

CalNex Forecast Notes - Sunday, June 6, 2010

Anticipated Activities of Platforms

NOAA P3

Sun: SoCal day flight

Mon: SJV day flight

Tue: No Flight (50-hr maintenance); beyond - likely Gulf deployment

NOAA Twin Otter

Sun: afternoon flight in LA, Mojave, & Imperial Valley

Mon: morning flight in LA Basin; afternoon flight in LA, Mojave, & southern SJV

Tue: No Flight

Wed: transit to Sacramento, sampling Central Valley

Thu - Mon: No Flights - maintenance

R/V Atlantis

Sun - Tue: offshore

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

Sat: B-200 Flight (Sac, Fresno, Monterey, SFBA, Sac)

Sun: morning and afternoon flights

Mon: morning and afternoon flights

Tue: No Flights (if fly both Sun & Mon)

Local Features

Sun:

Sac: Sac plume to northeast, moderate air quality

SJV: good to moderate air quality - poorer air quality in southern portion of SJV

SoCal: tracer model of LA pollution indicates strongest early morning offshore push of weekend; O3 air quality anticipated to be USG or higher in eastern LA basin; LA plume to desert (more east (Banning) than north (Cajon))

Mon:

Sac: Sac plume toward receptor site; moderate air quality

SJV: good to moderate air quality - poorer air quality in southern portion of SJV;

SoCal: LA plume to desert (more east (Banning) than north (Cajon))

Tue:

SJV: descending air with high O3 over southern SJV; small recirculation eddy in south valley in morning

Wed: if flight range permits, TO flight to Sac could look for O3 along west side of SJV and coastal ridge line; small recirculation eddy in south valley in morning

Flight Recommendations:

Sunday flight track(s) include LA plume in bight in morning and in desert in afternoon;

Monday flight: Sac plume looks promising for CARES

Tuesday flight(s): Sac plume not promising for CARES; southern SJV may have high O3 in descending air mass

- Zonal flow north, ridge south
- Onshore gradients south, weak onshore north
- Deeper marine layer in the south then in previous mornings

Monday June 7

- Ridge is pushed S/E by another PacNW trough
- Onshore flow increases for the south
- Weak onshore north

Tuesday June 8

- Zonal flow pushes farther south as ridge shifts east
- Onshore flow resumes in the north, continues in the south

Wednesday-Friday

- Trough pushes south out of PacNW for Wed for N.Ca
- Trough digs south into So Cal Thurs/Fri

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

LA/SF AIRNOW Site Comparison

O3 at Riverside reached Unhealthy levels and Riverside PM2.5 reached USG levels on Saturday

Good SAC O3 AQ and moderate PM2.5 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

Initial LA Long-range transport to east during first 24hrs then turning northeast to UT/CO for ensembles ending Mon/Tue. Increased N/S dispersion for ensembles ending Wen

SF ensemble remains near SF/SAC for first 24hrs then transported over LA for ensembles ending Mon. Transport to South then turning East over Southern CA for SF ensembles ending Tue. Dispersion increases on Wen

SF ensemble ending Monday afternoon stays within SF/SAC MSA for first 24hr

with up to 60ppbv/day O3 P-L. Analysis overestimates O3 at Santa Maria (upwind of LA) by ~15ppbv SF ensemble passes over S CA beginning ~48hr with up to 60ppbv/day O3 P-L (likely underestimated by 2X)

5km RDF FX 00Z 06/07 (Sun Afternoon)

Circulation around high dominating flow pattern. IC polluted air arriving onshore N of CA. Slight enhancements in O3/CO within High

500m RDF FX 00Z 06/07 (Sun Afternoon)

Low CO/O3 over central CA. O3 decreases compared to Saturday afternoon. Significant O3 P-L due to LA plume over Central AZ. Moderate (5-10 ppbv/day) background O3 P-L over LA. Low (~5ppbv/day background O3 P-L over SF. Descent over Southern CA associated with low CO

500m RDF FX 00Z 06/08 (Mon Afternoon)

Low CO, O3 increases over central CA. Significant O3 P-L due to LA plume over Eastern AZ merging with CONUS O3 P-L. Moderate (5-10 ppbv/day) background O3 P-L over LA. Low (~5ppbv/day) background O3 P-L over SF. Descent over Southern CA

500m RDF FX 00Z 06/09 (Tue Afternoon)

IC CO/O3 enhancement remaining largely offshore. High CO/O3 airmass over Central CA. O3 shows large increase over Central CA. Moderate (5-10 ppbv/day) background O3 P-L over LA & SF. Descent over Southern CA associated with elevated CO/O3

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

IC CO/O3 enhancement onshore over Southern CA. High CO/O3 airmass offshore of LA. Moderate (5-10 ppbv/day) background O3 P-L over LA& SF. Descent offshore of LA associated with elevated CO/O3

Area Forecast Details

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

Sunday

- NW 10kt strengthens through the day to 15kt in the aftn and continues overnight
- MBL below 500ft

Monday

- NW 15 to 20kt
- MBL below 500ft, increase slightly during the day

Tuesday

- NW 15kt shifts W and lightens in the aftn; W 5kt at night and shifts S overnight
- MBL 500 increase to 1,500 ft

Wednesday

- W to SW 5kt in early AM; W 10kt in late AM; NW 15kt resumes in late aftn and strengthen overnight

Extended

- NW continues Thu and Friday; strongest on Thu aftn (gale wind further off coast), moderate on Friday

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

Sunday

- Northern SV - SE 5kt downslope flow; becomes S by late morning; returns to downslope pattern at late night
- Southern SV - SW 5kt; becomes W around mid-AM and reaches 10kt in the afternoon; returns to SW 5kt at late night
- W wind from north of Pt. Reyes yields weaker flow from delta
- AM PBL mostly 500ft; PM PBL 2,000 to 4,000ft
- Clear, with some cirrus
- Max aftn temp: 30C; moderate air quality with max-8hr mean O3 in 0.05-0.06 ppm range

Monday

- Northern SV - ESE below 5kt; S by late morn; SE at late night
- Southern SV - SW 5kt almost entire day, below 5kt around late morn to aftn
- AM PBL around 1,000; PM PBL 2,500 to 4,000ft
- Mostly clear except for cirrostratus in the morn and thins in the aftn
- Max aftn temp: 29C, moderate air quality, max-8hr mean O3 in 0.05-0.06 ppm range

Tuesday

- Northern SV - SE 5 to 10kt early AM, shifts S by mid-morn; becomes SW 10kt in the aftn; SE 10kt at night
- Southern SV - SW 5kt, strengthen to 10kt in late aftn; 5 to 10kt at night
- AM PBL around 1,000ft; PM PBL 3,000 to 5,000ft

- Scattered cirrus in the morning; cirrostratus moves through in the afternoon
- Max aftn temp: 27C; good air quality, max-8hr mean O3 in 0.05 ppm range

Wednesday

- Northern SV - SE 5 to 10kt early AM, shift S around late AM; becomes SW 10kt in the aftn; lightens to 5kt at night
- Southern SV - SW 5kt; shifts WSW 10kt in the aftn; SW 5kt at night
- Partly cloudy, mainly with altocumulus in AM; 10% chance of rain
- Max aftn temp: 26C; good air quality, max-8hr mean O3 in 0.04 ppm range

Extended

- Wind shifts NWly Thu mring; gusty NW wind on Fri
- No clouds
- Max aftn temp warms to high 20s C; good air quality

San Joaquin Valley - Shawn Ferreria (Shawn.Ferreria@valleyair.org)

Sunday June 6

Surface Winds: Surface obs this morning: Light to moderate NW flow across most of the SJV. The wind profilers show a light to moderate N to NW flow above the surface across the SJV. CANSAC shows light to moderate W to NW flow over Delta, Altamont and Pacheco Passes this afternoon into the early evening hours. Light S to SE flow is present over Kern County by 6 Z this evening. Outflow over the passes throughout the day and night. Upslope flow in the afternoon stops after sunset with weak flow (downslope) thereafter over the Sierra's. Very weak NW flow will continue overnight on the valley floor.

Boundary Layer Mixing: CANSAC shows that maximum boundary layer mixing depths will range from 3,000 to 5,000 feet from Fresno county southward. Maximum mixing depths between 2,500 and 3,000 feet from Madera county northward.

Air Quality: Good to extremely low end moderate air quality (south end of Valley) due to ozone.

Monday June 7 into Tuesday June 8

Surface Winds: CANSAC shows light to moderate onshore flow occurring during the day on Monday over the northern SJV. Weak flow from Kern County toward SLO will be present during the afternoon hours. Moderate outflow will continue out toward the Deserts by the late afternoon into the evening hours. Overnight wind flow into the early morning hours on Tuesday shows the potential of a weak eddy circulation forming in Kern and Tulare Counties. By the afternoon hours,

light northwesterly thermally driven wind flow will have developed over the entire SJV on Tuesday.

Boundary Layer Mixing: CANSAC shows that maximum mixing depths will range from 3,000 to 5,000 feet District-wide on both Monday and Tuesday.

Air Quality: Good to low end moderate AQ due to ozone. Moderate AQ possible in southern SJV.

Wednesday and Thursday June 9 and 10

Surface Winds: As the trough develops over the West Coast, onshore winds will strengthen over the SJV. Northwesterly wind flow will steadily increase over the entire SJV beginning late Wednesday into Thursday. Potential thermal circulation pattern may be present on Wednesday morning.

Boundary Layer Mixing: Boundary layer mixing depths will steadily improve through the later part of the work week under decreasing stability.

Air Quality: Good AQ expected due to ozone.

Potential Targets for next Flight Day

Kern County will be the best target due to possibility of moderate AQ due to ozone. Re-circulation patterns may be present on Tuesday and Wednesday mornings.

Central Coast - NO FORECAST TODAY

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

+ Sunday afternoon (00Z 7 June)

- Marine Low Clouds

* OVC/BKN StCu Crescent City to Point Arena

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

* OVC/BKN St/fog Point Arguello to San Diego

- SOCAL Marine Layer Winds

* WSW 5-15 kts inner and outer waters

+ Monday morning (12Z 7 June)

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

- SOCAL Marine Layer Winds
- * NW 10-20 kts outer waters
- * E-SE 0-10 kts inner waters

+ Monday afternoon (00Z 8 June)

- Marine Low Clouds
- * SCT/CLR StCu Crescent City to Santa Barbara
- * BKN/SCT St/fog Santa Barbara to San Diego

- SOCAL Marine Layer Winds
- * NW 10-25 kts outer waters
- * W 8-12 kts inner waters

+ Tuesday morning (12Z 8 June)

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

- SOCAL Marine Layer Winds
- * NW 10-20 kts outer waters
- * E-SE 0-10 kts inner waters

+ Tuesday afternoon (00Z 9 June)

- Marine Low Clouds
- * BKN/SCT StCu Crescent City to Point Arguello
- * SCT/CLR StCu Point Arguello to Santa Barbara
- * BKN/SCT St Santa Barbara to San Diego

- SOCAL Marine Layer Winds

- * NW 10-25 kts outer waters
- * W 8-12 kts inner waters

+ Wednesday morning (12Z 9 June)

- Marine Low Clouds

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

- SOCAL Marine Layer Winds

- * NW 10-20 kts outer waters
- * E-SE 0-10 kts inner waters

+ Wednesday afternoon (00Z 10 June)

- Marine Low Clouds

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

- SOCAL Marine Layer Winds

- * NW 10-25 kts outer waters
- * W 8-12 kts inner waters

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

Saturday: ozone to Unhealthy (8-hr 123, 1-hr 141 ppb @ Crestline);

NOTE: fire in Wilmington at auto recycling yard burning since Saturday morning & still burning Sunday morning

<http://cbs2.com/local/large.fire.at.2.1734770.html>

Sunday: Miramar AM inversion base 1800 ft, very saturated below; persistent coastal eddy; low clouds & fog to the mountains; clearing to beaches this afternoon; less northerly gradient; stronger onshore gradients today; warmer inland today than Saturday; ozone to USG with some Unhealthy possible in Crestline & Riverside areas

Monday: coastal eddy persists; high pressure aloft weakens slightly; marine layer deepens a little; AM stratus clearing to beaches; temps still warm inland; ozone to USG with Unhealthy possible inland

Tuesday: ridge weakens further; gradual cooling trend; ozone to USG with small chance of Unhealthy inland

Wednesday: weak troughing aloft (~ flat over so Cal); deeper marine layer; AM low clouds & fog; ozone mostly moderate, some USG inland

Thursday +: west coast trough builds; deeper marine layer; AM low clouds & fog; possible stronger N gradient developing; some gusty winds mountains & deserts; temps near normal by Friday; ozone mostly moderate, some USG still possible inland