# DISCOVER-AQ / PODEX
# Forecast Briefing

February 6, 2013

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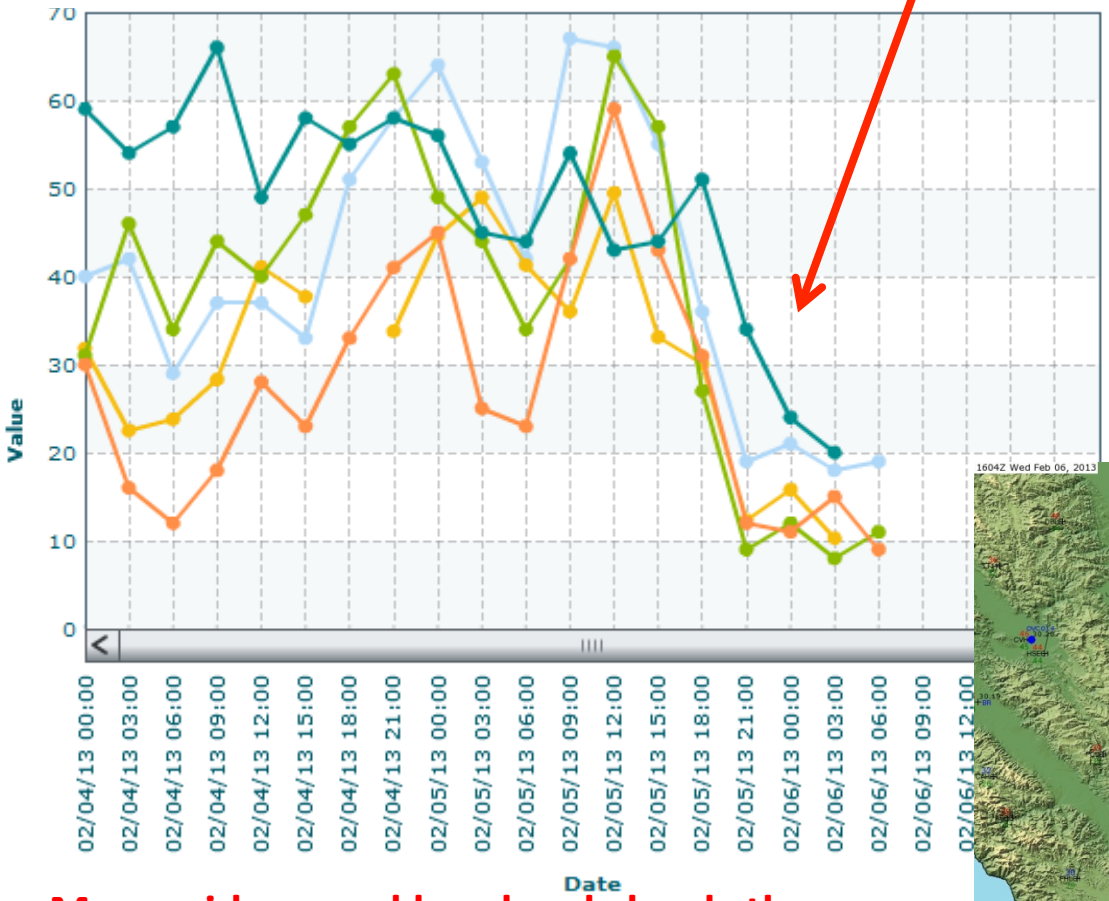
Bryan Duncan

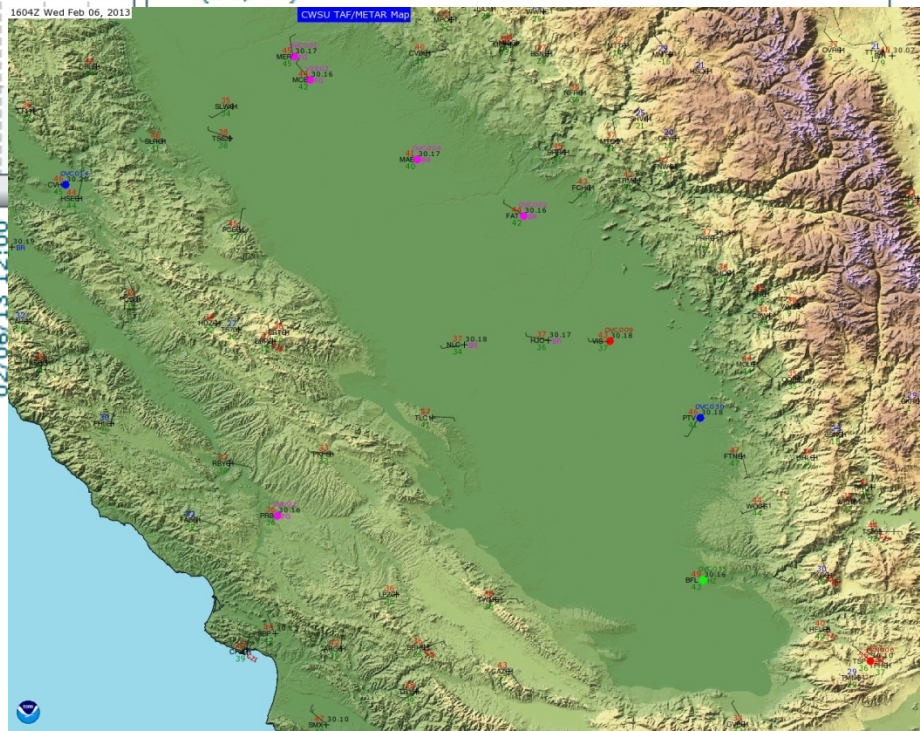
# A Busted Forecast!

PM2.5 levels took a bit hit from overnight winds.

## SJV: Hourly PM2.5

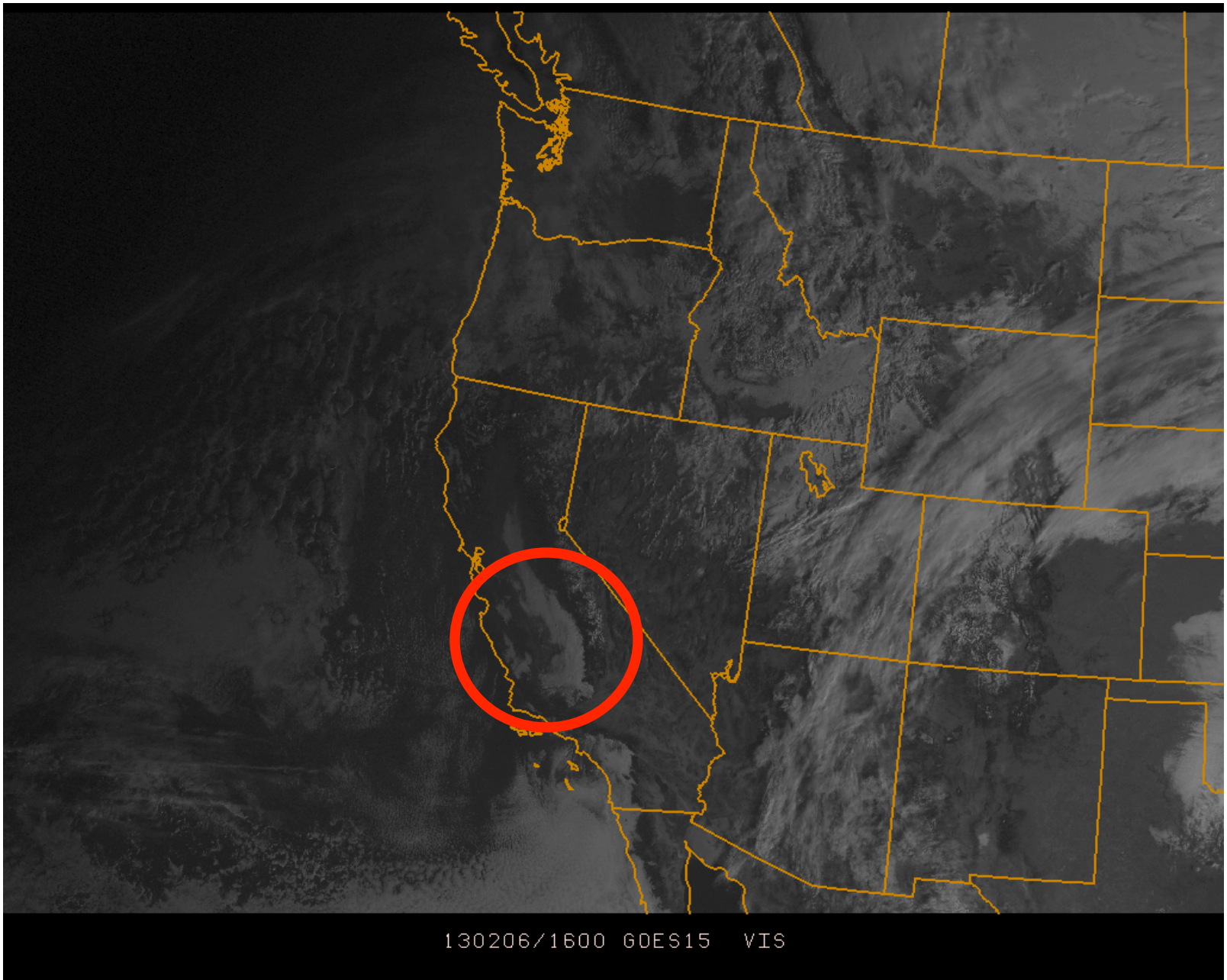



- Corcoran/PM2.5-88502 - 88502/1 Hr/1 (UG/M3)
- Fresno - Garland/PM2.5-88101 - 88101/1 Hr/3 (Method: 170) (UG/M3)
- Visalia - N. Church Street/PM2.5-88502 - 88502/1 Hr/1 (UG/M3)
- Hanford - S. Irwin Street/PM2.5-88502 - 88502/1 Hr/1 (UG/M3)
- Bakersfield - California Ave/PM2.5-88502 - 88502/1 Hr/1 (UG/M3)

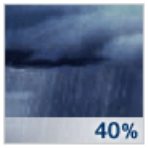
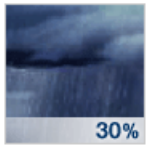



More widespread low-level clouds than anticipated. NWS says, "Clouds continue to increase in the south valley as a jet max crosses the region."

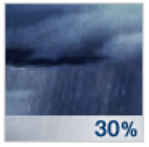
# GOES Visible at 1600 (8:00 am)



# Fresno

| TODAY | TONIGHT | THURSDAY | THURSDAY NIGHT | FRIDAY | FRIDAY NIGHT | SATURDAY | SATURDAY NIGHT | SUNDAY |
|---|---|---|---|---|---|---|---|---|
| | | |   | |   | | | |
| Mostly Sunny<br>High: 62 °F | Mostly Clear<br>Low: 39 °F | Partly Sunny<br>High: 60 °F | Chance Showers<br>Low: 39 °F | Chance Showers<br>High: 54 °F | Chance Showers<br>Low: 35 °F | Mostly Sunny<br>High: 54 °F | Partly Cloudy<br>Low: 34 °F | Sunny<br>High: 57 °F |

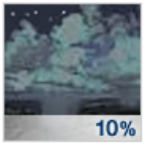
# Bakersfield

| TODAY | TONIGHT | THURSDAY | THURSDAY NIGHT | FRIDAY | FRIDAY NIGHT | SATURDAY | SATURDAY NIGHT | SUNDAY |
|---|---|---|---|---|---|---|---|---|
| | | | | |   | | | |
| Decreasing Clouds<br>High: 59 °F | Mostly Clear<br>Low: 39 °F | Mostly Sunny<br>High: 58 °F | Chance Showers<br>Low: 39 °F | Chance Showers<br>High: 52 °F | Chance Showers<br>Low: 35 °F | Mostly Sunny<br>High: 53 °F | Mostly Clear<br>Low: 35 °F | Sunny<br>High: 56 °F |

# San Nicolas

| Today | Tonight | Thursday | Thursday Night | Friday | Friday Night | Saturday | Saturday Night | Sunday |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| NW 10kt | NW 20kt | NW 15kt | NW 30kt | WNW 25kt | NW 25kt | WNW 25kt | WNW 20kt | NW 15kt |
| < 1ft | < 1ft | < 1ft | < 1ft | < 1ft | < 1ft | < 1ft | < 1ft | < 1ft |

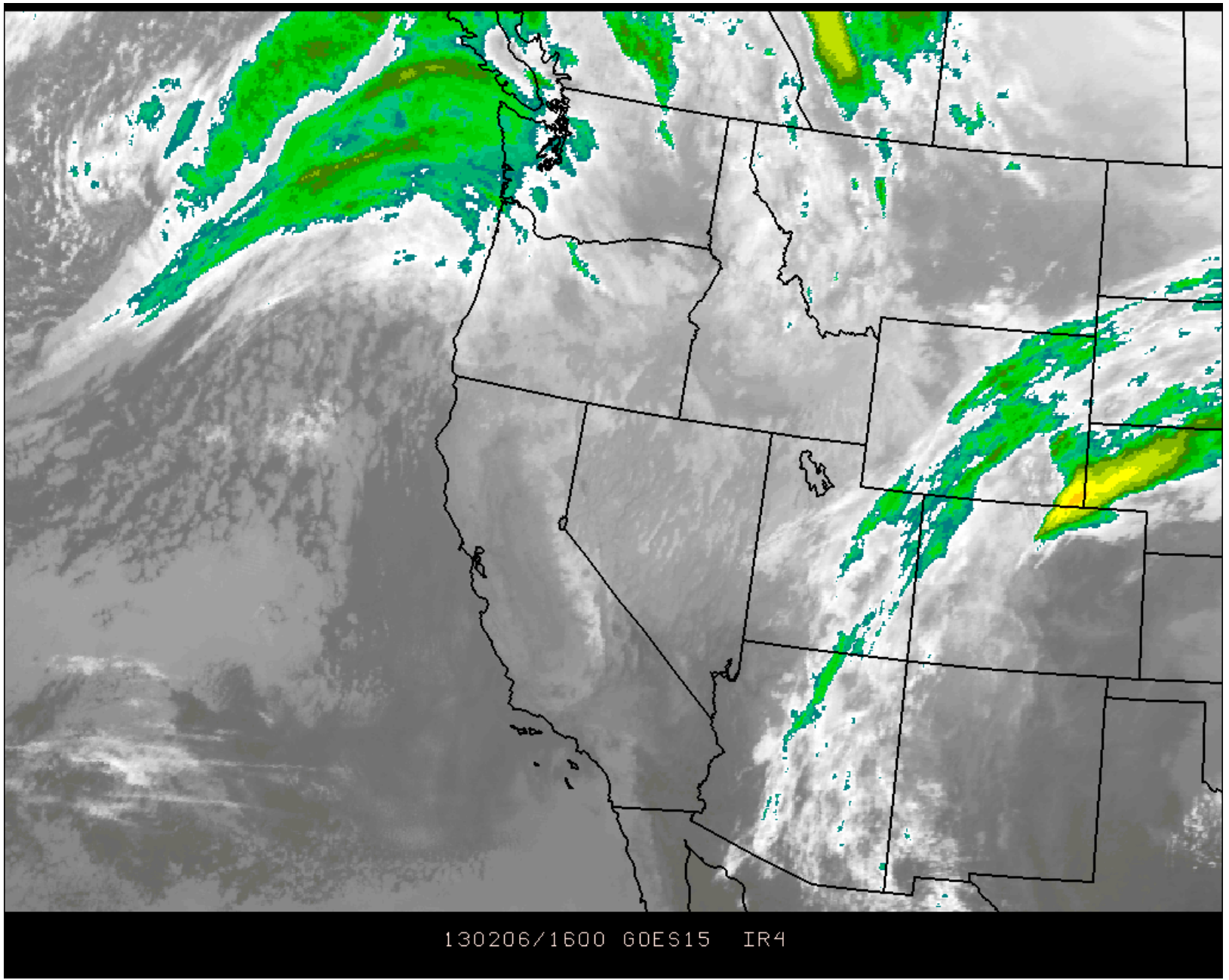
# Monterey

| TODAY | TONIGHT | THURSDAY | THURSDAY NIGHT | FRIDAY | FRIDAY NIGHT | SATURDAY | SATURDAY NIGHT | SUNDAY |
|---|---|---|---|---|---|---|---|---|
| |  | | | | | | | |
| Sunny | Slight Chc Showers | Chance Showers | Chance Showers | Chance Showers | Mostly Clear | Sunny | Mostly Clear | Sunny |
| High: 52 °F | Low: 42 °F | High: 51 °F | Low: 41 °F | High: 51 °F | Low: 40 °F | High: 52 °F | Low: 38 °F | High: 53 °F |

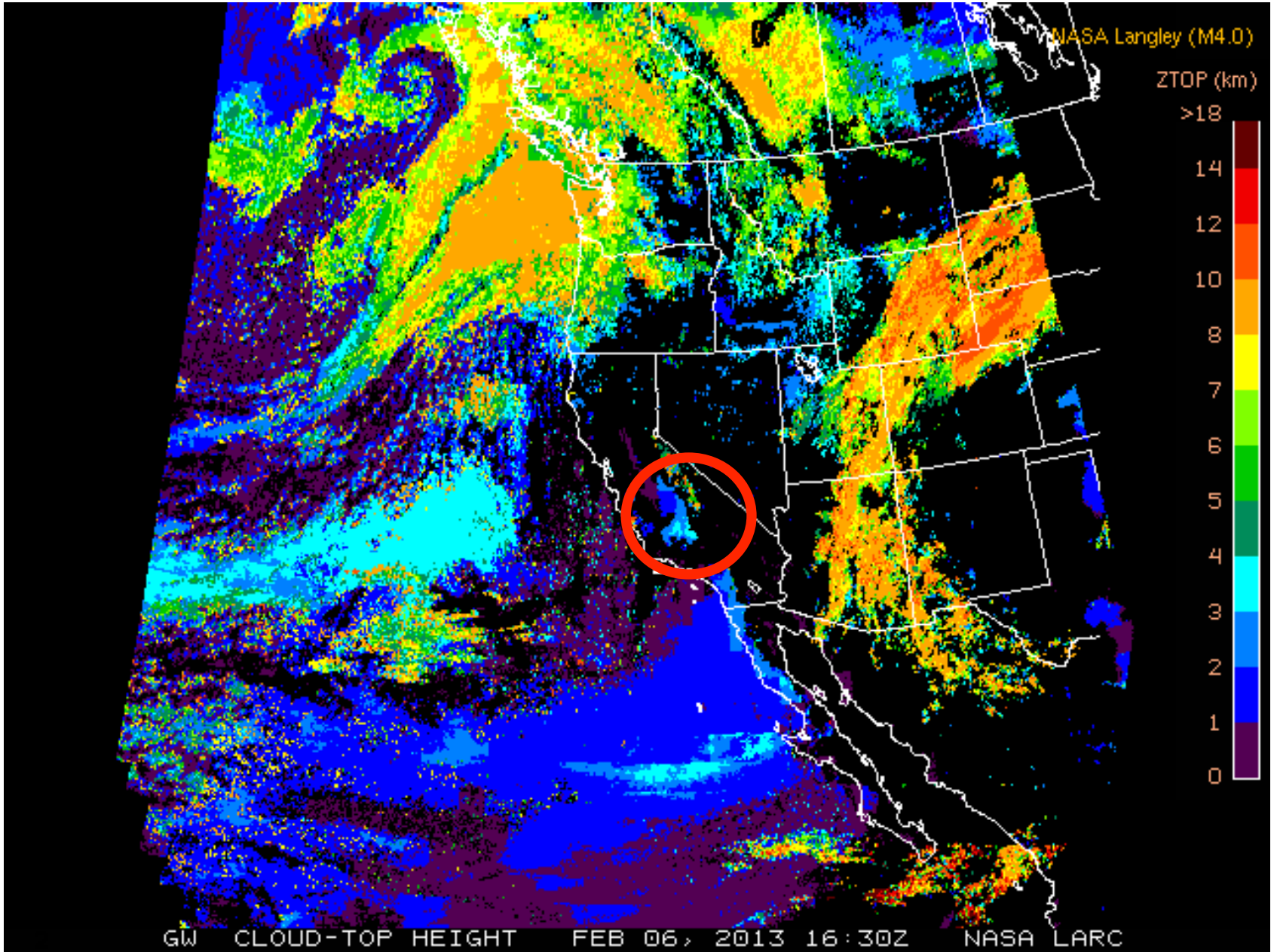
# Palmdale

| TODAY | TONIGHT | THURSDAY | THURSDAY NIGHT | FRIDAY | FRIDAY NIGHT | SATURDAY | SATURDAY NIGHT | SUNDAY |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| Sunny | Mostly Clear | Sunny | Slight Chc Showers | Chance Rain | Chance Rain/Snow | Mostly Sunny | Mostly Clear | Sunny |
| High: 63 °F | Low: 39 °F | High: 62 °F | Low: 37 °F | High: 49 °F | Low: 29 °F | High: 49 °F | Low: 31 °F | High: 51 °F |

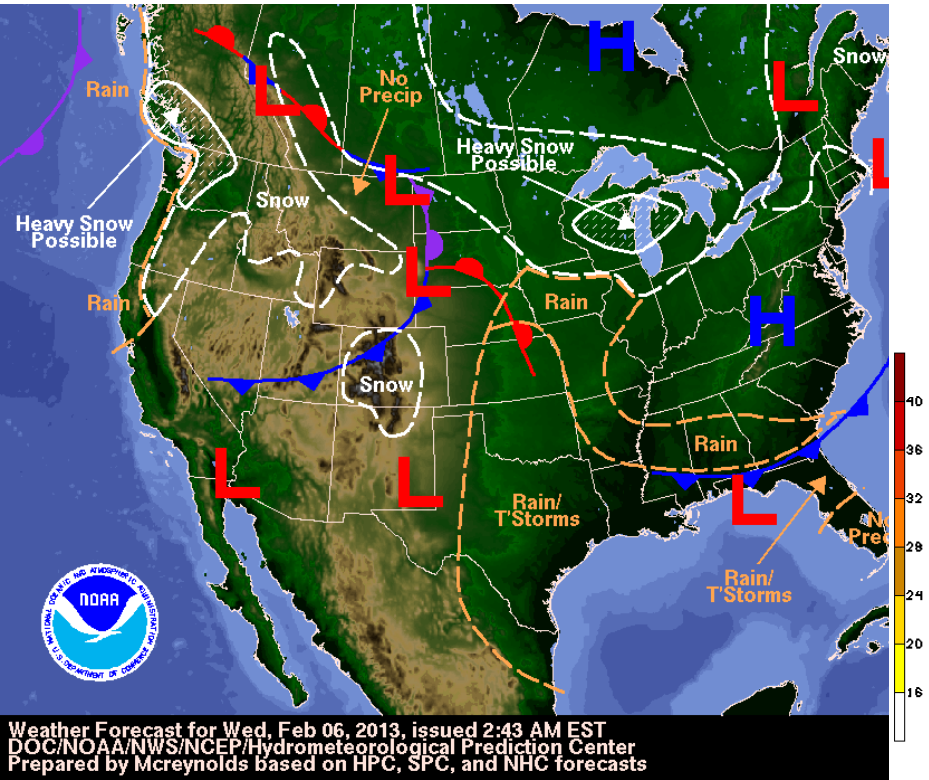
# GOES: IR at 1600 UTC (8 am) Today

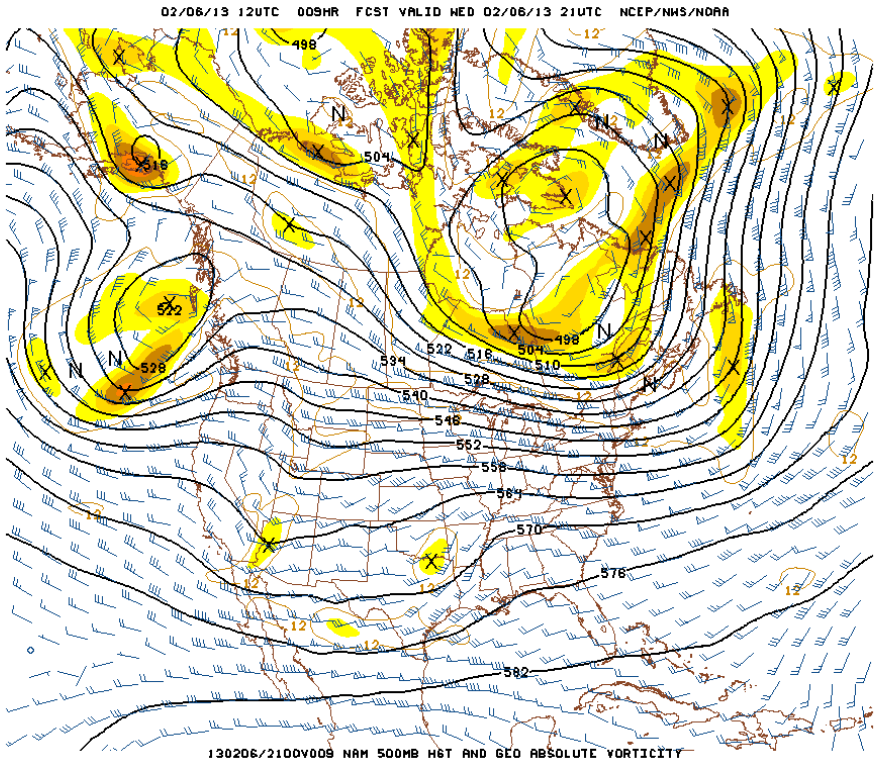


# GOES: Cloud Top Height at 1630 UTC (8:30 am) Today

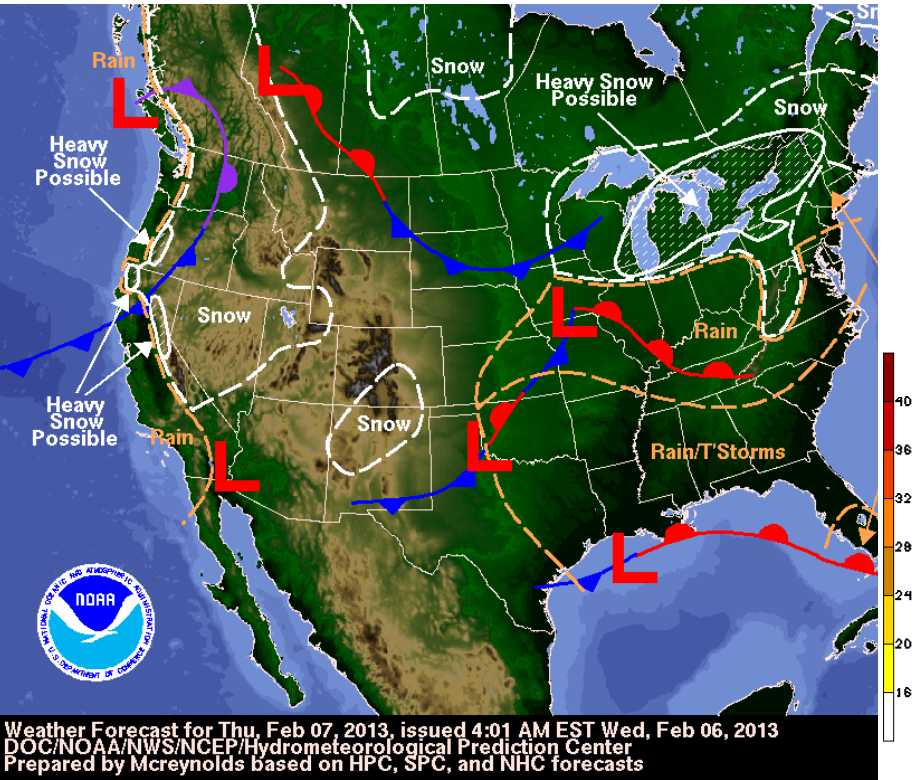


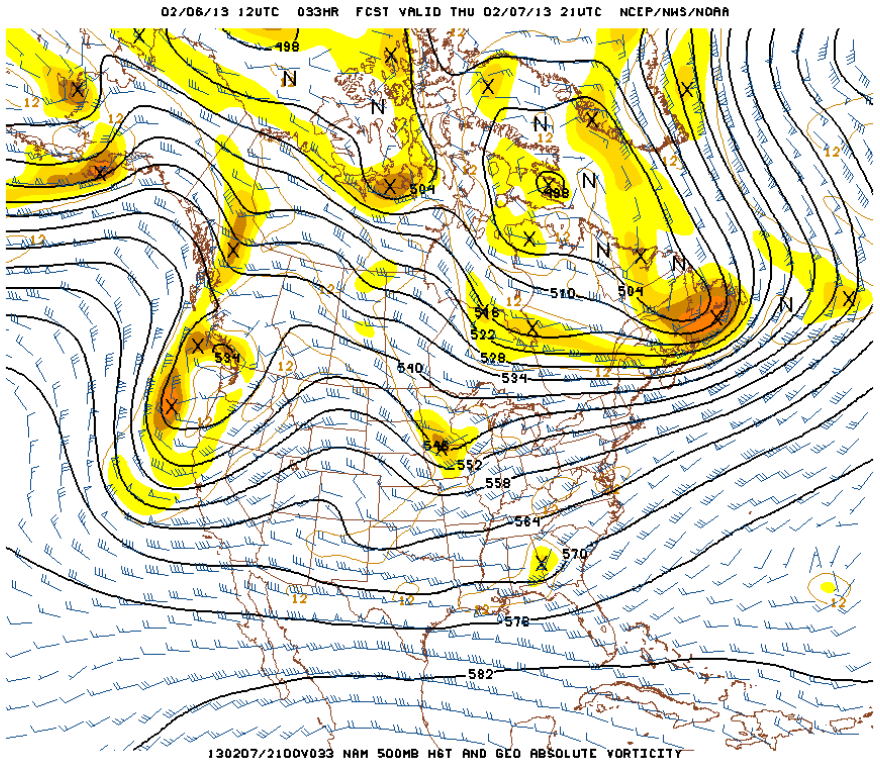
Today: Upper trough moving through central CA interior today, producing rain on the north-facing slopes of the Tehachapi Pass. A jet max is also crossing the region today,  producing clouds in the southern SJV.

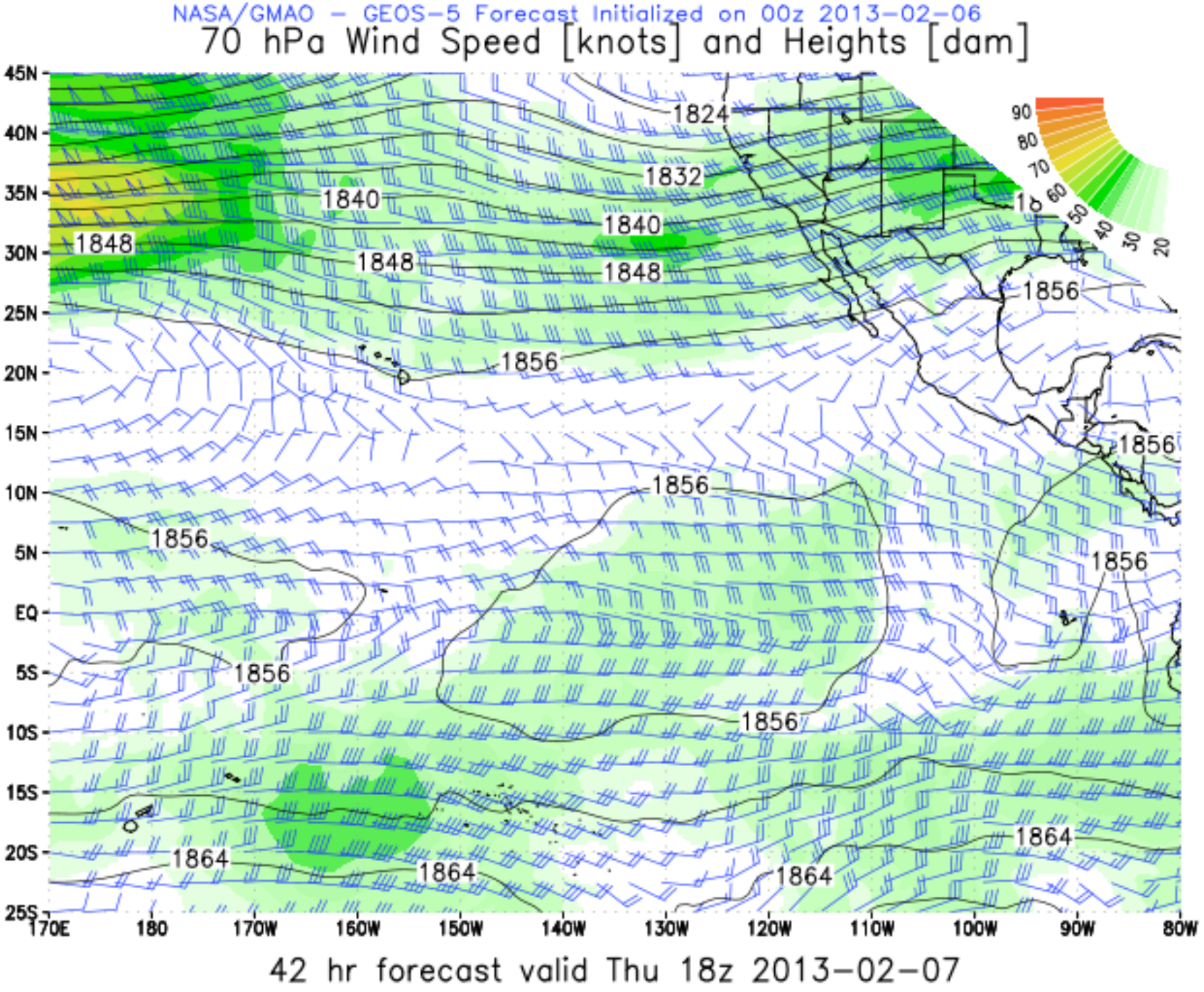


Tomorrow (Thursday): A weak ridge crosses the region overnight and early Thursday morning. Cold front associated with the surface low off the Northwest coast should move into the region by Thursday night.




NASA/GMAO – GEOS-5 Forecast Initialized on 00z 2013-02-06
70 hPa Wind Speed [knots] and Heights [dam]
45N
40N
35N
30N
25N
20N
15N
10N
5N
EQ
5S
10S
15S
20S
25S
170E
180
170W
160W
150W
140W
130W
120W
110W
100W
90W
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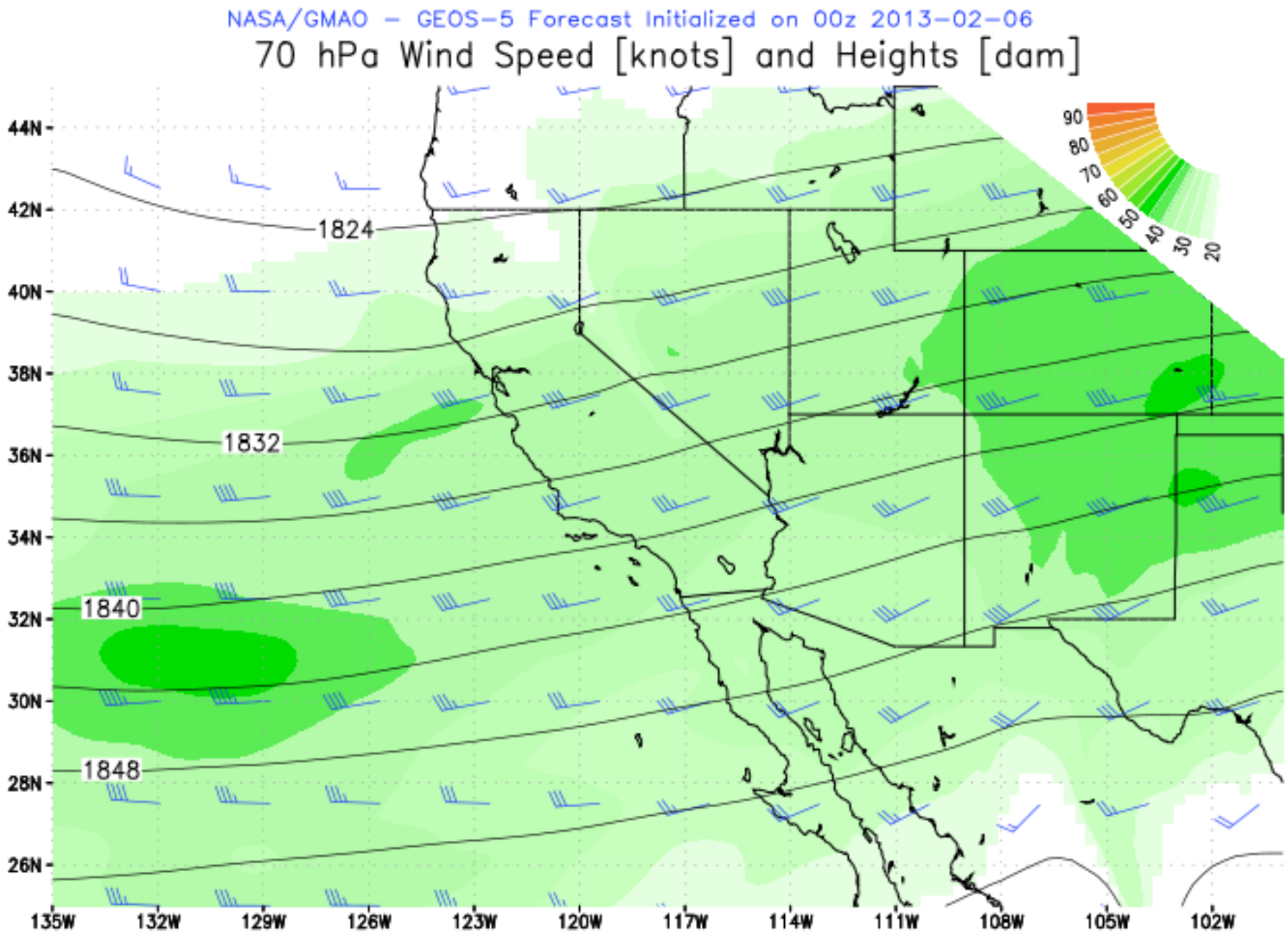
42 hr forecast valid Thu 18z 2013-02-07


NASA/GMAO – GEOS-5 Forecast Initialized on 00z 2013-02-06
70 hPa Wind Speed [knots] and Heights [dam]
90
80
70
60
50
40
30
20
1824
1832
1840
1848
44N
42N
40N
38N
36N
34N
32N
30N
28N
26N
135W
132W
129W
126W
123W
120W
117W
114W
111W
108W
105W
102W
42 hr forecast valid Thu 18z 2013-02-07

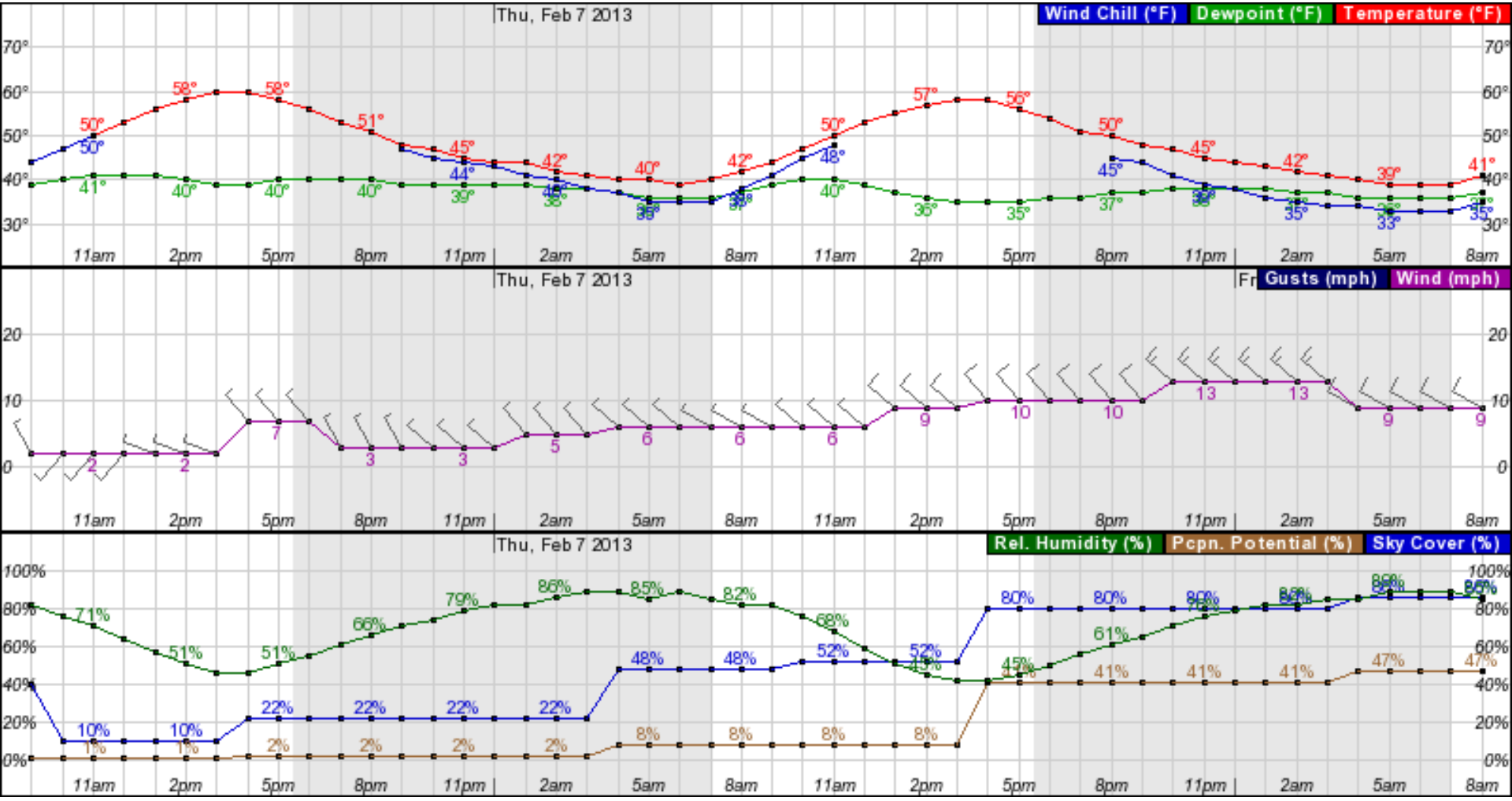
**Fresno**

**Today: Sunny**

**(Howver, low clouds formed unexpectedly this morning.)**

**Thursday: Cloud cover ~50%**

**Today →** **Thursday →**



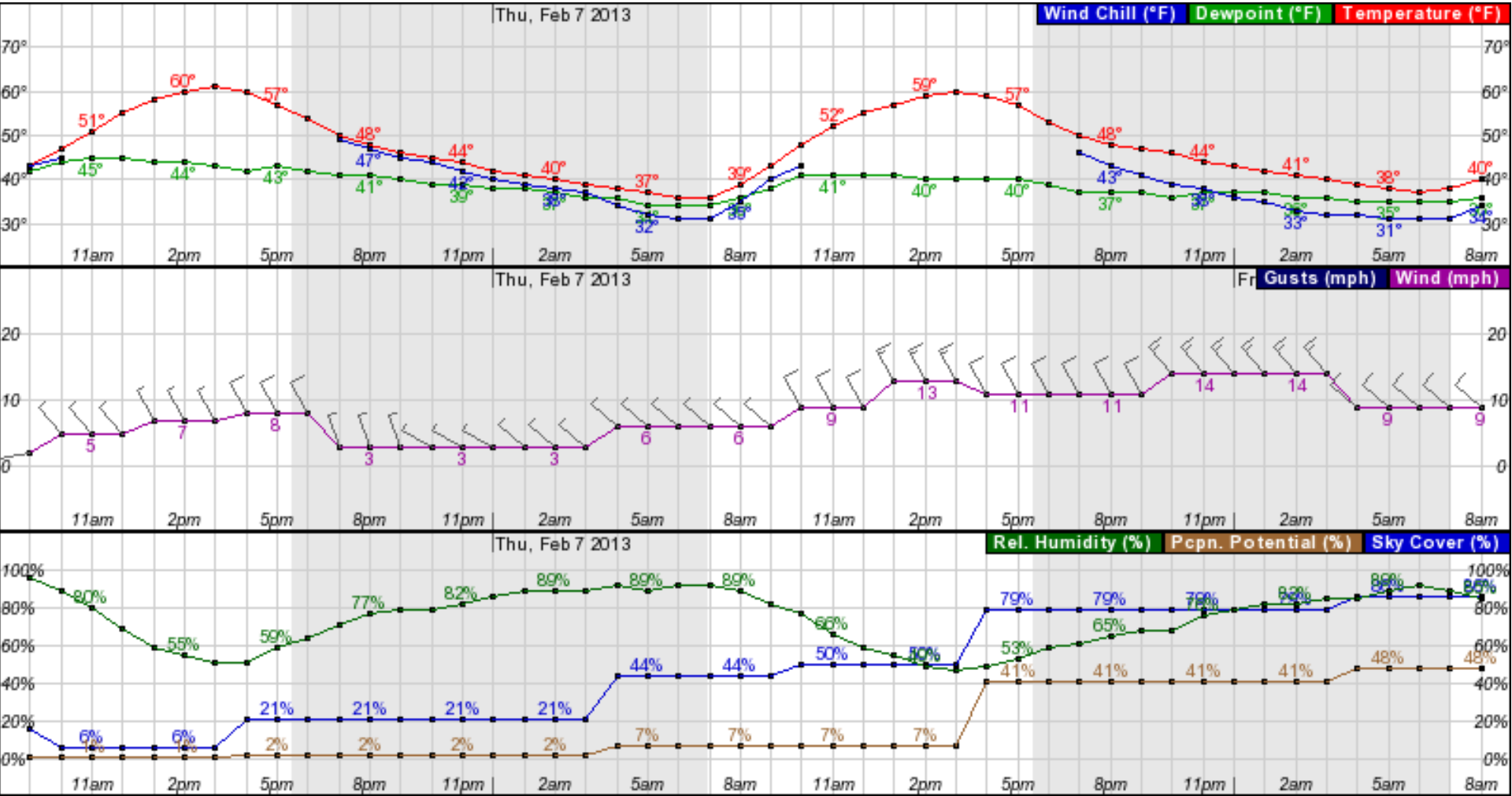
**Hanford**

**Today: Sunny**

**(Unexpected morning clouds)**

**Thursday: Cloud cover ~50%**

**Today →** **Thursday→**



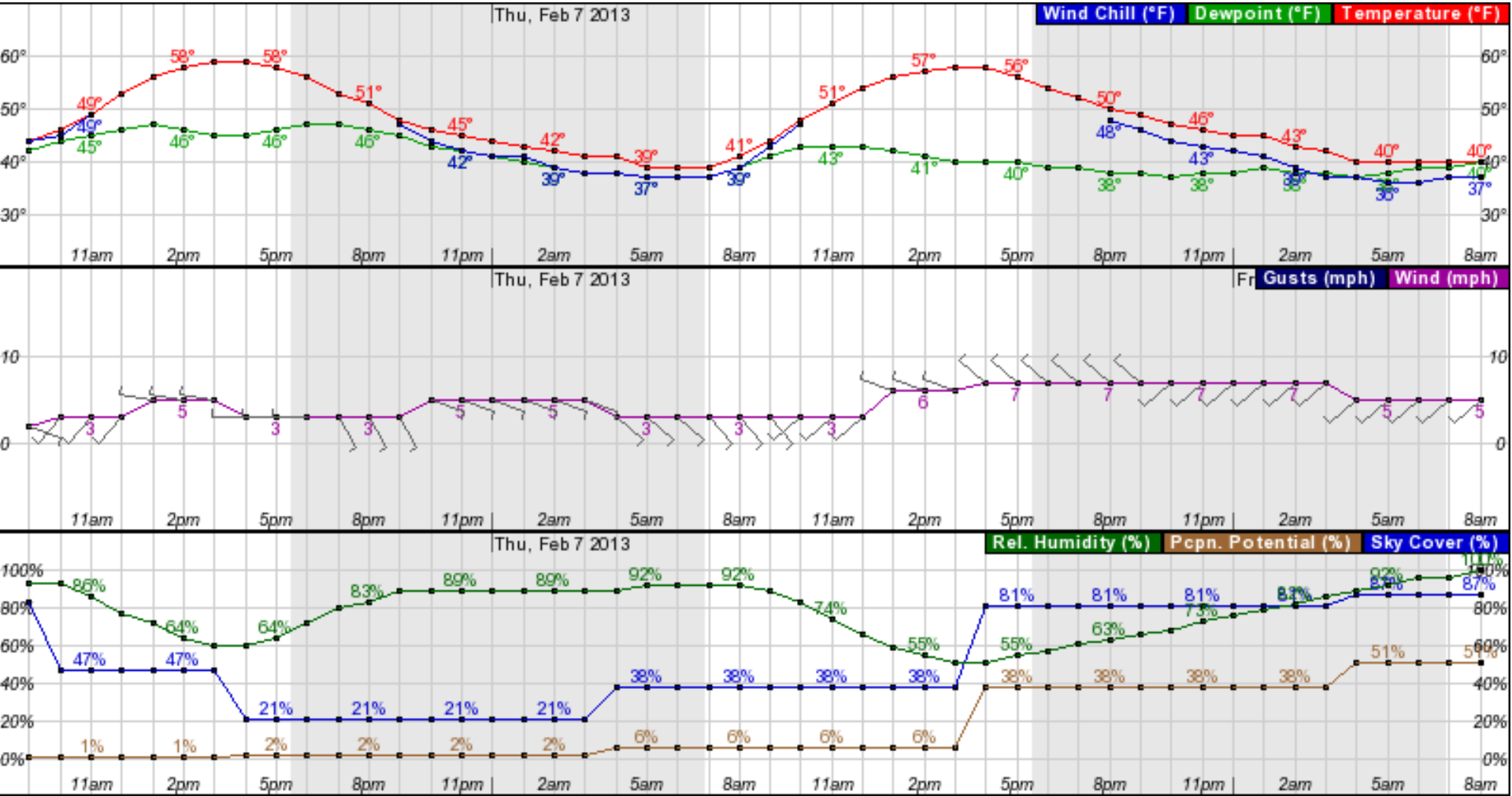
**Bakersfield**

**Today: Cloud cover ~50%**

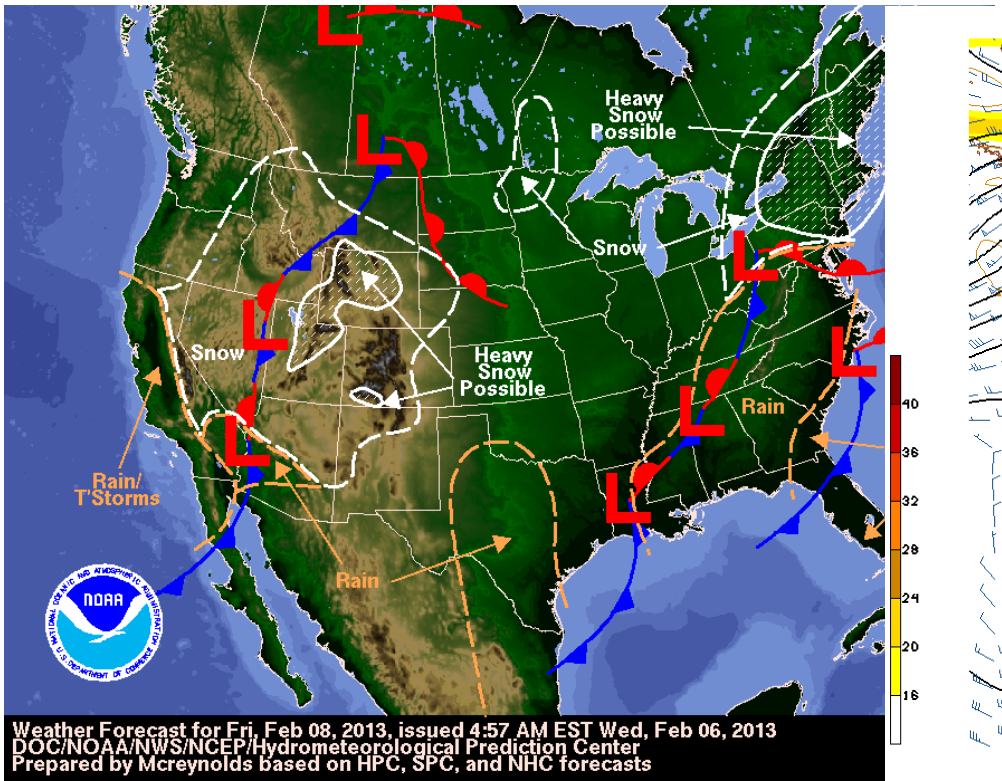
**(Low clouds remain over Bakersfield, expected)**

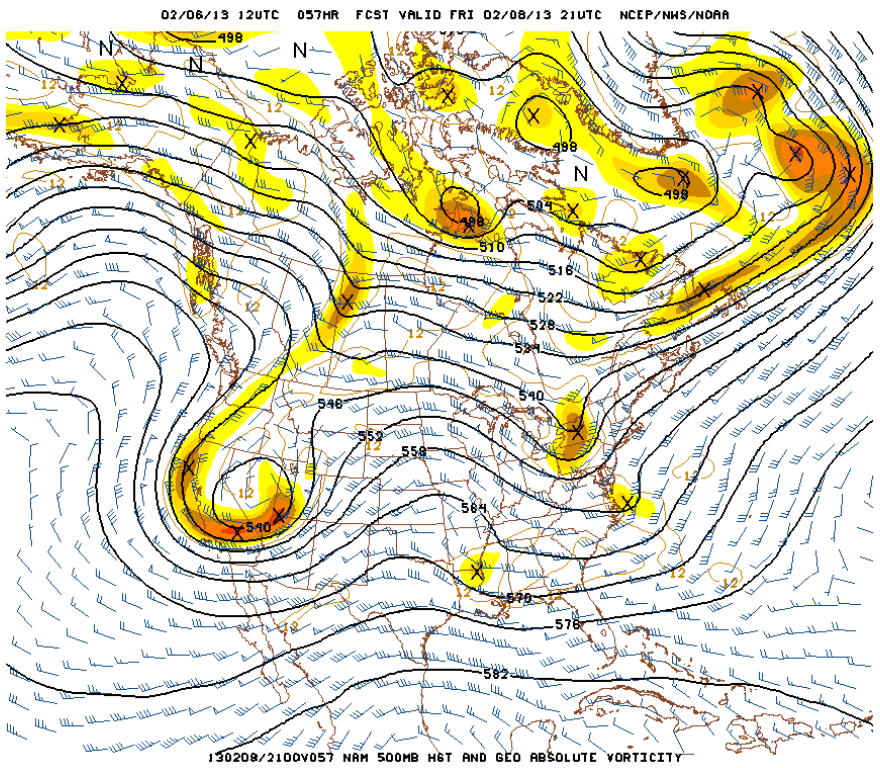
**Thursday: Cloud cover ~40%**

**Today →** **Thursday →**



Friday: The cold core low will move into central CA during Friday-Friday night. The upper trough will also begin to move onshore. The cold core will remain over the region Saturday, keeping cold air in central CA and breezy.



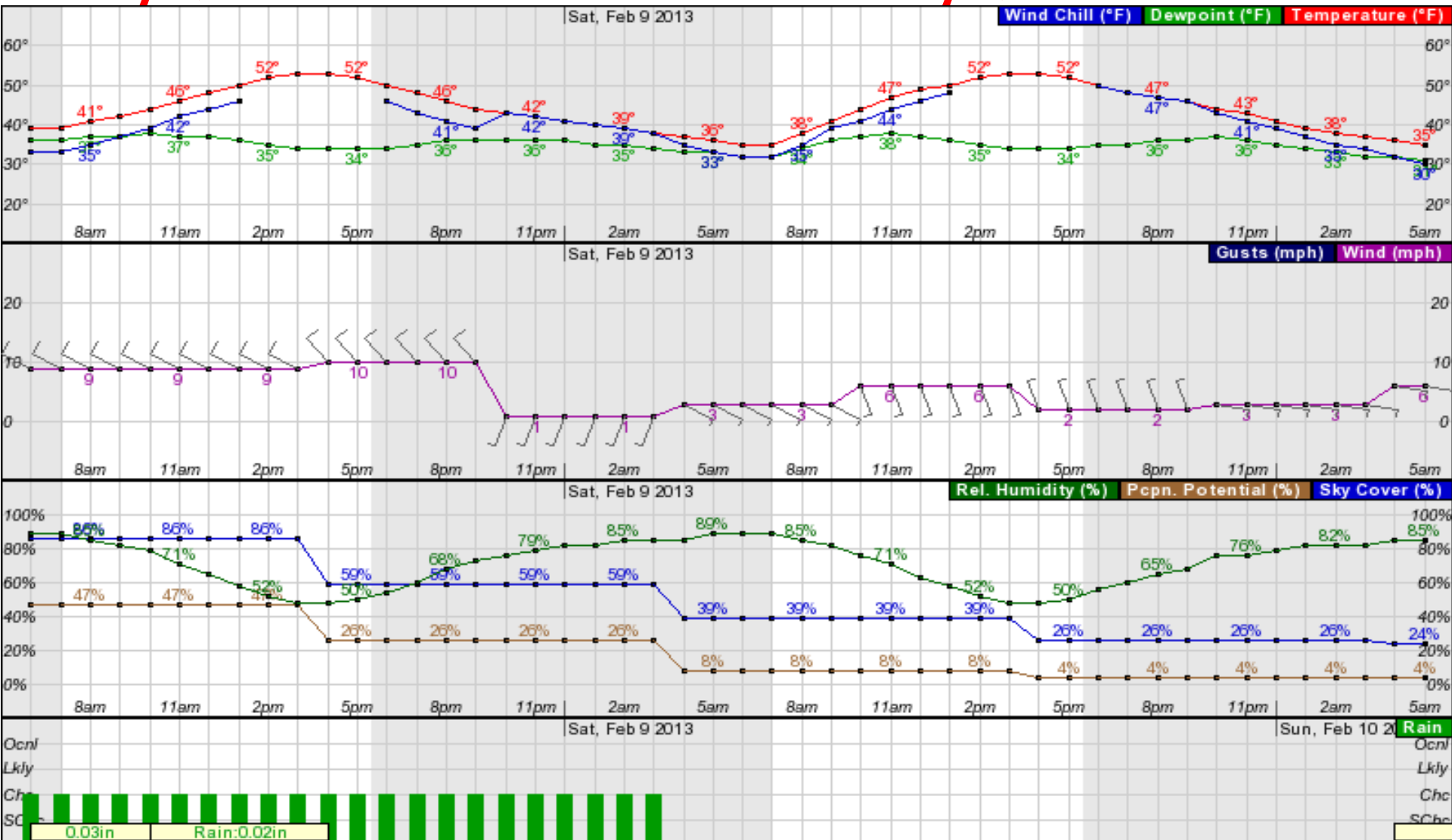



**Fresno**

**Friday: Cloud cover ~50%, chance of precipitation**

**Saturday: Cloud cover ~45%**

**Friday →** **Saturday →**

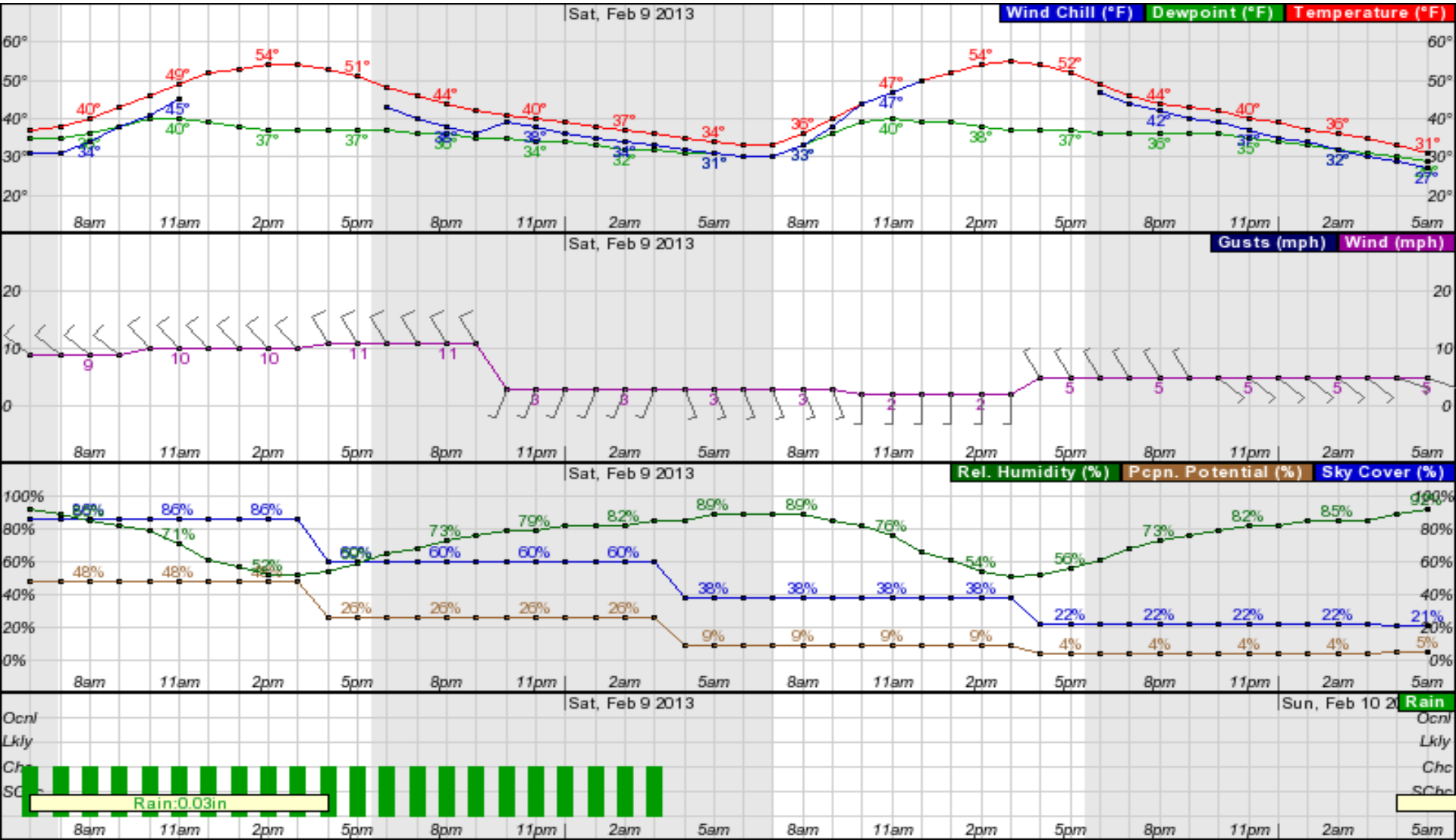


**Hanford**

**Friday: Cloud cover ~85%, chance of precipitation**

**Saturday: Cloud cover ~40%**

**Friday →** **Saturday →**

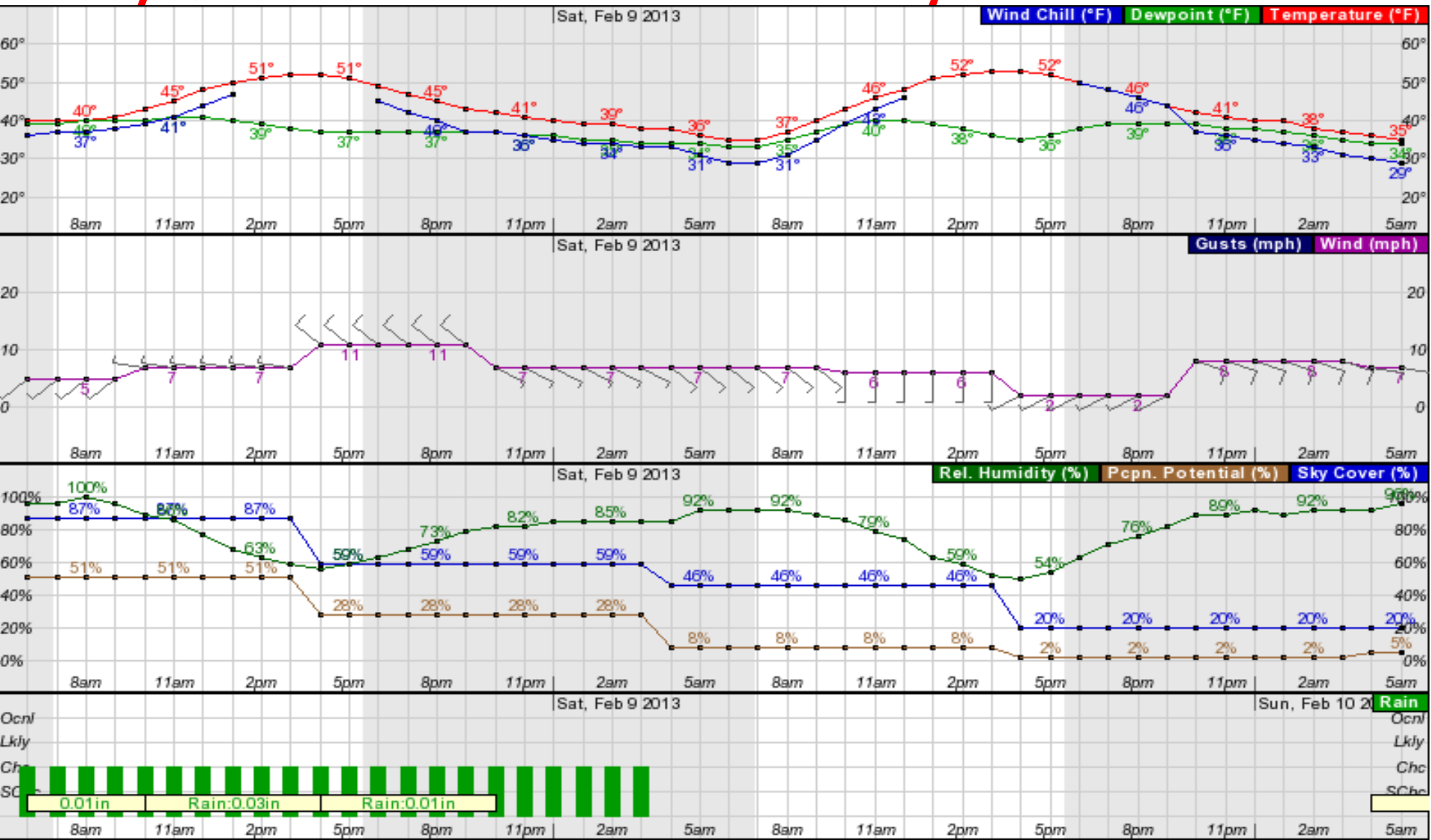


**Bakersfield**

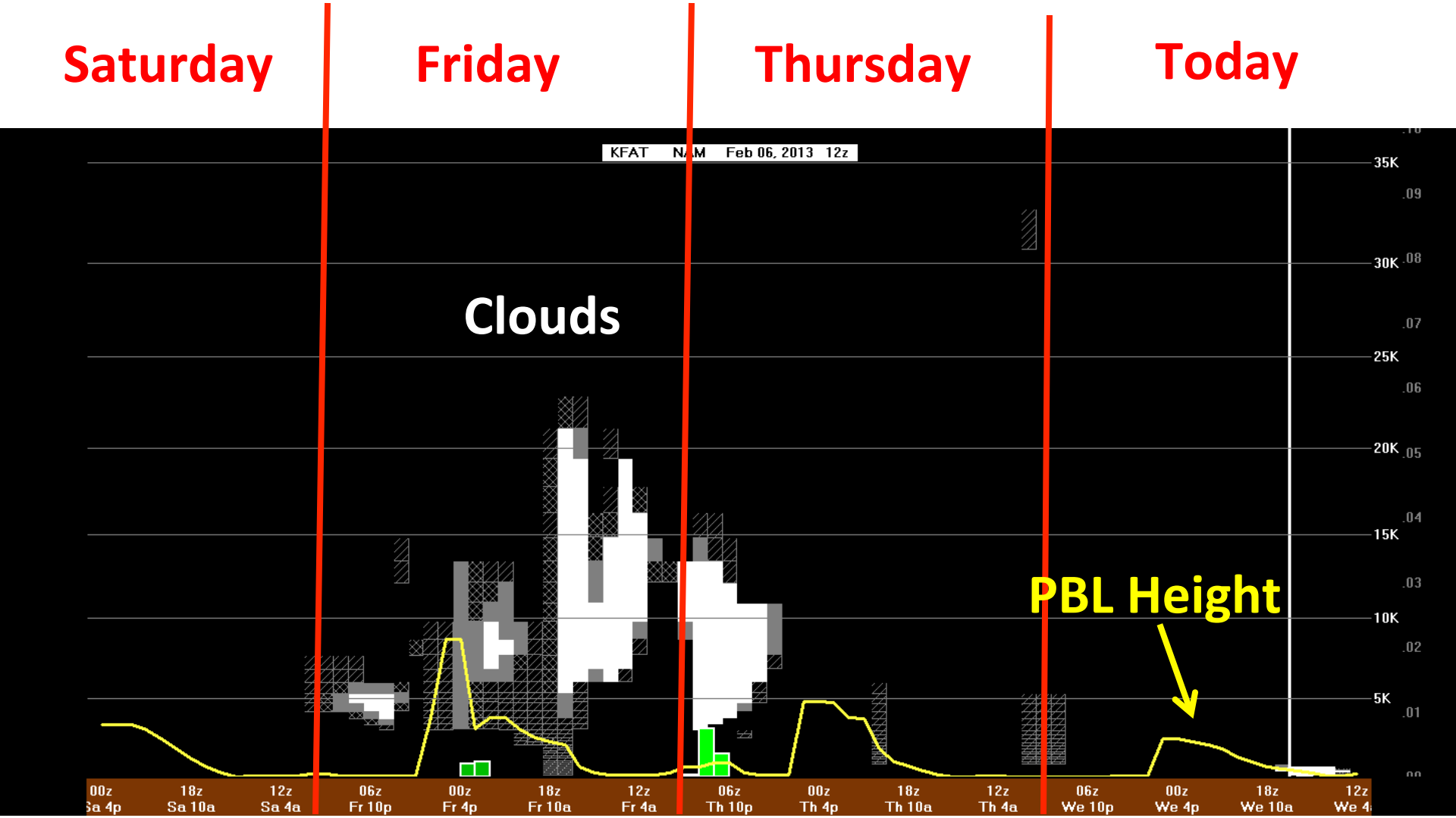
**Friday: Cloud cover ~90%, chance of precipitation**

**Saturday: Cloud cover ~50%**

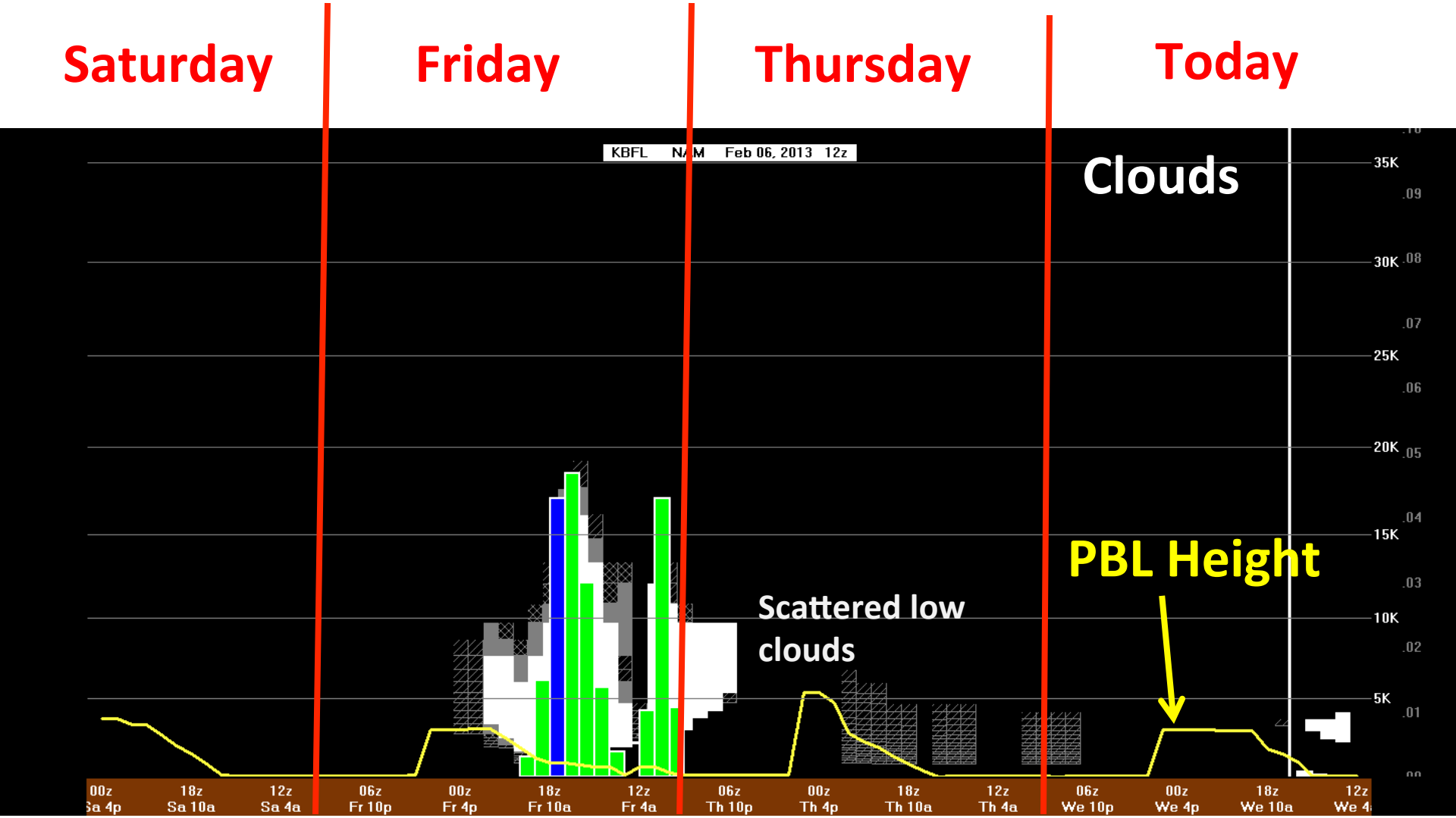
**Friday →** **Saturday →**



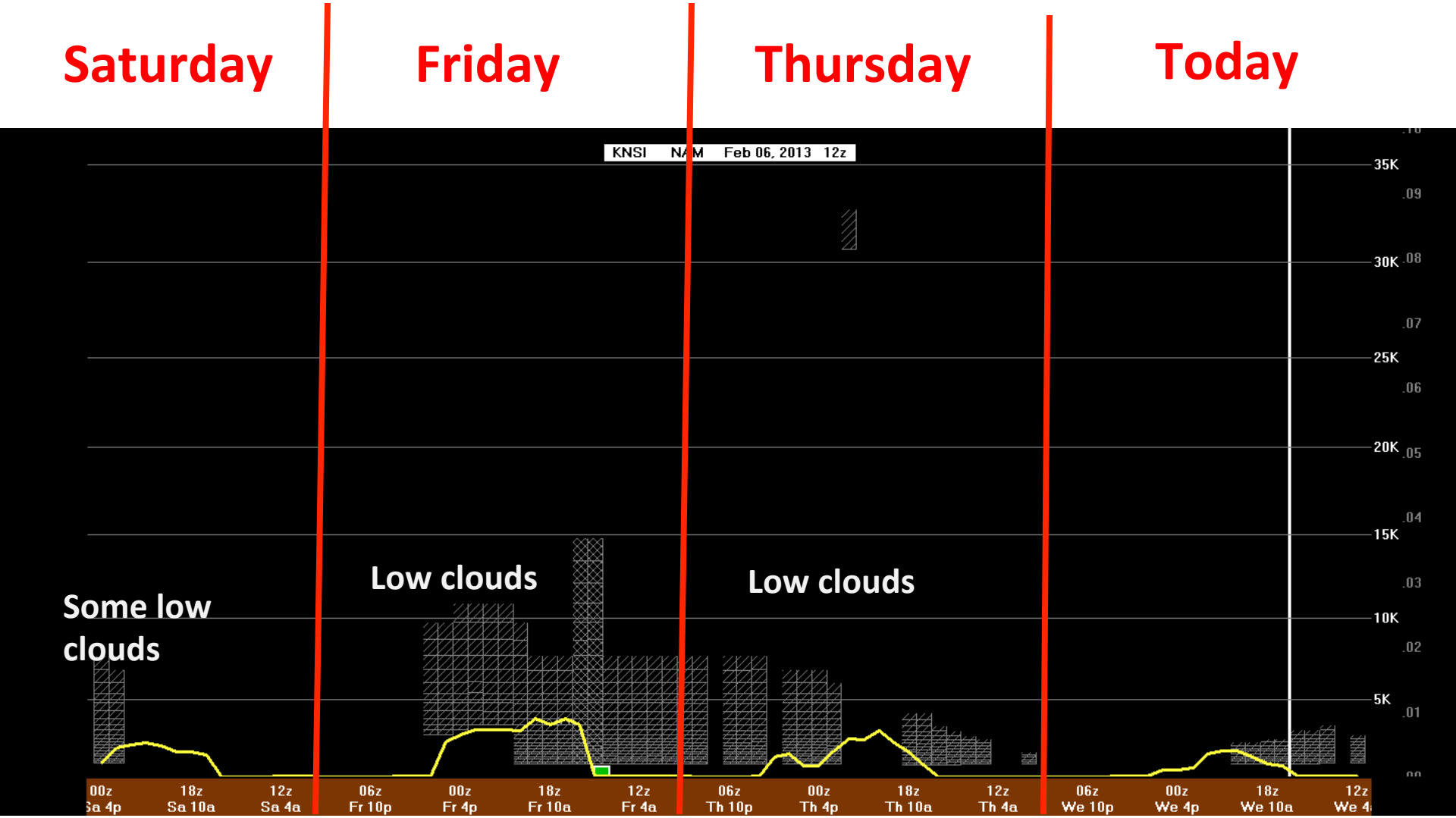
# Fresno : BUFKIT NAM 12 UTC Wednesday Feb. 6th



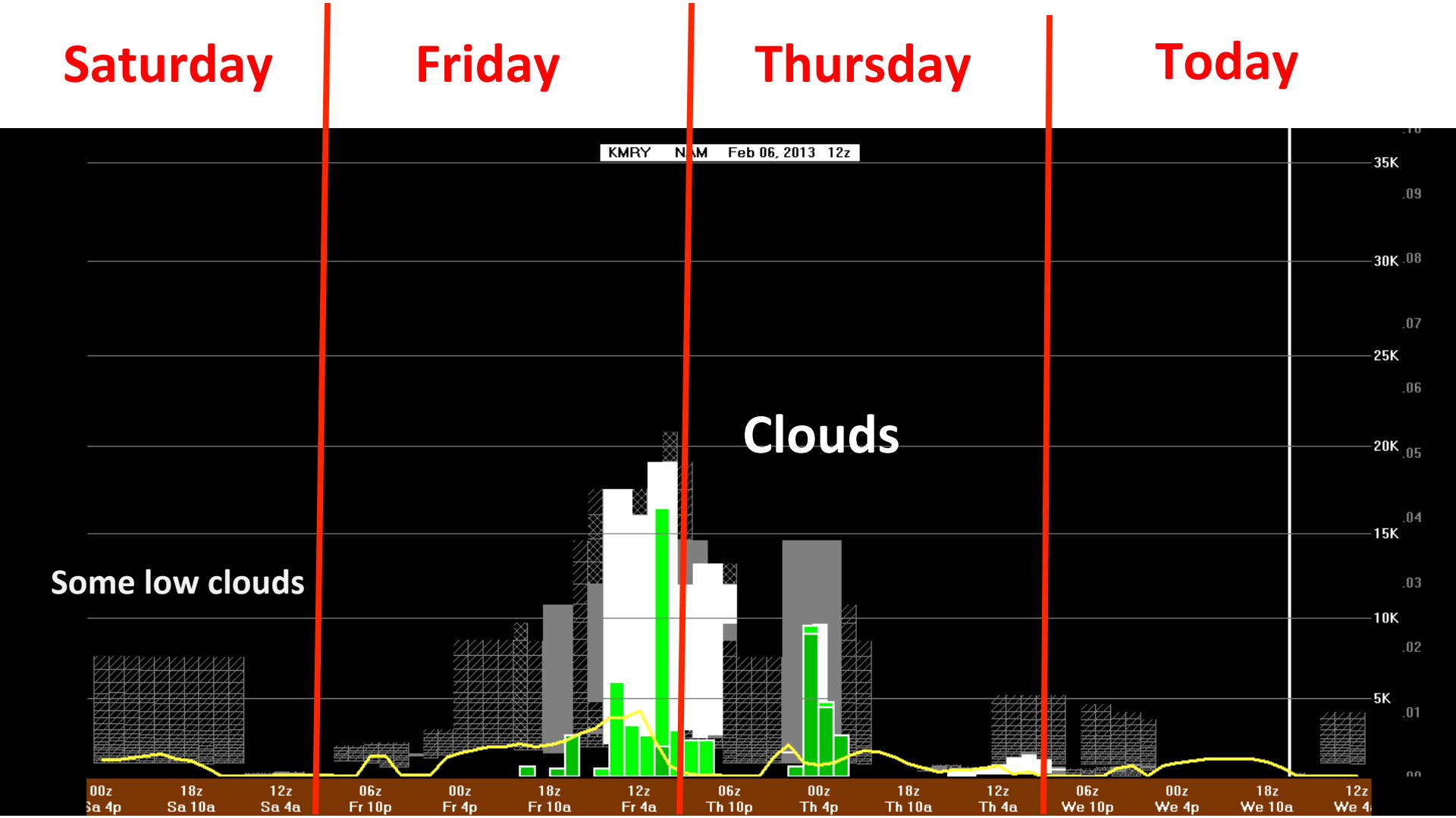
# Bakersfield : BUFKIT NAM 12 UTC Wednesday Feb. 6th



# San Nicolas : BUFKIT NAM 12 UTC Wednesday Feb. 6th

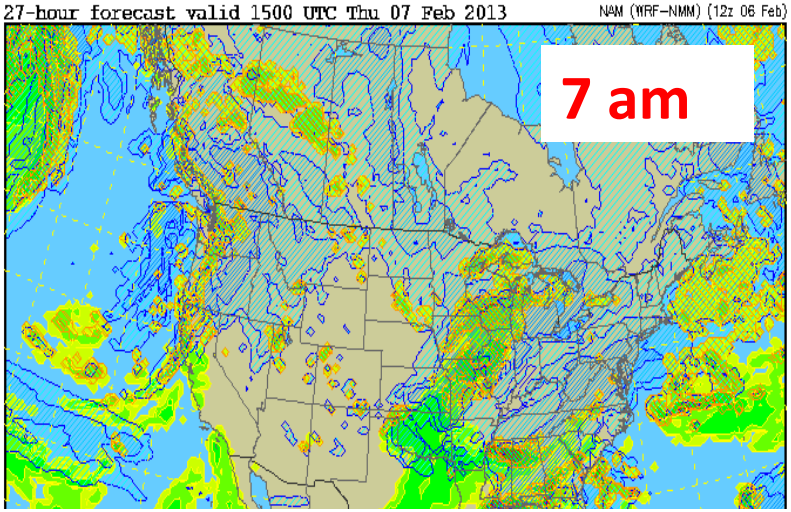


# Monterey : BUFKIT NAM 12 UTC Wednesday Feb. 6th

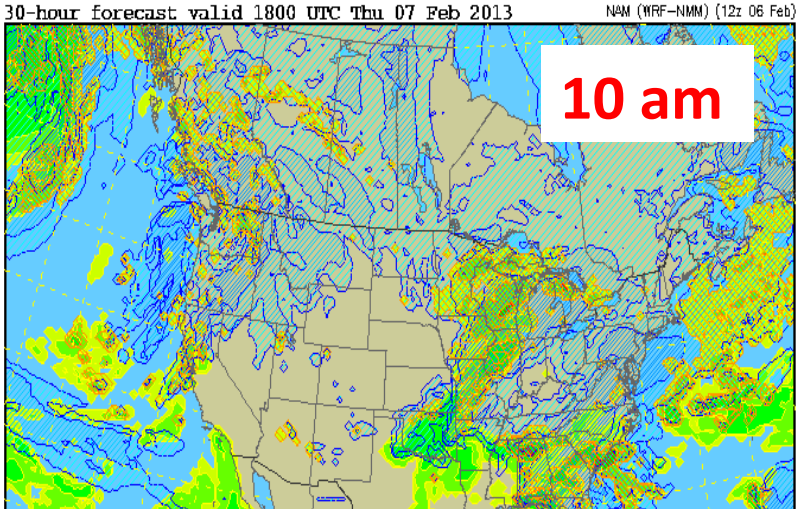


Tomorrow: NAM – Some stratus clouds offshore, decreasing throughout the day. Cirrus moving into LA coast as stratus decline; broken cirrus off of SF.

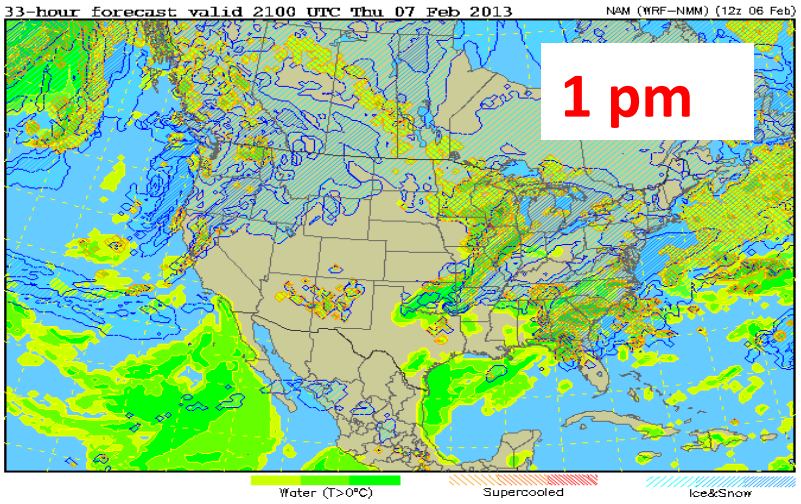
Integrated liquid and frozen hydrometeors (all levels)



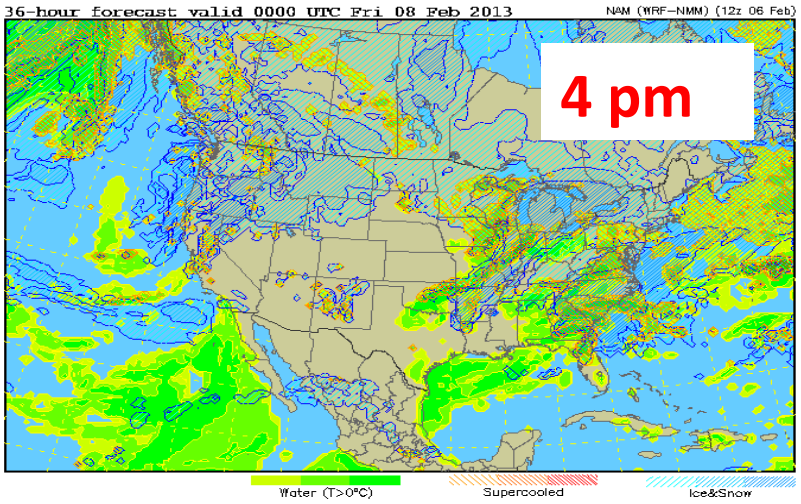

Integrated liquid and frozen hydrometeors (all levels)




Integrated liquid and frozen hydrometeors (all levels)



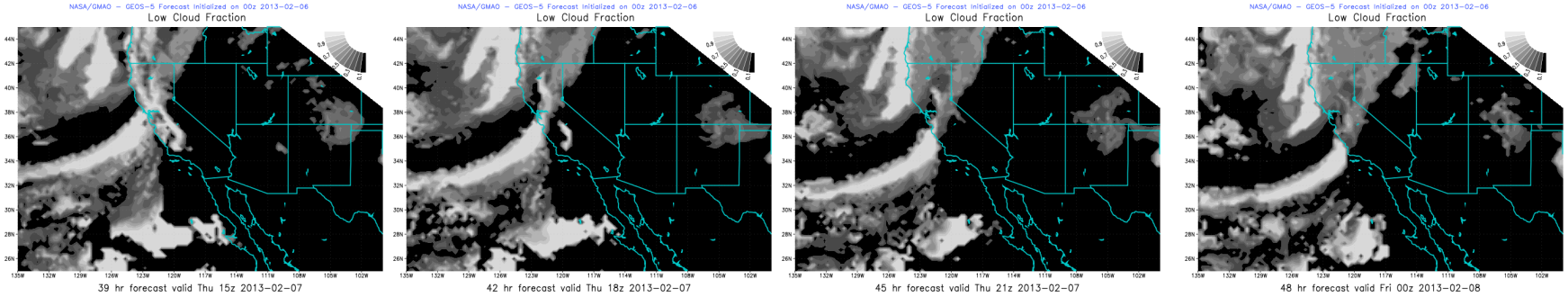

Integrated liquid and frozen hydrometeors (all levels)



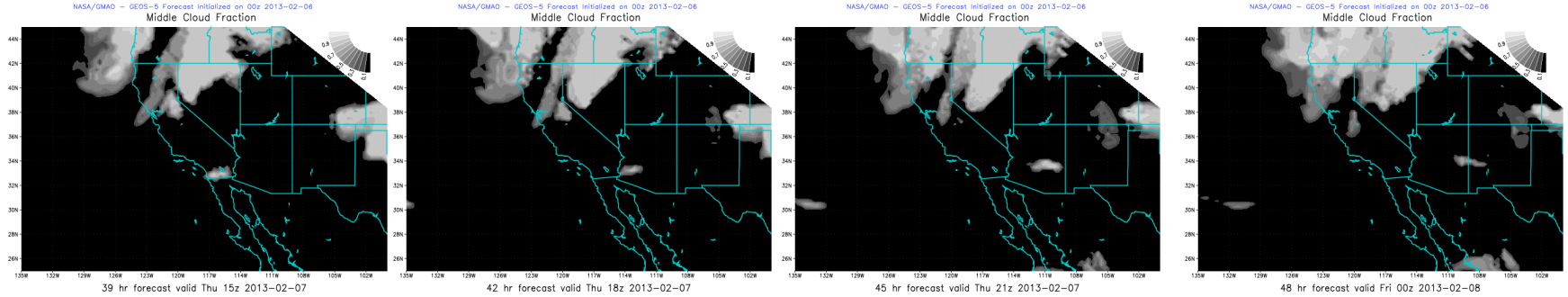
Thursday: GEOS5 – Indicates more extensive stratus coverage than NAM. Cold front apparent. Cirrus begin to approach the southern study region by late afternoon.

7 am 10 am 1 pm 4 pm

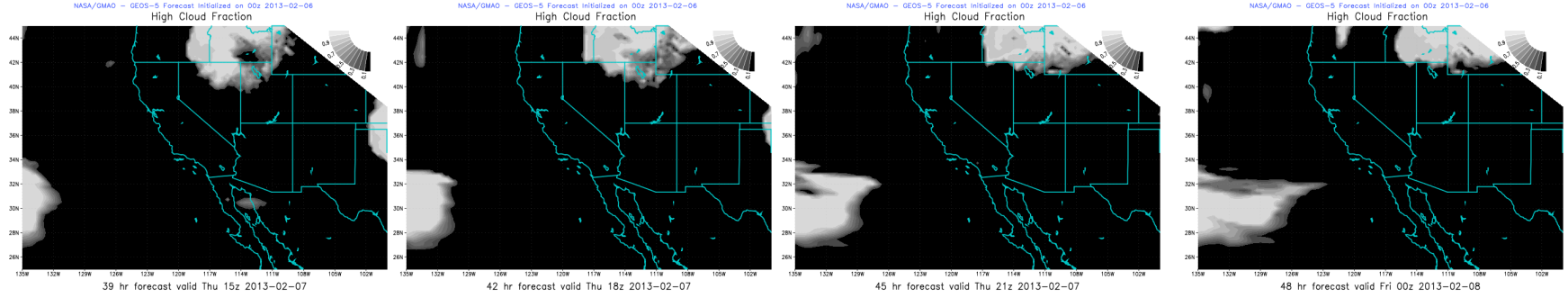
## GEOS5 – Low level




## GEOS5 – Mid level



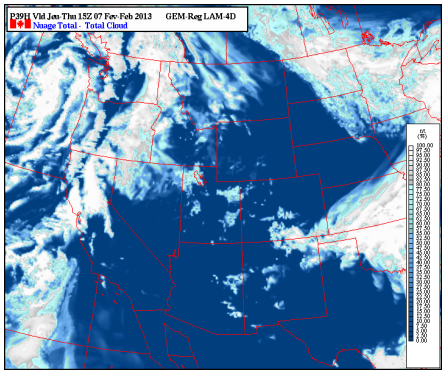

## GEOS5 – High level

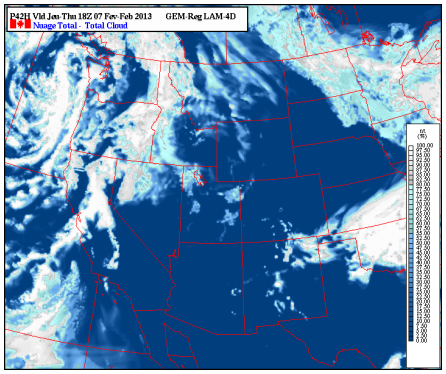


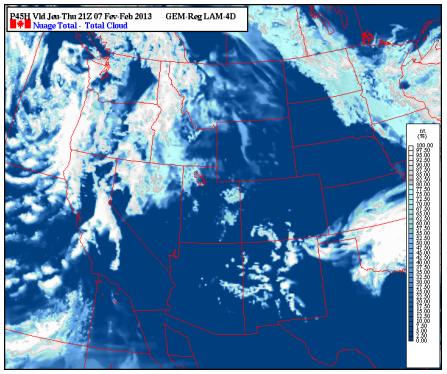
Tomorrow: Canadian – Stratus offshore decreasing by afternoon. Scattered cirrus off SF coast, with ceiling moving towards LA. GFS – Keeps stratus further west. Cirrus build into the study region by afternoon.

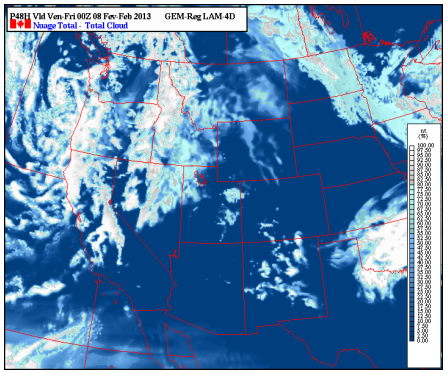
7 am 10 am 1 pm 4 pm

## Canadian

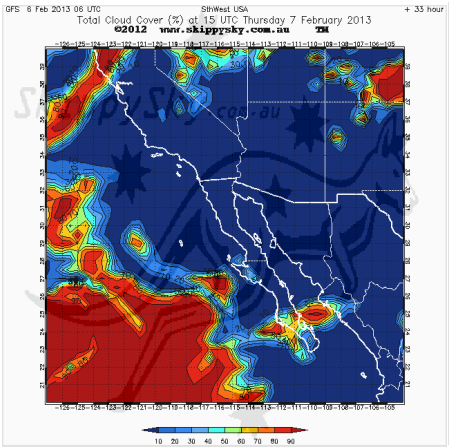


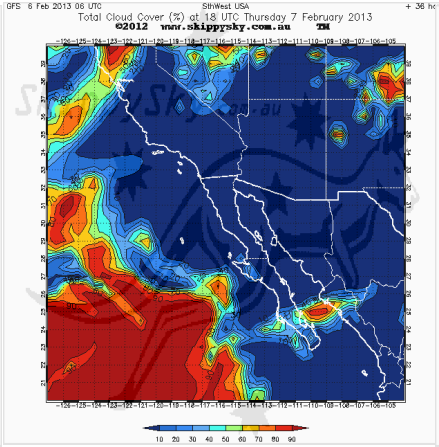


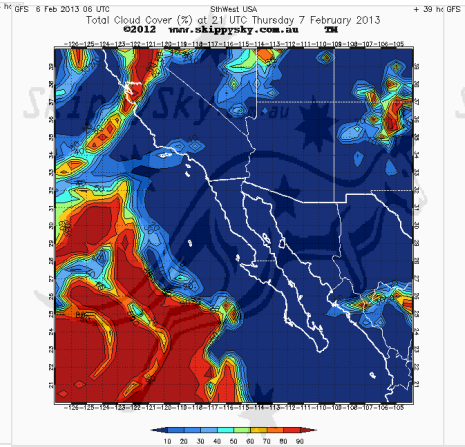


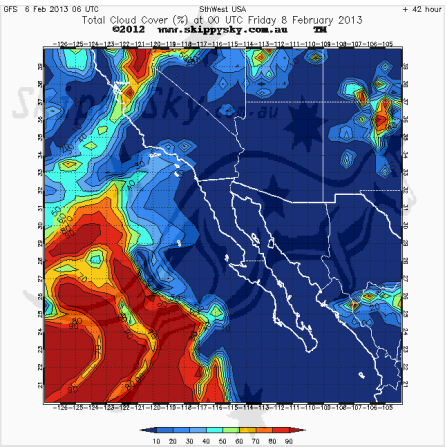


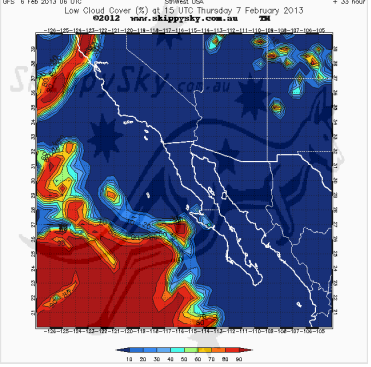

## GFS – Total Cloud

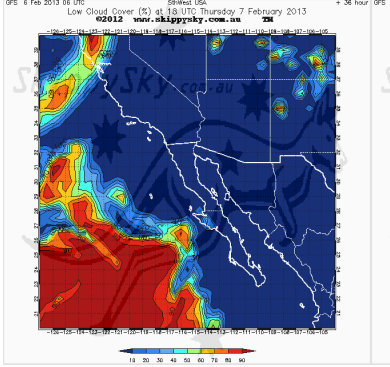


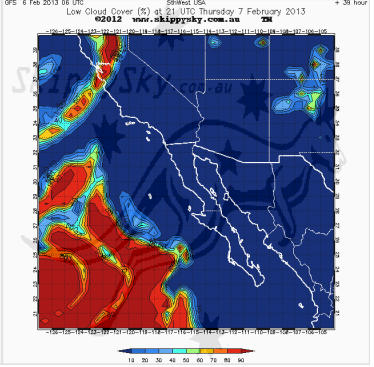


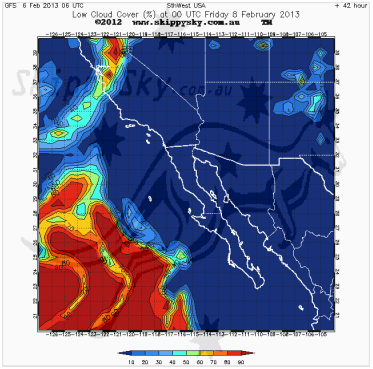




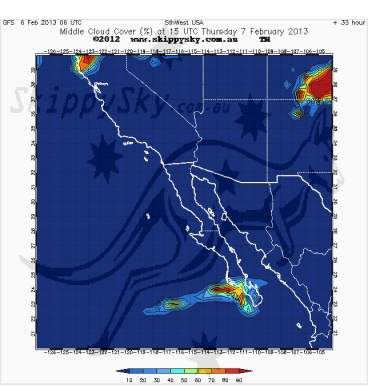


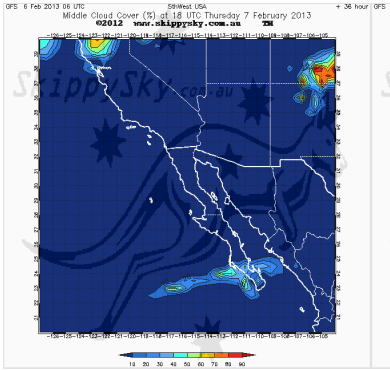


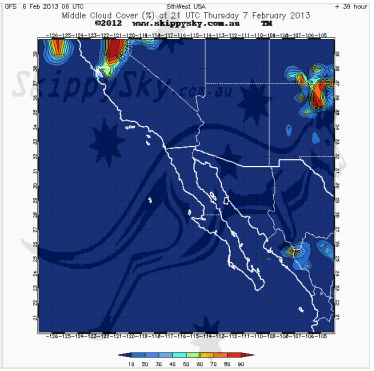


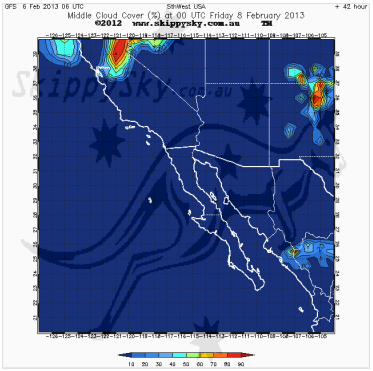



# GFS - Low level

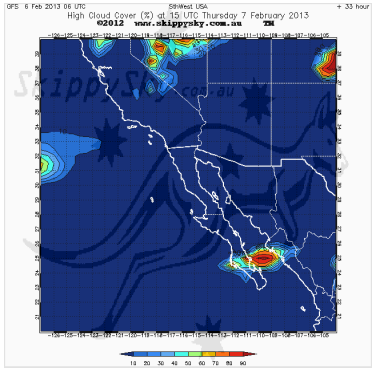


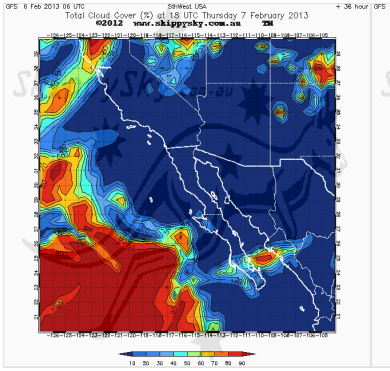


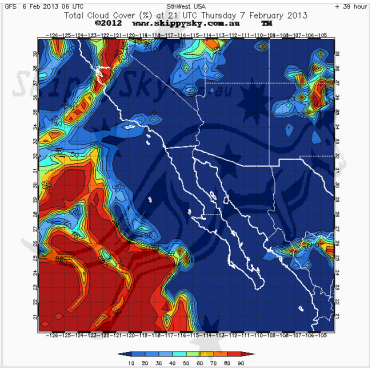


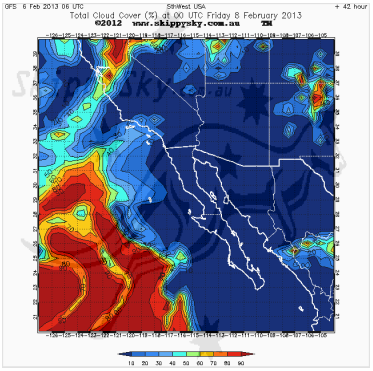



# GFS - Mid level





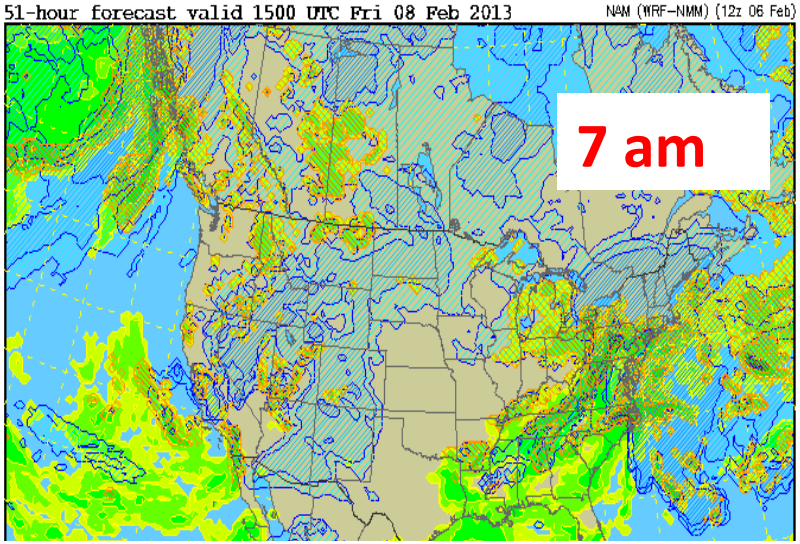




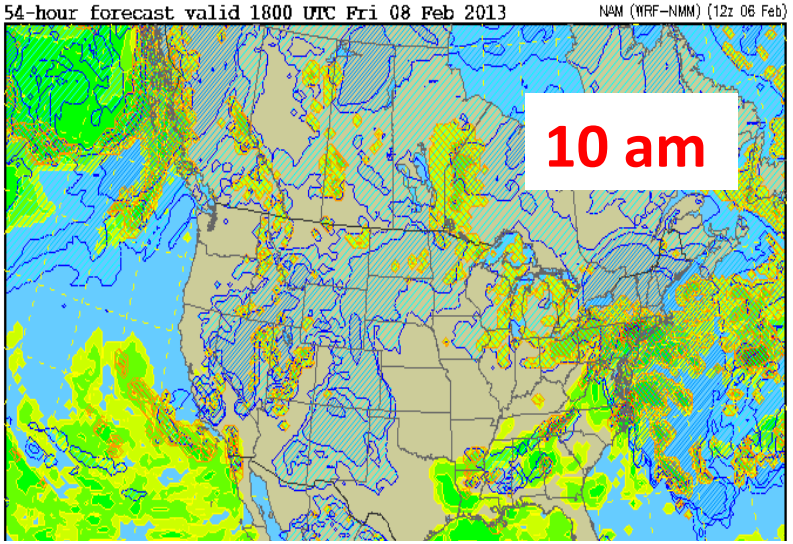

# GFS - High level

Friday: NAM – Stratus deck building into the study region from the south by afternoon. Some cirrus off of SF coast during morning, drying out by late morning.

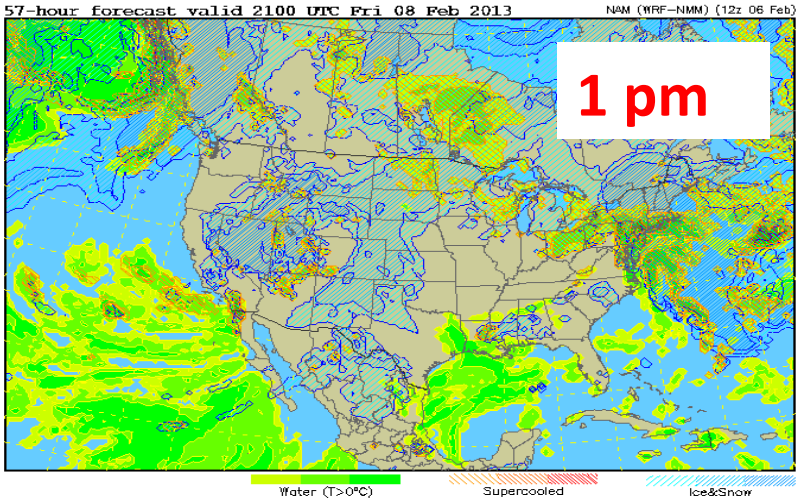
Integrated liquid and frozen hydrometeors (all levels)



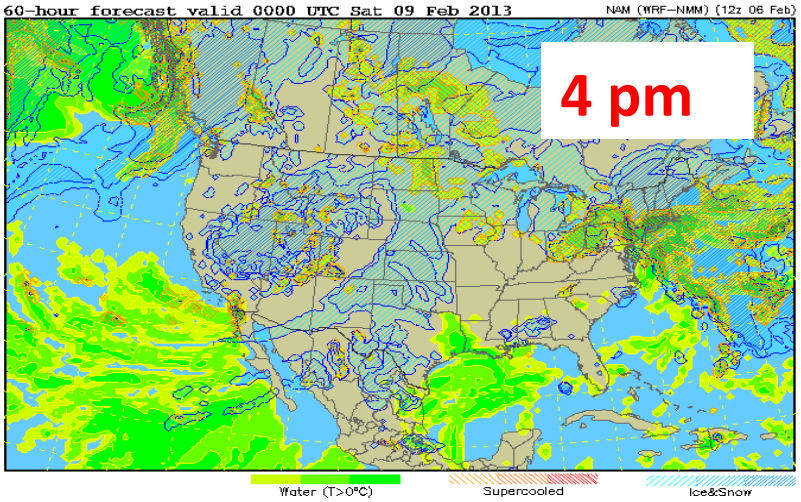

Integrated liquid and frozen hydrometeors (all levels)




Integrated liquid and frozen hydrometeors (all levels)



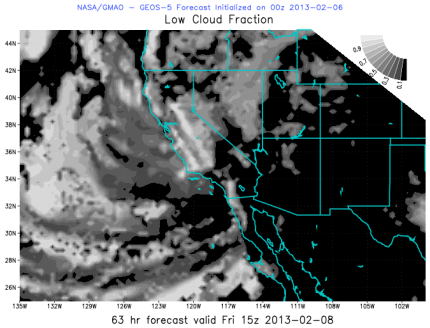

Integrated liquid and frozen hydrometeors (all levels)

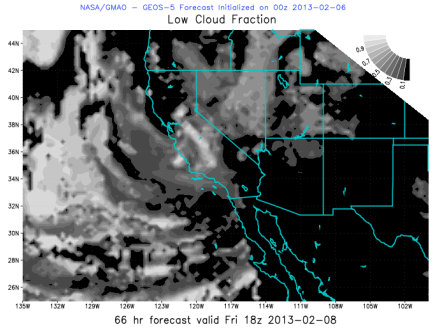


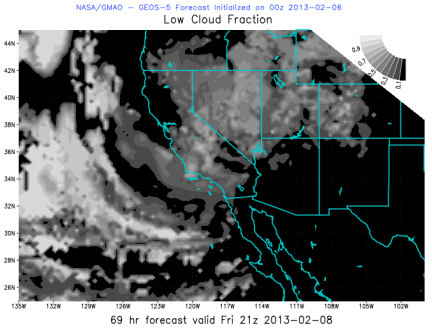
Friday: GEOS5 – Stratus deck returns to coast after frontal passage. More extensive during morning than NAM, and decreases in coverage during day. No cirrus clouds.

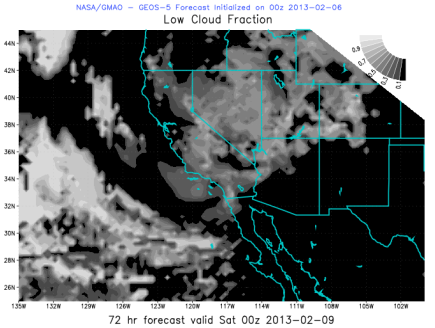
7 am 10 am 1 pm 4 pm

## GEOS5 – Low level

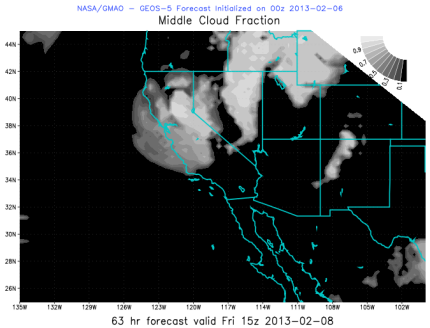


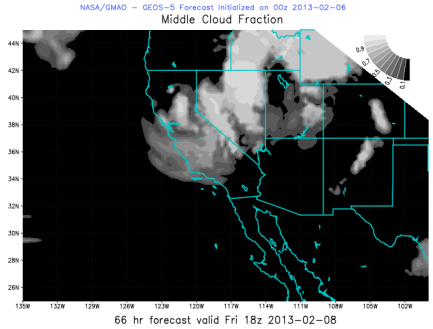



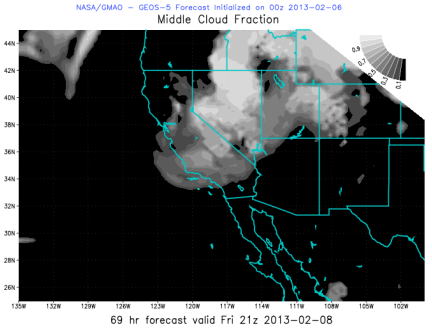



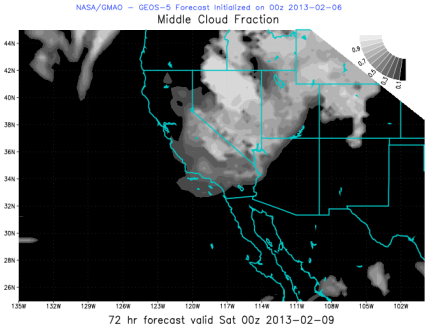




## GEOS5 – Mid level

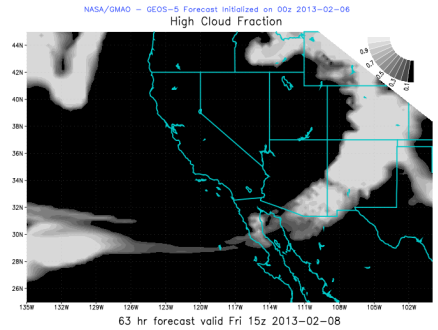


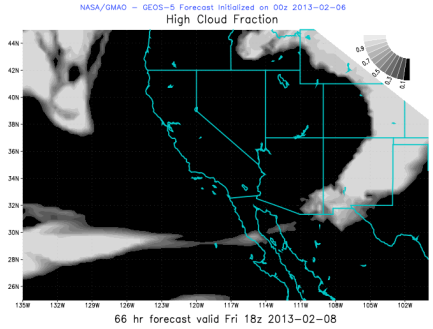



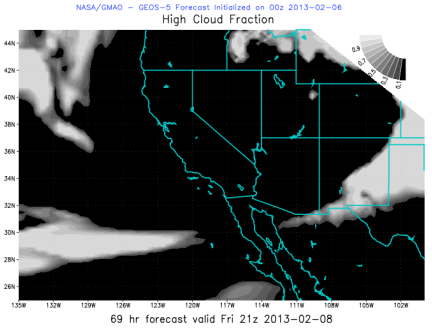



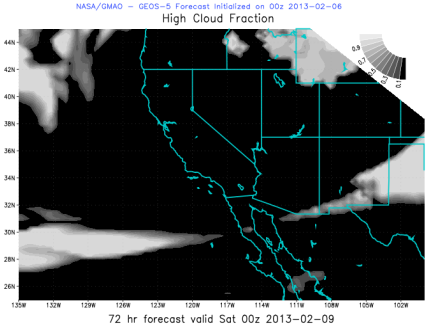




## GEOS5 – High level

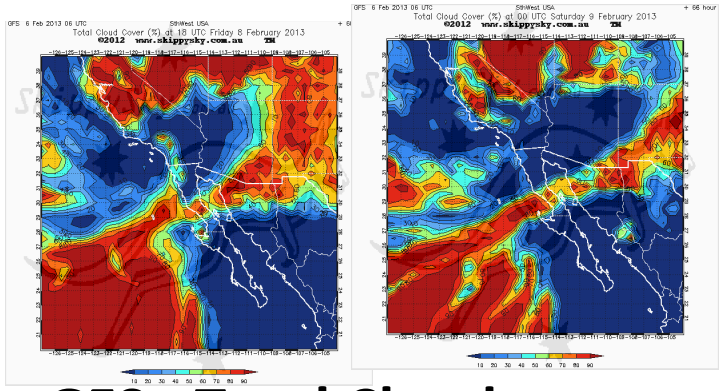


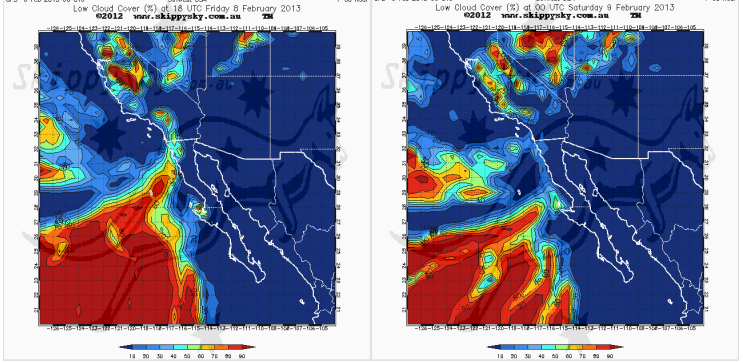



10 am 4 pm

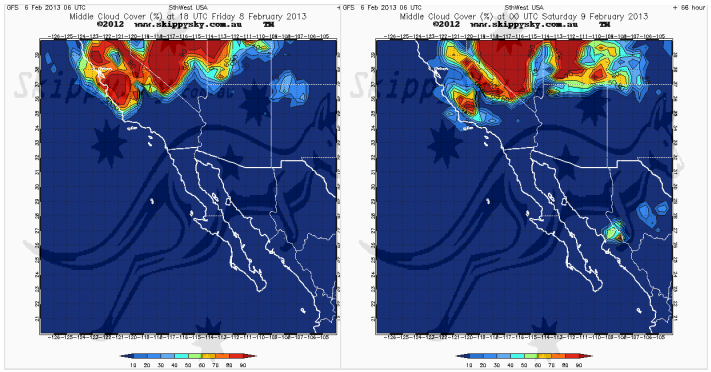



## GFS - Total Cloud

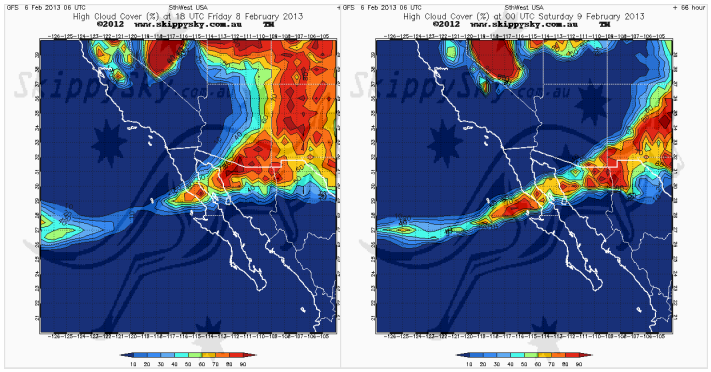
Friday: GFS – Similar to the NAM. Stratus build into the region by late afternoon. Cirrus not indicated in the study region.




## GFS - Low level



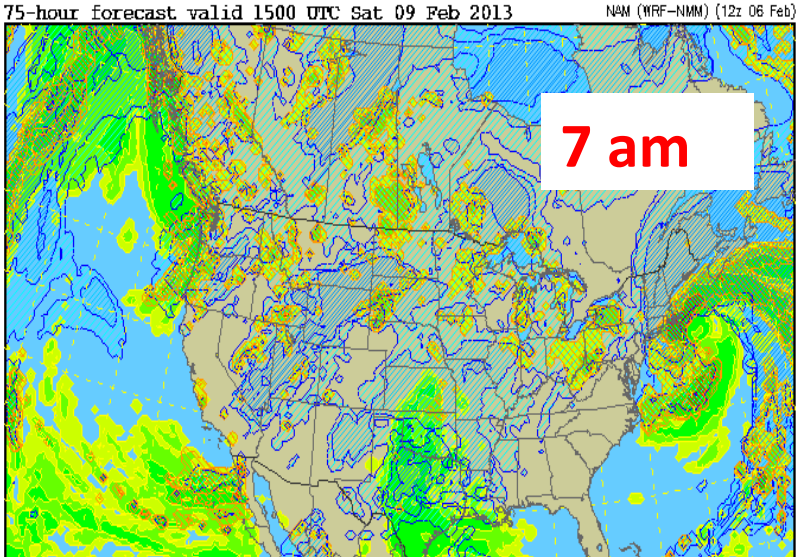

## GFS - Mid level



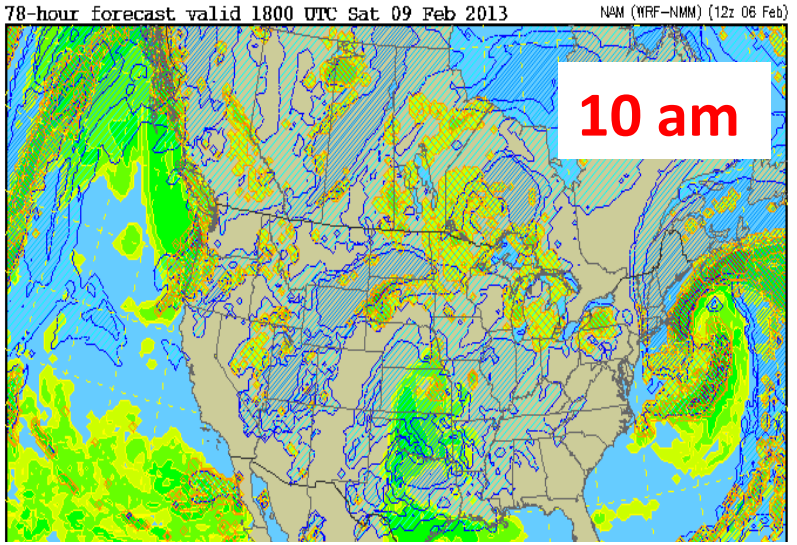

## GFS - High level

Saturday: Stratus and cirrus remain clear of the SF and LA coasts throughout the day.

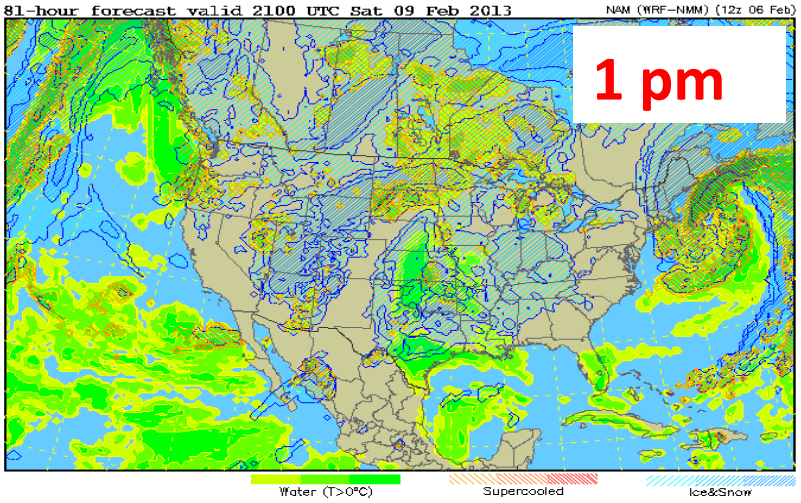
Integrated liquid and frozen hydrometeors (all levels)



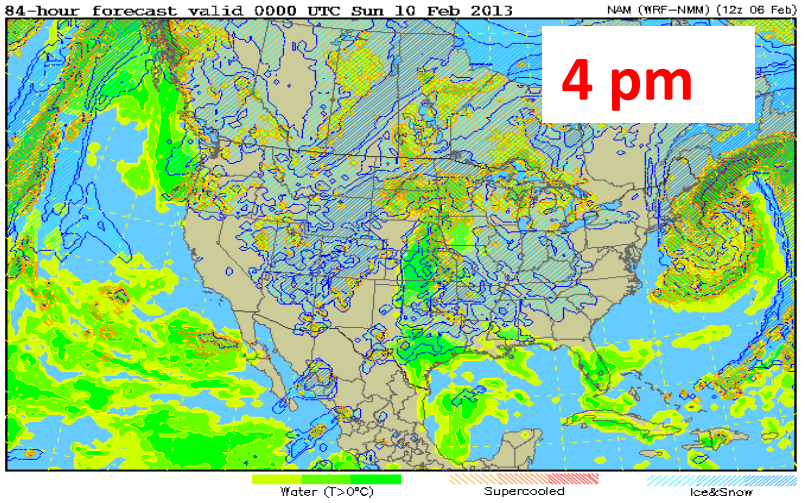

Integrated liquid and frozen hydrometeors (all levels)




Integrated liquid and frozen hydrometeors (all levels)



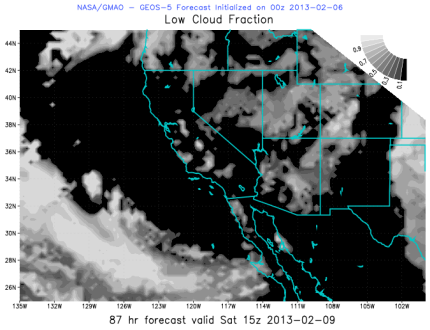

Integrated liquid and frozen hydrometeors (all levels)

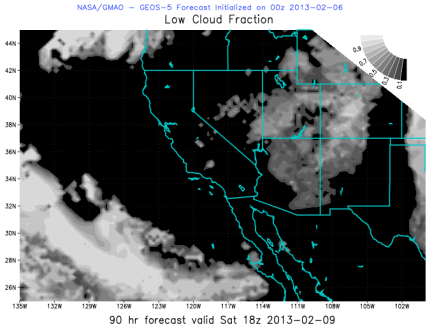


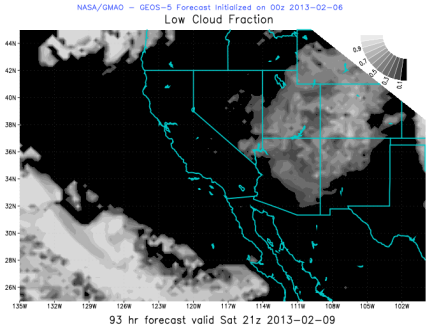
Saturday: GEOS5 – Similar to NAM. Coast remains cloud-free throughout the day.

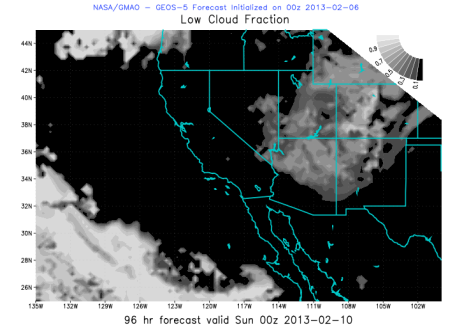
7 am 10 am 1 pm 4 pm

## GEOS5 – Low level

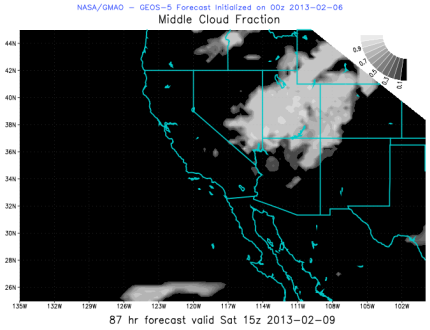


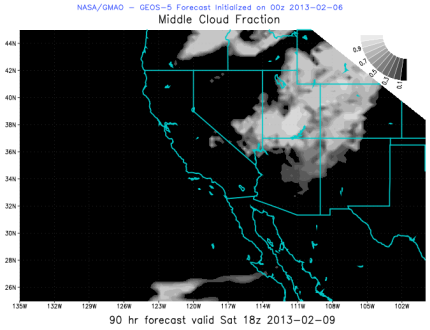



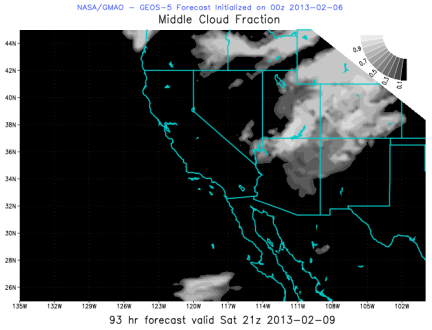



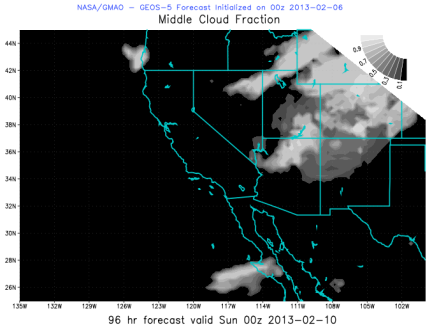




## GEOS5 – Mid level

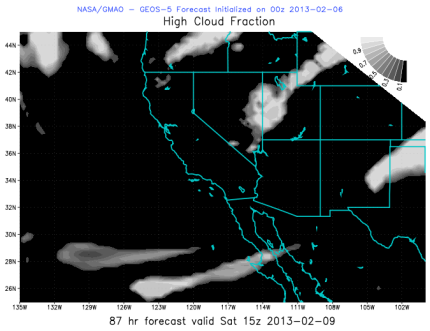


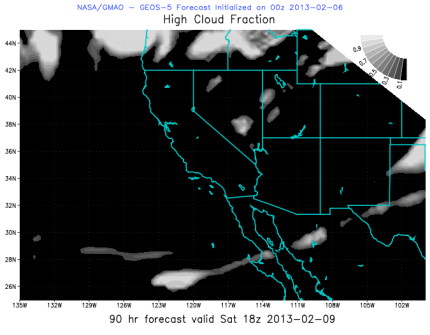



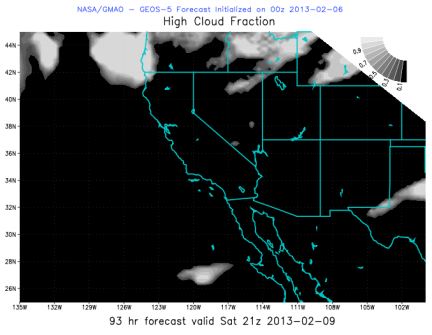



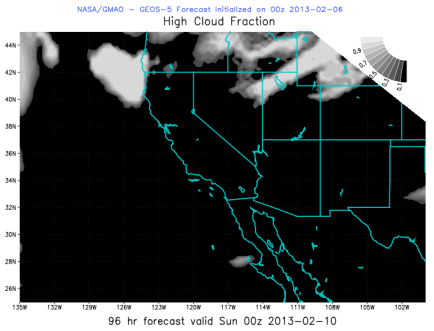




## GEOS5 – High level



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AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY - HANFORD CA
319 AM PST WED FEB 6 2013

.SYNOPSIS...
A WEAK FRONTAL SYSTEM THAT MOVED THROUGH THE AREA IS PRODUCING SOME LIGHT SHOWERS IN THE SOUTH VALLEY AND CLOUDS ALONG THE SIERRA. THIS FRONT WILL MIX UP THE LOWER ATMOSPHERE ENOUGH TO REDUCE THE THREAT OF WIDESPREAD FOG THIS MORNING IN THE SAN JOAQUIN VALLEY. ANOTHER FRONT WILL MOVE THROUGH THE AREA ON THURSDAY AND FRIDAY WHICH WILL PRODUCE LIGHT RAIN AND HIGHER ELEVATION SNOW.

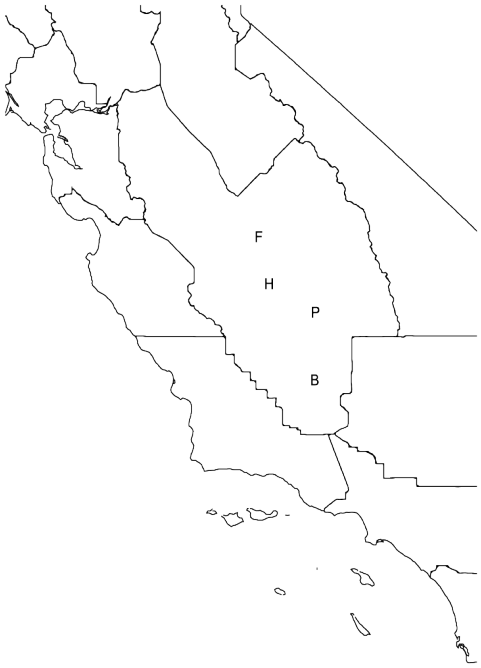
&&

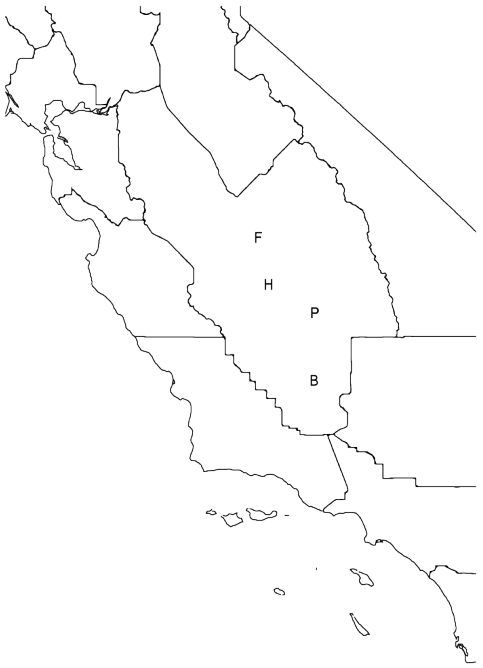
.DISCUSSION...
UPPER TROUGH MOVING THROUGH THE CEN CA INTERIOR HAS ENOUGH ENERGY WITH IT TO DEVELOP UP SLOPE SHOWERS ACROSS THE NORTH FACING SLOPES OF THE TEHACHAPI MOUNTAINS. CLOUDS CONTINUE TO INCREASE IN THE SOUTH VALLEY AS A JET MAX CROSSES THE REGION. GUSTY WINDS CONTINUE IN THE TEHACHAPI PASS AND WILL DIE OFF BY DAY BREAK. CLOUDS AND WEAK SFC WINDS ARE ENOUGH TO LIMIT FOG DEVELOPMENT TODAY OVER MOST AREAS IN THE SJV. HANFORD STILL HAS SOME FOG IN THE AREA...BUT IT IS PRETTY ISOLATED.

VALLEY WINDS ARE EXPECTED TO DIE OFF TONIGHT AS THE TROUGH MOVES EAST. WE MAY SEE MORE IN THE WAY OF FOG DEVELOPMENT TONIGHT WITH A WEAK RIDGE BUILDING IN OVER THE AREA AHEAD OF THE NEXT SYSTEM GETTING ORGANIZED IN THE GULF OF ALASKA. THIS SYSTEM IS PROGGED TO MOVE IN HERE INITIALLY WITH A COLD FRONT ON THURSDAY NIGHT AND THEN THE COLD CORE LOW CENTER WILL CROSS THE AREA FRIDAY AND FRIDAY NIGHT. THE GFS AND ECM ARE NOT REAL SURE WHAT TO DO WITH THE CLOSED LOW CENTER FOR SATURDAY. LOOKS LIKE WE WILL BE ON THE COLD SIDE OF THE LOW CENTER AND IT MAY STILL BE BREEZY OVER THE AREA. THE MODELS ARE BRINGING IN A COLDER AIRMASS IN HERE ON SUNDAY AND MONDAY WITH TEMPERATURES NEAR FREEZING IN SEVERAL LOCATIONS IN THE SJV. HIGH PRESSURE RIDGE WILL ALLOW TEMPS TO MODIFY BY WED OF NEXT WEEK WITH CONTINUED DRY CONDITIONS.

&&

# NOAA CMAQ:  Thursday 10 am = 18 Z




**PODEX:**

# Recommendations—A complicated forecast!

Thursday: NAM and GFS indicate some clearing of low level clouds after frontal passage along coast. Cirrus building into the LA coastal waters. GEM and GEOS5 show more low cloud. NWS Oxnard disagrees. Broken cirrus forecasted to be present over stratus deck, which will cover most of the southern study region off LA. NWS Monterey forecasts cirrus clouds off SF coast until ~11am, with low and mid levels coming during late morning, ahead of the trough. Stratus covering most of study region by afternoon (except south of ~36N).

Friday: NAM and GFS indicate a clear patch of ocean, similar to prediction for today (Feb. 6). GEOS5 keeps low clouds into the coast for most of the day. NWS Oxnard indicates that clouds are possible at any and all levels on Friday due to the upper trough, but indicates lack of model convergence. NWS Monterey forecasts mainly clear waters, with exception of some cumulus at the coast or just inland (moisture concentrated over land).

Friday's precip.: 40% chance of rain and snow, all day, wind gusts. Forecaster has increasing confidence in this forecast.