

## CalNex Forecast Notes - Wednesday, June 9, 2010

### Anticipated Activities of Platforms

#### NOAA P3

Note: Deployed to Gulf of Mexico, return to Ontario Thursday night, at earliest

#### NOAA Twin Otter

Tue: No Flight

Wed: two planned flights

Wed Twin Otter planned Flight 1 (0930 - 1300): Map the horizontal and vertical distribution of pollution in the southern San Joaquin Valley, fly overpasses above the Bakersfield ground site, and characterize boundary conditions inside the PBL and the residual layer.

Wed Twin Otter planned Flight 2 (1400 - 1700): Map the horizontal and vertical distribution of pollution in the Central Valley, comparison with OMI satellite, characterize flow from Bay Area into Central Valley (weather permitting).

Thu - Mon: No Flights - maintenance

#### R/V Atlantis

Tue: SF

#### DOE G-1 & NASA B-200 (CARES - <http://campaign.arm.gov/cares>)

Tue: morning and afternoon flights

Wed: No Flight

### Local Features

Wed:

Sac: Sac plume forecast to north (misses receptor site); altocumulus and cirrus anticipated; afternoon PBL ~4000'; good air quality

SJV: mixing to 3,000-5,000', except spatially variable heights of 300 - 4,000' central Stanislaus County and extreme Western boundary of FNO county; Generally good air quality in N SJV, moderate in S SJV.

Planned grassland burning project in LLNL area bordering SFBA-SJV: If winds are suitable (< 20 mph) LLNL will try to burn 100 acres of a 500 acre unit on Wed.

Thu:

Sac: Sac plume to SSE into SJV

### **California Synoptic Overview - Jason Branz; jbranz@arb.ca.gov**

Wednesday June 9

- PacNW trough moves into OR/WA
- Onshore flow increases, marine layer deepens
- Transport flow remains W, weaker in the south

Thursday June 10

- Trough axis moves through CA
- Onshore flow continues for all areas
- WRF brings trough a little farther south

Friday June 11

- Trough starts to cut off over NV
- Transport flow turns N for coastal areas, NE for N CA

Weekend

- Sat: Weakening cutoff low over NV, N/NE transport flow
- Sun: Ridge builds into NW CA, cutoff low affects the south
- Mon: Ridge returns, transport flow weakens

### **Large Scale Transport Notes - Brad Pierce (brad.pierce@noaa.gov)**

LA/SAC AIRNOW Site Comparison

O3 and PM2.5 at Riverside reached Moderate levels. Good O3 and Moderate PM2.5 SAC AQ during FX period. O3 and PM2.5 analysis low at Riverside. O3 analysis in good agreement, PM2.5 high at SAC.

LA/SF AIRNOW Ensemble

NOT UPDATED TODAY

5km RDF FX 00Z 06/10 (Wen Afternoon)

IC polluted air over Northern CA at 5km. Low CO/O3/PM2.5 air over Southern CA.

500m RDF FX 00Z 06/10 (Wen Afternoon)

IC CO/O3 enhancement off of Northern CA and Baja, low CO/O3 airmass inland over central CA.

Moderate (5-10 ppbv/day) background O3 P-L over LA& SF

500m RDF FX 00Z 06/11 (Thu Afternoon)

CO/O3 enhancement over Southern CA. Descent over Southern CA associated with elevated CO/O3. Moderate (5-10 ppbv/day) background O3 P-L over LA. Low (~5ppbv/day) background O3 P-L over SF

500m RDF FX 00Z 06/12 (Fri Afternoon)

Broad CO enhancement over Western US. O3 enhancement over Baja. Strong descent over Baja and offshore. Descent over Southern CA associated with elevated CO/O3. Moderate (5-10 ppbv/day) background O3 P-L over LA. Low (~5ppbv/day) background O3 P-L over SF

500m RDF FX 00Z 06/13 (Sat Afternoon)

Broad CO/O3 enhancement over Western US. Low CO/O3 air coming onshore. Strong descent over Baja and offshore. Low (~5 ppbv/day) background O3 P-L over LA. Moderate (5-10ppbv/day) background O3 P-L over SF. Descent over Southern CA associated with elevated CO/O3

## **Area Forecast Details**

### **San Francisco Bay - Danny Kam (dkam@airquality.org)**

(updated 00Z 9 Jun 2010)

Wednesday

- W 10kt; NW 15kt in the aftn and strengthen to 20 to 25kt at night
- MBL 500ft; raises to 2,000ft in the day then drops down to 1,000ft

Thursday

- NW 25kt becomes 30 to 35kt in the afternoon and evening
- MBL 2,000 drops to 1,000ft

Friday

- NW continues, around 25 to 30kt; may reach 35kt in the aftn
- MBL between 500ft to 1,000 lowers below 500ft

Saturday

- Moderate NW wind, calms down overnight

Extended

- Pressure gradient weakens and retreat toward north, light wind on Sunday and Monday

### **Sacramento Valley - Danny Kam (dkam@airquality.org)**

#### Wednesday

- Northern SV - SE 10kt early AM, shift S around late AM and strengthen to 15kt in late aftn; lightens to SE 5kt at night
- Southern SV - S to SW 5kt to 10; increases into 10 by late AM and 10 to 15kt in the aftn; SW 5kt at late night
- AM PBL around 500ft; PM PBL around 4,000ft
- Visible satellite: stratus and cirrus makes its way from SF Bay to Nevada; becomes mostly sunny in the aftn;
- Max aftn temp: 27C; good air quality, max-8hr mean O3 in 0.05 ppm range

#### Thursday

- Southern SV - NW 5kt and below; becomes 10kt around mid-late mrng and slightly above 10kt in late aftn;
- Northern SV will experience N wind earlier and stronger than southern SV
- AM PBL around 1,500ft; PM PBL 6,000ft
- Some cirrus moves through in the mrng and late aftn, otherwise clear
- Max aftn temp: 26C; good air quality max-8hr mean O3 in 0.05 ppm range

#### Friday

- NNW wind, around 10 to 15kt; 15kt and above in late mrng and peaks at 20kt in the aftn; lightens slightly into 10 to 15kt in evening
- Stronger wind along western edge of valley in the morning
- GFS and CANSAC SLP differs on location; valley wind can be 5kt lighter per GFS
- Return of downslope flow strong enough to reach valley
- AM PBL around 1,500ft; 4,500 ft to 6,000ft
- Blue sky
- Max aftn temp 30C; good air quality

#### Saturday

- Moderate N to NE wind continues in the mrng, dies down into light wind in the aftn
- Offshore flow?
- Blue sky
- Max aftn temp 32C; good air quality

#### Extended

- N to NE on Sunday and Monday relaxes further into light wind
- No clouds
- Max aftn temp in low 30's C; expect air quality to worsen to moderate Sunday

**San Joaquin Valley - Jennifer Ridgway (Jennifer.Ridgway@valleyair.org)  
Wednesday June 9**

Surface Winds: Surface obs this morning: Temps in high 50s to mid 60s. Cloudy over Stockton and mostly sunny skies elsewhere across the SJV. Some high clouds over Sierras and contrails over valley floor in Fresno County. The Walnut Grove meteorological tower shows moderate to strong W and SW flow up to 1,200 feet AGL and strong NW flow above. The wind profiler at Chowchilla shows strong NW flow throughout the atmospheric profile. The lower air profilers at Visalia and Lost Hills depict light to strong N flow throughout the atmospheric profiles. CANSAC shows W flow through the Delta splitting with some flow heading northward into Sac County and some continuing eastward across northern San Joaquin County. Flow through Delta light to moderate this morning strengthening as the day progresses. Moderate to strong onshore flow over Altamont and Pacheco Passes into SJV throughout the day and night. NW flow across SJV will strengthen as day progresses.

Boundary Layer Mixing: The morning aircraft sounding from Fresno depicts a minor inversion of 4 degrees Fahrenheit from the surface up to 2,500 feet. CANSAC shows that maximum boundary layer mixing depths will range from 3,000 to 5,000 feet over central Kern, Tulare, Kings, Fresno, Madera and San Joaquin Counties. Heights will range 300 to 4,000 feet over the west side of the SJV from Kings County northward. Lowest heights over Stanislaus County and western Fresno County.

Air Quality: Good air quality from Fresno and Kings Counties northward and Moderate AQ in Tulare and Kern Counties. (Ozone)

**Thursday June 10**

Surface Winds: CANSAC shows light to moderate W flow through Delta becoming WNW flow into San Joaquin County in the morning. Light NW flow in southwestern Sac County and weak flow over southcentral and southeastern Sac County in the morning. Onshore flow over Altamont and Pacheco Passes in the morning. Flow becomes strong N to NW across Delta and Altamont and Pacheco Passes in the afternoon and overnight. Moderate NW flow across the SJV most of the day with weak S flow developing in the southern SJV by 23:00.

Boundary Layer Mixing: CANSAC shows that maximum mixing depths will range from 3,000 to 6,500 feet with best heights from north central Fresno County northward.

Air Quality: Air quality is predicted to be in the good range. (Ozone) The potential for blowing dust on the west side of the central and southern SJV will be possible.

**Friday June 11 through Sunday June 13**

Surface Winds: CANSAC shows moderate NW flow in the morning over Delta becomes strong NNW in the afternoon and strong onshore flow over Altamont and Pacheco Passes becomes NNW in the afternoon on Friday. Strong NW flow in northern SJV and on west side through the day and light to weak winds in central and southern SJV on Friday. GFS indicates light NW and N flow over SJV during the weekend.

Boundary Layer Mixing: Boundary layer mixing depths expected to range 3,000 to 5,000 feet on Friday and lowering as the weekend progresses.

Air Quality: Air quality will be good District-wide on Friday, deteriorating to Moderate during the weekend especially central and southern SJV. (Ozone)

**\*Potential Targets for next Flight Day - Wednesday\***

Analyze northwesterly wind flow patterns and flow coming into the air basin through the Delta, Altamont, and Pacheco passes. LLNL Site 300, located near Altamont pass in southwestern San Joaquin County, may be conducting their prescribed burn project today winds permitting today (100 acres).

**Central California - COAMPS forecast plots of cloud base heights and 10-m wind streamlines available in slides product**

**Central Coast - No forecasts planned until CalNex operations in vicinity**

**SoCal Coastal Waters - No forecasts planned until CalNex operations in vicinity**

**South Coast - No forecasts planned until CalNex operations in vicinity**