

CalNex Forecast Notes - Wednesday, May 5, 2010

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

Wednesday May 5

- NW transport flow as PacNW trough slides E into NV
- NW surface winds for Sac/SJ valleys
- W winds for SoCal mountains/deserts

Thursday May 6

- NW transport flow continues
- N winds relax in the valleys
- Marine layer/coastal stratus S of Pt Conception
- Some onshore push through Delta by afternoon

Friday May 7

- Transport flow shifts more westerly
- W/NW onshore flow south of Pt Conception
- Stronger onshore push through Delta
- Marine layer/coastal stratus S of Pt Conception

Weekend

- Westerly transport flow Sat as trough digs south offshore
- Marine layer/coastal stratus S of Pt Conception
- Trough axis moves through central CA Sunday
- Precip (if any) mainly N of Pt Conception

Comments on Local Features and Potential Targets

Anticipated activity for P3

Wed: No-fly day

Thu: Fly

Fri: No-Fly

Sat: Fly

Local features of potential interest

Thur - some ozone transport potential from Kern to SLO

Fri - LA plume may move further offshore and return toward San Diego in PM flow

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

RAQMS plots available on forecast Powerpoint document on ftp site
(ftp://orthus.arb.ca.gov/pub/outgoing/CalNex)

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

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 N wind penetration from SV through north SF Bay at late morning (met with N coastal 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

- NNW 15 kt turning to 10 kt throughout most of the day, increase to 20 kt at night
- MBL 500 ft, increasing to 1,000 ft in the afternoon

Saturday

- Light NW wind, becoming W wind;
- Onshore flow toward foothills, some into the vallies (most into SJV than SV)

Sunday & Monday

- N on Sunday morning, weakens and turn west; strong NW wind resumes Monday 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

Wednesday

- Light N wind in the early AM, becomes stronger; 10 to 15 kts by late morning and steady through the afternoon; 5kt in the early evening; 10 (to 15) kt just before midnight; wind speed is less impressive in latest model

- 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; below 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 variable wind and light W wind in the morning; W 5kt at night
- Moderate AM downslope flow; PM downslope flow not well developed
- AM PBL mostly 500ft or less, spotty area in foothills with 3000 ft; PM PBL at 6,500 ft

Saturday

- Light W in the morning becomes moderate SW
- Onshore flow through the delta in the afternoon
- AM PBL at 500 ft; 6,000 in the PM

Sunday & Monday

- Light SW on Sunday morning turning stronger in the afternoon; light W on Monday

San Joaquin Valley - Jennifer Ridgway (jennifer.ridgway@valleyair.org)

Wind Flow:

WEDNESDAY MAY 5

Wind Profilers: The profilers at Tracy, Chowchilla, and Visalia indicate light to strong northwesterly wind flow throughout the atmospheric profile. The profiler at Lost Hills indicates light easterly to southeasterly wind flow up to 1,640 feet AGL with light to strong northwesterly wind flow above.

(CANSAC 00Z): Moderate NW flow across the Delta and over Altamont Pass and moderate westerly flow over the Pacheco Pass predicted in the early morning predicted to be cut off by moderate to strong NW valley winds in the afternoon and evening. Typical daytime upslope flow and nighttime/early morning downslope flow near the mountain regions predicted to be cut off by strong NW valley winds. Moderate northwesterly winds in the northern and central SJV in the morning will spread southward and reach the southern SJV by 17:00. **Early morning wind in the southern SJV will be light wind from the south, southwest, and southeast will become northwest wind and begin to strengthen by late morning.**

THURSDAY MAY 6

(CANSAC 00Z): Moderate NNW flow predicted across the Delta, moderate NW to N flow over Altamont Pass and light W flow over Pacheco Pass predicted for early morning. Moderate NW flow over Delta, Altamont Pass, and light NE flow over Pacheco Pass predicted in the afternoon. By 17:00, flow over Delta predicted to become light W,

moderate NW flow predicted over Altamont Pass and moderate W flow predicted over Pacheco Pass. Moderate northwesterly winds in the northern and central SJV in the morning will spread southward and reach the southern SJV by 17:00. **Early morning wind in the southern SJV will be light wind from the south and from the west most of the day. By 17:00 light to moderate northwest winds will have reached the southern SJV.**

FRIDAY MAY 7

(CANSAC 00Z): Moderate W flow through the Delta, over Altamont Pass and over Pacheco Pass predicted throughout the day. **Moderate eddie flow predicted near Patterson and Interstate 5 in Stanislaus County by 17:00.** Early morning northwest winds from the northern SJV (except central Merced County where winds are predicted light and variable in the morning and afternoon) to Kings County predicted to reach Tulare and Kern Counties by 17:00. Early morning winds in Kern County predicted light and variable. **An eddie Is predicted across the Bakersfield metro area in the early morning.**

SATURDAY MAY 8

(GFS 00Z): Surface charts show relaxed pressure gradients in the morning tightening by evening. NW winds around 10 mph forecast across SJV.

http://www.rap.ucar.edu/weather/model/displayMod.php?var=gfs_sfc_mslp&hours=hr072hr084hr096hr108hr120

SUNDAY MAY 9

(GFS 00Z): Surface charts show tightening pressure gradients with W winds around 10 mph forecast across SJV.

http://www.rap.ucar.edu/weather/model/displayMod.php?var=gfs_sfc_mslp&hours=hr072hr084hr096hr108hr120

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

Note: Mixing does not occur after sunset and prior to sunrise due to the absence of surface heating.

WEDNESDAY MAY 5

Morning Soundings: The morning sounding for Fresno indicated a moderate temperature inversion of 9 degrees

Fahrenheit from the surface up to 1,500 feet AGL. The sounding for Bakersfield indicated a moderate temperature

inversion of 7 degrees Fahrenheit from the surface up to 1,000 feet AGL.

CANSAC 00Z run: Mixing predicted to improve to 5,000 feet by 17:00. Best heights over the central parts of the SJV and in Kern County.

THURSDAY MAY 6

CANSAC 00Z run: Mixing predicted to improve to 5,000 feet by 17:00. Best heights over the eastern areas of San Joaquin, Stanislaus, Merced, Madera, Tulare and Kern Counties, and central Fresno County.

FRIDAY MAY 7

CANSAC 00Z run: Mixing predicted to improve to 6,500 feet by 17:00. Best heights over the central parts of all the counties in the SJV except Kings County. Areas in western and northeastern Kings County will improve to 5,000 feet.

SATURDAY MAY 8

SUNDAY MAY 9

Air Quality:

WEDNESDAY MAY 5

Air quality improving as surface winds increase. Moderate air quality expected in southern SJV.

THURSDAY MAY 6

No ozone exceedances expected as dispersion continues to improve with increasing surface winds. Moderate air quality possible in southern SJV.

FRIDAY MAY 7

No ozone exceedances expected as dispersion continues to improve with increasing surface winds. Moderate air quality possible in southern SJV.

SATURDAY MAY 8

Dispersion expected to be good and keep air quality good District wide.

SUNDAY 9

Dispersion expected to be good and keep air quality good District wide.

SJV Potential Targets

Kern County will probably be best target in SJV on Thursday in terms of air quality issues albeit no exceedances are expected.

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

Yesterday: Zonal flow produced an ozone clean out yesterday & lower concentrations. Breezy NW flow.

Current Wx: Mostly clear. Some patchy stratus Santa Barbara County. Breezy this morning. Ozone concentrations have increased over night along ridgetops of the eastern portions of the Coast Range.

Synopsis - Today 5/5 through Monday 5/10: Alternating periods of zonal flow and a series of troughs resulting in strong NW flow surface & aloft, stronger surface NW flow afternoon. Good dispersion. Marine layer will be present, but stratus will be patchy through Friday.

Today: Mostly clear – minimal stratus. Sundowner winds (gusty, katabatic, downslope winds – from the N to NW) from Gaviota to Santa Barbara. NW flow surface & aloft, stronger surface NW flow afternoon.

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

Friday: Trough. NW flow surface & aloft, stronger surface NW flow afternoon. Mostly clear – minimal stratus.

Saturday: Trough deepens. Clouds increase.

Sunday-Tuesday: Models inconsistent but suggest deepening trough. Some solutions suggest chance of stray shower, and good mixing.

Air quality: Good air quality – with the exception of blowing dust possible Oceano Dunes/Nipomo Mesa in the afternoon for much of the period – which could result in an increase in PM10 in these areas.

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

See detailed slides and speaker notes in power point file

+ Wednesday afternoon (00Z 06 May)

- Marine Low Clouds

* CLR Crescent City to Palos Verdes

* patchy BKN/SCT St/Fog Ventura to San Diego

- SOCAL Marine Layer Winds

- * W 5-10 kts inner waters
- * WNW 10-25 kts outer waters

+ Thursday morning (12Z 06 May)

- Marine Low Clouds

- * CLR Crescent City to Point Mugu
- * patchy BKN/SCT St/Fog Point Mugu to San Diego

- SOCAL Marine Layer Winds

- * ESE 0-10 kts inner waters
- * WNW 10-25 kts outer waters

+ Thursday afternoon (00Z 07 May)

- Marine Low Clouds

- * CLR Crescent City to Palos Verdes
- * patchy BKN/SCT St/Fog Palos Verdes to San Diego

- SOCAL Marine Layer Winds

- * W 5-10 kts inner waters
- * WNW 10-25 kts outer waters

+ Friday morning (12Z 07 May)

- Marine Low Clouds

- * Mostly CLR/SCT StCu Crescent City to Monterey
- * CLR Monterey to Palos Verdes
- * OVC/BKN St/Fog Palos Verdes to San Diego

- SOCAL Marine Layer Winds

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

+ Friday afternoon (00Z 08 May)

- Marine Low Clouds

- * SCT St/StCu Crescent City to Monterey
- * CLR Monterey to Palos Verdes
- * SCT St/Fog Palos Verdes to San Diego

- SOCAL Marine Layer Winds

- * W 8-12 kts inner waters
- * WNW 10-20 kts outer waters

+ Saturday morning (12Z 08 May)

- Marine Low Clouds

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

- SOCAL Marine Layer Winds

- * ESE 0-5 kts inner waters
- * WNW 10-25 kts outer waters

+ Saturday afternoon (00Z 09 May)

- Marine Low Clouds

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

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

- Yesterday (Tuesday): Weak trough did nothing to improve air quality, in fact the stronger onshore increased transport to the east; reached USG levels for 8-hour ozone at Banning, Crestline, Mira Loma, Palm Springs and Indio; some gusty winds and elevated PM10 in mountains and deserts
- Wednesday: Weak trough; stronger onshore push; deeper marine layer - coastal eddy present; AM coastal inversion base ~ 1400 feet with afternoon mixing expected to ~2500 feet at Downtown LA; some gusty winds in mountains and deserts - wind advisory currently out for Antelope Valley through this afternoon with extension through tonight likely; Wind advisory likely tonight for I-5 corridor - LA & Ventura County mountains; Sundowner winds likely in Santa Barbara tonight; Moderate AQ, mainly inland

- Thursday: Weak upper level trough lingers; temperatures cool slightly; marine layer mainly at coast and coastal valleys, thin elsewhere with northerly gradients and cold air advection - AM coastal eddy still possible offshore; Moderate Ozone levels, peaks Central San Bernardino Mtns and Santa Clarita if eddy persists
- Friday: Some wind advisories likely to continue with northerly gradient remaining; onshore flow weakens for slight warming; Temps to low-80s inland valleys (~same as Wednesday); slight inland ozone bump - mostly moderate but some USG possible;
- Weekend: Weak trough - a much deeper marine layer and cooling; coastal eddies likely ahead of troughs; low clouds and fog into valleys; gusty winds in mountains and deserts; ozone good to moderate with peaks central San Bernardino Mountains (might still see some near-USG with weekend effect if still enough sunlight inland)
- Monday +: very slight chance of precip Sunday night/Monday morning then again Monday night/Tuesday Morning;