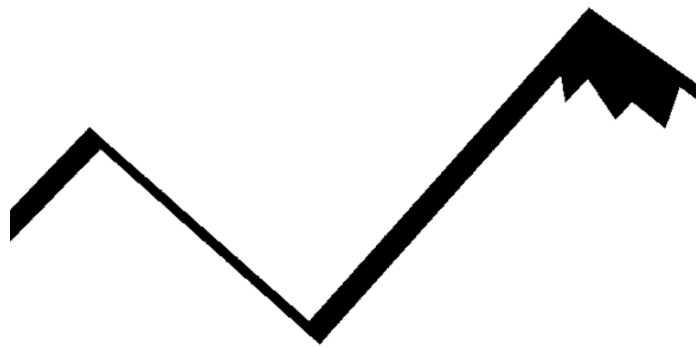
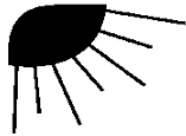


# Exceptional Event Documentation

Hanford, Corcoran, Oildale, and Bakersfield, California  
October 9, 2008



San Joaquin Valley  
Unified Air Pollution Control District

February 18, 2010

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## **Executive Summary**

The analysis in this report demonstrates that the exceedances of the PM10 National Ambient Air Quality Standard (NAAQS) recorded on October 9, 2008 were caused by unusually strong winds, and therefore qualify as an Exceptional Event under the Clean Air Act.

A strong, dry cold front passed over the region on October 9, causing the high wind event. The cold front generated strong and gusty northwesterly winds over the western San Joaquin Valley. The windstorm overwhelmed the San Joaquin Valley Air Pollution Control District's rigorous particulate matter emission controls, and entrained dust from the dry soil in the Fresno and Kings County areas. PM10 concentrations first became elevated (to historically high concentrations) in the Hanford/Corcoran area and then the airborne dust was transported to the southeast. The wind transported PM10 into Kern County and led to historically high PM10 concentrations in the Oildale/Bakersfield area, as shown in Table ES-1. The exceedances of the NAAQS would not have occurred but for the wind event.

**Table ES-1: 24-hour Average PM10 Concentrations, October 9, 2008**  
(All filter-based monitors, unless otherwise noted)

<b>Site</b>	<b>PM10 Concentration</b>
Hanford	226 µg/m <sup>3</sup>
Corcoran Filter-based monitor	306 µg/m <sup>3</sup>
Corcoran Real-time monitor	275 µg/m <sup>3</sup>
Oildale	224 µg/m <sup>3</sup>
Bakersfield – Golden State Highway	267 µg/m <sup>3</sup>
Bakersfield – California Avenue	256 µg/m <sup>3</sup>

This report meets all U.S. Environmental Protection Agency (EPA) documentation standards for Exceptional Events (see Section 1) and follows accepted EPA methodologies and guidance. Pursuant to federal regulations, with EPA concurrence, the October 9, 2008 PM10 measurements shown in Table ES-1 would be excluded from consideration regarding the NAAQS (40 Code of Federal Regulations (CFR) 50.14(b)).

## **Section 1: Meeting Federal Requirements for Exceptional Events**

EPA's *Treatment of Data Influenced by Exceptional Events* rule (codified in 40 CFR 50) describes the requirements for exceptional events flagging and documentation. The District meets all of these procedural and documentation requirements.

### **1.1: Procedural Requirements**

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

The District issued a press release on October 9, 2008 at 2:10 PM PDT highlighting elevated PM10 levels due to high winds (see Appendix B).

**2. Place informational flag on data in the Air Quality System (AQS) (40 CFR 50.14(c)(2)(i))**

When the District suspects that data may be influenced by an exceptional event, the District expedites analysis of the filters collected from the potentially-affected, filter-based air monitoring instruments. The laboratory weighs the filter and submits the data into AQS. The District submits real-time data into AQS. Once the data is in AQS, if the District's preliminary analysis supports influence from an exceptional event, the District submits a preliminary flag into AQS. The data is not official until it undergoes more thorough quality assurance and quality control, leading to certification by May 1<sup>1</sup> of the year following the calendar year in which the data was collected (40 CFR 58.15(a)(2)). The data flag is not official until the exceptional event documentation is approved by EPA. An AQS printout showing that the data has been flagged is in Appendix G.

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

The District communicated with EPA via phone and email shortly after the date of the event in question to alert them of an exceptional event.

The District submitted a letter to EPA on June 30, 2009 listing the days the District intended to analyze under the exceptional events policy. The October 9, 2008 PM10 high wind event was included on this list.

**4. Document that the public comment process was followed for event documentation (40 CFR 50.14(c)(3)(v))**

The District will conduct a 30-day public comment period on this document from February 18, 2010 through March 20, 2010. Public notice will be available in Valley newspapers and on the District website. Evidence of this notice will be submitted to EPA with the exceptional event documentation.

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

This document is intended to satisfy this requirement.

---

<sup>1</sup> This date was recently changed from July 1<sup>st</sup> to May 1<sup>st</sup> by EPA.

## 1.2: Documentation Requirements

**6. Provide evidence that the event satisfies “exceptional event” criteria set forth in 40 CFR 50.1(j) (40 CFR 50.14(c)(3)(iv)(A))**

See Sections 2 and 4 of this document.

According to 40 CFR 50.1(j), also Clean Air Act (CAA) Section 319, an exceptional event meets the all of following criteria:

- a. Affects air quality (See Section 4 of this document)
- b. Is not reasonably controllable or preventable (See Section 2 of this document)
- c. Is caused by either (1) human activity that is unlikely to recur at a particular location or (2) a natural event (See Section 4 of this document)
- d. Is determined by EPA to be in accordance with 40 CFR 50.14 to be an exceptional event (Pending EPA concurrence upon receipt of this document)

**7. There is a clear, causal relationship between the measurement under consideration and the event (40 CFR 50.14(c)(3)(iv)(B))**

See Section 4 of this document.

**8. Provide evidence that the event is associated with a measured concentration in excess of normal, historical fluctuations (40 CFR 50.14(c)(3)(iv)(C))**

See Section 3 of this document.

**9. Provide evidence that there would have been no exceedance or violation but for the event (the “but for” test) (40 CFR 50.14(c)(3)(iv)(D))**

See Section 5 of this document.



## **Section 2: Air Pollutant Controls in the San Joaquin Valley**

**This section satisfies the following federal requirement:**

- An exceptional event is one that is not reasonably controllable or preventable  
(40 CFR 50.14(c)(3)(iv)(A) and 40 CFR 50.1(j))

While high winds are not controllable, particulate matter emissions have been stringently controlled by the San Joaquin Valley Air Pollution Control District (District). The District's pollution controls are recognized as some of the toughest in the nation. Most notable among the District's PM controls:

- Regulation VIII (Fugitive PM10 Prohibitions), which requires actions to prevent, reduce, and mitigate anthropogenic fugitive dust emissions.
- Rule 4550 (Conservation Management Practices), which limits fugitive dust emissions from agricultural operations.
- Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters), which restricts wood burning when ambient PM concentrations approach the 24-hour NAAQS for PM2.5 or PM10 between November 1 and February 28.
- Rule 4103 (Open Burning), which prohibits the burning of most agricultural waste materials and severely restricts the burning of the non-prohibited material, in conjunction with the District's Smoke management Program.
- Rule 4106 (Prescribed Burning and Hazard Reduction Burning), which assures that the controlled burning of forest and rangeland residue in the District's foothills and mountains is conducted to prevent air quality problems.

Recognizing the effectiveness of the District's PM control measures, EPA approved the District's PM10 control strategy as Best Available Control Measures (BACM) in its May 26, 2004 approval of the *2003 PM10 Plan* (69 FR 30035). EPA reiterated this BACM approval in its November 12, 2008 approval of the District's *2007 PM10 Maintenance Plan*, noting that EPA had also approved many of the District's individual rules as BACM since the *2003 PM10 Plan* approval (73 FR 66766). In addition, PM and PM precursors continue to be further controlled in the Valley through the District's ongoing planning and regulatory efforts, including the *2007 Ozone Plan*, the *2008 PM2.5 Plan*, and the resulting control measures.

The District's BACM and other control measures have significantly reduced ambient PM10 concentrations and allowed the San Joaquin Valley Air basin to attain the PM10 NAAQS. The District's BACM-level pollution controls are designed for the typical and wide range of climate conditions in the San Joaquin Valley. For a natural event to overwhelm these controls, the characteristics of the event - by definition - must be outside the norm. Because the District's controls are considered Best Available Control Measures and because the controls were in place at the time, the dust entrained on October 9, 2008 was clearly not reasonably controllable or preventable.

Human activities that generated PM10 emissions were approximately constant before, during and after the October 9, 2008 wind event, indicating that the sudden increase in

PM10 concentrations was not driven by human activity. Based on a survey of the available information, there is no evidence of unusual anthropogenic emissions on October 9, 2008. Agricultural burning was extremely restricted in the San Joaquin Valley on October 9, pursuant to District Rule 4103 and the District's Smoke Management Program: only 11 pounds of PM10 emissions from the burning of agricultural waste were authorized on that day.

Typical October farming operations in Kings County and the western part of Fresno County include land preparation and planting for winter crops, harvesting of summer crops, and end-of-year land cultivation to increase rain water infiltration into the soil to prevent soil erosion and refill the subsoil aquifer. The San Joaquin Valley Air Pollution Control District has several effective fugitive dust control measures in place. District Rule 8061 (Paved and Unpaved Roads) and Rule 8081 (Agricultural Sources) establishes fugitive dust control requirements to stabilize non-field surfaces of paved and unpaved roads, vehicle and equipment parking and traffic areas, vehicle carryout/trackout, and bulk material piles. District Rule 4550 (Conservation Management Practices) for agricultural operations implement multiple fugitive dust control measures for land preparation / cultivation, harvest activities, unpaved roads and equipment yards, and other cultural practices.

The above practices are applied as an industry standard and they sufficiently control dust under the San Joaquin Valley's typical range of weather circumstances. Exceptions to fugitive dust control may occur when aberrant weather conditions occur, thwarting all good faith, properly applied and timed dust control practices.

Additionally, a summary of the District's compliance inspections on October 9, 2008 is shown in Appendix D.

**Section 3: PM10 concentrations on October 9, 2008 were in excess of normal, historical fluctuations**

**This section satisfies the following federal requirement:**

- Provide evidence that the event is associated with a measured concentration in excess of normal, historical fluctuations  
(40 CFR 50.14(c)(3)(iv)(C))

PM10 concentrations on October 9, 2008 were exceptionally high at the Bakersfield, Oildale, Hanford, and Corcoran sites, as summarized in Table 3-1. The measured PM10 concentrations on October 9 at Hanford, Corcoran, Oildale, Bakersfield – Golden, and Bakersfield – California were greater than the 99<sup>th</sup> Percentile.

**Table 3-1: Historical Ranking of October 9, 2008 PM10 Concentrations by Site**  
(as of October 9, 2008)

Site	Concentration, μg/m <sup>3</sup>	Historical Ranking	Year Data Record Began
Corcoran	306	1 <sup>st</sup>	1986
Hanford	226	2 <sup>nd</sup>	1993
Bakersfield – California	256	1 <sup>st</sup>	1994
Bakersfield – Golden	267	2 <sup>nd</sup>	1994
Oildale	224	2 <sup>nd</sup>	1990

Historically, 24-hour PM10 primary monitor concentrations are elevated in the month of October. However, due to the strong control measures in place in the San Joaquin Valley Air Basin, the frequency of PM10 exceedances in October and the maximum PM10 concentrations for October have decreased over the past several years (see Table 3-2 and Figure 1). It is noted that subsequent windblown dust events have occurred in the southern San Joaquin Valley on October 30, 2008, October 13, 2009, and October 27, 2009. These events will be the subject of forthcoming Exceptional Events documents.

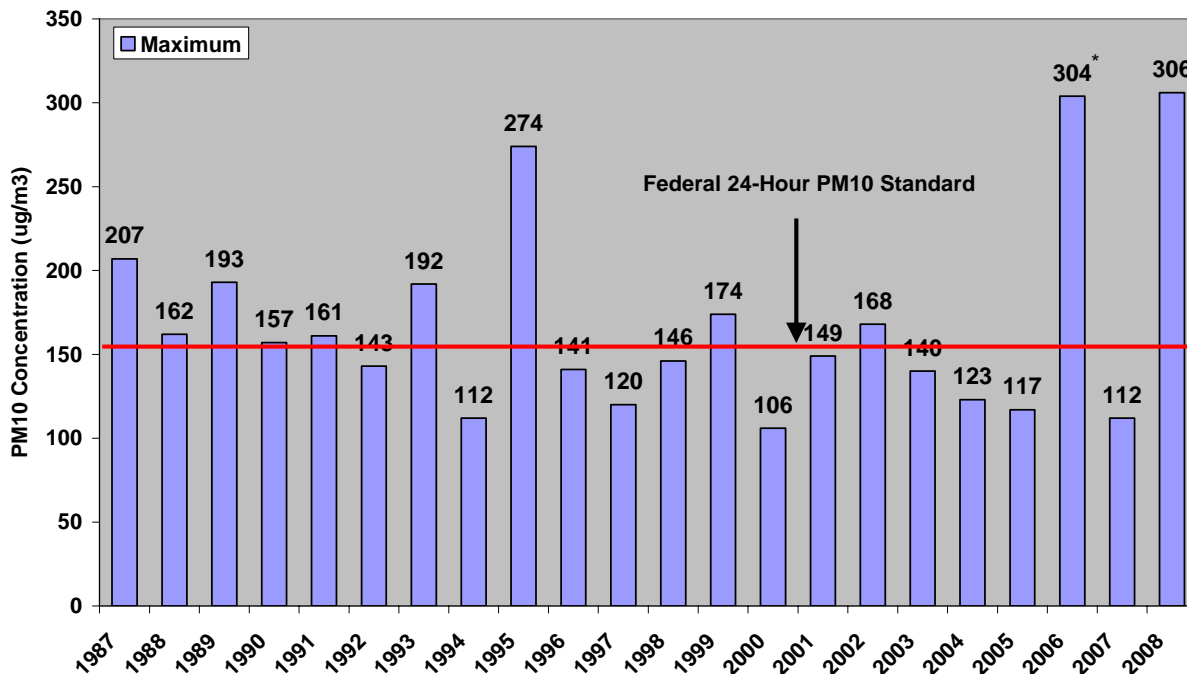
With the exception of the EPA-approved October 26, 2006 high wind event and the wind-blown dust events in October 2008 and 2009, peak PM10 levels during October have remained below the NAAQS since 2002. Using the methodology accepted by EPA, it is clear that the PM10 levels on October 9, 2008 were outside of historical maximums.

**Table 3-2: Maximum PM10 Concentrations in the Month of October by year since 1987**

Date	Max PM10 Value ( $\mu\text{g}/\text{m}^3$ )	Location
10/6/1987	207	Corcoran – Van Dorsten
10/24/1988	162	Five Points
10/19/1989	193	Corcoran – Van Dorsten
10/26/1990	157	Visalia-Church
10/15/1991	161	Corcoran-Van Dorsten
10/13/1992	143	Corcoran-Van Dorsten
10/28/1993	192	Hanford
10/23/1994	112	Hanford
10/4/1995	274	Corcoran-Van Dorsten
10/18/1996	141	Corcoran
10/25/1997	120	Corcoran
10/20/1998	146	Hanford
10/21/1999	174	Corcoran
10/9/2000	106	Corcoran
10/16/2001	149	Hanford
10/29/2002	168	Corcoran
10/18/2003	140	Hanford
10/12/2004	123	Hanford
10/13/2005	117	Hanford
10/26/2006	304*	Corcoran
10/30/2007	112	Corcoran
10/9/2008	306	Corcoran

\* EPA concurred with the District's request to flag October 26, 2006 as having been caused by an exceptional event of high winds.

**Figure 1: October Historical Maximum 24-Hour PM10 Concentration, 1987 through October 9, 2008**



\* EPA concurred with the District’s request to flag October 26, 2006 as having been caused by an exceptional event of high winds.

Pursuant to methodologies used by EPA in previous approvals of Exceptional Events, the District developed box-whisker plots to further analyze October PM10 data through 2008 for active sites in the San Joaquin Valley to determine if the concentrations on October 9, 2008 were in excess of normal historical fluctuations (including background)(see Figure 2). The starting date of monitoring at each site is summarized in Table 3-3.

The District used these box-whisker plots to identify outliers. An outlier is defined as a point that falls above the upper quartile (top of the box). A quartile is one of the four divisions of observations which have been grouped into four equal-sized sets, based on their statistical rank. The following equation identifies where the outlier resides:

$$\text{Outlier} > \text{QU} + 1.5 \cdot \text{IQR}$$

Where,  
 QU is the 75th Percentile value, and IQR is the difference between the 75<sup>th</sup> and 25<sup>th</sup> Percentile values.

For Hanford, Corcoran, Oildale, Bakersfield California, and Bakersfield Golden, the PM10 concentrations measured on October 9 were outliers (see Figure 2). Thus, the October 9, 2008 exceedances were clearly in excess of normal historical fluctuations.

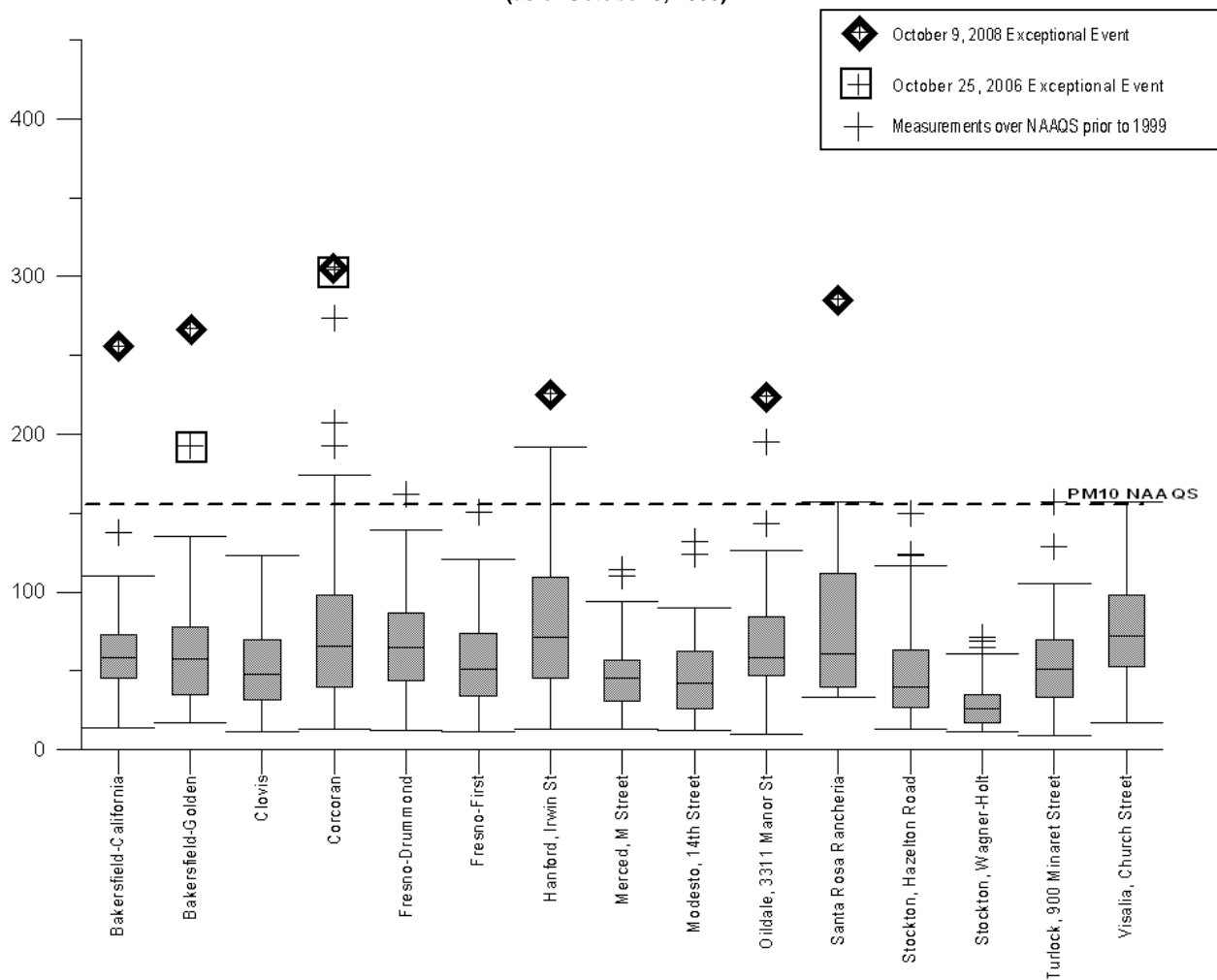
**Table 3-3: PM10 Monitor Site Location and First Available October Data Point**

<b>PM 10 Monitor Site Location</b>	<b>First Available October Data Point</b>
Bakersfield - CA	10/5/1994
Bakersfield - Golden	10/5/1994
Clovis	10/3/1991
Corcoran*	10/6/1987
Fresno - Drummond	10/1/1989
Fresno - 1st	10/2/1990
Hanford	10/11/1993
Merced M St.	10/3/1999
Modesto - 14th St.	10/2/1998
Oildale	10/8/1987
Santa Rosa Rancheria	10/2/2006
Stockton - Hazelton	10/6/1987
Stockton - Wagner-Holt	10/18/1996
Turlock Minaret St.	10/5/1994
Visalia Church St.	10/6/1987

\* - Van Dorsten through 1997, then Patterson Avenue thereafter

Collocated October 1995 through 1997

**Figure 2: Box-Whisker Plot of PM10 data by site for the month of October**  
(as of October 9, 2008)



#### **Section 4: PM10 concentrations were caused by a natural high wind event**

**This section satisfies the following federal requirements:**

- The event was caused by a natural event  
(40 CFR 50.14(c)(3)(iv)(A) and 40 CFR 50.1(j),
- The event affected air quality  
(40 CFR 50.14(c)(3)(iv)(A) and 40 CFR 50.1(j),
- There is a clear, causal relationship between the measurement under consideration and the event  
(40 CFR 50.14(c)(3)(iv)(B))

On October 9, 2008, a high wind event entrained geologic particulate matter (PM) in the source area and then transported the suspended PM to the receptor area. The western and southern portions of the Valley were affected by this event, particularly the area shown in Figure 3.

Wind speeds in excess of 17 miles per hour have been documented to entrain typical San Joaquin Valley soil material into the atmosphere. Once entrained, PM can be transported by winds much slower than the entrainment wind speed. While it is easy to visualize how airborne dust is transported downwind, it is useful here to explain how soil material can become entrained, and how it stays suspended.

In order for soil materials to be entrained into the atmosphere, winds must be strong enough for surface particles to overcome friction and become dislodged. As particles are pushed and rolled along the ground, they can become airborne. Turbulent winds, swirling and moving vertically away from the surface, surround and lift the airborne particle much as a kite is lifted into the air when it is raised slightly off the ground.

Turbulence created by surface obstructions, strong wind shear, and surface heating mixes the entrained dust higher into the atmosphere. Vertical movement associated with turbulent mixing works against gravitational settling of particles, allowing dust to stay suspended in the atmosphere at speeds lower than the entrainment velocity. The higher the dust is mixed into the atmosphere, the longer it remains suspended.

Similar to a kite moving higher into the atmosphere, the further a particle moves away from the surface, the easier it is to keep it suspended. The combination of reduced surface obstructions, turbulent mixing, and exposure to higher winds aloft, allows soil material to be suspended as dust at wind speeds lower than those required for entrainment.

As supporting evidence that PM10 was transported to the Oildale/Bakersfield area on October 9, 2008, the following expert panel's findings are provided. The following methodology document for estimating fugitive windblown and mechanically resuspended dust emissions applicable to air quality modeling was prepared for the Western Regional Air Partnership (WRAP).



According to expert panel's findings:

“ In general, the fraction of the mechanically generated fugitive dust from roads and bare surfaces that is removed from the atmosphere by gravitational settling and by impaction on nearby obstacles (such as vegetation) is much larger than that associated with fugitive windblown dust. This is due to the fact that the mechanically generated particles tend to remain closer to the ground for longer periods after suspension than windblown dust such that there is a higher probability that these mechanically generated particles will be removed from the atmosphere close to their source. For mechanically generated road dust, the initial vertical energy associated with the moving vehicles that generated the suspendable particles is short-lived and unsustainable. And, in the absence of strong winds with a large vertical component to sustain the vertical motion of these mechanically generated particles, these emissions are dispersed vertically above the ground and any downwind obstacles solely by the daytime turbulent eddies caused by solar heating of the ground. On the other hand, windblown dust emissions may be lofted vertically to great heights above the ground by the sustained energy provided by the vertical component of the wind (especially for strong winds with large vertical components such as those associated with dust devils or thunderstorms) and consequently may be transported much longer distances from the source of emissions than mechanically generated fugitive dust emissions.” (Countess, et. al.)

The panel concluded that windblown dust emissions are able to travel much greater distances from the source compared to mechanically generated fugitive dust emissions. The high wind event on October 9, 2008 was sufficient enough to loft emissions vertically to heights above the ground, where these emissions were then carried southeastward toward the Oildale/Bakersfield area.

#### **4.1: A natural event of high winds occurred on October 9, 2008**

There are many sources of documentation that may be used, if available, to document and establish an exceptional event, as described in the District's *Natural Events Action Plan* (NEAP):

- 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
- Media accounts of the event
- Filter analysis

Figure 3: Map showing area of the wind blown dust analysis



As shown in Figure 3, the San Joaquin Valley is a distinct inter-mountain valley in Central California, oriented southeast to northwest, with the slightly higher end of the valley closer to Los Angeles and the low end at the Sacramento-San Joaquin River Delta near San Francisco. The Valley is bounded by the Sierra Nevada range to the east, the Temblor and Coastal ranges to the west and the Tehachapi and San Emigdio ranges to the south. The floor of the San Joaquin Valley is approximately 200 miles long and 80 miles wide on average. In October of each year, the wind direction is generally from the northwest, following the orientation of the valley and Sierra Nevada Mountains.

In 2008, the southern San Joaquin Valley had experienced a dry spring, summer and fall, with seasonal precipitation totals running well below normal. A strong, dry cold front passed over the region on October 9, causing the high wind event. There was a significant drop in temperature over just a two day period, from October 8 to October 10 (shown in Table 4-1), and this demonstrates a significant weather pattern change. The frontal passage ushered in stronger winds which led to the October 9, 2008 exceedance.

**Table 4-1: Drop in maximum temperature surrounding the event**

	<b>October 8</b>	<b>October 10</b>
Bakersfield	86° F	66° F
Fresno	87° F	76° F

According to T&B Systems analysis of the CRPAQS (California Regional Particulate Air Quality Study) study area:

“There is evidence that winds at speeds of approximately 8 m/s [meters per second; 8 m/s is approximately 17.9 miles per hour (mph)] or greater can contribute to coarse particulate concentrations. ... there are indications that higher gusts associated with lower wind speeds (e.g. 10 m/s [22.3 mph] gusts when average wind speeds are closer to 6 m/s [13.4 mph]) may provide explanations for higher coarse mass concentrations” (T&B Systems, 2004, p 4).

This report concluded that wind speeds of 8 m/s (17.9 mph) could be sufficient to entrain surface soil into the atmosphere. The District used this speed as an indicator of the potential for dust entrainment during high wind events.

On October 9, 2008, in the Corcoran and Hanford area, the Lemoore Naval Air Station reported NW to NNW wind gusts of 35 mph or greater from 8:51 AM to 5:56 PM Pacific Standard Time (PST), with peak winds gusting to 43 mph at 10:38 AM PST. In contrast, the Bakersfield Meadows Field Airport reported peak winds at 14 mph at 7:54 AM PST, below the 17 mph threshold identified by T&B Systems. Winds between Corcoran and Bakersfield were sufficient to entrain dust into the atmosphere. The District used

meteorological data collected at Alpaugh as a point of analysis between Corcoran and Bakersfield to demonstrate this.

The wind speed at Alpaugh is measured at 2 meters Above Ground Level (AGL). In order to calculate the wind speed at Alpaugh at 10 meters above ground level the District used the following relationship. Over a flat surface with no obstructions and a well-mixed atmosphere, wind speed typically varies logarithmically with height above ground. This relationship is modeled using the equation:

$$V_1 / V_2 = (Z_1 / Z_2)^p$$

where:

V = wind speed,

Z = height above ground,

p is approximately 0.143 for flat terrain and 0.4 for rough terrain,  
subscripts 1 and 2 denote two different sampling heights AGL

A number of documents (including *Wind in California* (California Department of Water Resources Bulletin No. 185, January 1978) and *An Introduction to Boundary Layer Meteorology* (Roland Stull, 1997)) utilize this equation. While this equation is not representative of the vertical wind structure in all weather conditions, it is appropriate to use this equation for the strong wind conditions that occurred on October 9, 2008.

The Alpaugh CIMIS station (a flat terrain area) reported a peak hourly averaged wind speed of 16.6 mph at 2 meters AGL (see Table 4-4 and Appendix E). The hourly averaged wind speed at 10 meters AGL would be 20.9 mph, as shown below:

$$V_{10 \text{ meters}} = V_{2 \text{ meters}} (Z_{10 \text{ meters}} / Z_{2 \text{ meters}})^{0.143}$$

$$V_{10 \text{ meters}} = (16.6 \text{ mph}) (10 \text{ meters} / 2 \text{ meters})^{0.143}$$

$$V_{10 \text{ meters}} = 20.9 \text{ mph}$$

This computed 20.9 mph wind speed at 10 meters AGL at Alpaugh is above the dust entrainment wind speed threshold.

On October 9, the strongest winds observed north and west of Hanford and Corcoran resulted in blowing dust in the western portion of the Valley. The blowing dust was then transported to the southeast to Oildale and Bakersfield and other parts of the southern San Joaquin Valley.

#### **4.2: The high winds affected air quality**

PM10 concentrations were at their highest for the week on October 9, as shown in Table 4-2. In Corcoran, PM10 concentrations were low to moderate from October 6 to October 8 due to marginal dispersion conditions. A strong cold front passage on October 9 accompanied by high winds created blowing dust in the San Joaquin Valley, and this caused an increase in PM10. The high wind event was widespread and caused elevated PM10 levels at most of the Valley's western and southern monitoring

locations. The high wind event continued into the early hours of October 10. As the high wind event subsided, PM10 concentrations decreased.

**Table 4-2: 24-hour average PM10 concentrations,  $\mu\text{g}/\text{m}^3$**

Monitoring site	Oct. 6	Oct. 7	Oct. 8	Oct. 9	Oct. 10	Oct. 11	Oct. 12
Stockton –Wagner Holt				65			
Stockton – Hazelton				55			
Tracy	15	20	21	64	38	23	42
Modesto – 14 <sup>th</sup>				49			
Turlock				96			
Merced – M Street				73			
Clovis – Villa				63			
Fresno- First Street (Filter Based) <sup>2</sup>				78			
Fresno – Drummond		48		99			
Hanford				226			
Santa Rosa Rancheria <sup>1</sup>				286 <sup>1</sup>			
Corcoran	47	62	77	275	105	46	42
Corcoran (Filter Based) <sup>2</sup>	49			306 <sup>2</sup>			42
Visalia -Church				104			
Oildale				224			
Bakersfield – Golden State <sup>3</sup>				267			
Bakersfield – California				256		48	

<sup>1</sup> The Santa Rosa Rancheria site is located in Kings County (about four miles south of Lemoore) on land owned by the Tachi Yokut Tribe. The monitor was impacted by the high winds and blowing dust described in this document. While the monitor is operated by a sovereign nation and not within the jurisdiction of the District, the data collected from this monitor represents air quality within the Lemoore area of the San Joaquin Valley Air Basin. The District holds the October 9, 2008 measurement at Santa Rosa Rancheria was similarly caused by high winds and encourages EPA to flag the data as an Exceptional Event.

<sup>2</sup> Primary analyzers take precedence over secondary analyzers when multiple data are available.

<sup>3</sup> The real-time PM10 monitor at Bakersfield – Golden experienced a “Machine Malfunction” prior to the wind event and was not in operation the week of October 9, 2008.

### **4.3: The high winds caused the exceedance**

Section 4.1 showed that there was a natural event of high winds on October 9, 2008. Section 4.2 showed that high PM10 concentrations were affected at the time of the high wind event. The analysis below shows that the high winds caused the PM10 exceedance.

#### **4.3.1: Wind and PM10 data, hour-by-hour**

Strong, gusty winds occurred in Hanford and Lemoore during the October 9, 2008 blowing dust event, and hourly PM10 concentrations in Corcoran became elevated in conjunction with the high winds (see Table 4-3 and Figures 4 and 5). Observations at Lemoore Naval Air Station on October 9 indicate 13 hours of sustained winds greater than 17.9 mph and 9 hours with gusts greater than 31 mph. The highest recorded gust was 40 mph. Blowing dust was observed at the Lemoore Naval Air Station from 9:00 AM PST until 11:00 PM PST. Observations at Hanford on October 9 indicate 6 hours of sustained winds greater than 17.9 mph and 9 hours with gusts greater than 23 mph. The highest recorded gust was 30 mph. One hour of missing wind data occurred at Hanford on October 9. Haze was observed at Hanford from 12:00 PM PST until 19:00 PM PST.

October 9 wind speeds were sufficient to transport the dust plume from Corcoran to Bakersfield. Observations at Bakersfield Meadows Field Airport on October 9 indicated no hours of sustained winds greater than 17.9 mph and no hours with gusts greater than 23 mph (See Table 4-4 and Figure 6). The Bakersfield Meadows Field Airport observation showed reduced visibilities (haze) between hours 14 and 20. The visibility reduction can be used as an indication of the dust plume arriving in the Oildale/Bakersfield area.

Bakersfield Meadows Airport reported a reduction of visibility, marking the arrival of the dust plume into the Bakersfield area. To track the progress of the dust plume, the District used Alpaugh and Shafter as points in between Hanford/Corcoran and Oildale/Bakersfield. Alpaugh is located 16 miles south of Corcoran. Shafter is located 28 miles to the south/southeast of Alpaugh. Shafter is located 15 miles to the west/northwest of Bakersfield Meadows Airport and Oildale. The approximate distance between Corcoran and Oildale is 55 miles.

PM10 hourly levels began exceeding the 24 hour NAAQS on October 9 during hour 8 in Corcoran, with the PM10 remaining elevated through hour 19 (see Table 4-4). The five-hour average wind speed from hour 8 to hour 14 at Alpaugh was 14.8 mph. Wind speeds were slower from hour 8 to hour 14 at Shafter and Bakersfield Meadows Airport, averaging 9 and 11 mph respectively. At hour 14, Bakersfield Meadows Airport reported haze (see Table 4-4).

The District concludes that the dust plume arrived in Alpaugh between hour 9 and hour 10. Beyond Alpaugh, the wind speeds began to slowly decrease. The dust plume

arrived shortly before hour 13 at Shafter, where the average wind speed was 9 mph. With wind speeds of 10 mph at Bakersfield-Meadows Airport, the dust plume would have arrived around hour 14. Indeed, at hour 14, the weather observation at Bakersfield-Meadows Airport reported haze.

This analysis shows that the October 9, 2008 high wind event resulted in entrainment of dust and reports of blowing dust throughout the western and southern San Joaquin Valley. The strong winds to the northwest transported and deposited PM10 where wind speeds slowed across the southern parts of the San Joaquin Valley.

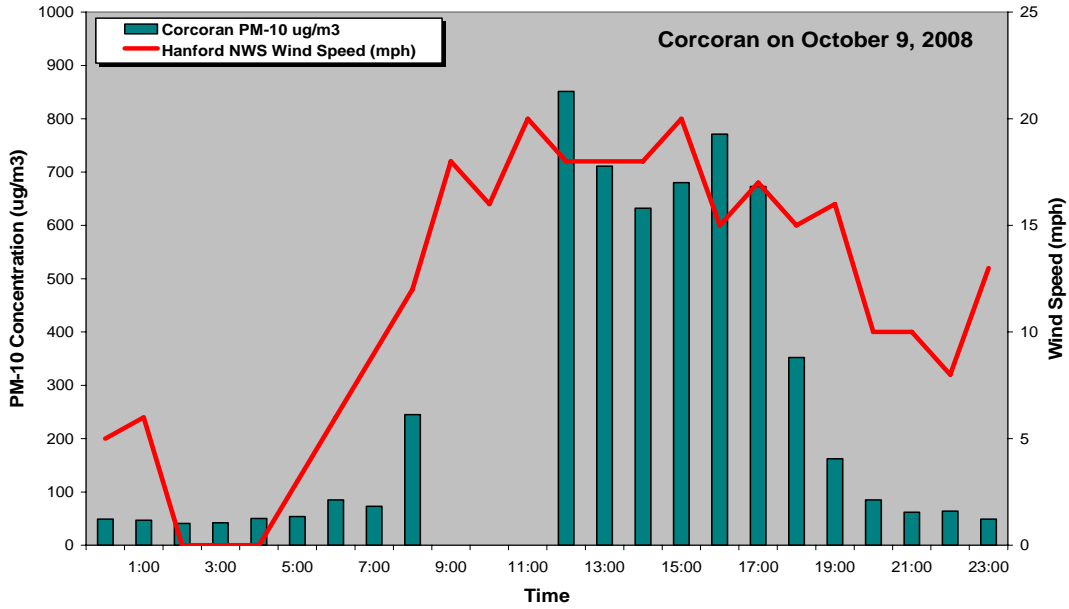
**Table 4-3: Corcoran Hourly PM10 concentrations increased with wind speed**

Hour (PST)	Corcoran Real-time PM10 concentration ( $\mu\text{g}/\text{m}^3$ )	Observations from Hanford, National Weather Service				Observations from Lemoore, Naval Air Station			
		Wind Speed (mph)	Wind Direction	Wind Gust (mph)	Weather Observation	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	Weather Observation
0	49	5	NW		Clear	6	WSW		Clear
1	47	6	NW		Clear	6	W		Clear
2	41	0	CALM		Clear	8	W		Clear
3	42	0	CALM		Clear	6	WNW		Clear
4	50	0	CALM		Clear	6	WNW		Clear
5	54	3	NW		Clear	12	NW		Clear
6	85	6	WNW		Clear	12	NW		Clear
7	73	9	NW		Clear	15	NNW		Clear
8	245	12	NW		Clear	17	NW		Clear
9	-	18	NW	25	Clear	26	NNW	37	Blowing Dust
10	-	-	-	-	-	33	NW	39	Blowing Dust
11	-	16	NW	23	Haze	33	NNW	40	Blowing Dust
12	851	20	NNW	24	Haze	30	NNW	38	Blowing Dust
13	711	18	NW	25	Haze	31	NW	37	Blowing Dust
14	632	18	NW	30	Haze	29	NNW	36	Blowing Dust
15	680	18	NW	26	Haze	29	NNW	36	Blowing Dust
16	771	20	NW	28	Haze	29	NW	40	Blowing Dust
17	673	15	NW	25	Haze	24	NW	35	Blowing Dust
18	352	17	NW		Haze	20	NW		Blowing Dust
19	162	15	NW		Haze	18	NW		Blowing Dust
20	85	16	NW	23	Clear	15	NW		Blowing Dust
21	62	10	WNW		Clear	23	NW		Blowing Dust
22	64	10	WNW		Clear	17	NW		Blowing Dust
23	49	8	NW		Clear	21	NW		Blowing Dust
<b>Avg.</b>	<b>275</b>								

Hour 0 is Midnight to 12:59:59 AM, Pacific Standard Time. 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.

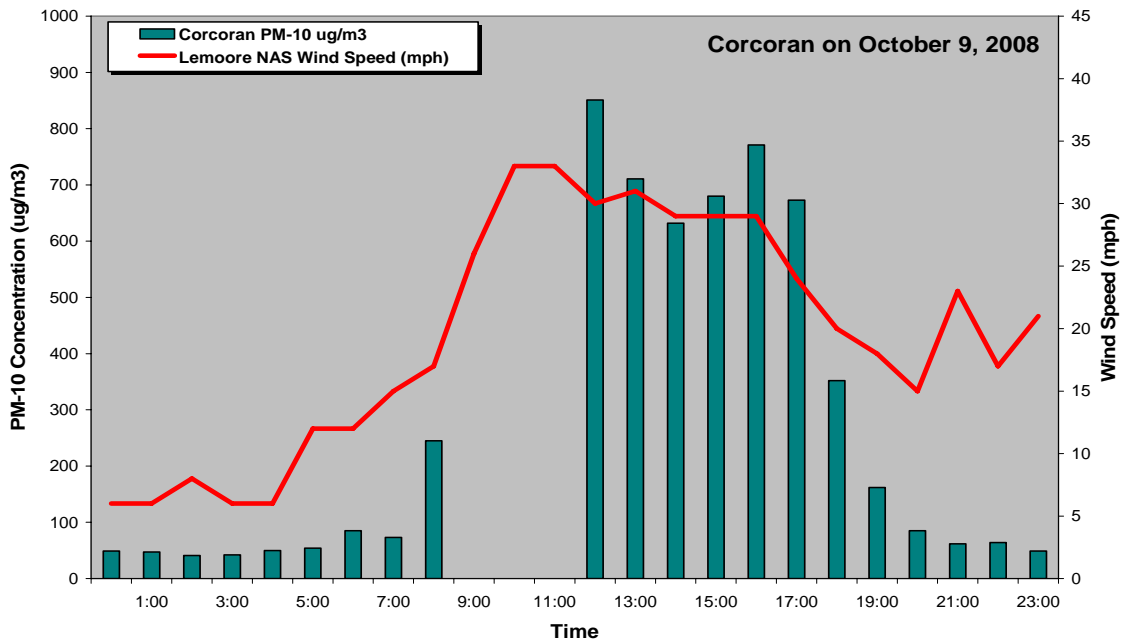
**Figure 4: Hourly PM10 concentrations at Corcoran and hourly wind speed at Hanford on October 9, 2008.**

\* All times in PST. Missing data from 9:00 to 11:00 due to instrument calibration.



**Figure 5: Hourly PM10 concentrations at Corcoran and hourly wind speed at Lemoore Naval Air Station on October 9, 2008.**

\* All times in PST. Missing data from 9:00 to 11:00 due to instrument calibration.



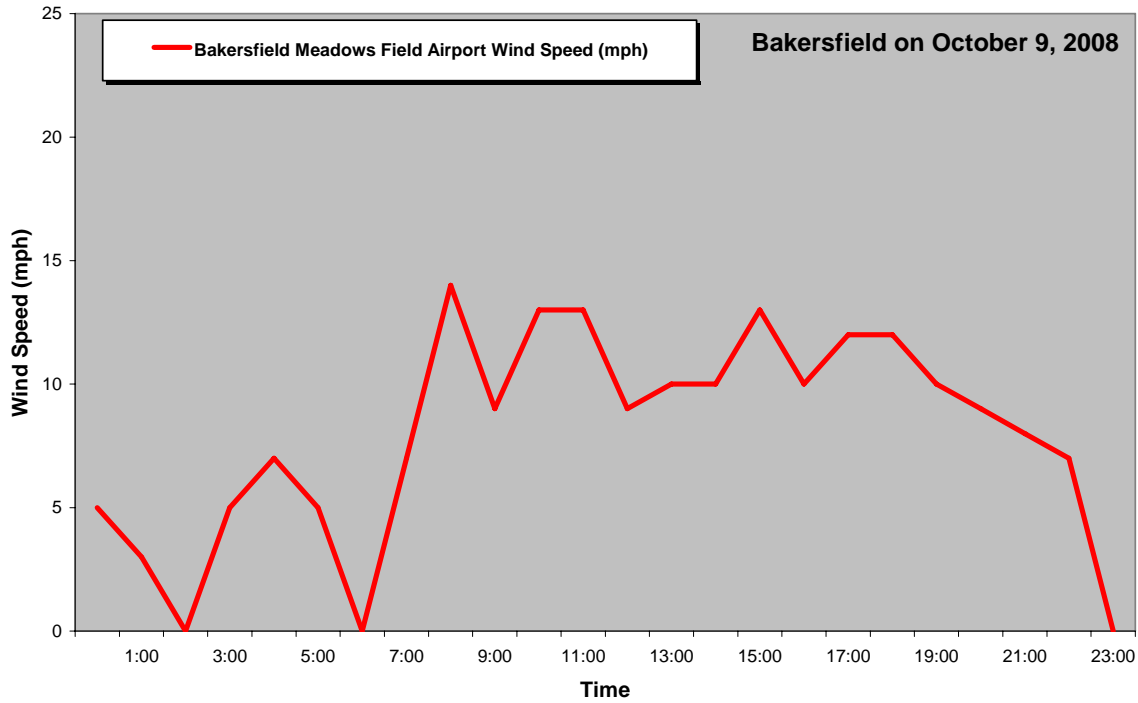


**Table 4-4: Winds transported particulates to Bakersfield on October 9, 2008**

Hour	Southeast of the source area	16 miles south of Corcoran		28 miles to the south/southeast of Alpaugh; 15 miles to the west/northwest of Bakersfield Airport		Receptor area		Bakersfield-Meadows Airport Weather Observation
	Corcoran PM10 ( $\mu\text{g}/\text{m}^3$ )	Alpaugh Hourly Average Wind Speed (mph) and Wind Direction at 2 meters AGL		Shafter Wind Speed (mph) and Wind Direction at 10 meters AGL		Bakersfield - Meadows Airport Wind Speed (mph) and Wind Direction at 10 meters AGL		
0	49	1	WSW	1.2	WNW	5	SE	Clear
1	47	2.3	WSW	1.2	E	3	NW	Clear
2	41	2.8	W	1.2	N	0	CALM	Clear
3	42	1.4	ESE	1.2	SE	5	SE	Clear
4	50	1.9	SSE	1.2	NE	7	SE	Clear
5	54	2.6	SW	2.3	N	5	SSE	Clear
6	85	3.4	W	2.3	NNW	0	CALM	Clear
7	73	5.4	NW	5.8	WNW	7	N	Clear
8	245	9.6	NW	8.1	NNW	14	NNW	Clear
9	-	14.5	NW	10.4	NW	9	WNW	Clear
10	-	16.1	NW	9.2	NW	13	NW	Clear
11	-	16.2	NW	9.2	NW	13	NW	Clear
12	851	15.9	NW	8.1	NNW	9	WNW	Clear
13	711	16.3	NW	6.9	NNW	10	WNW	Clear
14	632	15.7	NW	9.2	NNW	10	NW	Haze
15	680	16.5	NW	8.1	NNW	13	NW	Haze
16	771	15.6	NW	9.2	NNW	10	NNW	Haze
17	673	16.6	NW	9.2	NNW	12	NNW	Haze
18	352	10.1	NW	8.1	NNW	12	NW	Haze
19	162	11	NW	8.1	NW	10	NW	Haze
20	85	8.8	NW	4.6	WNW	9	WNW	Haze
21	62	3.3	NW	3.5	W	8	W	Clear
22	64	4.5	WNW	2.3	SW	7	NNW	Clear
23	49	3.1	WNW	1.2	SSE	0	CALM	Clear

Hour 0 is Midnight to 1 AM, Pacific Standard Time. Alpaugh wind data is from the California Irrigation Management Information System (CIMIS) monitors. CIMIS wind speed is an hourly average sampled at 2 meters above ground level (AGL). Hourly averaged winds typically are much lower than peak gusts. Wind speed measured at 2 meters would typically be lower than wind speed measured at 10 meters at the same location. For Bakersfield Meadows: G = Hourly peak gust, sustained wind is a 10 minute average at beginning of hour. Weather data at Bakersfield Meadows was obtained through the <http://www.met.utah.edu/mesowest/> website. Shafter wind data is an hourly average. M denotes peak minute average for that hour.

**Figure 6: Hourly wind speed at Bakersfield Meadows Field Airport, October 9, 2008. All times in PST.**



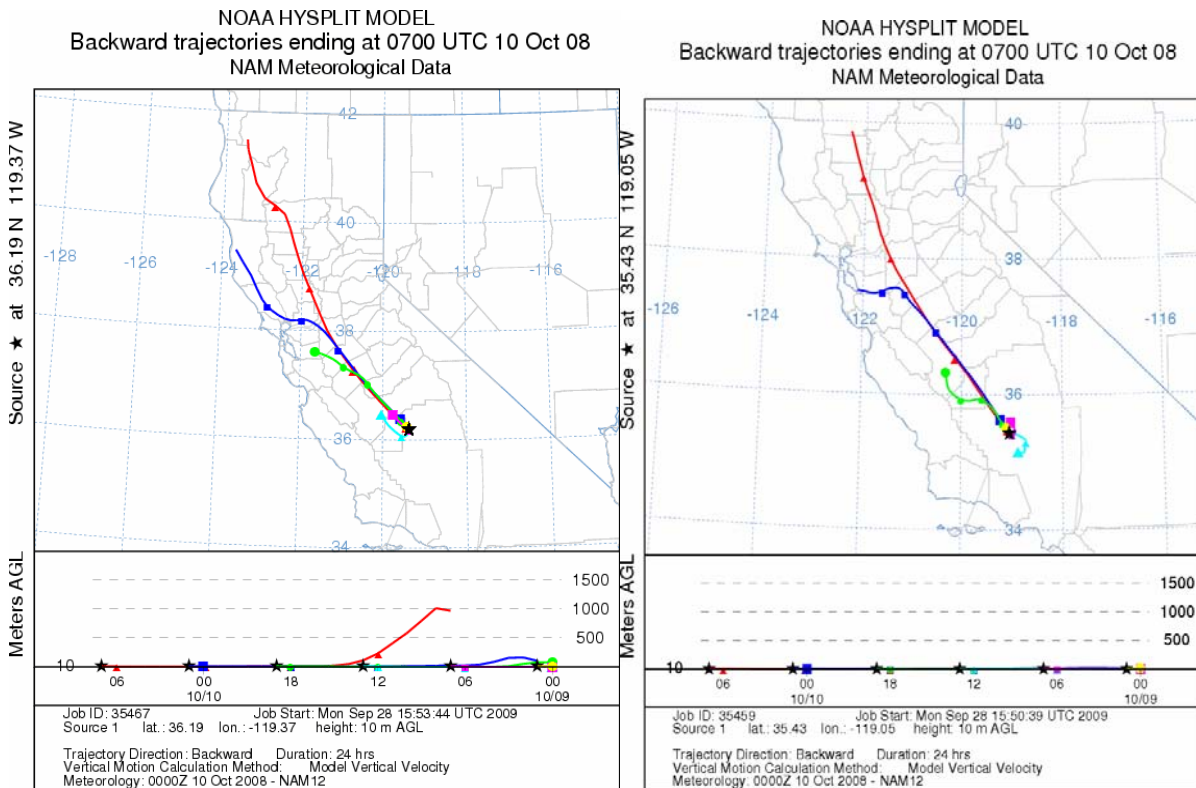
#### 4.3.2: Source - Receptor Analysis: Backward Trajectory

The District ran the National Oceanic and Atmospheric Administration (NOAA) Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) model for the natural event to identify air parcel source regions that contributed to peak particulate concentrations in Hanford/Corcoran and Oildale/Bakersfield. HYSPLIT is particle dispersion modeling (where “particle” refers to air parcels, not particulate concentration) developed through a joint effort between the NOAA and Australia’s Bureau of Meteorology. The HYSPLIT model computes air parcel trajectories based on meteorological observation data files from the National Weather Service’s National Centers for Environmental Prediction (NCEP). The model and full documentation are available at [www.arl.noaa.gov/ready/hysplit4.html](http://www.arl.noaa.gov/ready/hysplit4.html).

The backward trajectory at Hanford/Corcoran for 24 hours starting at 12:00 AM PST on October 10, 2008 (and moving backwards to 12:00 AM PST on October 9) indicates that the air parcels originated from central and northern California (Figure 7). The backward trajectory at Oildale/Bakersfield for 24 hours starting at 12:00 AM PST on October 10, 2008 indicates that air parcels originated along the central and western parts of the San Joaquin Valley and points northward (Figure 7).

The modeling and observations show that the blowing dust originated in the vicinity of western Fresno and Kings County. The model trajectory analysis takes the air parcel southeastward over northern Kings County, leading to the elevated PM10 reported at the Hanford/Corcoran and Oildale/Bakersfield particulate monitors. Winds were from the northwest during the blowing dust event, so the dust plume first influenced the Hanford/Corcoran monitors, as shown in Figures 4 and 5. Additionally, Santa Rosa Rancheria monitor was affected by the event. The dust plume then traveled southeastward, where it influenced the Oildale/Bakersfield monitor several hours later. The northern and eastern San Joaquin Valley did not appear to have been as influenced by the dust plume as the western and southern regions.

**Figure 7: Backward trajectory for 12:00 AM PST on October 10, 2008 showing air parcel trajectories to the Hanford/Corcoran (left) and Oildale/Bakersfield (right) receptors during the blowing dust event.**



The District used the HYSPLIT model to simulate the flow field for air parcels that arrived in Bakersfield between 7:00 AM PST October 9 and 12:00 AM PST October 10 to identify the areas that contributed to peak particulate concentrations at Bakersfield. The area north and west of Corcoran was the main source region for air arriving in Bakersfield during reduced visibilities recorded from 2:00 PM PST to 8:00 PM PST (see Figures 8 – 12; dots on the images indicate air parcel movement, not particulate concentration):

- Figure 8, 7:00 AM PST: the air mass that will affect Bakersfield starts near Corcoran, which has a PM10 concentration of  $73 \mu\text{g}/\text{m}^3$  at this point
- Figure 9, 10:00 AM PST: the air mass is just northwest of Corcoran.
- Figure 10, 1:00 PM PST: the air mass is in the vicinity of north and west of Corcoran. Corcoran measured an hourly PM10 concentration of  $711 \mu\text{g}/\text{m}^3$  during this hour. The following hour (2:00 PM PST), Bakersfield Meadows Airport reported reduced visibilities.
- Figure 11, 4:00 PM PST: the air mass is in the vicinity of western Madera and west central Fresno County. Corcoran measured the highest PM10 concentration on October 9 of  $771 \mu\text{g}/\text{m}^3$  during this hour
- Figure 12, 7:00 PM PST: the air mass is in west central Fresno and northern Kings Counties. Corcoran measured an hourly PM10 concentration during this hour of  $162 \mu\text{g}/\text{m}^3$ . At this hour, Bakersfield Meadows Airport was still reporting reduced visibilities.

**Figure 8: Location of air mass at 7:00 AM PST arriving in Bakersfield between 9:00 AM PST and 11:00 AM PST**

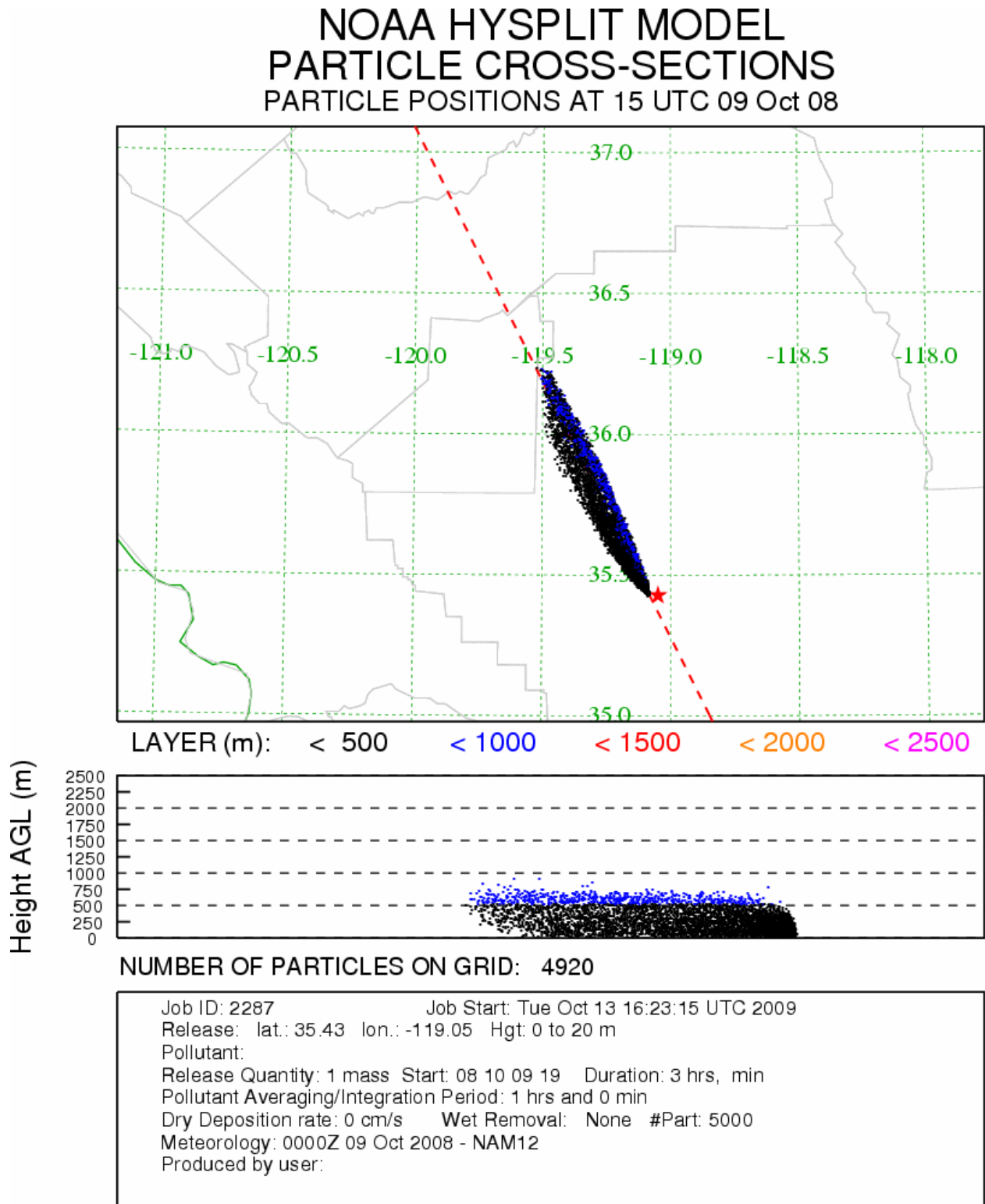
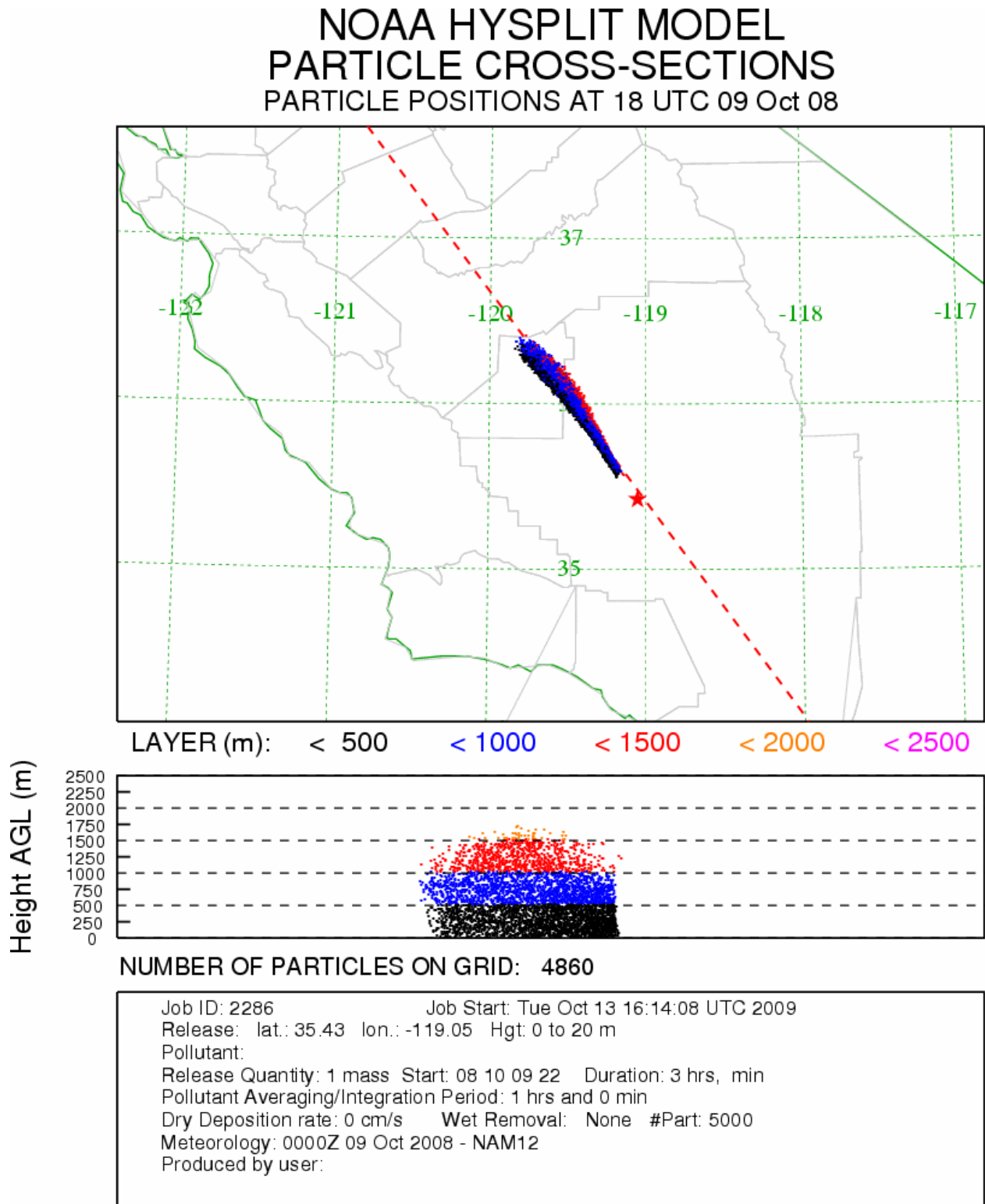
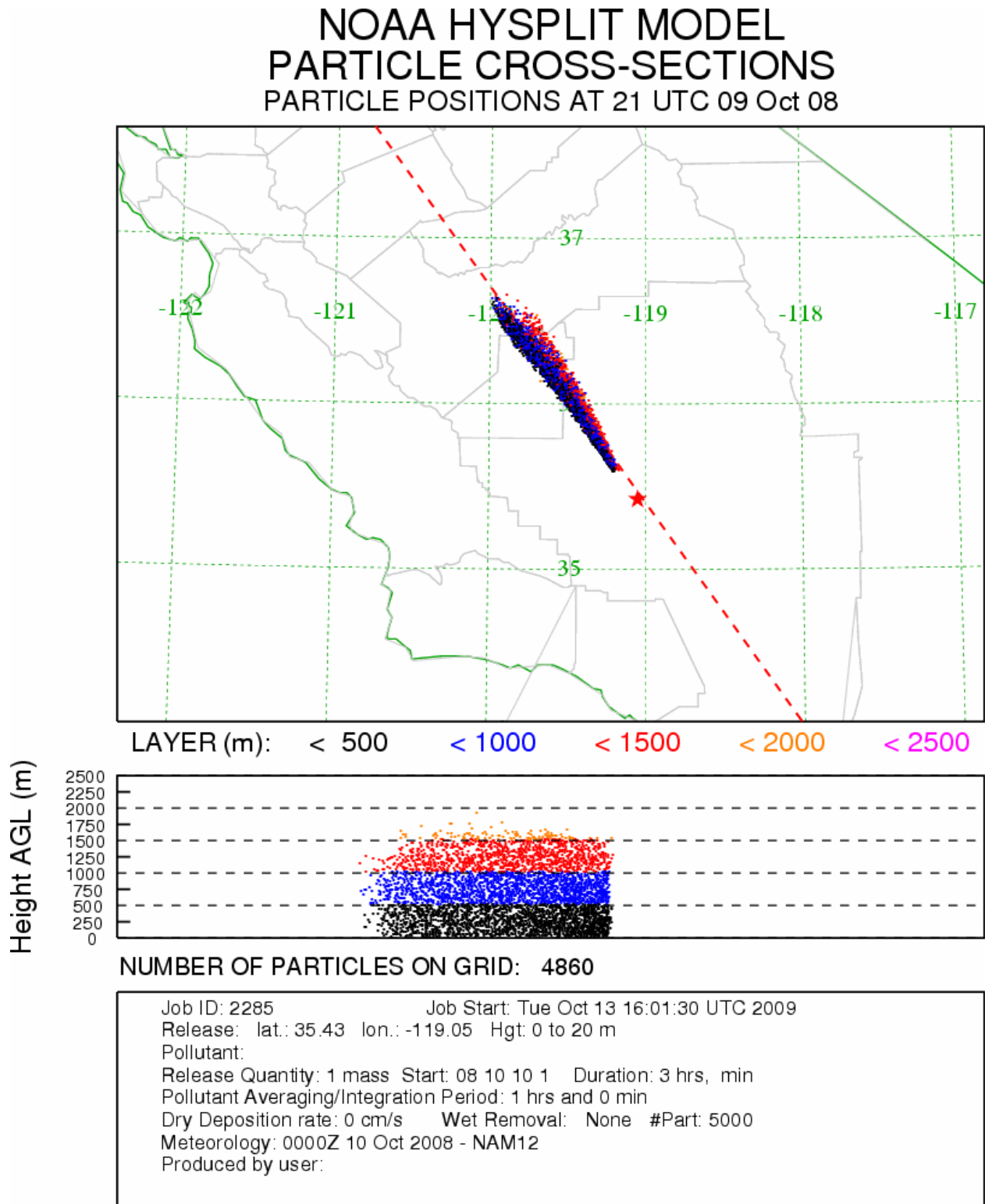


Figure 9: Location of air mass at 10:00 AM PST arriving in Bakersfield between 12:00 PM PST and 2:00 PM PST



**Figure 10: Location of air mass at 1:00 PM PST arriving in Bakersfield between 3:00 PM PST and 5:00 PM PST**



**Figure 11: Location of air mass at 4:00 PM PST arriving in Bakersfield between 6:00 PM and 8:00 PM PST**

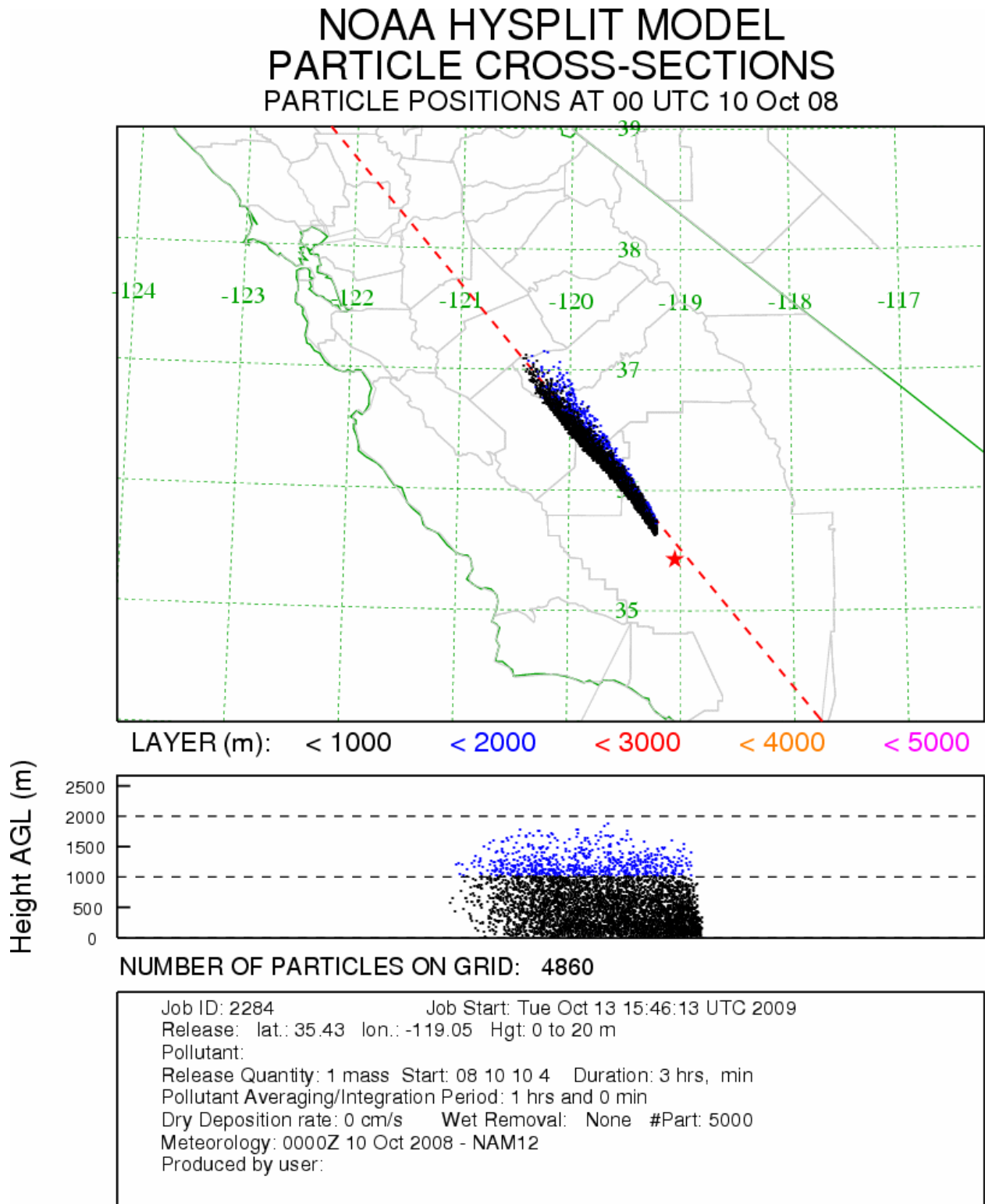
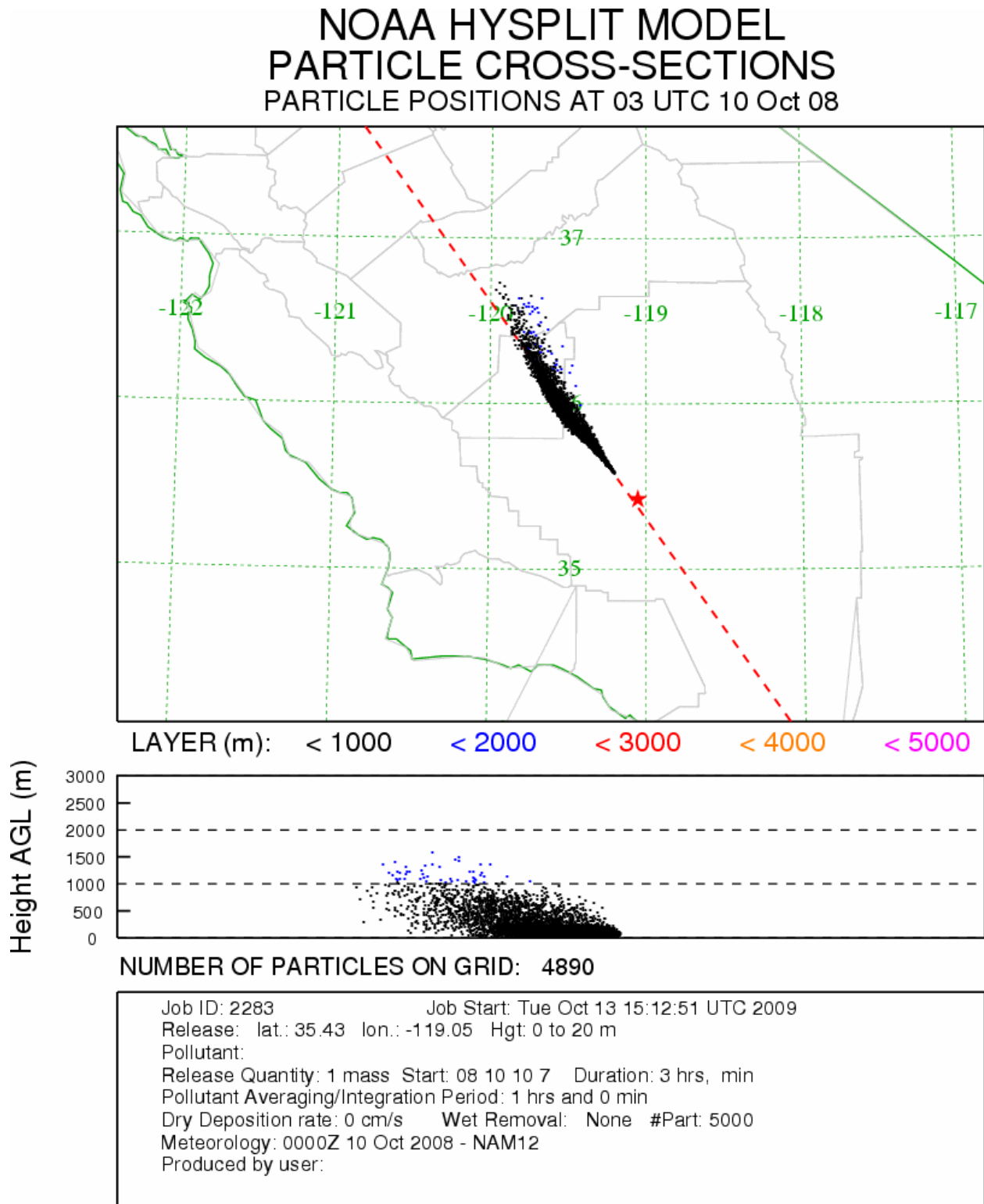




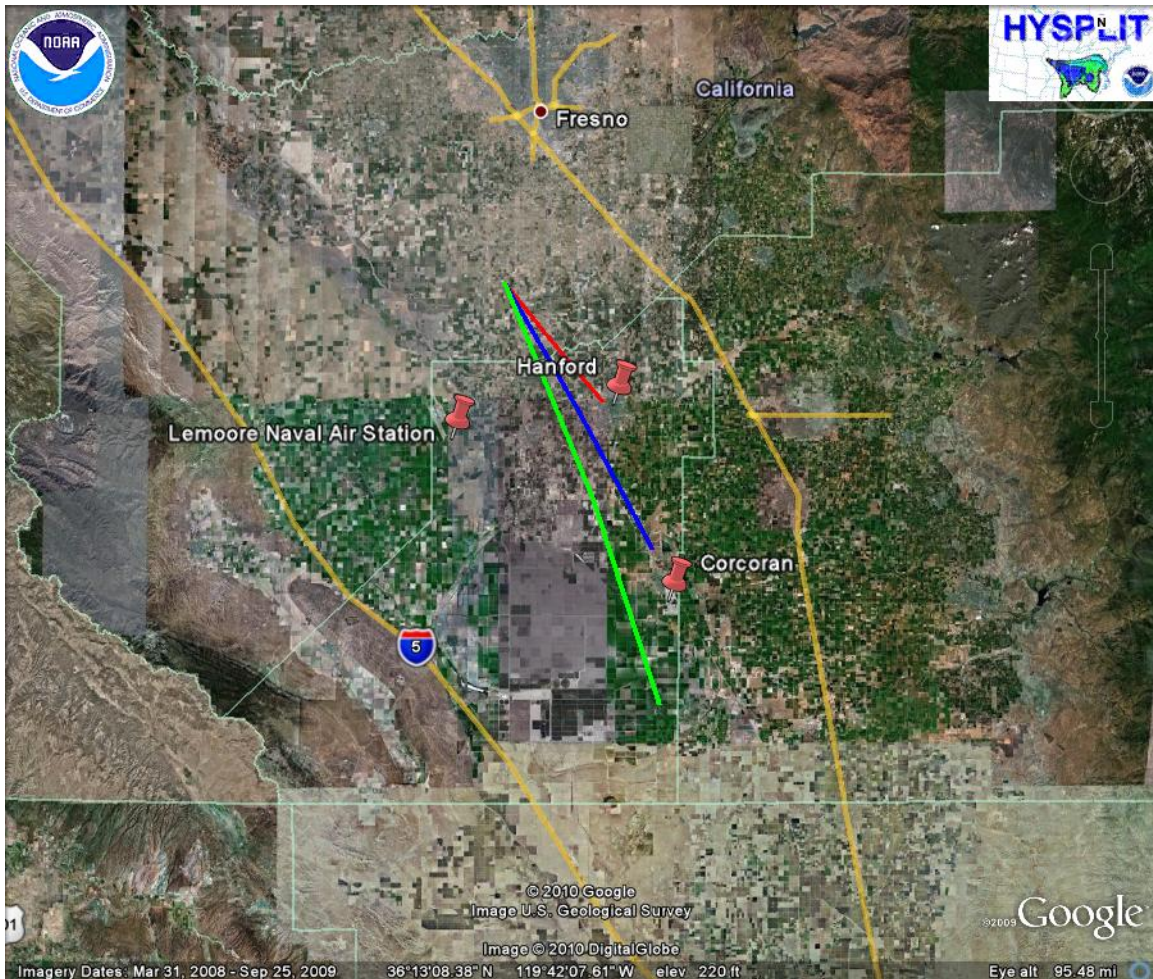
Figure 12: Location of air mass at 7:00 PM PST arriving in Bakersfield between 9:00 PM PST and 11:00 PM PST



### 4.3.3: Source – Receptor Analysis: Forward Trajectory

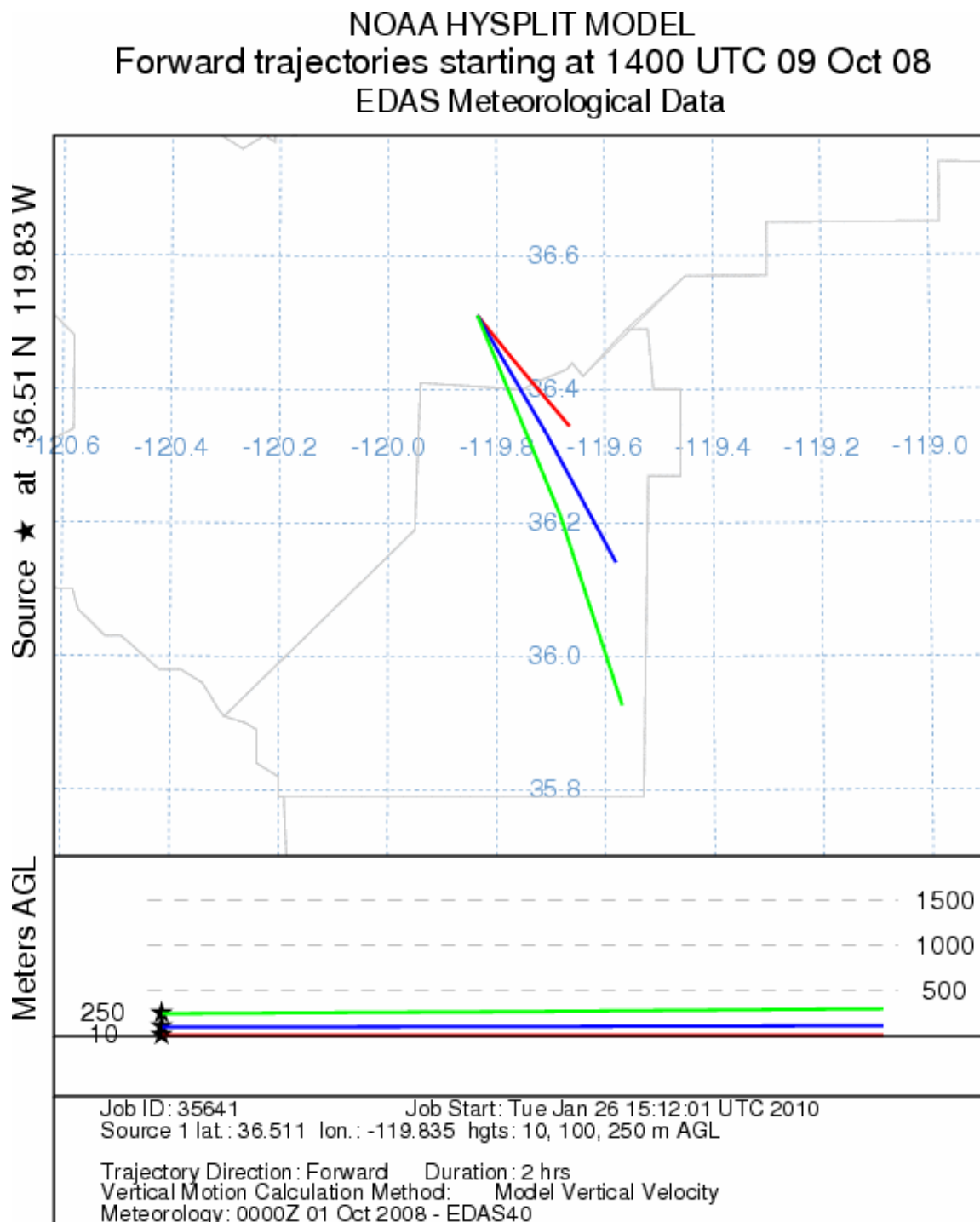
The District also analyzes this exceptional event using forward trajectory analysis. EPA used this methodology to prove another high wind exceptional event (73 FR 14687-14713). For the October 9 event, these forward trajectories show that high winds carried dust from the source area through the receptor (impacted) locations of Hanford/Corcoran and then Oildale/Bakersfield (See Figures 13a through 15b).

**Figure 13a: Forward Trajectories at 10, 100 and 250 meters, Lemoore/Hanford Area to Corcoran, October 9, 2008, 6:00 AM PST to 8:00 AM PST**

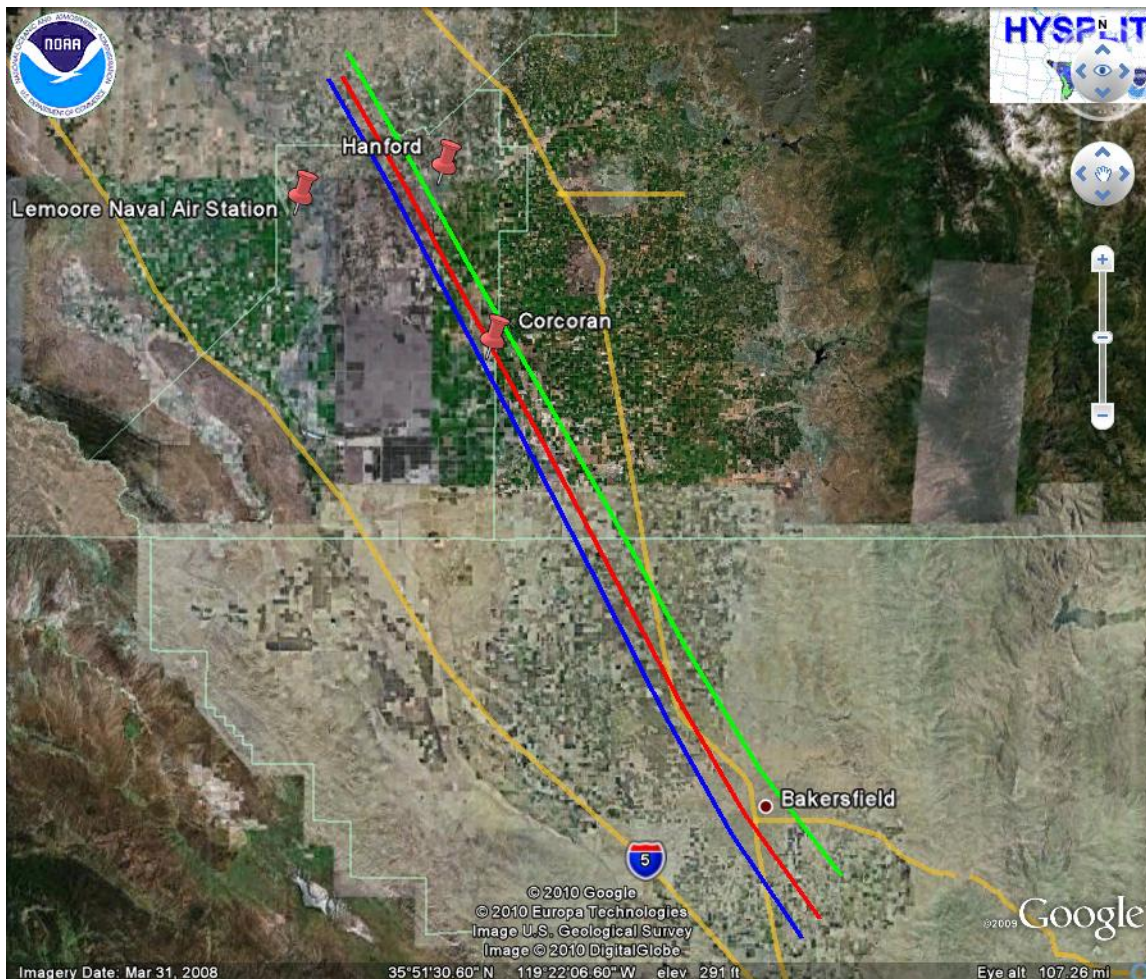


Forward trajectories starting at 6:00 AM PST, October 9, 2008 from north of Lemoore/Hanford area, runtime is 2 hours. Trajectory start heights are at 10 meters in red, 100 meters in blue, and 250 meters in green. These trajectories show the likelihood of windblown dust entrained from north of Lemoore/Hanford area reaching Corcoran within 2 hours (8:00 AM PST) at the 100 meter and 250 meter height levels.

**Figure 13b: Forward Trajectories at 10, 100 and 250 meters, Lemoore/Hanford Area to Corcoran, October 9, 2008, 6:00 AM PST to 8:00 AM PST**

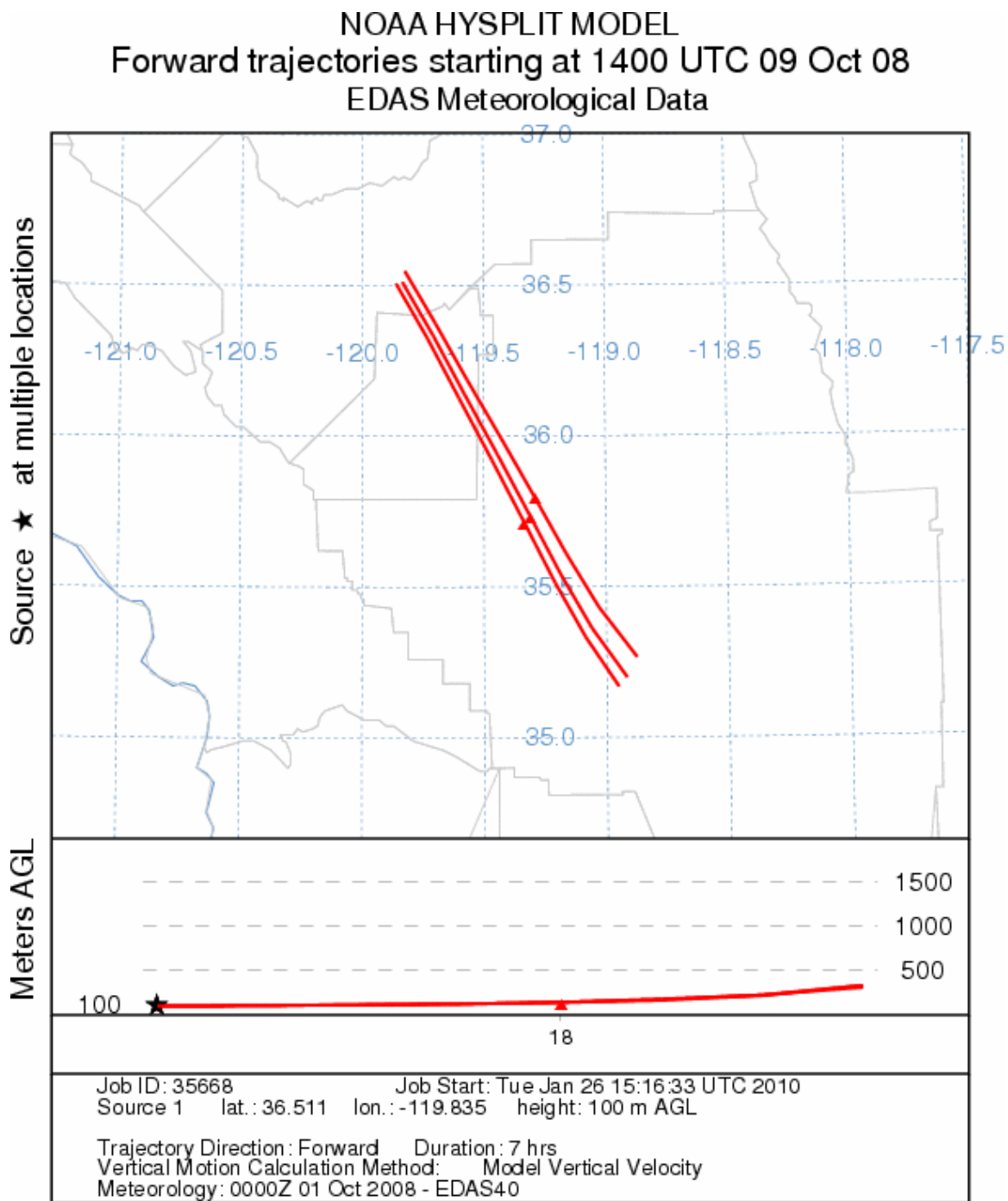


**Figure 14a: Forward Trajectories at 100 meters, Lemoore/Hanford Area to Oildale/Bakersfield Area, October 9, 2008, 6:00 AM PST to 1:00 PM PST**

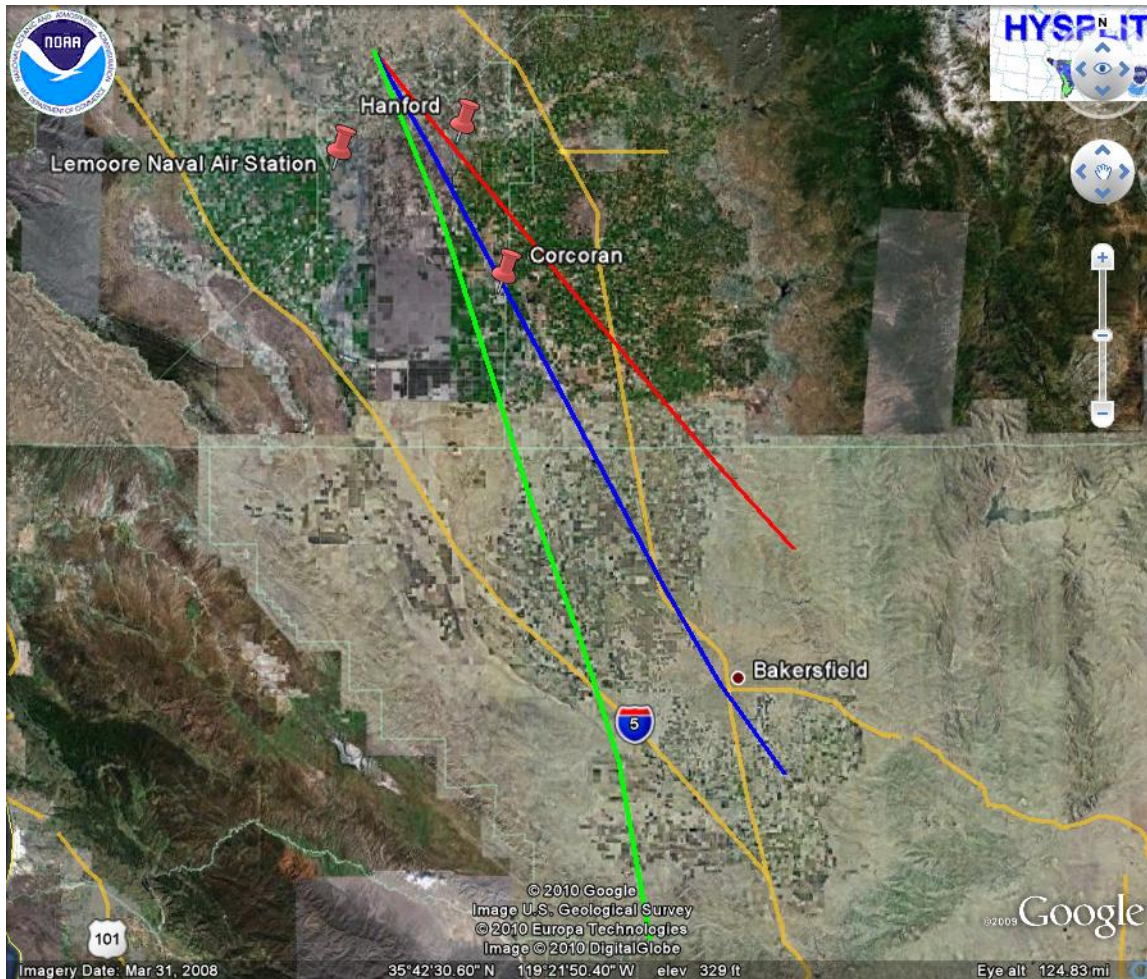


Forward trajectories starting at 6:00 AM PST, October 9, 2008 from north of Lemoore/Hanford area. Runtime is 7 hours and start height of 100 meters. These trajectories show the likelihood of windblown dust entrained from just north of Hanford and Lemoore area to have reached and affected Corcoran and Oildale/Bakersfield.

**Figure 14b: Forward Trajectories at 100 meters, Lemoore/Hanford Area to Oildale/Bakersfield Area, October 9, 2008, 6:00 AM PST to 1:00 PM PST**

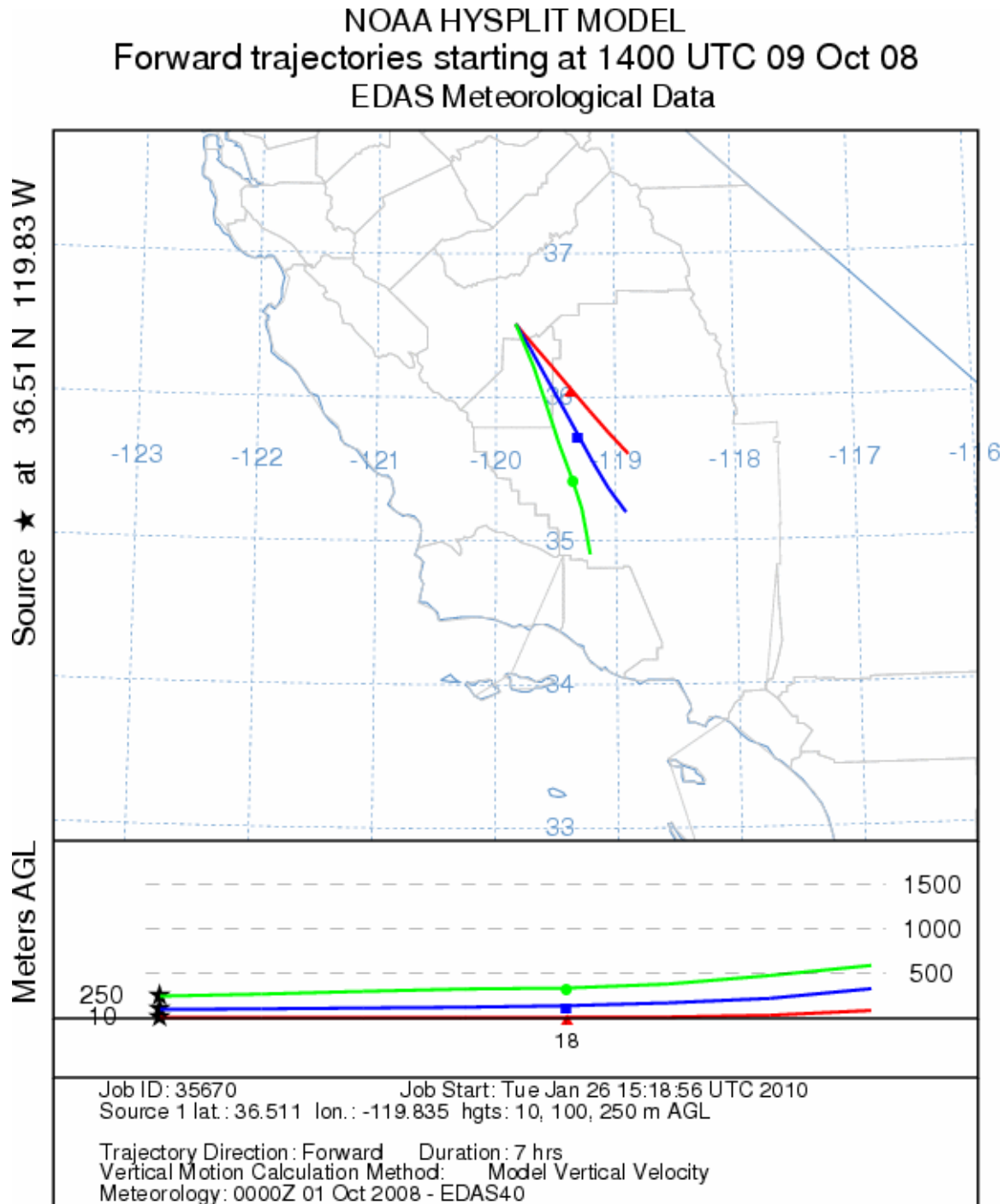


**Figure 15a. Forward Trajectories at 10, 100 and 250 meters, Lemoore/Hanford Area to Bakersfield, October 9, 2008, 6:00 AM PST to 1:00 PM PST**



Forward trajectories starting at 6:00 AM PST, October 9, 2008 from north of Lemoore/Hanford area, runtime is 7 hours. Trajectory start heights are at 10 meters in red, 100 meters in blue, and 250 meters in green. These trajectories show the likelihood of windblown dust entrained from north of Lemoore/Hanford area reaching Corcoran within 7 hours (1:00 PM PST) at the 100 meter and 250 meter height levels.

**Figure 15b. Forward Trajectories at 10, 100 and 250 meters, Lemoore/Hanford Area to Bakersfield, October 9, 2008, 6:00 AM PST to 1:00 PM PST**



#### **4.3.4: October 9, 2008 Exceptional Event Coverage**

Television and newspaper coverage and District Compliance inspector reports confirmed the presence of high winds and blowing dust on October 9, 2008 through photographs, video documentation, and eyewitness accounts of the impacted areas (see Appendices C and D). These reports verified that high winds caused blowing dust on October 9, 2008.



## **Section 5: Conclusion**

**This section satisfies the following federal requirement:**

- The exceedance would not have occurred but for the event  
(40 CFR 50.14(c)(3)(iv)(D))

District analysis shows that:

- PM is heavily controlled in the San Joaquin Valley, and these controls have decreased average PM10 levels in the Valley (Section 2)
- In spite of these controls, PM10 concentrations on October 9, 2008 were amongst the highest concentrations recorded over the past several years (Section 3)
- A natural event of high winds caused increases in PM, and PM concentrations decreased the following day, after the event was over (Section 4)

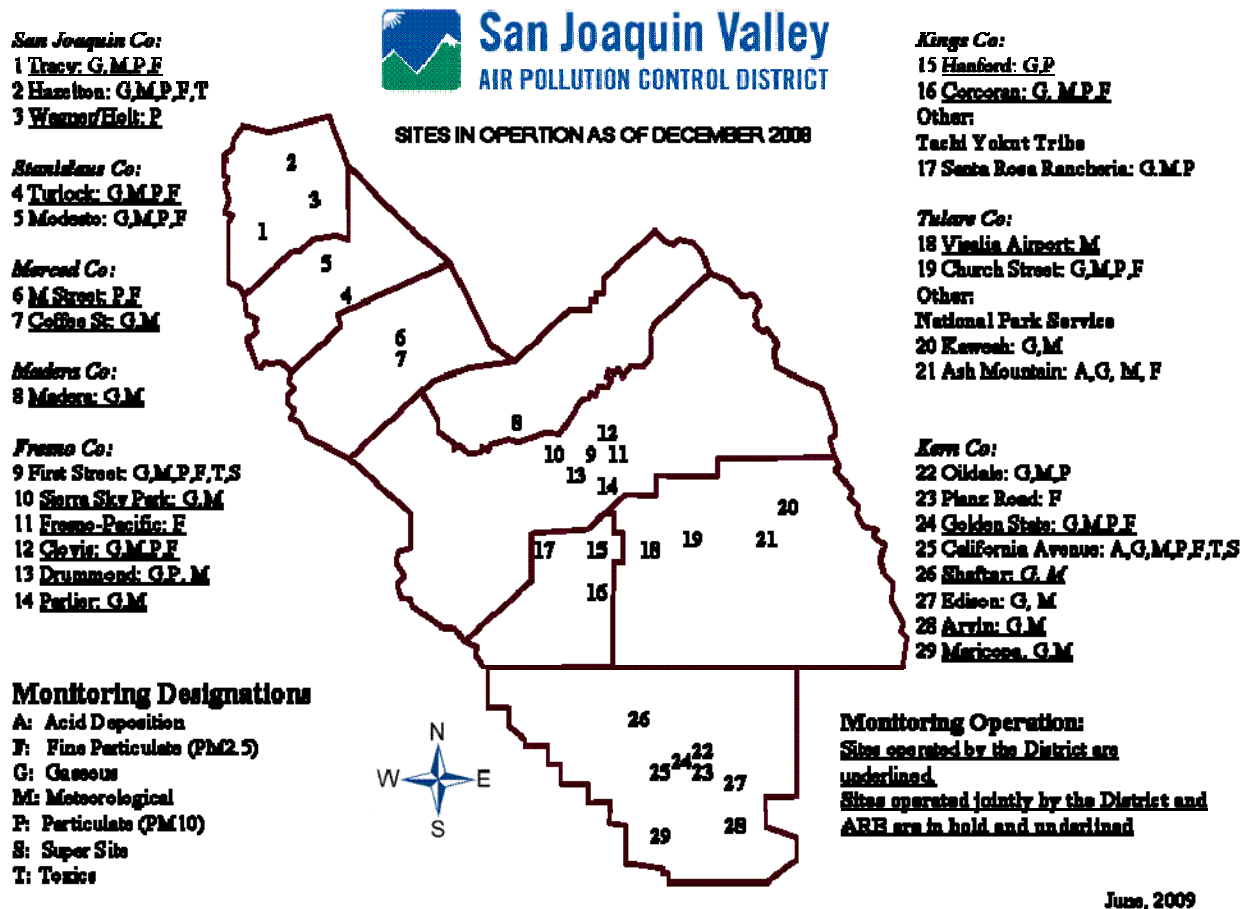
Thus, the District concludes that the exceedance would not have occurred but for the event. The uncontrollable high winds overwhelmed the BACM for PM that have been put in place in the Valley. As wind speeds decreased the next day, PM10 concentrations also decreased. As such, it is appropriate to identify the October 9, 2008 exceedance as an Exceptional Event.

In light of this conclusion, and with the demonstration (Section 1 and referenced sections) that the District has met all applicable requirements, the District requests EPA concurrence to flag the October 9, 2008 PM10 data for the Bakersfield, Oildale, Hanford, and Corcoran sites as having been caused by exceptional events.

## References

- Stull, Roland. *An Introduction to Boundary Layer Meteorology*. 1997
- California Department of Water Resources document, *Wind in California*, (Bulletin No. 185, January 1978)
- Countess, Richard; et. al. "Methodology for Estimating Fugitive Windblown and Mechanically Resuspended Road Dust Emissions Applicable for Regional Air Quality Modeling." *EPA 10th International Emission Inventory Conference*. May 2001.  
<http://www.epa.gov/ttn/chief/conference/ei10/fugdust/countess.pdf>
- 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
- 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). *Treatment of Data Influenced by Exceptional Events; Final Rule*. March 2007.
- Environmental Protection Agency (EPA). *Memorandum: Areas Affected by PM10 Natural Events*. May 1996.
- KFSN Channel 30 (ABC), Fresno: Television news coverage
- KGPE Channel 47 (CBS), Fresno: Television news coverage
- Mesowest historical meteorological data, *Mesowest*, <http://www.met.utah.edu/mesowest>
- National Oceanic and Atmospheric Administration (NOAA): ESRL/Physical Sciences Division, Profiler Data
- 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>
- T&B Systems, *Task 3.3 How Well Do Measurements Characterize Critical Meteorological Features, Subtask 3 Measurement of Gustiness*, August 24, 2004,  
<http://www.arb.ca.gov/airways/crpaqs/DA/Final/TB33st3.pdf>

## APPENDIX A: SJV Air Monitoring Network Map



## **APPENDIX B: Public Notification of the Exceptional Event**

### **B1: Framework for Exceptional Event Determination**

The District's 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 October 9, 2008 all of the NEAP criteria were met:

Criteria 1. During the 139 consecutive days prior to the October 9, 2008 event, Bakersfield received no measurable precipitation. Hanford received 0.04 inches of precipitation 5 days prior to the event on October 4, 2008. 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

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

Criteria 3. The afternoon surface weather maps showed a strong pressure gradient between Oakland and Las Vegas of +15 millibars (mb) over central California. This strong pressure gradient caused peak wind gusts at Hanford of 30 MPH at 1:53 PM PST and at Lemoore of 40 MPH at 10:56 AM and 3:56 PM PST.

Criteria 4. A moderately strong 110 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 Hanford, Corcoran, Oildale, and Bakersfield. The District forecast a NAAQS exceedance for Tulare, Kings, and the valley portion of Kern County, on October 9, 2008. A press release was issued on October 9, 2008 describing the high winds and blowing dust. The press release included the following, “Strong to gusty northwesterly winds across the San Joaquin Valley air basin are causing localized areas of blowing dust and elevated PM10 levels,”

### **NEAP Criteria - Meteorological Data:**

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

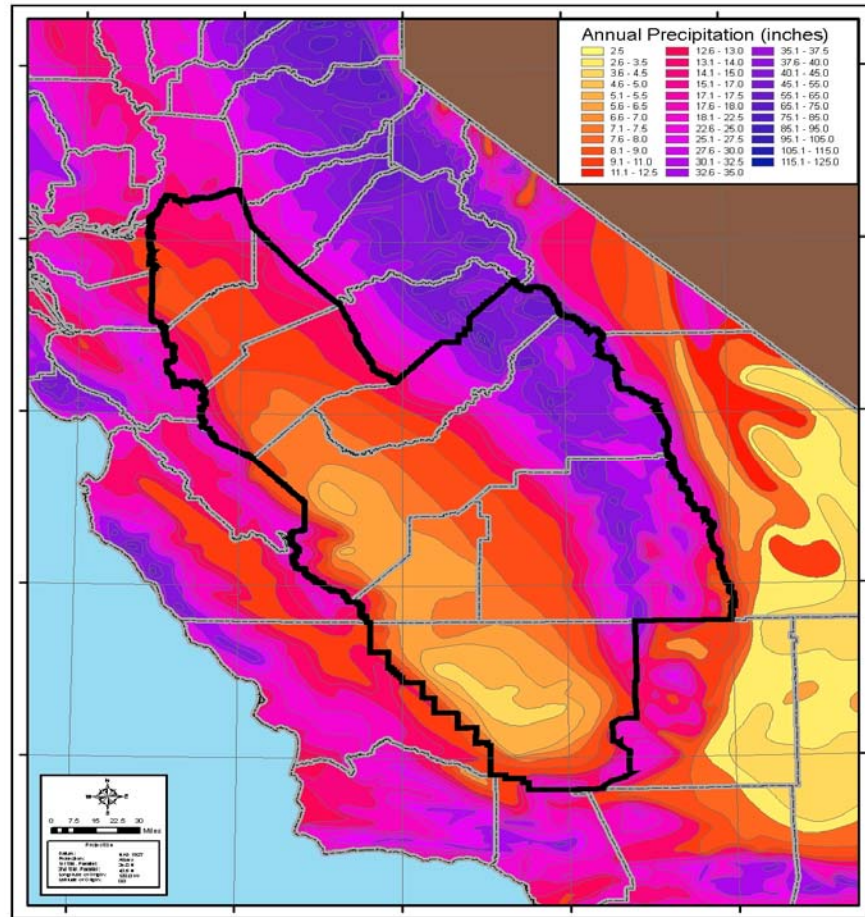
#### **Criteria 1 - No recent, measurable precipitation in the potential source region for fugitive dust**

Precipitation data showed that the period preceding the blowing dust event was not wet enough in the Oildale/Bakersfield and Hanford/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 139 consecutive days prior to the October 9, 2008 event, Bakersfield received no measurable precipitation. Hanford received 0.04 inches of precipitation 5 days prior to the event on October 4, 2008. 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 B.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 B.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 11:02 AM PDT on October 9, 2008 to notify the public of gusty winds over the west side of the San Joaquin Valley and surrounding mountains and deserts (see Figure B.2). The National Weather Service in Sacramento, CA issued a Special Weather Statement at 5:11 AM PDT on October 9, 2008 to notify the public of gusty winds throughout the northern San Joaquin Valley (see Figure B.3).

**Figure B.2 Wind Advisory issued by the National Weather Service in Hanford, CA on October 9, 2008.**

URGENT - WEATHER MESSAGE  
 NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY - HANFORD CA  
 1102 AM PDT THU OCT 9 2008

...GUSTY WINDS HAVE DEVELOPED OVER THE WEST SIDE OF THE SAN

JOAQUIN VALLEY THIS MORNING WHICH WILL CONTINUE THROUGH 11 PM THIS EVENING...

.A STRONG LOW PRESSURE SYSTEM AND ASSOCIATED COLD FRONT WAS BRINGING GUSTY NORTHWEST WINDS TO THE WESTERN SIDE OF THE SAN JOAQUIN VALLEY THIS MORNING AND WILL CONTINUE UNTIL LATE TONIGHT. GUSTS TO AROUND 45 MPH ARE POSSIBLE OVER WEST SIDE OF THE VALLEY.

CAZ095-098-099-100215-  
/O.CON.KHNX.WI.Y.0025.081009T2000Z-081011T0600Z/  
KERN COUNTY MOUNTAINS-INDIAN WELLS VALLEY-  
SOUTHEASTERN KERN COUNTY DESERT-  
1102 AM PDT THU OCT 9 2008

...WIND ADVISORY REMAINS IN EFFECT UNTIL 11 PM PDT FRIDAY FOR THE KERN COUNTY MOUNTAINS AND DESERTS...

A WIND ADVISORY FOR THE KERN COUNTY MOUNTAINS AND DESERTS REMAINS IN EFFECT UNTIL 11 PM PDT FRIDAY.

WEST WINDS OF 20 TO 30 MPH ARE EXPECTED OVER THE KERN COUNTY MOUNTAINS AND DESERTS BEGINNING EARLY THIS AFTERNOON. GUSTS TO AROUND 50 MPH ARE POSSIBLE THROUGH AND BELOW THE PASSES AND CANYONS. THE GUSTY WINDS WILL LIKELY DIMINISH SOME LATE TONIGHT INTO FRIDAY MORNING...BUT ARE EXPECTED TO INCREASE AGAIN DURING THE DAY ON FRIDAY AND CONTINUE INTO THE EVENING.

MAJOR ROADS AFFECTED BY THE WINDS WILL INCLUDE HIGHWAY 58 THROUGH AND BELOW THE TEHACHAPI PASS...HIGHWAY 178 THROUGH THE WALKER PASS...AND HIGHWAY 14 AND U.S. 395 IN THE KERN COUNTY DESERTS.

A WIND ADVISORY MEANS THAT SUSTAINED WIND SPEEDS OF AT LEAST 35 MPH OR GUSTS OF 45 MPH OR MORE ARE EXPECTED. WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR HIGH PROFILE VEHICLES. USE EXTRA CAUTION.

STAY TUNED TO NOAA WEATHER RADIO...OR YOUR FAVORITE NEWS SOURCE... FOR FURTHER INFORMATION.

**Figure B.3 Special Weather Statement issued by the National Weather Service in Sacramento, CA on October 9, 2008.**

SPECIAL WEATHER STATEMENT  
NATIONAL WEATHER SERVICE SACRAMENTO CA  
511 AM PDT THU OCT 9 2008

CAZ013>019-063-064-066>069-100015-  
SHASTA LAKE AREA / NORTHERN SHASTA COUNTY-  
BURNEY BASIN / EASTERN SHASTA COUNTY-NORTHERN SACRAMENTO VALLEY-  
CENTRAL SACRAMENTO VALLEY-SOUTHERN SACRAMENTO VALLEY-  
CARQUINEZ STRAIT AND DELTA-NORTHERN SAN JOAQUIN VALLEY-  
MOUNTAINS SOUTHWESTERN SHASTA COUNTY TO NORTHERN LAKE COUNTY-  
CLEAR LAKE/SOUTHERN LAKE COUNTY-  
NORTHEAST FOOTHILLS/SACRAMENTO VALLEY-MOTHERLODE-

WESTERN PLUMAS COUNTY/LASSEN PARK-  
WEST SLOPE NORTHERN SIERRA NEVADA-  
511 AM PDT THU OCT 9 2008

...GUSTY WINDS AND MUCH COOLER TEMPERATURES EXPECTED TODAY THROUGH THE WEEKEND...

A COLD LOW PRESSURE SYSTEM DROPPING OUT OF WESTERN CANADA INTO NEVADA WILL BRING GUSTY WINDS AND MUCH COOLER WEATHER TO NORTHERN CALIFORNIA THIS AFTERNOON THROUGH THE WEEKEND. AS THE STORM APPROACHES...WINDY CONDITIONS ARE EXPECTED TO DEVELOP THIS AFTERNOON AND CONTINUE INTO THE EVENING OVER THE COASTAL RANGE AND SACRAMENTO VALLEY. SUSTAINED WINDS TO 25 MPH WITH GUSTS TO 40 MPH ARE POSSIBLE BY MID AFTERNOON. TEMPERATURES WILL COOL 5-10 DEGREES TODAY IN THE NORTHERN CENTRAL VALLEY...WITH EVEN GREATER COOLING IN THE MOUNTAINS.

THE MAIN WEATHER SYSTEM IS FORECAST TO MOVE INTO THE GREAT BASIN ON FRIDAY...BRINGING FURTHER COOLING TO THE REGION. DAYTIME MAXIMUM TEMPERATURES IN THE SACRAMENTO AND NORTHERN SAN JOAQUIN VALLEYS ARE ONLY EXPECTED TO CLIMB INTO THE MID 60S TO LOWER 70S...WITH MOUNTAIN TEMPERATURES ONLY MAKING IT INTO THE 40S AND LOWER 50S. OVERNIGHT LOWS WILL DROP INTO THE 40S IN THE CENTRAL VALLEY...WITH LOWS IN THE 20S AND 30S IN THE MOUNTAINS...AND SOME TEENS POSSIBLE IN THE HIGHER MOUNTAIN VALLEYS.

GUSTY NORTH WINDS WILL CONTINUE INTO THE WEEKEND...WITH WINDY CONDITIONS AT TIMES. NORTH WINDS OF 15 TO 30 MPH ARE EXPECTED IN THE SACRAMENTO VALLEY LATE TONIGHT THROUGH SATURDAY WITH WIND GUSTS TO 40 MPH POSSIBLE. STRONGER WINDS ARE POSSIBLE AGAIN ON FRIDAY AFTERNOON.

ALTHOUGH SIGNIFICANT PRECIPITATION OVER THE MOUNTAINS IS NOT EXPECTED WITH THIS SYSTEM...A LIGHT DUSTING OF SNOW WILL BE POSSIBLE ABOVE 4000 FEET NEAR THE CREST OF THE SOUTHERN CASCADES AND NORTHERN SIERRA TONIGHT INTO SATURDAY.

A WARMING TREND ALONG WITH LIGHTER NORTH WINDS ARE EXPECTED ON SUNDAY INTO EARLY NEXT WEEK.

\$\$

### **Criteria 3 and 4 - Strong winds**

As shown in Table 2 and 3, strong gusty winds occurred in Hanford and Lemoore during the October 9, 2008 blowing dust event. Observations at Bakersfield Meadows Field Airport on October 9 indicate 0 hour of sustained winds greater than 17.9 mph and 0 hour with gusts greater than 23 mph. The strong winds to the northwest of Bakersfield transported and deposited PM10 across the southern parts of the San Joaquin Valley. Observations at Lemoore Naval Air Station on October 9 indicate 13 hours of sustained winds greater than 17.9 mph and 9 hours with gusts greater than 31 mph. The highest recorded gust was 40 mph. Observations at Hanford on October 9 indicate 6 hours of sustained winds greater than 17.9 mph and 9 hours with gusts greater than 23 mph. The highest recorded gust was 30 mph. One hour of missing wind data occurred at Hanford on October 9. 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 October 9, 2008 documented the high winds with video footage, photographs, and eyewitness reports.

Wind profiles documenting strong winds aloft in the San Joaquin Valley on October 9, 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 October 9 at 2:10 PM PDT highlighting elevated PM10 levels due to high winds. The agricultural burn allocation was set to 0 tons of PM10 on October 9, 2008 in anticipation of high PM10 concentrations.

**FIGURE B. 4 District press release on October 9, 2008  
for blowing dust.**

News Release  
10-09-2008  
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  
Janelle Schneider  
(559) 230-6000

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

Spanish-language Contact  
Claudia Encinas  
(559) 230-6000

## **Blowing dust prompts health warning Air District cautions that air pollution levels climbing**

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

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

"Strong to gusty northwesterly winds across the San Joaquin Valley air basin are causing localized areas of blowing dust and elevated PM 10 levels," said Shawn Ferreria, Senior Air

Quality Specialist with the Air District. "Take precautions to protect your health if you are in an area experiencing blowing dust."

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.

Residents throughout the San Joaquin Valley are advised to use caution through Friday evening. People with heart or lung diseases should follow their doctors' advice for dealing with episodes of unhealthy air quality. Additionally, older adults and children should avoid prolonged exposure, strenuous activities or heavy exertion. 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 the San Joaquin Valley air basin portion of Kern. For more information, visit [www.valleyair.org](http://www.valleyair.org) or call the nearest District office: Modesto (209) 557-6400, Fresno (559) 230-6000 and Bakersfield (661) 326-6900.

### **Figure B.5 Air Quality Alert Message**

AIR QUALITY ALERT MESSAGE  
SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT  
RELAYED BY NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY CA  
215 PM PDT THU OCT 9 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 TONIGHT 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.

## APPENDIX C: Media Coverage

### C1. Newspaper Articles and Television News Coverage from October 9, 2008



#### **Blowing dust prompts health warning**

By Sentinel Staff

Hanford Sentinel, Friday, Oct. 10, 2008

FRESNO -- Gusty winds throughout the San Joaquin Valley on Thursday prompted local air-pollution officials to issue a health cautionary statement through tonight.

Winds throughout the Central Valley produced pockets of blowing dust, particularly on the Westside along the Interstate 5 route in Fresno and Kings counties. Blowing dust can result in unhealthy concentrations of particulate matter 10 microns or smaller, or PM10, according to the San Joaquin Valley Air Pollution Control District.

Valley residents were urged to use caution today and tonight, particularly people with heart or lung diseases, and older adults along with children should avoid prolonged exposure or outside activities.

Temperatures dropped in the Valley with the arrival of a cold front, and high temperatures were expected to drop into the upper 60s today and Saturday. No rain was in the forecast, however, and high temperatures were expected to climb back into the low 80s by early next week.



## **Blowing dust prompts health warning**

BY EMILY HAGEDORN, Californian staff writer  
Bakersfield Californian, Friday, Oct. 10, 2008

Wind and dust mean two things on the valley floor of Kern County — a high concentration of particulate matter and heightened risk of valley fever.

And Thursday had both of them.

The San Joaquin Valley Air Pollution Control District issued a health caution Thursday — lasting through Friday evening — alerting residents of a high level of particulate matter being blown with the dust.

Blowing dust can result in concentrations of particulate matter 10 microns and smaller, or PM10, which can aggravate lung disease, increase risk of respiratory infections and cause asthma attacks and acute bronchitis, the statement said.

The wind reached about 10 mph in Bakersfield Thursday, said Brenda Turner, spokeswoman for the district. The fastest winds were experienced north of Bakersfield in Lemoore, with 36 mph gusts.

Agricultural harvesting and a lack of rain have led to more dust, she said.

“It’s just not a good situation,” Turner said.

Wind and dust can also contribute to more cases of valley fever, an infection picked up from a fungus found in Kern’s soil, said Dr. Portia Choi, deputy health officer with the county Public Health Services Department.

Roughly 60 percent of people infected have no symptoms; 40 percent have cold- or flu-like symptoms.

The rarest and most severe cases cause nodules, ulcers, lesions in the skin and bones, swollen joints, meningitis and even death.

“We’re in what is considered a highly endemic area” for valley fever, Choi said. “On windy days, you have to take precautions because the spores will be in the soil.”

To guard against breathing in particulate matter and valley fever spores:

- Avoid prolonged outdoor exposure and staying inside.
- Avoid strenuous activity and heavy exertion.
- Wear masks when outdoors.
- Drive with windows closed.
- Keep windows closed in homes.
- Change clothes and shower after being outside in dusty conditions.
- After the wind dies, wet and clean dust collected on window ledges or porches.



**APPENDIX D: District Compliance Department Coverage**

**D1. Photographs from October 9, 2008**

**Between Hanford and Corcoran**



**Riverdale**



**South Fresno area**



**South Fresno area**





**South Fresno area**





**Image from Compliance Video Footage (East Fresno area)**



**D2. Routine Compliance Inspections on October 9, 2008**

A total of 57 inspections were conducted.

<b>ActivityDate</b>	<b>Activity</b>	<b>ProjectType</b>	<b>Region</b>
10/9/2008	Initial Inspections	Minor Sources	N
10/9/2008	Initial Inspections	Minor Sources	N
10/9/2008	Initial Inspections	Minor Sources	N
10/9/2008	Initial Inspections	Minor Sources	N
10/9/2008	Initial Inspections	Minor Sources	N
10/9/2008	Initial Inspections	Minor Sources	S
10/9/2008	Initial Inspections	Minor Sources	N
10/9/2008	Initial Inspections	Minor Sources	S
10/9/2008	Initial Inspections	Minor Sources	S
10/9/2008	Initial Inspections	Minor Sources	S
10/9/2008	Initial Inspections	Minor Sources	C
10/9/2008	Initial Inspections	Gasoline Dispensing Facilities	C
10/9/2008	Initial Inspections	Minor Sources	C
10/9/2008	Initial Inspections	Automotive Coating Operations	N
10/9/2008	Initial Inspections	Minor Sources	C
10/9/2008	Initial Inspections	Gasoline Dispensing Facilities	S
10/9/2008	Initial Inspections	Minor Sources	C
10/9/2008	Initial Inspections	Minor Sources	N
10/9/2008	Initial Inspections	Minor Sources	S
10/9/2008	Initial Inspections	Minor Sources	C
10/9/2008	Initial Inspections	Grant Program Inspections Ag	N

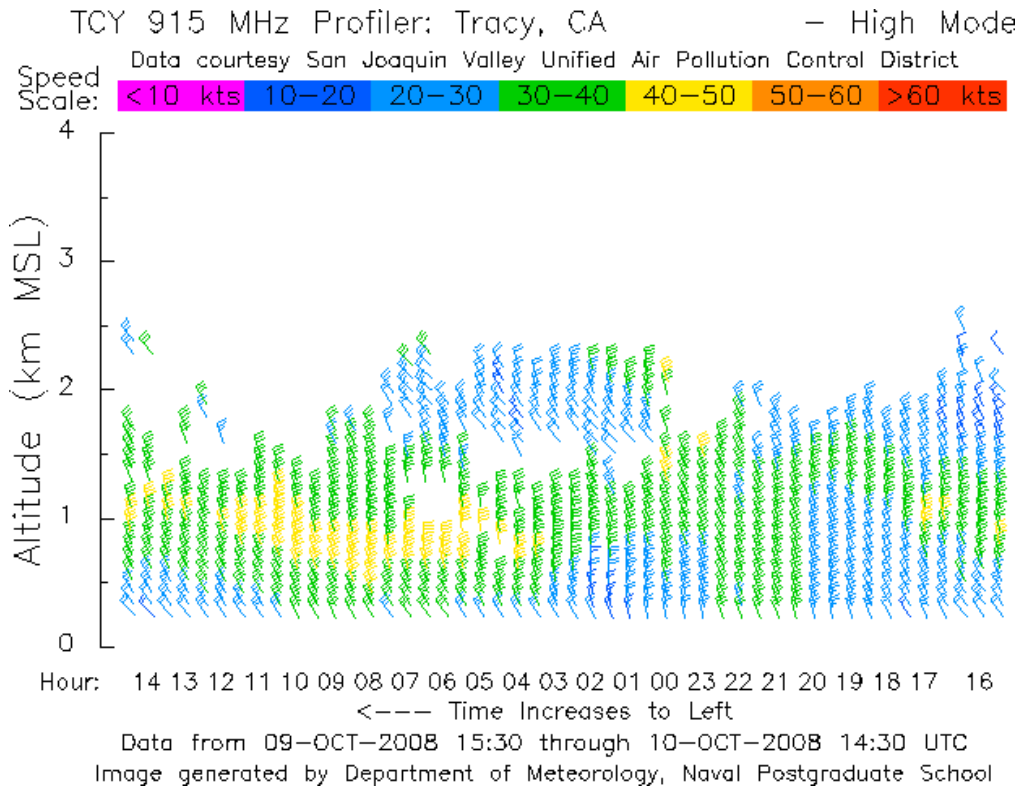
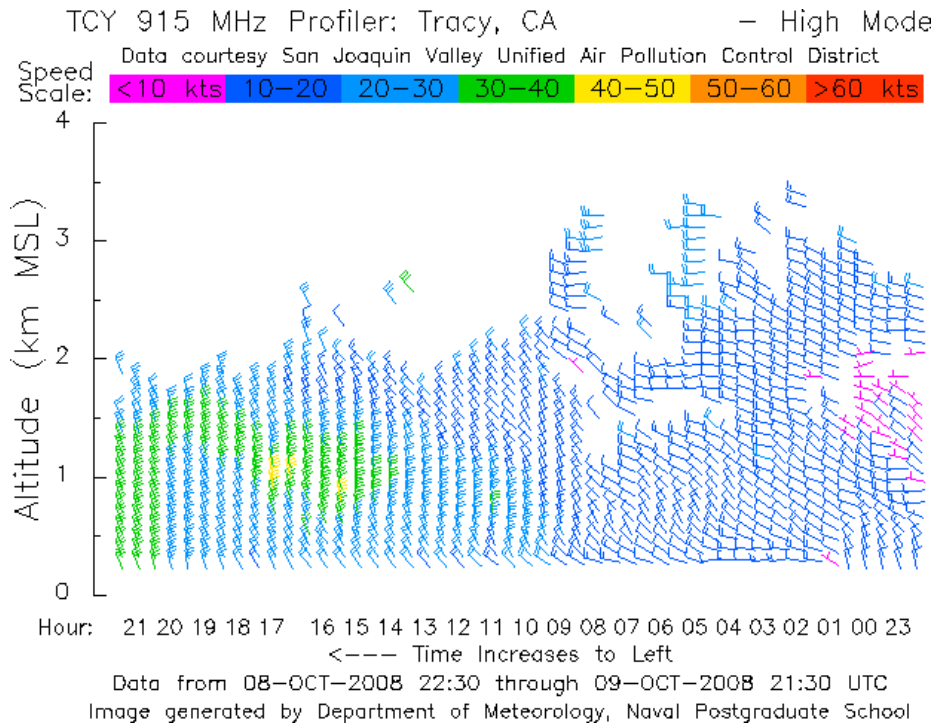
10/9/2008	Initial Inspections	Minor Sources	N
10/9/2008	Initial Inspections	Minor Sources	N
10/9/2008	Initial Inspections	Minor Sources	S
10/9/2008	Initial Inspections	Minor Sources	S
10/9/2008	Initial Inspections	Gasoline Dispensing Facilities	S
10/9/2008	Initial Inspections	Gasoline Dispensing Facilities	S
10/9/2008	Initial Inspections	Minor Sources	C
10/9/2008	Initial Inspections	Minor Sources	N
10/9/2008	Initial Inspections	Minor Sources	N
10/9/2008	Initial Inspections	Automotive Coating Operations	N
10/9/2008	Ongoing/Other Insp	Minor Sources	N
10/9/2008	Ongoing/Other Insp	Grant Program	S
10/9/2008	Follow Up	Gasoline Dispensing Facilities	C
10/9/2008	Follow Up	Gasoline Dispensing Facilities	C
10/9/2008	Follow Up	Gasoline Dispensing Facilities	N
10/9/2008	Follow Up	Gasoline Dispensing Facilities	C
10/9/2008	Follow Up	Minor Sources	C
10/9/2008	Follow Up	Minor Sources	C
10/9/2008	Follow Up	Gasoline Dispensing Facilities	C
10/9/2008	Follow Up	Gasoline Dispensing Facilities	C
10/9/2008	Follow Up	Minor Sources	C
10/9/2008	Follow Up	Minor Sources	C
10/9/2008	Follow Up	Gasoline Dispensing Facilities	S
10/9/2008	Startup inspections	Gasoline Dispensing Facilities	C
10/9/2008	Startup inspections	Gasoline Dispensing Facilities	C
10/9/2008	Startup inspections	Gasoline Dispensing Facilities	N
10/9/2008	Startup inspections	Gasoline Dispensing Facilities	N
10/9/2008	Startup inspections	Gasoline Dispensing Facilities	S
10/9/2008	Startup inspections	Minor Sources	C
10/9/2008	Startup inspections	Minor Sources	S
10/9/2008	Startup inspections	Minor Sources	C
10/9/2008	Startup inspections	Minor Sources	C
10/9/2008	Startup inspections	Minor Sources	C
10/9/2008	Startup inspections	Minor Sources	C
10/9/2008	Startup inspections	Automotive Coating Operations	N

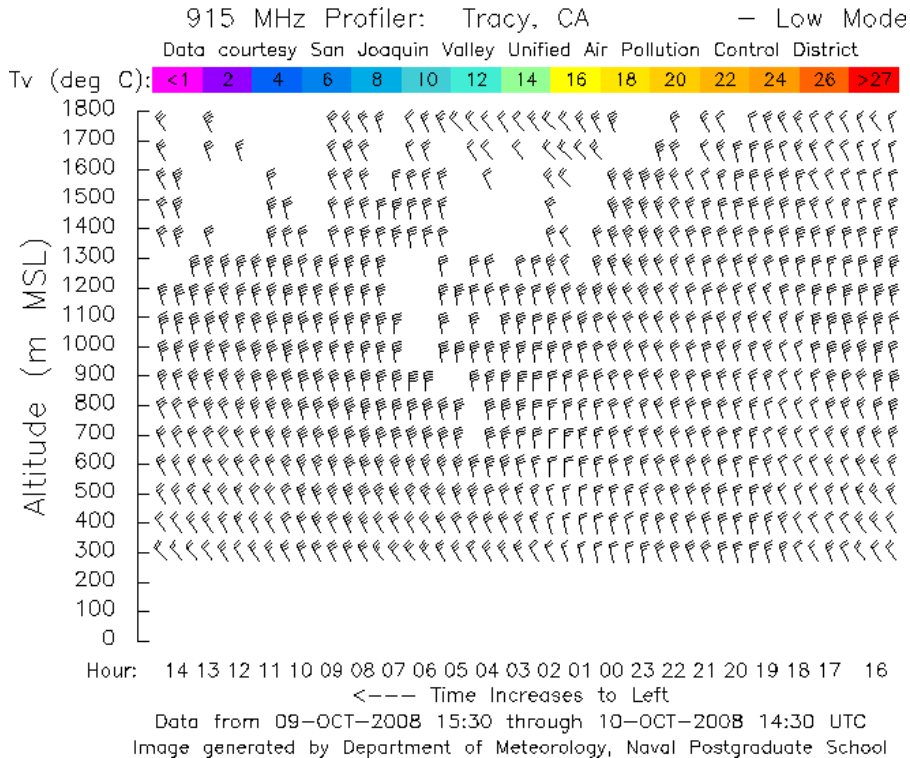
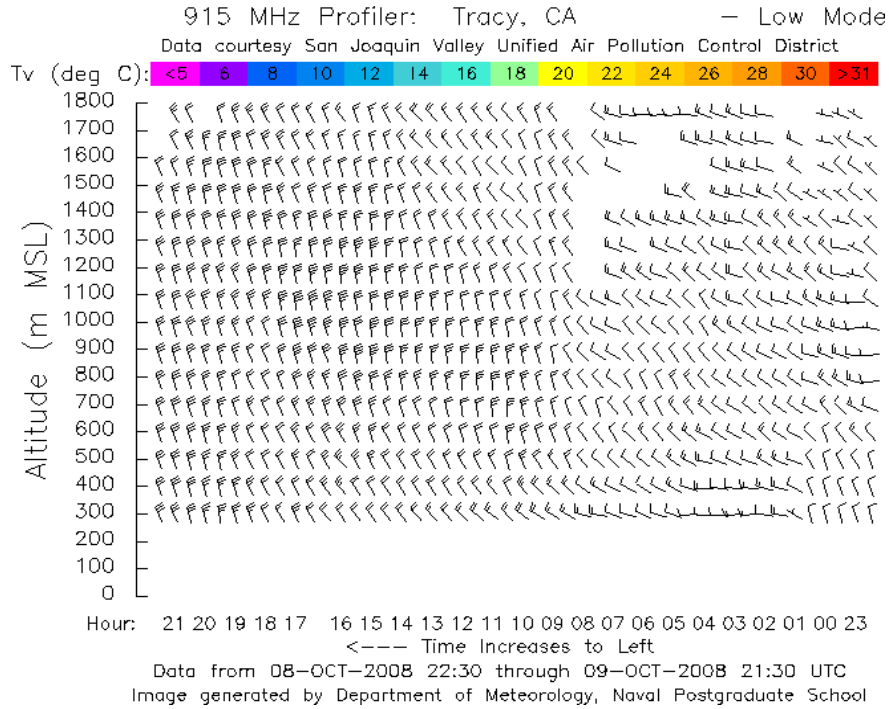
## **APPENDIX E: Weather Analysis**

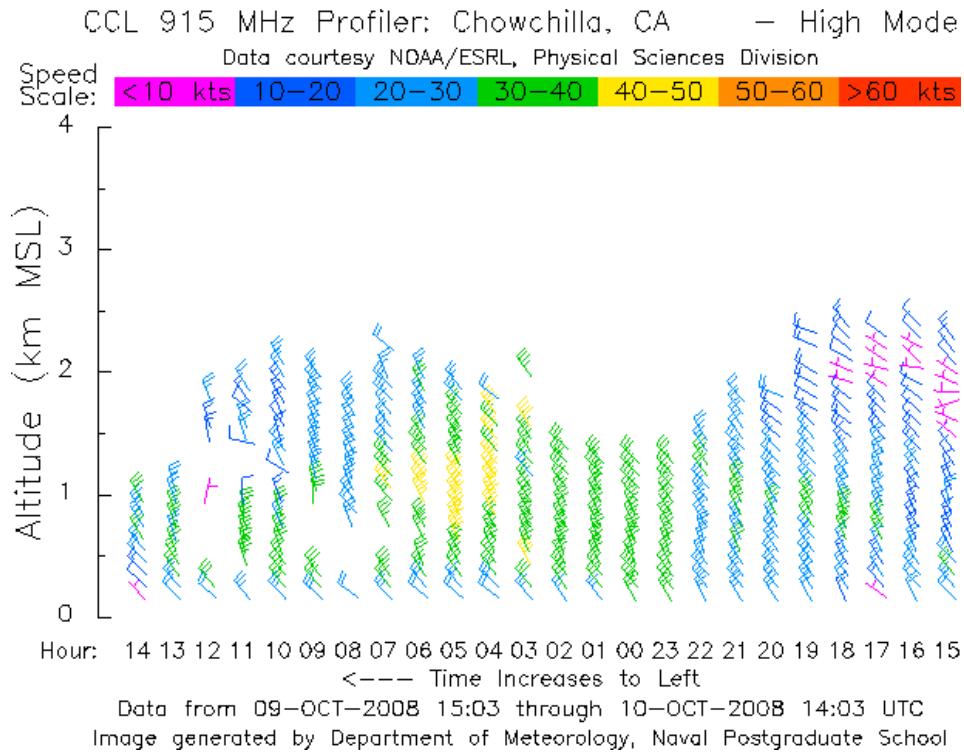
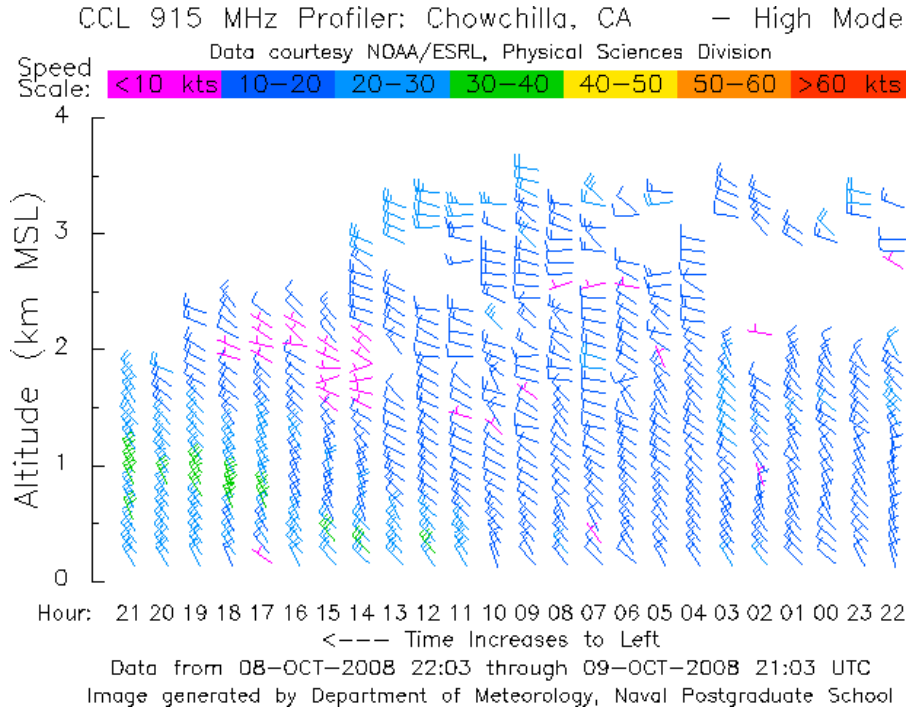
### **E1. Wind Profiles**

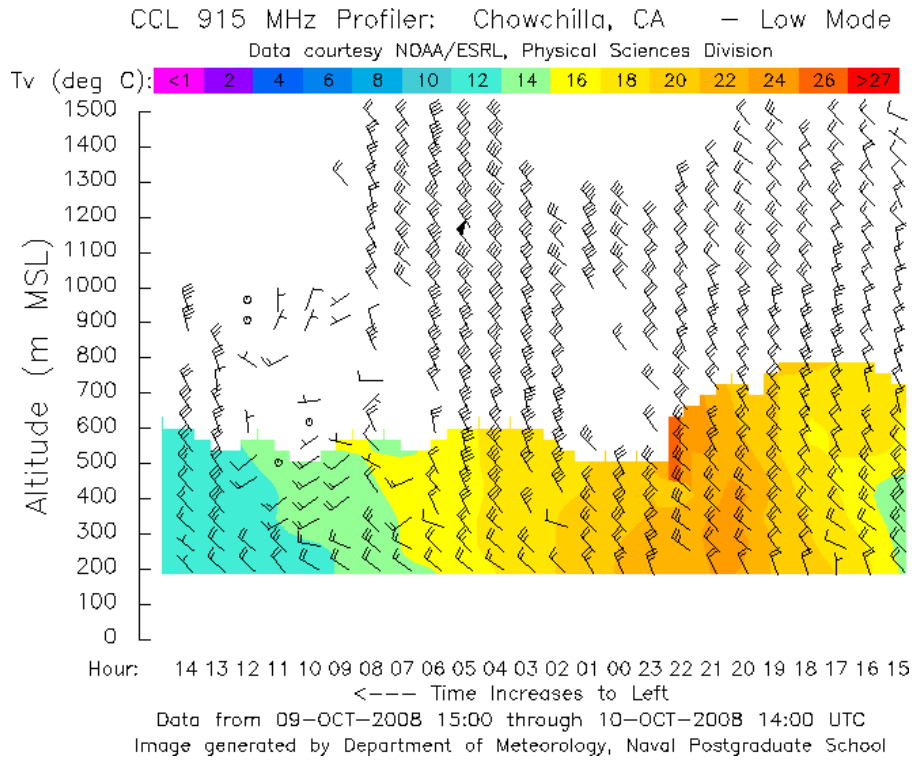
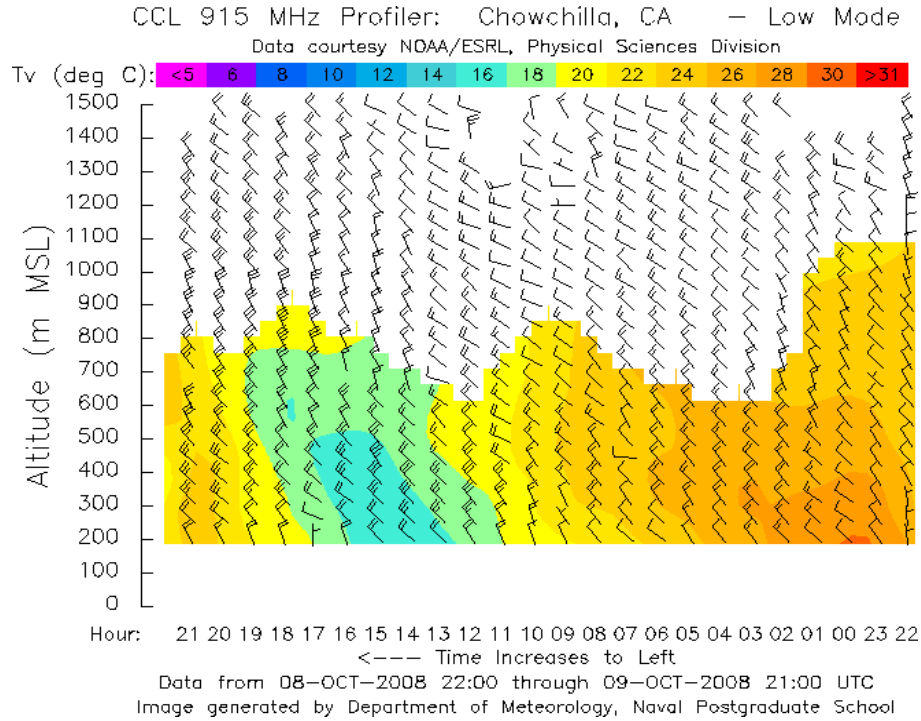
Time in UTC (Coordinated Universal Time, also abbreviated with "Z" or "GMT") is also called Greenwich Mean Time (Mean Solar Time at the Royal Observatory in Greenwich, England). Greenwich Mean Time is seven hours ahead of Pacific Daylight Time (PDT). For example, 12 UTC or 12 Z is 4 AM PST or 5 AM PDT.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

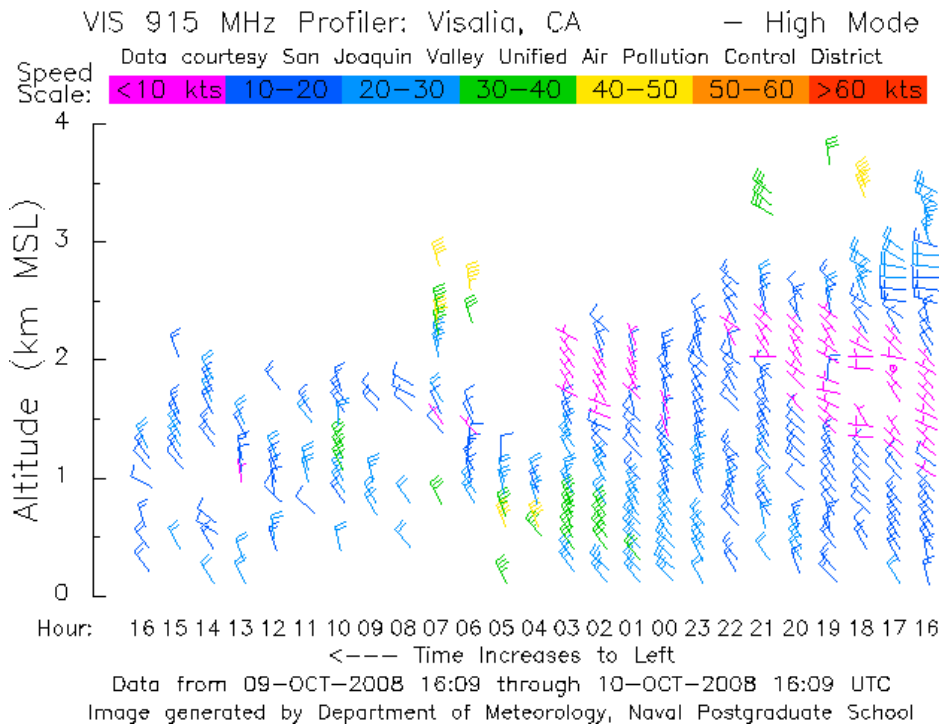
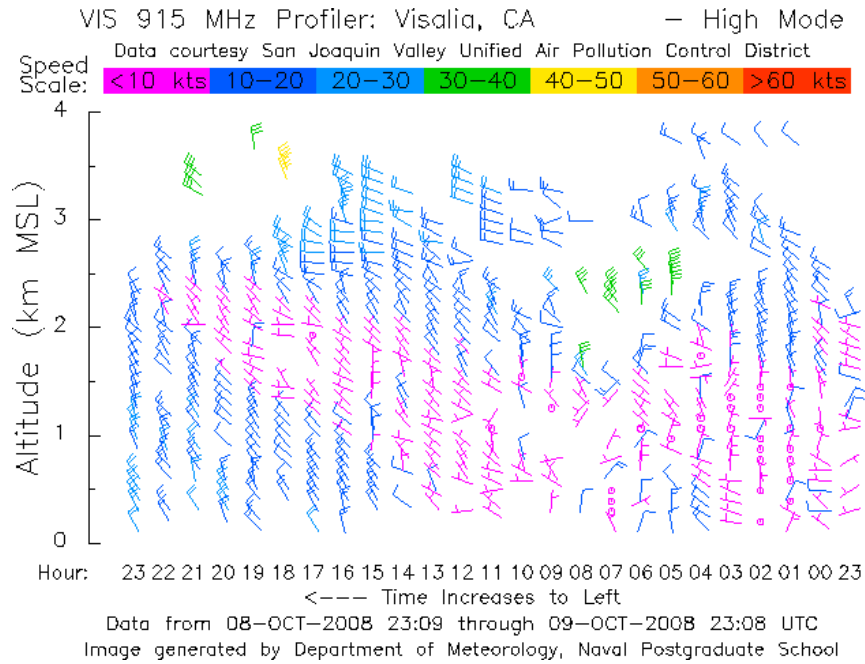
Wind barbs point in the direction "from" which the wind is blowing. A circle represents calm conditions. Flags (straight lines) attached at the end of the wind barbs indicate wind speed. Each short flag represents 5 knots, and each long flag represents 10 knots. A long flag and a short flag represent 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.



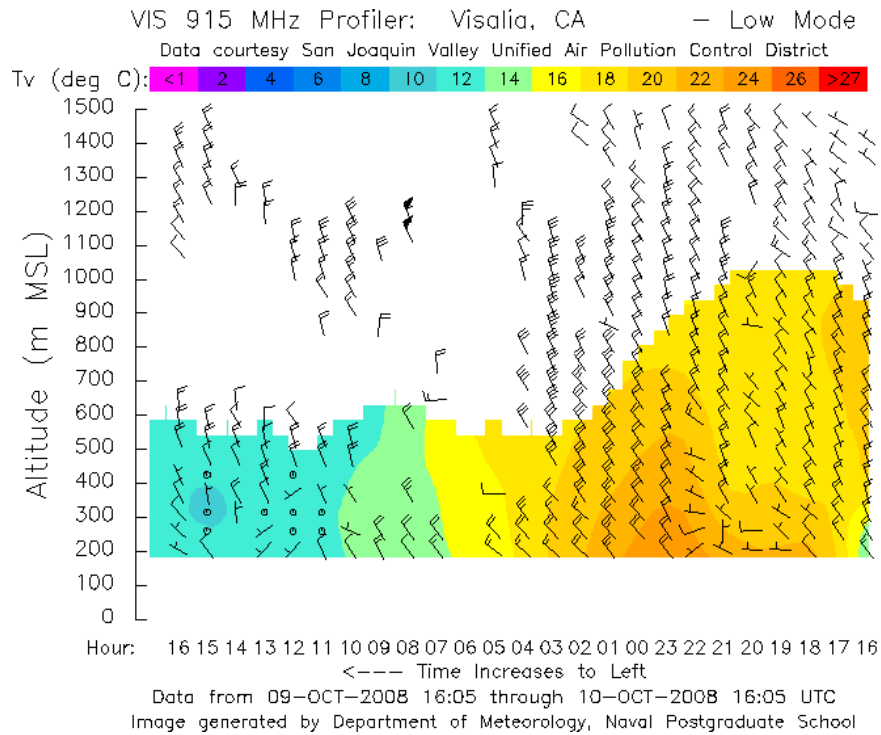
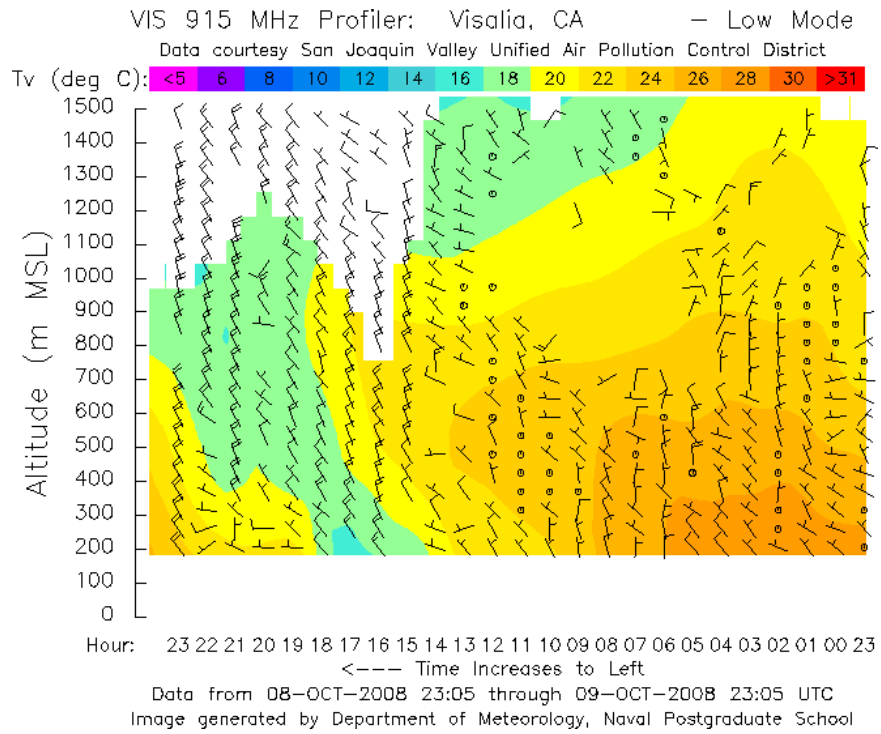


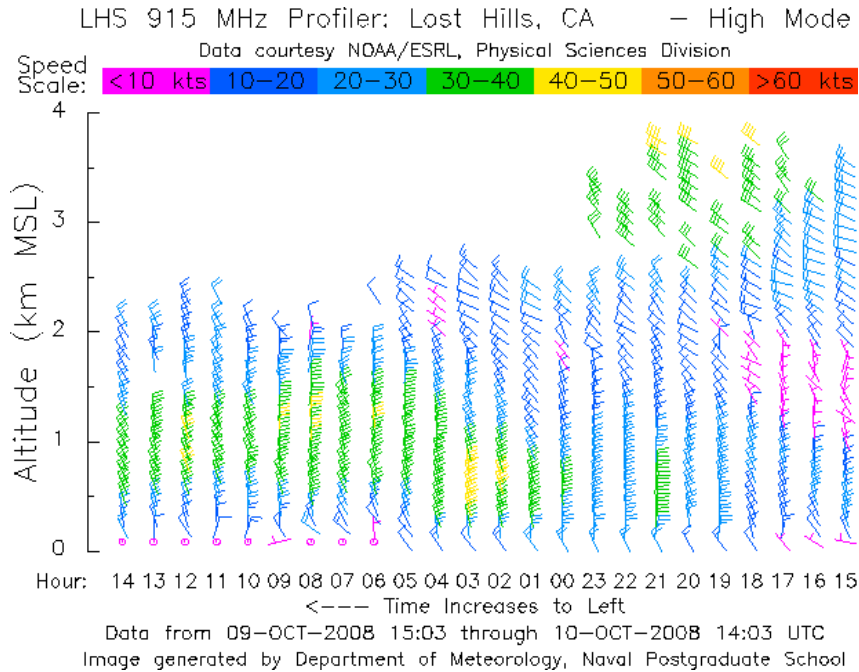
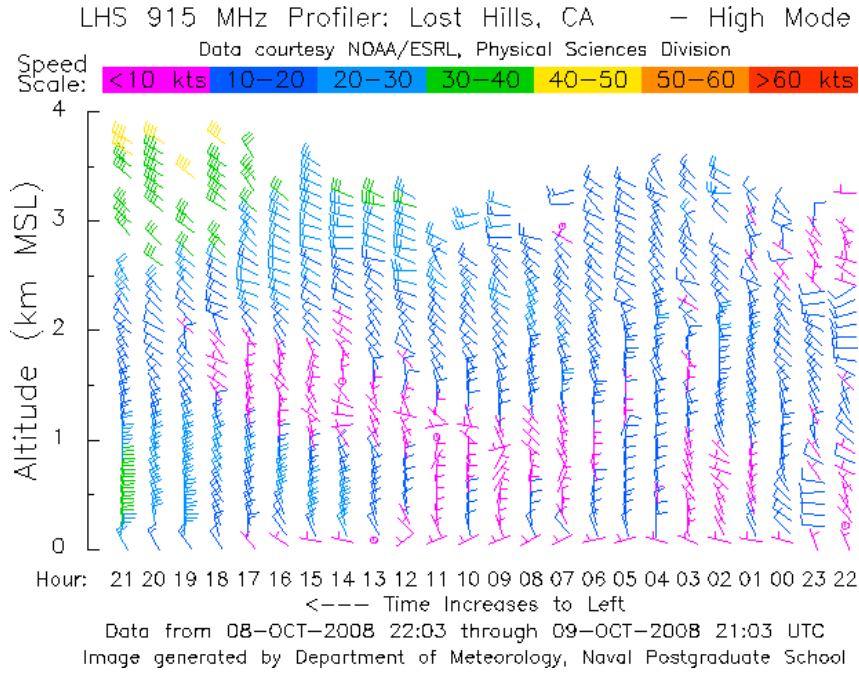


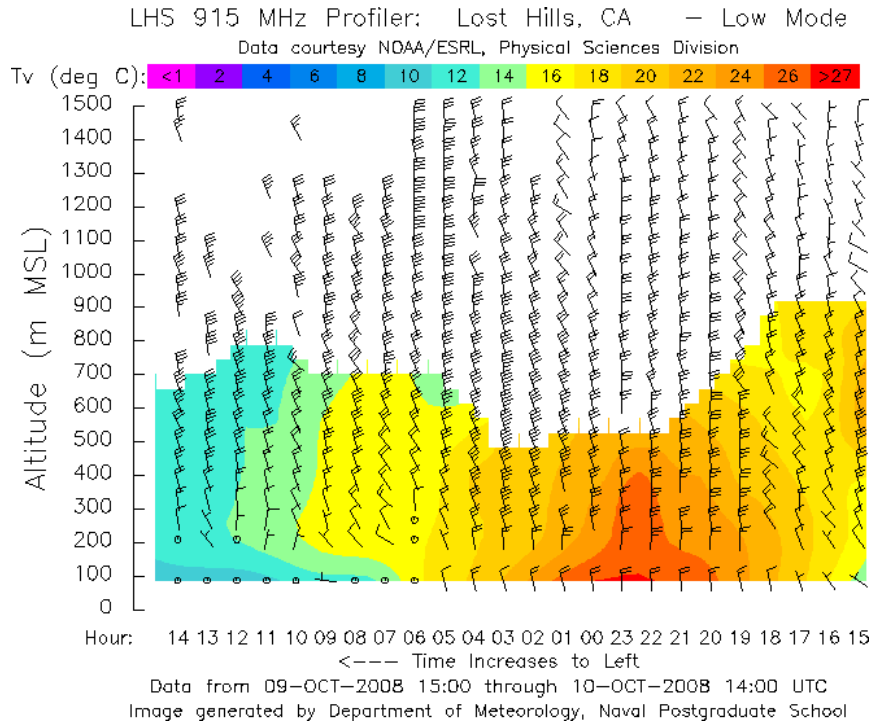
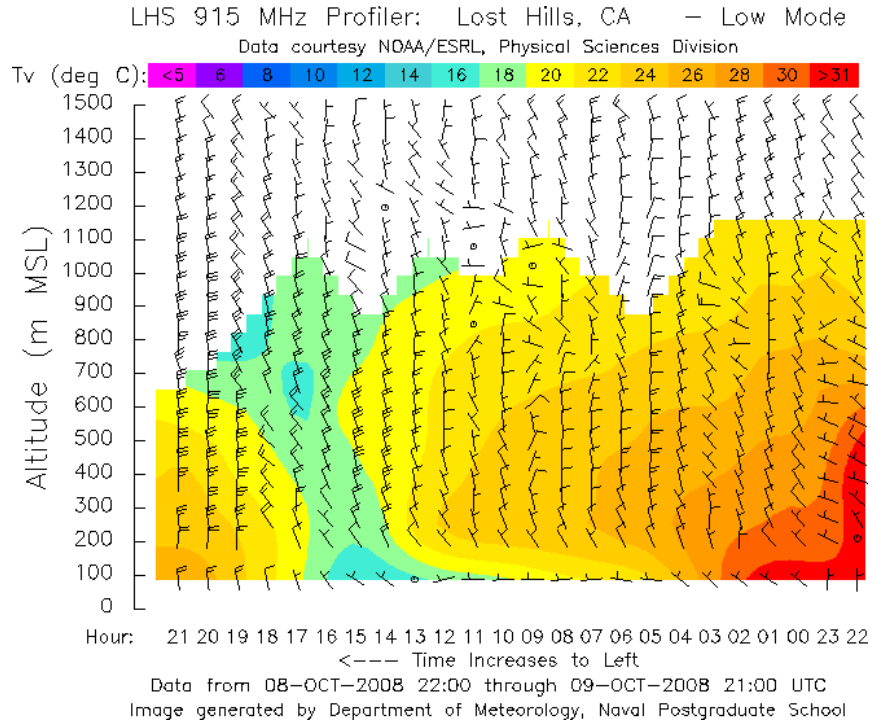










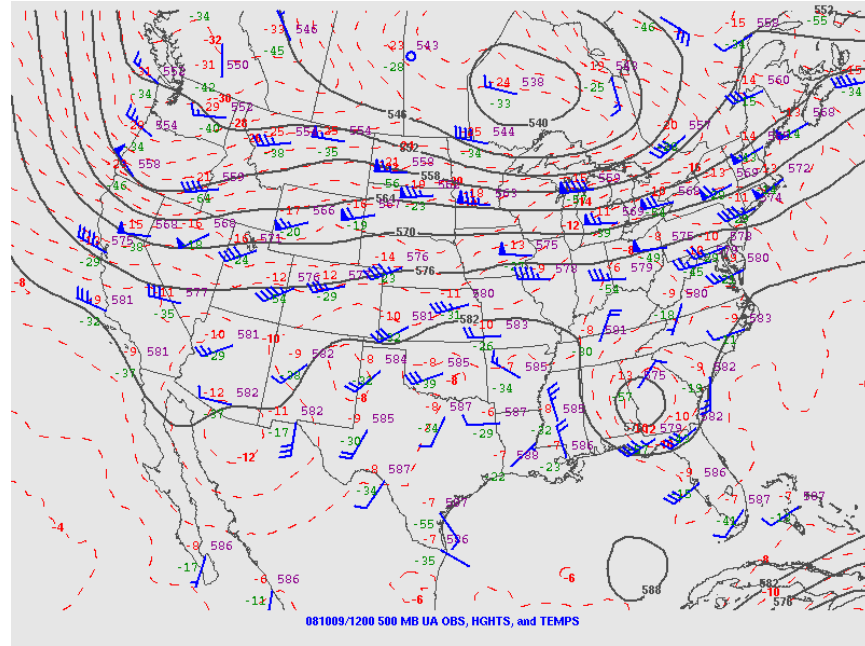


## E2. Weather Charts

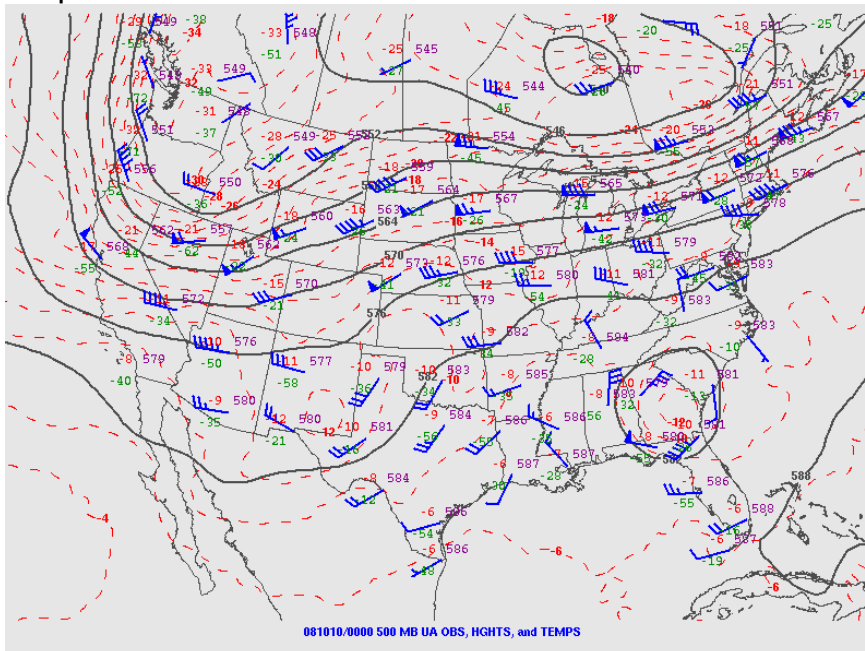
Upper-air analysis (approximately 18,000 feet above ground level) on October 9 and 10, 2008

The upper air analysis showed an unseasonably strong trough over the Pacific Northwest. Strong winds were evident on the trough axis over northern California.

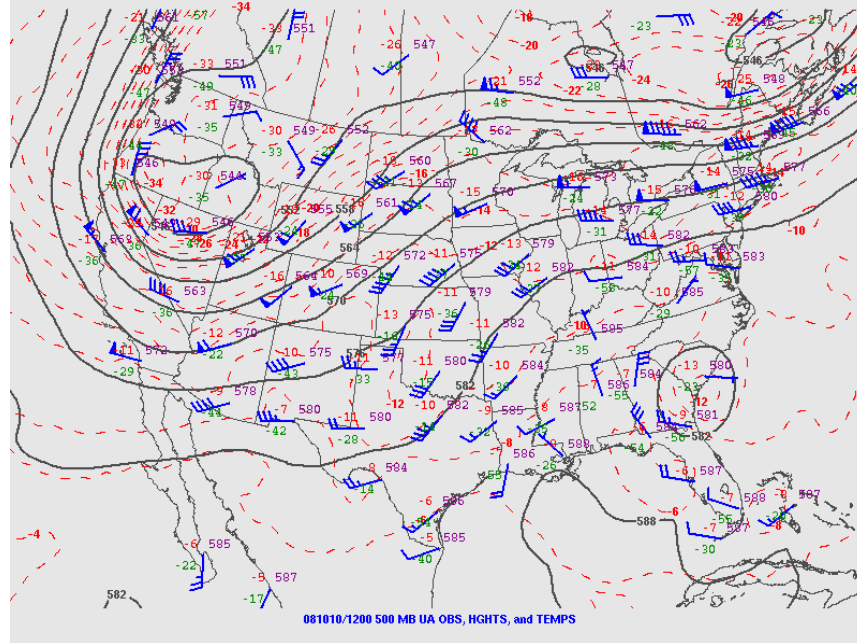
5:00 am PDT



5:00 pm PDT



5:00 am PDT

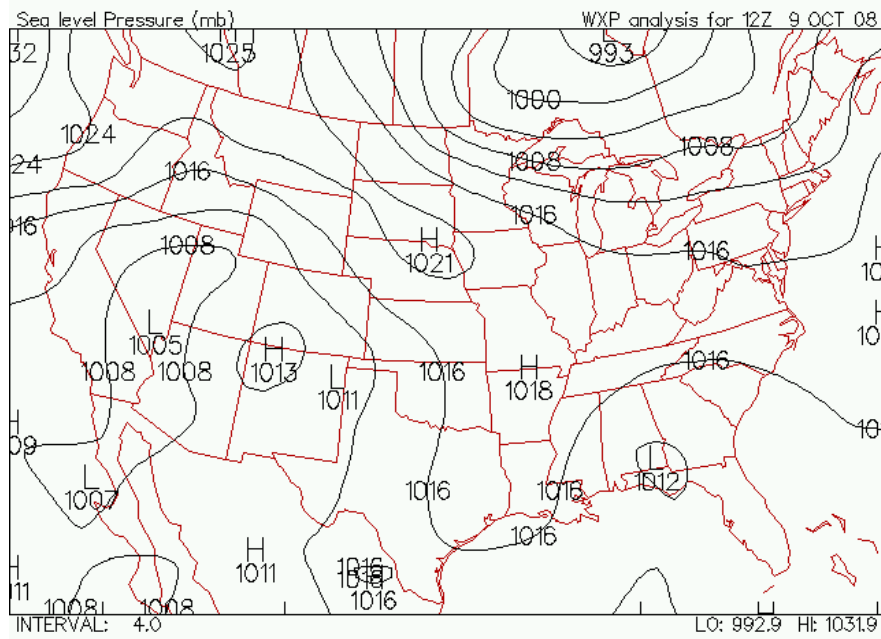


### Surface Analysis on October 9, 2008

The surface analysis charts from October 9, 2008 showed packed isobars, which indicated strong winds over the San Joaquin Valley.

5:00 am PDT

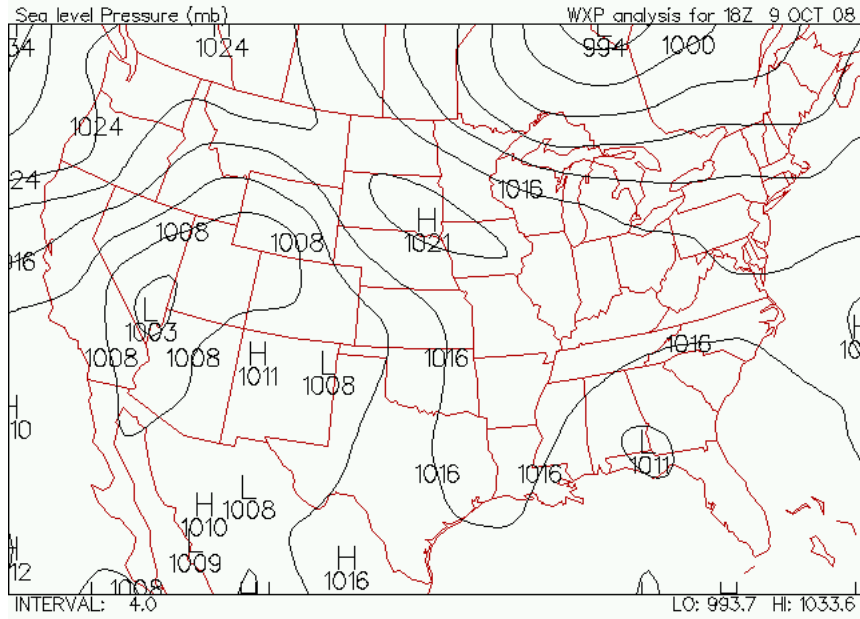
#### ▼ Plymouth State Weather Center ▼



### Surface Analysis on October 9, 2008

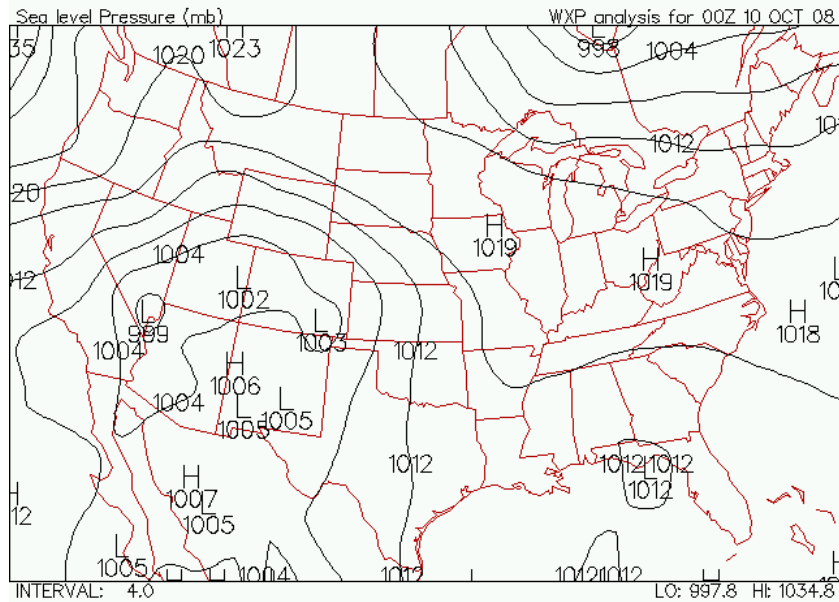
11:00 am PDT

▼ Plymouth State Weather Center ▼



5:00 pm PDT

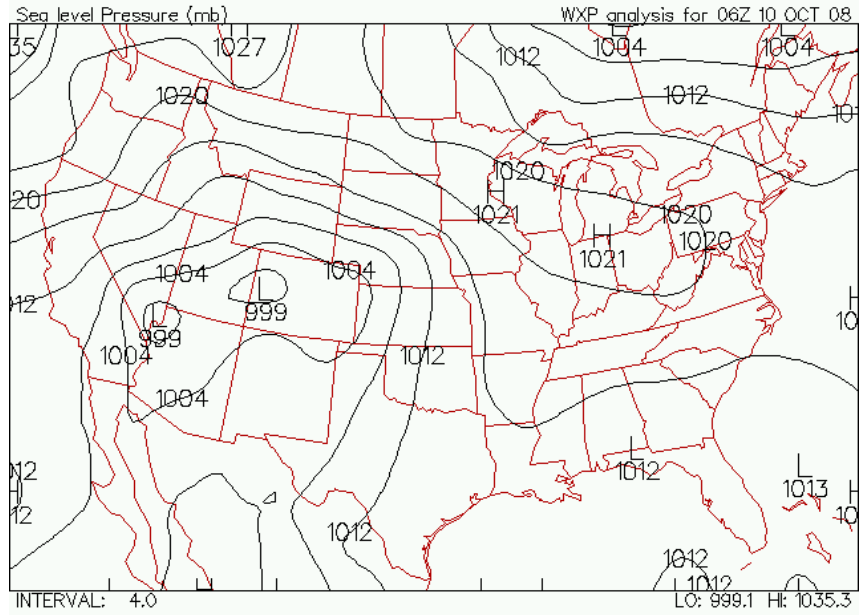
▼ Plymouth State Weather Center ▼



### Surface Analysis on October 9, 2008

11:00 pm PDT

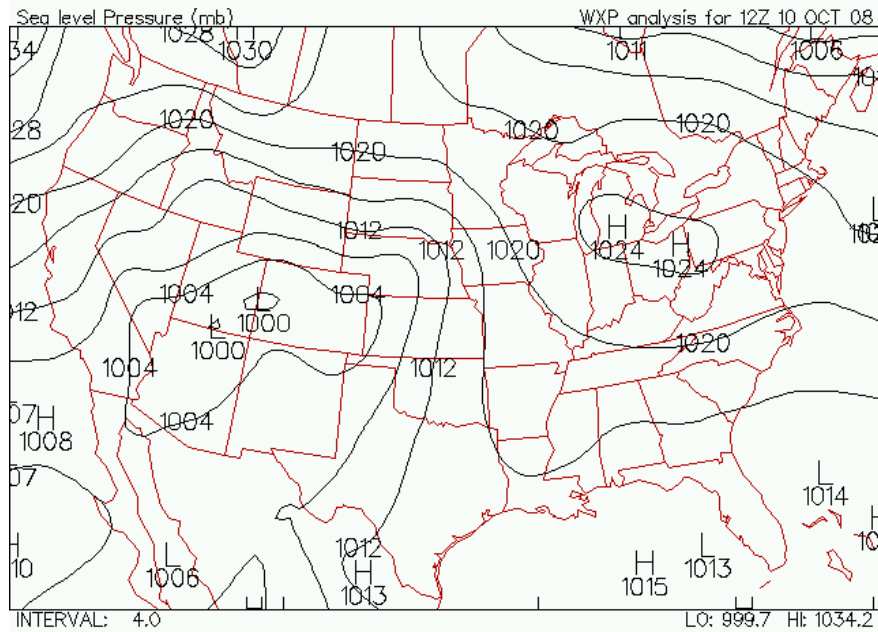
▼ Plymouth State Weather Center ▼



### Surface Analysis on October 10, 2008

5:00 am PDT

▼ Plymouth State Weather Center ▼



### E3. Surface Observations

#### Past Weather Conditions for KFAT

Tabular Listing: October 8, 2008 - 23:00 through October 09, 2008 - 23:00 PDT

Time(PDT)	Temperature	Dew	Wet Bulb	Relative	Wind	Wind	Wind	Quality	Pressure	Sea level	Altimeter	1500 m	Weather	Visibility
	Point	Temperature	Humidity	Speed	Gust	Direction	check		pressure	pressure	Pressure	conditions		
	° F	° F	° F	%	mph	mph			in	in	in	in		miles
22:53	57.0	23.0	42.8	27	14		W	<a href="#">OK</a>	29.52	29.87	29.88	24.94	clear	10.00
21:53	60.1	21.9	44.1	23	10		WNW	<a href="#">OK</a>	29.52	29.87	29.88	24.94	clear	10.00
20:53	63.0	19.9	45.0	19	15		WNW	<a href="#">OK</a>	29.50	29.85	29.86	24.92	clear	10.00
19:53	64.9	17.1	45.4	16	16		WNW	<a href="#">OK</a>	29.49	29.84	29.85	24.91	clear	10.00
18:53	68.0	18.0	47.0	15	21	30	WNW	<a href="#">OK</a>	29.48	29.84	29.84	24.90	clear	10.00
17:53	72.0	21.0	49.5	15	21	32	NW	<a href="#">OK</a>	29.48	29.83	29.84	24.90	clear	10.00
16:53	75.0	24.1	51.5	15	20	26	NW	<a href="#">OK</a>	29.48	29.83	29.84	24.90	clear	9.00
15:53	77.0	27.0	53.0	16	23	29	NW	<a href="#">OK</a>	29.48	29.83	29.84	24.90	clear	9.00
14:53	79.0	28.9	54.3	16	18	25	NW	<a href="#">OK</a>	29.49	29.84	29.85	24.91	mostly clear	7.00
13:53	78.1	34.0	55.3	20	17	29	NW	<a href="#">OK</a>	29.50	29.85	29.86	24.92	mostly clear	10.00
12:53	75.9	41.0	56.7	29	16	26	NW	<a href="#">OK</a>	29.53	29.88	29.89	24.94	mostly clear	10.00
11:53	73.0	44.1	56.8	35	15		WNW	<a href="#">OK</a>	29.54	29.89	29.90	24.95	clear	10.00
10:53	70.0	45.0	55.9	41	12		NW	<a href="#">OK</a>	29.54	29.90	29.90	24.95	clear	10.00
9:53	66.0	46.0	54.8	49	14		WNW	<a href="#">OK</a>	29.54	29.89	29.90	24.95	clear	10.00
8:53	62.1	46.0	53.2	56	13		WNW	<a href="#">OK</a>	29.53	29.88	29.89	24.94	clear	10.00
7:53	60.1	45.0	51.9	57	12		NW	<a href="#">OK</a>	29.52	29.87	29.88	24.94	clear	10.00
6:53	59.0	45.0	51.4	60	9		NW	<a href="#">OK</a>	29.51	29.86	29.87	24.93	mostly clear	10.00
5:53	60.1	46.9	52.8	62	7		NW	<a href="#">OK</a>	29.49	29.84	29.85	24.91	clear	10.00
4:53	57.9	48.9	52.9	72	5		NW	<a href="#">OK</a>	29.48	29.83	29.84	24.90	clear	10.00
3:53	59.0	48.0	52.9	67	0			<a href="#">OK</a>	29.48	29.83	29.84	24.90	clear	10.00
2:53	61.0	48.9	54.1	64	0			<a href="#">OK</a>	29.49	29.83	29.85	24.91	clear	10.00
1:53	62.1	48.0	54.1	60	0			<a href="#">OK</a>	29.49	29.83	29.85	24.91	clear	10.00
0:53	64.9	48.0	55.3	54	0			<a href="#">OK</a>	29.48	29.83	29.84	24.90	clear	10.00
23:53	66.9	48.9	56.5	52	0			<a href="#">OK</a>	29.50	29.85	29.86	24.92	clear	10.00
22:53	70.0	48.0	57.3	46	0			<a href="#">OK</a>	29.50	29.84	29.86	24.92	clear	10.00

Source: University of Utah MesoWest



### Past Weather Conditions for KFAT

Tabular Listing: October 10, 2008 - 0:00 through October 11, 2008 - 00:00 PDT

Time(PDT)	Temperature	Dew	Wet Bulb	Relative	Wind	Wind	Wind	Quality	Pressure	Sea level	Altimeter	1500 m	Weather	Visibility
	Point	Temperature	Humidity	Speed	Gust	Direction	check	pressure	pressure	Pressure	conditions			miles
	°F	°F	°F	%	mph	mph		in	in	in	in			
23:53	51.1	25.0	40.3	36	7	NNW	<u>OK</u>	29.45	29.80	29.80	24.87	clear	10.00	
22:53	54.0	25.0	41.8	32	12	NW	<u>OK</u>	29.45	29.79	29.80	24.87	partly cloudy	10.00	
21:53	55.0	26.1	42.6	32	10	WNW	<u>OK</u>	29.44	29.79	29.79	24.86	partly cloudy	10.00	
20:53	55.9	26.1	43.0	31	12	W	<u>OK</u>	29.44	29.79	29.79	24.86	partly cloudy	10.00	
19:53	57.9	24.1	43.5	27	13	W	<u>OK</u>	29.45	29.79	29.80	24.87	partly cloudy	10.00	
18:53	59.0	21.0	43.3	23	10	W	<u>OK</u>	29.46	29.80	29.81	24.88	partly cloudy	10.00	
17:53	61.0	18.0	43.6	19	14	24 WNW	<u>OK</u>	29.46	29.81	29.81	24.88	partly cloudy	10.00	
16:53	63.0	17.1	44.5	17	20	NW	<u>OK</u>	29.47	29.81	29.82	24.88	mostly clear	10.00	
15:53	64.0	19.9	45.6	18	18	WNW	<u>OK</u>	29.47	29.83	29.83	24.89	mostly clear	10.00	
14:53	64.9	19.9	46.0	18	16	25 WNW	<u>OK</u>	29.48	29.84	29.84	24.90	mostly clear	10.00	
13:53	64.9	19.0	45.8	17	21	26 WNW	<u>OK</u>	29.51	29.86	29.87	24.93	mostly clear	10.00	
12:53	64.0	19.0	45.4	18	15	NW	<u>OK</u>	29.54	29.89	29.90	24.95	mostly clear	10.00	
11:53	63.0	24.1	46.0	23	13	23 NNW	<u>OK</u>	29.56	29.91	29.92	24.97	mostly clear	10.00	
10:53	57.9	27.0	44.3	30	10	NNW	<u>OK</u>	29.58	29.94	29.94	24.99	mostly clear	10.00	
9:53	55.0	28.0	43.2	35	16	NW	<u>OK</u>	29.58	29.93	29.94	24.99	clear	10.00	
8:53	52.0	28.0	41.6	39	14	22 NW	<u>OK</u>	29.58	29.93	29.94	24.99	mostly clear	10.00	
7:53	48.0	28.0	39.6	46	9	NW	<u>OK</u>	29.57	29.92	29.93	24.98	partly cloudy	10.00	
6:53	48.0	28.0	39.6	46	8	NW	<u>OK</u>	29.55	29.91	29.91	24.96	mostly clear	10.00	
5:53	46.9	28.0	39.0	48	9	WNW	<u>OK</u>	29.55	29.91	29.91	24.96	clear	10.00	
4:53	48.9	27.0	39.7	42	6	NNW	<u>OK</u>	29.54	29.89	29.90	24.95	clear	10.00	
3:53	50.0	27.0	40.3	41	6	NW	<u>OK</u>	29.54	29.89	29.90	24.95	clear	10.00	
2:53	50.0	27.0	40.3	41	8	WNW	<u>OK</u>	29.54	29.89	29.90	24.95	clear	10.00	
1:53	52.0	26.1	41.1	36	6	NW	<u>OK</u>	29.55	29.90	29.91	24.96	clear	10.00	
0:53	54.0	26.1	42.1	34	10	NW	<u>OK</u>	29.53	29.88	29.89	24.94	clear	10.00	
23:53	55.0	24.1	42.1	30	9	NW	<u>OK</u>	29.53	29.88	29.89	24.94	clear	10.00	

Source: University of Utah MesoWest

## Past Weather Conditions for KHJO

Tabular Listing: October 9, 2008 - 0:00 through October 10, 2008 - 00:00 PDT

Time(PDT)	Temperature	Dew	Wet Bulb	Relative	Wind	Wind	Wind	Quality	Pressure	Sea level	Altimeter	1500 m	Weather	Visibility
	Point	Temperature	Humidity	Speed	Gust	Direction	check		pressure			Pressure	conditions	
	° F	° F	° F	%	mph	mph			in	in	in	in		miles
23:53	57.9	21.9	43.0	25	13		NW	<a href="#">OK</a>	29.63	29.89	29.89	24.94	clear	10.00
22:53	57.9	21.0	42.8	24	8		NW	<a href="#">OK</a>	29.63	29.89	29.89	24.94	clear	10.00
21:53	60.1	19.9	43.7	21	10		WNW	<a href="#">OK</a>	29.63		29.89	24.94	clear	10.00
20:53	62.1	16.0	43.9	16	10		WNW	<a href="#">OK</a>	29.61	29.88	29.87	24.93	clear	10.00
19:53	64.9	17.1	45.5	16	16	23	NW	<a href="#">OK</a>	29.60	29.86	29.86	24.92	clear	8.00
18:53	68.0	21.0	47.7	17	15		NW	<a href="#">OK</a>	29.60	29.86	29.86	24.92	haze	6.00
17:53	72.0	26.1	50.6	18	17		NW	<a href="#">OK</a>	29.58	29.84	29.84	24.90	haze	3.00
16:53	75.9	28.9	53.0	18	15	25	NW	<a href="#">OK</a>	29.58	29.84	29.84	24.90	haze	4.00
15:53	77.0	28.0	53.3	16	20	28	NW	<a href="#">OK</a>	29.59	29.85	29.85	24.91	haze	5.00
14:53	79.0	33.1	55.4	19	18	26	NW	<a href="#">OK</a>	29.59	29.85	29.85	24.91	haze	4.00
13:53	79.0	36.0	56.2	21	18	30	NW	<a href="#">OK</a>	29.60	29.86	29.86	24.92	haze	4.00
12:53	75.9	41.0	56.7	29	18	25	NW	<a href="#">OK</a>	29.63	29.89	29.89	24.94	haze	4.00
11:53	73.9	43.0	56.7	33	20	24	NNW	<a href="#">OK</a>	29.64	29.90	29.90	24.95	haze	5.00
10:53	70.0	44.1	55.6	39	16	23	NW	<a href="#">OK</a>	29.65	29.91	29.91	24.96	haze	5.00
9:53								<a href="#">OK</a>	29.64		29.90	24.95		
8:53	63.0	45.0	53.1	52	18	25	NW	<a href="#">OK</a>	29.63	29.89	29.89	24.94	clear	10.00
7:53	57.9	46.9	51.9	67	12		NW	<a href="#">OK</a>	29.61	29.87	29.87	24.93	clear	10.00
6:53	59.0	46.0	51.9	62	9		NW	<a href="#">OK</a>	29.60	29.86	29.86	24.92	clear	10.00
5:53	57.9	46.9	51.9	67	6		WNW	<a href="#">OK</a>	29.59	29.85	29.85	24.91	clear	10.00
4:53	55.0	46.9	50.6	74	3		NW	<a href="#">OK</a>	29.58	29.84	29.84	24.90	clear	10.00
3:53	53.1	48.0	50.3	83	0			<a href="#">OK</a>	29.57	29.83	29.83	24.89	clear	10.00
2:53	54.0	48.0	50.7	80	0			<a href="#">OK</a>	29.59	29.85	29.85	24.91	clear	10.00
1:53	59.0	48.0	52.9	67	0			<a href="#">OK</a>	29.59	29.85	29.85	24.91	clear	10.00
0:53	64.9	46.9	54.8	52	6		NW	<a href="#">OK</a>	29.59	29.85	29.85	24.91	clear	10.00
23:53	64.9	48.9	55.7	56	5		NW	<a href="#">OK</a>	29.60	29.86	29.86	24.92	clear	10.00

Source: University of Utah MesoWest

## Past Weather Conditions for KHJO

Tabular Listing: October 10, 2008 - 0:00 through October 11, 2008 - 00:00 PDT

Time(PDT)	Temperature	Dew	Wet Bulb	Relative	Wind	Wind	Wind	Quality	Pressure	Sea level	Altimeter	1500 m	Weather	Visibility
	Point	Temperature	Humidity	Speed	Gust	Direction	check		pressure		Pressure	conditions		
	° F	° F	° F	%	mph	mph			in	in	in	in		miles
23:53	53.1	26.1	41.6	35	9	NW	<a href="#">OK</a>		29.55	29.81	29.81	24.88	clear	10.00
22:53	55.0	26.1	42.6	32	17	WNW	<a href="#">OK</a>		29.54	29.80	29.80	24.87	clear	10.00
21:53	55.9	25.0	42.8	30	15	WNW	<a href="#">OK</a>		29.54	29.81	29.80	24.87	clear	10.00
20:53	55.0	25.0	42.3	31	8	W	<a href="#">OK</a>		29.55	29.81	29.81	24.88	clear	10.00
19:53	55.9	24.1	42.5	29	8	WNW	<a href="#">OK</a>		29.55	29.82	29.81	24.88	clear	10.00
18:53	57.9	21.9	43.0	25	14	NW	<a href="#">OK</a>		29.56	29.83	29.82	24.89	clear	10.00
17:53	61.0	19.0	43.9	20	22	25	NW	<a href="#">OK</a>	29.56	29.82	29.82	24.89	mostly cloudy	9.00
16:53	63.0	19.9	45.1	19	20	26	NNW	<a href="#">OK</a>	29.56	29.83	29.82	24.89	overcast	10.00
15:53	66.0	19.9	46.5	17	17	25	NNW	<a href="#">OK</a>	29.57	29.83	29.83	24.89	clear	7.00
14:53	66.0	17.1	46.0	15	18	28	NNW	<a href="#">OK</a>	29.58	29.84	29.84	24.90	clear	8.00
13:53	66.0	21.0	46.8	18	16	26	NNW	<a href="#">OK</a>	29.61	29.87	29.87	24.93	clear	9.00
12:53	64.9	23.0	46.7	20	16	23	NW	<a href="#">OK</a>	29.65	29.91	29.91	24.96	clear	9.00
11:53	63.0	27.0	46.8	25	9	20	NW	<a href="#">OK</a>	29.67	29.93	29.93	24.98	clear	10.00
10:53	60.1	28.0	45.7	29	16	25	NW	<a href="#">OK</a>	29.68	29.94	29.94	24.99	clear	8.00
9:53	57.0	28.9	44.5	34	20	26	NW	<a href="#">OK</a>	29.68	29.95	29.94	24.99	clear	9.00
8:53	53.1	30.0	42.8	41	9		NW	<a href="#">OK</a>	29.68	29.95	29.94	24.99	clear	10.00
7:53	50.0	28.9	40.9	44	10		NNW	<a href="#">OK</a>	29.67	29.93	29.93	24.98	clear	10.00
6:53	50.0	28.0	40.6	42	13		NW	<a href="#">OK</a>	29.66	29.92	29.92	24.97	clear	10.00
5:53	50.0	28.0	40.6	42	10		NW	<a href="#">OK</a>	29.65	29.91	29.91	24.96	clear	10.00
4:53	48.0	26.1	39.0	42	8		NW	<a href="#">OK</a>	29.65	29.91	29.91	24.96	clear	10.00
3:53	50.0	26.1	40.0	39	8		NW	<a href="#">OK</a>	29.64	29.90	29.90	24.95	clear	10.00
2:53	52.0	25.0	40.8	35	9		NNW	<a href="#">OK</a>	29.64	29.90	29.90	24.95	clear	10.00
1:53	53.1	25.0	41.3	33	7		NNW	<a href="#">OK</a>	29.65	29.91	29.91	24.96	clear	10.00
0:53	55.0	24.1	42.1	30	12		NW	<a href="#">OK</a>	29.63	29.89	29.89	24.94	clear	10.00
23:53	57.9	21.9	43.0	25	13		NW	<a href="#">OK</a>	29.63	29.89	29.89	24.94	clear	10.00

Source: University of Utah MesoWest

### Past Weather Conditions for KBFL

Tabular Listing: October 8, 2008 - 0:00 through October 09, 2008 - 00:00 PDT

Time(PDT)	Temperature	Dew	Wet Bulb	Relative	Wind	Wind	Wind	Quality	Pressure	Sea level	Altimeter	1500 m	Weather	Visibility
	Point	Temperature	Humidity	Speed	Gust	Direction	check		pressure			Pressure	conditions	
	° F	° F	° F	%	mph	mph			in	in	in	in		miles
23:54	68.0	48.2	56.5	49	3		NE	<a href="#">OK</a>	29.31	29.84	29.86	24.92	clear	10.00
22:54	71.1	48.9	58.1	45	0			<a href="#">OK</a>	29.32	29.85	29.87	24.93	clear	10.00
21:54	73.0	48.9	58.8	43	0			<a href="#">OK</a>	29.31	29.85	29.86	24.92	clear	10.00
20:54	73.0	48.9	58.8	43	5		ENE	<a href="#">OK</a>	29.31	29.84	29.86	24.92	clear	10.00
19:54	75.9	48.9	59.9	39	3		NE	<a href="#">OK</a>	29.32	29.85	29.87	24.93	clear	10.00
18:54	79.0	53.1	62.9	41	3		NNW	<a href="#">OK</a>	29.32	29.85	29.87	24.93	clear	10.00
17:54	82.9	52.0	63.7	34	7		NW	<a href="#">OK</a>	29.31	29.85	29.86	24.92	clear	10.00
16:54	84.0	52.0	64.1	33	8		WNW	<a href="#">OK</a>	29.32	29.86	29.87	24.93	clear	10.00
15:54	84.9	53.1	64.9	34	9		NW	<a href="#">OK</a>	29.33	29.86	29.88	24.93	clear	10.00
14:54	84.9	53.1	64.9	34	9	18	WNW	<a href="#">OK</a>	29.34	29.87	29.89	24.94	clear	10.00
13:54	84.0	53.1	64.6	35	10		WNW	<a href="#">OK</a>	29.36	29.89	29.91	24.96	clear	10.00
12:54	82.9	52.0	63.7	34	6			<a href="#">OK</a>	29.40	29.93	29.95	24.99	clear	7.00
11:54	79.0	51.1	62.0	38	5			<a href="#">OK</a>	29.43	29.96	29.98	25.02	clear	8.00
10:54	77.0	50.0	60.8	39	0			<a href="#">OK</a>	29.45	29.98	30.00	25.04	clear	10.00
9:54	73.0	50.0	59.3	44	6		SSE	<a href="#">OK</a>	29.47	30.00	30.02	25.05	clear	9.00
8:54	69.1	51.1	58.4	53	3		SSE	<a href="#">OK</a>	29.47	30.00	30.02	25.05	clear	8.00
7:54	64.0	50.0	55.9	60	0			<a href="#">OK</a>	29.47	30.00	30.02	25.05	clear	7.00
6:54	61.0	48.9	54.1	64	0			<a href="#">OK</a>	29.46	29.99	30.01	25.04	clear	7.00
5:54	62.1	51.1	55.7	67	3		NW	<a href="#">OK</a>	29.46	30.00	30.01	25.04	clear	8.00
4:54	62.1	50.0	55.1	65	0			<a href="#">OK</a>	29.46	30.00	30.01	25.04	clear	9.00
3:54	66.9	50.0	57.0	55	0			<a href="#">OK</a>	29.46	29.99	30.01	25.04	clear	10.00
2:54	66.9	50.0	57.0	55	0			<a href="#">OK</a>	29.47	30.01	30.02	25.05	clear	10.00
1:54	66.9	50.0	57.0	55	3		E	<a href="#">OK</a>	29.49	30.03	30.04	25.07	clear	10.00
0:54	66.9	51.1	57.6	57	0			<a href="#">OK</a>	29.50	30.03	30.05	25.08	clear	10.00
23:54	70.0	51.1	58.7	51	0			<a href="#">OK</a>	29.51	30.04	30.06	25.09	clear	10.00

Source: University of Utah MesoWest

### Past Weather Conditions for KBFL

Tabular Listing: October 9, 2008 - 0:00 through October 10, 2008 - 00:00 PDT

Time(PDT)	Temperature	Dew	Wet Bulb	Relative	Wind	Wind	Quality	Pressure	Sea level	Altimeter	1500 m	Weather	Visibility
	Point	Temperature	Humidity	Speed	Direction		check	pressure			Pressure	conditions	
	° F	° F	° F	%	mph			in	in	in	in		miles
23:54	54.0	21.9	41.0	28	0		<u>OK</u>	29.38	29.91	29.93	24.98	clear	10.00
22:54	54.0	24.1	41.5	31	7	NNW	<u>OK</u>	29.37	29.91	29.92	24.97	clear	9.00
21:54	61.0	21.9	44.5	22	8	W	<u>OK</u>	29.36	29.90	29.91	24.96	clear	8.00
20:54	63.0	26.1	46.4	24	9	WNW	<u>OK</u>	29.34	29.88	29.89	24.94	haze	6.00
19:54	66.0	30.9	49.2	27	10	NW	<u>OK</u>	29.32	29.86	29.87	24.93	haze	5.00
18:54	70.0	30.9	50.9	23	12	NW	<u>OK</u>	29.30	29.83	29.84	24.90	haze	5.00
17:54	75.0	36.0	54.6	24	12	NNW	<u>OK</u>	29.28	29.80	29.82	24.88	haze	5.00
16:54	77.0	42.8	57.7	30	10	NNW	<u>OK</u>	29.28	29.80	29.82	24.88	haze	6.00
15:54	77.0	44.6	58.4	32	13	NW	<u>OK</u>	29.29	29.82	29.83	24.89	haze	6.00
14:54	77.0	42.8	57.7	30	10	NW	<u>OK</u>	29.30	29.83	29.85	24.91	haze	3.00
13:54	75.9	44.1	57.8	32	10	WNW	<u>OK</u>	29.32	29.85	29.87	24.93	clear	7.00
12:54	73.9	44.1	57.1	34	9	WNW	<u>OK</u>	29.34	29.88	29.89	24.94	clear	7.00
11:54	73.0	45.0	57.1	37	13	NW	<u>OK</u>	29.36	29.89	29.91	24.96	clear	10.00
10:54	70.0	45.0	55.9	41	13	NW	<u>OK</u>	29.35	29.89	29.90	24.95	clear	10.00
9:54	68.0	46.4	55.7	46	9	WNW	<u>OK</u>	29.36	29.89	29.91	24.96	clear	10.00
8:54	68.0	46.4	55.7	46	14	NNW	<u>OK</u>	29.34	29.88	29.89	24.94	clear	10.00
7:54	62.1	48.0	54.1	60	7	N	<u>OK</u>	29.32	29.85	29.87	24.93	clear	8.00
6:54	63.0	48.9	54.9	60	0		<u>OK</u>	29.30	29.83	29.85	24.91	clear	10.00
5:54	62.1	48.9	54.5	62	5	SSE	<u>OK</u>	29.30	29.83	29.84	24.90	clear	9.00
4:54	64.9	51.1	56.8	61	7	SE	<u>OK</u>	29.29	29.82	29.83	24.89	clear	9.00
3:54	64.9	52.0	57.2	63	5	SE	<u>OK</u>	29.30	29.82	29.84	24.90	clear	9.00
2:54	66.0	52.0	57.6	61	0		<u>OK</u>	29.30	29.82	29.84	24.90	clear	9.00
1:54	64.0	48.9	55.3	58	3	NW	<u>OK</u>	29.30	29.83	29.85	24.91	clear	9.00
0:54	71.1	51.1	59.1	49	5	SE	<u>OK</u>	29.30	29.83	29.85	24.91	clear	10.00
23:54	68.0	48.2	56.5	49	3	NE	<u>OK</u>	29.31	29.84	29.86	24.92	clear	10.00

Source: University of Utah MesoWest

### Past Weather Conditions for KBFL

Tabular Listing: October 10, 2008 - 0:00 through October 11, 2008 - 00:00 PDT

Time(PDT)	Temperature	Dew	Wet Bulb	Relative	Wind	Wind	Wind	Quality	Pressure	Sea level	Altimeter	1500 m	Weather	Visibility
	Point	Temperature	Humidity	Speed	Gust	Direction	check		pressure		Pressure	conditions		
	° F	° F	° F	%	mph	mph			in	in	in	in		miles
23:54	50.0	21.2	38.7	32	5		ENE	<a href="#">OK</a>	29.29	29.83	29.83	24.89	clear	10.00
22:54	52.0	24.1	40.5	33	0			<a href="#">OK</a>	29.30	29.83	29.84	24.90	clear	10.00
21:54	54.0	23.0	41.2	30	5		W	<a href="#">OK</a>	29.30	29.83	29.84	24.90	partly cloudy	10.00
20:54	55.9	21.9	41.9	26	12		NW	<a href="#">OK</a>	29.29	29.82	29.83	24.89	mostly cloudy	10.00
19:54	57.9	23.0	43.2	26	12		WNW	<a href="#">OK</a>	29.28	29.81	29.82	24.88	overcast	10.00
18:54	59.0	19.4	42.9	21	14		NNW	<a href="#">OK</a>	29.26	29.80	29.80	24.87	clear	10.00
17:54	62.1	16.0	43.7	16	21		NNW	<a href="#">OK</a>	29.24	29.78	29.78	24.85	clear	10.00
16:54	64.0	23.0	46.2	21	13	17	NW	<a href="#">OK</a>	29.25	29.78	29.79	24.86	clear	10.00
15:54	64.9	24.1	46.8	21	13	22	NNW	<a href="#">OK</a>	29.26	29.79	29.80	24.87	clear	10.00
14:54	64.0	24.1	46.4	22	6		NNW	<a href="#">OK</a>	29.29	29.82	29.83	24.89	clear	10.00
13:54	63.0	25.0	46.2	23	8		WNW	<a href="#">OK</a>	29.31	29.85	29.86	24.92	clear	10.00
12:54	62.1	27.0	46.3	26	7		N	<a href="#">OK</a>	29.36	29.90	29.91	24.96	clear	10.00
11:54	59.0	26.6	44.7	29	3			<a href="#">OK</a>	29.39	29.93	29.94	24.99	clear	10.00
10:54	57.0	28.0	44.1	33	3			<a href="#">OK</a>	29.41	29.96	29.96	25.00	clear	10.00
9:54	55.9	27.0	43.3	33	6			<a href="#">OK</a>	29.42	29.96	29.97	25.01	clear	10.00
8:54	52.0	27.0	41.3	38	3		W	<a href="#">OK</a>	29.42	29.96	29.97	25.01	clear	10.00
7:54	50.0	26.6	40.2	40	6		WNW	<a href="#">OK</a>	29.39	29.93	29.94	24.99	clear	10.00
6:54	46.9	19.0	36.5	33	0			<a href="#">OK</a>	29.38	29.92	29.93	24.98	clear	10.00
5:54	48.9	21.9	38.3	34	0			<a href="#">OK</a>	29.37	29.91	29.92	24.97	clear	10.00
4:54	51.1	21.9	39.4	32	3		E	<a href="#">OK</a>	29.36	29.90	29.91	24.96	clear	10.00
3:54	52.0	21.9	39.9	31	3		ESE	<a href="#">OK</a>	29.36	29.89	29.91	24.96	clear	10.00
2:54	50.0	21.2	38.7	32	0			<a href="#">OK</a>	29.37	29.91	29.92	24.97	clear	10.00
1:54	53.1	19.9	40.0	27	3		E	<a href="#">OK</a>	29.38	29.91	29.93	24.98	clear	10.00
0:54	54.0	21.9	40.9	28	0			<a href="#">OK</a>	29.37	29.91	29.92	24.97	clear	10.00
23:54	54.0	21.9	41.0	28	0			<a href="#">OK</a>	29.38	29.91	29.93	24.98	clear	10.00

Source: University of Utah MesoWest

**Past Weather Conditions for KNLC**

Tabular Listing: October 9, 2008 - 0:00 through October 10, 2008 - 00:00 PDT

Time(PDT)	Temperature	Dew	Wet Bulb	Relative	Wind	Wind	Wind	Quality	Pressure	Sea level	Altimeter	1500 m	Weather	Visibility
	Point	Temperature	Humidity	Speed	Gust	Direction	check		pressure	pressure	Pressure	conditions		miles
	° F	° F	° F	%	mph	mph			in	in	in	in		
23:56	62.1	18.0	44.2	18	21	NW	Caution		29.64	29.89	29.89	24.94	blowing dust	6.00
22:56	62.1	16.0	43.9	16	17	NW	Caution		29.64	29.89	29.89	24.94	blowing dust	6.00
21:56	63.0	15.1	44.1	15	23	NW	Caution		29.63	29.88	29.88	24.94	blowing dust	6.00
20:56	62.1	12.9	43.3	14	15	NW	OK		29.62	29.87	29.87	24.93	blowing dust	6.00
19:56	64.0	15.1	44.7	15	18	NW	OK		29.63	29.88	29.88	24.94	blowing dust	5.00
18:56	66.9	12.9	45.7	12	20	NW	OK		29.62	29.87	29.87	24.93	blowing dust	5.00
17:56	71.1	15.1	48.0	12	24	35 NW	OK		29.60	29.85	29.85	24.91	blowing dust	5.00
16:56	75.0	21.9	51.0	14	29	40 NW	OK		29.60	29.85	29.85	24.91	blowing dust	5.00
15:56	77.0	27.0	53.0	16	29	36 NNW	OK		29.60	29.85	29.85	24.91	blowing dust	5.00
14:56	78.1	26.1	53.3	15	29	36 NNW	OK		29.61	29.86	29.86	24.92	blowing dust	6.00
13:56	78.1	32.0	54.7	19	31	37 NW	OK		29.62	29.87	29.87	24.93	blowing dust	6.00
12:56	78.1	35.1	55.6	21	30	38 NNW	OK		29.65	29.90	29.90	24.95	blowing dust	6.00
12:02	75.2	35.6	54.6	24	26	40 NW	OK		29.66		29.91	24.96	blowing dust	3.00
11:56	75.0	35.1	54.4	23	33	40 NNW	OK		29.66	29.90	29.91	24.96	blowing dust	2.50
11:38	73.4	35.6	53.9	25	33	43 NW	OK		29.65		29.90	24.95	blowing dust	1.25
11:26	73.4	37.4	54.5	27	30	39 NW	OK		29.65		29.90	24.95	blowing dust	2.00
10:56	73.9	39.0	55.2	28	33	39 NW	OK		29.65	29.89	29.90	24.95	blowing dust	3.00
10:31	71.6	39.2	54.4	31	28	36 NW	OK		29.65		29.90	24.95	blowing dust	3.00
10:04	71.6	39.2	54.4	31	35	41 NW	OK		29.65		29.90	24.95	blowing dust	2.50
9:56	71.1	41.0	54.8	34	26	37 NNW	OK		29.65	29.90	29.90	24.95	blowing dust	1.75
9:51	71.6	39.2	54.4	31	29	39 NNW	OK		29.65		29.90	24.95	blowing dust	1.75
8:56	66.9	45.0	54.7	45	17	NW	OK		29.65	29.89	29.90	24.95	clear	10.00
7:56	60.1	45.0	51.9	57	15	NNW	OK		29.63	29.88	29.88	24.94	clear	10.00
6:56	57.9	42.1	49.6	55	12	NW	OK		29.63	29.87	29.88	24.94	clear	10.00
5:56	57.9	39.9	48.7	51	12	NW	OK		29.61	29.86	29.86	24.92	clear	10.00
4:56	55.0	36.0	45.8	48	6	WNW	OK		29.59	29.84	29.84	24.90	clear	10.00
3:56	55.9	37.0	46.7	49	6	WNW	OK		29.58	29.83	29.83	24.89	clear	10.00
2:56	55.9	36.0	46.3	47	8	W	OK		29.59	29.84	29.84	24.90	clear	10.00
1:56	57.9	36.0	47.2	44	6	W	OK		29.59	29.84	29.84	24.90	clear	10.00
0:56	60.1	37.9	48.9	44	6	WSW	OK		29.60	29.84	29.85	24.91	clear	10.00
23:56	62.1	39.0	50.2	43	8	W	OK		29.61	29.85	29.86	24.92	clear	9.00

Source: University of Utah MesoWest

**Past Weather Conditions for KNLC**

Tabular Listing: October 10, 2008 - 0:00 through October 11, 2008 - 00:00 PDT

Time(PDT)	Temperature	Dew	Wet Bulb	Relative	Wind	Wind	Wind	Quality	Pressure	Sea level	Altimeter	1500 m	Weather	Visibility
	Point	Temperature	Humidity	Speed	Gust	Direction	check		pressure	pressure	Pressure	conditions		
	° F	° F	° F	%	mph	mph			in	in	in	in		miles
23:56	55.0	21.0	41.3	26	13		NW	<u>OK</u>	29.57	29.82	29.82	24.89	clear	10.00
22:56	57.0	21.9	42.6	25	22		NW	<u>OK</u>	29.56	29.81	29.81	24.88	clear	10.00
21:56	57.9	21.9	43.0	25	22		NW	<u>OK</u>	29.56	29.81	29.81	24.88	clear	10.00
20:56	57.0	21.9	42.6	25	15		WNW	<u>OK</u>	29.56	29.81	29.81	24.88	clear	10.00
19:56	57.0	21.9	42.6	25	12		WNW	<u>OK</u>	29.57	29.82	29.82	24.89	clear	10.00
18:56	57.9	21.0	42.8	24	15		NW	<u>OK</u>	29.58	29.83	29.83	24.89	clear	10.00
17:56	61.0	19.9	44.1	20	31	41	NNW	<u>OK</u>	29.57	29.82	29.82	24.89	mostly clear	10.00
16:56	63.0	18.0	44.7	17	26	36	NNW	<u>OK</u>	29.57	29.82	29.82	24.89	mostly cloudy	7.00
15:56	66.0	19.9	46.5	17	26	33	NNW	<u>OK</u>	29.58	29.82	29.83	24.89	partly cloudy	8.00
14:56	68.0	19.0	47.3	15	25	31	NNW	<u>OK</u>	29.59	29.83	29.84	24.90	mostly clear	10.00
13:56	66.9	17.1	46.4	15	24	35	NNW	<u>OK</u>	29.61	29.86	29.86	24.92	clear	9.00
12:56	66.0	23.0	47.2	19	23	33	NNW	<u>OK</u>	29.65	29.90	29.90	24.95	clear	10.00
11:56	64.0	23.0	46.3	21	29	37	NW	<u>OK</u>	29.68	29.93	29.93	24.98	clear	10.00
10:56	63.0	24.1	46.0	23	26	36	NNW	<u>OK</u>	29.69	29.94	29.94	24.99	clear	10.00
9:56	61.0	26.1	45.6	26	29	36	NW	<u>OK</u>	29.69	29.94	29.94	24.99	clear	10.00
8:56	57.9	27.0	44.3	30	33	39	NW	<u>OK</u>	29.69	29.93	29.94	24.99	mostly clear	10.00
7:56	55.0	27.0	42.9	34	24	31	NW	<u>OK</u>	29.68	29.92	29.93	24.98	mostly clear	10.00
6:56	53.1	28.0	42.2	38	16		NW	<u>OK</u>	29.67	29.92	29.92	24.97	clear	10.00
5:56	53.1	27.0	41.9	36	16		NNW	<u>OK</u>	29.66	29.91	29.91	24.96	blowing dust	10.00
4:56	54.0	25.0	41.8	32	15		NNW	<u>OK</u>	29.66	29.90	29.91	24.96	blowing dust	10.00
3:56	55.0	24.1	42.1	30	15		NW	<u>OK</u>	29.65	29.89	29.90	24.95	blowing dust	10.00
2:56	57.0	23.0	42.8	27	18		NW	<u>OK</u>	29.66	29.91	29.91	24.96	blowing dust	10.00
1:56	59.0	19.9	43.1	22	20		NW	<u>Caution</u>	29.65	29.90	29.90	24.95	blowing dust	10.00
0:56	61.0	18.0	43.7	19	18		NW	<u>Caution</u>	29.64	29.88	29.89	24.94	blowing dust	6.00
23:56	62.1	18.0	44.2	18	21		NW	<u>Caution</u>	29.64	29.89	29.89	24.94	blowing dust	6.00



Source: University of Utah MesoWest

Alpaugh - San Joaquin Valley - Station 203

Date	Hour	ETo (in)	Precip (in)	Sol Rad (Ly/day)	Vapor Pressure (mBars)	Air Temp (°F)	Rel Hum (%)	Dew Point (°F)	Wind Speed (MPH)	Wind Dir (0-360)	Soil Temp (°F)
10/08/2008	0100	0.00	0.00	0	12.1	55.3	81	49.7	1.4	139.4	69.2
	0200	0.00 R	0.00	0	11.5	54.0	81	48.2	1.0	96.5	68.9
	0300	0.00	0.00	0	11.4	53.3	82	47.9	1.7	168.0	68.6
	0400	0.00	0.00	0	11.0	52.1	83	47.1	1.6	185.2	68.4
	0500	0.00	0.00	0	10.9	50.0	89	46.8	1.9	104.1	68.1
	0600	0.00	0.00	2	10.5	49.6	86	45.7	2.4	149.6	67.9
	0700	0.00	0.00	137	10.3	52.3	77	45.4	2.2	174.4	67.6
	0800	0.00	0.00	485	12.0	62.3	62	49.3	1.3	134.6	67.4
	0900	0.01	0.00	833	13.3	72.3	49	52.1	1.3	55.7	67.2
	1000	0.02	0.00	1136	12.8	77.9	39	51.0	2.9	314.5	67.2
	1100	0.02	0.00	1347	12.2	80.7	34	49.9	4.0	300.8	67.3
	1200	0.02	0.00	1443	12.3	83.9	31	50.1	5.3	327.9	67.6
	1300	0.02	0.00	1400	12.5	85.9	30	50.5	7.3	337.9	68.0
	1400	0.02	0.00	1244	12.5	87.1	29	50.5	6.6	344.3	68.4
	1500	0.02	0.00	993	11.5	87.5	26	48.2	6.4	316.6	69.0
	1600	0.01	0.00	663	10.7	86.8	25	46.2	6.5	296.0	69.5
	1700	0.01	0.00	296	11.0	84.4	27	47.1	6.3	304.7	69.9
	1800	0.00	0.00	20	11.9	77.7	37	49.1	3.2	303.9	70.1
	1900	0.00	0.00	0	11.9	71.6	45	49.1	1.2	328.4	70.2
	2000	0.00	0.00	0	12.8	65.5	60	51.0	1.2	41.0	70.1
	2100	0.00	0.00	0	12.8	63.6	64	51.0	1.1	6.4	69.9
	2200	0.00	0.00	0	12.4	62.6	64	50.2	3.0	236.2	69.7
	2300	0.00	0.00	0	11.0	61.4	59	47.0	1.5	231.6	69.5
	2400	0.00 R	0.00	0	10.3	58.5	62	45.4	1.0	252.5	69.2
Tots/Avgs		0.15	0.00	417	11.7	68.2	55	48.7	3.0	214.6	68.7

Source: The California Irrigation Management Information System (CIMIS)

Alpaugh - San Joaquin Valley - Station 203

Date	Hour	ETo (in)	Precip (in)	Sol Rad (Ly/day)	Vapor Pressure (mBars)	Air Temp (°F)	Rel Hum (%)	Dew Point (°F)	Wind Speed (MPH)	Wind Dir (0-360)	Soil Temp (°F)
10/09/2008	0100	0.00	0.00	0	10.0	56.9	63	44.4	2.3	255.6	69.0
	0200	0.00	0.00	0	9.4	56.1	61	42.9	2.8	260.8	68.7
	0300	0.00	0.00	0	9.7	51.4	75	43.7	1.4	98.3	68.5
	0400	0.00	0.00	0	9.0	50.2	73	41.7	1.9	158.8	68.2
	0500	0.00	0.00	0	8.8	52.3	66	41.1	2.6	217.3	67.9
	0600	0.00	0.00	2	8.6	50.6	69	40.7	3.4	262.7	67.6
	0700	0.00	0.00	142	9.2	52.3	69	42.3	5.4	298.4	67.4
	0800	0.01	0.00	508	10.1	60.1	57	44.8	9.6	321.6	67.1
	0900	0.01	0.00	832	9.7	67.3	43	43.8	14.5	329.4	67.0
	1000	0.02	0.00	1023	8.9	71.1	34	41.4	16.1	323.4	66.9
	1100	0.02	0.00	1206	8.6	73.8	30	40.8	16.2	324.0	67.0
	1200	0.03	0.00	1315	8.7	76.8	28	40.9	15.9	327.3	67.2
	1300	0.03	0.00	1220	7.9	78.1	24	38.4	16.3	330.3	67.5
	1400	0.02	0.00	1089	7.4	78.9	22	36.8	15.7	331.1	67.8
	1500	0.02	0.00	896	6.1	78.7	18	32.1	16.5	329.8	68.2
	1600	0.02	0.00	554	5.0	76.9	16	27.1	15.6	321.7	68.5
	1700	0.01	0.00	231	4.9	73.1	18	26.8	16.6	315.7	68.8
	1800	0.01	0.00	18	4.4	67.0	20	24.1	10.1	324.3	68.8
	1900	0.01	0.00	0	3.5	62.8	18	18.5	11.0	320.7	68.7
	2000	0.00	0.00	0	3.4	58.1	21	18.1	8.8	309.1	68.6
	2100	0.00	0.00	0	4.1	52.1	31	22.1	3.3	307.9	68.3
	2200	0.00	0.00	0	3.5	54.6	24	18.9	4.5	291.0	68.0
	2300	0.00	0.00	0	3.8	51.6	29	20.4	3.1	291.7	67.7
	2400	0.00	0.00	0	4.0	48.8	34	21.5	2.2	184.8	67.3
Tots/Avgs		0.21	0.00	377	7.0	62.5	39	33.9	9.0	284.8	67.9

Source: The California Irrigation Management Information System (CIMIS)

**APPENDIX F: Climatology**

**F1. Climate Summaries**

FRESNO WSO AP, CALIFORNIA (043257)

Period of Record Monthly Climate Summary

Period of Record : 7/ 1/1948 to 8/31/2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	54.5	61.5	67.0	74.5	83.6	91.7	98.3	96.3	90.5	79.7	65.3	54.6	76.5
Average Min. Temperature (F)	37.5	40.6	43.8	47.9	54.4	60.4	65.7	63.9	59.4	51.0	42.4	37.2	50.3
Average Total Precipitation (in.)	2.11	1.90	1.87	1.01	0.37	0.14	0.01	0.01	0.16	0.51	1.14	1.58	10.80
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 : 7/ 1/1899 to 8/31/2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	54.7	61.9	67.6	75.0	83.7	91.4	97.9	96.1	90.4	80.0	66.3	55.4	76.7
Average Min. Temperature (F)	35.2	38.6	42.1	46.4	52.5	58.3	62.4	60.4	55.3	47.2	38.7	34.6	47.6
Average Total Precipitation (in.)	1.59	1.53	1.48	0.75	0.26	0.08	0.01	0.01	0.16	0.38	0.84	1.20	8.29
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

CORCORAN IRRIG DIST, CALIFORNIA (042012)

Period of Record Monthly Climate Summary

Period of Record : 7/ 1/1948 to 8/31/2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	54.6	61.9	68.2	76.1	85.5	93.1	99.0	97.0	91.3	81.0	66.1	54.9	77.4
Average Min. Temperature (F)	36.5	39.7	42.7	46.5	52.9	58.7	63.4	61.9	57.4	49.2	40.6	35.8	48.8
Average Total Precipitation (in.)	1.48	1.34	1.13	0.66	0.23	0.05	0.01	0.01	0.16	0.32	0.73	0.98	7.09
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.: 99.5% Min. Temp.: 99.5% Precipitation: 98.9% Snowfall: 99.5% Snow Depth: 99.5%													

Source: Western Regional Climate Center

BAKERSFIELD WSO ARPT, CALIFORNIA (040442)

Period of Record Monthly Climate Summary

Period of Record : 10/1/1937 to 8/31/2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	57.4	63.6	69.0	75.8	84.3	92.1	98.7	96.6	90.9	80.6	67.3	57.8	77.8
Average Min. Temperature (F)	38.5	42.1	45.5	49.8	56.7	63.3	69.2	67.6	62.9	53.9	44.2	38.5	52.7
Average Total Precipitation (in.)	1.05	1.17	1.12	0.66	0.21	0.07	0.01	0.04	0.11	0.30	0.60	0.78	6.12
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.: 99.6% Min. Temp.: 99.6% Precipitation: 99.7% Snowfall: 92.4% Snow Depth: 92.2%													

Source: Western Regional Climate Center

## F2. Preliminary Climatological Data for October 2008

### Fresno, CA - October 2008

CXUS56 KHNX 011246

CF6FAT

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

STATION: FRESNO CA  
 MONTH: OCTOBER  
 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
										12Z								
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR
1	96	65	81	11	0	16	0.00	0.0	0	3.9	14	310	M	M	3	8	17	310
2	88	68	78	8	0	13	0.00	0.0	0	9.1	17	310	M	M	6		23	300
3	78	62	70	0	0	5	T	0.0	0	4.1	18	310	M	M	7		22	310
4	74	59	67	-3	0	2	0.08	0.0	0	8.1	17	300	M	M	6	1	22	310
5	76	53	65	-4	0	0	0.00	0.0	0	5.6	13	310	M	M	1		20	290
6	82	54	68	-1	0	3	0.00	0.0	0	2.4	9	290	M	M	0		13	270
7	86	56	71	3	0	6	0.00	0.0	0	2.5	12	300	M	M	0	8	15	290
8	87	59	73	5	0	8	0.00	0.0	0	3.2	10	280	M	M	0	8	18	280
9	80	54	67	-1	0	2	0.00	0.0	0	12.3	25	320	M	M	0		33	320
10	66	47	57	-10	8	0	0.00	0.0	0	11.6	24	310	M	M	2		32	290
11	66	41	54	-13	11	0	0.00	0.0	0	5.5	17	300	M	M	2		24	330
12	67	40	54	-13	11	0	0.00	0.0	0	3.0	10	170	M	M	0		14	170
13	73	44	59	-7	6	0	0.00	0.0	0	2.3	10	230	M	M	0	8	13	230
14	79	46	63	-3	2	0	0.00	0.0	0	1.8	7	320	M	M	0		13	220
15	84	49	67	1	0	2	0.00	0.0	0	1.7	9	300	M	M	1		20	210
16	85	50	68	3	0	3	0.00	0.0	0	2.1	7	250	M	M	0	8	8	320
17	90	53	72	7	0	7	0.00	0.0	0	1.3	7	140	M	M	3	8	21	300
18	87	58	73	9	0	8	0.00	0.0	0	5.8	12	270	M	M	5	8	15	30
19	81	53	67	3	0	2	0.00	0.0	0	3.0	10	310	M	M	4	8	14	320
20	80	51	66	2	0	1	0.00	0.0	0	4.0	14	310	M	M	1	8	17	300
21	78	49	64	1	1	0	0.00	0.0	0	1.5	8	170	M	M	3	8	23	150
22	83	52	68	5	0	3	0.00	0.0	0	0.9	5	290	M	M	0	8	10	190
23	86	51	69	7	0	4	0.00	0.0	0	2.1	7	300	M	M	0	8	14	210
24	85	52	69	7	0	4	0.00	0.0	0	2.3	8	310	M	M	1	8	24	150
25	86	53	70	8	0	5	0.00	0.0	0	1.1	7	140	M	M	1	8	12	280
26	86	52	69	8	0	4	0.00	0.0	0	1.4	7	290	M	M	0	8	16	280
27	84	52	68	7	0	3	0.00	0.0	0	2.2	9	300	M	M	5	8	13	280
28	83	55	69	9	0	4	0.00	0.0	0	1.8	8	70	M	M	3	8	21	230
29	82	52	67	7	0	2	0.00	0.0	0	1.3	7	60	M	M	5	8	9	70
30	81	56	69	10	0	4	0.03	0.0	0	6.0	18	220	M	M	8	8	24	220
31	75	61	68	9	0	3	0.12	0.0	0	4.6	20	70	M	M	8		23	60
SM	2514	1647			39	114	0.23		0.0	118.5			M		75			
AV	81.1	53.1								3.8	FASTST		M	M	2		MAX (MPH)	

MISC ----> # 25 320

# 33 320

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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

STATION: FRESNO CA

MONTH: OCTOBER

YEAR: 2008

LATITUDE: 36 46 N

LONGITUDE: 119 43 W

[TEMPERATURE DATA]

AVERAGE MONTHLY: 67.1  
 DPTR FM NORMAL: 2.1  
 HIGHEST: 96 ON 1  
 LOWEST: 40 ON 12

[PRECIPITATION DATA]

TOTAL FOR MONTH: 0.23  
 DPTR FM NORMAL: -0.42  
 GRTST 24HR 0.15 ON 30-31  
 SNOW, ICE PELLETS, HAIL  
 TOTAL MONTH: 0.0 INCH  
 GRTST 24HR 0.0  
 GRTST DEPTH: 0

SYMBOLS USED IN COLUMN 16

- 1 = FOG OR MIST
- 2 = FOG REDUCING VISIBILITY TO 1/4 MILE OR LESS
- 3 = THUNDER
- 4 = ICE PELLETS
- 5 = HAIL
- 6 = FREEZING RAIN OR DRIZZLE
- 7 = DUSTSTORM OR SANDSTORM: VSBY 1/2 MILE OR LESS
- 8 = SMOKE OR HAZE
- 9 = BLOWING SNOW
- X = TORNADO

[NO. OF DAYS WITH]

MAX 32 OR BELOW: 0  
 MAX 90 OR ABOVE: 2  
 MIN 32 OR BELOW: 0  
 MIN 0 OR BELOW: 0

[WEATHER - DAYS WITH]

0.01 INCH OR MORE: 3  
 0.10 INCH OR MORE: 1  
 0.50 INCH OR MORE: 0  
 1.00 INCH OR MORE: 0

[HDD (BASE 65) ]

TOTAL THIS MO. 39  
 DPTR FM NORMAL -34  
 TOTAL FM JUL 1 39  
 DPTR FM NORMAL -37

CLEAR (SCALE 0-3) 20  
 PTCLDY (SCALE 4-7) 11  
 CLOUDY (SCALE 8-10) 0

[CDD (BASE 65) ]

TOTAL THIS MO. 114  
 DPTR FM NORMAL 25  
 TOTAL FM JAN 1 2376  
 DPTR FM NORMAL 414

[PRESSURE DATA]

HIGHEST SLP 30.33 ON 13  
 LOWEST SLP 29.75 ON 4

[REMARKS]

#FINAL-10-08#

## Hanford, CA - October 2008

CXUS56 KHNX 011246

CF6HJO

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

STATION: HANFORD CA  
 MONTH: OCTOBER  
 YEAR: 2008  
 LATITUDE: 36 19 N  
 LONGITUDE: 119 38 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	
										12Z		AVG MX		2MIN					
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR	
1	95	63	79	9	0	14	0.00	0.0	0	3.2	10	320	M	M	0	8	14	320	
2	89	67	78	8	0	13	0.00	0.0	0	9.1	17	310	M	M	0		28	360	
3	79	57	68	-2	0	3	0.00	0.0	0	4.0	17	310	M	M	0	8	21	310	
4	75	60	68	-1	0	3	0.04	0.0	0	7.7	17	320	M	M	5	1	20	330	
5	77	53	65	-4	0	0	0.00	0.0	0	5.2	14	320	M	M	0		17	320	
6	82	51	67	-2	0	2	0.00	0.0	0	3.4	9	340	M	M	0		12	320	
7	86	51	69	1	0	4	0.00	0.0	0	3.4	12	320	M	M	0		14	330	
8	87	52	70	2	0	5	0.00	0.0	0	3.1	13	310	M	M	0	18	16	300	
9	79	52	66	-2	0	1	0.00	0.0	0	12.0	24	310	M	M	0	8	30	320	
10	67	44	56	-12	9	0	0.00	0.0	0	12.7	23	330	M	M	1	8	32	340	
11	67	37	52	-15	13	0	0.00	0.0	0	8.9	22	310	M	M	0		26	310	
12	69	34	52	-15	13	0	0.00	0.0	0	3.5	12	330	M	M	0		16	320	
13	74	33	54	-13	11	0	0.00	0.0	0	2.5	10	330	M	M	0	8	14	330	
14	81	36	59	-7	6	0	0.00	0.0	0	1.7	7	320	M	M	0	8	12	280	
15	84	39	62	-4	3	0	0.00	0.0	0	2.1	8	340	M	M	0	18	12	340	
16	86	40	63	-2	2	0	0.00	0.0	0	1.7	8	320	M	M	0	18	12	20	
17	92	44	68	3	0	3	0.00	0.0	0	1.1	7	60	M	M	0	18	8	20	
18	87	53	70	5	0	5	0.00	0.0	0	5.2	14	310	M	M	0	8	18	290	
19	82	46	64	0	1	0	0.00	0.0	0	3.4	12	320	M	M	0		15	310	
20	80	48	64	0	1	0	0.00	0.0	0	5.4	12	330	M	M	0	18	16	330	
21	77	42	60	-4	5	0	0.00	0.0	0	1.6	7	40	M	M	0	18	10	50	
22	83	43	63	0	2	0	0.00	0.0	0	0.6	5	310	M	M	0	18	7	350	
23	87	43	65	2	0	0	0.00	0.0	0	0.9	6	190	M	M	0	18	8	340	
24	86	44	65	3	0	0	0.00	0.0	0	0.9	7	80	M	M	0	18	9	70	
25	86	44	65	3	0	0	0.00	0.0	0	0.8	8	340	M	M	0	18	10	330	
26	87	43	65	3	0	0	0.00	0.0	0	0.8	6	340	M	M	0	18	9	240	
27	83	42	63	2	2	0	0.00	0.0	0	1.9	8	310	M	M	0	18	12	320	
28	83	45	64	3	1	0	0.00	0.0	0	1.2	6	110	M	M	0	18	8	170	
29	84	45	65	5	0	0	0.00	0.0	0	1.3	8	60	M	M	0	18	8	200	
30	88	49	69	9	0	4	0.04	0.0	0	5.5	20	180	M	M	1	18	28	170	
31	74	57	66	7	0	1	0.06	0.0	0	2.9	15	200	M	M	4	18	20	80	
SM	2536	1457			69	58	0.14		0.0	117.7			M		11				
AV	81.8	47.0								3.8	FASTST		M	M	0		MAX (MPH)		
										MISC	---->	#	24	310			#	32	340

NOTES:

# LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

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

STATION: HANFORD CA  
 MONTH: OCTOBER  
 YEAR: 2008  
 LATITUDE: 36 19 N  
 LONGITUDE: 119 38 W

[TEMPERATURE DATA]	[PRECIPITATION DATA]	SYMBOLS USED IN COLUMN 16
AVERAGE MONTHLY: 64.4	TOTAL FOR MONTH: 0.14	1 = FOG OR MIST
DPTR FM NORMAL: -0.8	DPTR FM NORMAL: -0.28	2 = FOG REDUCING VISIBILITY
HIGHEST: 95 ON 1	GRTST 24HR 0.16 ON 13-14	TO 1/4 MILE OR LESS
LOWEST: 33 ON 13		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: 3	
MAX 90 OR ABOVE: 2	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. 69	CLEAR (SCALE 0-3) 29	
DPTR FM NORMAL -9	PTCLDY (SCALE 4-7) 2	
TOTAL FM JUL 1 69	CLOUDY (SCALE 8-10) 0	
DPTR FM NORMAL -14		
[CDD (BASE 65) ]		
TOTAL THIS MO. 58		
DPTR FM NORMAL -16	[PRESSURE DATA]	
TOTAL FM JAN 1 1913	HIGHEST SLP 30.34 ON 13	
DPTR FM NORMAL-39745	LOWEST SLP 29.77 ON 4	
[REMARKS]		
#FINAL-10-08#		



### Bakersfield, CA - October 2008

CXUS56 KHNX 011246

CF6BFL

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

STATION: BAKERSFIELD CA  
 MONTH: OCTOBER  
 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	
										12Z		AVG		MX		2MIN			
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR	
1	93	69	81	8	0	16	0.00	0.0	0	5.3	14	300	M	M	0		16	300	
2	89	65	77	5	0	12	0.00	0.0	0	6.6	14	310	M	M	0		17	320	
3	80	63	72	0	0	7	T	0.0	0	4.0	15	310	M	M	1		18	320	
4	74	60	67	-5	0	2	T	0.0	0	8.3	18	330	M	M	5		22	330	
5	74	53	64	-7	1	0	0.00	0.0	0	4.3	13	320	M	M	2		15	310	
6	79	56	68	-3	0	3	0.00	0.0	0	3.4	10	310	M	M	0		16	190	
7	84	58	71	0	0	6	0.00	0.0	0	3.4	10	320	M	M	0		14	300	
8	86	59	73	3	0	8	0.00	0.0	0	3.7	14	300	M	M	0	8	18	310	
9	79	52	66	-4	0	1	0.00	0.0	0	7.7	16	330	M	M	0	8	21	330	
10	66	46	56	-14	9	0	0.00	0.0	0	6.0	21	340	M	M	1		25	320	
11	65	44	55	-14	10	0	0.00	0.0	0	5.3	18	340	M	M	0		23	320	
12	67	43	55	-14	10	0	0.00	0.0	0	5.3	13	310	M	M	0		18	320	
13	74	45	60	-9	5	0	0.00	0.0	0	6.6	20	350	M	M	0		26	350	
14	82	48	65	-3	0	0	0.00	0.0	0	4.6	13	310	M	M	0	8	14	310	
15	83	52	68	0	0	3	0.00	0.0	0	4.0	13	320	M	M	0	8	15	310	
16	85	52	69	2	0	4	0.00	0.0	0	4.4	14	310	M	M	0	8	17	300	
17	92	54	73	6	0	8	0.00	0.0	0	4.4	15	350	M	M	0	8	18	350	
18	88	60	74	7	0	9	0.00	0.0	0	5.7	14	340	M	M	0	8	16	330	
19	81	55	68	2	0	3	0.00	0.0	0	3.9	13	310	M	M	0		16	310	
20	78	55	67	1	0	2	0.00	0.0	0	3.0	10	300	M	M	0	8	15	280	
21	75	53	64	-1	1	0	0.00	0.0	0	2.8	8	330	M	M	0		14	270	
22	88	52	70	5	0	5	0.00	0.0	0	3.2	14	30	M	M	0	8	18	30	
23	86	50	68	3	0	3	0.00	0.0	0	3.1	10	350	M	M	0	8	14	320	
24	86	53	70	6	0	5	0.00	0.0	0	3.1	10	50	M	M	0		14	310	
25	85	55	70	6	0	5	0.00	0.0	0	3.4	12	300	M	M	0	8	15	310	
26	87	55	71	8	0	6	0.00	0.0	0	4.2	14	300	M	M	0		15	300	
27	83	54	69	6	0	4	0.00	0.0	0	2.2	10	310	M	M	0	8	14	280	
28	80	53	67	5	0	2	0.00	0.0	0	3.3	9	270	M	M	0	8	12	270	
29	83	54	69	7	0	4	0.00	0.0	0	2.2	9	120	M	M	0	8	14	120	
30	86	58	72	11	0	7	T	0.0	0	12.6	32	150	M	M	1	78	40	150	
31	80	65	73	12	0	8	T	0.0	0	5.8	16	120	M	M	5	7	20	130	
SM	2518	1691			36	133	T		0.0	145.8			M		15				
AV	81.2	54.5								4.7	FASTST		M	M	0		MAX(MPH)		
										MISC	---->	#	32	150			#	40	150

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 CA  
MONTH: OCTOBER  
YEAR: 2008  
LATITUDE: 35 25 N  
LONGITUDE: 119 3 W

[TEMPERATURE DATA]	[PRECIPITATION DATA]	SYMBOLS USED IN COLUMN 16
AVERAGE MONTHLY: 67.9	TOTAL FOR MONTH: T	1 = FOG OR MIST
DPTR FM NORMAL: 0.7	DPTR FM NORMAL: -0.30	2 = FOG REDUCING VISIBILITY TO 1/4 MILE OR LESS
HIGHEST: 93 ON 1	GRTST 24HR T ON 31-31	3 = THUNDER
LOWEST: 43 ON 12	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
		9 = BLOWING SNOW
		X = TORNADO
[NO. OF DAYS WITH]	[WEATHER - DAYS WITH]	
MAX 32 OR BELOW: 0	0.01 INCH OR MORE: 0	
MAX 90 OR ABOVE: 2	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. 36	CLEAR (SCALE 0-3) 29	
DPTR FM NORMAL -19	PTCLDY (SCALE 4-7) 2	
TOTAL FM JUL 1 36	CLOUDY (SCALE 8-10) 0	
DPTR FM NORMAL -21		
[CDD (BASE 65) ]		
TOTAL THIS MO. 133		
DPTR FM NORMAL -5	[PRESSURE DATA]	
TOTAL FM JAN 1 2524	HIGHEST SLP 30.33 ON 13	
DPTR FM NORMAL 240	LOWEST SLP 29.75 ON 4	
[REMARKS]		
#FINAL-10-08#		

**APPENDIX G: AQS Printout**

User ID: FUW

RAW DATA REPORT

Report Request ID: 720607

Report Code: AMP350

Feb. 18, 2010

GEOGRAPHIC SELECTIONS

Tribal	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region	Method	Duration	Begin Date	End Date
	06	019													
	06	031													
	06	107													
	06	029													

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
	81102		

SELECTED OPTIONS

Option Type	Option Value
INCLUDE NULLS	YES
DAILY STATISTICS	MEAN
RAW DATA EVENTS	INCLUDE EVENTS
MERGE PDF FILES	YES
UNITS	STANDARD

SORT ORDER

Order	Column
1	STATE_CODE
2	COUNTY_CODE
3	SITE_ID
4	PARAMETER_CODE
5	POC

GLOBAL DATES

Start Date	End Date
2008 10 01	2008 10 31

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-019-0007 POC: 1  
 COUNTY: (019) Fresno  
 CITY: (27000) Fresno  
 SITE ADDRESS: 4706 E. DRUMMOND ST., FRESNO  
 SITE COMMENTS: ARB SITE NUMBER 1000244 NEW SITE 07/84.  
 MONITOR COMMENTS: GMW HI-VOLUME SAMPLER W/ SIERRA ANDERSON 1200 SSI INLET

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (2840) FRESNO, CA  
 LAND USE: COMMERCIAL  
 LOCATION SETTING: SUBURBAN

CAS NUMBER:  
 LATITUDE: 36.705556  
 LONGITUDE: -119.741389  
 UTM ZONE: 11  
 UTM NORTHING: 4065510  
 UTM EASTING: 255112  
 ELEVATION-MSL: 89  
 PROBE HEIGHT: 5

SUPPORT AGENCY: (0945) San Joaquin Valley Unified Air Pollution Control District  
 MONITOR TYPE: SLAMS  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQA0: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3										AG		
4												
5												
6												
7										48		
8												
9										99 IJ		
10												
11												
12												
13												
14												
15										68		
16												
17												
18												
19												
20												
21										55		
22												
23												
24												
25												
26												
27										88		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										99.		
MEAN:										71.6		
ANNUAL OBSERVATIONS:	5		ANNUAL MEAN:		71.6		ANNUAL MAX:		99.			

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-019-0008 POC: 1  
 COUNTY: (019) Fresno  
 CITY: (27000) Fresno  
 SITE ADDRESS: 3425 N FIRST ST, FRESNO  
 SITE COMMENTS: RELOCATED ABOUT 1-2/3 MI. NNW OF FRESNO-OLIVE AVENUE SITE. ARB SITE NAME (#) IS FRESNO  
 MONITOR COMMENTS: GMW HI-VOLUME SAMPLER W/SIERRA ANDERSON MODEL 1200 SSI INLET.

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (2840) FRESNO, CA  
 LAND USE: RESIDENTIAL  
 LOCATION SETTING: SUBURBAN

CAS NUMBER:  
 LATITUDE: 36.781389  
 LONGITUDE: -119.772222  
 UTM ZONE: 11  
 UTM NORTHING: 4074004  
 UTM EASTING: 252601  
 ELEVATION-MSL: 96  
 PROBE HEIGHT: 13

SUPPORT AGENCY: (0145) California Air Resources Board  
 MONITOR TYPE: SLAMS  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQA0: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Day												
1												
2												
3										30		
4												
5												
6												
7												
8												
9										78		
10												
11												
12												
13												
14												
15										55		
16												
17												
18												
19												
20												
21										AN		
22												
23										60		
24												
25												
26												
27										68		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										78.		
MEAN:										58.2		
ANNUAL OBSERVATIONS:		5										
ANNUAL MEAN:				58.2								
ANNUAL MAX:										78.		

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-019-5001 POC: 1  
 COUNTY: (019) Fresno  
 CITY: (14218) Clovis  
 SITE ADDRESS: 908 N VILLA AVE, CLOVIS  
 SITE COMMENTS: LOCATED IN CLOVIS MAINTENANCE YARD. ARB SITE NAME (#) IS CLOVIS-908 N VILLA AVE.  
 MONITOR COMMENTS: GMW HI-VOLUME SAMPLER W/ SIERRA ANDERSON 1200 SSI INLET

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (2840) FRESNO, CA  
 LAND USE: RESIDENTIAL  
 LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:  
 LATITUDE: 36.819167  
 LONGITUDE: -119.716389  
 UTM ZONE: 11  
 UTM NORTHING: 4078053  
 UTM EASTING: 257704  
 ELEVATION-MSL: 86  
 PROBE HEIGHT: 6

SUPPORT AGENCY: (0945) San Joaquin Valley Unified Air Pollution Control District  
 MONITOR TYPE: SLAMS  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQA0: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Day												
1												
2												
3										32		
4												
5												
6												
7												
8												
9										63 IJ		
10												
11												
12												
13												
14												
15										62		
16												
17												
18												
19												
20												
21										46		
22												
23												
24												
25												
26												
27										63		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										63.		
MEAN:										53.2		
ANNUAL OBSERVATIONS:		5										
ANNUAL MEAN:					53.2							
ANNUAL MAX:										63.		

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-029-0010 POC: 1  
 COUNTY: (029) Kern  
 CITY: (03526) Bakersfield  
 SITE ADDRESS: 1128 GOLDEN STATE HIGHWAY, BAKERSFIELD  
 SITE COMMENTS: INSTRUMENTS HOUSED IN OFFICE TYPE TRAILER  
 MONITOR COMMENTS: GMW HI-VOLUME SAMPLER W/ SIERRA ANDERSON 1200 SSI INLET

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (0680) BAKERSFIELD, CA  
 LAND USE: COMMERCIAL  
 LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:  
 LATITUDE: 35.385556  
 LONGITUDE: -119.014722  
 UTM ZONE: 11  
 UTM NORTHING: 3917435  
 UTM EASTING: 317002  
 ELEVATION-MSL: 151  
 PROBE HEIGHT:

SUPPORT AGENCY: (0944) San Joaquin County APCD  
 MONITOR TYPE: SLAMS  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQAO: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH												
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	
1													
2													
3										AJ			
4													
5													
6													
7													
8													
9										P 267 rj			
10													
11													
12													
13													
14													
15										109			
16													
17													
18													
19													
20													
21										84			
22													
23													
24													
25													
26													
27										117			
28													
29													
30										AN			
31													
NO.:	0	0	0	0	0	0	0	0	0	0	4	0	0
MAX:											267.		
MEAN:											144.3		

ANNUAL OBSERVATIONS: 4 ANNUAL MEAN: 144.3 ANNUAL MAX: 267.

1 Values marked with 'P' exceed the PRIMARY STANDARD of: 155  
 1 Values marked with 'S' exceed the SECONDARY STANDARD of: 155

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
AIR QUALITY SYSTEM  
RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-029-0010 POC: 3  
COUNTY: (029) Kern  
CITY: (03526) Bakersfield  
SITE ADDRESS: 1128 GOLDEN STATE HIGHWAY, BAKERSFIELD  
SITE COMMENTS: INSTRUMENTS HOUSED IN OFFICE TYPE TRAILER  
MONITOR COMMENTS:

STATE: (06) California  
AQCR: (031) SAN JOAQUIN VALLEY  
URBANIZED AREA: (0680) BAKERSFIELD, CA  
LAND USE: COMMERCIAL  
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:  
LATITUDE: 35.385556  
LONGITUDE: -119.014722  
UTM ZONE: 11  
UTM NORTHING: 3917435  
UTM EASTING: 317002  
ELEVATION-MSL: 151  
PROBE HEIGHT: 5

SUPPORT AGENCY: (0944) San Joaquin County APCD  
MONITOR TYPE: SLAMS  
COLLECTION AND ANALYSIS METHOD: MULTIPLE METHODS  
PQAO ORG: (0145) California Air Resources Board

REPORT FOR: OCTOBER 2008

DURATION: 1 HOUR  
UNITS: Micrograms/cubic meter (25 C)  
MIN DETECTABLE:

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MEAN
1	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
2	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
3	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
4	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
5	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
6	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
7	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
8	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
9	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
10	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
11	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
12	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
13	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
14	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
15	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
16	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
17	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
18	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
19	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
20	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
21	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
22	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	0	
23	AQ	AQ	AQ	AQ	AQ	AQ	AQ	AQ	AQ	AQ	AQ	AT	AT	AT	AT	113	77	92	107	118	167	156	146	131	9	123.0
24	116	129	99	103	107	87	101	159	106	105	134	96	69	90	63	76	89	102	97	117	127	140	142	118	24	107.2
25	92	76	67	72	61	56	57	93	75	71	68	89	104	104	116	118	104	93	97	155	128	116	123	116	24	93.8
26	91	95	86	84	78	79	74	67	77	69	71	71	58	63	68	65	79	89	91	137	126	131	131	103	24	86.8
27	105	76	92	89	92	147	85	114	166	150	100	120	120	120	115	113	101	114	164	141	161	131	118	115	24	118.7
28	118	98	125	131	141	122	175	210	185	159	169	162	157	147	149	149	129	147	155	157	124	131	142	152	24	147.3
29	157	151	125	119	130	128	205	185	175	134	140	150	137	155	142	128	141	163	191	167	144	127	142	121	24	148.2
30	92rj	60rj	83rj	63rj	98rj	83rj	132rj	135rj	215rj	1000rj	1000rj	1000rj	971rj	249rj	816rj	970rj	970rj	114rj	265rj	559rj	277rj	109rj	55rj	50rj	24	390.3
31	44	45	44	58	58	35	40	46	64	53	28	45	54	56	45	38	50	53	35	31	40	53	58	58	24	47.1
NO.:	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9		
MAX:	157.	151.	125.	131.	141.	147.	205.	210.	215.	1000.	1000.	1000.	971.	249.	816.	970.	970.	163.	265.	559.	277.	156.	146.	152.		
AVG:	101.9	91.3	90.1	89.9	95.6	92.1	108.6	126.1	132.9	217.6	213.8	216.6	208.8	123.0	189.3	196.7	193.3	107.4	133.6	175.8	143.8	121.6	117.4	107.1		

MONTHLY OBSERVATIONS: 201 MONTHLY MEAN: 141.5 MONTHLY MAX: 1000.

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-029-0011 POC: 1  
 COUNTY: (029) Kern  
 CITY: (48452) Mojave  
 SITE ADDRESS: 923 POOLE STREET, MOJAVE, CA 93501  
 SITE COMMENTS: ARB SITE NAME (NUMBER) IS MOJAVE-923 POOLE ST (1500252). AT MOJAVE AIRPORT ANIMAL  
 MONITOR COMMENTS: GMW HI-VOLUME SAMPLER W/ SIERRA ANDERSON 1200 SSI INLET

STATE: (06) California  
 AQCR: (033) SOUTHEAST DESERT  
 URBANIZED AREA: (0680) BAKERSFIELD, CA  
 LAND USE: MOBILE  
 LOCATION SETTING: RURAL

CAS NUMBER:  
 LATITUDE: 35.050556  
 LONGITUDE: -118.146389  
 UTM ZONE: 11  
 UTM NORTHING: 3879053  
 UTM EASTING: 395450  
 ELEVATION-MSL: 853  
 PROBE HEIGHT:

SUPPORT AGENCY: (0145) California Air Resources Board  
 MONITOR TYPE: OTHER  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQA0: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3										41		
4												
5												
6												
7												
8												
9										154 IJ		
10												
11												
12												
13												
14												
15										15		
16												
17												
18												
19												
20												
21										21		
22												
23												
24												
25												
26												
27										17		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										154.		
MEAN:										49.6		
ANNUAL OBSERVATIONS:		5										
ANNUAL MEAN:				49.6								
ANNUAL MAX:										154.		

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-029-0014 POC: 1  
 COUNTY: (029) Kern  
 CITY: (03526) Bakersfield  
 SITE ADDRESS: 5558 CALIFORNIA AVE, BAKERSFIELD  
 SITE COMMENTS:  
 MONITOR COMMENTS: GMW HI-VOL W/ SA 1200 SSI INLET - CARB PRIMARY SAMPLER

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (0680) BAKERSFIELD, CA  
 LAND USE: MOBILE  
 LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:  
 LATITUDE: 35.356111  
 LONGITUDE: -119.040278  
 UTM ZONE: 11  
 UTM NORTHING: 3914247  
 UTM EASTING: 314614  
 ELEVATION-MSL: 0  
 PROBE HEIGHT:

SUPPORT AGENCY: (0145) California Air Resources Board  
 MONITOR TYPE: SLAMS  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQAO: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3										49		
4												
5												
6												
7												
8												
9										P 256 rj		
10												
11										48		
12												
13												
14												
15										112		
16												
17												
18												
19												
20												
21										69		
22												
23												
24												
25												
26												
27										96		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	6	0	0
MAX:										256.		
MEAN:										105.0		

ANNUAL OBSERVATIONS: 6 ANNUAL MEAN: 105.0 ANNUAL MAX: 256.  
 Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

1 Values marked with 'P' exceed the PRIMARY STANDARD of: 155  
 1 Values marked with 'S' exceed the SECONDARY STANDARD of: 155

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-029-0014 POC: 2  
 COUNTY: (029) Kern  
 CITY: (03526) Bakersfield  
 SITE ADDRESS: 5558 CALIFORNIA AVE, BAKERSFIELD  
 SITE COMMENTS:  
 MONITOR COMMENTS: GMW HI-VOL W/ SA 1200 SSI INLET - CARB COLLOCATED SAMPLER

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (0680) BAKERSFIELD, CA  
 LAND USE: MOBILE  
 LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:  
 LATITUDE: 35.356111  
 LONGITUDE: -119.040278  
 UTM ZONE: 11  
 UTM NORTHING: 3914247  
 UTM EASTING: 314614  
 ELEVATION-MSL: 0  
 PROBE HEIGHT:

SUPPORT AGENCY: (0145) California Air Resources Board  
 MONITOR TYPE: OTHER  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQA0: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3										AN		
4												
5												
6												
7												
8												
9										P 262 rj		
10												
11										59		
12												
13												
14												
15										111		
16												
17												
18												
19												
20												
21										68		
22												
23												
24												
25												
26												
27										96		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										262.		
MEAN:										119.2		

ANNUAL OBSERVATIONS: 5 ANNUAL MEAN: 119.2 ANNUAL MAX: 262. 1 Values marked with 'P' exceed the PRIMARY STANDARD of: 155  
 1 Values marked with 'S' exceed the SECONDARY STANDARD of: 155

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-029-0015 POC: 1  
 COUNTY: (029) Kern  
 CITY: (60704) Ridgecrest  
 SITE ADDRESS: 100 WEST CALIFORNIA AVE, RIDGECREST, CA  
 SITE COMMENTS: CARB SITE NUMBER 15-300.  
 MONITOR COMMENTS: GMW HI-VOLUME SAMPLER W/ SIERRA ANDERSON 1200 SSI INLET

STATE: (06) California  
 AQCR: (033) SOUTHEAST DESERT  
 URBANIZED AREA: (0000) NOT IN AN URBAN AREA  
 LAND USE: COMMERCIAL  
 LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:  
 LATITUDE: 35.623889  
 LONGITUDE: -117.677222  
 UTM ZONE: 11  
 UTM NORTHING: 3942245  
 UTM EASTING: 438673  
 ELEVATION-MSL: 701  
 PROBE HEIGHT: 3

SUPPORT AGENCY: (0575) Kern County APCD  
 MONITOR TYPE: SLAMS  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQAO: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3										26		
4												
5												
6												
7												
8												
9										57		
10												
11												
12												
13												
14												
15										27		
16												
17												
18												
19												
20												
21										31		
22												
23												
24												
25												
26												
27										39		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										57.		
MEAN:										36.0		
ANNUAL OBSERVATIONS:	5		ANNUAL MEAN:		36.0		ANNUAL MAX:		57.			

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-029-0232 POC: 2  
 COUNTY: (029) Kern  
 CITY: (53448) Oildale  
 SITE ADDRESS: 3311 MANOR ST., OILDALE  
 SITE COMMENTS: ARB SITE NUMBER 1500243 NEW SITE 10/83.  
 MONITOR COMMENTS: GMW HI-VOLUME SAMPLER W/ SIERRA ANDERSON 1200 SSI INLET

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (0680) BAKERSFIELD, CA  
 LAND USE: INDUSTRIAL  
 LOCATION SETTING: SUBURBAN

CAS NUMBER:  
 LATITUDE: 35.438889  
 LONGITUDE: -119.015833  
 UTM ZONE: 11  
 UTM NORTHING: 3923383  
 UTM EASTING: 317022  
 ELEVATION-MSL: 180  
 PROBE HEIGHT:

SUPPORT AGENCY: (0145) California Air Resources Board  
 MONITOR TYPE: SLAMS  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQAO: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3										57		
4												
5												
6												
7												
8												
9										P 224 rj		
10												
11												
12												
13												
14												
15										105		
16												
17												
18												
19												
20												
21										72		
22												
23												
24												
25												
26												
27										108		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										224.		
MEAN:										113.2		

ANNUAL OBSERVATIONS: 5 ANNUAL MEAN: 113.2 ANNUAL MAX: 224. 1 Values marked with 'P' exceed the PRIMARY STANDARD of: 155  
 1 Values marked with 'S' exceed the SECONDARY STANDARD of: 155  
 Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-031-0004 POC: 1  
 COUNTY: (031) Kings  
 CITY: (16224) Corcoran  
 SITE ADDRESS: 1520 PATTERSON AV., CORCORAN  
 SITE COMMENTS: SITE IS PARALLEL MONITOR TO 06-031-0003 WHICH IS TO BE CLOSED MID 97  
 MONITOR COMMENTS: PARALLEL SITE TO 06-031-0003. GMW HI-VOL SA 1200 SSI INLET

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (0000) NOT IN AN URBAN AREA  
 LAND USE: RESIDENTIAL  
 LOCATION SETTING: SUBURBAN

CAS NUMBER:  
 LATITUDE: 36.101389  
 LONGITUDE: -119.565833  
 UTM ZONE: 11  
 UTM NORTHING: 3998073  
 UTM EASTING: 269015  
 ELEVATION-MSL: 61  
 PROBE HEIGHT: 6

SUPPORT AGENCY: (0945) San Joaquin Valley Unified Air Pollution Control District  
 MONITOR TYPE: OTHER  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQA0: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3										51		
4												
5												
6												
7												
8												
9										P 306 rj		
10												
11												
12												
13												
14												
15										107		
16												
17												
18												
19												
20												
21										82		
22												
23												
24												
25												
26												
27										120		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										306.		
MEAN:										133.2		

ANNUAL OBSERVATIONS: 5 ANNUAL MEAN: 133.2 ANNUAL MAX: 306. 1 Values marked with 'P' exceed the PRIMARY STANDARD of: 155  
 1 Values marked with 'S' exceed the SECONDARY STANDARD of: 155  
 Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-031-0004 POC: 3  
 COUNTY: (031) Kings  
 CITY: (16224) Corcoran  
 SITE ADDRESS: 1520 PATTERSON AV., CORCORAN  
 SITE COMMENTS: SITE IS PARALLEL MONITOR TO 06-031-0003 WHICH IS TO BE CLOSED MID 97  
 MONITOR COMMENTS: GMW HI-VOL SSI SIERRA ANDERSON COLLOCATED

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (0000) NOT IN AN URBAN AREA  
 LAND USE: RESIDENTIAL  
 LOCATION SETTING: SUBURBAN

CAS NUMBER:  
 LATITUDE: 36.101389  
 LONGITUDE: -119.565833  
 UTM ZONE: 11  
 UTM NORTHING: 3998073  
 UTM EASTING: 269015  
 ELEVATION-MSL: 61  
 PROBE HEIGHT:

SUPPORT AGENCY: (0945) San Joaquin Valley Unified Air Pollution Control District  
 MONITOR TYPE: OTHER  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQA0: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3										53		
4												
5												
6												
7												
8												
9										P 350 rj		
10												
11												
12												
13												
14												
15										112		
16												
17												
18												
19												
20												
21										88		
22												
23												
24												
25												
26												
27										124		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										350.		
MEAN:										145.4		

ANNUAL OBSERVATIONS: 5 ANNUAL MEAN: 145.4 ANNUAL MAX: 350. 1 Values marked with 'P' exceed the PRIMARY STANDARD of: 155  
 1 Values marked with 'S' exceed the SECONDARY STANDARD of: 155  
 Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-031-0004 POC: 4  
 COUNTY: (031) Kings  
 CITY: (16224) Corcoran  
 SITE ADDRESS: 1520 PATTERSON AV., CORCORAN  
 SITE COMMENTS: SITE IS PARALLEL MONITOR TO 06-031-0003 WHICH IS TO BE CLOSED MID 97  
 MONITOR COMMENTS: GMW HI-VOL SSI SIERRA ANDERSON ALTERNATE 6 DAY SAMPLING

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (0000) NOT IN AN URBAN AREA  
 LAND USE: RESIDENTIAL  
 LOCATION SETTING: SUBURBAN

CAS NUMBER:  
 LATITUDE: 36.101389  
 LONGITUDE: -119.565833  
 UTM ZONE: 11  
 UTM NORTHING: 3998073  
 UTM EASTING: 269015  
 ELEVATION-MSL: 61  
 PROBE HEIGHT:

SUPPORT AGENCY: (0945) San Joaquin Valley Unified Air Pollution Control District  
 MONITOR TYPE: OTHER  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQA0: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH												
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	
1													
2													
3													
4													
5													
6										49			
7													
8													
9													
10													
11													
12										42			
13													
14													
15													
16													
17													
18										107			
19													
20													
21													
22													
23													
24										152			
25													
26													
27													
28													
29													
30										P 224 rj			
31													
NO.:	0	0	0	0	0	0	0	0	0	0	5	0	0
MAX:											224.		
MEAN:											114.8		

ANNUAL OBSERVATIONS: 5 ANNUAL MEAN: 114.8 ANNUAL MAX: 224. 1 Values marked with 'P' exceed the PRIMARY STANDARD of: 155  
 1 Values marked with 'S' exceed the SECONDARY STANDARD of: 155

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-031-0500 POC: 1  
 COUNTY: (031) Kings  
 CITY: (70122) Santa Rosa Rancheria  
 SITE ADDRESS: 17225 Jersey Ave.  
 SITE COMMENTS:  
 MONITOR COMMENTS:

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (0000) NOT IN AN URBAN AREA  
 LAND USE: AGRICULTURAL  
 LOCATION SETTING: RURAL

CAS NUMBER:  
 LATITUDE: 36.233318  
 LONGITUDE: -119.765251  
 UTM ZONE: 11  
 UTM NORTHING: 4013172.63  
 UTM EASTING: 251475.44  
 ELEVATION-MSL: 68  
 PROBE HEIGHT:

SUPPORT AGENCY: (542) Santa Rosa Indian Community of Santa Rosa Rancheria, CA  
 MONITOR TYPE: TRIBAL MONITORS  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQA0: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3										63		
4												
5												
6												
7												
8												
9										P 286 rj		
10												
11												
12												
13												
14												
15										114		
16												
17												
18												
19												
20												
21										83		
22												
23												
24												
25												
26												
27										104		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										286.		
MEAN:										130.0		

ANNUAL OBSERVATIONS: 5 ANNUAL MEAN: 130.0 ANNUAL MAX: 286. 1 Values marked with 'P' exceed the PRIMARY STANDARD of: 155  
 1 Values marked with 'S' exceed the SECONDARY STANDARD of: 155  
 Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-031-1004 POC: 1  
 COUNTY: (031) Kings  
 CITY: (31960) Hanford  
 SITE ADDRESS: 807 SOUTH IRWIN ST., HANFORD  
 SITE COMMENTS: RELOCATED HANFORD-CAMPUS SITE & ADDED NO2 MONITORING ARB #1600716  
 MONITOR COMMENTS: GMW HI-VOLUME SAMPLER W/ SIERRA ANDERSON 1200 SSI INLET

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (0000) NOT IN AN URBAN AREA  
 LAND USE: RESIDENTIAL  
 LOCATION SETTING: SUBURBAN

CAS NUMBER:  
 LATITUDE: 36.314444  
 LONGITUDE: -119.643611  
 UTM ZONE: 11  
 UTM NORTHING: 4021869  
 UTM EASTING: 262656  
 ELEVATION-MSL: 99  
 PROBE HEIGHT:

SUPPORT AGENCY: ()  
 MONITOR TYPE: SLAMS  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQA0: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3										55		
4												
5												
6												
7												
8												
9										P 226 rj		
10												
11												
12												
13												
14												
15										106		
16												
17												
18												
19												
20												
21										AG		
22												
23												
24												
25												
26												
27										111		
28												
29												
30										P 229 rj		
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										229.		
MEAN:										145.4		

ANNUAL OBSERVATIONS: 5 ANNUAL MEAN: 145.4 ANNUAL MAX: 229. 2 Values marked with 'P' exceed the PRIMARY STANDARD of: 155  
 2 Values marked with 'S' exceed the SECONDARY STANDARD of: 155  
 Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 AIR QUALITY SYSTEM  
 RAW DATA REPORT

Feb. 18, 2010

(81102) PM10 Total 0-10um STP

SITE ID: 06-107-2002 POC: 2  
 COUNTY: (107) Tulare  
 CITY: (82954) Visalia  
 SITE ADDRESS: 310 N CHURCH ST, VISALIA  
 SITE COMMENTS: ARB SITE NUMBER 5400568. NEW SITE 7/79. SPM SO2. NO2 DATA FROM THIS SITE BEFORE 1/  
 MONITOR COMMENTS: GMW HI-VOL W/ SA 1200 SSI INLET - CARB PRIMARY SAMPLER

STATE: (06) California  
 AQCR: (031) SAN JOAQUIN VALLEY  
 URBANIZED AREA: (8779) VISALIA, CA  
 LAND USE: COMMERCIAL  
 LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER:  
 LATITUDE: 36.332222  
 LONGITUDE: -119.290278  
 UTM ZONE: 11  
 UTM NORTHING: 4023031  
 UTM EASTING: 294430  
 ELEVATION-MSL: 97  
 PROBE HEIGHT:

SUPPORT AGENCY: (0145) California Air Resources Board  
 MONITOR TYPE: SLAMS  
 COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC  
 PQAO: (0145) California Air Resources Board

REPORT FOR: 2008

DURATION: 24 HOURS  
 UNITS: Micrograms/cubic meter (25 C)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3										38		
4												
5												
6												
7												
8												
9										104		
10												
11												
12												
13												
14												
15										65		
16												
17												
18												
19												
20												
21										78		
22												
23												
24												
25												
26												
27										91		
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	5	0	0
MAX:										104.		
MEAN:										75.2		
ANNUAL OBSERVATIONS:	5		ANNUAL MEAN:		75.2		ANNUAL MAX:		104.			

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.

QUALIFIER CODES:

Qualifier Code	Qualifier Description	Qualifier Type
AG	Sample Time out of Limits	NULL
AJ	Filter Damage	NULL
AN	Machine Malfunction	NULL
AQ	Collection Error	NULL
AT	Calibration	NULL
BA	Maintenance/Routine Repairs	NULL
IJ	High Winds	INFORM
rj	High Winds	NAT

Note: Qualifier codes with regional concurrence are shown in upper case,  
and those without regional concurrence are shown in lower case.