We continue to have similar conditions day after day as the ridge remains in place just off the Pacific coast. We expect very little change in wind or moisture conditions in the SJV. Today, there was fog at Hanford (and in fact a rather narrow strip down the center of the valley). Visibility dropped to 0.25 mi and was less than 1 mile from 5 – 8 AM. IFR conditions persisted from 1 AM to 9 AM at Hanford. At Visalia a min visibility of 1.25 mi was reached at 7:15 to 8 AM, while IFR conditions lasted from 1 AM to 11 AM. MOS forecasts of 7AM RH at Hanford and Fresno are slightly higher on Sun. and Mon. than on Sat, while RH probably will not reach levels for fog at Bakersfield. The NWS at Hanford expects fog to form at bit earlier and dissipate a bit later as we progress through the weekend. The other issue we are watching is the cirrus off the Pacific Coast of California. Moisture from the tropics is moving up from the south on the west side of the ridge, but begins to dissipate as it hits dryer air on the east side of the ridge. Another batch of cirrus may exist to our South over the weekend, but both the GEOS-5 and GFS move these clouds directly east over Baja and into southern AZ.

Today’s air quality is expected to reach Code Orange levels in both Fresno and Kern Counties with borderline Yellow-Orange in Kings and Tulare Counties. Similar conditions expected tomorrow and Sunday. Stagnation continues with PM2.5 buildup possible, but traffic emissions decrease over the weekend. Although wood burning will be prohibited in Code Orange forecast areas, these emissions may increase over the weekend. Stronger surface heating over the next few days may also raise the mixing depth a bit.

Recommendation: Conditions should be fine for flying any of Sat., Sun. or Mon. However, the chance of morning fog will likely increase each day through the period.
**Fresno:**

<table>
<thead>
<tr>
<th>Today</th>
<th>Tonight</th>
<th>Friday</th>
<th>Friday Night</th>
<th>Saturday</th>
<th>Saturday Night</th>
<th>Sunday</th>
<th>Sunday Night</th>
<th>M.L. King Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunny</td>
<td>Clear</td>
<td>Sunny</td>
<td>Clear</td>
<td>Sunny</td>
<td>Clear</td>
<td>Sunny</td>
<td>Clear</td>
<td>Sunny</td>
</tr>
</tbody>
</table>

**Hanford:**

<table>
<thead>
<tr>
<th>Today</th>
<th>Tonight</th>
<th>Saturday</th>
<th>Saturday Night</th>
<th>Sunday</th>
<th>Sunday Night</th>
<th>M.L. King Day</th>
<th>Monday Night</th>
<th>Tuesday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning Frost</td>
<td>Areas Frost</td>
<td>Morning Frost</td>
<td>Clear</td>
<td>Sunny</td>
<td>Clear</td>
<td>Sunny</td>
<td>Clear</td>
<td>Sunny</td>
</tr>
</tbody>
</table>

**Bakersfield:**

<table>
<thead>
<tr>
<th>Today</th>
<th>Tonight</th>
<th>Friday</th>
<th>Friday Night</th>
<th>Saturday</th>
<th>Saturday Night</th>
<th>Sunday</th>
<th>Sunday Night</th>
<th>M.L. King Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunny</td>
<td>Clear</td>
<td>Sunny</td>
<td>Clear</td>
<td>Sunny</td>
<td>Clear</td>
<td>Sunny</td>
<td>Clear</td>
<td>Sunny</td>
</tr>
</tbody>
</table>
Current Conditions

FRESNO CA
- Fog
- Temperature: 32°F (0°C)
- Humidity: 85%
- Wind Speed: calm
- Barometer: 30.28 in (1025.4 mb)
- Dewpoint: 28°F (-2°C)
- Visibility: 6.00 mi
- Last Update on 17 Jan 6:53 am PST

HANFORD CA
- Freezing Fog
- Temperature: 26°F (-3°C)
- Humidity: 92%
- Wind Speed: E 3 MPH
- Barometer: 30.22 in (1023.8 mb)
- Dewpoint: 24°F (-4°C)
- Visibility: 0.25 mi
- Last Update on 18 Jan 6:53 am PST
Current Conditions

BAKERSFIELD CA

35°F
2°C

Humidity 78%
Wind Speed E 5 MPH
Barometer 30.21 in (1023.2 mb)
Dewpoint 25°F (-2°C)
Visibility 4.00 mi
Wind Chill 31°F (-1°C)

Last Update on 18 Jan 6:54 am PST

Plymouth State Weather Center

Meteogram for KBFL from 1500Z 17 JAN 13 to 1500Z 18 JAN 13

Visalia

Fresno

Fresno

Visalia
Today: Sunny. Large upper level ridge moving onshore.

500 mb NAM at 1 PM.
Tomorrow: Sunny. Upper level ridge still in place along the coastline.

500 mb NAM at 1 PM.
Fresno
Today: Sunny.
Hanford
Today: Sunny.
Tomorrow: Sunny with some morning fog.
Bakersfield
Today: Sunny.
Tomorrow: Sunny with some patchy morning fog.
Sunday: Mostly sunny. Upper level ridge still in place.

500 mb NAM at 1 PM.
850 mb NAM
Monday 1 PM

500 mb NAM
Monday 1 PM
Fresno
Sunday: Sunny with a chance of morning fog.
Monday: Sunny with a chance of morning fog.
Hanford
Sunday: Morning fog – afternoon sun.
Monday: Morning fog – afternoon sun.
Bakersfield
Sunday: Sunny with some morning fog.
Monday: Morning fog – afternoon sun.
## SJV Relative Humidity at 7 AM

<table>
<thead>
<tr>
<th>Day</th>
<th>Hanford</th>
<th>Fresno</th>
<th>Bakersfield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sat.</td>
<td>92%</td>
<td>89%</td>
<td>85%</td>
</tr>
<tr>
<td>Sun.</td>
<td>96%</td>
<td>92%</td>
<td>90%</td>
</tr>
<tr>
<td>Mon.</td>
<td>95%</td>
<td>92%</td>
<td>88%</td>
</tr>
</tbody>
</table>
-Today through Monday: Mostly sunny. A few scattered clouds Sunday and Monday afternoon.
Today through Monday: Mostly sunny. Only a few scattered clouds.
850 mb GFS  
Wednesday 1 PM

500 mb GFS  
Wednesday 1 PM
Fresno
Tuesday: Sunny with some morning fog.
Wednesday: A chance of morning fog and partly cloudy.
Hanford
Tuesday: Morning fog – afternoon sun.
Wednesday: Patchy morning fog and partly cloudy.
Bakersfield
Tuesday: Foggy morning – sunny afternoon.
Wednesday: Foggy morning and a few clouds in the afternoon.
Tomorrow: NAM – no clouds; GEOS-5 – morning fog and a few cirrus nearby.

7 am | 10 am | 1 pm | 4 pm

Integrated liquid and frozen hydrometeors (all levels)

GEOS-5 Low Clouds

GEOS-5 High Clouds
Tomorrow: Canadian – mostly sunny; GFS – a few high clouds.

Canadian

GFS
Sunday: NAM – no clouds; GEOS-5 – morning fog and a few cirrus clouds.
Monday: NAM – no clouds; GEOS-5 – morning fog.
Thu 24 Jan – Sat 2 Feb: 250 mb (top 2 rows) and 500 mb (bottom 2 rows) charts
AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY - HANFORD CA
509 AM PST FRI JAN 18 2013

.SYNOPSIS...
DRY CONDITIONS CONTINUE WITH MORE MORNING FROST IN THE SAN JOAQUIN VALLEY. LOCALLY GUSTY WINDS ARE POSSIBLE IN THE KERN COUNTY MOUNTAINS AND SOUTH END OF THE VALLEY DUE TO OFFSHORE FLOW. GRADUAL WARMING WILL CONTINUE INTO NEXT WEEK AS THE RIDGE OF HIGH PRESSURE MOVES FURTHER INLAND.

&

.DISCUSSION...
THE PACIFIC RIDGE CONTINUES TO BUILD ASHORE OVER THE WEST COAST. A MODERATE OFFSHORE SURFACE PRESSURE GRADIENT AND A WEAK IMPULSE DROPPING OVER THE RIDGE THROUGH THE GREAT BASIN WILL HELP TO MAINTAIN SOME GUSTY EASTERLY WINDS OVER THE MOUNTAINS AND THROUGH THE PASSES. OVERNIGHT LOW TEMPERATURES CONTINUE TO RUN SEVERAL DEGREES BELOW CLIMO AND ANOTHER FREEZE WARNING IS IN EFFECT THIS MORNING FOR THOSE AREAS OF THE SJV DROPPING BELOW 28 DEGREES. MODELS CONTINUE TO PROG TEMPERATURES TO GRADUALLY MODERATE OVER THE NEXT FEW DAYS UNDER THE INCOMING RIDGE...AND THOUGH FROSTY MORNINGS ARE STILL EXPECTED...LOWS ARE EXPECTED TO FINALLY CREEP ABOVE WARNING CRITERIA ACROSS THE VALLEY. CONTINUED COOL NORTHEASTERLY WINDS SHOULD MAINTAIN CHILLY TEMPERATURES IN THE DESERT AREAS. AFTERNOON HIGHS MEANWHILE ARE RUNNING ABOVE SEASONAL AVERAGES IN THE CONTINUED OFFSHORE FLOW.

A CHANGE IN CONDITIONS WILL BE IN STORE AS MODELS BEGIN TO BREAK DOWN THE RIDGE BY THE MIDDLE OF NEXT WEEK. THERE IS PRETTY GOOD MODEL AGREEMENT INITIALLY AS AN APPROACHING NORTHEAST PACIFIC TROUGH SPLITS. DIFFERENCES DEVELOP IN THE STRENGTH AND TIMING OF THE NORTHERN PORTION OF THE TROUGH AS IT BEGINS TO BREAK DOWN THE RIDGE BY WEDNESDAY. FOR NOW WE CONTINUE TO SHOW JUST INSIGNIFICANT POPS AND SLIGHTLY COOLER TEMPERATURES FOR THE LATTER PART OF NEXT WEEK WITH THE INCOMING SYSTEM.
NASA/GMAO - GEOS-5 Forecast Initialized on 00z 2013-01-18

70 hPa Wind Speed [knots] and Heights [dam]

42 hr forecast valid Sat 18z 2013-01-19
DRAGON_Bakersfield, N 35°19'55", W 119°00'00", Alt 50 m
PI: Brent Holben, Brent.N.Holben@nasa.gov
Level 1.0 AOT; Data from 17 JAN 2013

Aerosol Optical Thickness

JAN 2013

Version 2 DS
Air District Real-Time Outdoor Activity Risk

Fresno – Garland   January 18, 2013
Bakersfield Munic. Airport - January 18, 2013

Air District Real-Time Outdoor Activity Risk

The graph shows the hourly PM2.5 concentration (ug/m3) over a 24-hour period. The data points are plotted and indicate a decrease in concentration throughout the day, with the highest concentration occurring during the early hours. The graph also includes different concentration levels indicated by various line colors and shades.
SJAPAD Forecast for Jan. 18, 2013

### ROAR LEVEL

<table>
<thead>
<tr>
<th>ROAR LEVEL</th>
<th>Ozone (O³)</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>
Column AOD [Dimensionless] at surface Valid 18 JAN 19 2013
PM2.5 [μg/m³] at surface Valid 18 JAN 19 2013
Hanford - GEOS-5 Forecast
Bakersfield - GEOS-5 Forecast
NOAA RAP model

NO mixing ratio ppbv

Map showing the distribution of NO mixing ratio across the United States.
Recommendations

• Conditions should not change very much over Sat., Sun. and Mon. However, there may be increased chance of longer lasting fog as we progress through the 3-day weekend. We could likely fly on any of these three days.

• PM2.5 may increase some on Saturday, but the remainder of the weekend will likely be similar, as emissions may decrease, but accumulation in the stagnant conditions continues.