

CalNex Forecast Notes - Friday, June 11, 2010

Anticipated Activities of Platforms

NOAA P3

Fri: Arrive in Ontario

Sat: down with likely aircraft access for instrument care

Sun: likely day of rest without aircraft access

Mon: likely first flight

NOAA Twin Otter

Thu - Mon: No Flights - maintenance

CARES: DOE G-1 & NASA B200 - <http://campaign.arm.gov/cares>

Fri: No flights

Sat: Two flights by both aircraft -- to SE again into SJV, or sample daytime downslope winds for biogenic emissions.

Sun: Likely no flights

Mon - Tue: Flights likely if flow is from SW over Sacramento

Local Features

Friday: Moderate SSE to SSW onshore flow predicted at mid-day through the Wilmington/Long Beach Port area, suitable for grid sampling.

Saturday: Sacramento plume flows to SJV, with relatively high winds; winds in SoCal outer waters weaken

Sunday: NorCal offshore flow from SF about 04 - 12 pdt ; In the SoCal inner waters a morning southerly surge likely will carry urban SoCal emissions into Central Coast; in LA Basin, decreased ventilation and mixing, decreasing AQ

Monday: continued stable with weak ventilation in SoCal; NorCal, LLNL resumes grassland burn project if winds are less than 20kts;

California Synoptic Overview - Dennis King; dking@arb.ca.gov

Friday June 11

- Trough axis centered over Western NV and Southern CA
- Transport flow from NW in the north with gusty NW sfc winds
- NE flow over Sierra Nevada
- Onshore flow with deep marine layer in the south of Pt Conception

Saturday June 12

- Low Pressure centered over Southern NV deepens
- Transport flow remains N over most of CA
- Strong N winds for the Valleys and SoCal mts/deserts
- Onshore flow from San Luis Obispo to Mexico

Sunday June 13

- Trough moves east centering over AZ
- Gradients relax wind speeds decrease
- North winds over most of the interior of Northern CA and SJV
- Westerly flow over Southern CA
- N winds continue in the Valleys, weakening offshore winds for LA Basin
- On shore flow over most of the CA coast, but offshore in N in the morning

Beyond...

- Trough to the east weakens with high pressure building into CA
- Weak ridge over CA Monday
- Weak trough begins moving in over N CA Tuesday. but still stable in the S

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

LA/SAC AIRNOW Site Comparison

O3 and PM2.5 declined to Good/Moderate levels at Riverside yesterday

Good tending to Moderate O3 and PM2.5 at SAC during FX period

O3 analysis good at Riverside/SAC. PM2.5 analysis good at Riverside and high at SAC.

LA/SF AIRNOW Ensemble

NOT UPDATED TODAY

5km RDF FX 00Z 06/12 (Fri Afternoon)

IC polluted/STE influenced air over South Central CA at 5km.

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

Broad CO enhancement over Western US. Cleaner CONUS air over South Central CA.

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

80% CONUS PBL exposure associated with lower CO

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

CO enhancement over South Central CA associated with lower <40% CONUS PBL

exposure. Low CO/O3 air coming onshore. Moderate (5-10ppbv/day) background O3 P-

L over LA&SF

500m RDF FX 00Z 06/14 (Sun Afternoon)

Broad CO/O3 enhancement over Western US. Low CO/O3 air coming onshore. Higher CO/O3 ahead of front. Elevated (10-15ppbv/day) background O3 P-L over LA&SF. CONUS PBL Exposure >60% offshore ahead of front

500m RDF FX 00Z 06/15 (Mon Afternoon)

Broad CO/O3 enhancement over Western US. Low CO/O3 air coming onshore. CONUS PBL Exposure and associated O3 P-L offshore. Moderate (5-10ppbv/day) background O3 P-L over SF. Elevated (10-15ppbv/day) O3 P-L over LA. Elevated CO/O3 offshore ahead of front associated with 40-60% CONUS PBL Exposure

Area Forecast Details

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

Predicted winds are for coastal waters 14NM west of SF - see COAMPS for spatial detail

Friday

NW 25 to 30kt, except drops to 15kt during late morning and late night due to offshore push

MBL around 1,500ft (inland parcel moving coastal) lowers below 500ft

Bay plume transport S toward Salinas Valley and along coast

Saturday

NE 10 to 15kt offshore flow AM; NW 20kt by early PM, decrease to around 15kt at night; Sacramento plume into SJV

Offshore flow from western Yolo, Solano counties MBL 500 to 1,000ft lowers to less than 500 ft

Bay plume toward N SJV

Sunday

CANSAC: WNW 5 to 10kt; calm around 18Z just before northerly wind reverse; S 10 to 15kt early aftn continues into evening (may not materialize, see slide)

PM flow from SF and delta heads into Sac County thru Solano County then turns south into SJV, flow from East Bay heads south into SJV

COAMPS: extensive offshore flow on Sunday morning; NW flow resumes early afternoon toward SE; turns WNW in the evening toward Sac County

MBL 500ft

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

Friday (not updated)

NNW wind, around 10 to 15kt; 15kt and above by late morn 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
Return of downslope flow strong enough to reach valley
AM PBL around 1,200ft; PM PBL 8,000ft
Blue sky
Max aftn temp 31C; good air quality

Saturday

CANSAC: NNW 10 to 15kt wind in early AM, increases to 15 to 20kt in late AM and continues (pushing toward 25kt in Solano and SE Sac County); dies down into 10kt in early evening with and 15kt north wind in Yolo
PM Downslope flow for Sierra Nevada but not Coastal Range

COAMPS: agrees with CANSAC, except 5kt lighter AM PBL 500ft; PM PBL 8,000ft, with a few valley locations around 5,000ft

COAMPS: Scattered altocumulus (15Kft?) from Nevada low in the late aftn/evening
Max aftn temp 34C; good air quality

Sunday

CANSAC: N 10kt and downslope flow relaxes after sunrise with N wind 10 to 15kt in western SV continuing; NW 5kt until delta flow makes its way in around early evening; then WNW wind

COAMPS: After NE downslope subsides, NW 5 to 10kt, mostly calm in evening as wind shifts SW with onshore flow from SF by late night; AM PBL 500 to 1,000ft; PM PBL 3,000 (N. SV) to 5,000ft (S. SV)

COAMPS: Clear, cirrostratus (40Kft) late AM onward from NW
Max aftn temp 35C; moderate air quality

Monday

Light and variable wind in AM becomes W with in the aftn with some onshore
Scattered cirrus
Max aftn temp 34C; moderate air quality

Extended

Onshore flow from SW continues with mix of downslope flow
Increasing cirrus
Max aftn temp cools to 30C; moderate air quality

San Joaquin Valley - Jennifer Ridgway (Jennifer.Ridgway@valleyair.org)

Surface Winds: Surface Obs this morning show moderate NW flow in the northern and central SJV and light S to SW flow in the southern SJV. The wind profiler at Walnut Grove shows strong NW to N flow up to 1,200 feet AGL becoming SE then N above. The profilers at Chowchilla and Visalia show moderate to strong NW

flow throughout the profile, Lost Hills shows moderate to strong N flow throughout the profile. CANSAC shows strong NW flow over the Delta, Altamont and Pacheco Passes. Light NW flow on the east side of Fresno, Tulare, and Kern County throughout the day. Light NW flow strengthening on the west side of the valley floor as the day progresses. Outflow over Tehachapi and Tejon Passes.

Boundary Layer Mixing: Profilers indicate primarily isothermal temperatures through the atmospheric profiles. Profilers indicated slight to no temperature inversions this morning. CANSAC indicates 3,000 to 8,500 feet with best mixing over Madera and Fresno Counties. Lowest mixing heights 150 to 1,000 feet over San Joaquin County.

Air Quality: Good AQ due to Ozone is expected across most of the SJV. Moderate AQ PM10 possible in Kings County due to the potential for blowing dust on west side of valley.

Saturday June 12

Surface Winds: CANSAC shows a moderate to strong N flow across the Delta, Altamont and Pacheco Passes throughout the day becoming light by 23:00. Light NW flow in the central and western portions of the valley throughout the day. Light SE flow on the east side of the valley in the morning will become westerly in the afternoon. Light and variable winds valleywide by 23:00. CANSAC shows an eddy during the morning hours.

Inflow over the passes in the morning becomes outflow in the afternoon.

Boundary Layer Mixing: CANSAC shows 3,000 to 6,500 feet with best mixing over Kern, Tulare, Fresno, and Merced Counties. Lowest mixing heights 150 to 1,000 feet over San Joaquin County.

Air Quality: Good to Moderate AQ due to Ozone.
Moderate AQ possible in the southern SJV.

Sunday June 13

Surface Winds: CANSAC shows moderate NW flow across the Delta in early morning becomes light N flow by afternoon then turns onshore by 17:00 with flow moving into SJV from Sac County. Onshore flow over Altamont and Pacheco Passes throughout the day. Light SE and S flow over central and southern valley floor early morning becomes light and variable to NW by afternoon. Inflow over Cottonwood and Tehachapi Passes in the morning becomes outflow by afternoon.

Boundary Layer Mixing: CANSAC shows 3,000 to 6,500 feet over Kern County and the central to eastern portions of the valley. Lowest heights 1,500 to 3,000 feet over Kings County and the west side of the valley north of Kings County.

Air Quality: Moderate AQ due to Ozone expected valleywide.

Monday June 14 and Tuesday June 15

Surface Winds: GFS shows weak surface winds Monday under the ridge. Weak

winds Tuesday morning become light SW by Tuesday evening as the trough approaches the region.

Boundary Layer Mixing: Lower mixing heights Monday expected to improve on Tuesday.

Air Quality: Moderate air quality due to Ozone expected on Monday. Good air quality expected in the northern SJV and Moderate AQ expected in the central and southern SJV on Tuesday (Ozone).

Potential Targets for next Flight Day

Eddie possible over Kings County-Tulare County boundary area on Saturday morning 5:00 PDT. Onshore flow through Delta becomes inflow from Sac County to San Joaquin County on Sunday late afternoon on Sunday. LLNL prescribed burn project not burning today -- too windy -- and not burning this weekend. Will resume burning plans on Monday.

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

+ Friday afternoon (00Z 12 June)

- Marine Low Clouds
 - * SCT/CLR StCu Crescent City to Point Dume
 - * BKN/SCT StCu Point Dume to San Diego
- SOCAL Marine Layer Winds
 - * NW 15-25 kts outer waters
 - * W 5-15 kts inner waters

+ Saturday morning (12Z 12 June)

- Marine Low Clouds
 - * SCT/CLR StCu Crescent City to Point Dume
 - * OVC/BKN StCu Point Dume to San Diego

- SOCAL Marine Layer Winds

- * NW 10-20 kts outer waters
- * SE 5-10 kts inner waters

+ Saturday afternoon (00Z 13 June)

- Marine Low Clouds

- * SCT/BKN St/StCu Crescent City to Cape Mendocino
- * SCT/CLR StCu Cape Mendocino to Santa Barbara
- * BKN/SCT StCu Santa Barbara to San Diego

- SOCAL Marine Layer Winds

- * W 10-15 kts outer waters
- * SW 0-10 kts inner waters

+ Sunday morning (12Z 13 June)

- Marine Low Clouds

- * SCT/CLR StCu Crescent City to San Francisco
- * OVC/BKN St/StCu San Francisco to San Diego

- SOCAL Marine Layer Winds

- * NW 0-10 kts outer waters
- * SE 0-10 kts inner waters

+ Sunday afternoon (00Z 14 June)

- Marine Low Clouds

- * OVC/BKN St Crescent City to Point Arena
- * SCT/CLR StCu Point Arena to Pescadero
- * OVC/BKN St/StCu Pescadero to San Diego

- SOCAL Marine Layer Winds

- * W 5-10 kts outer waters
- * W 8-12 kts inner waters

+ Monday morning (12Z 14 June)

- Marine Low Clouds
 - * OVC/BKN St/StCu Crescent City to San Diego
- SOCAL Marine Layer Winds
 - * NW 5-12 kts outer waters
 - * W-NW 0-5 kts inner waters

+ Monday afternoon (00Z 15 June)

- Marine Low Clouds
 - * SCT/CLR StCu Crescent City to Monterey
 - * OVC/BKN St/StCu Monterey to Point Arguello
 - * SCT/CLR StCu Point Arguello to San Diego
- SOCAL Marine Layer Winds
 - * NW 10-20 kts outer waters
 - * W 5-10 kts inner waters

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