

IFR and ICE in Indianapolis

23-24DEC2008

By Dan McCarthy

Overview

IFR and MVFR conditions was the rule across central Indiana the evening of 23DEC08 through the early morning hours of 24DEC08. Along with the low ceilings came –FZRA BR and RA BR reports. Although temperatures hovered around 32 to 33 degrees F, icy conditions continued due to the cold ground and underlying ice. During the evening shift, collaboration was conducted with the ZID CWSU as well as the IND Tower on the low ceilings.

Synoptic Setup

Low pressure was located over OK at 24/04Z with a warm front that extended eastward across southern AR, then along the KY and TN border (Fig. 1). Associated with the

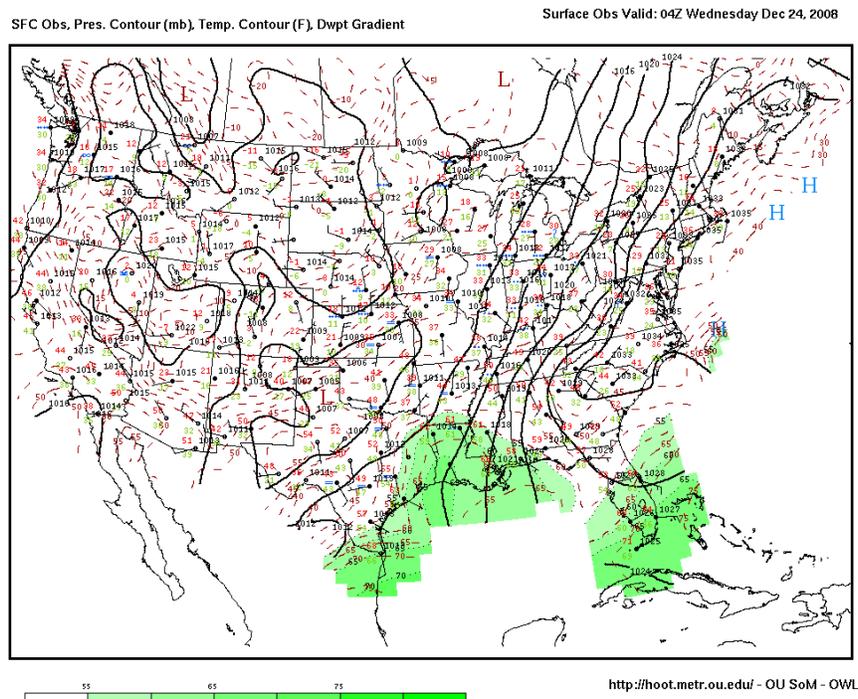


Figure 1: Surface map for 24DEC08 at 04Z.

strong southerly flow was a 70 kt low level jet across central AR that extended northeast into central IN creating a strong low level inversion. Figure 2 shows the 03Z RUC sounding for Indianapolis indicating the strong warm air that was advected from AR over the cooler boundary layer over central IN.

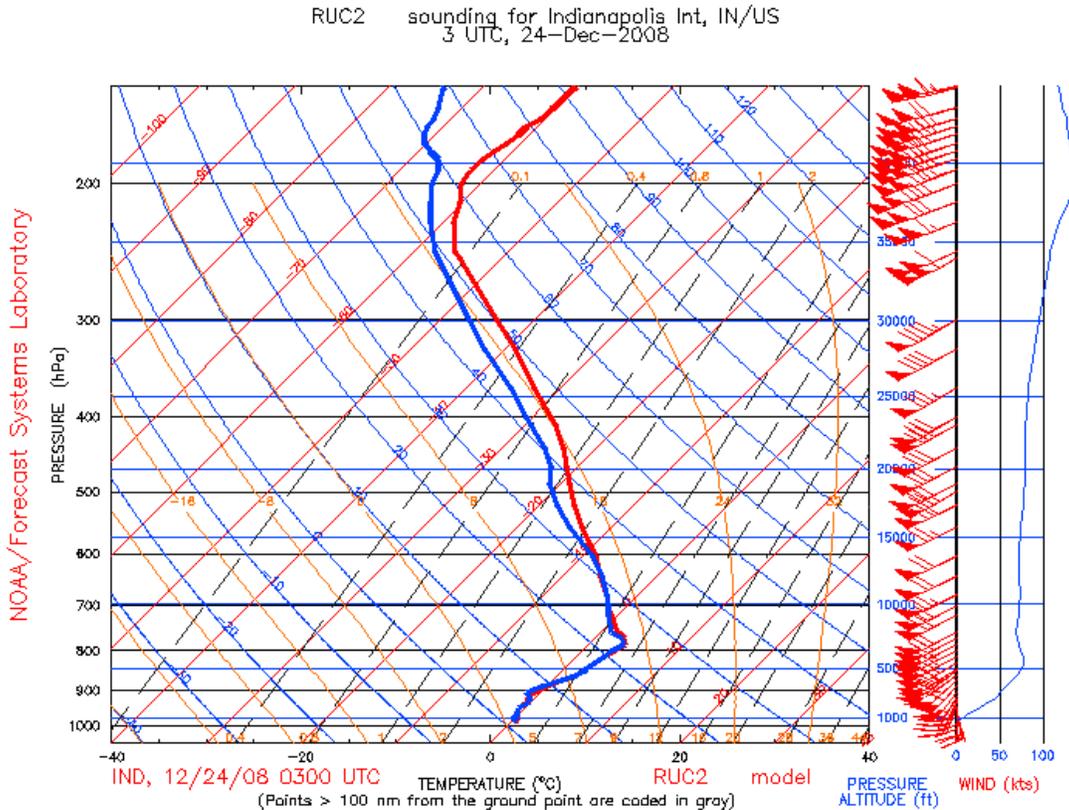


Figure 2: RUC sounding for IND valid 24DEC08 at 03Z.

In addition to the thermal inversion, winds within the 50mb layer above 900mb increased as much as 20 kt limiting decoupling mixing at the surface. Thus, ceiling og 500 to 1500 ft AGL were prevalent during the time period.

MOS Guidance

The GFS MOS trended to be too warm with its forecast of warmer temperatures across IND. Initially, the prog initialized with a temperature/dew point of 32/28, when in actuality it was 34/28. Apparently, the model does not take into account the evaporative

cooling that was taking place (Fig. 2) which held temperatures around 32 to 33 degrees for several hours into the model run. This also kept dew point depressions from increasing, keeping them within a 1 to 2 degrees aiding in the continued IFR conditions due to low ceilings and fog. Observations during the evening shift would vary from RA BR to an occasional +RA BR with visibilities between 2 to 4 miles.

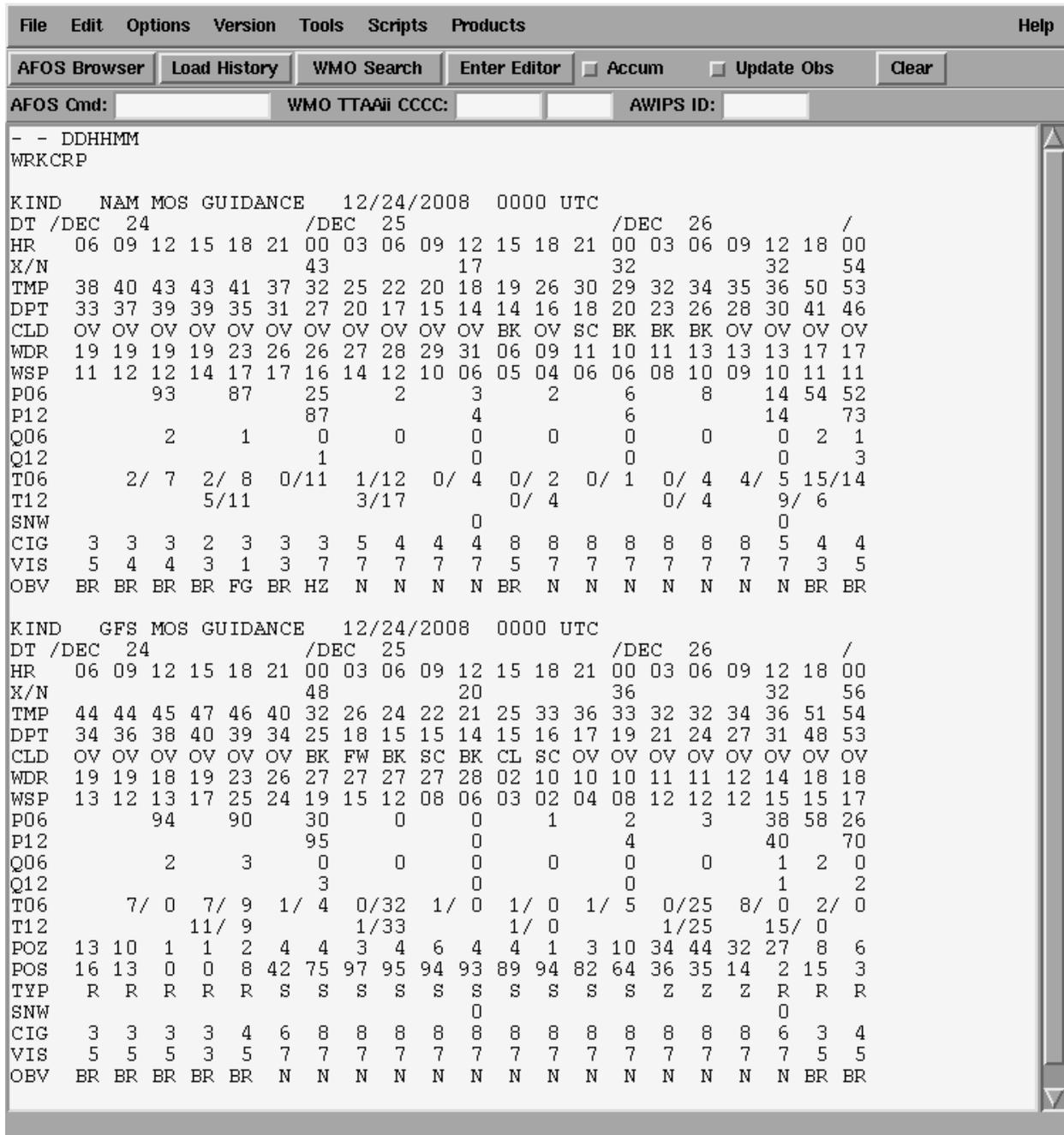


Figure 3: GFS MOS guidance initialized for 24DEC08 at 00Z.

TAF Issuance

The 00Z TAF issuance for IND was issued as follows:

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000
FTUS43 KIND 240000 AAA
TAFIND
TAF AMD
KIND 240053Z 2401/2506 17012G20KT P6SM -RA OVC025 WS020/20060KT
    FM240300 18013KT 3SM -RA BR BKN006 OVC015 WS020/20060KT
    FM241400 20011KT 1 1/2SM -RA BR OVC004
    FM241900 27016G24KT P6SM OVC015
    FM242200 27012G25KT P6SM SCT015 OVC040
    FM250200 27012G20KT P6SM SCT040=
```

The problem still existed that calls were coming in on icing condition on the roads. What about the airport? As long as the surface was kept dry, there was no problem. But as stated, as long as reports of RA/+RA were occurring; icing operations still had to exist at the airport. Two hours later, an amendment was sent:

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000
FTUS43 KIND 240200 AAB
TAFIND
TAF AMD
KIND 240213Z 2402/2506 19005KT 3SM -RA BR SCT005 BKN010 OVC017
    TEMPO 2403/2407 2SM RA
    FM241000 20012KT 2SM -RA BR BKN005 OVC015
    FM241400 20015KT 1 1/2SM -RA BR OVC004
    FM241900 27016G24KT P6SM OVC015
    FM242200 27012G25KT P6SM SCT015 OVC040
    FM250200 27012G20KT P6SM SCT040=
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Summary

IFR and icing conditions occurred in IND the evening of 23DEC08 through the early hours of 24DEC08. These conditions occurred as a warm front extended along the KY/TN border with a 60-70 kt jet at 850 mb that extended from AR northeast over central IN. This was evident on the IND 24DEC08 03Z RUC sounding where there was a prominent warm intrusion above 900 mb which defined a well established low level inversion over the area. The moist profile indicated also that evaporative cooling continued keeping the boundary layer around or just above freezing with occasional RA.