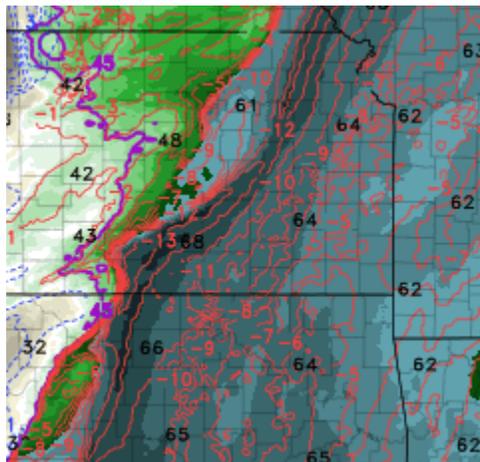

Insiders-Only Briefing on 4/9/17 chase day

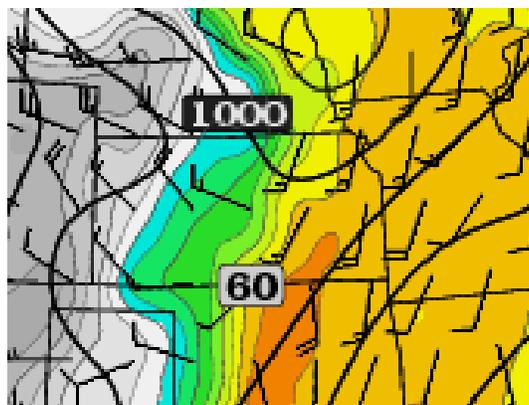
Good evening! As I look at the various weather models for tomorrow, the boom-or-bust nature of the day is really jumping out. Some models are showing decent early-season parameters, but the overall picture has two primary potential storm-killers: moisture and capping.

Moisture

Here is the Forecast dew point temperature for 7pm CDT Sunday from the most aggressive model, the NAM NEST:



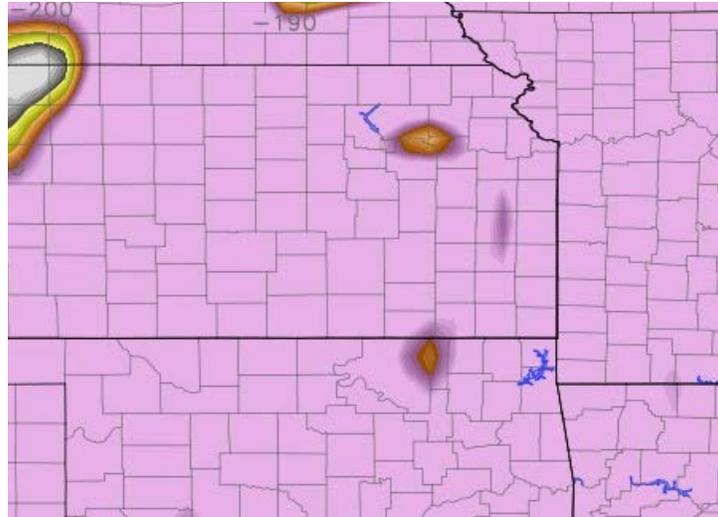
It's hard to see the dark green just southwest of Wichita, but if that pans out we'd see about a 30-square mile area of 67-degree dew points. This time of year, that's probably enough to get it done. Compare to the GFS which puts the dry line further east with dew points ahead only in the low 60's.



Five degrees' difference in the dew point can be the difference between no-severe and severe storms.

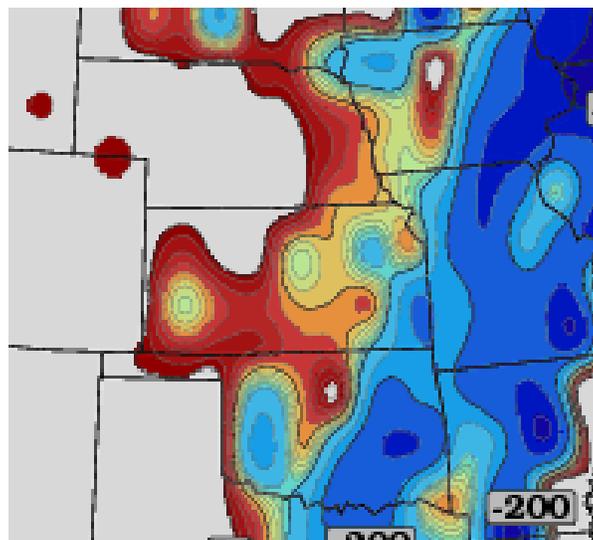
Capping

Capping is warm air aloft on top of an area of cooler air. It stops warm, moist parcels from rising. The models are reasonably consistent with capping, showing it being pretty hard to break. I use both the CINH (Convective Inhibition) and Lid Strength numbers to determine capping.



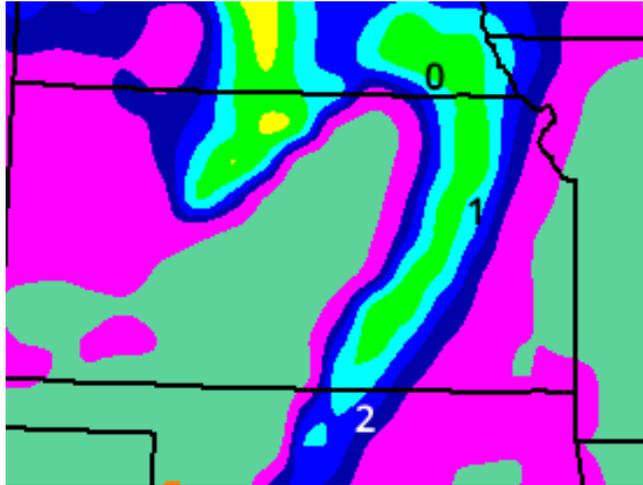
That huge area of pink in the European model represents CINH of -200 or greater. I look for it to be between -25 and -50 with the trend closer to 0 with time. A value of -200 strongly inhibits convection – the development of storms.

Here is the equivalent from the GFS:



It shows a tiny area of 0 CINH north of Kingfisher, OK. In the area I'm watching, just north of the Kansas line, shows values from -20 near Medicine Lodge to near Wellington, then about -40 up through Wichita and Newton with a tiny area of -20 near El Dorado. In my eyes, given other parameters looking right, that is in the "doable" range for getting some storms going.

Lid Strength expresses the temperature difference between the adjacent layers. Here is the lid strength forecast by the NAM for 7pm CDT Sunday:

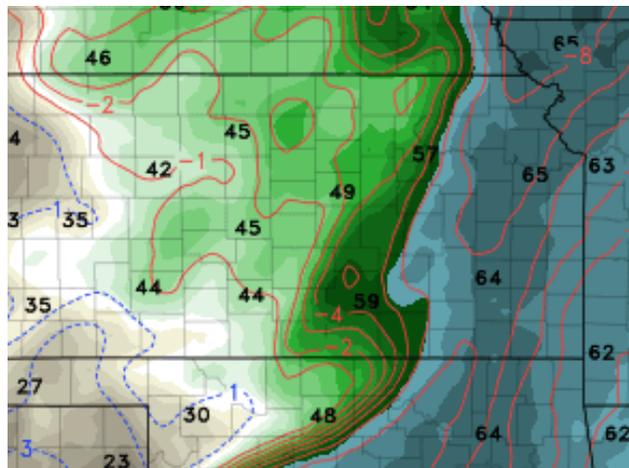


Lid Strength of 0, the greenest color, indicates no capping. 1, the blue-green color, indicates the upper air mass is 1 degree Celsius warmer than the lower one – a weak cap. The blue area labeled 2 is a bit stronger cap. Once you get into the pinks, the cap becomes VERY hard to overcome.

Bottom line: as I've been saying for several days, moisture and capping are the major concerns with this setup. I've taken to saying it more plainly today: there is a high chance for a bust, if what you're looking for is tornadoes.

Some positives

This dew point graphic from the RAP (a short-term model run more frequently, but that only goes out 21 hours) shows the beginnings of something that would tend to give a little bit of "push" toward severe weather.

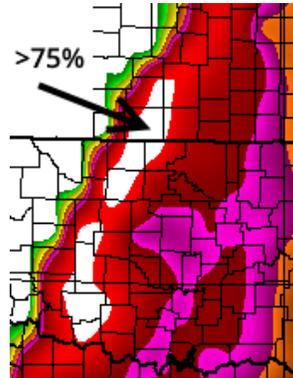


This is 1pm CDT Sunday – notice the kink in the line between blues and greens just east of Wichita? If that continues to develop, it would indicate an area where higher moisture could pool just to the north of an area where the wind at the surface could "back" – shift to have a more easterly component – perhaps becoming southeast.

Backing at the surface can give a boost to severe storm development, as it creates more “spin” in the atmosphere, as winds progress from southeasterly at the surface to westerly way high up. That would indicate an increased chance for supercell storms, and brings in the possibility of a tornado or two.

Composite Indices

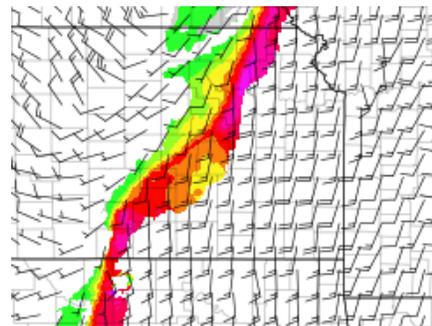
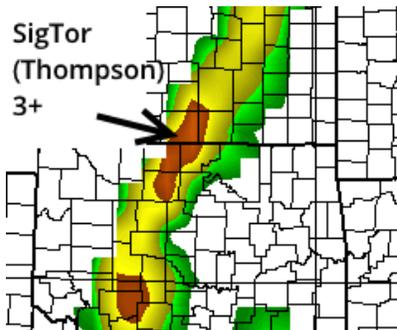
I’ve looked at a lot of other parameters, but I’m going to jump to several of the composite indices I use to get a quick integration of it all. The NAM is presently the model that’s most bullish in storm formation and potential strength. It also has a known bias toward bringing Gulf moisture back faster than reality.



This is the NAM model “Significant Severe” index – showing an area from the Wichita metro to about Enid with a 75% chance that hail larger than 2”, wind greater than 75mph, or any tornado could occur within 25 miles of any point in the area we’re discussing.

On the left is the “Significant Tornado” index based on the NAM. It’s not a percentage-based measurement, but a value from 0 to 10. The value of 3 I’ve highlighted is where I start paying attention to tornado risk.

For comparison, on the right is the same index forecast by the NAM NEST, for 1 hour later (8pm CDT). There is a small, difficult to see area of violet where Sumner, Sedgwick, Kingman, and Harper counties come together. That is the equivalent value on the color scale in use for that image as the 3 is on the left image.



Bottom Line

The newest models started coming in just as I completed this, and I don’t see much change. I expect that IF storms get going, it’ll be around 5pm. Through 7pm, I expect to see some supercell storms from about Wichita southwest. After 7-8pm, I expect a line of storms or storm clusters to move slowly east. I see storm mode to the north of Wichita as being linear for the entire event.