

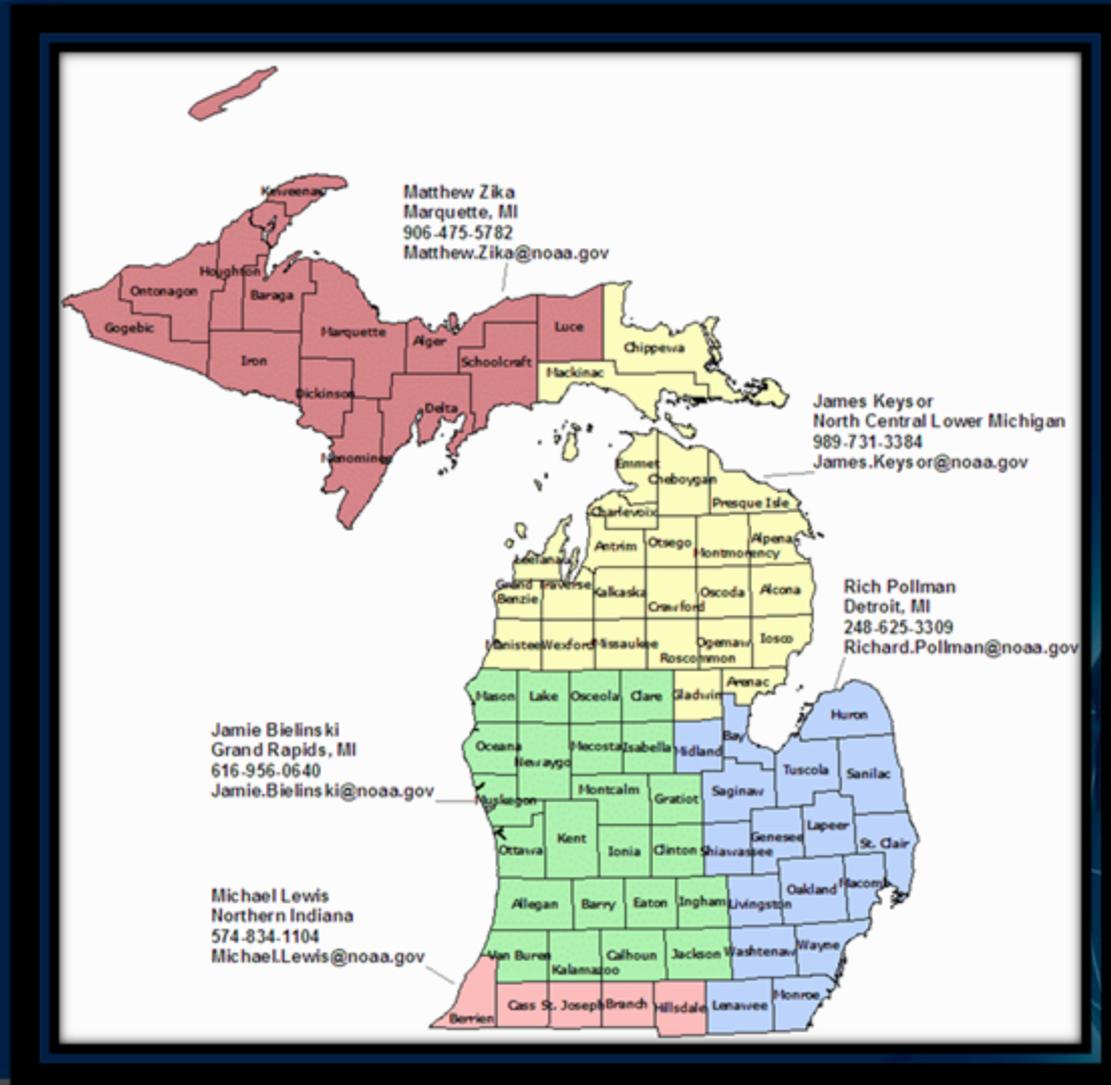
Enhanced NWS Services for the Emergency Management Community across Southwest Lower Michigan

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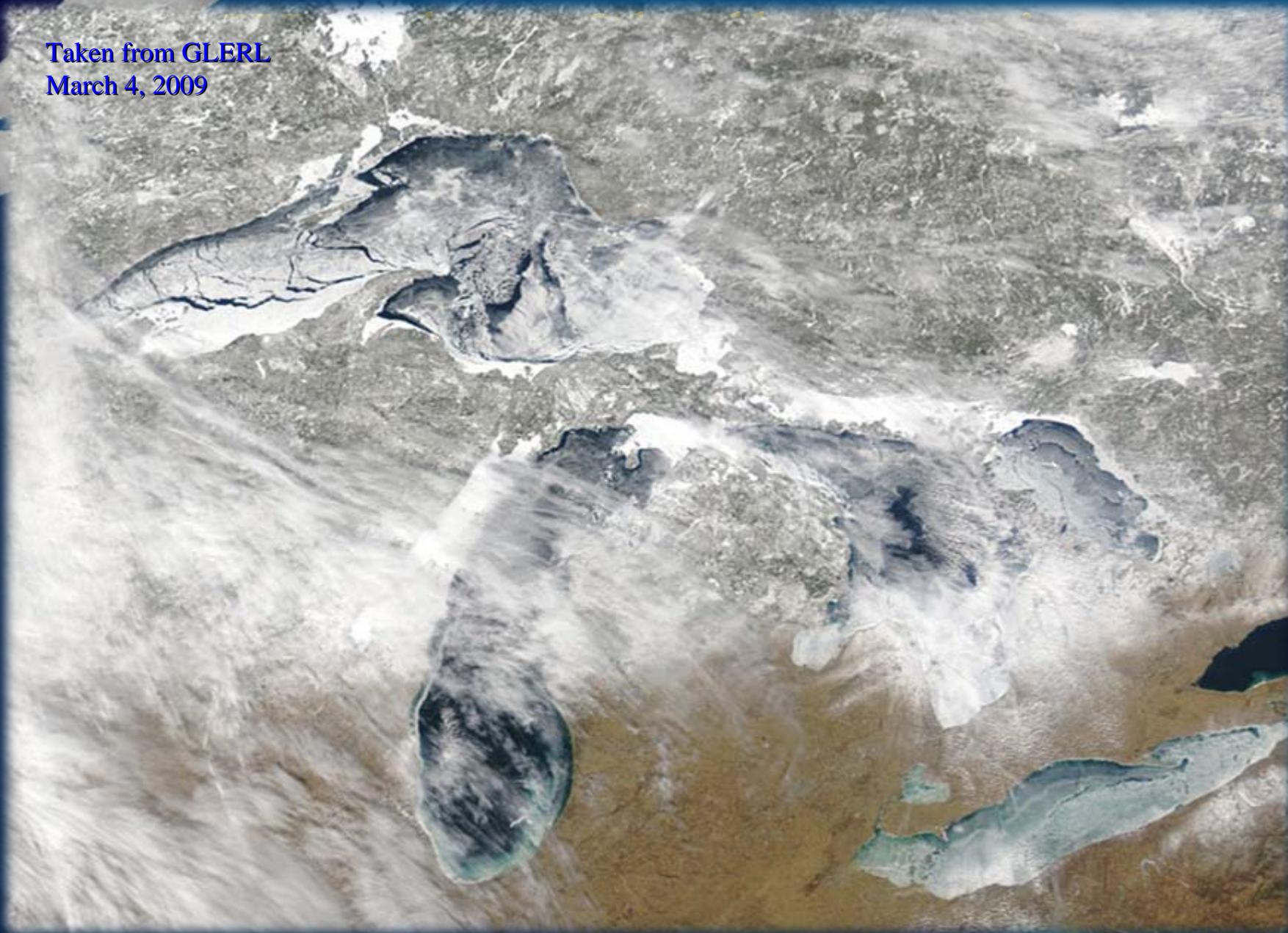
Outline

- National Weather Service Offices in Michigan
- Weather in SW Lower Michigan
- Enhancing Bulleted WSW/NPW
- Partnerships and the Future

NWS Offices Serving Michigan



Taken from GLERL
March 4, 2009



Bulleted WSW/NPW

- What is this?
 - *Similar format to severe products*
 - *Easy to read and understand*
- Why do this?
 - *Allows for easy parsing of information*
 - *Reduce long paragraphs and redundancy in segments*
 - *Bullets get to the Point!*



Bulleted WSW/NPW: *What is so different?*

We use the “H.I.P” concept

Hazardous Weather

Impacts

Preparedness/Precautions

What is the **Hazardous** Weather?

- Storm Total Snow / Sleet / Ice accumulations
- Rates of accumulation (1, 3, 6 hours)
- Timing
 - *Precip onset/end*
 - *Ptype changes*
- Wind effects and/or magnitude
- Visibility due falling/blowing snow
- Temperatures during the storm

What are the Impacts?

- Road Conditions
- In association with
 - *Morning/Evening commutes*
 - *Holiday Travel*
 - *First Event of Season*
- Infrastructure
 - *Power outages*
 - *Structural loading (excessive weight)*
- Agriculture



What goes in the Preparedness / Precautions?

- Explanation of warning
- How to avoid or mitigate impacts of the storm
- Also provide links to more comprehensive sources of help in the event of an emergency



Examples

- Watches/Warnings from 29-30 Nov 2008
 - *One of the first snowstorms of season*
 - *Began on Sunday after Thanksgiving*
- We'll look at:
 - *Traditional WSW Products*
 - *Simple Bulleted Products*
 - *WFO-GRR Bulleted H.I.P Products*

Traditional Winter Storm Watch

- What are the main points?
 - *Six inches of wet snow*
 - *Snow will fall during heavy travel day*
 - *Road will get worse at nightfall*
 - *Monday morning commute will likely be a slow one*

...WINTER STORM WATCH FOR HEAVY SNOW IN EFFECT FROM SUNDAY AFTERNOON THROUGH MONDAY AFTERNOON...

THE NATIONAL WEATHER SERVICE IN GRAND RAPIDS HAS ISSUED A WINTER STORM WATCH FOR HEAVY SNOW...WHICH IS IN EFFECT FROM SUNDAY AFTERNOON THROUGH MONDAY AFTERNOON.

A HEAVY WET SNOWFALL IN EXCESS OF 6 INCHES IS POSSIBLE. SNOW IS EXPECTED TO BEGIN MIDDAY SUNDAY AND END MONDAY AFTERNOON WITH THE HEAVIEST SNOWFALL SUNDAY NIGHT.

TRAVEL CONDITIONS WILL BECOME DANGEROUS SUNDAY AFTERNOON AS POST THANKSGIVING DAY TRAFFIC IS IMPACTED BY INCREASINGLY SNOW COVERED AND SLIPPERY ROADS. TRAVEL CONDITIONS ARE EXPECTED TO WORSEN AS TEMPERATURES FALL BELOW FREEZING SUNDAY NIGHT. SNOW COVERED ROADS WILL ALSO LIKELY SLOW THE MONDAY MORNING COMMUTE. THE WET SNOW MAY CAUSE SOME TREE LIMBS TO SNAP ONTO POWER LINES LEADING TO ISOLATED POWER OUTAGES.

PREPAREDNESS/PRECAUTIONS ACTIONS...

A WINTER STORM WATCH MEANS THERE IS A POTENTIAL FOR SIGNIFICANT SNOW...SLEET...OR ICE ACCUMULATIONS THAT MAY IMPACT TRAVEL. CONTINUE TO MONITOR THE LATEST FORECASTS. &&

New Bulleted Winter Storm Watch

- Simple Bulleted
 - *Six inches of wet snow*
 - *Snow will fall during heavy travel day*
 - *Road will get worse at nightfall*
 - *Monday morning commute will likely be a slow one*

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* A HEAVY WET SNOWFALL IN EXCESS OF 6 INCHES IS POSSIBLE. SNOW IS EXPECTED TO BEGIN MIDDAY SUNDAY AND END MONDAY AFTERNOON WITH THE HEAVIEST SNOWFALL SUNDAY NIGHT.

* TRAVEL CONDITIONS WILL BECOME DANGEROUS SUNDAY AFTERNOON AS POST THANKSGIVING DAY TRAFFIC IS IMPACTED BY LOW VISIBILITY AND INCREASINGLY NOW COVERED AND SLIPPERY ROADS.

* ROAD CONDITIONS WILL WORSEN SUNDAY NIGHT AS TEMPERATURES FALL FROM NEAR FREEZING INTO THE UPPER 20S.

* SNOW COVERED ROADS WILL ALSO LIKELY SLOW THE MONDAY MORNING COMMUTE.

* THE WET SNOW MAY CAUSE SOME TREE LIMBS TO SNAP ONTO POWER LINES LEADING TO ISOLATED POWER OUTAGES.

PREPAREDNESS/PRECAUTIONS ACTIONS...

A WINTER STORM WATCH MEANS THERE IS A POTENTIAL FOR SIGNIFICANT SNOW...SLEET...OR ICE ACCUMULATIONS THAT MAY IMPACT TRAVEL. CONTINUE TO MONITOR THE LATEST FORECASTS.

&&

GRR's New Winter Storm Watch

- Bulleted H.I.P
 - *Six inches of wet snow*
 - *Snow will fall during heavy travel day*
 - *Road will get worse at nightfall*
 - *Monday morning commute will likely be a slow one*

...WINTER STORM WATCH FOR HEAVY SNOW IN EFFECT FROM SUNDAY AFTERNOON THROUGH MONDAY AFTERNOON...

THE NATIONAL WEATHER SERVICE IN GRAND RAPIDS HAS ISSUED A WINTER STORM WATCH FOR HEAVY SNOW...WHICH IS IN EFFECT FROM SUNDAY AFTERNOON THROUGH MONDAY AFTERNOON.

HAZARDOUS WEATHER...

- * A HEAVY WET SNOWFALL IN EXCESS OF 6 INCHES IS POSSIBLE. SNOW IS EXPECTED TO BEGIN MIDDAY SUNDAY AND END MONDAY AFTERNOON WITH THE HEAVIEST SNOW SUNDAY NIGHT.
- * TEMPERATURES WILL BE NEAR FREEZING ON SUNDAY FALLING INTO THE UPPER 20S SUNDAY NIGHT.

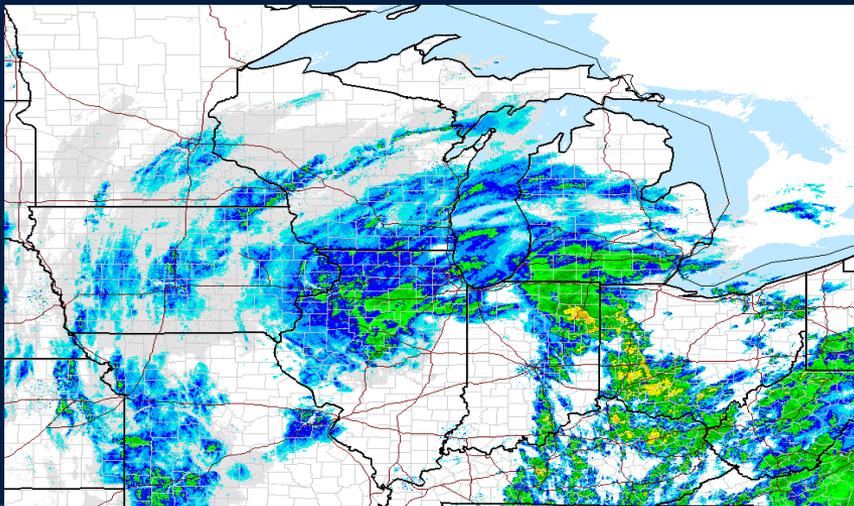
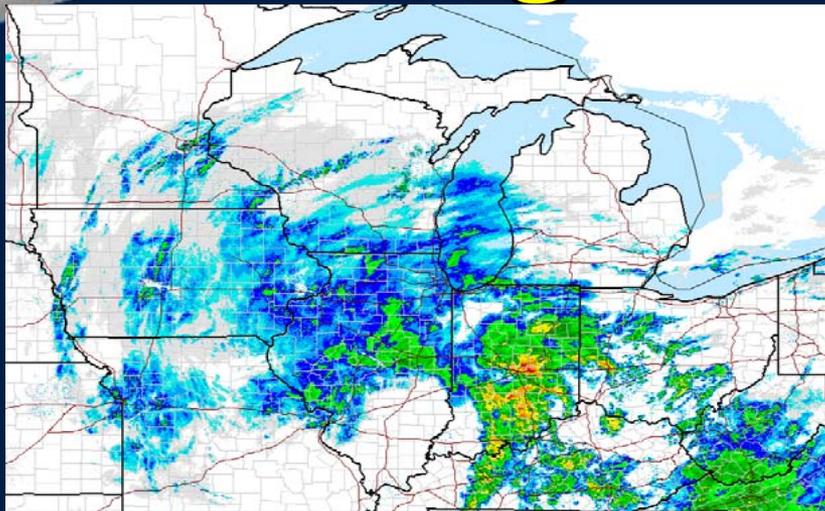
IMPACTS...

- * TRAVEL CONDITIONS WILL BECOME DANGEROUS SUNDAY AFTERNOON AS POST THANKSGIVING DAY TRAFFIC IS IMPACTED BY LOW VISIBILITY AND INCREASINGLY SNOW COVERED AND SLIPPERY ROADS. ROAD CONDITIONS WILL WORSEN SUNDAY NIGHT AS TEMPERATURES DIP BELOW FREEZING.
- * SNOW COVERED ROADS WILL ALSO LIKELY SLOW THE MONDAY MORNING COMMUTE.
- * THE WET SNOW MAY CAUSE SOME TREE LIMBS TO SNAP ONTO POWER LINES LEADING TO ISOLATED POWER OUTAGES.

PREPAREDNESS/PRECAUTIONS ACTIONS...

- * A WINTER STORM WATCH MEANS THERE IS AN INCREASING POTENTIAL FOR SIGNIFICANT SNOW...SLEET...OR ICE ACCUMULATIONS.
- * HOLIDAY TRAVELERS SHOULD ATTEMPT TO COMPLETE TRAVEL BY EARLY SUNDAY AFTERNOON. IF TRAVELING TOMORROW...NOW IS A GOOD TIME TO MAKE SURE YOU HAVE A SURVIVAL KIT IN YOUR AUTO.
- * COMMUTERS SHOULD ALLOW EXTRA TIME TO REACH WORK ON TIME MONDAY MORNING.

Winter Storm Warning



...WINTER STORM WARNING FOR HEAVY SNOW REMAINS IN EFFECT UNTIL 4 PM EST MONDAY...

HAZARDOUS WEATHER...

- * HEAVY SNOW HAS BEGUN ALONG AND SOUTH OF THE I-94 COORIDOR AND IS EXPECTED TO SPREAD NORTH TO I-96 INCLUDING MUSKEGON...GRAND RAPID...AND LANSING BY NOON. ACCUMULATING SNOW WILL THEN SPREAD NORTH REACHING THE ROUTE 10 COORIDOR BY 2 PM.
- * EXPECT 2 TO 3 INCHES OF WET SNOW ALONG AND SOUTH OF I-96 THROUGH THIS AFTERNOON WITH AROUND ONE INCH TO THE NORTH OF I-96. HEAVY SNOW WILL CAUSE VISIBILITIES TO FALL TO NEAR ONE-QUARTER OF A MILE AT TIMES THROUGH THIS AFTERNOON.
- * TEMPERATURES WILL FALL TO NEAR FREEZING AS THE SNOW BEGINS AND THEN BELOW FREEZING THIS EVENING.
- * STORM-TOTAL SNOW ACCUMULATIONS OF 6 TO 8 INCHES ARE EXPECTED BEFORE THE SNOW ENDS AS FLURRIES MONDAY AFTERNOON.

IMPACTS...

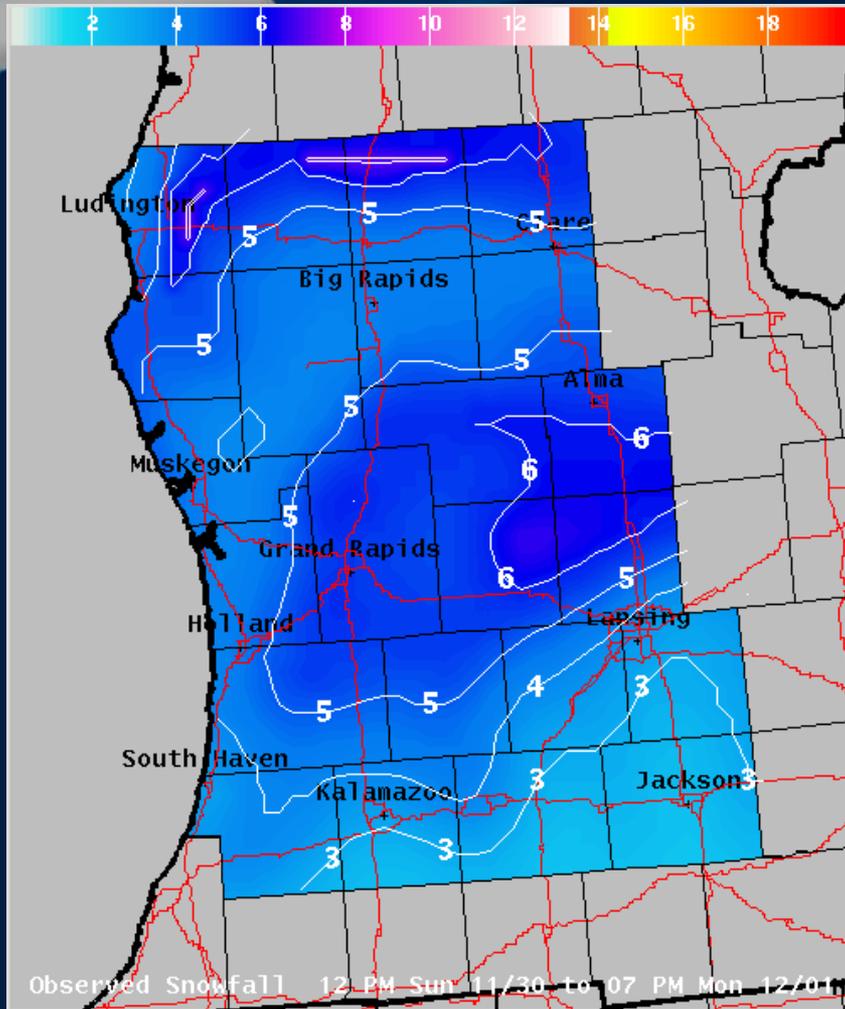
- * TRAVEL CONDITIONS ARE BECOMING DANGEROUS AS POST THANKSGIVING DAY TRAFFIC IS IMPACTED BY LOW VISIBILITY AND INCREASINGLY SNOW COVERED AND SLIPPERY ROADS. SEVERAL CAR ACCIDENTS HAVE BEEN REPORTED ALONG I-94 BETWEEN KALAMAZOO AND JACKSON. ROAD CONDITIONS WILL WORSEN TONIGHT AS TEMPERATURES DIP BELOW FREEZING.
- * SNOW COVERED ROADS WILL ALSO LIKELY SLOW THE MONDAY MORNING COMMUTE.
- * THE WET SNOW MAY CAUSE SOME TREE LIMBS TO SNAP ONTO POWER LINES LEADING TO ISOLATED POWER OUTAGES.

PREPAREDNESS/PRECAUTIONS ACTIONS...

- * A WINTER STORM WARNING FOR HEAVY SNOW MEANS DANGEROUS WINTER WEATHER CONDITIONS ARE EXPECTED OR OCCURRING.
- * IF POSSIBLE...HOLIDAY TRAVELERS SHOULD DELAY TRAVEL UNTIL AFTER THE STORM HAS PASSED. IF YOU MUST TRAVEL TODAY... REMEMBER TO KEEP YOUR SPEED DOWN AND CARRY AN EXTRA FASHLIGHT...FOOD...AND WATER IN YOUR VEHICLE IN CASE OF AN EMERGENCY.
- * COMMUTERS SHOULD ALLOW EXTRA TIME TO REACH WORK ON TIME MONDAY MORNING.

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So...What really happened



Taken from StormData Episode Overview...

A low pressure system brought approximately four to eight inches of snow to portions of the area on one of the busiest travel days of the year during the latter portion of the Thanksgiving holiday weekend. Snow began on November the 30th and continued into December the first before gradually ending.

Snowfall amounts were quite variable across relatively small areas, possibly due to differences in surface temperatures, the frequency of measurements, or how sheltered the location was. The snow fell when temperatures were above freezing, which frequently resulted in melting or settling as soon as the snow hit the ground.

Feedback So Far...

- It's POSITIVE!

- *Media*

- *Emergency Management*

- *Michigan Department of Transportation (MDOT)*

- *County Road Commission*

- *Public*



Partnerships and the Future

□ Examples

- *Double Down Exercise*
- *Rothbury Support*
- *PALEX Drill*

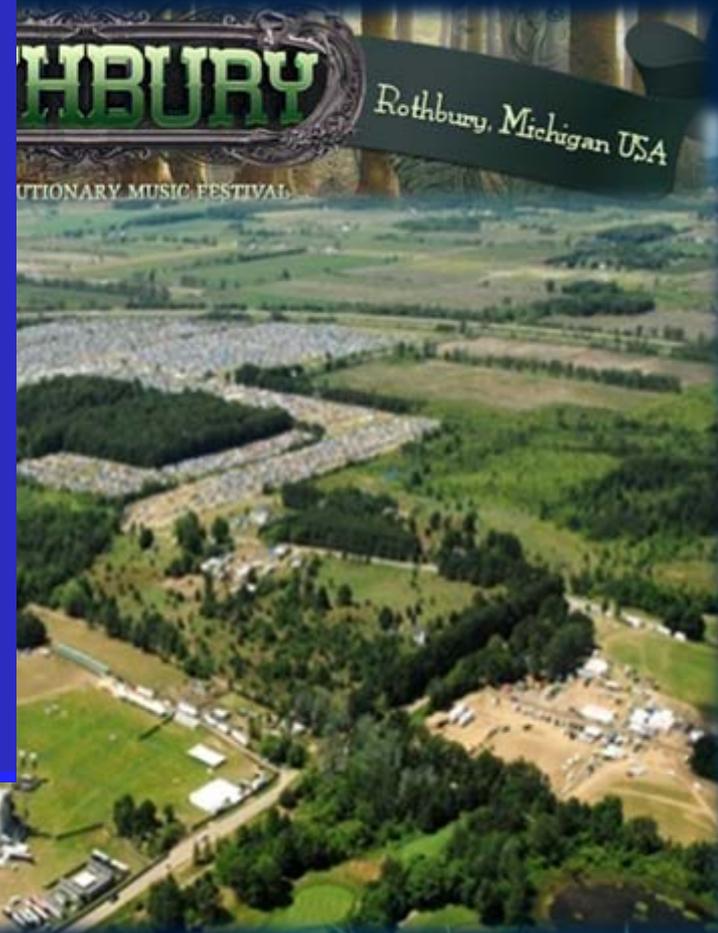
Double Down Exercise

2008 Full-Scale Exercise SCENARIO:

- Catastrophic Dam Failure of the Hardy and Croton Dams
- 6 Townships and 1 City impacted (North of GRR)
- 50+ Potential Patients Involved
- Alternate ER Site Established
- Significant emergency medical involvement
- Support required from all functions

Rothbury Support

- Support MSP Operations
Command Bus
- Support Oceana EOC
- Provided 2x per day Webinars
- On demand briefings using 800 MHz Event Channel
- Severe Weather Struck day before concert in 2008
- Command included on Severe Wx Brief to all EMs
- On demand briefing via 800 MHz initiated 40 minutes before severe weather struck venue
- Concert operations suspended – no injuries – some damage to tents



PALEX

Palisades REP Exercise*

- National Weather Service Roll
 - *Observe overall exercise*
 - *Offer suggestions to “How can we help?”*
 - Provide detailed weather information (surface and aloft)
 - Request HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory) model run
 - Be an integral part of the future exercises
 - *Whether at EOC or via remote briefings*

Continuing to Enhance Local and State Partnerships

- Actively seeking product feedback
- Meetings with State and Federal Agencies
- Debriefings after major weather events
- Embracing new technologies used by our EM Community

Thank You





NATIONAL WEATHER SERVICE

NOAA

GRAND RAPIDS, MICHIGAN