**CalNex Forecast Notes - Tuesday, May 11, 2010**

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

**Tuesday May 11**
- Trough axis moving into NV/AZ
- N/NW transport flow increases
- N/NW surface flow in the Valleys
- Strong winds for SoCal mts/deserts

**Wednesday May 12**
- Ridge builds just offshore
- Transport remains N/NW and weakens
- Weak onshore flow through Delta and LA basin by afternoon

**Thursday May 13**
- Weak trough remains with N/NW transport flow
- Surface flow remains onshore and increases
- Stronger Delta flow
- Marine layer/coastal stratus possible for LA basin

**Friday-Sunday May 14-16**
- Ridging for Friday with light transport flow
- Trough digs southward offshore Sat/Sun
- Onshore flow increases in the north Sat/Sun
- Onshore flow with coastal stratus in the south Sat/Sun

**Anticipated Activities**
**Anticipated activity for P3**

Tues: Sacramento Valley, delta
Wed: Northern San Joaquin Valley, SFBA, clouds Monterey
Thu: No Flight
Fri: ship plume investigation, SoCAB
Sat: No Flight
Sun: Flight

**Anticipated activities:**

Ozonesondes - ~3pm releases starting today (daily except Sunday)
NASA King Air - arrives Wed/Thu
R/V Atlantis - operations on Fri
NOAA Twin Otter - arrives Sat

**Local Features:**

**Wed:** partly cloudy off Monterey, more clouds further offshore, more clouds in morning than afternoon
**Wed:** airflow increasing from Delta and northern passes into SJV
**Fri:** early forecast has stratus for ship plume experiment

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

**LA/Sacramento AIRNOW Site Comparison**
LA Good/Moderate O3 & PM2.5 AQ during FX period
Sacramento Good O3 Good/Moderate PM2.5 AQ during FX period

**LA/SF AIRNOW Ensemble**
Intermediate (24hr) transport route of LA Ensemble to east then south during FX period. Receptor regions in CO, TX, Baja
SF Ensemble shows two transport paths ending Wen: Northeastward and southward turning southward on Thurs/Fri
SF Ensemble advected off-shore of LA with enhanced O3 P-L (50ppbv/day) at 24hrs (00Z 05/13) Wen Afternoon

**500m RDF CO 00Z 05/12 (Tues Afternoon)**
Clean intercontinental air offshore of Northern CA. Polluted CONUS airmass over NV
Moderate (5-10 ppbv/day) background O3 P-L over NV

**500m RDF CO 00Z 05/13 (Wen Afternoon)**
Clean Intercontinental air offshore. Polluted CONUS airmass advected southwest over Southern CA
Moderate (5-10 ppbv/day) background O3 P-L over SF&LA

**500m RDF CO 00Z 05/14 (Thur Afternoon)**
Intercontinental pollution off shore. Advection of SF and LA pollution to the South at 500m. CA under influence of CONUS airmass
Moderate (5-10 ppbv/day) background O3 P-L South of LA&SF

**500m RDF CO 00Z 05/15 (Fri Afternoon)**
Intercontinental CO enhancement with little PM2.5 enhancement offshore, advection of SF and LA pollution to the East at 500m
Moderate (5-10 ppbv/day) background O3 P-L East of LA&SF

**Forecast Details**

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

Note:
smaller red font in parenthesis e.g., (10kt) indicates prediction from previous forecast which differs from the forecast today

**Tuesday**
- NW 20 kt, lightens briefly in the morning
- MBL 3,000 ft decreasing to 1,000 ft in the afternoon

**Wednesday**
- NW 20 kt, except 10 to 15 kt in late morning
- North wind from SV reaching SF bay in the morning, briefly becomes offshore
- Onshore flow at night primarily into SJV, decrease as downslope flow develops'
- MBL 1,000 ft; 500 ft in the afternoon

**Thursday**
- Generally NW 15 kt, briefly becomes 10 kt in late morning and late evening
- N flow from SV reaching the coast
- MBL 500 ft
- Light onshore flow, mostly into SJV

**Friday**
- Light N wind, turns light W

**Saturday & Sunday**
- Light NW wind, NW wind stronger on Saturday afternoon

**Sacramento Valley** - Danny Kam (dkam@airquality.org)
Note:
smaller red font in parenthesis e.g., (subsiding N wind limit downslope flow to eastern SV) indicates prediction from previous forecast which differs from the forecast today

**Tuesday**
- Light W in the morning, turns N 5 to 10 kt through the day
- PM downslope flow reaching the delta
- PBL 6,500 ft

**Wednesday**
- N wind 5 to 10 kt for southeastern SV, 10 to 15 kt for northwestern SV; steady 10 kt in the afternoon; 5 kts in the evening
- Light PM downslope flow to the valley
- AM PBL around 500 ft; PM PBL 4,000 ft; areas along foothills at 7,000 ft

**Thursday**
- Light N to E wind becoming N 5 to 10kt, less than 5 kts in the afternoon
- PM downslope flow reaching the valley
- Moderate inversion, AM PBL below 500 ft with bubbles of 2,000 ft; PM PBL around 3,000 ft

**Friday**
- Light variable wind with upslope/downslope flow influence

- Light onshore flow
- Some inversion, PM PBL 4,500 ft

**Saturday & Sunday**

- Light wind, onshore flow with some downslope flow

**San Joaquin Valley** - Jon Klassen (jon.klassen@valleyair.org)

***Tuesday May 11***

**Surface Winds:** The surface observations this morning show calm to light NW wind flow throughout the SJV. The northern and central SJV wind profilers shows NW wind flow throughout the profile, and the Lost Hills profiler in the southern SJV shows a light NE flow in the higher elevations. CANSAC shows strong NW flow in the northern and central SJV by the early afternoon via the Delta, Altamont, and Pacheco passes. Wind flow is lighter in the southern SJV. Strong outflow via the Tejon and Tehachapi passes in the south Valley from midday through the evening. GFS shows a small chance for precipitation today.

**Boundary Layer Mixing:** No aircraft soundings were available this morning in Fresno and Bakersfield. Mixing should improve to 3,500 to 4,500 feet throughout most of the SJV.

**Air Quality:** Due to the passing system, dispersion is excellent and Good air quality is expected throughout the SJV.

***Wednesday May 12***

**Surface Winds:** CANSAC shows lighter NW wind flow throughout the SJV due to the building ridge. Winds stay light throughout the day, but they do increase in San Joaquin County as the day progresses. Flow into the SJV via Delta and Altamont passes by the late afternoon (see image on last slide).

**Boundary Layer Mixing:** Mixing should be slightly worse than Tuesday due to building pressure, but should still improve to 3,000 feet in most parts of the SJV.

**Air Quality:** Expected to be mostly in the Good category, but may have a few spots with Moderate air quality.

***Thursday May 13***

**Surface Winds:** Like Wednesday, CANSAC again shows very light NW winds due to the building pressure. Winds will stay variable to light throughout the day, but looks to increase from the NW in Kern County in the evening.

**Boundary Layer Mixing:** CANSAC shows mixing similar to Wednesday…improving to 3,000 feet throughout most parts of the SJV.

**Air Quality:** Expected to be mostly in the Good category, but may have a few spots with Moderate air quality.

***Friday May 14***

**Surface Winds:** GFS shows surface winds to be predominately light and from the N to NE throughout the day, with stability building in.

**Boundary Layer Mixing:** Mixing conditions are expected to worsen compared to Thursday, and could lend to pollution buildup.

**Air Quality:** Expecting to have more widespread Moderate air quality throughout the District, with perhaps a few spots inching closer to USG.

***Saturday May 15***

**Surface Winds:** GFS shows mostly light flow from the N.

**Boundary Layer Mixing:** Conditions should continue to deteriorate as the ridge is near its maximum.

**Air Quality:** Expecting Moderate air quality throughout the SJV along with some USG. There is a good chance for some ozone exceedances this day.

***Potential Targets for next Flight Day***

For Wednesday in the northern SJV, the flow into the Valley via the Delta and Altamont passes would be an interesting feature to capture (see next slide).

**Central Coast** - Gary Arcemont (garcemont@co.slo.ca.us)

Yesterday: Sprinkles & Light showers in San Luis Obispo at sundown. Strong NW flow. Good air quality.

Current Wx: Mostly clear along coast, Partly cloudy offshore, Clouds top the interior of coast range and north slopes of the Tehachapis, Mt Pinos and the Grapevine – W to SW flow interior ridgetops,
VBG weak elevated inversion base 1486m -1.3C Ft Ord weak sfc inversion 2 deg C to 200 ft.

Today: Inside slider. Mostly clear along coast. NW flow surface & aloft, stronger surface NW flow afternoon. Chance of snow flurries above 4000 feet – north slopes of the Grapevine, Mt Pinos, Tehachapis

Wednesday: Trough moving east. N flow aloft. Partly cloudy AM, clearing PM inland.

Thursday: Trough moving east. N flow aloft. Stratus AM coast, clear inland. Clearing away from coast PM

Friday: Baggy trough over Nevada. Less stratus, patchy coast, offshore.

Saturday: Weak ridge

Sunday: Weak ridge, approaching trough E Pac.

Air quality: Good air quality: Tuesday, Wednesday, Thursday. Increasing ozone, deteriorating dispersion over the weekend.

Suggested targets: Increasing ozone inland ridgetops, interior coast range Friday & weekend

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

+ Tuesday afternoon (00Z 12 May)

- Marine Low Clouds

* Mostly CLR/SCT StCu Crescent City to San Diego

- SOCAL Marine Layer Winds

* WNW 10-15 kts south inner waters
* WNW 20-35 kts north inner waters and outer waters

+ Wednesday morning (12Z 12 May)

- Marine Low Clouds

* Mostly CLR/SCT StCu Crescent City to Point Arguello
* CLR Point Arguello to Palos Verdes
* SCT StCu Palos Verdes to San Diego

- SOCAL Marine Layer Winds

* SE 5-10 kts south inner waters
* NNW 0-10 kts north inner waters
* NW 15-25 kts outer waters

+ Wednesday afternoon (00Z 13 May)

- Marine Low Clouds

* Mostly CLR/SCT St/StCu Crescent City to Point Arguello
* CLR Point Arguello to San Diego

- SOCAL Marine Layer Winds

  * W 10-15 kts inner waters
  * NW 10-20 kts outer waters

+ Thursday morning (12Z 13 May)

- Marine Low Clouds

  * SCT St Crescent City to Point Arguello
  * CLR Point Arguello to Palos Verdes
  * SCT ST Palos Verdes to San Diego

- SOCAL Marine Layer Winds

  * ESE 0-10 kts inner waters
  * NW 10-20 kts outer waters

+ Thursday afternoon (00Z 14 May)

- Marine Low Clouds

  * SCT St Crescent City to Point Arguello
  * CLR Point Arguello to San Diego

- SOCAL Marine Layer Winds

  * W 5-10 kts inner waters
  * NW 10-15 kts outer waters

+ Friday morning (12Z 14 May)

- Marine Low Clouds

  * SCT/BKN St/fog Crescent City to Point Arguello
  * CLR Point Arguello to Palos Verdes
  * SCT/BKN St/fog Palos Verdes to San Diego

- SOCAL Marine Layer Winds

  * E 0-10 kts inner waters
  * NNW 5-10 kts outer waters

+ Friday afternoon (00Z 14 May)

- Marine Low Clouds

* SCT StCu Crescent City to Cape Mendicino
* CLR Cape Mendicino to San Diego

**South Coast** - Kevin Durkee (kdurkee@aqmd.gov)

- Tuesday: weak AM inversion @ 5450 feet; cold inside slider overnight; gusty northerly winds & a few snow flurries in northern mountains overnight, especially I-5 corridor (Grapevine); warming today with offshore (N component) gradients this morning and trof continuing to east; winds will decrease somewhat in the evening for coasts and valleys, overnight in mountains; NWS winds advisories through tonight for LA County (mountains, coast San Fernando & Antelope Valleys) and San Bernardino & Riverside & San Diego Co. Mountains, Apple, Lucerne and Coachella Valleys; good to moderate ozone levels; areas of elevated PM10 due to blowing dust & sand possible in deserts
- Wednesday: upper low moves out of Nevada; heights/thickness rise quickly aloft, but weak troughing remains; lighter winds - weak offshore (NNW) gradients; sunny and warmer; more stratus offshore with possible weak eddy; increasing ozone, mostly moderate
- Thursday: weak troughing aloft; weaker offshore flow AM, weak sea breeze in afternoon; coastal eddy possible; warmer (temperatures near normal); ozone mostly moderate but USG possible in a couple of areas (inland, with afternoon sea breeze)
- Friday: ridge begins to build aloft off west coast; warmer; weak AM offshore flow; marine layer may start to reform - coastal eddy possible; stratus to coast and maybe coastal valleys; USG ozone likely
- Saturday: warmest day this week - to mid 80s inland valleys; more inland intrusion of stratus; USG ozone likely inland
- Sunday: partly cloudy; slightly cooler but still above normal temperatures inland; USG ozone likely inland
- **Monday:** weak trough approaches for minor cooling and possibly more gusty winds

**Northern California**

Observed, Model-Interpolated Winds for SF Bay
http://sfports.wr.usgs.gov/cgi-bin/wind/windbin.cgi

and

COAMPS Wind Plots
http://www.sccoos.org/data/coamps/coamps.html