

CalNex Forecast Notes - Friday, May 21, 2010

Anticipated Activities of Platforms

WP-3D

Fri: take off at 8:30 pdt, Maersk vessel fuel switch off San Nic Isl, intercept intercontinental transport, MODIS overflight 1055 pdt for cloud retrieval verification; in afternoon, LA Basin constant altitude legs to become familiar with terrain before night flights begin

Sat: No Flight (50-hr maintenance)

Sun: first planned evening flight late afternoon - evening to start then over course of 10 - 14 days gradually transitioning to later evening to sunrise.

Mon: night flight if do not fly on Sunday

NOAA Twin Otter: Possible weekend flight

CIRPAS Twin Otter:

NASA King Air:

R/V Atlantis: LA Bight

Local Features:

Friday: P3 ship fuel switch measurements, AM; afternoon activities to become familiar with terrain for night flights

satellite pic showing dry areas offshore and cirrus late in approaching study area, low clouds near coast and inland clearing in PM so conditions good for today's flight objectives;
900 acre McKinley Fire burning just east of Corona (SE LA Basin); 70% contained

Sunday: P3 night flight?

W winds 30-35kts offshore and 10-15kts over basin; gusty winds in mts & desert; T ~20 deg below norm; strong winds & turbulence with frontal passage late in day; good AQ

Monday: P3 night flight?

less windy and slightly warmer on Monday with marine layer slow to reform; moderate background O3 production; good AQ though slight deterioration from Sunday

California Synoptic Overview - NO FORECAST TODAY

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

Intercontinental pollution onshore Today

LA/SF AIRNOW Site Comparison

Good O3/PM2.5 LA&SF AQ during FX period

Recent O3 analysis in good agreement at LA/SJ. PM2.5 analysis high at SJ and low at LA

LA/SF AIRNOW Ensemble

LA Long-range transport turning from south to northeast during FX period.

North Eastward component of SF Long-range transport aligns with LA transport during FX period.

500m RDF FX 00Z 05/22 (Fri Afternoon)

Intercontinental CO/PM2.5 enhancement onshore in Northern CA/NV, high O3 air descending over Southern CA

Combination of Intercontinental + CA pollution with significant (~80ppbv) O3 enhancement over AZ/UT and some PM2.5 enhancement over AZ/UT

Low (<5 ppbv/day) background O3 P-L over SF&LA, moderate (5-10 ppbv/day) Near Salt Lake

500m RDF FX 00Z 05/23 (Sat Afternoon)

Intercontinental CO enhancement over western US, mixture of Intercontinental+Western US pollution along cold front
Significant (~70ppbv) O3 enhancement and some PM2.5 enhancement over Western CO
Low (<5 ppbv/day) background O3 P-L over LA&SF, moderate (5-10ppbv/day) along cold front

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

Intercontinental CO enhancement over western US, mixture of Intercontinental+Western US pollution along cold front
Significant (~60ppbv) O3 and some PM2.5 enhancement over NM
Low (<5 ppbv/day) background O3 P-L over LA&SF, low (<5 ppbv/day) O3 P-L along Cold front

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

Intercontinental CO enhancement over western US, mixture of Intercontinental+Western US pollution along cold front
Moderate (5-10 ppbv/day) background O3 P-L over LA&SF, moderate (5-10 ppbv/day) O3 P-L ahead of old front
Sharp CO/O3/PM2.5 gradient across front

Area Forecast Details

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

Friday

- NW 20kt in early morning, weakens to 5kt in the morning and afternoon, resumes 20 in the evening
- MBL mostly 3,000 ft, areas of 8,000ft

Saturday

- Mostly NW 20kt all day, except 15kt during mid to late AM
- MBL 3,000 to 5,000 ft gradually lowers to 1,500 to 2,000ft

Sunday

- NW 25kt all day, lightens briefly in late AM

- MBL 1,500 ft to 2,000 ft

Monday

- NW 20kt lightens during late morning hours and stay around 10kt for the rest of the day

Tuesday & Wednesday

- NW wind lightens further, GFS predicts S wind by late morning; W wind for Wednesday

Sacramento Valley - Danny Kam (dkam@airquality.org)

Friday

- WNW 5 to 10 kt, occasionally 15 kt in the afternoon; 5kt at night
- Onshore flow through Coastal Range
- No AM downslope flow
- AM PBL 1,000 to 2,000ft , PM PBL 4,000 to 6,000 ft per GFS, in excess of 8,000 ft per COAMPS
- Max aftn temp: 20C
- Cirrostratus moves in and out of area in early morning; altocumulus moves in around noon and move out in the evening; 20% chance of precipitation
- Air Quality: Good; max 8-hr mean O3 in 0.04ppm range

Saturday

- CANSAC: due to deflected NW flow, SW 5 kt in early AM shifting to SE in late AM, back to SW in early PM, surface divergences in mid PM, shifts NE afterward
- COAMPS: NW 5kt in throughout the morning; briefly W 10kt for southern SV in the afternoon
- Onshore through Coastal Range
- AM PBL 1,000 ft; PM PBL 7,000 ft
- Max aftn temp: 18C
- Cumulus moves in early afternoon; 0% chance of precipitation
- Air Quality: Good; max 8-hr mean O3 in 0.04ppm range

Sunday

- NW 5kt wind in the AM; N 10kt late AM and early PM; NW 5kt in the evening; light E downslope flow at late night (per COAMPS due to weak onshore gradient), or light SW onshore flow for southern SV
- AM PBL at 1,500 ft, PM PBL in excess of 8,000ft
- Max aftn temp: 21C
- Cumulus lingers early AM and moves out by late AM; 0% chance of precipitation
- Good air quality: max 8-hr mean O3 in 0.04 ppm range

Monday

- Light SE downslope flow early AM for northern SV, S onshore flow for southern SV; SW onshore flow for the rest of day, stronger in the afternoon
- Max aftn temp: 21C
- Some cirrostratus moves through in the day, increasing cloudiness in the evening - altostratus moves in
- Good air quality: max 8-hr mean O3 in 0.05 ppm range

Tuesday

- S 10kt onshore wind through the delta
- Max aftn temp: 20C
- Altostratus thickens throughout AM; becomes stratus in the late AM and lingers though the day; 60% chance of precipitation
- Good air quality

Wednesday

- SW wind
- Cumulus lingers through the day
- Good air quality

San Joaquin Valley – NO FORECAST TODAY

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

Forecast Prepared 5/20/2010 - 430 pm PST

Synopsis 5/21 – 5/26: Unsettled weather continues – models indicate persistent trough over west coast US through Wed, 5/26

- Strong NW flow along the coast, NW flow aloft coast, Friday 5/21 through Monday 5/24 afternoons.
- Blowing dust in afternoons – Oceano Dunes/Nipomo Mesa Friday through Monday.
- NE flow eastern San Luis Obispo County ridgetops/Temblor Range
- Sundowner winds possible Gaviota- SBA Fri - Sunday

Friday: Trough deepening over CA, NW flow aloft. Blowing dust in afternoon/ Moderate AQ – Oceano Dunes/Nipomo Mesa - NE flow eastern San Luis Obispo County ridgetops/Temblor Range

Saturday: Trough deepening over CA, NW flow aloft. Blowing dust in afternoon/Moderate AQ – Oceano Dunes/Nipomo Mesa

Sunday: Cutoff low over CA, Slight chance of precipitation. Blowing dust in afternoon/Moderate AQ – Oceano Dunes/Nipomo Mesa

Monday: Trough NV, NW flow aloft. Blowing dust in afternoon– Oceano Dunes/Nipomo Mesa

Tuesday: Trough CA, NW flow aloft.

Wednesday: Trough CA.

Air quality: Good air quality with exception - Blowing dust midday/ afternoons-Oceano Dunes/Nipomo Mesa - Moderate AQ – Friday through Monday

Significant features for study: Blowing dust Oceano Dunes/Nipomo Mesa peaking midday/afternoons - Friday 5/21 – Monday 5/24, max PM10 Fri-Sat midday/afternoons

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

See slides for COAMPS modeled winds and clouds
Observations are included for comparison

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

- **Friday:** Upper low in Pacific Northwest; inversion base & marine layer deepening (~2000 ft) in response to the trough moving over CA; AM Satellite image shows low clouds/fog across coastal plain to San Bernardino & Riverside Co. valleys, eddy offshore centered near Catalina with a large dry area offshore in the northern bight and further offshore; previous COAMPS runs predicted this fairly well; cooler temps Friday compared to Thursday (to upper 70s inland Basin); stronger onshore flow in afternoon; winds increase Friday afternoon, gusty W to NW in the mountains and deserts; windy & dry in southern deserts for NWS fire weather watch; WRF/NAM 18Z Friday cloud model shows AM stratus band near the coast S of Palos Verdes and the narrow band of cirrus is well to the N near the Bay Area. See: <http://www.ral.ucar.edu/weather/model/index.php?model=eta> choosing "Clouds: all levels" option

McKinley Fire (just east of Corona):5/21 UPDATE 0730 AM: 900 ACRES, 70 percent contained, full containment expected tonight at 7:00 PM.

http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=411

- **Saturday:** inversion lifts & weakens with trough, but AM clouds may be minimal & confined to near the coast with dry NW gradient (?); COAMPS keeps coastal eddy - similar to Friday; cooler several degrees; strong onshore gradients for gusty W & NW winds, esp. mountains & deserts (WADs through early Sunday) - peaking in evening; mostly Moderate ozone for the next few days, but some USG possible with sun inland - mainly Central San Bernardino Mountains & into deserts
- **Sunday:** deeper marine layer - coastal eddy could deepen marine layer to 5000 ft; persistent low clouds; AM gusty winds mountains & deserts; possible AM drizzle & slight chance of light showers on northern slopes of LA/San Bernardino Mtns; temps cool considerably (~20 degrees

below normal in many areas); front passage late Sunday with strong W winds could destroy inversion; tough conditions for Sunday's flight; good to moderate ozone through the week

- **Monday:** trough weakens for a little warming; inversion may be slow to reform
- **Tuesday:** little change from Monday
- **Wednesday-Saturday:** another upper trough approaching west coast; deeper marine layer; onshore push with gusty winds, especially mtns & dsrts