

DENSE FOG EVENT

SEPTEMBER 29TH - 30TH 2008

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From the late evening of September 29th until just before sunrise on the 30th a prolonged period of dense fog occurred throughout Central Indiana. All TAF locations experienced LIFR conditions from 5 to 7 hours. These conditions were not well forecasted by the guidance or forecasters.

Conditions...

On the 29th a Cold Front moved through Indiana. The Front produced areas of around two tenths of inch of rain. High Pressure then moved in. Dew Points remained high through 12z on the 30th. Dew Point Depressions only 1 degree occurred during the morning hours. During the evening only clear skies or AC and CI remained with winds becoming calm. This was a case of Radiation Fog

Guidance forecasted categories for the 00z run...

(Ceiling/Visibilities)

	IND				Lowest Observed
	06z	09z	12z	15z	
					1/1
GFS	7/7	2/6	3/6	5/7	LIFR for 5 hours
NGM	6/5	5/5	4/5	4/5	
ETA	7/7	8/7	6/6	5/7	

Lowest forecasted TAF category

00z TAF 6/6 06z TAF 6/5

BMG

Lowest Observed

	06z	09z	12z	15z	1/2
GFS	7/5	3/5	3/2	6/5	LIFR for 7 hours
ETA	8/7	8/7	1/5	8/7	

Lowest forecasted TAF category

00z TAF 5/7 06z TAF 3/7

HUF

Lowest Observed

GFS	8/5	6/3	4/2	6/5	1/1
NGM	7/5	7/5	7/5	7/5	LIFR for 6 hours
ETA	8/5	8/2	8/2	8/6	

Lowest forecasted TAF category

00z TAF 6/7 06z TAF 3/8

	LAF				Lowest Observed
GFS	8/6	3/5	3/5	5/7	1/1
ETA ...NGM	N/A				LIFR for 5 hours
Lowest forecasted TAF category					
00z TAF	8/7		06z TAF	3/2	

Kind of Interesting...

For IND and BMG the 18z GFS run for ceilings did better than the 00z. They were only off by 1 category! The forecast for visibilities for IND were off by 6 categories and 2 categories for HUF.

Lowest Aviation Flight Category Forecasted

	IND	BMG	HUF	LAF
GFS	LIFR/VFR	MVFR/LIFR	MVFR/LIFR	IFR/MVFR
NGM	MVFR/MVFR		VFR/MVFR	
ETA	MVFR/VFR	LIFR/MVFR	VFR/LIFR	

Guidance to actual conditions

From the limited data available for this study the NGM was the worst model. It only lowered conditions to MVFR levels. The GFS/ETA forecasted LIFR conditions of some type. There was no consistency with any model forecasting both LIFR ceilings and visibilities correctly. It is kind of interesting that LAF GFS (only guidance available) only forecasted IFR conditions.

It would be unusual for a station, such as IND, to have less than 500 foot ceilings and unrestricted visibilities. Once LIFR conditions did develop they remained in this category for 5 to 7 hours.

Improvements to forecast

Some rain the previous day along with a forecast of light winds and clear skies was a good set up for radiation fog formation. With the GFS and ETA forecasting LIFR conditions of some type a forecast of at least IFR conditions would be appropriate.

Effects on Aviation

A forecast of at least IFR conditions would prevent VFR rated pilots from flying while possibly not over forecasting LIFR conditions. Forecasting LIFR conditions would require aircraft to carry extra fuel. If LIFR conditions do develop, that are not forecasted, the TAF should be quickly amended to LIFR conditions. Unless there is a change in the airmass the LIFR conditions should be continued through around 2 hours after sunrise. This would alert the airlines that conditions likely causing delays will occur during the morning "push" times. Arrivals may be greatly delayed since a "ground hold" may occur at the airport the flight is departing from waiting for the fog to lift at the arriving airport.