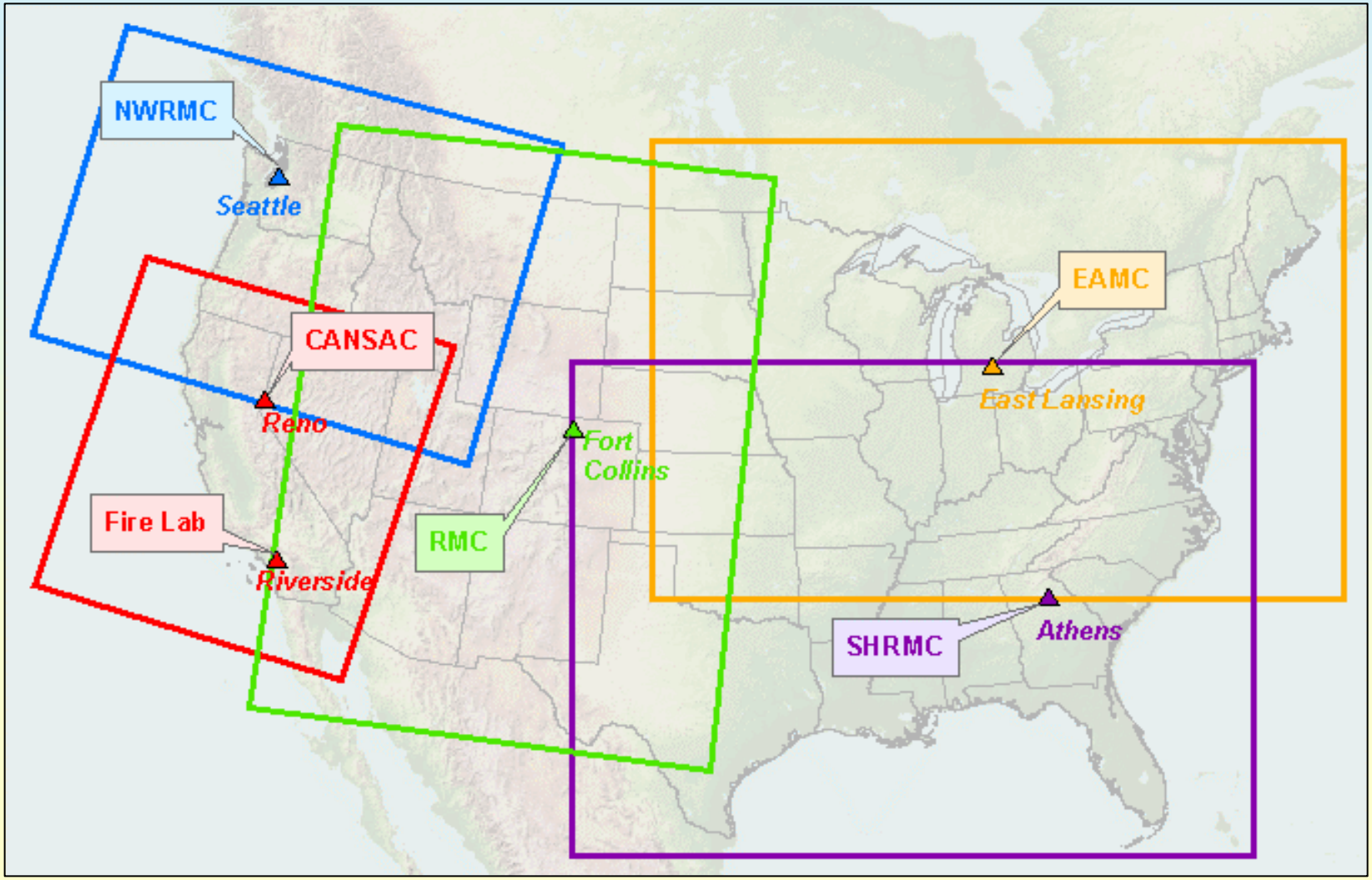
CANSAC OVERVIEW

California and Nevada Smoke and Air Consortium

Updated November 2004

CANSAC is the southwest U.S. member of Fire Consortia For Advanced Modeling of Meteorology and Smoke (FCAMMS).



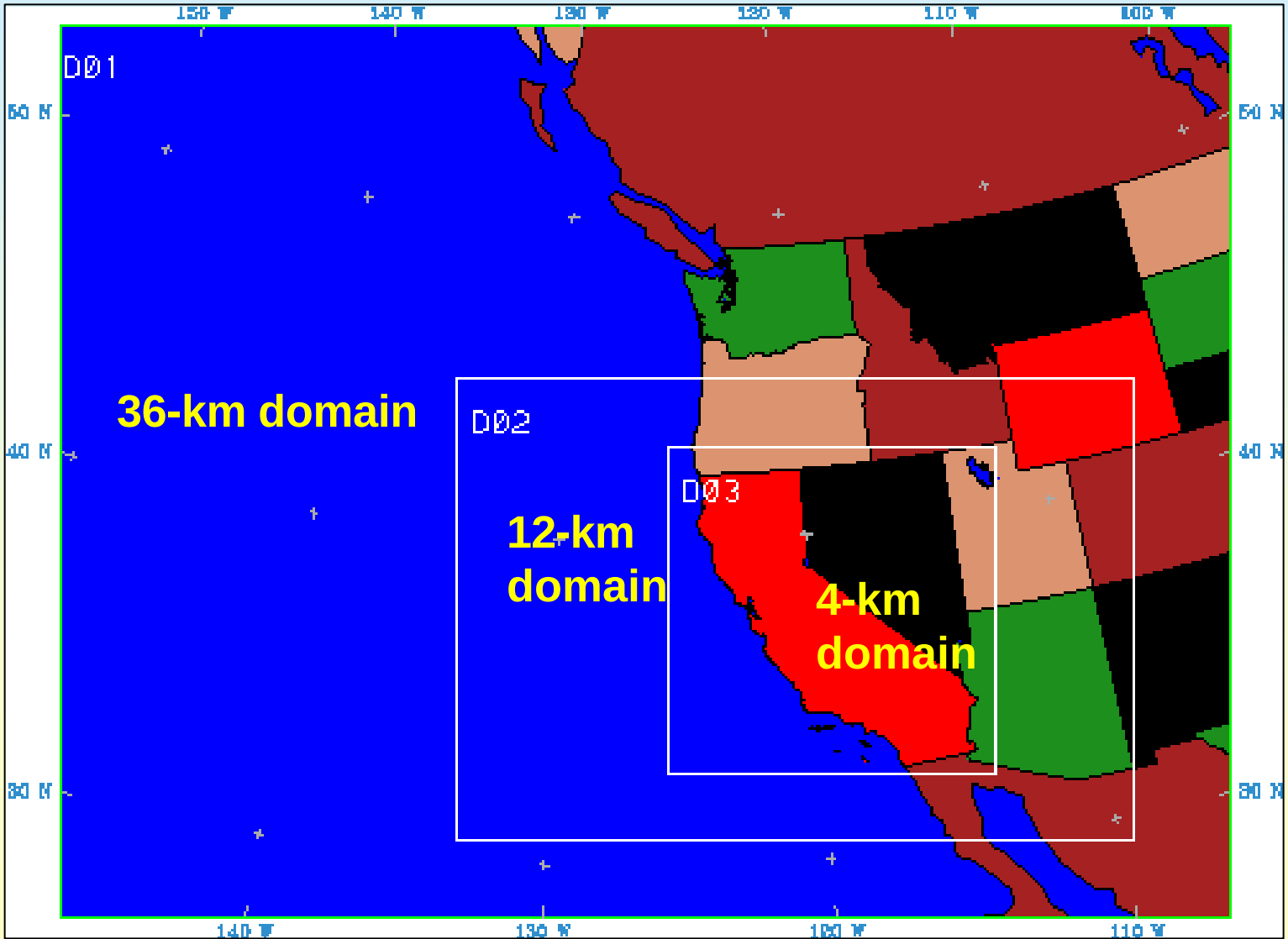
CANSAC consists of a **Board of Directors** and two main subgroups. Tom Hatcher of the USFS is current Board Chairperson.

The subgroups are the Technical Advisory Group (TAG), chaired by Kemal Gurer of CARB, and the Operational Applications Group (OAG), currently chaired by John Snook, USFS

Current consortium membership includes:

USDA Forest Service Region 4	**CA Air Resources Board (CARB)**
USDA Forest Service Region 5	**Naval Postgraduate School / HRMET**
Pacific SW Research Station	**CA Dept of Forestry and FP**
BLM California	**CA Contract counties**
BLM Nevada	**San Joaquin Valley Unified APCD**
US Fish and Wildlife Service	**Nevada Division of Forestry**
National Park Service	

The CANSAC computation facility is called CAFF, and is housed at CEFA/ DRI in Reno. A mesoscale model called MM5 produces simulations on the following grid domains



- After rigorous testing a team of experts unanimously chose the SGI Altix 3700 as the best solution overall for CANSAC modeling
- Cost of this server was $250K (discounted by over $300K for academics, and to account for the hardware being demo unit)
- System processors: Thirty-two 1.3 GHz Itanium 2, with 3 MB cache (in two 16p racks)
- Processors are interconnected with 2Gbit switches and 3 meter, 50 micron optical cables
- All operating system and complier software is included
- The system comes with a 3-year onsite warranty.

In addition to the main server unit, we purchased an SGI 2.2 terrabyte raid unit that is now directly integrated into the system. This includes the controller, 2Gbit network connection, fiber cables, and 3-year onsite warranty.

The cost of this storage device was $24,000. This raid system provides for the short-term data storage issues. We will utilize DRI internal existing resources in regards to long-term tape backup.

Below is a CANSAC timetable for this past year

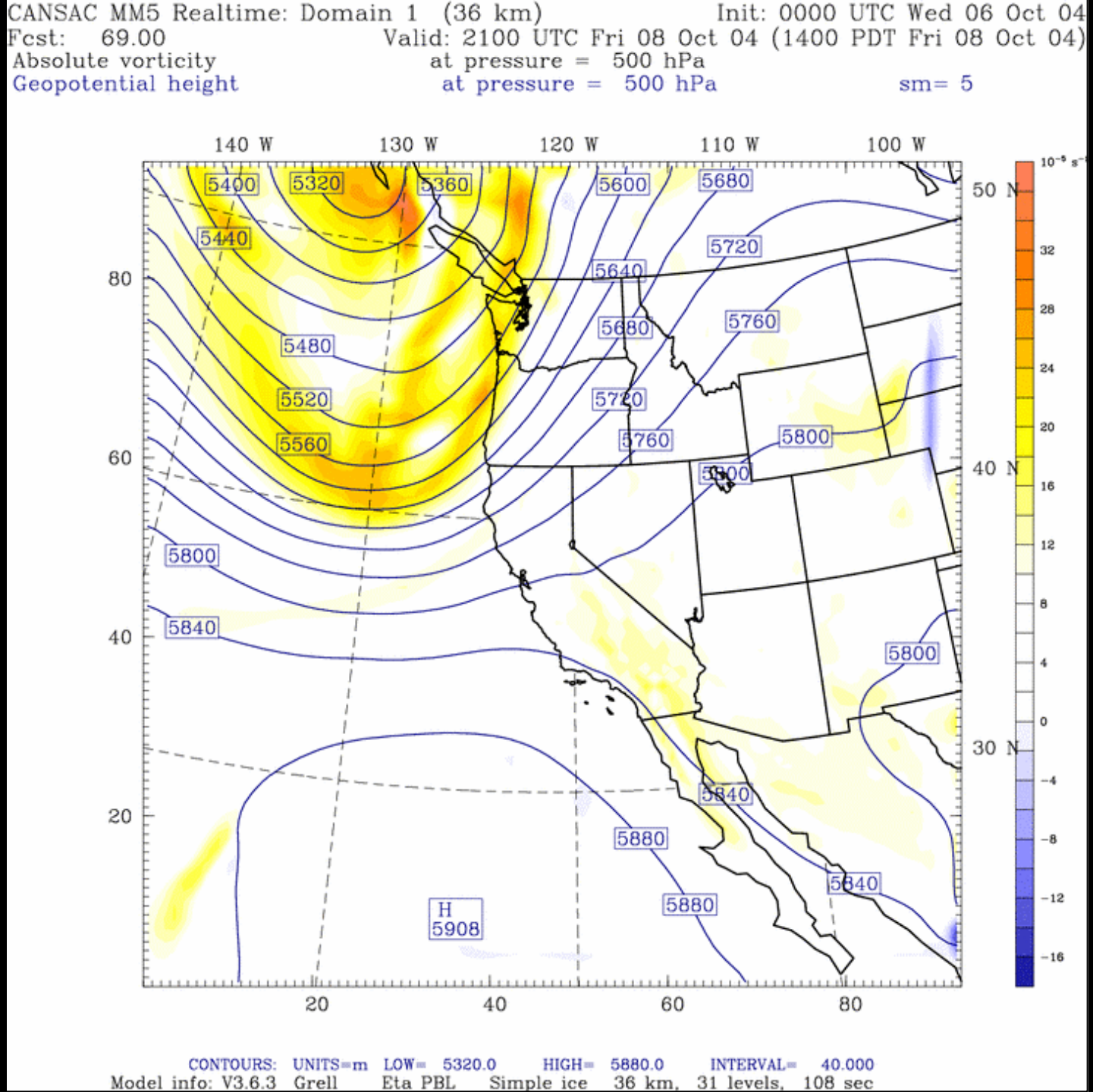
MONTH	ACTIONS OR EVENT
Feb-April	Computing system was purchased, assembled, and tested
May 19	CANSAC dedication and kickoff event was held in Reno
June 1	First products became available at 36 and 12 km resolution
July	First 4-km products available
July to present	Refining and tweaking of products
September	Julide Koracin hired as CANSAC modeler
late in year?	Use 4-km output to initialize diagnostic 1-km res. wind model

CANSAC held a very successful “kickoff” event in Reno this past May. First operational products went online June 1st.

The Products matrix is found at:

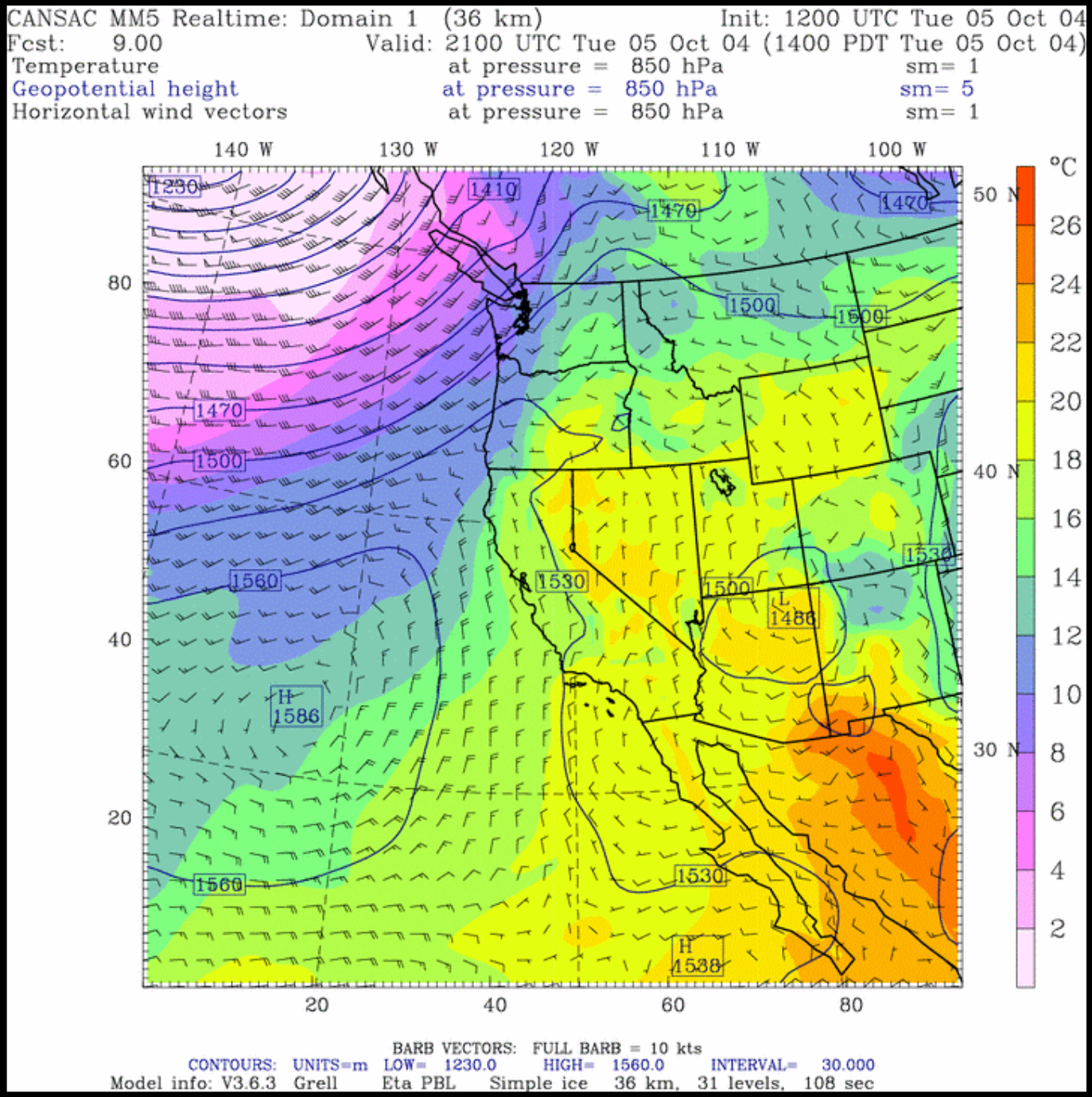
http://www.cefa.dri.edu/COFF/cansac_output.php

The following slides show examples of the types of graphics now being posted twice a day to the CANSAC website.



500 millibar pressure chart (18000 ft- level)

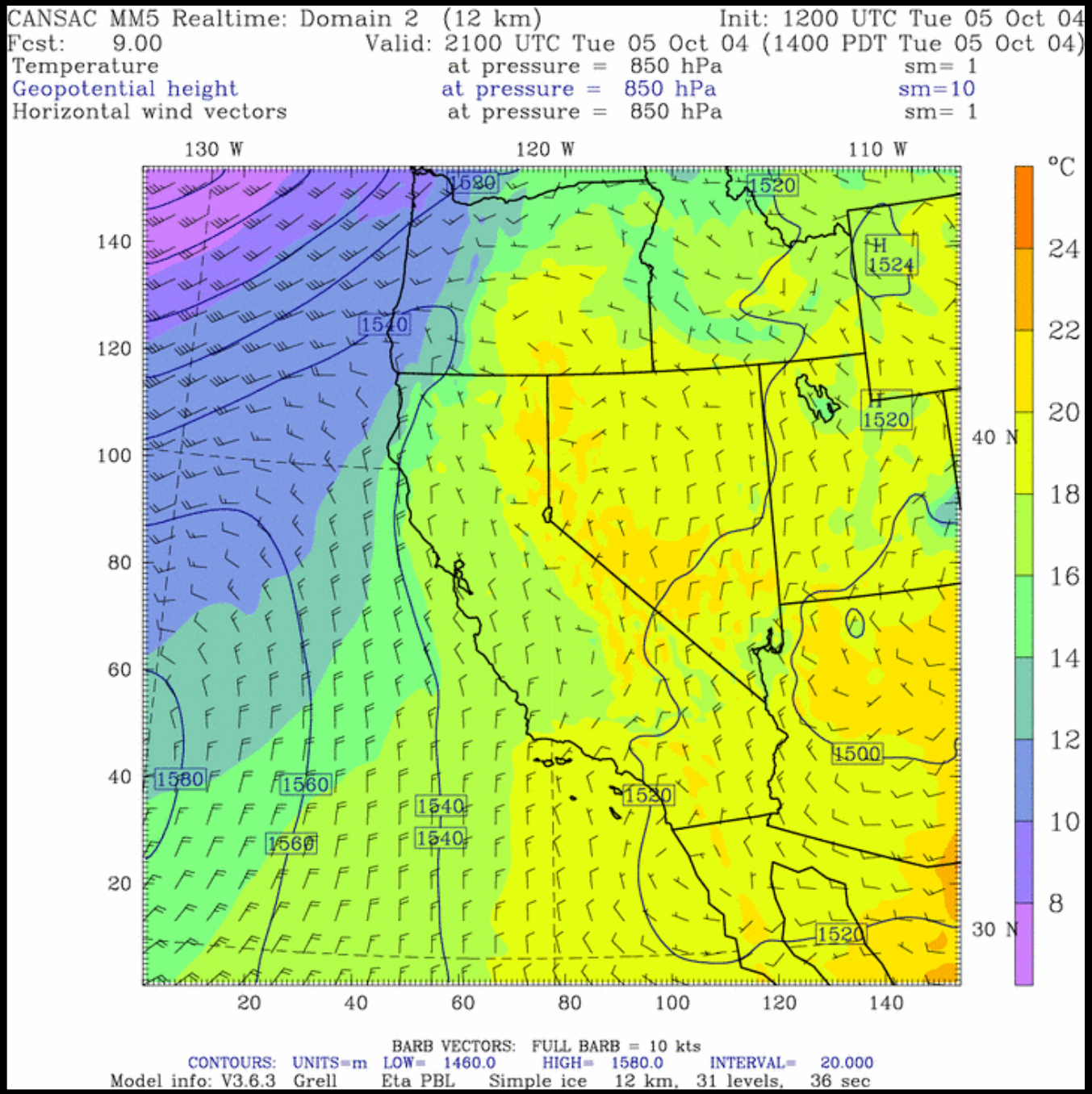
Gold-colored areas have greater counterclock-wise rotation than do the white areas. Blue is a clockwise rotation



These next three graphics show the same weather map at the three different grid spacings used in CANSAC

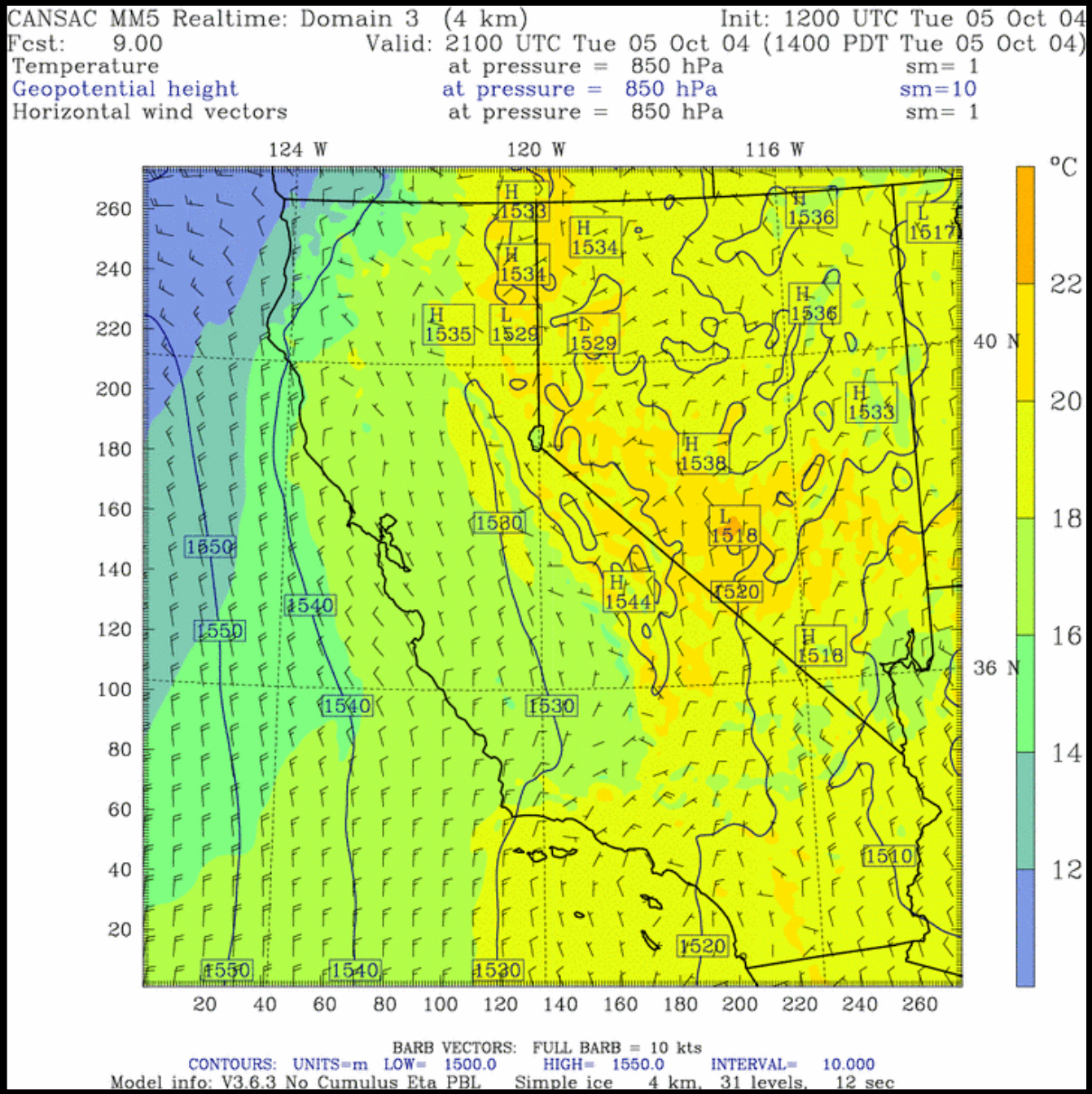
850 mb heights, temps, and winds

from the largest CANSAC grid, 36 km



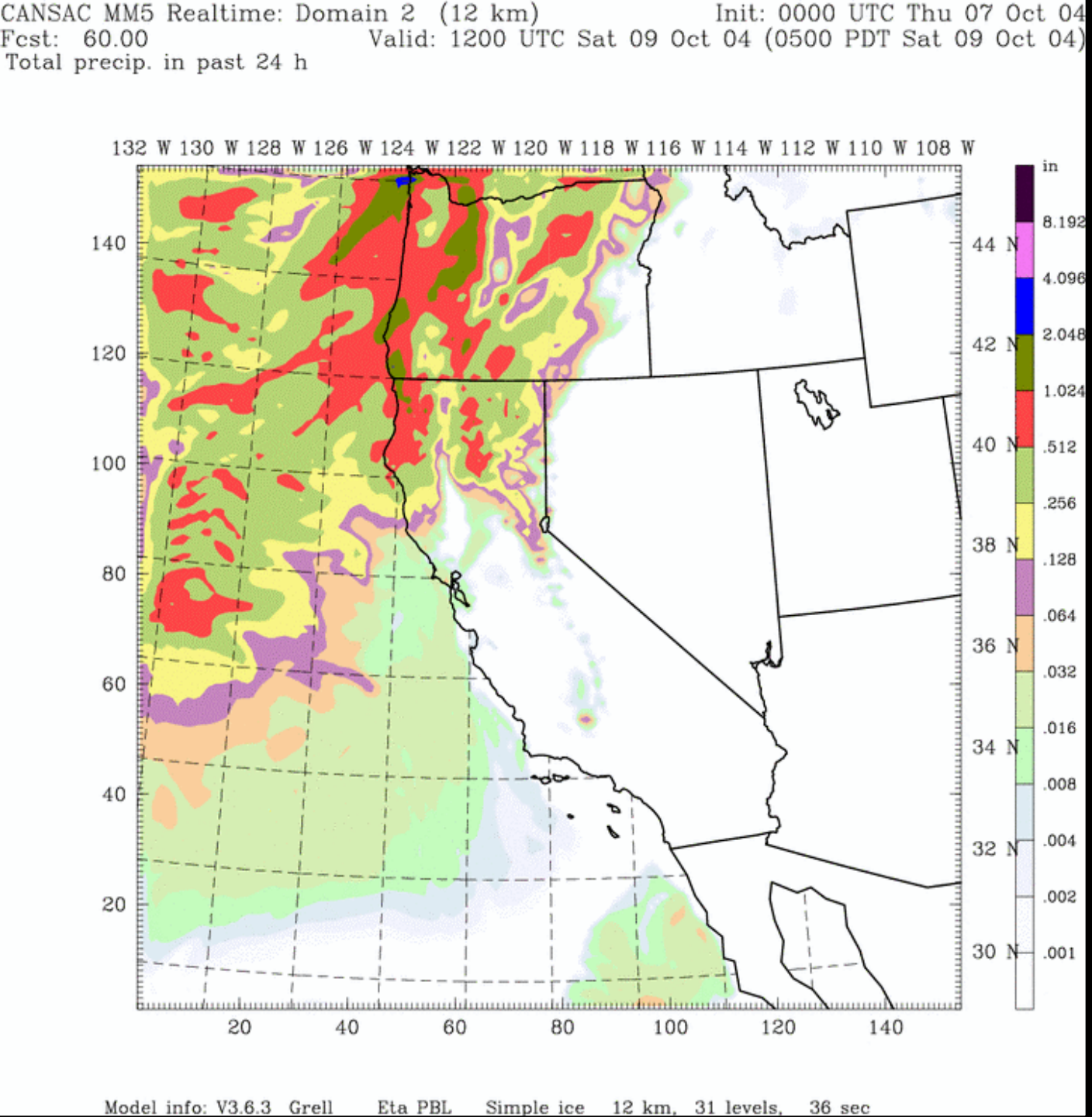
850 mb heights, temps, and winds

from the medium CANSAC grid, 12 km

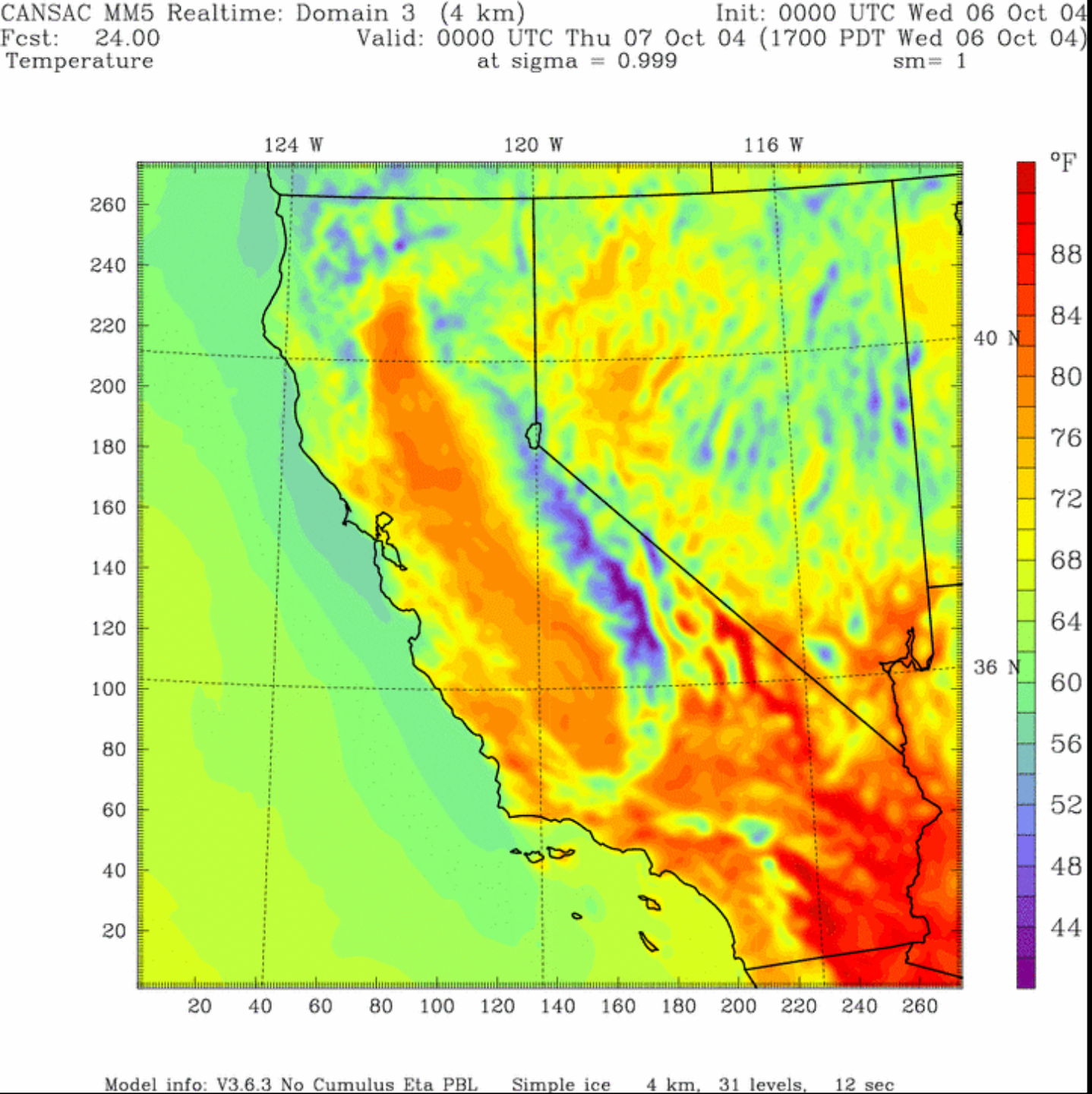


850 mb heights, temps, and winds

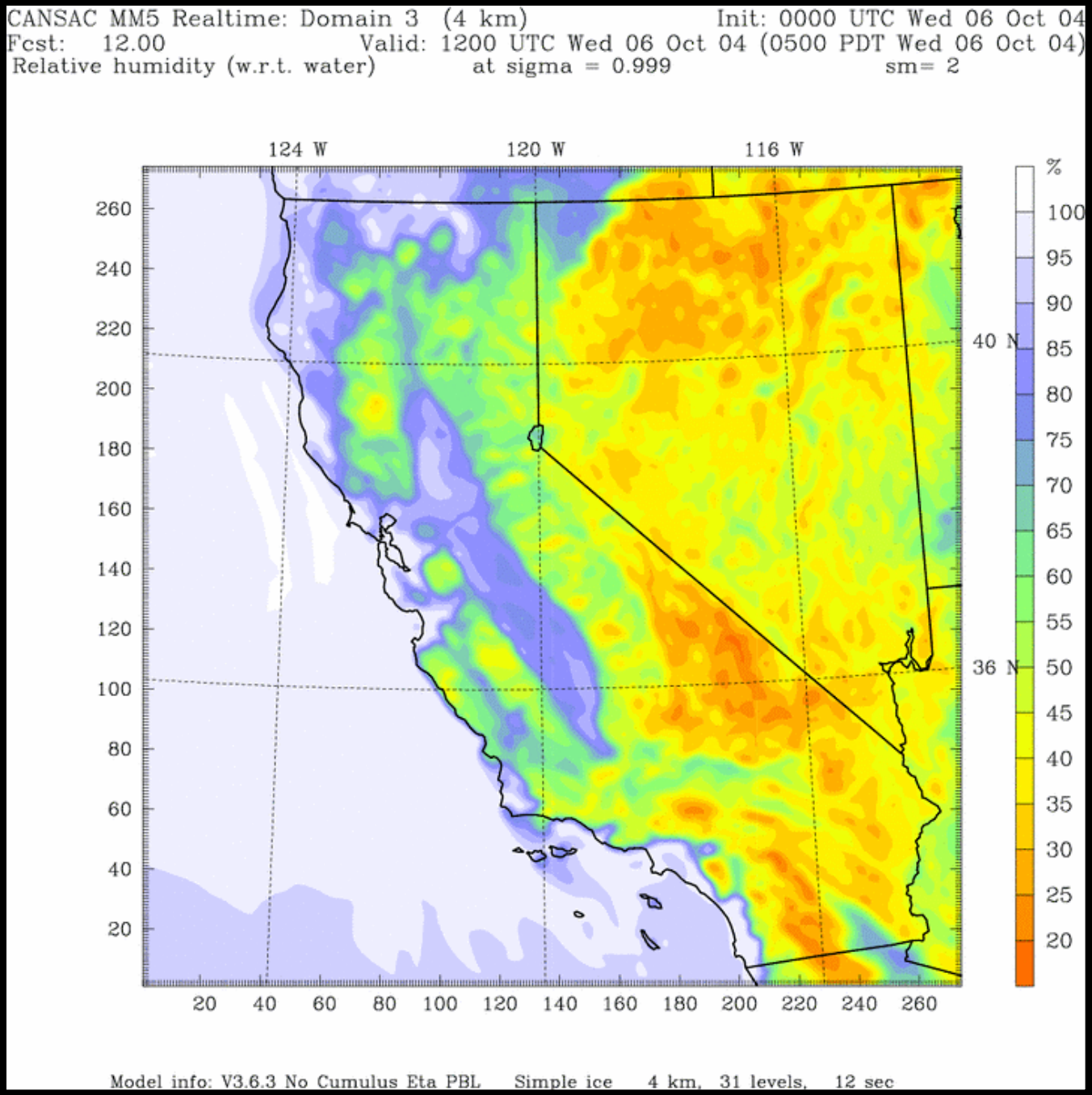
from the smallest CANSAC grid, 4 km



24-hour Precipitation, from 4 am Oct. 8th to 4am Oct. 9th

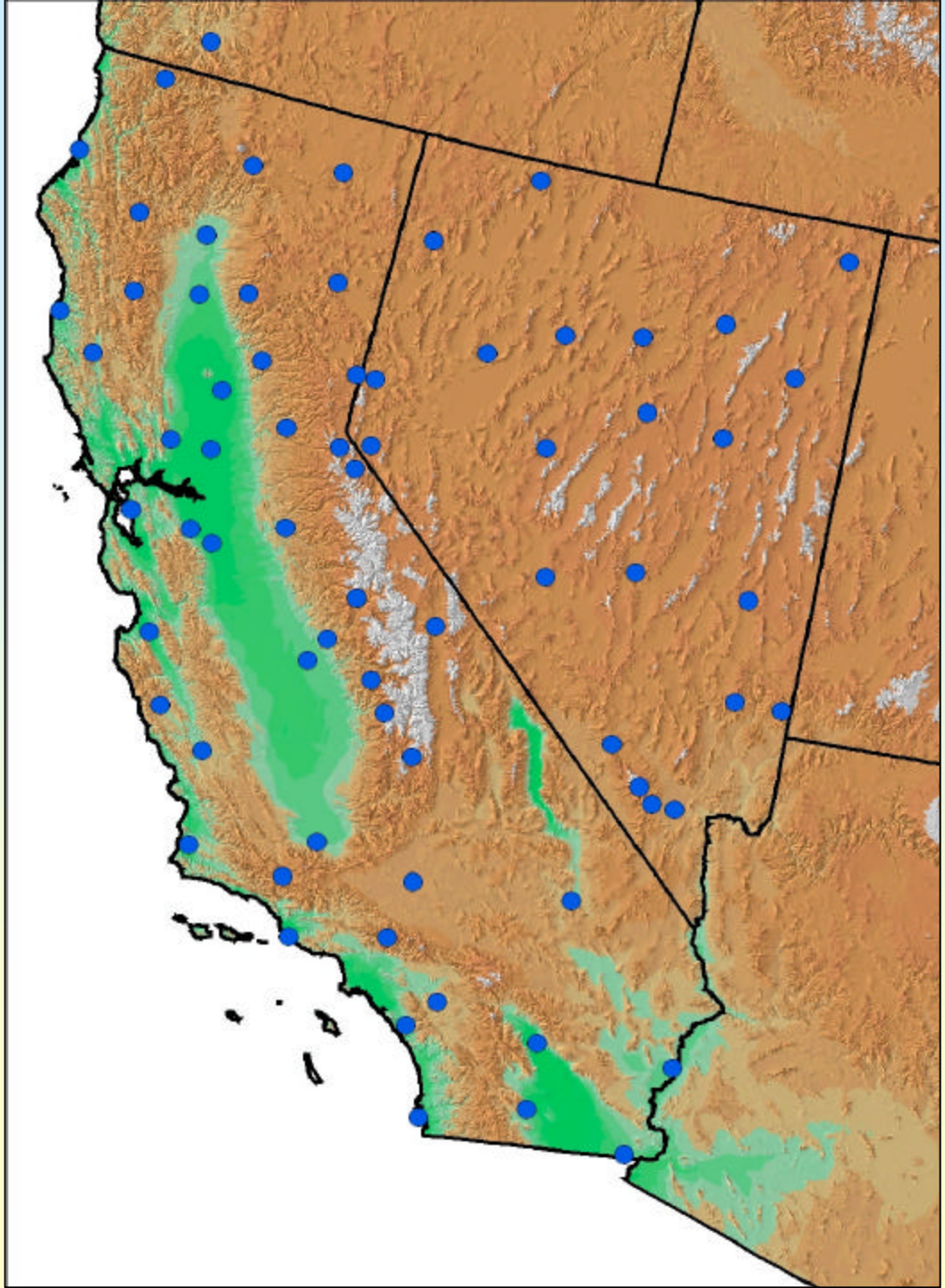


24-hr surface temperature prediction made back in October, valid 5 pm on the 6th



12-hour surface RH prediction

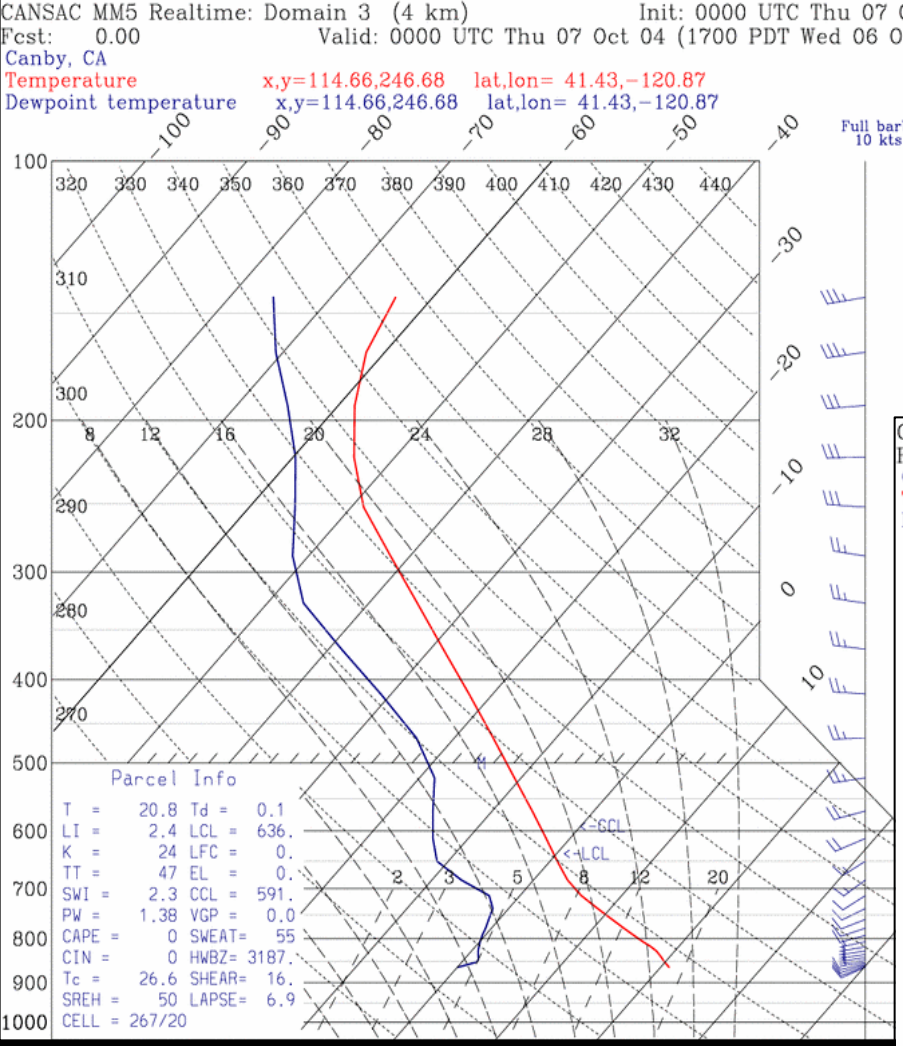
Made 5pm Oct 5th and valid 5am Oct 6th



With this “Sounding” map, putting your cursor over one of the blue dots will tell you the site name.

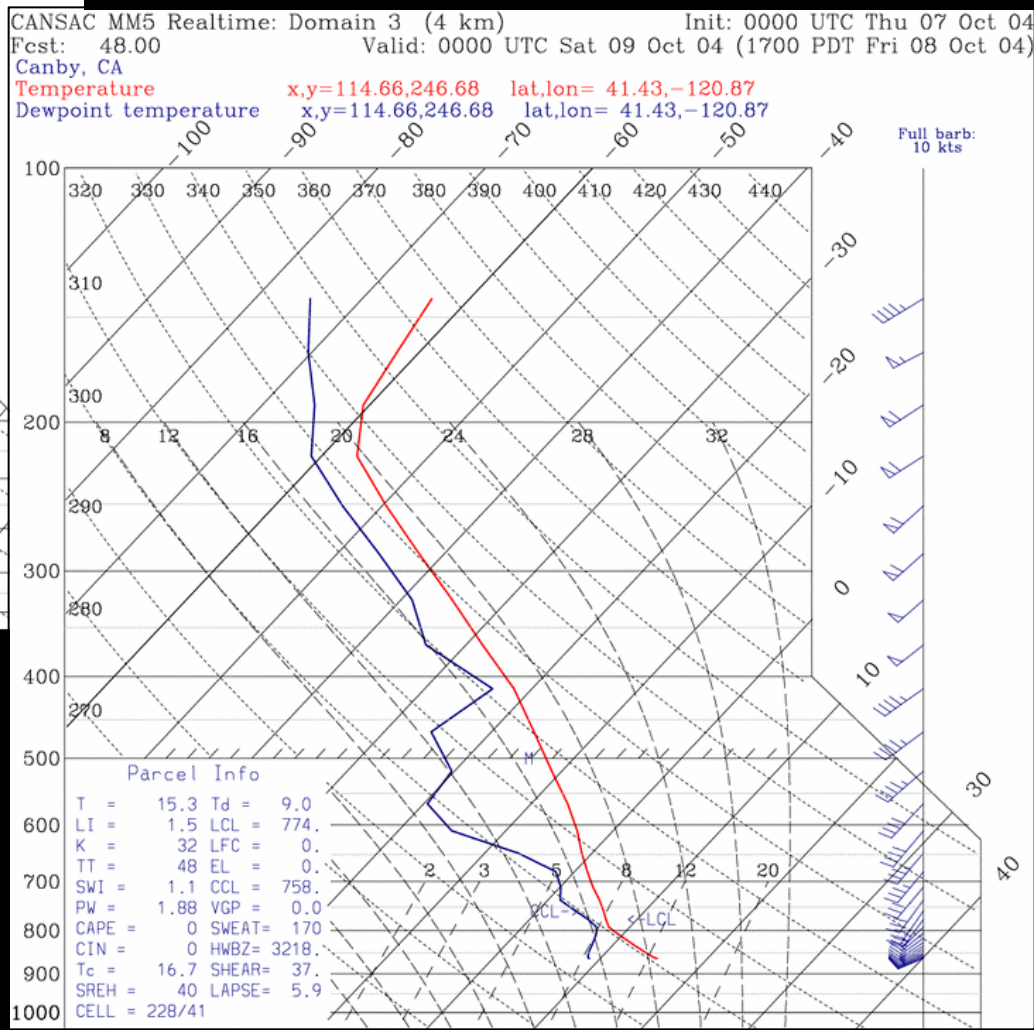
Clicking on it will get you a vertical profile of temp, dewpoint and winds

The soundings are available for each 3 hourly time out thru 48 hours, and can be looped



Above, Canby model sounding for 5 pm Wednesday, 10/6/04

Below, Canby model sounding for 5 pm Friday, 10/8/04



Below is a portion of the text version of a sounding from the Ash Creek site

PRES(hPA)	HGT(M),	T(C)	TD(C)	WDIR (DEG)	WS(M/S)
891.77	1123.60	10.02	2.30	61.73	1.81
889.33	1146.35	10.66	2.69	55.57	1.80
886.41	1173.64	11.43	3.15	48.20	1.81
882.94	1206.39	12.36	3.69	39.69	1.86
878.81	1245.67	13.45	4.32	30.89	1.96
873.90	1292.77	14.40	4.85	27.49	2.10
868.06	1349.23	14.44	4.86	28.69	2.20
861.11	1416.94	14.08	4.65	32.09	2.24
852.83	1498.12	13.64	4.39	36.50	2.27
843.00	1595.40	13.01	4.13	41.35	2.29
831.34	1711.97	12.18	3.82	46.69	2.32
817.54	1851.63	11.26	3.34	54.80	2.25

Future Plans:

- Add more products at 4 km resolution
- Begin using an MM5-based **Ventilation Index** in California Smoke forecasts
- Make CANSAC MM5 output the source of data for our daily Smoke Transport and Stability Forecast
- Drive Blue Sky runs, to be used in conjunction with a Meteorologist's input

Daily Smoke Conference Calls

Conference calls are held daily at 1300 local. These are intended **to facilitate sharing of information, and to discuss smoke issues** relating to prescribed burning or wildland fire use (WFU). The calls are hosted by the Fire Weather Centers at Redding and Riverside.

Participants include:

- California ARB
- FWC Meteorologists
- Air District personnel
- Prescribed burn representatives

If you would like to join a call, at 1300 dial:

1 (877) 874-5440

The passcode is **357238 #**

Once you are on the call, you will generally be asked to identify yourself, so that we know who all the players are for that day. If you need to drop off the call early, that’s not a problem.

Any Questions?