

DISCOVER-AQ OUTLOOK - January 19, 2013

The same boring weather pattern continues..... The strong Pacific coast ridge remains firmly in place. Continued mostly clear skies will prevail over the study region again on Sunday and Monday. However, the chances of more widespread and persistent fog increase as the days march on through the weekend and into next week. Today early morning fog was slightly more widespread than yesterday, as Visalia had one hour of fog (6 – 7 AM) in addition to the longer-duration fog event (with visibility less than 5/8 mile) at Hanford which lasted from 5 AM until 10:20 AM. However, IFR conditions persisted from 11:30 last night to 11:30 AM today at Visalia and from 1 AM to 11 AM at Hanford. Gradually rising early morning relative humidity is in the MOS forecast for the SJV as we go from Sun. through Tues. We expect a quite widespread fog event by Tuesday morning. Cirrus should be minimal tomorrow and Monday. Cloudiness from the short-wave trough approaching the west coast should not reach the study area until Wednesday afternoon.

Code Orange for PM_{2.5} is expected in Fresno and Kern Counties tomorrow, and Code Yellow (borderline Orange) in Kings and Tulare Counties.










Recommendation is to fly on Sunday. Monday looks possible. However, each morning the fog situation will need to be checked.

DISCOVER-AQ/PODEX Forecast Briefing










January 19, 2013

Ken Pickering, NASA/GSFC
Chris Loughner, ESSIC/GSFC







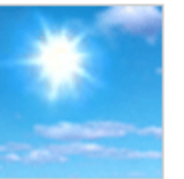
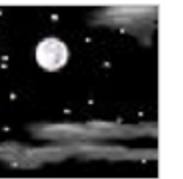

Fresno:

TODAY	TONIGHT	SUNDAY	SUNDAY NIGHT	M.L.KING DAY	MONDAY NIGHT	TUESDAY	TUESDAY NIGHT	WEDNESDAY
								
Sunny	Areas Frost	Morning Frost	Areas Frost	Morning Frost	Clear	Sunny	Patchy Fog	Patchy Fog
High: 64 °F	Low: 33 °F	High: 63 °F	Low: 33 °F	High: 63 °F	Low: 35 °F	High: 63 °F	Low: 39 °F	High: 63 °F

Hanford:

TODAY	TONIGHT	SUNDAY	SUNDAY NIGHT	M.L.KING DAY	MONDAY NIGHT	TUESDAY	TUESDAY NIGHT	WEDNESDAY
								
Morning Frost	Areas Frost	Morning Frost	Areas Frost	Morning Frost	Areas Frost	Morning Frost	Patchy Fog	Patchy Fog
High: 63 °F	Low: 30 °F	High: 62 °F	Low: 31 °F	High: 63 °F	Low: 32 °F	High: 63 °F	Low: 35 °F	High: 63 °F

Bakersfield:

TODAY	TONIGHT	SUNDAY	SUNDAY NIGHT	M.L.KING DAY	MONDAY NIGHT	TUESDAY	TUESDAY NIGHT	WEDNESDAY
								
Morning Frost	Areas Frost	Morning Frost	Areas Frost	Morning Frost	Clear	Sunny	Mostly Clear	Mostly Sunny
High: 67 °F	Low: 33 °F	High: 66 °F	Low: 33 °F	High: 66 °F	Low: 34 °F	High: 66 °F	Low: 39 °F	High: 66 °F

Current Conditions

FRESNO CA

Haze

46°F

8°C

Humidity 76%

Wind Speed calm


Barometer 30.29 in (1025.9 mb)

Dewpoint 39°F (4°C)

Visibility 4.00 mi

Last Update on 19 Jan 9:53 am PST

HANFORD CA



Fog

39°F

4°C

Humidity 93%

Wind Speed calm

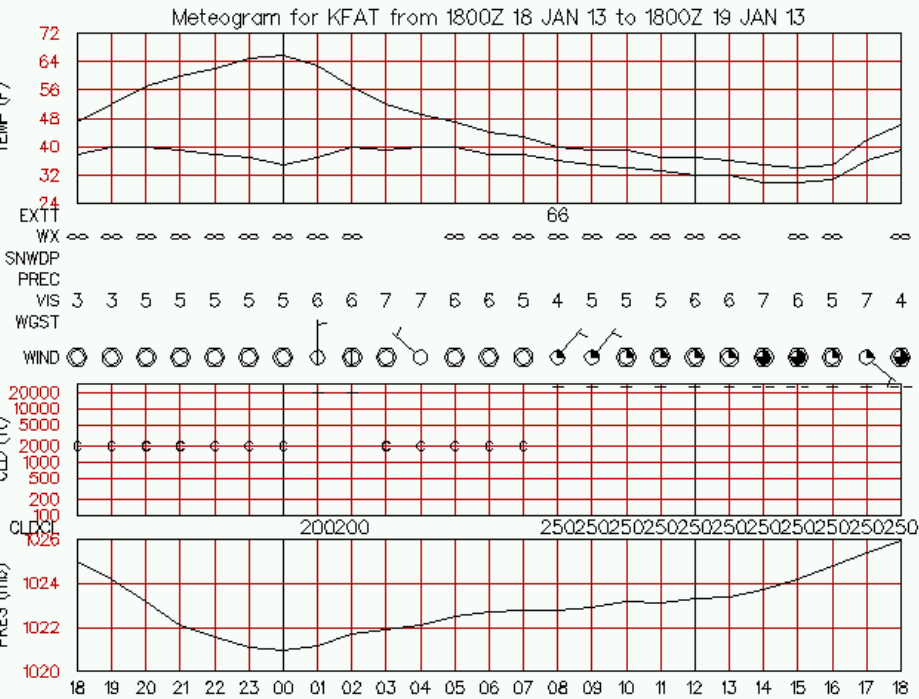
Barometer 30.30 in

Dewpoint 37°F (3°C)

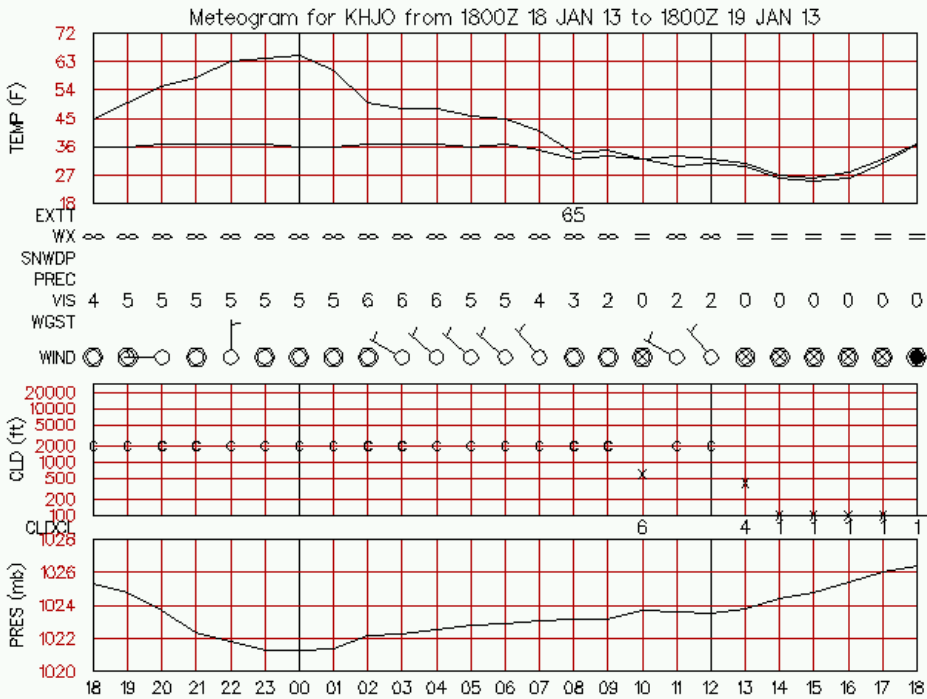
Visibility 1.50 mi

Last Update on 19 Jan 10:04 am PST

▼ Plymouth State Weather Center ▼



▼ Plymouth State Weather Center ▼



Current Conditions

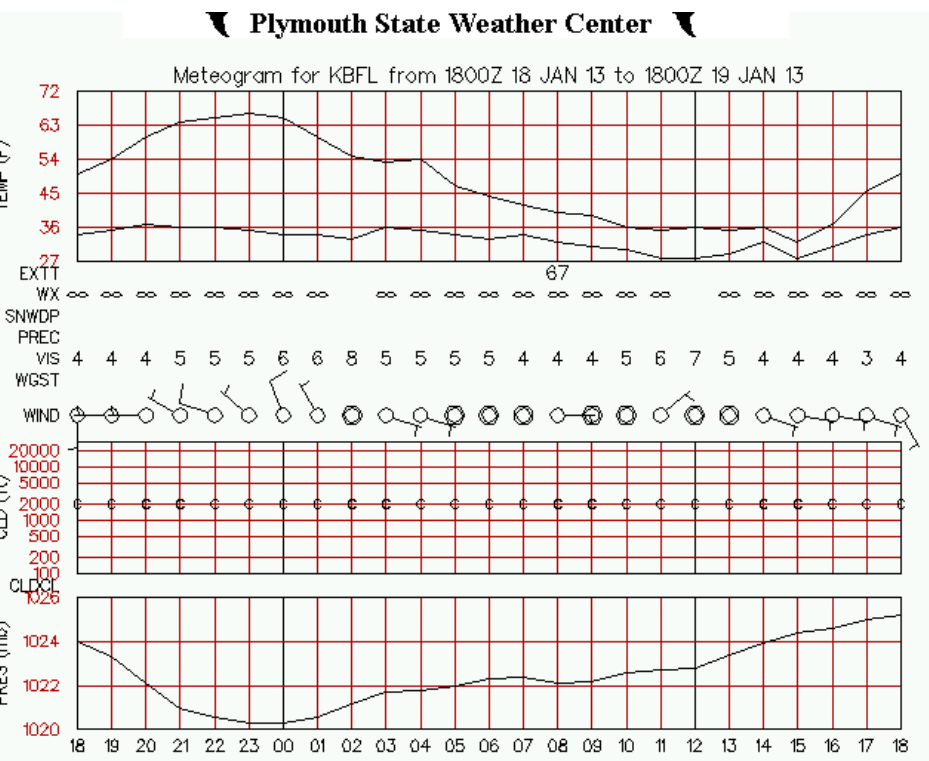
BAKERSFIELD CA

Haze

50°F
10°C

Humidity 58%
Wind Speed SSE 3 MPH
Barometer 30.28 in (1025.2 mb)
Dewpoint 36°F (2°C)
Visibility 4.00 mi

Last Update on 19 Jan 9:54 am PST



Fresno



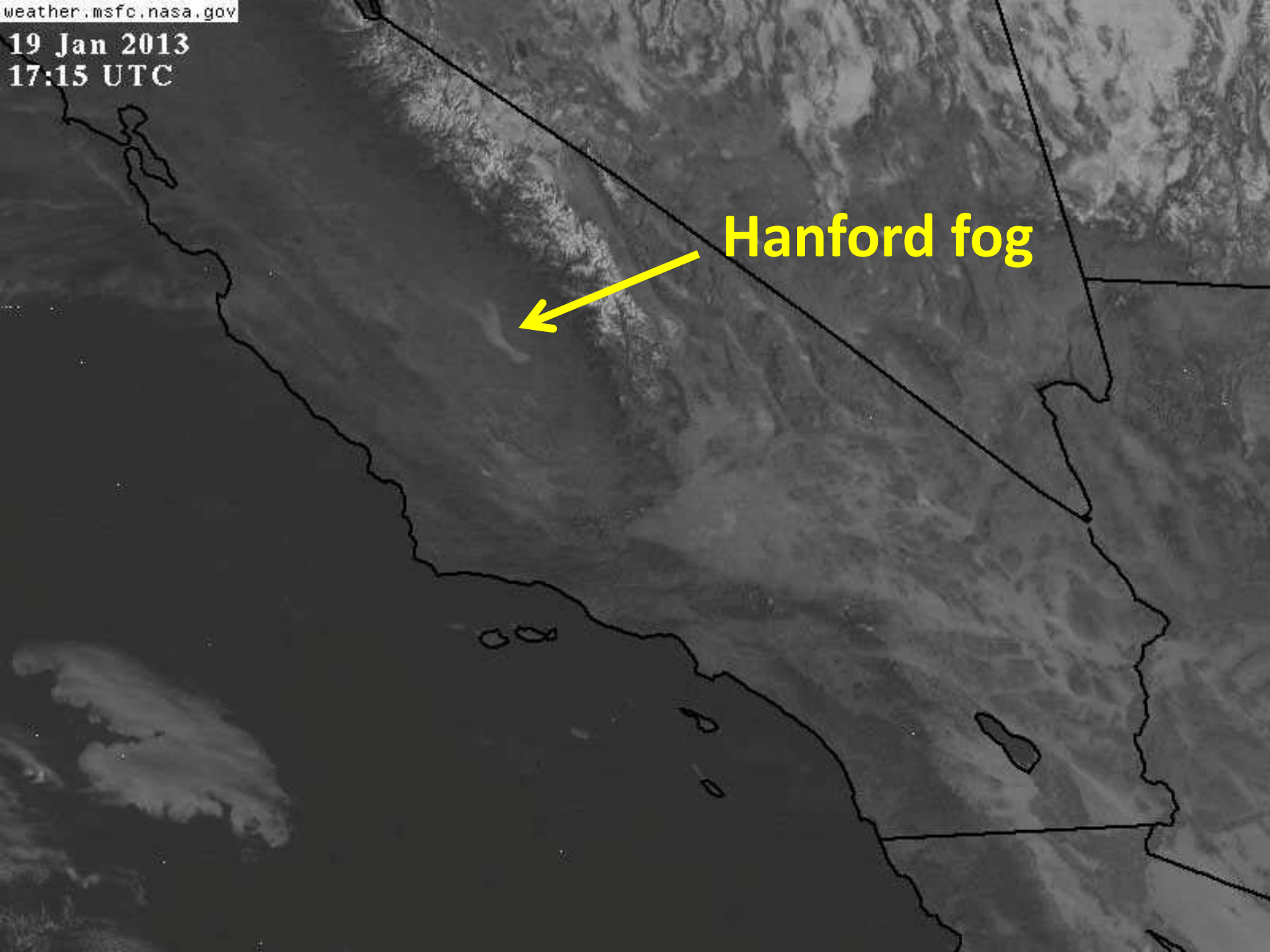
Fresno



Visalia



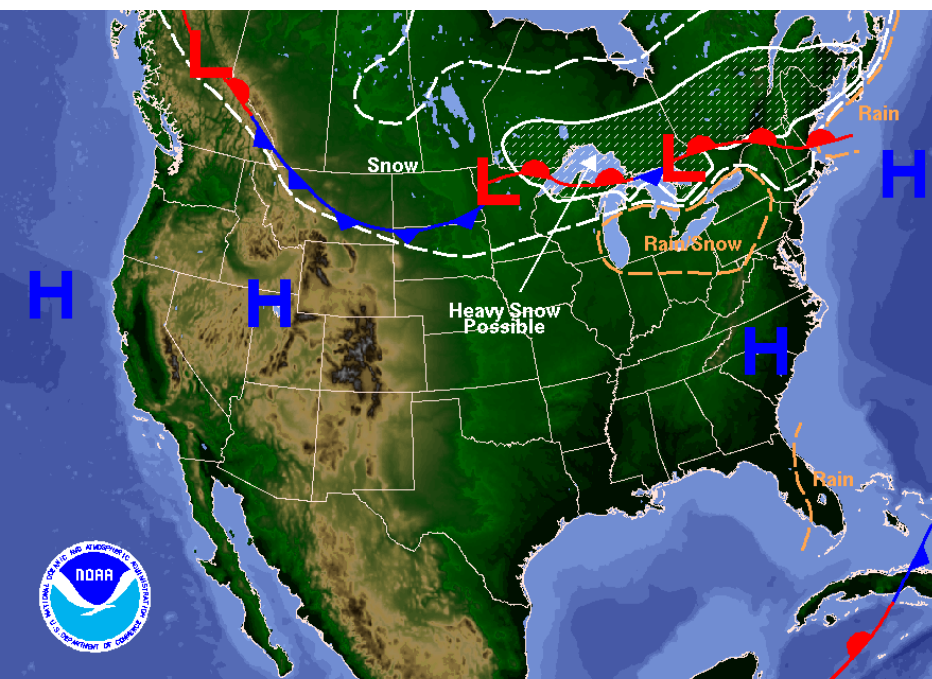
19 Jan 2013
17:15 UTC



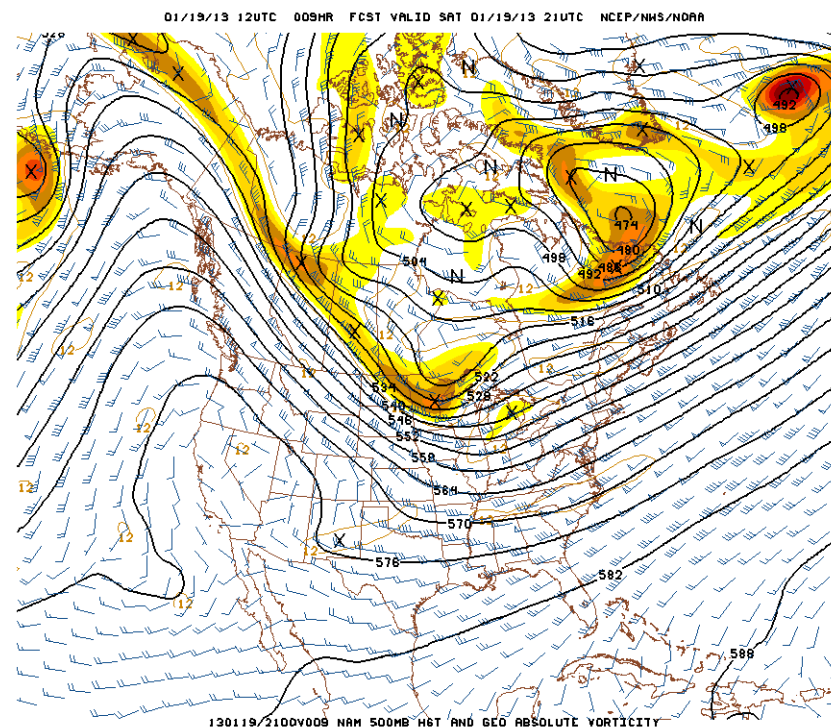
Hanford fog

Today : Sunny. Large upper level ridge still near the Pacific coastline.

500 mb NAM at 1 PM.

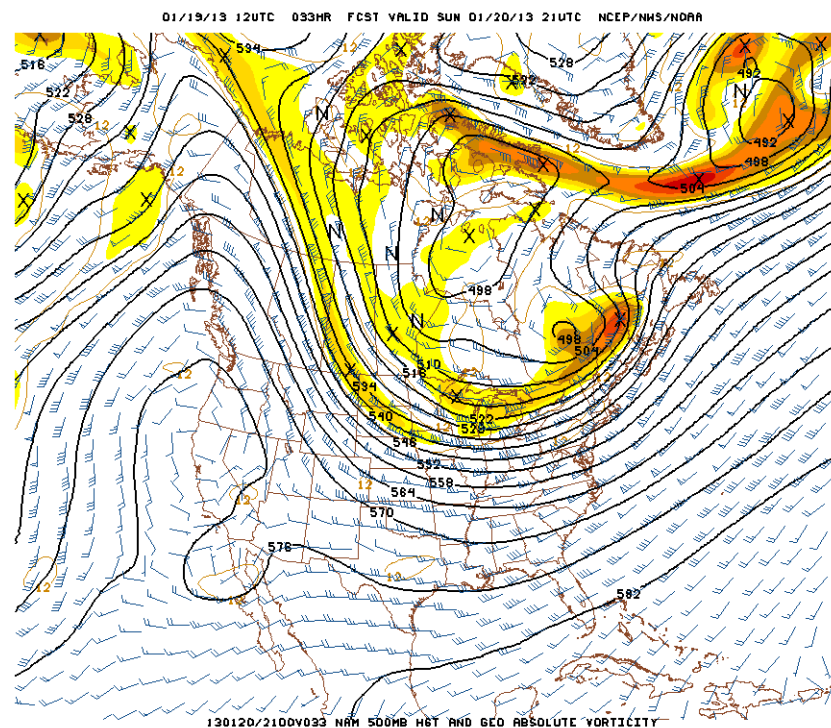
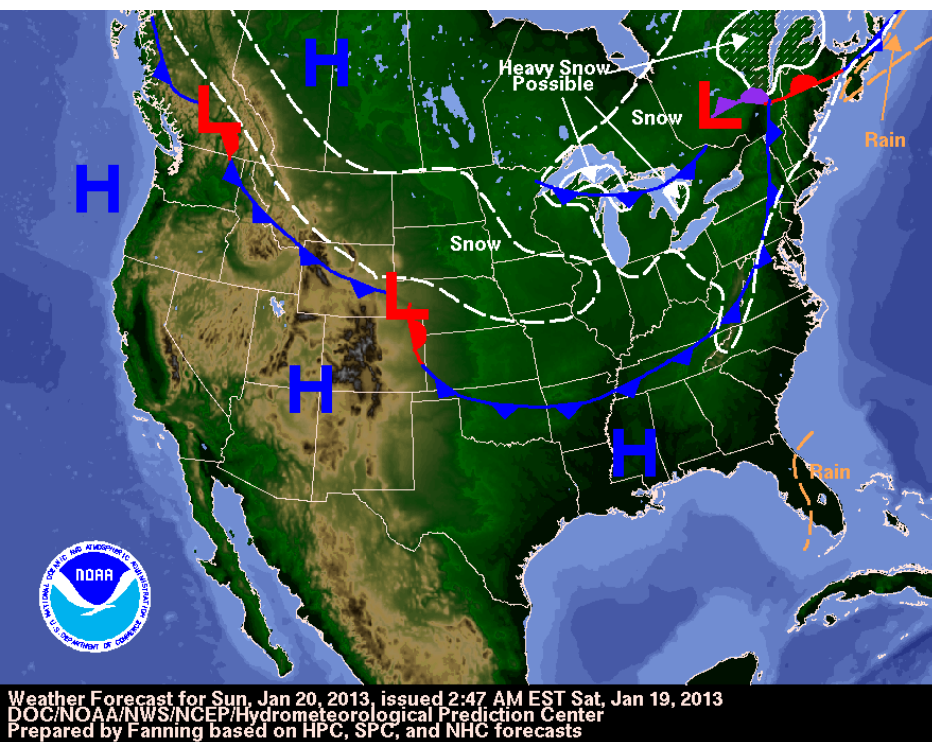


Weather Forecast for Sat, Jan 19, 2013, issued 2:39 AM EST
DOC/NOAA/NWS/NCEP/Hydrometeorological Prediction Center
Prepared by Fanning based on HPC, SPC, and NHC forecasts



Tomorrow: Sunny. Upper level ridge still in place along the coastline.

500 mb NAM at 1 PM.



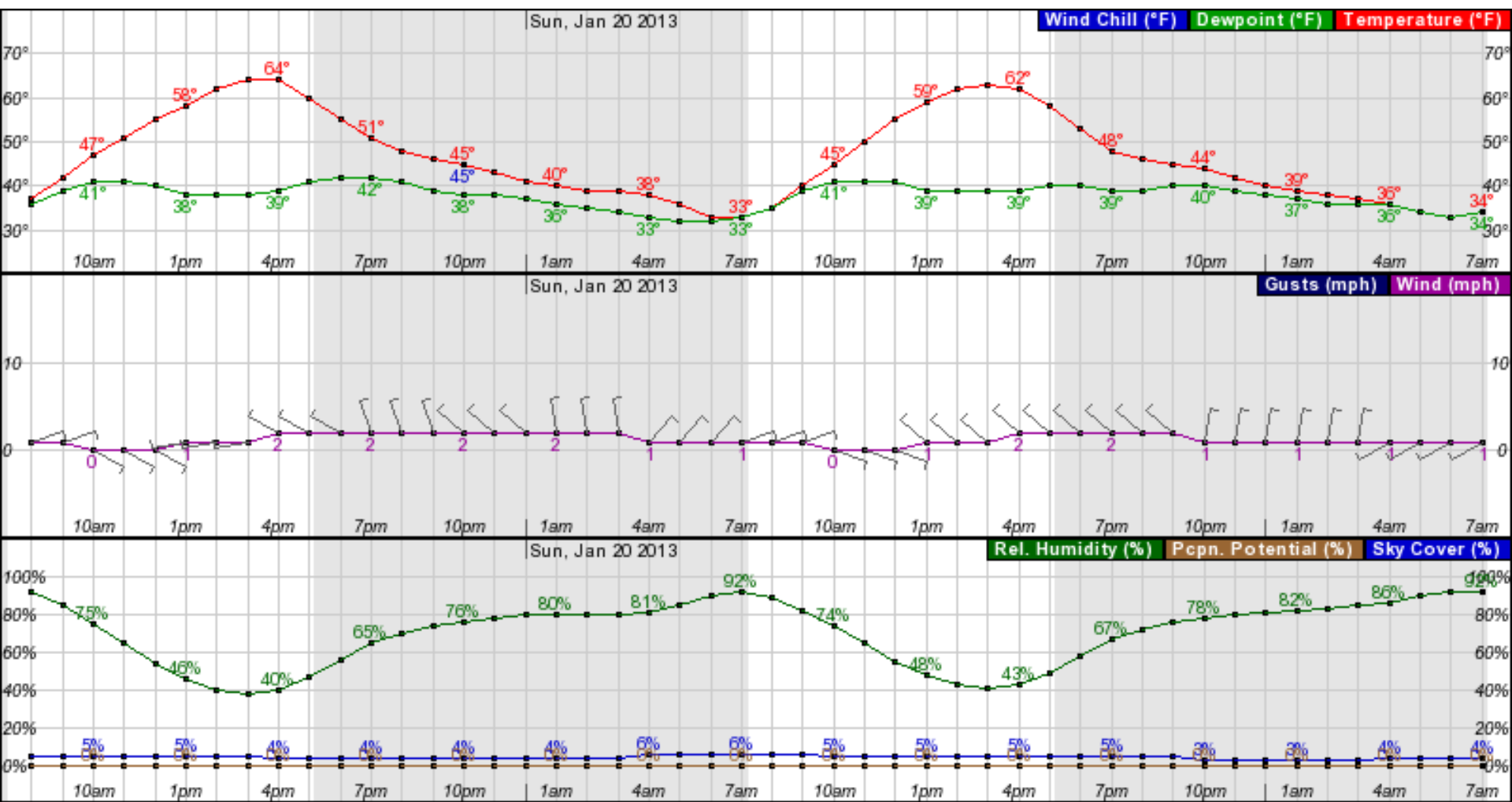
Fresno

Today: Sunny.

Tomorrow: Sunny. Chance of some morning fog.

Today →

Tomorrow →



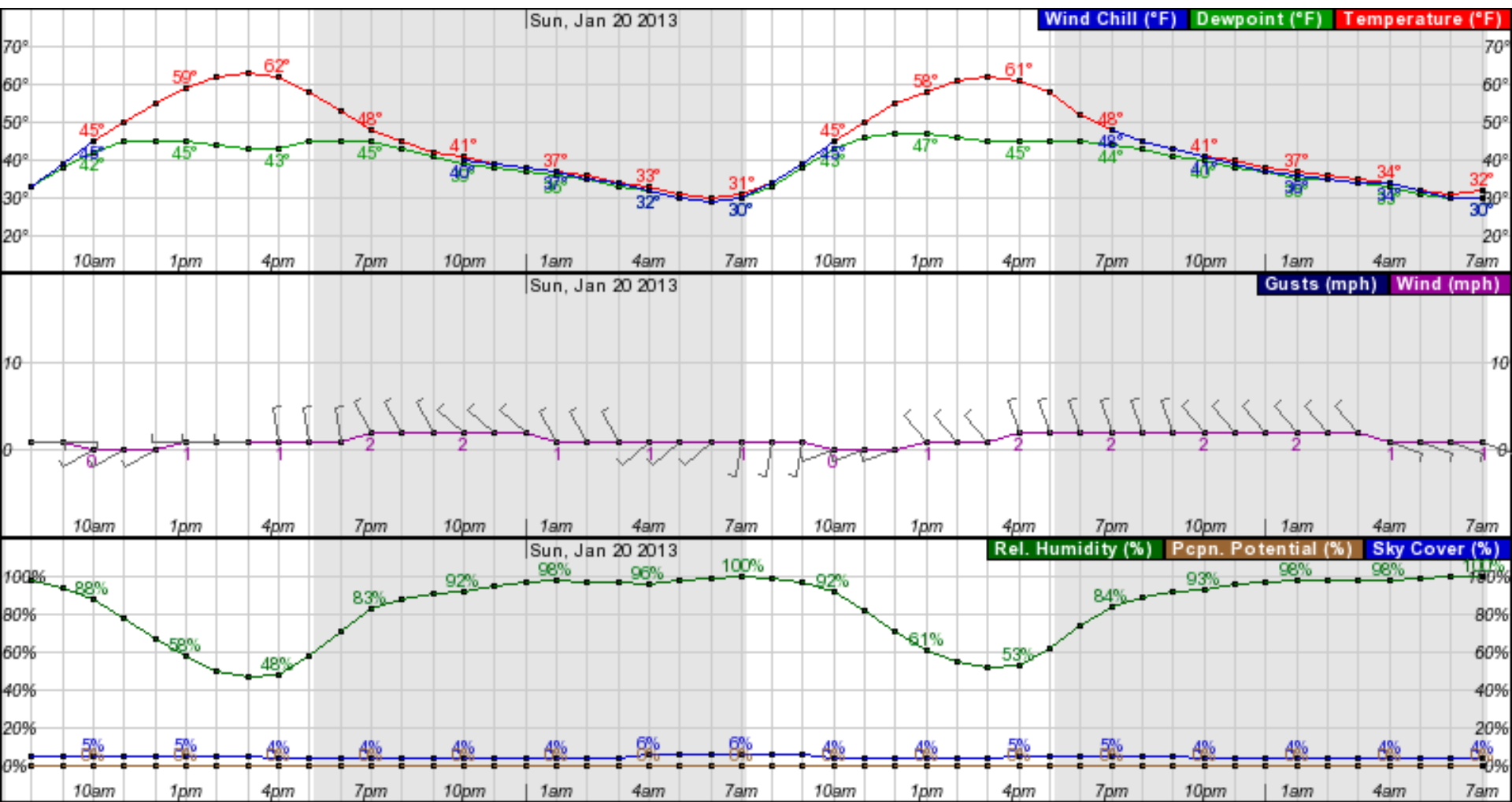
Hanford

Today: Sunny.

Tomorrow: Foggy morning – sunny afternoon.

Today →

Tomorrow →



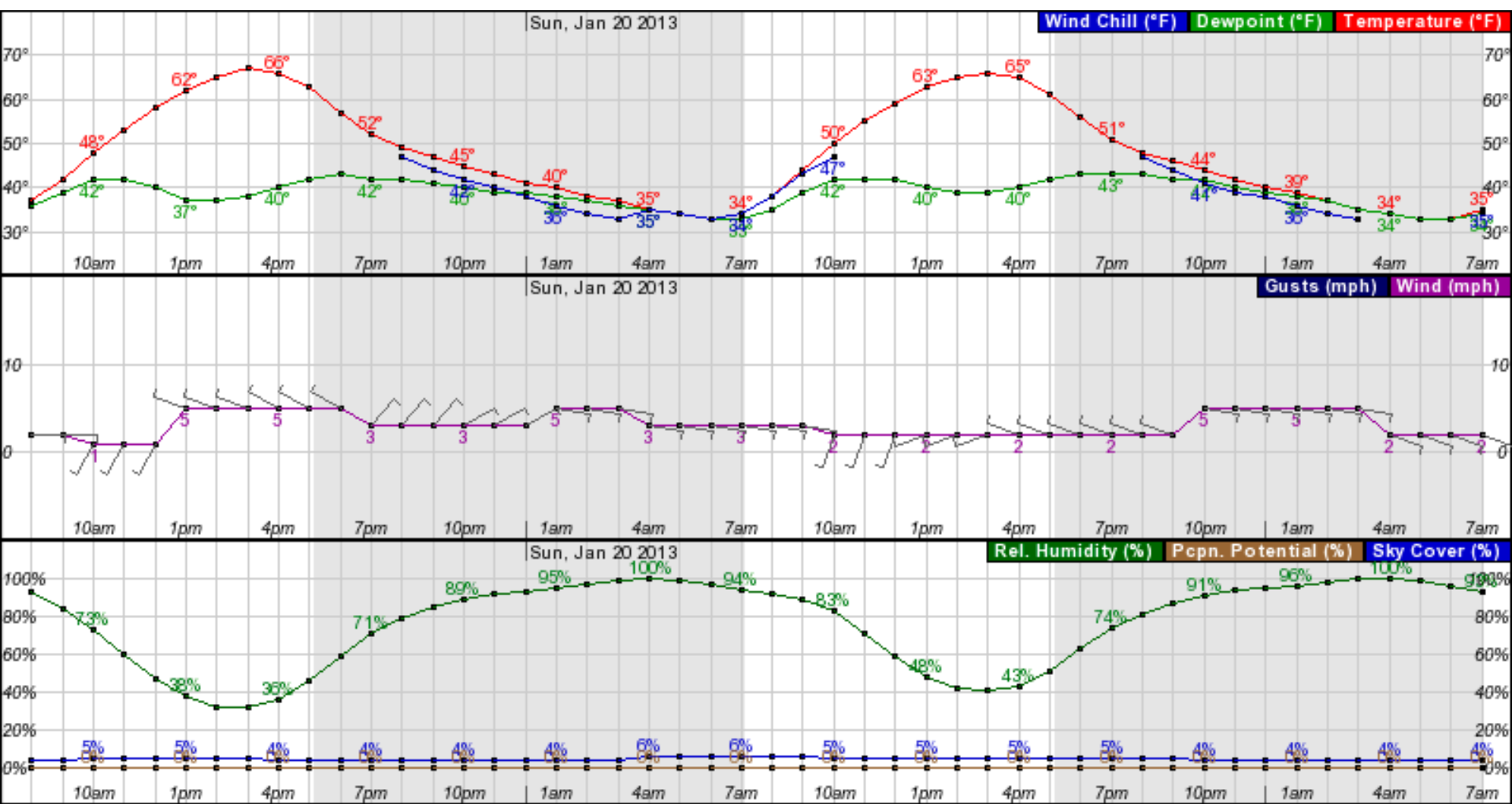
Bakersfield

Today: Sunny.

Tomorrow: Foggy morning – sunny afternoon.

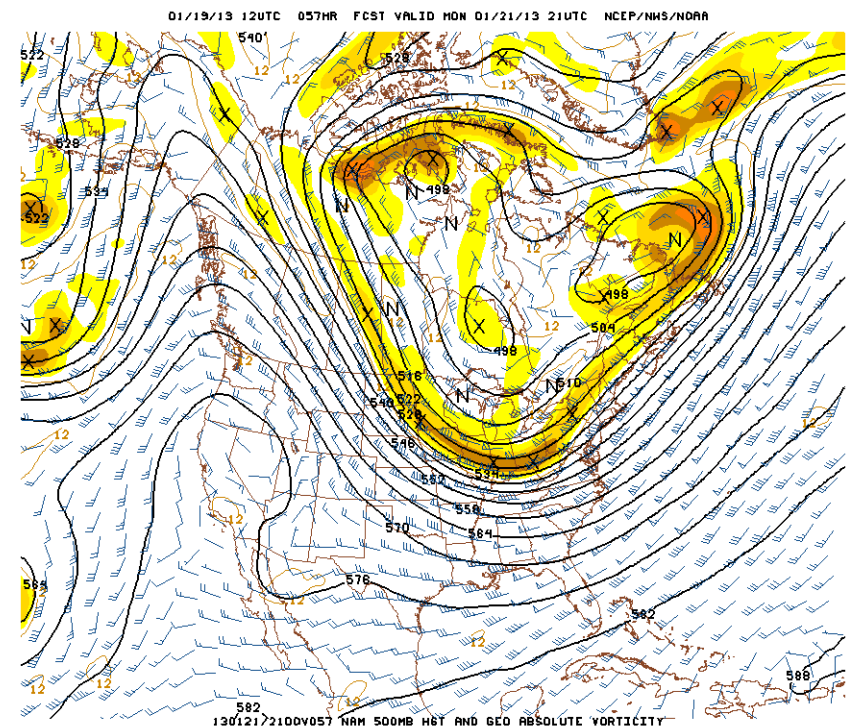
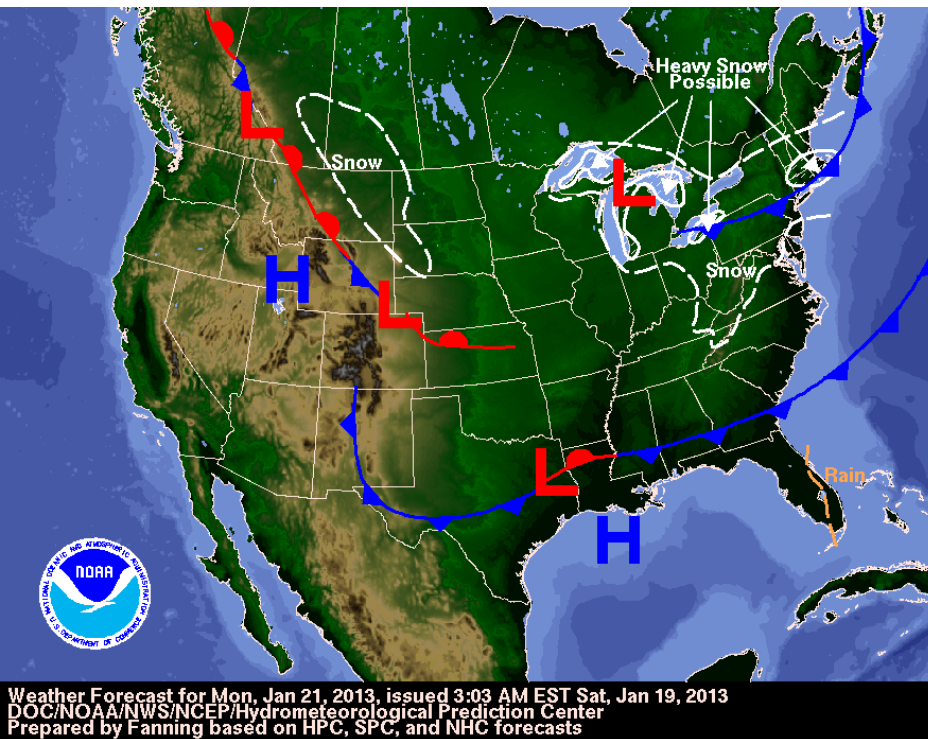
Today →

Tomorrow →

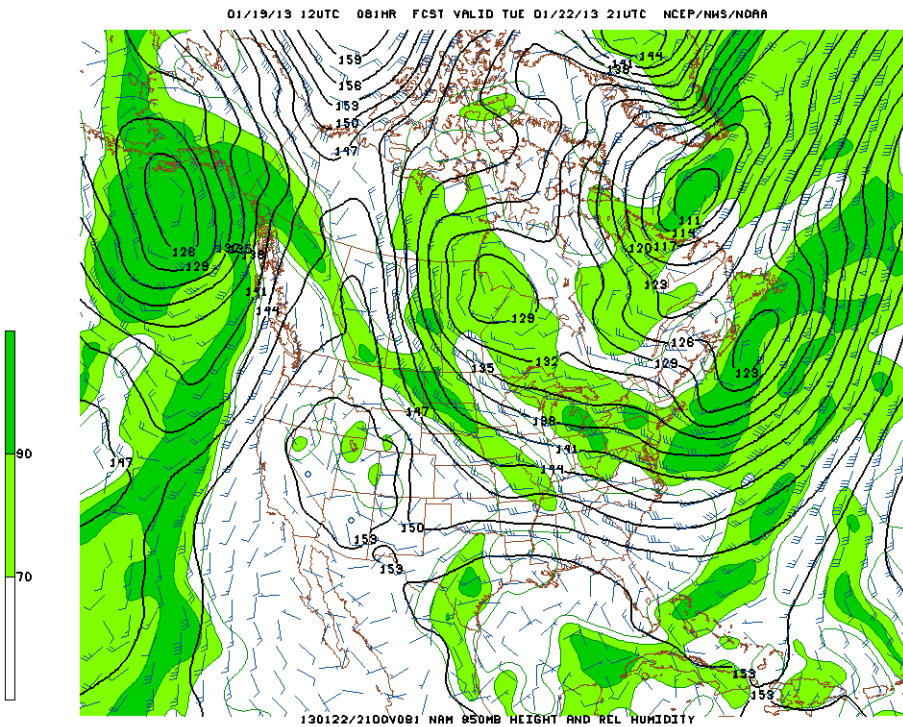


Monday: Mostly sunny. Upper level ridge still in place.

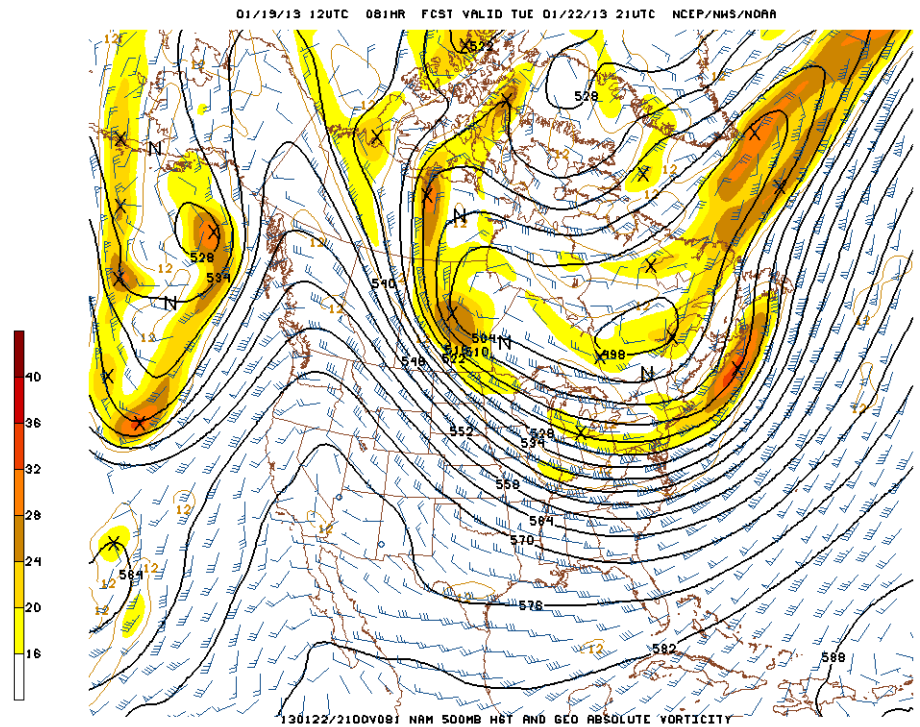
500 mb NAM at 1 PM.



850 mb NAM Tuesday 1 PM



500 mb NAM Tuesday 1 PM



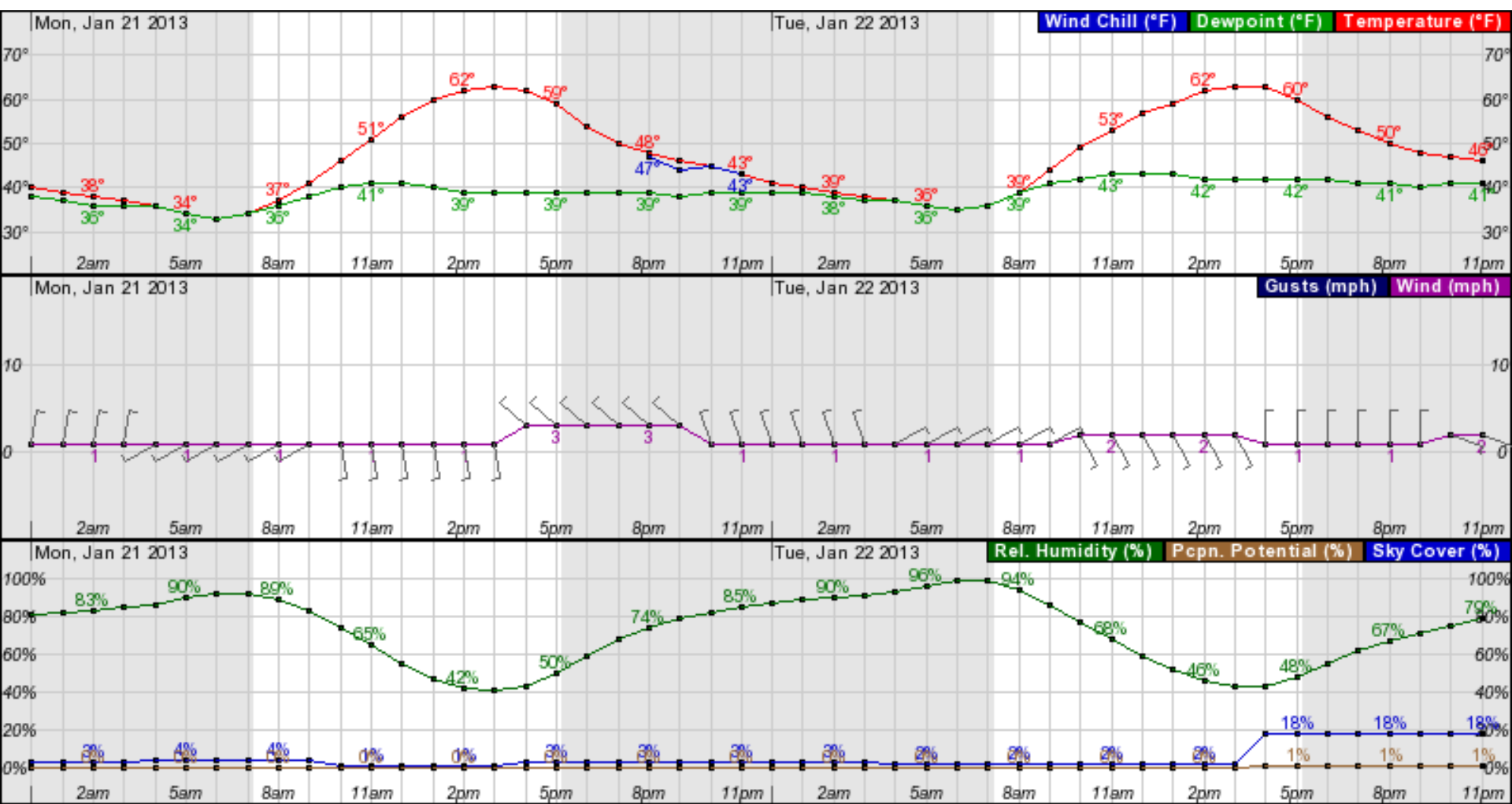
Fresno

Monday: Sunny with patchy morning fog.

Tuesday: Sunny with some morning fog.

Monday →

Tuesday →



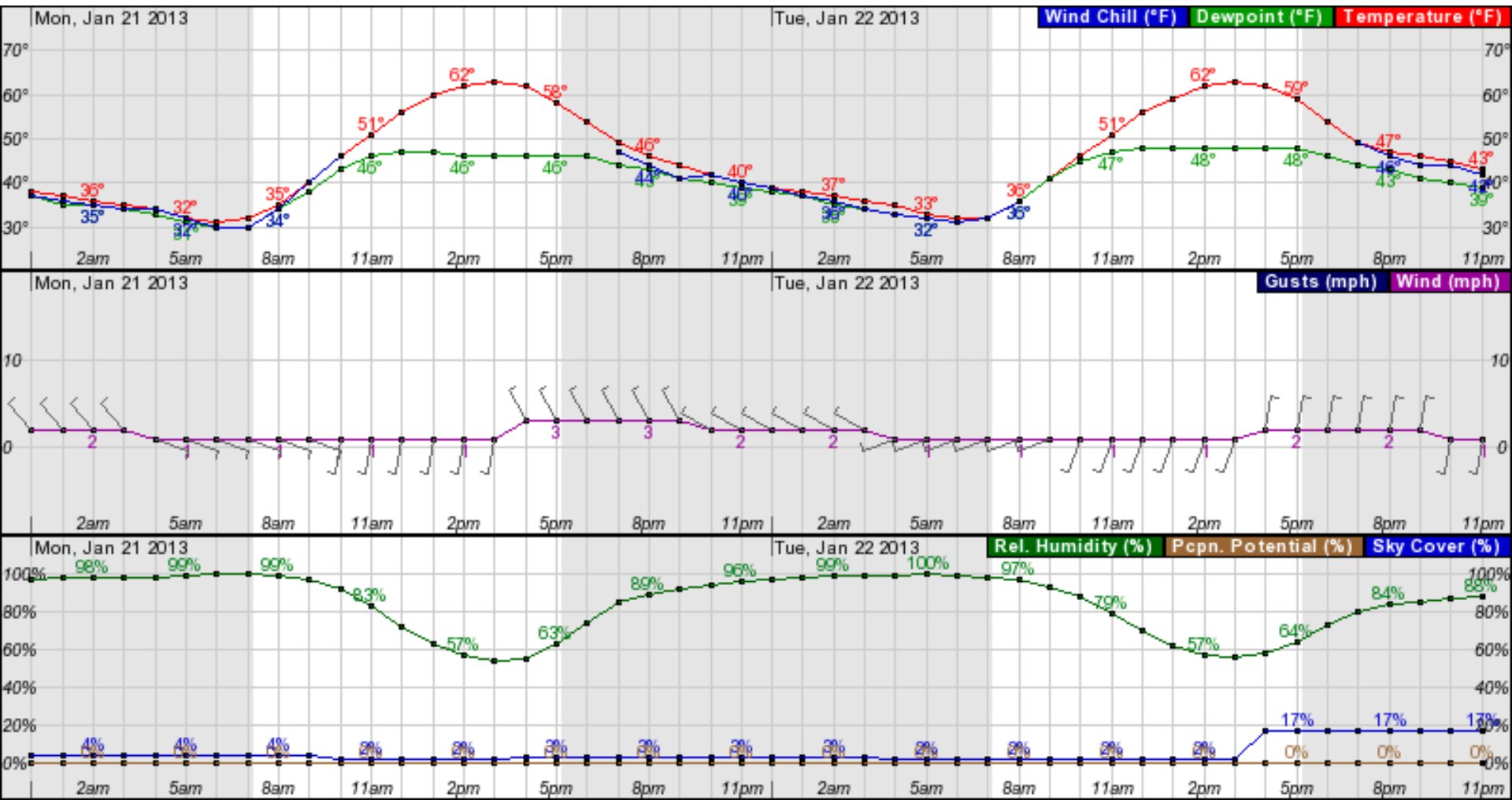
Hanford

Monday: Morning fog – afternoon sun.

Tuesday: Morning fog – afternoon sun.

Monday →

Tuesday →



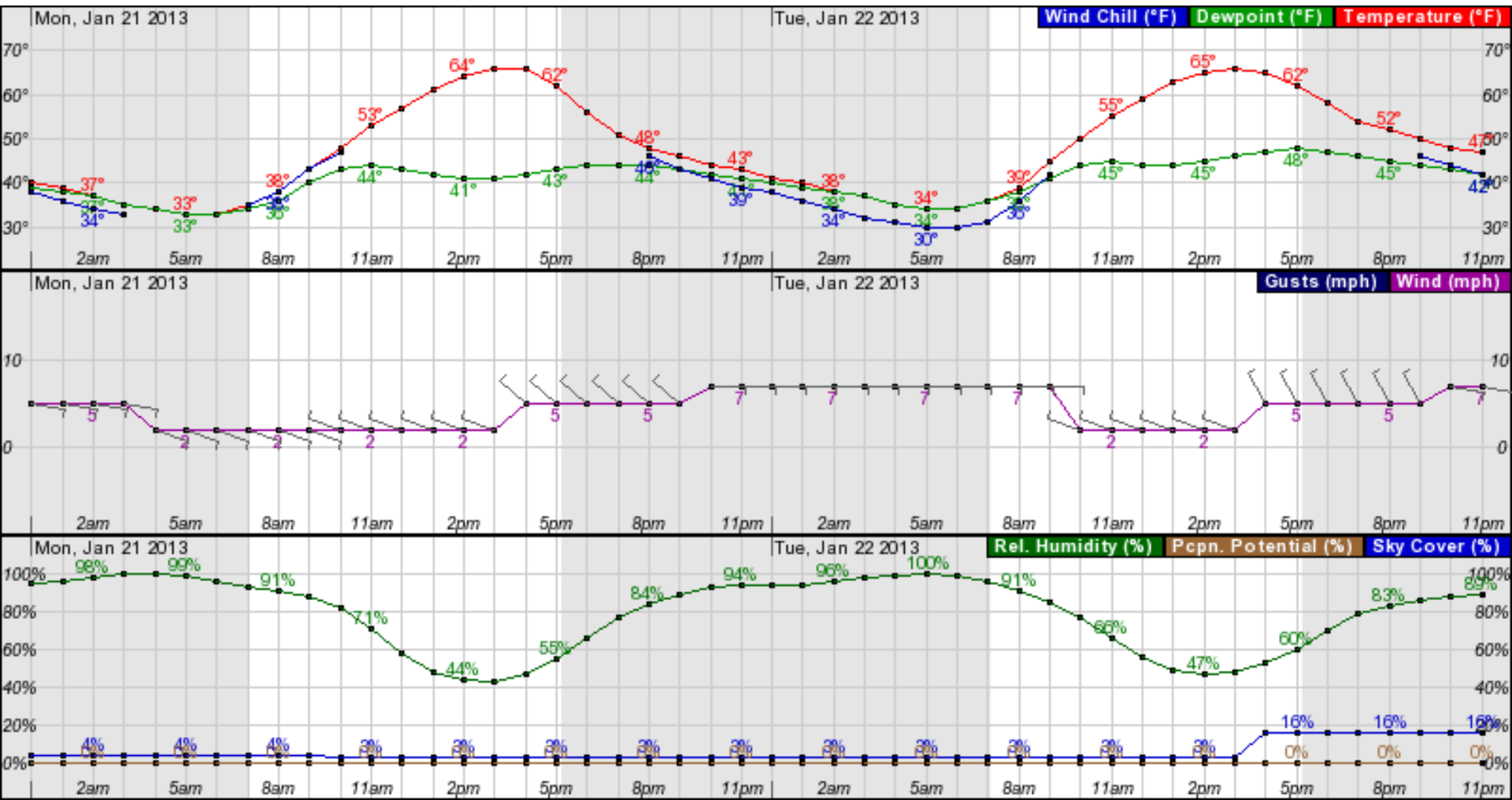
Bakersfield

Monday: Morning fog – afternoon sun.

Tuesday: Morning fog – afternoon sun.

Monday →

Tuesday →



SJV Relative Humidity 7 AM

Station	Sun	Mon	Tues
Fresno	92%	89%	100%
Hanford	100	99	99
Bakersfield	94	91	96

Fresno; BUFKIT – NAM (12 UTC 19 January)

Tuesday

Monday

Tomorrow

KFAT NAM Jan 19, 2013 12z

No Precipitation

Clouds

PBL Height

00z 18z 12z 06z 00z 18z 12z 06z 00z 18z 12z 06z 00z 18z 12z
Su 5p Tu 11a Tu 5a Mo 11p Mo 5p Mo 11a Mo 5a Su 11p Su 5p Su 11a Su 5a Sa 11p Sa 5p Sa 11a Sa 5p

-Today through Tuesday: Mostly sunny. A few scattered clouds in the afternoon on Sunday, Monday, and Tuesday.

Bakersfield; BUFKIT – NAM (12 UTC 19 January)

Tuesday

Monday

Tomorrow

KBFL NAM Jan 19, 2013 12z

No Precipitation

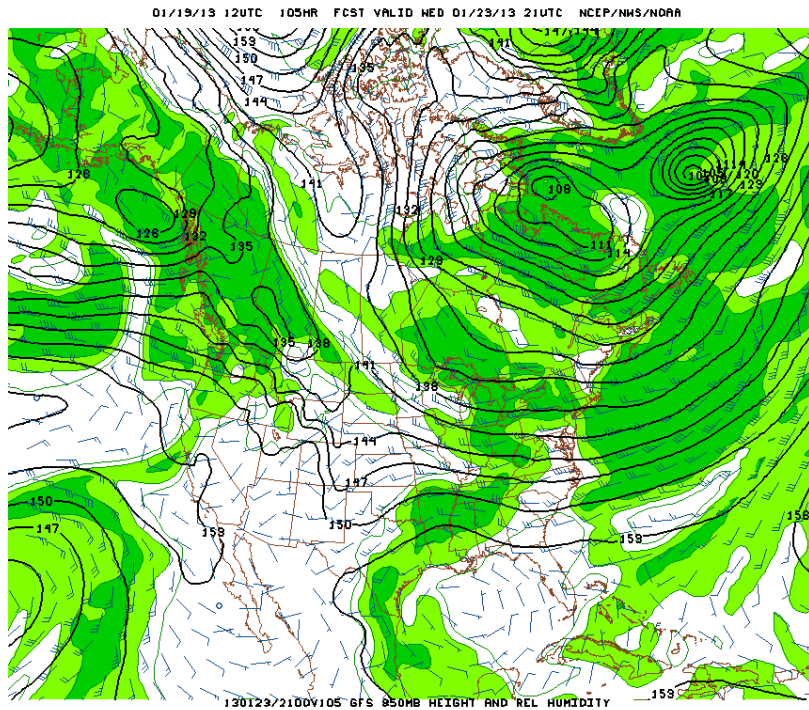
Clouds

PBL Height

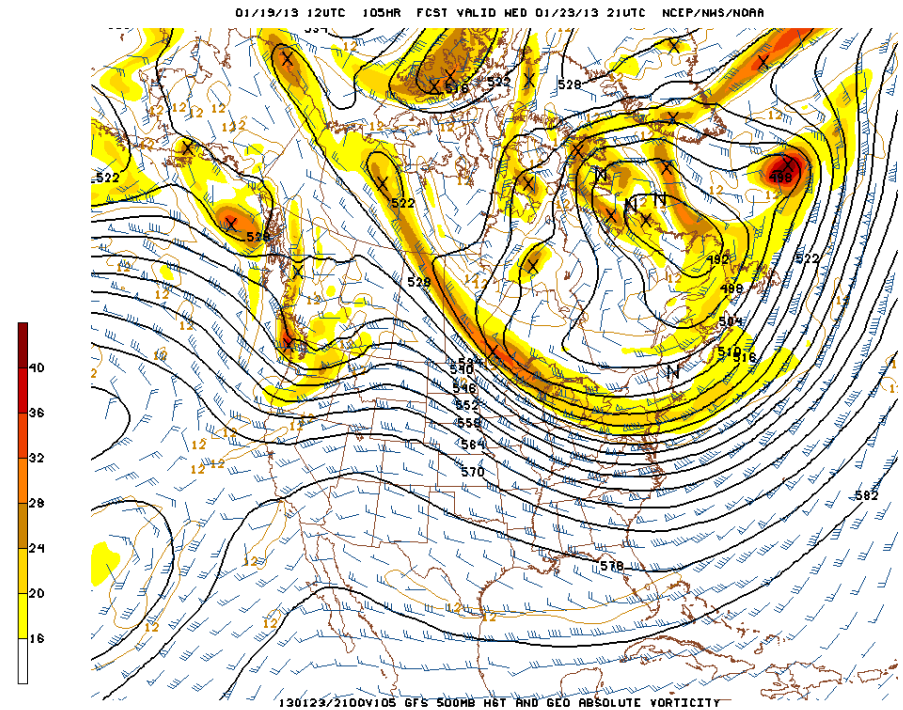
00z Tu 5p 18z Tu 11a 12z Tu 5a 06z Mo 11p 00z Mo 5p 18z Mo 11a 12z Mo 5a 06z Su 11p 00z Su 5p 18z Su 11a 12z Su 5a 06z Sa 11p 00z Sa 5p 18z Sa 11a 12z Sa 5a

-Today through Tuesday: Mostly sunny. Only a few scattered clouds.

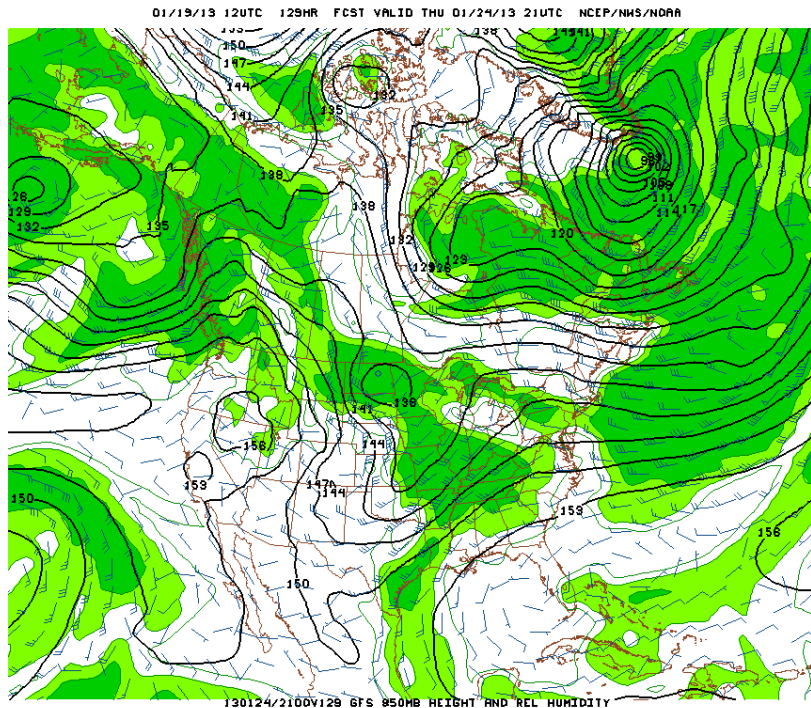
850 mb GFS Wednesday 1 PM



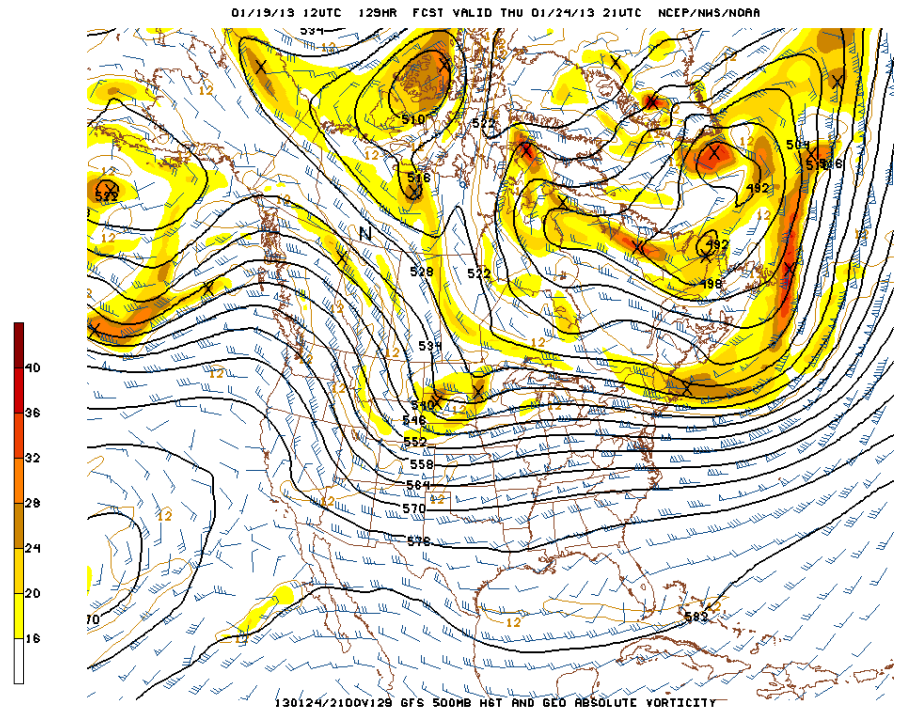
500 mb GFS Wednesday 1 PM



850 mb GFS Thursday 1 PM



500 mb GFS Thursday 1 PM



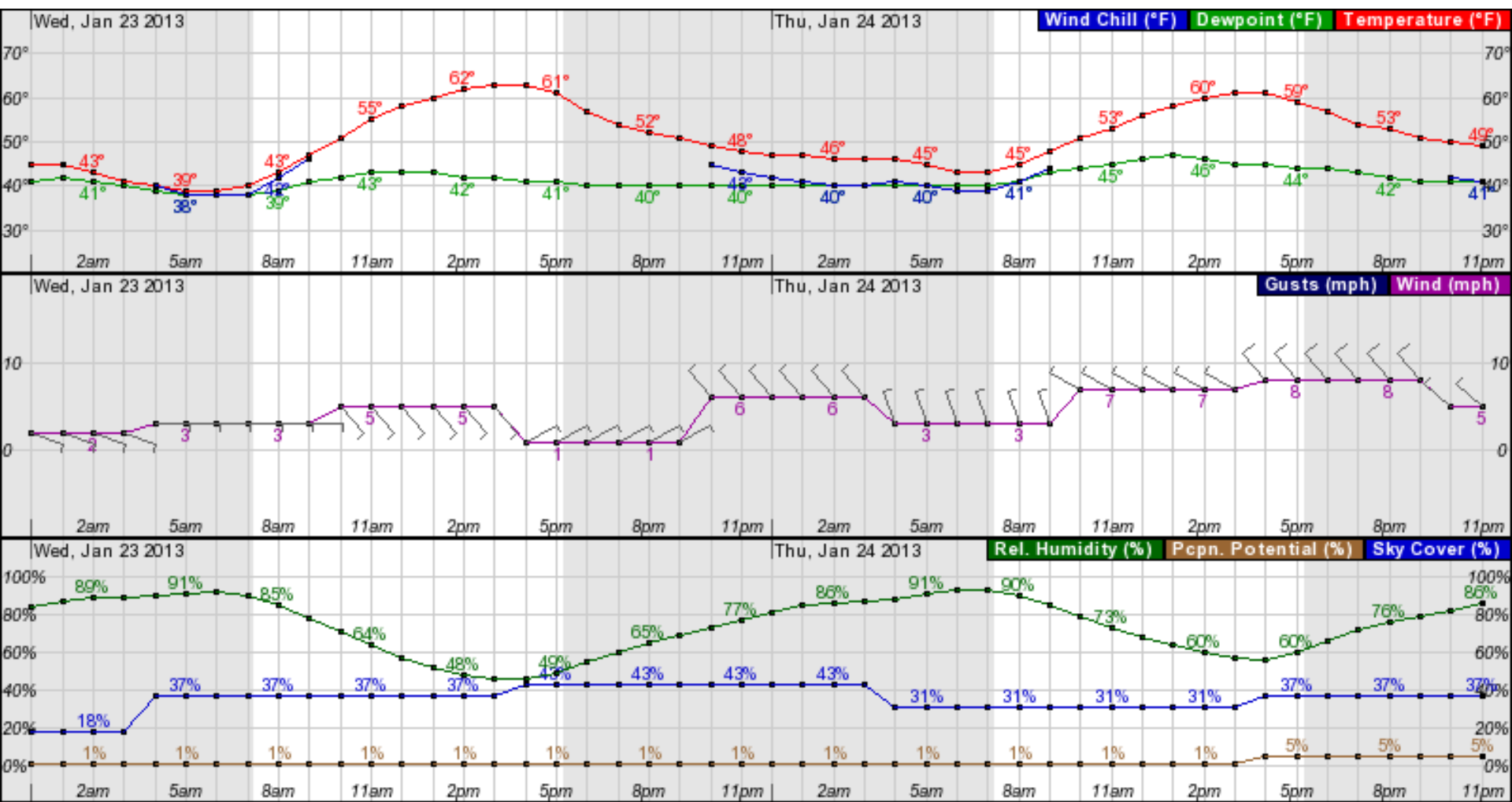
Fresno

Wednesday: Mostly sunny with patchy morning fog.

Thursday: Mostly sunny with patchy morning fog.

Wednesday →

Thursday →



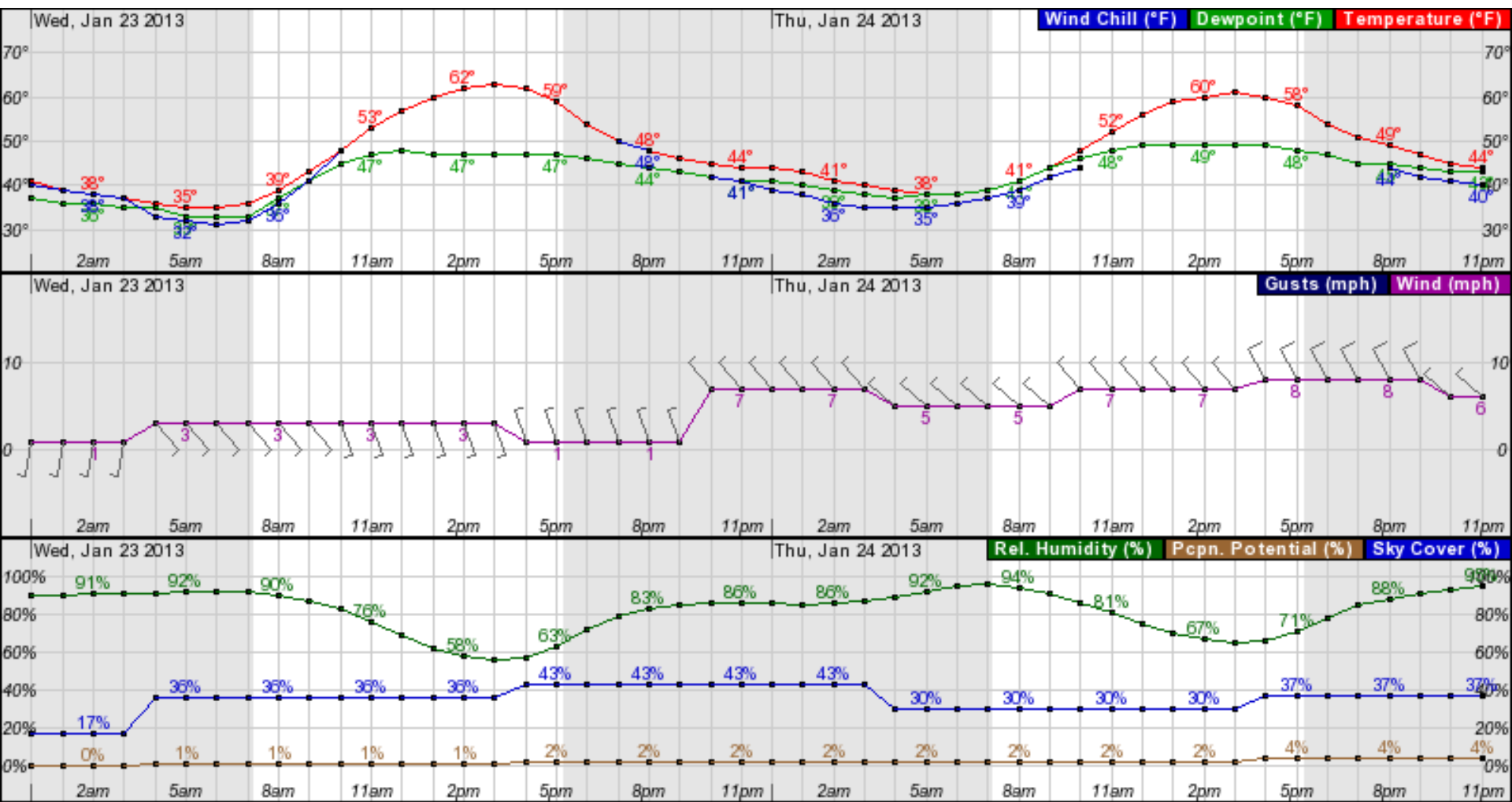
Hanford

Wednesday: Mostly sunny with patchy morning fog.

Thursday: Mostly sunny with some morning fog.

Wednesday →

Thursday →



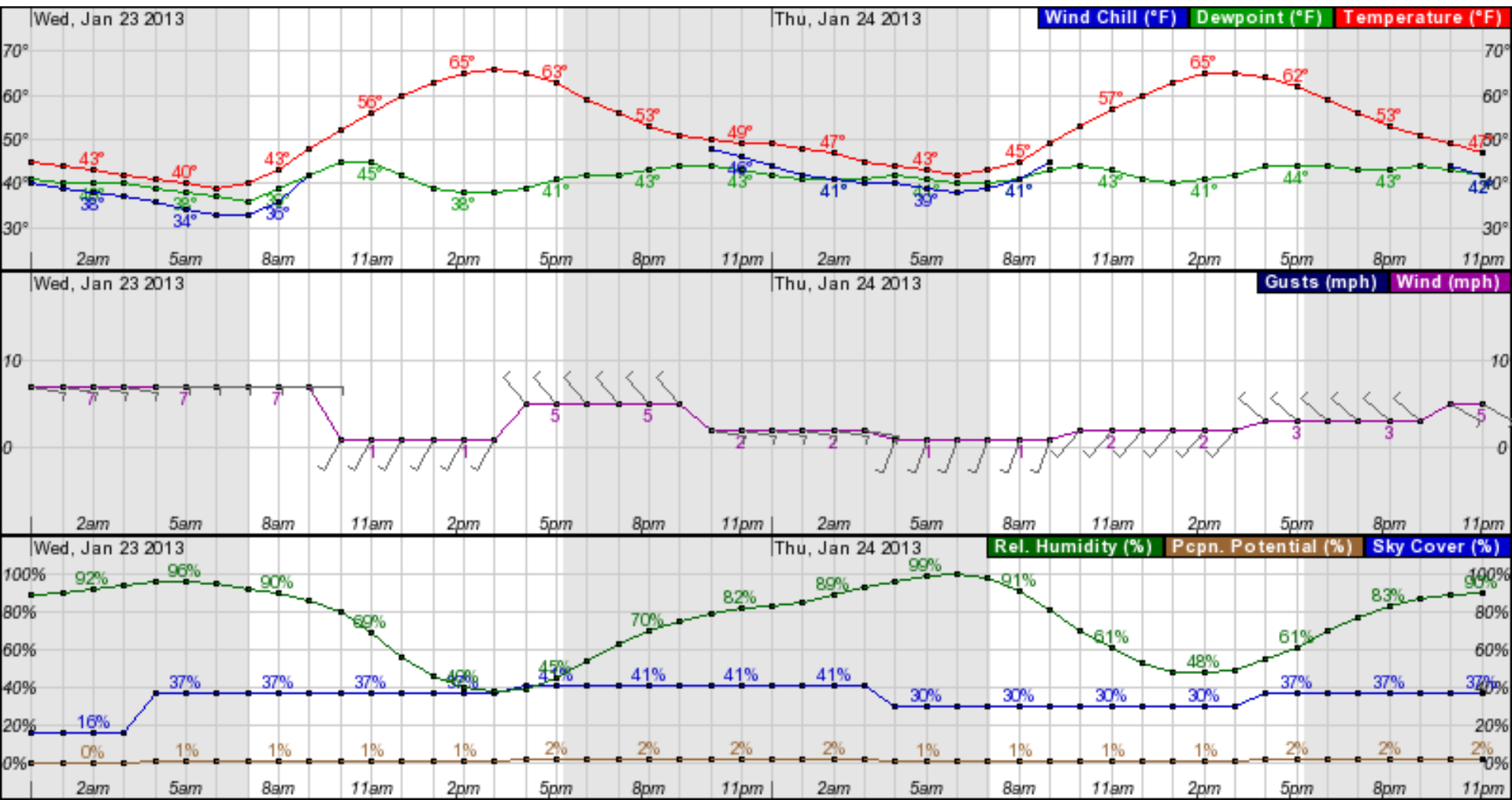
Bakersfield

Wednesday: Mostly sunny with some morning fog.

Thursday: Foggy morning and mostly sunny in the afternoon.

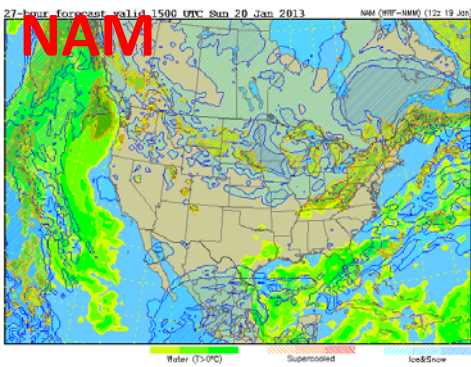
Wednesday →

Thursday →

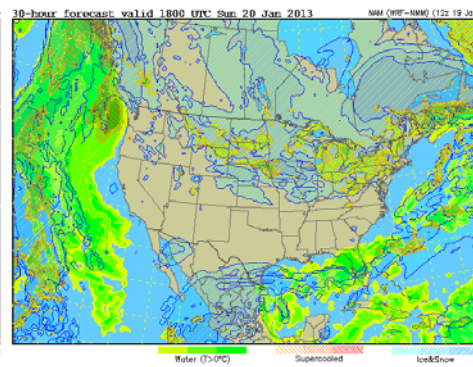


Tomorrow: NAM – no clouds; GEOS-5 – morning fog and
sunny afternoon.
7 am 10 am 1 pm 4 pm

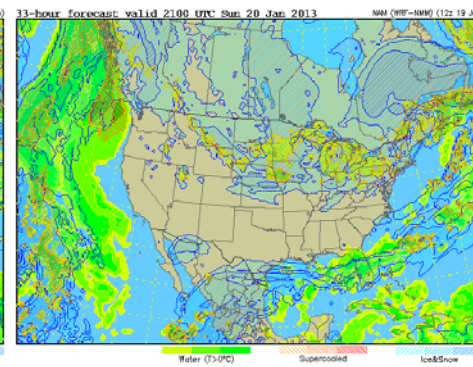
Integrated liquid and frozen hydrometeors (all levels)



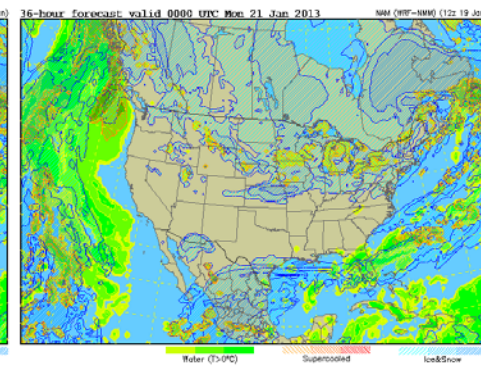
Integrated liquid and frozen hydrometeors (all levels)



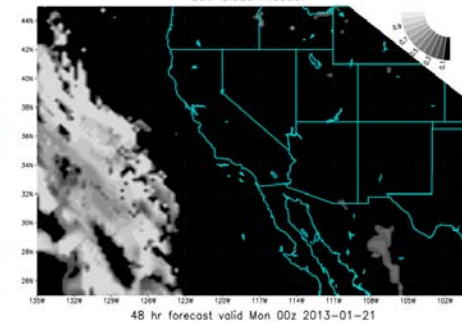
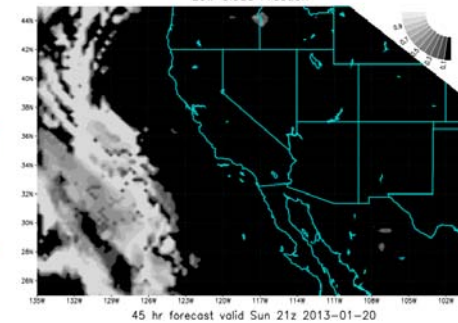
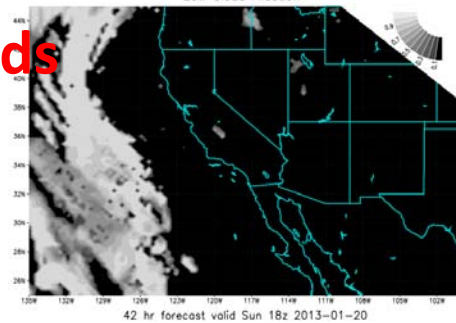
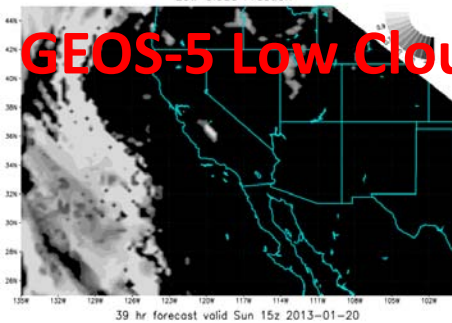
Integrated liquid and frozen hydrometeors (all levels)



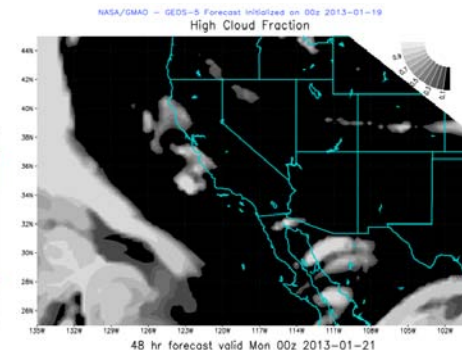
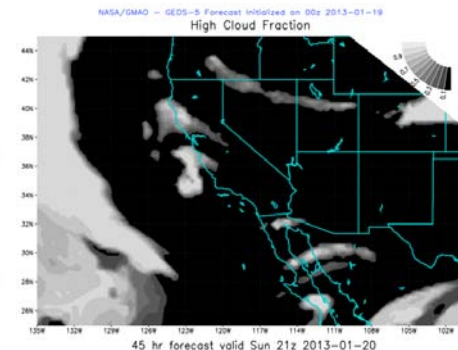
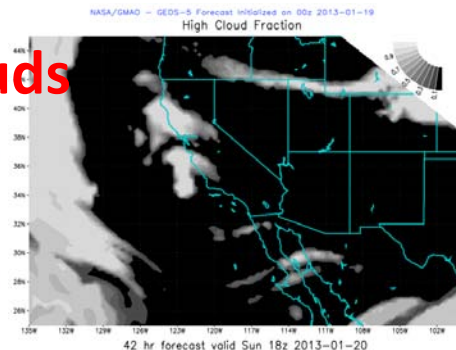
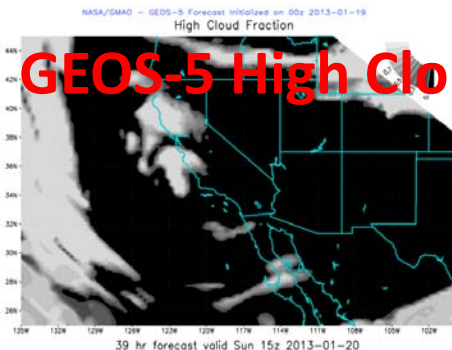
Integrated liquid and frozen hydrometeors (all levels)



GEOS-5 Low Clouds

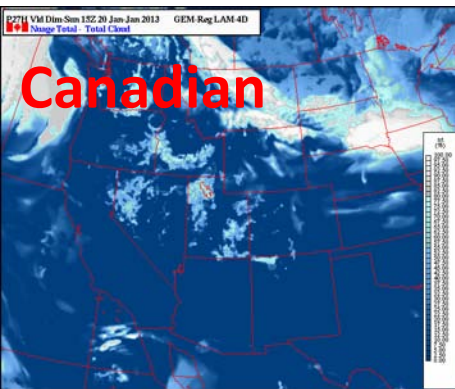


GEOS-5 High Clouds

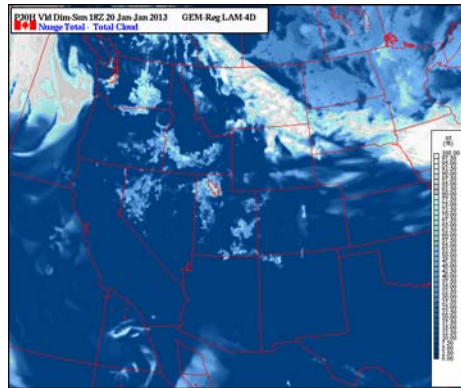


Tomorrow: Canadian – mostly sunny; GFS – no clouds.

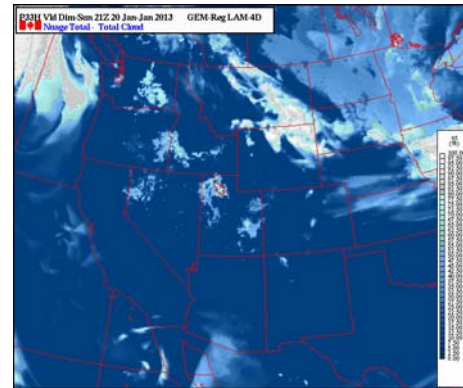
7 am



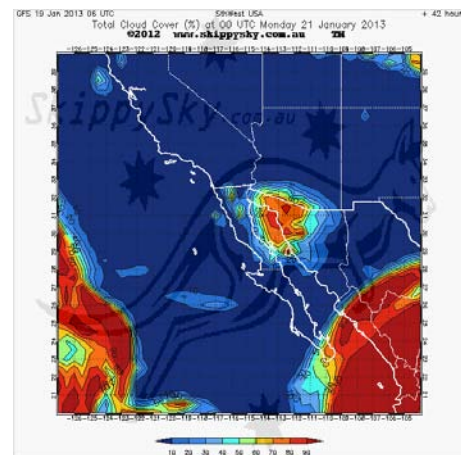
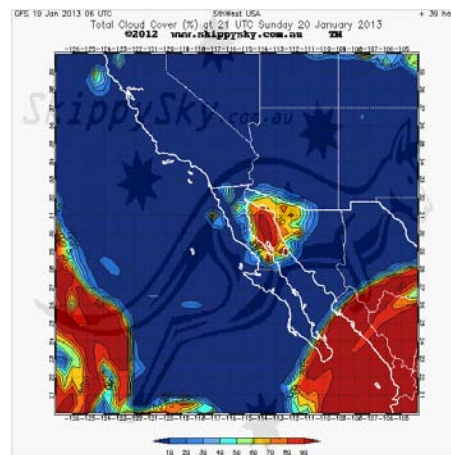
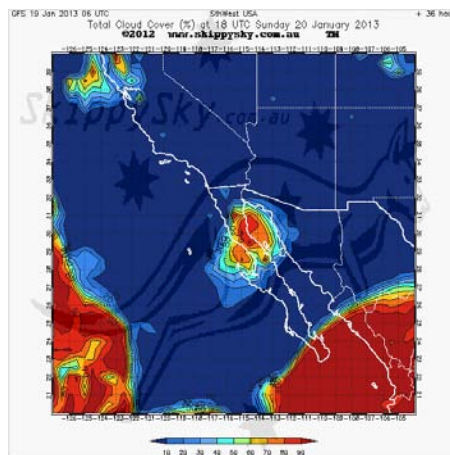
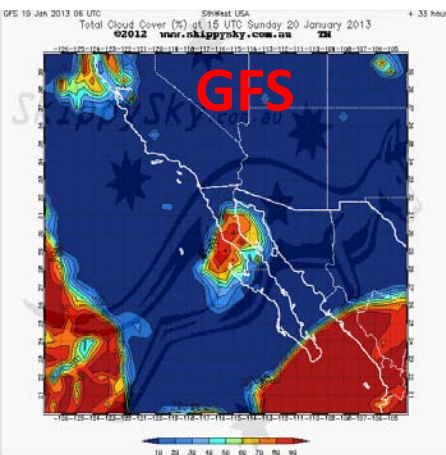
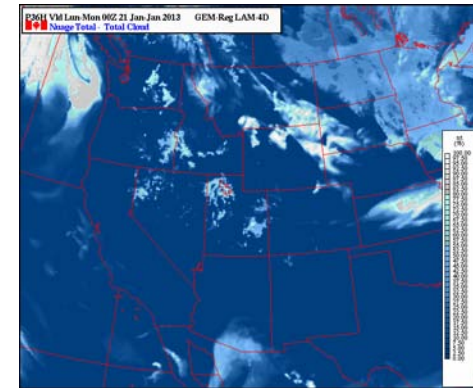
10 am



1 pm



4 pm



Monday: NAM – no clouds; GEOS-5 – morning fog and
afternoon sun.

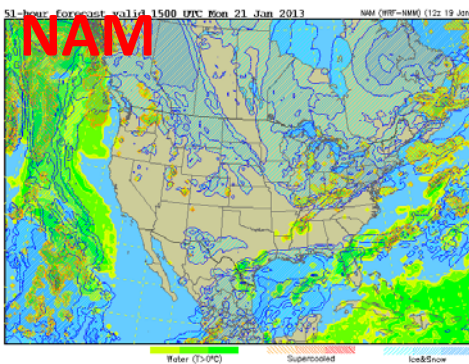
7 am

10 am

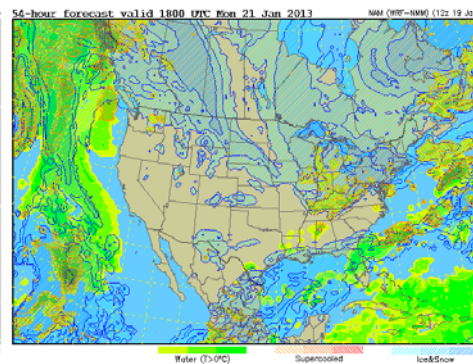
1 pm

4 pm

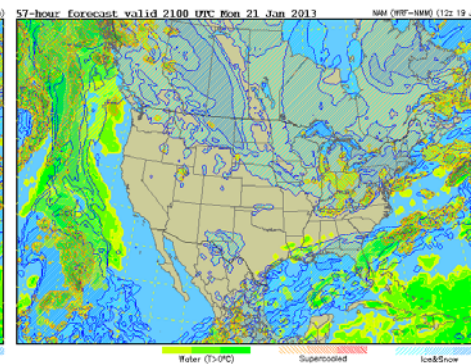
Integrated liquid and frozen hydrometeors (all levels)



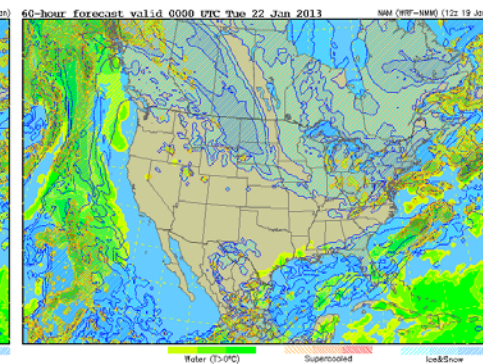
Integrated liquid and frozen hydrometeors (all levels)



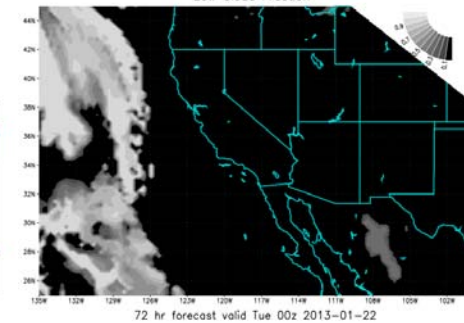
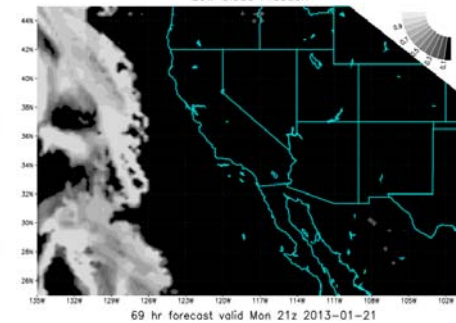
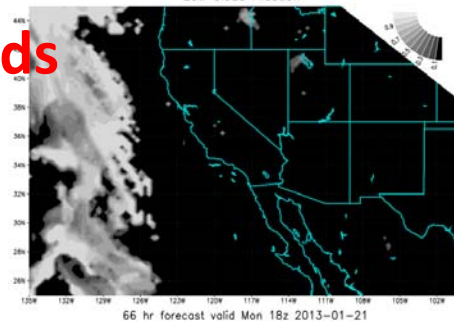
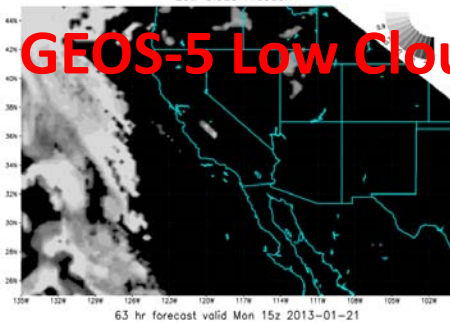
Integrated liquid and frozen hydrometeors (all levels)



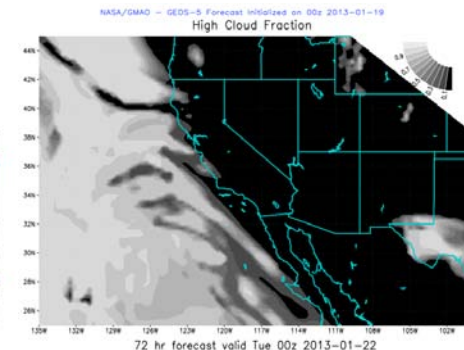
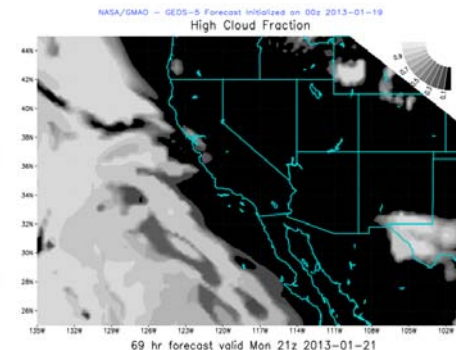
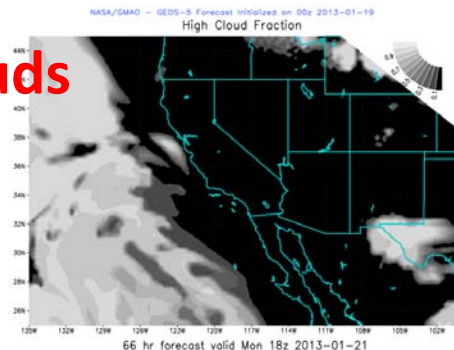
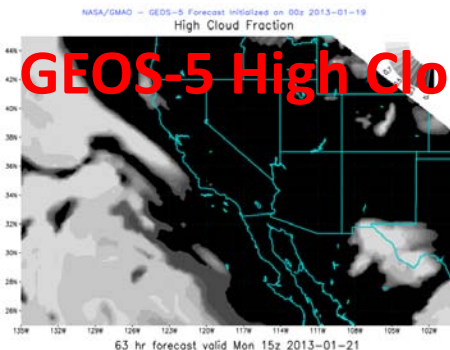
Integrated liquid and frozen hydrometeors (all levels)



GEOS-5 Low Clouds



GEOS-5 High Clouds



Tuesday: NAM – no clouds; GEOS-5 – cloudy.

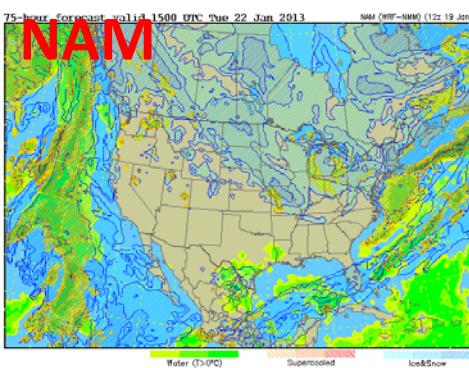
7 am

10 am

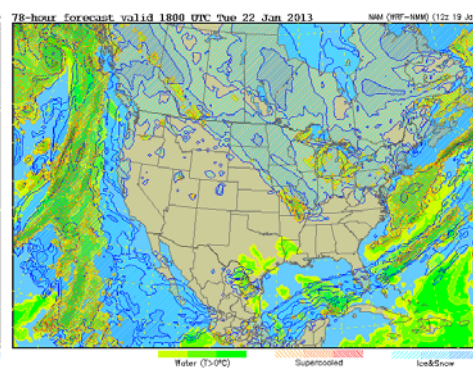
1 pm

4 pm

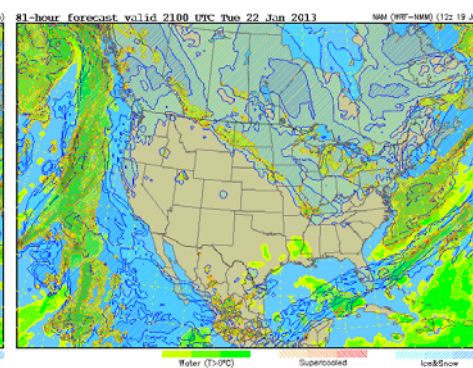
Integrated liquid and frozen hydrometeors (all levels)



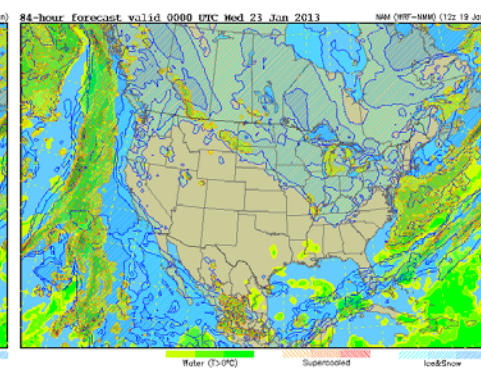
Integrated liquid and frozen hydrometeors (all levels)



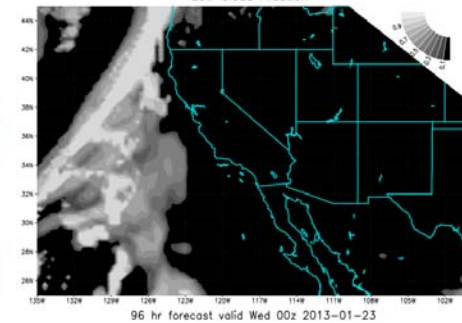
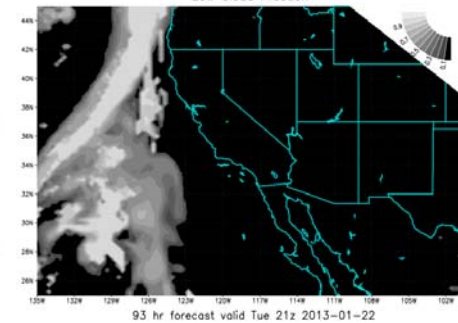
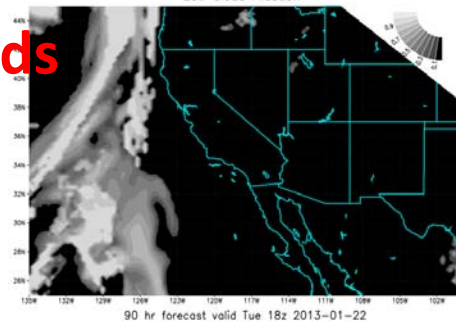
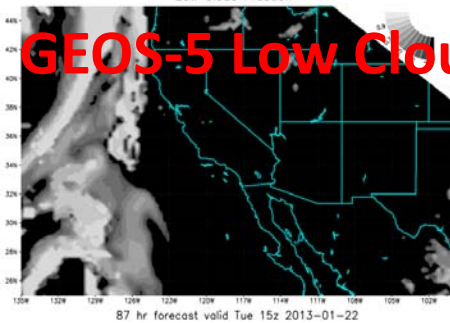
Integrated liquid and frozen hydrometeors (all levels)



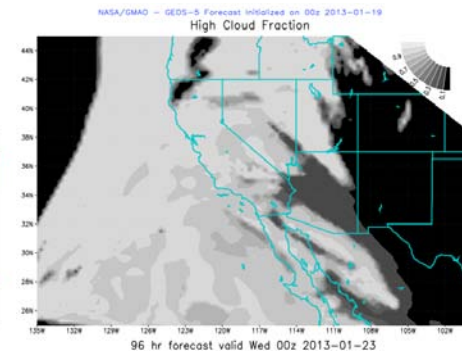
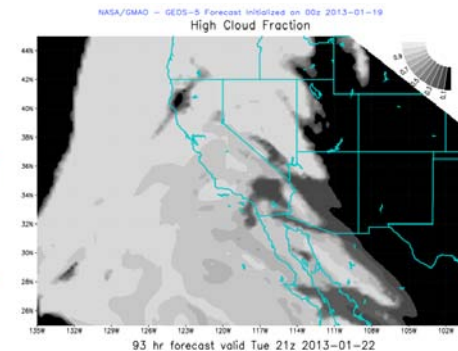
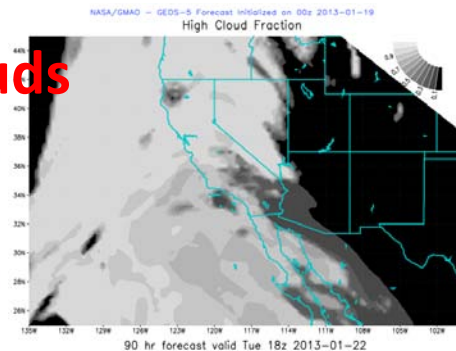
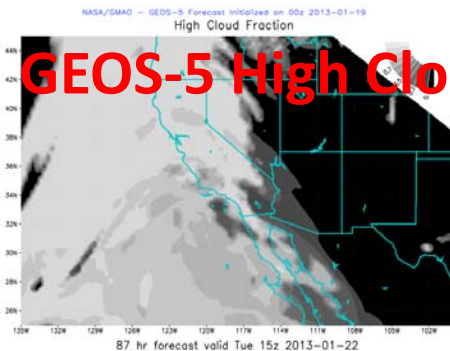
Integrated liquid and frozen hydrometeors (all levels)



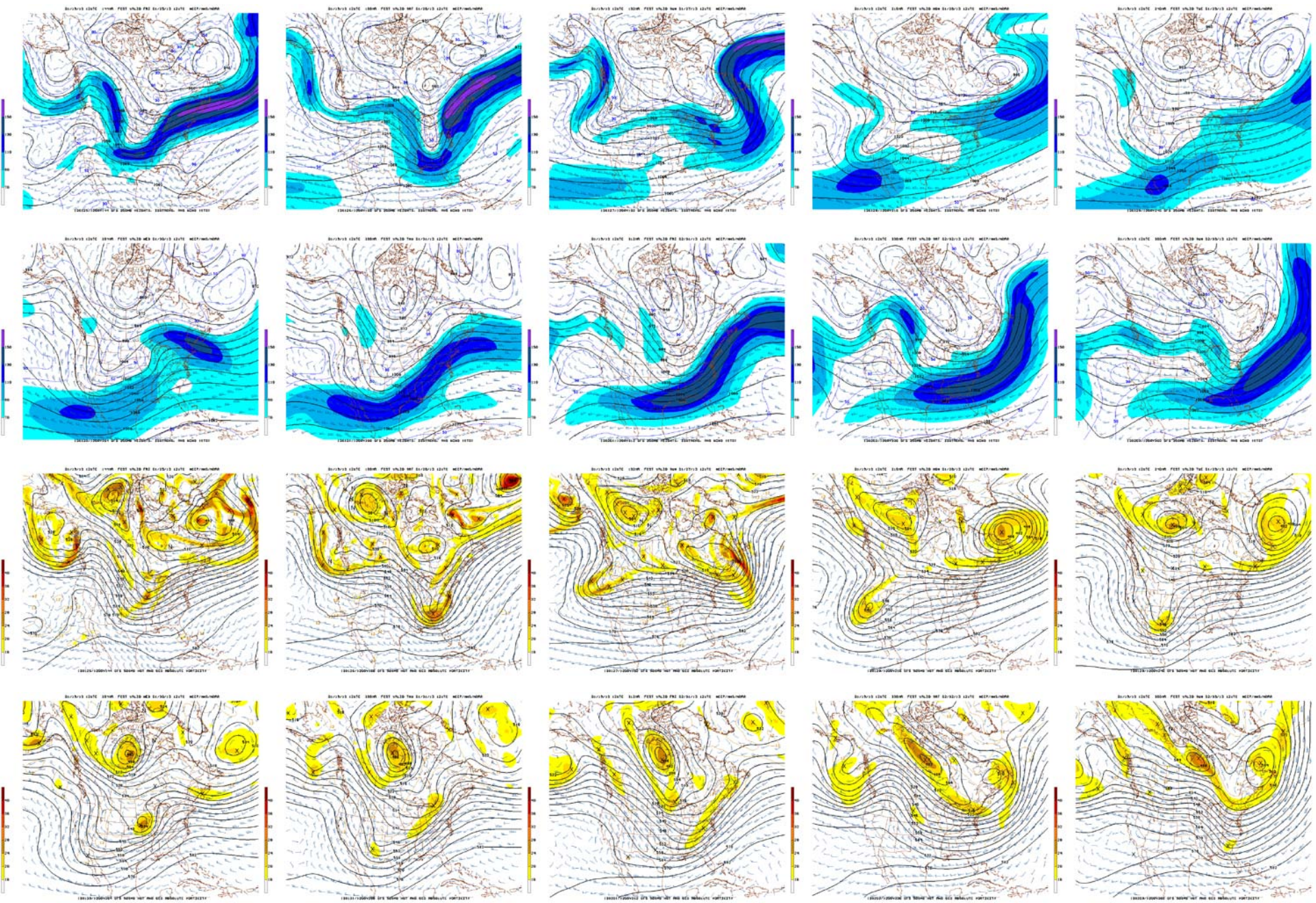
GEOS-5 Low Clouds



GEOS-5 High Clouds



Fri 25 Jan – Sun 3 Feb: 250 mb (top 2 rows) and 500 mb (bottom 2 rows) charts



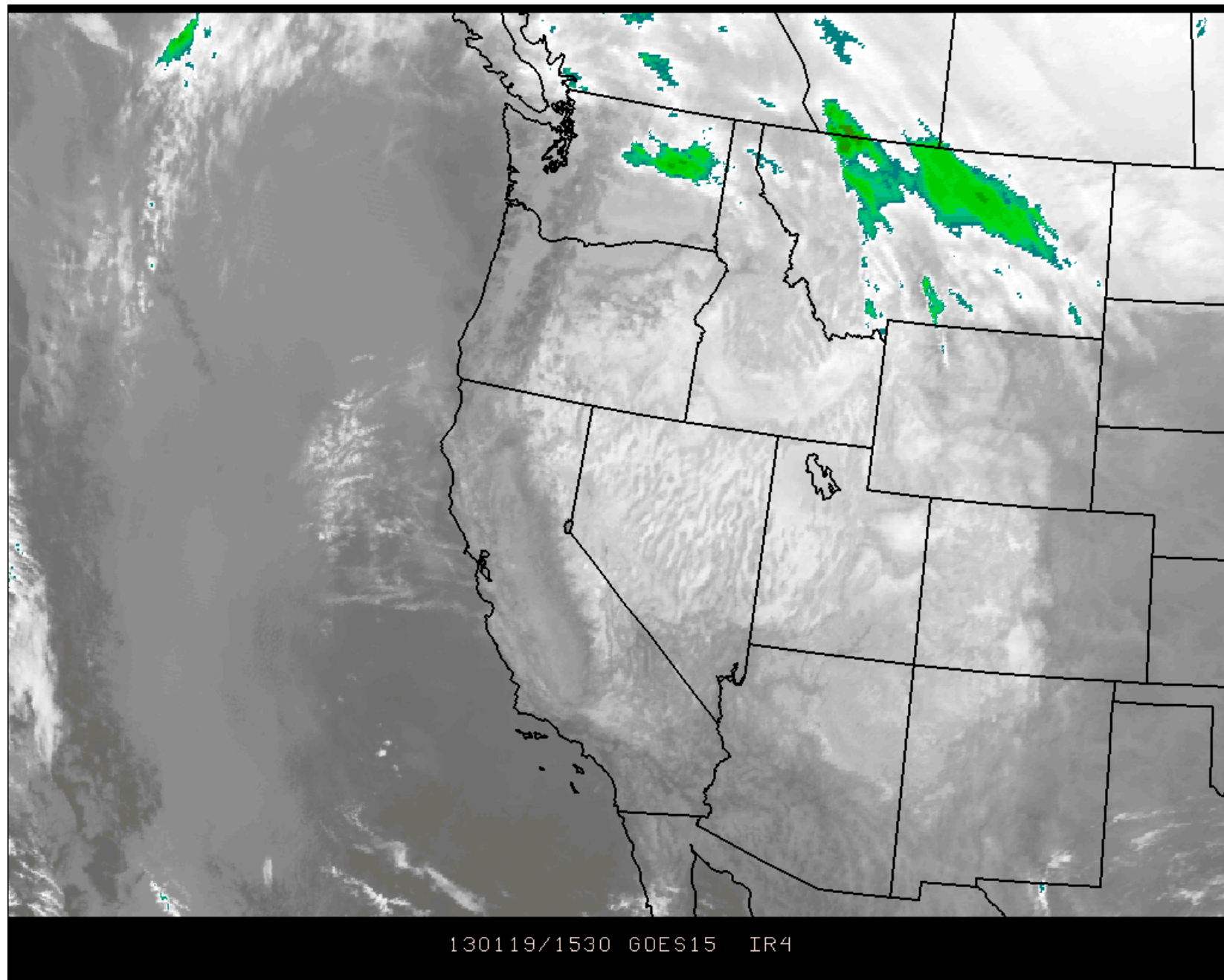
[AREA FORECAST DISCUSSION](#)
[NATIONAL WEATHER SERVICE](#) SAN JOAQUIN VALLEY - HANFORD CA
347 AM [PST SAT](#) JAN 19 2013

.SYNOPSIS...
HIGH PRESSURE WILL CONTINUE TO DOMINATE CENTRAL CALIFORNIA WEATHER THE NEXT SEVERAL DAYS. THE HIGH PRESSURE AREA WILL WEAKEN A LITTLE TUESDAY AS A VERY WEAK DISTURBANCE MOVES ACROSS TH REGION. NO [PRECIPITATION](#) IS EXPECTED. NIGHTTIME TEMPERATURES IN THE SAN JOAQUIN VALLEY WILL SLOWLY MODIFY...AND SHOULD MOSTLY BE ABOVE FREEZING BY TUESDAY.

&&

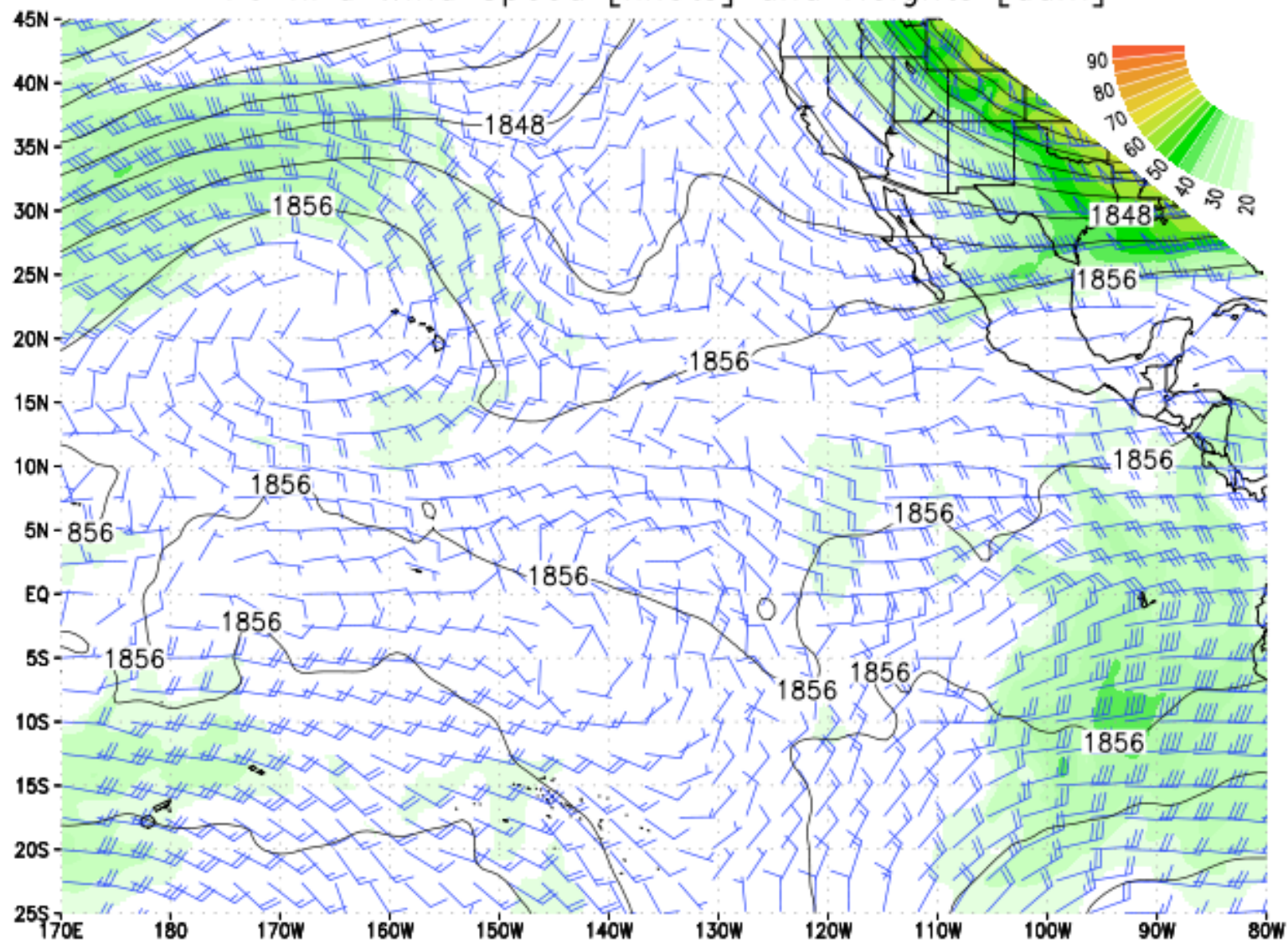
.DISCUSSION...
A LARGE BLOCKING PATTERN IN THE EASTPAC AND WESTERN US IS [FCST](#) TO CONT AT LEAST INTO EARLY NEXT WEEK. THIS WILL CONT TO BRING WELL ABOVE NORMAL [TEMPS](#) TO CENTRAL CA. THE EXCEPTION BEING THE SJV WHERE A DRY AIRMASS IS CAUSING LARGE [DIURNAL](#) TEMP SWINGS. WHILE NIGHTTIME MINS WILL SLOWLY MODIFY...[FROST](#) AND SUBFREEZING [TEMPS](#) WILL CONT IN RURAL AREAS THRU MON [MRNG](#). MOST OF THE VALLEY SHOULD BE ABOVE FREEZING TUES [MRNG](#).

THE WEAK [SYS](#) MOVING THRU TUES SPLIT...WITH THE [NRN](#) HALF OF THE S/WV [MOVG](#) THRU THE PACNW...AND THE [SRN](#) PORTION CUTTING OFF INTO A [CLOSED LOW](#) WELL SW OF CA THURS. THIS [CUTOFF](#) IS NOT [FCST](#) TO MOVE MUCH UNTIL NEXT [SAT](#). [TEMPS](#) WILL LOWER SEVERAL DEGS MID-WEEK AS HEIGHTS GRADUALLY WEAKEN...MAINLY [MTNS](#)/DESERTS. THE EXCEPTION BEING VALLEY MINS...WHICH WILL CONT TO SLOWLY MODIFY.



NASA/GMAO - GEOS-5 Forecast Initialized on 00z 2013-01-19

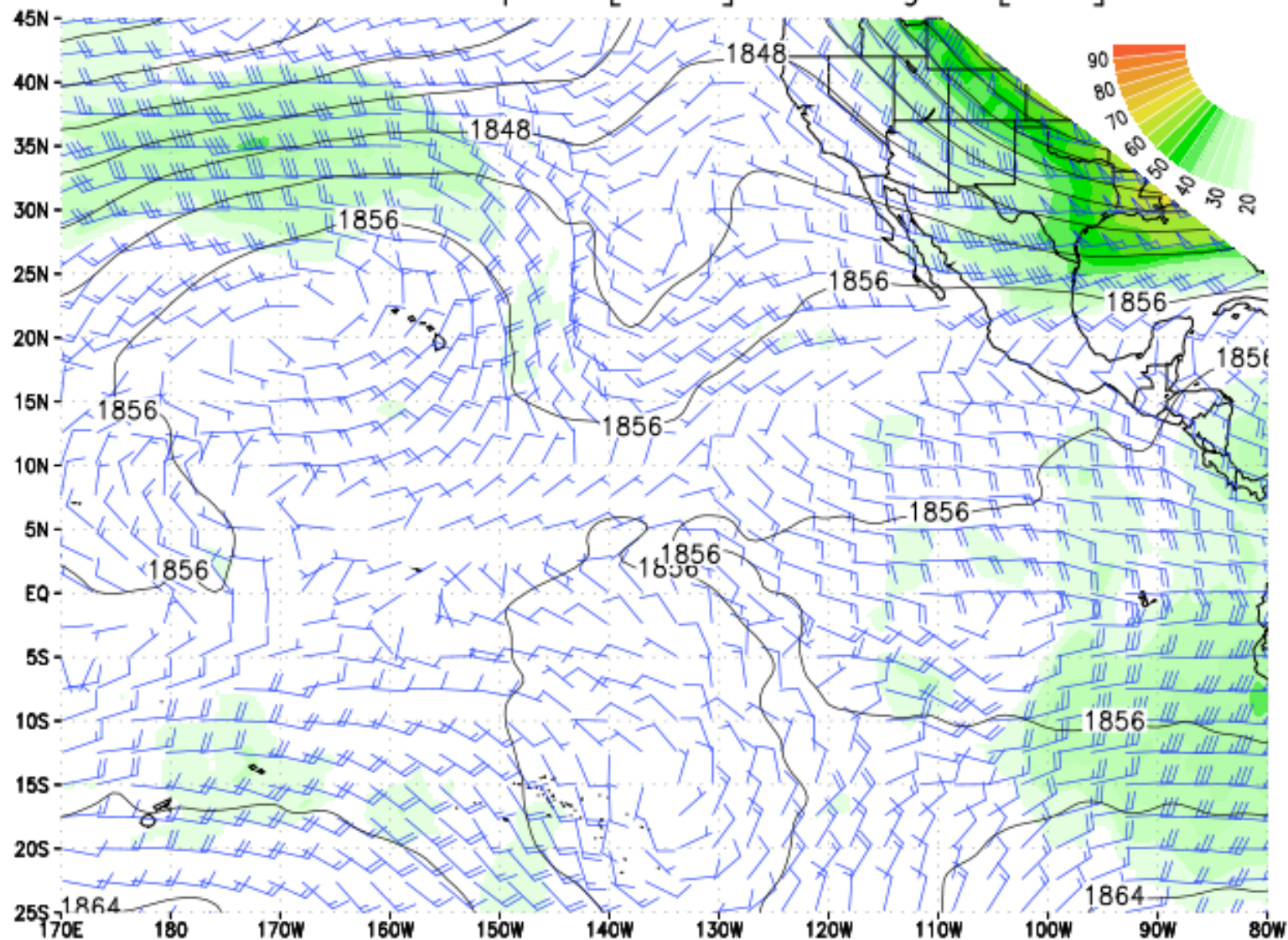
70 hPa Wind Speed [knots] and Heights [dam]



42 hr forecast valid Sun 18z 2013-01-20

NASA/GMAO - GEOS-5 Forecast Initialized on 00z 2013-01-19

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



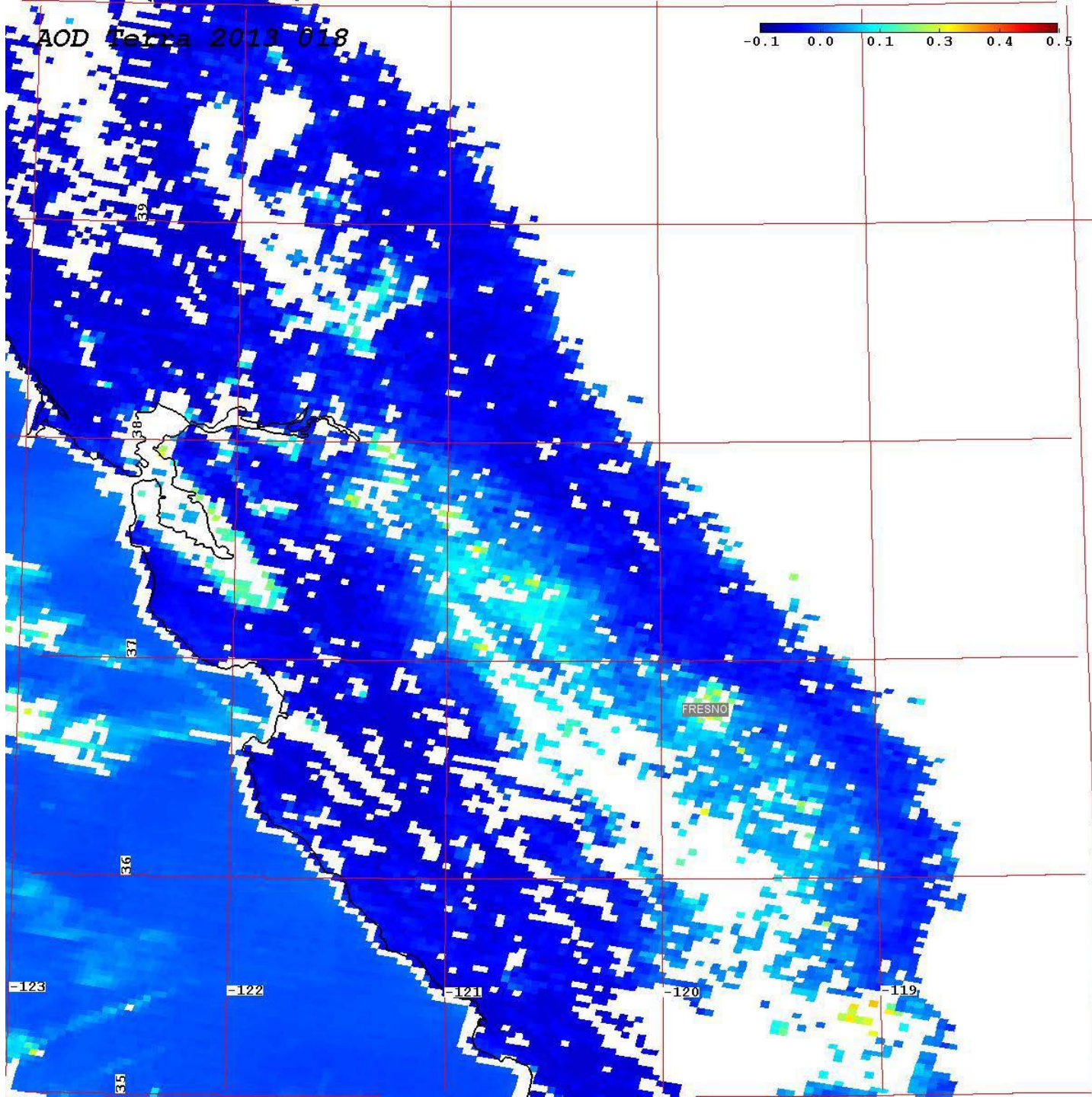
66 hr forecast valid Mon 18z 2013-01-21

Weather Summary

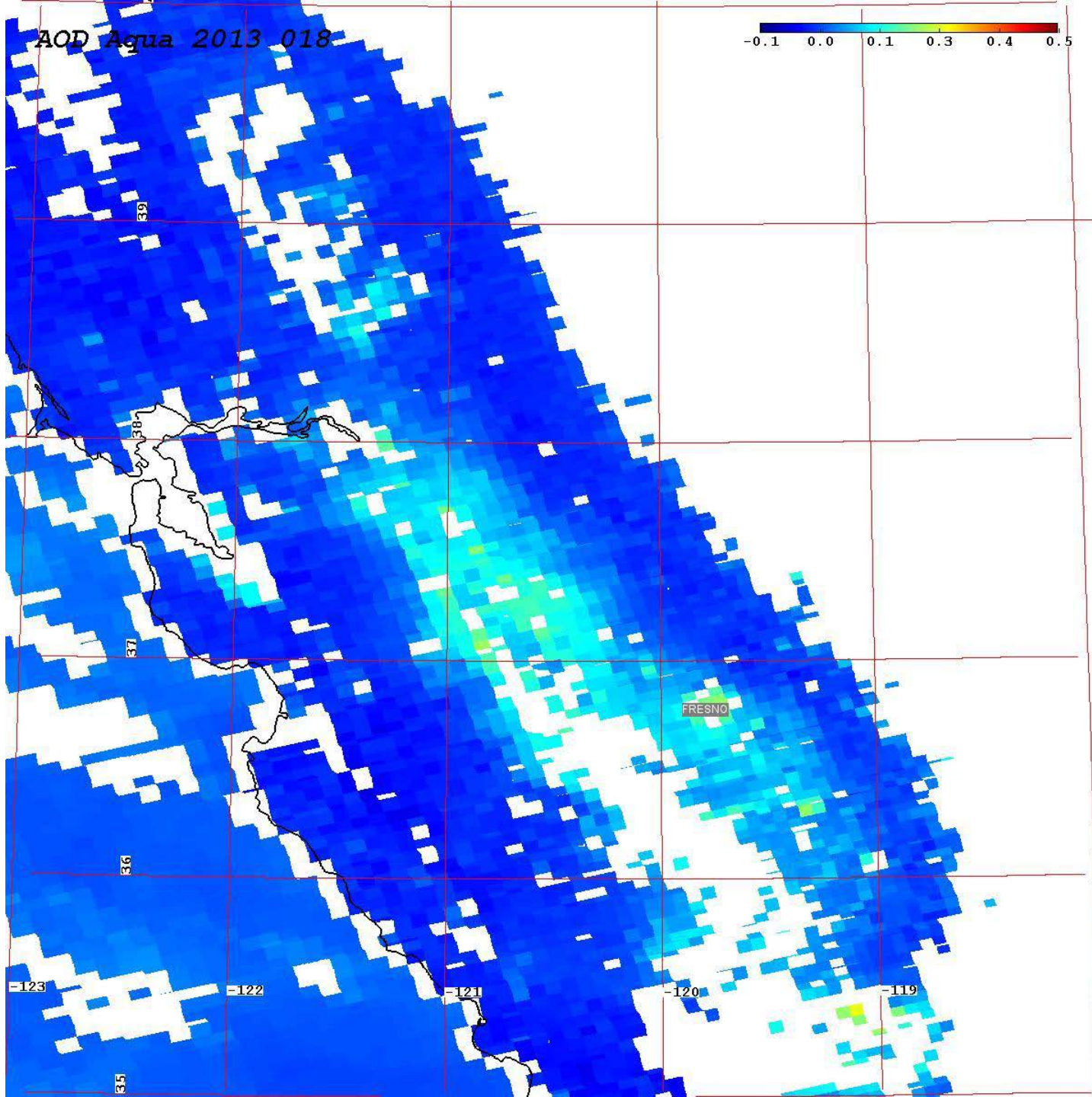
- **Fog becoming progressively more widespread as we go into Sunday, Monday, Tuesday, and Wednesday; probably not covering the entire valley on Sun. and Mon.**
- **Fog depth this morning ~600-700 ft.**
- **Short wave stays north of our study area; no strong frontal system coming through on Wed/Thurs, but considerable mid-high cloudiness possible Wed. afternoon and evening. No real flushing of the SJV, however.**

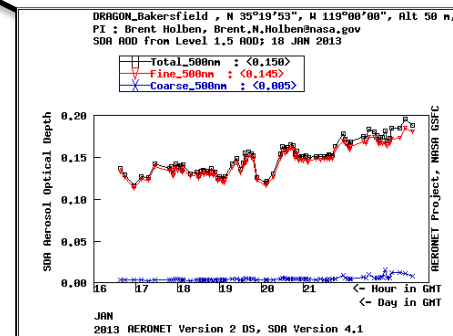
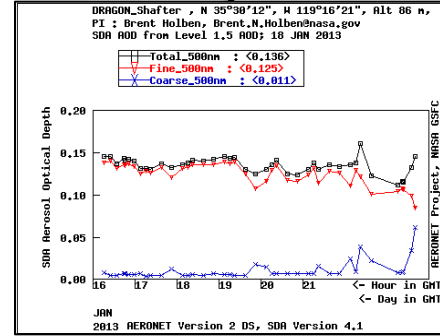
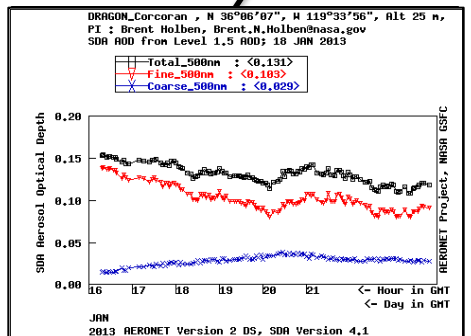
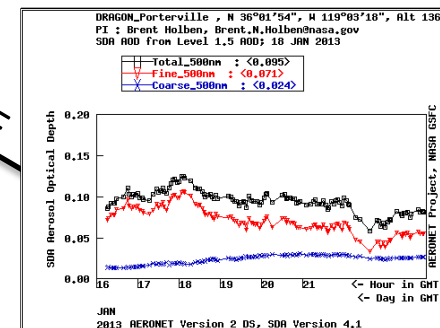
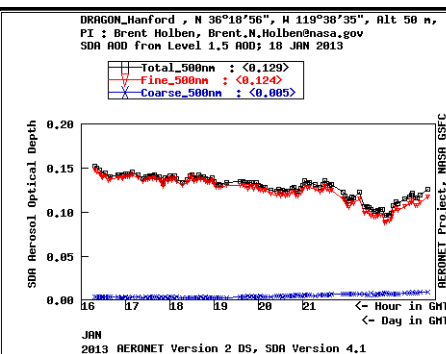
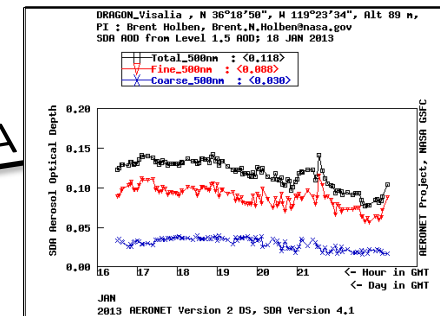
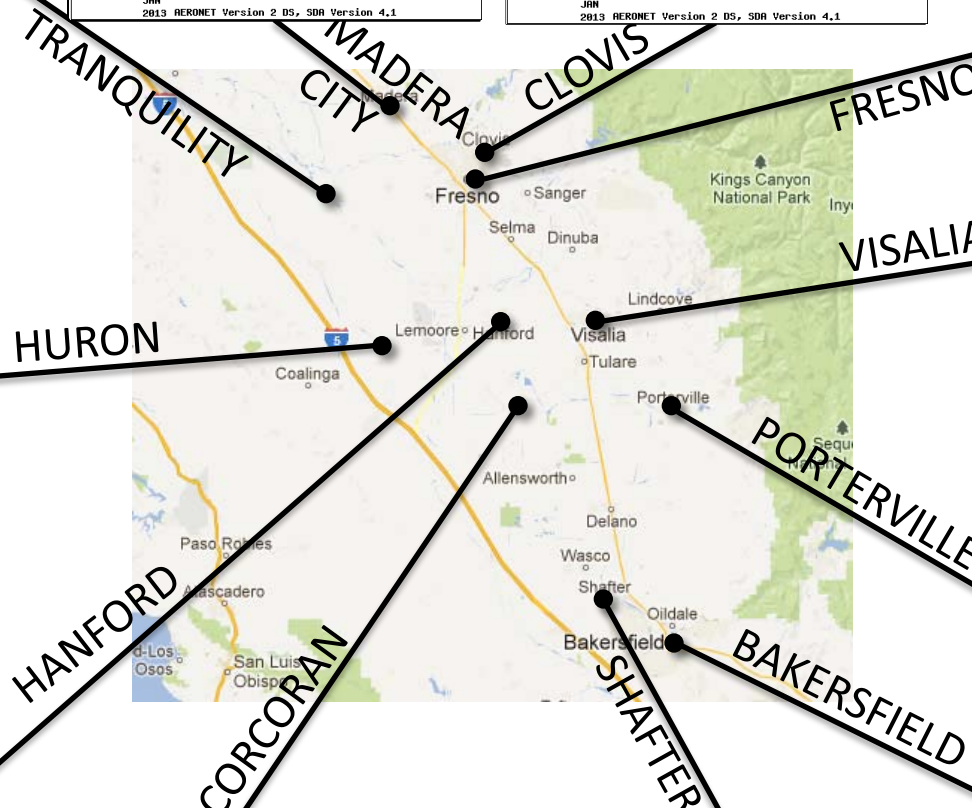
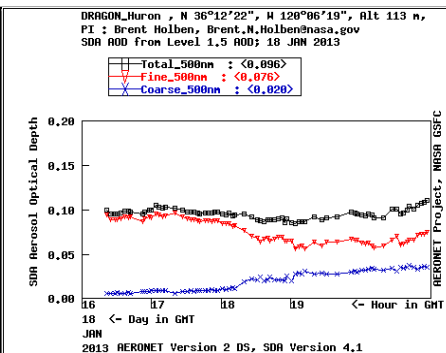
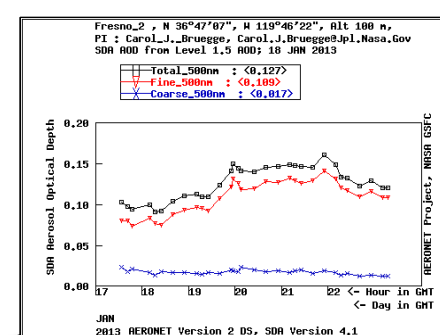
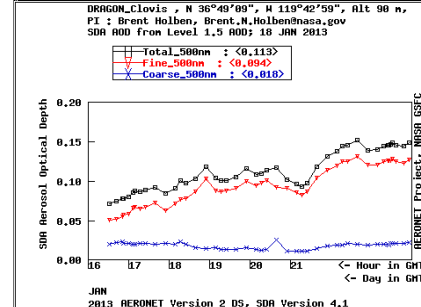
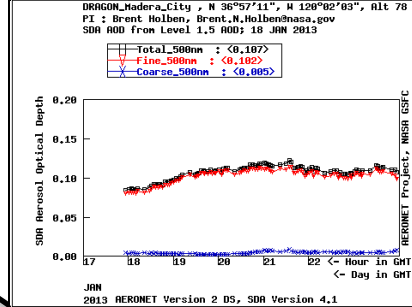
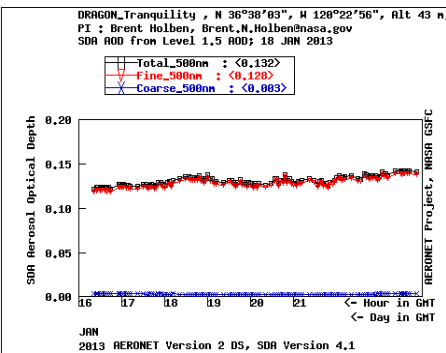
AOD Terra 2013 018

-0.1 0.0 0.1 0.3 0.4 0.5



AOD Agua 2013 018





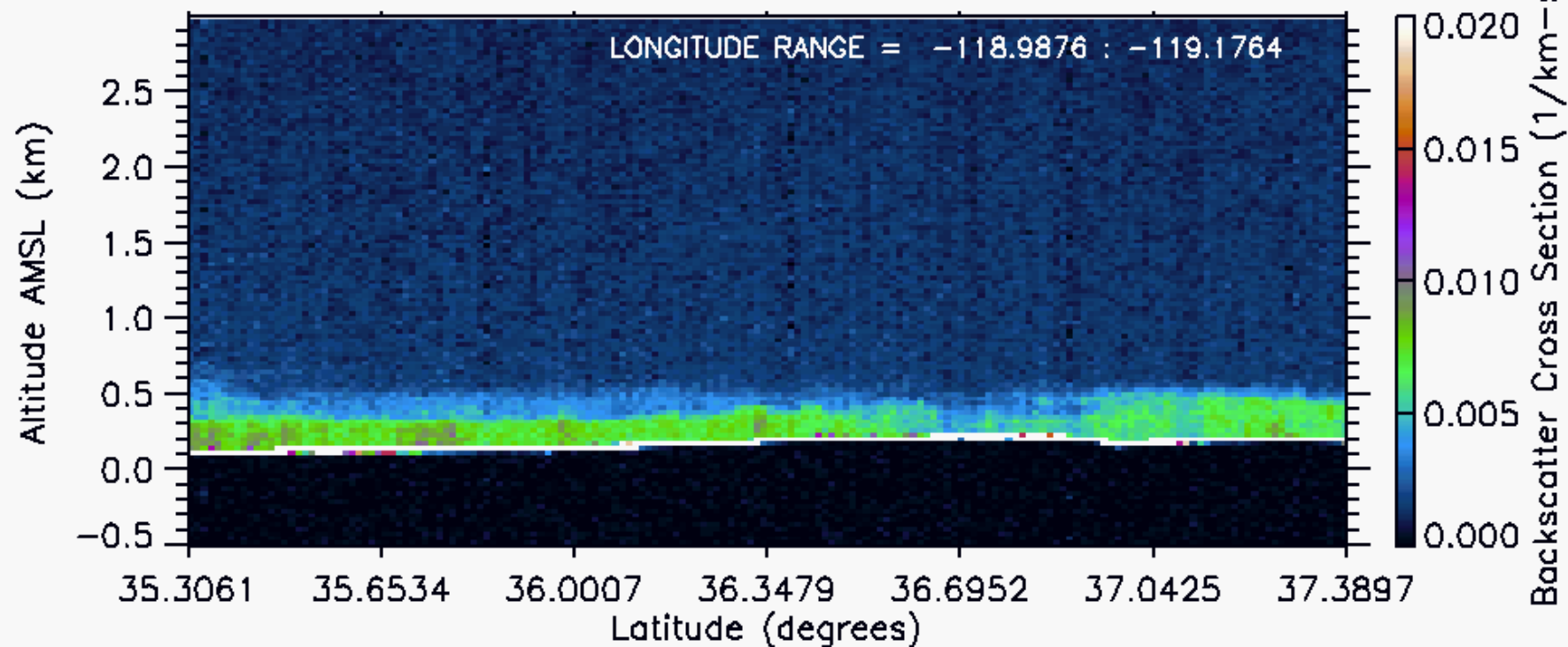
CPL Attenuated Backscatter for 011813

532nm

Time of Day (UTC)

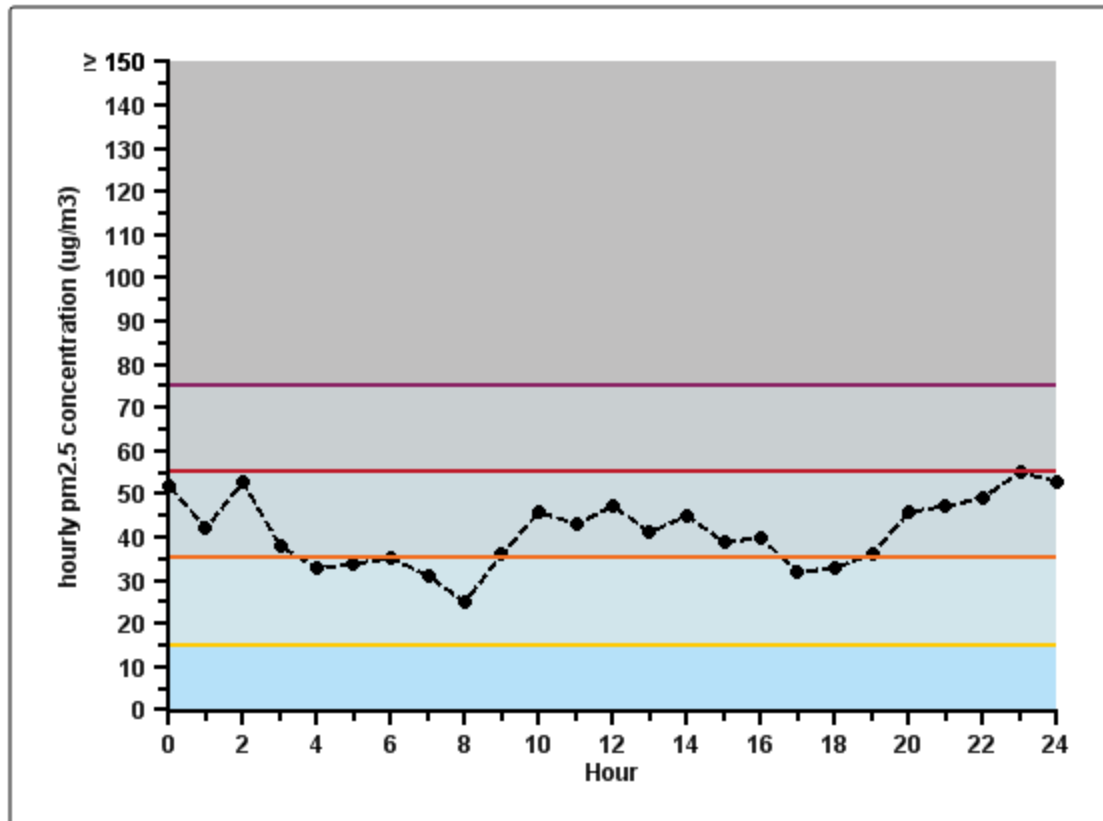
18:15:00 18:21:40 18:28:20 18:35:00 18:41:39 18:48:19 18:54:59

LONGITUDE RANGE = -118.9876 : -119.1764



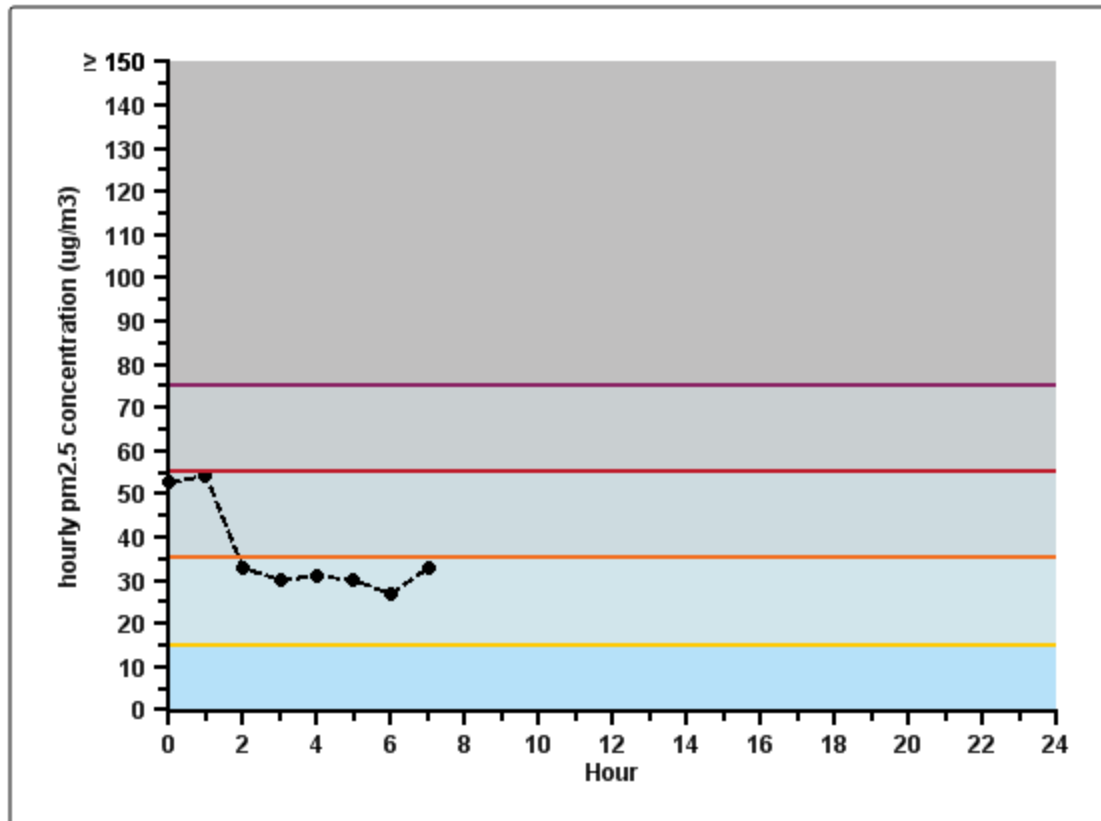
Fresno – Garland January 18, 2013

Air District Real-Time Outdoor Activity Risk



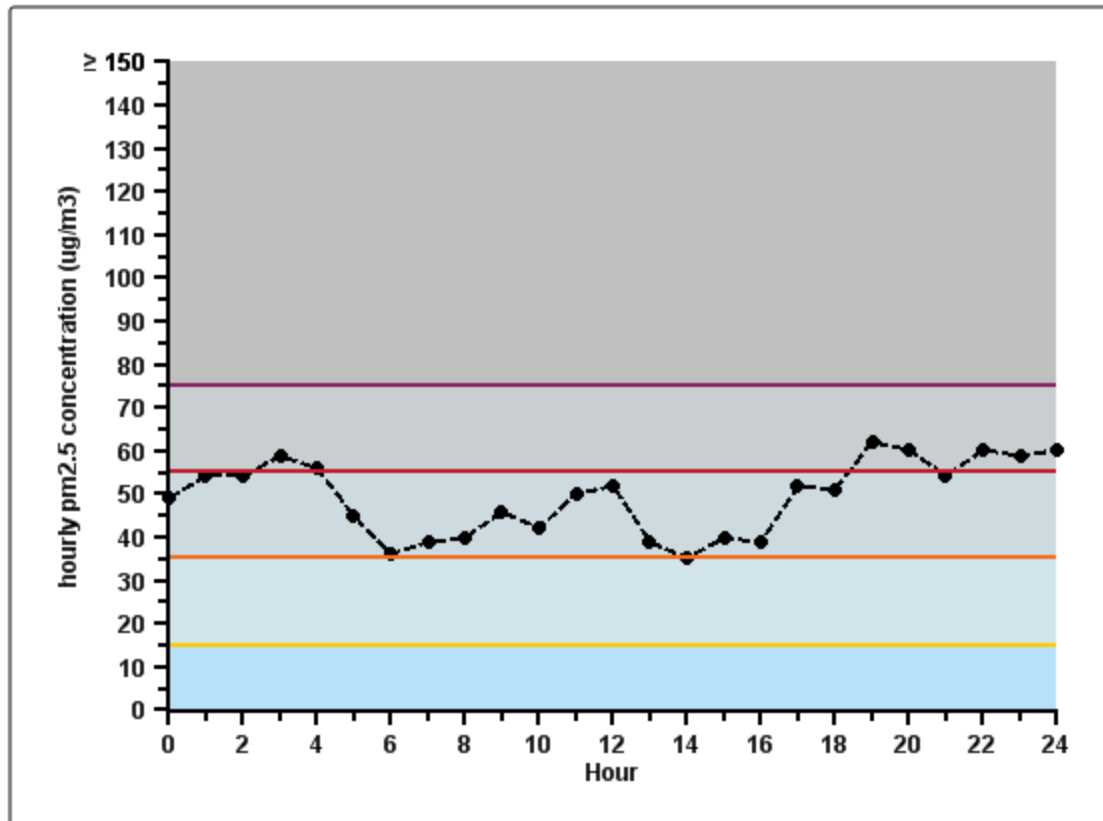
Fresno – Garland January 19, 2013

Air District Real-Time Outdoor Activity Risk



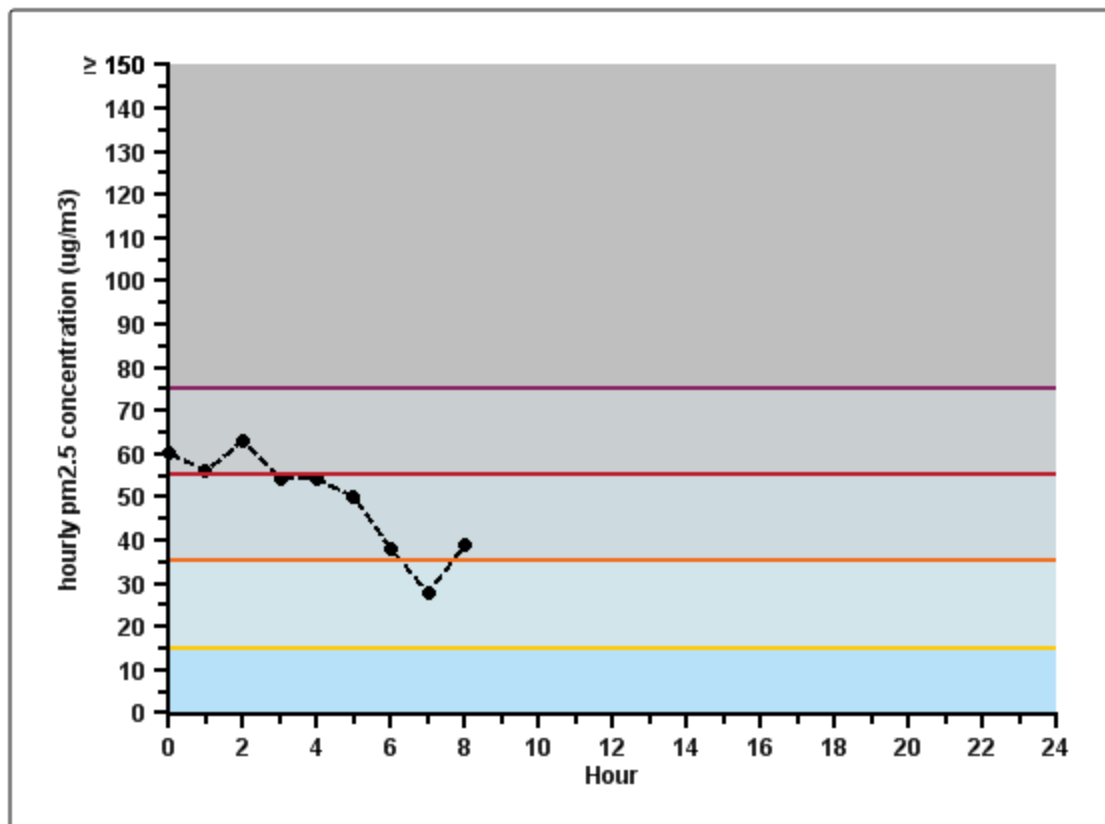
Bakersfield Munic. Airport - January 18, 2013

Air District Real-Time Outdoor Activity Risk

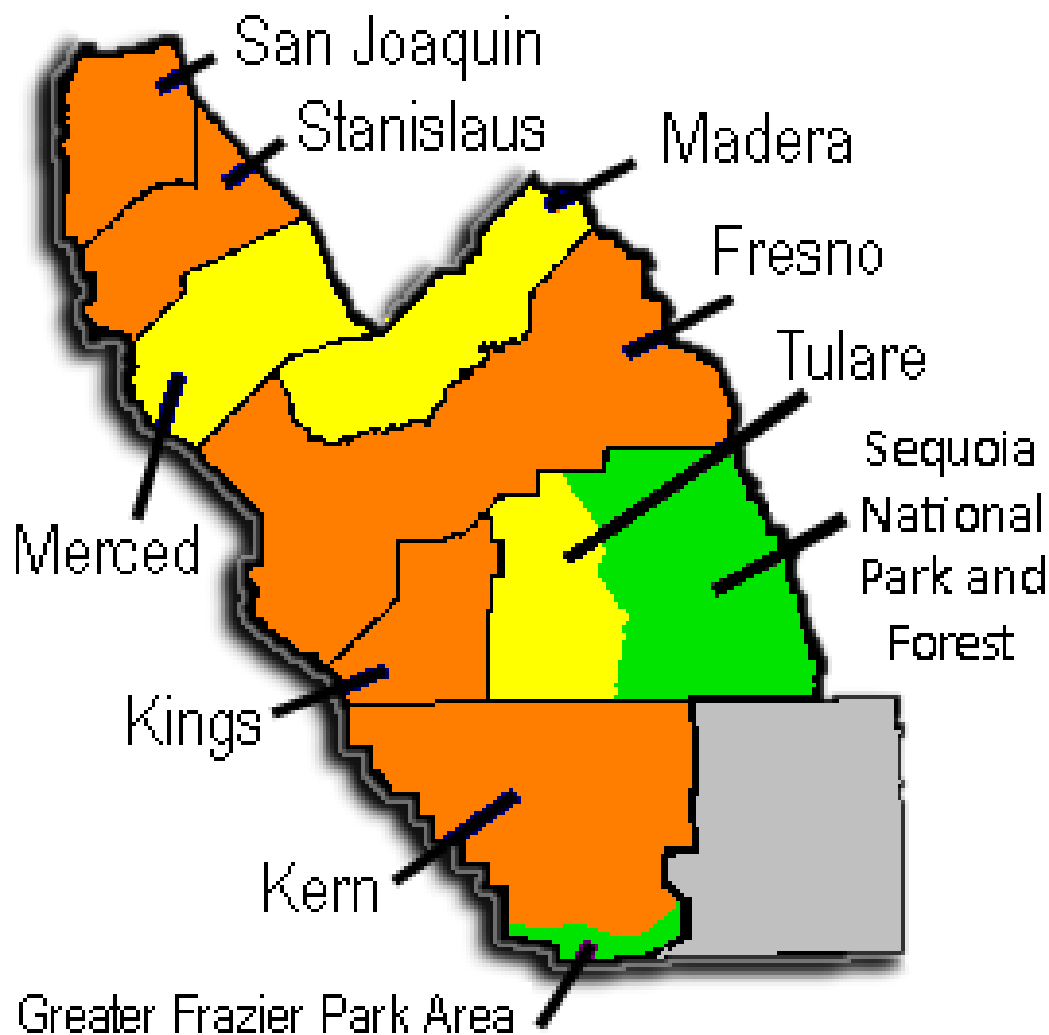







Bakersfield Munic. Airport - January 19, 2013

Air District Real-Time Outdoor Activity Risk

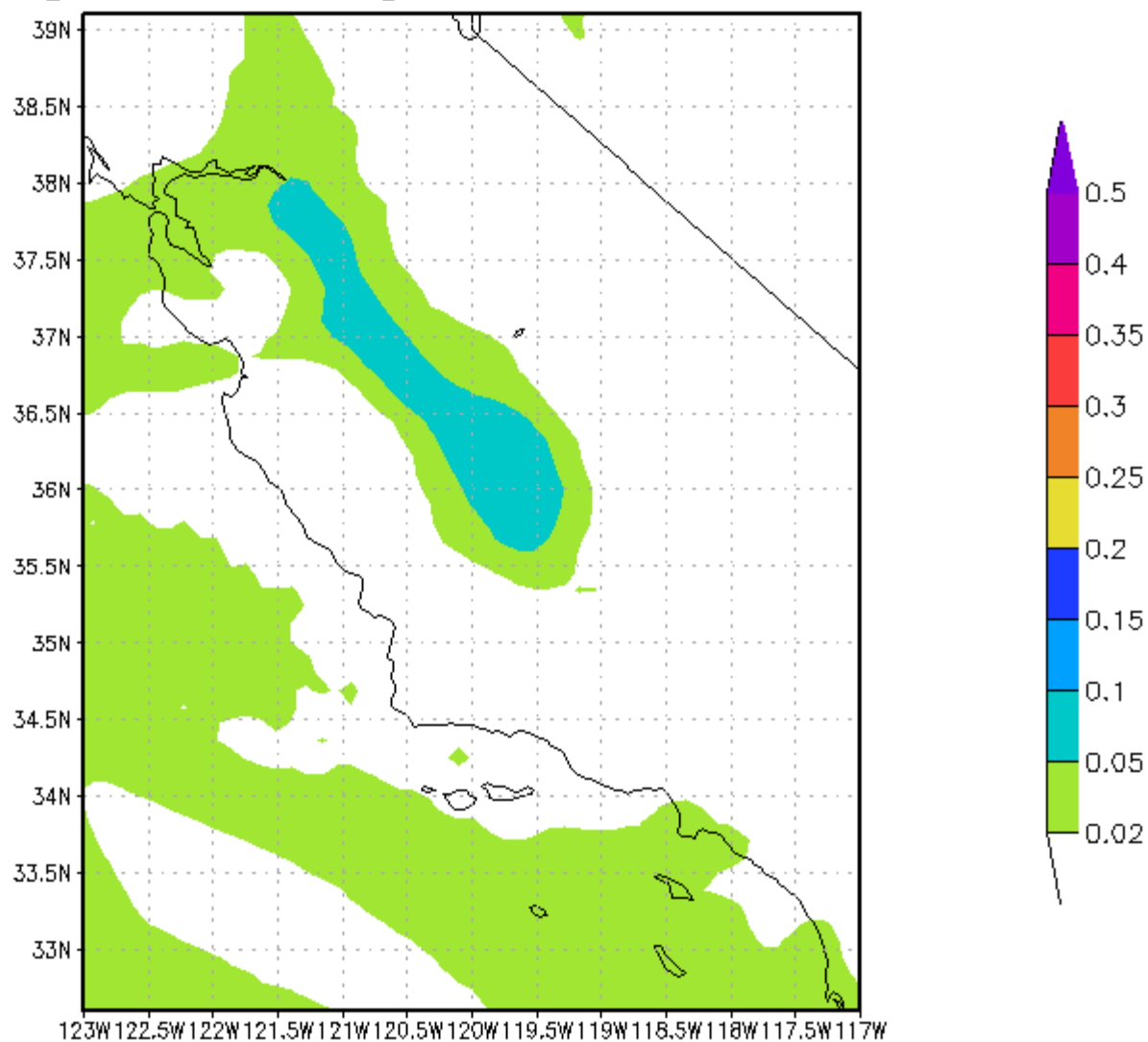


SJVAPCD Air Quality Forecast for January 19, 2013

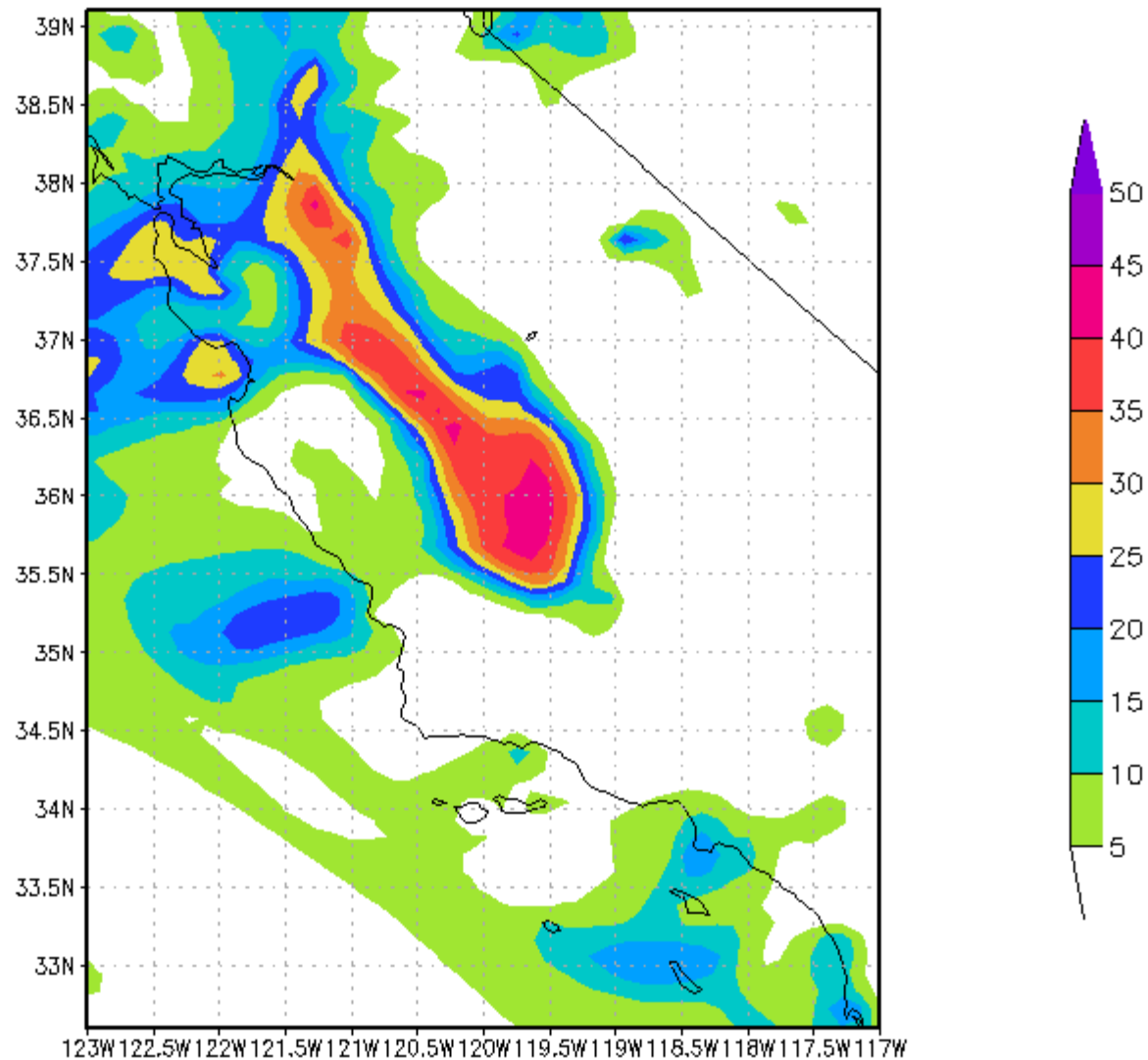


ROAR LEVEL	Ozone (O ₃)	Particulate Matter (PM 2.5)
 LEVEL 1 Good	1-59 ppb	1-15 µg/m ³
 LEVEL 2 Moderate	60-75 ppb	16-35 µg/m ³
 LEVEL 3 Unhealthy for Sensitive Groups	76-95 ppb	36-55 µg/m ³
 LEVEL 4 Unhealthy	96-115 ppb	56-75 µg/m ³
 LEVEL 5 Very Unhealthy	>115 ppb	>75 µg/m ³

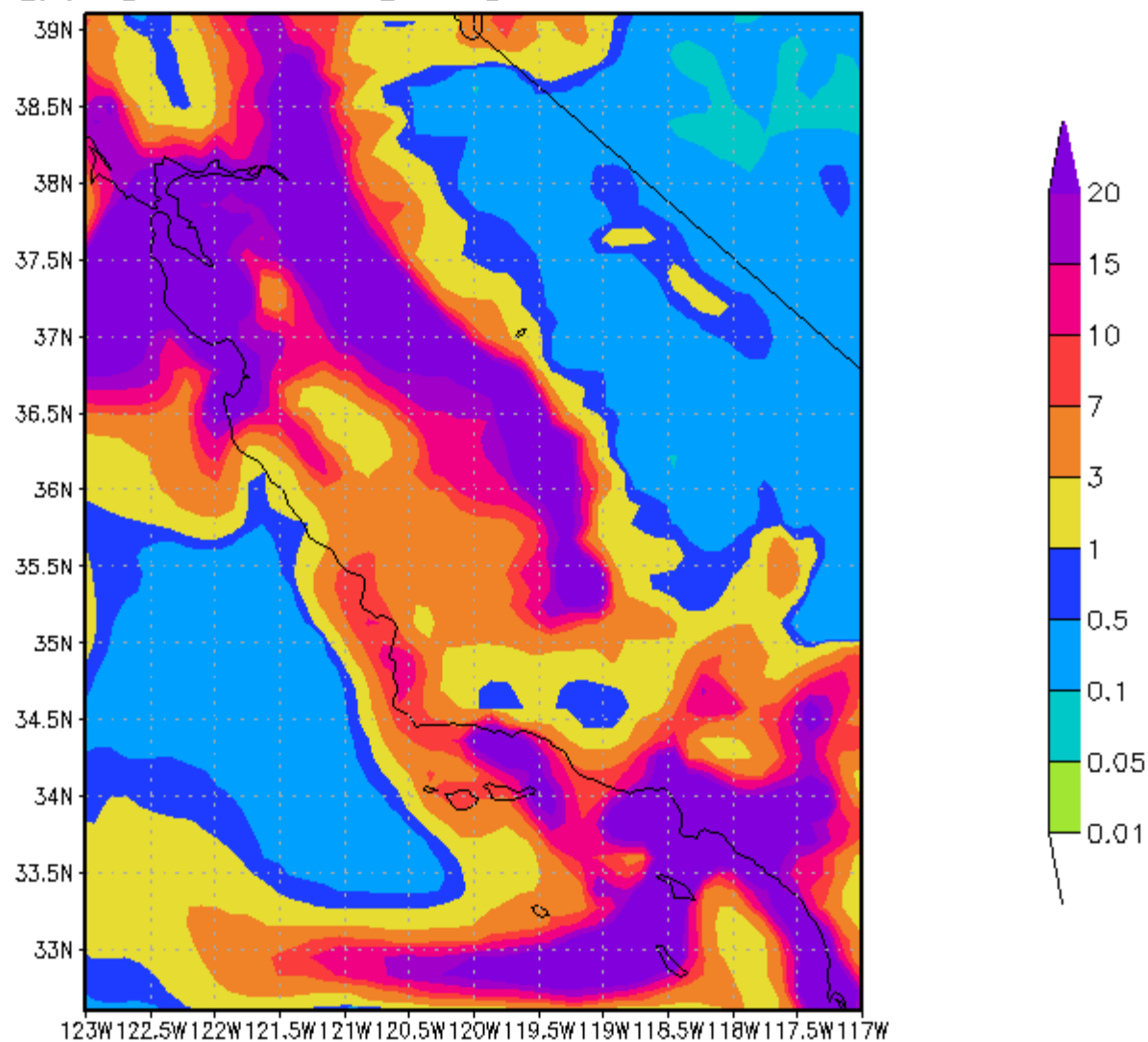
Column AOD [Dimensionless] at surface Valid 18 JAN 20 2013



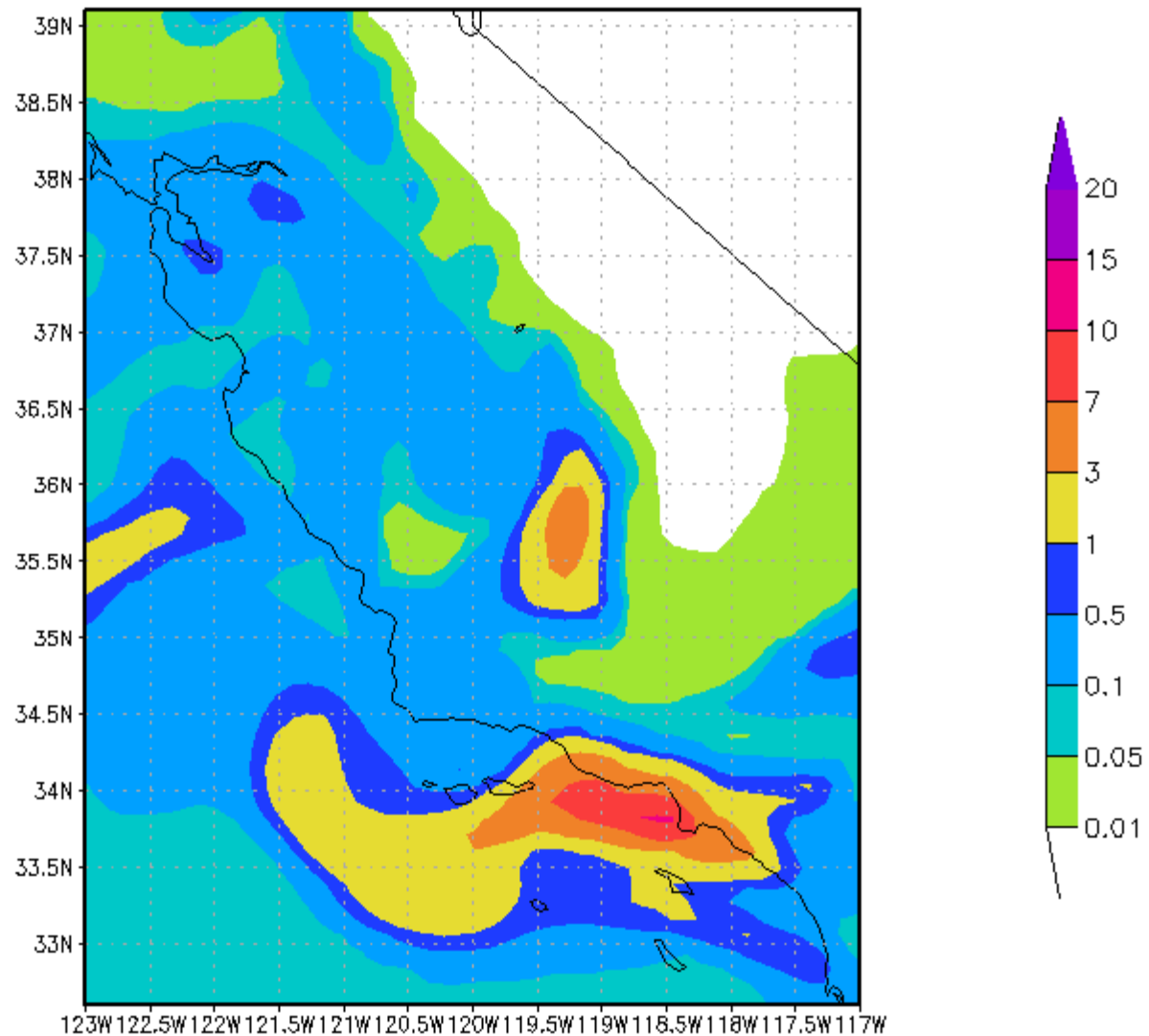
PM25 [$\mu\text{g}/\text{m}^3$] at surface Valid 18 JAN 20 2013



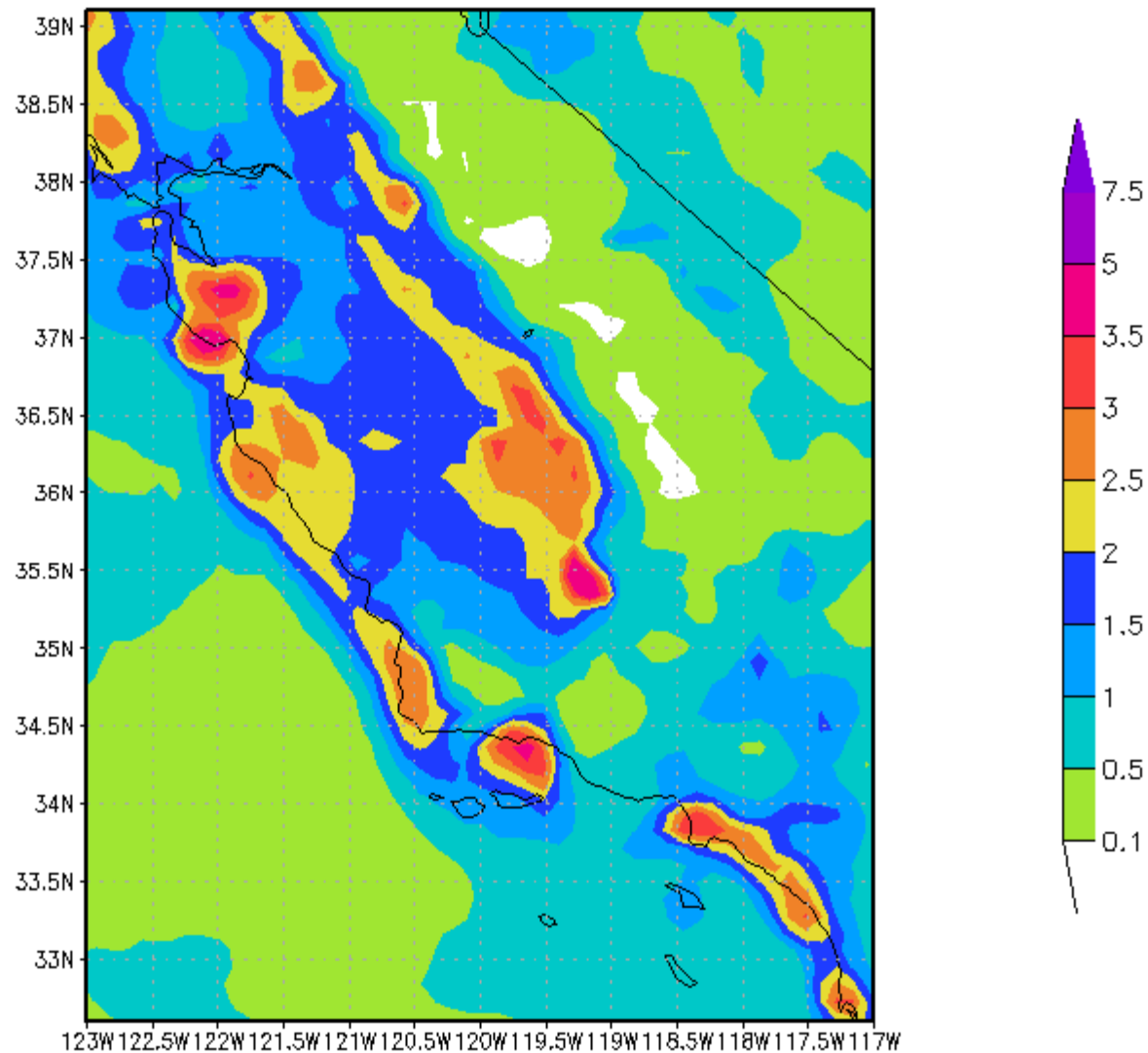
NO₂ [ppb] at 1013 [hPa] Valid 18 JAN 20 2013



NO₂ [ppb] at 900 [hPa] Valid 18 JAN 20 2013

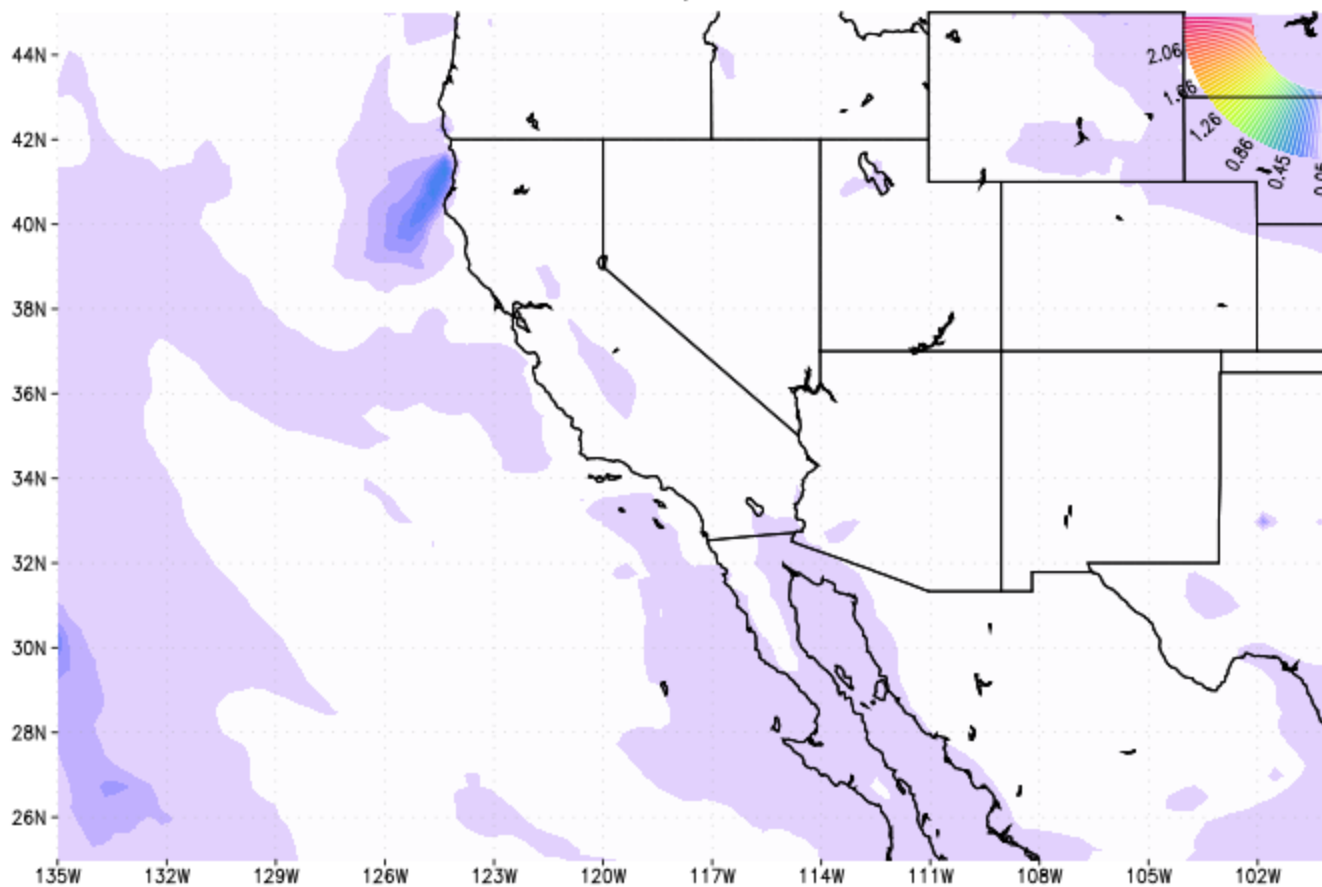


FORM [ppb] at 1013 [hPa] Valid 18 JAN 20 2013



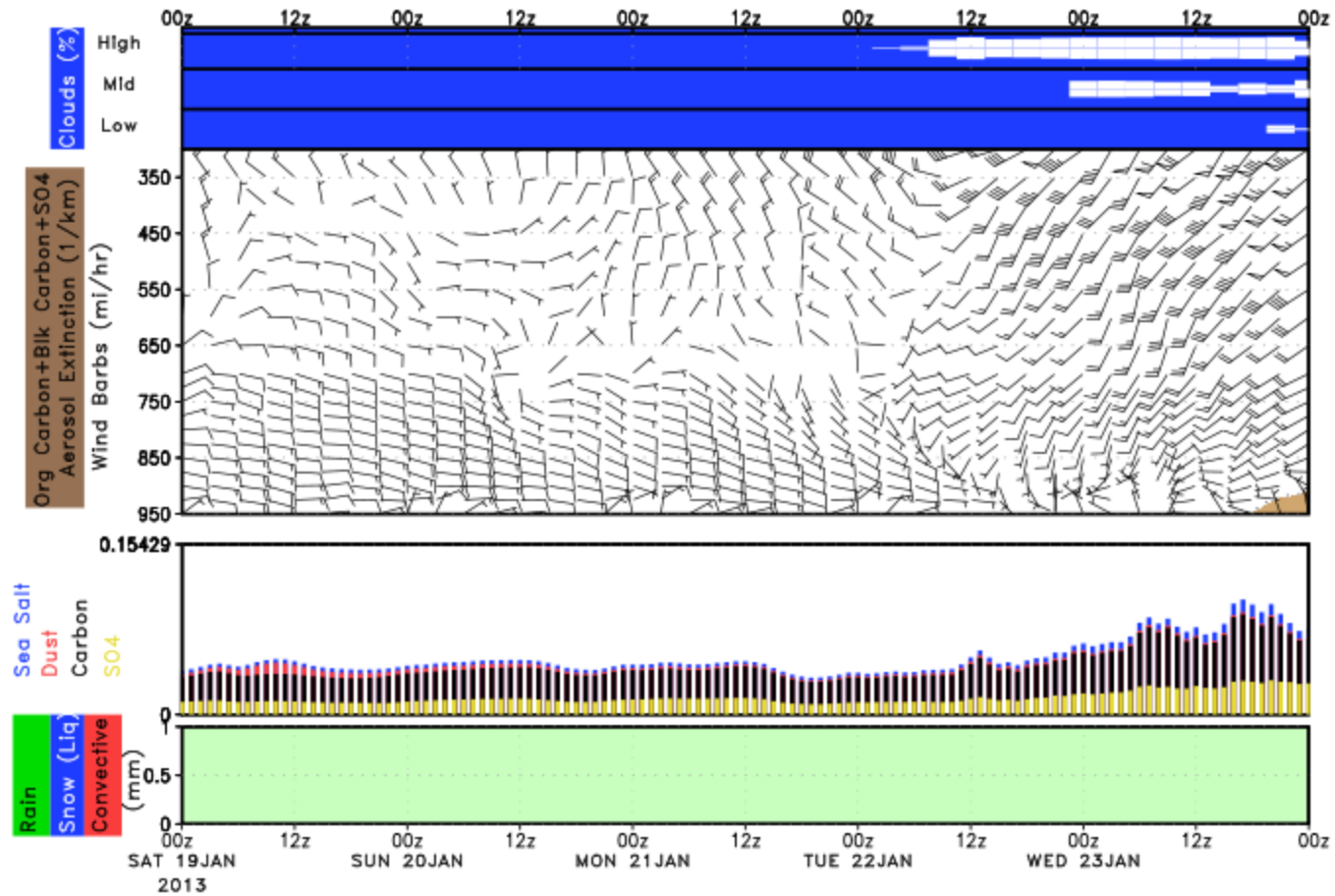
NASA/GMAO - GEOS-5 Forecast Initialized on 00z 2013-01-19

Total Aerosol Optical Thickness

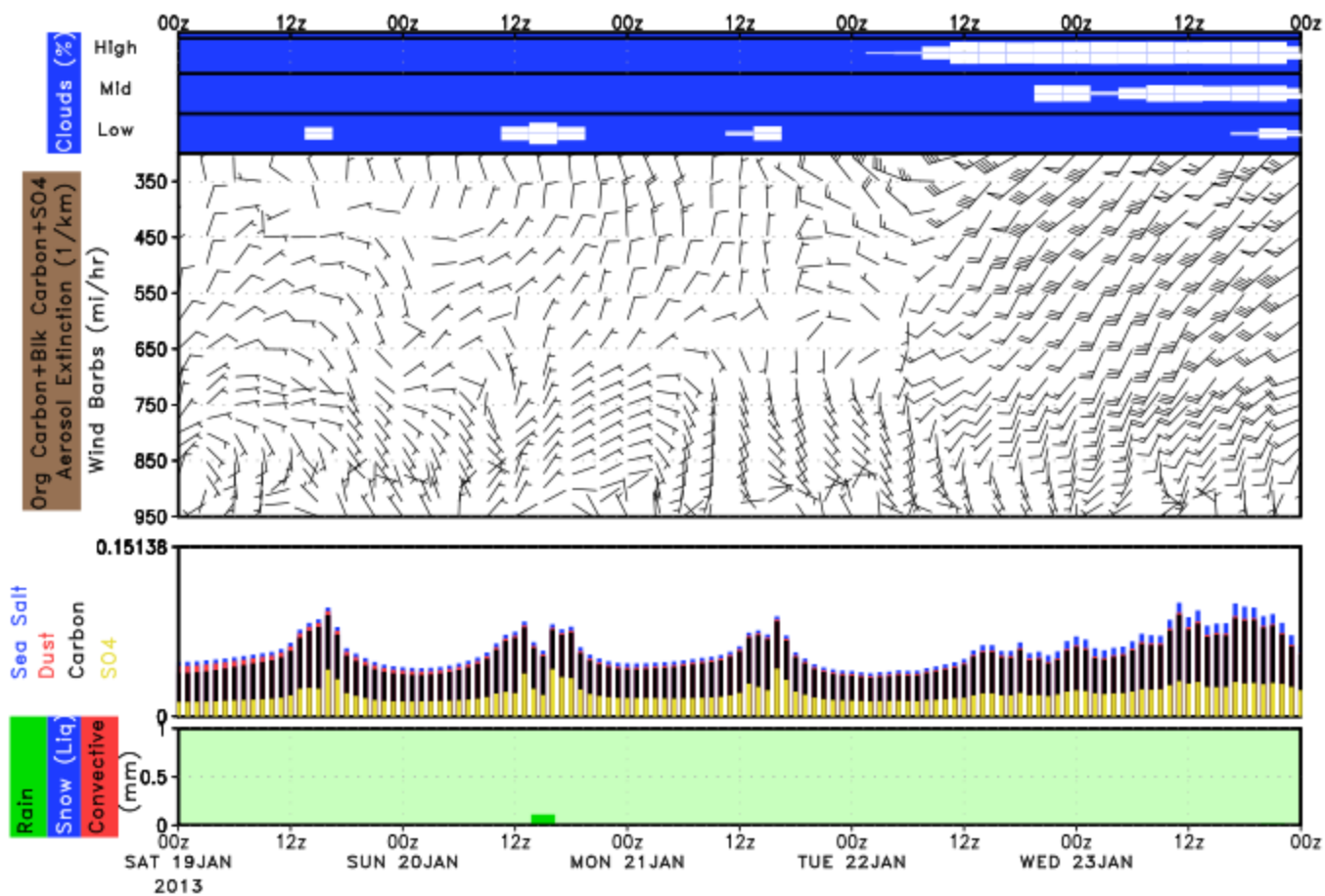


42 hr forecast valid Sun 18z 2013-01-20

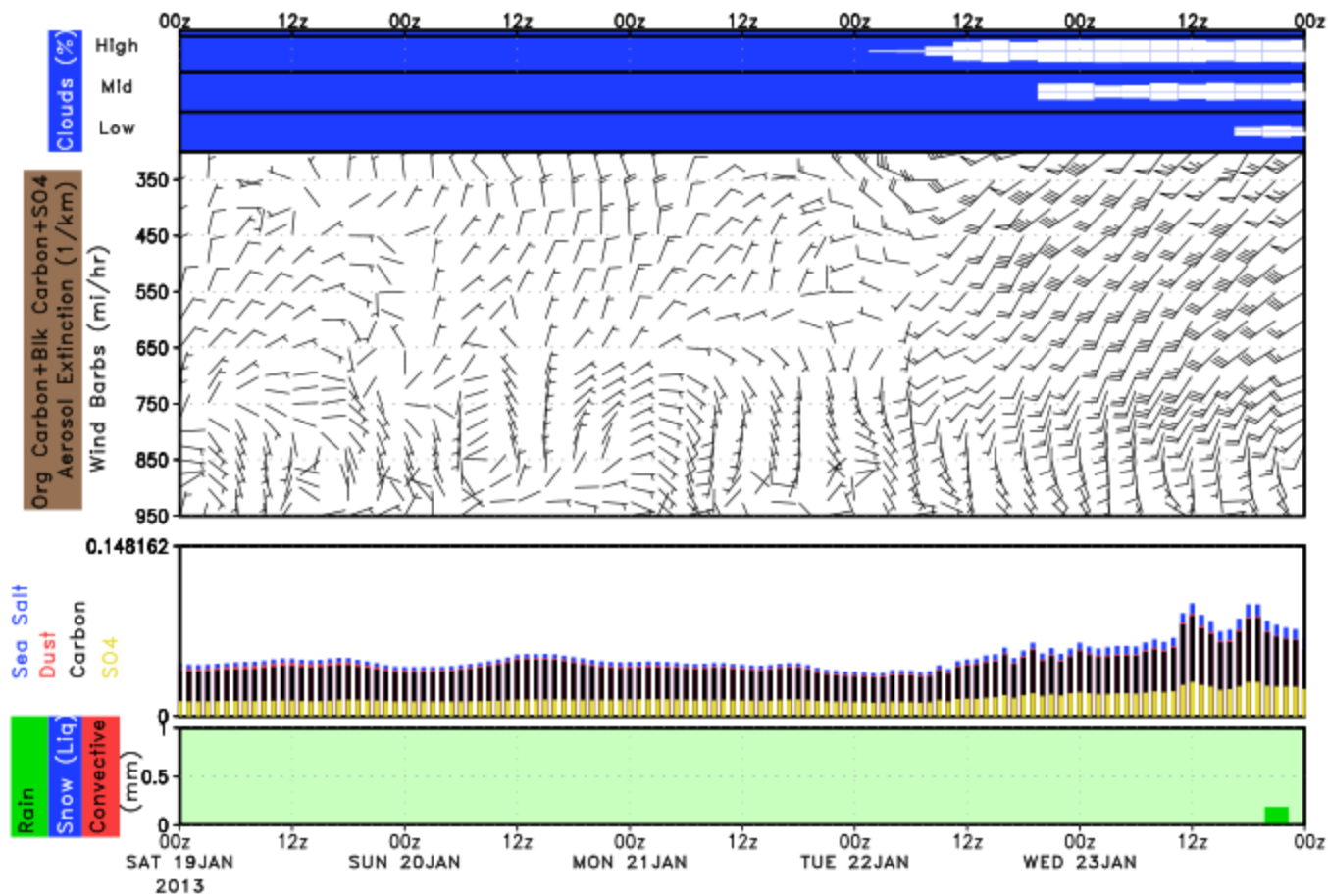
Bakersfield - GEOS-5 Aerosol Forecast



Hanford - GEOS-5 Aerosol Forecast



Fresno - GEOS-5 Aerosol Forecast



Recommendations

- Fly Sunday, possibly Monday. Both mornings will likely have early morning fog in some areas.
- Increasing chances of widespread fog as we get into Tues. and Wed.
- Code Orange PM2.5 expected Sun. at least in Fresno and Kern Counties.