



MDSS Pooled Fund Study Then and Now

*Road Weather Management Stakeholder Meeting
Little Rock, AR July 18th, 2013*

*Presented by:
Jakin Koll (MnDOT)*

Your Destination...Our Priority





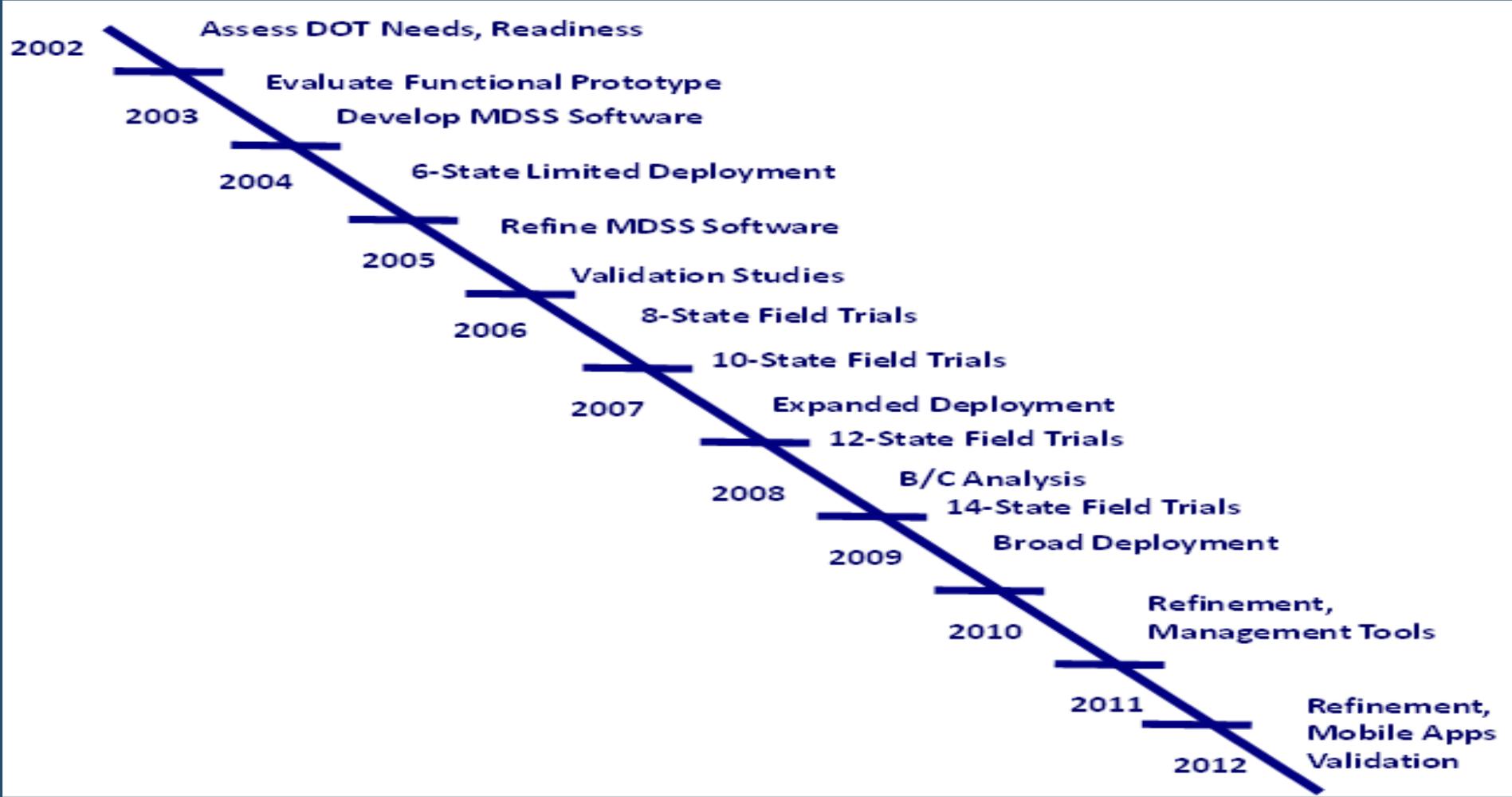
Motivation for an MDSS?

- Rising demands of travelers & commercial carriers
- High labor, material, equipment & fuel costs
- Constrained agency funding and staffing
- Reliable, timely condition reports hard to get
- Some weather conditions difficult to forecast
- Complex pavement response to weather and maintenance
- New deicing chemicals available
- Environmental concerns about deicer use
- Retiring staff replaced by less experienced workers

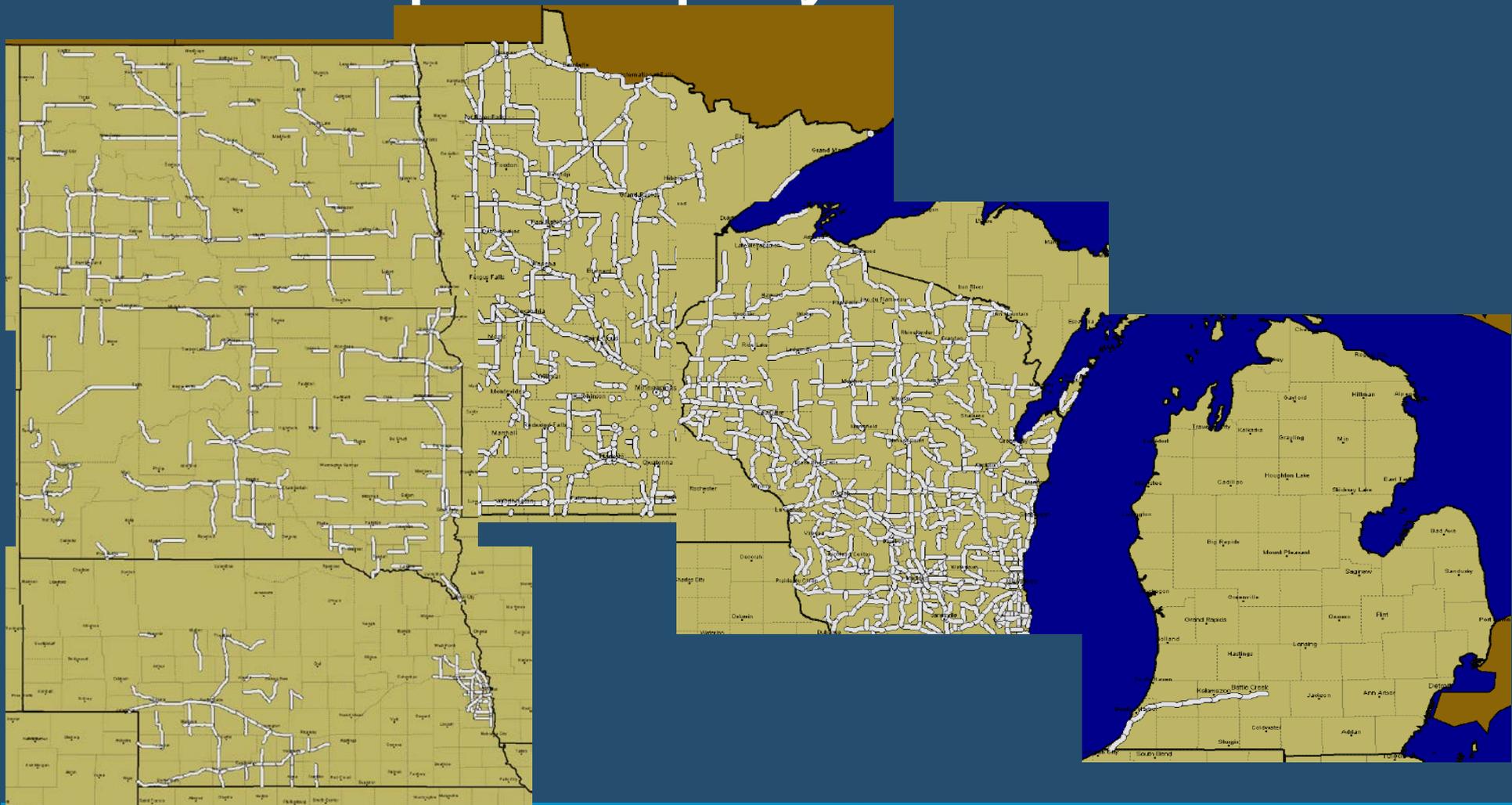




MDSS still relatively New...but Not Unproven



Example Deployment Levels





MDSS on the Desktop in Office/Shop

The screenshot shows the MDSS desktop application interface. At the top, there is a menu bar with options: File, Report, Data Sync, Options, Region, Update, Mgmt. Reports, Help. On the right, a Message Center shows an email from jakin.koll@state.mn.us. The main area is a map of Minnesota with various data overlays. A legend at the top identifies road conditions: Dry, Wet, Snow, Ice, Slush. A color-coded legend at the bottom indicates radar intensity levels from 1-19% Prob. to 80-100% Prob. and liquid ice mix snow. A timeline at the bottom shows the current time (Wed Jan 6, 2010 4:10PM CST) and a selected time (Wed Jan 6, 2010 3:40PM CST). A playback control bar at the bottom includes an animation speed slider (set to 1.0x) and time interval buttons (10 Min., 20 Min., 30 Min., 60 Min., Loop).

Click on an RWIS and select 'Live Image Feed' to display a camera image.

Latest Weather Observations

CMN049: 0 - I-35E @ Tart Lake Rd (7:...

The image is 1 minute 59 seconds old (from selected time)

New toggle buttons to switch camera views

Use play, pause, stop, backward/forward buttons below to view past camera images, but also radar, truck positions, weather obs., RWIS conditions, road conditions etc.

Time interval

Animation Speed



Alerts Next 24 Hours

State View Current View

MDSS Weather Alerts

MDSS Road Alerts

MDSS Blowing Snow Alerts

MDSS Maintenance Actions

NWS Alerts

3PM 9PM 3AM 9AM 3PM

Map Views

None

MDSS Route Views

TP3RR424: TH12, Jct. TH25

FAA/NWS Views

None

RWIS/ESS Views

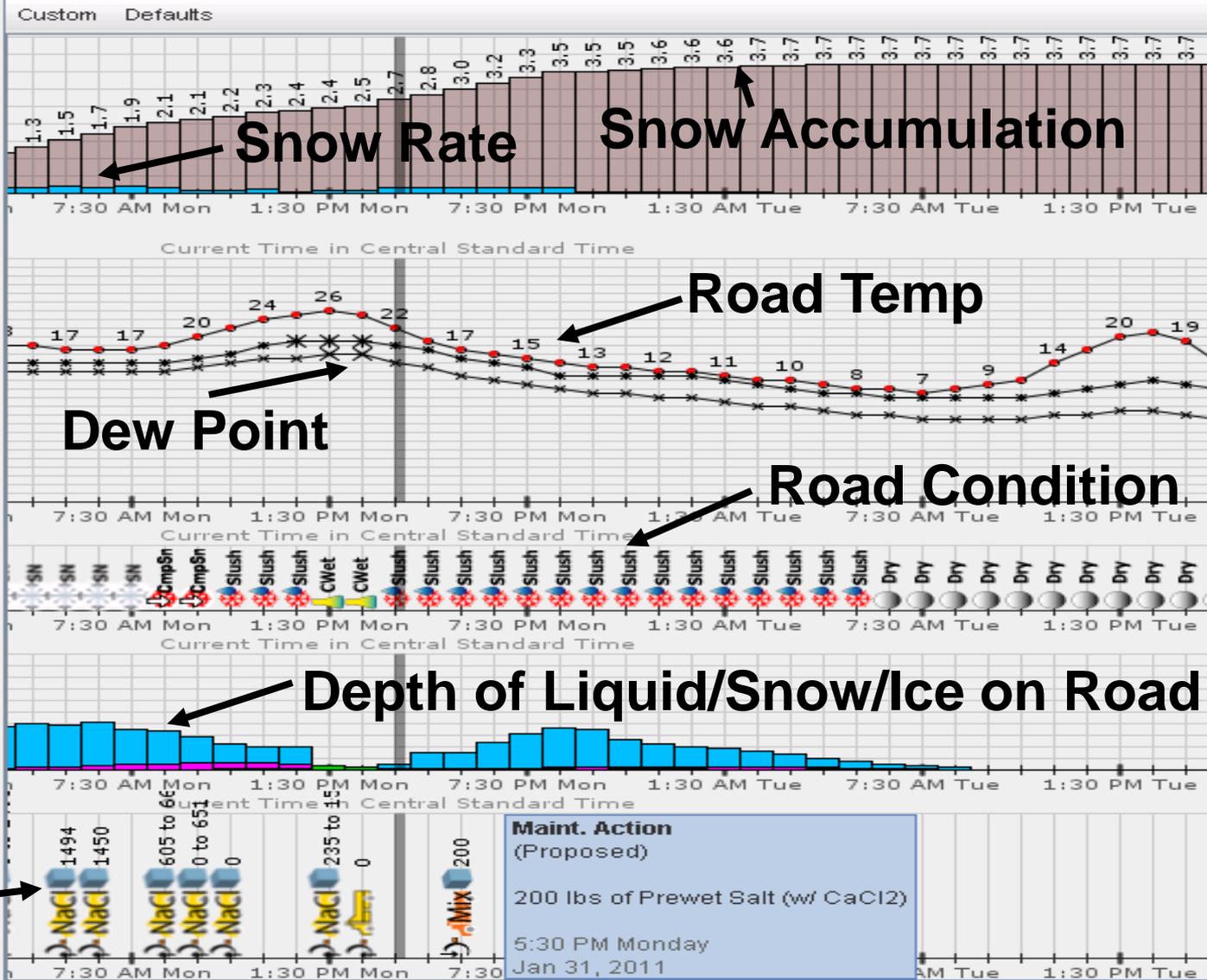
Alexandria, MN

Web Browser Links

Last Selected

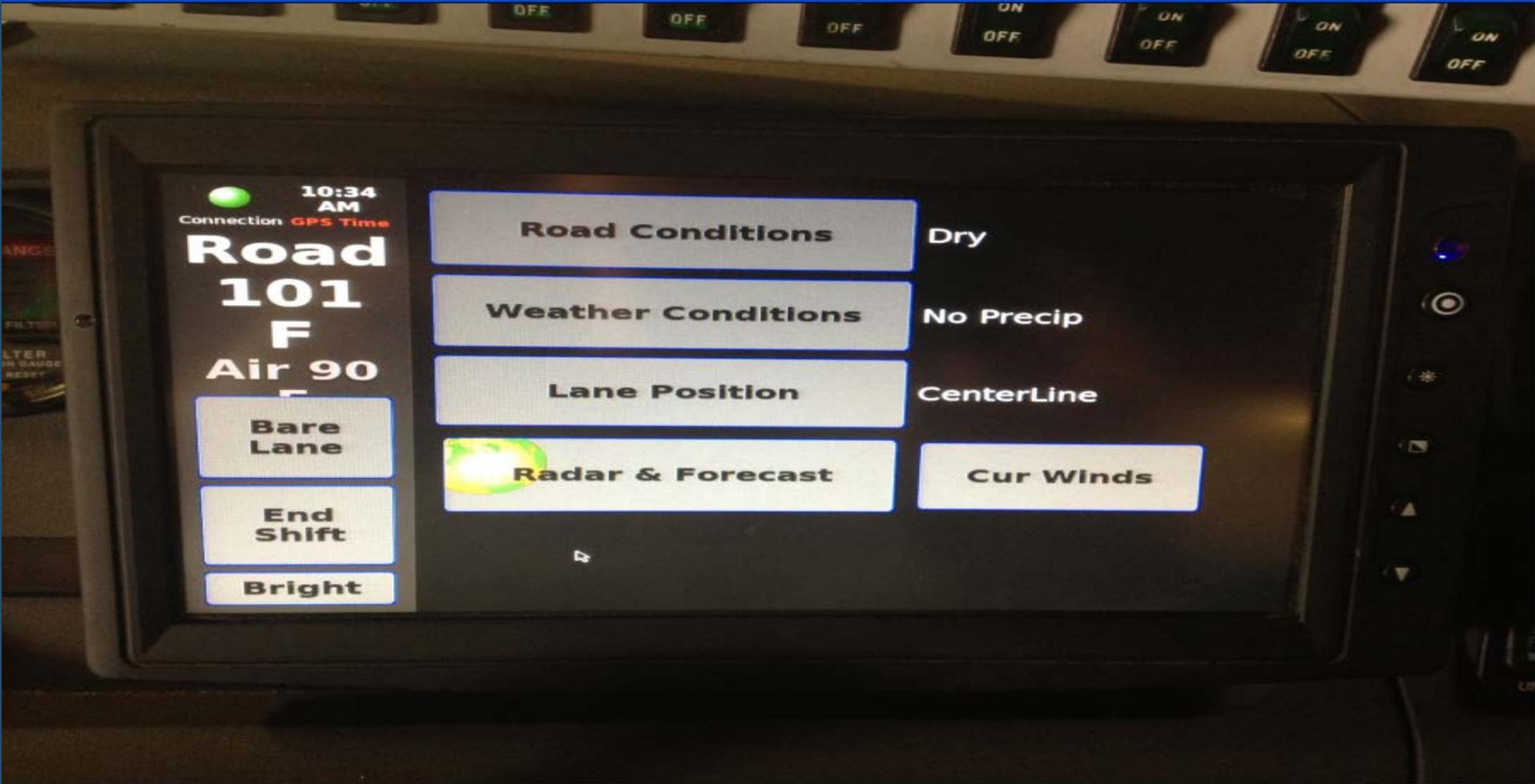
Total (Recv): 243.33 MB
 Files Sync'd: 972/8025 (12%)
 Server (Recv): 243.33 MB
 Peers (Recv): ---
 Peers (Sent): ---
 Peer Count: 1 (online)

Maint. Action
 preformed & Recom.





AVL Units in Truck: End-of-Shift Report button. (details later)

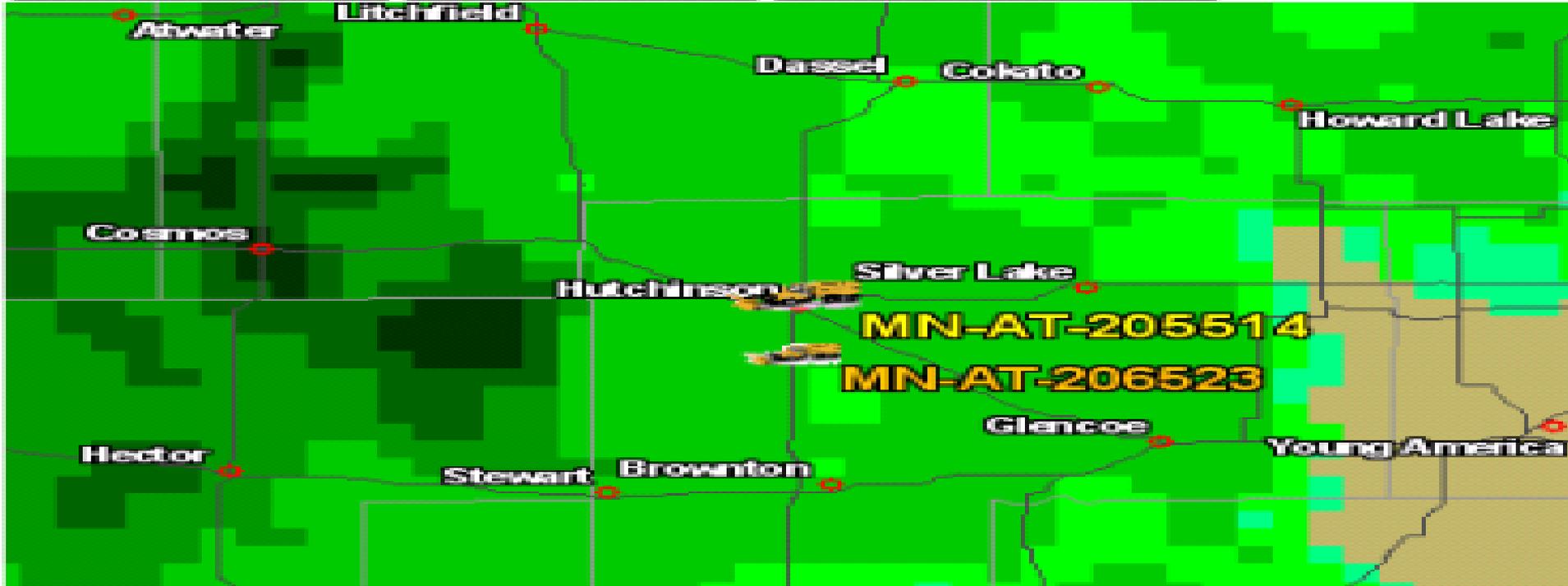




MDSS in Truck: Color-coded truck centered Radar shows your trucks location (yellow) and other AVL equipped trucks (orange) near you. The Radar view follows your truck around. (Auto Refresh)

Page loaded 2011-04-07 10:49:42 am CDT

(+) In reset Out (-)





MDSS in Truck: End-of-Shift Report

Shows amount of material applied and number of miles/hours spent sanding on each route maintained during shift

Accessed from: Truck, Smartphone or Office/Shop computer



MN-208572



MN-208572



MN-208572

Report Index:

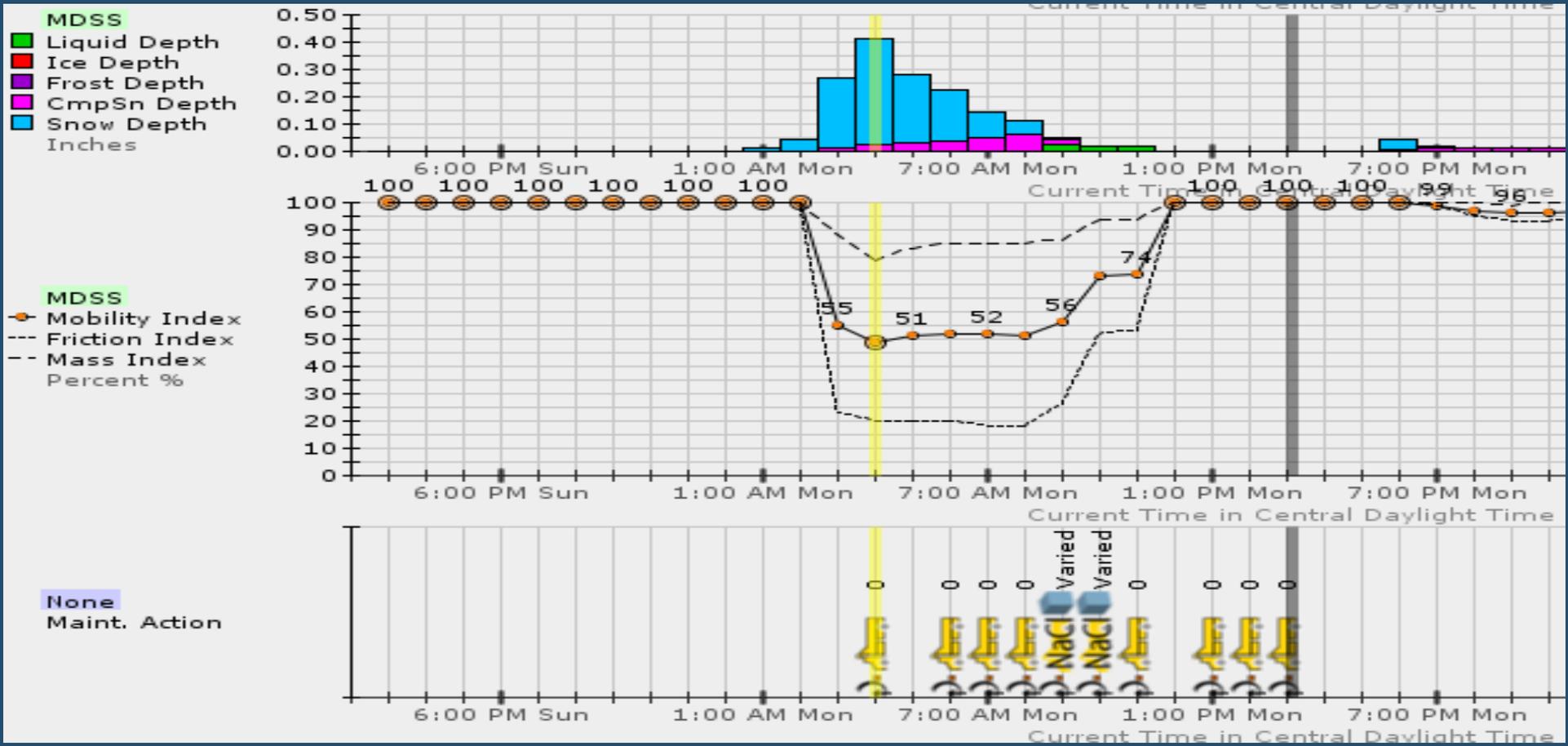
<u>Route(s)</u>	<u>Truck(s)</u>	<u>Miles</u>	<u>Hours</u>	<u>Materials</u>	
All	208572	43.5	1.7	12118 lbs Salt (6.06 tons)	More Details...
TP7R060F	208572	38.9	1.3	11442 lbs Salt (5.72 tons)	More Details...
TP7T060G	208572	2.1	0.1	630 lbs Salt (0.32 tons)	More Details...
TP7R060D	208572	0.8	0.0	None	More Details...





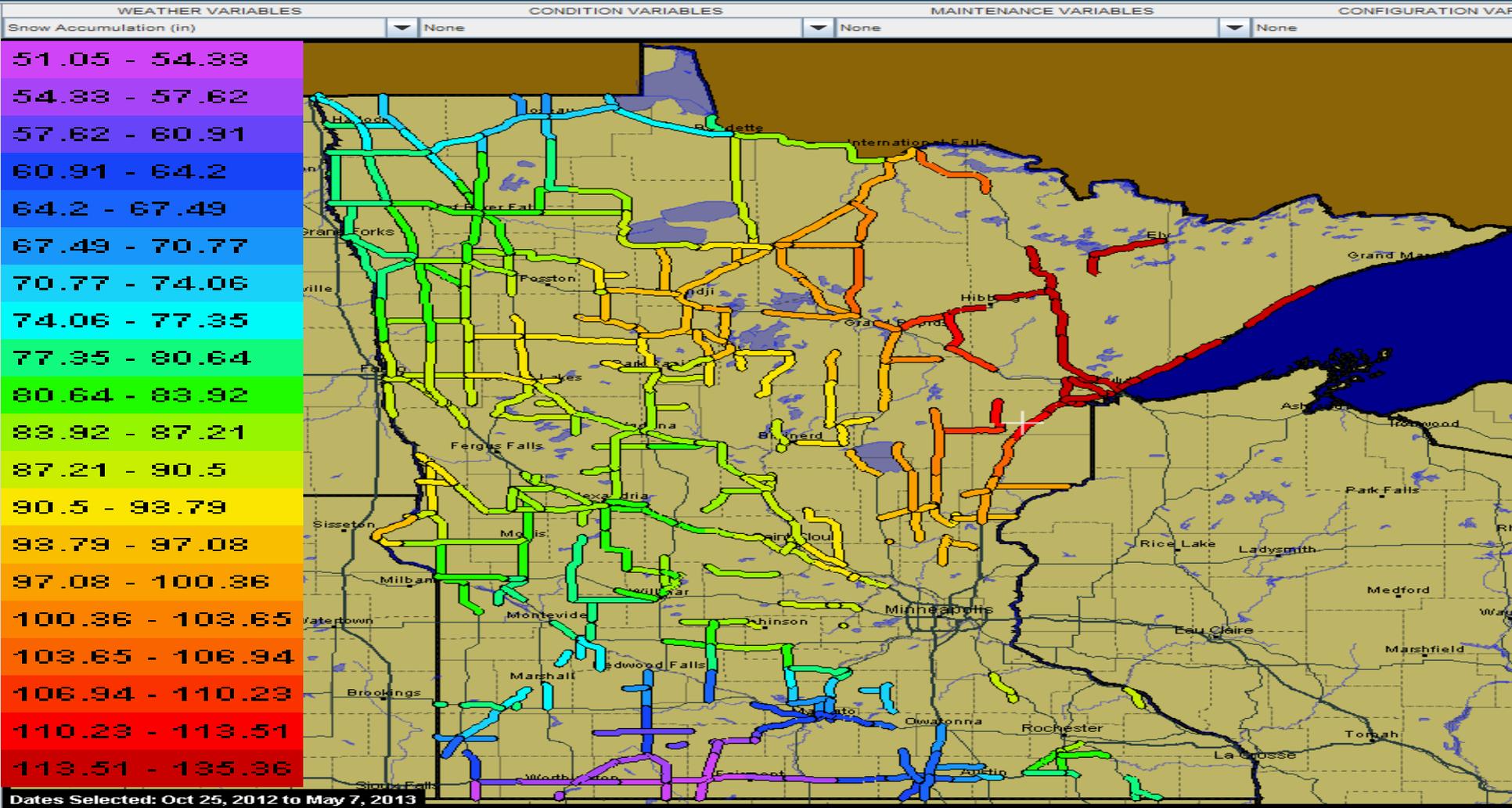
Pooled Fund Ongoing Research

Investigation in road condition based mobility index





Continued Evolution of Management Tools



Dates Selected: Oct 25, 2012 to May 7, 2013





Continued Assessment of MDSS Recommendations

TRUCK REPORT

Truck: MN-AT-208503

2:10PM Mon Jan 31, 2011

from selected time

Lane: Centerline [28 mins 46 secs from selected time]

Blade: Not Reported

Material: Prewet Salt [from selected time]

App Rate: 404.6 [from selected time]

Road Cond: Snow [31 mins 16 secs from selected time]

Snow: Not Reported

Total Snow: Not Reported

Weather: Snow [28 mins 46 secs from selected time]

Air Temp: 18 [from selected time]

Road Temp: 15 [from selected time]

MDSS Maintenance Alerts (Next 24 Hours)

@ Selected Time: Plow & Chemicals Recommended

Mon Jan 31, 2011 2:30PM CST 200 lbs



MDSS ALERTS

TP3PR218: TH15, TH23 to Cty. Rd. 74 (MN-256)

TH15: TH23 to Cty. Rd. 74, Driving ▶

TH15: TH23 to Cty. Rd. 74, Passing ▶

Switch to Route View...

Switch to Management Report View...



(Proposed)
200 lbs of Prewet Salt (w/ CaCl₂)



POP (Forecast Only)

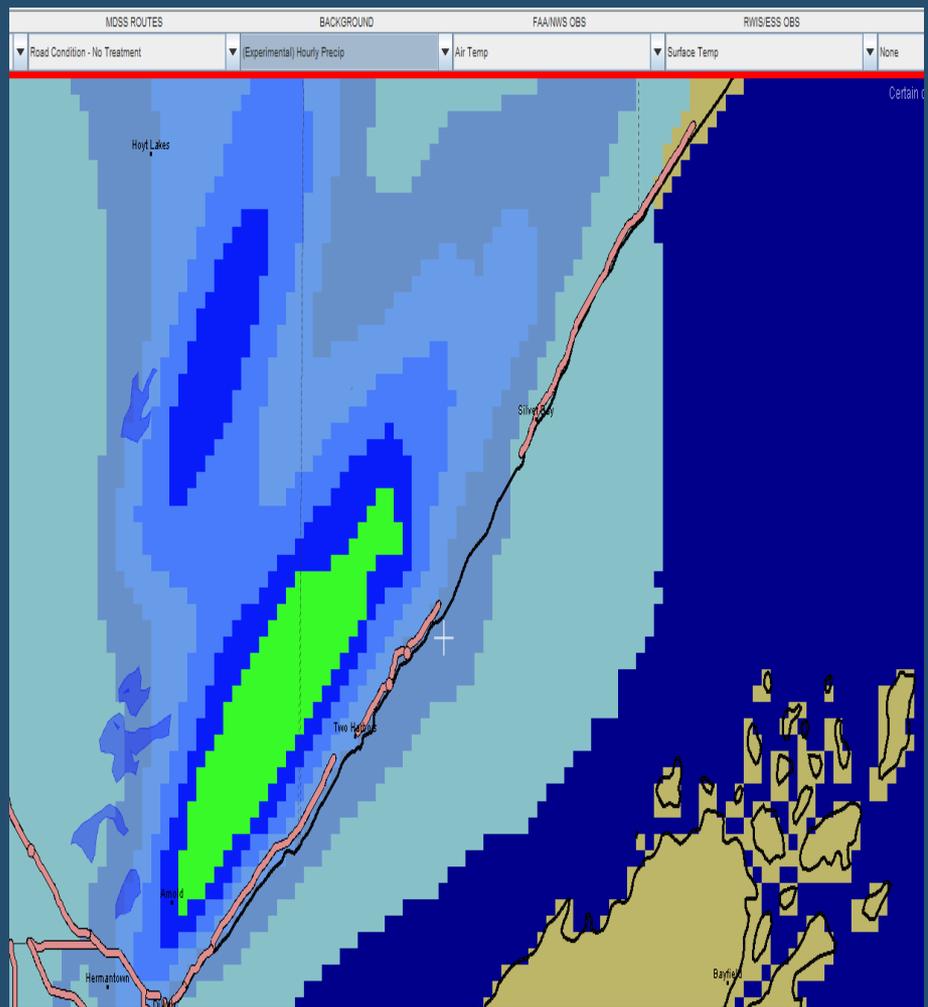
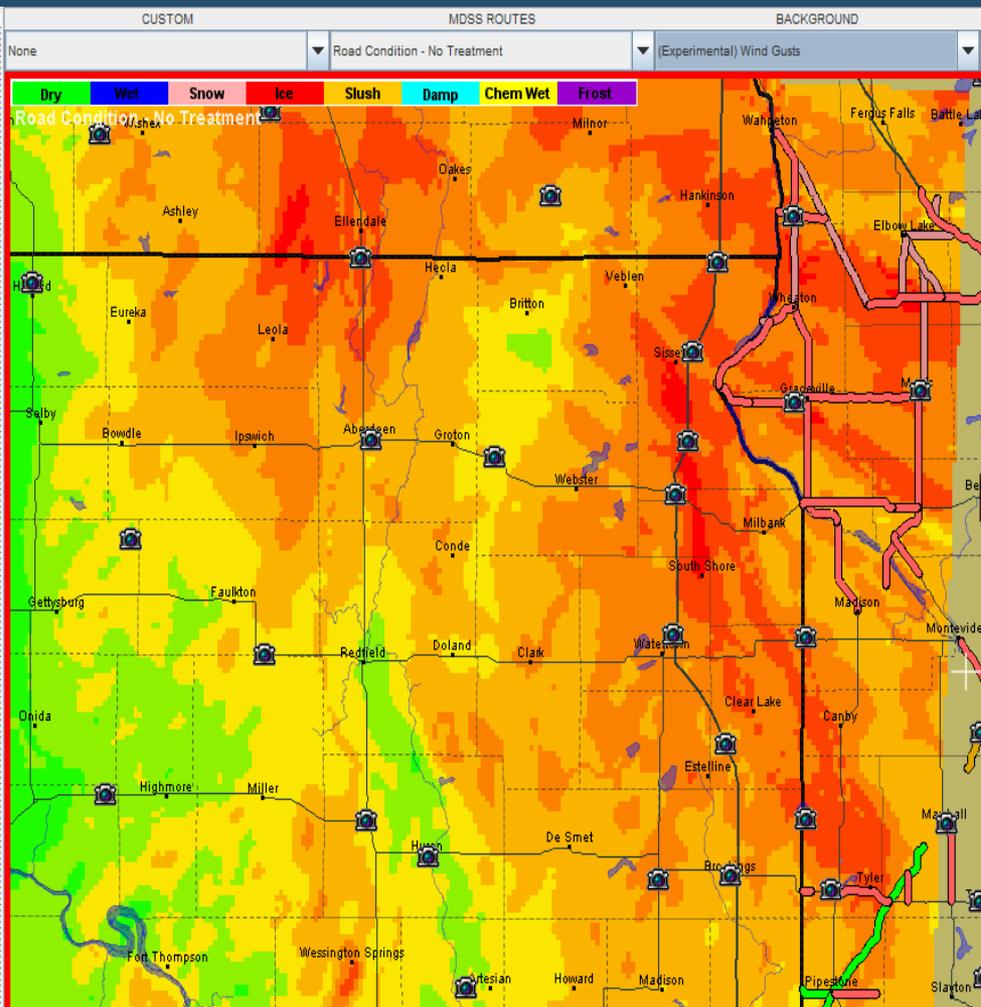
Current Time: Mon Jan 31, 2011 2:20PM CST

Selected Time: Mon Jan 31, 2011 2:10PM CST

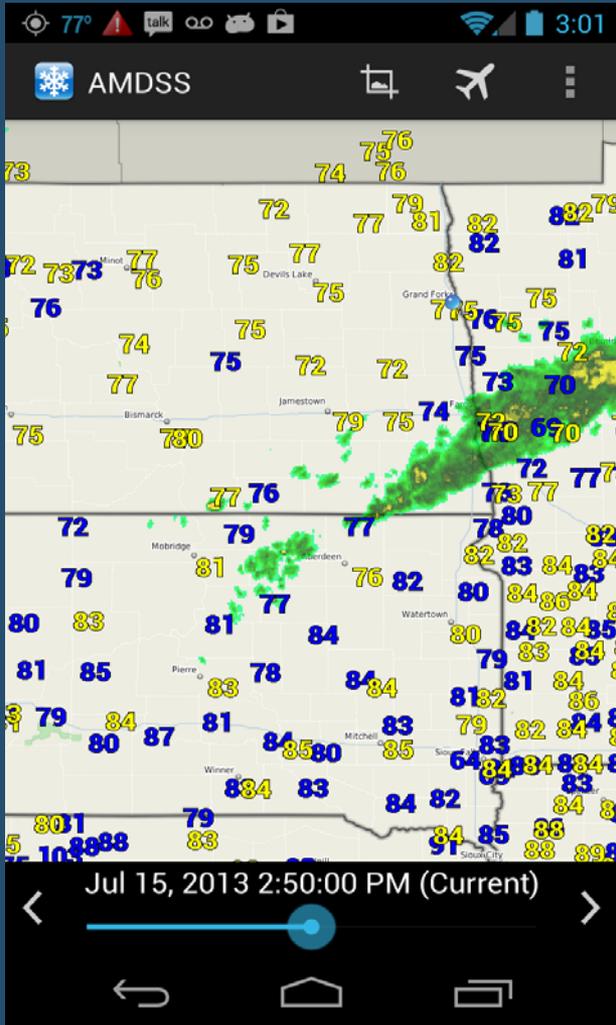




Fine-scale Weather Modeling for Roadway Impacts



Enhance Mobile MDSS options



AMDSS

I-29 - GARDNER TO HILLSBORO, PASSING

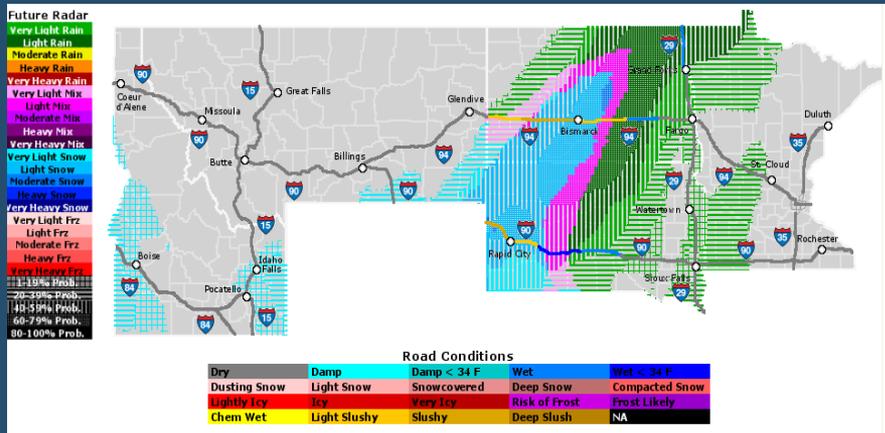
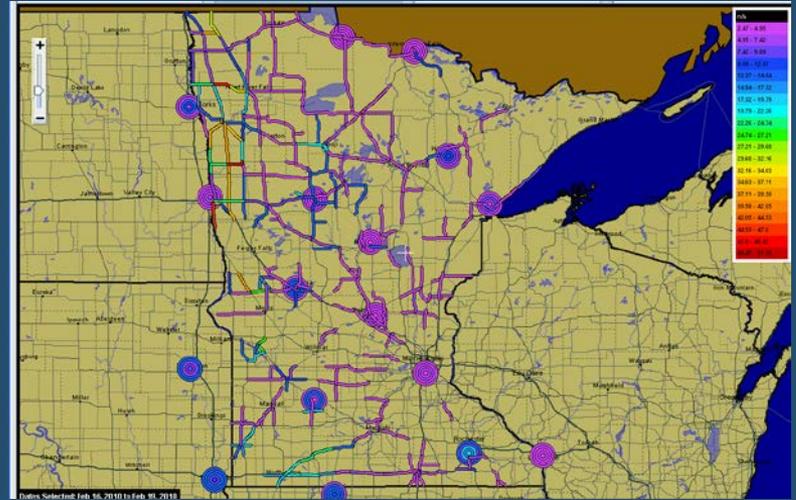
I-29 - GARDNER TO HILLSBORO, DRIVING

Current	24 Hr Forecast	Maintenance
Data Loaded at Jul 15 16:00:00 PM		
24-hr High Air Temperature		
		89 F at Tue 3:00 PM
24-hr Low Air Temperature		
		71 F at Tue 6:00 AM
Peak Wind Speed		
		SSW @ 16G25 MPH @ Tue 11:00 AM
Peak Wind Gust Speed		
		SSW @ 15G25 MPH @ Tue 10:00 AM
Winds >= 15 mph		
		thru Mon 4:00 PM
24-hr Expected Snow		0.0 in
24-hr Expected Liquid		0.076 in
24-hr Expected Ice		0.0 in
Precip Timeframe		
		thru Mon 8:00 PM
Precipitation Probability		
		60.0% @ Mon 4:00 PM



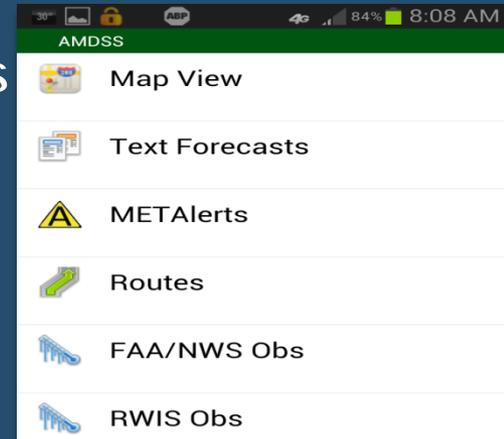
MDSS Pooled Fund: Current Directions

- Foster initial & ongoing deployments
- More powerful management tools & reports
- Refine physical modeling
- Validate predictive capabilities
- Use mobile data more effectively
- Link to other DOT systems
 - Maintenance Management
 - Asset Management
 - Traveler Information



Mobile Applications

- Android
- iPad
- iPhone





MDSS Pooled Fund: Benefits of Membership

- Jointly directed leading-edge R&D
- Convenient funding mechanism
- Learning
 - State to State
 - Vendor to State
 - State to Vendor
- Nationally prominent forum for advancing MDSS and other Road Weather related technologies

New States Are always Welcome

Next Meeting Fall 2013





Questions?

Jakin Koll (MnDOT)

jakin.koll@state.mn.us

Interested in joining the Pooled Fund?

Contact: Dave Huft (SDDOT)

dave.huft@state.sd.us

Your Destination...Our Priority

