:54 am	68	30	24	CALM		10.00	CLR		999.6	29.53	28.998					OK
22 May 10:54 am	66	31	27	WNW	8	10.00	CLR		999.9	29.54	29.008	66	54			OK
22 May 9:54 am	65	30	27	NNW	13G18	10.00	CLR		1000.1	29.55	29.018					OK
22 May 8:54 am	63	30	29	NNW	13	10.00	CLR		1000.4	29.56	29.028					OK
22 May 7:54 am	60	32	35	WNW	9	10.00	CLR		1000.2	29.55	29.018					OK
22 May 6:54 am	56	36	47	CALM		10.00	CLR		1000.2	29.55	29.018					OK
22 May 5:54 am	54	36	50	CALM		10.00	CLR		1000.3	29.55	29.018					OK
22 May 4:54 am	56	36	47	NW	8	10.00	CLR		1000.4	29.56	29.028	66	56			OK
22 May 3:54 am	59	34	39	CALM		10.00	CLR		1000.6	29.56	29.028					OK
22 May 2:54 am	58	33	39	CALM		10.00	CLR		1001.1	29.58	29.048					OK
22 May 1:54 am	62	35	36	CALM		10.00	CLR		1002.0	29.61	29.077					OK
22 May 12:54 am	62	34	35	N	5	10.00	CLR		1002.9	29.63	29.097			77	58	OK
21 May 11:54 pm	62	34	35	NW	5	10.00	CLR		1003.5	29.65	29.116					OK

PM10 Natural Event Documentation, Bakersfield and Corcoran – May 21 and 22, 2008

Time (PDT)	Temp. (f)	Dew Point (f)	Relative Humidity (%)	Wind Direction	Wind Speed (mph)	Visibility (miles)	WX	Clouds	Sea Level Pressure (mb)	Altimeter Setting (inches)	Station Pressure (inches)	6 Hr Temp Max	6 Hr Temp Min	24 Hr Temp Max	24 Hr Temp Min	Quality Control
21 May 10:54 pm	66	34	30	NW	10	10.00	CLR		1004.0	29.66	29.126	77	66			OK
21 May 9:54 pm	69	33	26	NNW	15	8.00	CLR		1004.6	29.68	29.146					OK
21 May 8:54 pm	70	34	26	NNW	13	9.00	CLR		1004.4	29.68	29.146					OK
21 May 7:54 pm	72	33	24	NNW	18	8.00	CLR		1004.6	29.68	29.146					OK
21 May 6:54 pm	75	31	20	N	22G31	6.00	HZ	CLR	1004.7	29.68	29.146					OK
21 May 6:16 pm	75	30	19	NNW	29G33	4.00	HZ	CLR	29.70	29.166						OK
21 May 6:04 pm	75	32	21	NNW	24G31	2.50	HZ	CLR	29.70	29.166						OK
21 May 5:54 pm	76	30	18	NNW	20G33	3.00	HZ	CLR	1005.2	29.70	29.166					OK
21 May 4:54 pm	76	36	23	NNW	21G25	6.00	HZ	CLR	1006.1	29.72	29.185	77	66			OK
21 May 3:54 pm	76	36	23	NW	20	10.00	CLR		1006.9	29.75	29.215					OK
21 May 2:54 pm	75	33	22	NNW	18G23	9.00	CLR		1008.3	29.79	29.254					OK
21 May 1:54 pm	73	34	24	NNW	14G24	8.00	CLR		1009.4	29.82	29.284					OK
21 May 12:54 pm	71	34	26	NW	13G23	10.00	CLR		1010.6	29.86	29.323					OK
21 May 11:54 am	70	34	26	WNW	16G24	10.00	CLR		1011.2	29.88	29.343					OK
21 May 10:54 am	66	34	30	NW	13G25	10.00	CLR		1011.9	29.90	29.363	67	59			OK
21 May 9:54 am	65	33	30	NNW	16G25	10.00	CLR		1012.3	29.91	29.373					OK
21 May 8:54 am	63	32	31	NW	18G28	10.00	CLR		1012.6	29.92	29.382					OK
21 May 7:54 am	62	30	30	NNW	17	10.00	CLR		1012.3	29.91	29.373					OK
21 May 6:54 am	61	27	27	N	18	10.00	CLR		1011.8	29.90	29.363					OK
21 May 5:54 am	60	27	28	N	16	10.00	CLR		1011.4	29.89	29.353					OK
21 May 4:54 am	62	32	32	N	13	10.00	CLR		1011.1	29.88	29.343	75	58			OK
21 May 3:54 am	63	37	38	N	12	10.00	CLR		1011.2	29.88	29.343					OK
21 May 2:54 am	63	40	43	NNW	10	10.00	CLR		1011.5	29.89	29.353					OK
21 May 1:54 am	66	43	43	NW	13	10.00	CLR		1011.9	29.90	29.363					OK
21 May 12:54 am	69	45	42	NNW	17	10.00	CLR		1012.1	29.91	29.373			97	69	OK
20 May 11:54 pm	72	45	38	NNW	20	10.00	CLR		1011.5	29.89	29.353					OK

Weather Conditions for:
Lemoore, Naval Air Station, CA (KNLC)
 Elev: 233 ft; Latitude: 36.30361; Longitude: -119.93806

Time (PDT)	Temp (f)	Dew (f)	Relative Humidity (%)	Wind Direction	Wind Speed (mph)	Visibility (miles)	WX	Clouds	Sea Level Pressure (mb)	Altimeter Setting (inches)	Station Pressure (inches)	6 Hr Max Temp	6 Hr Min Temp	24 Hr Max Temp	24 Hr Min Temp	Quality Control
23 May 12:56 am	61	34	36	CALM		10.00		CLR	996.1	29.42	29.181			79	59	OK
22 May 11:56 pm missing																
22 May 10:56 pm	66	33	29	WNW	18	10.00		FEW120	995.9	29.41	29.171	78	66			OK
22 May 9:56 pm	68	32	26	WNW	16G26	10.00		FEW120	996.3	29.42	29.181					OK
22 May 8:56 pm	68	34	28	WNW	15	10.00		FEW120	995.8	29.41	29.171					OK
22 May 7:56 pm	71	34	26	WNW	18	10.00		FEW060 SCT110	995.7	29.41	29.171					OK
22 May 6:56 pm	75	33	22	NW	18G29	10.00		FEW060 SCT110	995.8	29.41	29.171					OK
22 May 5:56 pm	78	30	17	NW	24G32	10.00		FEW050 SCT110	995.9	29.41	29.171					OK
22 May 4:56 pm	78	29	16	NW	22G28	10.00		SCT070	996.0	29.42	29.181	79	70			OK
22 May 3:56 pm	78	30	17	NW	22G29	5.00	BLDU	FEW070	996.2	29.42	29.181					OK
22 May 2:56 pm	77	29	17	NW	25G35	4.00	BLDU	FEW080	997.0	29.45	29.211					OK
22 May 1:56 pm	76	30	18	NNW	23G39	3.00	BLDU	FEW120	997.6	29.47	29.231					OK
22 May 12:56 pm	75	30	19	NNW	29G36	3.00	BLDU	FEW120	998.3	29.49	29.251					OK
22 May 11:56 am missing																
22 May 10:56 am	70	31	23	NNW	28G41	2.50	BLDU	CLR	998.8	29.50	29.261	70	59			OK
22 May 9:56 am	67	30	25	NNW	40G48	2.50	BLDU	CLR	998.5	29.49	29.251					OK
22 May 8:56 am missing																
22 May 7:56 am Missing																
22 May 3:56 pm	78	30	17	NW	22G29	5.00	BLDU	FEW070	996.2	29.42	29.181					OK
22 May 2:56 pm	77	29	17	NW	25G35	4.00	BLDU	FEW080	997.0	29.45	29.211					OK
22 May 1:56 pm	76	30	18	NNW	23G39	3.00	BLDU	FEW120	997.6	29.47	29.231					OK
22 May 12:56 pm	75	30	19	NNW	29G36	3.00	BLDU	FEW120	998.3	29.49	29.251					OK
22 May 11:56 am missing																
22 May 10:56 am	70	31	23	NNW	28G41	2.50	BLDU	CLR	998.8	29.50	29.261	70	59			OK

PM10 Natural Event Documentation, Bakersfield and Corcoran – May 21 and 22, 2008

Time (PDT)	Temp. (f)	Dew Point (f)	Relative Humidity (%)	Wind Direction	Wind Speed (mph)	Visibility (miles)	WX	Clouds	Sea Level Pressure (mb)	Altimeter Setting (inches)	Station Pressure (inches)	6 Hr Max Temp	6 Hr Min Temp	24 Hr Max Temp	24 Hr Min Temp	Quality Control
22 May 9:56 am	67	30	25	NNW	40G48	2.50	BLDU	CLR	998.5	29.49	29.251					OK
22 May 8:56 am missing																
22 May 7:56 am missing																
22 May 6:56 am	61	29	30	NNW	28G33	10.00		CLR	999.2	29.51	29.271					OK
22 May 6:46 am	61	28	29	NNW	24G35	10.00		CLR		29.51	29.271					OK
22 May 5:56 am	60	28	29	NNW	24G33	10.00		CLR	999.0	29.51	29.271					OK
22 May 4:56 am	62	28	27	NW	29G41	10.00		CLR	999.1	29.51	29.271			66	62	OK
22 May 3:56 am	63	30	29	NW	30G40	10.00		CLR	999.7	29.53	29.290					OK
22 May 2:56 am	63	32	31	NW	24G32	10.00		CLR	1000.5	29.55	29.310					OK
22 May 1:56 am	66	33	29	NW	29G37	10.00		CLR	1001.1	29.57	29.330					OK
22 May 12:56 am	66	37	34	NW	21	10.00		CLR	1001.6	29.58	29.340			81		OK
21 May 11:56 pm	65	36	34	NW	20	10.00		CLR	1002.4	29.60	29.360					OK
21 May 10:56 pm	64	36	35	WNW	15	10.00		CLR	1003.6	29.64	29.400			80	64	OK
21 May 9:56 pm	65	36	34	WNW	10	10.00		CLR	1004.4	29.66	29.419					OK
21 May 8:56 pm	69	34	27	NW	14	10.00		CLR	1004.9	29.68	29.439					OK
21 May 7:56 pm	73	32	22	NNW	26G35	10.00		CLR	1005.4	29.69	29.449					OK
21 May 6:56 pm	76	30	18	NW	35G43	9.00		CLR	1005.4	29.69	29.449					OK
21 May 5:56 pm	79	30	17	NNW	32G40	3.00	BLDU	CLR	1005.6	29.70	29.459					OK
21 May 5:12 pm	81	30	16	NNW	28G38	3.00	BLDU	CLR		29.72	29.479					OK
21 May 4:56 pm	80	29	15	NNW	38G48	2.50	BLDU	CLR	1006.5	29.72	29.479			81	71	OK
21 May 3:56 pm	81	31	16	NNW	38G46	3.00	BLDU	CLR	1007.3	29.75	29.509					OK
21 May 2:56 pm	79	32	18	NNW	31G41	3.00	BLDU	CLR	1008.5	29.78	29.539					OK
21 May 1:56 pm	78	33	19	NW	33G44	2.50	BLDU	CLR	1009.6	29.82	29.578					OK
21 May 12:56 pm	76	36	23	NNW	29G40	3.00	BLDU	CLR	1010.7	29.85	29.608					OK
21 May 11:56 am	73	35	25	NNW	31G39	7.00	BLDU	CLR	1011.4	29.87	29.628					OK
21 May 10:56 am	71	34	26	NNW	30G39	9.00	BLDU	CLR	1011.8	29.88	29.638			71	52	OK
21 May 9:56 am	69	34	27	NNW	29G35	8.00	VCBLDU	CLR	1012.4	29.90	29.658					OK
21 May 8:56 am	67	32	27	NNW	23G31	10.00		CLR	1013.0	29.92	29.678					OK

PM10 Natural Event Documentation, Bakersfield and Corcoran – May 21 and 22, 2008

Time (PDT)	Temp. (f)	Dew (f)	Relative Humidity (%)	Wind Direction	Wind Speed (mph)	Visibility (miles)	WX	Clouds	Sea Level Pressure (mb)	Altimeter Setting (inches)	Station Pressure (inches)	6 Hr Max Temp	6 Hr Min Temp	24 Hr Max Temp	24 Hr Min Temp	Quality Control
21 May 7:56 am	61	37	41	NNW	16	10.00		CLR	1013.0	29.92	29.678					OK
21 May 6:56 am	55	36	48	NNW	12	10.00		CLR	1012.7	29.91	29.668					OK
21 May 6:42 am	54	36	50	NNW	12	10.00		CLR		29.91	29.668					OK
21 May 5:56 am	53	35	50	NW	15	10.00		CLR	1012.7	29.91	29.668					OK
21 May 4:56 am	53	32	44	NNW	13	10.00		CLR	1012.4	29.90	29.658	T		69	49	OK
21 May 3:56 am	51	30	44	NNW	12	10.00		CLR	1011.9	29.89	29.648					OK
21 May 2:56 am	51	33	50	CALM		10.00		CLR	1011.9	29.89	29.648					OK
21 May 1:56 am	58	35	42	WNW	8	10.00		CLR	1012.0	29.89	29.648	T				OK
21 May 12:56 am	63	37	38	CALM		10.00		CLR	1012.5	29.91	29.668			97		OK
21 May 12:20 am	64	37	37	NW	17	10.00		CLR		29.91	29.668					OK
20 May 11:56 pm	67	37	33	WNW	21	10.00		CLR	1012.5	29.90	29.658					OK

A.9 Newspaper Articles

Articles from May 21, 2008

Winds kick up dust in valley, topple tree branches in Modesto

By BEE STAFF REPORTS

last updated: May 21, 2008 05:37:39 PM

High winds knocked a large branch off an ash tree in downtown Modesto this morning and tore a big limb from a tree on the Modesto High School campus. No injuries were reported.

The branch at the high school fell across one of the main campus walkways, which was empty because students were in class.

A mile away, a limb from a large Modesto ash fell into morning traffic on H street between 13th and 12th streets. City workers passing by cleared the street quickly.



Meanwhile, pollution control officials are warning people to limit exposure to blowing dust and heavy exertion or strenuous activities outdoors.

The San Joaquin Valley Air Pollution Control District issued a cautionary statement active through this evening.

Dust and other pollution in the air can cause health problems, increase the risk of respiratory infections, exacerbate lung diseases and spark asthma attacks and acute bronchitis, according to the district.

Those with heart or lung diseases are urged by the district to follow doctors' advice, and children and seniors are advised to avoid prolonged exposure, strenuous activity or heavy exertion.

They can also make driving difficult, and the National Weather Service has issued a wind advisory through 11 p.m.

The winds were expected to reach up to 30 mph by late morning, according to the weather service.

It advises motorists to use extra caution, especially while driving taller vehicles and to secure any items that could be blown away. The winds are expected to drop back down to 15-25 mph by late this evening before picking back up again tomorrow, according to the weather service.

Wind, dust create dangerous driving conditions, CHP warns

The Bakersfield Californian, Wednesday, May 21, 2008

The California Highway Patrol has put out a warning for all drivers in the south end of Kern County. The advisory warns that high winds are kicking up dust, causing low visibility.

Drivers are specifically warned not to travel on Highway 99 between Highway 119 and Highway 223 where visibility has been declared zero.

The advisory will last until at least midnight.

Winds fan flames in loose hay, grass in burst of local fires

POWERED BY YOU AND TIMES-DELTA & Advance-Register

BY DAVID CASTELLON • DCASTELL@VISALIA.GANNETT.COM • MAY 21, 2008

Wind gusts that blew across the Valley Tuesday afternoon started or fanned the flames of fires in west Visalia, including a series of small fires that briefly threatened homes and a business.

"I think the wind played havoc with a lot of people today," said Tulare County Fire battalion chief Jeff Newton, incident commander for one of the fires that burned through about 100 tons of loose hay at the Milky Way Dairy north of Goshen.

The cause of the blaze hadn't been determined Tuesday night, but Newton said strong gusts that began that afternoon helped the flames spread across the loose hay and at times it threatened to blow burning embers into a large stack of baled hay nearby.

Fire dispatchers first received a report of the hay fire near Road 80 and Avenue 320 about 4:15 p.m., and more than four hours later, fire crews still were trying to put it out using fire-retardant foam, "which is the only way to put it out," Newton said. "I think we've got a handle on it."

Newton was also on the scene for a 7 p.m. grass fire in Orosi that was put out by Tulare County crews after burning about 300 square yards — but before it spread to nearby structures.

"It's been like this all day," Newton said. "The winds have subsided but it has been very busy."

Newton said the cause of the Orosi flareup is being investigated.

"Nobody's talked to us about it," he said.

Newton said that Tulare County also assisted CAL FIRE in calls Tuesday in the Yokohl Valley area, and Horse Creek in the eastern Tulare County hill country.

Some Visalia firefighters initially called in to help fight the hay fire — not a manure fire, as originally reported — were redirected to help fight another fire that broke out in a vacant lot on Bollinger Street north of Mineral King Avenue.

On Tuesday, firefighters were trying to determine if a lawn mower cutting dry grass on the lot about 5 p.m. may have struck a rock or other object that triggered a spark and ignited the fire that quickly burned through the lot and up a tall Italian cypress tree.



Wind gusts blew hot embers over about a 100-yard area setting off four other small fires on more vacant land behind homes on Bollinger and along nearby Mill Creek, said Visalia battalion Chief Danny Wristen.

Peggy Tristao said she walked outside her Bollinger Street home and saw smoke blowing from down the street, where the first fire apparently started. And before firefighters arrived, she spotted flames burning through the brush near her home.

"So the fire department knocked down my fence and put it out. Before that, we were fighting it with hoses," she said.

About 6:30 p.m., CAL FIRE firefighters received a report of a brush fire at Lake Kaweah's Horse Creek Campground. Battalion Chief Paul Marquez said fire crews put the flames out quickly.

Tulare County Fire Department battalion chief Jeff Newton, left, surveys the result of a Tuesday evening grass fire that narrowly missed burning structures in Orosi. (GERALD CARROLL)

Wicked Wind

Tracy Press, Late Wednesday, May 21, 2008

The wind came in like a lion today and never stopped, leaving Tracy with fallen tree limbs, sheets of dust, out-of-control steering wheels and, well, a bad-hair day.

The National Weather Service reported strong, gusty north winds throughout the Central Valley. The strong winds are expected to continue into the evening hours.

The good news is that the triple-digit temperature has dropped to a high of 76 degrees and a low of 50 degrees.

The bad news is that the winds are stirring up unhealthy concentrations of particulate pollution.

The county Air Pollution Control District warned this afternoon that people suffering from lung disease or allergies are encouraged to stay inside or avoid prolonged exposure to dust kicked up from today's gusty winds, which have kicked up because of a northern cold front that hit warm Central Valley air sometime this afternoon.

"The stagnant conditions quickly came to an end (today)," said air district analyst Shawn Ferreira in a statement issued around 2 today.

Older adults and children with asthma, bronchitis or other respiratory problems should also take extra care to avoid strenuous activities today, the statement said.

The winds are expected to decrease by Thursday night. A low-pressure system backing westward over Northern California also may bring showers and thunderstorms in the foothills and Sierra.

Articles from May 22, 2008

Winds kick up misery, danger around county

Merced Sun-Star, Thursday, May. 22, 2008

ATWATER -- High winds made conditions miserable for Merced County firefighters Wednesday as they battled grass fires in the Atwater, Livingston and Winton areas. Winds also toppled trees and tree branches throughout the county.

Forty acres of dry grass was consumed about 12:53 p.m. at Preston and Buhach roads in the Atwater area in a fire of undetermined origin. About 15 firefighters responded in seven trucks from Gurr Road, Castle, Winton, Snelling, Merced, Livingston and McKee stations.

No injuries were reported and no structures involved, according to Merced County spokeswoman Katie Albertson.

Fire destroyed six tons of oat hay and three acres of baled oat hay remaining in the field at Oakdale and Amsterdam roads in the Winton area. Firefighters said it is likely the 1:52 p.m. fire began as the newly delivered hay was being unloaded by equipment.

Another 50 acres of dry grass and grazing land was destroyed in a 2:10 p.m. fire at Highway 140 and Lincoln Boulevard in the Livingston area. Battalion Chief Kevin Lawson said winds played a big role in this fire which was contained about 4 p.m. About 10 acres of the grass was on U.S. Fish and Wildlife Service property. The cause of this fire remains under investigation.

-- Doane Yawger

High winds bring trouble for tree, cattle farmers

Merced Sun-Star, Thursday, May. 22, 2008

By CAROL REITER
creiter@mercedsun-star.com

Heavy winds caused almond trees in this orchard on Lincoln Boulevard to be uprooted Wednesday afternoon (photo by Marci Stenberg, Merced Sun-Star).

The high winds Wednesday brought more than itchy eyes and dusty skies. It also means more trouble for farmers.

The National Weather Service had a wind advisory in effect until 9 p.m. Wednesday, but that is little comfort to some growers.



"Some almond trees are going down," said Mark Smith, a Winton almond grower and biologist for the Merced County Agricultural Commissioner.

Almond trees are grafted onto peach stock to get better tasting almonds, he said. Peaches have a shallow root system, and trees planted in sandy soil are very susceptible in the wind.

"With the trees all leafed out, they are like a big umbrella," Smith said.

The winds that played havoc with the almond trees should slack off tonight, but the weather should stay cooler, said Brian Ochs, an intern at the National Weather Service in Hanford.

Ochs said that a dry cold front brought the winds to the Valley.

But there's good weather in the making for people celebrating the holiday weekend this week.

Ochs said Saturday's temperatures should be in the 70s, and Sunday and Monday in the 80s.

The blustery day that brought agony to almond growers is just the latest in a series of weather-related disasters that have hit local farmers and ranchers.

On Tuesday, David Robinson, ag commissioner for the county, asked for a disaster declaration by the county supervisors. The declaration was approved, and is on its way to the state for review.

If the declaration is approved there, it will then go to the U.S. Department of Agriculture for approval, and cattle ranchers, or other growers who lost at least 30 percent of their crop because of the drought, can apply for low-interest loans from the government.

The disaster declaration is because of lack of rainfall and no feed for cattle that spend the winter in the foothills. The dry winter has resulted in a significant loss in feed value in the native grasses on the rangeland.

Estimates are 65 to 80 percent loss on about 560,000 acres. The value of the lost forage is set at about \$7 million. A disaster declaration is done when there is at least a 30 percent reduction in the crop's value.

Smith said the grasses actually got good rain at the beginning of the year, but the timing was wrong.

"After January we haven't had much rain, and the grasses didn't grow much," Smith said.

Because of the lack of foothill feed, cattle ranchers are scrambling to buy supplemental feed. That feed is seeing record-breaking high prices, so some cattle owners are selling their stock.

Merced County isn't the only county to see rangeland dry up too early. Mariposa County, where cattle are king, the rangeland is as sparse as it is in Merced County.

Cathi Boze, Mariposa County's ag commissioner, said she is asking for a disaster declaration for Mariposa County at next Tuesday's supervisors meeting. Boze said she estimates about a 75 percent loss, which is \$5.3 million lost in rangeland.

But it's not just the feed that has been hit hard by the drought, Boze said.

"Some creeks and springs have gone completely dry. Cattlemen are carrying water to their cows," Boze said.

Some cattle ranchers have resorted to selling their stock before they want, because of the scarcity and price of feed, Boze said. Good alfalfa hay is costing growers about \$240 a ton.

"These guys are hoping for some help. Hopefully, a disaster declaration will help them out," Boze said.

Reporter Carol Reiter can be reached at (209) 385-2486 or creiter@mercedsun-star.com.

Windstorm plans to stay for holiday **The Madera Tribune, Thursday, May 22, 2008**

By Ramona Frances - and John Rieping

Just in time for the Memorial Day weekend, an enormous windstorm is expected to affect more than a fifth of the nation and will likely drop rain in some areas according to a valley weather expert.

"It has arrived unseasonably late in the San Joaquin Valley," said meteorologist Steve Johnson. "As of Wednesday, the large low pressure center has settled in the Great Basin area, east of the Sierras. In the next four or five days, it will encompass 11 western states, going all the way from Washington to Mexico."

Johnson - son of former Senior Farmer of the Year Richard Johnson of Madera - provides weather information and forecasts in the San Joaquin Valley.

He describes the growing storm as having a very large center of "low pressure" - in which the



atmospheric pressure is lower in relation to the surrounding area. Low-pressure areas are frequently associated with cloud cover and stronger winds.

Winds from west by northwest in the Madera Municipal Airport blew 23 mph, gusting to 38 mph, Wednesday according to the National Weather Service.

"It (the storm) is very large. It is what we call, a large upper level devil. It's cut off from the main jet stream, which means it's difficult to forecast. It will wobble around, near St. George, Utah. What's weird is it will retrograde near Las Vegas - maybe Reno or Elko, Saturday or Sunday. We could have rain and thunder showers, possibly rain and snow in the mountains," Johnson said.

Cloudy or overcast skies, which often form in low pressure areas, tend to reduce daily temperature ranges regardless of the season. Days tend to be cooler and nights tend to be warmer.

"We had record heat over the weekend and now it's anywhere from 25 to 30 degrees cooler - from one Saturday to the next," Johnson said. "With weather, there is always a new twist. That is what makes this so interesting."

This latest weather twist might put a damper on upcoming holiday activities.

"Tioga Pass just opened for the summer yesterday. Now, this late season storm will affect travel into Yosemite," he said. "I am very concerned about public safety. This storm will not be a gully washer but it will affect outdoor activity and Memorial Day outdoor services."

Of more lasting significance might be the wind storm's agricultural impact...

To read the rest of the story... you'll have to have an online subscription to The Madera Tribune.

Grass fire breaks out east of Hanford Thursday May 22, 2008, 3:15 p.m.

Firefighters were quickly gaining control on a grass fire which broke out just after 2:30 p.m. today on the south side of Highway 198 near Seventh Avenue east of Hanford.

Fire officials haven't determined the cause of the **wind-blown** blaze, which covered approximately 25 acres and was in the vicinity of radio station KIGS just off the highway. Flames surrounded the transmitting towers, and came within 20 or 30 feet of the building. Kings County Fire, Hanford Fire and Lemoore Fire personnel all responded to fight the blaze.



More details on the blaze will be in Friday's Sentinel.

A Kings County firefighter wets down an area of grass near Sixth Avenue and Highway 198 earlier today after a wind-driven fire blacked approximately 25 acres. (Gary Feinstein/The Sentinel)

Fires spark in area; high winds don't help

Blazes burn on freeway near Salida, gusts wreak havoc around Modesto

By Inga Miller and Susan Herendeen
Modesto Bee, Thursday, May 22, 2008

High winds mixed with dry conditions turned grassy freeway strips into tinderboxes Wednesday, with firefighters spending the day dousing flames around the region.

Among them were two fires that tied up midday traffic along northbound Highway 99 near Pelandale Avenue. A fire reported at about 9:30 a.m. was doused, but came back stronger as a second blaze threatened a home on Bangs Avenue.

Modesto Fire Battalion Chief Hugo Patino could not pinpoint a cause, but he suggested that sparks from equipment or cigarettes tossed out by passing motorists could have ignited blazes that picked up steam due to high winds.

"On a normal day, more than likely, the fires would have stayed much smaller and the crews would have been able to put them out much quicker," Patino said. "Because of the wind, it takes longer."

Fire crews get to work early

Dale Skiles, chief of the Salida Fire District, said the first fire reported at 9:30 a.m. appeared to start on the north side of Pelandale Road, then jump to the south side.

Firefighters from Modesto and Salida had those blazes out by about 11:15 a.m., but the flames were back 15 minutes later. The California Highway Patrol closed the Pelandale Road off-ramp from 11:47 a.m. to 1:28 p.m., prompting traffic tie-ups on the northbound side of the highway and along Kiernan Avenue.

"We don't know if it was a rekindle or if it was a new ignition," Skiles said.

The second fire was stronger, igniting oleander bushes and brushing up toward businesses on Sisk Road. Some buildings suffered exterior damage, including a broken window and damage to utility meters, but crews were able to stop the flames before they caused more serious damage.

A home in the 2900 block of Bangs Avenue also was spared.

Firefighters were called into action again at 1:39 p.m., when a blaze broke out near Claus and Van Dusen roads north of the Riverbank Army Ammunition Plant.

The grass fire burned nearly 10 acres, endangering a home that escaped the flames but causing minor damage to six or seven recreational vehicles stored at the plant.

Firefighters from Modesto, Escalon and Oakdale joined the Stanislaus Consolidated Fire Protection District to douse the fire, which was contained by 3 p.m., according to Battalion Chief Richard Boyd.

They also quelled smaller blazes at Wellsford Road and Dusty Lane, and at Albers and Milnes roads.

Gusts pose threat, too

High winds prompted a warning from the San Joaquin Valley Air Pollution Control District because dust and pollution in the air can increase the risk of respiratory infections, exacerbate lung diseases and spark asthma attacks.

Windy conditions produced extra work for city workers, too, by ripping a limb off a tree at Modesto High School and knocking a limb off a Modesto ash tree on H Street between 12th and 13th streets.

Fire departments increased their staffing ratios today, Boyd said, because an advisory from the National Weather Service predicts gusts of up to 41 mph through the evening.

Meanwhile, grassy medians are parched because March and April were the driest on record in the Northern San Joaquin Valley. The weather service recorded only 0.02 inches of rain in Modesto, the least amount of precipitation since 1913.

"We've got an early fire season," Boyd said. "It just really multiplies the danger of fires this time of year."

The Worst is over

By Eric Firpo

Tracy Press, late Thursday, May 22, 2008

Tracy's police department had to use a backup generator for about three hours today after a second day of fierce wind downed lines that knocked out power in spots all over the city and for a time blotted out the sun with a cloud of dust.

Swirling gale-force gusts shoved over trees in parks and next to streets throughout town, snapped limbs and branches, and were partly responsible for power failures as they cut through lines like a karate chop, said Pacific Gas and Electric spokeswoman Nicole Tam. Power was lost when lines slapped together, she said.

At about 9:30 a.m., the police department fired up a backup generator to keep on the electricity and stay open for business.

The Lolly Hansen Senior Center and the parks department next door were less fortunate, as offices went dark for about three hours before electricity was restored. The Grand Theatre Center for the Arts also lost power for a few hours.

Tam said about 745 customers in Tracy lost power because of the windstorm, and about 4,400 customers were without power countywide.

The debris sent city workers scrambling, with about 25 or 30 people in crews for the public works department scurrying around to clean up detritus from the powerful windstorm.

Fourteen trees had to be taken out after they fell over, said Public Works Director Kevin Tobek, and countless more limbs were cleared from streets, sidewalks and parks. But the downfalls caused surprisingly little wreckage.

"We don't have any reports of property damage or bodily damage," he said. "Everything fell in the right place."

While whipping winds sent limbs crashing to the ground, it also lifted clouds of dust so large and thick that by mid-morning, it turned a blue sky brown and left the taste of dirt on tongues.

"A lot of dust was being picked up everywhere," said Anthony Presto, spokesman for the San Joaquin Valley Air Pollution Control District. "What's most important is that people really limit their exposure to it. It's not a good time for kids to be out playing."

The National Weather Service predicts the end of the windstorm is in sight, though gusts are still expected Friday morning.

"By tomorrow afternoon, things will start to calm down," said Jared Leighton of the weather service.

ARTICLES FROM MAY 23, 2008

Raging winds wreak havoc

UOP tower loses window; 45-mph gusts topple trees, spill rig cargoes

By **Zachary K. Johnson**

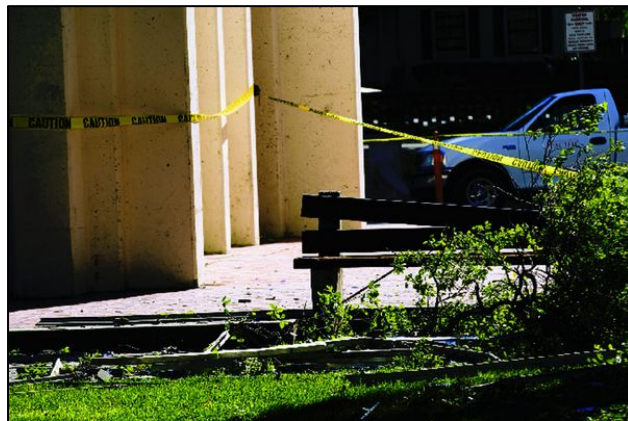
Record Staff Writer

May 23, 2008 6:00 AM

STOCKTON - An ill wind kicked up dust, knocked down branches and turned out the lights as it tore through the Central Valley on Thursday.

Winds also played havoc with big rigs carrying goods through San Joaquin County, including a truck that lost a large concrete pipe on the Crosstown Freeway, blocking a lane of traffic for two hours in the morning.

"In that wind tunnel, he just overcorrected and lost it," said Adrian Quintero, a California Highway Patrol spokesman, of the driver. It wasn't the only report of the wind causing a truck to lose its cargo, either, Quintero said. "It's been very busy for us today."



In Stockton, gusts topped out at 45 mph at about 11 a.m., according to the National Weather Service.

That gust blew through the city more than three hours after the wind blew a 20-foot-tall window out of the iconic Burns Tower at University of the Pacific.

The stained-glass window on the west face of the tower was part of the building when it was completed in 1964. Work crews Thursday were re-anchoring the rest of the long windows that encircle the uppermost reaches of the tower, Giblin said.

which houses an old water tank, university spokesman Patrick Giblin said.

Employees were evacuated from offices inside the tower, and the area outside the building was roped off, he said.

Not long after, a pedestrian on the street in front of the campus was struck by a falling tree branch at 8 a.m., Giblin said.

Dry dust went airborne, according to the San Joaquin Valley Air Pollution Control District, which warned that even the healthy should avoid the air for prolonged periods of time Thursday.

A cloud of topsoil darkened the sky around Tracy. "It was a dark, dusty haze that took over this morning," city



spokesman Matt Robinson said. It also knocked out power to about 2,100 customers downtown until about 11:30 a.m., he said.

Trees hitting wires and wires slapping into each other caused power outages, said Nicole Tam, spokeswoman for Pacific Gas and Electric Co. At a late-morning peak, 4,400 customers in and around Stockton were without power from the wind, but that number was less than 900 by 2 p.m., she said.

In Lodi, thousands of residents lost power Thursday morning, and about two dozen trees are now tagged as perilously close to falling and in need of removal. At about 8:45 a.m., a tree fell on a power line in Hale Park, knocking out electricity to about 4,000 customers for about two hours, city spokesman Jeff Hood said.



The city shut down Lodi Lake Park on Wednesday after strong winds felled a large oak tree believed to be more than 120 years old.

Before the end of the workday on Thursday, the city of Stockton had received 225 calls to remove fallen trees and branches, city spokeswoman Connie Cochran said. Supervisors were doing "triage" to clean up the most-pressing disruptions, and work crews were out in force, she said. Most of the calls

came from central and south Stockton, older areas of the city with larger trees, she said.

Winds stoked a grass fire near Linden and shook fruit from county orchards.

Area cherry growers worry the winds may bruise or scar their rapidly maturing fruit, but damage may be limited because it is still early in the crop season, officials said.

"The wind's not good," said Tom Gotelli, a principal at O-G Packing in Stockton, one of the state's largest cherry growers and packers. "We're pretty concerned about it."



The full impact won't be known until the harvest begins in earnest in local orchards and wholesale buyers decide what percentage of wind-scarred or -discolored fruit they will accept, he said.

Staff writers Reed Fujii and Daniel Thigpen contributed to this report.

Contact reporter Zachary K. Johnson at (209) 546-8258 or zjohnson@recordnet.com.

Winds cause trees to topple throughout city

Los Banos Enterprise, Friday, May. 23, 2008

Weather plays havoc in rest of county as fires flare up on Eastside

By Corey Pride / cpride@losbanosenterprise.com

Los Baños' Parks and Recreation division and its fire department have been busy the past three days trying to clear public areas of fallen trees and branches.

"I can't say we've had three successive days of wind like this," Parks and Recreation Operations Manager Paul Cardoza said, recalling his 16 years of on-the-job experience. "Because of the wind trees are splitting and toppling over, and not just in the parks."

Parks and Recreation crews were at work until late in the night on Wednesday.

Cardoza said he tries to monitor weather reports. Originally the high winds were forecasted to calm down by Thursday, but by 5:30 a.m. Thursday morning Cardoza had to call his employees in to work because of swirling winds.

The fire department also pitched in. Fire Chief Chet Guintini said his department was inundated with calls from residents reporting down trees. Guintini said his personnel concentrated on the incidents that involved public rights of way.

Giving Parks and Recreation most of the credit, Guintini said the fire department did about 15 percent of the work. He said his crews most encountered large branches that had fallen.

Residents who need to report down trees should call Park and Recreation during business hours at 827-7034 and, after 5 p.m., the police department at 827-7070.

High winds also made conditions miserable for Merced County firefighters Wednesday as they battled grass fires in the Atwater, Livingston and Winton areas.

Forty acres of dry grass were consumed by about 12:53 p.m. at Preston and Buhach roads in the Atwater area in a fire of undetermined origin. About 15 firefighters responded in seven trucks from Gurr Road, Castle, Winton, Snelling, Merced, Livingston and McKee stations.

No injuries were reported, according to Merced County spokeswoman Katie Albertson.

Fire destroyed six tons of oat hay and three acres of baled oat hay remaining in the field at Oakdale and Amsterdam roads in the Winton area. Firefighters said it is likely the 1:52 p.m. fire began as the hay was being unloaded.

Another 50 acres of dry grass and grazing land was destroyed in a 2:10 p.m. fire at Highway 140 and Lincoln Boulevard in the Livingston area. Battalion Chief Kevin Lawson said winds played a big role in this fire which was contained at about 4 p.m. About 10 acres of the grass was on U.S. Fish and Wildlife Service property. The cause of this fire remains under investigation.

Merced Sun-Star associate editor Doane Yawger contributed to this article.

Wind wreaks havoc with highway travelers

Merced Sun-Star, Friday, May. 23, 2008

Fatal crash near Highway 99 brings traffic to a halt.

by VICTOR A. PATTON
vpattton@mercedsun-star.com

Firefighters battled more than four fires throughout Merced County on Thursday, as heavy winds and dry conditions created optimal conditions for the fires to spread.

Wind-whipped grass fires in Turlock and a fatal van crash also closed Highway 99 in both directions most of the afternoon and early evening between the Keyes-Ceres area to south of Turlock. This forced many motorists to detour along back roads in Merced and Stanislaus counties between 2 and 7 p.m.

Also Thursday, a team of 10 firefighters from several Merced County departments departed to assist with firefighting efforts near Santa Cruz.

Around 8 a.m., firefighters from the Cal Fire/Merced County Fire Department began battling a almond hull fire in Le Grand. Battalion Chief Brian Neely said about 20 firefighters arrived at Minturn Road, near the Madera/Merced County border, where about 1,000 tons of almond hulls were ablaze.

Firefighters also fought rural grass and haystack fires in Livingston and Delhi, Neely said. During the afternoon, firefighters were dispatched to a grass fire at Highway 140 near Cunningham Road east of Planada, consuming about 20 acres.

In addition, Cal Fire/Merced Fire Department firefighters also battled a house fire in the 4200 block of Lincoln Boulevard around 2:19 p.m. The cause of that fire is still being investigated.

Cal Fire/Merced County Fire Department reported no injuries.

Merced Fire Chief Ken Mitten said local firefighters will join with a team from Fresno County to fight the Santa Cruz fire. According to the Associated Press, gusty winds fanned a wildfire in the Santa Cruz Mountains, burning at least 10 homes and more than 2,500 acres.

About 1,400 homes have been evacuated -- 336 of them under mandatory orders -- as the fire, first reported around 5:30 a.m., has continued to grow despite more than 500 firefighters and a swarm of tanker planes and helicopters dousing the area.

Thus far, no injuries have been reported.

Santa Clara and Santa Cruz county officials said more than 60 residents had been evacuated, as well as 200 students from a summer camp in the mountains. Some were being taken to an evacuation center in Watsonville set up by the Red Cross.

Heavy brush and timber and winds gusting up to 50 mph were complicating efforts to fight the blaze. Officials estimated the fire would grow to 10,000 acres before being contained, the Associated Press reported.

Turlock police asked motorists to avoid the Highway 99 corridor between Keyes Road and Lander Avenue as fire crews battled a wildfire. The fire burned grass along the freeway and burned around the Best Western Orchard Inn on Taylor Road.

Eight passengers in a van from WIS International were involved in the single-vehicle rollover. One died at the scene and three had major injuries. The accident happened just a few minutes after a wildfire broke out along the freeway.

Highway traffic remained backed up for miles, only inching forward, in both directions from Turlock and Keyes hours after the fatal wreck and wildfires along the freeway.

The fire destroyed many of the 30 mobile homes in a storage yard on Taylor Road. Several homes and businesses in and around the Monte Vista shopping center were evacuated.

Fierce winds in Lodi knock down trees, knock out power

By [Layla Bohm](#) - News-Sentinel Staff Writer
Lodi news Sentinel, Friday, May 23, 2008

Last week, Lodi sweltered through triple-digit heat. This week, it's howling winds. Does that mean next week will bring rain?

Well, no, but the wind will die down, forecasters say.

The strong winds knocked down several large trees, including a well-recognized one at Lodi Lake and another that knocked out power to 4,001 customers Thursday morning.

A city wind gauge clocked gusts at 38 mph, and that was the cause of Thursday's power outage that began at 8:44 a.m., said Rob Lechner, customer service manager for Lodi Electric Utility.

The culprit, he said, was a tree at Hale Park, at Stockton and Locust streets. The locust tree had split years ago, and half of it blew into power lines and came to rest against a power pole.

The power lines actually held the tree up, and the only actual damage was a bent bolt on the pole and a broken glass encasing, both minor issues, Lechner said.

Electric crews isolated the problem and began rerouting electricity, restoring it to 2,000 customers by 9:02 a.m., Lechner said. Another 1,300 got power at 10:07 a.m., and the remaining 701 customers had electricity at 10:23 a.m.

Areas affected by the power outage included neighborhoods between the Mokelumne River and Kettleman Lane, and from Hutchins Street to Highway 99, Lechner said.

Meanwhile, Lodi residents pulled branches from yards and dodged blowing leaves and dust. Despite the power outage that temporarily blackened some traffic signals, no vehicle collisions were attributed to the signal lights, according to police.

Around 10:15 a.m., a large tree branch broke loose across from the Lodi Public Library, 201 W. Locust St., and landed on a Toyota pick-up truck.

Owner Mike Sudderth walked out of the library to find that the roof was dented and a side mirror was mostly demolished. He'd almost parked one space back when arriving at the library, and he wondered what would have happened if an elderly woman had instead parked in his spot.

"That's a lot of weight," he said of the large tree limb. "It could have killed somebody if they'd been walking by."

Tree branches, large and small, littered the city, but they were all small compared to the giant tree that fell at Lodi Lake.

Countless visitors who travel around trees in the middle of the road to the nature area will no longer see one of them — it fell across the northbound part of the road. By 7 a.m., city workers had assessed the damage and checked the nature area.

On North Sacramento Street, a tree limb broke loose, just missed a telephone line and came to rest in a small pond in Dennis Norton's front yard.

Next door, at Llantera Paz Tire Shop, a metal roof flapped in the wind, and Francisco Cuen was soon put to work, using an electric drill to keep his uncle's roof from flying away.

And at University of the Pacific in Stockton, wind knocked out an entire section of the stained glass in Burns Tower. The frame landed in a tree, glass shards scattered and the building was evacuated.

The wind is expected to die down by today, according to a spokesman with private forecasting firm AccuWeather, with winds from the west at 6 to 12 mph today, and 7 to 14 mph through the rest of the Memorial Day weekend. Temperatures should be around 70 today, and in the low 70s this weekend.

In the meantime, the San Joaquin Valley Air Pollution Control District warned residents to avoid lengthy exposure to blowing dust. It especially affects those with breathing problems, and can raise the risk of heart attacks for those with heart troubles, spokesman Anthony Presto said.

Winds whipped waves in the Delta, where no boating incidents were reported, according to the U.S. Coast Guard, which issued a wind and wave advisory. The warning, which extends through this afternoon, affected Point Reyes to Pigeon Point.

High winds cause power outages in Tracy

By Jennifer Gokhman

Tri-Valley Herald, Friday, May 23, 2008

TRACY — Students sat in darkened classrooms with light coming through the windows on Thursday at South/West Park School in Tracy, where the electricity was out. Every time the doors opened, gusts of wind blew in, causing papers to flutter.

Winds blew at 15 to 25 mph with gusts over 30 mph Thursday, following a windy Wednesday, said Steve Anderson, a forecaster with the National Weather Service. The winds caused tree branches to fall, and a brown cloud of dust hung over Tracy. The wind is expected to be lighter today and will die down to a breeze with temperatures in the 70s for the Memorial Day weekend, according to the National Weather Service.

The Tracy Public Works department removed 14 trees, some of which had fallen and some that were too risky to leave in place, as well as fallen branches throughout the day, said Kevin Tobeck, director of public works. The trees did not cause property damage.

"We were very fortunate," he said.

Power was out in several areas throughout town, said Nicole Tam, PG&E spokeswoman, leaving nearly 750 customers without power.

"It was all wind-related," Tam said. "Some areas, I heard, have record-breaking winds."

Wind knocked trees into power lines, and lines were hitting one another, Tam added.

Students at South/West Park School happened to be studying pioneer activities — such as churning butter — that did not require electricity.

The school was set on a rainy-day schedule to keep the students indoors and out of the wind, said Principal Ramona Soto.

"Because of the air quality "... when it's so windy like this, we keep kids inside," she said.

This is the first time this year the school has been on a rainy-day schedule because of wind, though it has happened in previous years, Soto added.

The air quality in Tracy was moderate as of Thursday afternoon, said Anthony Presto, San Joaquin Valley Air Pollution Control District spokesperson.

"Areas (with) gusty winds were kicking up fine particulate matter," he said, suggesting that on days where there are high winds, people should limit their time outside.

Particulate matter can cause lung damage, asthma problems and harm people with heart disease, he added.

If the wind dies down today, as forecast, the dust should settle. If not, the amount of particulate matter in the air will be high again, he said.

Mighty winds wallop West Side

Written by Jonathan Partridge

Patterson Irrigator, Friday, May 23, 2008

Powerful winds rocked the West Side on Wednesday and Thursday, keeping city staff workers busy removing tree limbs and leaving much of Crows Landing without power for several hours.

The National Weather Service recorded wind speeds of up to 44 mph at nearby Modesto City-County Airport and wind speeds as high as 54 mph at Travis Air Force Base near Fairfield.

“It’s definitely been a busy day,” said Monica Sandoval, Patterson’s public works management analyst, on Thursday.

She said the city had responded to about 50 to 60 calls Thursday regarding wind-related incidents and several on Wednesday as well, as high gusts toppled several large branches to the ground.

A few of the streets north of downtown, which were hit hard by the winds, looked like a lumberjack’s haven, with giant tree limbs scattered along the roadside near where branches had fallen.

North Fifth Street resident Susana Araisa, whose sister’s van suffered \$3,000 worth of damage after limbs fell on top of it Wednesday, said another limb fell in front of her home Thursday morning.

Araisa noted that many of the homes in her neighborhood were built in the 1940s, and she estimated the trees are just as old. Her family also dealt with fallen tree limbs last year, and she feared they may be a safety hazard for children playing nearby.

“We just want to get rid of the oldest trees,” she said.

Though fallen tree limbs were common, Sandoval noted that no road signs were damaged in Patterson this week as they have been in the past. And though the fire department responded to a downed phone line Wednesday, the city did not report any power line problems.

Crows Landing was not so fortunate. A damaged Turlock Irrigation District power line left several residents without power for as long as 6½ hours Thursday.

TID initially received a report of a power failure in Crows Landing at 5:45 a.m. that day.

Workers restored power to about half of the 350 residents affected by 10:15 a.m. and restored power to remaining customers by 12:15 p.m.

TID spokeswoman Jill GeRue said the district responded to several “sporadic outages” throughout its coverage area Wednesday and Thursday as a result of high winds.

Because of dry conditions, the air was filled with dust, leading the San Joaquin Valley Air Pollution Control District to issue a health cautionary statement through late Thursday.

Blowing dust can result in unhealthy concentrations of particulate matter 10 microns and smaller, PM10, valley air district officials explained. Exposure to dust and other particle pollution can cause serious health problems, aggravate lung disease, cause asthma attacks and acute bronchitis, and increase risk of respiratory infections.

Though the winds were moving quickly, the storm system that caused it was not, leading to the long periods of windy conditions, explained Jared Leighton, a meteorologist with the National Weather Service.

The eastward-moving winds, which also led to stormy weather in Colorado and the Midwest, were expected to remain calm after Friday afternoon.

Images from the Modesto Bee Video Footage (May 21, 2008)



Assorted Photographs



These photos were taken near Lamont, CA, which is just southwest of Bakersfield, CA



Stockton, CA Skycam (May 21, 2008)



Fresno, CA Skycam (May 21, 2008)



Grapevine (May 21, 2008)



Fresno, CA Skycam (May 22, 2008)

A.10 Television News Coverage

The SJVAPCD has collected news coverage of the wind event, and the images below are from video shown during the broadcasts. The coverage is from KGET Channel 17 (NBC) in Bakersfield and KFSN Channel 30 (ABC) in Fresno, on May 20-22, 2008.

May 20, 2008 (Bakersfield area)



May 21, 2008 (Kerman area – West Fresno County)



May 22, 2008 (Fresno area)





A.11 District Compliance Event Coverage

The following photographs and video images were taken by SJVAPCD Compliance staff during the May 21-22, 2008 blowing dust event.

Compliance Photographs (Bakersfield area)





Images from Compliance Video Footage



A.12 Preliminary Fresno and Bakersfield Climatological Data for May

Fresno, CA - May 2008

CXUS56 KHNX 011246

CF6FAT

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: FRESNO
 MONTH: MAY
 YEAR: 2008
 LATITUDE: 36 46 N
 LONGITUDE: 119 43 W

TEMPERATURE IN F:					:PCPN:			SNOW:			WIND			:SUNSHINE:			SKY		:PK WND	
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18		
=====																				
AVG MX 2MIN																				
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR		
=====																				
1	74	45	60	-5	5	0	0.00	0.0	0	4.2	17	320	M	M	0		28	30		
2	82	51	67	2	0	2	0.00	0.0	0	5.7	16	300	M	M	5		21	310		
3	81	50	66	1	0	1	0.00	0.0	0	7.8	16	300	M	M	3 8		26	280		
4	82	55	69	3	0	4	0.00	0.0	0	5.8	18	310	M	M	2		36	300		
5	81	52	67	1	0	2	0.00	0.0	0	5.3	14	310	M	M	3		18	150		
6	88	58	73	7	0	8	0.00	0.0	0	6.2	16	300	M	M	1 8		20	310		
7	79	58	69	2	0	4	0.00	0.0	0	11.6	20	310	M	M	1		26	320		
8	83	53	68	1	0	3	0.00	0.0	0	5.5	16	310	M	M	0		20	320		
9	82	55	69	2	0	4	0.00	0.0	0	10.0	16	310	M	M	0		21	310		
10	85	54	70	3	0	5	0.00	0.0	0	4.6	13	300	M	M	0		16	300		
11	88	59	74	6	0	9	0.00	0.0	0	7.3	20	310	M	M	2		24	320		
12	79	55	67	-1	0	2	0.00	0.0	0	11.4	20	310	M	M	5		25	300		
13	86	52	69	1	0	4	0.00	0.0	0	4.2	13	130	M	M	3		16	150		
14	91	59	75	7	0	10	0.00	0.0	0	3.5	10	180	M	M	5		14	200		
15	97	64	81	12	0	16	0.00	0.0	0	3.5	10	300	M	M	5		14	270		
16	102	71	87	18	0	22	0.00	0.0	0	7.1	16	300	M	M	0		22	300		
17	102	73	88	19	0	23	0.00	0.0	0	7.3	16	300	M	M	1		20	300		
18	103	73	88	19	0	23	0.00	0.0	0	7.2	17	310	M	M	2		20	290		
19	103	67	85	15	0	20	0.00	0.0	0	5.6	13	300	M	M	4		16	320		
20	95	63	79	9	0	14	0.00	0.0	0	13.6	28	290	M	M	4 78		35	320		
21	79	55	67	-3	0	2	0.00	0.0	0	18.8	31	310	M	M	1 8		39	320		
22	78	56	67	-3	0	2	0.00	0.0	0	10.5	26	310	M	M	3		37	310		
23	76	60	68	-3	0	3	T	0.0	0	6.3	14	210	M	M	8		21	220		
24	70	53	62	-9	3	0	0.05	0.0	0	8.8	17	310	M	M	9 1		21	310		
25	61	53	57	-14	8	0	0.15	0.0	0	7.4	15	320	M	M	10 18		18	320		
26	72	54	63	-8	2	0	0.03	0.0	0	3.9	9	80	M	M	9 18		13	90		
27	74	53	64	-8	1	0	0.07	0.0	0	6.8	17	290	M	M	8		23	30		
28	76	51	64	-8	1	0	0.00	0.0	0	8.0	20	310	M	M	4		24	320		
29	79	54	67	-5	0	2	0.00	0.0	0	9.1	18	310	M	M	1		24	320		
30	83	53	68	-4	0	3	0.00	0.0	0	6.6	15	300	M	M	2		21	270		
31	83	55	69	-3	0	4	0.00	0.0	0	9.0	16	310	M	M	2		24	20		
=====																				
SM	2594	1764			20	192	0.30		0.0	232.6			M		103					

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=====
AV 83.7 56.9                7.5 FASTST PSBL % 3 MAX(MPH)
                             MISC ----> # 31 310                # 39 320
=====

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NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

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STATION:  FRESNO
MONTH:    MAY
YEAR:     2008
LATITUDE: 36 46 N
LONGITUDE: 119 43 W

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[TEMPERATURE DATA]	[PRECIPITATION DATA]	SYMBOLS USED IN COLUMN 16
AVERAGE MONTHLY: 70.3	TOTAL FOR MONTH: 0.30	1 = FOG OR MIST
DPTR FM NORMAL: 1.5	DPTR FM NORMAL: -0.09	2 = FOG REDUCING VISIBILITY
HIGHEST: 103 ON 19,18	GRTST 24HR 0.17 ON 25-26	TO 1/4 MILE OR LESS
LOWEST: 45 ON 1		3 = THUNDER
	SNOW, ICE PELLETS, HAIL	4 = ICE PELLETS
	TOTAL MONTH: 0.0 INCH	5 = HAIL
	GRTST 24HR 0.0	6 = FREEZING RAIN OR DRIZZLE
	GRTST DEPTH: 0	7 = DUSTSTORM OR SANDSTORM:
		VSBY 1/2 MILE OR LESS
		8 = SMOKE OR HAZE
[NO. OF DAYS WITH]	[WEATHER - DAYS WITH]	9 = BLOWING SNOW
		X = TORNADO
MAX 32 OR BELOW: 0	0.01 INCH OR MORE: 4	
MAX 90 OR ABOVE: 7	0.10 INCH OR MORE: 1	
MIN 32 OR BELOW: 0	0.50 INCH OR MORE: 0	
MIN 0 OR BELOW: 0	1.00 INCH OR MORE: 0	

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[HDD (BASE 65) ]
TOTAL THIS MO.    20    CLEAR (SCALE 0-3) 19
DPTR FM NORMAL   -17    PTCLDY (SCALE 4-7) 9
TOTAL FM JUL 1   2246    CLOUDY (SCALE 8-10) 3
DPTR FM NORMAL   -197

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[CDD (BASE 65) ]
TOTAL THIS MO.    192
DPTR FM NORMAL    22
TOTAL FM JAN 1    246
DPTR FM NORMAL    33

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[PRESSURE DATA]
HIGHEST SLP 30.07 ON 29
LOWEST SLP 29.35 ON 22

[REMARKS]
#FINAL-05-08#

Bakersfield, CA - May 2008

CXUS56 KHNX 011246

CF6BFL

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: BAKERSFIELD
 MONTH: MAY
 YEAR: 2008
 LATITUDE: 35 25 N
 LONGITUDE: 119 3 W

TEMPERATURE IN F:		:PCPN:			SNOW:			WIND			:SUNSHINE:			SKY		:PK WND		
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18
=====																		
AVG MX 2MIN																		
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR
=====																		
1	73	48	61	-5	4	0	0.00	0.0	0	5.7	16	330	M	M	0		22	310
2	83	52	68	1	0	3	0.00	0.0	0	5.9	15	290	M	M	0		22	310
3	80	54	67	0	0	2	0.00	0.0	0	6.3	14	340	M	M	0		18	310
4	82	56	69	2	0	4	0.00	0.0	0	5.7	20	290	M	M	0		23	290
5	79	55	67	0	0	2	0.00	0.0	0	7.1	15	320	M	M	0		20	320
6	88	60	74	6	0	9	0.00	0.0	0	5.8	16	360	M	M	0		20	350
7	81	59	70	2	0	5	0.00	0.0	0	9.7	21	330	M	M	0		26	310
8	81	56	69	1	0	4	0.00	0.0	0	5.5	15	300	M	M	0		23	300
9	83	56	70	2	0	5	0.00	0.0	0	6.3	17	330	M	M	0		22	310
10	83	57	70	1	0	5	0.00	0.0	0	4.6	16	330	M	M	0		28	330
11	87	58	73	4	0	8	0.00	0.0	0	6.0	16	320	M	M	0		22	320
12	77	56	67	-2	0	2	0.00	0.0	0	8.9	22	330	M	M	0		26	300
13	84	59	72	2	0	7	0.00	0.0	0	5.7	15	320	M	M	0		20	320
14	91	64	78	8	0	13	0.00	0.0	0	5.2	16	320	M	M	0		28	300
15	99	66	83	13	0	18	0.00	0.0	0	5.6	16	330	M	M	0		21	310
16	103	71	87	17	0	22	0.00	0.0	0	10.1	23	150	M	M	0		28	160
17	100	73	87	16	0	22	0.00	0.0	0	6.0	15	320	M	M	0		20	290
18	99	75	87	16	0	22	0.00	0.0	0	4.9	14	320	M	M	0		21	310
19	99	70	85	14	0	20	0.00	0.0	0	6.7	14	320	M	M	0		24	320
20	97	69	83	12	0	18	0.00	0.0	0	12.5	32	340	M	M	0 8		40	350
21	77	58	68	-4	0	3	0.00	0.0	0	14.8	29	350	M	M	0 8		36	360
22	75	54	65	-7	0	0	0.00	0.0	0	6.4	21	340	M	M	0 8		M	M
23	71	60	66	-6	0	1	0.08	0.0	0	10.3	23	160	M	M	3 8		29	150
24	73	54	64	-8	1	0	0.00	0.0	0	8.6	25	300	M	M	4 8		30	300
25	58	52	55	-18	10	0	T	0.0	0	6.0	13	340	M	M	10		15	340
26	70	54	62	-11	3	0	T	0.0	0	3.4	9	360	M	M	8		17	320
27	76	56	66	-7	0	1	0.00	0.0	0	7.0	22	310	M	M	4 8		25	320
28	76	54	65	-8	0	0	0.00	0.0	0	7.8	16	340	M	M	1		20	340
29	78	53	66	-8	0	1	0.00	0.0	0	5.8	15	310	M	M	0		23	310
30	81	53	67	-7	0	2	0.00	0.0	0	7.0	14	300	M	M	0		20	300
31	82	55	69	-5	0	4	0.00	0.0	0	7.2	14	320	M	M	0		21	310
=====																		
SM	2566	1817			18	203	0.08		0.0	218.5			M		30			
=====																		
AV	82.8	58.6								7.0	FASTST	PSBL	%	1		MAX(MPH)		
									MISC	---->	#	32	340			#	40	350

NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: BAKERSFIELD
 MONTH: MAY
 YEAR: 2008
 LATITUDE: 35 25 N
 LONGITUDE: 119 3 W

[TEMPERATURE DATA]	[PRECIPITATION DATA]	SYMBOLS USED IN COLUMN 16
AVERAGE MONTHLY: 70.7	TOTAL FOR MONTH: 0.08	1 = FOG OR MIST
DPTR FM NORMAL: 0.4	DPTR FM NORMAL: -0.16	2 = FOG REDUCING VISIBILITY TO 1/4 MILE OR LESS
HIGHEST: 103 ON 16	GRTST 24HR 0.08 ON 23-23	3 = THUNDER
LOWEST: 48 ON 1		4 = ICE PELLETS
	SNOW, ICE PELLETS, HAIL	5 = HAIL
	TOTAL MONTH: 0.0 INCH	6 = FREEZING RAIN OR DRIZZLE
	GRTST 24HR 0.0	7 = DUSTSTORM OR SANDSTORM: VSBY 1/2 MILE OR LESS
	GRTST DEPTH: 0	8 = SMOKE OR HAZE
		9 = BLOWING SNOW
		X = TORNADO
[NO. OF DAYS WITH]	[WEATHER - DAYS WITH]	
MAX 32 OR BELOW: 0	0.01 INCH OR MORE: 1	
MAX 90 OR ABOVE: 7	0.10 INCH OR MORE: 0	
MIN 32 OR BELOW: 0	0.50 INCH OR MORE: 0	
MIN 0 OR BELOW: 0	1.00 INCH OR MORE: 0	
[HDD (BASE 65)]		
TOTAL THIS MO. 18	CLEAR (SCALE 0-3) 26	
DPTR FM NORMAL -13	PTCLDY (SCALE 4-7) 4	
TOTAL FM JUL 1 2069	CLOUDY (SCALE 8-10) 1	
DPTR FM NORMAL -48		
[CDD (BASE 65)]		
TOTAL THIS MO. 203		
DPTR FM NORMAL -2	[PRESSURE DATA]	
TOTAL FM JAN 1 272	HIGHEST SLP 30.09 ON 29	
DPTR FM NORMAL 3	LOWEST SLP 29.41 ON 23	
[REMARKS]		
#FINAL-05-08#		

A.13 May 20, 2002 High Wind Documentation

May 19 and 20, 2002 Episode Synoptic Discussion (12/31/2002)

May 19, 2002

A wind blown dust event occurred across parts of the central and southern San Joaquin Valley on May 19, 2002. At McFarland, a 24-hour PM₁₀ (Particulate Matter) concentration of 407 µg/m³ was measured. The McFarland measurement was taken 8AM to 8AM daily, whereas all other sites are measured midnight to midnight daily.

Table 1 outlines the Peak and Daily Average Particulate Matter Measurements at McFarland, Corcoran, Clovis, and Fresno-1st. In order to understand the variability of these measurements, an in depth examination of the synoptic pattern and surface winds and observations, aircraft soundings, pibal (balloon) wind measurement, and lower air profiler measurements leading to the episode were analyzed.

TABLE 1: Peak and Daily Average Particulate Matter Measurements for sites across the SJV for May 19, 2002

Site Name	PM 10-Teom		PM 10-BAM		PM 2.5-BAM	
	Peak	24-Avg.	Peak	24-Avg.	Peak	24-Avg.
McFarland	*	407 [#]	*	*	*	*
Corcoran	235	39	674	84	27	13
Clovis	106	29	*	*	*	*
Fresno-1st	*	*	*	*	8	4

*-N/A

units in µg/m³

The meteorological synoptic analysis showed that an unseasonably, deep trough developed across the eastern Pacific, the morning of the 19th. The trough slowly pushed southeastward across California during the afternoon hours. The morning surface charts depicted a surface high pressure ridge draped across central California to Reno, with a thermal low near Las Vegas. The 12Z surface pressure gradient was +9.4 millibars from San Francisco (SFO) to Las Vegas (LAS). A +9.4 millibars pressure gradient means onshore or down-valley flow, which results in strong northwesterly winds across the San Joaquin Valley. A developing cold front curved southward into the eastern Pacific from a moderate low 600 NM west of Eureka.

The morning temperature soundings over Fresno showed an isothermal (slightly stable) layer up to 4,000 feet. At Bakersfield the temperature sounding showed a similar isothermal layer up to 3,000 feet. The morning pibal wind measurement from Fresno, depicted strong northwesterly flow decoupled from the surface at 37 knots at 1,000 feet continuing northwesterly up to 4,000 feet, then shifting westerly up to 5,000 feet, and then backing southerly above 5,000 feet.

Upper level charts indicated a strong low 750 NM west of Eureka, with a trough digging southward across the eastern Pacific. A strong temperature gradient (packing) at 850 MB and an intense upper level (300 MB) jet were evident across northwestern California on the 12Z analysis maps. The strong temperature gradient aloft, along with an intense upper level jet, manifested the surface pressure gradient, resulting in strong to gusty winds measured at several hourly-surface meteorological monitoring sites and aloft at the Visalia and Lost Hills lower air profiler sites. **Table 2** shows the 24 hour daily average wind speeds at SJVAPCD air monitoring, ASOS, and CIMIS sites for May 19, 2002.

Table 2: 24 hour average wind speeds at SJVAPCD air monitoring, ASOS, and CIMIS sites for May 19, 2002.

SJVAPCD Air Monitor		ASOS		CIMIS			
	WS		WS		WS		WS
	mph		mph		mph		mph
BFLD-Gold	6.8	BFLD Meadows	11.6	FivePoints	11.2	Famoso	5.2
Clovis	7.5	Fresno YI	9.4	Shafter/USDA	6.3	Orange Cove	5.5
Fresno SSP	4.4	Hanford	9	Firebaugh/Telles	5.9	Madera	7.2
Madera Pump	7.5	Madera-AP	10.2	Stratford	7.5	Belridge	6.8
Maricopa	9.2	Merced-AP	8.7	Kettleman	5.2	Merced	4.4
Merced-Coffee	6.2	Modesto-AP	6.7	Visalia/Americas	5.1	Patterson	6.8
Parlier	8.4	Stockton-AP	6.6	Parlier	6.6	Lodi West	2.2
Tracy	9.0			Blackwells Corner	14	Tracy	7.3
Turlock	4.8			Los Banos	8.6	Porterville	4.9
Visalia LAP	6.8			Manteca	4.6	Lost Hills	9.1
				Modesto	6.4	Delano	6.1
				Fresno State	6.7	Westlands	8.1
				Lindcove	3.9	Panoche	6.8
				Kesterson	6.1	Arvin-Edison	6.1

Lower air profiler data from Visalia and Lost Hills showed that with solar insulation (heating) the stable isothermal layer present in the morning began to mix out by 11-12 PDT (18Z-19Z), resulting in strong winds aloft mixing to the surface (**Figure 1 and 2**). The ASOS hourly observations showed northwesterly flow across the San Joaquin Valley (down-valley). At Bakersfield, Hanford, and Lemoore, winds were light and variable in the morning. As the strong temperature gradient aloft and upper level jet began to nose into the region, combined with the strong surface gradient and afternoon heating, gusty northwesterly winds developed across the southern San Joaquin Valley during the afternoon; with Hanford ASOS reporting winds at 10.4 mph gusting to 20 mph and Lemoore with winds at 12.7 mph gusting to 23 mph at the 13:55 PDT observation. Reduced visibilities of 5 miles were later noted at Hanford around 16:53 PDT when winds were at 17.3 mph gusting to 26.5 mph. Gusty winds continued into the early evening hours and began diminishing after 21:00 PDT. TEOM and BAM hourly measurements, at Corcoran immediately showed the diminishing wind speeds, by measurements lowering to 20 µg/m³.

Figure 1: Visalia Lower Air Profiler image for May 19-May 20th, 2002.

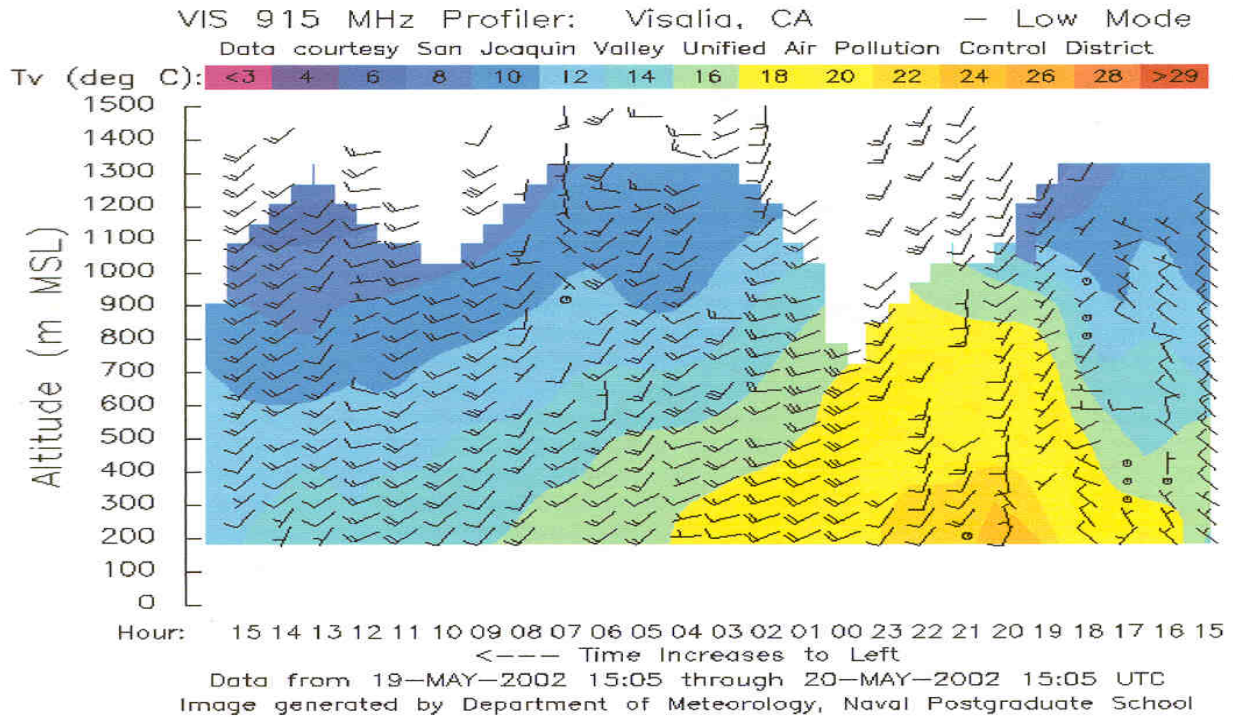
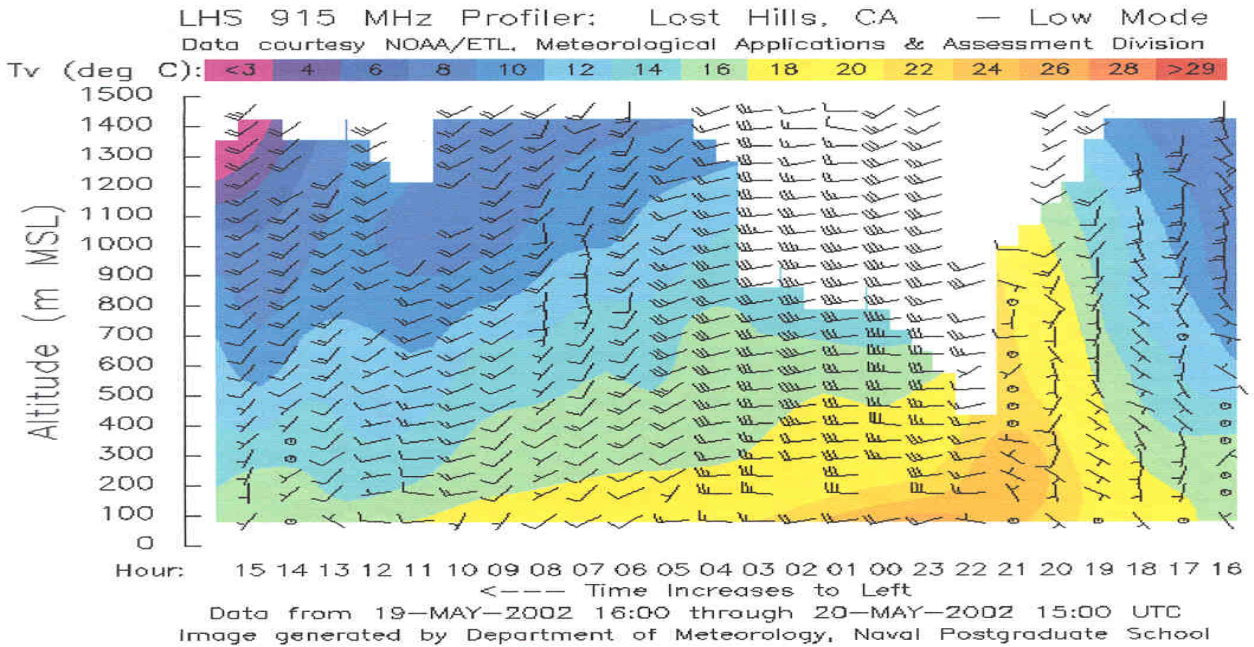


Figure 2: Lost Hill Lower Air Profiler Image for May 19-May 20th, 2002



The wind event on May 19th, 2002 lasted six to eight hours and resulted in one real time monitoring site at McFarland (407 $\mu\text{g}/\text{m}^3$) exceeding the Federal 24-hour PM₁₀ standard. Since other real time particulate monitoring sites did not register above the Federal 24-hour PM₁₀ standard, the McFarland measurement signifies local wind and emission characteristics. The meteorology did suggest that winds were strong enough to reduce visibilities and impact locally other southern San Joaquin Valley communities during the peak of the dust event.

May 20, 2002

Isolated cases of wind blown dust continued across parts of the central and southern San Joaquin Valley on the 20th. At Bakersfield Golden, a 24-hour PM₁₀ concentration of 189 $\mu\text{g}/\text{m}^3$ was measured, whereas at Bakersfield California, the PM₁₀ concentration was 65 $\mu\text{g}/\text{m}^3$. **Table 3** outlines the Peak and Daily Average Particulate Matter Measurements at McFarland, Corcoran, Clovis, Fresno-1st, Bakersfield Golden and California. In order to understand the variability of these measurements, an in depth examination of the synoptic pattern and surface winds and observations, aircraft soundings, pibal balloon measurement, and lower air profiler measurements leading to the episode were analyzed.

TABLE 3: Peak and Daily Average Particulate Matter Measurements for sites across the SJV for May 20, 2002.

Site Name	10-Teom		10-BAM		2.5-BAM		FRM-10
	Peak	24-Avg.	Peak	24-Avg.	Peak	24-Avg.	24-Avg.
McFarland	*	45	*	*	*	*	*
Corcoran	45	12	45	20	22	11	15
Clovis	21	6	*	*	*	*	8
Fresno-1 st	*	*	*	*	10	1	7
Bak-Gold	*	*	*	*	*	*	189
Bak-Cal	*	*	*	*	*	*	65

*-N/A

units in $\mu\text{g}/\text{m}^3$

The meteorological synoptic analysis showed the jet stream carving a deep trough across central California on the morning of 20th. The morning surface charts depicted a strong surface cold front draped southwestward from Tonopah to Big Sur.

The 12Z surface pressure gradient was +4 millibars from San Francisco (SFO) to Las Vegas (LAS). A +4.0 millibars pressure gradient means onshore or down-valley flow.

The morning temperature sounding over Fresno showed a weak inversion of 2 degrees Fahrenheit from the surface up to 500 feet turning unstable through 5,000 feet. At Bakersfield the temperature sounding showed an unstable atmosphere. The morning

pibal measurement from Fresno depicted moderate to strong south-southwesterly flow from the surface up to 7,000 feet.

Upper level charts indicated a strong low 250 NM west of Eureka, with a broad trough covering the eastern Pacific and California. A strong temperature gradient at 850 MB and an intense upper level (300 MB) jet were evident across southern California on the 12Z analysis maps. Along with daytime heating, scattered thunderstorms developed across the southern San Joaquin Valley on the 20th. These thunderstorms coupled with an intense upper level jet, brought gusty winds across isolated parts of the Valley. In Madera, a small tornado touched down. **Table 4** shows the 24 hour daily average wind speeds at SJVAPCD air monitoring, ASOS, and CIMIS sites for May 20, 2002.

Table 4: 24 hour average wind speeds at SJVAPCD air monitoring, ASOS, and CIMIS sites for May 20, 2002.

SJVAPCD Air Monitor		ASOS		CIMIS			
	WS		WS		WS		WS
	mph		mph		mph		mph
BFLD-Gold	7.3	BFLD Meadows	11.2	FivePoints	10.4	Famoso	6.6
Clovis	5.9	Fresno YI	9.3	Shafter/USDA	8.1	Orange Cove	5.2
Fresno SSP	5.5	Hanford	8.9	Firebaugh/Telles	5.7	Madera	6.0
Madera Pump	6.3	Madera-AP	10.2	Stratford	7.9	Belridge	7.7
Maricopa	M	Merced-AP	7.2	Kettleman	4.5	Merced	3.3
Merced-Coffee	M	Modesto-AP	7.2	Visalia/Americas	4.2	Patterson	8.3
Parlier	8.2	Stockton-AP	6.7	Parlier	6.3	Lodi West	2.9
Tracy	7.9			Blackwells Corner	14.2	Tracy	5.8
Turlock	6.5			Los Banos	5.8	Porterville	4.6
Visalia LAP	7.3			Manteca	4.6	Lost Hills	11.2
				Modesto	7.2	Delano	M
				Fresno State	5.9	Westlands	6.1
				Lindcove	4.6	Panoche	5.8
				Kesterson	7.5	Arvin-Edison	5.3

Bakersfield Golden had higher wind speeds on the 20th compared to the 19th. **Figure 3** shows on the 19th wind characteristics at Bakersfield Golden were marked by a short duration event of elevated winds. On the other hand, the 20th was marked by gusty, strong winds occurring for most of the day. Peak one hour average wind speed measurements at Bakersfield California measured 13.8 mph at 18-19 PDT, with a 11.8 mph wind speed measured at 17-18 PDT and 19-20 PDT. At the Bakersfield ASOS a peak one hour wind speed measurement was 26 mph on the 20th. The wind event on the 20th at Bakersfield Golden resulted in a PM₁₀ measurement of 189 µg/m³; exceeding the Federal 24-hour PM₁₀ standard. Since Bakersfield California and other real time and Federal Reference Method (FRM) PM monitoring sites did not measure PM above the Federal 24-hour PM₁₀ standard, the Bakersfield Golden measurement signifies local wind and emission characteristics.

Figure 3: Hourly Average Wind Speeds at Bakersfield Golden on May 19 and 20, 2002

