

General comments/suggestions after several briefings

- Be sure to look at the **actual surface observations**: we have already seen some cases in which the model analyses are not very good. **Same goes for soundings**.
- Don't show manual or digitized or text forecasts from the NWS, Weather Channel, etc. You must take the available data and **make your own** forecast, using information that an on-duty forecaster would have (i.e. obs and model forecast grids)!
- Along with this, don't just take frontal positions from someone else's manual chart: verify for yourself. And, just as importantly, when you are locating fronts, **look at θ or θ_v** (or θ_e if you must), *not just the surface pressure field!*
- Always, always, always **show the water vapor loop!** It is the only product that shows the upper air features with hemispheric coverage and temporal continuity.
 1. Remember that the channel is sensitive to water vapor in the ***upper*** troposphere (almost always ***above*** 500 mb... usually well above): it is better for depicting the locations of vorticity and wind maxima than for inferring whether there is/will be precip in the lower troposphere.
 2. Comparing the afternoon's water vapor imagery with the models' forecasts of vorticity can be a good way to see whether the model forecast for the upper tropospheric evolution is on target in the early going.
- When breaking down current and future weather, it is very important to **look for lower tropospheric temperature advection**. When you put up contours for the surface, 850, or 700, don't forget to plot isotherms and discuss the sign and strength of the temperature advection; we know from QG theory that this impacts the upper tropospheric height tendencies as well as vertical velocities. At a minimum, make note of temperature advection on a chart of MSLP and 500 mb height (or better yet 1000-500 mb thickness).
- **Avoid Weather Channel jargon** such as "piece of energy", "weather maker", "a lot of vorticity happening", etc. Use the correct names for phenomena and processes.
- No matter whether it is past, present, or future weather, you should use the "forecast funnel", which means you should **always progress as follows**: 1) start with the largest scales, and start with the heights, winds, and vorticity aloft; this tells the QG story of the pattern's evolution. For past/present, this is also where the WV loop should also be shown. 2) look at the large scale evolution at the surface, 850, and 700: you are looking for low and high placement, evolution of wind directions, sign of temperature advection, and locations of high and low humidity. 3) show the progression of the fields that rely on the processes in parts 1 & 2: precipitation/cloudiness (for past/present, this is where vis/IR/radar should also be shown), CAPE/instability, vertical shear, etc. It's usually best to show plan view maps of these fields (to show the spatial arrangement) before you get to the local soundings (or forecast soundings). 4) ***now (finally)***, begin to telescope in on your forecast areas of interest, and review any smaller scale features that may be important. This is the time when local soundings (or forecast soundings) should be considered, as well as other relevant local mesoscale details (flow

on/off bodies of water, CAD, orography, etc.) Within each of the above steps, the progressions should be forward in time.

- The above is a lot to cover, so remember: you don't need to show numerous versions of the same thing. **Be concise.** We've had a few examples in which people showed the 500 mb height forecast, then the 500 mb heights and MSLPs, then the 500 mb winds, then the 500 mb vorticity. Consolidate so that you don't repeat yourself, and then you will have time to go into the interesting details at other levels and in other fields.
- A top notch briefing tells a story. You don't have to show every product every day. For example, if there is no CAPE, it's not really worth going through a full convective workup. Instead, think in terms of the key forecast problems that you want to tell the class about. Organize your thoughts in a **narrative** fashion, so that the class has exactly the information that they need in order to understand these forecast problems in terms of a) relevant past weather, b) relevant current conditions, and c) relevant model forecast fields.
- A word about why you selected one model over another is always a good idea. At the very least, you should **mention how the model runs differ** from one another.
- If you make a claim, you should **show evidence** to back it up. "I just feel like they're not gonna get that much rain" does *not* cut it!
- The QG theory for the four quadrant jet streak model *is based on* vorticity advection. Vorticity advection and jet dynamics are not distinct processes. Show the 300 mb jet if you wish, but realize that much of this information is redundant with the 500 mb heights and vorticity. Also, remember that it is not the location of the vorticity maximum or its magnitude that matters, it is **the gradient in vorticity** and the associated advection that counts!
- If for some reason you can't get the data you want from the site you want (or from GARP or whatever), **don't give up**... go and find it somewhere else. There are numerous good sites for online observations and model output.
- If you find yourself merely stating "what is where" ("the surface low is here, the front is here, etc.") take a step back and try a different approach. How are all of the features related? What is the large-scale "story" that links it all together? This should get you onto the track of **interpretation instead of reporting.**
- For whatever reason, the past/present discussion has been weaker than the forecast discussion so far. Remember to **set the scene** in terms of the processes that will be important to the forecast. Also, please show us what happens between the time of the model's initialization and the start of the forecast period. **Don't** just start with the 18h forecast valid at 06Z!
- I may have cautioned you too strongly about this at the outset (if so apologies), but... it *is* important to **discuss what happened** at the previous forecast site. The key is to make your comments substantial. *Good:* "They haven't received much precipitation yet, and it appears that the reason is..." *Not good:* "Yesterday they said 48 and it got up to 47, which is pretty close." The point is to learn about whatever things we may have misunderstood at the time of the previous briefing.