CalNex Forecast Notes - Tuesday, May 4, 2010

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

Tuesday May 4
- Trough over PacNW pushes ridge farther south
- W/NW transport flow
- NW surface flow in the Valleys
- Onshore surface flow south of Pt. Conception
- Marine layer/coastal stratus south of Pt Conception

Wednesday May 5
- PacNW trough drops SE into Great Basin
- NW transport flow increases in response

Thursday-Saturday May 6-8
- NW transport flow continues but weakening
- Marine layer/stratus returns south of Pt Conception
- Transport flow turns more westerly by Sat as another trough approaches

Beyond…
- Model discrepancies exist but some sort of stronger trough will affect the state Sunday-Tuesday.
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Comments on Local Features and Potential Targets

Anticipated activity for P3
Tues May 4: Fly day; 10 AM takeoff;
6 hours tour of LA Basin .

Wed: No-fly day
Thu: Fly
Fri: No-Fly
Sat: Fly

Local features of potential interest
relatively clean offshore boundary conditions - easier to distinguish any outflows

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

Note: Changed RDF 500m O3 to RDF CO to better track descent of intercontinental polluted air

NO DISCUSSION BUT SLIDES AVAILABLE IN TODAY'S PPT DOCUMENT

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
- 20 kt NW wind becoming N 5kt briefly in the morning; NW 10kt in early afternoon and strengthen to 25kt by late afternoon and 30kt by the end of the day
- NW wind yields in the morning to allow N wind from SV to pentrate Bay Area via the delta
- MBL rises from 500ft temporarily to 1,500 ft due to inalnd urban parcel pentration in the morning; otherwise at 500 ft

Wednesday
- NW 25kt wind along the coast; varies between 15 to 20kt for the second half of the day; mostly at 15 kt at late night
- Strong (Weak) N wind pentration from SV through north SF Bay at late morning (met with N costal wind, not completely offshore);
- MBL around 750ft, rises to 2,000ft in late morning, then drops quickly to below 500 ft

Thursday
- Light N wind turns NW around noon, strengthen to 20kt in by the evening, directed toward coastal ranges
- Weak gradient in the morning allows gusty penetration from SV, briefly becomes offshore
- MBL mostly 1,500 ft in the morning, 500 ft for the rest of the day

Friday
- NW 15kt wind turning W, onshore flow into SV and SJV

Saturday & Sunday
- Moderate NW wind, a bit stronger on Saturday afternoon; light NW on Sunday morning, Light NW on Sunday morning, moderate W in the afternoon; stronger onshore flow

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 becomes N wind and becoming stronger in the morning; steady 10kt wind through the afternoon, light NW in the evening
- Limited AM downslope flow; PM downslope flow stronger, reaching the southern SV; limited downslope flow for northern SV
- AM PBL varies, averages around 1,500 ft; 4,000 ft PM PBL

Wednesday
- Light N wind in the early AM, becomes stronger; 10 to 15 kts by mid morning (in the afternoon) and steady through the afternoon; 5kt in the early evening; 10 to 15kt just before midnight
- AM downslope flow limited to the eastern SV; weak PM downslope flow limited by north wind to foothills but gusty over passes
- AM PBL between 500 to 2,000 ft, depending on N wind; PM PBL at 4,500 ft

Thursday
- N 15kt wind in the morning; 10kt in the afternoon; light NW at night
- PM downslope flow light but penetrates the valley
- AM PBL at 1,500 ft; PM PBL at 5,000 ft

Friday
- Light W wind becomes SW and stronger in the afternoon at 10kt
- AM PBL mostly 500ft or less, spotty area in foothills with 3000 ft; PM PBL at 7,500 ft

Saturday & Sunday
- Light NW on Saturday becomes W; light SW on Sunday morning turning stronger in the afternoon

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

Wind Flow:

Tuesday May 4:

The morning profilers in Lost Hills, Tracy, Visalia, and Chowchilla show a northwesterly wind flow throughout the atmospheric profile. The morning surface observations show Northwesterly wind flow from Kings / Tulare County northward, with light wind flow reported in Kern County. The OZ CANSAC is predicting increasing northwesterly wind flow through the day. Flow this afternoon will exit the air basin via Tejon, Tehachapi passes. Delta flow will be cut-off, with flow into the valley being mainly from Sac Valley.

Overnight a light delta push will occur into the northern SJV, with northwesterly wind flow continuing from Fresno County northward and along the western parts of the SJV.

Light winds will prevail elsewhere with typical diurnaly flow patterns present in the mountains.

Wednesday May 5:
Moderate to strong north to northwest wind will occur over the entire San Joaquin Valley on Wednesday. Flow into the SJV will be mainly from SAC, with flow leaving the SJV being toward the Deserts / SLO and S. Coast. Overnight a very light delta push will occur into the San Joaquin County, with northwesterly wind flow continuing from Fresno County northward and along the western parts of the SJV. Light winds will prevail elsewhere with typical diurnaly flow patterns present in the mountains.

Thursday May 6:
Stronger onshore/Delta flow will be present later on Thursday. Light to moderate northwestery winds will be present elsewhere in the SJV. Interesting area of convergence occuring near Pacheco pass.

Friday May 7 and Saturday May 8: Onshore flow will commence in earnest by the weekend as the trough approaches the region.

San Joaquin Valley Boundary Layer Mixing (CANSAC 00Z run):

Tuesday May 4:
The morning aircraft soundings show a weaker inversion compared to yesterday, with Fresno depicting a 5 degree Fahrenheit inversion from the surface up to 1,500 feet. The morning aircraft sounding from Bakersfield shows a weaker inversion compared to yesterday, with Fresno depicting a 8 degree Fahrenheit inverison from the surface up to 500 feet. Maximum wixing depths will be between 2,500 to 3,500 feet this afternoon. A ribbon of lower mixing depths around 1,500 feet will occur along the western parts of the SJV from western Stanislaus county southward to Kings County. Mixing depths will be very low overnight.

Wednesday May 5 and Thursday May 6:
Mixing depths will improve slightly on Wednesday, with maximum mixing of 3,500 to 5,000 feet occurring in San Joaquin, eastern Fresno, Tulare, and southern Kern Counties. Lower mixing depths will be present along the west-side of the SJV.

Friday May 7 and Saturday May 8
Mixing depths should lower sligthly ahead of the next trough. Mixing depths will then steadily improve from north to south on Saturday, with the arrival of the next disturbance from the eastern Pacific.

Air Quality:

Tuesday May 4: Air quaity conditions are forecast to be near the eight hour ozone NAAQS in Kern County today, with improving conditions elsewhere.

Wednesday May 5 through Saturday May 8: Air quality will remain in the good to moderate AQI range District-wide through the period. There is a possiblity of blowing dust tomorrow under slightly stronger northwesterly winds across the western parts of the SJV. Ozone is not predicted to reach the USG range through Saturday.

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

Moderate air quality (ozone) yesterday - inland valleys/ridges of SLO County

Current Wx: Stratus Salinas Valley, Monterey Bay, SLO/SBA coastal plain, offshore Big Sur coast.

Today through Thursday: Zonal flow. NW flow surface & aloft, stronger surface NW flow afternoon. Mostly clear – minimal stratus.

Friday: Patchy stratus. Zonal flow. NW flow surface & aloft, stronger surface NW flow afternoon.

Saturday: Trough approaching.

Air quality: Good air quality - blowing dust possible Oceano Dunes/Nipomo Mesa in the afternoon – which could result in an increase in PM10. PM10 highest on Wednesday, Friday and Saturday afternoon. Ozone today - upper good range - inland valleys/ridges

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

NO FORECAST TODAY (see model forecasts from yesterday)

See detailed slides and speaker notes in power point file

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

- Tuesday: Inversion stronger this morning but base lowered to ~575 feet; mixing this afternoon to ~2700 feet at Downtown LA. Very weak trough moving in today for more zonal flow aloft across So. Cal.; stronger onshore gradients for good sea breeze in afternoon; slightly cooler temperatures at coast, a little warmer inland

under mostly sunny skies; moderate ozone & PM2.5, likely some ozone into high desert

- Wednesday: Weak trough; stronger onshore push; deeper marine layer - coastal eddy in AM likely; some gusty winds in mountains and deserts - with increased northerly component will see winds in the LA/Ventura County mountains and the I-5 corridor; Moderate AQ, mainly inland
- Thursday: Weak upper level trough lingers; a little warmer inland as trough & onshore flow weaken slightly - maybe even weak ridging aloft; marine layer into valleys - coastal eddy possible; Moderate Ozone levels, peaks Central San Bernardino Mtns and Santa Clarita if eddy persists
- Friday: Temps to upper-80s inland valleys (warmest day); slight inland ozone bump - mostly moderate but some USG possible;
- Weekend: Weak trough - a robust marine layer and cooling; ozone good to moderate with peaks central San Bernardino Mountains