

CalNex Forecast Notes - Friday May 28, 2010

Anticipated Activities of Platforms

WP-3D

Friday: No Flight

Saturday: planned evening-night flight, 7 pm takeoff

Sunday: planned late night-early am flight, 10 PM takeoff

NOAA Twin Otter:

Next possible flights Friday and Saturday

CIRPAS Twin Otter:

NASA King Air:

R/V Atlantis:

Tuesday nite: LA bight

Wednesday: LA bight

Thursday: LA bight

Friday: Port of LA

Saturday: LA bight

Local Features:

Friday: potential for NOAA Twin Otter to sample stratospheric intrusion and long range transport of polluted dusty air mass

Saturday night:

Build up of concentrations in Southern SJV and LA Basin for contrast of emission mixes and chemistry, little if any outflow to SE deserts; LA bight contrast in marine layer vs 700mb trajectories and concentrations, see winds at 700 mb & sfc and LA plume at 4 sigma levels, slides 40-41, 43-44, 46-47; Catalina Isle 1,600' elev 03 <http://tbsys.serveftp.net/Catalina/>

Sunday night:

Continued stagnation Sun am, but pm sea breeze will reestablish.

Similar Sun night target in LA bight as on Sat

Opportunity to contrast SJV and LA chemical compositions and their respective outflows into SE desert.

Next week: Weak trough through early week

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

Friday May 28

- Upper low moving east into NV
- Transport flow turns N
- Offshore gradients in SoCal with gusty N/NW winds

Saturday May 29

- Offshore gradients continue for SoCal
- Upper ridge builds

Sunday May 30

- Upper ridge strengthens for SoCal, transport flow weakens
- Weak trough brushes far N CA

Next Week

- Monday: onshore flow in response to weak trough over N CA
- Tuesday: onshore flow continues as trough moves E
- Wednesday: transport flow weakens as ridge builds
- Thursday: ridge strengthens, offshore gradients develop

GFS Notes - Extended Outlook Jim Pederson <jrpeders@arb.ca.gov>

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

LA/SF AIRNOW Site Comparison

Good tending to Moderate LA O3 AQ. Moderate LA PM2.5 AQ

Good O3 tending to Moderate Bakersfield O3 AQ. Good Bakersfield PM2.5 AQ during FX period

LA/SF AIRNOW Ensemble

LA Long-range transport slowly to east during first 24 hr then north/south dispersion for ensembles ending Sat afternoon. Regional stagnation for ensembles ending Mon afternoon.

SF Long-range transport to north east for ensembles ending Sat turning south for ensembles ending Sun. Alignment with LA ensemble for trajectories ending Mon

500m RDF FX 00Z 05/29 (Fri Afternoon)

Weak IC CO/O3 enhancement onshore near Point Conception.

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

500m RDF FX 00Z 05/30 (Sat Afternoon)

Building high pressure off shore bringing in low CO/O3
Moderate (5-10ppbv/day) O3 P-L over LA & SF
LA >80% exposure to CONUS PBL in previous 3 days

500m RDF FX 00Z 05/31 (Sun Afternoon)

Building high pressure off shore bringing in low CO/O3. Advection of Enhanced LA O3 P-L into AZ
Enhanced (10-15ppbv/day) O3 P-L over LA. Moderate (5-10ppbv/day) O3 P-L over SF
S CAL 60-80% exposure to CONUS PBL in previous 3 days

RAQMS 84hr FX (00Z 05/31) underestimates development of low south of CA relative to GFS which will impact 00Z 05/30 05/31 (Sat/Sun evening)

500m RDF FX 00Z 06/01 (Mon Afternoon)

Building high pressure off shore bringing in low CO/O3. Advection of Enhanced LA O3 P-L into AZ/NV
Enhanced (10-15ppbv/day) O3 P-L over LA. Moderate (5-10 ppbv/day) background O3 P-L over SF
S CAL 80% exposure to CONUS PBL in previous 3 days

Area Forecast Details

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

SLIGHTLY OLDER FORECAST (updated Thursday 17 PDT -- 00Z 28 May)

Saturday

- **NW 20kt becomes 25kt in the afternoon, returns to 20kt at night**
- **MBL 500ft**

Sunday

- **Same wind pattern as Saturday**
- **AM PBL 1,000ft**

Monday

- **NW 20kt lightens to 10kts by nighttime**

Extended

- **Constant NW 10 to 15kt wind**

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

SLIGHTLY OLDER FORECAST (updated Thursday 17 PDT -- 00Z 28 May)

Saturday

- N to NW 5 to 10kt, strongest in the afternoon; light and variable wind at late night
- Max aftn temp: 26C
- AM PBL 1,000 ft; PM PBL 4,000
- Thin, high cirrus, otherwise clear
- Good air quality: max-8hr mean O3 in 0.04 ppm range

Sunday

- Light variable wind with downslope flow in early AM
- AM PBL 1,000ft
- Cirrus and cirrostratus expected
- Max aftn temp: 28C
- Good air quality: max-8hr mean O3 in 0.05 ppm range

Monday

- Light variable wind with downslope flow in early AM, NW to W wind at 5kt in the morning becomes light and variable again in the afternoon; downslope flow at night (northern SV) and SW onshore flow (southern SV)
- Cirrus continues but decreases later in the afternoon
- Max aftn temp: 27C
- Good air quality: max-8hr mean O3 in 0.05 ppm range

Extended

- Light variable wind, stronger onshore flow gradient; may turn westerly on Wednesday
- Mostly sunny except for occasional cirrostratus
- Higher O3 conc, moderate air quality, becomes more season like

Friday May 28

Surface Winds: The surface observations this morning show calm to light NW flow in the northern SJV and moderate NW winds in the central and southern SJV. The wind profilers in the SJV show the same NW conditions above the surface, except for Tracy which shows a S flow. CANSAC shows a strong NW flow throughout the day, and decreasing into the late evening.

Boundary Layer Mixing: The wind profilers indicate a slight temperature inversion of 2 F in Visalia. CANSAC indicates that mixing should improve to 4,500 feet throughout most portions of the SJV by the afternoon.

Air Quality: Expected to be mostly Good throughout the District due to good dispersion from the passing trough.

Saturday May 29

Surface Winds: CANSAC shows lighter NW winds due to building stability. By the evening, flow out of the southern SJV into the Kern Desert via Tehachapi Pass is expected, along with downsloping off of the Sierra Nevadas onto the Valley floor by the early morning hours before sunrise.

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

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

Sunday May 30

Surface Winds: CANSAC shows light and variable flow throughout the SJV due to stable conditions. Downsloping flow this morning will be occurring over the Sierra Nevadas with very little NW flow along the western portion of the SJV.

Boundary Layer Mixing: CANSAC shows that mixing should improve to 3,500 feet in the northern SJV, and to 2,500 feet in the central and southern SJV. Residual boundary layer will be around 2,000 to 4,000 feet.

Air Quality: Expected to be mostly Moderate throughout the SJV, with a chance for USG in the southern portion of the District. Residual ozone levels may remain at elevated terrain.

Monday May 31 and Tuesday June 1

Surface Winds: GFS shows surface winds to be predominately from the N to NW, with a weak trough moving through the area on Tuesday.

Boundary Layer Mixing: Mixing conditions on Monday should be similar to Sunday, and Tuesday's conditions should be an improvement due to the passing system.

Air Quality: Expected to be mostly Moderate throughout the SJV.

Potential Targets for next Flight Day

For Saturday evening, the air exchange from the southern SJV into the Kern desert, and for Sunday evening, downsloping flow into the SJV will be enhanced.

Central Coast - Gary Arcemont (garcemont@co.slo.ca.us)
Not Available

SoCal Coastal Waters

+ Friday afternoon (00Z 29 May)

- Marine Low Clouds
 - * SCT/CLR StCu Crescent City to San Diego
- SOCAL Marine Layer Winds
 - * WNW 20-30 kts outer waters
 - * WNW 10-20 kts inner waters

+ Saturday morning (12Z 29 May)

- Marine Low Clouds
 - * SCT/CLR StCu Crescent City to Palos Verdes
 - * BKN/SCT St Palos Verdes to San Diego
- SOCAL Marine Layer Winds
 - * NW 10-25 kts outer waters
 - * ENE-ESE 5-10 kts inner waters

+ Saturday afternoon (00Z 30 May)

- Marine Low Clouds
 - * CLR Crescent City to San Diego
- SOCAL Marine Layer Winds
 - * NW 15-25 kts outer waters
 - * WNW 5-15 kts inner waters

+ Saturday evening (06Z 30 May)

- Marine Low Clouds

* SCT/CLR St Crescent City to Point Sur

* CLR Point Sur to San Diego

- SOCAL Marine Layer Winds

* NW 10-25 kts outer waters

* N Sundowner winds 10-25 kts inner waters Gaviota to Venura

* N-NW 0-5 kts inner waters Ventura to Palos Verdes

* ENE-ESE 5-10 kts inner waters Palos Verdes to San Diego

+ Sunday morning (12Z 30 May)

- Marine Low Clouds

* SCT/CLR St/StCu Crescent City to Point Sur

* CLR Point Sur to Palos Verdes

* SCT/CLR St/fog Palos Verdes to San Diego

- SOCAL Marine Layer Winds

* E 5-10 kts inner waters extending out to channel islands

* NW 5-15 kts west of channel islands

+ Sunday afternoon (00Z 31 May)

- Marine Low Clouds
 - * BKN/SCT St/fog Crescent City to Point Arena
 - * OVC/BKN St/fog Point Arena to Santa Cruz
 - * SCT/CLR St/fog Santa Cruz to San Diego

- SOCAL Marine Layer Winds
 - * NW 10-25 kts outer waters
 - * W-SW 5-10 kts inner waters

+ Sunday evening (06Z 31 May)

- Marine Low Clouds
 - * BKN/SCT St/fog Crescent City to Point Reyes
 - * OVC/BKN St/fog Point Reyes to Point Arguello
 - * CLR Point Arguello to Palos Verdes
 - * OVC/BKN Palos Verdes to San Diego

- SOCAL Marine Layer Winds
 - * NW 10-15 kts west of a line from Santa Cruz Island to San Nicolas Island
 - * LT VAR in a band extending south of Ventura County
 - * S-SW 5-10 kts Point Mugu to San Diego

+ Monday morning (12Z 1 June)

- Marine Low Clouds

- * OVC/BKN St/fog Crescent City to Cape Mendocino
- * SCT/CLR St/fog Cape Mendocino to San Francisco
- * OVC/BKN St/fog San Francisco to San Diego

- SOCAL Marine Layer Winds

- * SE 5-15 kts inner waters Santa Barbara to Palos Verdes
- * S-SW 0-5 kts Palos Verdes to San Diego
- * NW 5-15 kts west of channel islands

South Coast - Kevin Durkee kdurkee@

- **Friday:** Upper low moves over Great Basin; AM Miramar sounding shows deep moist layer to ~5000 feet; low clouds hugging the mountains this AM, but mostly clear otherwise; drier NW flow will start late Thursday night & Friday; warming starts, but only a few degrees higher; clouds decrease for mostly sunny afternoon; some gusty NW winds through day; northerly surface gradients peak Friday night for strong winds on Central Coast, Santa Ynez range, Antelope Valley & I-5 corridor & some in San Fernando & Santa Clarita Valleys; Moderate Ozone
- **Saturday:** some weak ridging (really just weaker trough) aloft over So. Cal.; clear skies; northeasterly (offshore) surface gradients; warming 10-15 degrees for above normal temps - near 90 degrees F in warmer valleys; AQ mostly Moderate, but some USG possible; increased fire hazard with the dry, warm offshore winds
- Catalina Island Ozone Monitoring (elev 1600 ft): <http://tbsys.serveftp.net/Catalina/>
- **Sunday:** warm temperatures continue with weaker northeasterly (offshore) flows in morning; earlier onshore gradients in afternoon will keep temperatures slightly cooler than Saturday, especially at near coast but still warm inland; more stratus/marine layer may return to coast Sunday night/Monday AM with AM coastal eddy likely; USG AQ possible in eastern SoCAB