SAMPLE "FORECAST BUST SUMMARY"
Forecast for Indianapolis, IN
April 15, 2013

Forecast
Period 1: Low 42, POP 8, PCAT 3
Period 2: High 55, POP 4, PCAT 1
Period 3: Low 36, POP 0, PCAT 0
Period 4: High 70, POP 0, PCAT 0

Verification
Period 1: Low 40, 0.23" (PCAT 3)
Period 2: High 51, 0.18" (PCAT 3)
Period 3: Low 36, no precip
Period 4: High 65, no precip

For my forecast bust summary, I will focus on period 2, since that is where I gained most of my error points. I made this forecast thinking that the sky cover in most of Indiana would remain clear throughout the day. A relatively high-amplitude trough had moved over the area after the strong cold front moved through Indianapolis on the morning of April 15. With the trough axis moving over Indiana, I figured that a region most favorable for ascent and precipitation would be well to the east of Indiana. This is because upper divergence occurs downstream of a trough axis. When I made the assumption that the skies would be clear in Indiana due to large-scale subsidence, I thought the temperatures would warm up rapidly after sunrise. I also thought that a strong surface wind would promote mixing in the boundary layer, so I forecast slightly higher than the GFS and NAM MOS, and went with a high of 55.

Unfortunately, the day unfolded very differently from what I expected. Skies were clear in the morning, but by around 16Z (11 AM in Indianapolis), scattered cumulus clouds quickly developed over Illinois, Indiana, Ohio and Michigan. I realize now that this was due to the fact that even though the favored region of upper divergence (downstream of the trough axis) had moved well east of Indiana, the trough axis was right overhead. This allowed very cold air aloft to move over Indiana, which resulted in a fairly unstable atmosphere in Indiana after sunrise. Immediately, then, instability cumulus clouds formed and numerous thundershowers developed across Indiana as the day progressed. This kept the high temperature much lower than expected, and hurt my POP/PCAT forecast.