

Valentine's Day Blizzard 2015

Amos & Megan Dodson
Great Lakes Operational Meteorology Workshop
August 25-28, 2015

NWS Northern Indiana



Impacts





Meteorologist Matt Rudkin WSBT

February 14 at 12:15pm · 🌐

👍 Like Page

Why?

Two 20-car pileups. One just east of Warsaw on US-30 and another just



Byron Eash Why don't people slow down. White out conditions and people are still driving like it's a sunny day with no lights on !

Like · Reply · 👍 20 · February 14 at 12:20pm

↪ 540 shares



Write a comment...



Byron Eash Why don't people slow down. White out conditions and people are still driving like it's a sunny day with no lights on !

Like · Reply · 👍 20 · February 14 at 12:20pm

↪ 2 Replies



Michelle Marks Porter Why isn't this a blizzard warning, it's very bad, snow drifts on county roads down here in Pulaski county are 1-2 feet high

Like · Reply · 👍 8 · February 14 at 12:39pm



Lynn Schantz The winds aren't sustained long enough for blizzard warning, only having gusty winds.

Like · February 14 at 12:55pm

heard/understood?



Message understood

but ignored?



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What Could be Done Better?

**Two
Aspects**



Science

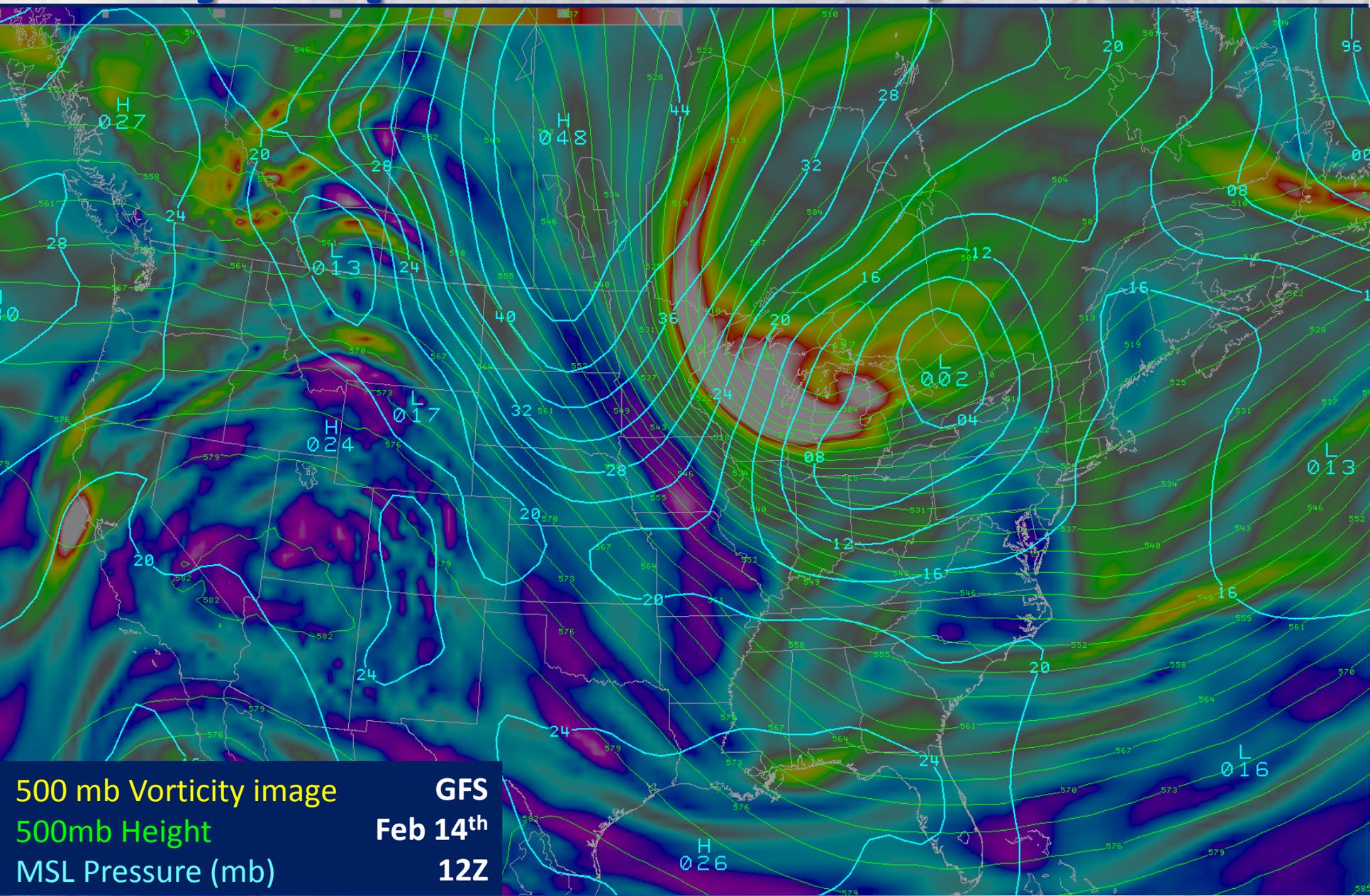


Communication

NWS Northern Indiana



Synopsis: 500mb/MSLP



500 mb Vorticity image

500mb Height

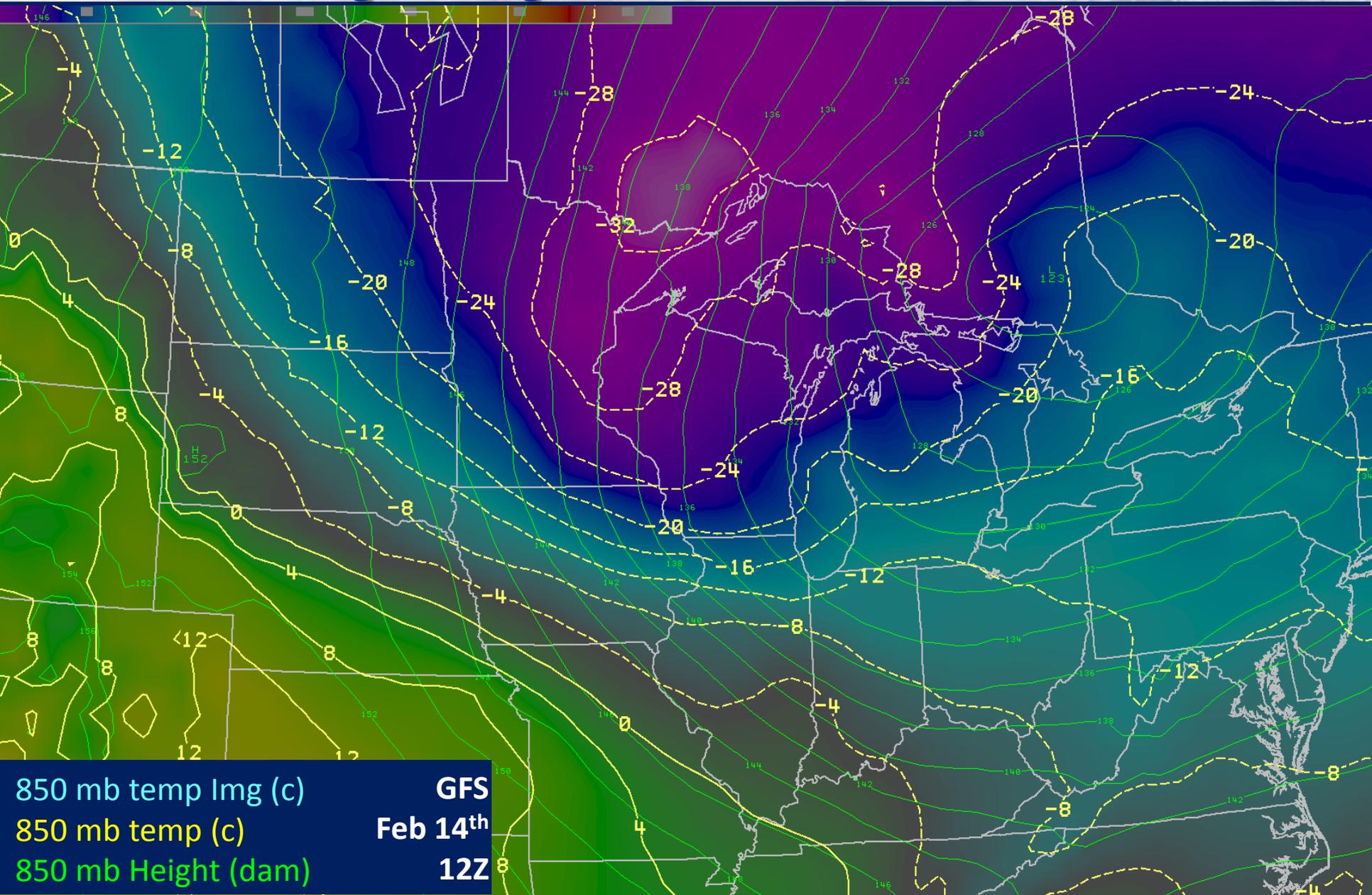
MSL Pressure (mb)

GFS

Feb 14th

12Z

Synopsis: 850mb



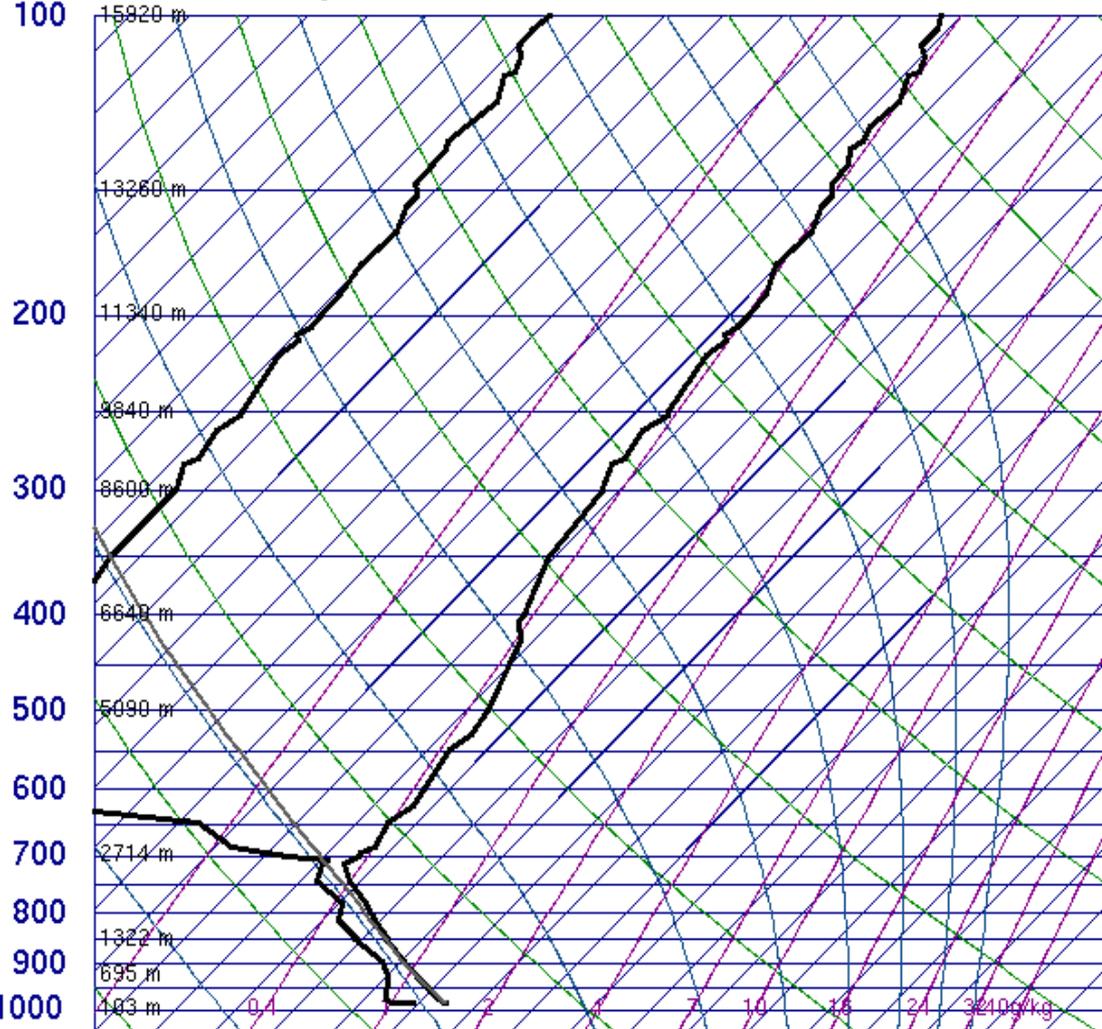
850 mb temp lmg (c)
850 mb temp (c)
850 mb Height (dam)

GFS
Feb 14th
12Z

72645 GRB Green Bay

Sounding

12Z KGRB



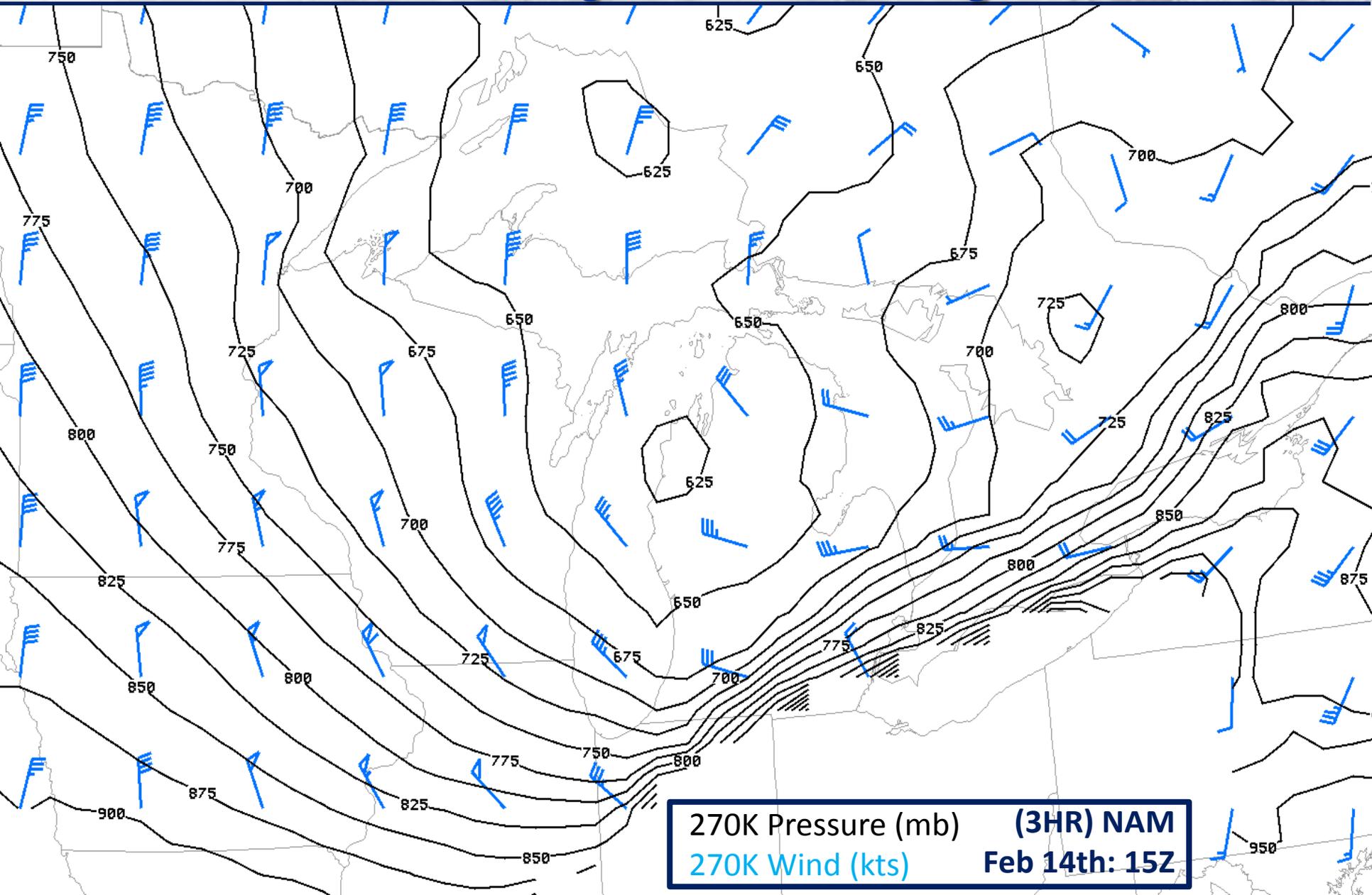
12Z 14 Feb 2015

University of Wyoming

NWS Northern Indiana

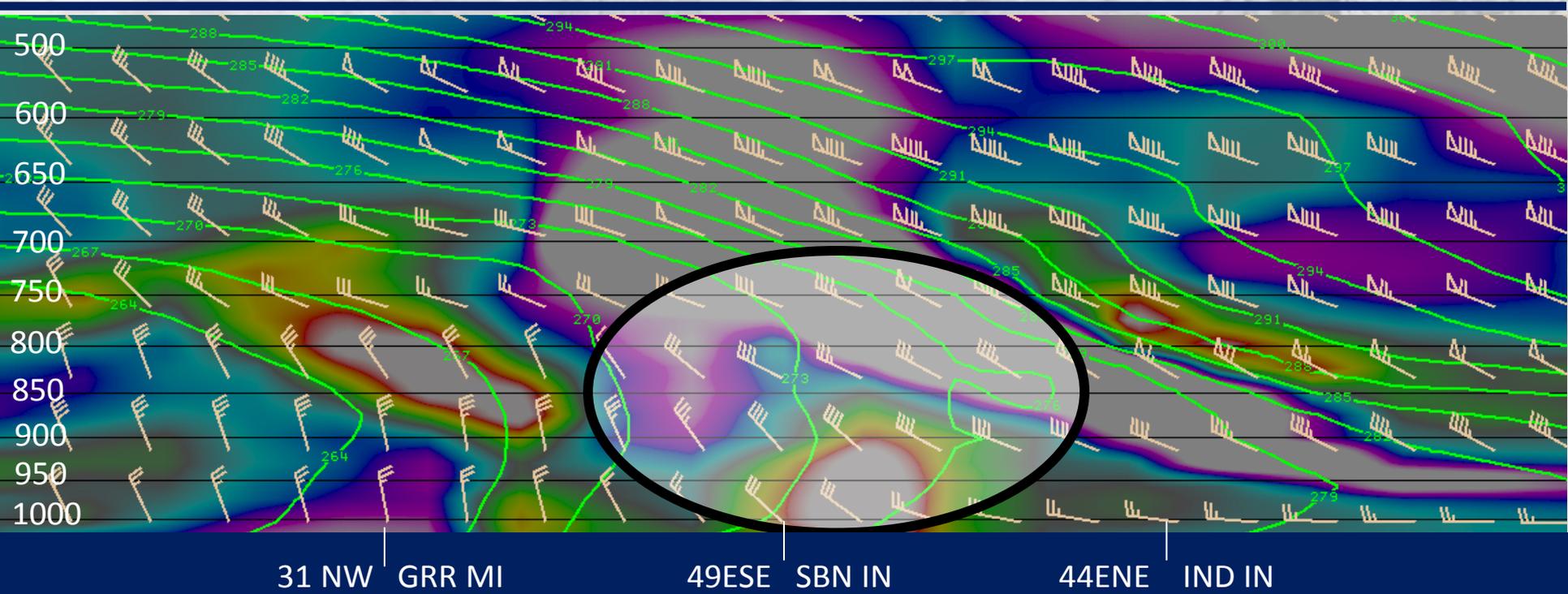


ISENTROPIC ANALYSIS



270K Pressure (mb) (3HR) NAM
270K Wind (kts) Feb 14th: 15Z

X-Section



2-D Fgen Img (k/m/1e10s)

NAM

Wind (kts)

Feb 14th

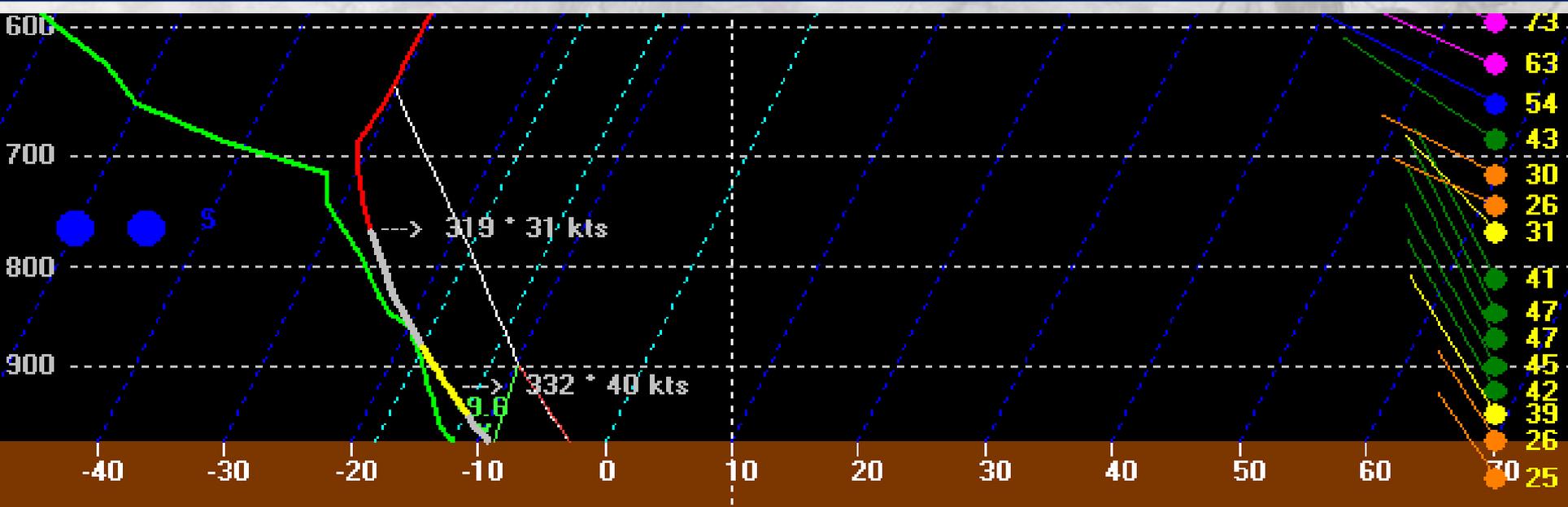
Equiv Pot Temp (K)

15Z

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KSBN Model Sounding



02/14/15 17:00 Z

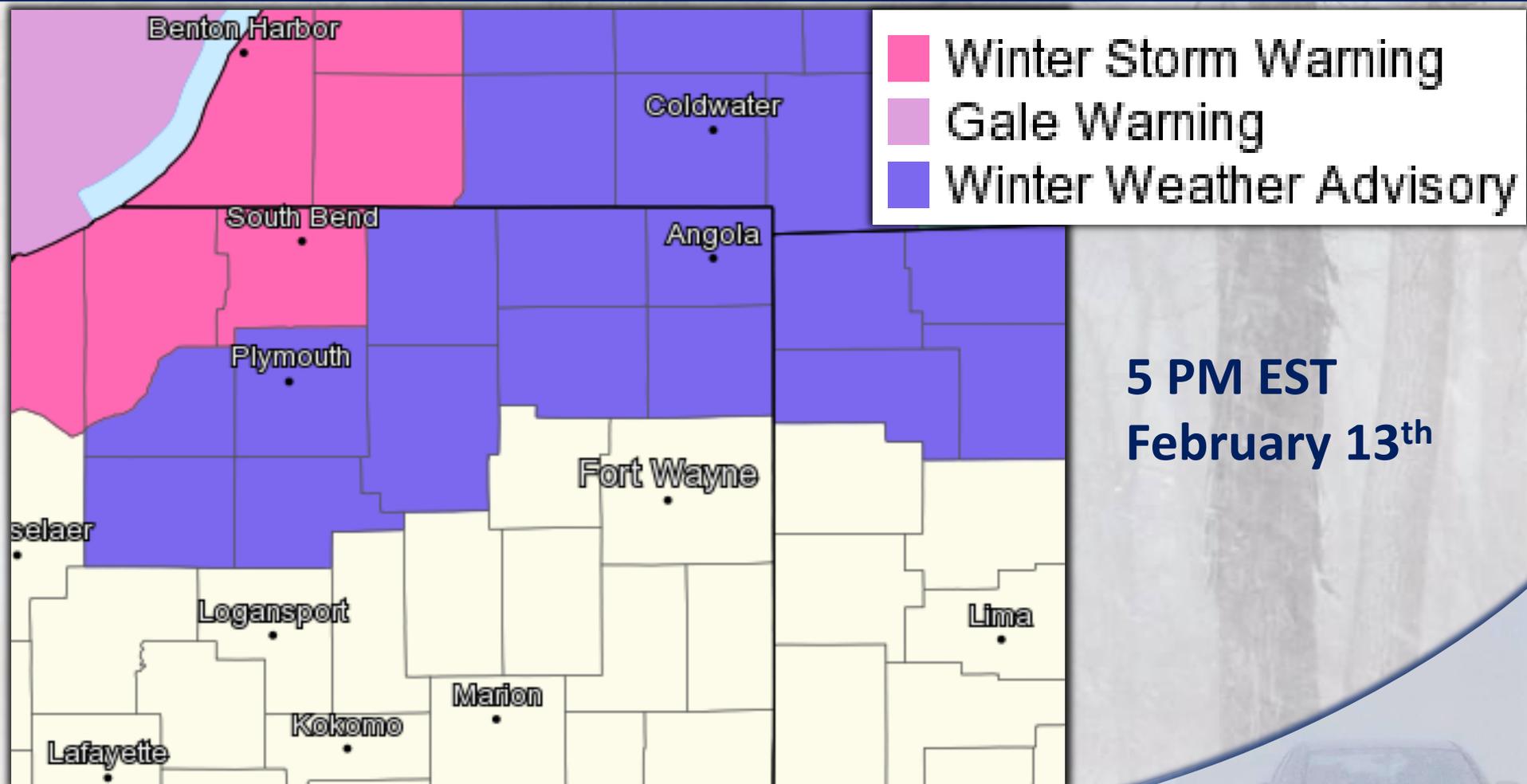
Saturday Feb 14 12:00 pm

Lake Temp	<input type="checkbox"/> Lake Index	Temp	Diff	Model CAPE	50
34		700	-31 32	Lake Induced	
F	<input type="checkbox"/> Moist Lake Index	850	-20 21	CAPE	754
1			Extreme	EQL	11150'
C	<input checked="" type="checkbox"/> LI CAPE			NCAPE	.223

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Hazardous Headlines: IWX



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Hazardous Headlines

HAZARDOUS WEATHER CONDITIONS

Wind Chill Warning in effect from February 14, 12:00 PM EST until February 15th, 7:00 PM EST
Special Weather Statement is in effect
Hazardous Weather Outlook is in effect

Current Conditions



Heavy Snow

15°F

-9°C

Wind Speed N 20 G 36 mph

Visibility 0.25 mi

Wind Chill -2°F (-19°C)

11:48 AM EST February 14th

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Hazardous Headlines

HAZARDOUS WEATHER CONDITIONS

Wind Chill Advisory in effect from February 14, 7:00 PM EST until February 15th, 10:00 AM EST

Wind Advisory in effect from February 14, 11:54 AM EST until February 14, 7:00 PM EST

Special Weather Statement is in effect

Hazardous Weather Outlook is in effect

Current Conditions



Heavy Snow Freezing Fog
and Breezy

20°F

-7°C

Wind Speed N 22 G 38 mph

Visibility 0.15 mi

Wind Chill 4°F (-16°C)

11:53 AM EST February 14th

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Hazardous Headlines

HAZARDOUS WEATHER CONDITIONS

Wind Chill Advisory in effect from February 14, 5:00 PM EST until February 14th, 9:00 PM EST
Wind Chill Advisory in effect from February 15, 9 AM EST until February 15, 4:00 PM EST
Wind Chill Warning in effect from February 14, 9 PM EST until February 15, 9:00 AM EST
Winter Weather Advisory in effect from February 14, 12:06 PM EST until February 14, 7:00 PM
Hazardous Weather Outlook is in effect

Current Conditions



Snow and Breezy

21°F

-6°C

Wind Speed **NW 24 G 49 mph**

Visibility **0.15 mi**

Wind Chill **4°F (-16°C)**

12:46 PM EST February 14th

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WRN

#HazSimp

#HazSimp

HAZARDOUS WEATHER...

- * TIMING...MODERATE TO HEAVY LAKE EFFECT SNOW BANDS WILL CONTINUE THROUGH TONIGHT.
- * SNOW ACCUMULATIONS...STORM TOTAL SNOWFALL ACCUMULATIONS GENERALLY RANGING BETWEEN 2 AND 4 INCHES. DUE TO THE NATURE OF LAKE EFFECT SNOW...EXACT TOTALS MAY VARY SIGNIFICANTLY DEPENDING ON WHERE THE HEAVIER SNOWBANDS SET UP.

* BLOWING AND DRIFTING SNOW...WHILE ONLY LIGHT TO MODERATE SNOW ACCUMULATIONS ARE FORECAST...NORTHWEST WINDS GUSTING AS HIGH AS 40 MPH WILL RESULT IN SIGNIFICANT BLOWING AND DRIFTING SNOW AND REDUCED VISIBILITIES. WHITEOUT CONDITIONS WILL CONTINUE AT TIMES THROUGH EARLY EVENING...ESPECIALLY ACROSS OPEN AREAS.

- * BITTER COLD: WIND CHILLS WILL DROP INTO THE 10 BELOW TO 25 BELOW TONIGHT INTO SUNDAY MORNING.

IMPACTS...

- * VISIBILITY WILL BE SIGNIFICANTLY REDUCED DUE TO THE COMBINATION OF SNOW AND BLOWING SNOW.
- * BLOWING AND DRIFTING SNOW WILL RESULT IN HAZARDOUS TRAVEL CONDITIONS.
- * BITTERLY COLD WIND CHILLS MAY LEAD TO FROST BITE IN 30 MINUTES OR LESS.

Mixed Messages

Winter storm warning for snow and blowing snow in effect until 7 am EST Sunday Feb 15th



Biggest Impact Buried



Focus is on Accumulation

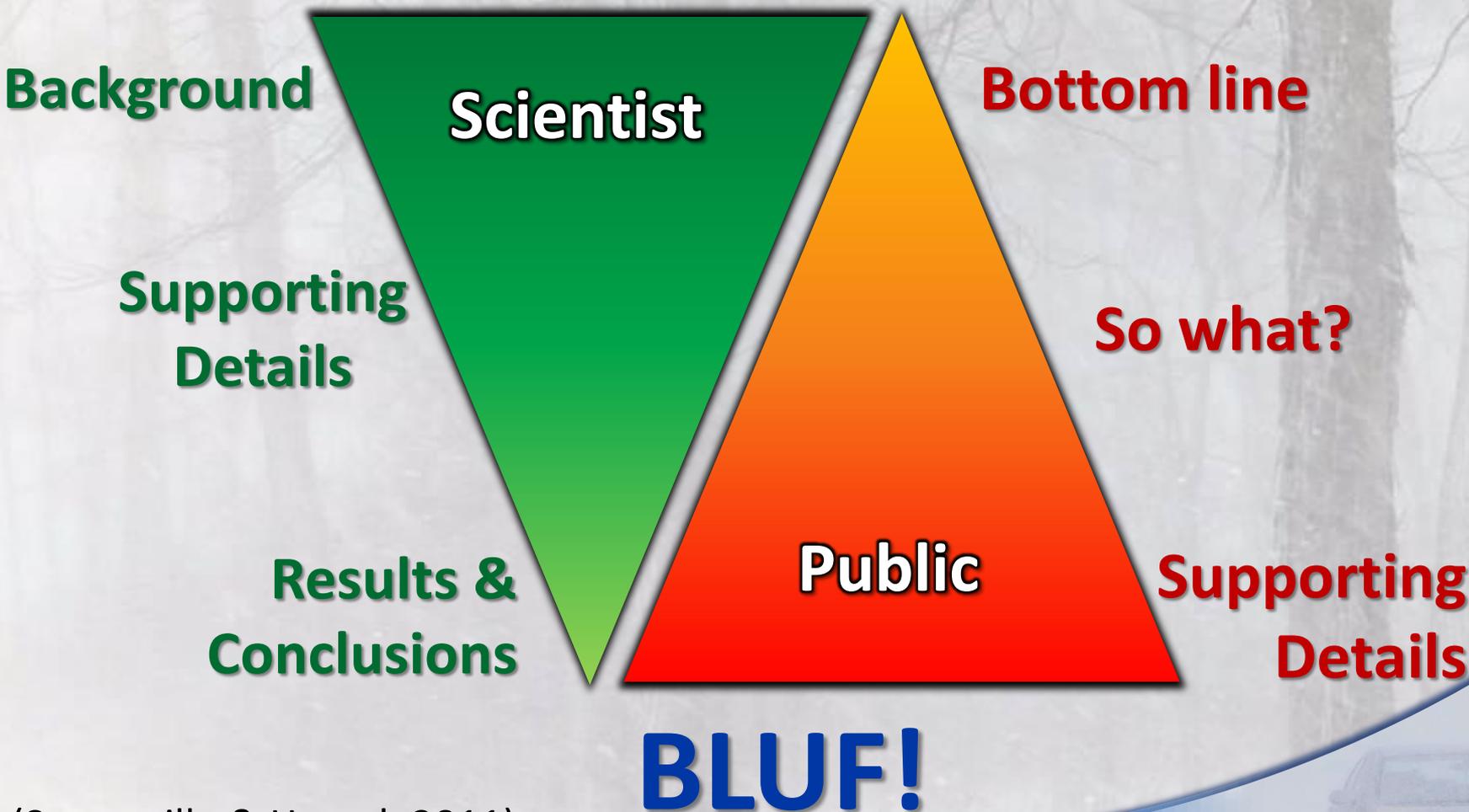


Appropriate Wording? (Too Vague? Overused?)

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Invert the Pyramid



(Somerville & Hassol, 2011)

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Mixed Messages

Weather Story @ 644 AM EST February 14th

Blustery, Cold, and Snowy Today

A blustery, cold, and snowy day is in store for the area today. Snow showers will increase in coverage and intensity by mid morning as an arctic front moves through.

Wind gusts will be as high as 30-45 mph, especially near Lake Michigan. As a result, expect significantly reduced visibility and white out conditions due to falling, blowing, and drifting snow—even in areas that get less snow. Though ...high temperatures are expected to reach into the low to mid 20s this afternoon, strong winds will make it feel much colder. Wind chills today will range from -5 to -15 F, which could lead to frost bite on exposed skin in less than 30 minutes. Expect snow to slowly diminish in Ohio and northeastern Indiana after midnight tonight, and continue in the N-NW wind favored snowbelts. Wind chills tonight will range from -10 to -25 F. Stay tuned to our webpage for the latest updates and more details on winter weather watches, warnings, and advisories.—[Text associated with weather story](#)

- **Afternoon Wind Chills:**
-5 to -15°F



Total Snow Through Sun AM

Mixed Messages

SLOW

Caution Drivers: Low Visibility Due to Falling, Blowing, and Drifting Snow

SLOW

LaPorte, IN

Photo: Crystal Kidder.

Photo: Evan Bentley

**US-13 North of
Millersburg IN**

Huntington, IN

Photo: Huntington County EM

Drive with Care

- Accidents have been reported
- Roads snow covered/slippery
- **Rapidly changing visibility** due to falling, blowing, and drifting snow.

If We Could Re-Do

- ❄️ **Better wind forecast, improved anticipation of impacts**
- ❄️ **Less words in WSW, social media. Increased emphasis on blowing/drifted snow**
- ❄️ **Better use of pictures in social media**



WSW Re-Do

HAZARDOUS WEATHER...

- *BLOWING AND DRIFTING SNOW WITH NEAR BLIZZARD CONDITIONS.
- *BURSTS OF MODERATE TO HEAVY SNOW, WITH ACCUMULATIONS OF 2 TO 4 INCHES
- *BITTER COLD: WIND CHILLS -10 to -25 F TONIGHT INTO SUNDAY MORNING.

IMPACTS...

- *FREQUENT SUDDEN WHITE OUTS... ESPECIALLY IN OPEN AREAS.
- *SLICK AND SNOW COVERED ROADS.
- *BITTERLY COLD WIND CHILLS MAY LEAD TO FROST BITE IN 30 MINUTES OR LESS.

 **Move blowing and drifting snow to top**

 **Heightened wording in impacts**

 **Less wordy overall**

AM Weather Story Re-Do

Dangerous Driving Conditions

What to Expect Today

- Frequent, sudden white outs
- Bursts of moderate to heavy snow
- Slick, snow covered roads

Sudden White Outs



AM Weather Story Re-Do

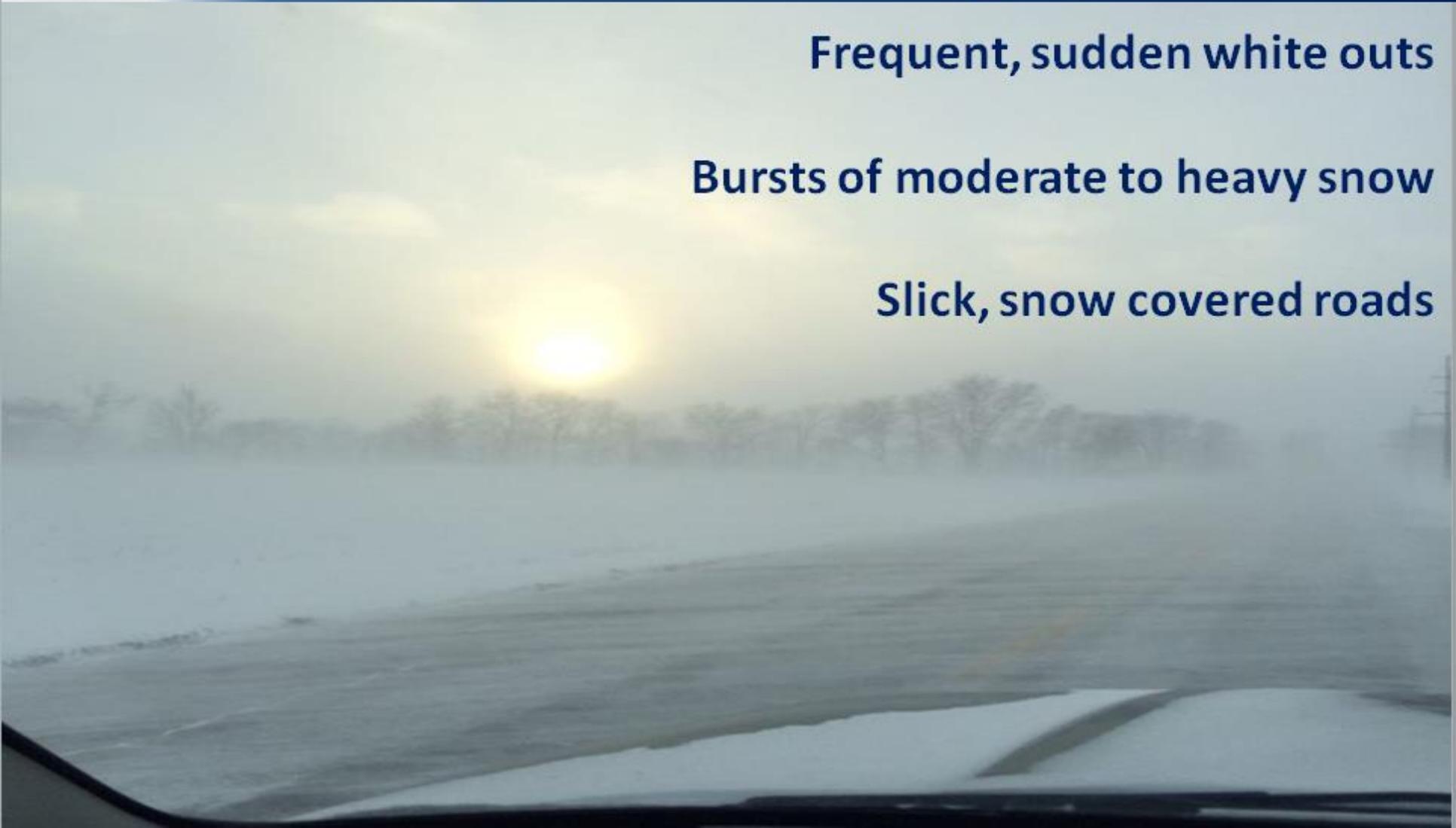


Dangerous Driving Conditions

Frequent, sudden white outs

Bursts of moderate to heavy snow

Slick, snow covered roads



Final Thoughts

- **Great Example of Need for Hazard Simplification**
- **BLUF: Get to the Point!**
- **Social Media:**
 - Less words, more pictures



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Questions?



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References

- ❄️ Kapela, A. F., P. W. Leftwich, and R. Van Ess, 1995: Forecasting the impacts of strong wintertime post-cold front winds in the northern plains. *Wea. Forecasting*, 10, 229–244.
- ❄️ Lacke, M. C., J. A. Knox, J. D. Frye, A. E. Stewart, J. D. Durkee, C. M. Fuhrmann, and S. M. Dillingham, 2007: A climatology of cold-season nonconvective wind events in the Great Lakes region. *J. Climate*, 20, 6012–6022.
- ❄️ Somerville, R.C.J., and S.J. Hassol, 2011: Communicating the science of climate change. *Physics Today*. October, 48–53.

