

CalNex Forecast Notes - Sunday, June 13, 2010

Anticipated Flights

NOAA P3

Sun: rest
Mon: flight likely
Tue: flight likely

NOAA Twin Otter

Next flight will be after Monday

CARES DOE G-1 and NASA B200

Sun: rest
Mon: flights likely
Tue: flights likely

Local Features Monday

Sacramento Moderate (or borderline USG) AQ

CANSAC predicts N wind over Sacramento shifting to SW in aftn, Sac plume transport initially S, later NE toward T1 site.

COAMPS predicts stronger offshore flow thru delta and more persistent NW flow over Sac

SJV

USG likely Tulare Co

Borderline USG Kern & Fresno Co

Upwind of SJV Lawrence Livermore controlled burn likely ~100 acres grassland

South Coast: declining AQ with typical weak seasonal land breeze - offshore morning flow and moderate afternoon onshore flow

Local Features Tuesday

Sacramento SW onshore for southern SV, 5 to 10kt in morning. Afternoon flow becomes more WSW toward Cool, 5kt in early afternoon increasing to 10kt in late afternoon.

South Coast weaker morning land breeze, stronger aftn onshore flow with penetration of LA plume to E Deserts in afternoon and outflow from SJV over Mojave to E Deserts

Synoptic Overview for California

Sunday June 13

- * Closed low moving east, High pressure building
- * Warming trend
- * Onshore gradients continue
- * Marine layer 1-2K in the south

Monday June 14

- * High Pressure remains
- * Weak Trof moving into Norcal
- * Onshore flow increases for the north
- * Marine layer slowly deepening

Tuesday June 15

- * Trof extends over most of the state
- * Pressure gradients tighten
- * Onshore flow continues
- * Marine layer moves further inland

Wednesday - Friday

- * Weak trofing over CA
- * Weak energy moving through the trof
- * Onshore flow continues
- * Marine layer should move further inland mornings

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

LA/SAC AIRNOW Site Comparison

Moderate LA O3/PM2.5 AQ during FX period

Moderate tending towards Good O3 and Moderate PM2.5 AQ at SAC

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

LA/SF AIRNOW Ensemble

LA Long-range transport to east and northeast for ensembles ending Mon. Stagnation over southern CA for ensembles ending Tue. Long-range transport to southeast for ensembles ending Wen

SF ensemble transport to South then turning north on Mon. Continuing southward with transport into Baja for ensembles ending Tues. Southward then North/South dispersion for ensembles ending Wen.

5km RDF FX 00Z 06/14 (Sun Afternoon)

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

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

Broad CO/O3 enhancement over Western US and offshore of CA associated with 60-100% CONUS PBL exposure. Enhanced (10-15ppbv/day) background O3 P-L over LA. Moderate (5-10ppbv/day) Background O3 P-L over SF

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

High (>80%) CONUS PBL Exposure and associated O3 P-L offshore of Baja . Moderate (5-10ppbv/day) background O3 P-L over SF. Elevated (10-15ppbv/day) O3 P-L over and south of LA

500m RDF FX 00Z 06/16 (Tue Afternoon)

Descent of high O3/low CO air over central CA. Moderate (5-10ppbv/day) background O3 P-L over LA&SF

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

Descent of high O3/low CO air over Southern CA. Descent of high O3/CO air offshore of Northern CA.

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

1.5km RDF FX 00Z 06/17 (Wen Afternoon)

Transport of enhanced CO and Black & Organic Carbon off shore of Northern CA from AK wildfires

Low (<5ppbv/day) background O3 P-L due to AK wildfires

Area Forecast Details

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

Sunday

CANSAC: NW onshore dies down but remains NW 10kt in coastal area; western valley flow reaches East Bay late morning; valley flow decreases by 21Z as NW onshore strengthen into 15kt; onshore flow toward E, then SE once it reaches the valley,

onshore flow strongest in late aftn; some onshore flow at night, but cannot go beyond coastal range

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

MBL 500ft to 1000ft

Monday

Most calm in early AM with little onshore flow left; NW 10 to 15kt onshore flow develops late morn, makes V turn to head inland toward SV; 10kt flow from North Bay reaches SV in aftn and flow South Bay heads into SJV;

MBL below 500ft

Tuesday

Persistent NW 15kt flow off the coast turns SW 10kt inland, flow north of Hayward goes into SV; onshore flow into SV decreases a bit in the late morn but flow into SJV increases; aftn onshore flow stronger at 10 to 15kt

MBL 500 to 3,000ft; decrease to 500

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

Sunday

Mostly light wind in eastern part of valley with some downslope influence, western part of valley still experience N 10 to 15kt wind until aftn; NW 10kt in the aftn upslope toward SJV foothills with some heading into SJV valley; most valley location light and variable at night, except Solano County to see W 10kt from Marin County briefly in the evening; light SW flow makes its way into southern SV from SF at late night via delta

AM PBL 500 to 1,000ft; PM PBL 2,500 (N. SV) to 4,500ft (S. SV)

COAMPS: Clear, cirrostratus (40Kft) late AM from NW in northern SV

Max aftn temp 34C; moderate air quality

Monday

NW downslope for western SV, SE downslope for northern SV, and SW onshore for

southern SV, 5kt and below, resulting an eddy center west of Davis that is most apparent at 18Z; stronger onshore flow in the aftn between 5 to 10kt; aftn wind flow hits Cool after traveling through the delta; flow lighten and travels upvalley at night - mostly SW 5kt for southern SV and SE for northern SV

AM PBL 500 to 1,000ft; PM PBL 2,500 (N. SV) to 4,500ft (S. SV)

35Kft cirrostratus

Max aftn temp 33C; moderate air quality

Sacramento Valley

Tuesday

NW downslope for western SV, SE downslope for northern SV, and SW onshore for southern SV, 5 to 10kt; same pattern in late morning except flow experiences thermal upslope leaves central valley mostly light wind; aftn flow becomes more WSW to Cool, 5kt in early aftn to 10kt in late aftn

AM PBL 500 to 1,500ft; PM PBL 3,500 to 5,000ft

Mostly clear

Max aftn temp 31C; moderate air quality

Sacramento Trajectory (Mon)

Sacramento Trajectory (Tue)

San Joaquin Valley - Shawn Ferreria

(updated June 13, 2010 at 9:00 AM)

Sunday, June 13, 2010:

Wind Flow: Winds will be thermally driven today as is evident with this mornings surface observations. The morning surface winds are calm to east to southeasterly for a majority of the SJVAB. The morning profiler from Visalia depicts light and variable wind flow up to 3,000 feet, shifting and strengthening from the northwest to north above. The morning profiler in Lost Hills shows light and variable wind flow up to 6,000 feet, shifting and strengthening from the northwest above. The 0Z CANSAC shows as thermal heating occurs winds will

slowly shift and turn from the northwest by this afternoon. The wind flow will be strongest in the northern parts of the SJV. Flow from the Delta this afternoon will be cut-off by north to northwesterly flow in the SAC Valley. Flow into the District will be via Altamont and Pacheco pass, with outflow into the Deserts. Overnight winds will be light and variable. Typical, up slope flow will occur during the afternoon hours in the Sierra's and down slope in the evening.

Boundary Layer Mixing: Morning surface based inversions were present today in the SJV. Maximum mixing depths later this afternoon will be between 4,000 and 5,500 feet.

Air Quality: Moderate AQ is predicted for a majority of the SJV, with the exception of Tulare and Kern Counties (USG AQ is predicted).

San Joaquin Valley

<http://tbsys.serveftp.net/wg/wgup/towerpro.htm>

Monday, June 14, 2010:

Surface Winds: According to the OZ CANSAC surface winds will be light and variable tomorrow morning. A very weak eddy may be present over Kern, Tulare and Kings counties tomorrow as return flow from the southeast meets very light northwesterly flow along the western parts of the SJV. With afternoon heating, northwesterly flow will develop over the SJV. Inflow will be from the Delta, Pacheco, and Altamont passes, with outflow towards the Deserts.

Boundary layer mixing depths: Maximum boundary layer mixing depths will be slightly lower on Monday compared to Sunday (between 3,500 to 5,000 feet).

Air Quality: Will be mostly moderate across the SJV, with the exception of USG over Kern and Tulare Counties. Potential USG over Fresno and Kings counties tomorrow.

Tuesday through Thursday, June 15 - 17, 2010:

Approaching trough will increase onshore flow into the SJV. Northwesterly winds will steadily increase through the period under improving dispersion conditions.

Thermally driven flow will be eroded by synoptically driven flow. Boundary layer mixing depths should steadily improve through the forecast period, with air quality turning good in the northern region and moderate in the southern region's of the SJV by Tuesday into Wednesday.

Central Coast -

SoCal Coastal Waters

+ Sunday afternoon (00Z 14 June)

- Marine Low Clouds
 - * BKN/SCT St Crescent City to Point Reyes
 - * SCT/CLR St Point Reyes to Big Sur
 - * OVC/BKN St Big Sur to Point Arguello
 - * BKN/SCT St/StCu Point Arguello to San Diego
- SOCAL Marine Layer Winds
 - * W 10-15 kts inner and outer waters

+ Monday morning (12Z 14 June)

- Marine Low Clouds
 - * BKN/SCT StCu Crescent City to San Francisco
 - * OVC/BKN St San Francisco to Point Arguello
 - * SCT/CLR StCu Point Arguello to Point Mugu
 - * OVC/BKN St/StCu Point Mugu to San Diego
- SOCAL Marine Layer Winds
 - * NW 10-15 kts outer waters
 - * SE 0-5 kts inner waters Santa Barbara to San Clemente
 - * NW 0-10 kts San Clemente to San Diego

+ Monday afternoon (00Z 15 June)

- Marine Low Clouds
 - * SCT/CLR StCu Crescent City to San Francisco
 - * OVC/BKN St San Francisco to Point Arguello
 - * SCT/CLR StCu Point Arguello to Palos Verdes

- * BKN/SCT StCu Palos Verdes to San Diego

- SOCAL Marine Layer Winds

- * NW 15-20 kts outer waters

- * W 10-15 kts inner waters

+ Tuesday morning (12Z 15 June)

- Marine Low Clouds

- * SCT/CLR StCu Crescent City to San Simeon

- * OVC/BKN St San Simeon to Point Arguello

- * SCT/CLR Point Arguello to Point Mugu

- * OVC/BKN St/StCu Point Mugu to San Diego

- SOCAL Marine Layer Winds

- * NW 10-20 kts outer waters

- * VAR 0-10 kts inner waters

+ Tuesday afternoon (00Z 16 June)

- Marine Low Clouds

- * SCT/CLR StCu Crescent City to San Luis Obispo

- * OVC/BKN St San Luis Obispo to Point Arguello

- * SCT/CLR StCu Point Arguello to Santa Barbara

- * BKN/SCT St/StCu Santa Barbara to San Diego

- SOCAL Marine Layer Winds

- * NW 10-20 kts outer waters

- * W 5-10 kts inner waters

+ Wednesday morning (12Z 16 June)

- Marine Low Clouds

- * SCT/CLR StCu Crescent City to Point Arguello

- * OVC/BKN St/StCu Point Arguello to San Diego

- SOCAL Marine Layer Winds

- * NW 5-15 kts outer waters

* SE 5-10 kts inner waters

+ Wednesday afternoon (00Z 17 June)

- Marine Low Clouds

* SCT/CLR StCu Crescent City to Palos Verdes

* BKN/SCT St/StCu Palos Verdes to San Diego

- SOCAL Marine Layer Winds

* NW 10-20 kts outer waters

* W 5-10 kts inner waters

- SOCAL Marine Layer Winds

* NW 15-25 kts outer waters

* W 5-15 kts inner waters

South Coast Basin -