

CalNex Forecast Notes - Monday, June 21, 2010

Anticipated Flights

NOAA P3

Mon: No Flights - packing

Tue: Measurements during transit to Colorado

NOAA Twin Otter

Mon: Morning & afternoon flights in Sac area

Tue:

CARES DOE G-1 and NASA B200

Mon: Sac/N SJV flights

Tue: afternoon flight possible

Wed: Flights likely

Thu: Flights likely if no flight Tuesday

Local Features

Monday

- light NW winds clear SF emissions from Sac Valley and carry fresh Sac and SF emissions to SJV
- Lawrence Livermore Natl Lab still conducting prescribed grass burns (200-300 acres) when winds OK
- enhanced bkg O3 production in San Francisco Bay Area

Tuesday

- improving flow into Sac Vly but Sac plume largely south of Cool
- Lawrence Livermore Natl Lab still conducting prescribed grass burns (200-300 acres) when winds OK
- Moderate (5-10ppbv/day) background O3 P-L between SF and Sac.
- USG for O3 possible in southern SJV
- LA Basin emissions transport east to desert

Wednesday

- improved flow pattern for Sac to Cool transport but mid & high level clouds (>20k ft base)
- USG for O3 possible in southern SJV

Thursday

- good flow pattern for Sac to Cool transport but some mid & high level clouds (>15k ft base)
- USG for O3 possible in southern SJV

Synoptic Overview for California - Jason Branz (jbranz@arb.ca.gov)

Monday June 21

- Weak baggy trough extends from ID southwest to SoCal
- Transport flow: SW in SoCal, N/NW in the north
- SoCal surface flow is weak onshore with marine stratus present
- North winds for the Valleys

Tuesday June 22

- Weak ridging moves through the state
- Weak onshore flow late for all areas

Wednesday June 23

- Next trough digs south from PacNW
- Onshore flow increases in the north

Beyond...

- Longwave trough over CA through Fri
- Transitory ridge for Sat
- Another trough for the north Sunday, ridging south

Large Scale Transport Notes - Leon Dolislager (ldolisl@arb.ca.gov)

500m RDF FX 00Z 06/22 (Mon Afternoon)

High CO with low O3 air over Sacramento and into NV. N-S line of enhanced O3 over North Coast. Moderate (5-10ppbv/day) background O3 P-L over Sac Vly. N-S line of descending air along Coastal mtn ranges.

500m RDF FX 00Z 06/23 (Tue Afternoon)

Narrow N-S line of enhanced CO but low O3 over Central Valley. Moderate (5-10ppbv/day) background O3 P-L between SF and Sac. N-S lines of descending air west and east of Sac.

500m RDF FX 00Z 06/24 (Wed Afternoon)

Moderate CO and O3 in air over Sacramento Valley. Moderate (5-10ppbv/day) background O3 P-L over SF. Descending air in N-S line west of Sacramento.

500m RDF FX 00Z 06/21 (Thu Afternoon)

Low CO and O3 over Northern CA. Moderate (5-10pbv/day) background O3 P-L over Sacramento area. Descending air along coast and coastal mtns.

RAQMS Reverse Domain Filling forecasts will continue to be posted by 6:40am (Pacific) @ http://raqms-ops.ssec.wisc.edu/RDF_products/CalNex/RDF/ Go to YYYYMM

Area Forecast Details

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

Monday

- Early AM: Presence of weak delta flow and north wind, but north wind is much weaker than what was predicted; wind profiler recording light WNW near ground level and N at 1,000ft and above
- Late AM: NW7kt in the valley, Sac Cnty outflow to the E foothills
- PM: Onshore flow makes it way into the delta in late aftn, countered by N. wind and turns SE; N. wind dies down to below 5kt for most valley locations by late afternoon, outflow toward SE
- Evening: Onshore flow decreases but reaches Sac Cnty at late night, breaking the brief period of stagnation
- PBL below 500ft in AM; 4,000 to 6,500ft in PM
- MBL 500ft and below
- Mostly clear, cirrostratus (26Kft) leaving area in the AM
- Max aftn temp: 32C/89F; moderate air quality

Tuesday

- Early AM: Downslope flow strong in some areas but weak in Sac Cnty due to countering from weak onshore flow, SW2kt in Sac Cnty
- Late AM: Late N. wind dies down over the western edge of valley, Sac Cnty remains light NW until aftn, foothills area light and variable as it switches from downslope to upslope flow
- Late afternoon: Onshore flow from E. Bay begins to reach lower Sac Cnty, but majority of flow turns toward SJV; outflow from Downtown towards ESE in late afternoon; GFS predicts stronger onshore flow for Sac Cnty WSW5kt and SW 9kt in early and late aftn, respectively
- Weak delta and downslope flow at night
- GFS: Cirrostratus (24-28Kft) all day, altocumulus (21Kft) at night; COAMPS: 30-40Kft cirrostratus all day; 20-25Kft altocumulus in afternoon

- PBL below 500ft in AM, around 4,000ft in PM for S. SV, lower for N. SV
- MBL 500ft and below
- Max aftn temp: 34C/94F; moderate air quality

Wednesday

- AM: Weak onshore toward Sac Cnty, weak downslope flow elsewhere in valley in early AM; valley remains light and variable throughout the morning
- Early PM: Stronger onshore from N. Bay toward SV; Sac Cnty at SW4kt and outflow toward NE foothills, late aftn wind becomes WSW 5kt; CANSAC predicts light wind in N. SV, probably should be W5kt
- PBL below 500ft, 5,000ft in PM
- MBL around 500ft
- GFS: Cirrostratus/altostratus/altocumulus (21Kft) in and out through the day; COAMPS: 30-40Kft cirrostratus in the day; 15-30Kft altostratus/altocumulus in the afternoon
- Max aftn temp: 32C/90F; moderate air quality

Thursday

- Light onshore flow throughout the day becomes stronger in the afternoon
- Altocumulus/altostratus in the area throughout the day
- Max aftn temp: 31C/88F; good air quality

Sacramento Trajectory (Mon) - plume toward SE

Sacramento Trajectory (Tue) - plume toward E

Sacramento Trajectory (Wed) - plume toward NE

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

Monday June 21

Surface Winds: The surface observations this morning show light and variable wind flow from Merced county southward. Light northwesterly winds are present in San Joaquin and Stanislaus Counties. The wind profilers show light northwesterly wind flow up to 3,000 feet, turning light and variable above. The 0Z CANSAC shows light NW flow throughout the SJV this afternoon. The Delta and Altamont passes are shut-off by the north to northwesterly flow from SAC Valley. Weak onshore flow will begin around 3Z tonight, with light and variable winds developing over the rest of the SJV. Outflow will be toward the Deserts and SLO.

Boundary Layer Mixing: Maximum boundary layer mixing depths will be between 2,500 to 5,000 feet this afternoon. Limited mixing depths are forecast along the western parts of the SJV.

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

Tuesday June 22

Surface Winds: CANSAC shows similar wind conditions on Tuesday compared to Monday, with the exception onshore flow will commence around 0Z and be a little stronger. Winds across the rest of the SJV will be thermally driven, with light to moderate northwesterly wind flow developing over the District during the afternoon hours.

Boundary Layer Mixing: CANSAC indicates that mixing depths should be between 2,500 to 5,000 feet across the SJV. Limited mixing depths are forecast for along the western parts of the SJV.

Air Quality: Good to Moderate ozone air quality is expected across the SJV. Possible USG over Kern, Tulare, Kings, and Fresno Counties.

Wednesday June 23

Surface Winds: CANSAC shows thermally driven surface winds dominating. Very light onshore flow is possible by the afternoon hours.

Boundary Layer Mixing: CANSAC indicates that maximum boundary layer mixing heights will range from 2,500 to 5,000 feet.

Air Quality: Good to Moderate ozone air quality is expected across the SJV. USG possible over the central and south end of the SJV.

Thursday June 24 and Friday June 25

Surface Winds: Surface wind flow in the SJV will be mainly thermally driven, with light onshore flow conditions continuing through the forecast period. Potential for stronger onshore flow conditions depending on how the trough influences the marine layer along the coast.

Boundary Layer Mixing: Boundary layer mixing depths will remain steady through the period.

Air Quality: Good to moderate AQI is predicted from Madera counties northward, with USG possible from Fresno county southward.

Potential Targets for next Flight Day

The LLNL prescribed burn SW of Tracy is scheduled for today, given that they are within their prescription.

Central Coast -

(NO FORECAST TODAY until SoCal operations)

SoCal Coastal Waters -

(NO FORECAST TODAY until SoCal operations)

South Coast Basin -

(NO FORECAST until SoCal operations)