DISCOVER-AQ OUTLOOK Wednesday January 30, 2013

AQ: The ridge is building over California. PM2.5 levels in the SJV are generally low, except that Fresno has had an extended period of >40 ug/m3 over the last two nights. We're in a "building" stage this week as the ridge takes hold with Friday and Saturday to see peak values of PM2.5 (code orange) in much of the SJV during this mini AQ event - "mini" relative to last week's larger event, which was characterized by a stronger inversion. As a result, thick and widespread fog is not expected this week. Though clouds are forecasted this weekend, PM2.5 in the SJV is not expected to be "cleaned out", so that PM2.5 may remain at moderate levels early next week. AQ may be "reset" with the approaching weather Tuesday-Wednesday. PM2.5 levels in the Sacramento area are generally cleaner than the SJV, though code orange conditions cannot be ruled out this week.

Weather:

Thursday –

SJV (PODEX/D-AQ) – Fog in the morning a little more widespread than today, burning off by 9-10 am. Clear skies are forecast.

PODEX calibration leg – Lake Tahoe – Reno NWS office forecasts some high cirrus over the region tomorrow into Friday. Cirrus are spilling over the upper level high at about 35 Kft.

PODEX coastal leg (Bay area) – Monterey NWS office forecasts low level clouds, but too far offshore (west of 125W) for PODEX

PODEX coastal leg (LA) – No cirrus forecast, no lower level clouds forecast. Models bring them closer than Oxnard NWS forecaster thought they would come.

PODEX calibration leg – Palmdale – forecast is clear of cirrus

Weather Continued

Friday –
SJV (PODEX/D-AQ) – Fog in the morning, burning off by 9-10 am. Clear skies are forecast.
PODEX calibration leg – Lake Tahoe – Same as Thursday - Cirrus are spilling over the upper level high at about 35 Kft.
PODEX coastal leg (Bay area) – No cirrus, but low level clouds too far offshore (west of 125W) for PODEX
PODEX coastal leg (LA) - Chance of some high level clouds approaching from the south and west. Chances increase towards the afternoon.
PODEX calibration leg – Palmdale – Forecast is clear of cirrus

Saturday – SJV - Thin broken cirrus forecast (~25Kft). Clouds increasing as the day progresses. Fog in the morning, burning off by 9-10 am.

Sunday – Possibility of precipitation and cloudiness increases as an upper level trough moves in and brings tropical moisture.

DISCOVER-AQ / PODEX Forecast Meeting

January 30, 2013

Melanie Follette-Cook

Bryan Duncan

Fresno

TODAY	TONIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY	SATURDAY NIGHT	SUNDAY
Areas Fog	Areas Fog	Areas Fog	Areas Fog	Areas Fog	Areas Fog	Areas Fog	Partly Cloudy	Mostly Sunny
High: 60 °F	Low: 41 °F	High: 63 °F	Low: 43 °F	High: 67 °F	Low: 45 °F	High: 65 °F	Low: 46 °F	High: 65 °F

Hanford

TODAY	TONIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY	SATURDAY NIGHT	SUNDAY
Areas Fog	Areas Fog	Areas Fog	Areas Fog	Areas Fog	Areas Fog	Areas Fog	Partly Cloudy	Partly Sunny
High: 60 °F	Low: 39 °F	High: 63 °F	Low: 39 °F	High: 68 °F	Low: 43 °F	High: 66 °F	Low: 46 °F	High: 66 °F

Bakersfield

TODAY	TONIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY	SATURDAY NIGHT	SUNDAY
Sunny	Clear	Sunny	Clear	Sunny	Mostly Clear	Mostly Sunny	Mostly Cloudy	Partly Sunny
High: 60 °F	Low: 41 °F	High: 63 °F	Low: 42 °F	High: 67 °F	Low: 46 °F	High: 66 °F	Low: 46 °F	High: 63 °F

Palmdale

TODAY	TONIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY	SATURDAY NIGHT	SUNDAY
Sunny	Clear	Sunny	Clear	Sunny	Partly Cloudy	Mostly Sunny	Mostly Cloudy	Partly Sunny
High: 62 °F	Low: 40 °F	High: 66 °F	Low: 42 °F	High: 66 °F	Low: 44 °F	High: 65 °F	Low: 44 °F	High: 65 °F

Yuba City

TODAY	TONIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY	SATURDAY NIGHT	SUNDAY
Sunny	Clear	Sunny	Mostly Clear	Sunny	Mostly Clear	Mostly Sunny	Partly Cloudy	Mostly Sunny
High: 61 °F	Low: 35 °F	High: 61 °F	Low: 36 °F	High: 62 °F	Low: 36 °F	High: 62 °F	Low: 39 °F	High: 62 °F

Sacramento

TODAY	TONIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY	SATURDAY NIGHT	SUNDAY
Patchy Fog	Patchy Fog	Patchy Fog	Clear	Sunny	Mostly Clear	Mostly Sunny	Partly Cloudy	Mostly Sunny
High: 62 °F	Low: 37 °F	High: 63 °F	Low: 37 °F	High: 64 °F	Low: 39 °F	High: 63 °F	Low: 41 °F	High: 63 °F

Current Conditions

FRESNO CA

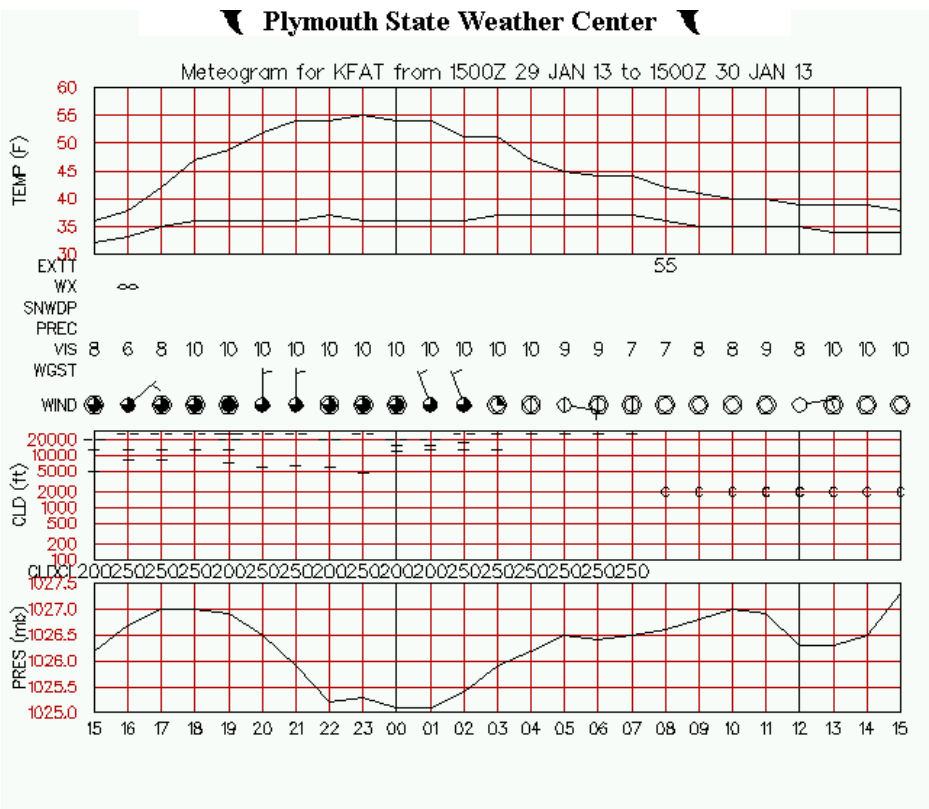
Fair

38°F

3°C

Humidity	85%
Wind Speed	calm
Barometer	30.33 in (1027.3 mb)
Dewpoint	34°F (1°C)
Visibility	10.00 mi

Last Update on 30 Jan 6:53 am PST



BAKERSFIELD CA

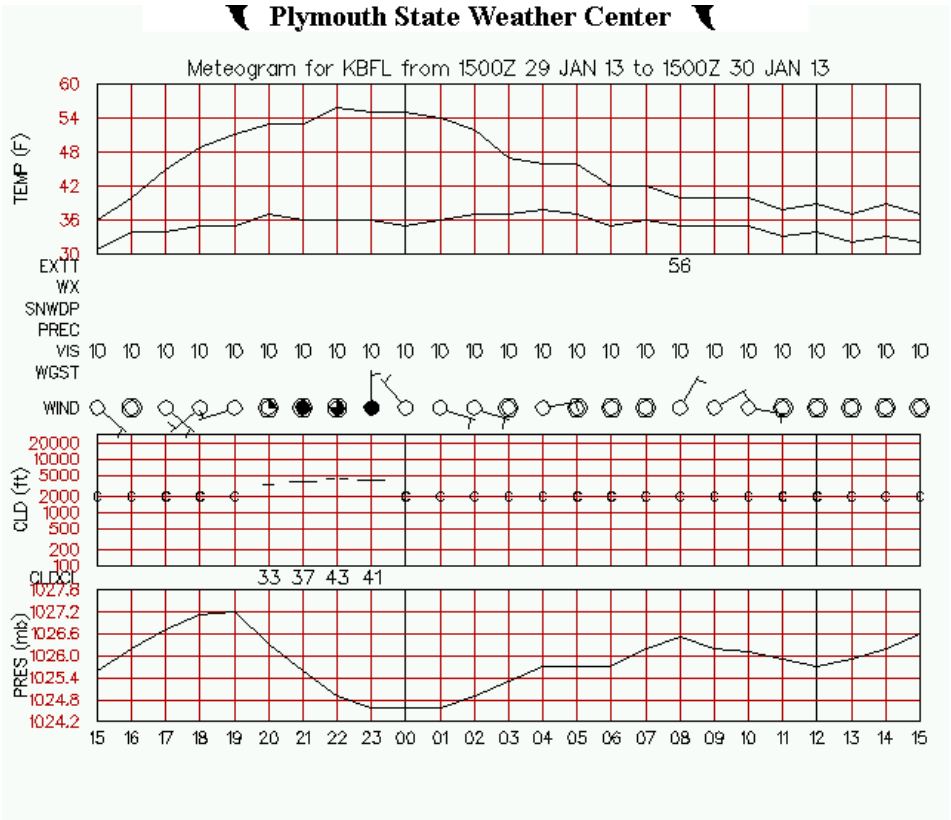
Fair

37°F

3°C

Humidity	82%
Wind Speed	calm
Barometer	30.32 in (1026.6 mb)
Dewpoint	32°F (0°C)
Visibility	10.00 mi

Last Update on 30 Jan 6:54 am PST



Current Conditions

HANFORD CA

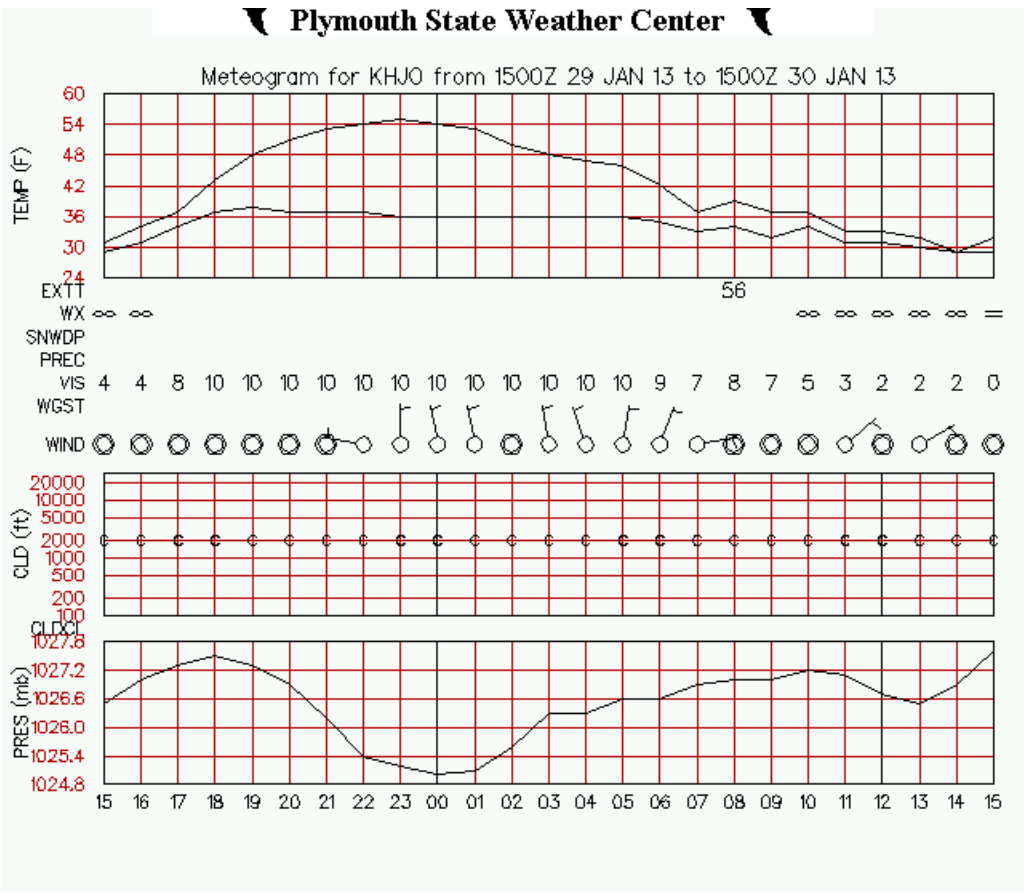
Fog

32°F

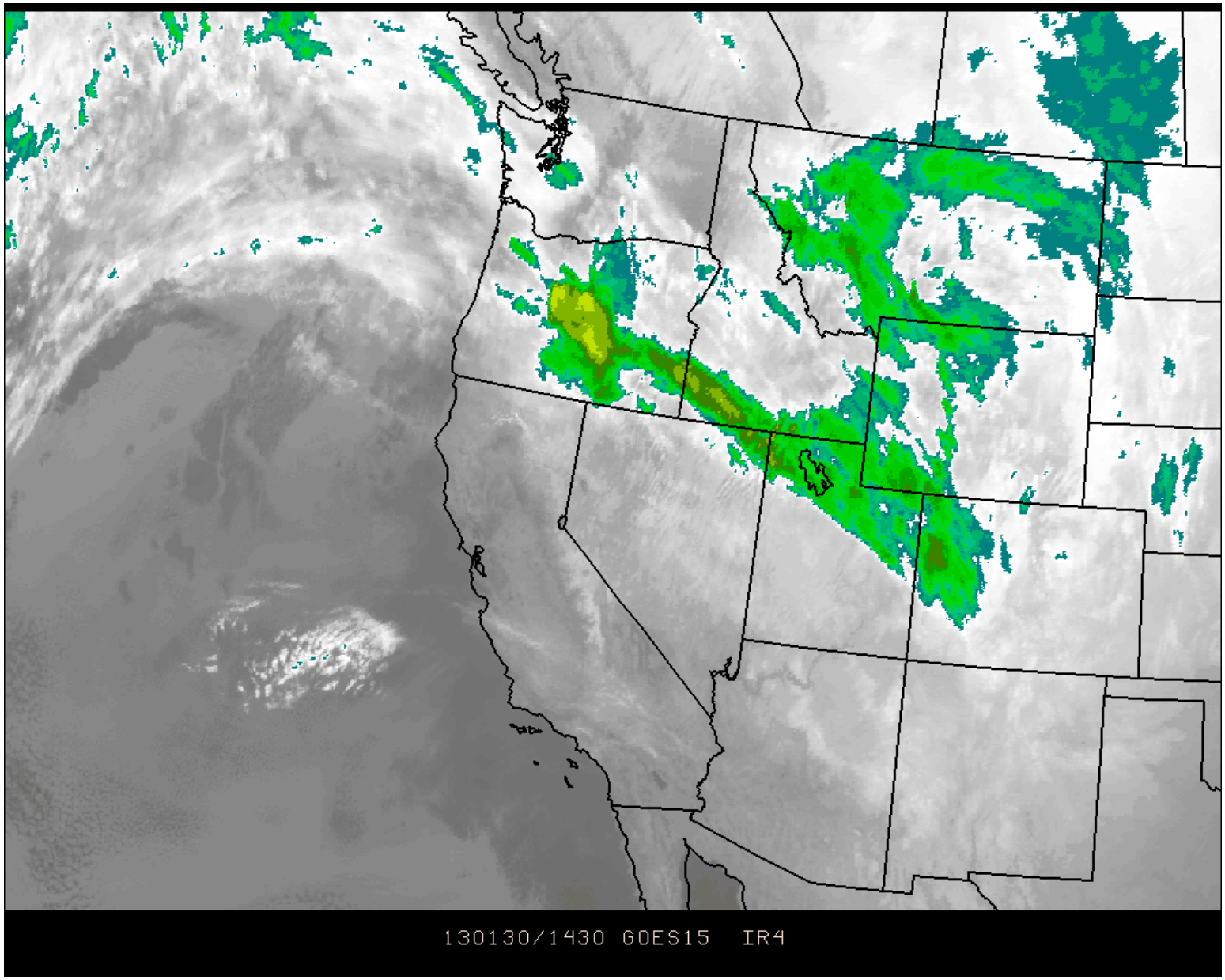
0°C

Humidity	88%
Wind Speed	calm
Barometer	30.33 in (1027.6 mb)
Dewpoint	29°F (-2°C)
Visibility	0.25 mi

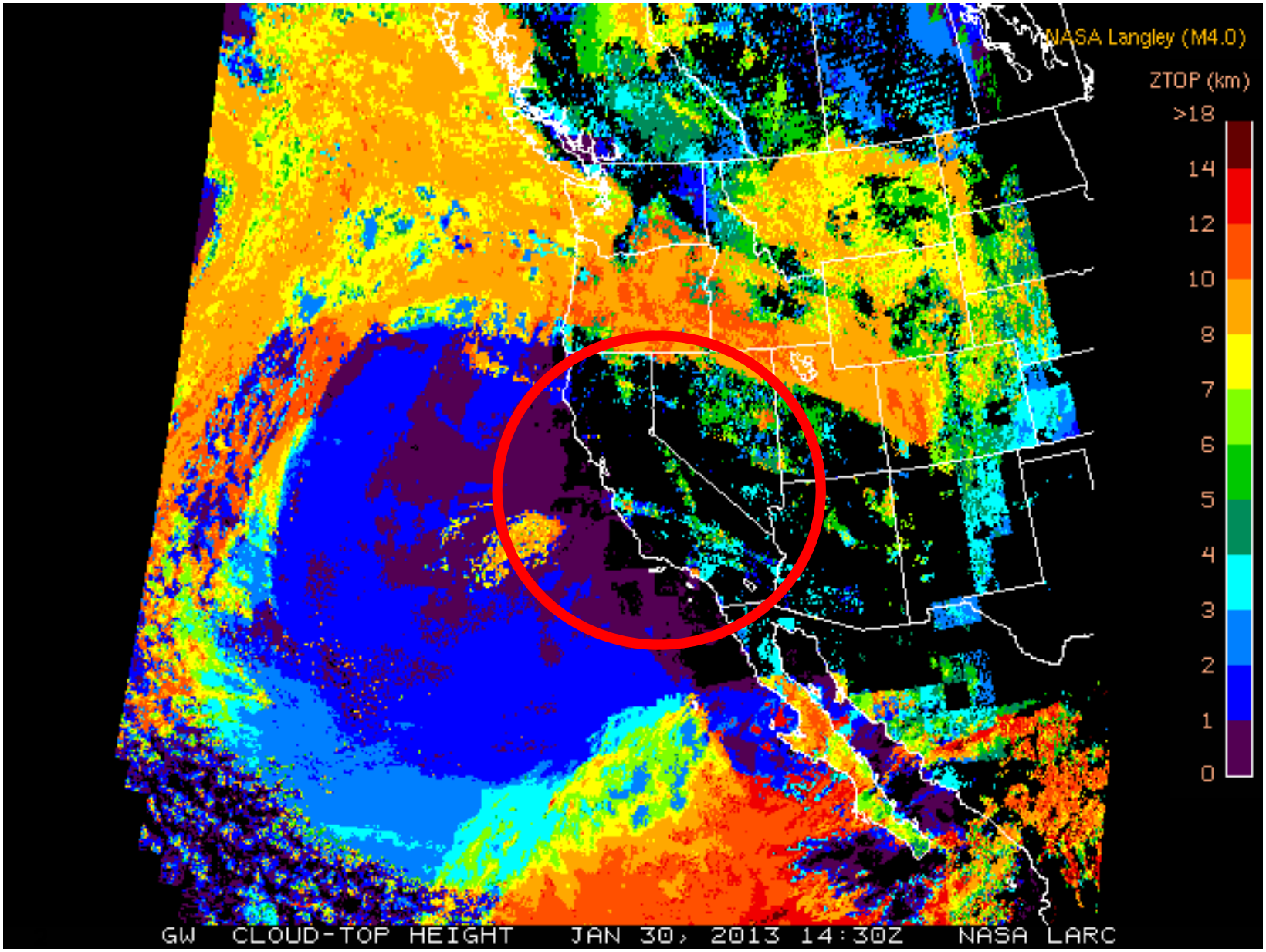
Last Update on 30 Jan 6:53 am PST



GOES: IR at 1430 UTC Today

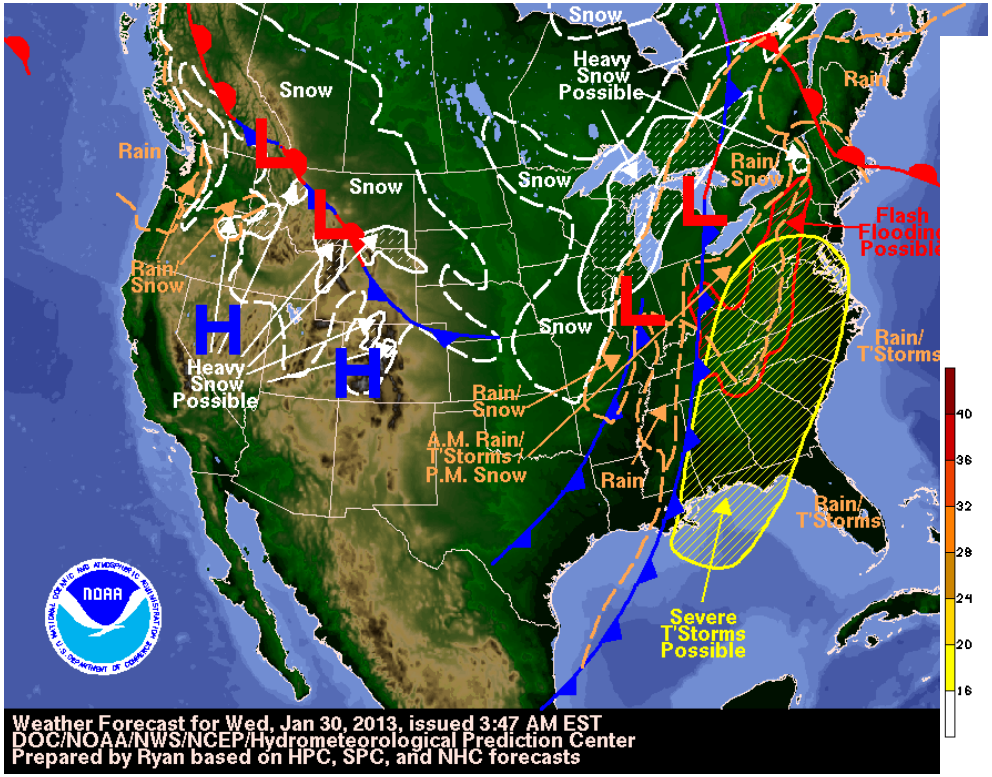


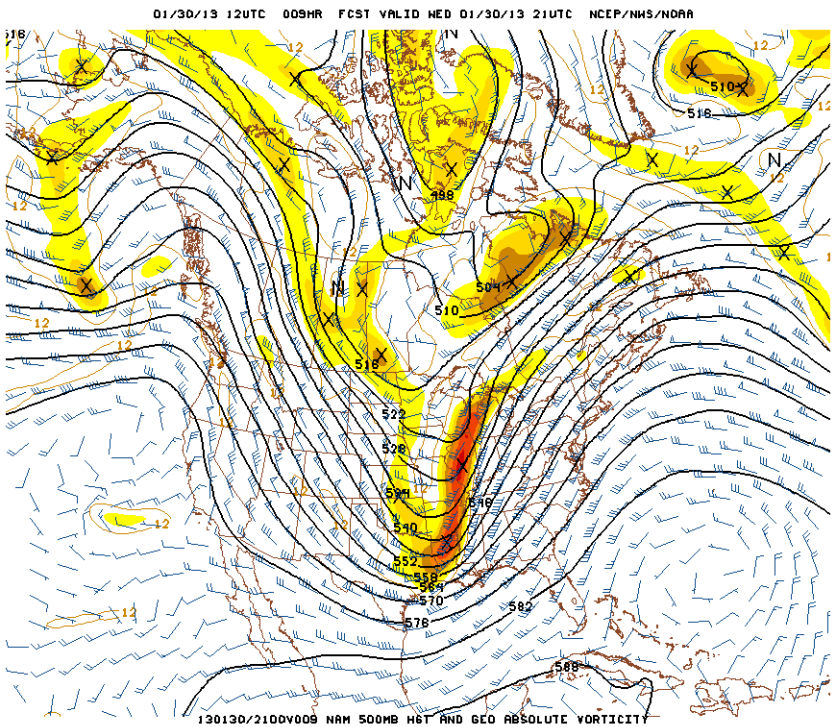
GOES: Cloud Top Height at 1430 UTC Today



Today:

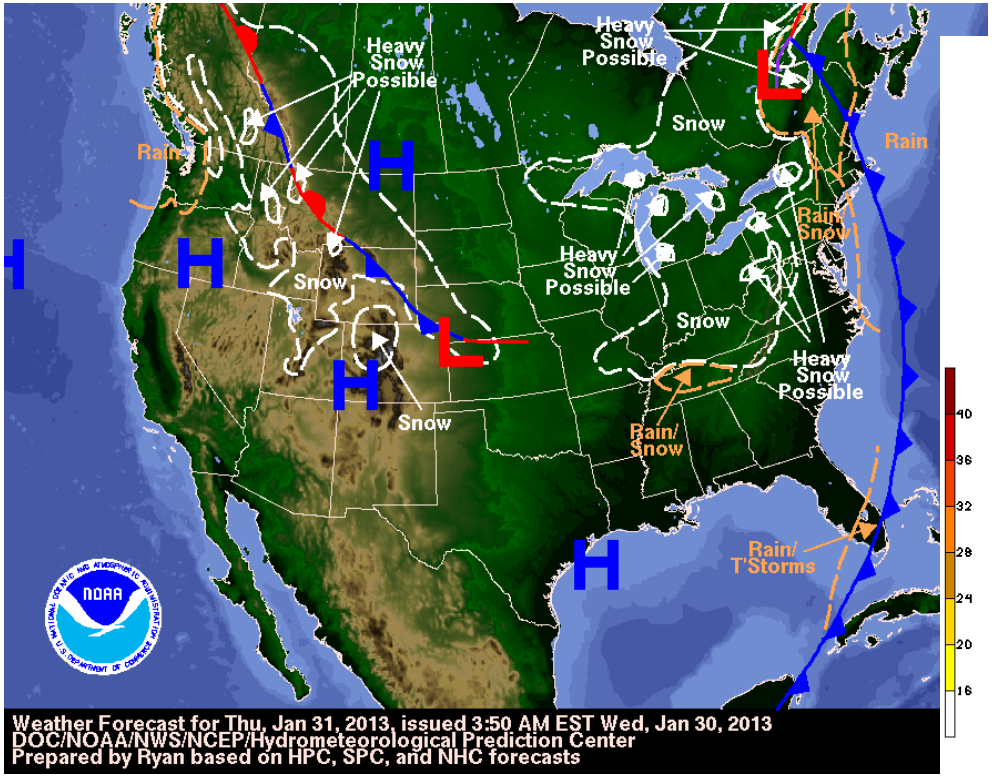
The ridge over the East Pacific remains stationary today keeping storm tracks to our north.

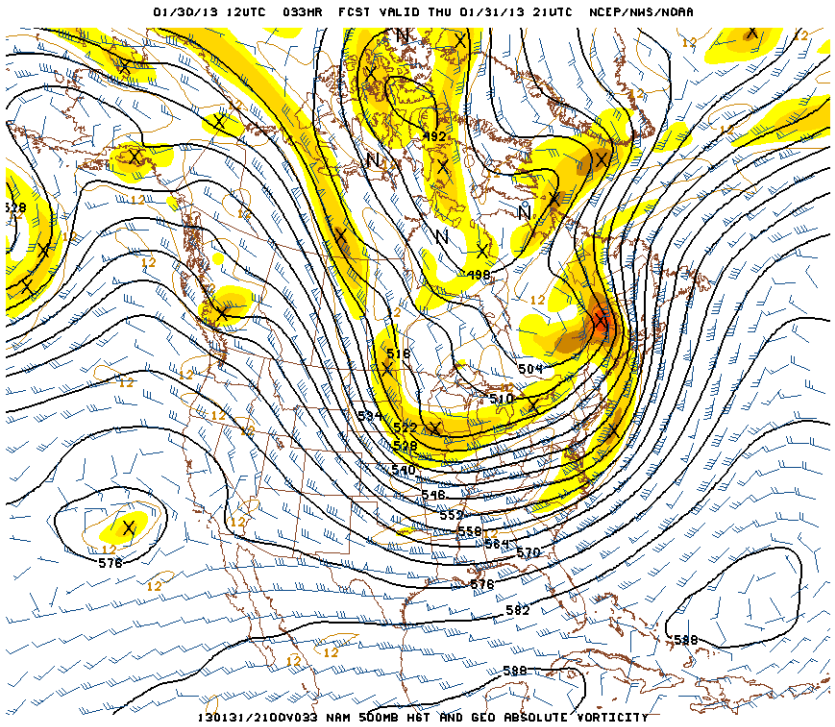




Tomorrow (Thursday):

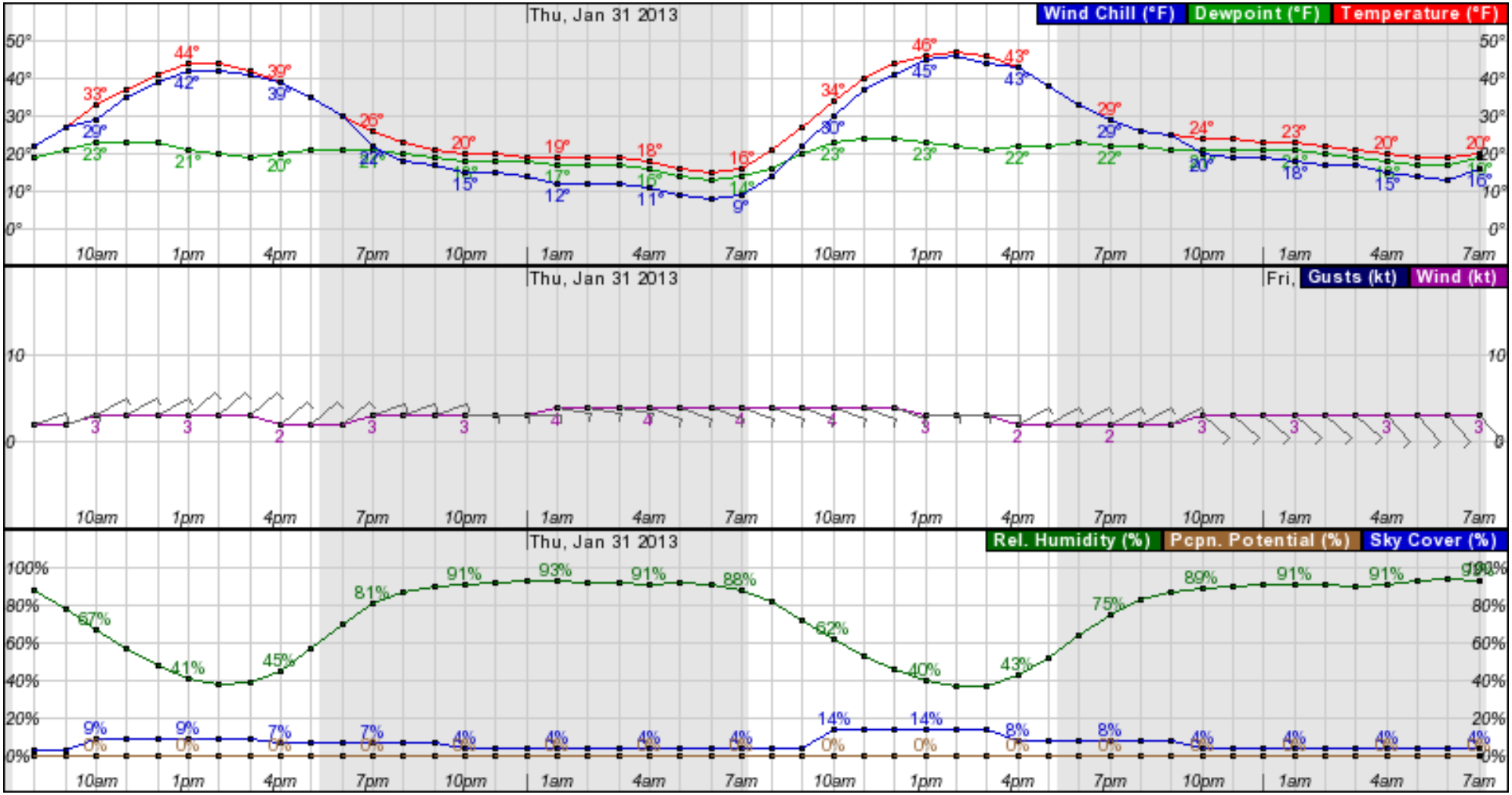
Dry conditions are expected throughout the end of the week as high pressure builds in over the area. Morning fog in the SJV possible for Thursday.





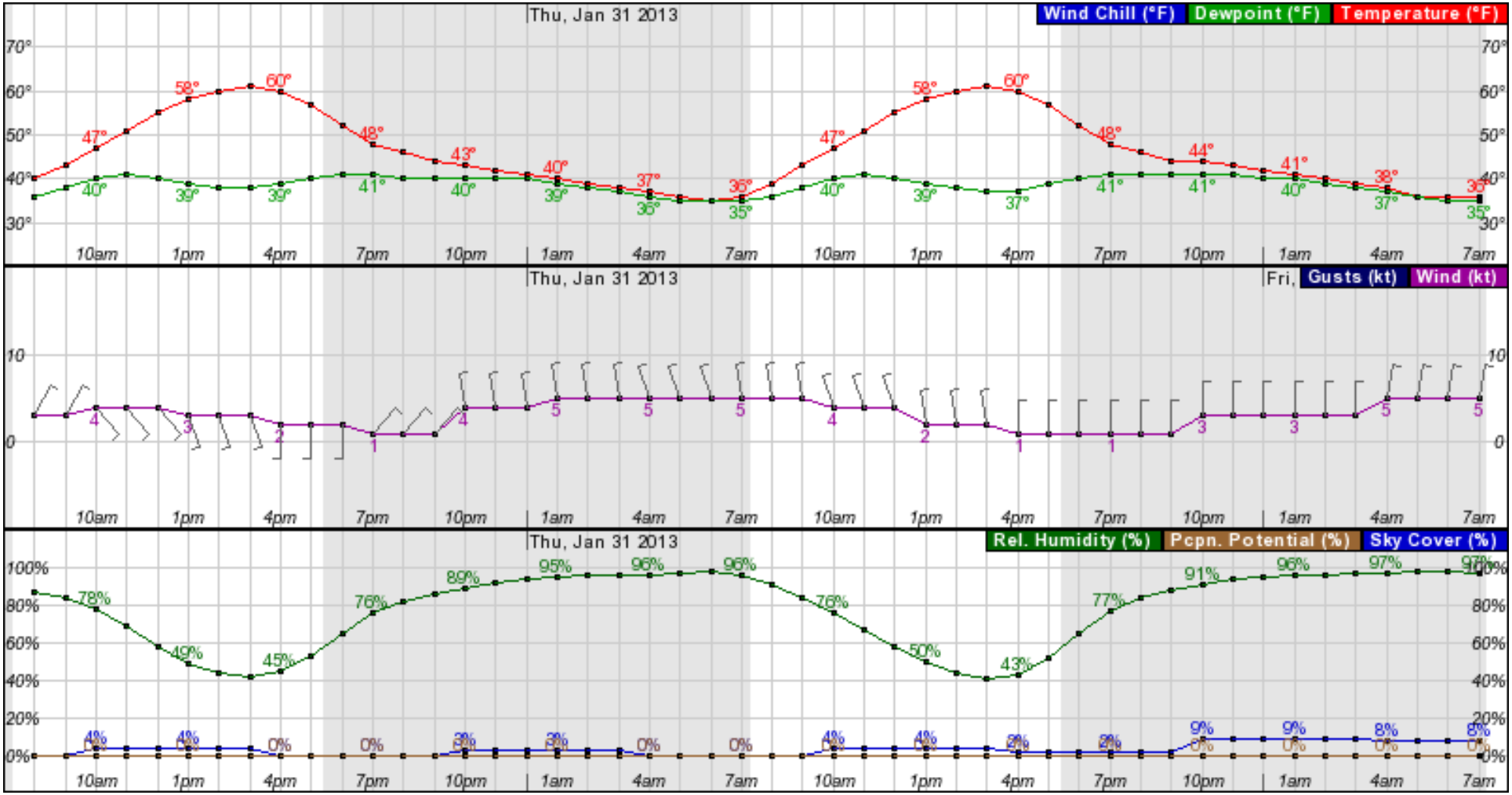
Beckwourth (Nervino Airport) – Northern calibration leg for PODEX
Today: Sunny
Thursday: Sunny

Today → **Thursday →**



Yuba City (Northern extent of Sacremento leg)
Today: Sunny
Thursday: Sunny

Today → **Thursday →**



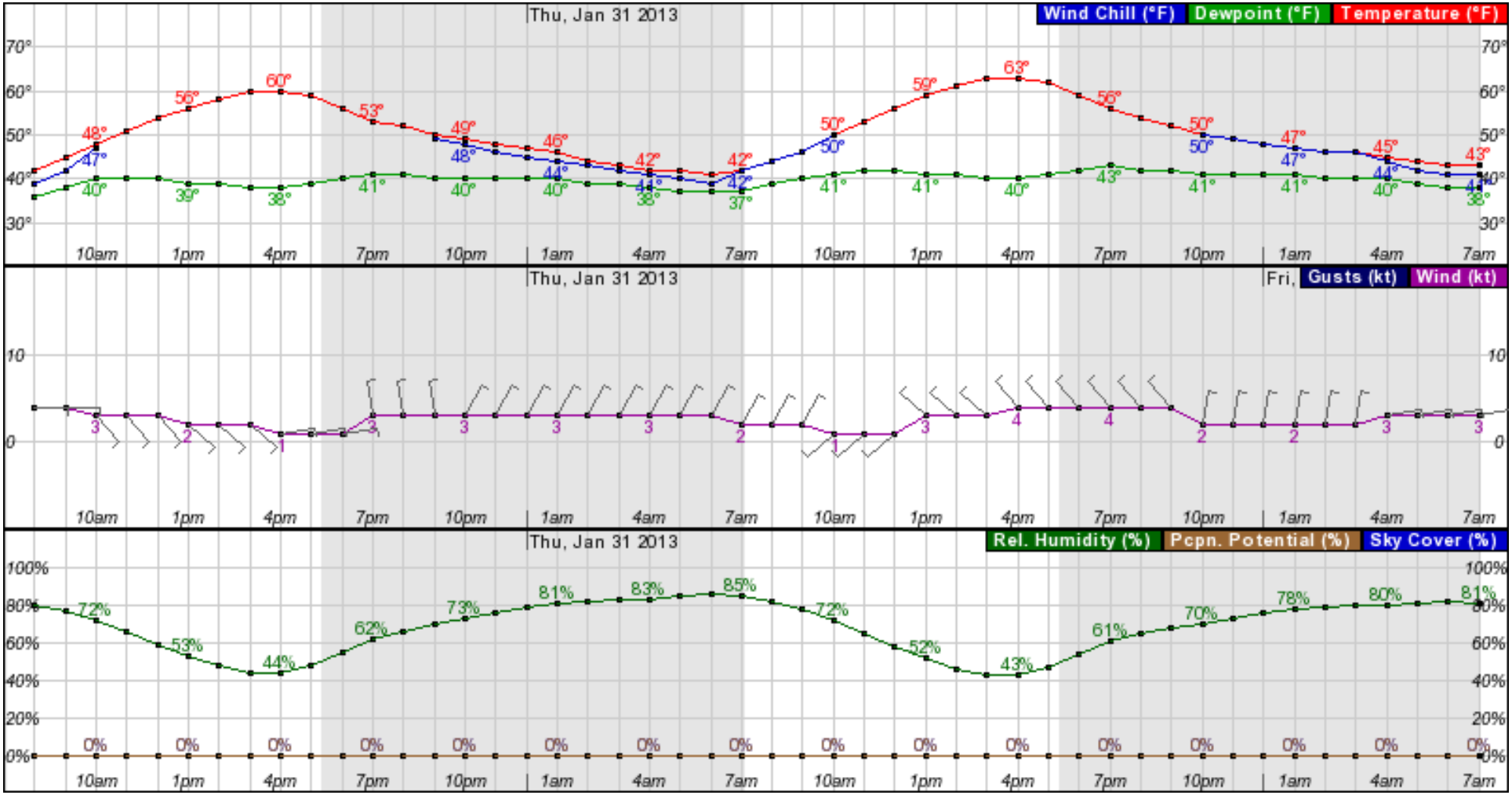
Fresno

Today: Sunny

Thursday: Clear skies, light winds – morning fog possible

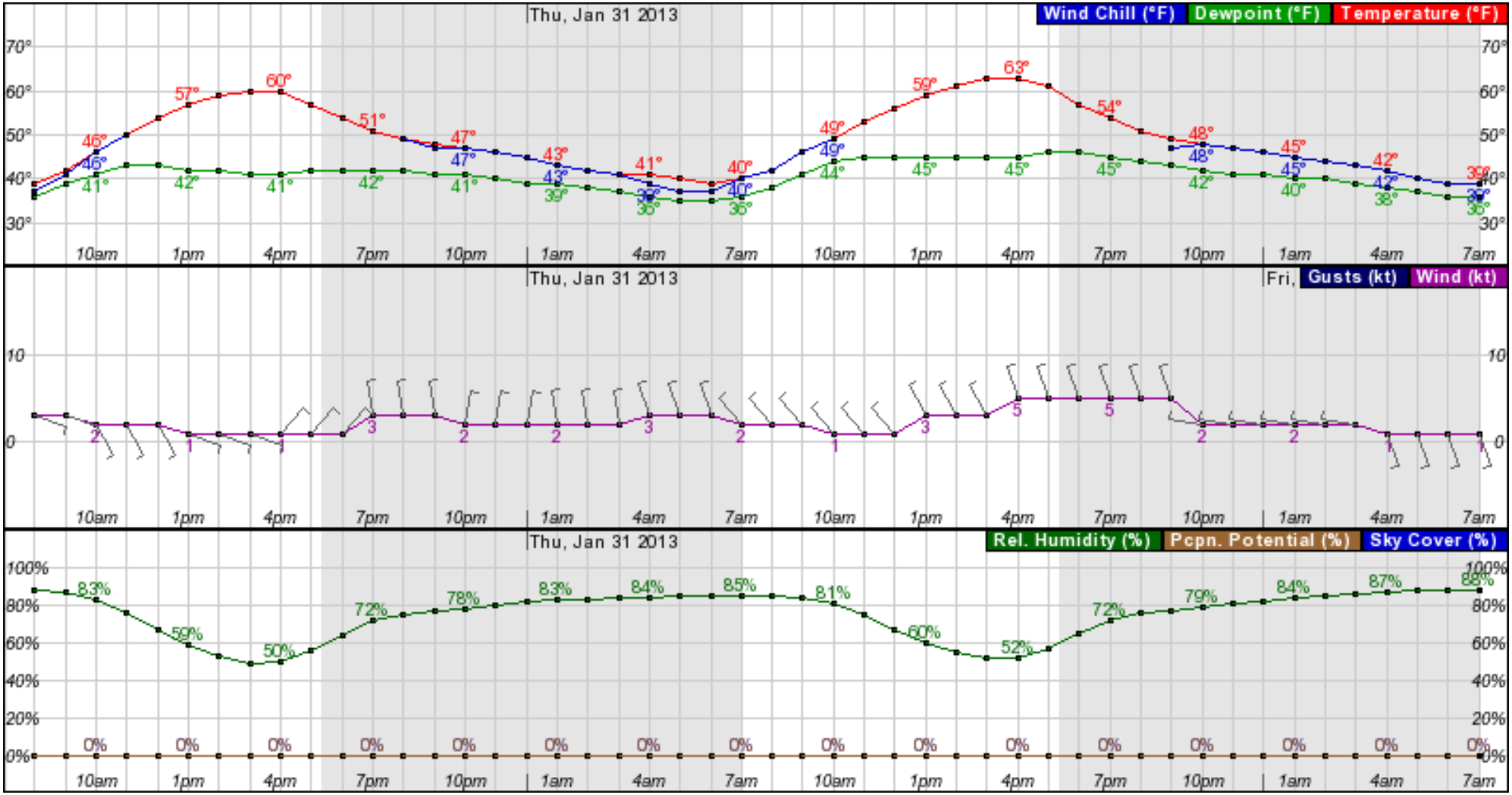
NOTE – Sky cover is 0% through forecast and is therefore underneath the Precip Pontential

Today → **Thursday →**



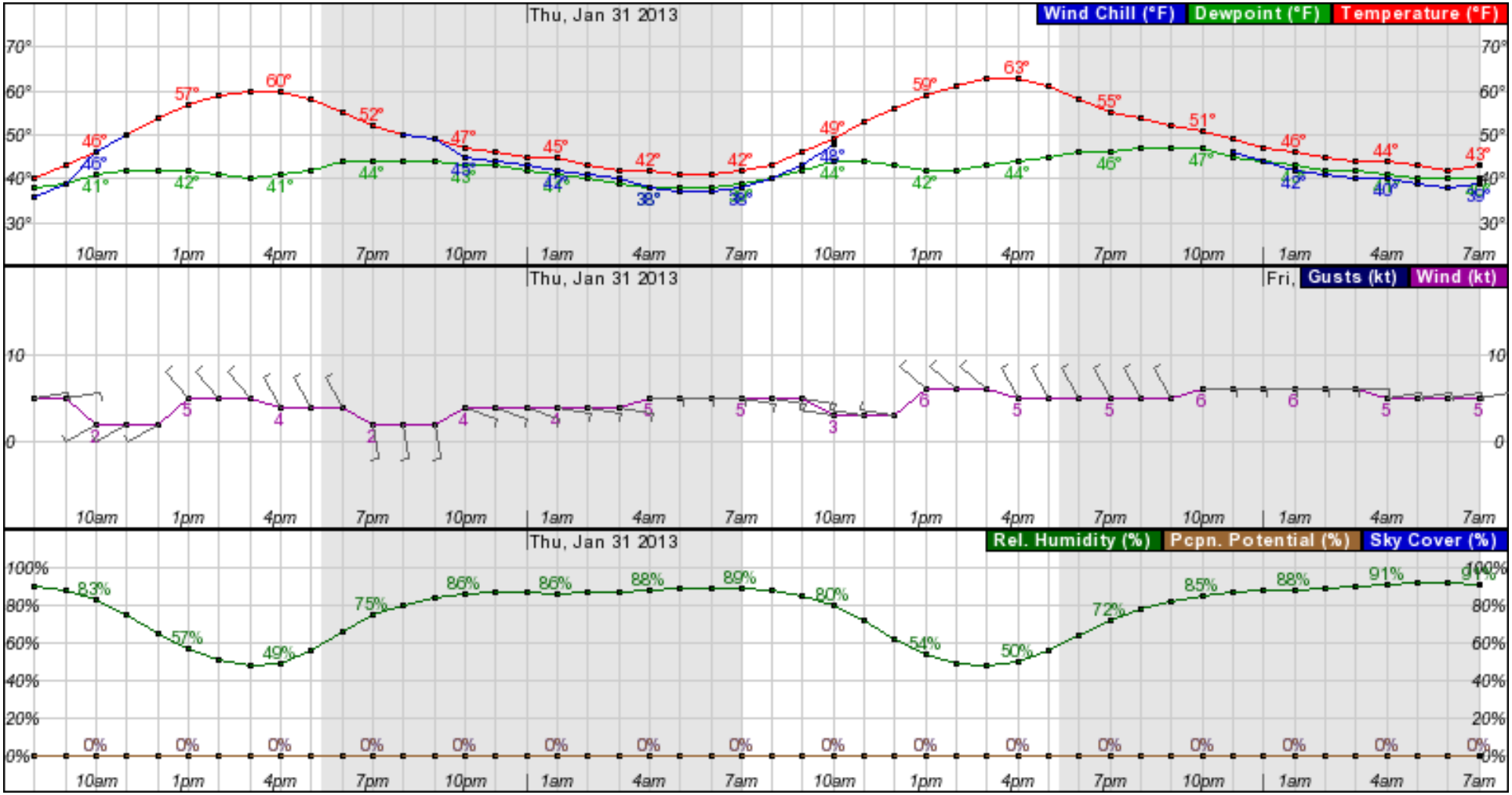
Hanford
Today: Sunny
Thursday: Clear skies, light winds – morning fog possible (but likely given conversation with NWS forecaster)

Today → **Thursday →**



Bakersfield
Today: Sunny
Thursday: Clear skies, light winds – morning fog possible (but likely given conversation with NWS forecaster)

Today → **Thursday →**

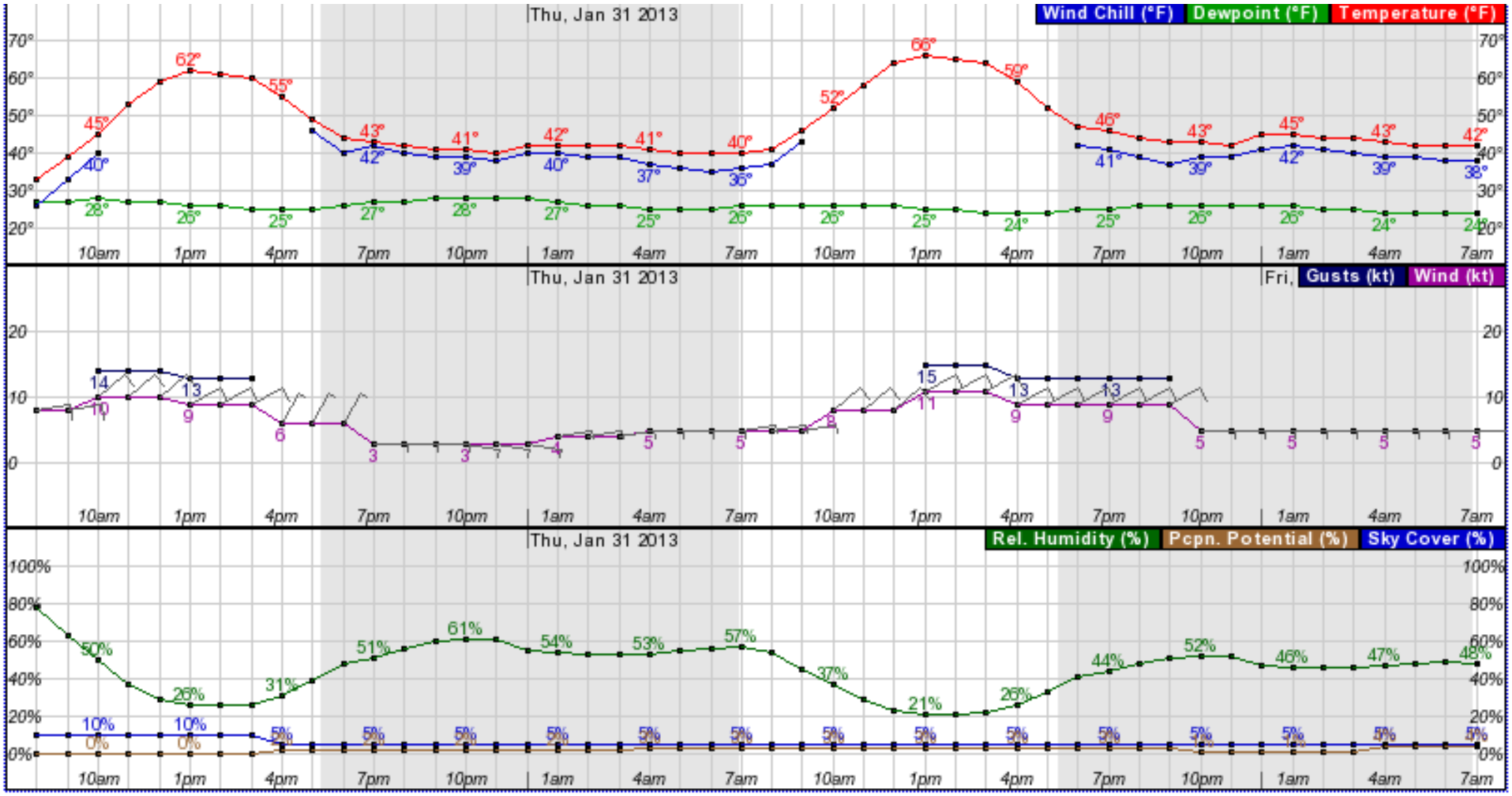


Palmdale

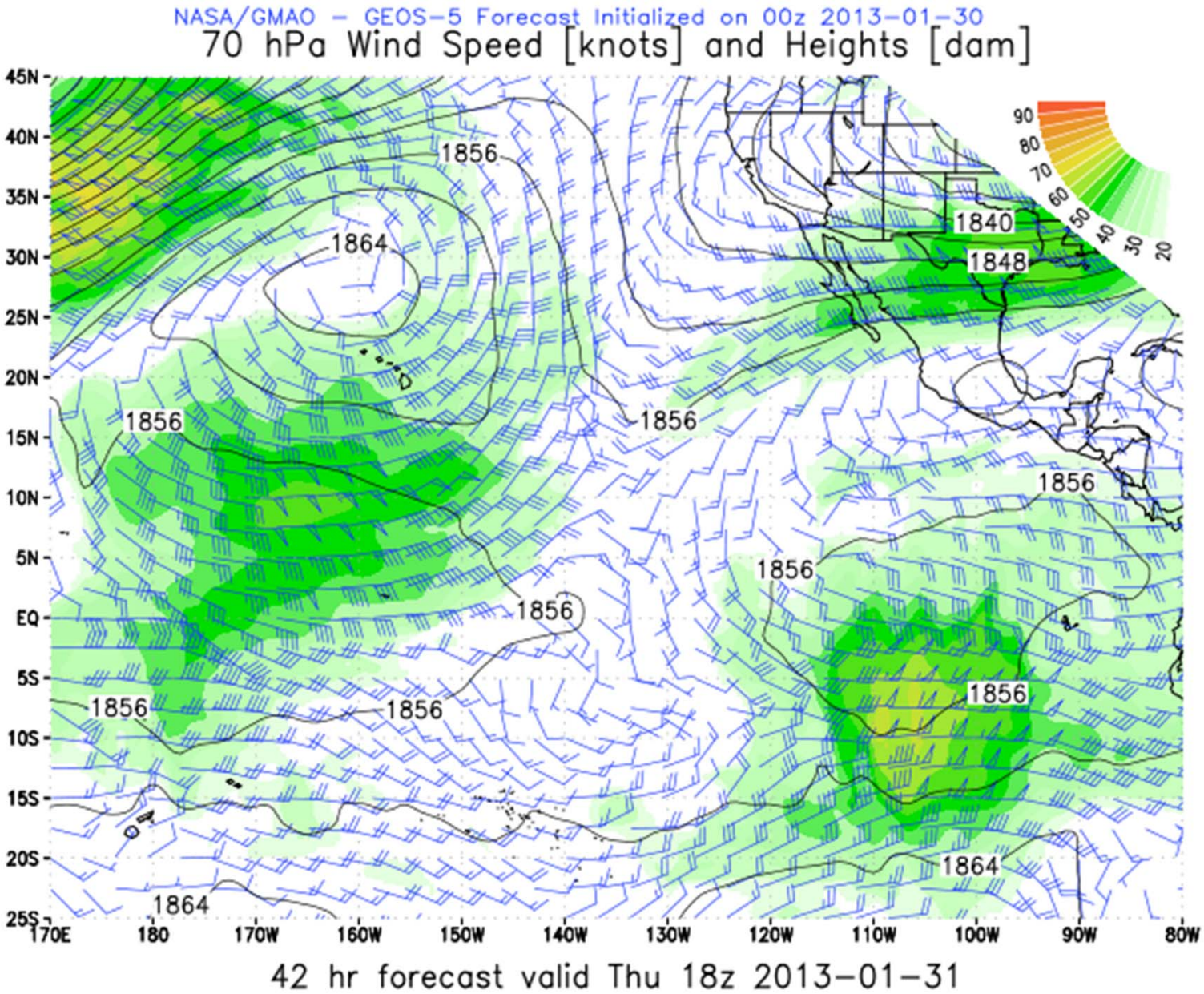
Today: Sunny

Thursday: Sunny, sustained winds of 5-9 kt, gusts up to 13 kt in the early evening

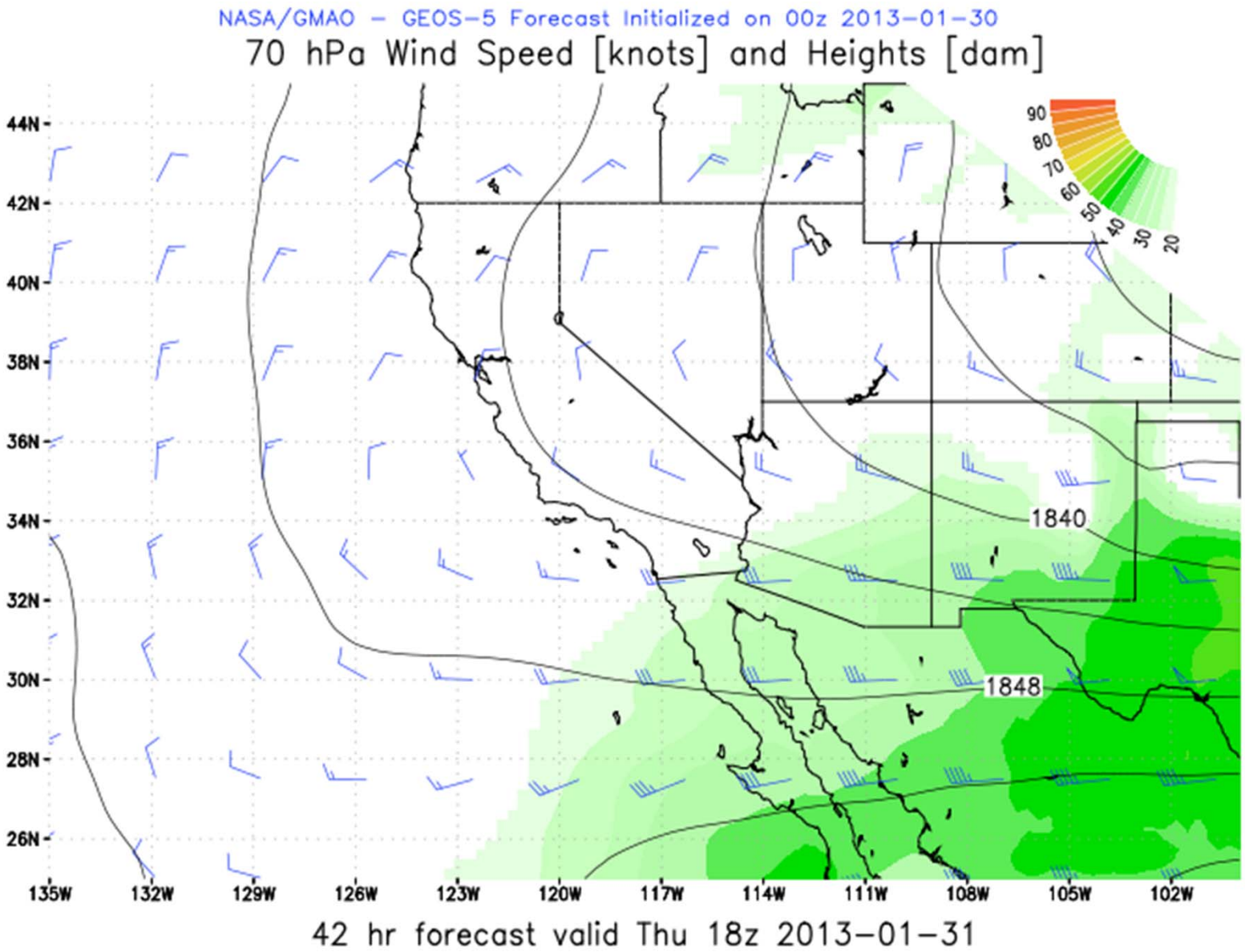
Today → **Thursday →**



GEOS-5: Thursday 18Z = 10 PST

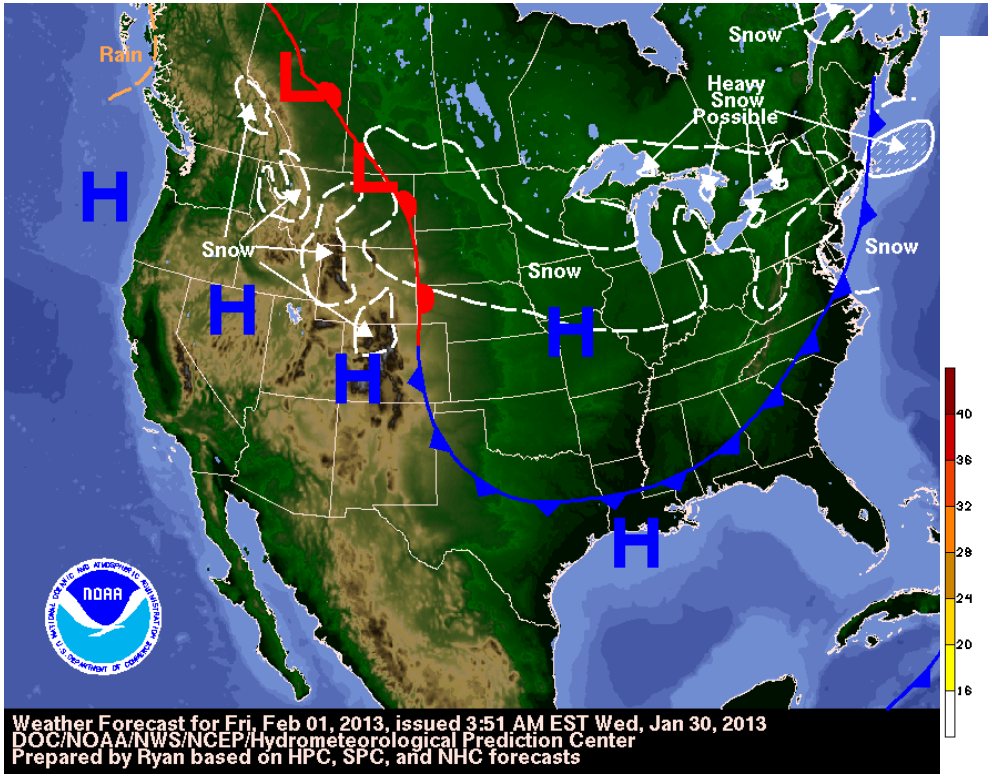


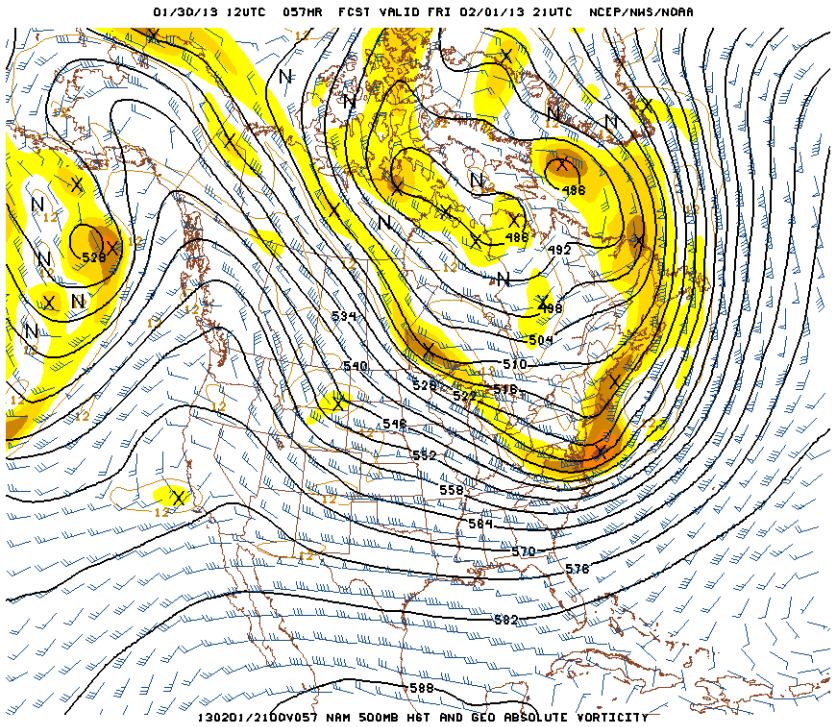
GEOS-5: Thursday 18Z = 10 PST



Friday:

Weak upper level low develops off the coast of Central CA. Heights rise Friday and NWS discussion says few clouds are expected, except for high clouds.

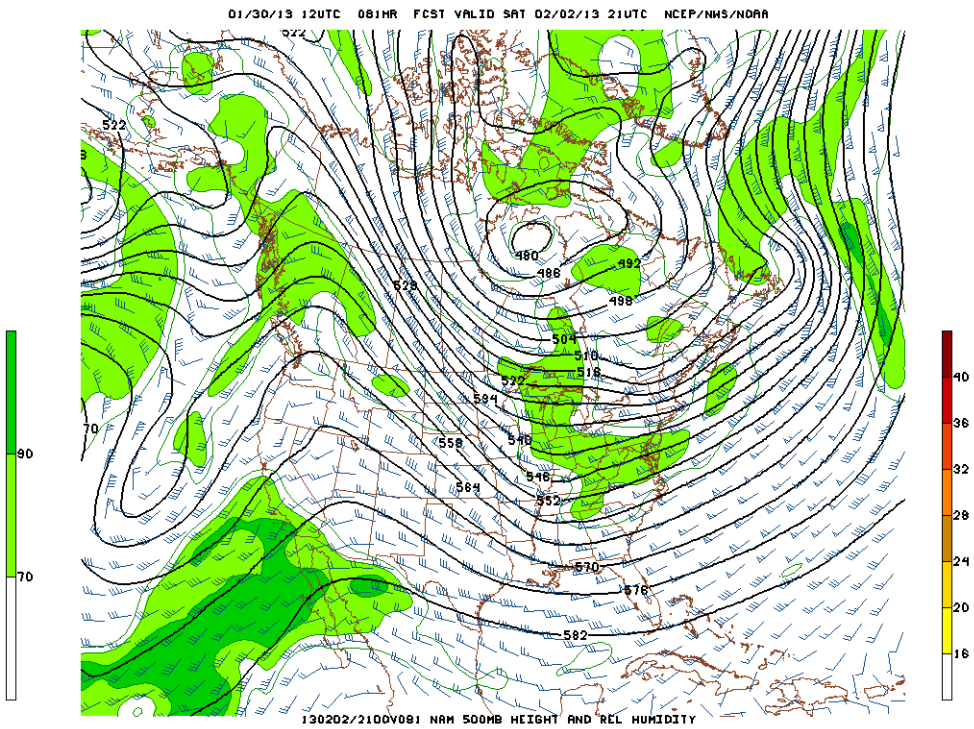




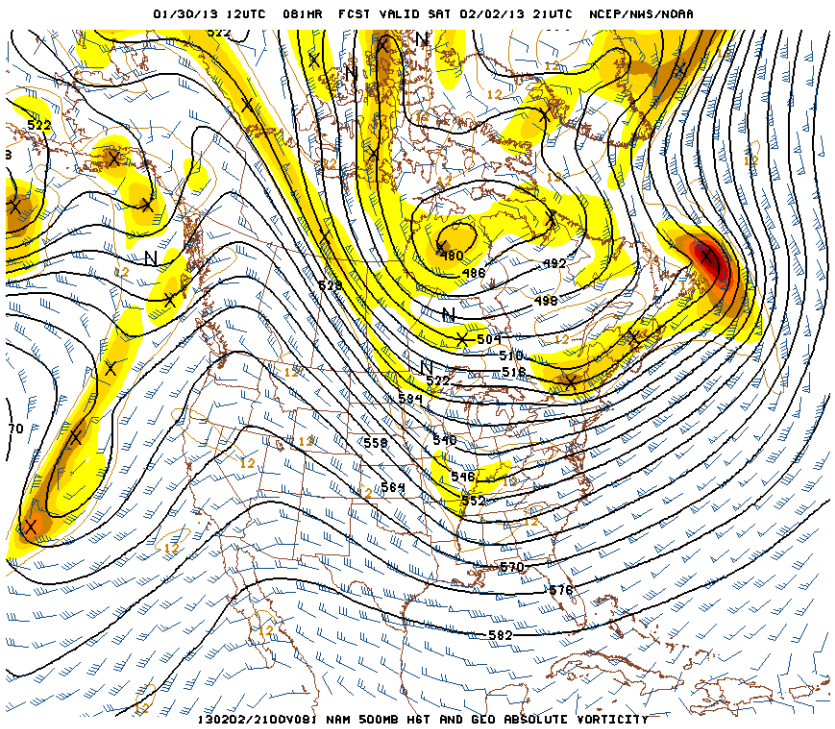
Saturday:

Upper level trough moves into East Pacific

500 mb NAM
Saturday 1 PM

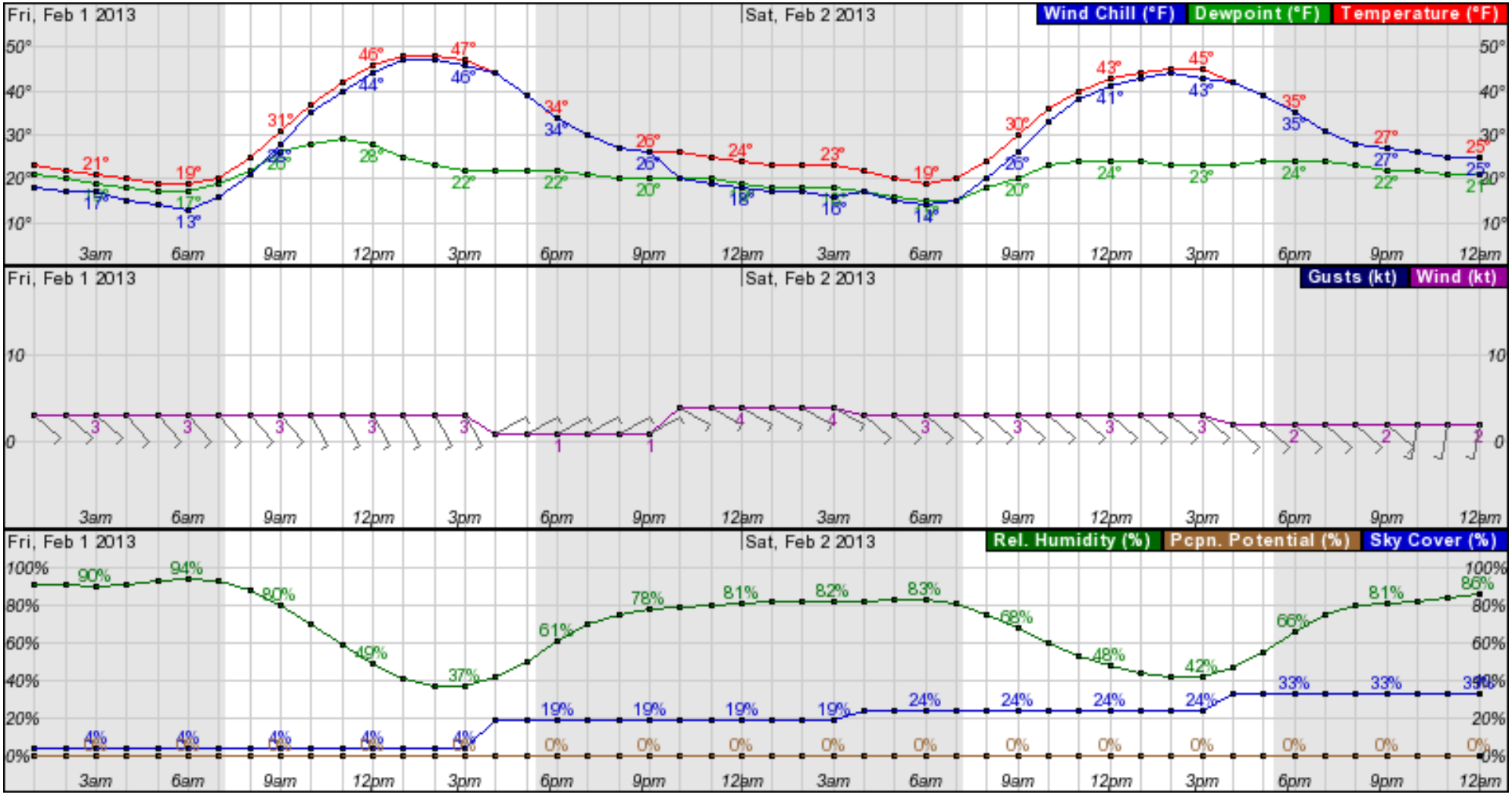


500 mb NAM
Saturday 1 PM



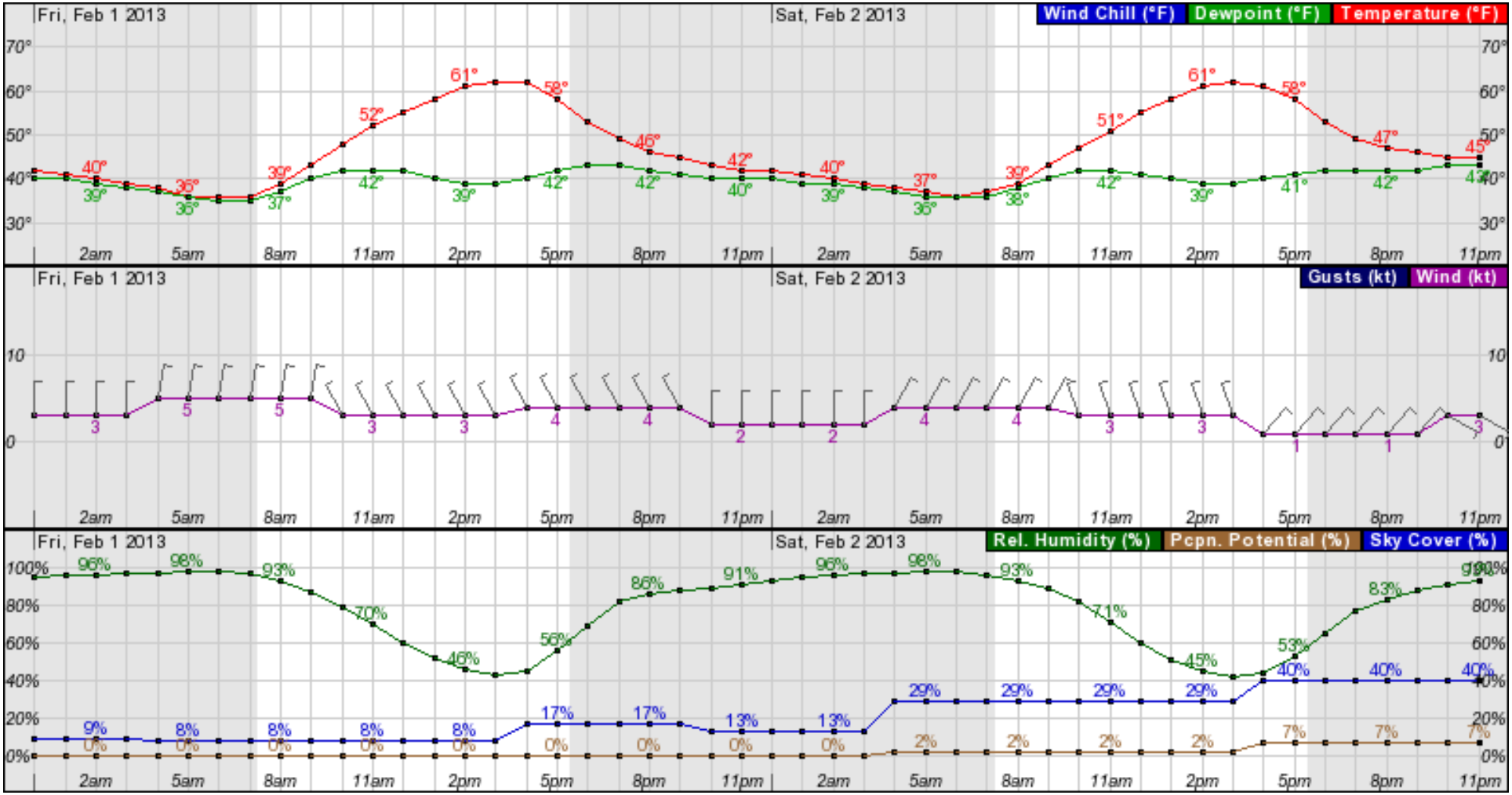
Beckwourth (Nervino Airport) – Northern calibration leg for PODEX
Friday: Sunny
Saturday: Increasing cloud cover

Friday → **Saturday →**



Yuba City (Northern extent of Sacremento leg)
Friday: Sunny
Saturday: Increasing cloud cover

Friday → **Saturday →**

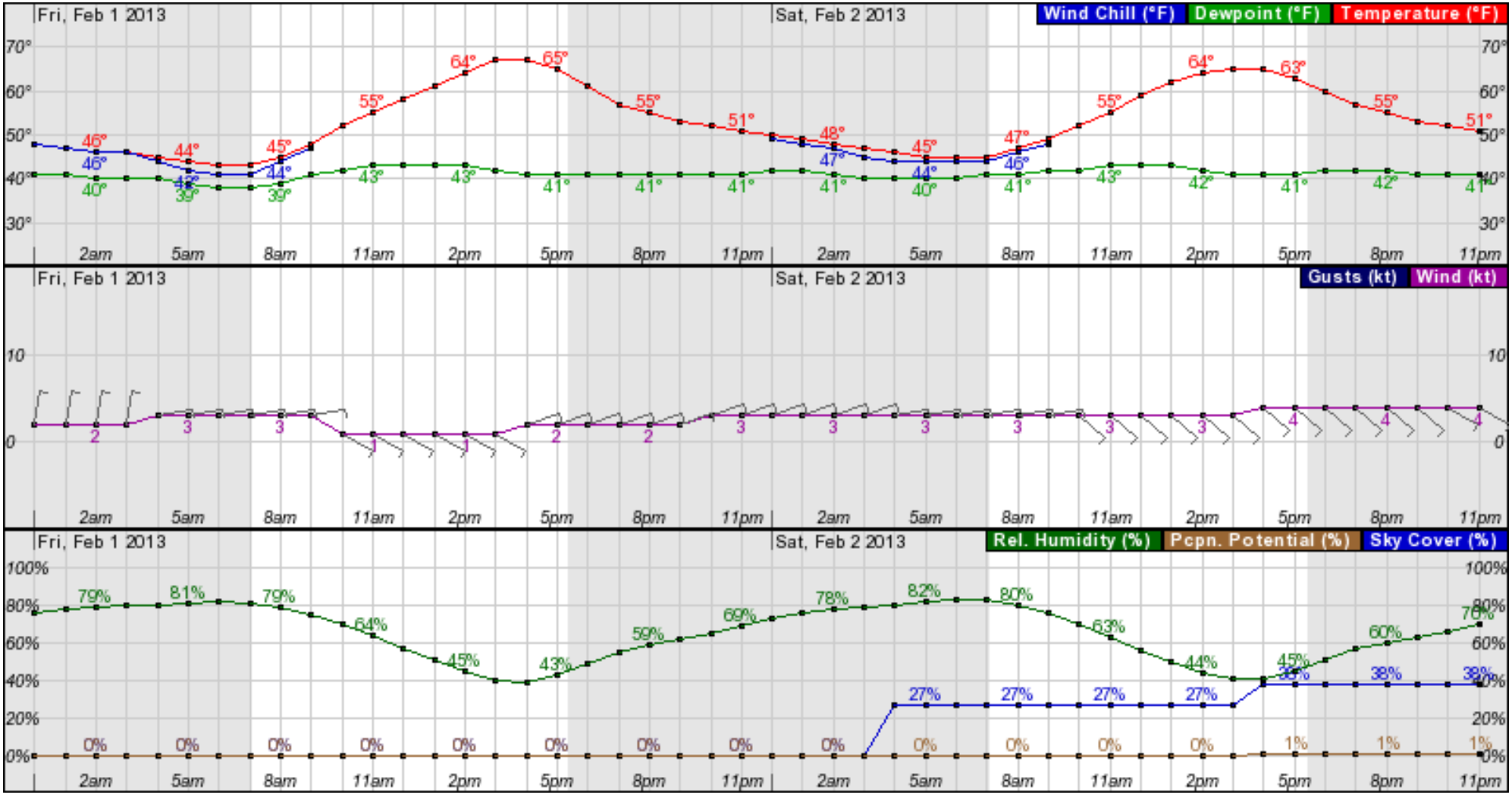


Fresno

Friday: Sunny

Saturday: Increasing cloud cover

Friday → **Saturday →**

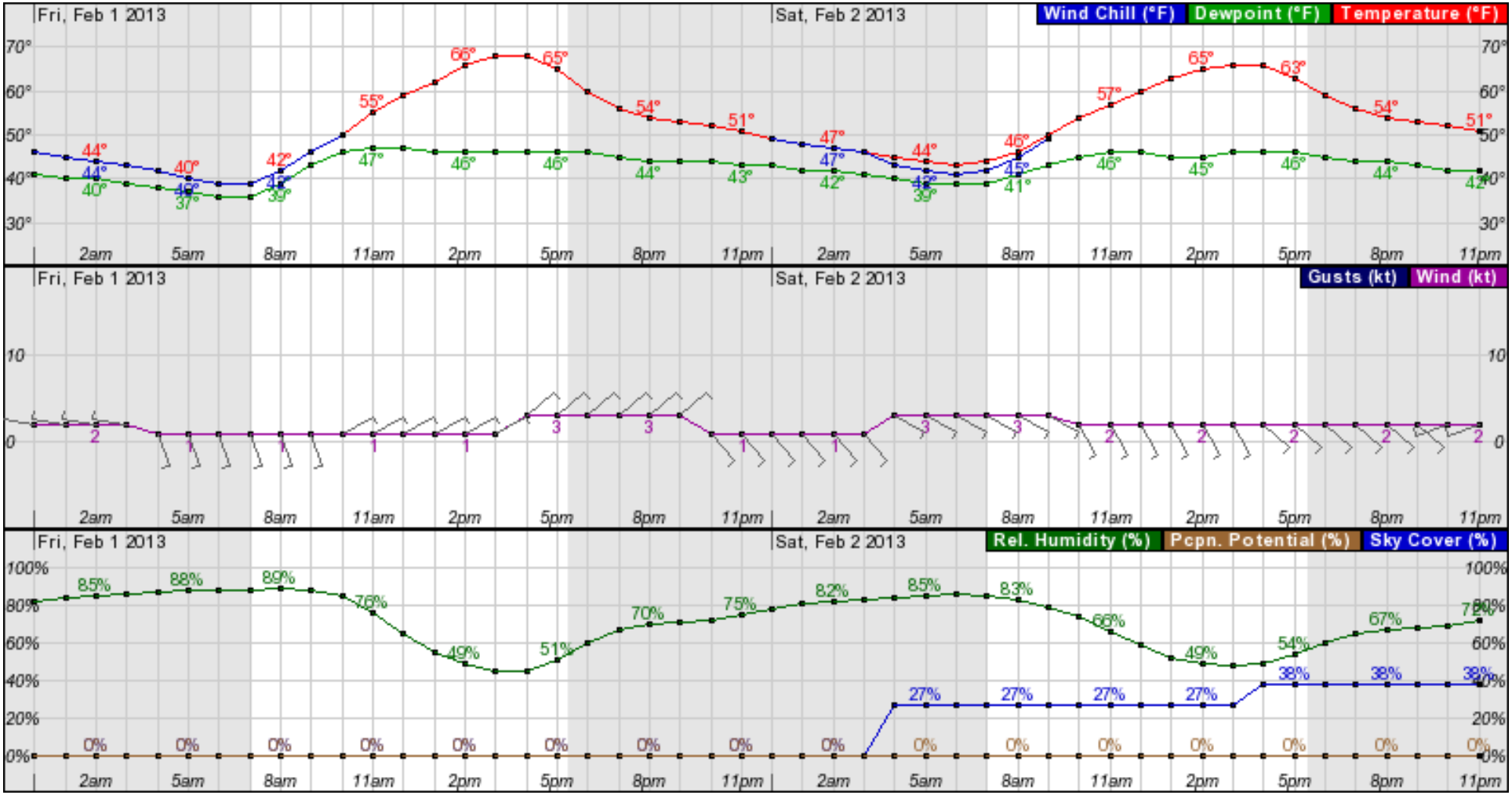


Hanford

Friday: Sunny

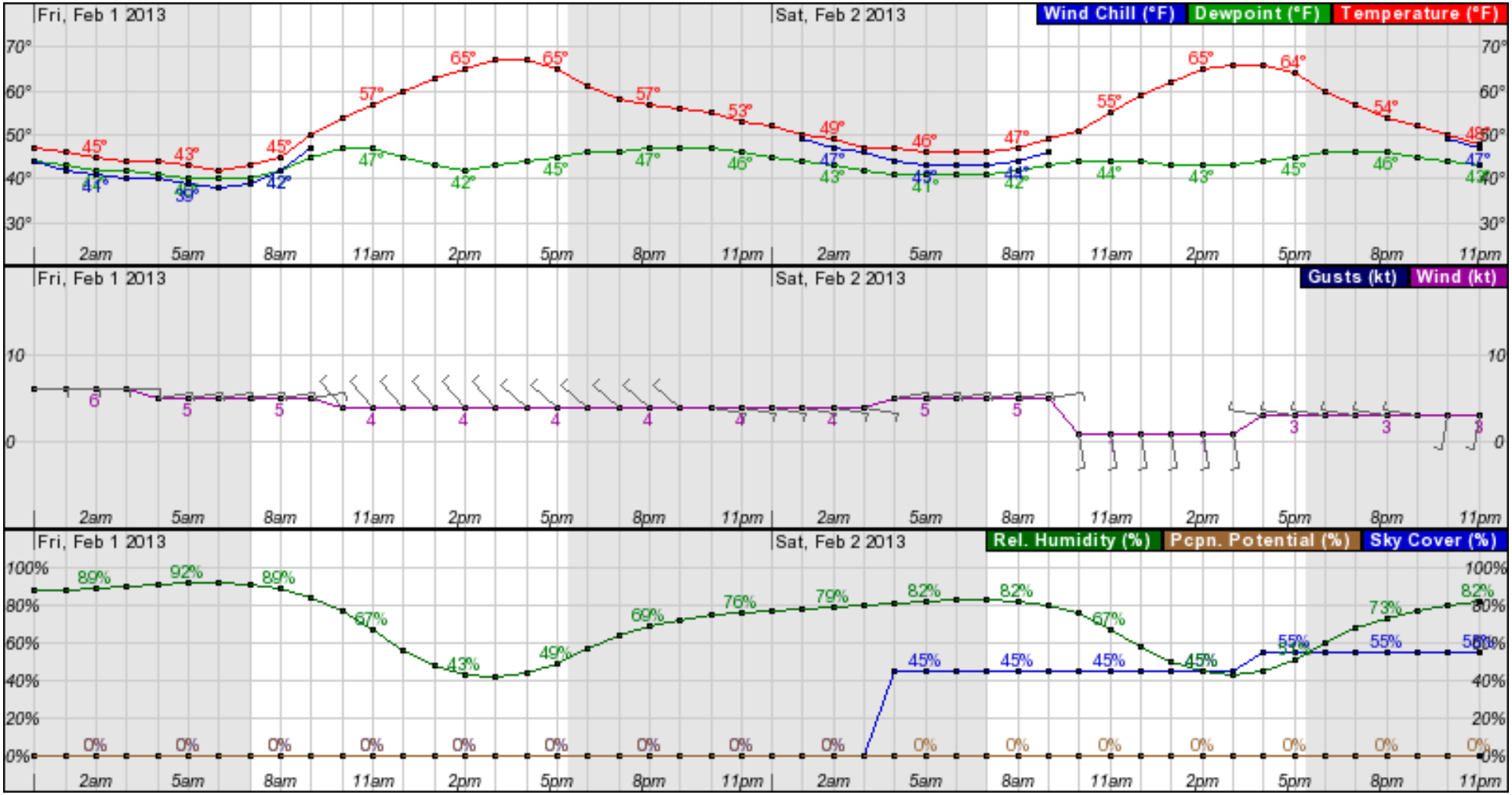
Saturday: Increasing cloud cover

Friday → **Saturday →**



Bakersfield
Friday: Sunny
Saturday: Increasing cloud cover

Friday → **Saturday →**

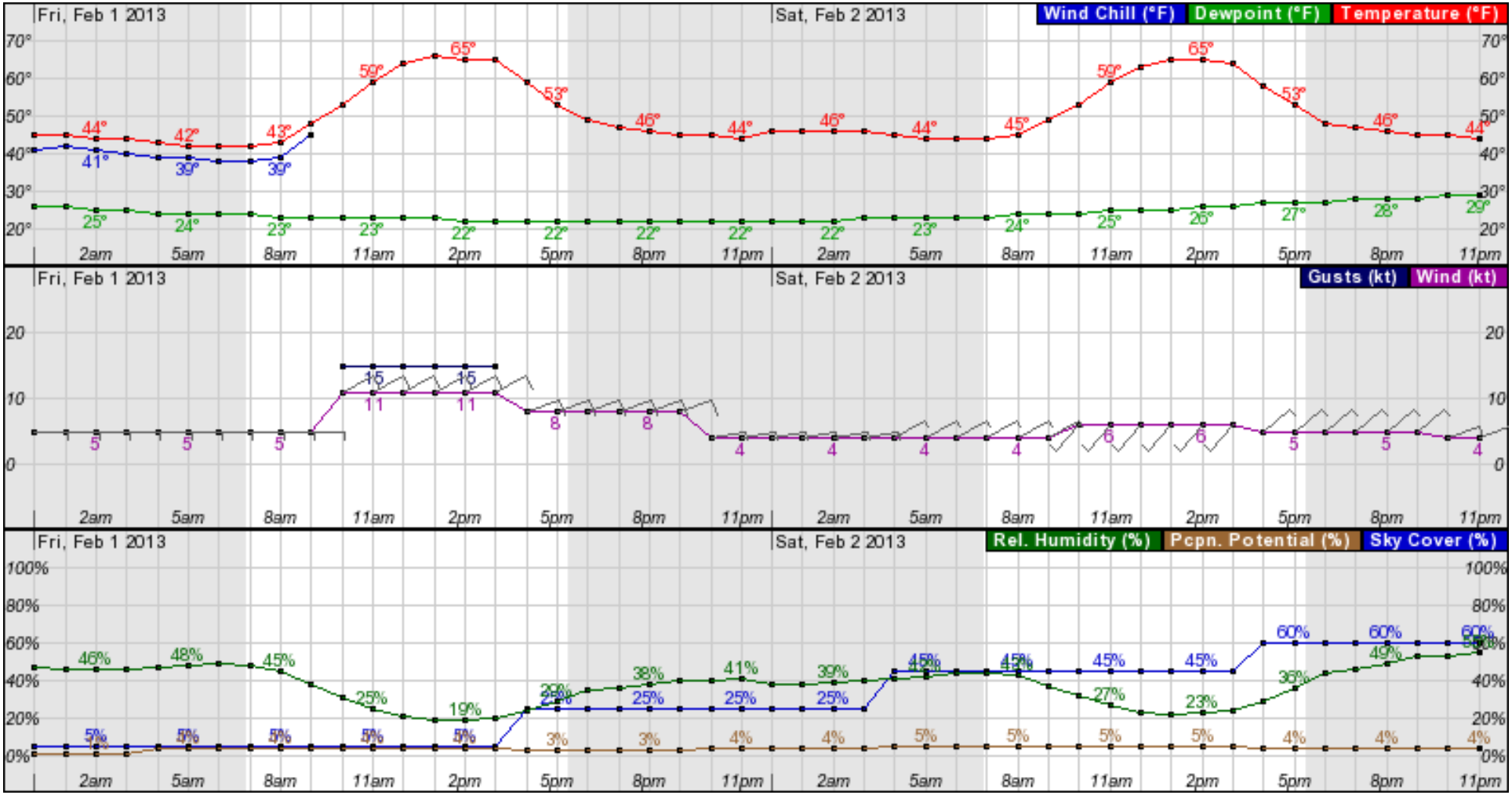


Palmdale

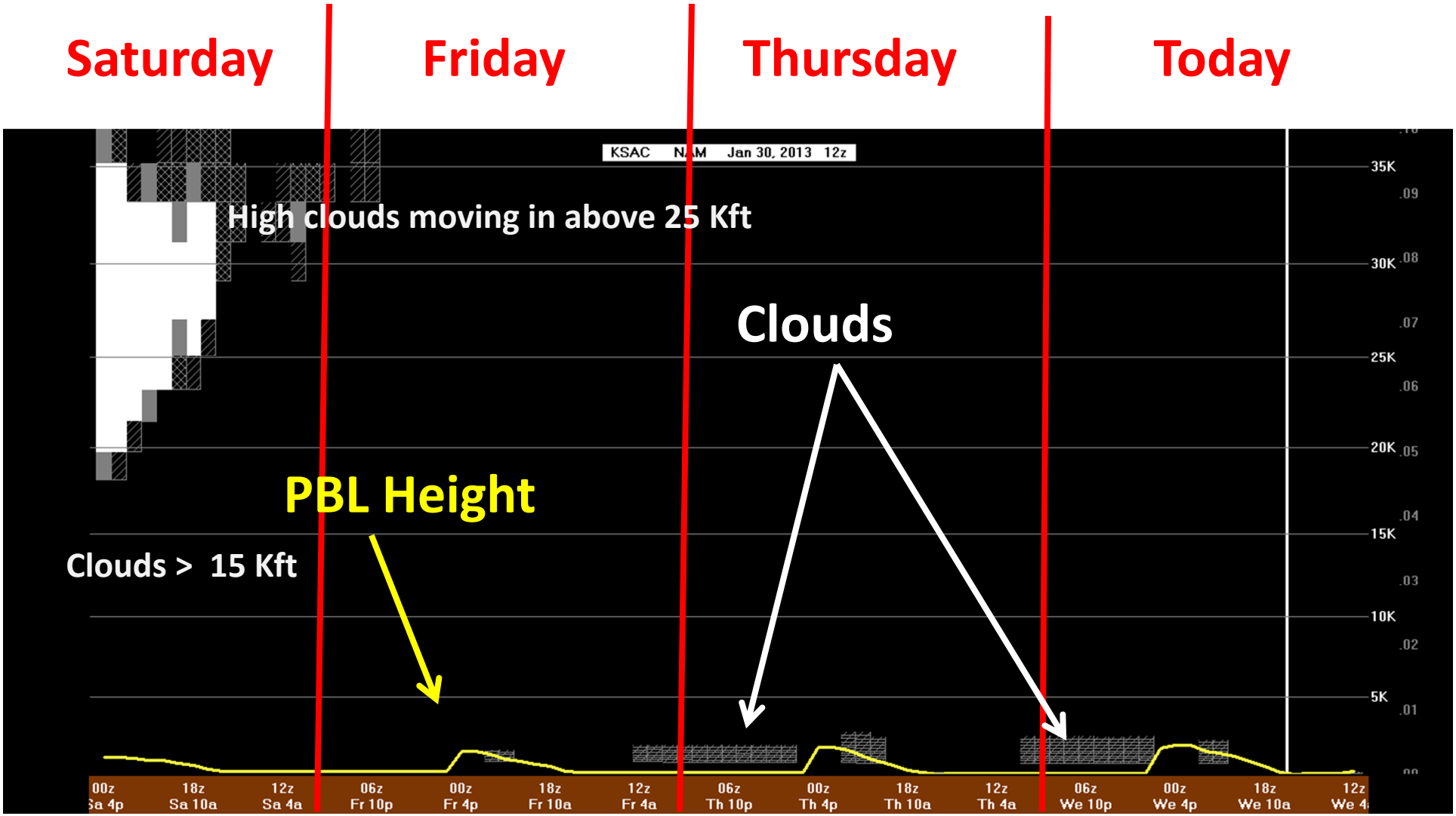
Friday: Sustained winds ≤ kt, gusts up to 15 kt. Cloud cover increasing by the early evening.

Saturday: Increased cloud cover

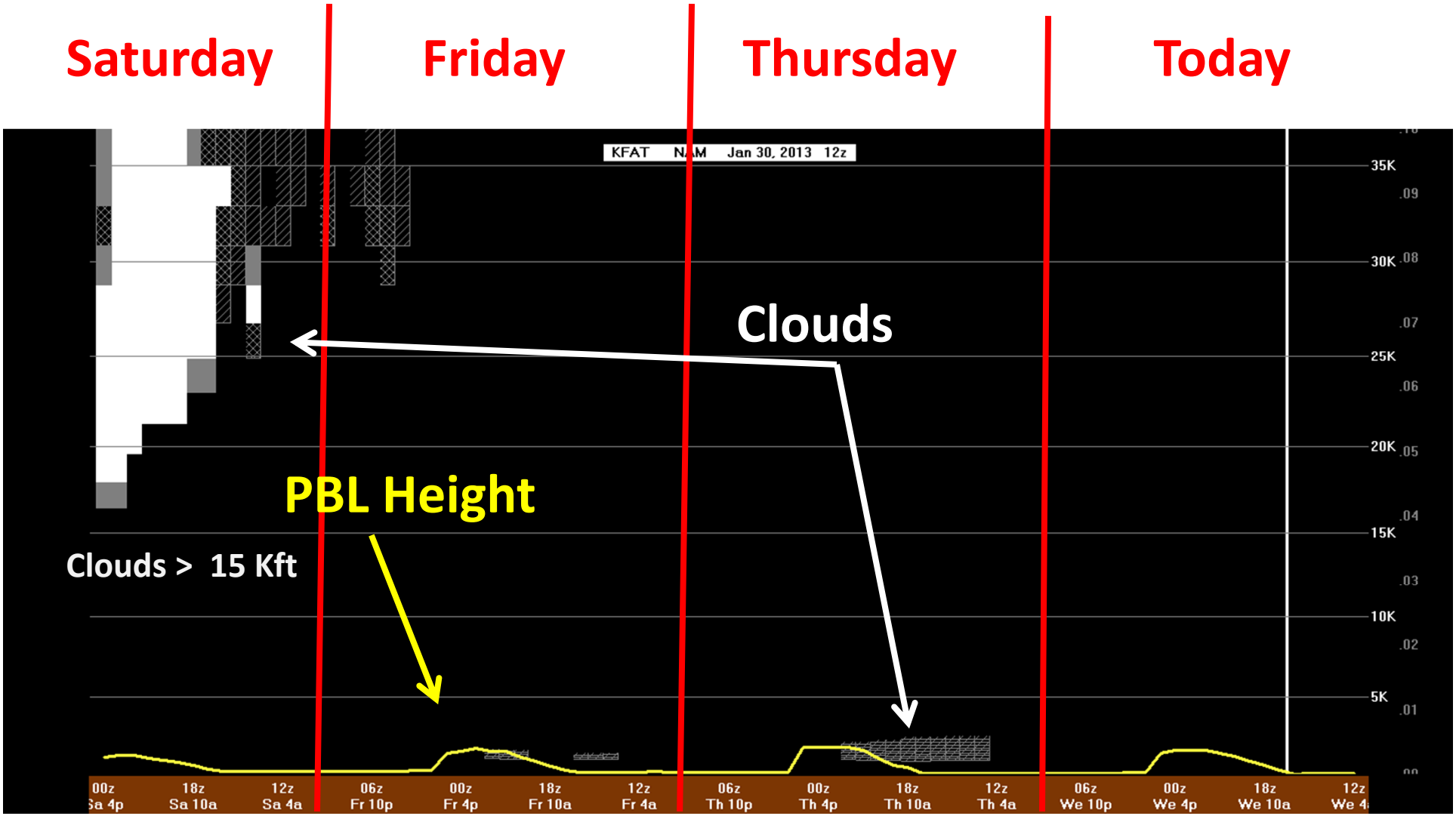
Friday → **Saturday →**



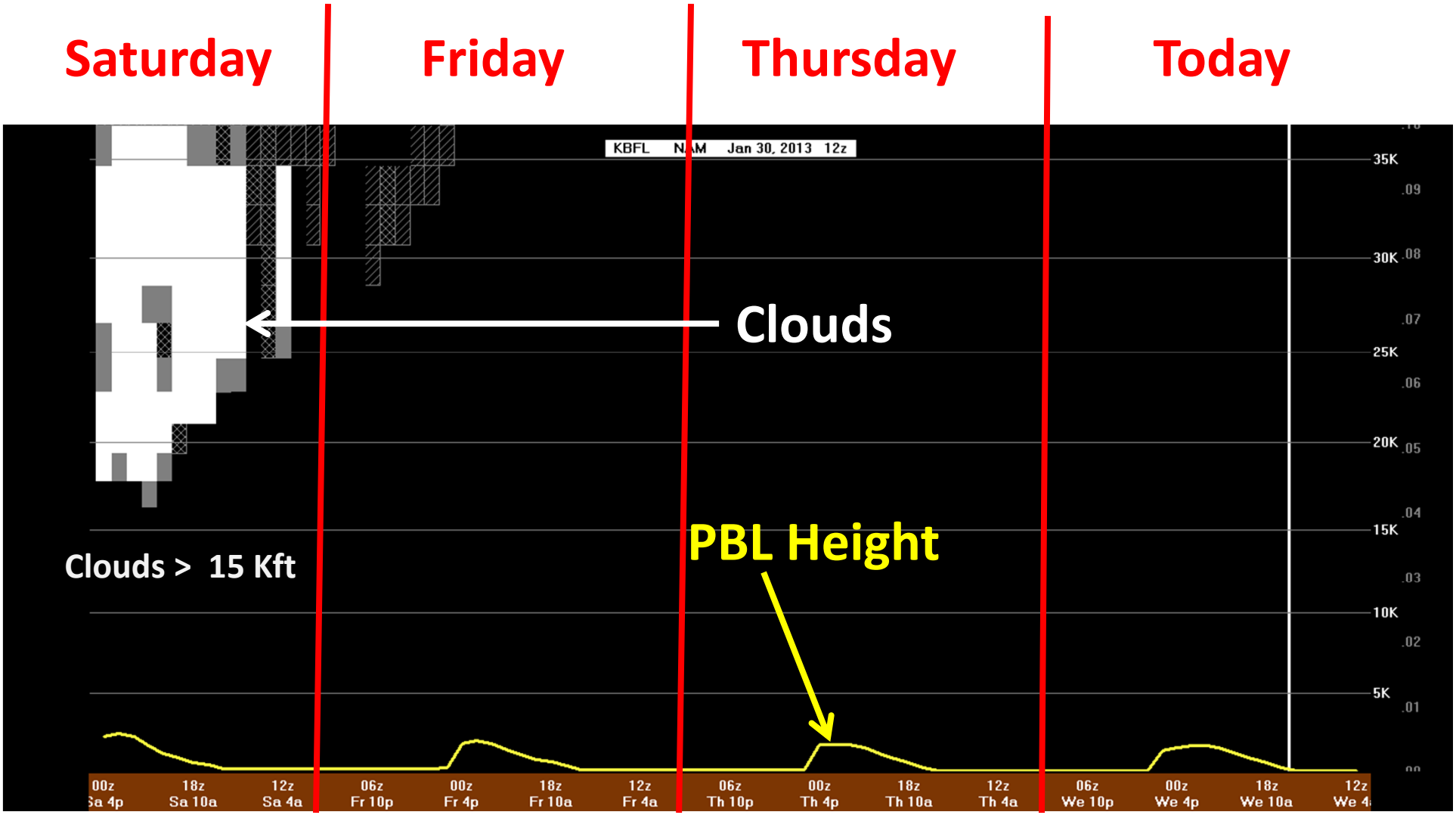
Sacramento : BUFKIT NAM 12 UTC Wednesday Jan. 30



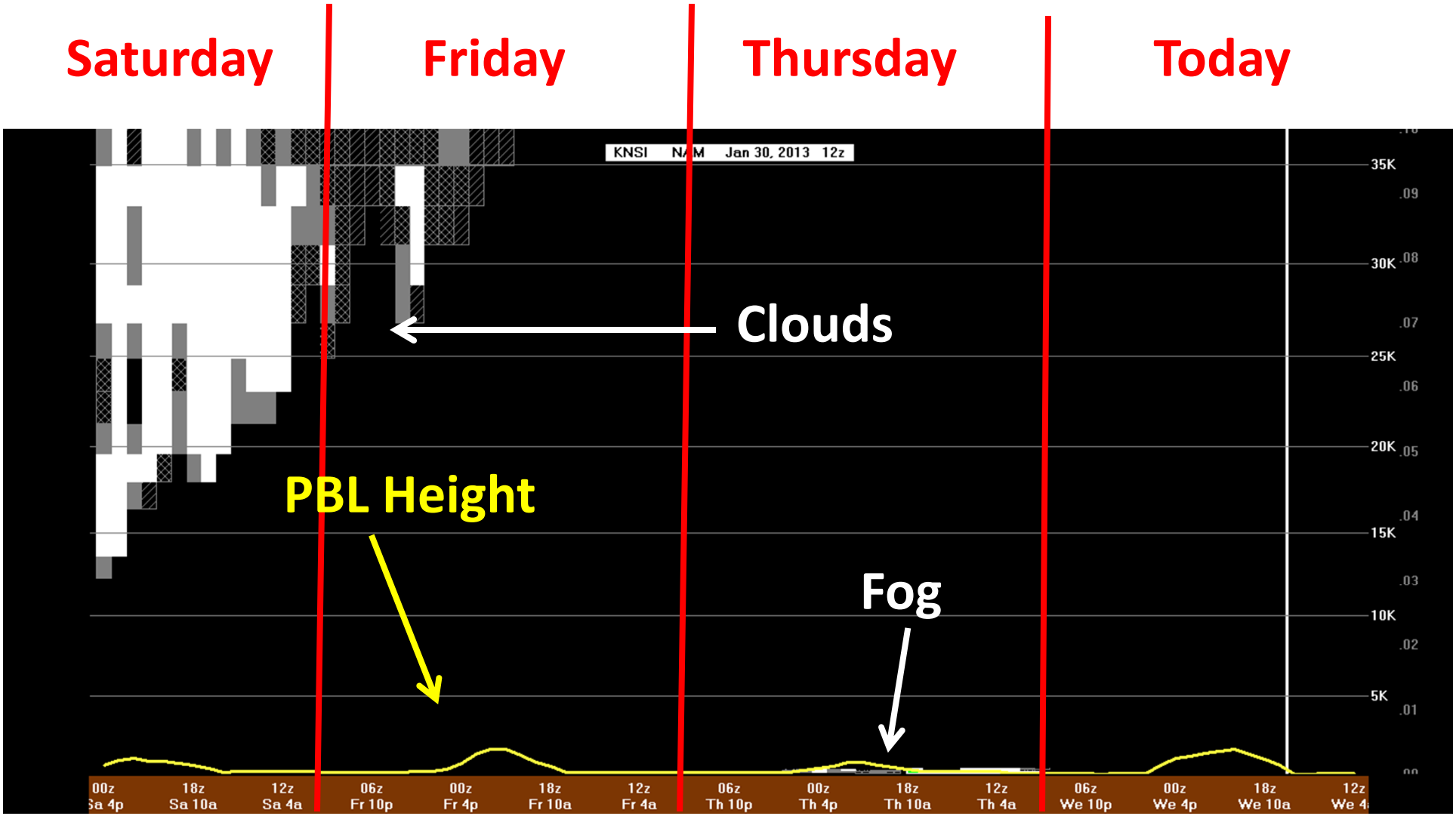
Fresno : BUFKIT NAM 12 UTC Wednesday Jan. 30



Bakersfield : BUFKIT NAM 12 UTC Wednesday Jan. 30



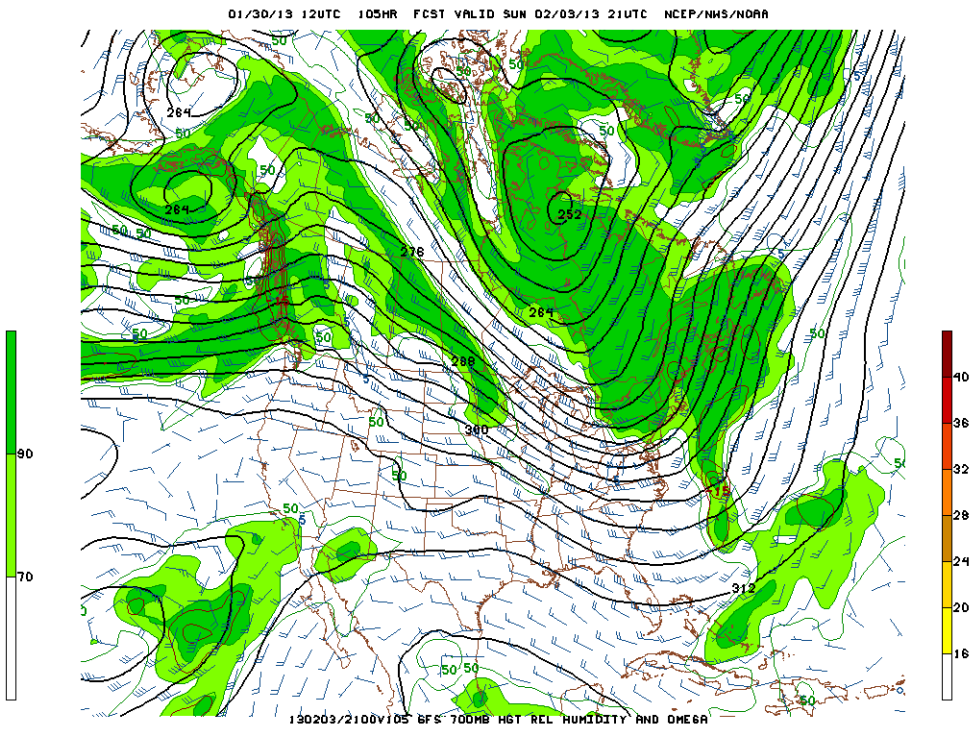
San Nicolas : BUFKIT NAM 12 UTC Wednesday Jan. 30



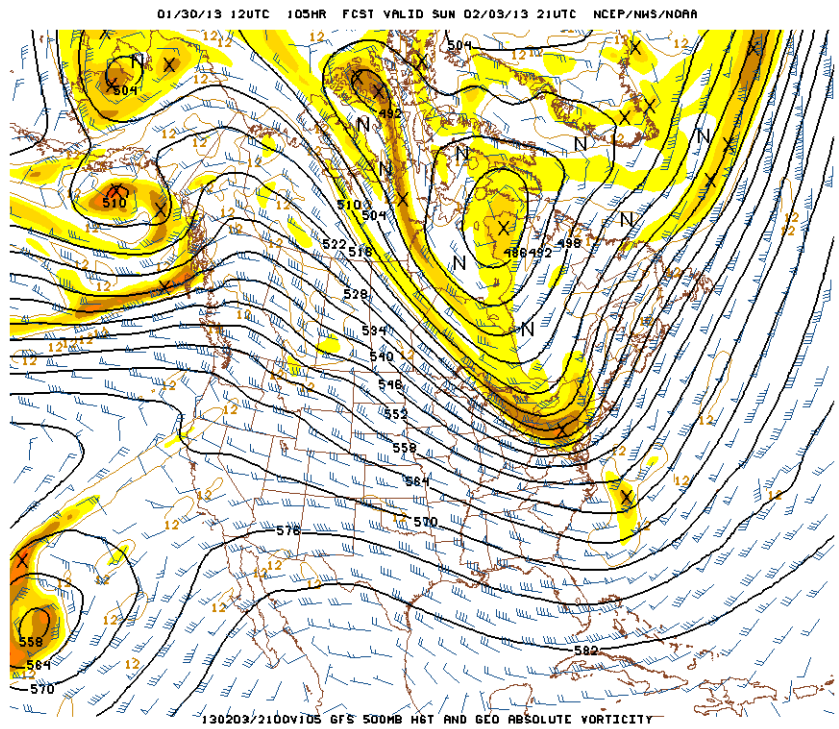
Sunday:

The exact track of the low center remains uncertain as models continue to disagree. Timing and intensity are variable run to run and model to model.

700 mb GFS
Sunday 1 PM



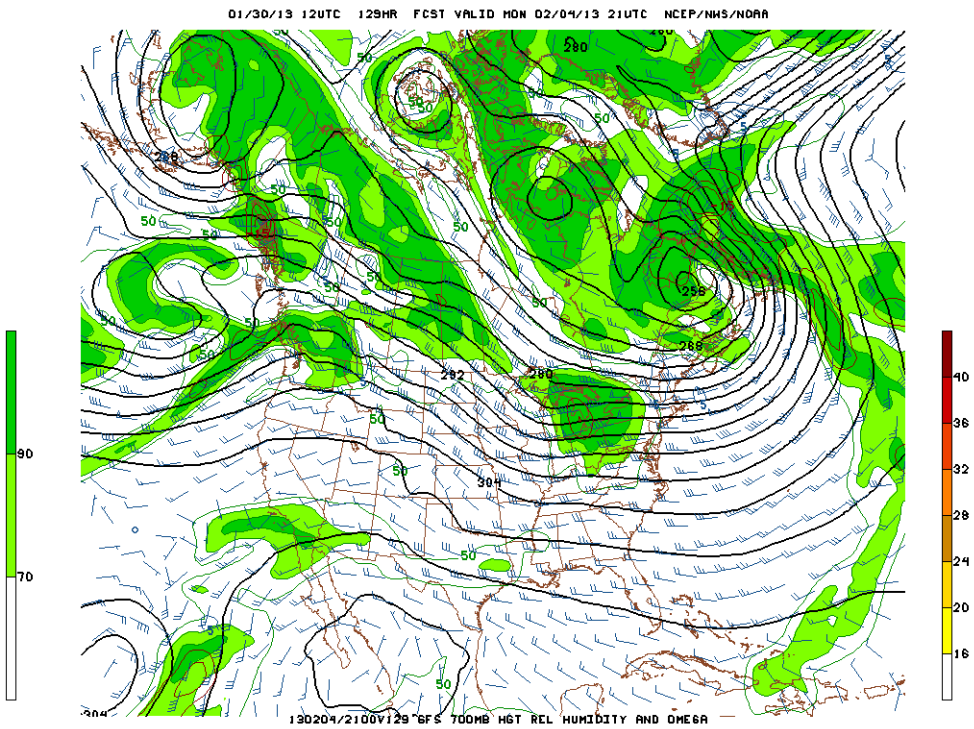
500 mb GFS
Sunday 1 PM



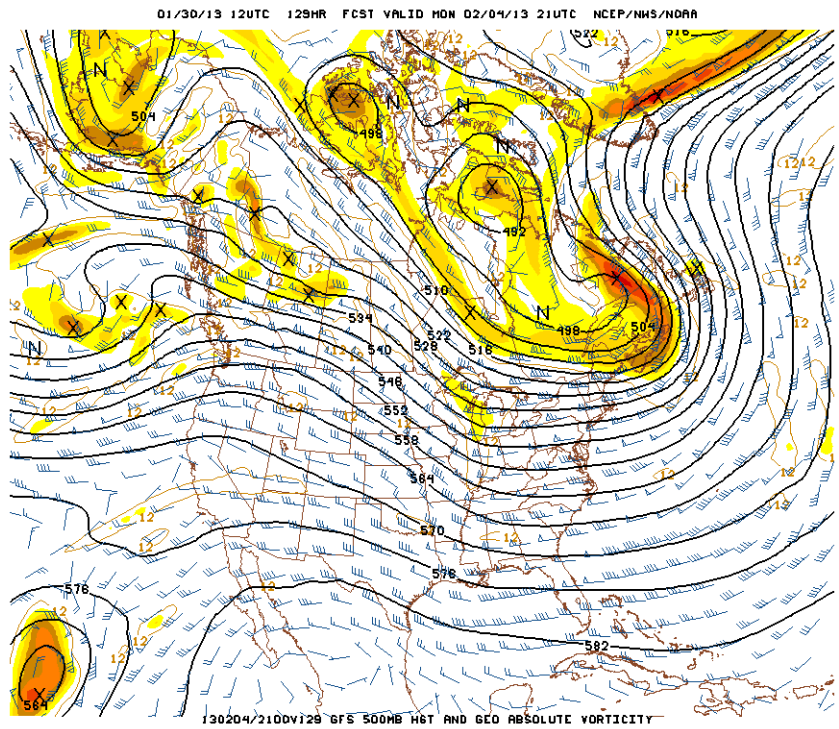
Monday:

Ensemble means indicate the trough moving through the SJV Tuesday night into Wed. Chances of precipitation have been lowered for the weekend and increase for early next week.

700 mb GFS
Monday 1 PM



500 mb GFS
Monday 1 PM

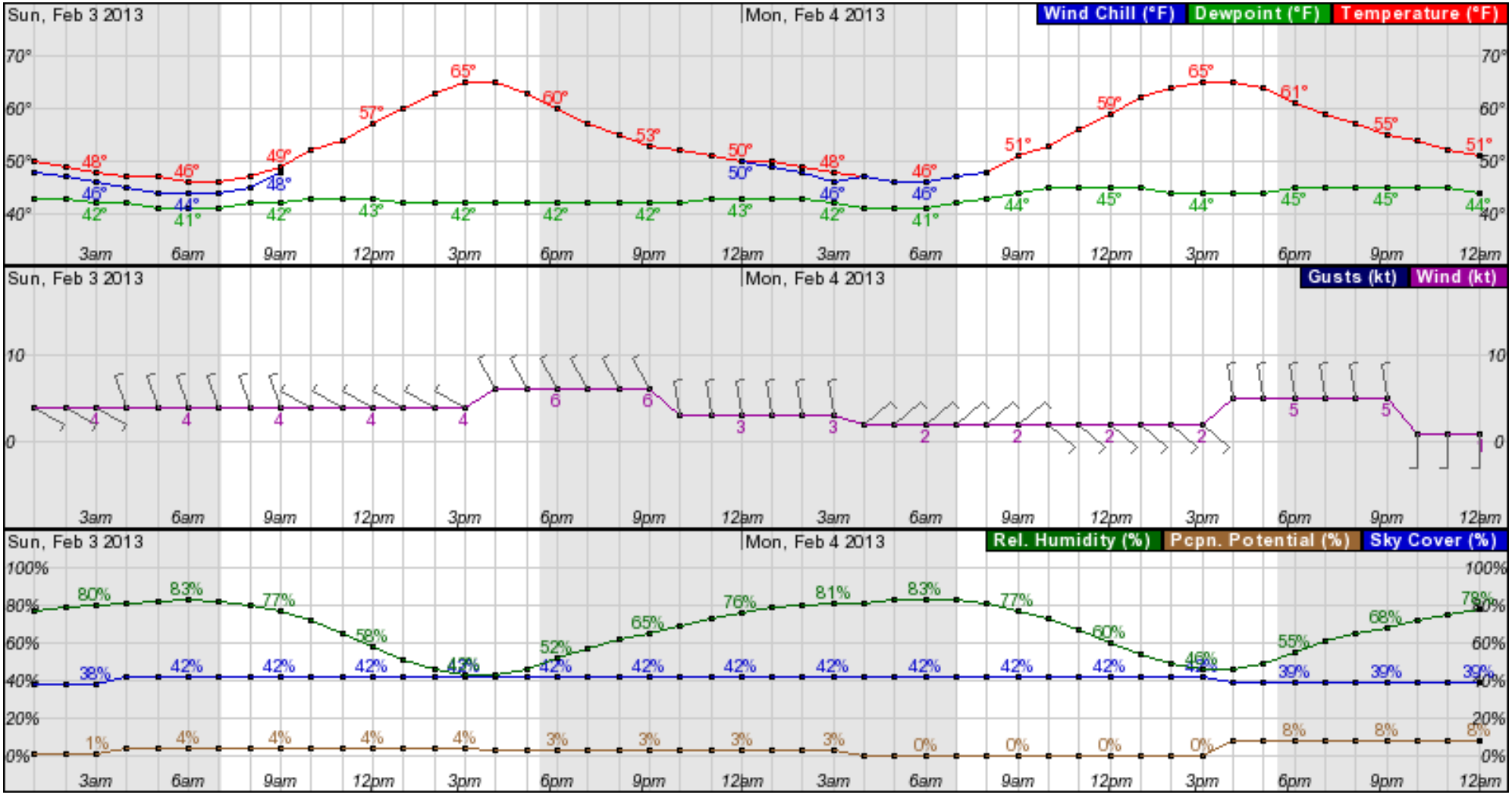


Fresno

Sunday: Sunny

Monday: Increasing cloud cover

Sunday → **Monday →**

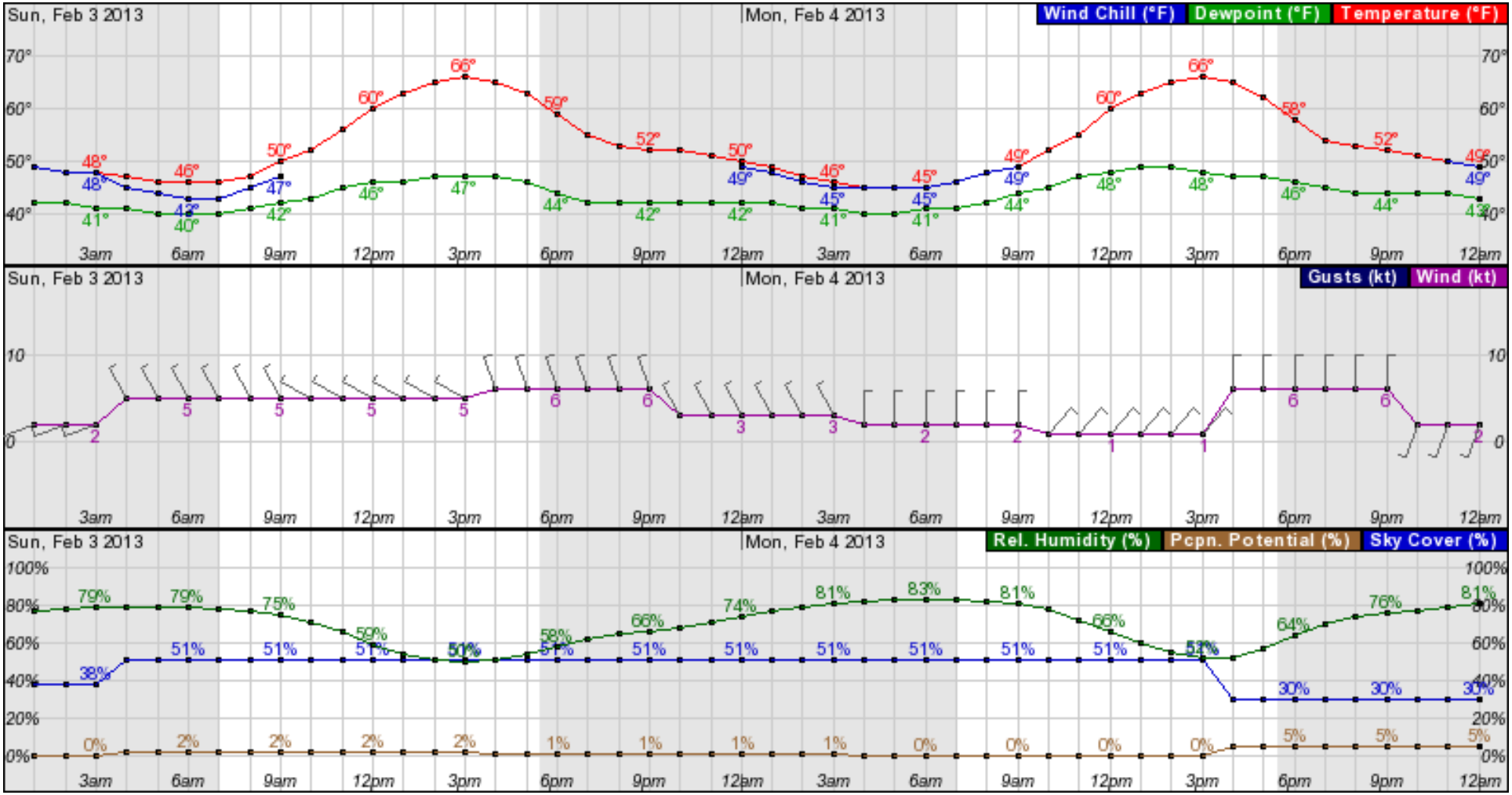


Hanford

Sunday: Sunny

Monday: Increasing cloud cover

Sunday → **Monday →**

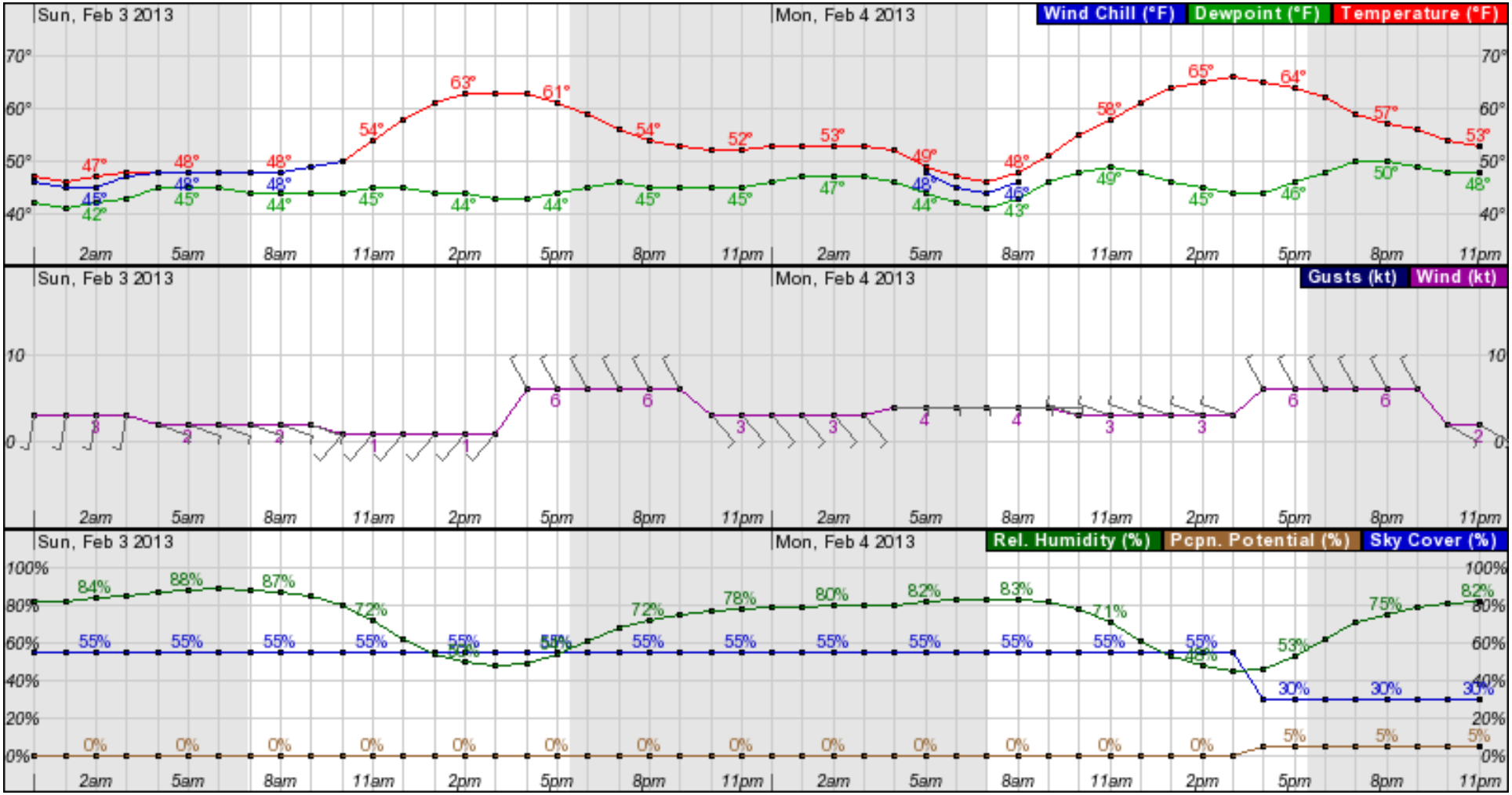


Bakersfield

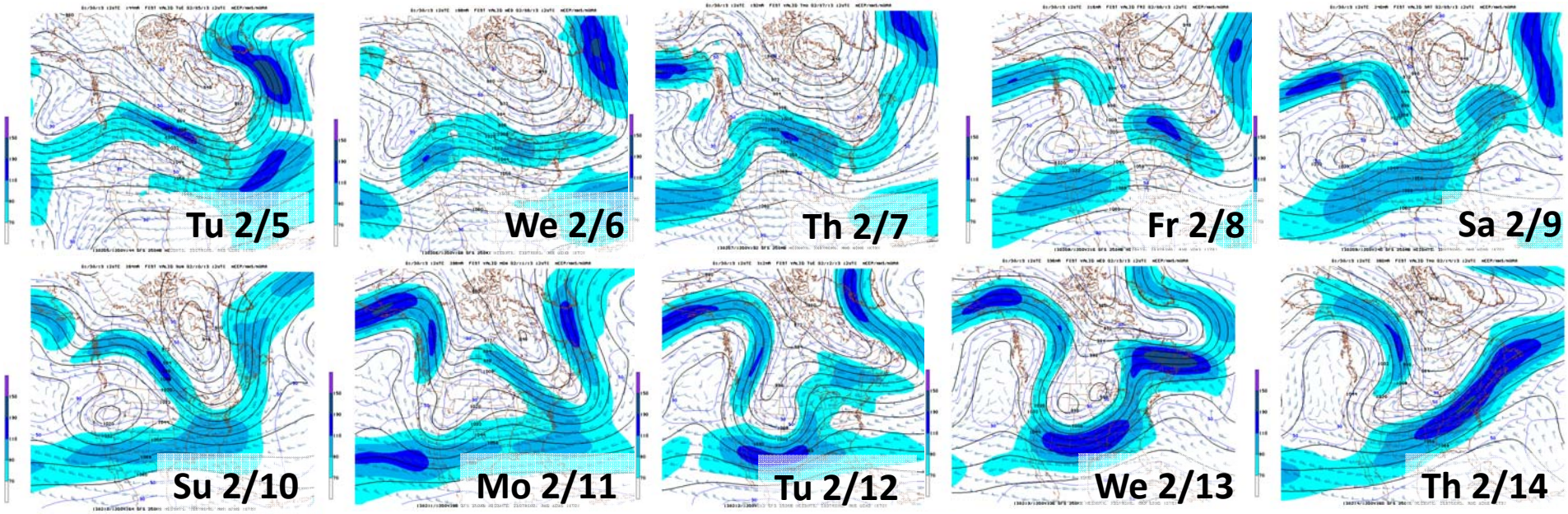
Sunday: Sunny

Monday: Increasing cloud cover

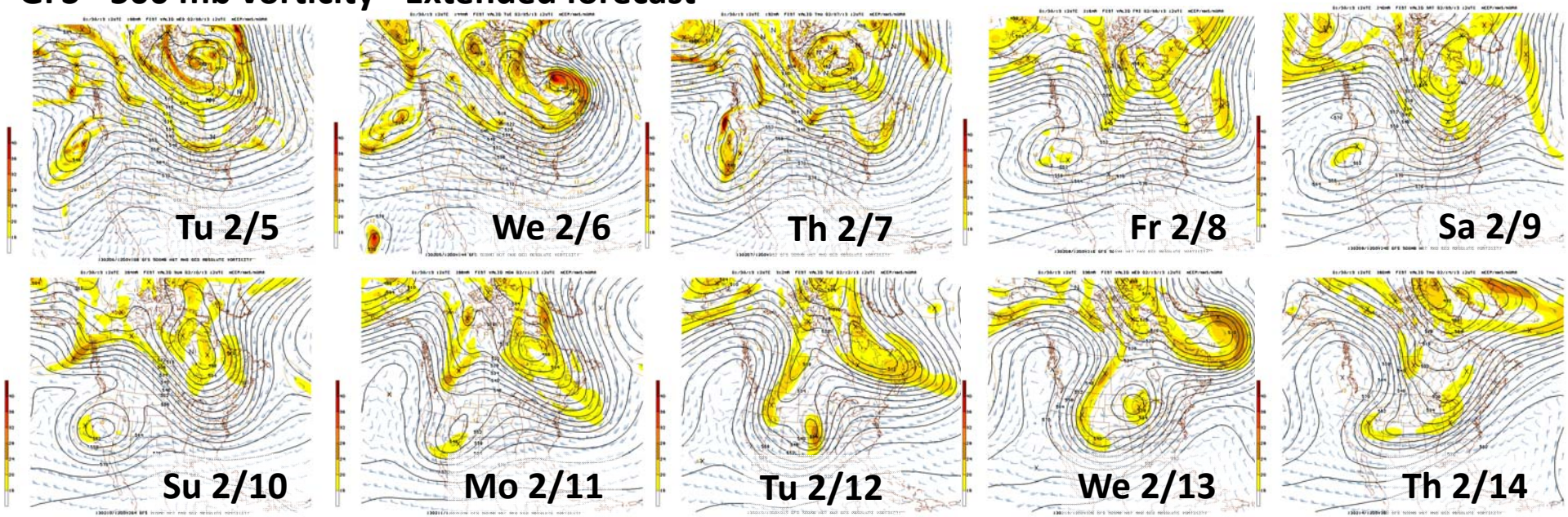
Sunday → **Monday →**



GFS - 250 mb winds - Extended forecast

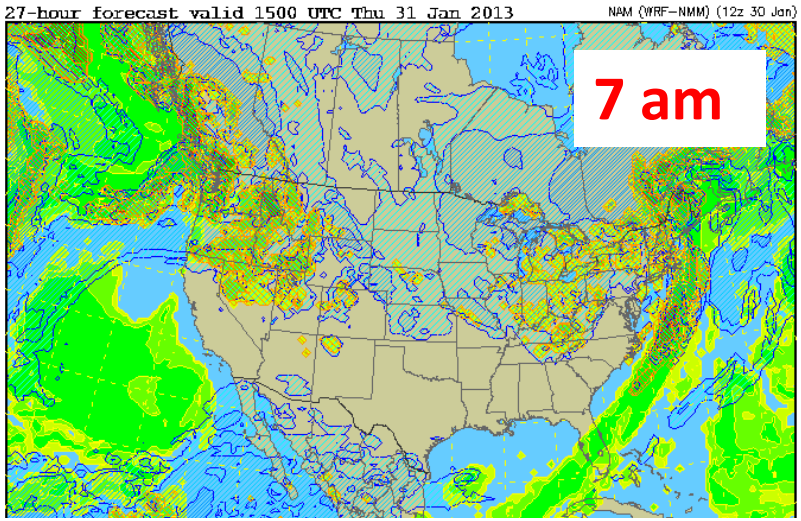


GFS - 500 mb vorticity - Extended forecast

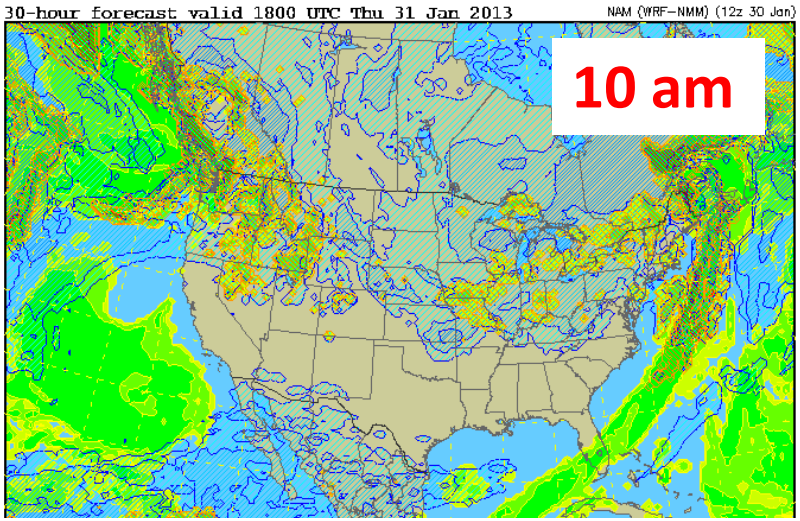


Tomorrow: NAM – no high level clouds over entire flight region, low level clouds (<6 Kft) near PODEX coastal leg and LA region, closer to the coast near the Bay area

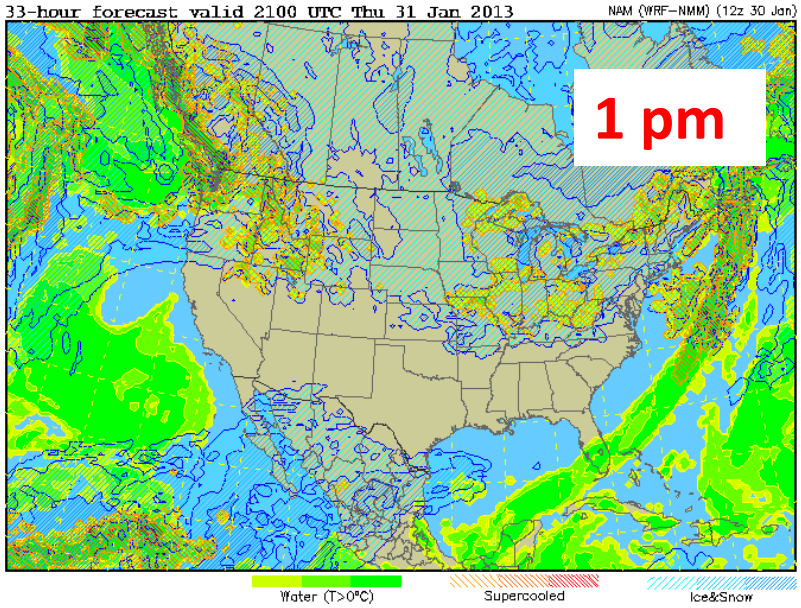
Integrated liquid and frozen hydrometeors (all levels)



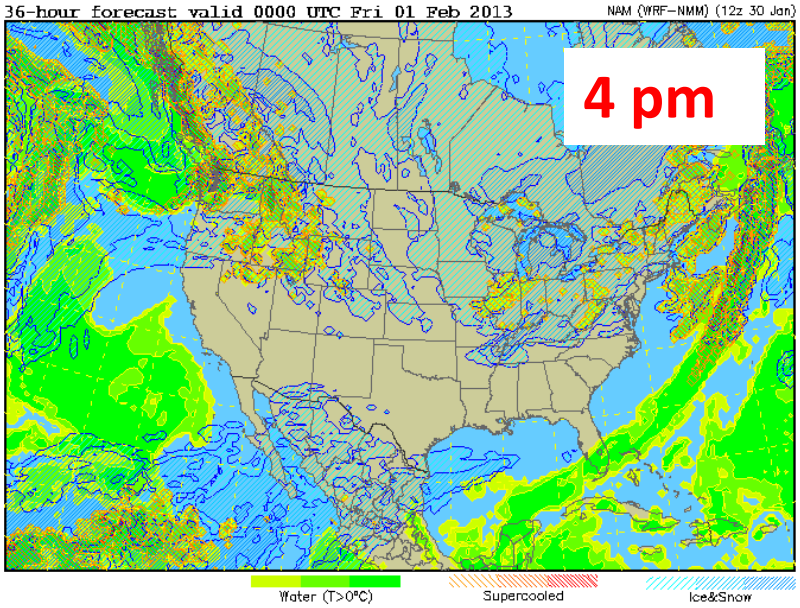
Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)

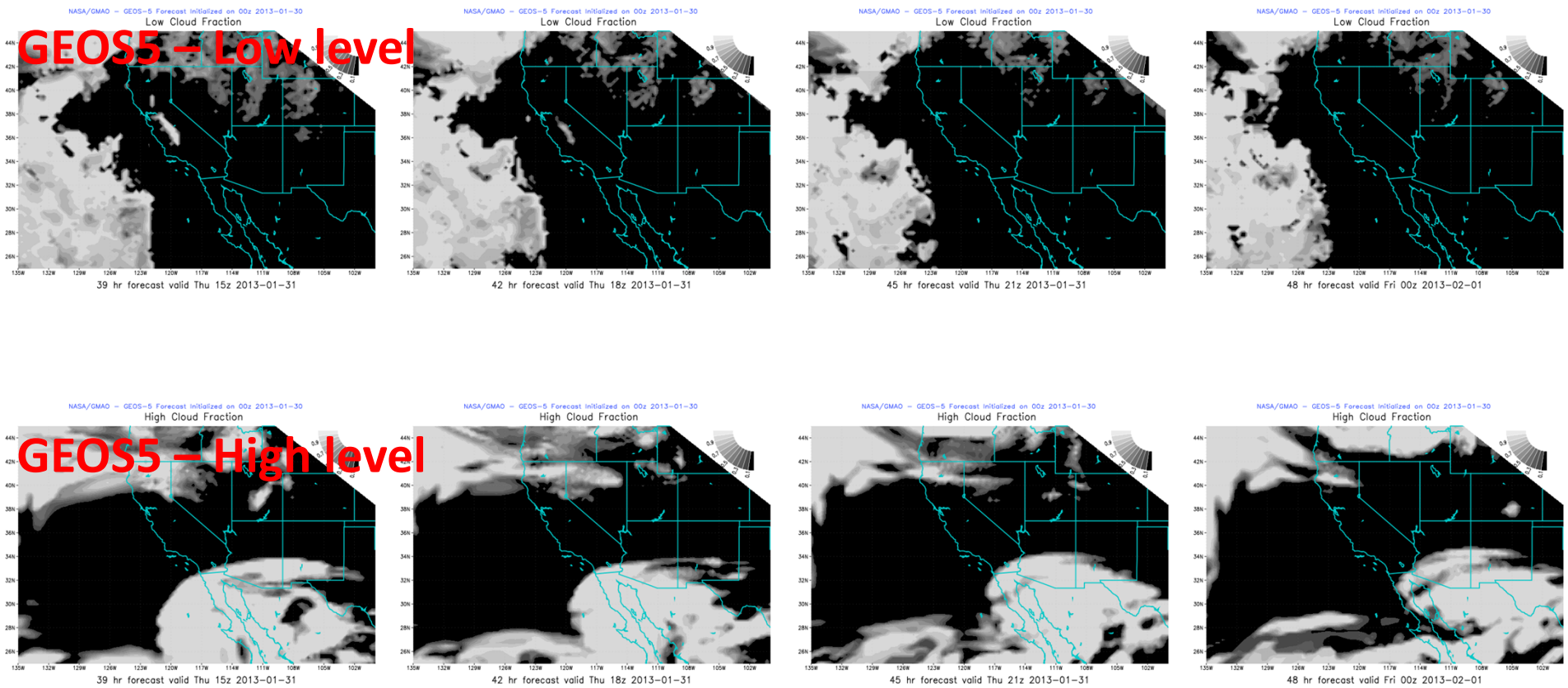


Integrated liquid and frozen hydrometeors (all levels)



Tomorrow: GEOS5 – Morning fog over Bay area and SJV. Clear skies over both the SJV and PODEX region, but high level clouds approach the SJV from the north and south. Some low level clouds in the PODEX coastal leg.

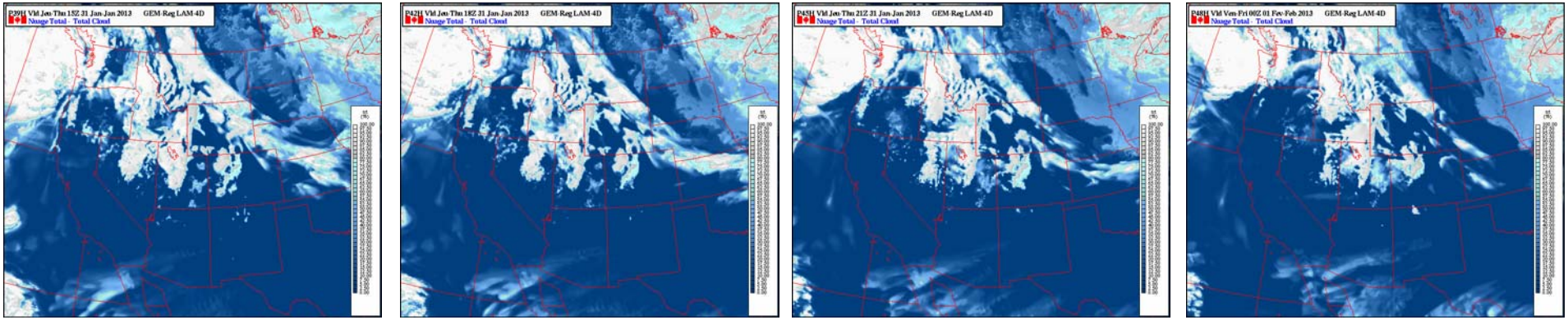
7 am 10 am 1 pm 4 pm



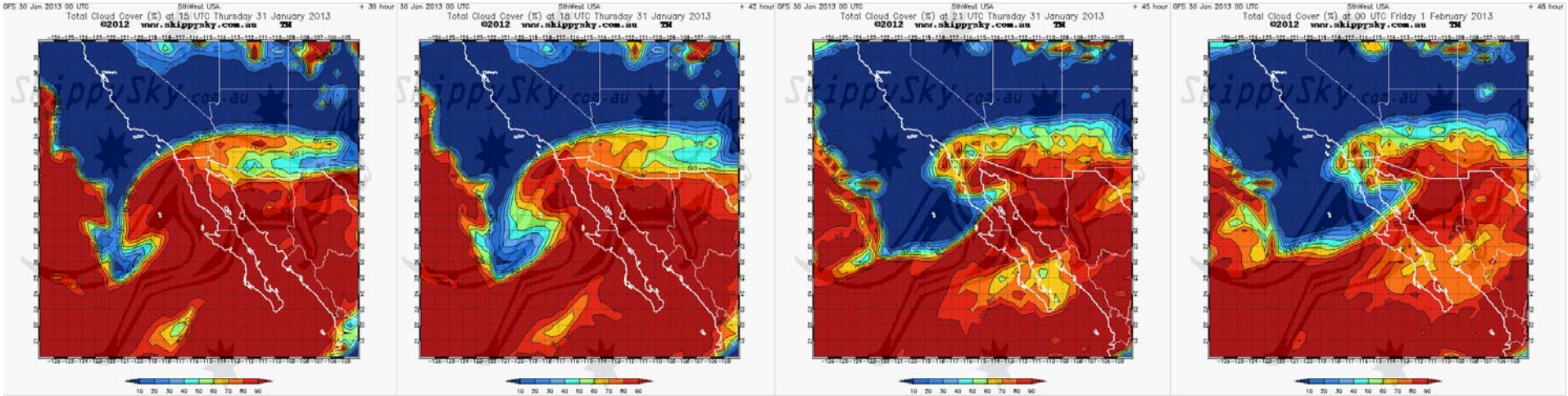
Tomorrow: Canadian –Clear skies over the SJV. Some clouds over PODEX coastal and LA region. GFS – High level clouds should stay south of the PODEX and SJV study areas. Low level clouds stay far offshore. There are few mid-level clouds.

7 am 10 am 1 pm 4 pm

Canadian



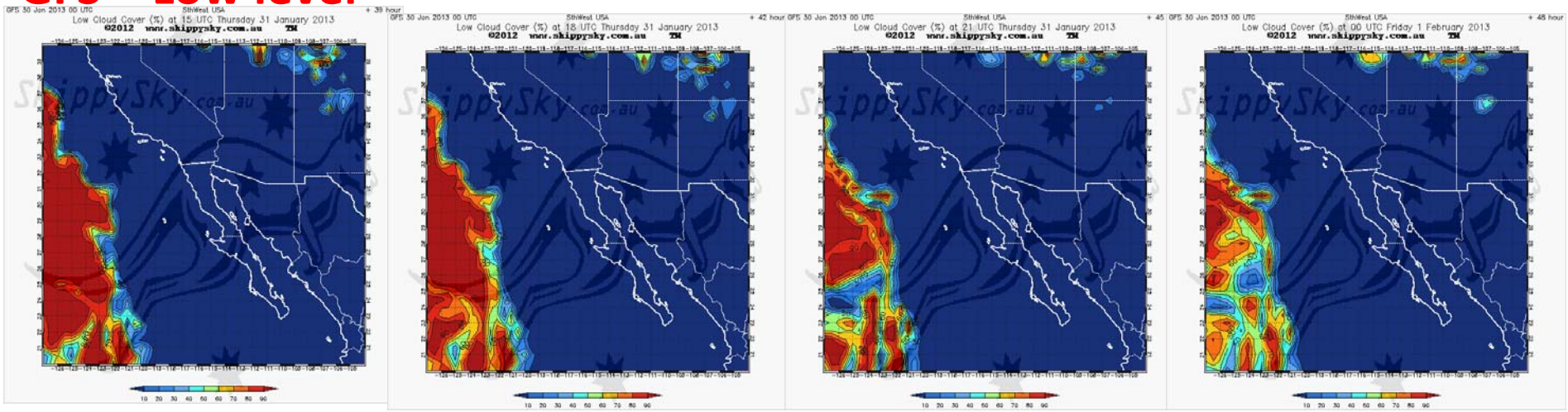
GFS –Total cloud



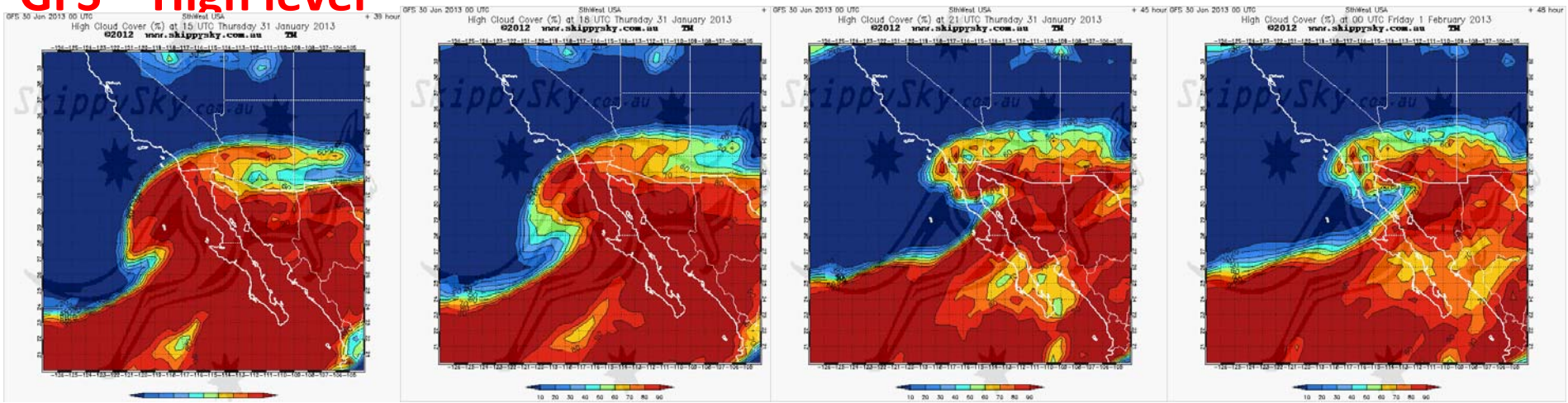
Tomorrow: GFS – High level clouds should stay south of the PODEX and SJV study areas. Low level clouds stay far offshore. There are few mid-level clouds.

7 am 10 am 1 pm 4 pm

GFS – Low level

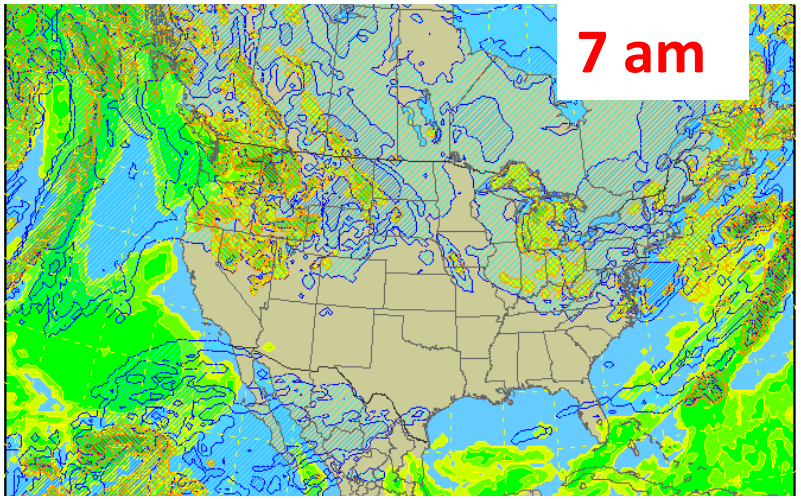


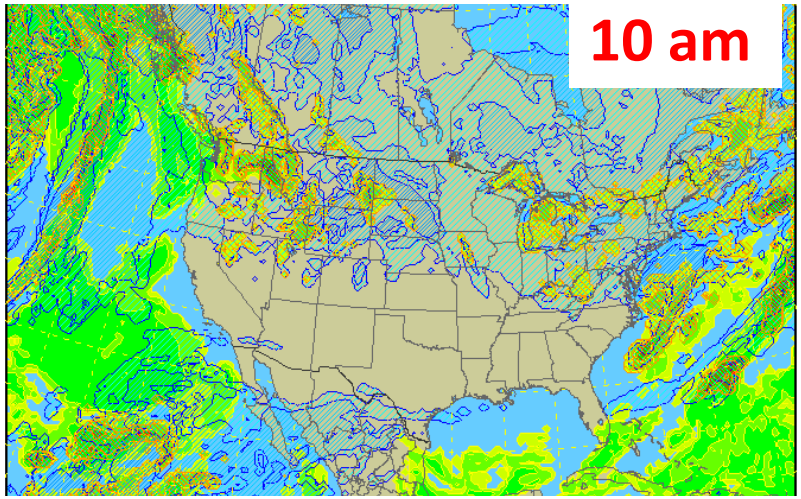
GFS – High level



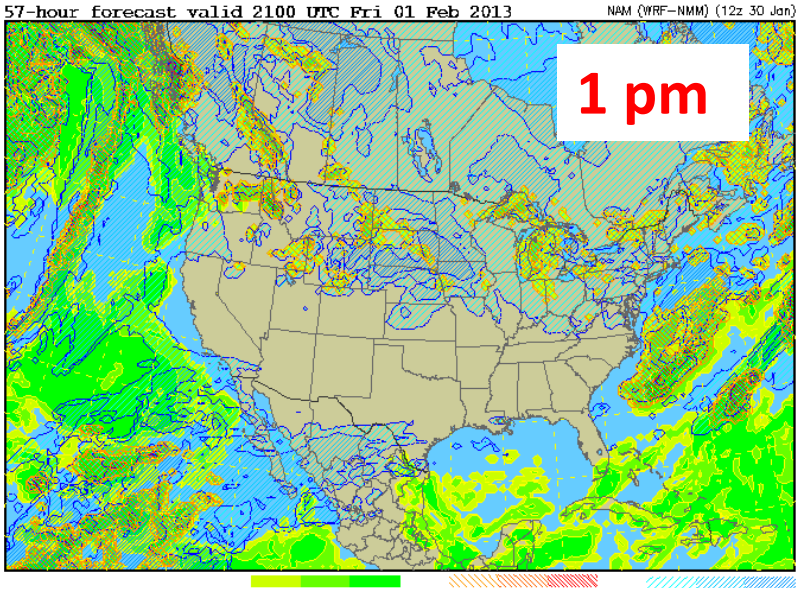
Friday: NAM – high level clouds stay outside the flight region until after 10 am when they approach the coastal Bay area (after 1 pm) and LA PODEX region. Low level clouds closer to the coast near the Bay area and then again near LA.

Some low to mid level clouds forecast over the Tahoe region (≤ 12 Kft) in the early morning.

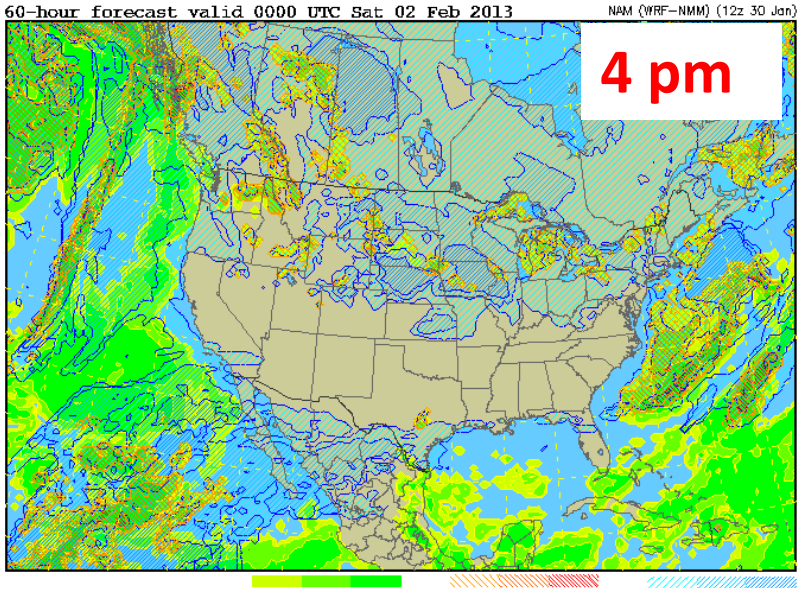




Integrated liquid and frozen hydrometeors (all levels)

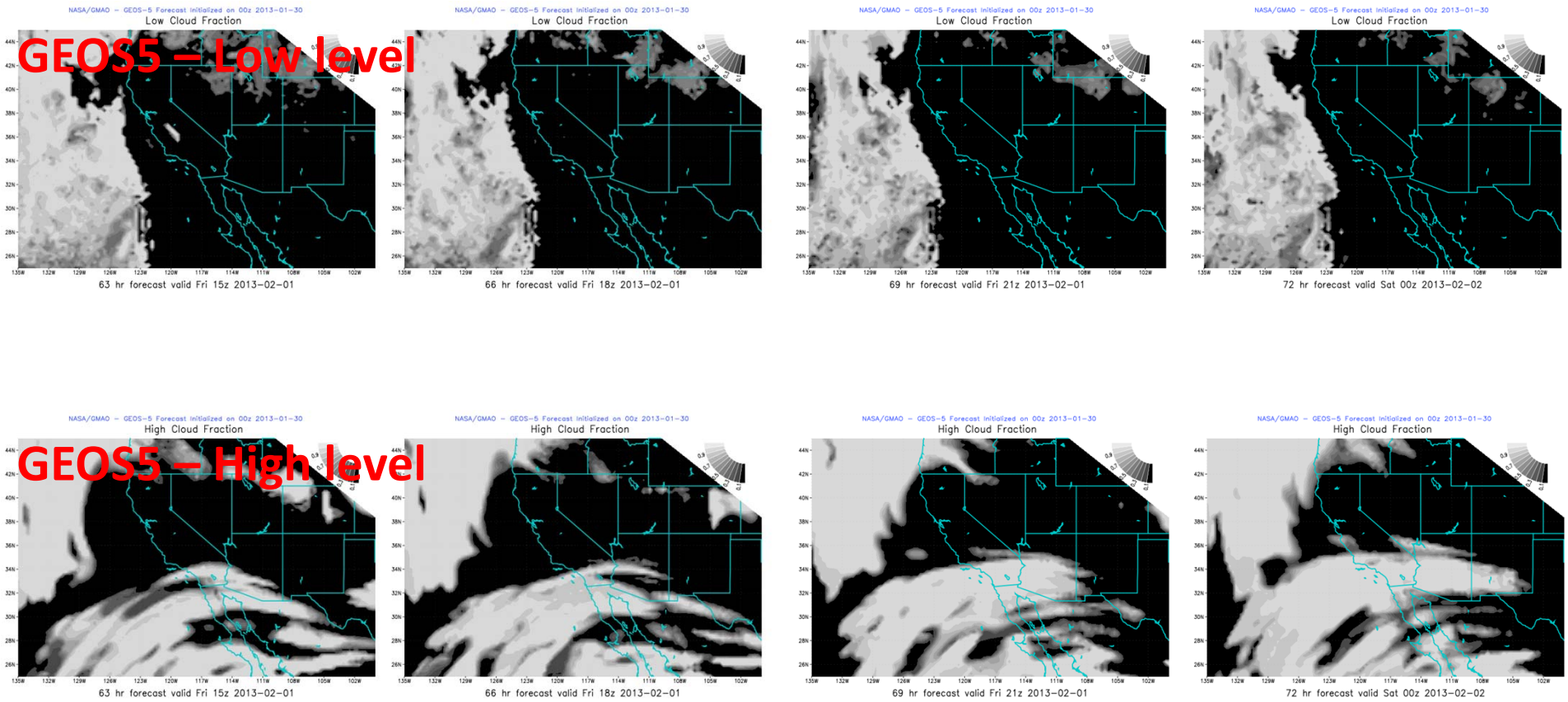


Integrated liquid and frozen hydrometeors (all levels)



Friday: GEOS5 – Morning fog over northern SJV. Clear skies over the SJV. High level over PODEX region all day and over the SJV by 4 pm.

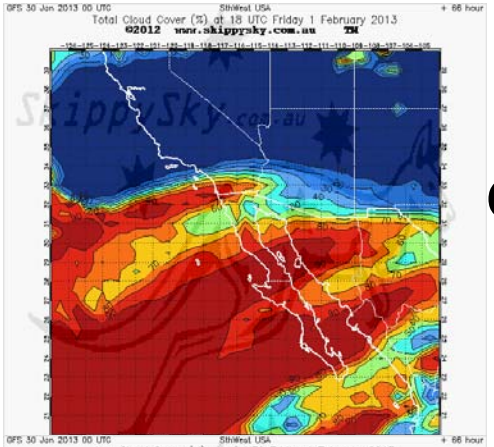
7 am 10 am 1 pm 4 pm



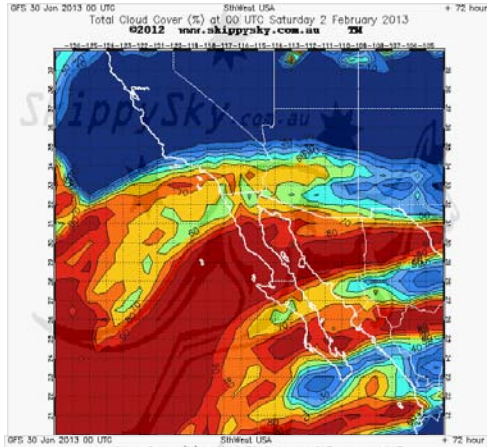
Friday: GFS – Similar story as Thursday. High level clouds should stay south of the PODEX and SJV study areas. Low level clouds stay far offshore. There are few mid-level clouds.

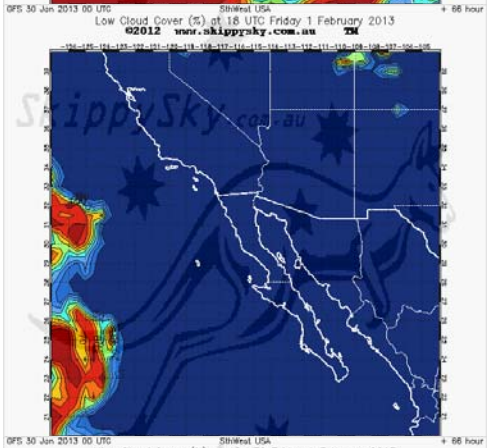
10 am

4 pm

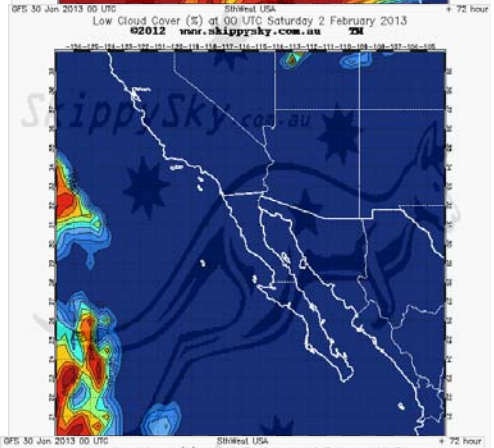


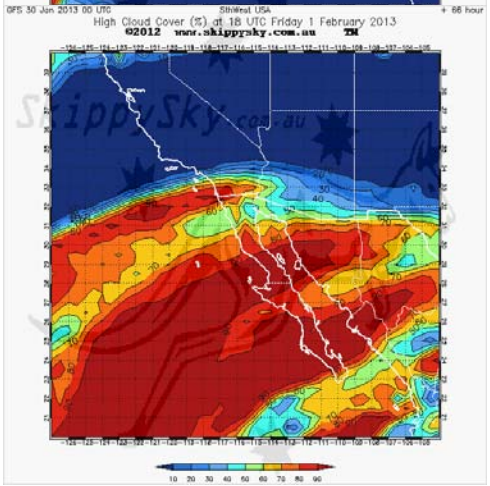
GFS – Total Cloud



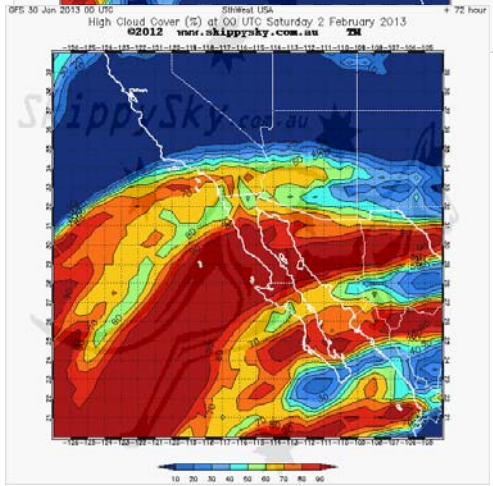


GFS – Low level



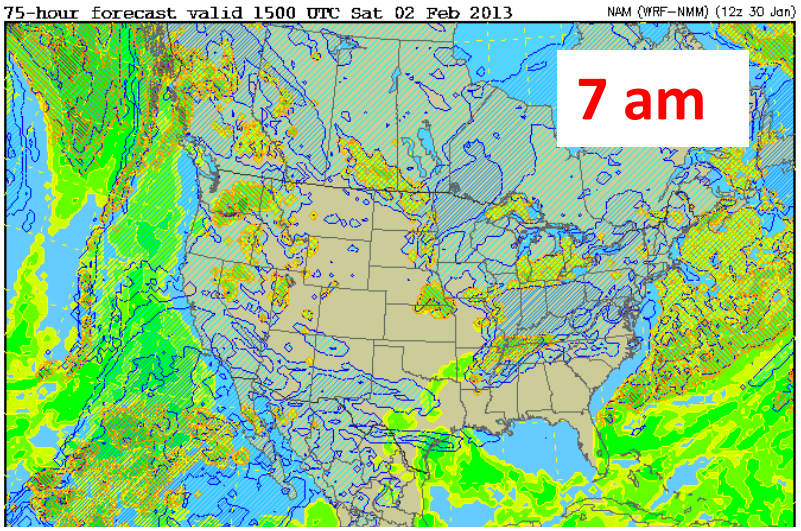


GFS – High level

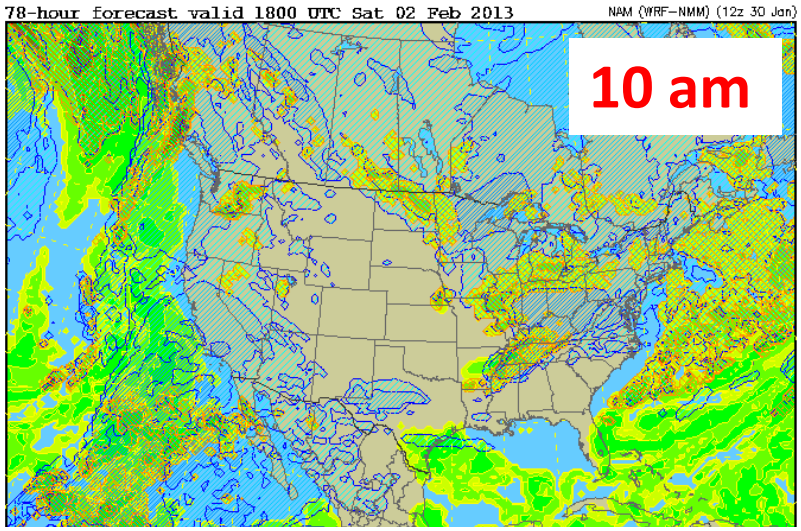


Saturday: NAM – high level clouds move into our region. Coastal low level clouds appear too close to the coast for the PODEX cirrus flight.

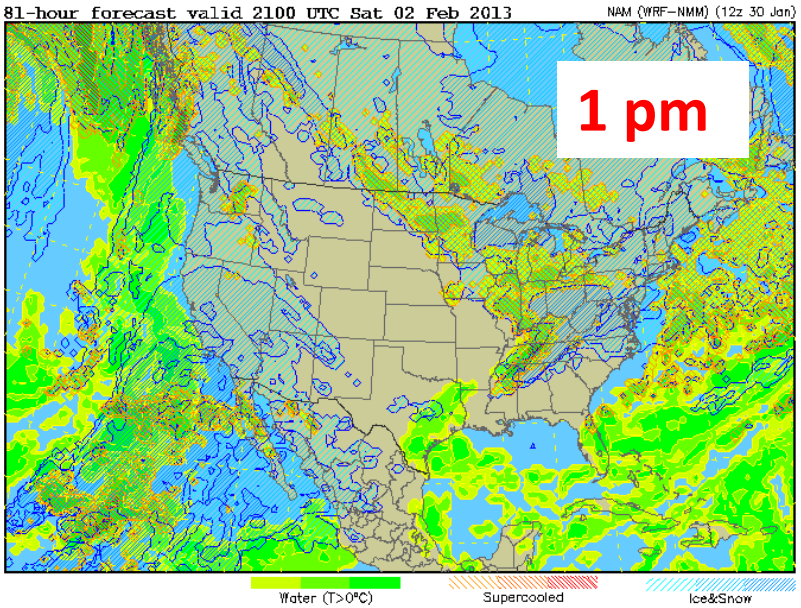
Integrated liquid and frozen hydrometeors (all levels)



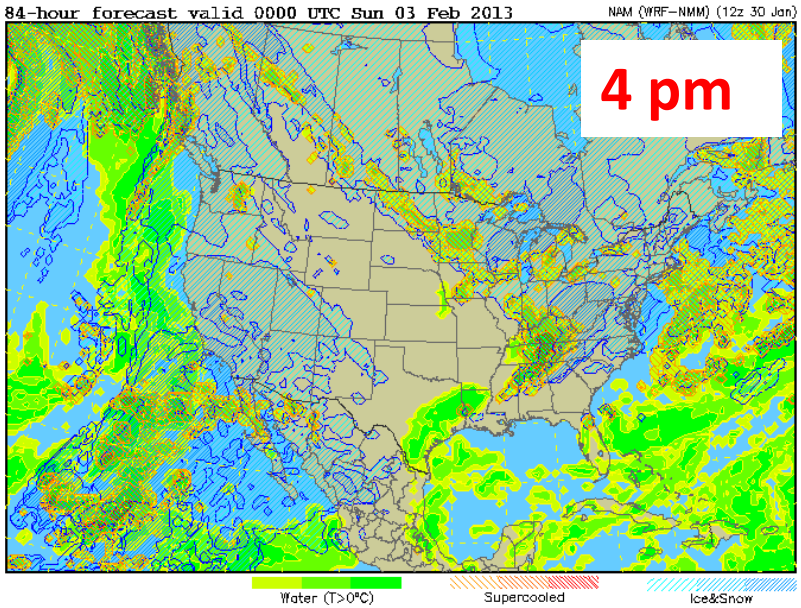
Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)

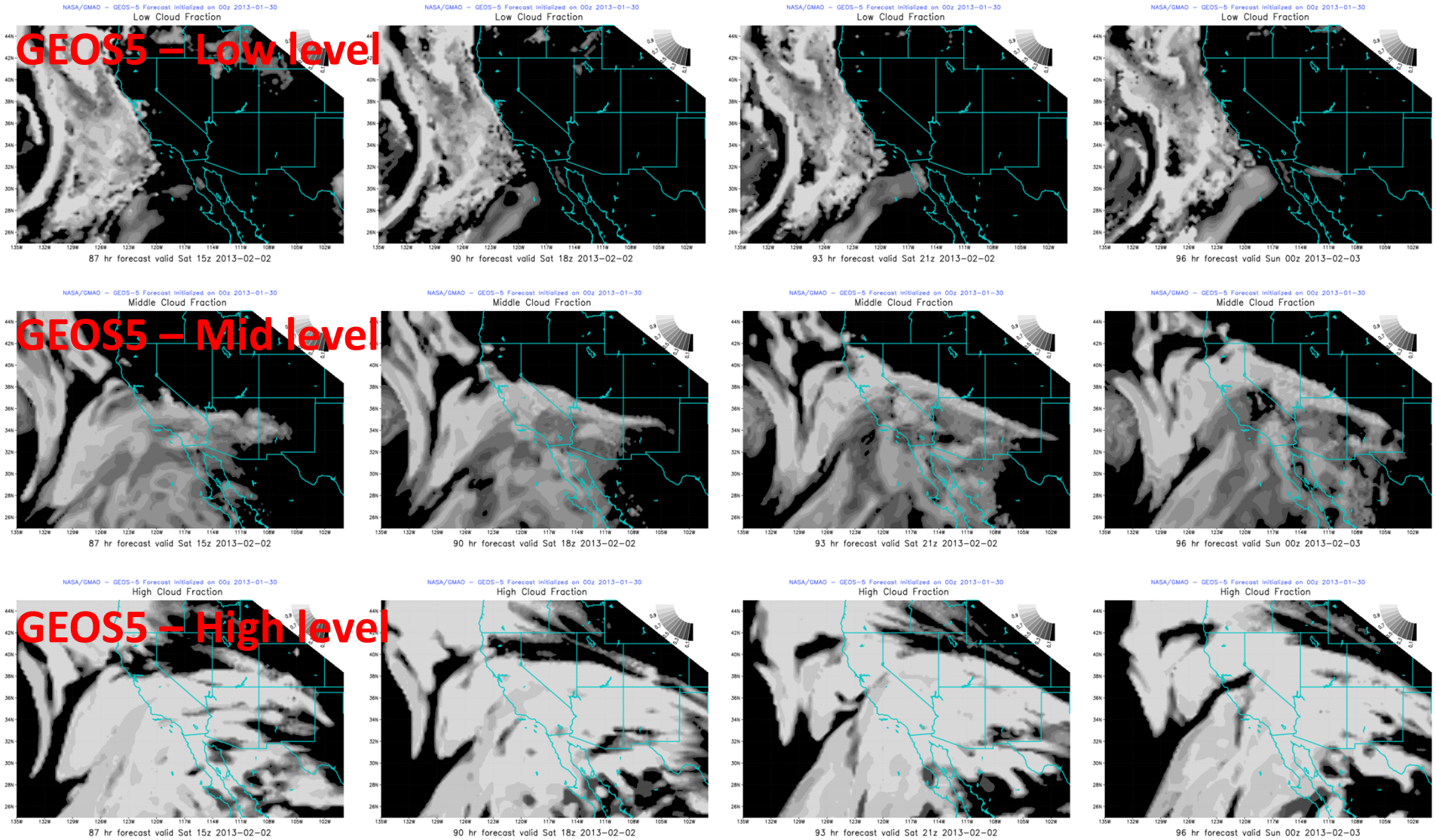


Integrated liquid and frozen hydrometeors (all levels)



Saturday: GEOS5 – Mid and high level clouds over our region all day

7 am | 10 am | 1 pm | 4 pm



AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY - HANFORD CA
317 AM PST WED JAN 30 2013

.SYNOPSIS... DRY CONDITIONS ARE EXPECTED AS HIGH PRESSURE BUILDS OVER THE AREA. A WARMING TREND IS EXPECTED FOR THE REST OF THE WEEK...ALTHOUGH NIGHT AND MORNING FOG IN THE SAN JOAQUIN VALLEY IS POSSIBLE STARTING LATE TONIGHT. &&

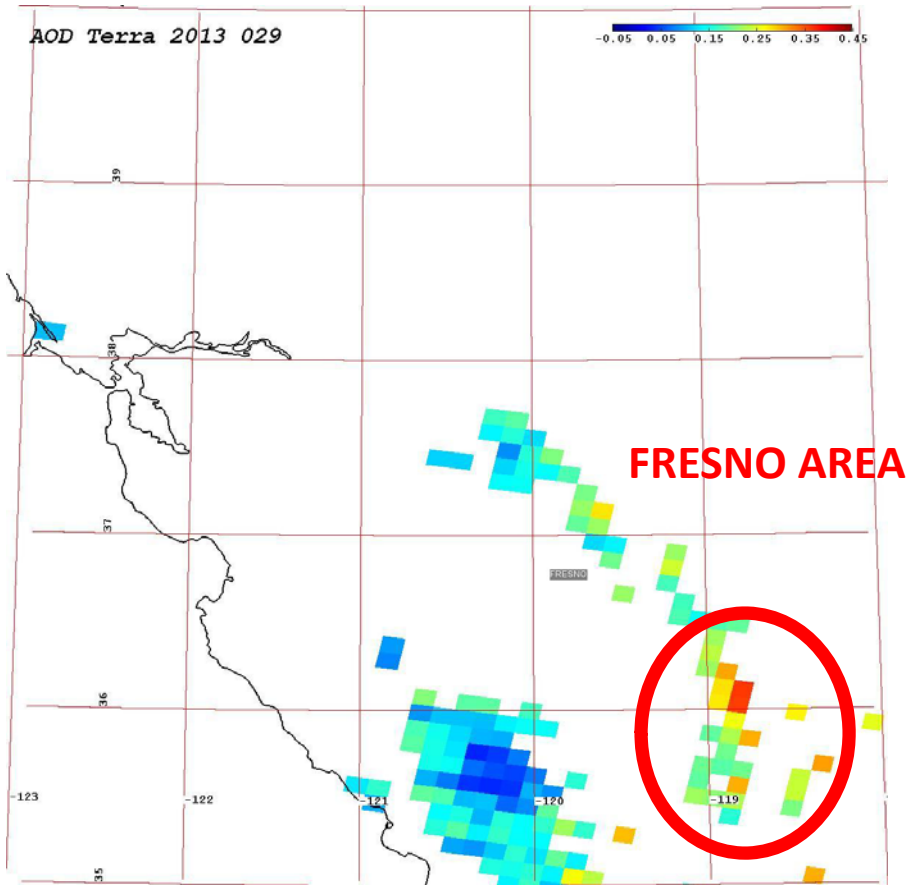
.DISCUSSION... EPAC RIDGE REMAINING STATIONARY OFF THE COAST IS KEEPING THE STORM TRACK WELL TO OUR NORTH. NORTHERLY FLOW OVER THE AREA IS KEEPING TEMPS NEAR NORMAL AND ALLOWING SOME MODERATION TO TAKE PLACE AS TEMPS WERE UP AROUND 1 TO 3 DEGREES YESTERDAY FROM THE PREVIOUS DAY.

WEAK UPPER LOW CENTER OFF THE CENTRAL CA COAST IS EXPECTED TO RETROGRADE AND DEVELOP A REX BLOCKING PATTERN OVER THE EPAC. HEIGHTS WILL RISE FRIDAY AND THE WEAK UPPER LOW CENTER WILL MOVE ONSHORE SATURDAY INTO NORCAL. ONLY A FEW HIGH CLOUDS ARE POSSIBLE WITH THIS SYSTEM AS IT MOVES ASHORE.

A DIGGING TROUGH OF LOW PRESSURE IS EXPECTED TO MOVE INTO THE EPAC SATURDAY AND FORM A CUTOFF LOW CENTER SAT NIGHT OFF THE CENCAL COAST. THE EXACT TRACK OF THE LOW CENTER REMAINS UNCERTAIN AS THE GFS AND ECM ARE HANDLING THE SYSTEM VERY DIFFERENTLY. TIMING AND INTENSITY OF THE UPPER LOW CENTER IS VARIABLE BETWEEN RUN TO RUN AND BETWEEN MODELS WHEN LOOKING AT THE OPERATIONAL RUNS. THE ENSEMBLE MEANS ARE INDICATING A TROUGH MOVING THROUGH ON TUESDAY NIGHT WED TIME FRAME WHICH IS SIMILAR TO THE 00Z OPERATIONAL RUN OF THE ECM. WE HAVE LOWERED POPS FOR THE WEEKEND AND INCREASED POPS FOR TUESDAY AND WED TIME FRAME. THIS MAY ALSO CHANGE AS THE MODELS ARE HAVING SOME TROUBLE WITH THE FEATURE BY THE MIDDLE OF NEXT WEEK AS WELL. &&

.AVIATION... LOCAL MVFR VISIBILITIES DUE TO MIST IN THE SAN JOAQUIN VALLEY THROUGH 18Z WEDNESDAY AND AGAIN AFTER 06Z THURSDAY. OTHERWISE...VFR CONDITIONS WILL PREVAIL ACROSS THE CENTRAL CA INTERIOR THRU 12Z THU. &&

.AIR QUALITY ISSUES... ON WEDNESDAY JANUARY 30 2013... FIREPLACE/WOOD STOVE BURNING IS PROHIBITED IN FRESNO COUNTY. FURTHER INFORMATION IS AVAILABLE AT VALLEYAIR.ORG &&


AOD Terra 2013 029
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FRESNO
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38
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36
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-123
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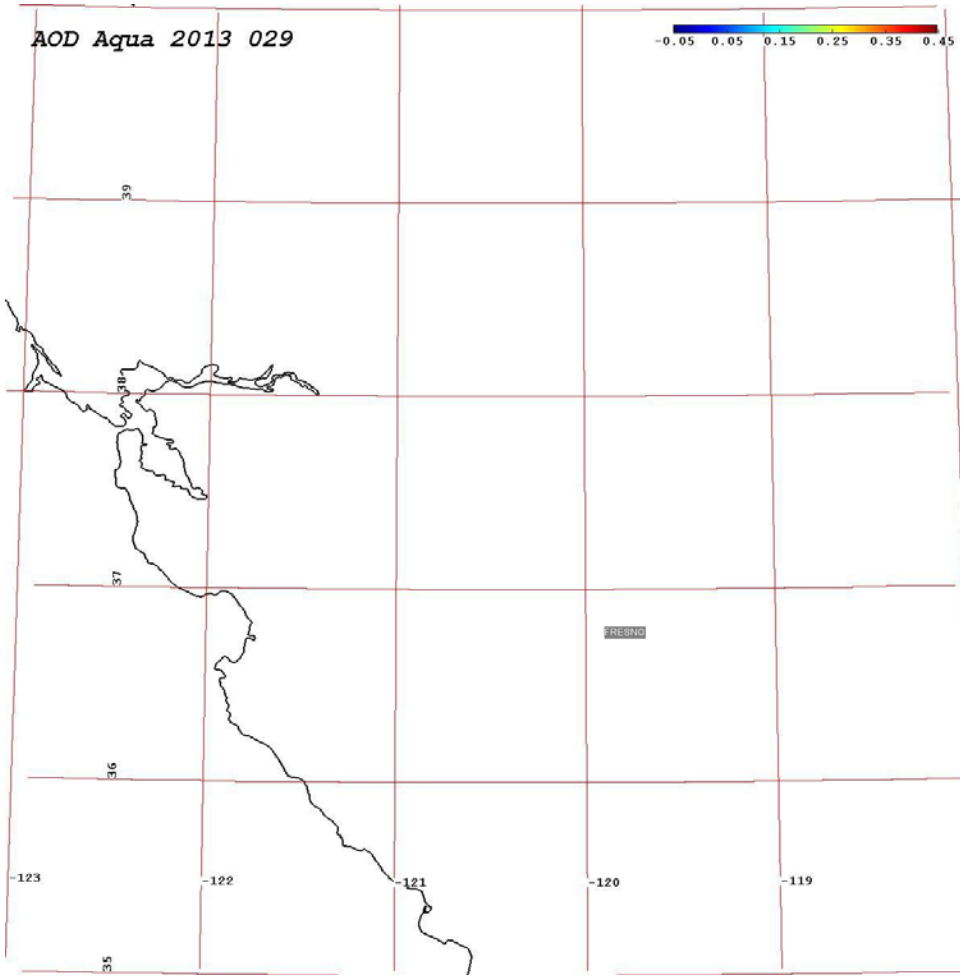
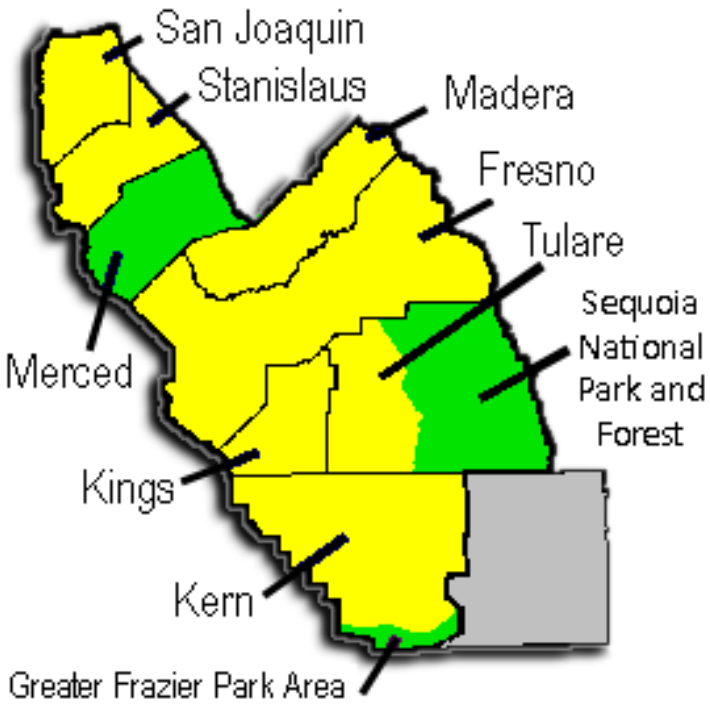
-121
-120
-119


AOD Aqua 2013 029
-0.05 0.05 0.15 0.25 0.35 0.45
FRESNO
39
38
37
36
35
-123
-122
-121
-120
-119

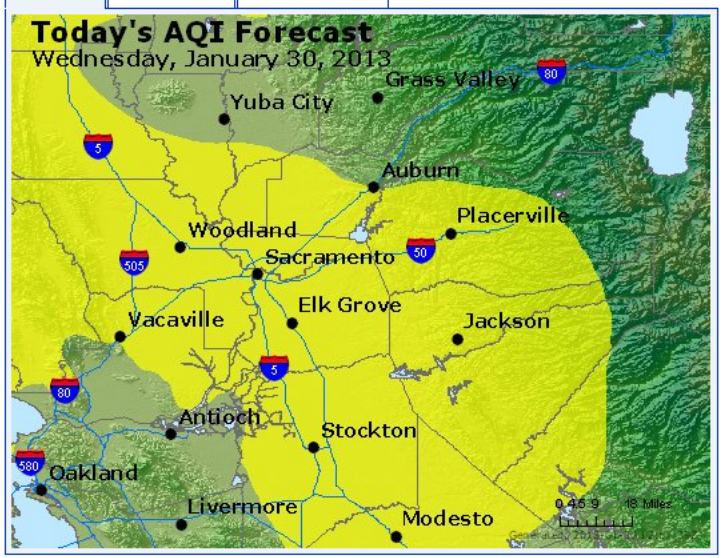
SJV APCD Daily Forecast – for TODAY (Jan 30)



ROAR LEVEL	Ozone (O^3)	Particulate Matter (PM 2.5)
LEVEL 1 Good	1-59 ppb	1-15 µg/m³
LEVEL 2 Moderate	60-75 ppb	16-35 µg/m³
LEVEL 3 Unhealthy for Sensitive Groups	76-95 ppb	36-55 µg/m³
LEVEL 4 Unhealthy	96-115 ppb	56-75 µg/m³
LEVEL 5 Very Unhealthy	>115 ppb	>75 µg/m³

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

Forecast | Current AQI | AQI Animation



Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | ! Action Day

Air Quality Forecast

Today's High	Tomorrow's High
Air Quality Index (AQI)	Air Quality Index (AQI)
87 Moderate	94 Moderate
Health Message: Unusually sensitive people should consider reducing prolonged or heavy exertion.	**Health Message:** Unusually sensitive people should consider reducing prolonged or heavy exertion.

AQI - Pollutant Details

Particles (PM2.5)	87	Moderate	Particles (PM2.5)	94	Moderate

Forecast Discussion: Tuesday, light morning winds will limit pollutant dispersion in the Sacramento region. However, surface high pressure over southern Oregon will produce moderate northwesterly winds in the afternoon, dispersing pollutants and leading to low-Moderate particle levels. Wednesday and Thursday, an upper-level ridge of high pressure will build over northern California, limiting vertical mixing. In addition, light winds will limit pollutant dispersion, and strong overnight temperature inversions will trap pollutants near the surface. Therefore, particle levels will be high-Moderate on both days.

Current Conditions

Air Quality Index (AQI)

5 Day Forecast

Air Quality Forecast

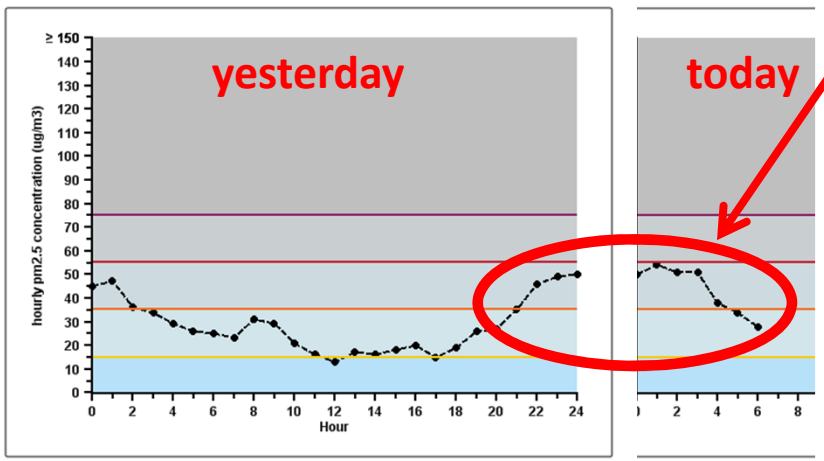
Tuesday, January 29 at 9:44 AM

	Tue	Wed	Thu	Fri	Sat
North Counties	36	60	M	M	M
	PM2.5	PM2.5	PM2.5	PM2.5	PM2.5
Coast and Central Bay	29	49	G	M	M
	PM2.5	PM2.5	PM2.5	PM2.5	PM2.5
Eastern District	29	45	G	M	M
	PM2.5	PM2.5	PM2.5	PM2.5	PM2.5
South Central Bay	26	42	G	G	M
	PM2.5	PM2.5	PM2.5	PM2.5	PM2.5
Santa Clara Valley	32	52	M	M	M
	PM2.5	PM2.5	PM2.5	PM2.5	PM2.5

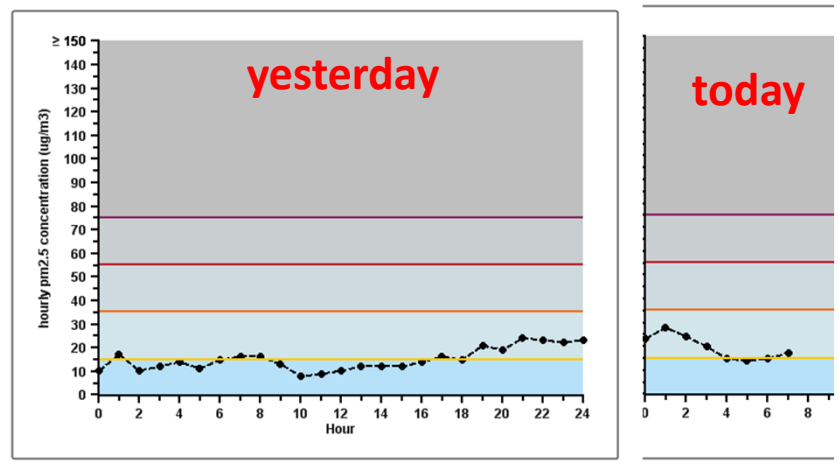
January 29 (Tuesday) & 30th (Today)

Similar behavior as yesterday.

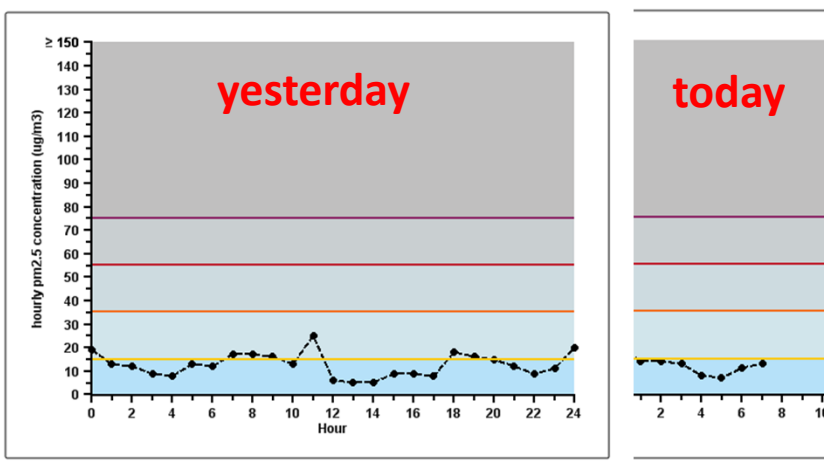
Fresno-Garland



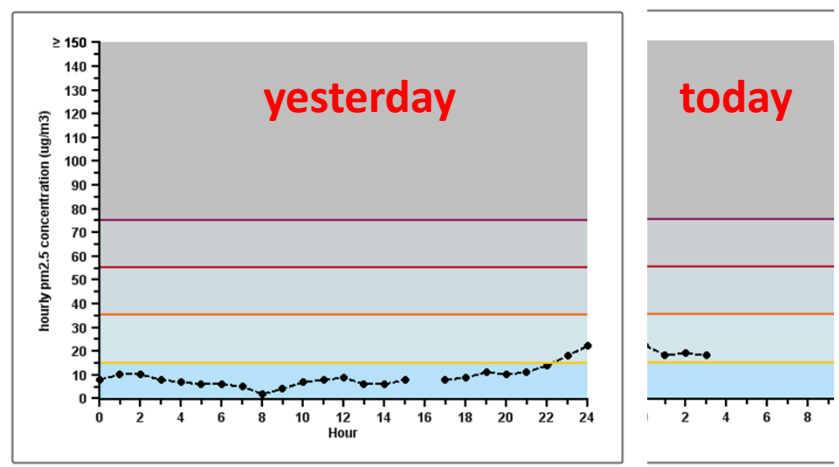
Corcoran



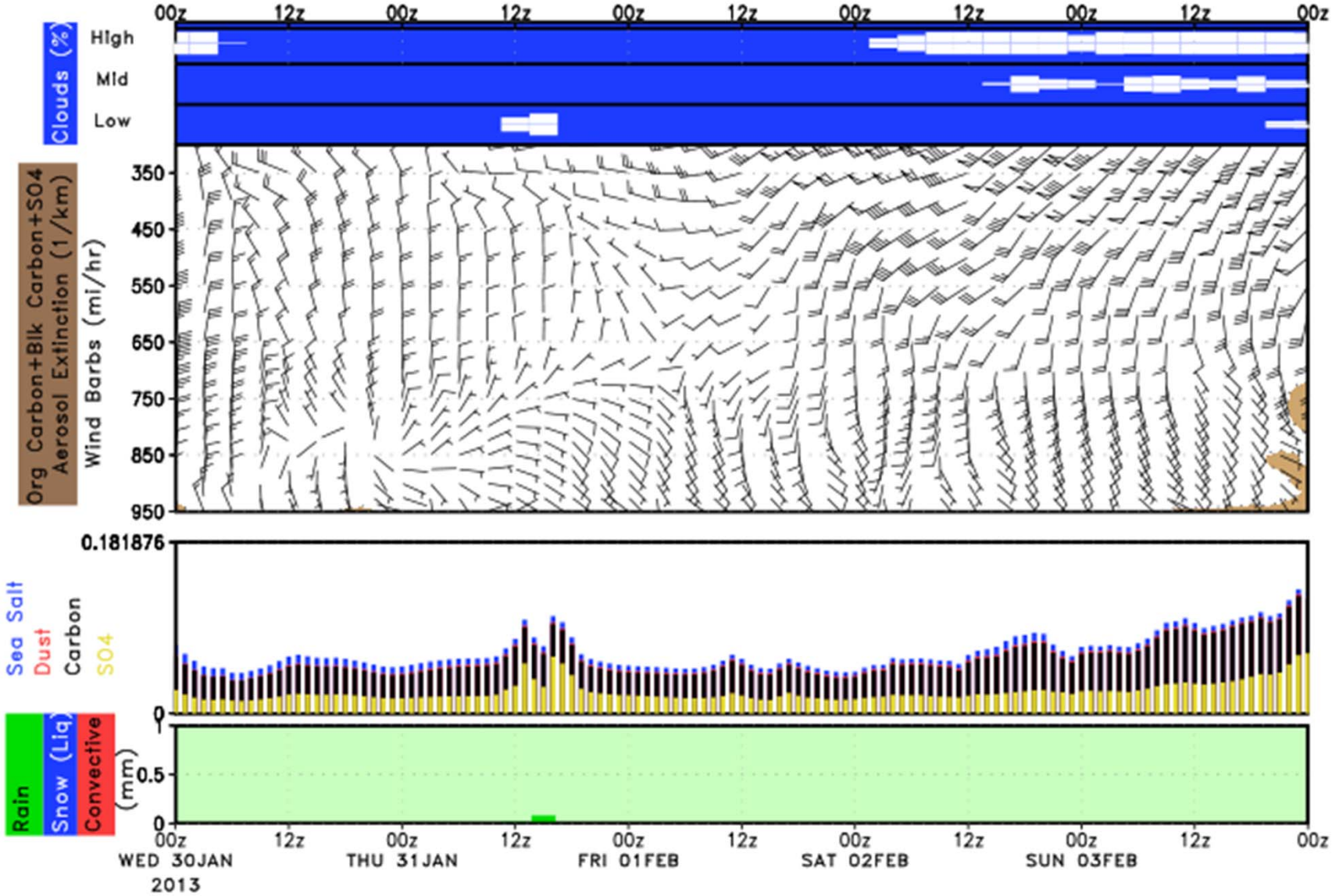
Bakersfield



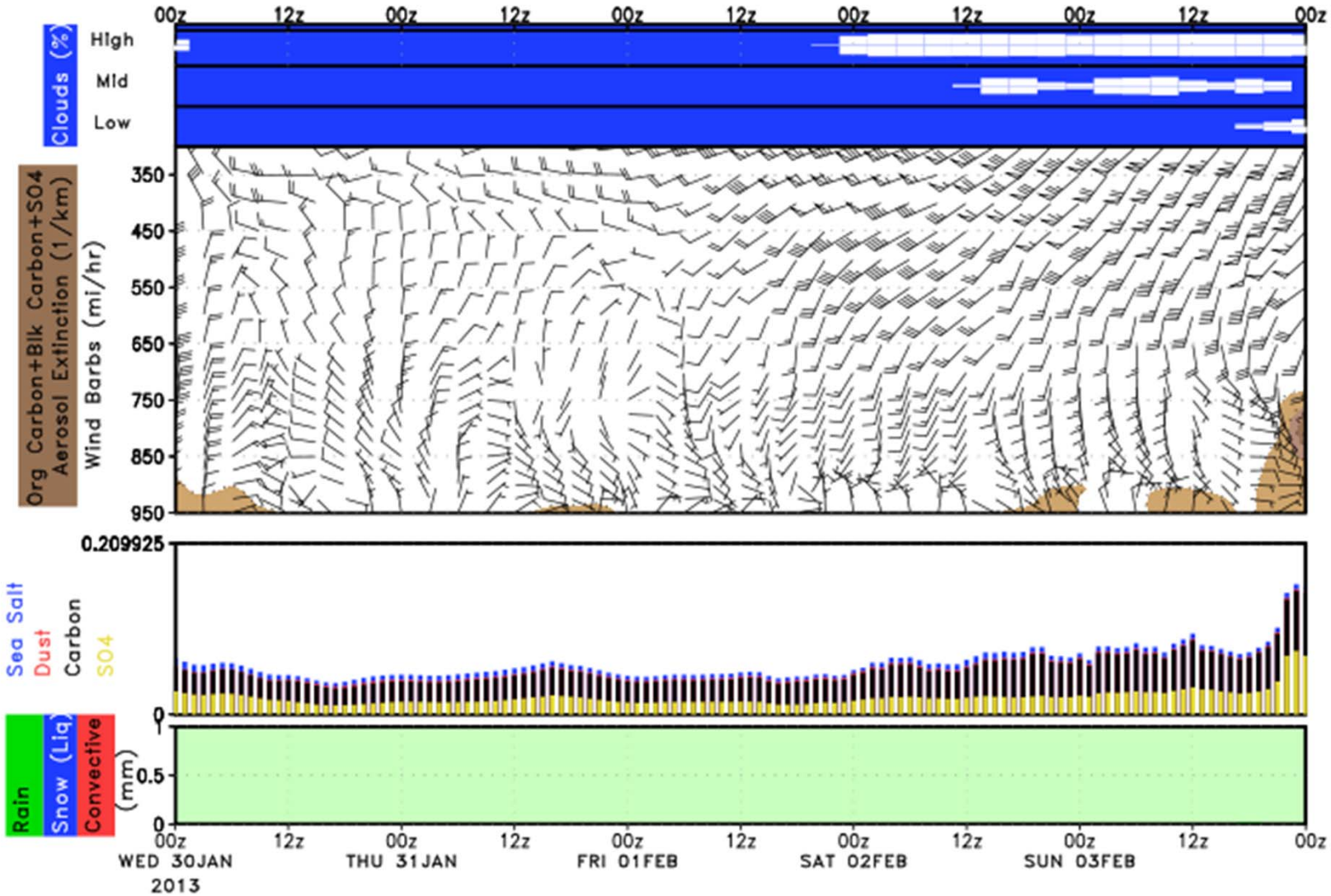
Stockton



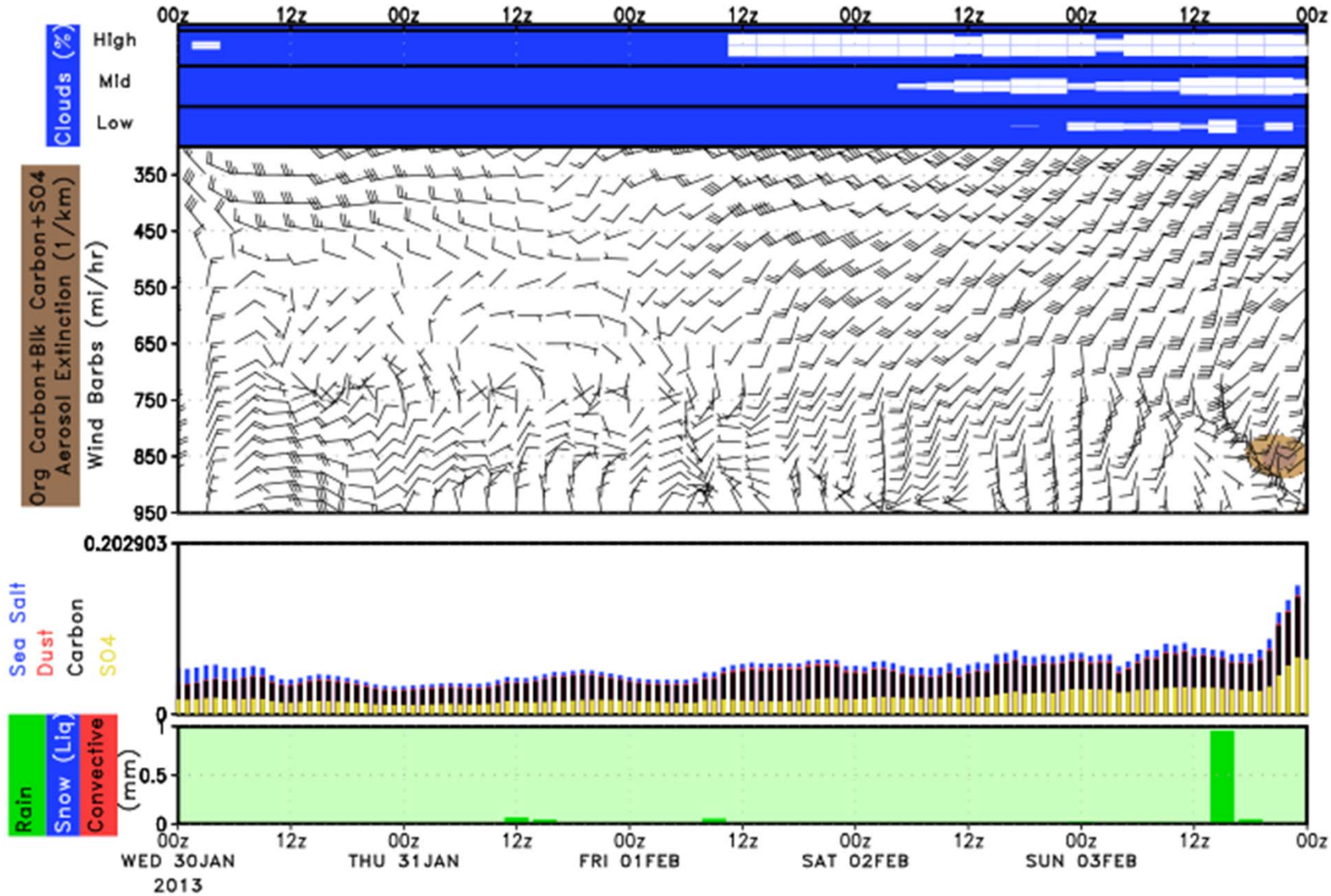
GMAO GEOS5: Fresno



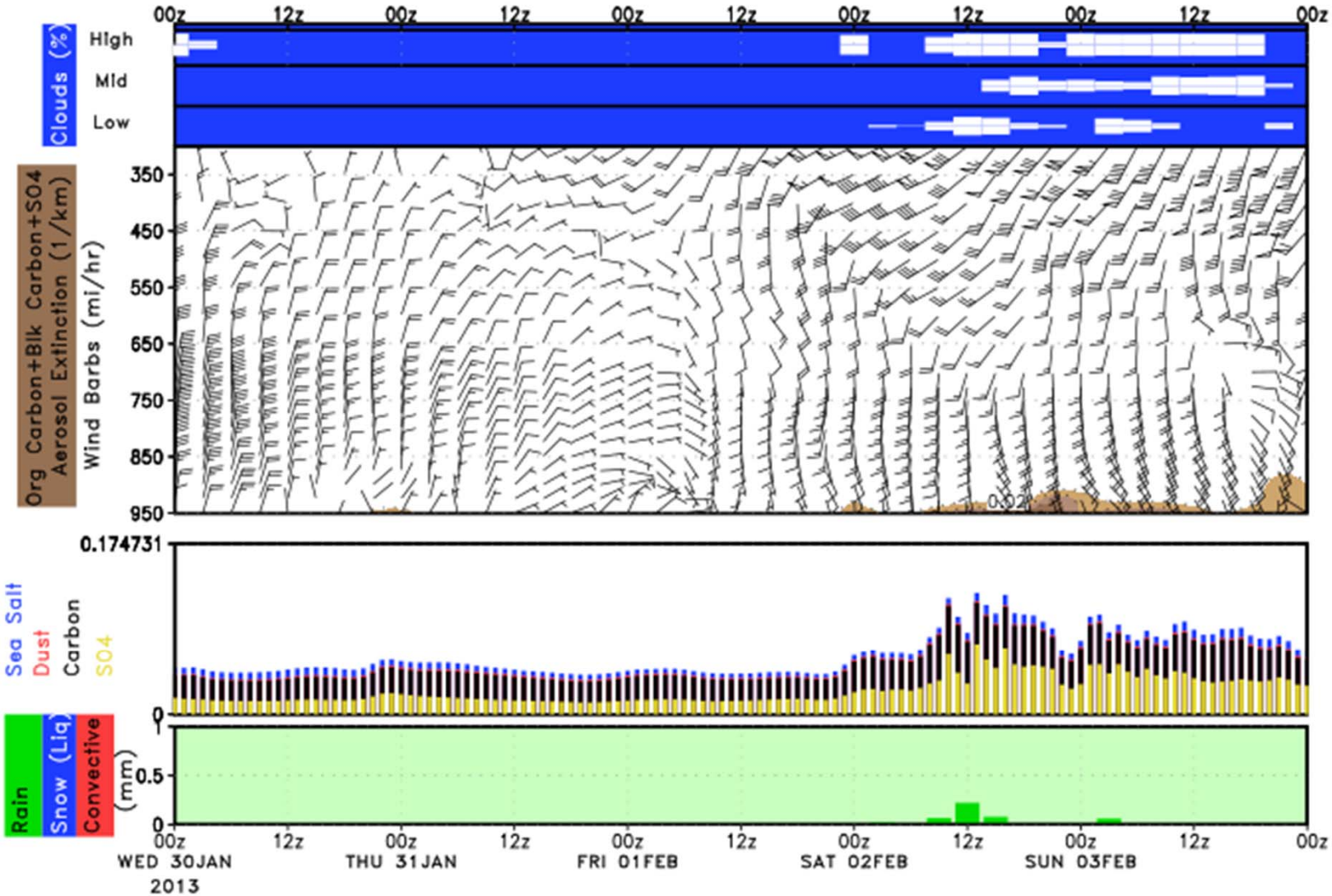
GMAO GEOS5: Bakersfield



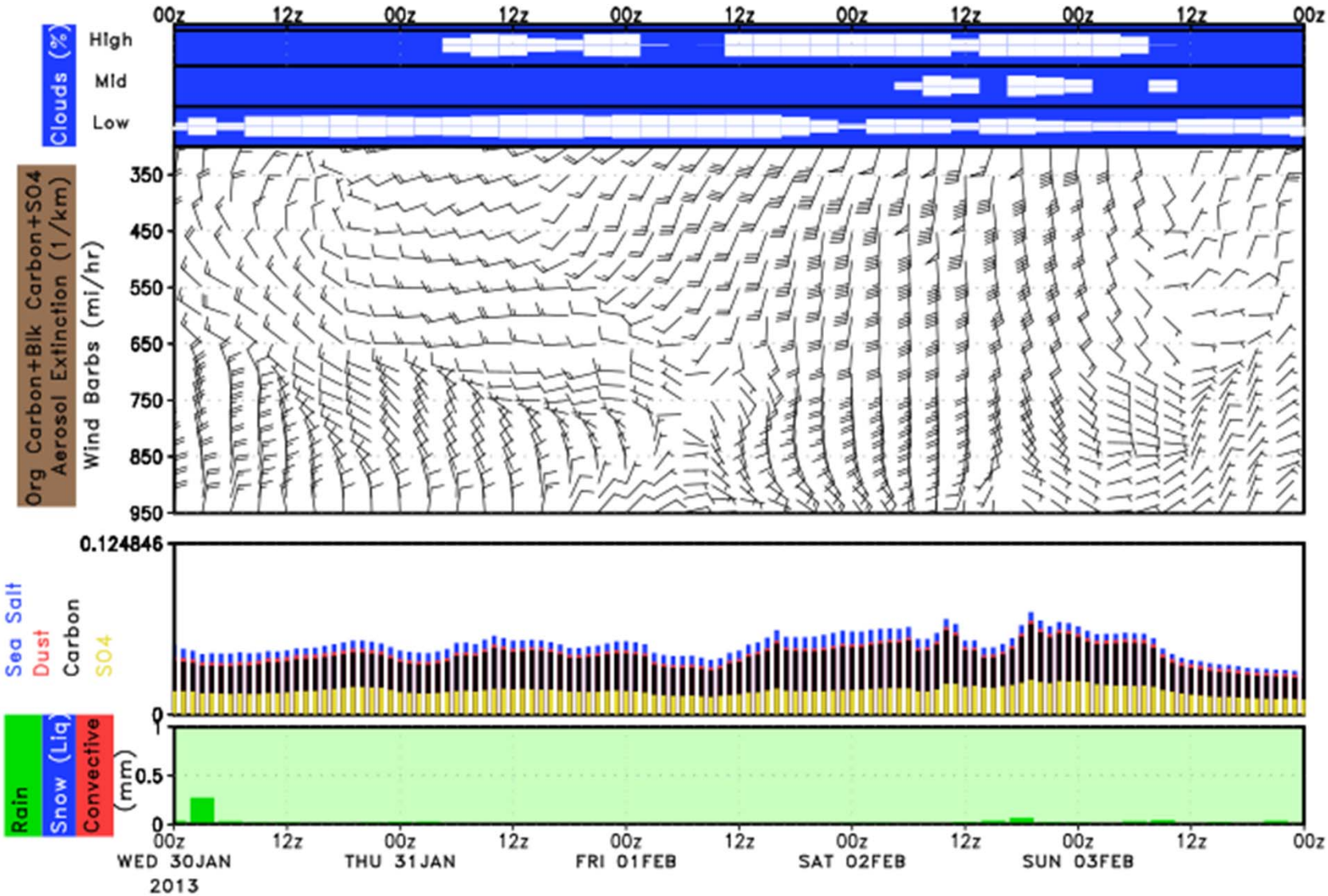
GMAO GEOS5: San Nicolas Is.



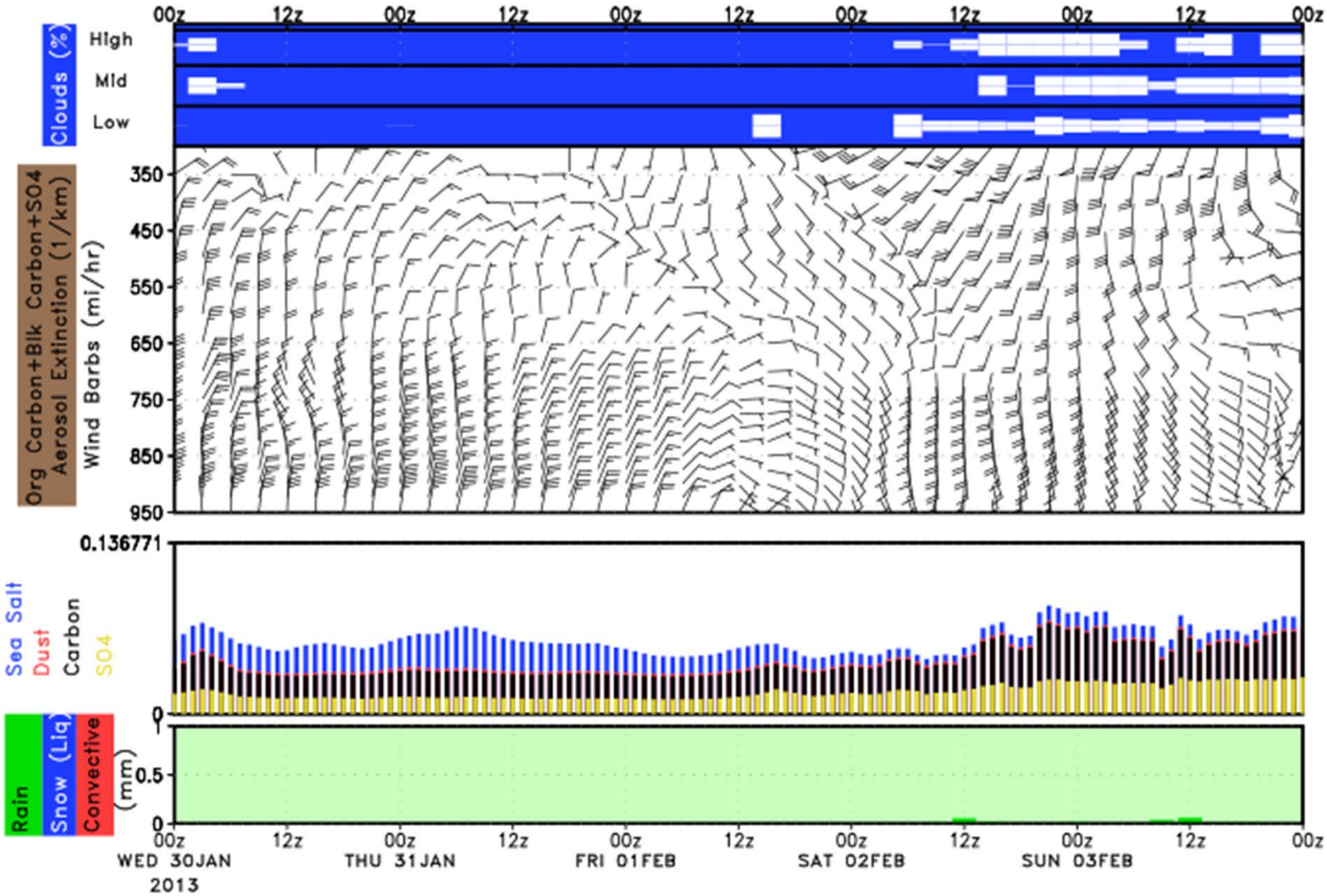
GMAO GEOS5: Monterey



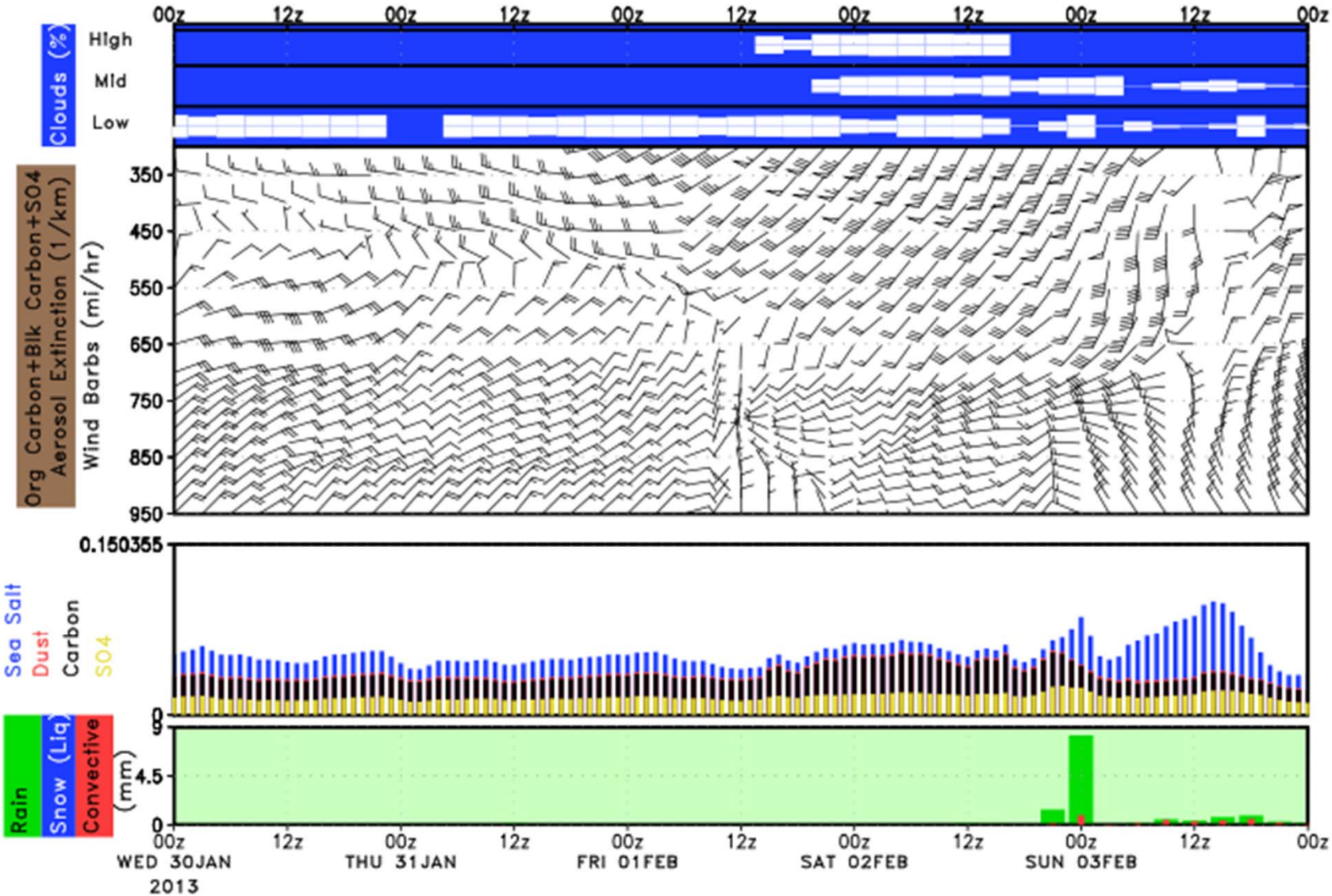
GMAO GEOS5: Ocean 40 N 130 W



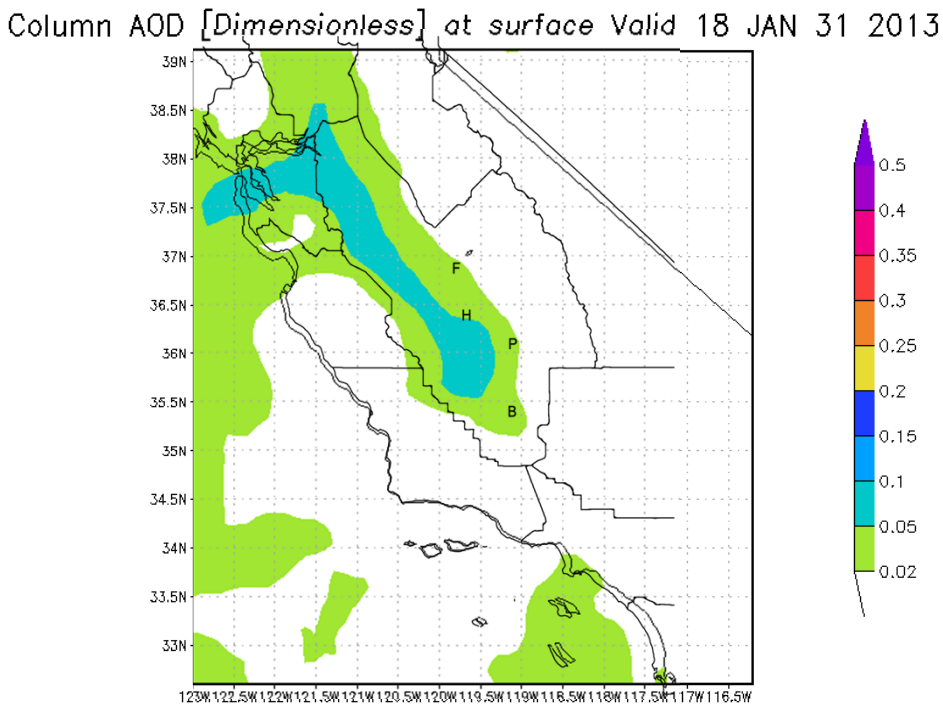
GMAO GEOS5: Ocean 38 N 125 W

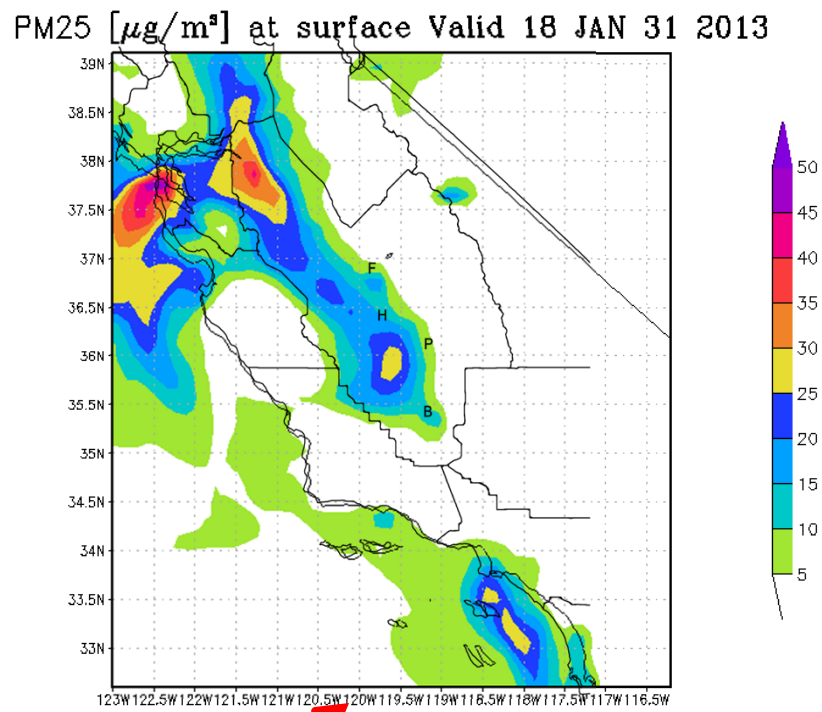


GMAO GEOS5: Ocean 30 N 130 W



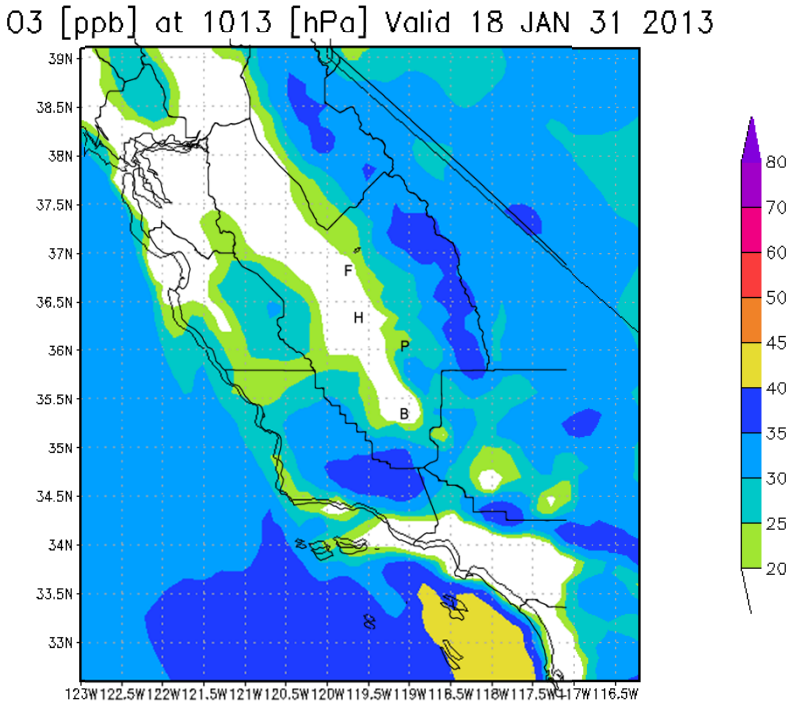
NOAA CMAQ: Thursday 10 am = 18 Z

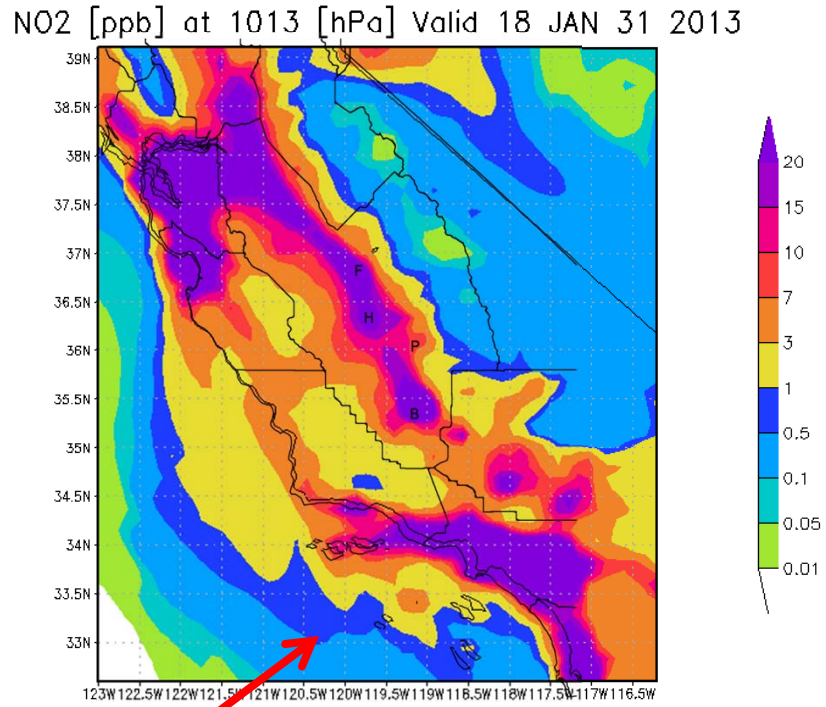




Pollution offshore

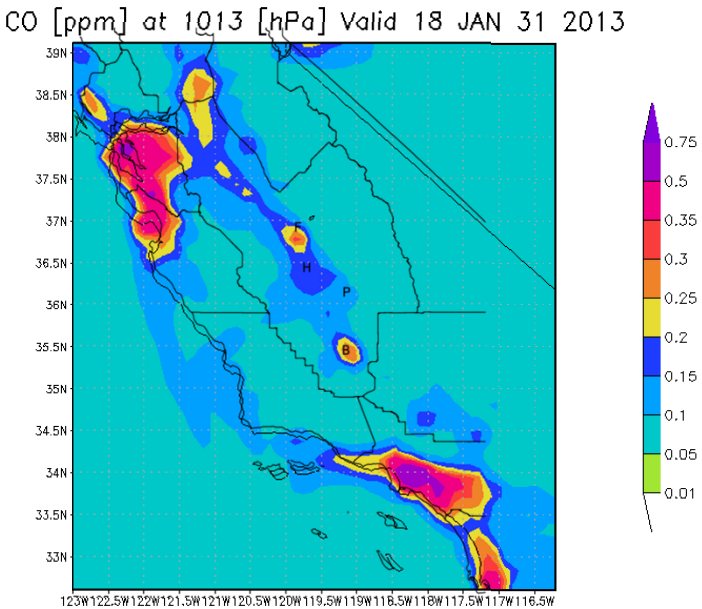
NOAA CMAQ: Thursday 10 am = 18 Z

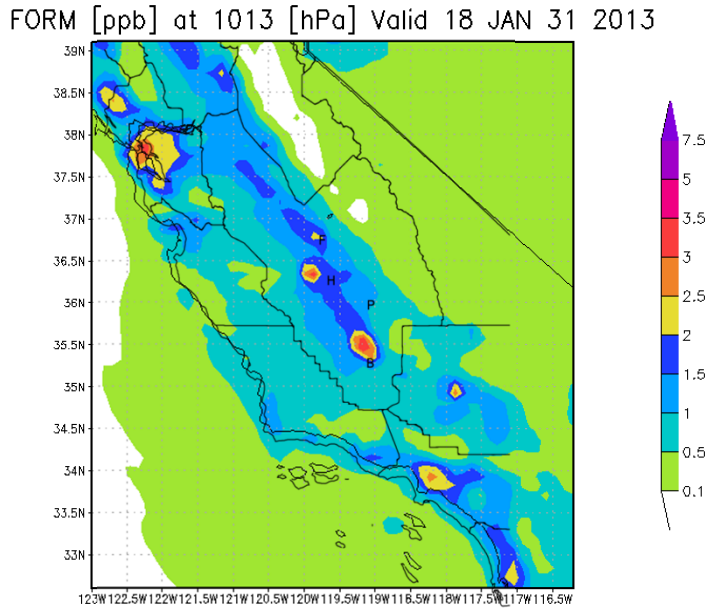


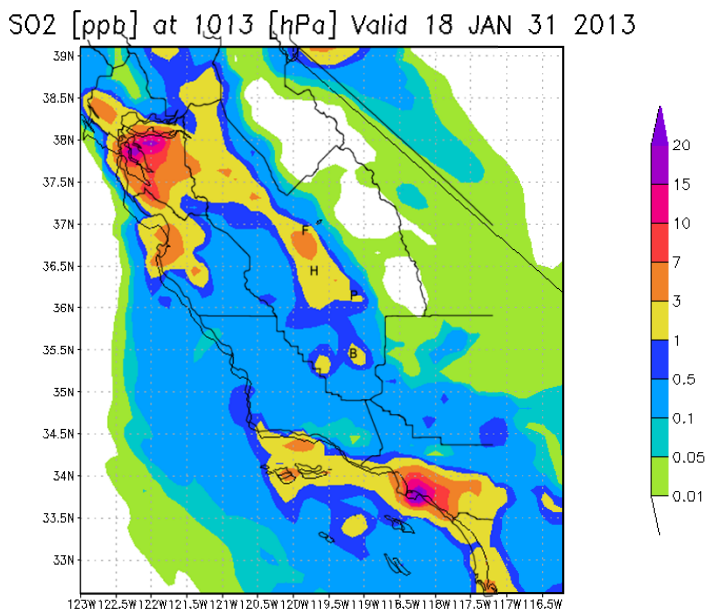


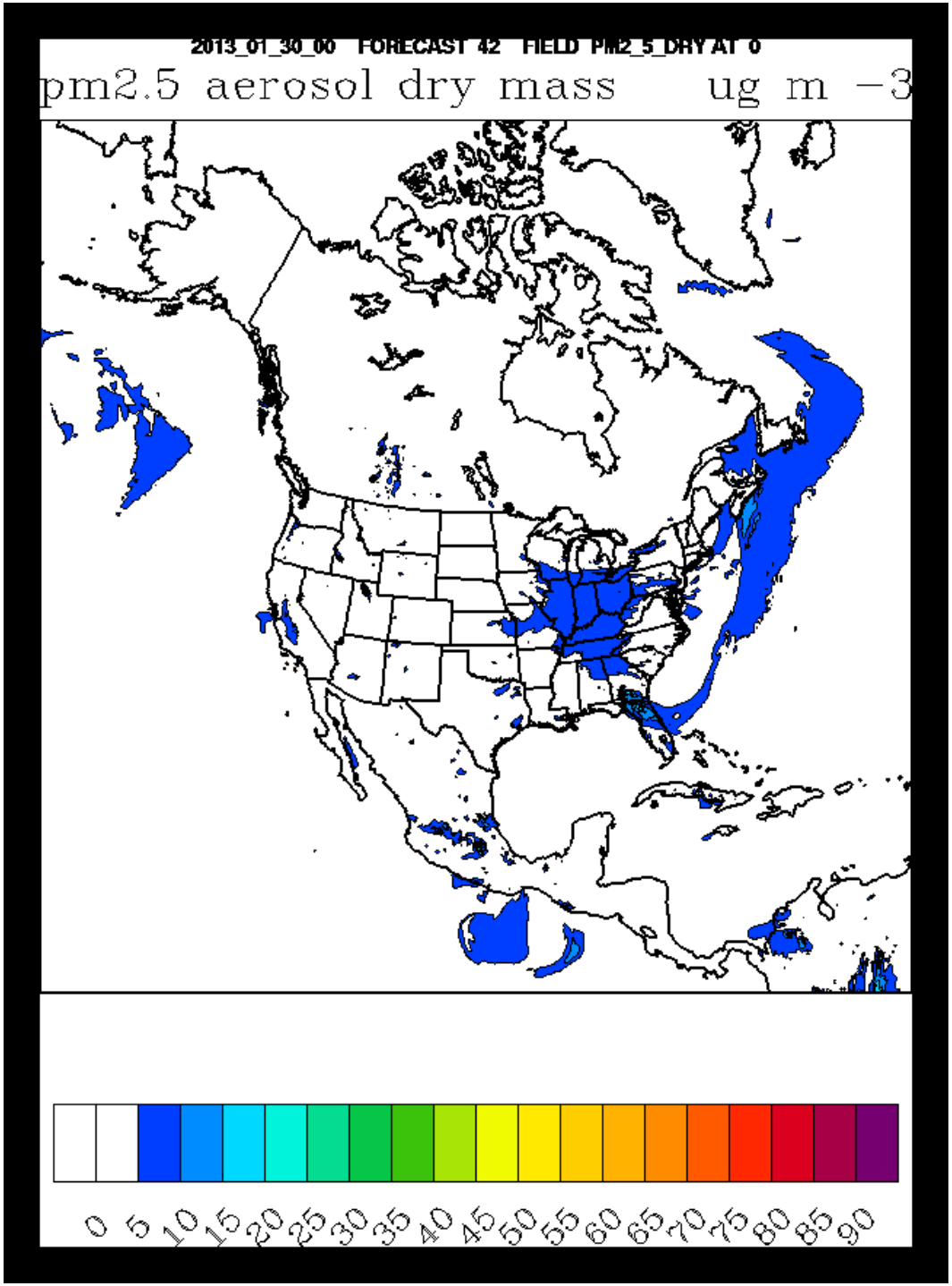
Pollution offshore

NOAA CMAQ: Thursday 10 am = 18 Z









Thursday 10 am = 18 Z

Recommendations

Thursday –

SJV (PODEX/D-AQ) – Fog in the morning a little more widespread than today, burning off by 9-10 am. Clear skies are forecast.

PODEX calibration leg – Lake Tahoe – Reno NWS office forecasts some high cirrus over the region tomorrow into Friday. Cirrus are spilling over the upper level high at about 35 Kft.

PODEX coastal leg (Bay area) – Monterey NWS office forecasts low level clouds, but too far offshore (west of 125W) for PODEX

PODEX coastal leg (LA) – No cirrus forecast, no lower level clouds forecast. Models bring them closer than Oxnard NWS forecaster thought they would come.

PODEX calibration leg – Palmdale – forecast is clear of cirrus

Recommendations

Friday –
SJV (PODEX/D-AQ) – Fog in the morning, burning off by 9-10 am. Clear skies are forecast.
PODEX calibration leg – Lake Tahoe – Same as Thursday - Cirrus are spilling over the upper level high at about 35 Kft.
PODEX coastal leg (Bay area) – No cirrus, but low level clouds too far offshore (west of 125W) for PODEX
PODEX coastal leg (LA) - Chance of some high level clouds approaching from the south and west. Chances increase towards the afternoon.
PODEX calibration leg – Palmdale – Forecast is clear of cirrus

Saturday – SJV - Thin broken cirrus forecast (~25Kft). Clouds increasing as the day progresses. Fog in the morning, burning off by 9-10 am.

Sunday – Possibility of precipitation and cloudiness increases as an upper level trough moves in and brings tropical moisture.