

CalNex Forecast Notes - Sunday, May 30, 2010

Anticipated Activities of Platforms

WP-3D

Sunday: night-early am flight, 10 PM takeoff

NOAA Twin Otter

Sunday: Afternoon flight (takeoff: 1500 PDT) to survey eastern part of LA Basin and characterize outflow of pollutants.

R/V Atlantis:

LA bight, off Palos Verdes

Fuel switch on incoming container ship Sun pm (?)

Anticipating transit to Bay Area

Arrive in Bay Area by Sat June 8

Local Features:

Sunday night:

Continued stagnation in S SJV and LA basin Sun am, but pm sea breeze will reestablish.

SJV transition in AQ with weak inflow through coastal passes increasing by 00 z. By 03 Z stronger flows through Altamont and other N passes from Bay Area. NW flow 5-10 kts overnight in valley. Outflow to E deserts over Tehachepi's may be partly capped by inversion. Contrast of chemical compositions for late Sunday (e.g., 23 PDT - COAMPS) outflows from SJV and LA Basin into E Deserts. LA Basin outflow to E Deserts not likely before 20 PDT.

Mon-Tue: Weak trough in GFS, somewhat deeper slower trough in ECMWF. Zonal flow expected through Thursday as ECMWF has been more realistic recently.

California Synoptic Overview - Jeff Lancero

Synoptic Overview for California: Adam Gerber; agerber@arb.ca.gov

Sunday May 30

- Ridge axis overhead this morning
- Ridge flattens as weak trof approaches from the north
- Westerly transport flow
- Weaker surface onshore flow in north weaker offshore in south

Monday May 31

- Weak PacNW trough over N CA
- Transport flow turns W/SW

Tuesday June 1

- Zonal flow
- Transport flow turns W/NW

Wednesday to Friday June 2-June 5

- Ridge expands in SoCal, however will remain flat
- Trough out of Gulf of Alaska forecasted to spin shortwaves into PacificNW
- Transport flow to remain onshore

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

LA/Bakersfield AIRNOW Site Comparison

Good to Moderate LA O3 Moderate LA PM2.5 AQ during FX period

Good Bakersfield O3/PM2.5 AQ during FX period

O3 analysis shows good agreement for O3. PM2.5 overestimated at Riverside good at Bakersfield

LA/SF AIRNOW Ensemble

Initial LA Long-range transport to south during first 24hrs then turning northward for ensembles ending Mon/Tue

Initial SF Long-range transport to south then turning northward. Alignment with LA ensemble on Mon/Tues

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

Building high pressure off shore bringing in low CO/O3. New IC CO/O3 enhancement arriving from NW

Moderate (5-10 ppbv/day) background O3 P-L over and south of LA. Moderate (5-10ppbv/day) O3 P-L over SF

80% CONUS PBL Exposure over LA during previous 3 days

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

Building high pressure off shore bringing in low CO/O3 into Northern CA. New IC CO/O3 enhancement offshore

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

Descent over and south of LA

500m RDF FX 00Z 06/02 (Tue Afternoon)

New IC CO/O3 enhancement onshore over Northern CA. Moderate O3 P-L from LA over UT/AZ

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

500m RDF FX 00Z 06/03 (Wen Afternoon)

New IC CO/O3 enhancement onshore over Point Conception. Moderate O3 P-L from LA over AZ
Moderate (5-10 ppbv/day) background O3 P-L over LA. Low (~5ppbv/day) O3 P-L over SF
Descent over Point Comfort associated with New IC CO/O3

Area Forecast Details

San Francisco Bay Area - Danny Kam (dkam@airquality.org) - not available

Sacramento Valley - Danny Kam (dkam@airquality.org) - not available

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

Sunday, May 30

Surface Winds: The surface observations this morning show light south to southeasterly wind flow throughout the entire SJV. The wind profilers in Visalia and Lost Hills show light east to southeasterly wind flow throughout the atmospheric profile. Light westerly wind flow is present in the Chowchilla profiler. This afternoon CANSAC shows NW flow in the northern SJV as well as the west side of the Valley, with calmer conditions in the central part of the SJV (Fresno/Madera Counties). Light to moderate northwesterly winds will be present over Tulare and Kern Counties. Synoptically driven wind flow will be present over the Sierra's. Light to minimal downsloping will occur overnight.

Boundary Layer Mixing: Surface based inversion will prevent adequate mixing this morning. With afternoon heating, maximum mixing depths are expected to range from 2,500 to 4,000 feet. Mixing will once again be minimal this evening under surface based inversions.

Air Quality: Good to Moderate air quality is expected across the SJV. The potential for low end USG will happen today in Kern County.

Monday, May 31

Surface Winds: Overnight into Monday morning CANSAC shows increasing onshore flow. Northwesterly winds will strengthen across the entire SJV tomorrow. Outflow will be toward the Deserts and SLO.

Boundary Layer Mixing: CANSAC shows mixing depths improving to 4000 to 5000 feet under increase onshore flow.

*Air Quality: Air quality is expected to improve into the good to moderate AQI.
Tuesday June 1*

Surface Winds: CANSAC shows typical inflow into the SJV via Altamont and Pacheco Passes, with light northwesterly winds continuing overnight. Appears downsloping over the Sierra's is minimized Monday night into Tuesday due to the synoptic flow pattern. Northwesterly winds will remain light to moderate during the afternoon hours on Tuesday but not be as strong.

Boundary Layer Mixing: CANSAC shows that maximum mixing ranging from 2,500 feet in the northern SJV to 4,000 feet in the southern SJV. The overnight inversion should be present through the period.

Air Quality: Air quality forecast to be in the good to moderate range.

Wednesday and Thursday, June 2 and 3

Surface Winds: As high pressure builds toward the region, winds will become light and variable. The thermal trough will begin to re-establish itself by the end of the forecast period.

Boundary Layer Mixing: Mixing depths should gradually lower as high pressure builds over the region.

Air Quality: Expected to be mostly Moderate throughout the SJV, with air quality deteriorating towards the end of the week. This could result in the first major ozone episode for the SJV this year.

Potential Targets for next Flight Day

For Sunday night into Monday, analyze what happens to the atmosphere over the SJV as the inflow from the north approaches the southern SJV. May be linger stability effects Monday morning to analyze.

Central Coast - Gary Arcemont (garcemont@co.slo.ca.us) - not available

Discussion of CANSAC predictions
was based on run initialized 12 Z Sat

See updated CANSAC
http://www.cefa.dri.edu/COFF/cansac_output.htm

SoCal Coastal Waters - Lee Eddington

+ 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 Santa Barbara and the Malibu coastline

- * SE 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 patchy 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

* SCT/CLR St/fog Crescent City to Point Arena

* CLR Point Arena to Palos Verdes

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

- SOCAL Marine Layer Winds

* NW 10-20 kts outer waters

* WNW-SW 5-10 kts inner waters

+ Sunday evening (06Z 31 May)

- Marine Low Clouds

* OVC/BKN St/fog Crescent City to Point Reyes

* CLR Point Reyes to Palos Verdes

* OVC/BKN St/fog Palos Verdes to San Diego

- SOCAL Marine Layer Winds

* NW 10-15 kts western half of SOCAL bight

* S 5-10 kts eastern half of SOCAL bight

+ Monday morning (12Z 31 May)

- Marine Low Clouds
 - * OVC/BKN St/fog Crescent City to San Simeon
 - * CLR St/fog San Simeon to Gaviota
 - * OVC/BKN St/fog Gaviota to San Diego

- SOCAL Marine Layer Winds
 - * S-SE 5-15 kts inner waters
 - * NW 5-15 kts west of channel islands

+ Monday afternoon (00Z 1 June)

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

- SOCAL Marine Layer Winds
 - * NW 10-15 kts outer waters
 - * WSW 5-10 kts inner waters

+ Tuesday morning (12Z 1 June)

- Marine Low Clouds
 - * BKN/SCT St/StCu Crescent City to San Diego

- SOCAL Marine Layer Winds

* NW 10-20 kts west of channel islands

* SE-NW 0-5 kts inner waters

South Coast - Kevin Durkee - not available