Cloudy and rainy conditions persisted in Palmdale today. Moisture continues to be pumped into the region by a cut-off low off the southern CA coast. A small window of opportunity for a PODEX flight over marine stratocumulus (with D-AQ aircraft as well) exists for Saturday, but inconclusive forecasts for the existence of high level cirrus in addition to marine stratocumulus led to a no-go call for tomorrow (Saturday).

The cold front associated with a cyclonic system coming out of the Gulf of Alaska is forecast to pass through the SJV on Sunday, bringing clouds and a chance of further precipitation. This event will flush out the aerosol from the valley and “reset the aerosol clock”. The models show uncertainty as to if there will be lingering stratocumulus in the SJV behind the front on Monday.

Tuesday and Wednesday are forecast to be clear (cloud cover <~35%) across the valley. A new Pacific Coast ridge is forecast to reestablish early next week, leading to increases in aerosol. However, this ridge is not expected to be as strong as the one we dealt with previously, and minor short waves may ride over the ridge leading to complications in the forecasting next week. In addition, given all of the precipitation over the weekend, a close eye will be kept on the possibility of morning fog over the SJV.
DISCOVER-AQ / PODEX forecast briefing

January 25, 2013

Melanie Follette-Cook
Bryan Duncan
Ken Pickering
Chris Loughner
Fresno:

Today: Slight Chc Showers High: 83 °F
Tonight: Slight Chc Showers Low: 46 °F
Saturday: Slight Chc Showers High: 62 °F
Saturday Night: Slight Chc Showers Low: 44 °F
Sunday: Chance Showers High: 56 °F
Sunday Night: Slight Chc Showers Low: 37 °F
Monday: Slight Chc Showers High: 54 °F
Monday Night: Partly Cloudy Low: 37 °F
Tuesday: Mostly Sunny High: 55 °F

Hanford:

Today: Chance Showers High: 63 °F
Tonight: Chance Showers Low: 45 °F
Saturday: Slight Chc Showers High: 62 °F
Saturday Night: Slight Chc Showers Low: 42 °F
Sunday: Chance Showers High: 57 °F
Sunday Night: Slight Chc Showers Low: 35 °F
Monday: Slight Chc Showers High: 55 °F
Monday Night: Partly Cloudy Low: 33 °F
Tuesday: Mostly Sunny High: 55 °F

Bakersfield:

Today: Chance Showers High: 61 °F
Tonight: Chance Showers Low: 48 °F
Saturday: Chance Showers High: 61 °F
Saturday Night: Chance Showers Low: 46 °F
Sunday: Chance Showers High: 53 °F
Sunday Night: Chance Showers Low: 38 °F
Monday: Partly Sunny High: 52 °F
Monday Night: Partly Cloudy Low: 30 °F
Tuesday: Mostly Sunny High: 52 °F

Catalina Island:

Today: Showers High: 60 °F
Tonight: Showers Likely Low: 53 °F
Saturday: Chance Showers High: 60 °F
Saturday Night: Chance Showers Low: 48 °F
Sunday: Chance Showers High: 56 °F
Sunday Night: Chance Showers Low: 44 °F
Monday: Slight Chc Showers High: 53 °F
Monday Night: Mostly Sunny Low: 43 °F
Tuesday: Breezy High: 59 °F
Current Conditions

FRESNO CA
- Fog
- Temperature: 53°F (12°C)
- Humidity: 93%
- Wind Speed: calm
- Barometer: 30.18 in (1021.9 mb)
- Dewpoint: 51°F (11°C)
- Visibility: 0.50 mi
- Last Update on 25 Jan 6:53 am PST

HANFORD CA
- Fog
- Temperature: 51°F (11°C)
- Humidity: 96%
- Wind Speed: calm
- Barometer: 30.17 in (1021.9 mb)
- Dewpoint: 50°F (10°C)
- Visibility: 0.25 mi
- Last Update on 25 Jan 6:53 am PST
Current Conditions

BAKERSFIELD CA

Fog
52°F
11°C
Humidity: 97%
Wind Speed: W 3 MPH
Barometer: 30.17 in (1021.3 mb)
Dewpoint: 51°F (11°C)
Visibility: 0.75 mi
Last Update on 25 Jan 6:54 am PST

AVALON, CATALINA AIRPORT CA

Overcast
56°F
13°C
Humidity: 93%
Wind Speed: E 16 MPH
Barometer: 30.08 in (1017.9 mb)
Dewpoint: 54°F (12°C)
Visibility: 10.00 mi
Last Update on 25 Jan 6:51 am PST
Today: Upper level low remains off coast bringing tropical moisture into Southern CA, remains nearly stationary as the other upper level low approaches Pacific NW. The low is forecast to open and move eastward overnight.
**Tomorrow**: Upper level trough moves into Pacific NW as cold front approaches from the northwest. Forecast calls for dry conditions around LA. Precipitation associated with what remains of the cut off low should leave our area sometime between 6 and 9 am.
Hanford
Today: Mostly cloudy.
Saturday: Mostly cloudy.
Oxnard
Today: Mostly cloudy.
Saturday: Mostly cloudy.

Today ➔  Tomorrow ➔
Palmdale
Saturday: Slight chance of precipitation in the morning, probably ending by 9-10 am. Windier towards the early evening, possible gusts to 14 kt at 1-3p, increasing to 17 kt at 4p

Today →  Tomorrow →
Sunday: Much colder and dryer upper level trough approaches the area Sunday. Brings a slight chance of showers, but mostly in the mountains.
Monday: Forecast to be the coldest day with max temps 10 degrees below normal. Cloudiness may decrease as drier air moves in.
Hanford
Sunday: Mostly cloudy, windy.
Monday: Cloudy.
Oxnard
Sunday: Mostly cloudy
Monday: Clearer
Palmdale

Sunday: wind gusts of 14-15 kt forecast for afternoon
Bakersfield : BUFKIT NAM  12 UTC Friday January 25

Monday       Sunday       Saturday    Today

Clouds

PBL Height
Fresno: BUFKIT NAM 12 UTC Friday January 25

Monday | Sunday | Saturday | Today

Clouds

PBL Height
Tuesday: Trough moves east over the US

700 mb GFS
Tuesday 1 PM

500 mb GFS
Tuesday 1 PM
Wednesday: Pattern similar to previous day, but possible short wave trough formation off coast of Canada that could affect our area later in the week
Fresno
Tuesday: low cloud cover %
Wednesday: even clearer than previous day
Hanford
Tuesday: low cloud cover %
Wednesday: even clearer than previous day
Bakersfield
Tuesday: low cloud cover %
Wednesday: even clearer than previous day
Tomorrow: NAM – low clouds all day; GEOS-5 – low clouds all day, few high clouds, more by afternoon

7 am
NAM

10 am
GEOS-5 Low Clouds

1 pm
GEOS-5 High Clouds

4 pm
Integrated liquid and frozen hydrometeors (all levels)
Tomorrow: GFS – mid and high level clouds off LA coast in morning, gone by 1p

7 am 10 am 1 pm 4 pm

Canadian

GFS
GFS tomorrow

7 am 10 am 1 pm 4 pm
Sunday: NAM – low clouds in the morning, some mid-level (6-12 Kft) in northern SJV by 4p, high level clouds (>18Kft) over SJV in the morning; GEOS-5 – low clouds in the morning
NAM Sunday

7 am

10 am

1 pm

4 pm

Integrated liquid and frozen hydrometeors (below 6 Kft MSL)

Integrated liquid and frozen hydrometeors (6-12 Kft MSL)

Integrated liquid and frozen hydrometeors (above 18 Kft MSL)
GFS Sunday

10 am

4 pm
Monday: NAM – clear at all levels; GEOS-5 – some low clouds in the morning

7 am
Integrated liquid and frozen hydrometeors (all levels)

10 am
Integrated liquid and frozen hydrometeors (all levels)

1 pm
Integrated liquid and frozen hydrometeors (all levels)

4 pm
Integrated liquid and frozen hydrometeors (all levels)
Thu 31 Jan – Sat 9 Feb: 250 mb (top 2 rows) and 500 mb (bottom 2 rows) charts
AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY - HANFORD CA
203 PM PST FRI JAN 25 2013

SYNOPSIS...SEVERAL WEATHER DISTURBANCES ASSOCIATED WITH AN UPPER-LEVEL LOW STAYING OFF THE
COAST OF CALIFORNIA WILL MOVE OVER THE REGION DURING THE NEXT FEW DAYS. OFF AND ON CHANCES OF
PRECIPITATION WILL CONTINUE THROUGH EARLY NEXT WEEK. & &

.DISCUS SION...THE FOG LAYER THAT BROUGHT REDUCED VISIBILITIES TO MUCH OF THE SAN JOAQUIN VALLEY
THIS MORNING HAS LIFTED INTO A STRATUS DECK. MEANWHILE...MID/HIGH CLOUDS HAVE BEEN SPREADING
NORTHWARD INTO OUR CWFA WITH RADAR COMPOSITES INDICATING SCATTERED SHOWERS OVER THE KERN
COUNTY MOUNTAINS AND DESERTS. THIS MOISTURE IS BEING PULLED UP BY A CUTOFF UPPER LOW
CURRENTLY CENTERED OFF THE NORTHERN BAJA COAST NEAR 30N/122W WHICH IS MOVING SLOWLY
EASTWARD. IN THE MEANTIME IMPULSES WILL CONTINUE TO TRACK NORTHWARD INTO OUR AREA THROUGH
SATURDAY MORNING AND KEEP THE LIKELIHOOD OF SHOWERS OVER THE KERN COUNTY MOUNTAIN AND
DESERTS WITH LES S E R CHANCES ELSEWHERE ACROSS OUR CWFA. SNOW LEVELS WILL RANGE FROM 7500 TO
8000 FEET AS THIS MOISTURE IS OF TROPICAL ORIGIN. IT IS POSSIBLE THE STRATUS DECK MAY HANG OVER THE
SAN JOAQUIN VALLEY THROUGH SATURDAY AS DYNAMICS WILL BE LACKING TO MIX OUT THE LOWER LEVELS.

12Z WRF/GFS INDICATE THE LOW WILL MOVE INLAND JUST SOUTH OF THE US/MEXICO BORDER ON SATURDAY.
AS A RESULT...WRAP AROUND BACKWASH MOISTURE MAY PROVIDE FOR SOME LIGHT PRECIPITATION ACROSS
OUR CWFA. THE WRF AND GFS BOTH INDICATE UPPER TROUGH WILL DROP OUT OF THE GULF OF AK ON
SATURDAY AND PUSH THROUGH CENTRAL CA SUNDAY AFTERNOON AND EVENING. SINCE THIS SYSTEM DOES
NOT HAVE MUCH MOISTURE WITH IT...ANY PRECIPITATION PROVIDED BY THIS SYSTEM WILL BE LIGHT AND
THEREFORE DO NOT EXPECT WIDESPREAD IMPACTS TO TRAVEL. A COOLER AIRMASS BEHIND THIS SYSTEM
WILL PUSH INTO OUR AREA BY SUNDAY EVENING WHICH WILL MIX OUT THE STRATUS DECK OVER THE
VALLEY...BRING A PERIOD OF BREEZY CONDITIONS TO THE KERN COUNTY MOUNTAINS AND DESERTS ON
SUNDAY AFTERNOON AND EVENING...AND LOWER SNOW LEVELS TO 3000 TO 3500 FEET BY THE TIME MOST OF
THE PRECIPITATION ENDS ON MONDAY MORNING.

THE MEDIUM RANGE MODELS HAVE COME TO SLIGHTLY BETTER AGREEMENT WITH HIGH PRESSURE BUILDING
OFF THE CA COAST ON TUESDAY AND KEEPING A DRY NORTHWEST FLOW OVER CENTRAL CA FOR THE
REMAINDER OF NEXT WEEK. AS A RESULT...CONFIDENCE IS IMPROVING FOR THE FORECAST FOR NEXT WEEK
WHICH IS DRY FROM THROUGH THE END OF NEXT WEEK WITH DAYTIME TEMPERATURES RISING ABOVE
SEASONAL NORMALS BY WEDNESDAY.
GOES Imagery: IR
Too cloudy for AOD observations from MODIS yesterday, January 24th.
Yesterday’s rain only lowered PM2.5 by a little – no washout event. Sunday’s cold front should “reset AQ clock”.

Fresno-Garland

January 24th Yesterday

Air District Real-Time Outdoor Activity Risk

January 25th Today

Air District Real-Time Outdoor Activity Risk
SJV APCD Daily Forecast – for TODAY (Jan 25)

<table>
<thead>
<tr>
<th>ROAR LEVEL</th>
<th>Ozone ($O_3$)</th>
<th>Particulate Matter (PM 2.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LEVEL 1</strong> Good</td>
<td>1-59 ppb</td>
<td>1-15 µg/m³</td>
</tr>
<tr>
<td><strong>LEVEL 2</strong> Moderate</td>
<td>60-75 ppb</td>
<td>16-35 µg/m³</td>
</tr>
<tr>
<td><strong>LEVEL 3</strong> Unhealthy for Sensitive Groups</td>
<td>76-95 ppb</td>
<td>36-55 µg/m³</td>
</tr>
<tr>
<td><strong>LEVEL 4</strong> Unhealthy</td>
<td>96-115 ppb</td>
<td>56-75 µg/m³</td>
</tr>
<tr>
<td><strong>LEVEL 5</strong> Very Unhealthy</td>
<td>&gt;115 ppb</td>
<td>&gt;75 µg/m³</td>
</tr>
</tbody>
</table>

- San Joaquin
- Stanislaus
- Madera
- Fresno
- Tulare
- Sequoia National Park and Forest
- Merced
- Kings
- Kern
- Greater Frazier Park Area
GEOS-5: Saturday 18Z = 10 PST
NOAA CMAQ: Saturday 10 am = 18 Z

Column AOD [Dimensionless] at surface Valid 18 JAN 26 2013
Saturday 10 am = 18 Z

PM25 [μg/m³] at surface Valid 18 JAN 26 2013
Saturday 10 am = 18 Z

CO [ppm] at 1013 [hPa] Valid 18 JAN 26 2013
Saturday 10 am = 18 Z
Saturday 10 am = 18 Z

FORM [ppb] at 1013 [hPa] Valid 18 JAN 26 2013
GMAO GEOS5: Fresno

Frontal passage resets AQ clock.
GMAO GEOS5: Bakersfield
GMAO GEOS5: San Nicholas
GMAO GEOS5: Ocean 40 N 130 W
GMAO GEOS5: Ocean 38 N 125 W
GMAO GEOS5: Ocean 30 N 130 W
Saturday 10 am = 18 Z
Recommendations

**Saturday** – Model outlook looks good for a PODEX flight tomorrow morning, but chance of rain in the morning and possible windy conditions in Palmdale in early evening (gusts to 14 kt at 1-3p, increasing to 17 kt at 4p)

**Sunday** – frontal passage – windy conditions (gusts ≥ 15 kt) forecast for Palmdale in the afternoon

**Monday** – Models are inconsistent with how fast clouds clear out behind the front. NAM indicates clear skies over region while the NWS forecaster predicts cloudy skies behind cold front due to lingering stratocumulus over region.

**Tuesday & Wednesday** – clearer skies forecast