

CalNex Forecast Notes - Wednesday, June 16, 2010

Anticipated Flights

NOAA P3

Wed: Southern SJV flight

Thu: No flight

Fri: Northern SJV flight with G-1 comparison

NOAA Twin Otter

Wed: No Flight

Thu: Likely flight, Central Valley or Bay Area

CARES DOE G-1 and NASA B200

Wed: No Flights

Thu: No flight

Fri: G-1 comparison with P3 in N SJV

Sat: Flights likely

Local Features

Wednesday

Fire/Smoke analyzed near CA/Mexico Border on Tues. Emissions from AK fires offshore of CA at 1.5km on Wen afternoon.

Central Valley NW flow from Sac Vly to SJ Vly

South coast descent of high O3, low CO air at 5 km

Thursday

South Coast - significant offshore flow in morning and likely highest [O3]s of week

Friday

Deepest mixing Fri-Sat with passage of vort max through central CA

Sac Valley SF plume transport predicted to N Sac Valley (COAMPS predicts surface tracer releases from S Bay Area flow to Sac Valley, e.g., 205m sigma).

500m RDF FX 00Z 06/19 (Fri Afternoon)

New high O3/low CO air over Central CA. Low O3 over Northern CA. Elevated CO from AK fires onshore over Central CA. Moderate (5-10ppbv/day) background O3 P-L over LA&SF

Synoptic Overview for California

Wednesday June 16

Trough moves into NE CA/northern NV
NW transport flow over CA
Gusty north winds in the Sac/SJ valleys

Thursday June 17

Trough over UT, weaker shortwave trough off PacNW coast
W/SW transport flow
Onshore flow north, weak offshore south

Friday June 18

PacNW trough digs south
Onshore flow all areas

Beyond...

Trough pattern continues at least through the weekend
Possible pattern shift mid-late next week Anticipated Flights

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

Fire/Smoke analyzed near CA/Mexico Border on Tues. Emissions from AK fires offshore of CA
at 1.5km on Wen afternoon.

LA/SAC AIRNOW Site Comparison

Moderate O3 AQ reached in Riverside. Good/Moderate Riverside PM2.5 AQ during FX period. Good SAC O3 and Moderate PM2.5 AQ at SAC during FX period. O3/PM2.5 analysis in good agreement at Riverside. PM2.5 overestimated at SAC

LA/SF AIRNOW Ensemble

LA Long-range transport to NE for ensembles ending Thu/Fri. Increased dispersion for LA ensembles ending Sat with transport turning to south east.

North/South dispersion for SF ensembles ending Thu. Long-range transport more to south for ensembles ending Fri/Sat.

5km RDF FX 00Z 06/17 (Wen Afternoon)

IC/STE polluted airmass descending over northern NV with filament over southern CA. Clean airmass over Northern/Central CA

500m RDF FX 00Z 06/17 (Wen Afternoon)

Descent of high O3/low CO air over Southern CA. Low O3 over Northern CA. Elevated CO from AK fires offshore of Northern CA. Moderate (5-10ppbv/day) background O3 P-L over LA&SF

500m RDF FX 00Z 06/18 (Thu Afternoon)

Descent of high O3/low CO air over Baja. Low O3 over Northern CA. Elevated CO from AK fires onshore over Northern CA. Moderate (5-10ppbv/day) background O3 P-L over LA&SF

500m RDF FX 00Z 06/19 (Fri Afternoon)

New high O3/low CO air over Central CA. Low O3 over Northern CA. Elevated CO from AK fires onshore over Central CA. Moderate (5-10ppbv/day) background O3 P-L over LA&SF

500m RDF FX 00Z 06/20 (Sat Afternoon)

New high O3/low CO air over Central CA. Low O3 over Northern CA. Enhanced O3/CO offshore over Northern CA. Moderate (5-10ppbv/day) background O3 P-L over SF. Low (~5ppbv/day) background O3 P-L over LA

Area Forecast Details

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

Early AM: Bay Area mostly calm or light W; N. wind slow to reach Sac Cnty when compared to yesterday's forecast; N. SV has lighter N. wind than forecasted; currently 5kt for S. SV and 10kt for N. SV

Mid-AM: NW Flow over Bay Area heads toward its southern coastal range; NW10kt in Sac Cnty, outflow to SJV and upslope to foothills; some valley locations, especially western edge has NW15kt

Early Aftn: Same wind pattern over Bay Area; valley wind begins to die down, most of Sac Cnty btwn NW8-10kt with stronger wind over the delta and W. SV, outflow turns more upslope

Early evening: Onshore flow becomes more influential, flow in the delta region turns SE toward SJV; most valley locations becomes NNW5kt with spotty area in N. SV at 10kt, outflow still upslope

Late PM: weak onshore flow to SV; calm and variable in the valley until downslope flow develops

AM PBL 500ft; PM PBL mostly 8,000ft max at 2Z

MBL 1,500 ft decrease to 500ft

GFS: Clear, COAMPS: few altocumulus in aftn

Max aftn temp 27C, good air quality

Sacramento Valley (cont'd)

Thursday

Early AM: Light W. flow in N. Bay clips Sac Cnty and heads toward SJV; Sac Cnty in the crosswind between easterly, westerly downslope and onshore flow - light and variable; downslope flow for the rest of SV with periodical N. wind

Mid/Late AM: NW5kt in Sac Cnty, outflow to ESE foothills; COAMPS: N. wind in the western valley makes upslope ascent toward the coast

Afternoon: Onshore in Bay Area increases, CANSAC: WSW N. Bay onshore flow across S. SV to foothills by late aftn, valley N. wind dies down, with sfc divergence and upslope flow toward ESE

Evening: CANSAC: More onshore flow for Sac Cnty from N. Bay and some from E. Bay; lower Sac Cnty at SW5kt; COAMPS: onshore flow goes SE; Sac Cnty at NW5kt; onshore flow for Sac Cnty at late night

AM PBL 500 to 1,000ft, PM PBM 5,000 to 6,000ft, max at 1Z

MBL 500ft

9km Cirrus in the morning, 8.4km cirrus in N. SV in late aftn

Max aftn temp 29C; good air quality

Sacramento Valley (cont'd)

Friday

Early AM: CANSAC: Stronger onshore flow from as far south as Hayward makes its way toward Sac Cnty via Solano Cnty; light SSW in Sac Cnty outflow upvalley; onshore flow increases throughout the morning; COAMPS: stronger downslope than CANSAC puts onshore flow at bay

Early PM: Onshore W10kt from N. of Oakland heads toward SV via Solano and Yolo Cnty; SSW6kt in Sac Cnty, outflow toward NNE

Late Aftn: Onshore flow turns NW, only N. Bay flow reaches Sac Cnty at SW9kt, lower Sac Cnty outflow toward Cool in late aftn; otherwise, E. Bay flow heads across the upper SJ Cnty towards foothills

Cirrus north of forecast area

Max aftn temp 27C; good air quality

AM PBL 500 to 1,000ft; PM PBL 7,000ft, max at 1Z

MBL below 500ft;

Saturday

Onshore flow continues with some downslope flow

Clear

Max aftn temp 26C; good air quality

Extended

Onshore flow continues but lighter, possible light N. wind on Monday

Max aftn temp warms to high 20C; good toward moderate air quality

Sacramento Trajectory (Wed)

Sacramento Trajectory (Thu)

Sacramento Trajectory (Fri)

San Joaquin Valley - Jon Klassen

Wednesday June 16

Surface Winds: The surface observations this morning show moderate NW flow throughout the SJV. The wind profilers also show a NW flow above the surface across the Valley, with the Lost Hills profiler showing variable conditions above 500 meters. CANSAC shows NW flow increasing into the afternoon. Inflow into the SJV via the Delta

is projected for the entire day, along with outflow over the Sierra Nevadas and the Tehachapi Pass.

Boundary Layer Mixing: Morning aircraft soundings show a 4 F inversion in Fresno from the surface up to 1,500 feet, and a 7 F inversion in Bakersfield from the surface up to 500 feet. CANSAC indicates that mixing should improve to 3,500 feet, and to 2,500 feet in western Fresno County and Kings County.

Air Quality: Good ozone air quality is expected across the SJV, with Moderate ozone possible.

Thursday June 17

Surface Winds: CANSAC shows a light NW flow throughout the day, with strengthening inflow via the Altamont and Pacheco passes by the evening. Typical outflow over the Tehachapi Pass.

Boundary Layer Mixing: CANSAC shows that mixing will improve from 3,500 feet in the northern SJV, and to 2,500 feet in the central and southern SJV.

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

San Joaquin Valley

Friday June 18

Surface Winds: CANSAC again shows a light NW flow throughout the day, with strengthening inflow via the Altamont and Pacheco passes by the evening. Typical outflow over the Tehachapi Pass.

Boundary Layer Mixing: CANSAC shows that mixing will improve to 3,500 to 4,000 feet across most of the SJV.

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

Saturday and Sunday June 19-20

Surface Winds: GFS shows surface winds to be light and from the NW.

Boundary Layer Mixing: Mixing conditions be similar to Friday.

Air Quality: Expected to have Good to Moderate ozone.

Potential Targets for next Flight Day

The LLNL prescribed burn SW of Tracy is not happening today due to windy conditions, but is planned to resume on Thursday and Friday.

Central Coast - Gary Arcemont (garcemont@co.slo.ca.us)

Prepared 6/16/2010 – 8:30 am PST

This morning: Stratus in SLO & coastal plains, Monterey Bay, Santa Ynez Valley, Salinas Valley. Big Sur coast; Clear slot south of Pt. Conception; Stratus offshore Big Sur coast & south, clear offshore north of Monterey Bay

SW flow, 6 mph hrly avg top of Temblor Range, W flow 3 mph hr avg Carrizo Plains, SLO winds S at 5 mph

Additional ozone clean out aloft occurred overnight - top of Temblor Range midnight to 5 am concentration dropped from 55 ppb two days ago to 39 ppb yesterday to 31 ppb this morning.

This week: GFS indicates trough west coast, June Gloom, Good air quality with some blowing dust Nipomo Mesa midday/afternoons, moderate NW flow coast

Cooling aloft today and deepening marine layer to 2400 feet south coast:

OAK inversion - 12 Z Today @394 m, 7.8 C, SE 11 knt @ 949 m, 14.0 C, N 22 knt

12 Z Yesterday @395 m, 8.0 C, SW 10 knt @973 m, 19.8 C, WNW 22 knt

Fort Ord inversion – 12 Z Today @700 m, 7 C, W 5 knt @ 1000 m, 15 C, N

20 knt

VBG inversion - 12 Z Today @750 m, 5.6 C, NW 16 knt @ 1475 m, 15.8 C, NW 19knt

12Z Yesterday @477m 7.6 C, NNW 11 knt @ 912 m , 23.4 C, NNW 13 knt

Paso Robles aircraft: 15 z Yesterday @500 ft 49 F (9.5 C) @2500 ft 71 F (21.5 C)

Central Coast (cont'd)

Prepared 6/16/2010 – 8:30 am PST

Today Wednesday 6/16– 5 acre grass prescribed burn Pinnacle Natl Monument - Trof deepens over Cal then moves into NV - . CANSAC indicates NW flow coast, NNE flow inland ridgetops /Temblor Range

Thursday – Broad trof W. US - NW flow coast – Some blowing dust Nipomo Mesa – CANSAC indicates NW flow coast, NE flow inland ridgetops /Temblor Range

Friday – Trof coastal CA, vort max central coast (GFS), blowing dust Nipomo Mesa – CANSAC indicates NW flow coast, NE flow inland ridgetops /Temblor Range early, then at midday W flow inland ridgetops /Temblor Range

Sat/Sun - Trof coastal CA, blowing dust Nipomo Mesa

Mon – Trof W. US

Tues – Broad trof W. US

Wed 6/23 – Weak trof N CA, flat/weak ridge S CA , cutoff low off CA coast

Air quality: Good air quality - some blowing dust midday/ afternoons-Oceano Dunes/ Nipomo Mesa

Significant features for study: Blowing dust Oceano Dunes/Nipomo Mesa.

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

+ Wednesday afternoon (00Z 17 June)

- Marine Low Clouds
- * SCT/CLR StCu Crescent City 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 17 June)

- Marine Low Clouds
- * SCT/CLR StCu Crescent City to Point Mugu
- * OVC/BKN St Point Mugu to San Diego
- SOCAL Marine Layer Winds
- * NW 10-25 kts outer waters
- * NE-SE 5-10 kts inner waters

+ Thursday afternoon (00Z 18 June)

- Marine Low Clouds
- * SCT/CLR StCu Crescent City to Point Mugu
- * SCT/CLR St/fog Point Mugu to San Diego
- SOCAL Marine Layer Winds
- * NW 10-25 kts outer waters
- * W 10-15 kts inner waters

+ Friday morning (12Z 18 June)

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

- SOCAL Marine Layer Winds

* NW 15-25 kts outer waters

* SE 0-5 kts inner waters

+ Friday afternoon (00Z 19 June)

- Marine Low Clouds

* BKN/SCT StCu Crescent City to Point Arguello

* SCT/CLR StCu Point Arguello to Point Dume

* BKN/SCT St/StCu Point Dume to San Diego

- SOCAL Marine Layer Winds

* NW 15-25 kts outer waters

* W 10-15 kts inner waters

+ Saturday morning (12Z 19 June)

- Marine Low Clouds

* BKN/SCT StCu/Cu Crescent City to Point Arena

* BKN/SCT St/StCu Point Arena to Point Arguello

* SCT/CLR St/StCu Point Arguello to Point Dume

* OVC/BKN St/StCu Point Dume to San Diego

- SOCAL Marine Layer Winds

* NW 15-25 kts outer waters

* WSW 0-5 kts inner waters

+ Saturday afternoon (00Z 20 June)

- Marine Low Clouds

* BKN/SCT CU/StCu Crescent City to Point Arena

* SCT/CLR St/StCu Point Arena to San Diego

- SOCAL Marine Layer Winds

* NW 15-25 kts outer waters

* W 10-15 kts inner waters

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