

## CalNex Forecast Notes - Wednesday, June 2, 2010

### Anticipated Activities of Platforms

#### P3

**Wed:** Tue Night Flight (SoCal) concluding ~8am this morning

**Thu:** last night flight begins 1am

**Fri & Sat:** No Flights

**Sun:** resume day flights (likely target SJV)

#### NOAA Twin Otter

**Wed:** No Flight

**Thu:**

5:30am PDT take-off to loosely coordinate with P3 return from night flight; NO3 measurements with

AMAX-DOAS

~10:00am PDT take-off to survey pollution in LA Basin

#### R/V Atlantis

**Wednesday, 2 June:** Monterey Bay to Golden Gate

**Wednesday night, 2-3 June:** Richmond

**Thursday, 3 June:** Transit to Sacramento

#### DOE G11 & NASA B-200 (CARES - <http://campaign.arm.gov/cares>)

**Wed:** "Shakedown" Flight

**Thu:**

**Fri:** Media Day

### Local Features

**Thu:** coastal eddy forming in early mornings with weak onshore flow in afternoons - **if P3 flight time permits, would be interesting to return to Ventura County and near-shore at end of flight to see LA plume (i.e., before and after eddy develops)**; for TO, morning stratus confined to coast; ozone forecast to be moderate with USG possible in eastern basin in afternoon

**Sun:** air quality deteriorating in SJV - USG levels likely in southern portion of basin; ozone also anticipated to be USG and higher in eastern LA basin

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

### **Wednesday June 2**

- Weak trough holds over N CA with onshore flow
- Ridge builds down south with offshore grads developing late

### **Thursday June 3**

- Upper ridge holds in SoCal with offshore gradients
- Mainly zonal flow in the north with trough over PacNW
- Precip possible for North Coast/Sac Valley

### **Friday June 4**

- Four Corners high becomes established
- Zonal flow remains over far N CA
- Weak transport flow everywhere else
- Precip moves out of N CA by afternoon

### **Weekend-Early Next Week**

- Four Corners high strengthens, builds northward
- Little-no marine layer influence
- Ridge flattened a bit on Mon/Tues?

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

### **LA/Bakersfield AIRNOW Site Comparison**

Good LA/Bakersfield O3 AQ during FX period

Moderate LA/Good Bakersfield PM2.5 AQ during FX period

O3 analysis underestimates O3 and PM2.5 at Riverside

### **500m RDF CO 00Z 06/03 (Wen Afternoon)**

Low CO/O3 airmass over Northern CA. New IC CO enhancement arriving from NE.

Moderate O3 P-L from LA over Four Corners

LA O3 P-L plume associated with 50-60% PBL Exposure

Elevated (10-15 ppbv/day) background O3 P-L over LA. Low (~5ppbv/day) O3 P-L over SF

### **500m RDF CO 00Z 06/04 (Thu Afternoon)**

Low CO airmass over Central CA. New IC CO enhancement onshore over Northern CA. Moderate O3 P-L from LA over Baja  
Moderate (5-10 ppbv/day) background O3 P-L over LA. Low (~5ppbv/day) O3 P-L over SF  
LA O3 P-L plume associated with 50-60% PBL Exposure

### **500m RDF CO 00Z 06/05 (Fri Afternoon)**

Low CO/O3 airmass over most of CA except for narrow plume extending SW from LA. Moderate O3 P-L from LA over CO/NM  
Moderate (5-10 ppbv/day) background O3 P-L over LA & SF  
Descent over Southern CA associated with elevated CO/O3

### **500m RDF CO 00Z 06/06 (Sat Afternoon)**

New IC CO/O3 enhancement over N CA. Low CO/O3 airmass elsewhere over CA.  
Moderate O3 P-L from LA over AZ  
Moderate (5-10 ppbv/day) background O3 P-L over LA & SF  
Descent over Southern CA/AZ associated with elevated CO/O3

## **Area Forecast Details**

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

### **Wednesday**

- NW 5 to 10kt gives way to SW around mid to late morning; W to SW for 10kt in the afternoon; becomes 5kt in the evening
- MBL 500 ft and below

### **Thursday**

- W to NW 5 kt becomes NW to SW in the afternoon?
- MBL below 500ft

### **Friday**

- SW turns W in the afternoon and NW at night, wind speed between 5 to 10 kt

### **Saturday**

- W to NW 5 to 10kt increases to 10kt in the afternoon and evening

### **Extended**

- Light NW on Sunday becomes much stronger in the afternoon; moderate NW wind continues for Monday and become even stronger

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

### **Wednesday**

- CANSAC:
  - Northern SV - SE below 5kt in early AM, becomes S 5kt around late morning
  - Southern SV - Light SE 5kt and below, SW 5kt from the delta late morning through early aftn
  - Entire SV - SW 10 to 15kt late afternoon; return to morning wind pattern at night
- COAMPS:
  - light variable wind (mostly from SE) below 5kt, S (northern SV) and SW (southern SV) 5kt around late morning, peaks early evening between 5 to 10kt
- Current condition at wind profiler near delta (38.3N, 121.42W): below 5kt at between 09Z and 13Z, WSW turns SW
- AM PBL around 500ft; PM PBL 3,000 to 4,500
- Cirrostratus throughout the day with period of altocumulus
- Max aftn temp: 27C
- Moderate air quality: max-8hr mean O3 in 0.06 ppm range

### **Thursday**

- CANSAC:
  - Northern SV - SE 5kt in early AM, very light and variable (S to W) after sunrise, S 5kt in late afternoon strengthens to 5 to 10kt in early evening, S 5kt at night
  - Southern SV - SW 5kt from the delta through early afternoon, very light and variable (S to W) after sunrise, WSW 5kt flow from north of delta in late afternoon strengthen to 10kt in early evening; returns to S 5kt at night
- COAMPS: Similar to CANSAC, except better defined S (northern SV) and WSW (southern SV) around 5kt after sunrise, and max wind speed is between 5 to 10kt
- AM PBL around 500 ft; PBL 2,000 to 3,000 ft
- Mostly cloudy: altostratus increases through the day, overcast by the afternoon; stratus in the morning 40% chance of precipitation in the morning decreasing to 20% in the afternoon
- Max aftn temp: 25C
- Moderate air quality: max-8hr mean O3 in 0.06 ppm range

### **Friday**

- CANSAC:
  - Northern SV - S 10kt turns SE after sunrise; SE 5kt in late afternoon
  - Southern SV - SW 5kt becomes S below 5kt after sunrise; SW 10kt by late afternoon

- COAMPS (more probable scenario):
  - Northern SV - SE 5kt turns S to 10kt around late morning; lightens below 5 kt at night
  - Southern SV - SW 5kt turns WSW around late afternoon
- AM PBL around 500 ft; PM PBL around 3,000ft
- Mostly cloudy: altostratus spreads southward, periods of stratus in the area, partially clears at night; 40% chance of precipitation
- Max aftn temp: 25C
- Moderate air quality: max-8hr mean O3 in 0.06 ppm range

### **Saturday**

- W to SW 5 kt and below, where northern SV has more southerly component and southern SV has more westerly component
- Periods of cirrus, otherwise clear
- Max aftn temp:
- Moderate air quality: max-8hr mean O3 in 0.07 ppm range

### **Extended**

- SE downslope for northern SV in early morning and onshore SW for southern SV, otherwise southerly wind through Sunday afternoon; wind speed generally 5kt and below; flow turns northerly late Sunday night into Monday
- Periods of cirrus lingers on, otherwise clear
- Air quality stable at mid-range of moderate

**San Joaquin Valley - Jon Klassen (Jon.Klassen@valleyair.org)**

### **Wednesday June 2**

**Surface Winds:** *The surface observations this morning show light NW flow throughout the SJV. The wind profilers in the SJV show the same NW conditions above the surface. CANSAC shows light NW flow in the morning and increasing into the afternoon, with inflow via the Delta and the Altamont and Pacheco passes. Southern SJV outflow over Tehachapi in the evening hours.*

**Boundary Layer Mixing:** *The wind profilers indicate a slight temperature inversion this morning. CANSAC indicates that mixing should improve to 2,500 feet throughout most portions of the SJV by the afternoon.*

*Air Quality: Good to Moderate air quality is expected across the SJV.*

### **Thursday June 3**

**Surface Winds:** *CANSAC shows lighter NW flow due to building stability. Typical inflows via the Delta and Altamont and Pacheco passes by the afternoon, and outflow via Tehachapi pass by the evening.*

**Boundary Layer Mixing:** CANSAC shows that mixing will improve to 3,000 feet across most parts of the SJV by the afternoon.

**Air Quality:** Moderate air quality is expected across most of the SJV.

**Friday June 4**

**Surface Winds:** CANSAC shows similar conditions to Thursday.

**Boundary Layer Mixing:** CANSAC shows that mixing should improve to 2,500 to 3,500 feet throughout most of the SJV by the afternoon.

**Air Quality:** Expected to be mostly Moderate throughout the SJV, with possible USG.

**Saturday and Sunday June 5-6**

**Surface Winds:** GFS shows surface winds to be predominately from the NW.

**Boundary Layer Mixing:** Mixing conditions are not expected to improve due to high pressure building in.

**Air Quality:** Expected to be mostly Moderate throughout the SJV, with USG anticipated in the southern SJV.

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

The anticipated poor air quality this weekend in the SJV could be interesting to capture.

**Central Coast** - Gary Arcemont (garcemont@co.slo.ca.us) - **No Forecast Today**

**SoCal Coastal Waters** - Lee Eddington (lee.eddington@navy.mil)

**+ Wednesday afternoon (00Z 3 June)**

- Marine Low Clouds

- \* OVC/BKN St/StCu with rain Crescent City to Point Arena
- \* BKN/SCT StCu Point Arena to Point Arguello
- \* SCT/CLR StCu Point Arguello to Point Mugu
- \* BKN/SCT St/StCu Point Mugu to San Diego

- SOCAL Marine Layer Winds
  - \* NW 10-25 kts outer waters
  - \* W 5-10 kts inner waters

**+ Thursday morning (12Z 3 June)**

- Marine Low Clouds
  - \* OVC/BKN St/StCu w/ light rain Crescent City to Cape Mendocino
  - \* OVC/BKN St Cape Mendocino to Point Arguello
  - \* SCT/CLR Point Arguello to Santa Barbara
  - \* OVC/BKN St/fog Santa Barbara to San Diego
- SOCAL Marine Layer Winds
  - \* NW 10-25 kts outer waters
  - \* SW-SE 0-10 kts inner waters

**+ Thursday afternoon (00Z 4 June)**

- Marine Low Clouds
  - \* OVC/BKN St/StCu w/ light rain Crescent City to Point Arena
  - \* BKN/SCT St/StCu Point Arena to Point Arguello
  - \* CLR Point Arguello to Santa Barbara
  - \* BKN/SCT St/StCu Santa Barbara to San Diego
- SOCAL Marine Layer Winds
  - \* NW 10-25 kts outer waters
  - \* W 5-10 kts inner waters

### **+ Friday morning (12Z 4 June)**

- Marine Low Clouds
  - \* OVC/BKN St/StCu w/ rain Crescent City to Point Arena
  - \* BKN/SCT St/StCu Point Arena to Point Arguello
  - \* SCT/CLR Point Arguello to Santa Barbara
  - \* OVC/BKN St/fog Santa Barbara to San Diego
- SOCAL Marine Layer Winds
  - \* NW 10-25 kts outer waters
  - \* SE 5-10 kts inner waters

### **+ Friday afternoon (00Z 5 June)**

- Marine Low Clouds
  - \* OVC/BKN St/StCu w/ rain Crescent City to San Francisco
  - \* OVC/BKN S/StCu San Francisco to Point Arguello
  - \* SCT/CLR St/StCu Point Arguello to Point Mugu
  - \* BKN/SCT St/fog Point Mugu to San Diego
- SOCAL Marine Layer Winds
  - \* NW 10-25 kts outer waters
  - \* W 5-10 kts inner waters

### **+ Saturday morning (12Z 5 June)**

- Marine Low Clouds

- \* OVC/BKN St/StCu w/ light rain Crescent City to Point Arena
  - \* OVC/BKN St/StCu Point Arena to Point Arguello
  - \* SCT/CLR Point Arguello to Santa Barbara
  - \* OVC/BKN St/fog Santa Barbara to San Diego
- SOCAL Marine Layer Winds
- \* NW 10-25 kts outer waters
  - \* SE 5-10 kts inner waters

**+ Saturday afternoon (00Z 6 June)**

- Marine Low Clouds
- \* SCT/CLR StCu Crescent City to Cape Mendocino
  - \* OVC/BKN St/StCu Cape Mendocino to Point Sur
  - \* SCT/CLR St/StCu Point Sur to San Diego
- SOCAL Marine Layer Winds
- \* NW 10-25 kts outer waters
  - \* W 5-10 kts inner waters

**South Coast** - Kevin Durkee (kdurkee@aqmd.gov)

**Wednesday:** upper level ridge starts building aloft & subtropical high expanding ; warming; deeper marine layer this morning than yesterday - Miramar AM sounding strong inversion base @ 2660 ft, afternoon mixing ~3400 ft Central LA; morning coastal stratus to the mountains, slow to burn off; weak onshore flow; ozone moderate to USG inland Basin

**Thursday:** ridge aloft amplifies; stronger W-E gradients, but N-S gradient becomes more offshore overnight & Thur AM; less low clouds, shrinking marine layer; AM low clouds & fog confined to coastal plain, then sunny by afternoon; several degrees of warming (temps 90+ inland); moderate to USG ozone

**Friday+:** Strong upper high sets up; shallow marine layer - night & morning low clouds/fog confined to near coast; northerly gradients for more warming (5-10 deg F above normal) & some winds in mountains and deserts; moderate to USG ozone

**Saturday & Sunday:** temps increase through Sunday with upper level ridge peaking over the desert southwest; little stratus; some inland SoCAB areas will reach 100 degrees F by Sunday afternoon; ozone to USG or higher inland over weekend

**Monday+:** upper ridge starts to move to east for minor cooling