

The deep, upper level trough over the Midwest is moving slowly east and a ridge is building over California. PM2.5 levels in the SJV are generally low, except that Fresno had an extended period of >40 ug/m³ overnight. We're in a "building" stage this week as the ridge takes hold. Fresno is borderline for code orange today and tomorrow, but code orange on Thursday. There could be a regional code orange by Friday. This week's AQ event should be viewed as a "mini" event relative to last week's larger event which was characterized by a stronger inversion. Thick and widespread fog is not expected this week, so fog is not likely to reduce PM2.5 levels via deposition.

Wednesday – Cirrus is expected over the SJV, with similar levels as observed today. The cirrus is moving up and over the ridge. There will be possible morning fog, but it should not be extensive.

Thursday – Cirrus is possible though it should be at a lower altitude than today & Wednesday and it should be thinner. Skies could be clear over the SJV extending past the Bay area. Low level clouds are forecast all along the US west coast, but possibly too far offshore for PODEX.

Friday – The NAM and GEOS5 models show cirrus over the PODEX region, reaching the SJV by early afternoon.

Saturday & Sunday – There is a possibility of precipitation and cloudiness increases as an upper level trough moves in and brings tropical moisture. Saturday looking more promising for a flight than Sunday at the current time. However, the models are not in agreement.

Long-Range – The long-range forecast is not looking favorable for AQ events from this weekend to mid-February.

DISCOVER-AQ / PODEX forecast briefing

January 29, 2013

Melanie Follette-Cook

Bryan Duncan

Fresno

TODAY	TONIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY
Patchy Fog High: 55 °F	Areas Fog Low: 38 °F	Areas Fog High: 60 °F	Areas Fog Low: 41 °F	Areas Fog High: 62 °F	Areas Fog Low: 42 °F	Areas Fog High: 63 °F	Areas Fog Low: 45 °F	Areas Fog High: 63 °F
TODAY	TONIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY

Hanford

TODAY	TONIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY
Morning Frost High: 56 °F	Areas Fog Low: 33 °F	Areas Fog High: 60 °F	Areas Fog Low: 39 °F	Areas Fog High: 62 °F	Areas Fog Low: 40 °F	Areas Fog High: 63 °F	Areas Fog Low: 43 °F	Areas Fog High: 64 °F
TODAY	TONIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY

Bakersfield

TODAY	TONIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY
High: 54 °F	Low: 36 °F	High: 61 °F	Low: 40 °F	High: 63 °F	Low: 43 °F	High: 66 °F	Low: 45 °F	High: 67 °F

Palmdale

TODAY	TONIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY
High: 57 °F	Low: 32 °F	High: 63 °F	Low: 40 °F	High: 68 °F	Low: 43 °F	High: 68 °F	Low: 47 °F	High: 67 °F
TODAY	TONIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY

Current Conditions

FRESNO CA



Partly Cloudy
37°F
 3°C

Humidity 85%
 Wind Speed E 3 MPH
 Barometer 30.28 in (1025.5 mb)
 Dewpoint 33°F (1°C)
 Visibility 9.00 mi
 Last Update on 29 Jan 5:53 am PST

HANFORD CA

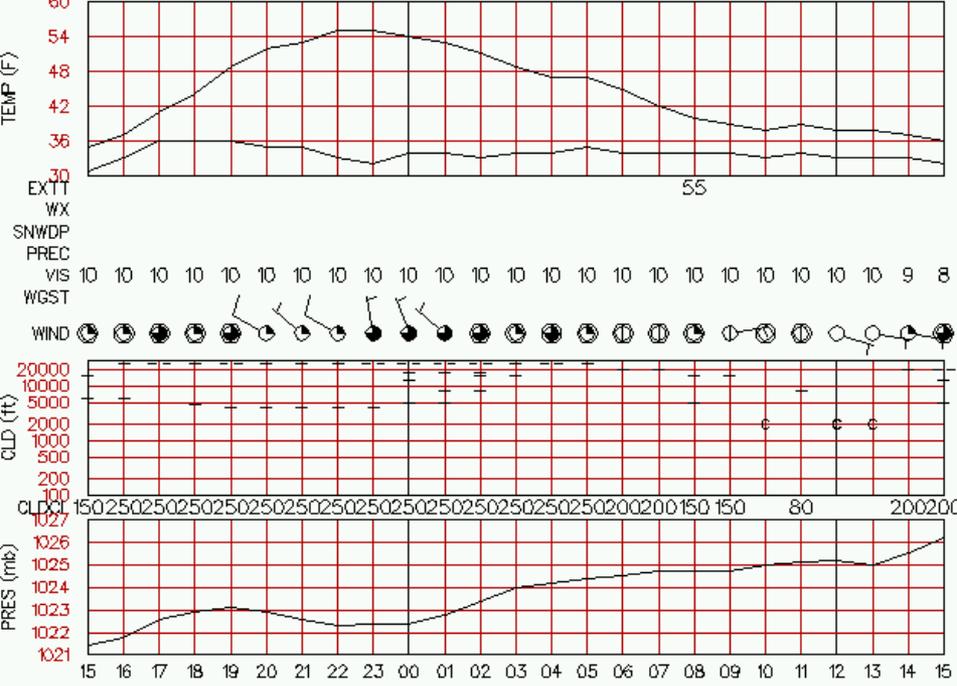


Fog
29°F
 -2°C

Humidity 96%
 Wind Speed calm
 Barometer 30.28 in (1025.8 mb)
 Dewpoint 28°F (-2°C)
 Visibility 5.00 mi
 Last Update on 29 Jan 5:53 am PST

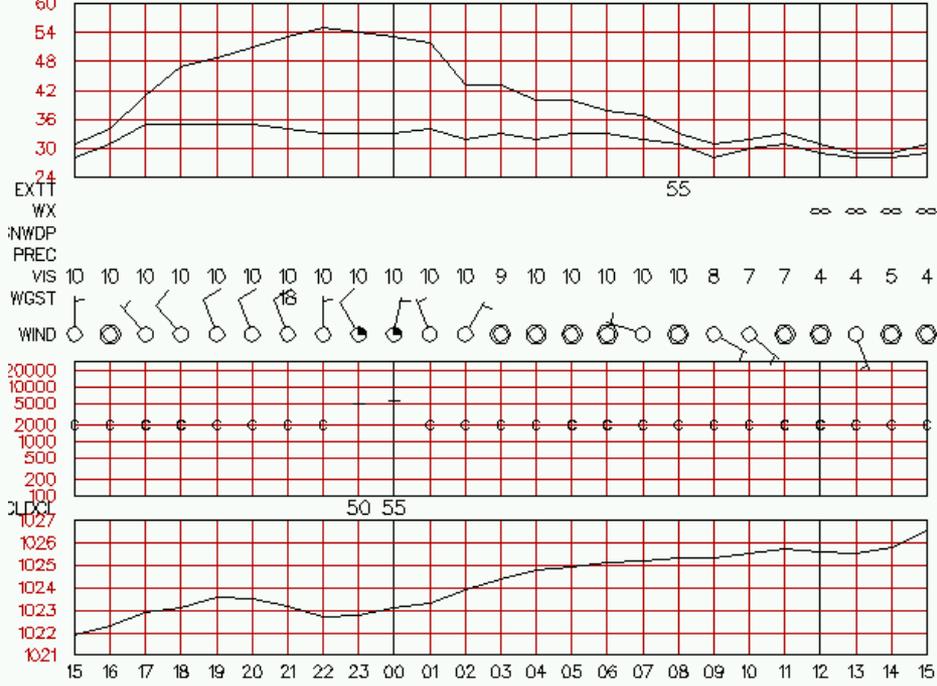
▼ Plymouth State Weather Center ▼

Meteogram for KFAT from 1500Z 28 JAN 13 to 1500Z 29 JAN 13



▼ Plymouth State Weather Center ▼

Meteogram for KHJO from 1500Z 28 JAN 13 to 1500Z 29 JAN 13



Current Conditions

BAKERSFIELD CA

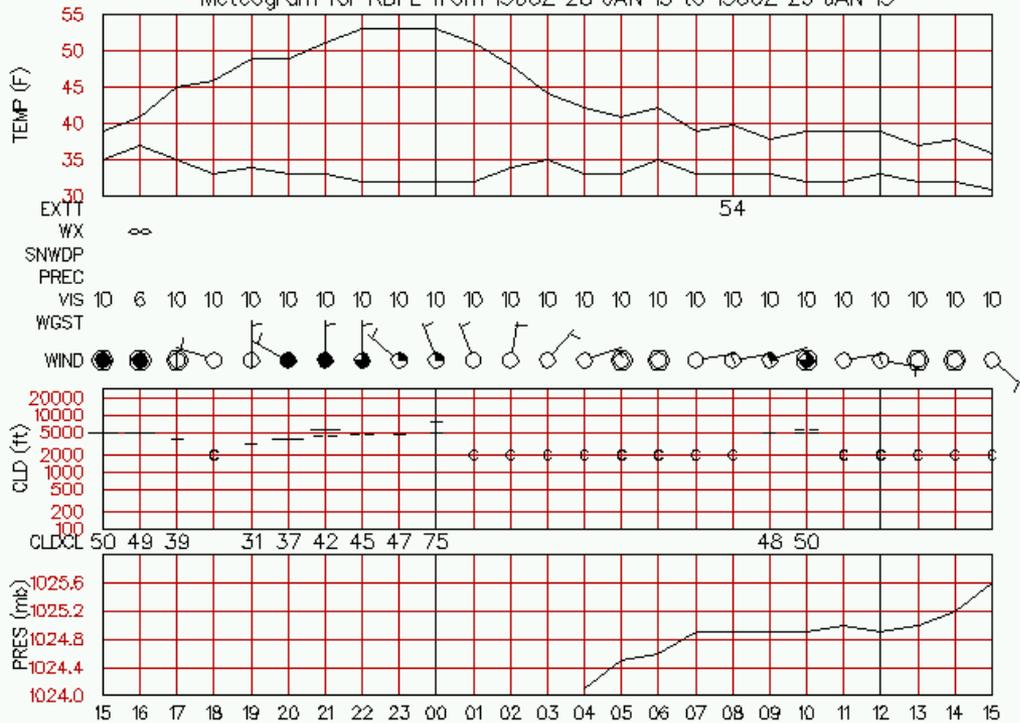


Fair
38°F
3°C

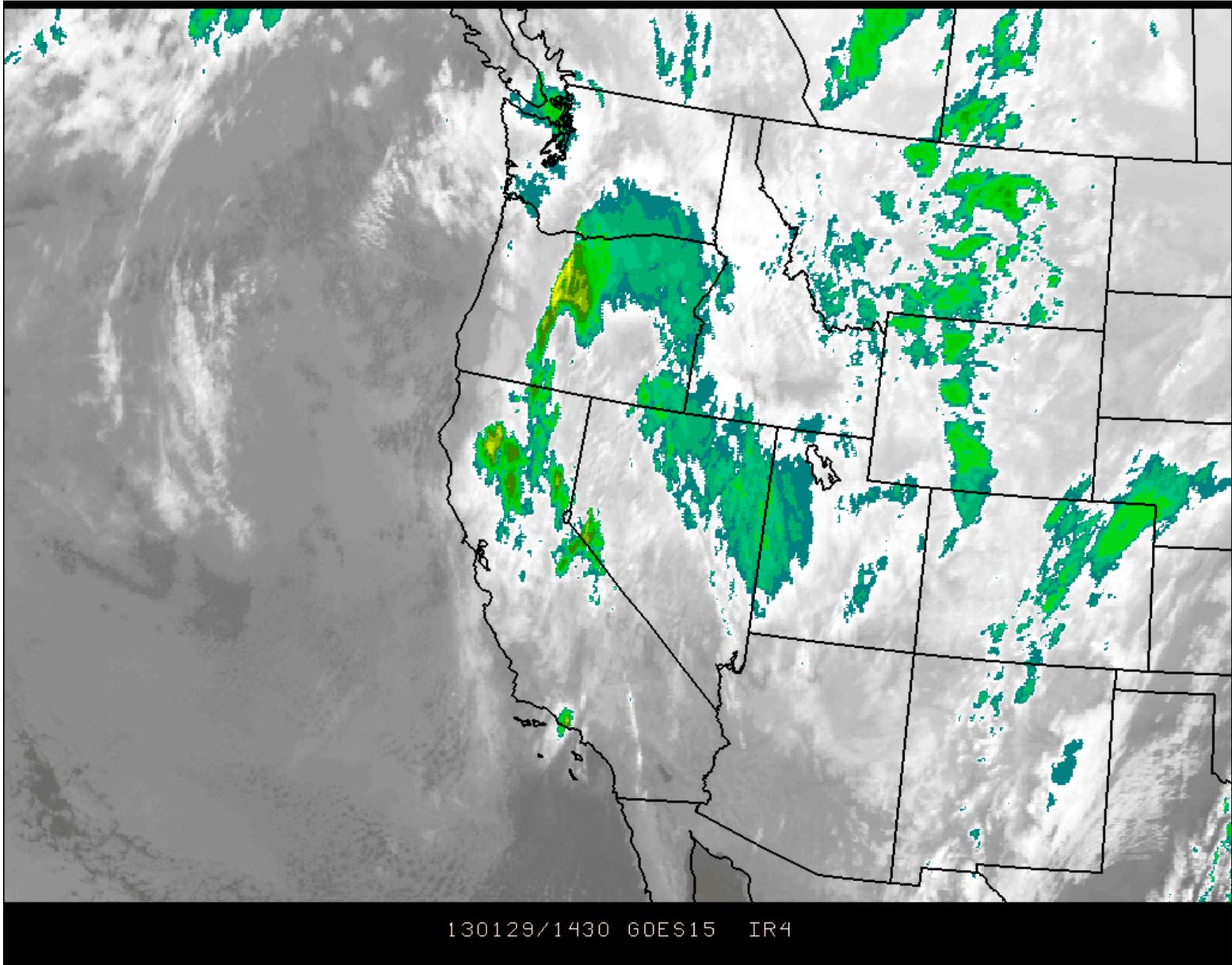
Humidity 79%
Wind Speed calm
Barometer 30.27 in (1025.2 mb)
Dewpoint 32°F (0°C)
Visibility 10.00 mi
Last Update on 29 Jan 5:54 am PST

▼ Plymouth State Weather Center ▼

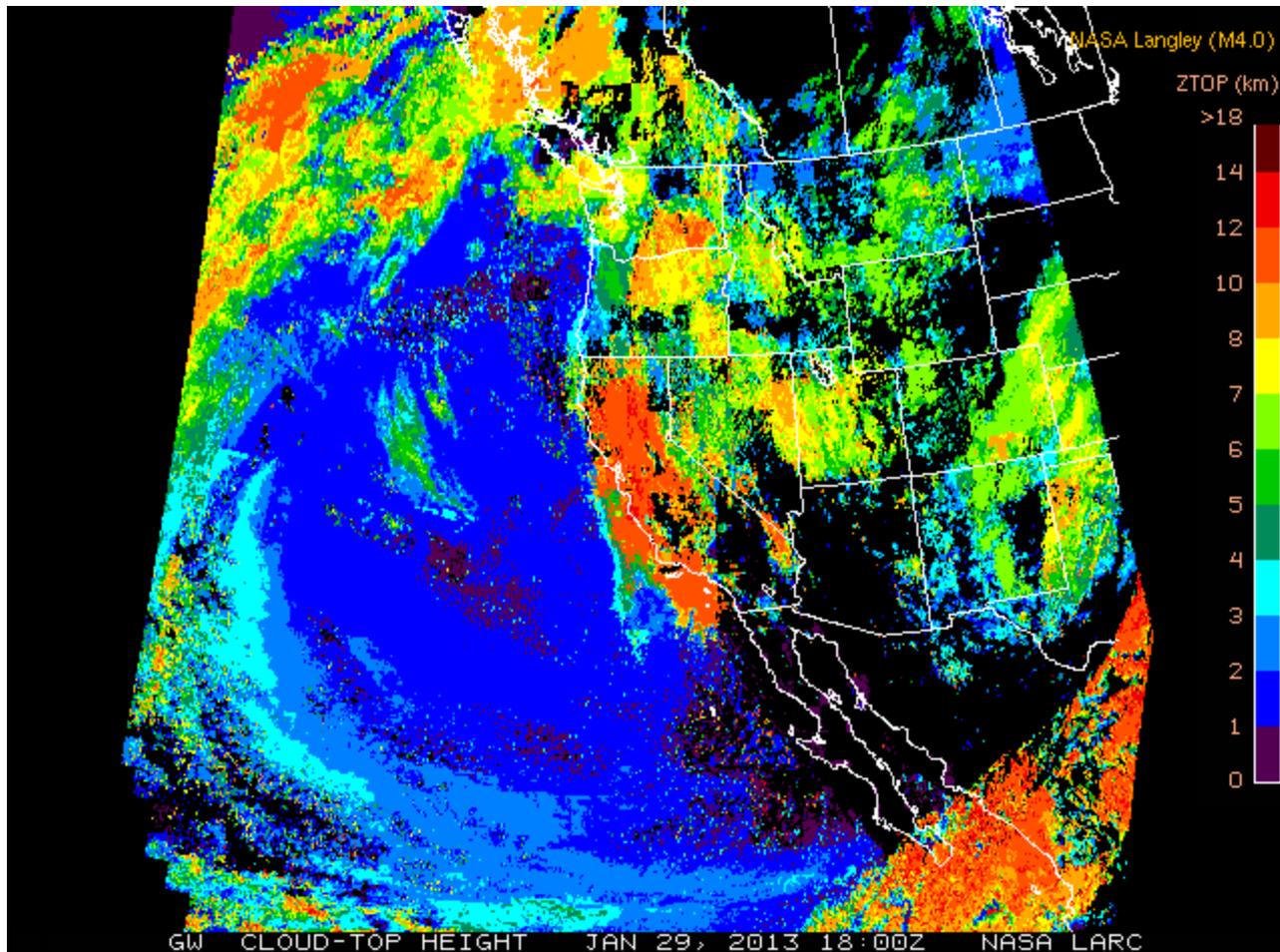
Meteorogram for KBFL from 1500Z 28 JAN 13 to 1500Z 29 JAN 13



GOES: IR at 1430 UTC Today

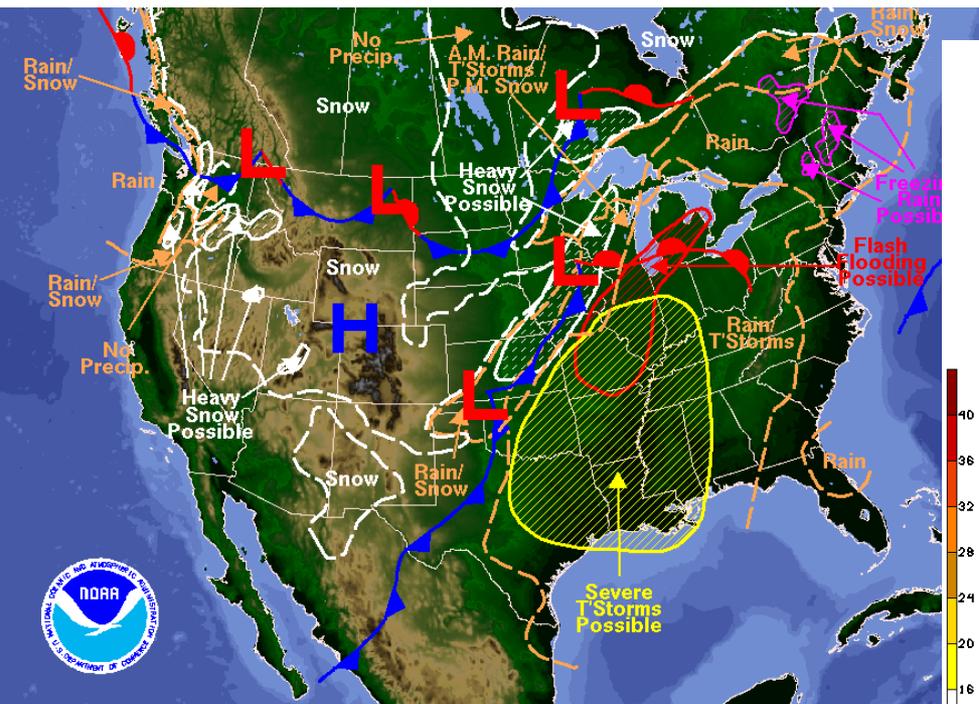


GOES: Cloud Top Height at 1800 UTC Today

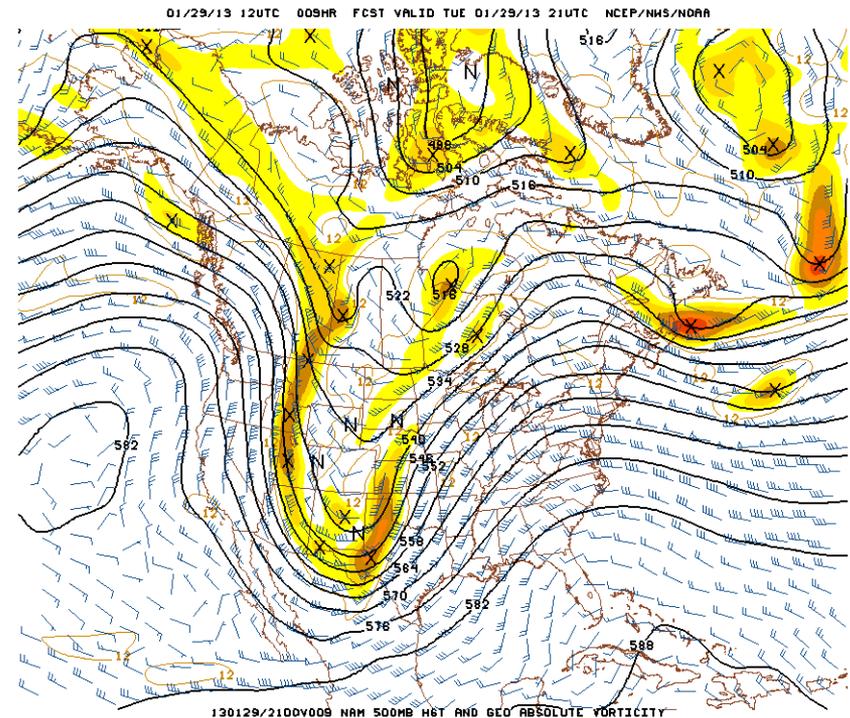


Today:

Dry conditions are expected throughout the week as high pressure builds in over the area.

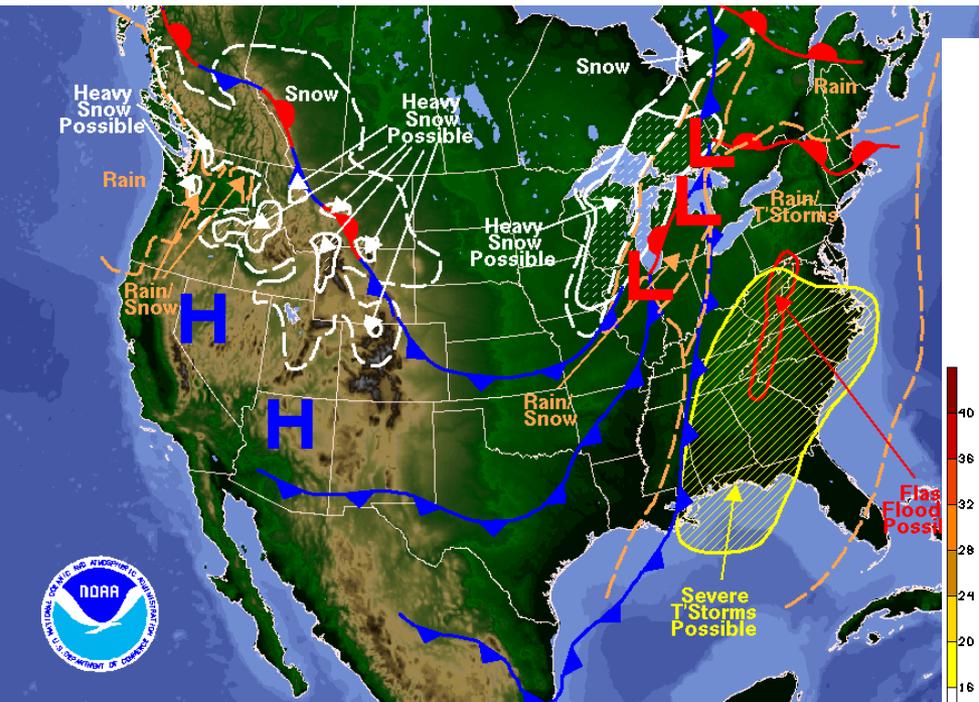


Weather Forecast for Tue, Jan 29, 2013, issued 5:13 AM EST
DOC/NOAA/NWS/NCEP/Hydrometeorological Prediction Center
Prepared by Ryan based on HPC, SPC, and NHC forecasts

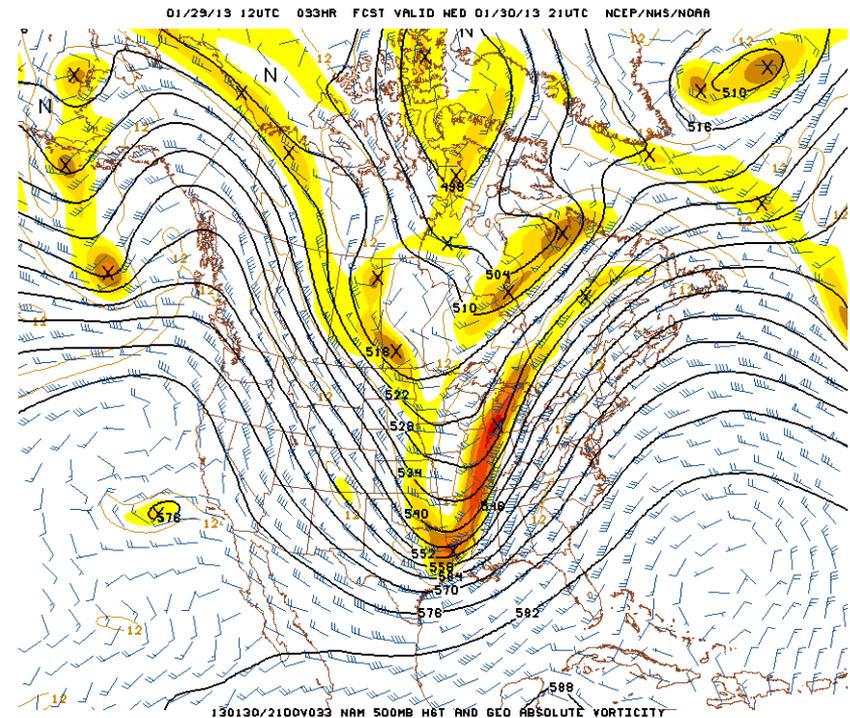


Tomorrow (Wednesday):

Northerly flow and gradual warming continue through Friday. Patchy late night and early morning fog over the SJV possible throughout the week.



Weather Forecast for Wed, Jan 30, 2013, issued 4:06 AM EST Tue, Jan 29, 2013
DOC/NOAA/NWS/NCEP/Hydro-meteorological Prediction Center
Prepared by Ryan based on HPC, SPC, and NHC forecasts



130130/2100V033 NAM 500MB HGT AND GEO ABSOLUTE VORTICITY

Fresno

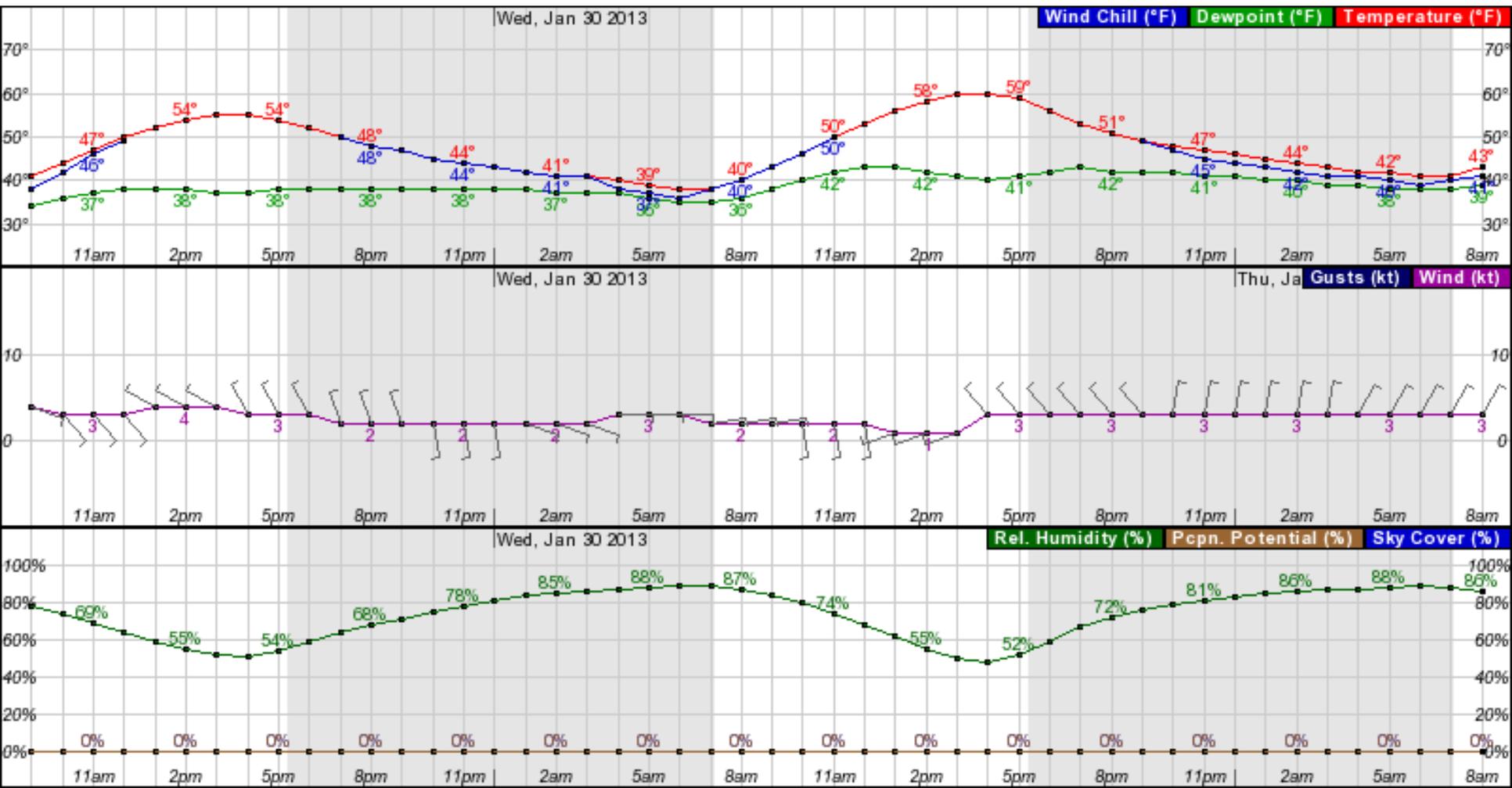
Today: Clear skies

Wednesday: Clear skies, light winds – morning fog possible

NOTE – Sky cover is 0% through forecast and is therefore underneath the Precip Potential

Today →

Wednesday →



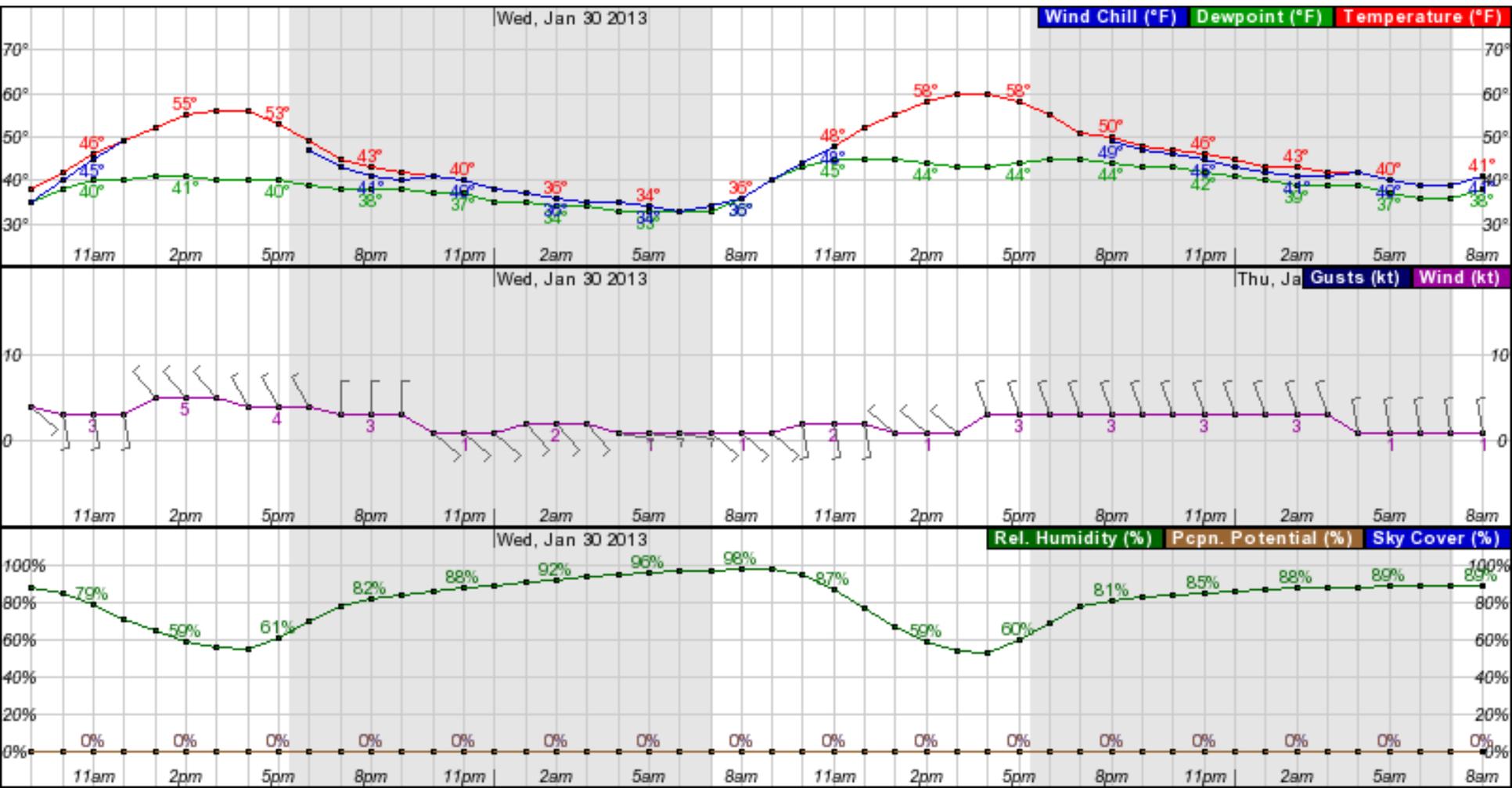
Hanford

Today: Clear skies

Wednesday: Clear skies, light winds, morning RH > 95% - morning fog likely

Today →

Wednesday →



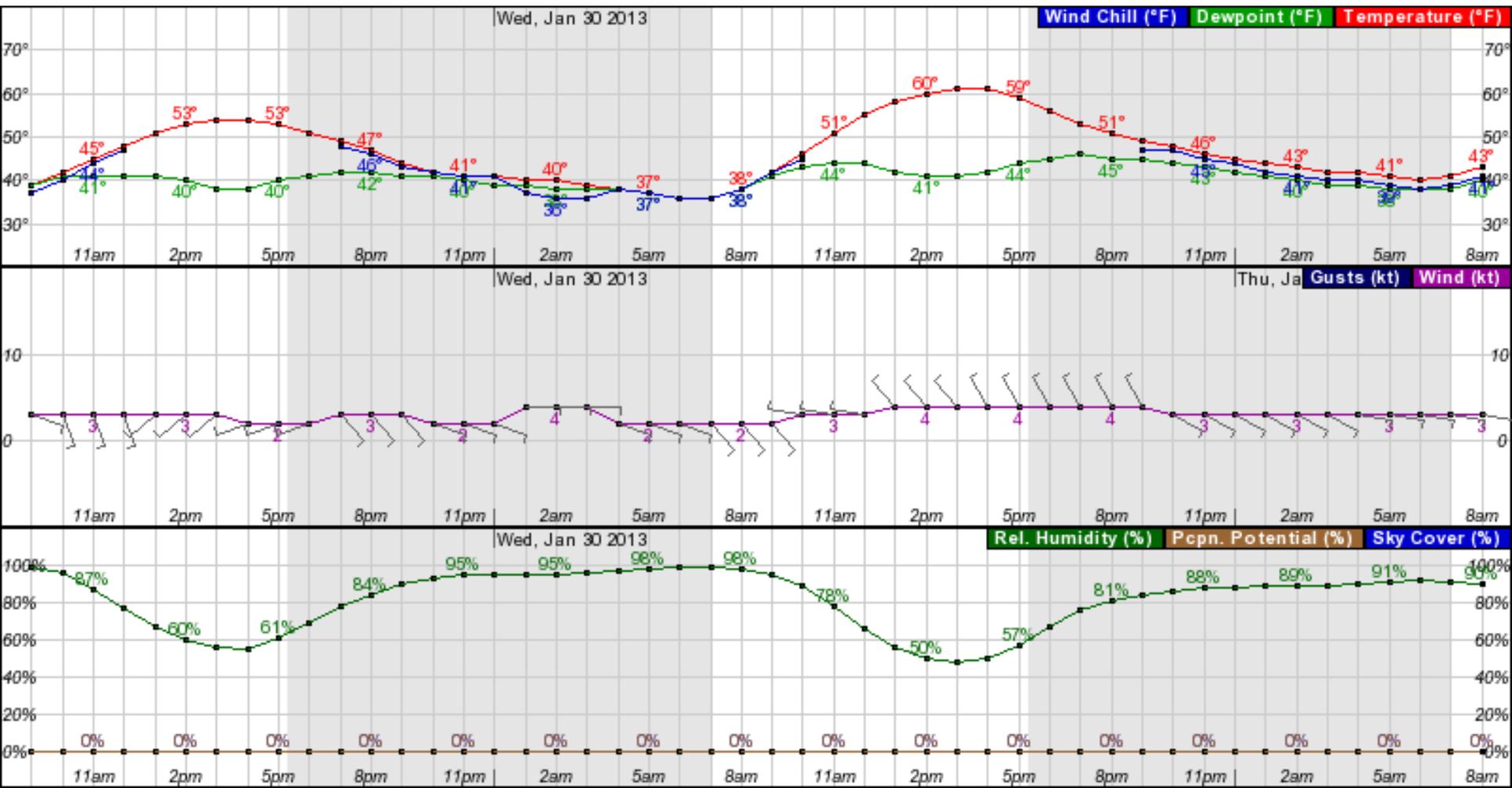
Bakersfield

Today: Clear skies

Wednesday: Clear skies, light winds, morning RH > 95% - morning fog likely

Today →

Wednesday →



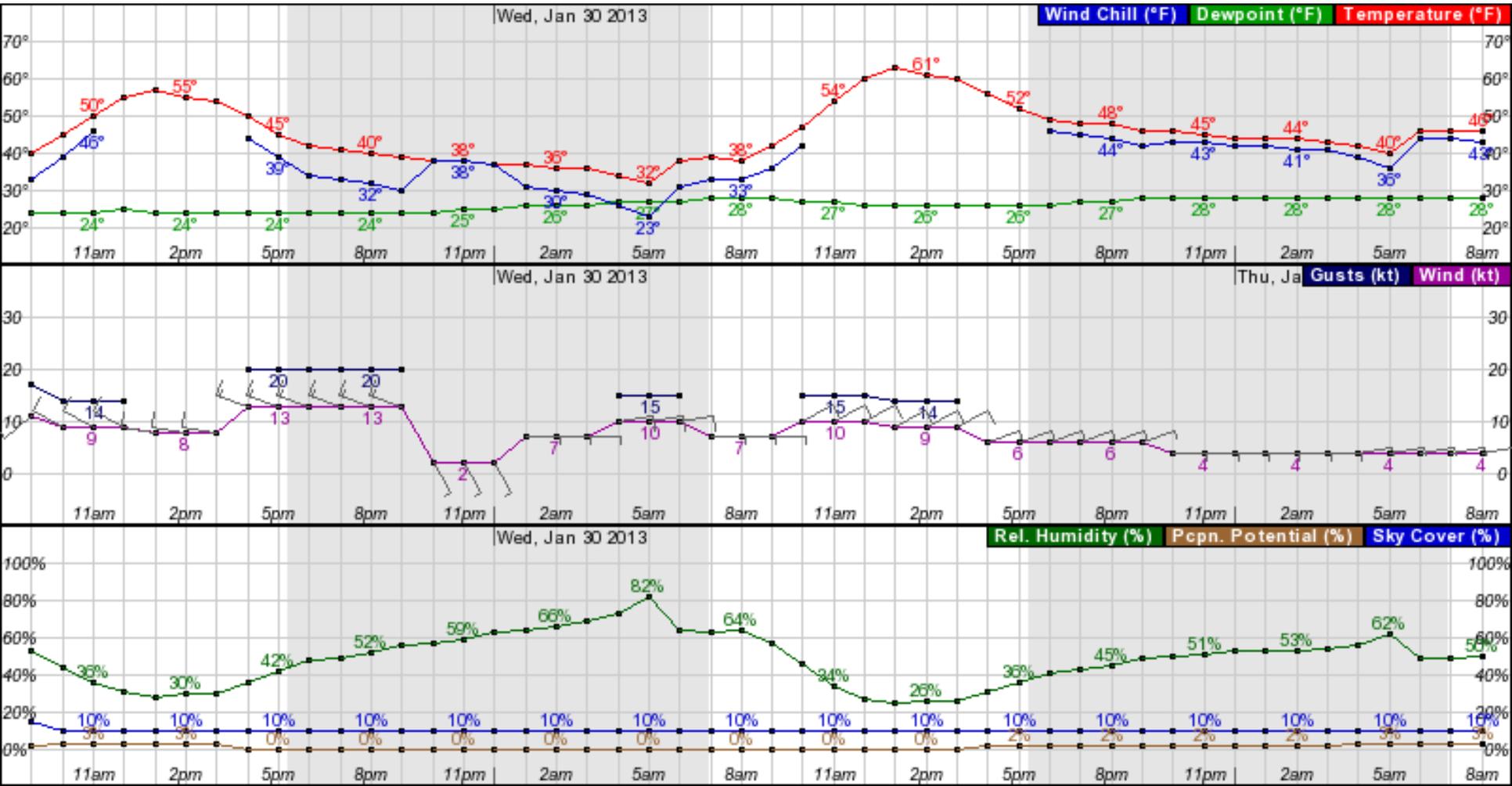
Palmdale

Today: Mostly sunny

Wednesday: Mostly sunny, 0% chance of precip, sustained winds ≤ 10 kt with gusts up to 15

Today →

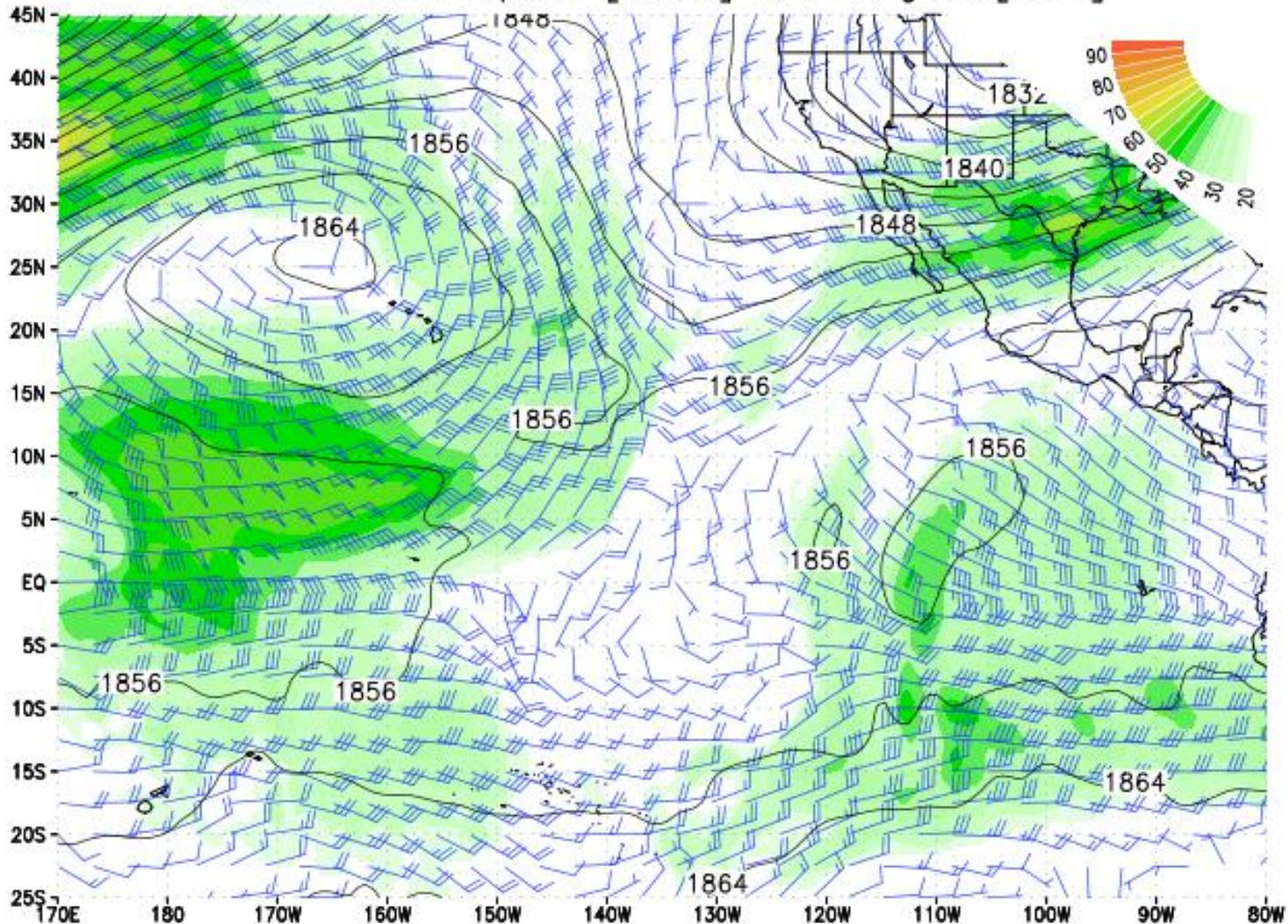
Wednesday →



GEOS-5: Wednesday 18Z = 10 PST

NASA/GMAO - GEOS-5 Forecast Initialized on 00z 2013-01-29

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

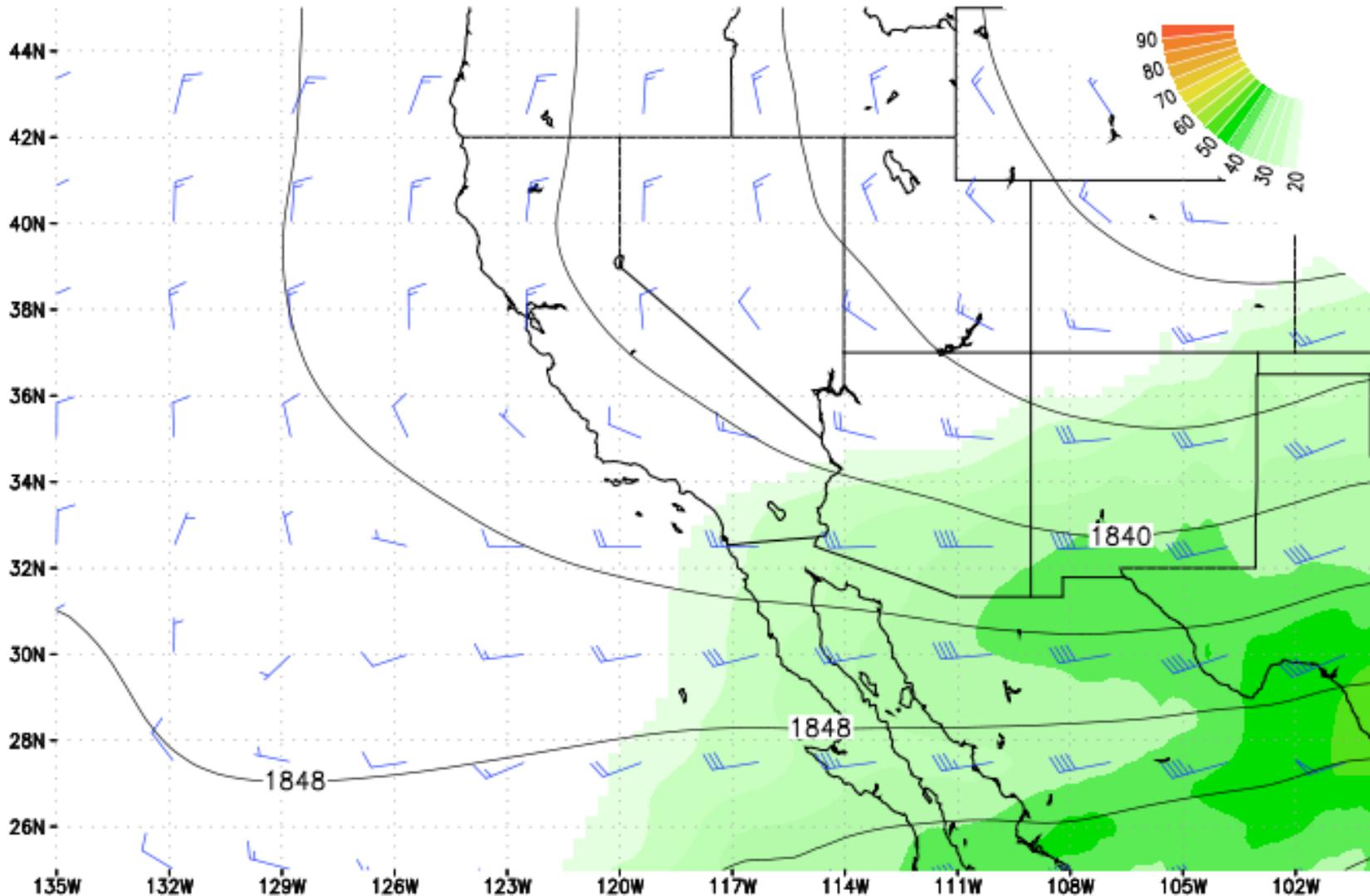


42 hr forecast valid Wed 18z 2013-01-30

GEOS-5: Wednesday 18Z = 10 PST

NASA/GMAO - GEOS-5 Forecast Initialized on 00z 2013-01-29

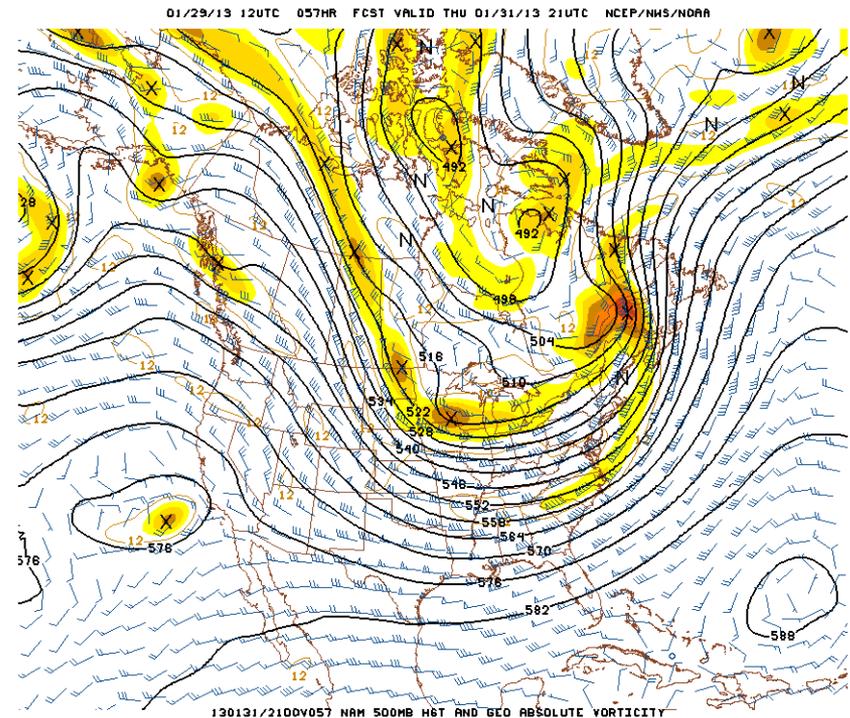
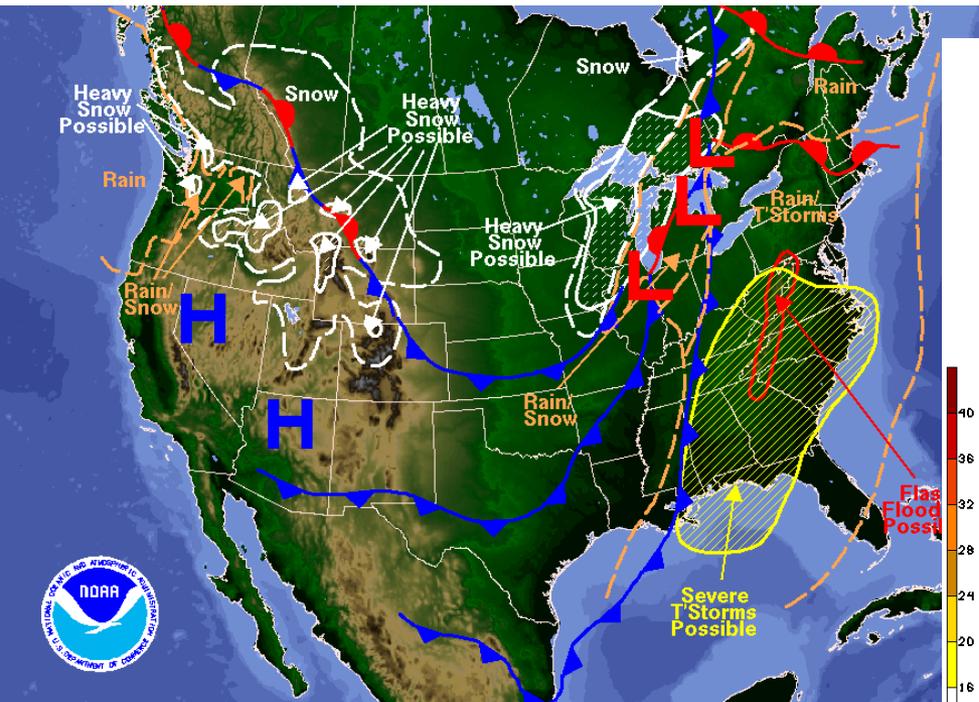
70 hPa Wind Speed [knots] and Heights [dam]



42 hr forecast valid Wed 18z 2013-01-30

Thursday:

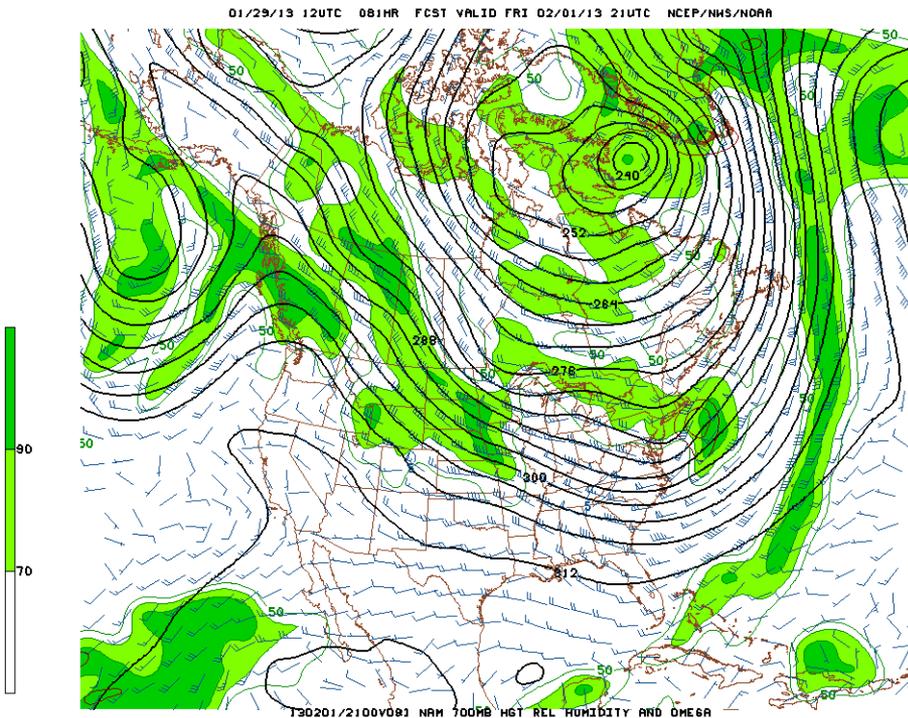
Northerly flow and gradual warming continue through Friday. Patchy late night and early morning fog over the SJV possible throughout the week.



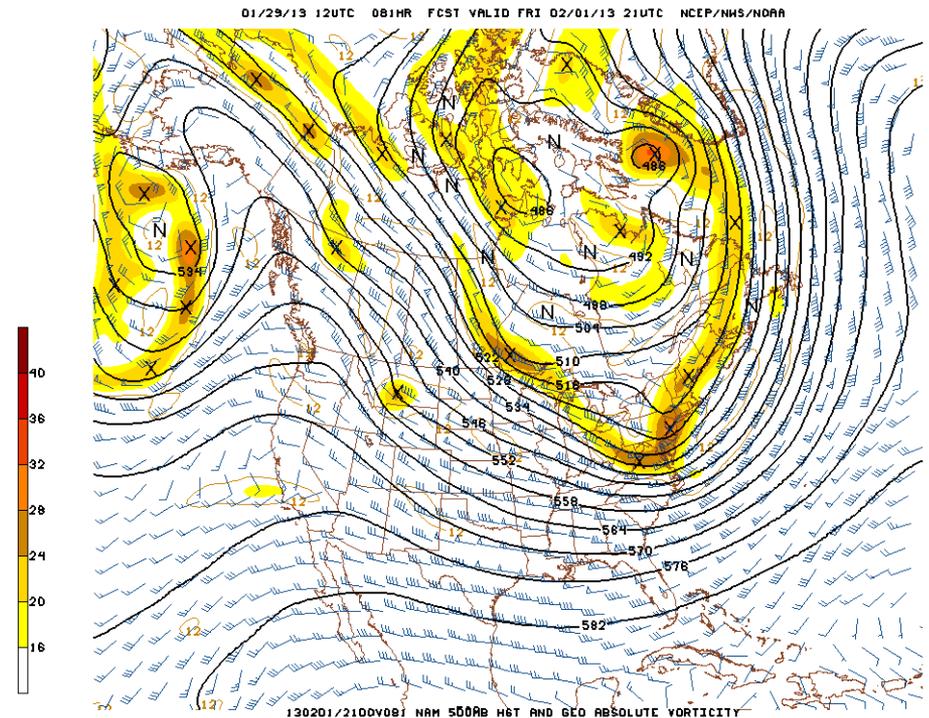
Friday:

Northerly flow and gradual warming continue through Friday. Patchy late night and early morning fog over the SJV possible throughout the week.

700 mb NAM Friday 1 PM



500 mb NAM Friday 1 PM



Fresno

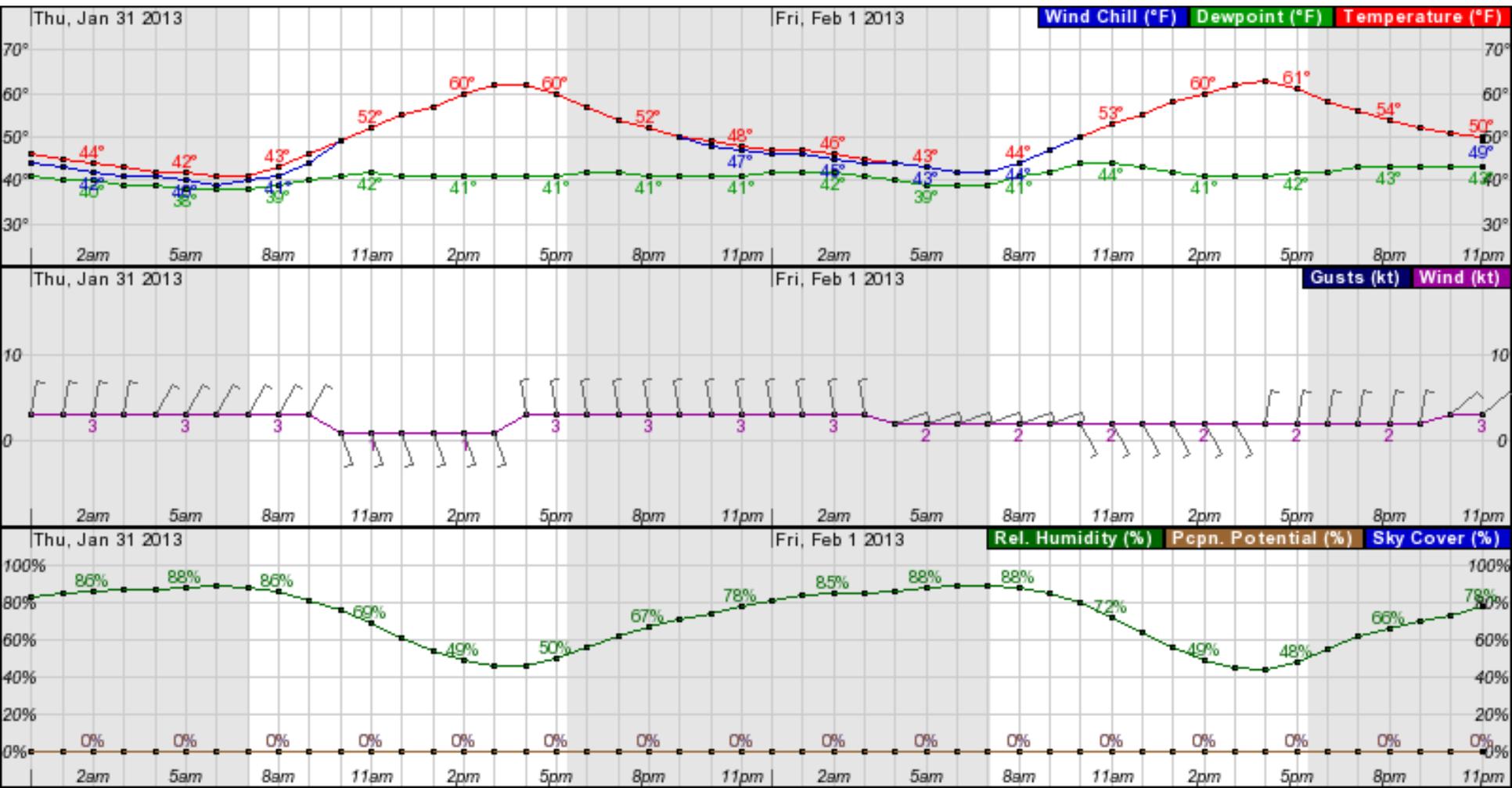
Thursday: Clear skies

Friday: Clear skies, light winds – morning fog possible

NOTE – Sky cover is 0% through forecast and is therefore underneath the Precip Potential

Thursday →

Friday →



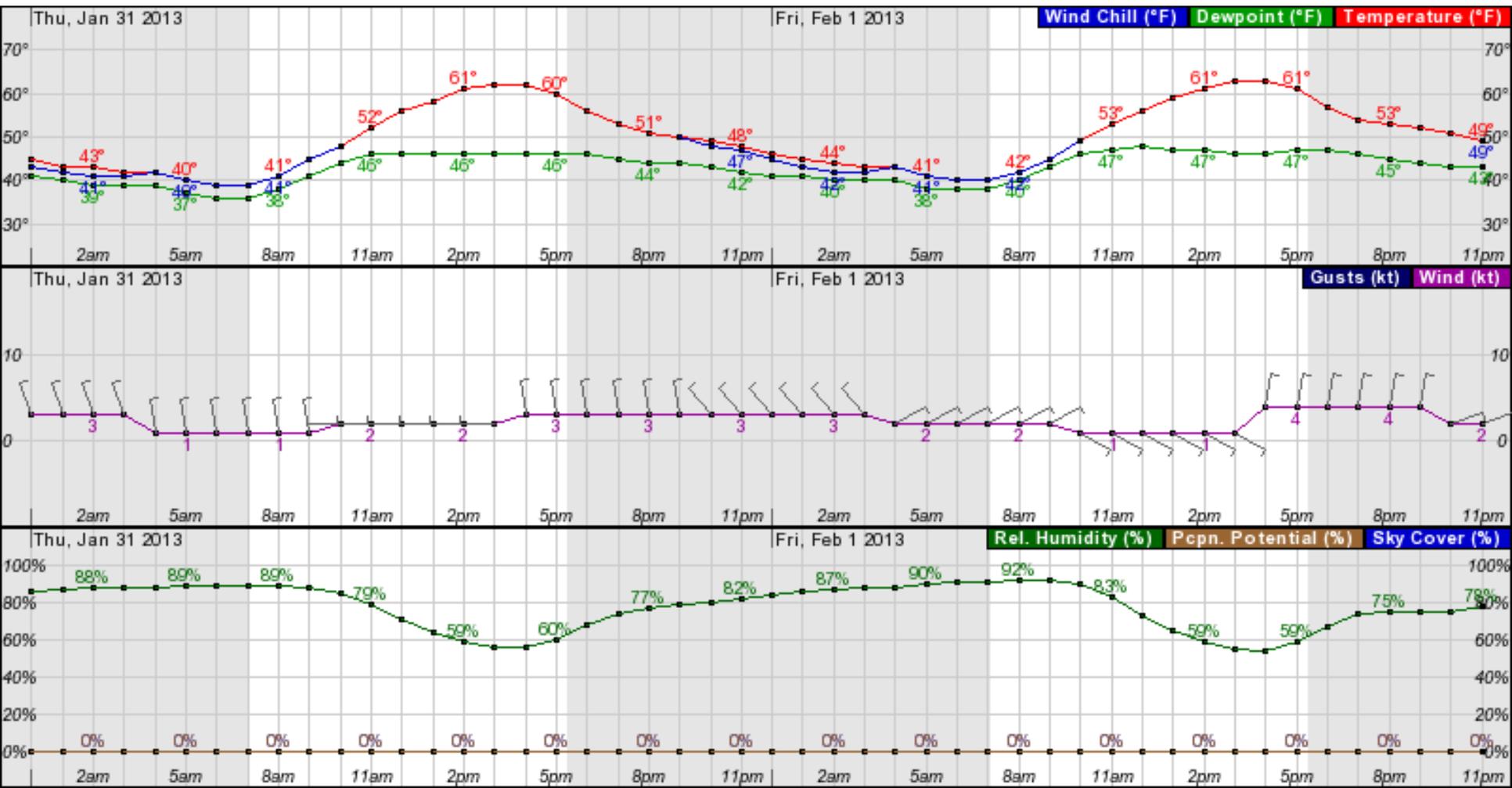
Hanford

Thursday: Clear skies, light winds - morning fog possible

Friday: Clear skies, light winds - morning fog possible

Thursday →

Friday →



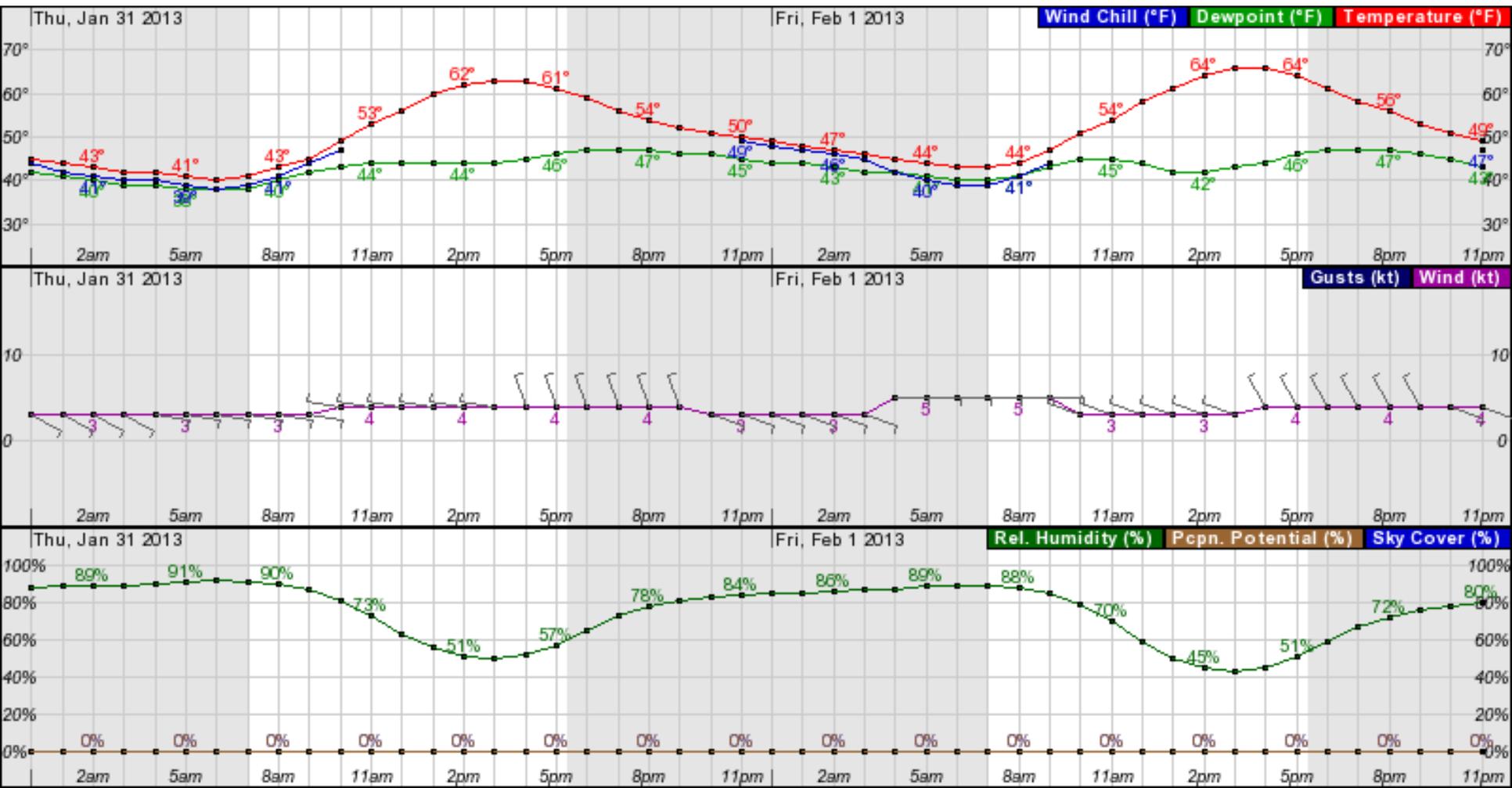
Bakersfield

Thursday: Clear skies, light winds - morning fog possible

Friday: Clear skies, light winds - morning fog possible

Thursday →

Friday →



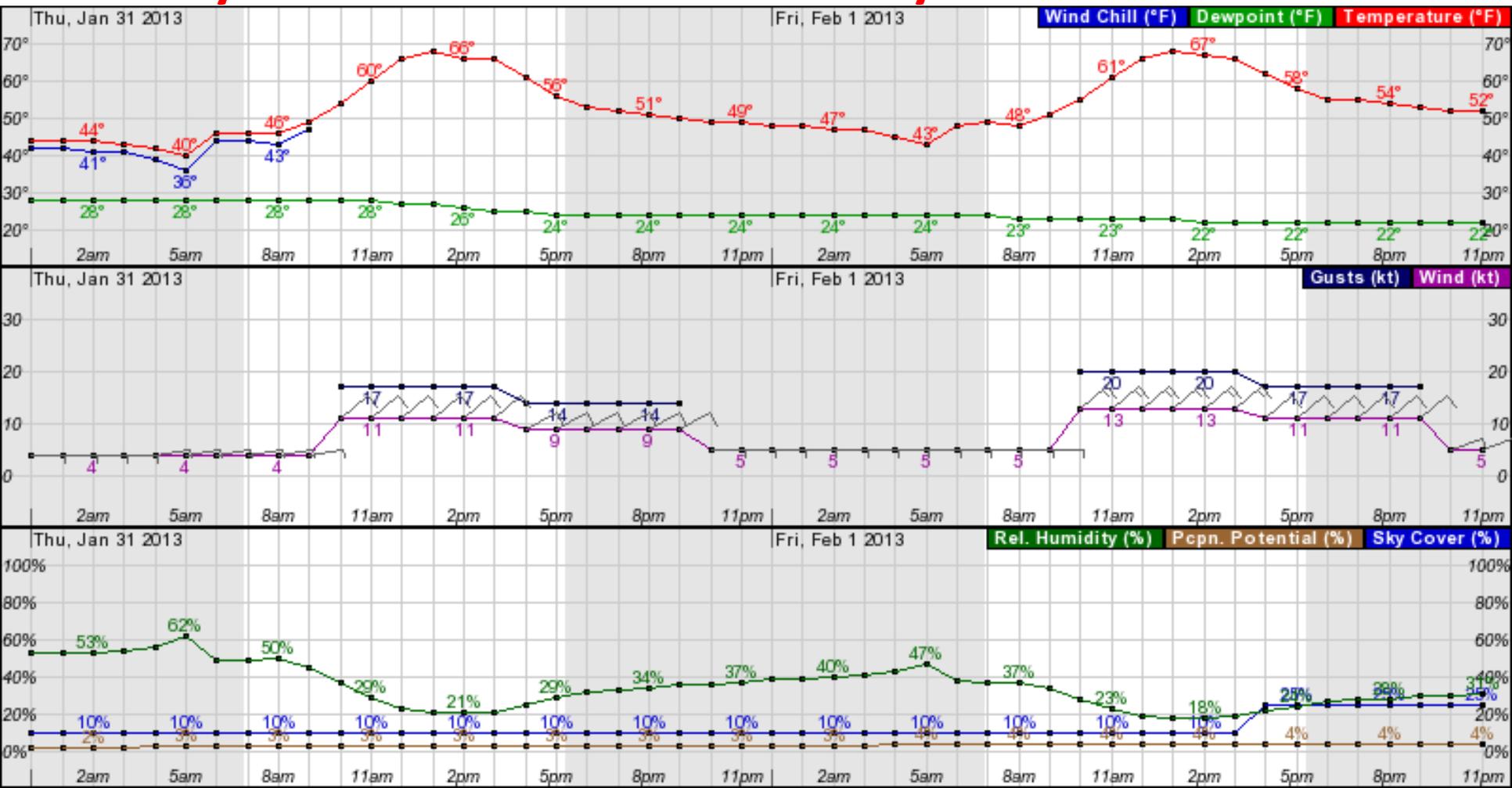
Palmdale

Thursday: Mostly sunny, low chance of precip, sustained winds ≤ 11 kt with gusts up to 17

Friday: Mostly sunny, low chance of precip, sustained winds ≤ 13 kt with gusts up to 20

Thursday →

Friday →



Stockton

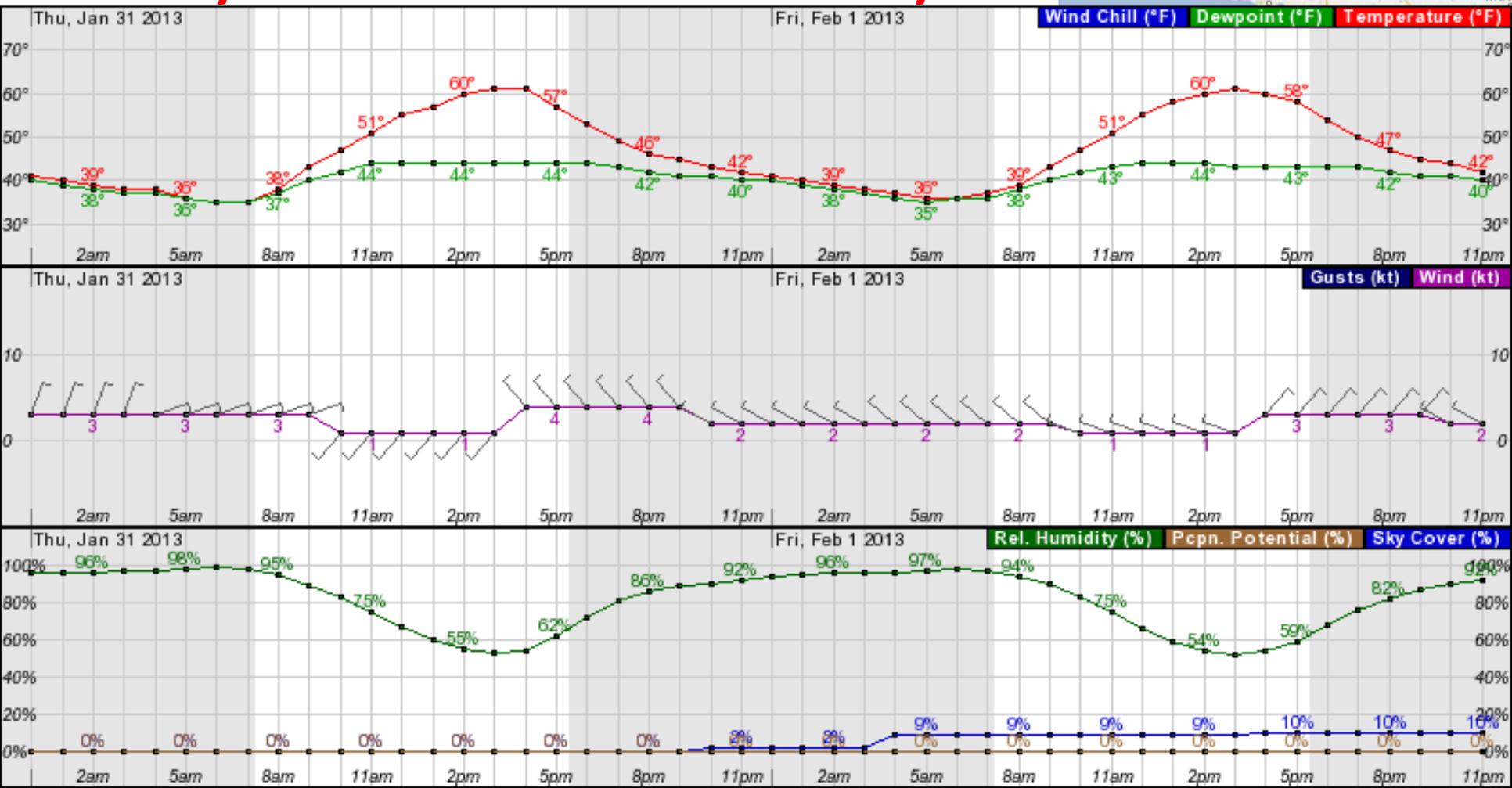
Thursday: Clear, light winds, RH \geq 95% - morning fog likely

Friday: Clear, light winds, RH \geq 95% - morning fog likely



Thursday →

Friday →



Bakersfield : BUFKIT NAM 12 UTC Tuesday January 29

Friday

Thursday

Wednesday

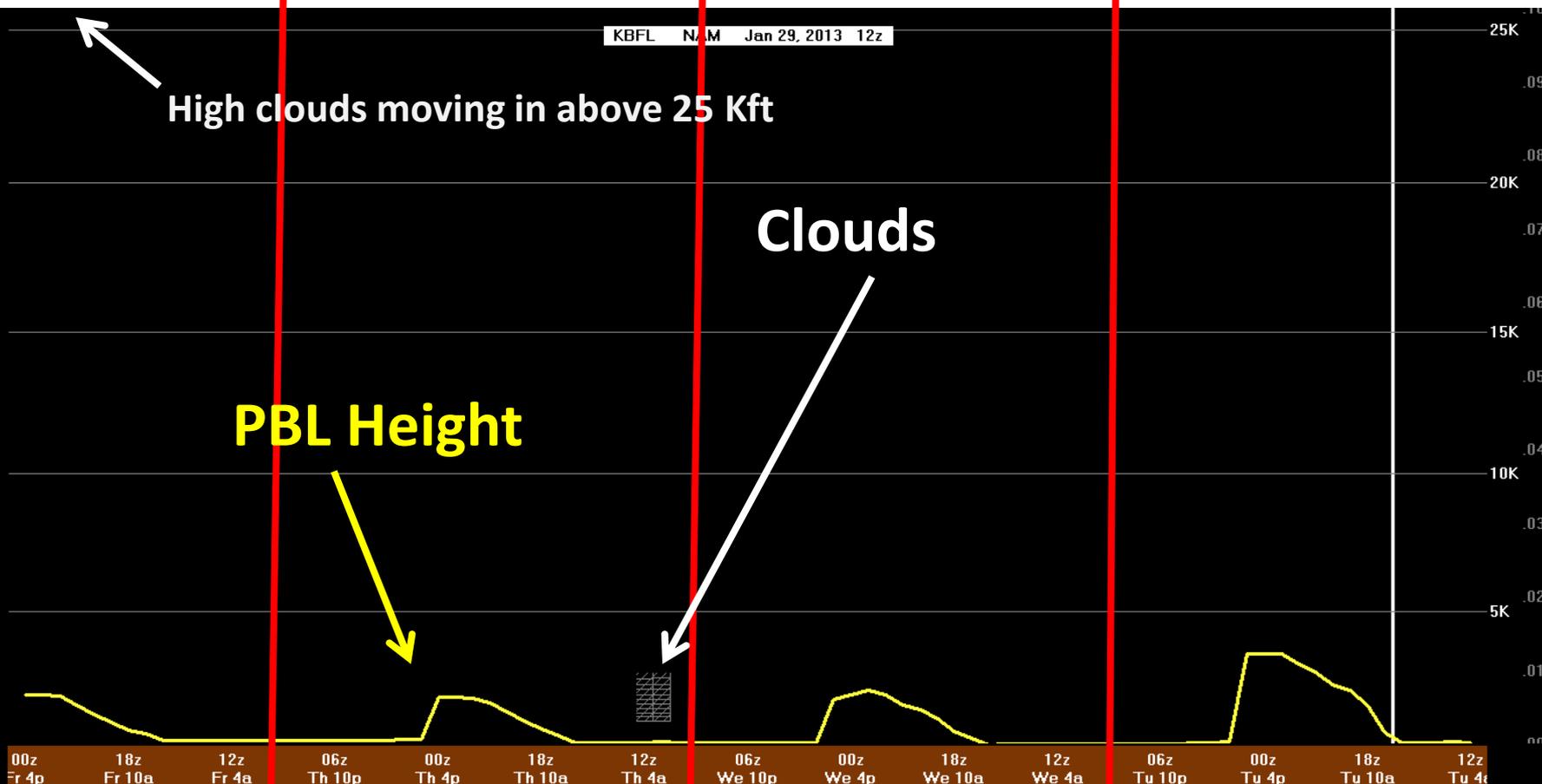
Today

KBFL NAM Jan 29, 2013 12z

High clouds moving in above 25 Kft

Clouds

PBL Height



Fresno : BUFKIT NAM 12 UTC Tuesday January 29

Friday

Thursday

Wednesday

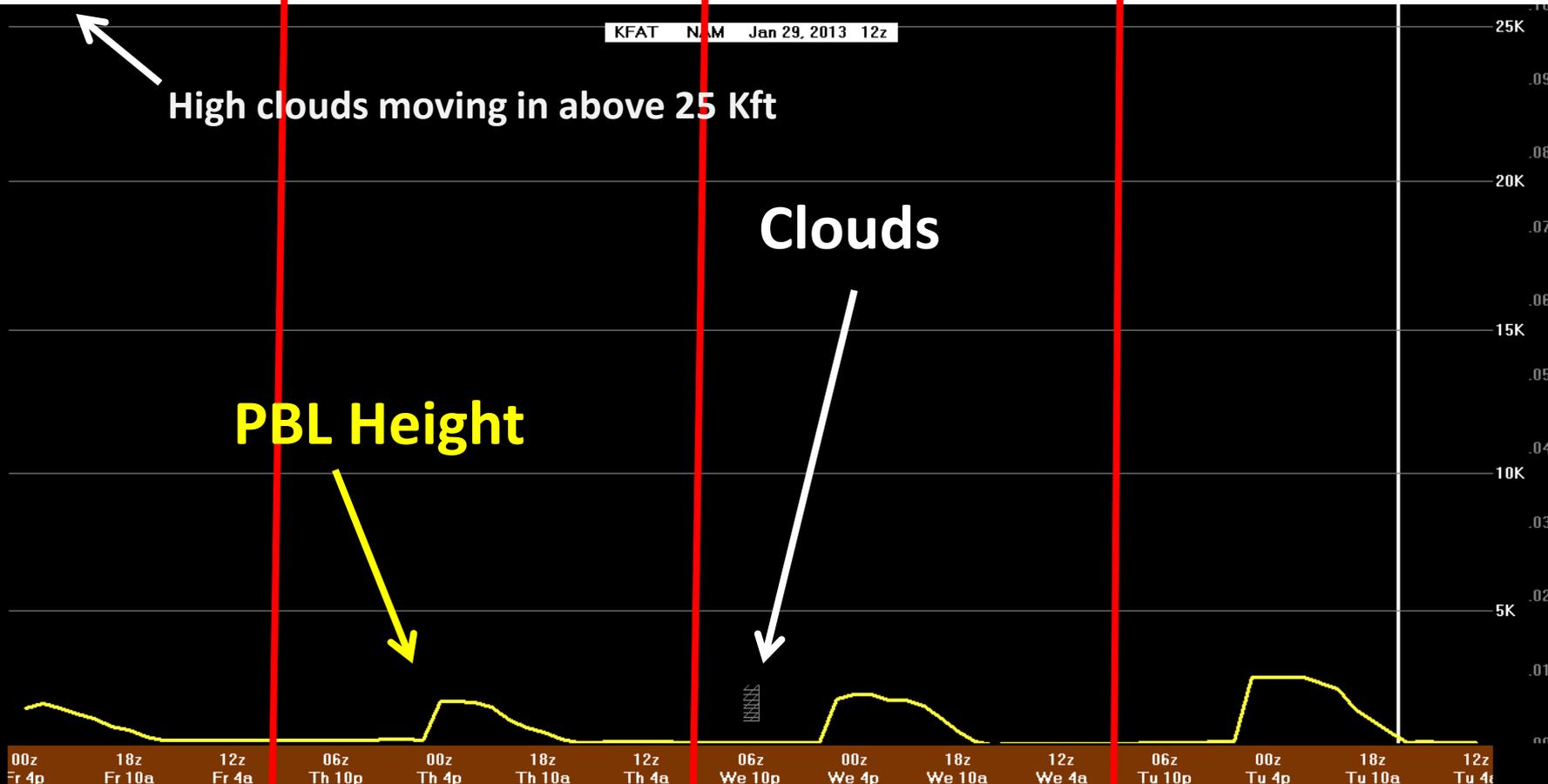
Today

KFAT NAM Jan 29, 2013 12z

High clouds moving in above 25 Kft

Clouds

PBL Height



San Nicolas : BUFKIT NAM 12 UTC Tuesday January 29

Friday

Thursday

Wednesday

Today

KNSI NAM Jan 29, 2013 12z



Clouds

PBL Height



00z Fr 4p 18z Fr 10a 12z Fr 4a 06z Th 10p 00z Th 4p 18z Th 10a 12z Th 4a 06z We 10p 00z We 4p 18z We 10a 12z We 4a 06z Tu 10p 00z Tu 4p 18z Tu 10a 12z Tu 4a

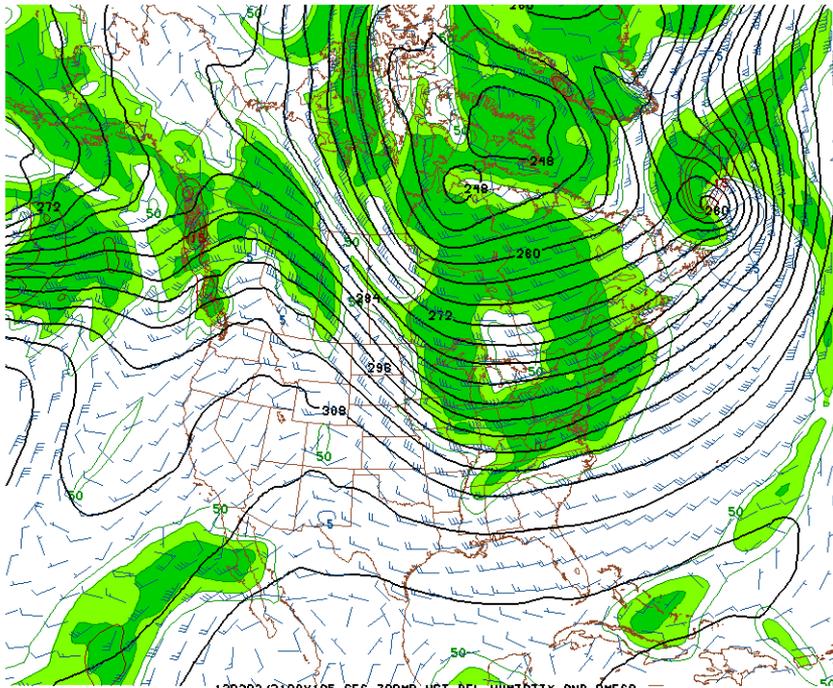
25K
.10
.09
.08
20K
.07
.06
15K
.05
.04
10K
.03
.02
5K
.01
00

Saturday:

An upper level trough approaches the area Saturday night bringing tropical moisture and increasing chances of precipitation through Sunday

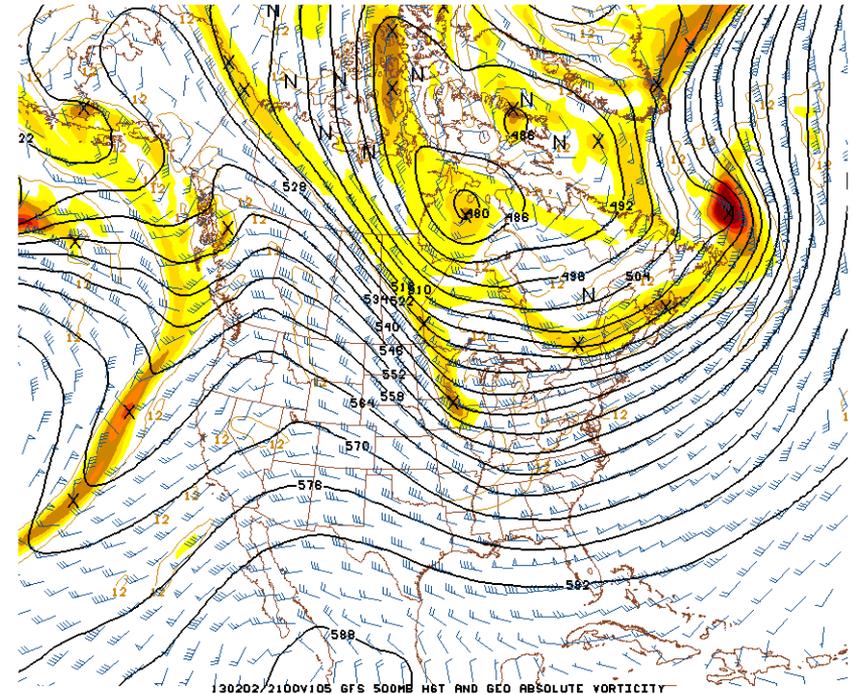
700 mb GFS Saturday 1 PM

01/29/13 12UTC 105HR FCST VALID SAT 02/02/13 21UTC NCEP/NHS/NOAA



500 mb GFS Saturday 1 PM

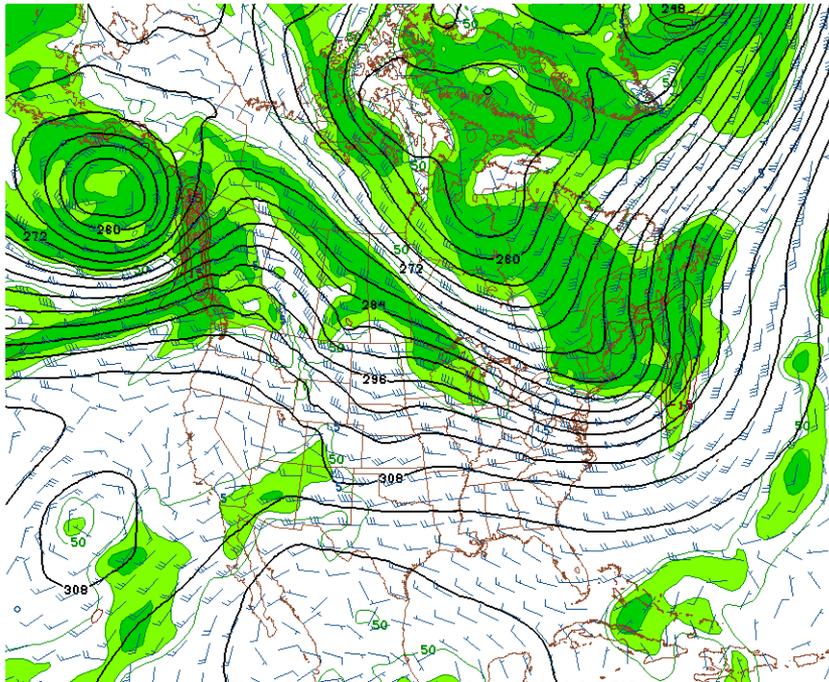
01/29/13 12UTC 105HR FCST VALID SAT 02/02/13 21UTC NCEP/NHS/NOAA



Sunday

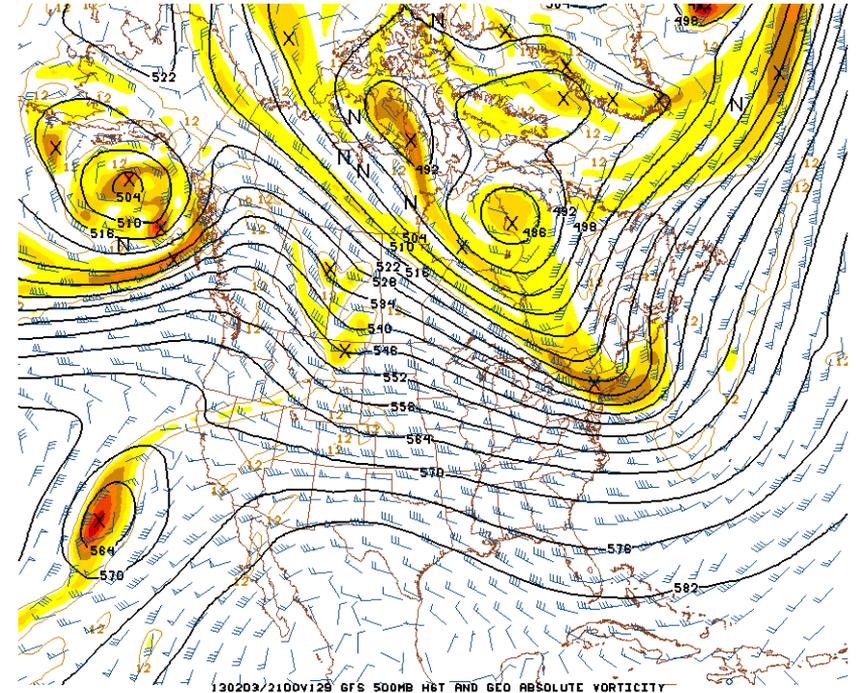
700 mb GFS Sunday 1 PM

01/29/13 12UTC 129HR FCST VALID SUN 02/03/13 21UTC NCEP/NHS/NOAA



500 mb GFS Sunday 1 PM

01/29/13 12UTC 129HR FCST VALID SUN 02/03/13 21UTC NCEP/NHS/NOAA



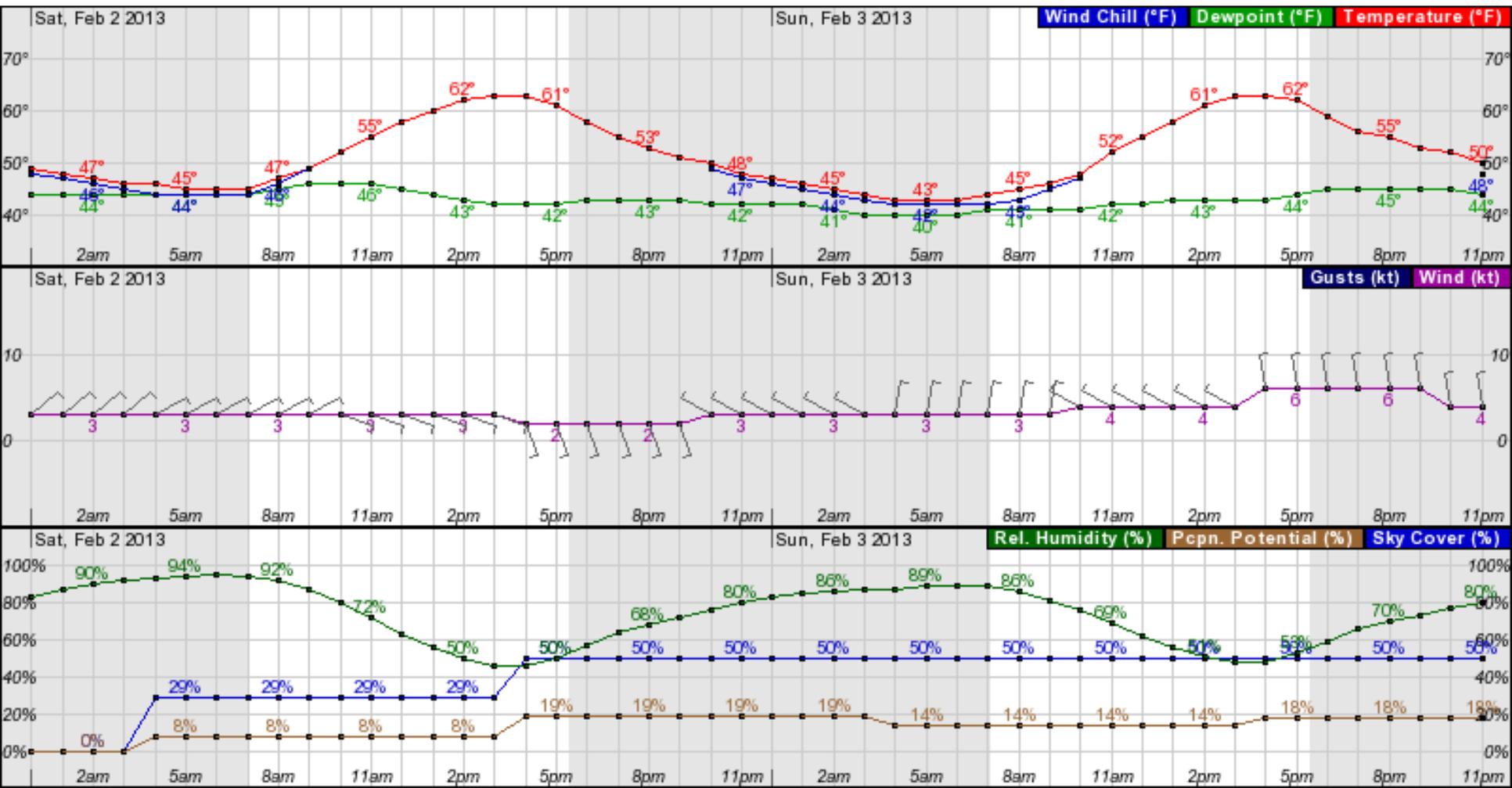
Fresno

Saturday: Increasing cloudiness

Sunday: Cloud cover up to ~50%

Saturday →

Sunday →



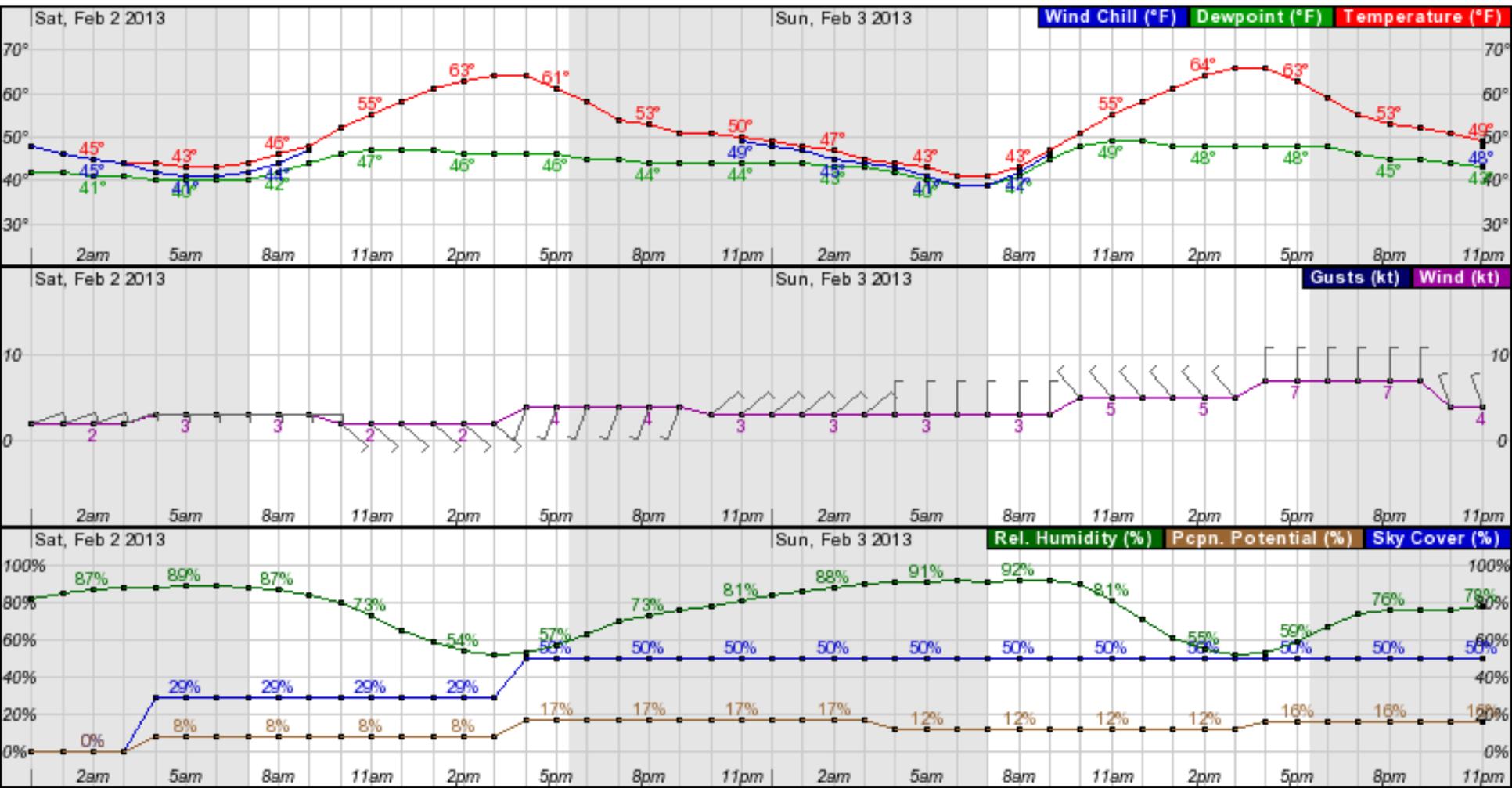
Hanford

Saturday: Increasing cloudiness

Sunday: Cloud cover up to ~50%

Saturday →

Sunday →



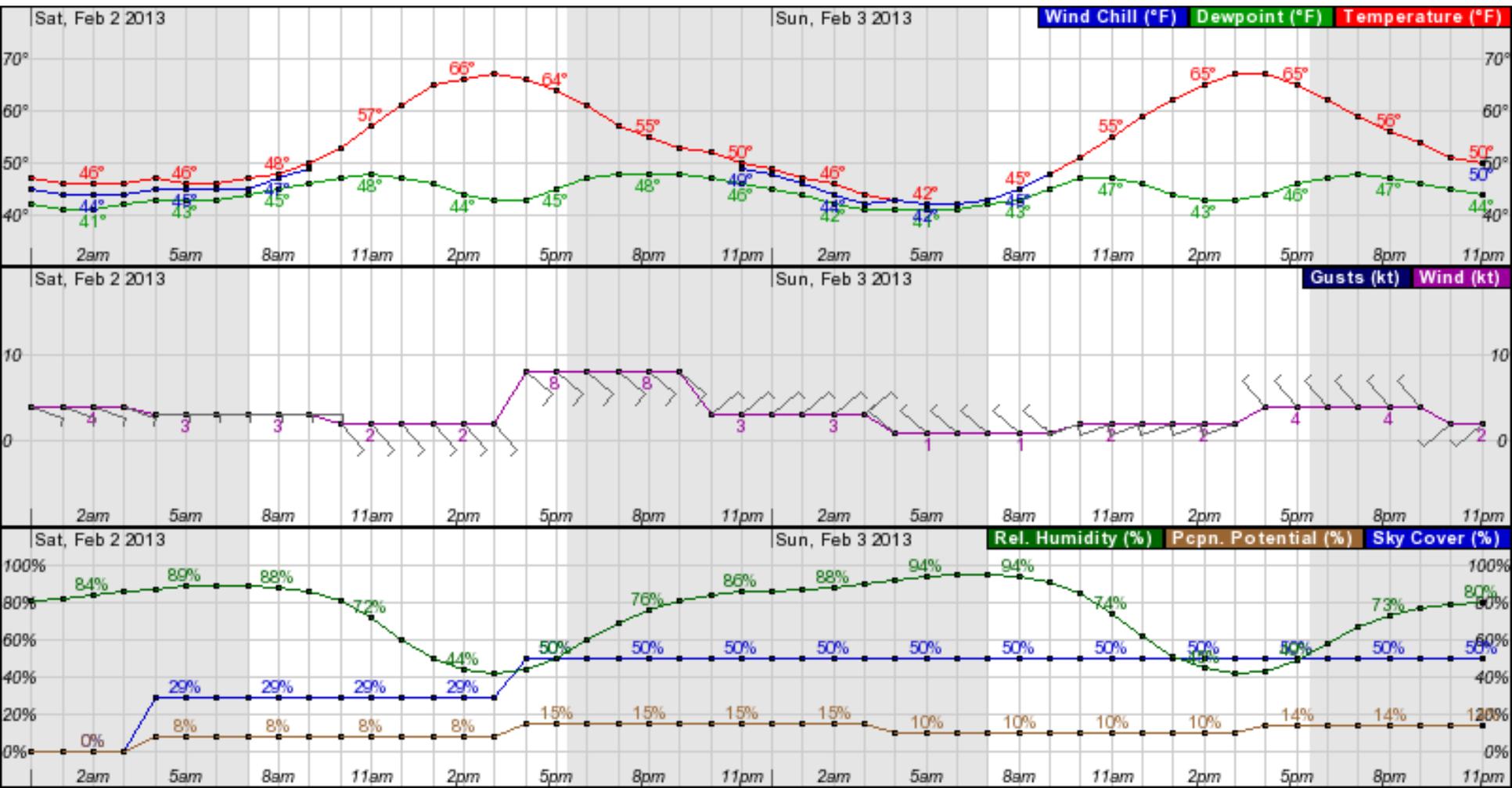
Bakersfield

Saturday: Increasing cloudiness

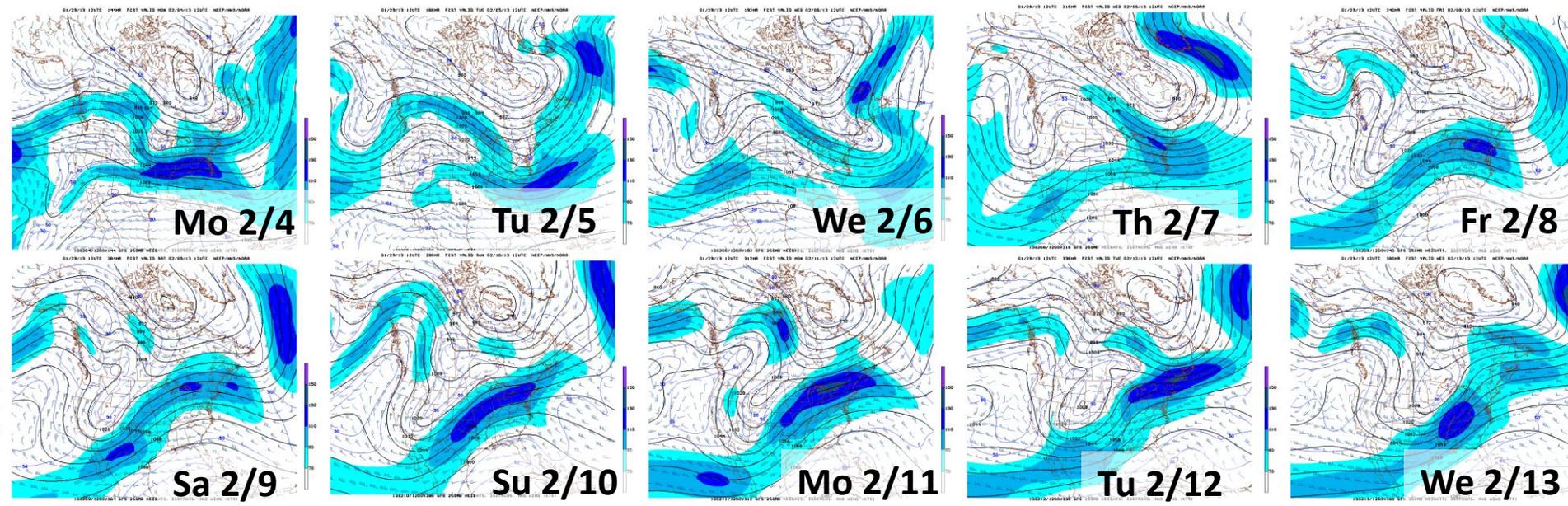
Sunday: Cloud cover up to ~50%

Saturday →

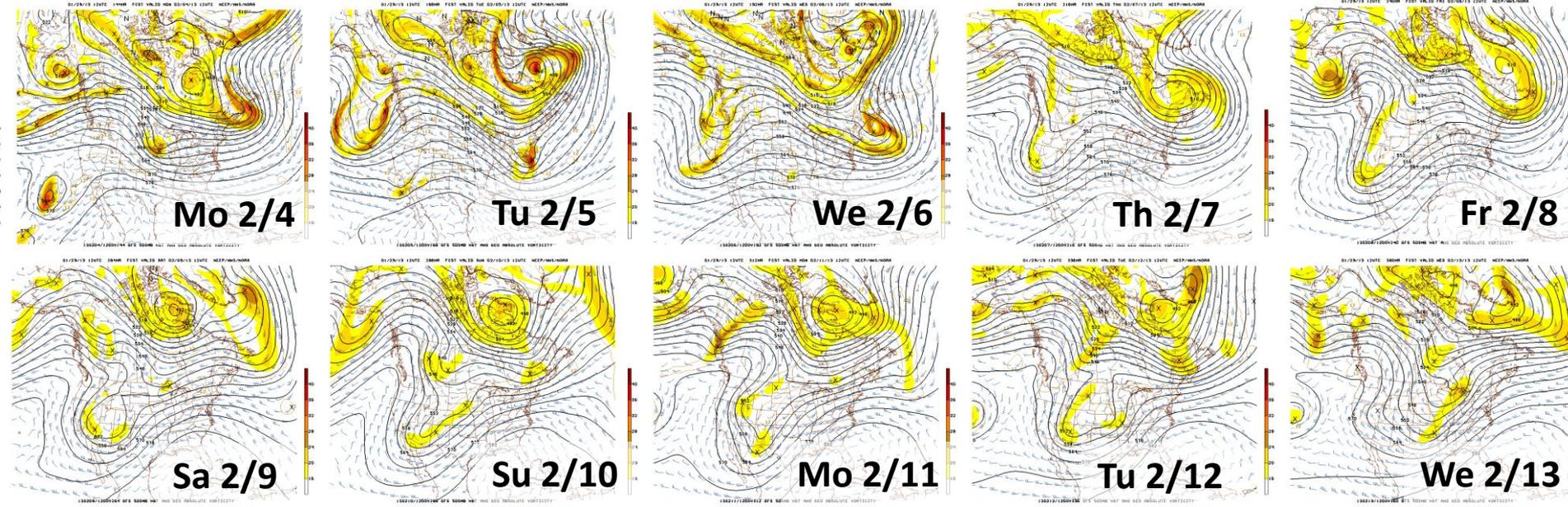
Sunday →



GFS - 250 mb winds - Extended forecast

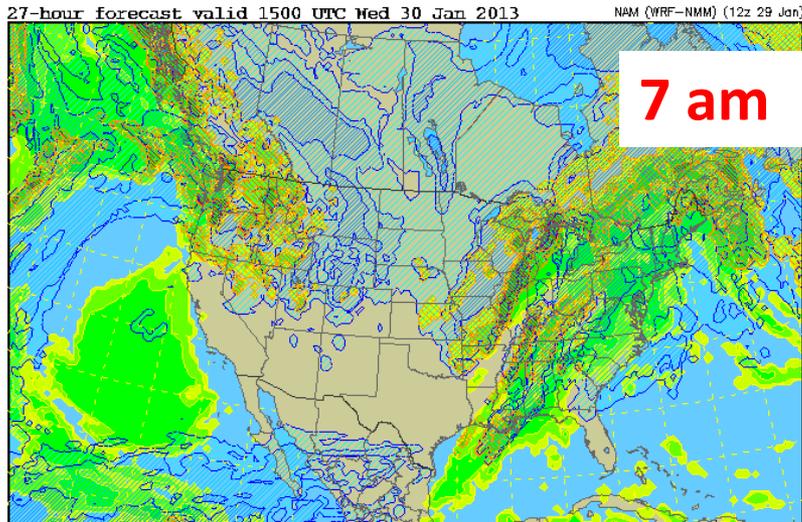


GFS - 500 mb vorticity - Extended forecast

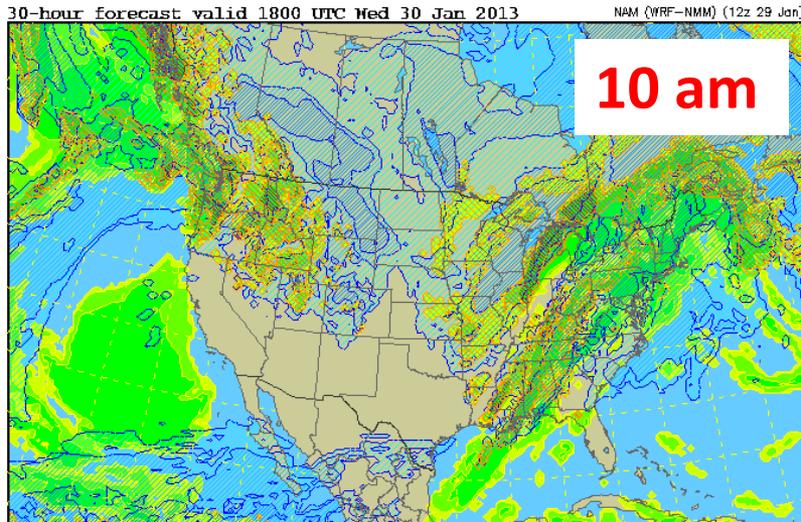


Tomorrow: NAM – clear skies over SJV, low level clouds (<6 Kft) near PODEX region, but model keeps them pretty far offshore

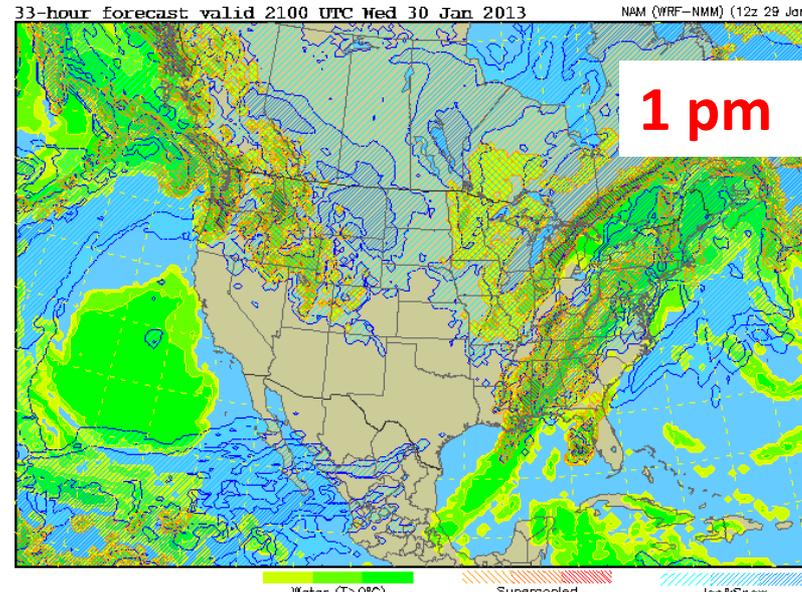
Integrated liquid and frozen hydrometeors (all levels)



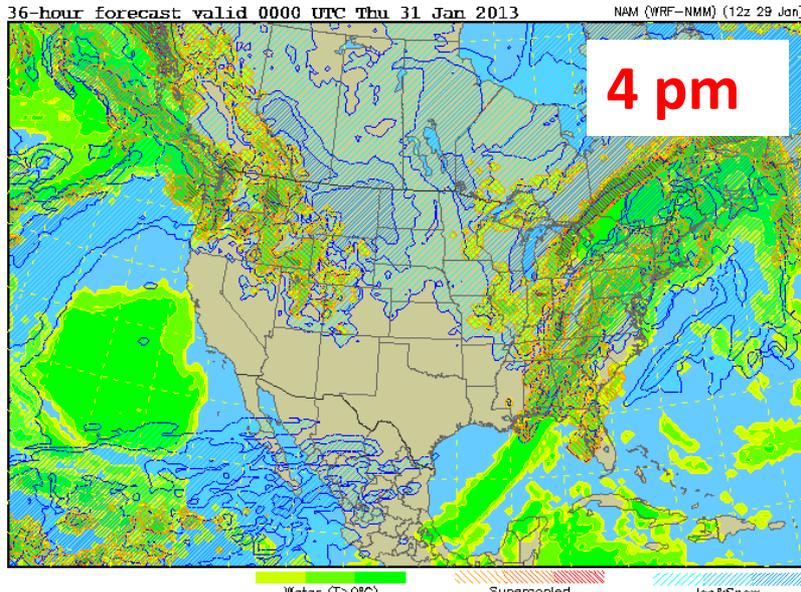
Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)



Tomorrow: GEOS5 – Clear skies over both the SJV a PODEX region, but high level clouds approach the SJV from the north.

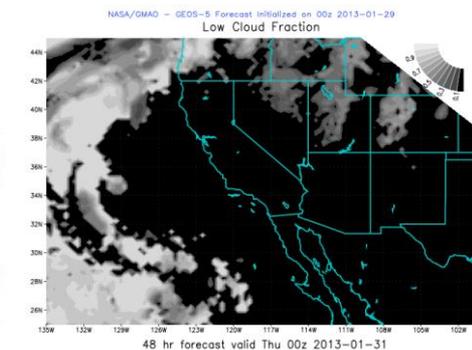
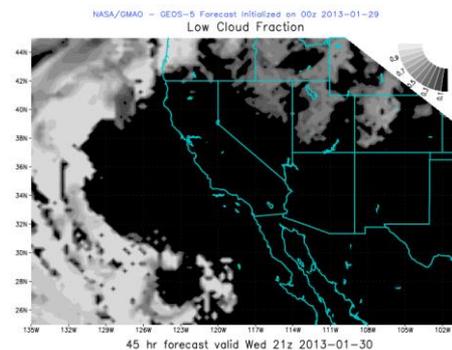
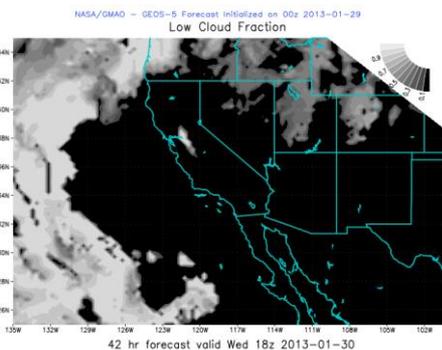
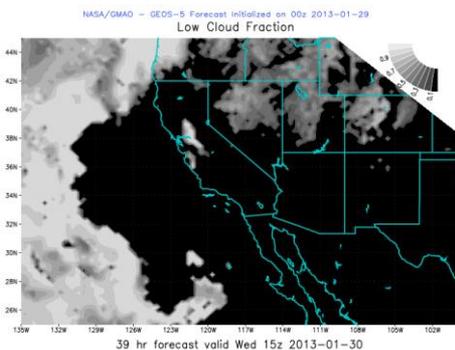
7 am

10 am

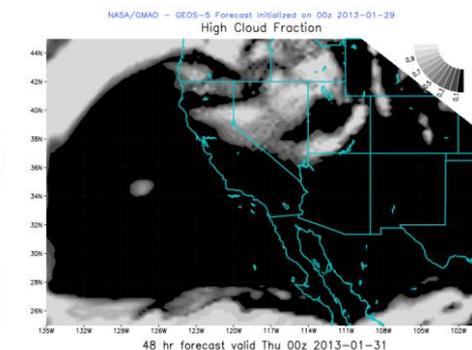
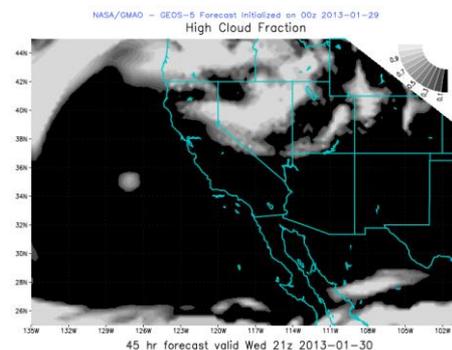
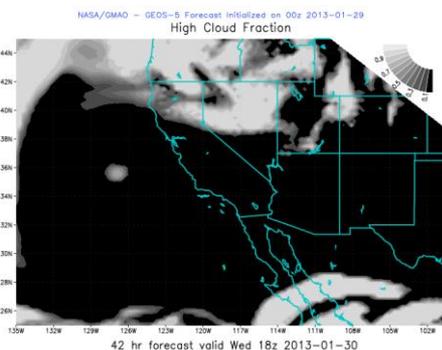
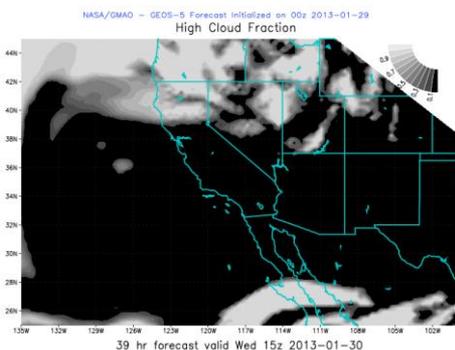
1 pm

4 pm

GEOS5 – Low level



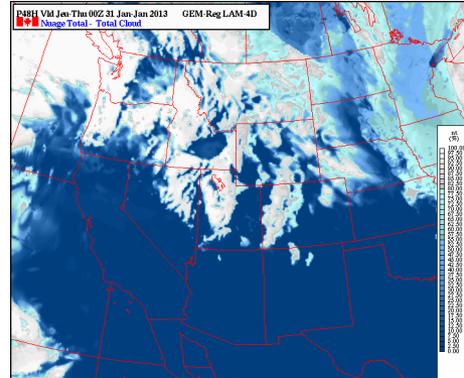
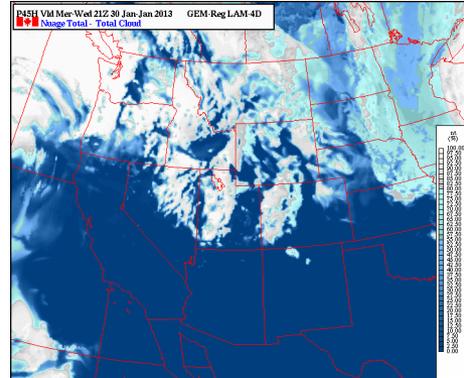
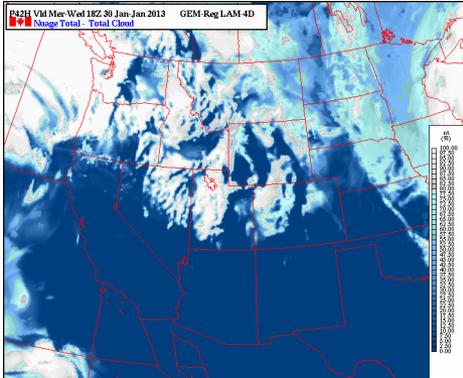
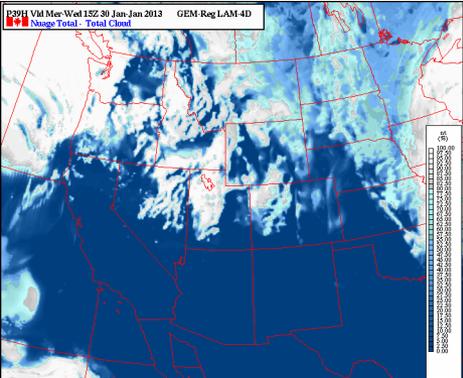
GEOS5 – High level



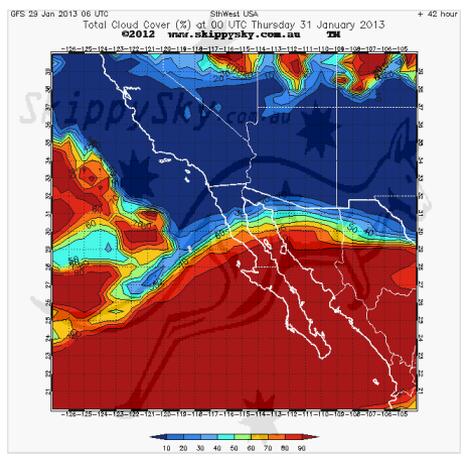
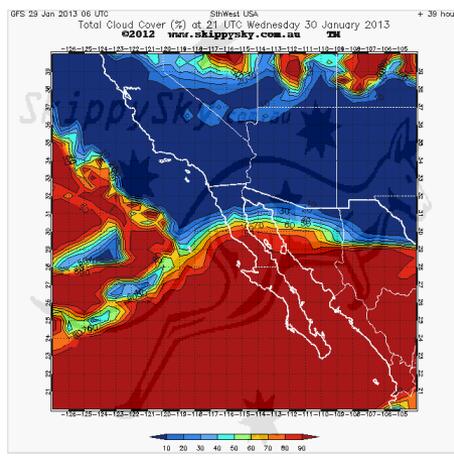
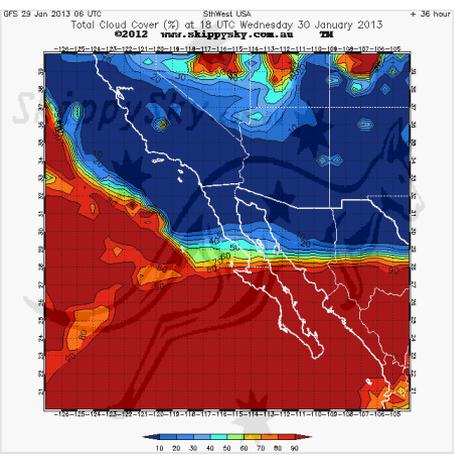
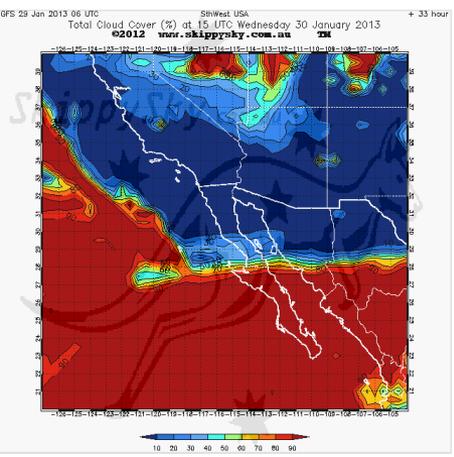
Tomorrow: Canadian – Clear skies over both the SJV a PODEX region; GFS – high level clouds over northern SJV in the morning.

7 am 10 am 1 pm 4 pm

Canadian



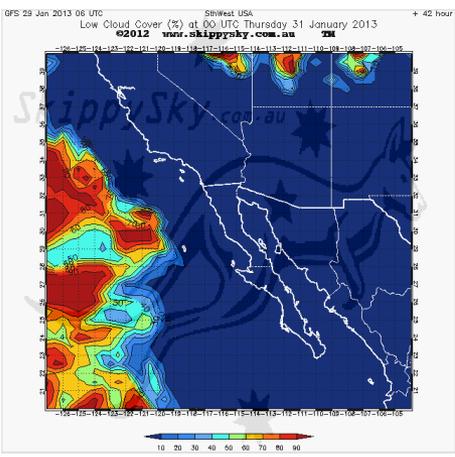
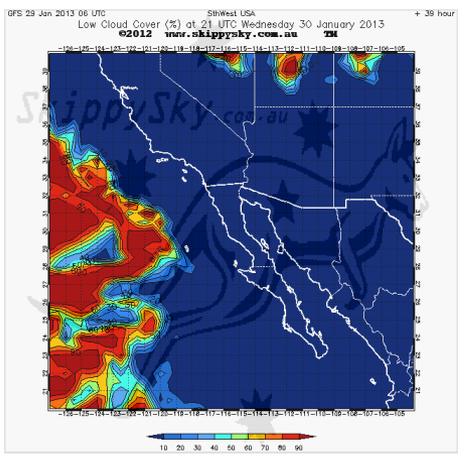
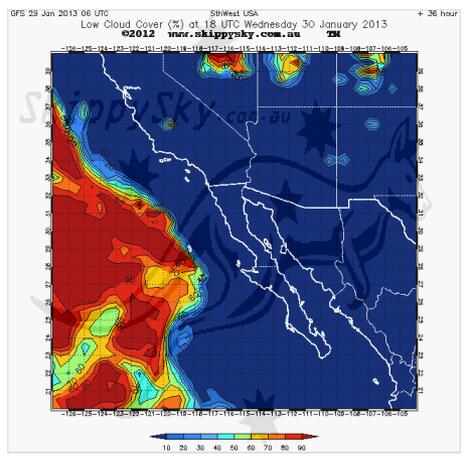
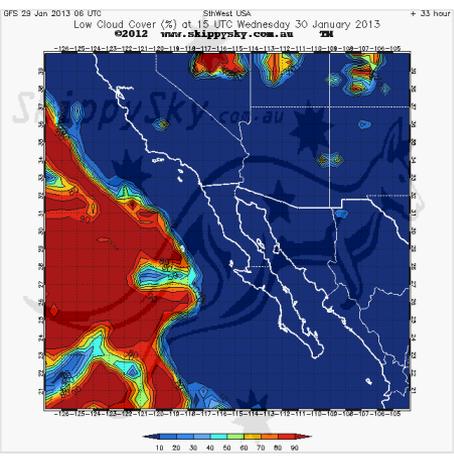
GFS



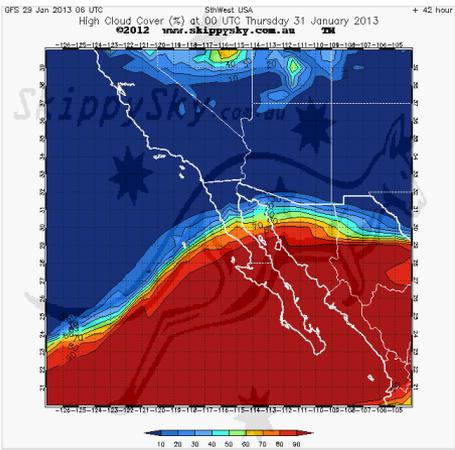
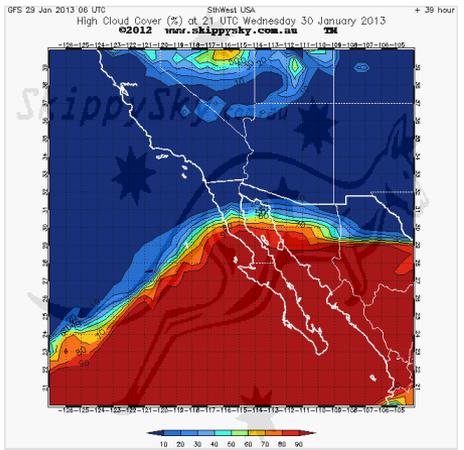
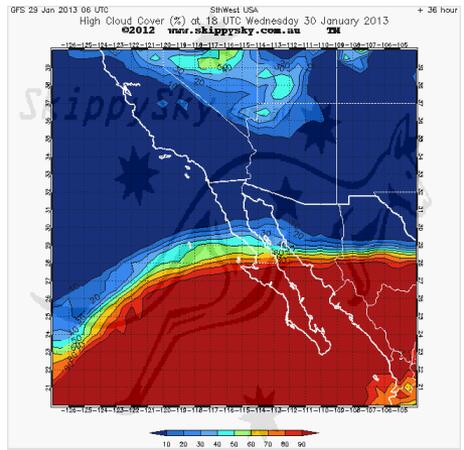
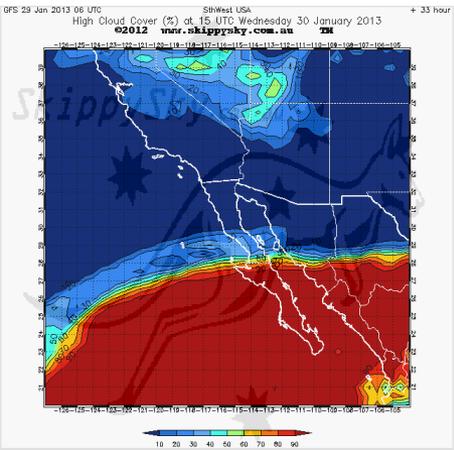
Tomorrow: GFS – low level clouds just west of PODEX region, high level clouds approach CA from the south

7 am 10 am 1 pm 4 pm

GFS – Low level

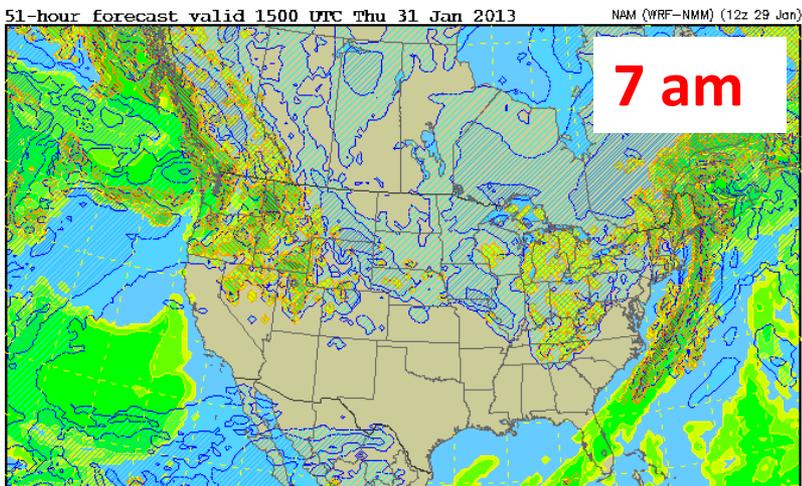


GFS – High level

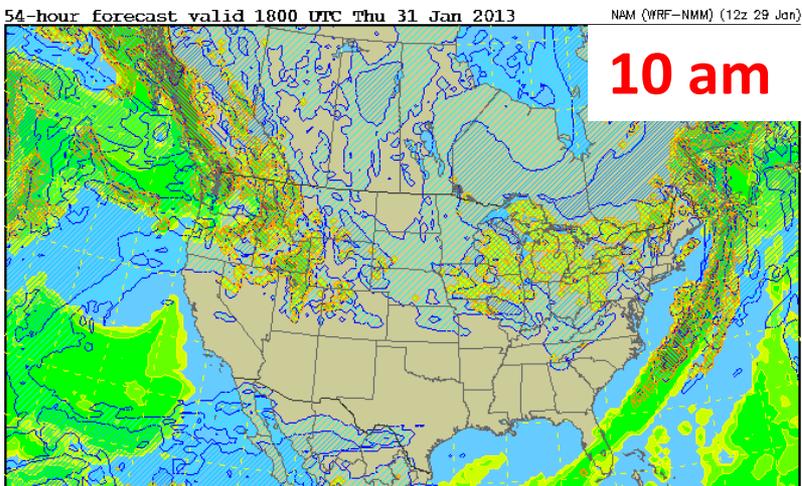


Thursday: NAM – clear skies over SJV, low level clouds (<6 Kft) near PODEX region, but model keeps them even further offshore than previous day.

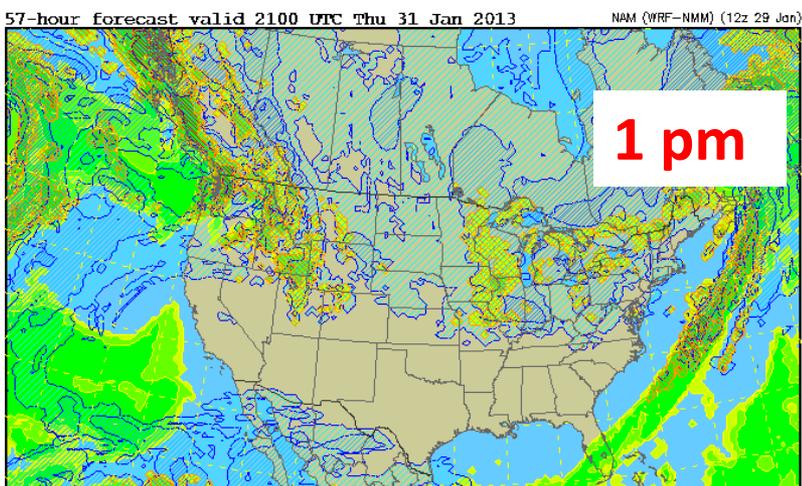
Integrated liquid and frozen hydrometeors (all levels)



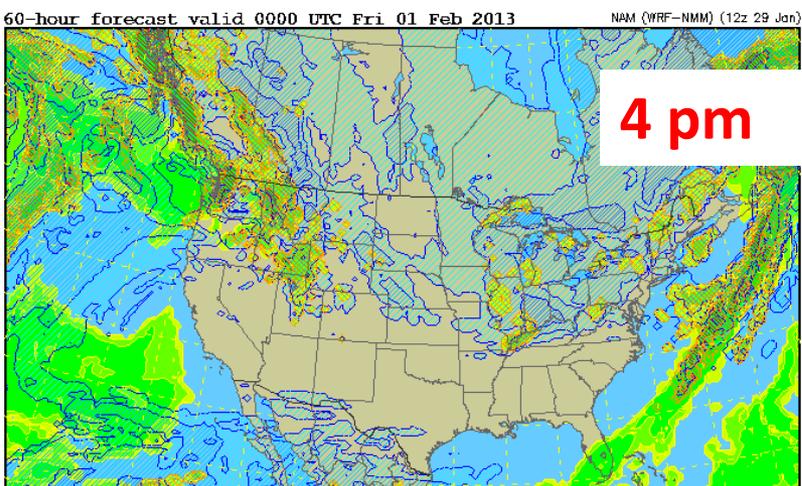
Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)



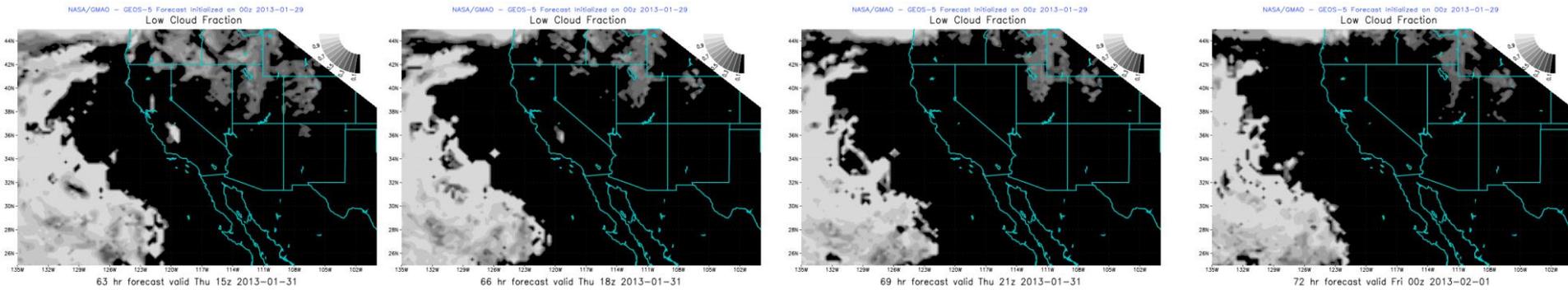
Water (T>0°C) Supercooled Ice&Snow

Water (T>0°C) Supercooled Ice&Snow

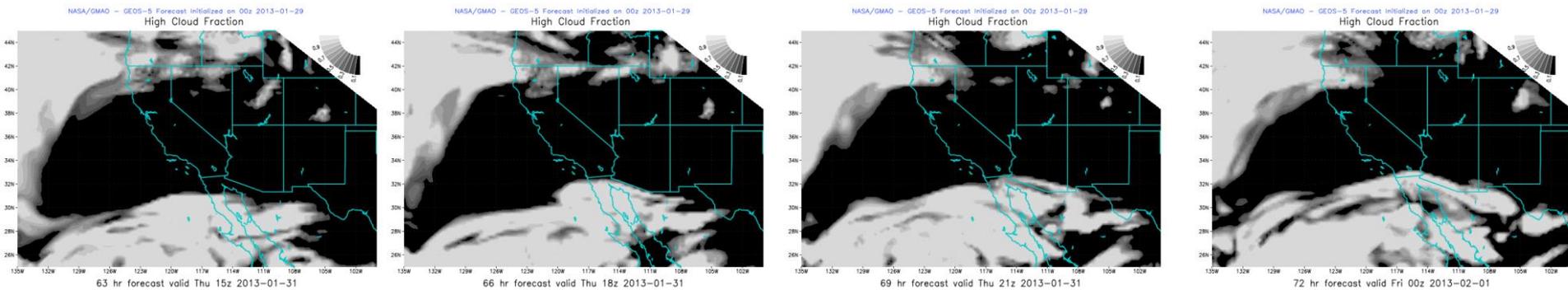
Thursday: GEOS5 – Clear skies, looks like low level fog in the northern end of the valley.

7 am 10 am 1 pm 4 pm

GEOS5 – Low level



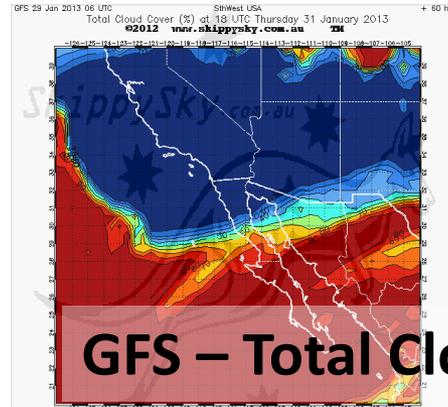
GEOS5 – High level



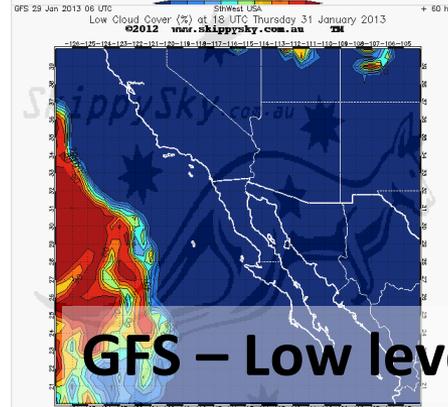
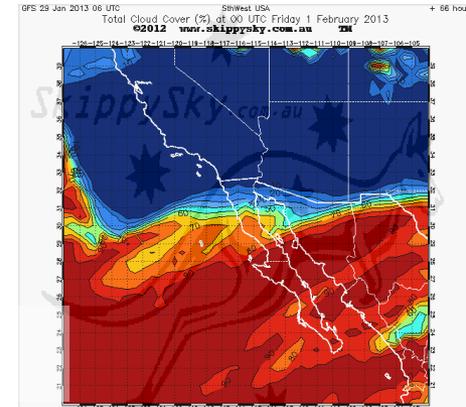
Thursday: GFS – Clear skies over SJV and PODEX region, low level clouds west of PODEX region, high level clouds approach CA from the south

10 am

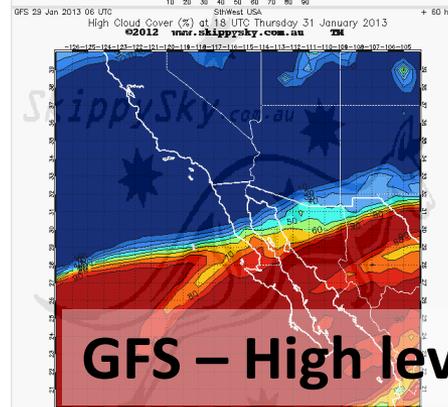
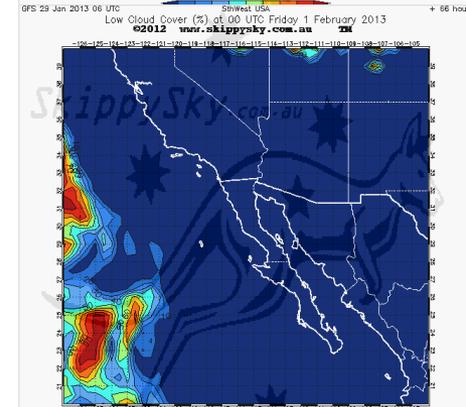
4 pm



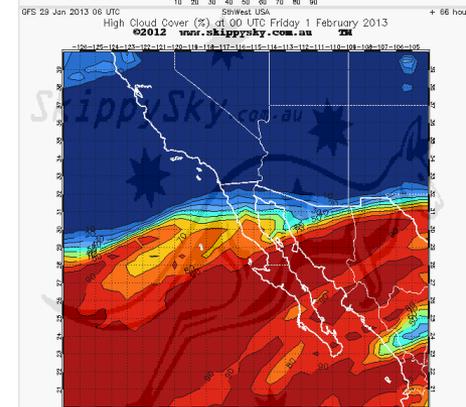
GFS – Total Cloud



GFS – Low level

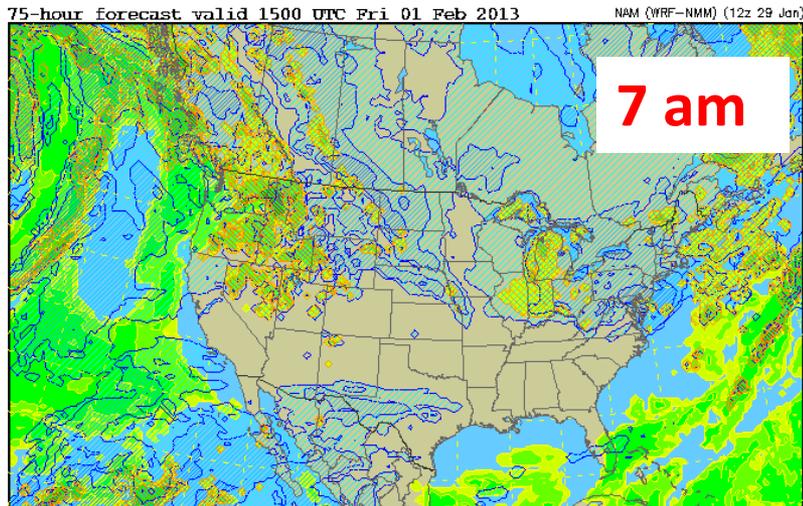


GFS – High level

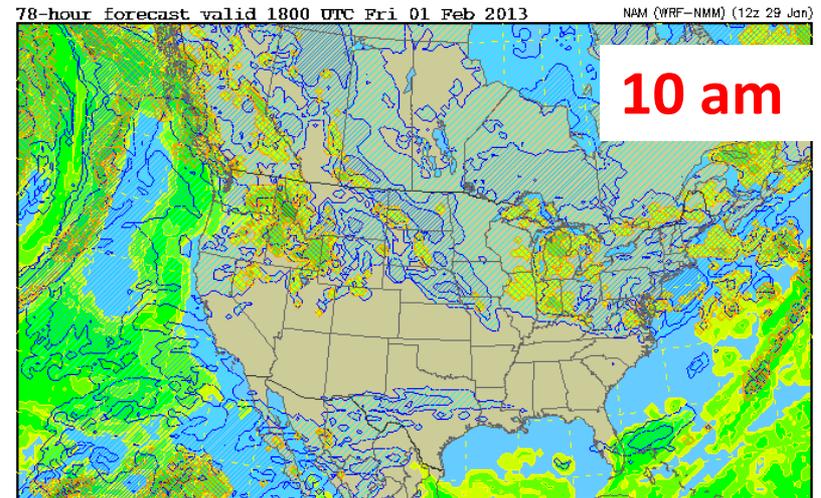


Friday: NAM – High level clouds (>18 Kft) over PODEX region all day, moving over SJV by 1pm

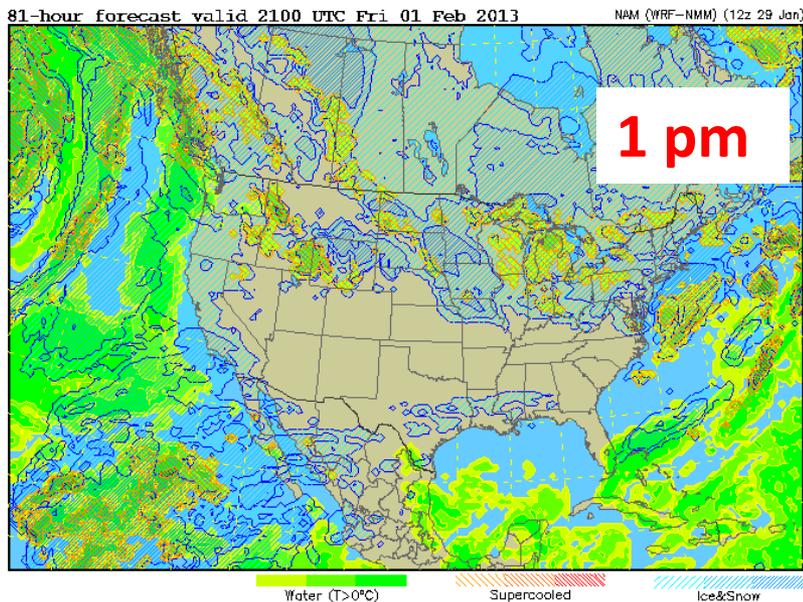
Integrated liquid and frozen hydrometeors (all levels)



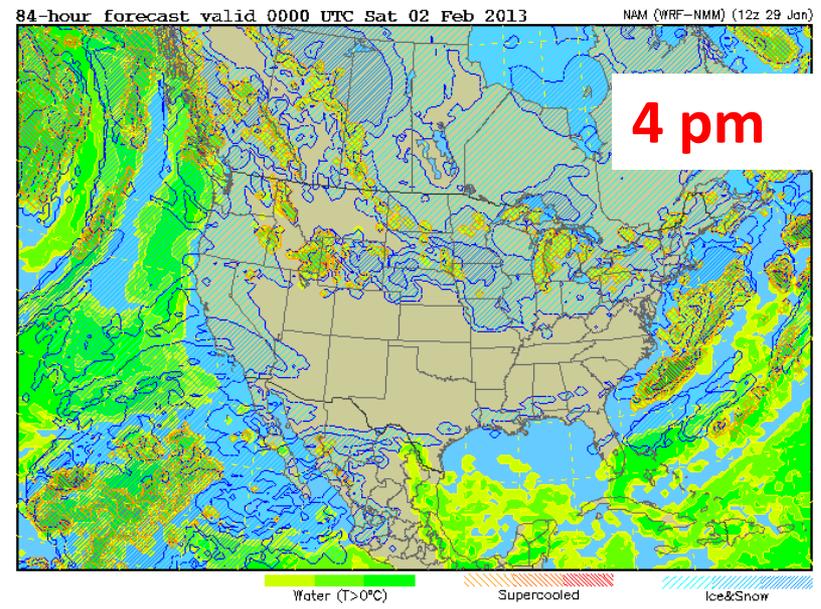
Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)



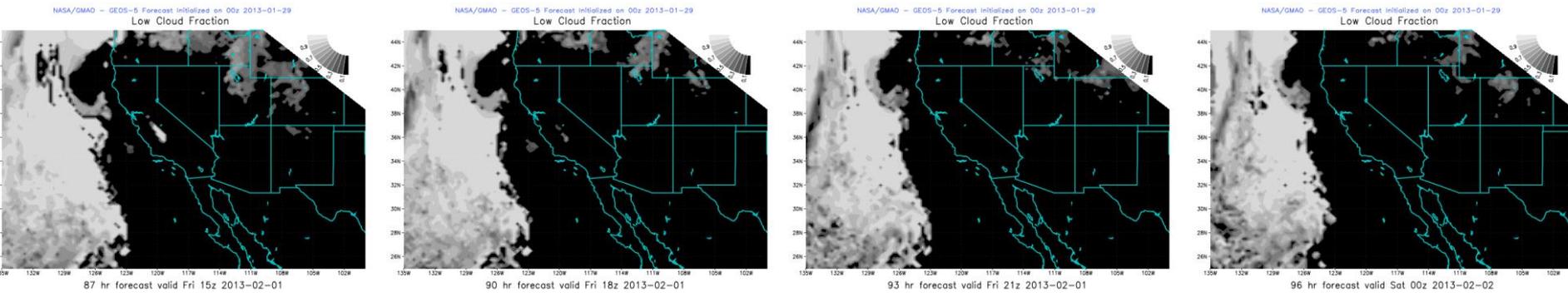
Integrated liquid and frozen hydrometeors (all levels)



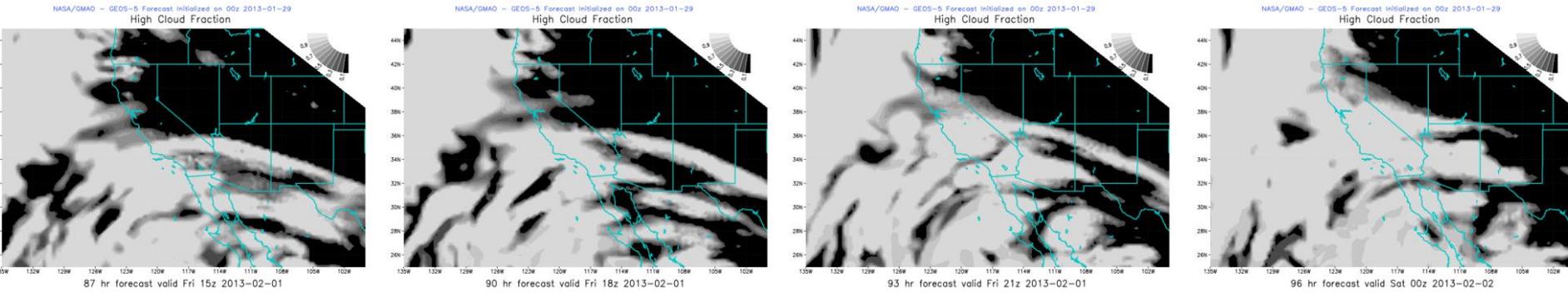
Friday: GEOS5 – Morning fog over northern end of SJV, mid level clouds approach southern end of valley by 4 pm (not shown). High level clouds over PODEX region all day, moving over SJV by 1pm

7 am 10 am 1 pm 4 pm

GEOS5 – Low level



GEOS5 – High level



[AREA FORECAST DISCUSSION](#)

NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY - HANFORD [CA](#)

324 AM PST TUE JAN 29 2013

.SYNOPSIS... DRY CONDITIONS ARE EXPECTED AS HIGH PRESSURE BEGINS TO BUILD IN OVER THE AREA. TEMPERATURES WILL BE COOLER THAN AVERAGE UNTIL TODAY AND WILL WARM TO ABOVE AVERAGE DURING THE LATTER HALF OF THE WEEK. NIGHT AND MORNING VALLEY [FOG](#) IS POSSIBLE BY MID-WEEK. &&

.DISCUSSION... NORTHERLY [FLOW](#) OVER THE AREA WILL CONTINUE THROUGH FRIDAY WITH A GRADUAL WARMING TREND EXPECTED THROUGH FRIDAY AS AN UPPER [RIDGE](#) WILL BUILD IN OVER THE REGION FRIDAY. PATCHY LATE NIGHT AND EARLY MORNING [FOG](#) IS POSSIBLE IN THE SJV THROUGH THE WEEK.

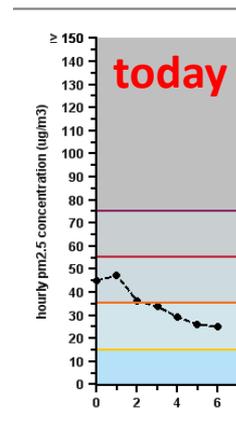
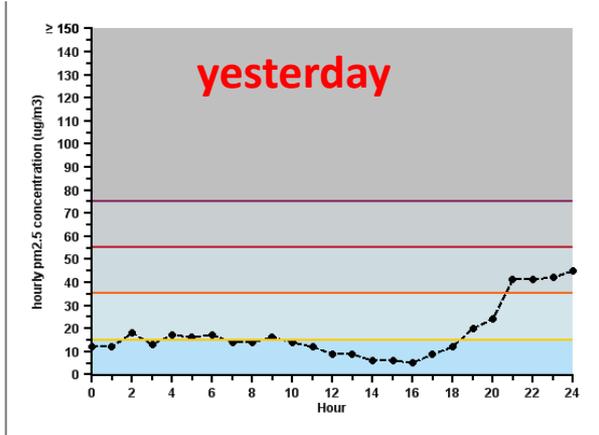
A [TROUGH](#) OF LOW PRESSURE IS FORECAST TO APPROACH THE AREA ON SATURDAY NIGHT AND ALLOW SOME SUB TROPICAL [MOISTURE](#) TO MOVE INTO THE AREA WITH A CHANCE OF PRECIP INTO SUNDAY. THERE WILL BE A BREAK ON MONDAY AND TUESDAY AS A [CLOSED LOW](#) CENTER WILL DEVELOP OFF THE COAST. THE [GFS](#) AND THE ECM ARE STILL NOT IN GOOD AGREEMENT FOR THE WEEKEND AND INTO EARLY NEXT WEEK. WE ARE STILL LEANING TOWARDS THE [GFS](#) AND KEPT SOME [POPS](#) IN FOR [SAT](#) NIGHT AND SUNDAY. &&

.AVIATION... [MVFR](#) CONDITIONS WITH LOCAL [IFR](#) CEILINGS CAN BE EXPECTED ALONG THE NORTH AND WEST FACING SLOPES OF THE TEHACHAPI MOUNTAINS AND THE WEST SLOPES OF THE TULARE COUNTY MOUNTAINS UNTIL 18Z TUESDAY. LOCAL [MVFR](#) VISIBILITIES DUE TO GROUND [FOG](#) MAY OCCUR IN THE SAN JOAQUIN VALLEY BETWEEN 12Z AND 18Z TUESDAY. OTHERWISE...[VFR](#) CONDITIONS WILL PREVAIL THROUGHOUT THE CENTRAL CALIFORNIA INTERIOR THROUGH 12Z WEDNESDAY. &&

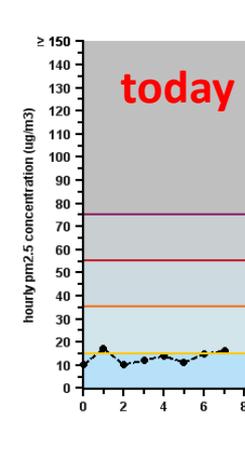
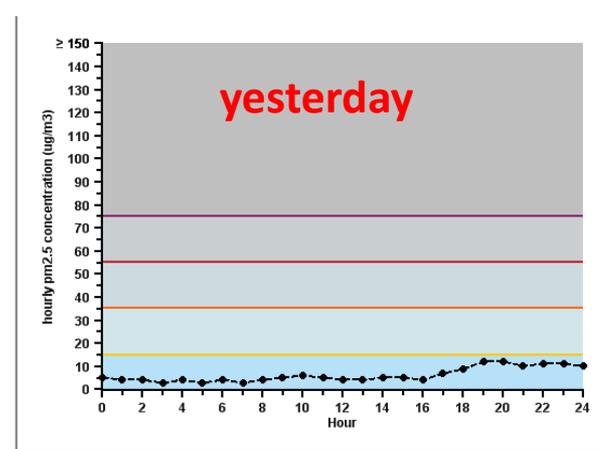
.AIR QUALITY ISSUES... NONE.

January 28 (Monday) & 29th (Today)

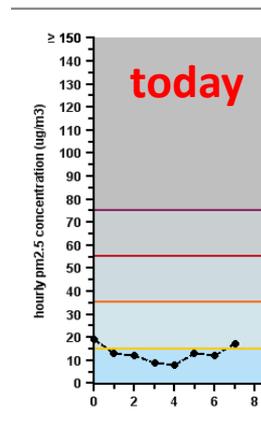
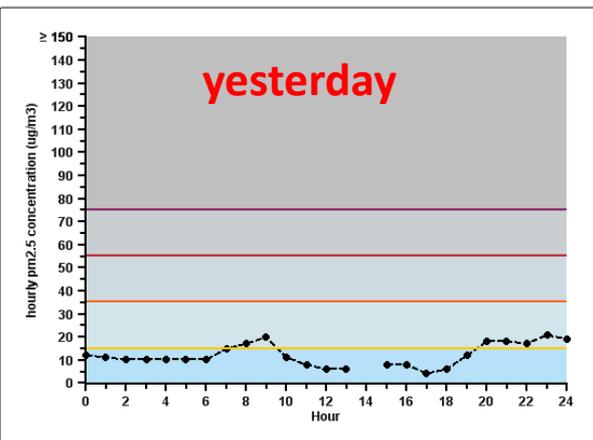
Fresno-Garland



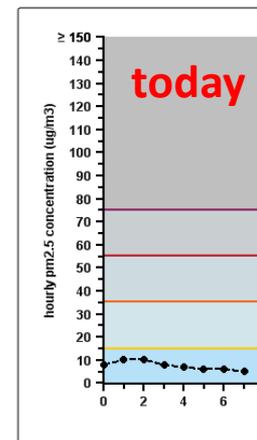
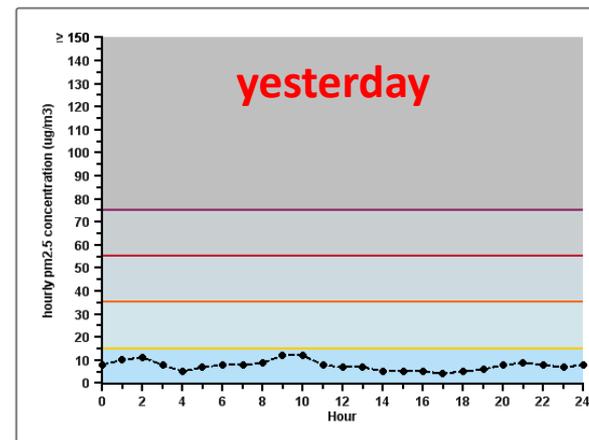
Corcoran



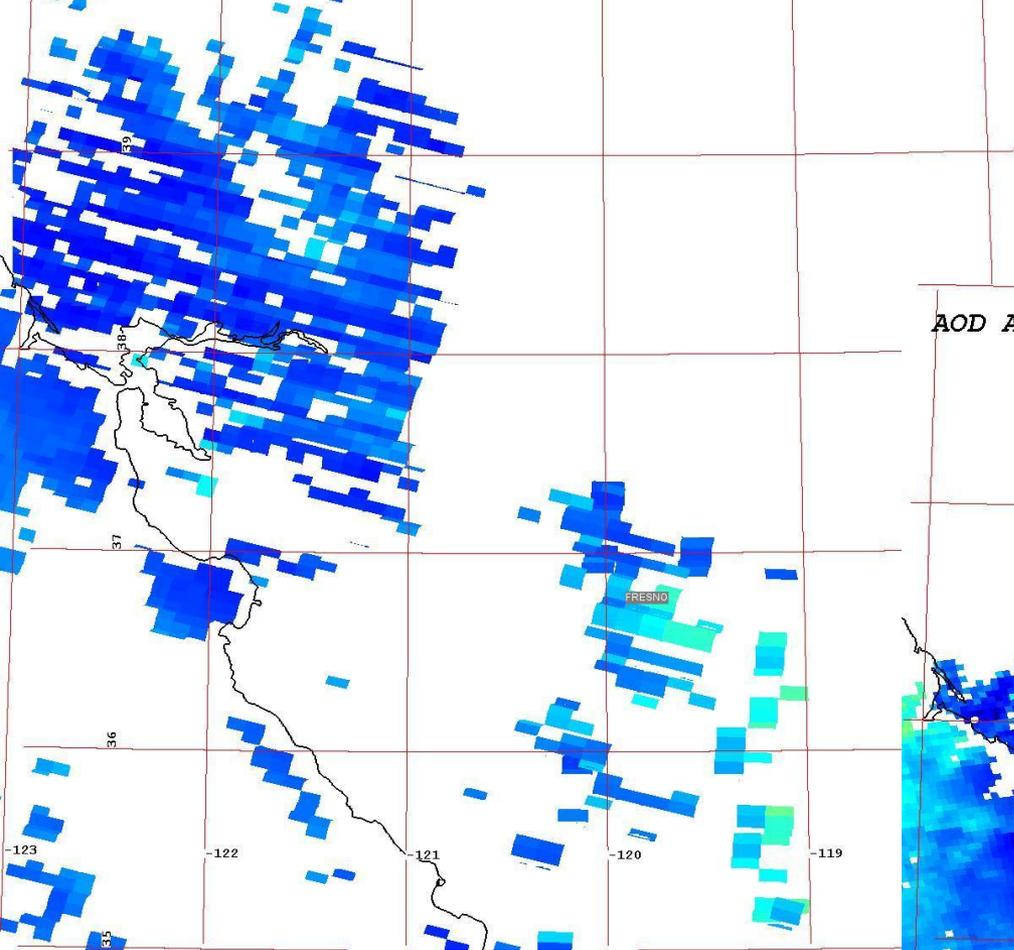
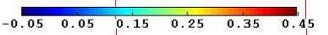
Bakersfield



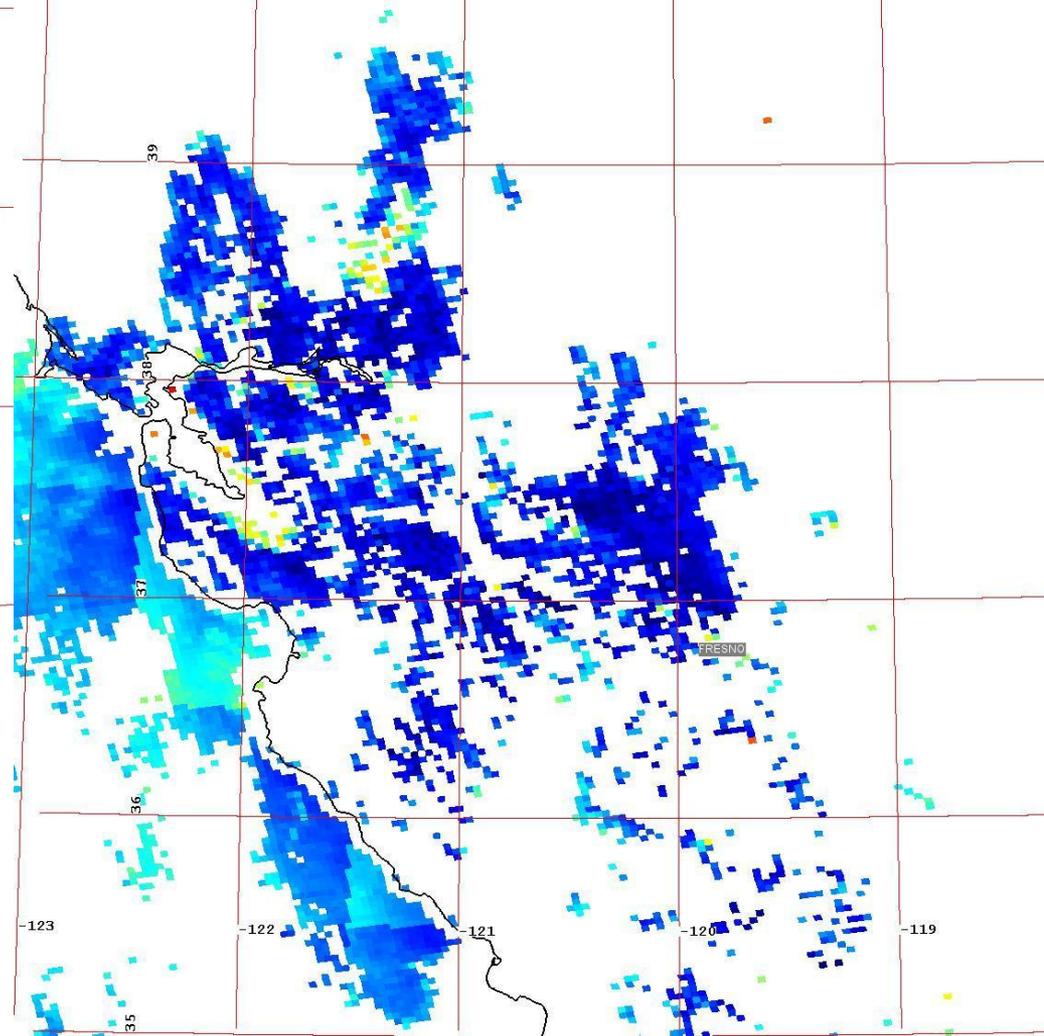
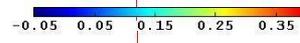
Stockton



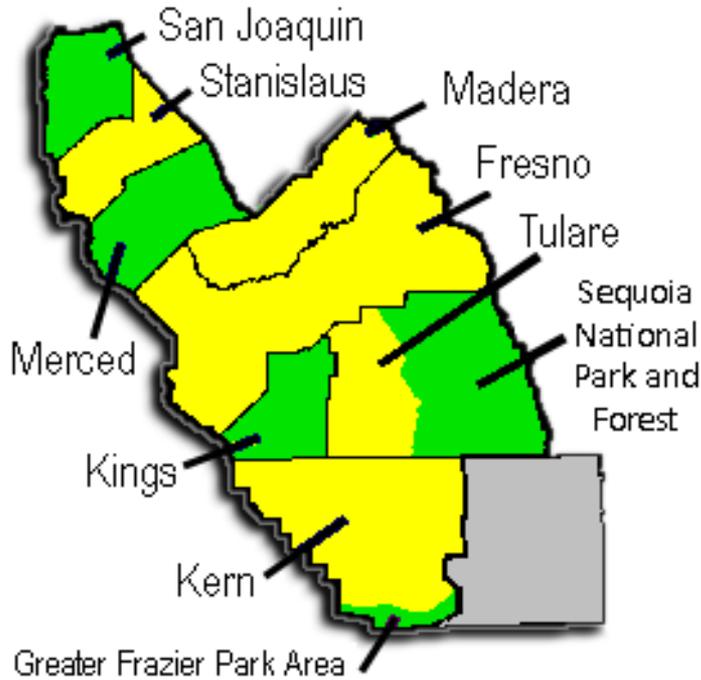
AOD Terra 2013 028



AOD Aqua 2013 028



SJV APCD Daily Forecast – for TODAY (Jan 29)



ROAR LEVEL	Ozone (O ³)	Particulate Matter (PM 2.5)
LEVEL 1 Good	1-59 ppb	1-15 µg/m ³
LEVEL 2 Moderate	60-75 ppb	16-35 µg/m ³
LEVEL 3 Unhealthy for Sensitive Groups	76-95 ppb	36-55 µg/m ³
LEVEL 4 Unhealthy	96-115 ppb	56-75 µg/m ³
LEVEL 5 Very Unhealthy	>115 ppb	>75 µg/m ³

For PM2.5, we're in a "building" stage this week as the ridge takes hold.

Borderline for code orange in Fresno today and tomorrow.

Could be code orange in Fresno on Thursday with a regional code orange by Friday.

This week's AQ event should be viewed as a "mini" event relative to last week's larger event which was characterized by a stronger inversion.

Need to watch fog formation as this may knock back PM2.5 levels a bit.

Today's AQI Forecast

Tuesday, January 29, 2013



5 Day Forecast

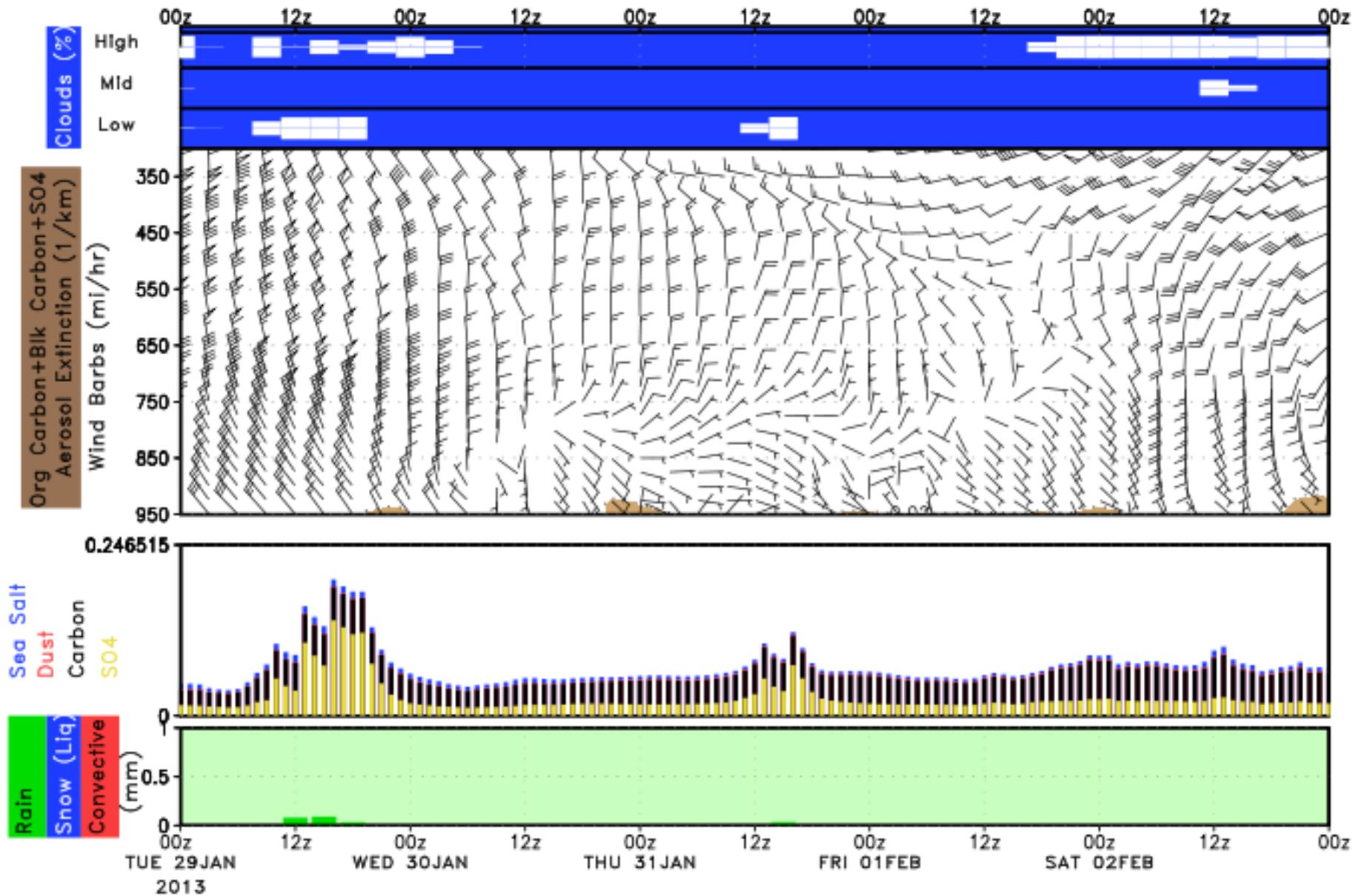
Air Quality Forecast

Monday, January 28 at 10:28 AM

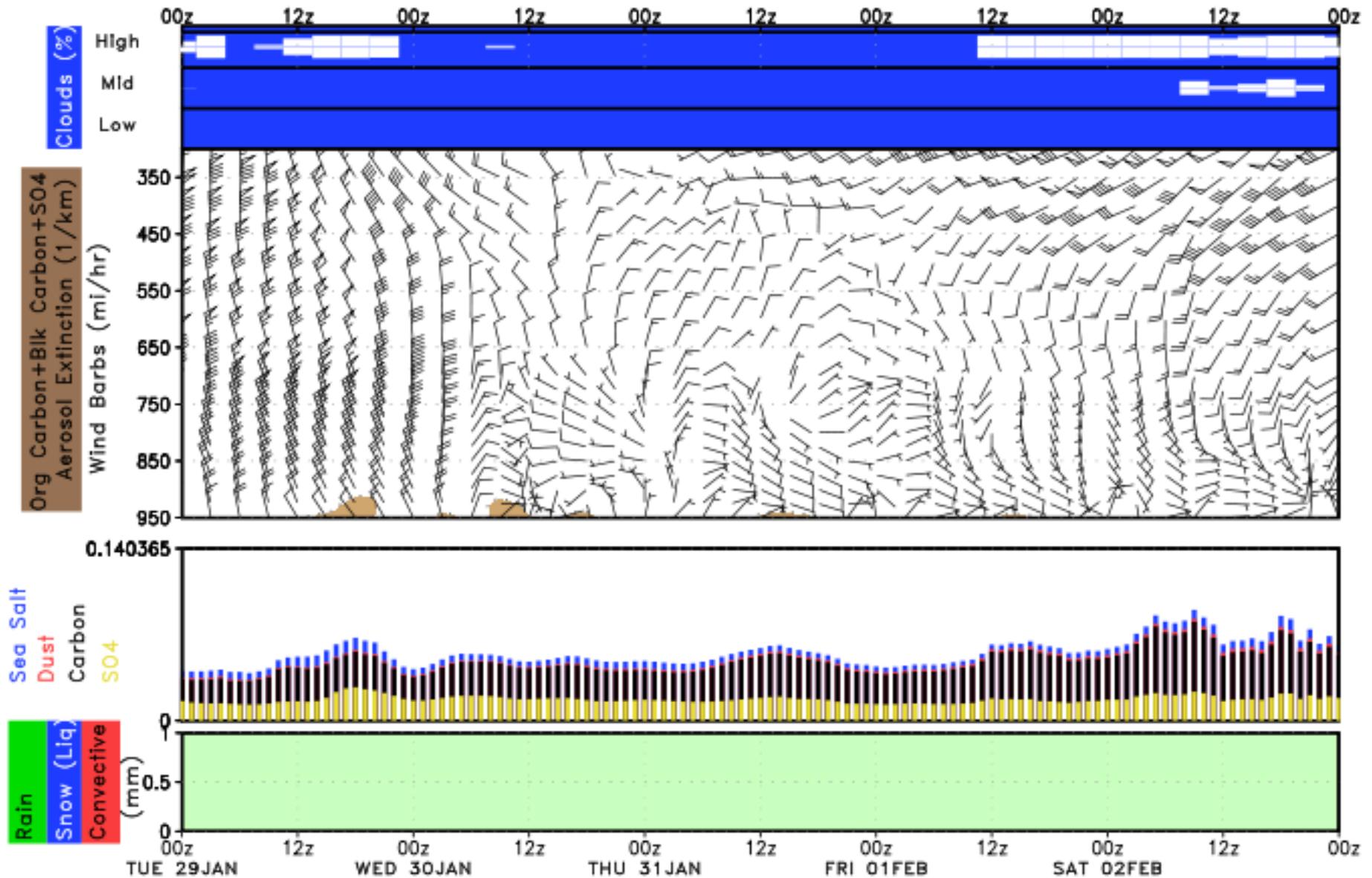


	Mon	Tue	Wed	Thu	Fri
North Counties	36 PM2.5	36 PM2.5	G PM2.5	M PM2.5	M PM2.5
Coast and Central Bay	28 OZONE	29 PM2.5	G PM2.5	G PM2.5	M PM2.5
Eastern District	32 OZONE	29 PM2.5	G PM2.5	G PM2.5	M PM2.5
South Central Bay	29 OZONE	26 PM2.5	G PM2.5	G PM2.5	G PM2.5
Santa Clara Valley	32 PM2.5	32 PM2.5	G PM2.5	G PM2.5	M PM2.5

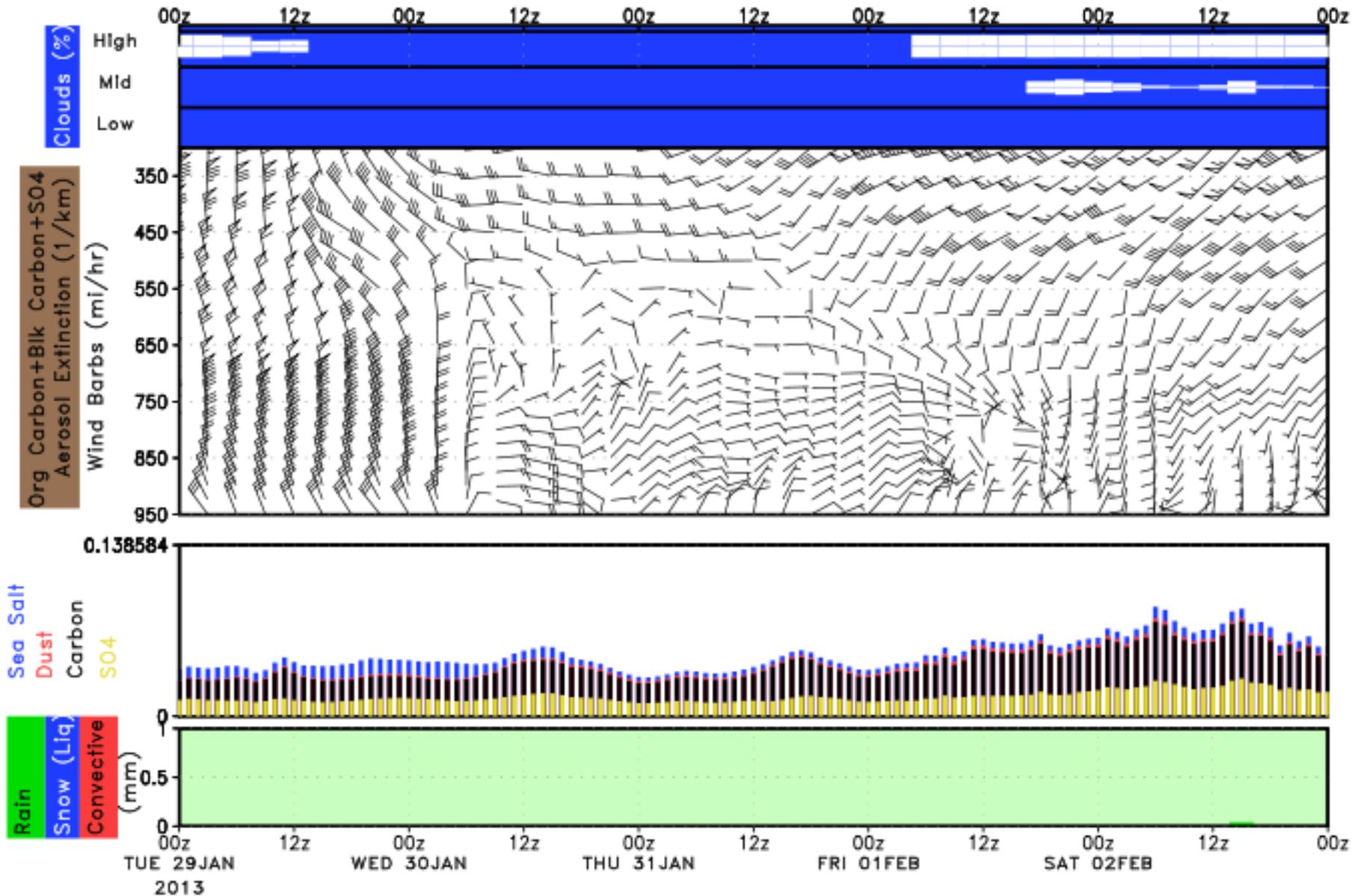
GMAO GEOS5: Fresno



GMAO GEOS5: Bakersfield

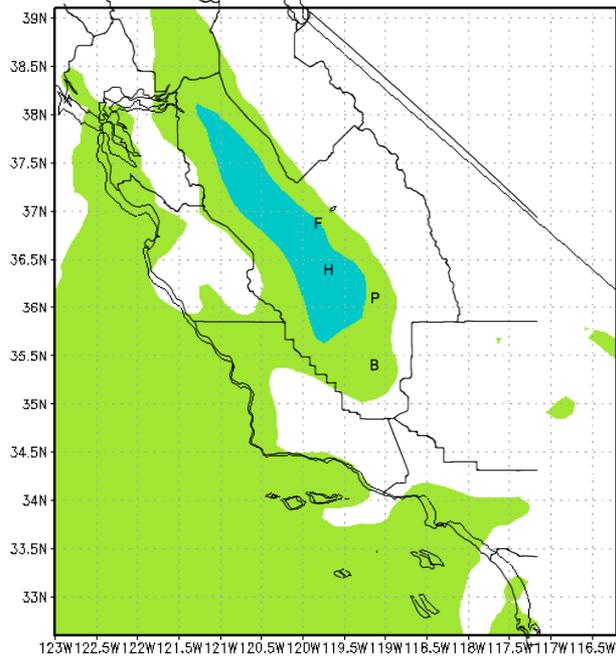


GMAO GEOS5: San Nicolas Is.

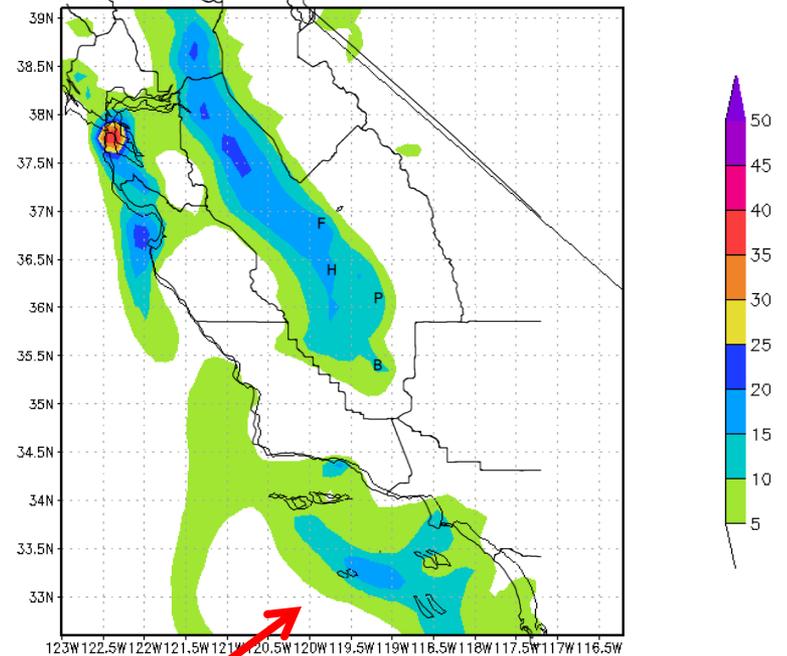


NOAA CMAQ: Wednesday 10 am = 18 Z

Column AOD [Dimensionless] at surface Valid 18 JAN 30 2



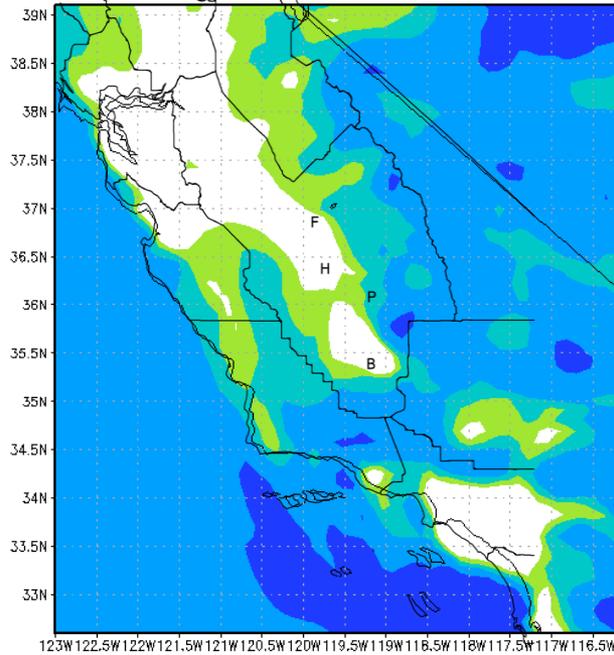
PM25 [$\mu\text{g}/\text{m}^3$] at surface Valid 18 JAN 30 2013



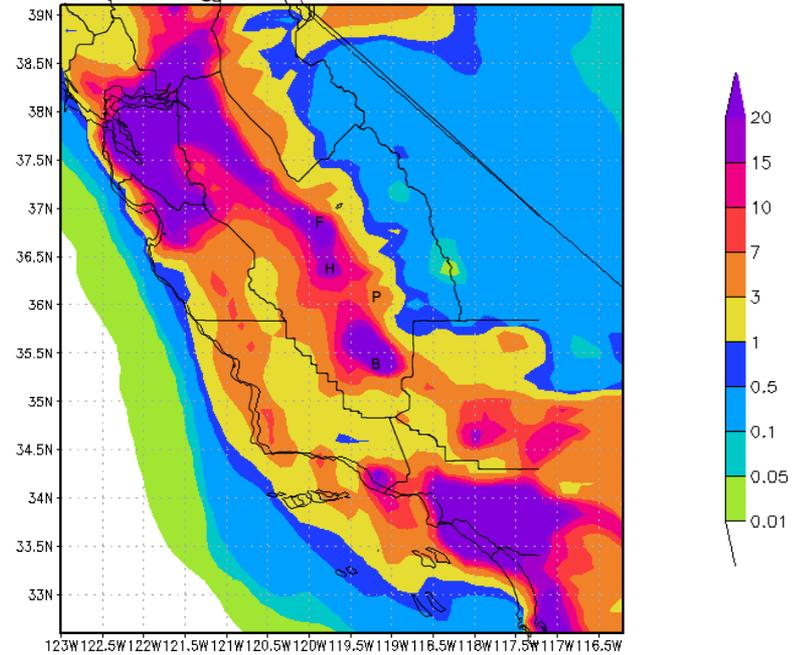
Pollution offshore.

NOAA CMAQ: Wednesday 10 am = 18 Z

O3 [ppb] at 1013 [hPa] Valid 18 JAN 30 2013

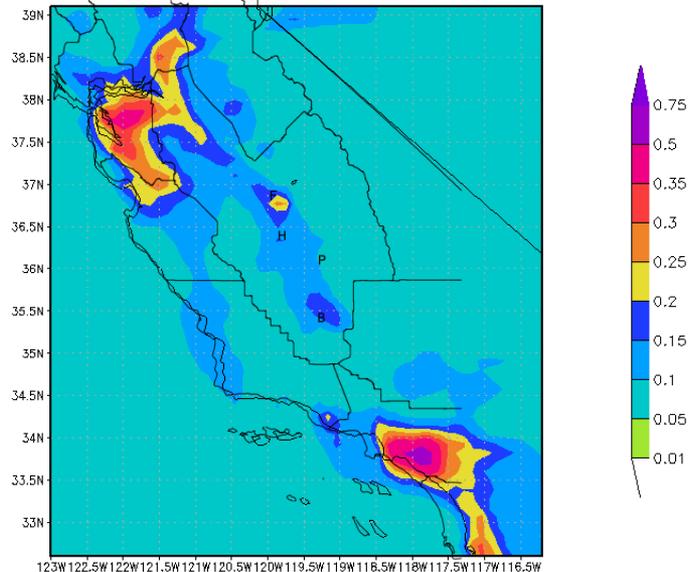


NO2 [ppb] at 1013 [hPa] Valid 18 JAN 30 2013

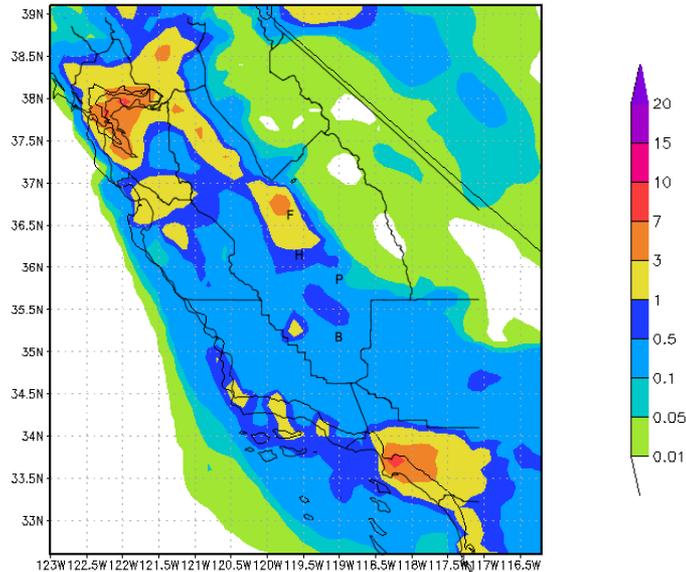


NOAA CMAQ: Wednesday 10 am = 18 Z

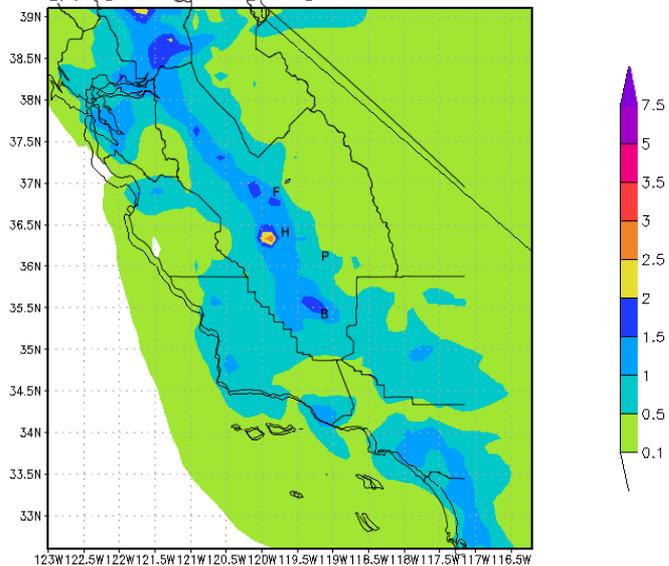
CO [ppm] at 1013 [hPa] Valid 18 JAN 30 2013



SO2 [ppb] at 1013 [hPa] Valid 18 JAN 30 2013

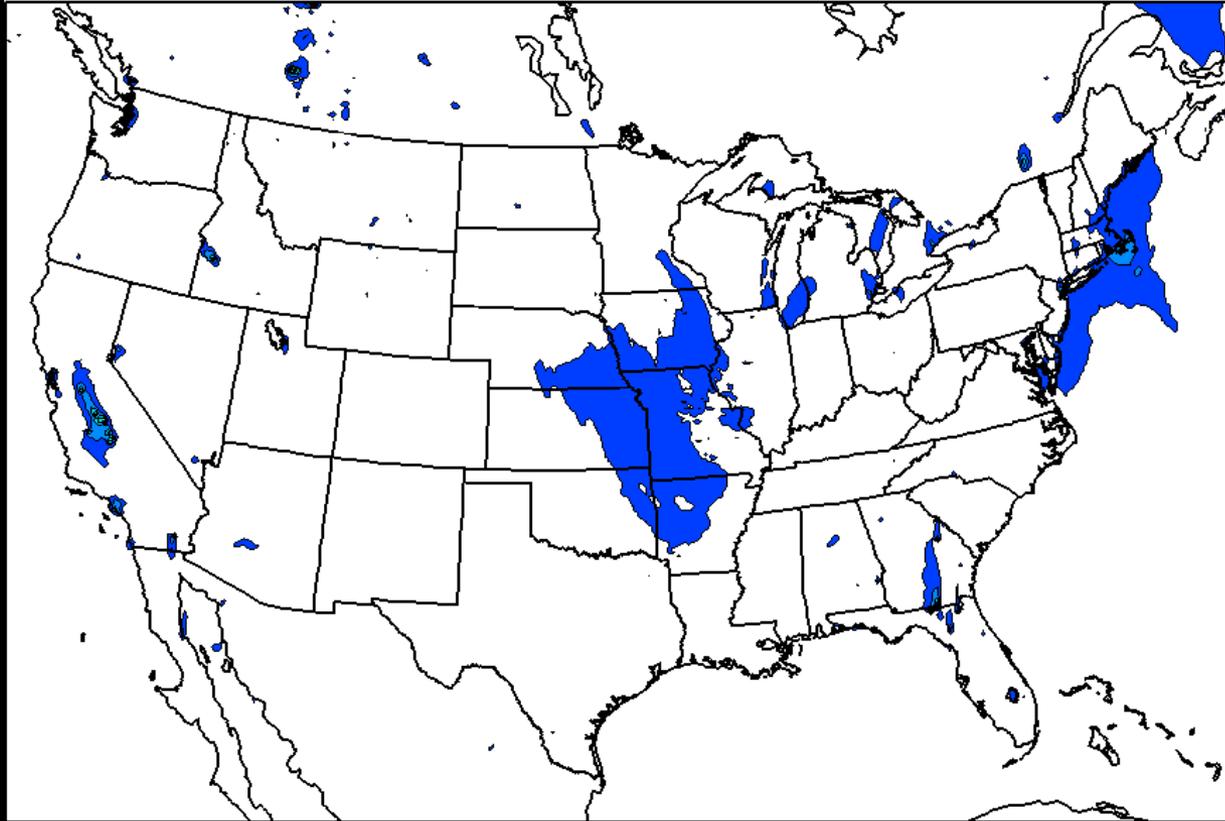


FORM [ppb] at 1013 [hPa] Valid 18 JAN 30 2013



Wednesday 10 am = 18 Z

2013_01_29_00 FORECAST 42 FIELD PM2.5 DRY AT 0
pm2.5 aerosol dry mass ug m⁻³



0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90

Recommendations

Wednesday – Clear skies over the SJV, possible morning fog

Thursday – Clear skies over the SJV extending past the Bay area. Low level clouds forecast all along the US west coast, but possibly too far offshore for PODEX. Cirrus look minimal.

Friday – NAM and GEOS5 show cirrus over the PODEX region, reaching the SJV by 1p

Saturday & Sunday – Possibility of precipitation and cloudiness increases as an upper level trough moves in and brings tropical moisture. Saturday looking more promising than Sunday at the current time.