

DISCOVER-AQ OUTLOOK – January 16, 2013

Generally clear skies persist over the SJV as the DISCOVER-AQ aircraft make their first science flights today. The very high amplitude ridge remains just off the Pacific Coast, and continues to advect dry air from the north and northeast into the region which subsides to near the surface. The relatively low dew point air prevented fog formation this morning, and will continue in this mode on Thursday morning. Some modification of the air mass will be likely by Friday, with some fog possible, but still not anything deep and extensive. Better chances of more extensive fog over the weekend and into Monday. An advancing short wave trough may break down the ridge by Tuesday into Wednesday next week. The global models bring some cirrus into California on Friday and Saturday, but this is not seen in the NAM. This will be a concern that will be readdressed in tomorrow's briefing.

Air quality today is expected to be Code Orange for PM_{2.5} in the Fresno area, but Code Yellow in the remainder of the SJV. Similar conditions are expected to persist on Friday.







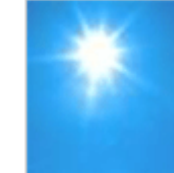


While conditions are definitely suitable for flying on Thursday, logistical concerns will override. We recommend strong consideration of flights on Friday, but with a reassessment of the fog and cirrus issues at the Thursday briefing.

DISCOVER-AQ/PODEX Forecast Briefing







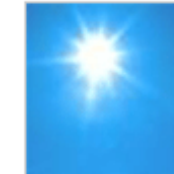


January 16, 2013

Ken Pickering, NASA/GSFC
Chris Loughner, ESSIC/GSFC
Bob Chatfield, NASA/Ames



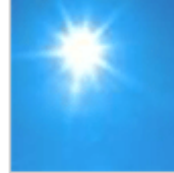



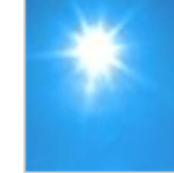

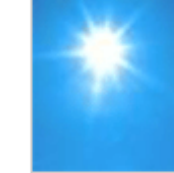
Fresno:

TODAY	TONIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY	SATURDAY NIGHT	SUNDAY
								
Morning Frost High: 55 °F	Clear Low: 36 °F	Sunny High: 57 °F	Clear Low: 38 °F	Sunny High: 63 °F	Clear Low: 38 °F	Sunny High: 63 °F	Clear Low: 38 °F	Sunny High: 64 °F

Hanford:

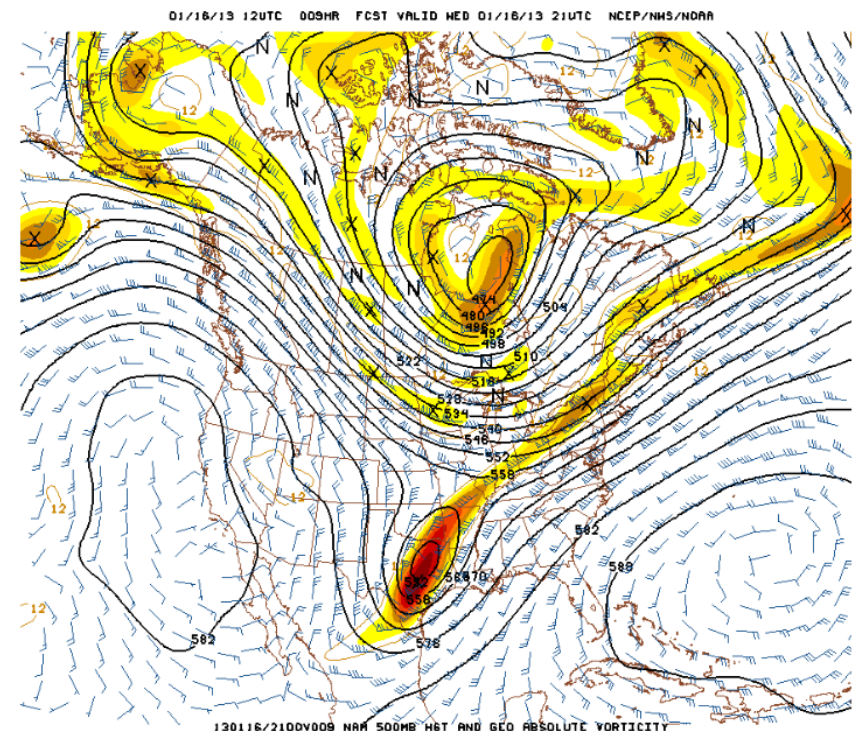
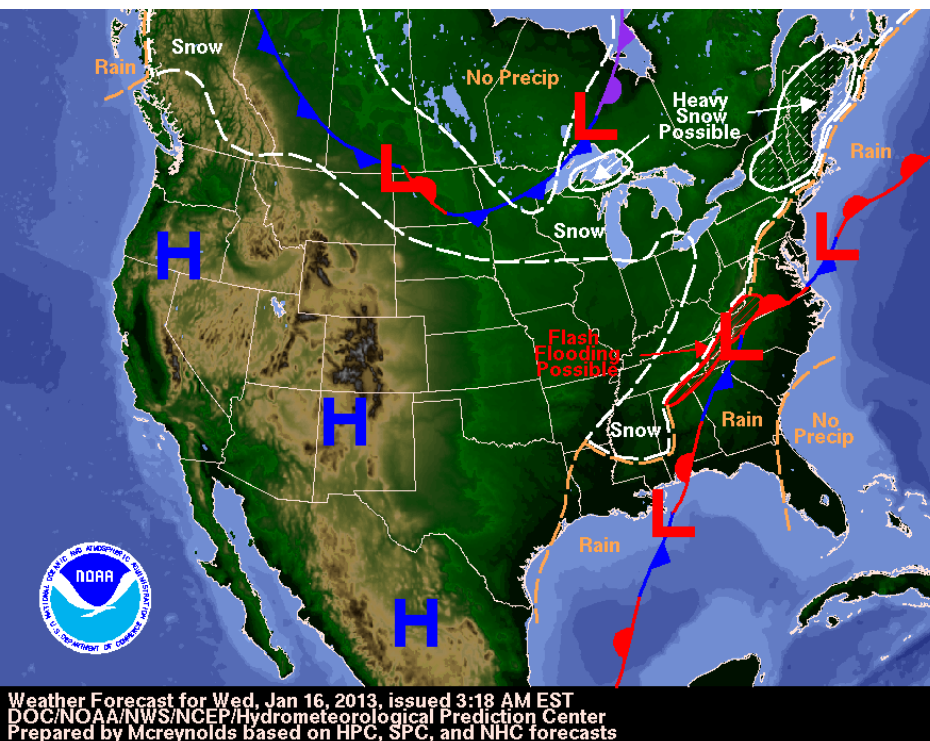
TODAY	TONIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY	SATURDAY NIGHT	SUNDAY
								
Morning Frost High: 55 °F	Areas Frost Low: 31 °F	Morning Frost High: 57 °F	Clear Low: 33 °F	Sunny High: 63 °F	Clear Low: 34 °F	Sunny High: 63 °F	Clear Low: 33 °F	Sunny High: 64 °F

Bakersfield:

TODAY	TONIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY	SATURDAY NIGHT	SUNDAY
								
Morning Frost High: 55 °F	Clear Low: 36 °F	Sunny High: 59 °F	Clear Low: 38 °F	Sunny High: 63 °F	Clear Low: 38 °F	Sunny High: 62 °F	Clear Low: 38 °F	Sunny High: 65 °F

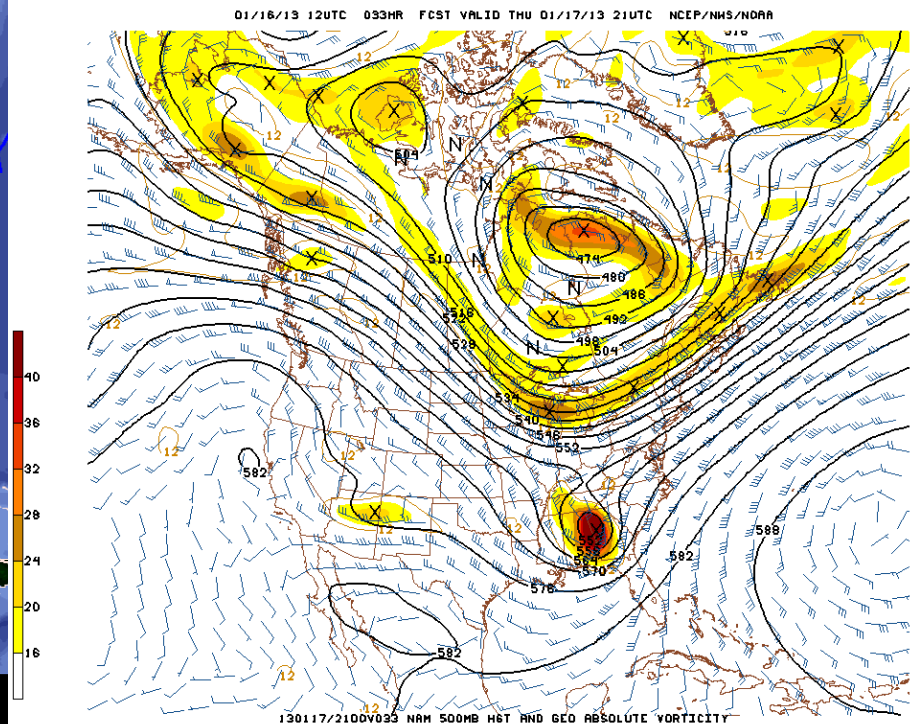
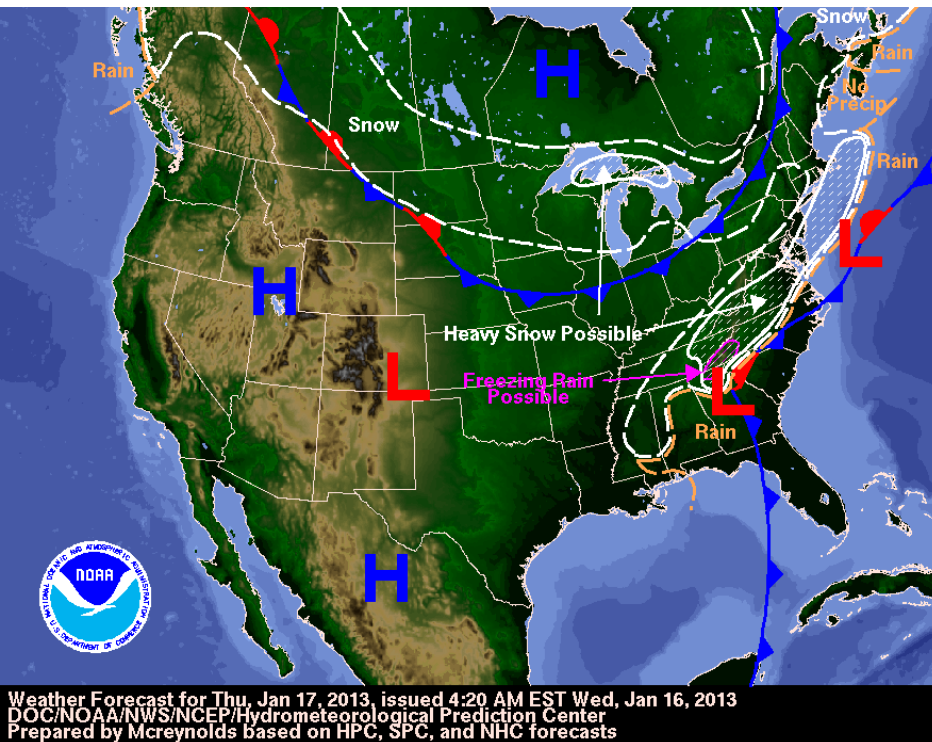
Today : Sunny. Large upper level ridge to the west.

500 mb NAM at 1 PM.



Tomorrow: Sunny. Upper level ridge moving onshore.

500 mb NAM at 1 PM.



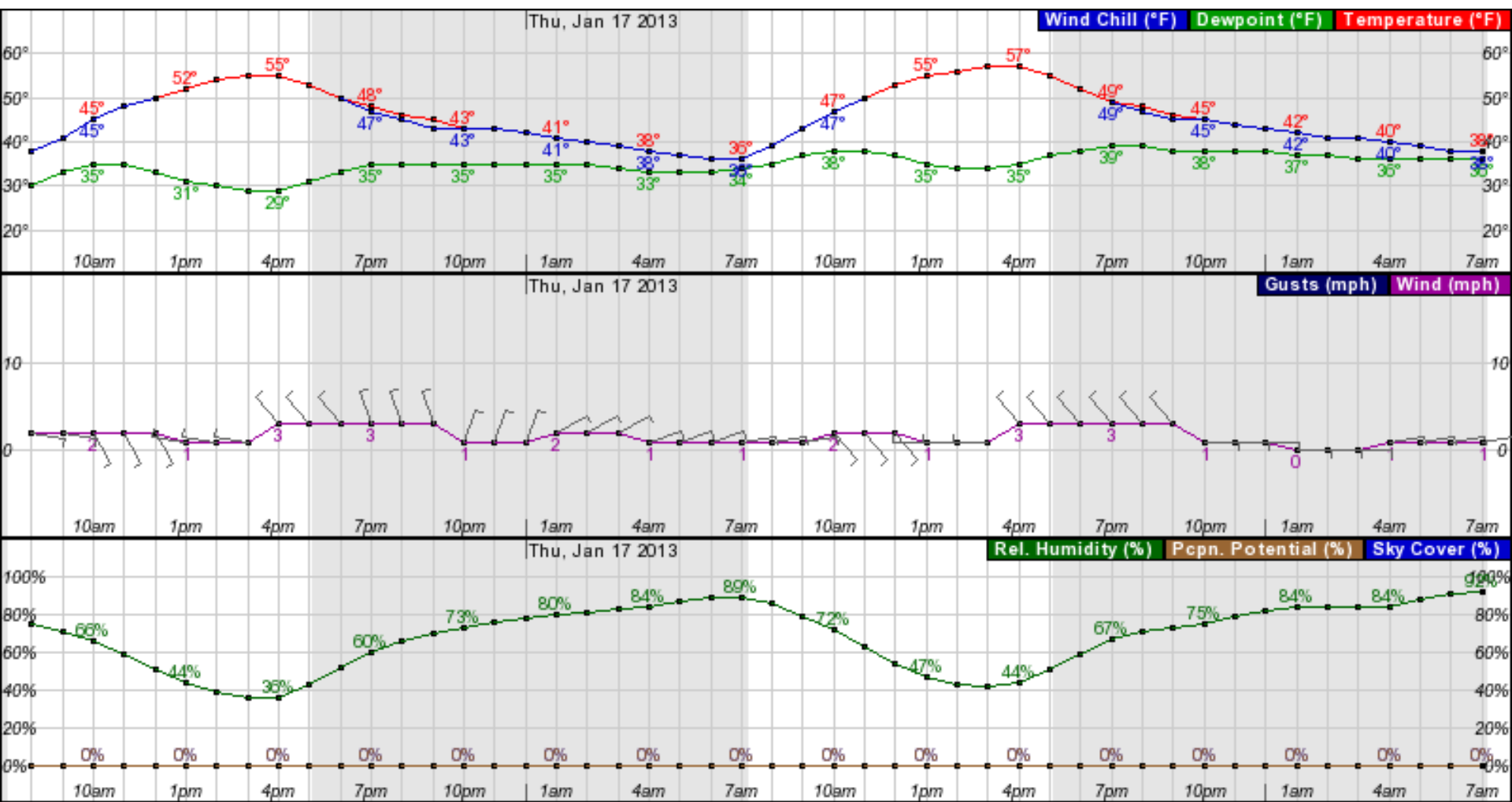
Fresno

Today: Sunny.

Tomorrow: Sunny. Chance of patchy morning fog.

Today →

Tomorrow →



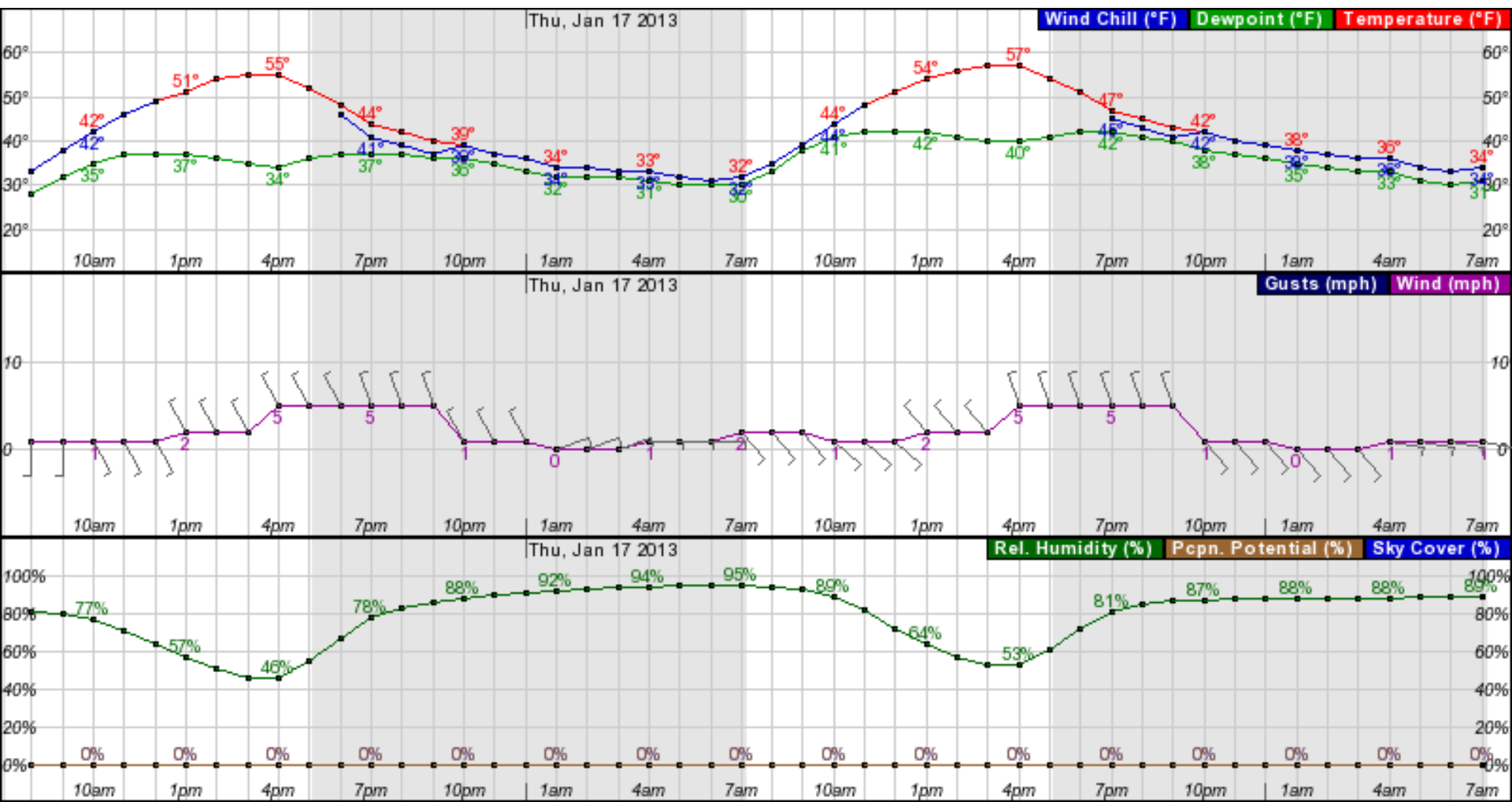
Hanford

Today: Sunny.

Tomorrow: Sunny with some morning fog.

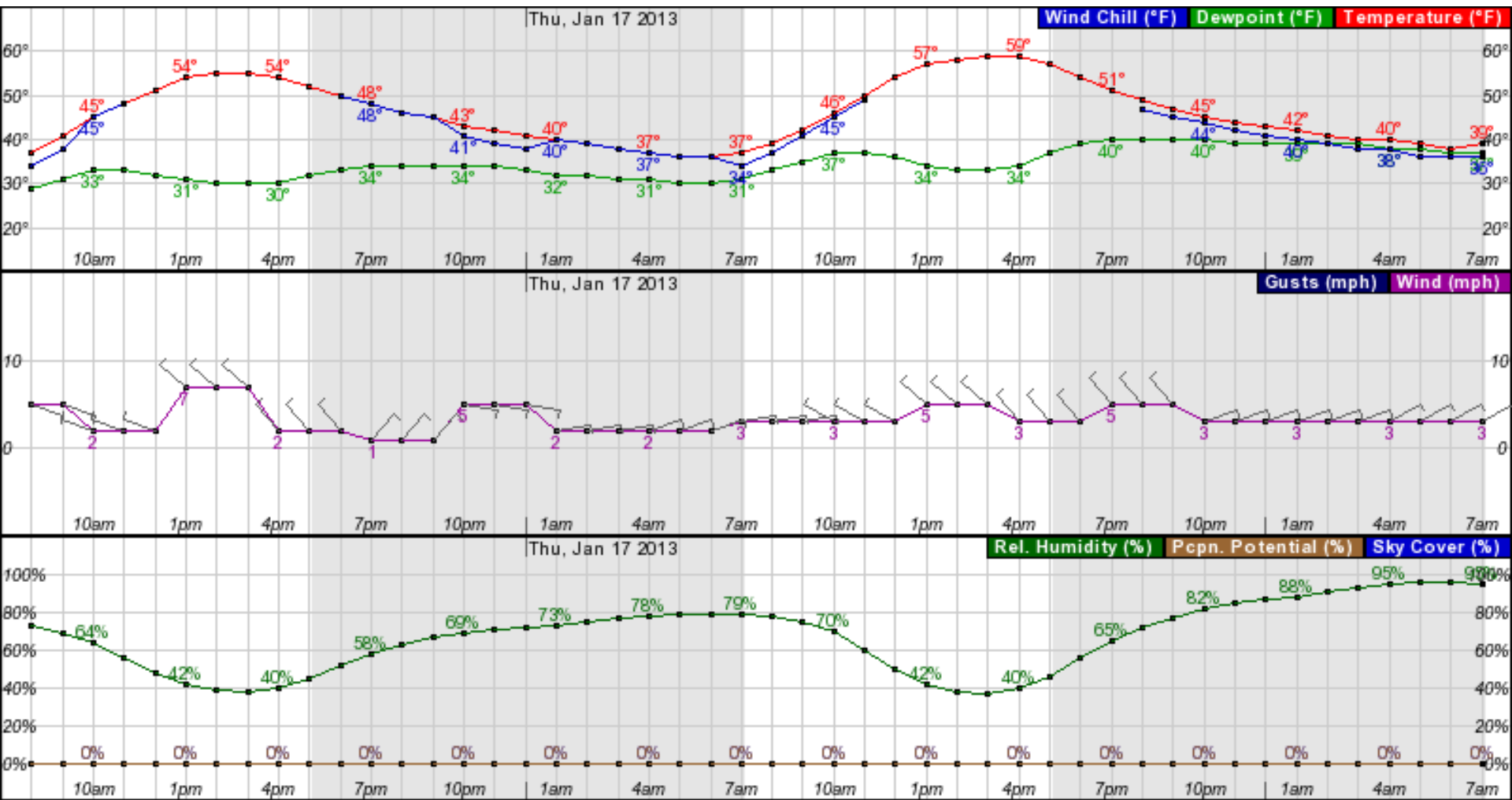
Today →

Tomorrow →



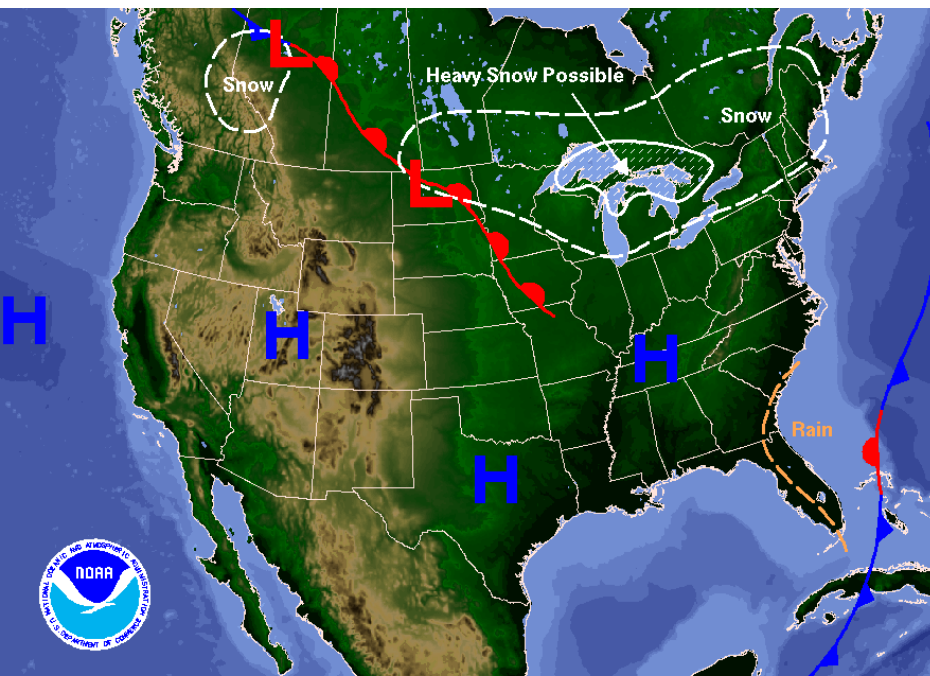
Bakersfield
Today: Sunny.
Tomorrow: Sunny.

Today → Tomorrow →

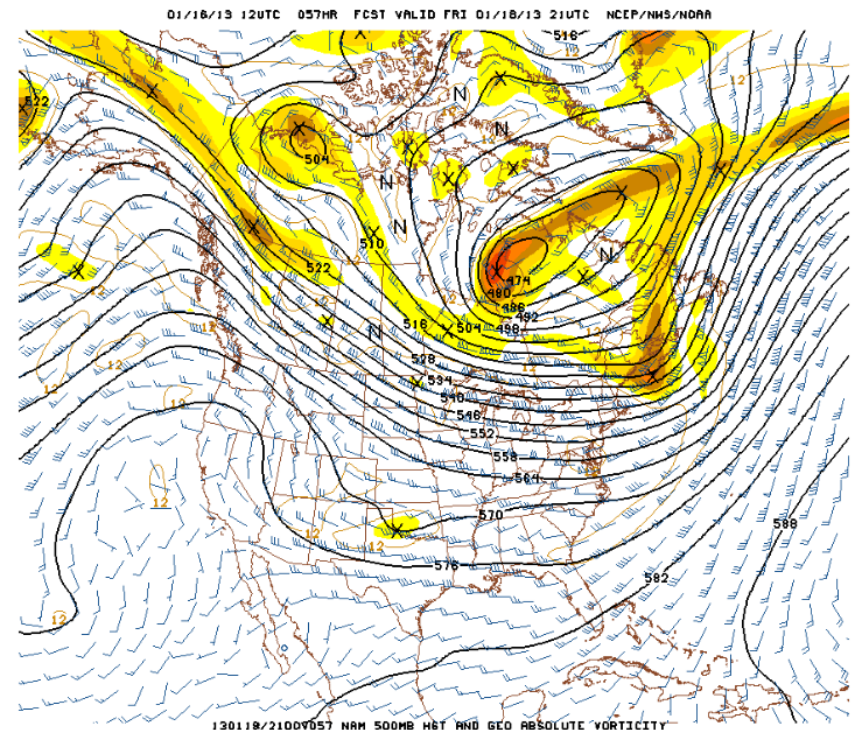


Friday: Mostly sunny. Upper level ridge over CA.

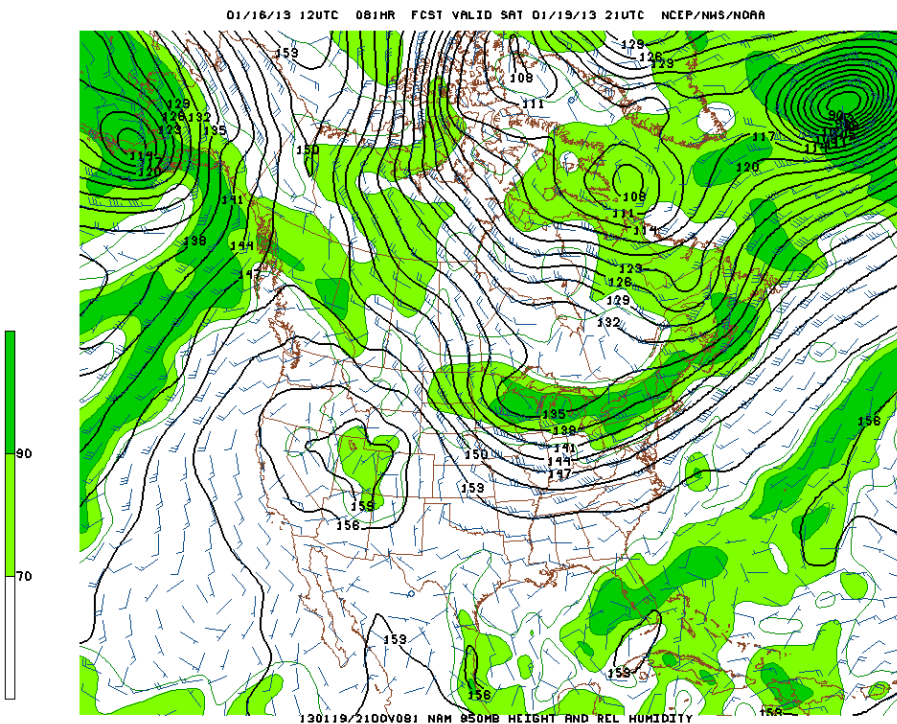
500 mb NAM at 1 PM.



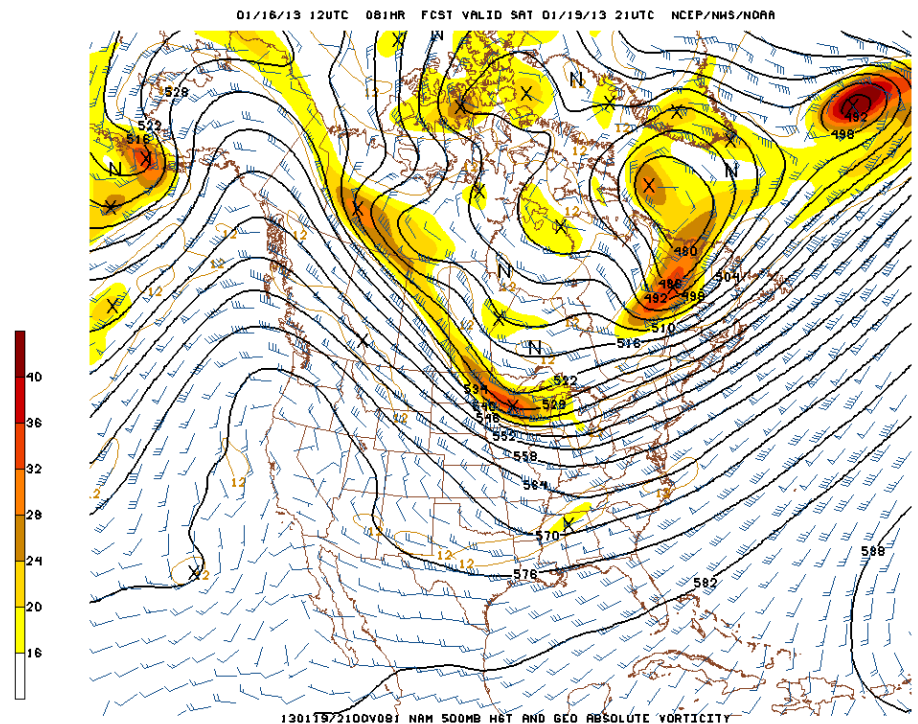
Weather Forecast for Fri, Jan 18, 2013, issued 4:38 AM EST Wed, Jan 16, 2013
DOC/NOAA/NWS/NCEP/Hydrometeorological Prediction Center
Prepared by McCreynolds based on HPC, SPC, and NHC forecasts



850 mb NAM Saturday 1 PM



500 mb NAM Saturday 1 PM



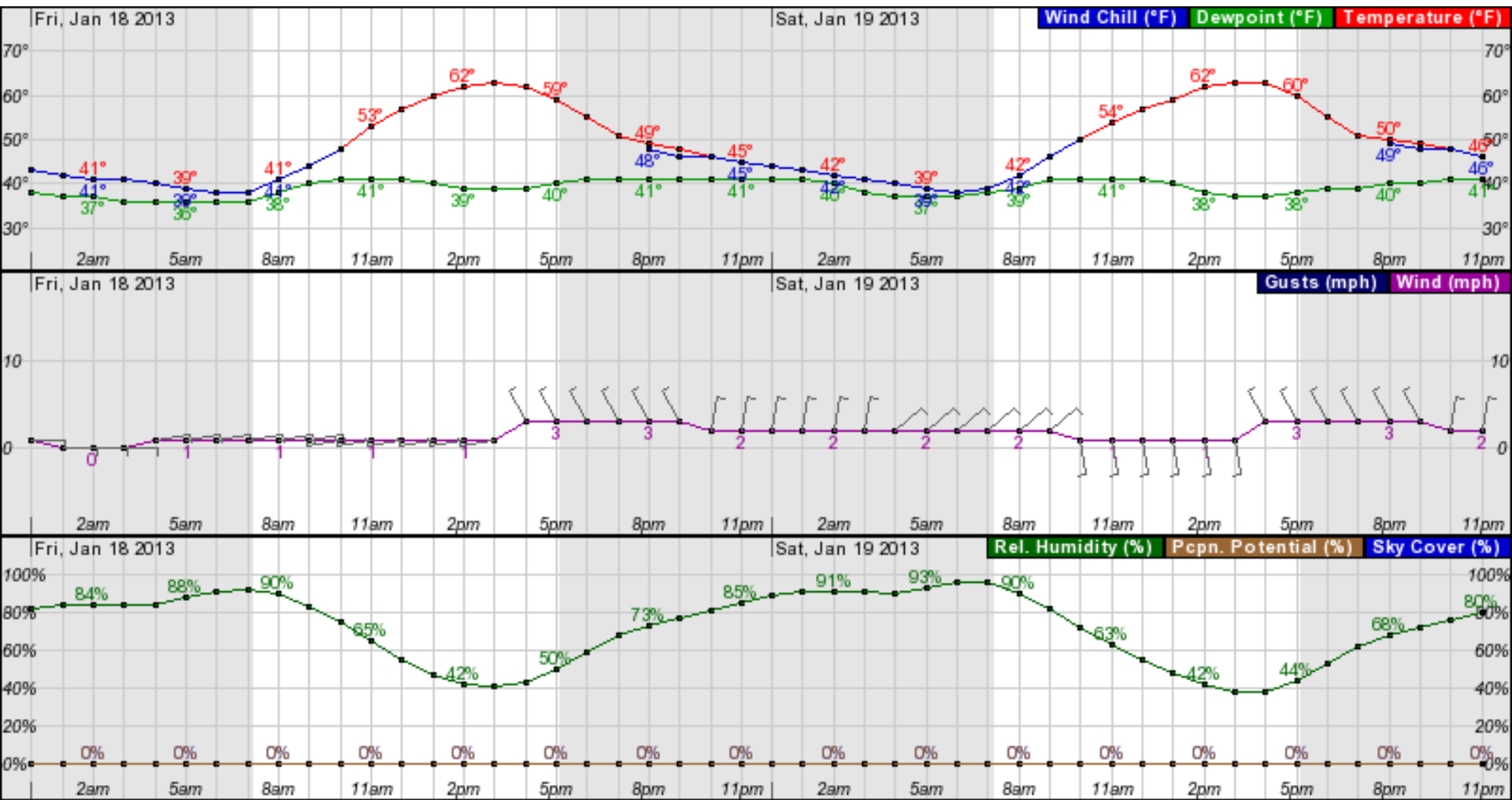
Fresno

Friday: Mostly sunny with a chance of morning fog.

Saturday: Mostly sunny with some morning fog.

Friday→

Saturday→



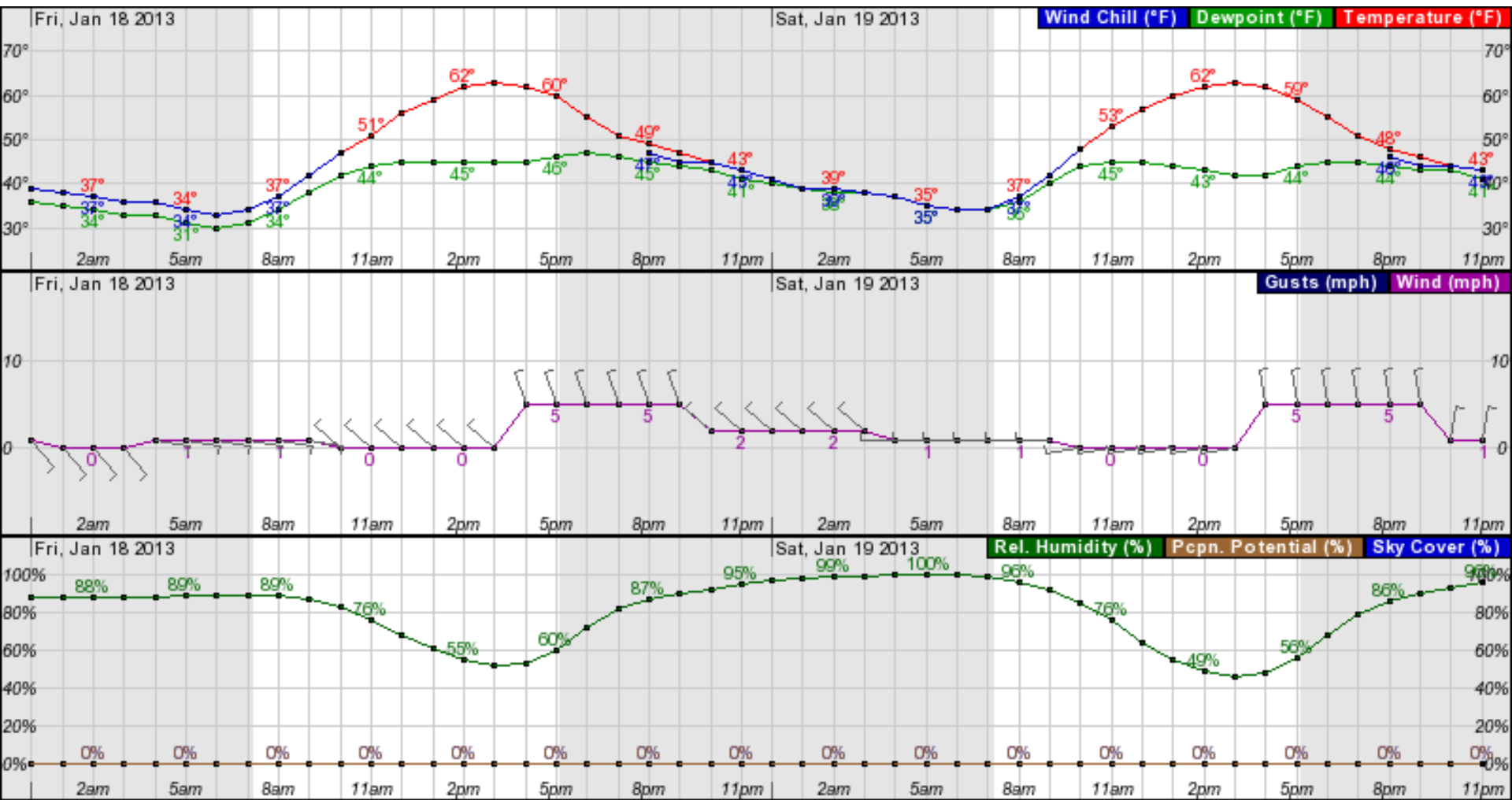
Hanford

Friday: Sunny with a chance of morning fog.

Saturday: Morning fog – afternoon sun.

Friday →

Saturday →



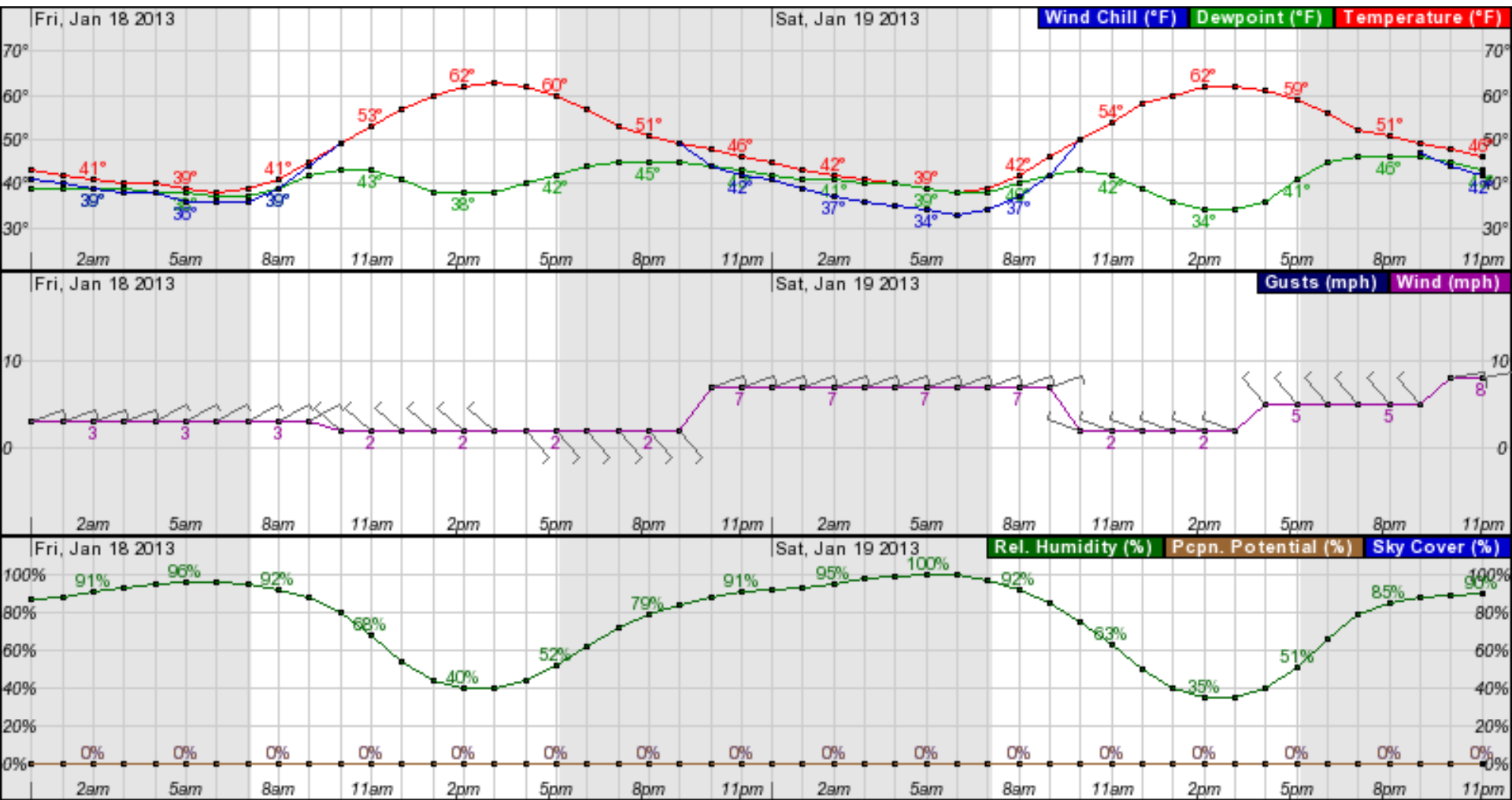
Bakersfield

Friday: Sunny with some morning fog.

Saturday: Foggy morning – sunny afternoon.

Friday →

Saturday →



Fresno; BUFKIT – NAM (12 UTC 16 January)

Saturday

Friday

Tomorrow

KFAT NAM Jan 16, 2013 12z

No Precipitation

Clouds

PBL Height

00z Sa 5p 18z Sa 11a 12z Sa 5a 06z Fr 11p 00z Fr 5p 18z Fr 11a 12z Fr 5a 06z Th 11p 00z Th 5p 18z Th 11a 12z Th 5a 06z We 11p 00z We 5p 18z We 11a 12z We 5

-Today through Saturday early afternoon: Mostly sunny.

Bakersfield; BUFRKIT – NAM (12 UTC 16 January)

Saturday

Friday

Tomorrow

KBFL NAM Jan 16, 2013 12z

No Precipitation

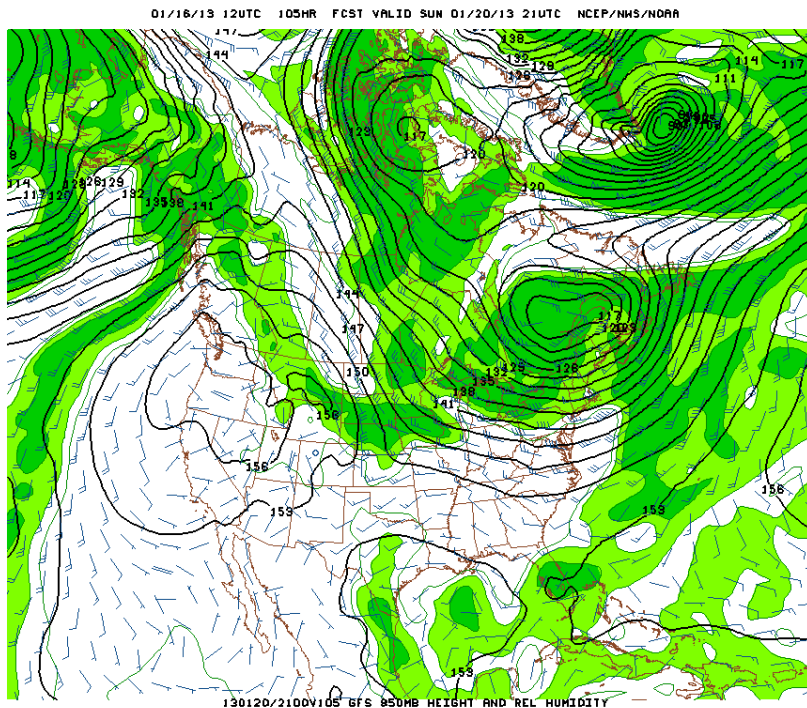
Clouds

PBL Height

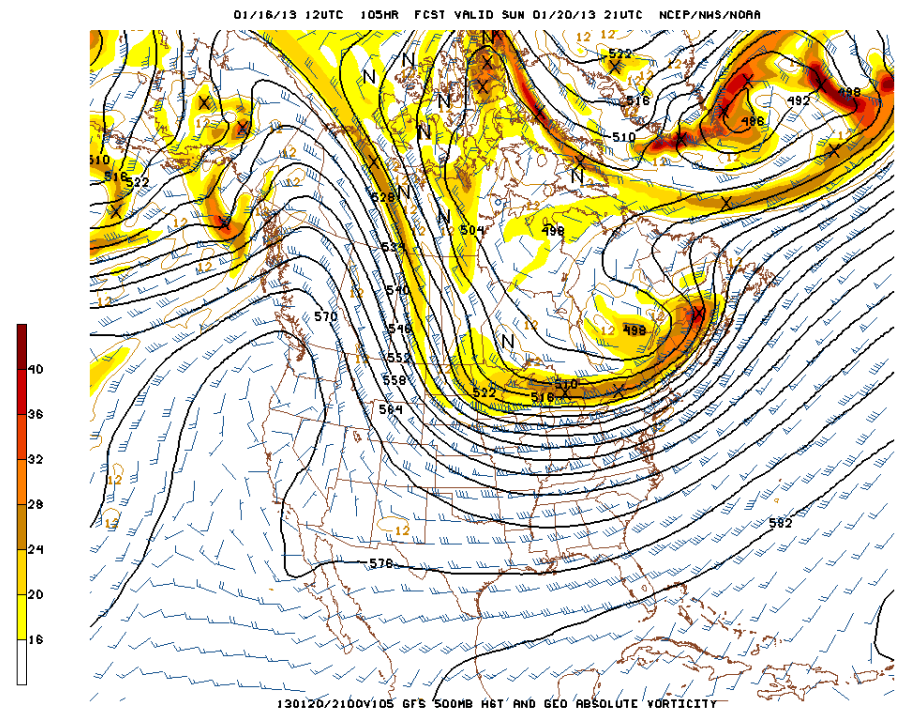
00z Sa 5p 18z Sa 11a 12z Sa 5a 06z Fr 11p 00z Fr 5p 18z Fr 11a 12z Fr 5a 06z Th 11p 00z Th 5p 18z Th 11a 12z Th 5a 06z We 11p 00z We 5p 18z We 11a 12z We 5

-Today through Saturday early afternoon: Mostly sunny with a few scattered afternoon clouds.

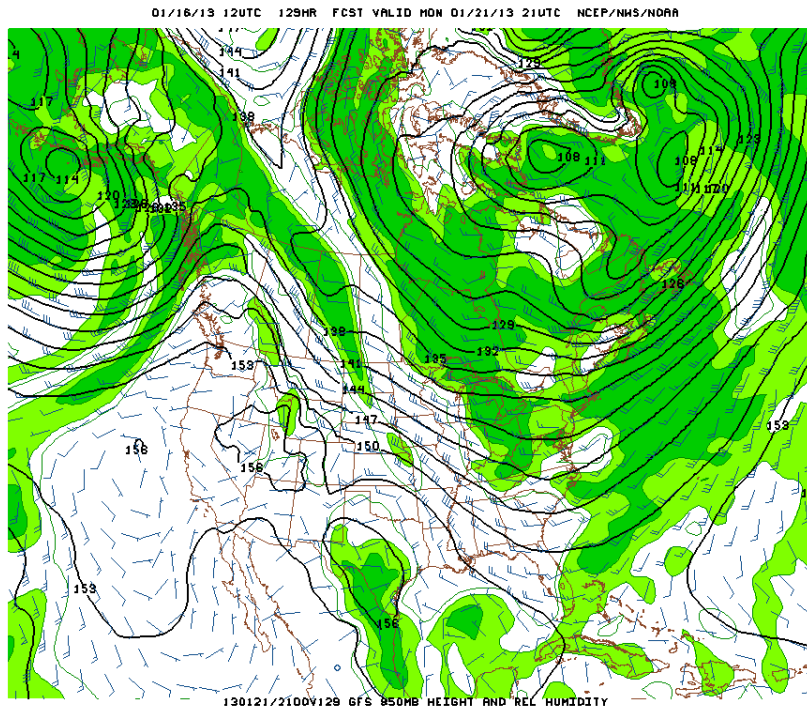
850 mb GFS Sunday 1 PM



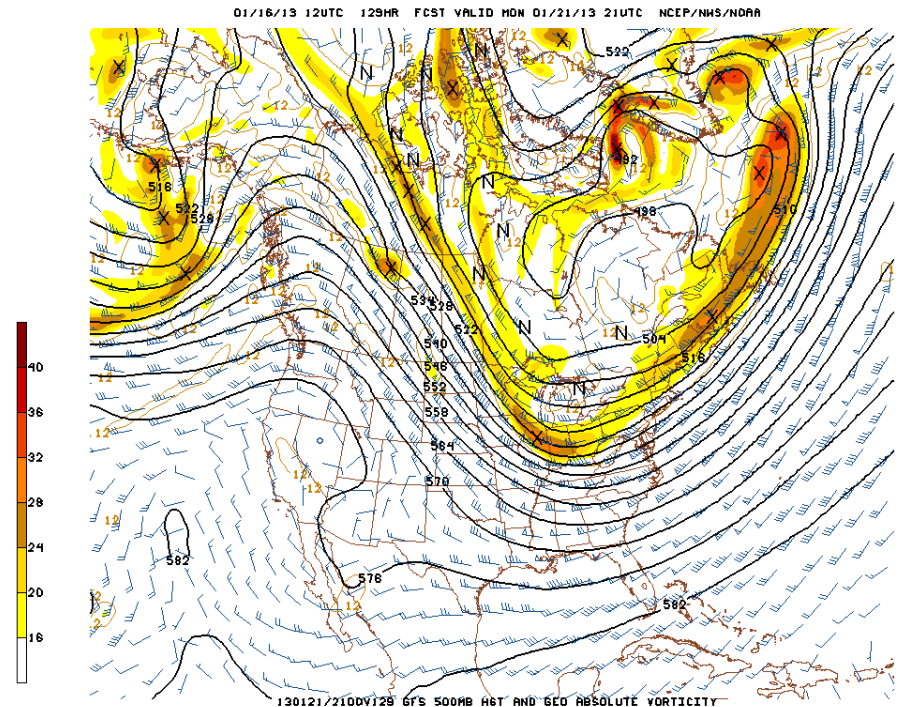
500 mb GFS Sunday 1 PM



850 mb GFS Monday 1 PM



500 mb GFS Monday 1 PM



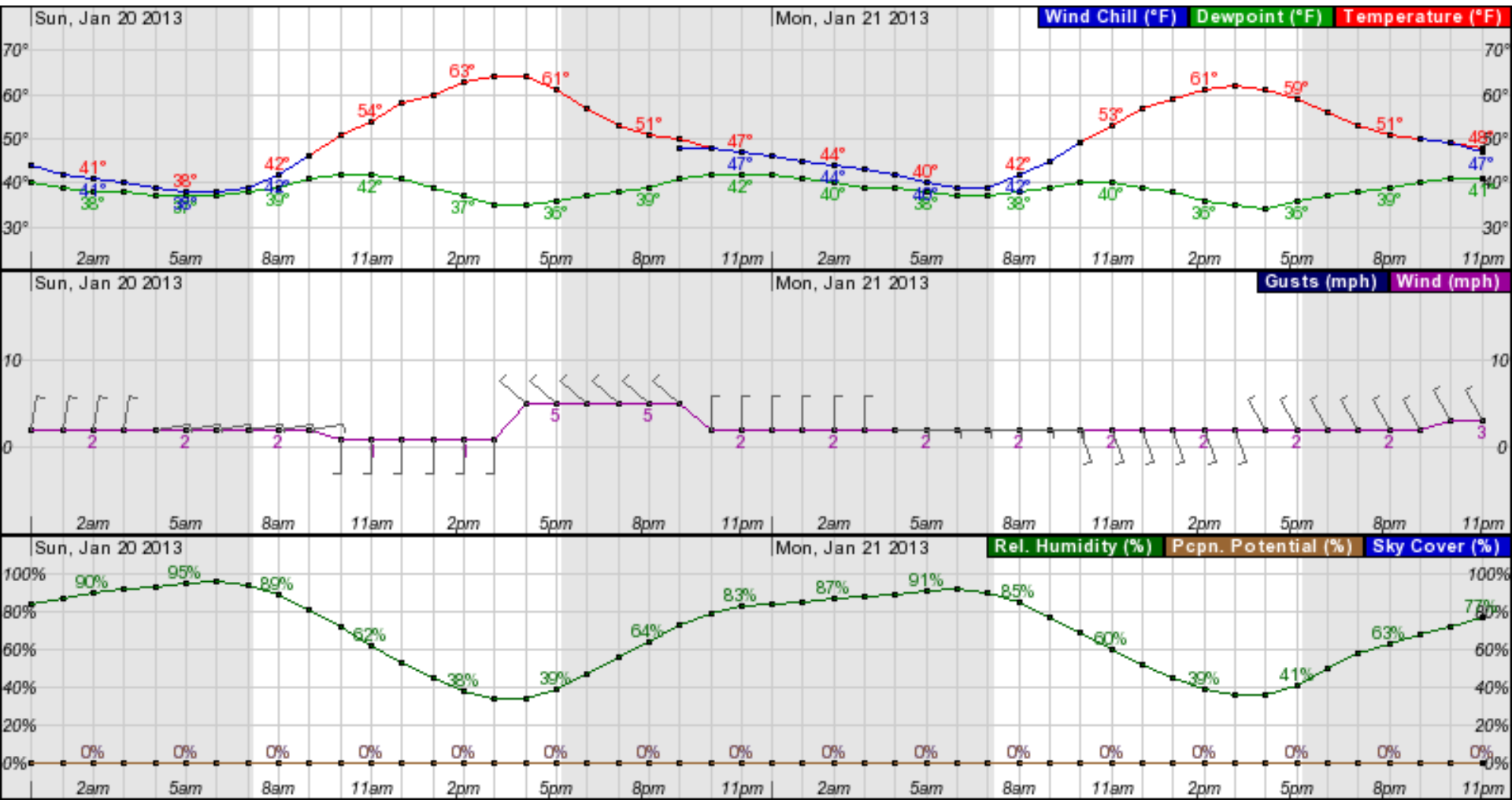
Fresno

Sunday: Sunny with a chance of morning fog.

Monday: Sunny with a chance of morning fog.

Sunday →

Monday →



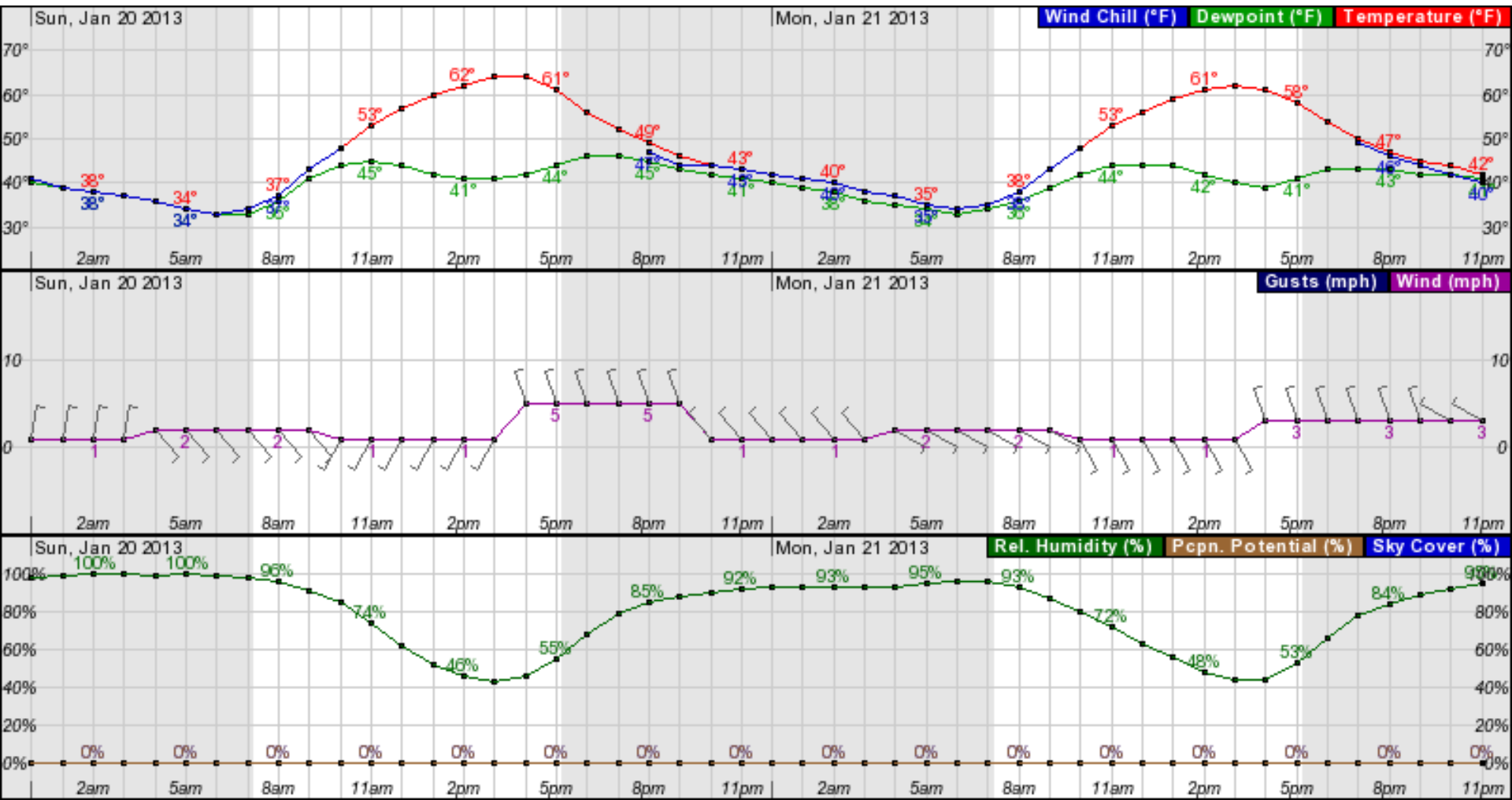
Hanford

Sunday: Foggy morning and sunny afternoon.

Monday: Foggy morning and sunny afternoon.

Sunday →

Monday →



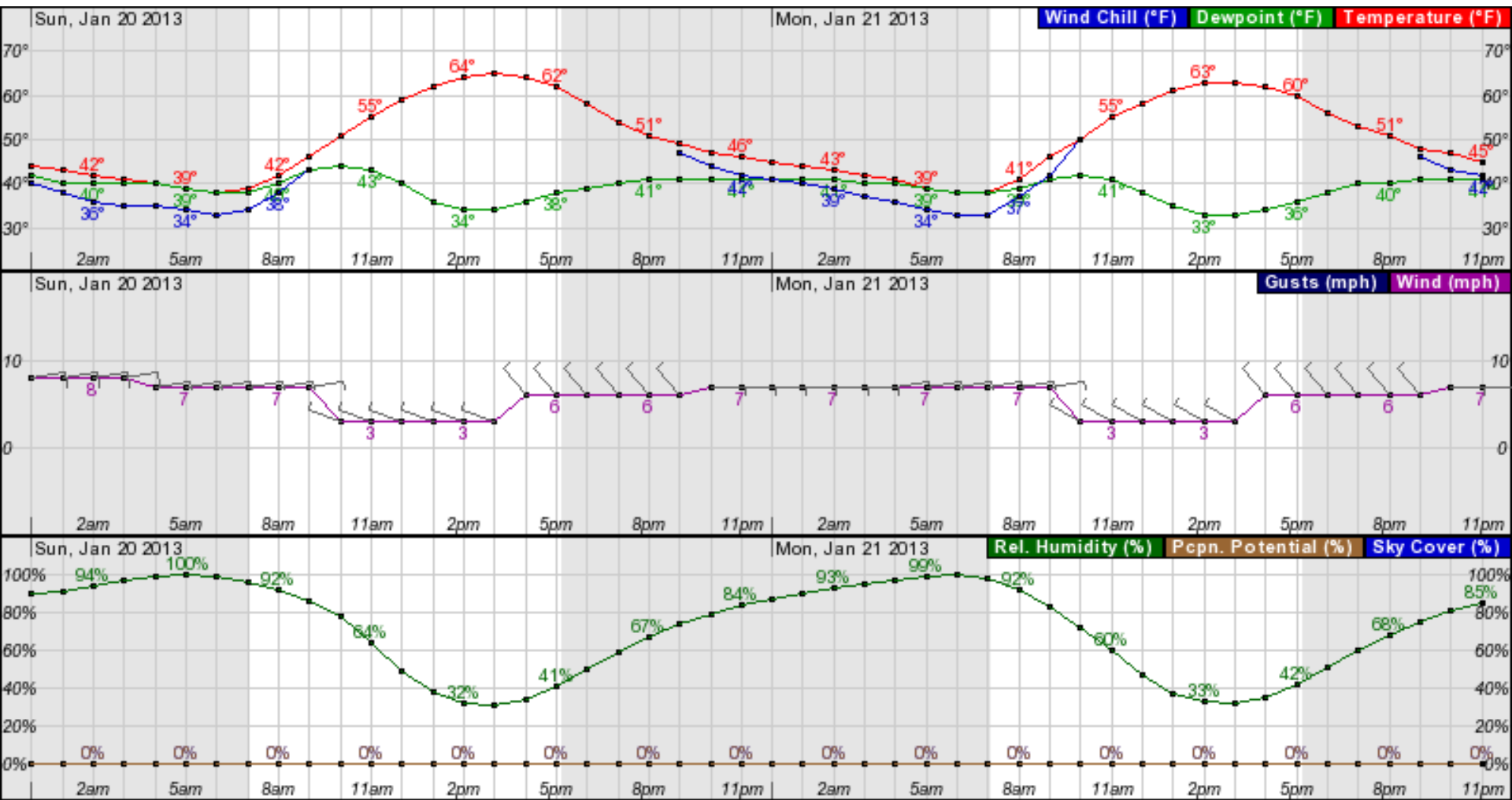
Bakersfield

Sunday: Foggy morning – sunny afternoon.

Monday: Foggy morning – sunny afternoon.

Sunday →

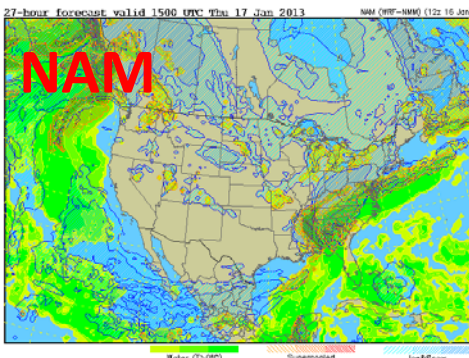
Monday →



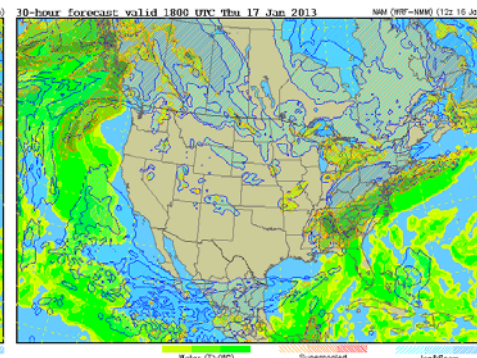
Tomorrow: NAM and Canadian – no clouds; GEOS-5 – morning fog

7 am 10 am 1 pm 4 pm

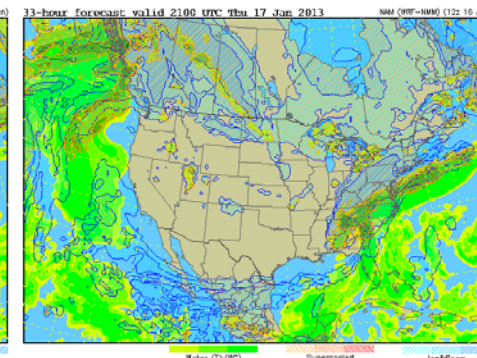
Integrated liquid and frozen hydrometeors (all levels)



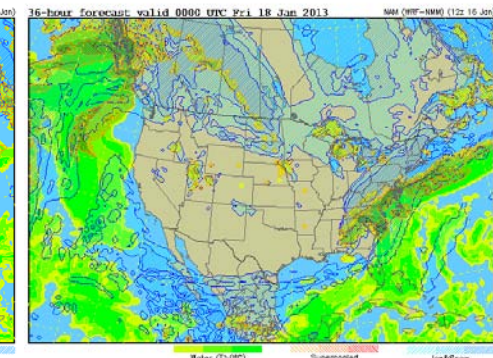
Integrated liquid and frozen hydrometeors (all levels)



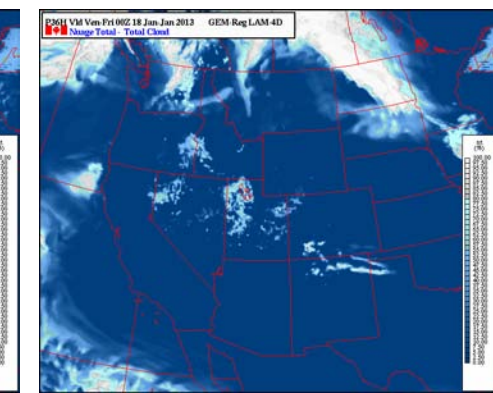
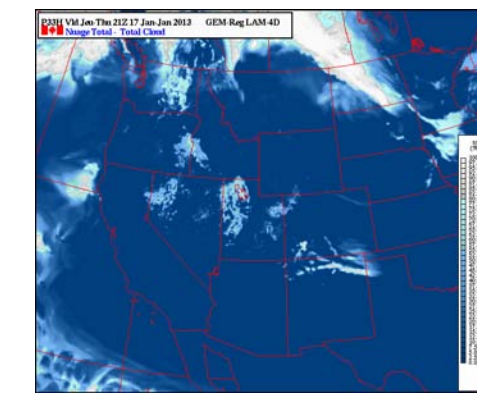
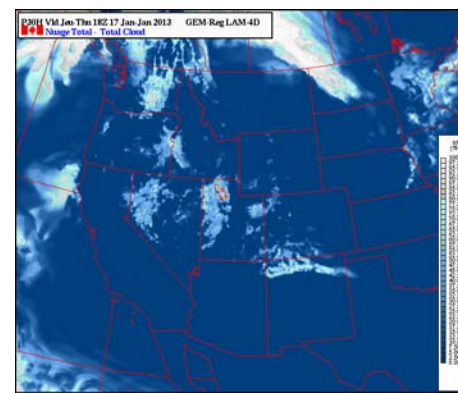
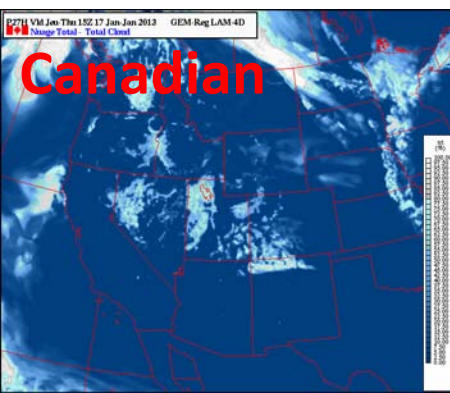
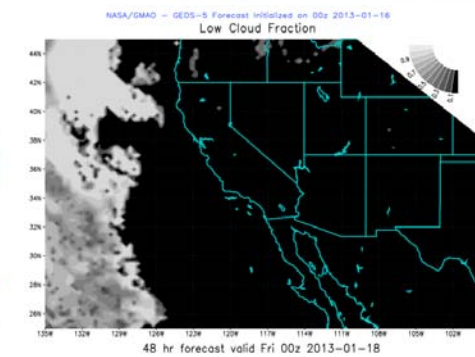
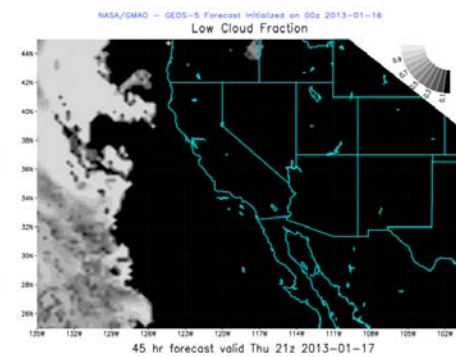
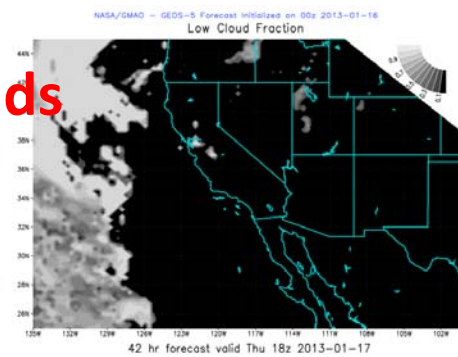
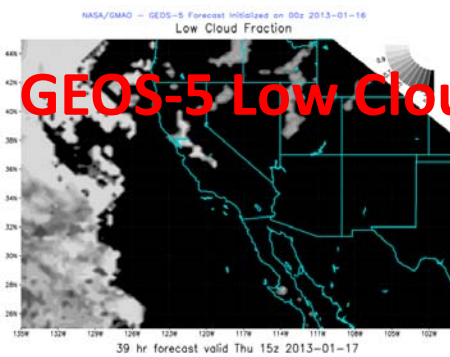
Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)



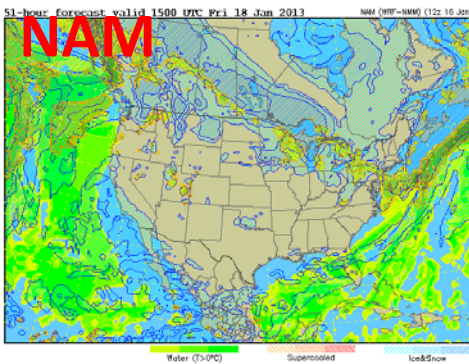
GEOS-5 Low Clouds



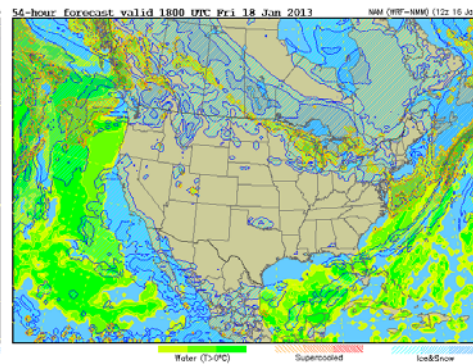
Friday: NAM – high clouds in the morning; GEOS-5 – morning fog and high clouds throughout the day.

7 am 10 am 1 pm 4 pm

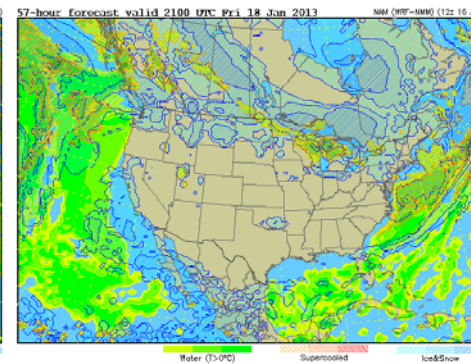
Integrated liquid and frozen hydrometeors (all levels)



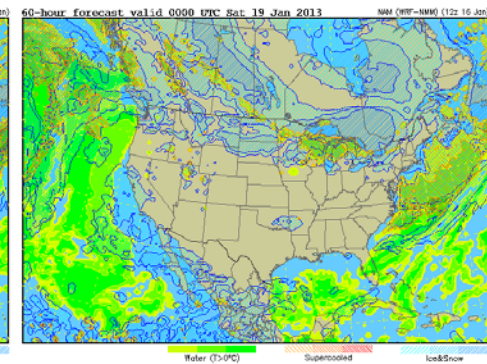
Integrated liquid and frozen hydrometeors (all levels)



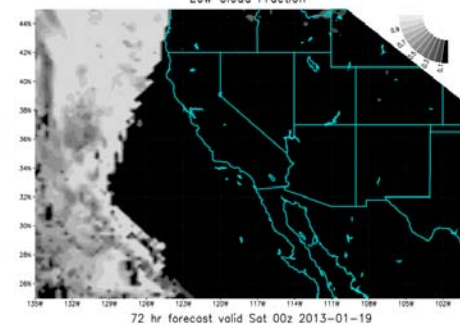
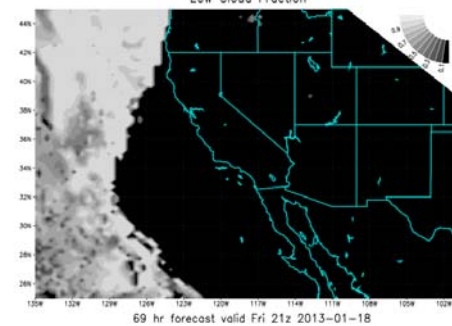
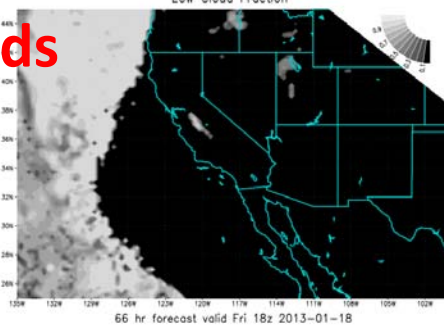
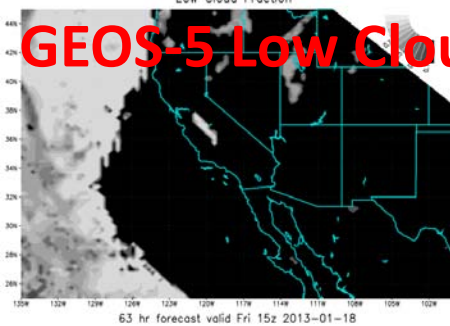
Integrated liquid and frozen hydrometeors (all levels)



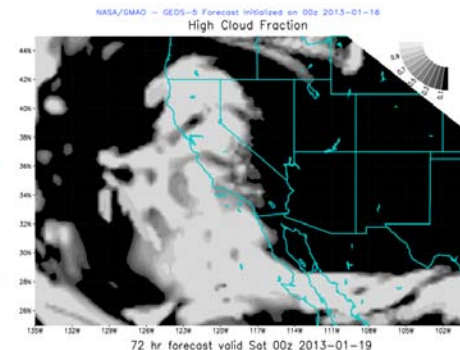
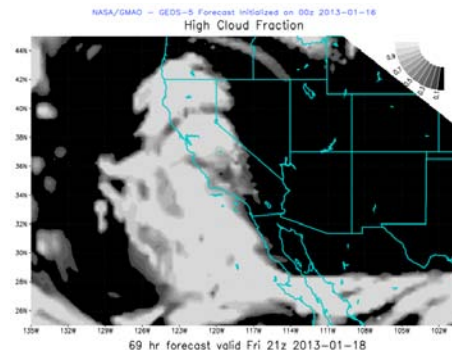
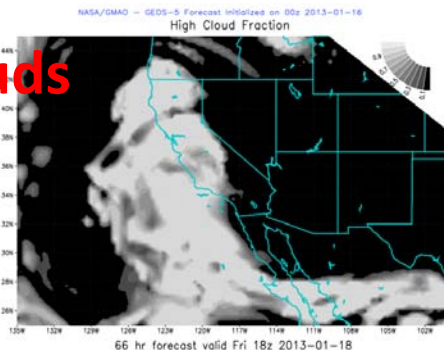
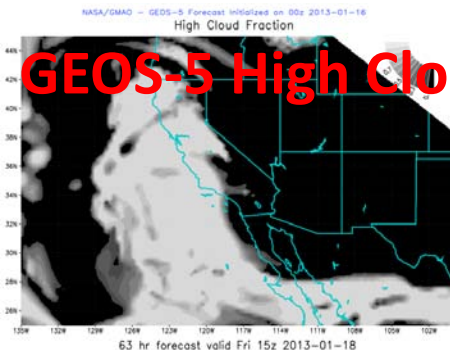
Integrated liquid and frozen hydrometeors (all levels)



GEOS-5 Low Clouds



GEOS-5 High Clouds



Saturday: NAM – high clouds; GEOS-5 – morning fog and high clouds throughout the day.

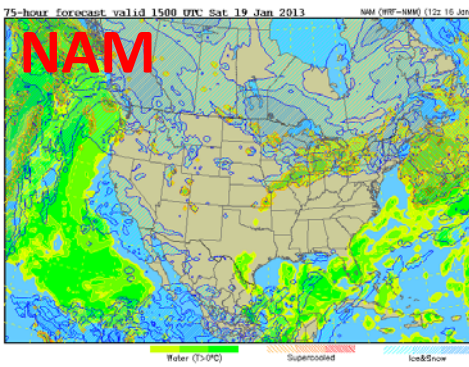
7 am

10 am

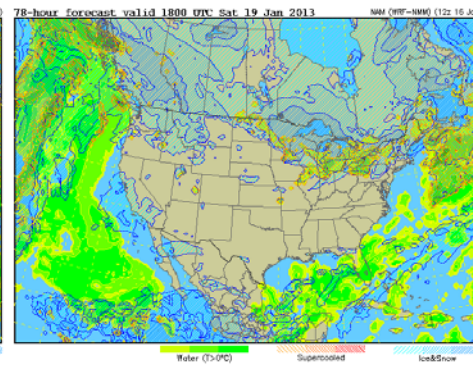
1 pm

4 pm

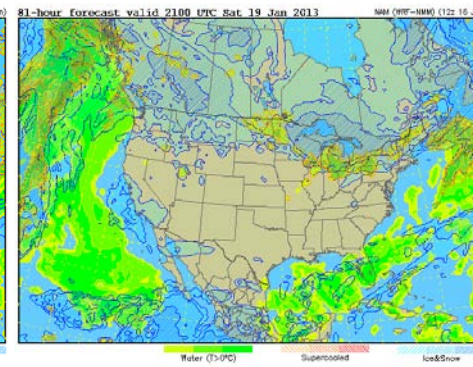
Integrated liquid and frozen hydrometeors (all levels)



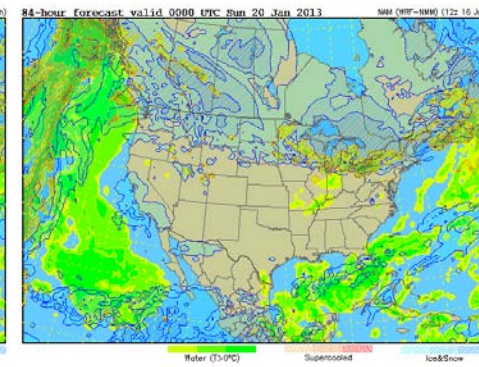
Integrated liquid and frozen hydrometeors (all levels)



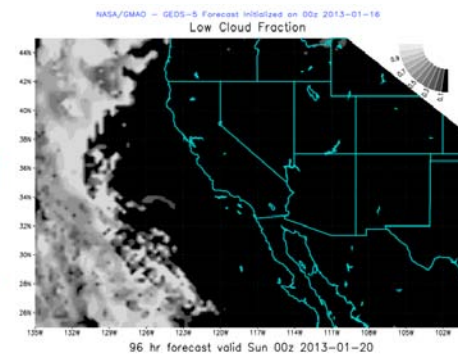
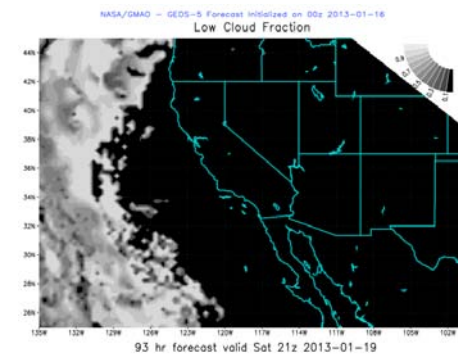
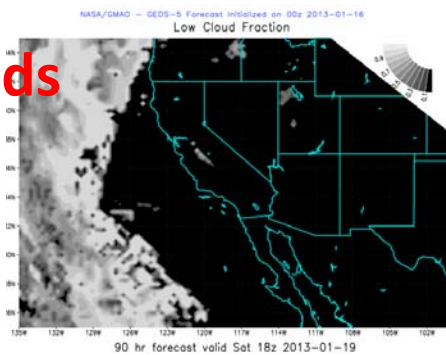
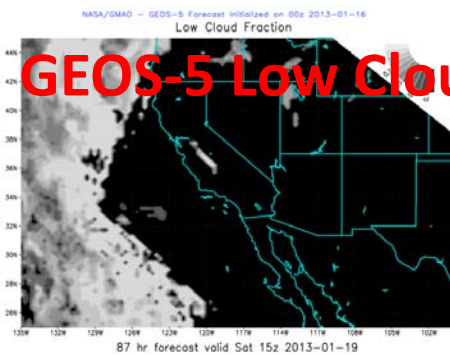
Integrated liquid and frozen hydrometeors (all levels)



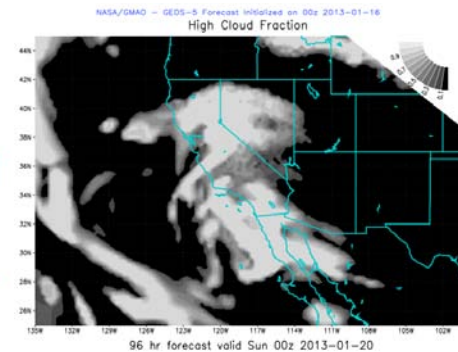
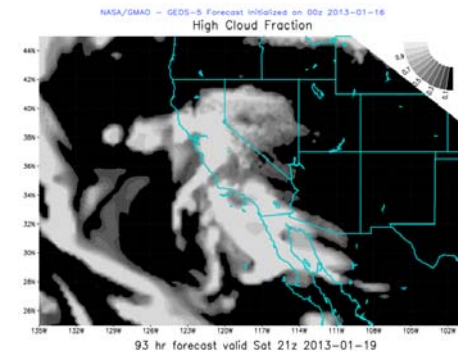
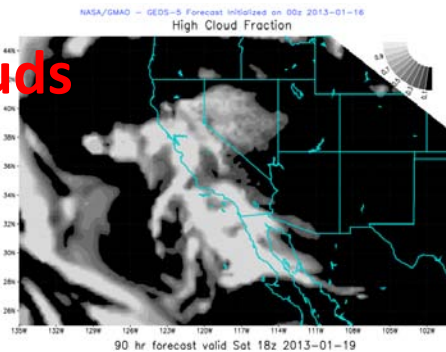
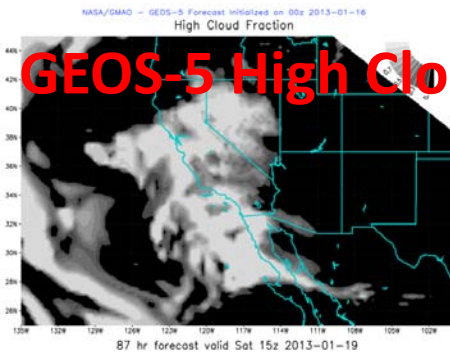
Integrated liquid and frozen hydrometeors (all levels)



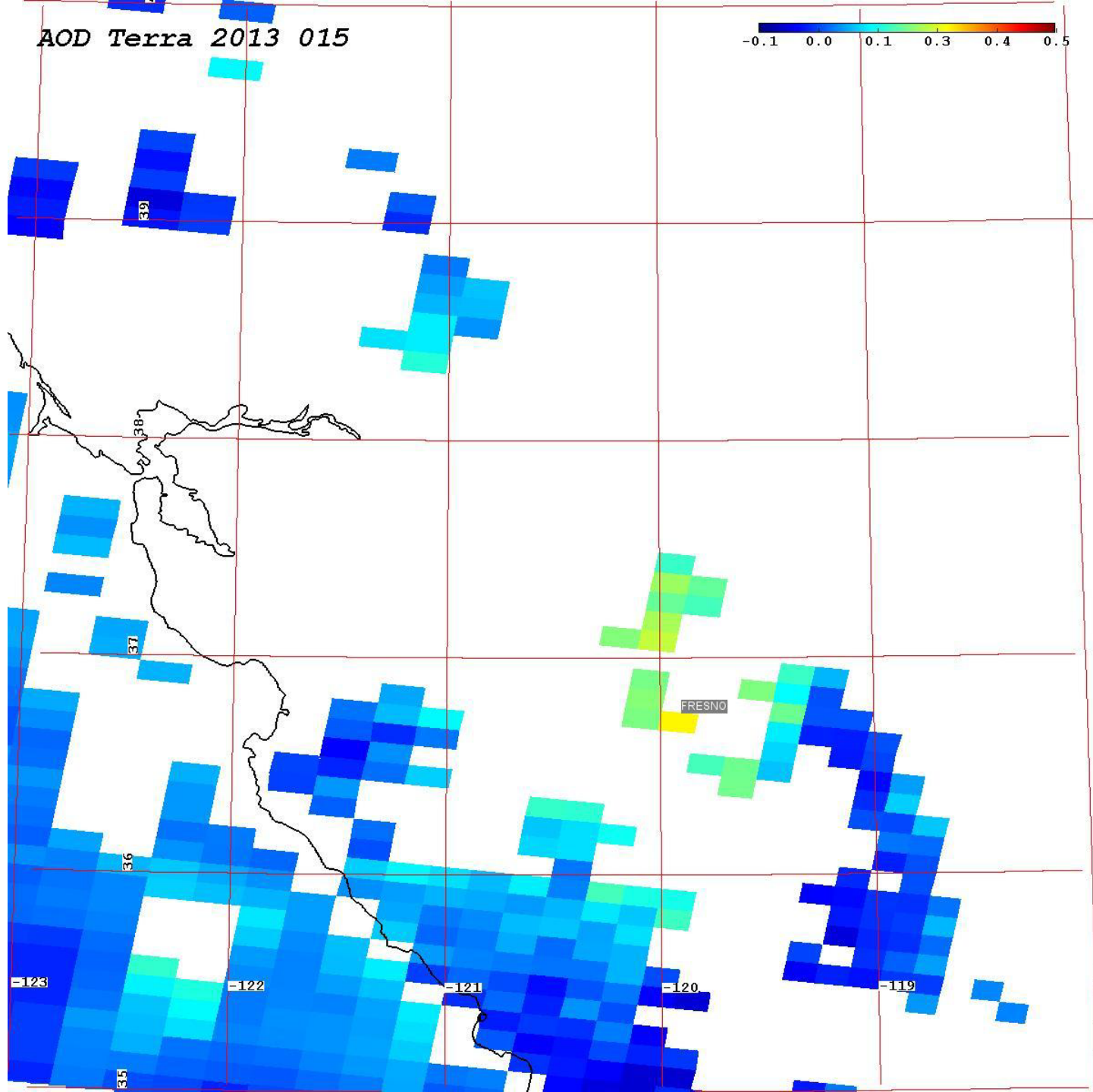
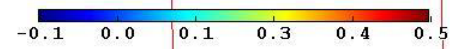
GEOS-5 Low Clouds



GEOS-5 High Clouds

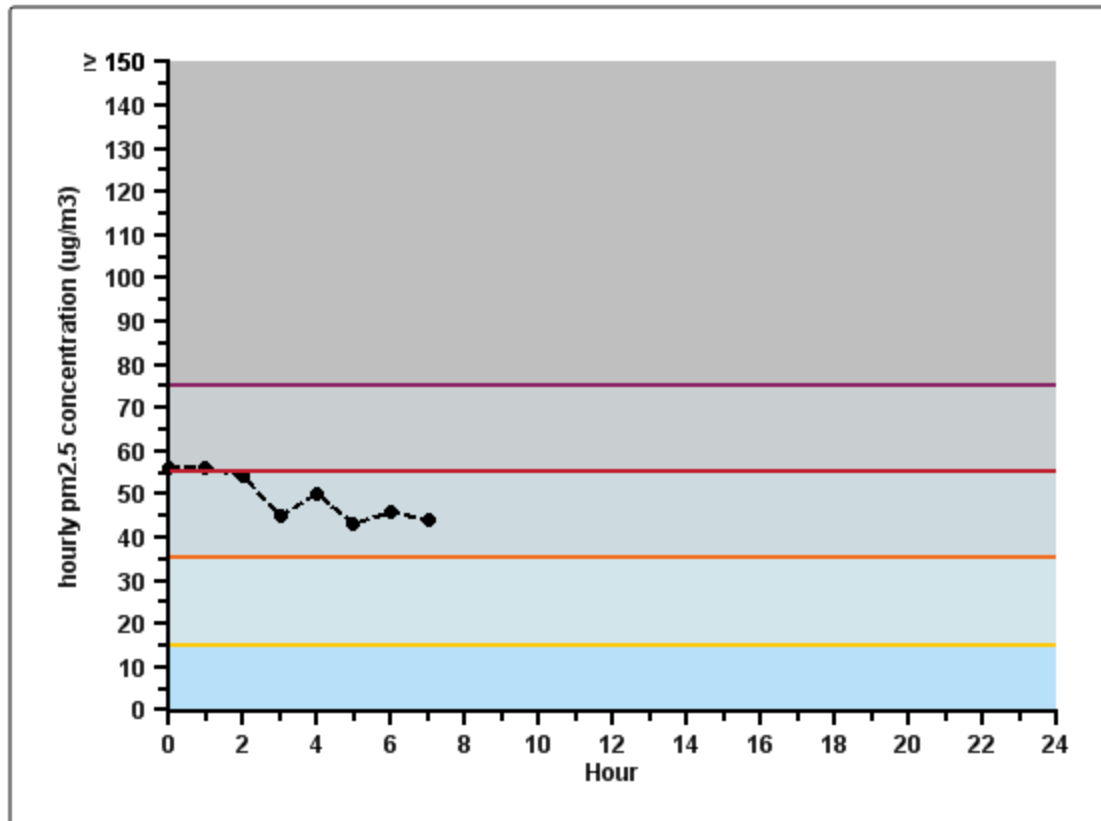


AOD Terra 2013 015



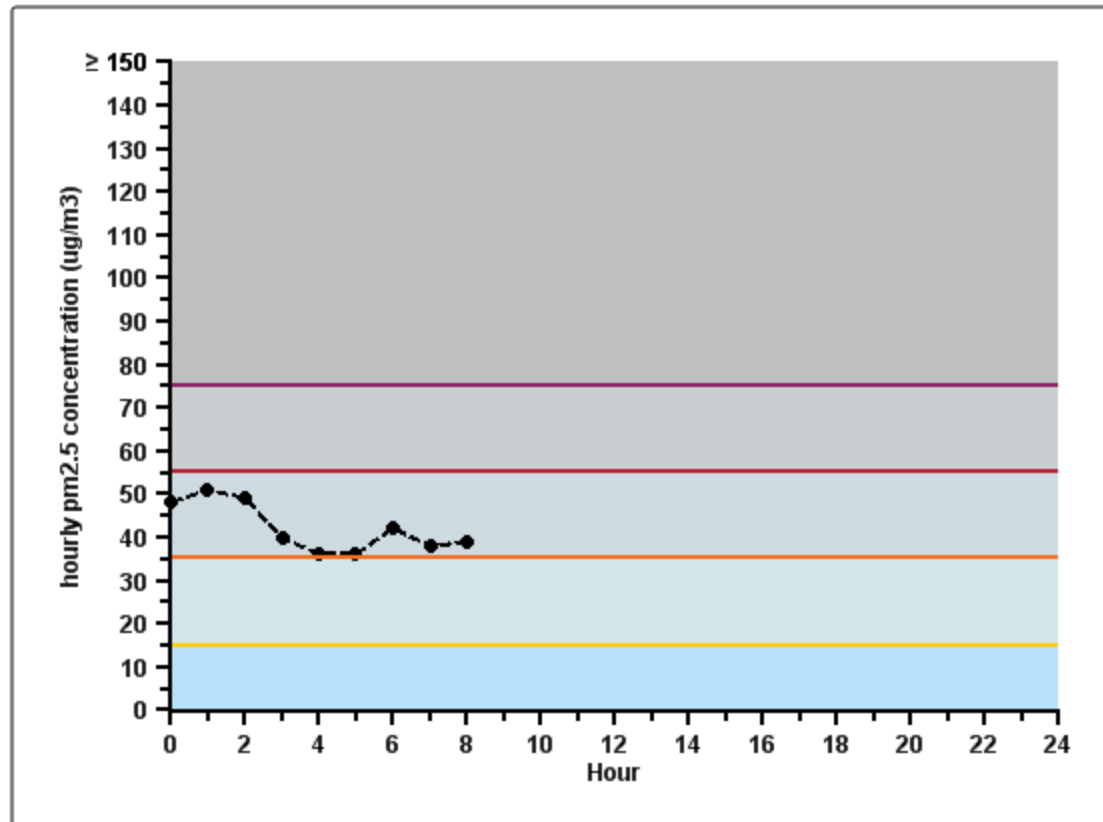
Fresno – Garland -- January 16, 2013

Air District Real-Time Outdoor Activity Risk



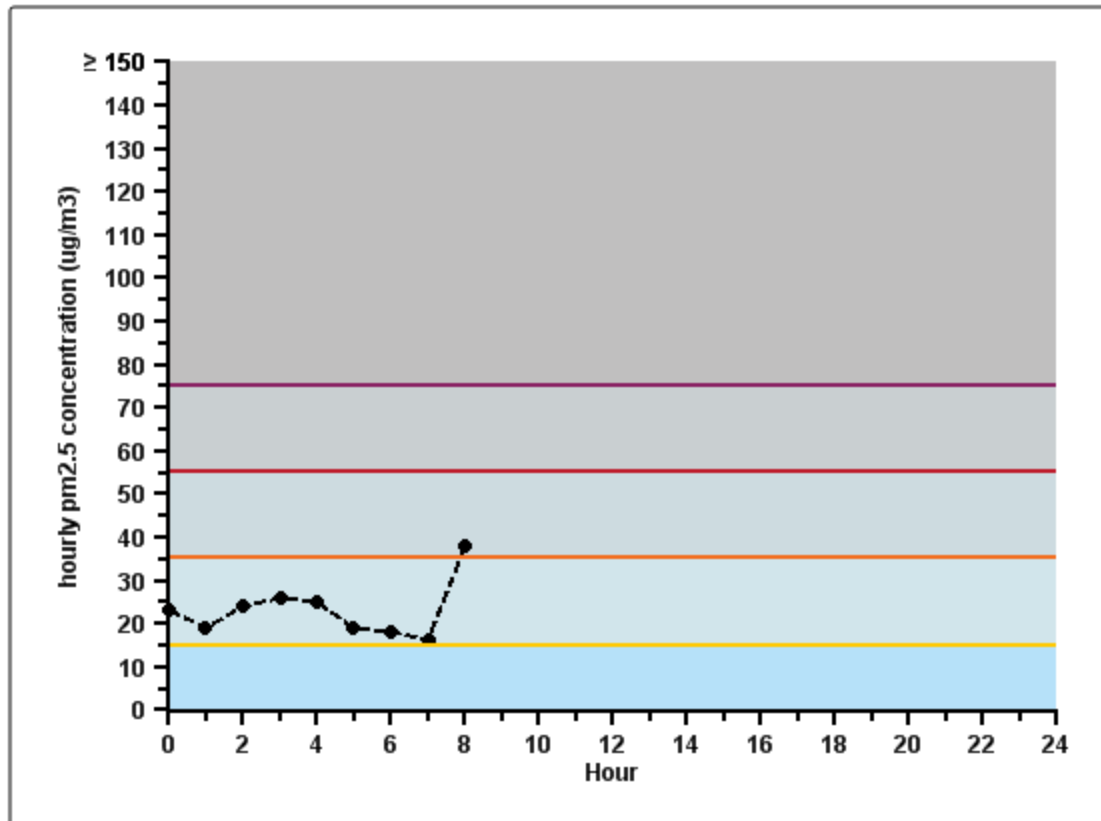
Corcoran -- January 16, 2013

Air District Real-Time Outdoor Activity Risk

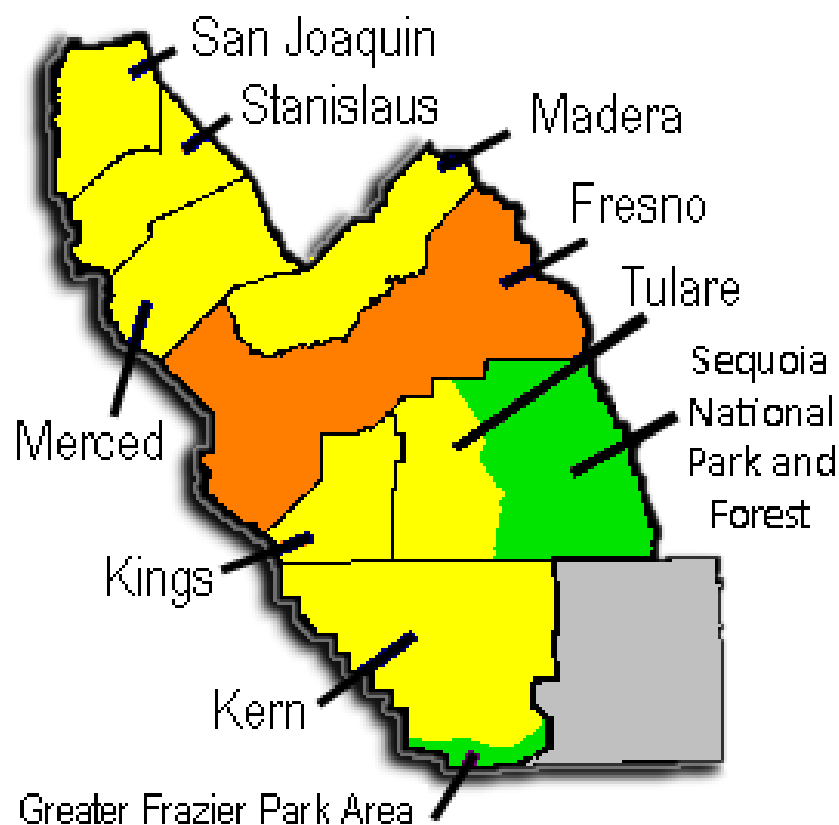







Bakersfield – Munic. Airport -- January 16, 2013

Air District Real-Time Outdoor Activity Risk

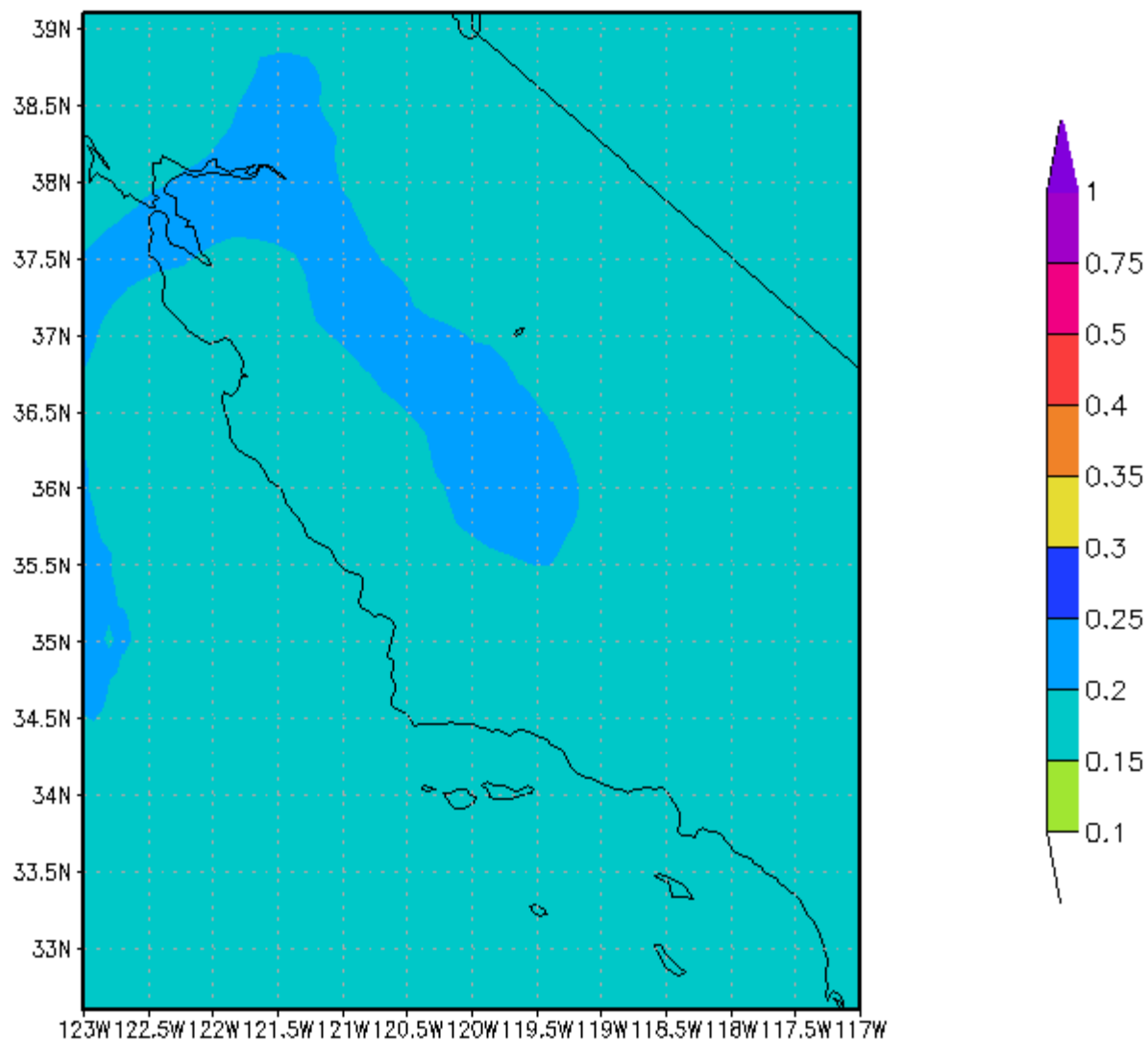


SJVAPCD Air Quality Forecast for today (Jan. 16, 2013)

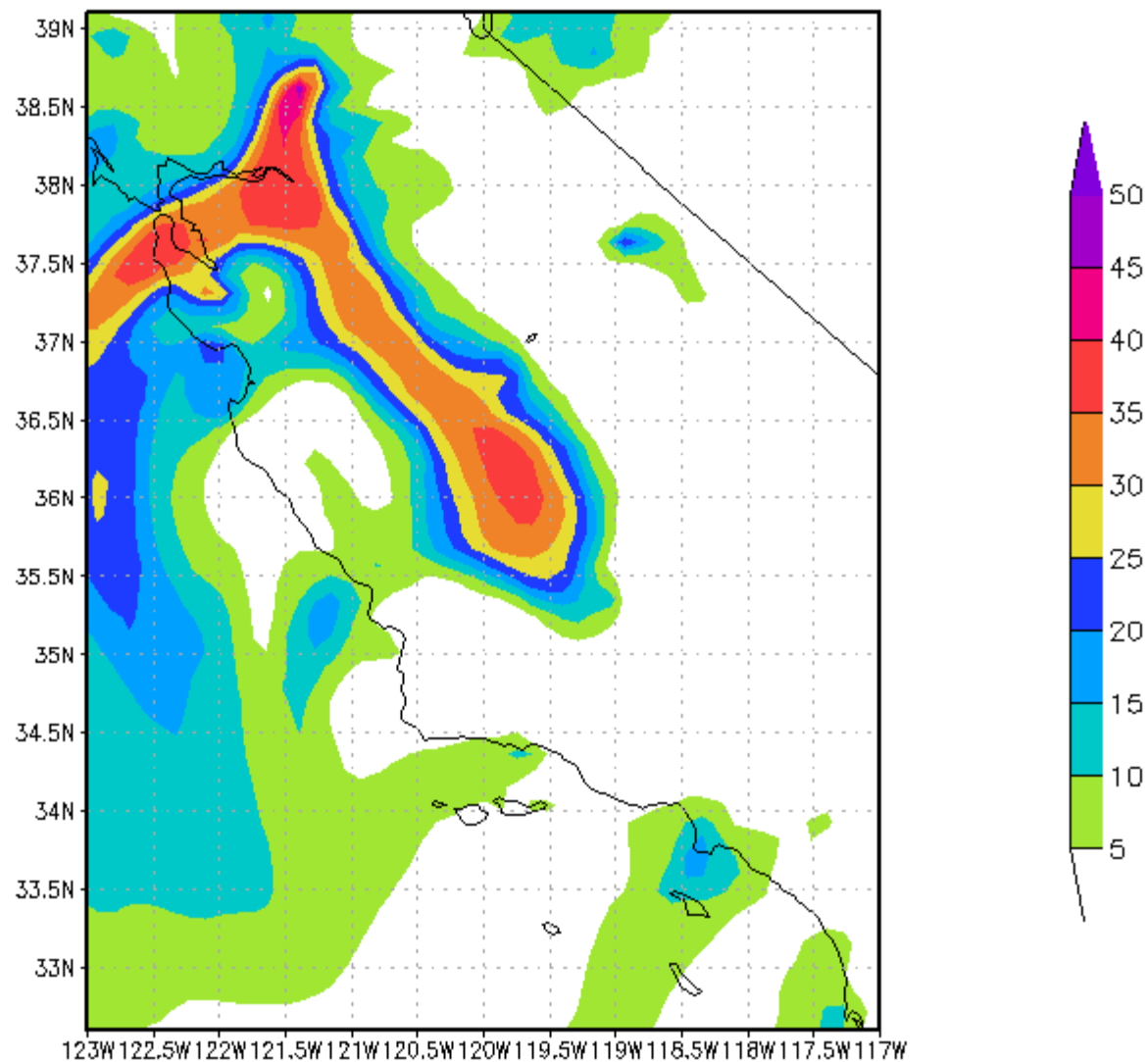


ROAR LEVEL	Ozone (O ₃)	Particulate Matter (PM 2.5)
 LEVEL 1 Good	1-59 ppb	1-15 µg/m ³
 LEVEL 2 Moderate	60-75 ppb	16-35 µg/m ³
 LEVEL 3 Unhealthy for Sensitive Groups	76-95 ppb	36-55 µg/m ³
 LEVEL 4 Unhealthy	96-115 ppb	56-75 µg/m ³
 LEVEL 5 Very Unhealthy	>115 ppb	>75 µg/m ³

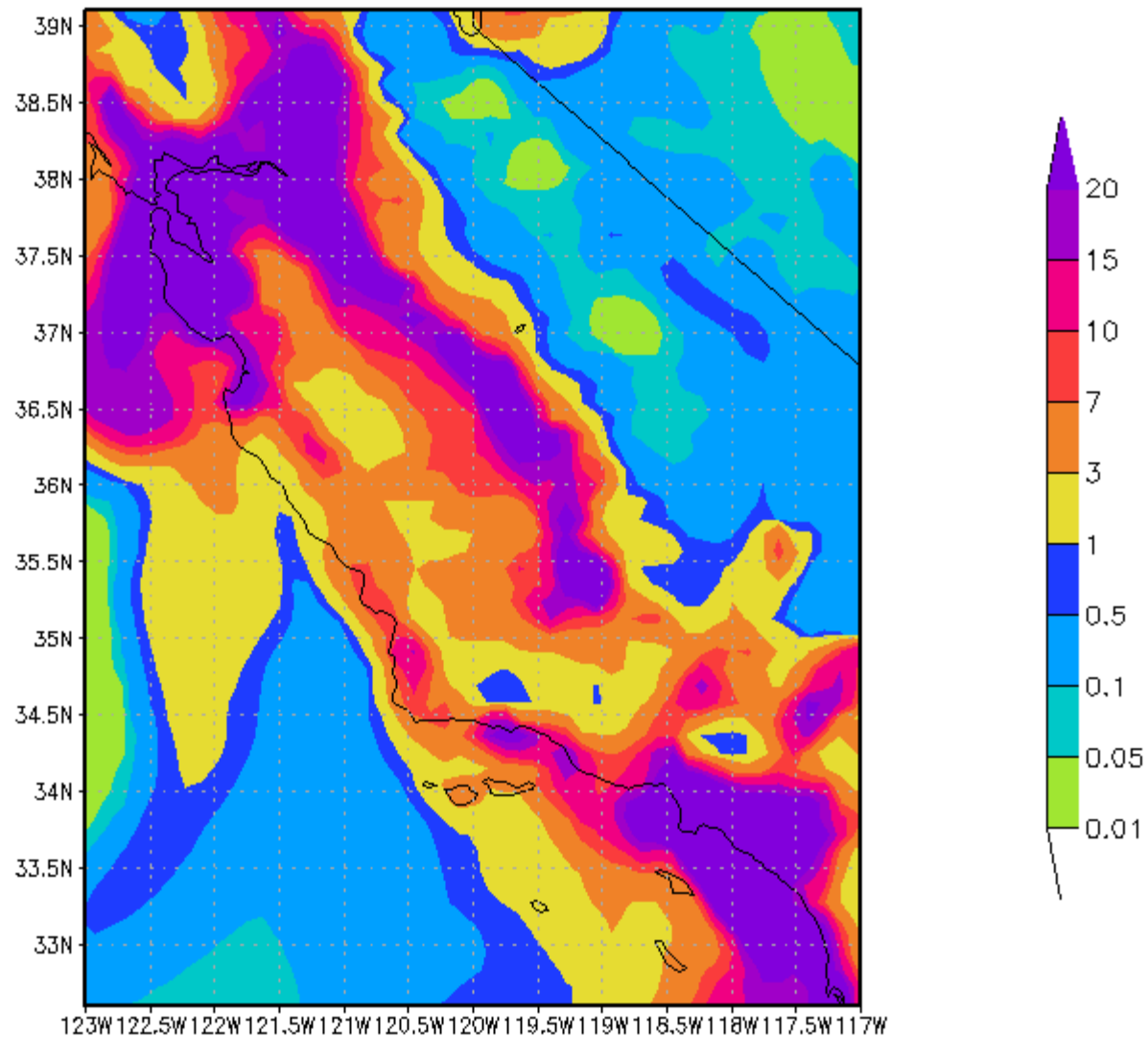
Column AOD [Dimensionless] at surface Valid 18 JAN 17 2013



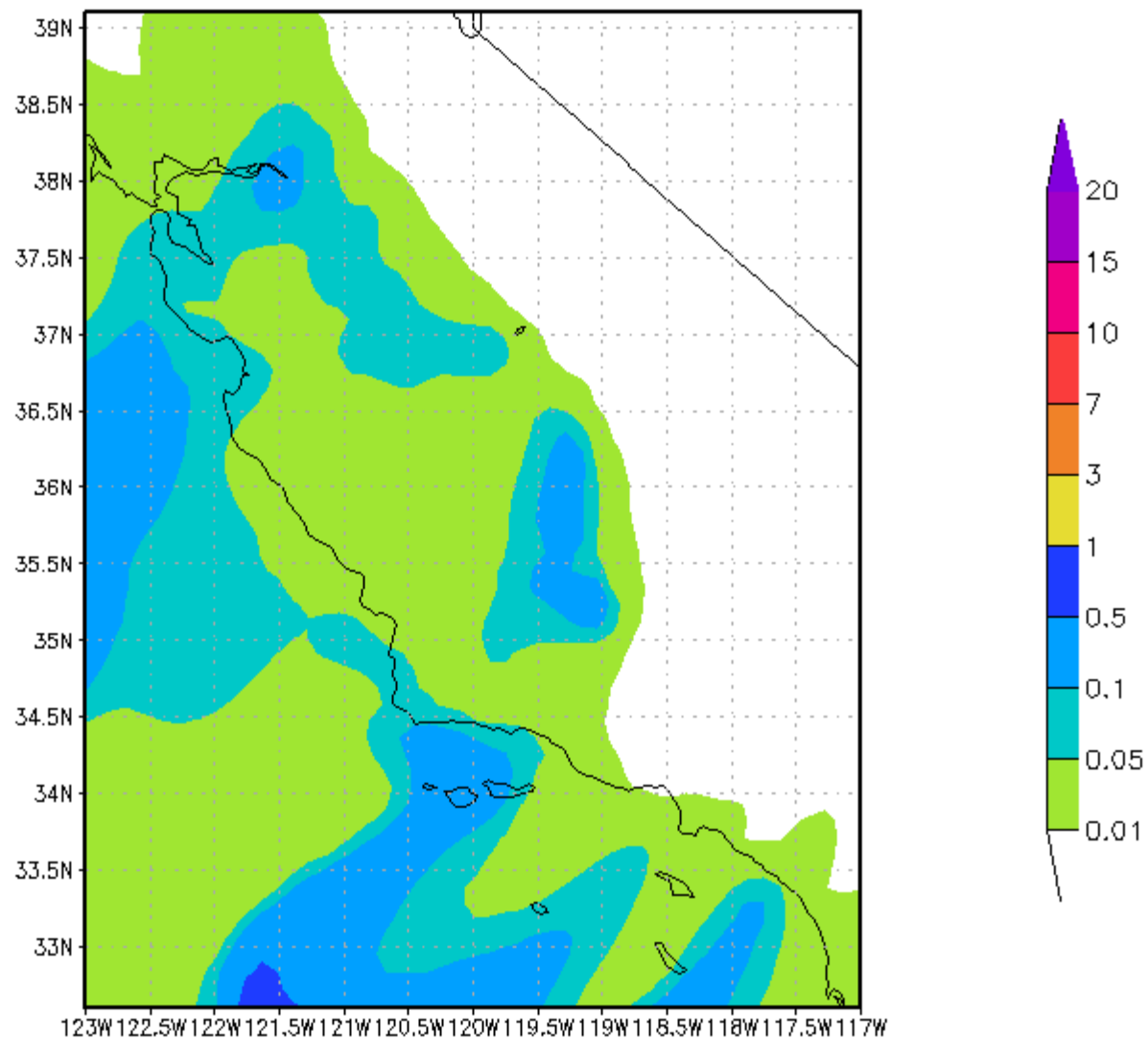
PM25 [$\mu\text{g}/\text{m}^3$] at surface Valid 18 JAN 17 2013



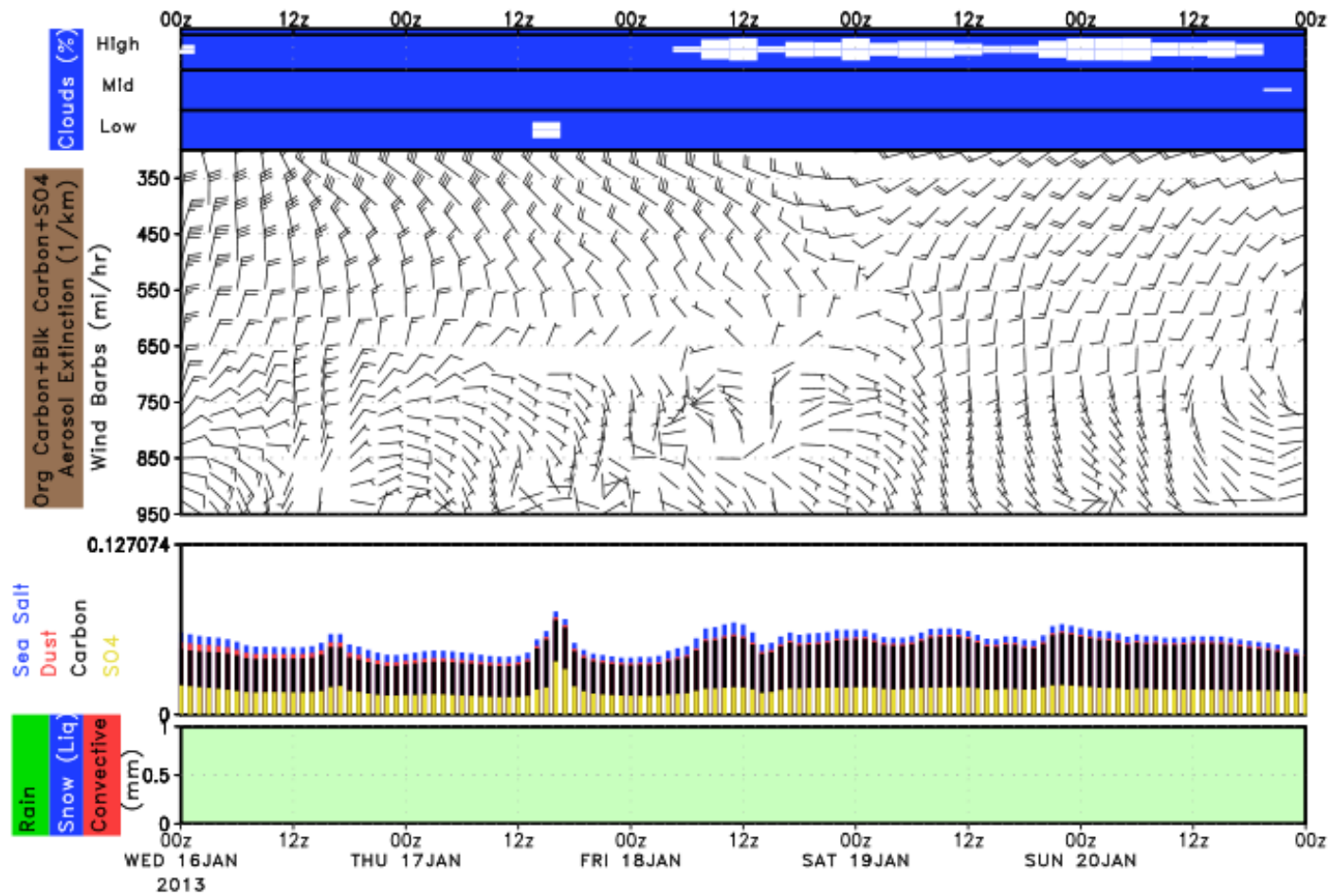
NO₂ [ppb] at 1013 [hPa] Valid 18 JAN 17 2013



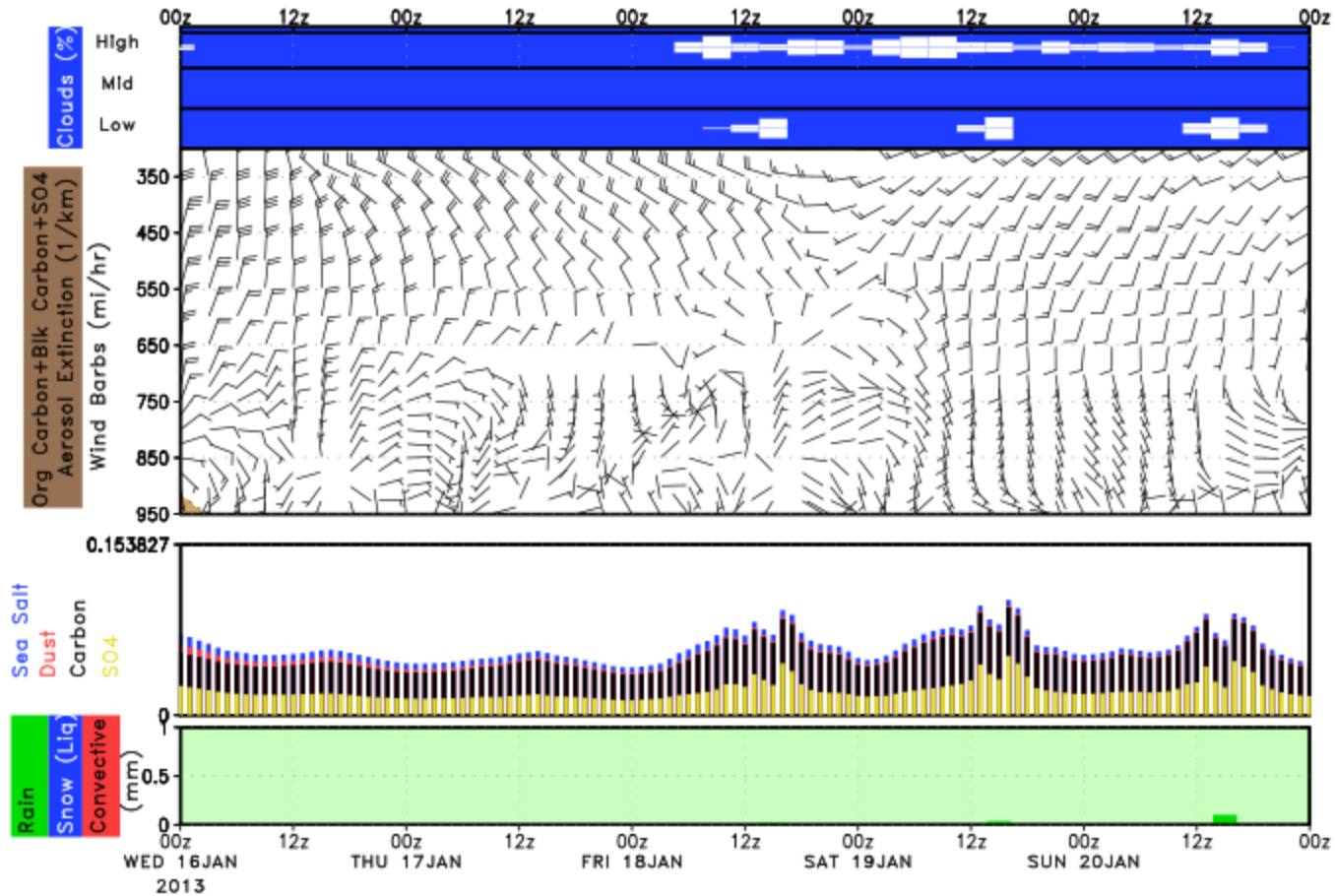
NO₂ [ppb] at 850 [hPa] Valid 18 JAN 17 2013



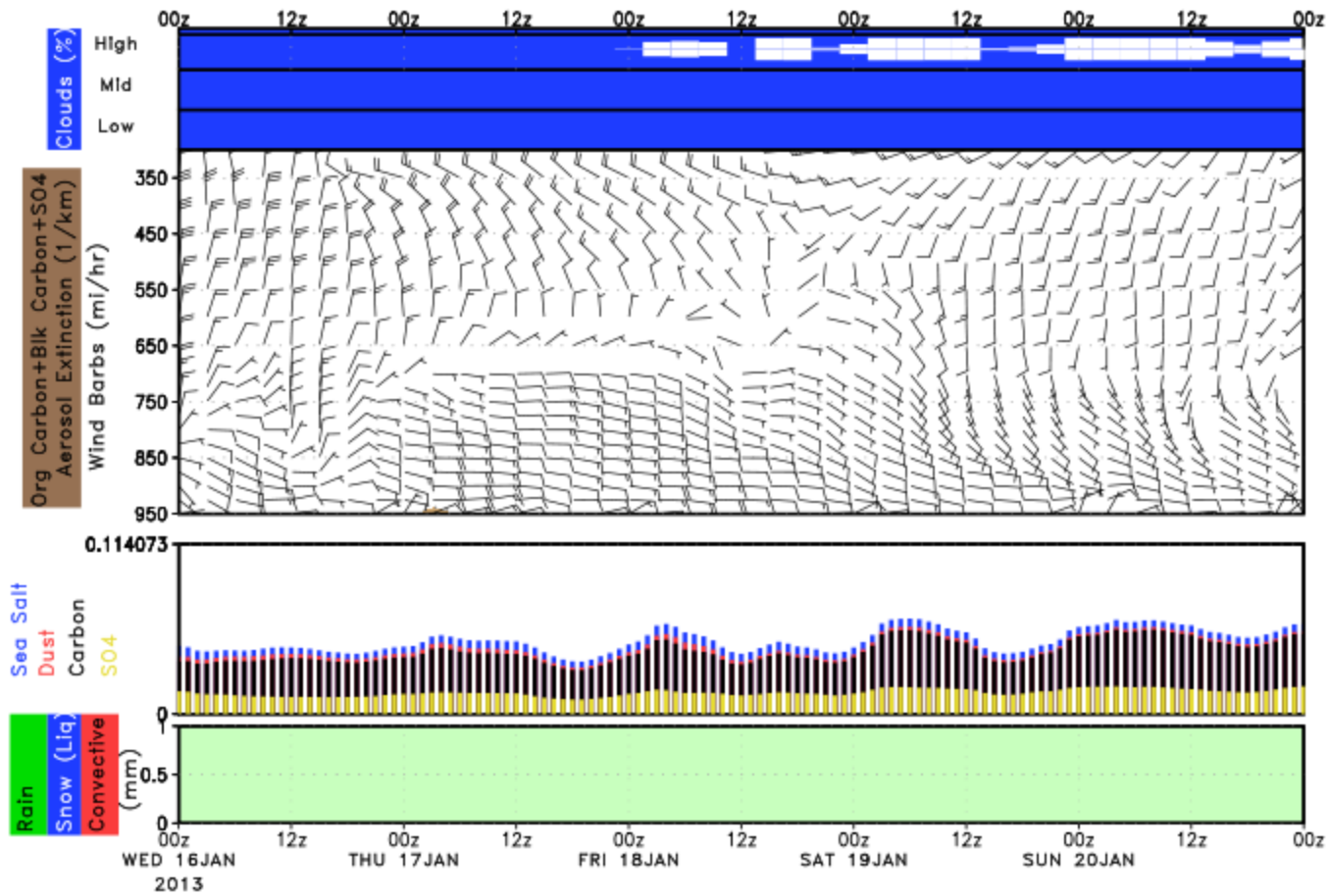
Fresno -- GEOS- 5 forecast



Hanford -- GEOS-5 forecast

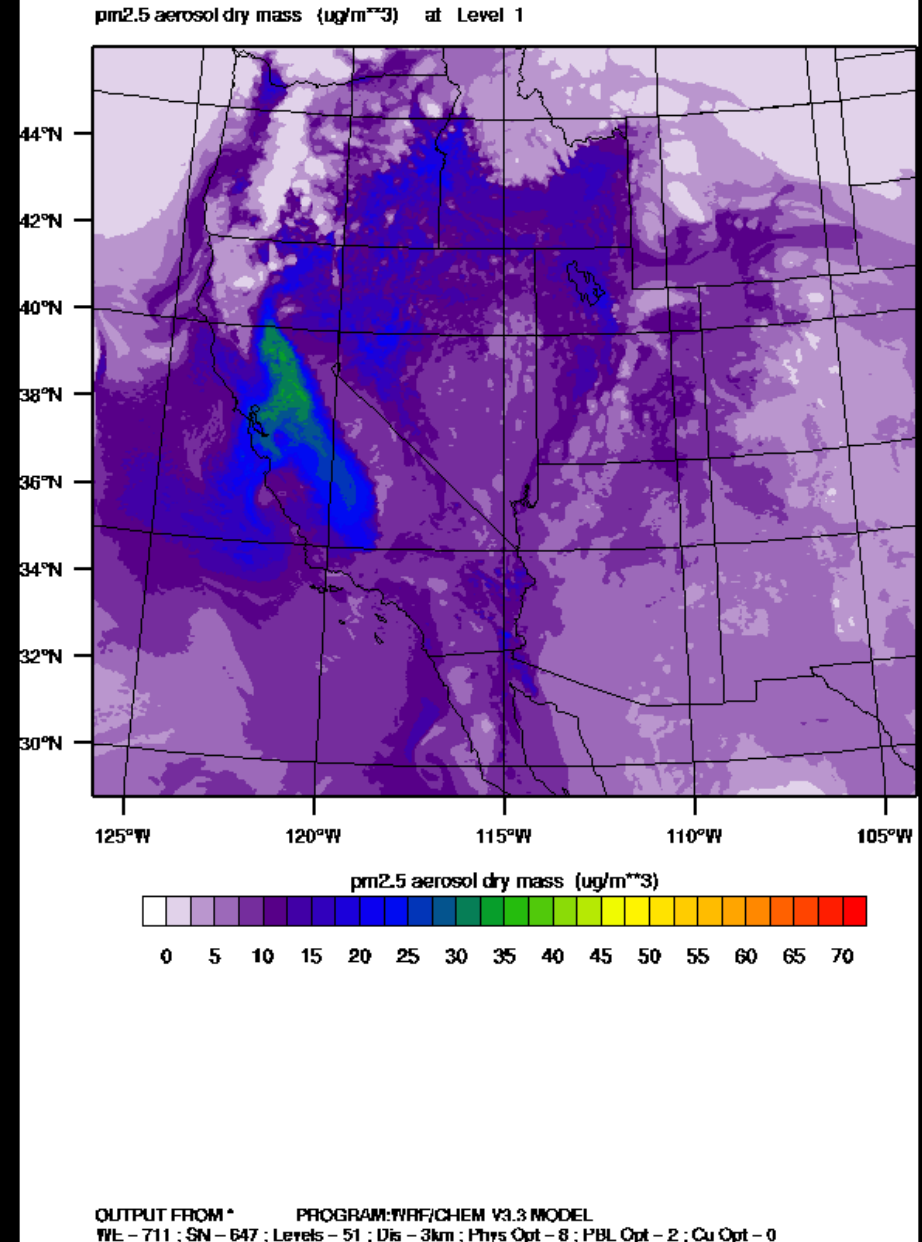


Bakersfield -- GEOS-5 forecast



Western 3-km
model suggests
continued higher
 $PM_{2.5}$ in northern
SJq and Sac Valleys,
consistent with
gentle flow towards
the north.

This should continue
through Friday

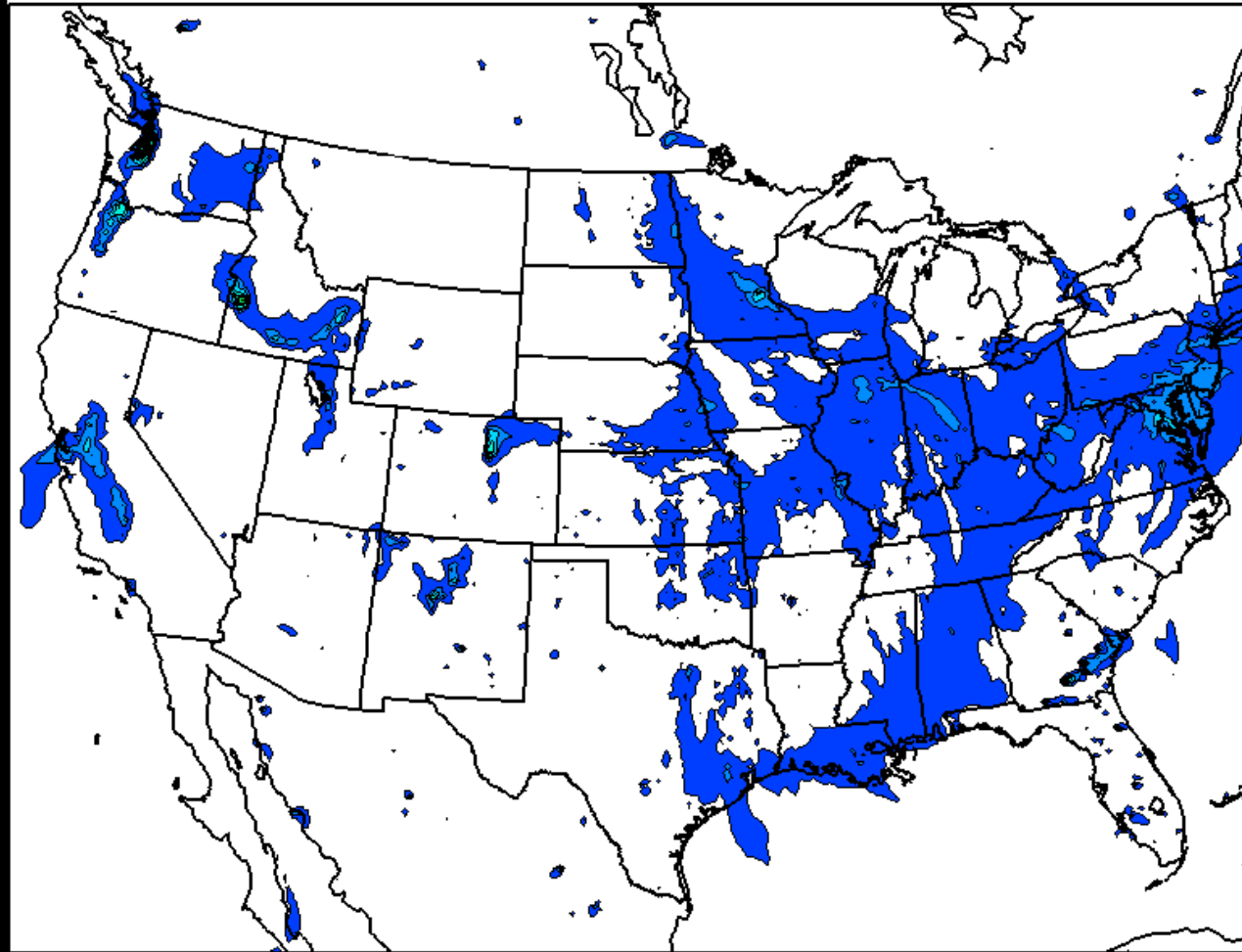


pm2.5 aerosol dry mass

ug

Continental 10-km model *also* suggests continued higher PM_{2.5} in northern SJq and Sac Valleys, consistent with gentle flow towards the north.

This should continue through Friday



Summary and Recommendations

- Large ridge of high pressure remains parked just off the Pacific Coast, leading to continuation of fair weather in the SJV. Dry air today, tomorrow, and Friday will preclude much in the way of fog formation. More chance of widespread fog in the SJV over the weekend. Global models bring chance of significant cirrus cloud over our study region on Friday and Saturday, but this is not predicted in the NAM. Need to stay tuned for an update on this situation tomorrow.
- Recommendation – Thursday would be a good day to fly if we did not have logistical issues. Friday should be a good fly day, but the cirrus issue needs to be readdressed tomorrow.