AQ: The ridge is building over California. PM2.5 levels in the SJV are generally low, except that Fresno has had an extended period of >40 ug/m3 over the last two nights. We’re in a “building” stage this week as the ridge takes hold with Friday and Saturday to see peak values of PM2.5 (code orange) in much of the SJV during this mini AQ event - “mini” relative to last week’s larger event, which was characterized by a stronger inversion. As a result, thick and widespread fog is not expected this week. Though clouds are forecasted this weekend, PM2.5 in the SJV is not expected to be “cleaned out”, so that PM2.5 may remain at moderate levels early next week. AQ may be “reset” with the approaching weather Tuesday-Wednesday. PM2.5 levels in the Sacramento area are generally cleaner than the SJV, though code orange conditions cannot be ruled out this week.

Weather:
Thursday –
SJV (PODEX/D-AQ) – Fog in the morning a little more widespread than today, burning off by 9-10 am. Clear skies are forecast.
PODEX calibration leg – Lake Tahoe – Reno NWS office forecasts some high cirrus over the region tomorrow into Friday. Cirrus are spilling over the upper level high at about 35 Kft.
PODEX coastal leg (Bay area) – Monterey NWS office forecasts low level clouds, but too far offshore (west of 125W) for PODEX
PODEX coastal leg (LA) – No cirrus forecast, no lower level clouds forecast. Models bring them closer than Oxnard NWS forecaster thought they would come.
PODEX calibration leg – Palmdale – forecast is clear of cirrus
Weather Continued

Friday –
**SJV (PODEX/D-AQ)** – Fog in the morning, burning off by 9-10 am. Clear skies are forecast.
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**PODEX calibration leg – Palmdale** – Forecast is clear of cirrus

Saturday – **SJV** - Thin broken cirrus forecast (~25Kft). Clouds increasing as the day progresses. Fog in the morning, burning off by 9-10 am.

Sunday – **Possibility of precipitation and cloudiness increases as an upper level trough moves in and brings tropical moisture.**
DISCOVER-AQ / PODEX
Forecast Meeting

January 30, 2013

Melanie Follette-Cook
Bryan Duncan
Current Conditions

FRESNO CA
- Temperature: 38°F (3°C)
- Humidity: 85%
- Wind Speed: calm
- Barometer: 30.33 in (1027.3 mb)
- Dewpoint: 34°F (1°C)
- Visibility: 10.00 mi
- Last Update: 30 Jan 6:53 am PST

BAKERSFIELD CA
- Temperature: 37°F (3°C)
- Humidity: 82%
- Wind Speed: calm
- Barometer: 30.32 in (1026.6 mb)
- Dewpoint: 32°F (0°C)
- Visibility: 10.00 mi
- Last Update: 30 Jan 6:54 am PST
Current Conditions

HANFORD CA

Fog

32°F

0°C

Humidity 88%
Wind Speed calm
Barometer 30.33 in (1027.6 mb)
Dewpoint 29°F (-2°C)
Visibility 0.25 mi
Last Update on 30 Jan 6:53 am PST

Plymouth State Weather Center

Meteogram for KHJO from 1500Z 20 JAN 13 to 1500Z 30 JAN 13

TEMP (°C)

SNOWPE

WX

WIND

GND

PRES (mb)

1024.6
1025.4
1026.6
1027.2
1027.6
1028.0
GOES: IR at 1430 UTC Today
GOES: Cloud Top Height at 1430 UTC Today
Today:

The ridge over the East Pacific remains stationary today keeping storm tracks to our north.
Tomorrow (Thursday):

Dry conditions are expected throughout the end of the week as high pressure builds in over the area. Morning fog in the SJV possible for Thursday.
Beckwourth (Nervino Airport) – Northern calibration leg for PODEX

Today: Sunny
Thursday: Sunny
Yuba City (Northern extent of Sacramento leg)
Today: Sunny
Thursday: Sunny
Fresno

Today: Sunny
Thursday: Clear skies, light winds – morning fog possible

NOTE – Sky cover is 0% through forecast and is therefore underneath the Precip Potential
Hanford
Today: Sunny
Thursday: Clear skies, light winds – morning fog possible (but likely given conversation with NWS forecaster)
Bakersfield
Today: Sunny
Thursday: Clear skies, light winds – morning fog possible (but likely given conversation with NWS forecaster)
Today: Sunny
Thursday: Sunny, sustained winds of 5-9 kt, gusts up to 13 kt in the early evening
GEOS-5: Thursday 18Z = 10 PST

NASA/GMAO - GEOS-5 Forecast Initialized on 00z 2013-01-30
70 hPa Wind Speed [knots] and Heights [dam]

42 hr forecast valid Thu 18z 2013-01-31
GEOS-5: Thursday 18Z = 10 PST
Friday:

Weak upper level low develops off the coast of Central CA. Heights rise Friday and NWS discussion says few clouds are expected, except for high clouds.
Saturday:

Upper level trough moves into East Pacific
Beckwourth (Nervino Airport) – Northern calibration leg for PODEX

Friday: Sunny
Saturday: Increasing cloud cover
Yuba City (Northern extent of Sacramento leg)
Friday: Sunny
Saturday: Increasing cloud cover
Fresno
Friday: Sunny
Saturday: Increasing cloud cover
Hanford
Friday: Sunny
Saturday: Increasing cloud cover
Bakersfield
Friday: Sunny
Saturday: Increasing cloud cover
Palmdale
Friday: Sustained winds ≤ kt, gusts up to 15 kt. Cloud cover increasing by the early evening.
Saturday: Increased cloud cover
Sacramento: BUFKIT NAM 12 UTC Wednesday Jan. 30

- **Saturday**: High clouds moving in above 25 Kft
- **Today**: Clouds > 15 Kft

**PBL Height**

**Clouds**
Fresno: BUFKIT NAM 12 UTC Wednesday Jan. 30

- **Saturday**: Clouds > 15 Kft
- **Friday**: PBL Height
- **Thursday**: Clouds
- **Today**:

The graph shows the changes in PBL Height and cloud levels over the weekend and into the week.
Bakersfield: BUFKIT NAM 12 UTC Wednesday Jan. 30

- **Saturday**: Clouds > 15 Kft
- **Sunday**: PBL Height
San Nicolas: BUFKIT NAM 12 UTC Wednesday Jan. 30
Sunday:

The exact track of the low center remains uncertain as models continue to disagree. Timing and intensity are variable run to run and model to model.
Monday:

Ensemble means indicate the trough moving through the SJV Tuesday night into Wed. Chances of precipitation have been lowered for the weekend and increase for early next week.
Fresno
Sunday: Sunny
Monday: Increasing cloud cover
Hanford
Sunday: Sunny
Monday: Increasing cloud cover
Bakersfield
Sunday: Sunny
Monday: Increasing cloud cover
GFS - 250 mb winds - Extended forecast

GFS - 500 mb vorticity - Extended forecast
Tomorrow: NAM – no high level clouds over entire flight region, low level clouds (<6 Kft) near PODEX coastal leg and LA region, closer to the coast near the Bay area.
Tomorrow: GEOS5 – Morning fog over Bay area and SJV. Clear skies over both the SJV and PODEX region, but high level clouds approach the SJV from the north and south. Some low level clouds in the PODEX coastal leg.
Tomorrow: Canadian – Clear skies over the SJV. Some clouds over PODEX coastal and LA region. GFS – High level clouds should stay south of the PODEX and SJV study areas. Low level clouds stay far offshore. There are few mid-level clouds.

7 am 10 am 1 pm 4 pm

Canadian

GFS – Total cloud
Tomorrow: GFS – High level clouds should stay south of the PODEX and SJV study areas. Low level clouds stay far offshore. There are few mid-level clouds.
Friday: NAM – high level clouds stay outside the flight region until after 10 am when they approach the coastal Bay area (after 1 pm) and LA PODEX region. Low level clouds closer to the coast near the Bay area and then again near LA. Some low to mid level clouds forecast over the Tahoe region ($\leq 12$ Kft) in the early morning.
Friday: GEOS5 – Morning fog over northern SJV. Clear skies over the SJV. High level over PODEX region all day and over the SJV by 4 pm.
Friday: GFS – Similar story as Thursday. High level clouds should stay south of the PODEX and SJV study areas. Low level clouds stay far offshore. There are few mid-level clouds.
Saturday: NAM – high level clouds move into our region. Coastal low level clouds appear too close to the coast for the PODEX cirrus flight.
Saturday: GEOS5 – Mid and high level clouds over our region all day

7 am

10 am

1 pm

4 pm

GEOS5 – Low level

GEOS5 – Mid level

GEOS5 – High level
AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY - HANFORD CA
317 AM PST WED JAN 30 2013

.SYNOPSIS... DRY CONDITIONS ARE EXPECTED AS HIGH PRESSURE BUILDS OVER THE AREA. A WARMING TREND IS EXPECTED FOR THE REST OF THE WEEK...ALTHOUGH NIGHT AND MORNING FOG IN THE SAN JOAQUIN VALLEY IS POSSIBLE STARTING LATE TONIGHT. &&

.DISCUSSION... EPAC RIDGE REMAINING STATIONARY OFF THE COAST IS KEEPING THE STORM TRACK WELL TO OUR NORTH. NORTHERLY FLOW OVER THE AREA IS KEEPING TEMPS NEAR NORMAL AND ALLOWING SOME MODERATION TO TAKE PLACE AS TEMPS WERE UP AROUND 1 TO 3 DEGREES YESTERDAY FROM THE PREVIOUS DAY.

WEAK UPPER LOW CENTER OFF THE CENTRAL CA COAST IS EXPECTED TO RETROGRADE AND DEVELOP A REX BLOCKING PATTERN OVER THE EPAC. HEIGHTS WILL RISE FRIDAY AND THE WEAK UPPER LOW CENTER WILL MOVE ONSHORE SATURDAY INTO NORCAL. ONLY A FEW HIGH CLOUDS ARE POSSIBLE WITH THIS SYSTEM AS IT MOVES ASHORE.


.AVIATION... LOCAL MVFR VISIBILITIES DUE TO MIST IN THE SAN JOAQUIN VALLEY THROUGH 18Z WEDNESDAY AND AGAIN AFTER 06Z THURSDAY. OTHERWISE...VFR CONDITIONS WILL PREVAIL ACROSS THE CENTRAL CA INTERIOR THRU 12Z THU. &&

.AIR QUALITY ISSUES... ON WEDNESDAY JANUARY 30 2013... FIREPLACE/WOOD STOVE BURNING IS PROHIBITED IN FRESNO COUNTY. FURTHER INFORMATION IS AVAILABLE AT VALLEYAIR.ORG &&
For PM2.5, we’re in a “building” stage this week as the ridge takes hold.
### Air Quality Forecast

#### Today's High

- **Air Quality Index (AQI):** 87
- **Moderate**
- **Health Message:** Unusually sensitive people should consider reducing prolonged or heavy exertion.

#### Tomorrow's High

- **Air Quality Index (AQI):** 84
- **Moderate**
- **Health Message:** Unusually sensitive people should consider reducing prolonged or heavy exertion.

#### AQI Pollutant Details

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Today's High</th>
<th>Tomorrow's High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particles (PM2.5)</td>
<td>87 Moderate</td>
<td>84 Moderate</td>
</tr>
</tbody>
</table>

### Forecast Discussion

Tuesday, light morning winds will limit pollutant dispersion in the Sacramento region. However, surface high pressure over southern Oregon will produce moderate northwesterly winds in the afternoon, dispersing pollutants and leading to low-Moderate particle levels. Wednesday and Thursday, a upper-level ridge of high pressure will build over northern California, limiting vertical mixing. In addition, light winds will limit pollutant dispersion, and strong overnight temperature inversions will trap pollutants near the surface. Therefore, particle levels will be high-Moderate on both days.

### Current Conditions

**Air Quality Index (AQI)**

### 5 Day Forecast

**Air Quality Forecast**

**Tuesday, January 29 at 9:44 AM**

<table>
<thead>
<tr>
<th></th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>North Counties</strong></td>
<td>PM2.5 36</td>
<td>PM2.5 60</td>
<td>PM2.5 M</td>
<td>PM2.5 M</td>
<td>PM2.5 M</td>
</tr>
<tr>
<td><strong>Coast and Central Bay</strong></td>
<td>PM2.5 29</td>
<td>PM2.5 49</td>
<td>G M</td>
<td>M M</td>
<td>M M</td>
</tr>
<tr>
<td><strong>Eastern District</strong></td>
<td>PM2.5 29</td>
<td>PM2.5 45</td>
<td>G M</td>
<td>M M</td>
<td>M M</td>
</tr>
<tr>
<td><strong>South Central Bay</strong></td>
<td>PM2.5 26</td>
<td>PM2.5 42</td>
<td>G G M</td>
<td>M M</td>
<td>M M</td>
</tr>
<tr>
<td><strong>Santa Clara Valley</strong></td>
<td>PM2.5 32</td>
<td>PM2.5 52</td>
<td>M M</td>
<td>M M</td>
<td>M M</td>
</tr>
</tbody>
</table>
January 29 (Tuesday) & 30th (Today)

Fresno-Garland

Corcoran

Similar behavior as yesterday.

Bakersfield

Stockton
GMAO GEOS5: Fresno
GMAO GEOS5: Bakersfield
GMAO GEOS5: San Nicolas Is.
GMAO GEOS5: Monterey
GMAO GEOS5: Ocean 40 N 130 W
GMAO GEOS5: Ocean 38 N 125 W
GMAO GEOS5: Ocean 30 N 130 W
NOAA CMAQ: Thursday 10 am = 18 Z

Pollution offshore
NOAA CMAQ: Thursday 10 am = 18 Z

Pollution offshore
NOAA CMAQ: Thursday 10 am = 18 Z
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