

Aviation Post Mortem for the Overnight and Morning of August 12, 2008 by Michael Koch

Synoptic Setting:

During the overnight of August 12, 2008, the surface pattern revealed a high pressure ridge from northern Michigan to western West Virginia with a frontal system across the Plains and a very weak surface pressure gradient across the lower Great Lakes and Ohio Valley. Meanwhile... at 12z August 12...there was a weak upper level shortwave across southern Illinois undercutting a weak upper ridge across southern Wisconsin. Meanwhile...The 08z 11-3.9 micron satellite loop (Figure 1) and surface observations (Figure 2) were indicating a thick cirrus deck across Illinois and southwest Indiana that had thinned some overnight across central Indiana especially near a corridor from Terre Haute to Bloomington. IFR conditions in fog were already taking place by 08z at Terre Haute and 10z at Bloomington. Model (Figure 6) and ACARS soundings were showing a shallow inversion from the surface to 950 mb at Bloomington at 12z and were showing dry air above the inversion but light winds and some moisture below the inversion with a calm wind noted in the surface observations. Finally...no rainfall was recorded for any of the sites on August 11, 2008 or August 12, 2008, so the atmosphere was not preconditioned for fog or stratus. The late afternoon foggy program (Figure 7) was revealing a crossover value of 1 at IND...while the stability index was 5.0 which strongly favored fog over stratus if either was to develop. Dew points during the warmest part of the day were 55 except at Terre Haute where it was 56. CCF forecasts only had overnight lows at the terminals as low as the afternoon dew point.

Model Forecasts and MOS:

The GFS and NAM were pretty consistent in showing only a weak inversion at 12z. The models had the inversion further weakening by 15z. They also both favored a few hours of MVFR conditions prior to 12 August 12 at all stations but Lafayette and also both brought in a lot of high level moisture overnight and during the morning of August 12.

TAF Forecasts:

18z August 11 and 00z August 12 TAFs had MVFR fog from 09z-12z for all but IND. However, with cirrus was increasing during the evening. The 06z TAFs held the fog out all together. However, by 06z, breaks in the cirrus overcast deck were already opening up near a Terre Haute to Bloomington corridor and IFR conditions developed by 08z at Terre Haute and 10z at Bloomington. A look at the hourly roundups for the late evening of August 11, showed dew point depressions at Terre Haute and Bloomington getting markedly lower than the 18 degrees at 8 pm EDT (Figures 4 and 5). Lafayette and Indianapolis never fell below 6 statute miles as the cirrus deck held long enough there. Finally...by 11z

(Figure 3) thicker cirrus overspread Terre Haute and Bloomington which put an abrupt end to the fog.

Results:

LAF:

The cirrus deck remained thick enough over Lafayette to keep fog from forming.

IND:

The cirrus deck remained thick enough over Indianapolis to keep fog from forming.

TAFs:

IFR conditions were not forecasted in the TAFs possibly due to increasing and fairly thick cirrus hinted at by the models and seen on the Satellite loop during the evening of August 11. Also, model soundings only showed a modest amount of moisture below an inversion and a crossover value greater than 0. However...the thinning cirrus perhaps was not diagnosed well enough by the overnight shift or maybe the WRKTAFs were not looked over enough 1 prior to sending out the 06z TAFs. Also, the quickly lowering dew point depressions at Terre Haute and Bloomington appeared to be not taken into account.

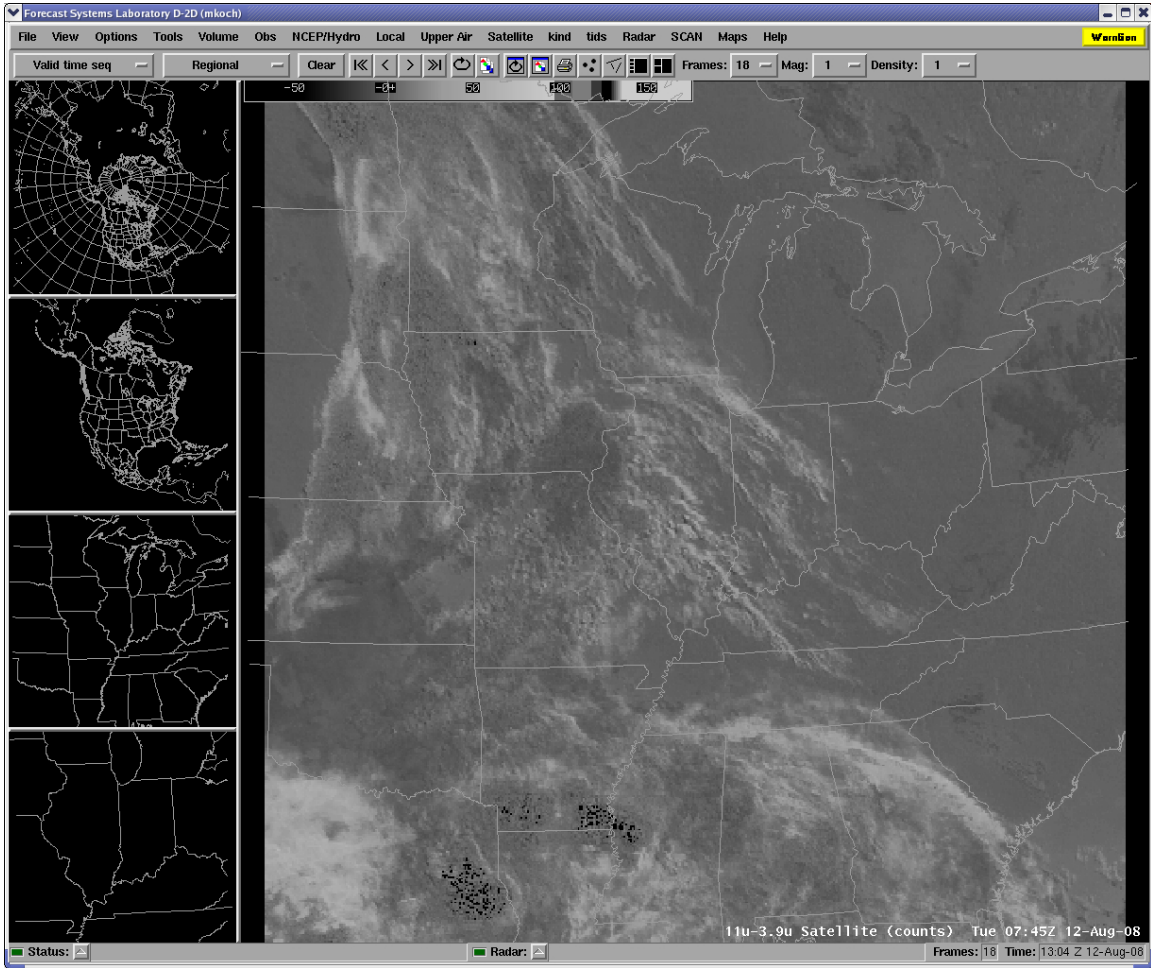


Figure 1. 0745Z 8/12/08 11-3.9 Micron Satellite Picture

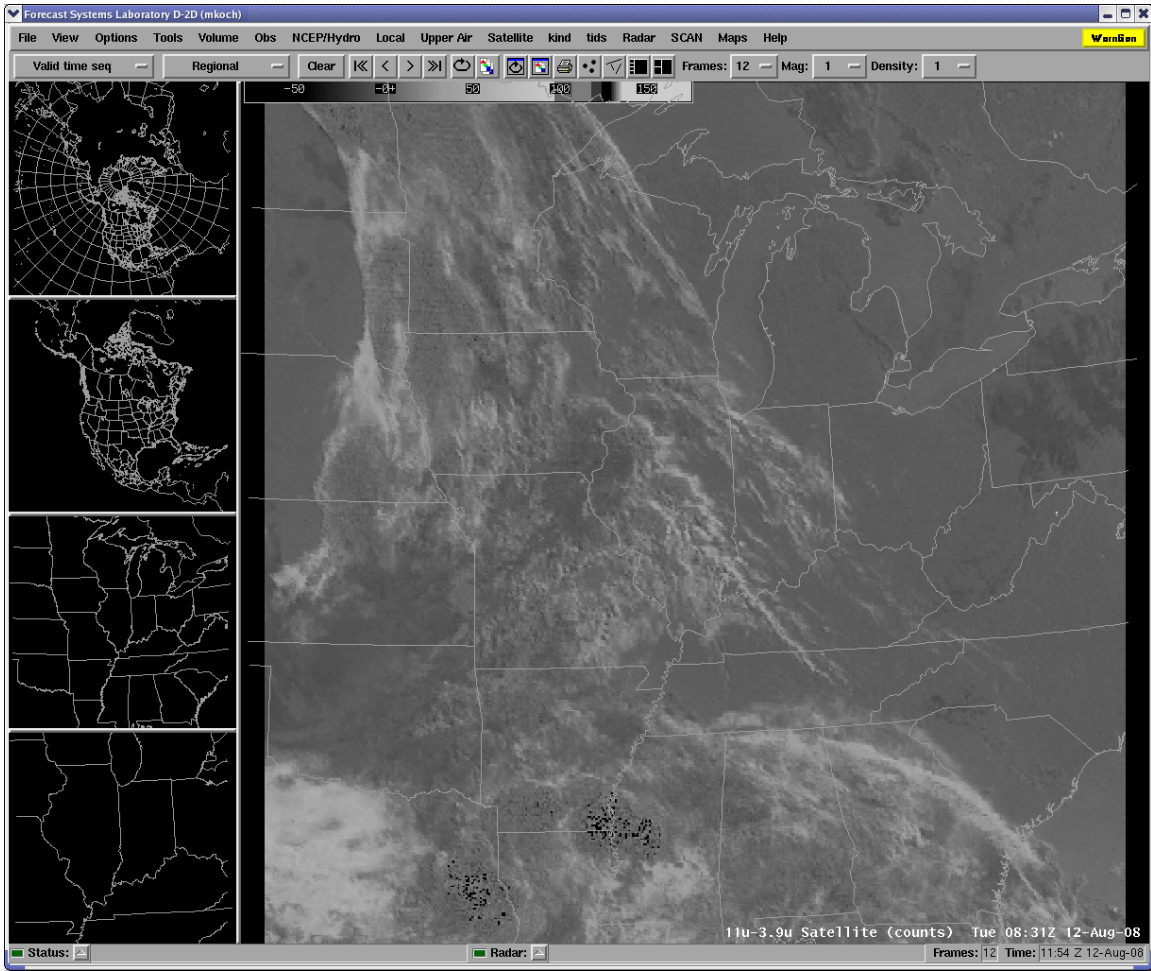


Figure 2. 0831Z 8/12/08 11-3.9 Micron Satellite Picture

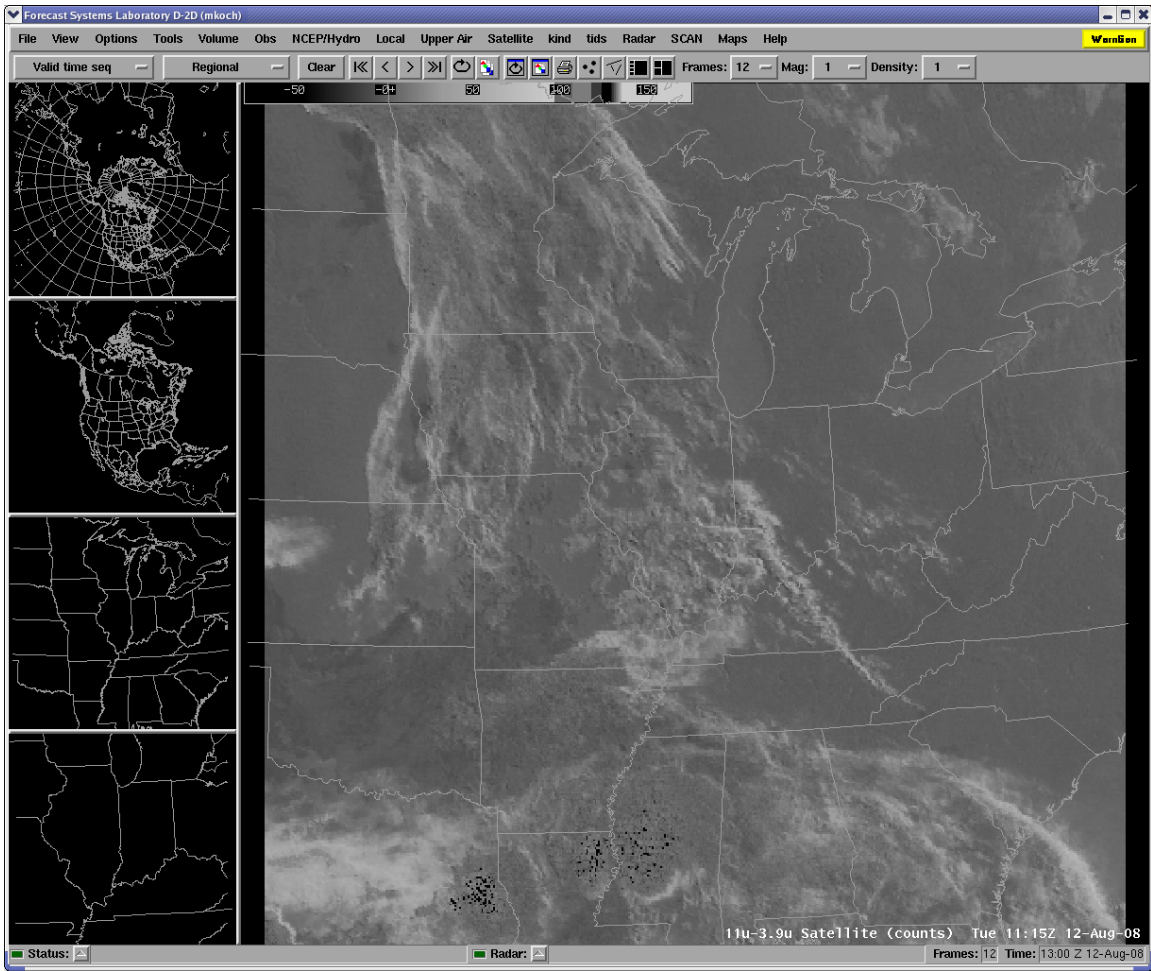


Figure 3. 1115Z 08/12/08 11-3.9 Micron Satellite Picture

TERRE HAUTE	CLEAR	73	57	57	NE7	29.97F
BLOOMINGTON	CLEAR	73	55	53	N5	29.96F

Figure 4. 02Z August 12, 2008 Hourly Weather

TERRE HAUTE	CLEAR	60	56	86	CALM	29.97S
BLOOMINGTON	CLEAR	56	55	97	CALM	29.96F

Figure 5. 05Z August 12, 2008 Hourly Weather

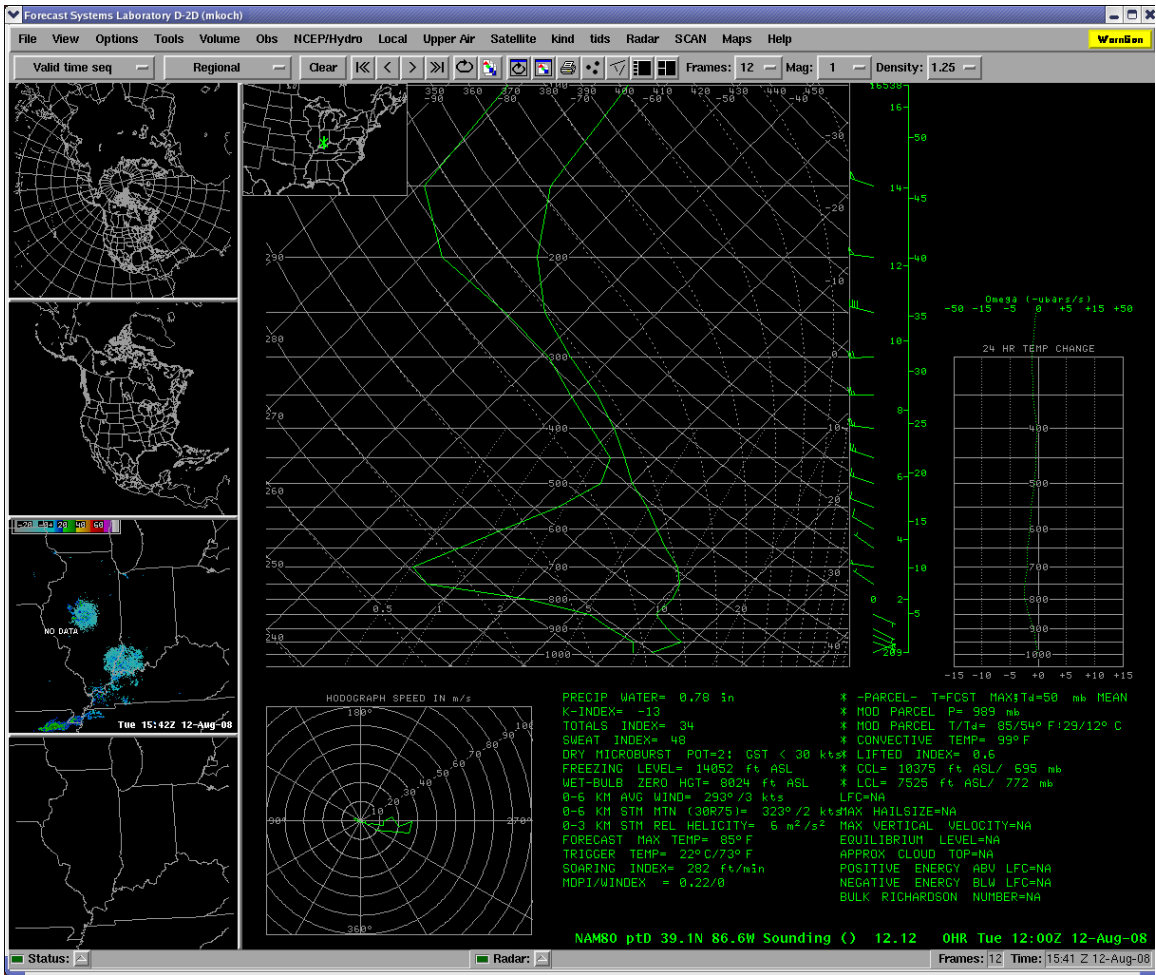


Figure 6. 12Z August 12, 2008 NAM BMG Sounding



Figure 7. The Foggy Program on AWIPS run 615 pm EDT August 11, 2008