

CalNex Forecast Notes - Sunday, May 23, 2010

Anticipated Activities of Platforms

WP-3D

Sunday May 23: An evening-into-night flight touring the LA Basin and offshore, and looking for outflow to the high desert and towards the Salton Sea. We'll be flying constant-altitude legs during the daylight hours to prepare for repeating these patterns after dark, along with missed approaches into several airfields to add vertical profile abilities after dark. With luck the forecast winds are sufficiently low to pose no big problems for this flight.

Monday May 24: An evening-into-night flight to the southern San Joaquin Valley.

NOAA Twin Otter:

Sunday pm: "test flite" in LA Basin & Mojave Desert (stratospheric intrusion, satellite comparison)

Monday: AM/PM flight in SoCAB

Tuesday: AM/PM flights in SoCAB

CIRPAS Twin Otter:

NASA King Air:

R/V Atlantis: LA Bight

Local Features:

Sunday: P3 afternoon & evening flight in SoCal

SoCal: WNW winds 25-30kts offshore, 20-25kts coast, and 10-15kts over basin; 15-25kt winds in mts & desert; good AQ

Monday: P3 afternoon & evening flight to southern San Joaquin Valley

Bkfld: winds lighter and clouds breaking up; outflow to Mojave; good AQ

California Synoptic Overview - Dar Mims (dmims@arb.ca.gov)

Sunday May 23

- Cold low moves through Southern CA
- Below Normal Temperatures
- Strong northerly winds
- Rain and Isolated Thunderstorms
- Marine layer disrupted

Monday May 24

- Weak Ridging ahead of next system
- Winds turn more onshore and weaken
- Stronger onshore flow through the Delta
- Shallow marine layer builds

Tuesday May 25

- Trough moves into Northern CA
- Onshore flow strengthens
- Weaker flow in Socal
- marine layer remains shallow

Wednesday-Friday May 26-28

- Trough dig into CA
- Onshore flow increases
- Rainfall spreads Southward

- Unseasonable temperatures continue

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

LA/Bakersfield AIRNOW Site Comparison

Good O3/PM2.5 LA/Bakersfield AQ during FX period

Recent O3 analysis in good agreement at LA & Arvin. PM2.5 low Arvin

LA/SF AIRNOW Ensemble

LA Long-range transport to northeast then rapidly shifting to south during FX period.

SF Long-range transport turning southward during FX period.

500m RDF FX 00Z 05/24 (Sun Afternoon)

Intercontinental CO enhancement over CA with low PM2.5/Background O3.

Low (<5 ppbv/day) background O3 P-L over LA&SF

500m RDF FX 00Z 05/25 (Mon Afternoon)

Intercontinental CO enhancement over western US. Clean maritime airmass coming onshore

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

500m RDF FX 00Z 05/26 (Tues Afternoon)

Intercontinental CO enhancement over western US. Clean maritime airmass over Northern CA. Descending polluted air over S CA

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

500m RDF FX 00Z 05/27 (Wen Afternoon)

Clean maritime airmass over Northern CA. Descending polluted air over Mexico

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

Area Forecast Details

San Francisco Bay Area - NO FORECAST TODAY

Sacramento Valley - NO FORECAST TODAY

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

Sunday, May 23, 2010: The lower air profiler this morning depicts light to moderate northwesterly wind flow throughout the atmospheric profile. Valley surface observations show moderate west to northwesterly wind flow present. However, Bakersfield is receiving light rain, with light southwesterly winds. Satellite imagery depicts extensive cloudiness mainly from Fresno/Kings County southward. A potential for afternoon Thunderstorms exist over the southern parts of the SJV due to maximum instability from the low. The 0Z CANSAC run is underestimating the northwesterly winds today. Northwesterly winds are forecast to continue valleywide through this evening. Toward sunset the winds will slowly diminish as the system over southern California moves eastward. Boundary layer mixing heights will start off between 2,000 to 4,000 feet this morning increase in depth by this afternoon. Maximum mixing heights are predicted over the northern SJV of 5,000 to 6,500 feet. Mixing depths between 4,000 and 5,000 feet will occur toward the southern SJV. Winds overnight tonight will weaken but remain light northwesterlies across the SJV. Air quality will be in the good range District-wide today.

Monday, May 24, 2010: Minimal mixing will occur overnight from Sunday through early Monday. With solar heating maximum mixing depths are predicted between 3,000 to 5,000 feet. Surface wind flow will be through the Delta toward Sacramento. A light southerly component in the flow at 12Z Monday is directing northern SJV emissions toward eastern SAC county. Westerly flow near the Altamont and Pacheco pass is directing flow toward western San Joaquin, Stanislaus, and Merced counties. Westerly winds are also present over the Cottonwood pass, with flow entering from SLO toward western Kern. Outflow is toward the Deserts. Winds will be

light elsewhere in the SJV. Similar flow pattern is forecast to continue toward the afternoon, with the exception of slight stronger wind speeds. The southerly flow over SJ County weakens and becomes light and variable. Maximum boundary layer mixing heights are predicted to be low overnight, steadily increasing during the day. Maximum heights are predicted to be between 4,000 and 5,500 feet District-wide. Air quality is predicted to be good tomorrow.

Tuesday, May 25, 2010: The 0Z CANSAC run is capturing strengthening southeasterly flow across the northern SJV early Tuesday morning. This in effect will shut down inflow from the Coast. Forecast winds are expected to be light and variable elsewhere from Fresno county southward. Maximum mixing depths on Tuesday are predicted to be low in the northern region and higher toward the south. This is an interesting feature because it may be capturing prefrontal stability. Air quality is predicted to be in the good range.

Wednesday and Thursday, May 26 and 27, 2010: A deepening trough over the West Coast will allow for good dispersion conditions to develop over the entire District. Strong to moderate onshore (northwesterly winds) flow will prevail. No air quality problems are predicted.

Central Coast - NO FORECAST TODAY

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

+ Sunday afternoon (00Z 24 May)

- Marine Low Clouds

- * SCT/CLR StCu Crescent City to Palos Verdes
- * BKN/SCT StCu Palos Verdes to San Diego

- Precipitation

- * Convective precip over mountains:
 - = Sierras south of Lake Tahoe to ~36 deg N
 - = North of Santa Barbara
 - = San Bernadino to San Diego county

- SOCAL Marine Layer Winds

- * WNW 20-35 kts inner and outer waters

+ Sunday evening (06Z 24 May)

- Marine Low Clouds

- * BKN/OVC St w/ light rain Crescent City to Cape Mendocino
- * SCT/CLR StCu Cape Mendocino to Palos Verdes
- * BKN/SCT StCu Palos Verdes to San Diego

- Precipitation

- * decreasing precip over mountains:
 - = Sierras south of Lake Tahoe to ~36 deg N
 - = North of Santa Barbara
 - = San Bernadino to San Diego county

- SOCAL Marine Layer Winds

- * WNW 15-30 kts inner and outer waters

+ Monday morning (12Z 24 May)

- Marine Low Clouds

- * OVC/BKN St/StCu Crescent City to San Francisco
- * BKN/SCT St/StCu San Francisco to Point Arguello
- * SCT/CLR St Point Arguello to Palos Verdes
- * BKN/OVC St w/ drizzle Palos Verdes to San Diego

- SOCAL Marine Layer Winds

- * LT VAR inner waters with easterly flow Los Angeles to Point Mugu
- * NW 15-25 kts outer waters

+ Monday afternoon (00Z 25 May)

- Marine Low Clouds

- * OVC St w/ rain Crescent City to Point Arena
- * SCT/CLR StCu Point Arena to San Diego

- Precipitation

- * Convective precip over mountains:
 - = Sierras south of Lake Tahoe to ~36 deg N
 - = North of Santa Barbara/Ventura
 - = San Bernadino to San Diego county

- SOCAL Marine Layer Winds

- * WNW 10-25 kts inner and outer waters

+ Monday evening (06Z 25 May)

- Marine Low Clouds

- * OVC St w/ light rain Crescent City to San Francisco
- * SCT/CLR StCu San Francisco to San Diego

- SOCAL Marine Layer Winds

- * WNW 5-15 kts inner waters
- * WNW 10-20 kts outer waters

+ Tuesday morning (12Z 25 May)

- Marine Low Clouds

- * OVC w/ St rain Crescent City to Monterey
- * BKN/SCT StCu Monterey to Point Arguello
- * CLR Point Arguello to Palos Verdes
- * BKN/SCT St Palos Verdes to San Diego

- SOCAL Marine Layer Winds

- * LT VAR inner waters
- * WNW 10-20 kts outer waters

+ Tuesday afternoon (00Z 26 May)

- Marine Low Clouds

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

- SOCAL Marine Layer Winds

- * W 10-15 kts inner and outer waters

+ Wednesday morning (12Z 26 May)

- Marine Low Clouds

- * OVC/BKN StCu w/ rain Crescent City to Monterey
- * OVC/BKN St/StCu Monterey to Point Arguello
- * SCT/CLR St Point Arguello to Point Dume
- * OVC/BKN St Point Dume to San Diego

- SOCAL Marine Layer Winds

- * W 0-10 kts inner waters
- * WNW 10-15 kts outer waters

+ Wednesday afternoon (00Z 27 May)

- Marine Low Clouds

- * SCT/CLR Cu with rain showers Crescent City to Monterey
- * SCT/CLR StCu Monterey to Point Arguello
- * BKN/OVC St/StCu Point Arguello to San Diego

South Coast - NO FORECAST TODAY