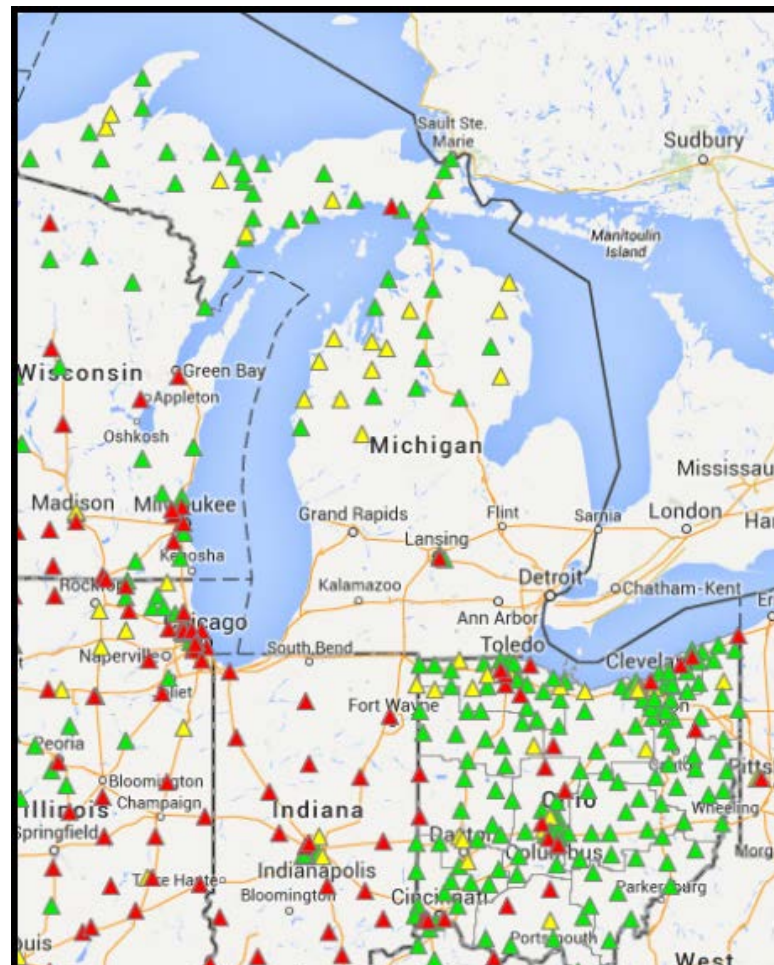


RWIS and ESS

Gregory Glover, Seneca County Transportation Manager, ODOT

Abner Johnson, RWIS Coordinator, ODOT



RWIS and ESS

- **What is RWIS?**
- **Why RWIS Helps**
- **How RWIS Works**
- **Using RWIS**

Winter Operations

- **Flexible Strategies**
 - What Happens? (*The Plan*)
- **Timely Assessment**
 - What's Happening? (*Perception*)
- **Proper Adjustments**
 - What Happened? (*The Process*)



What Is RWIS?

RWIS = Road Weather Information System

- Environmental Sensor Stations (ESS) in the field
- A communication system for data transfer
- Central servers collect and distribute data

ESS Measure Real-time atmospheric, pavement, wet/dry conditions, and visibility.

RWIS Data Support forecast development and Automated Warning Systems (AWS)

Displays Organize information so it can be easily interpreted by a manager in decision making.

What Is RWIS?

Sensors

- **Pavement** Surface temp & pavement conditions
- **Air Sensor** Measures Atmospheric Temperatures
- **Anemometer** - Measures wind speed
- **Wind Vane** Measures wind direction
- **Visibility Sensor** Detects fog and smoke
- **Rain Gauge** Measures precipitation

Why RWIS Helps

**RWIS Helps Because Weather
Forecasts can be Inaccurate or
Inconsistent**

Key Questions

What Am I Going To Get?"



When Am I Going To Get It?"

NOAA NWS Model Guidance

National Weather Service
NCEP Central Operations

[Home](#) [News](#) [Organization](#)


[NCEP Home](#) > [NCEP Central Operations](#) > [Systems Integration Branch](#) > [Model Analyses and Guidance](#)

Model Analyses and Guidance

The legacy Model Analysis and Forecast site will be decommissioned on August 27, 2011.

[Read Latest Information and News](#)

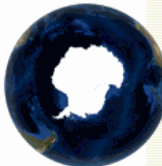

Select [Model Guidance](#), [Observations and Analyses](#), or [Tropical Guidance](#)

MODEL GUIDANCE	OBSERVATIONS AND ANALYSES	TROPICAL GUIDANCE
		

USER'S GUIDE
[Frequently Asked Questions](#)
[Upcoming Changes](#)
[Training](#)

More information is available in the
[Product Description Document](#)

Legacy [Model Analysis](#) and [Forecast](#) webpage



Forecast Models

Global Forecast System (GFS)

U.S. Model

Runs Four (4) times day; (7a, 1p, 7p, 1a)

European Centre for Medium Range Weather Forecasts (Euro)

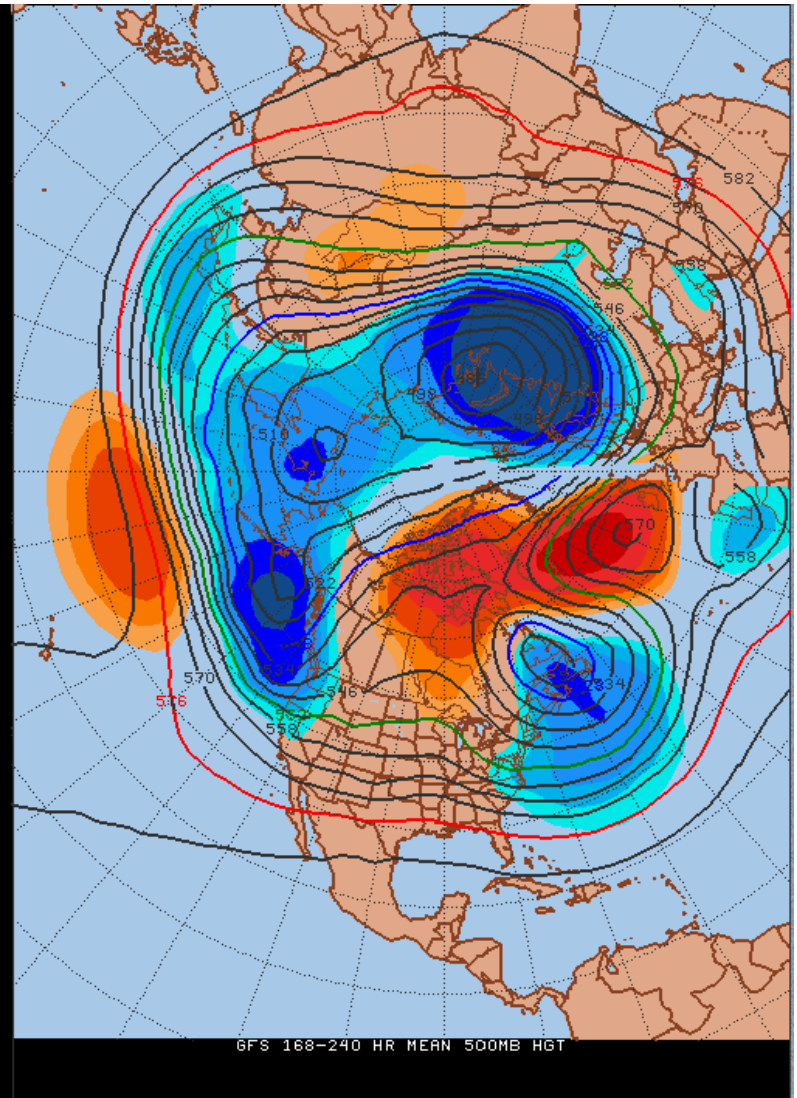
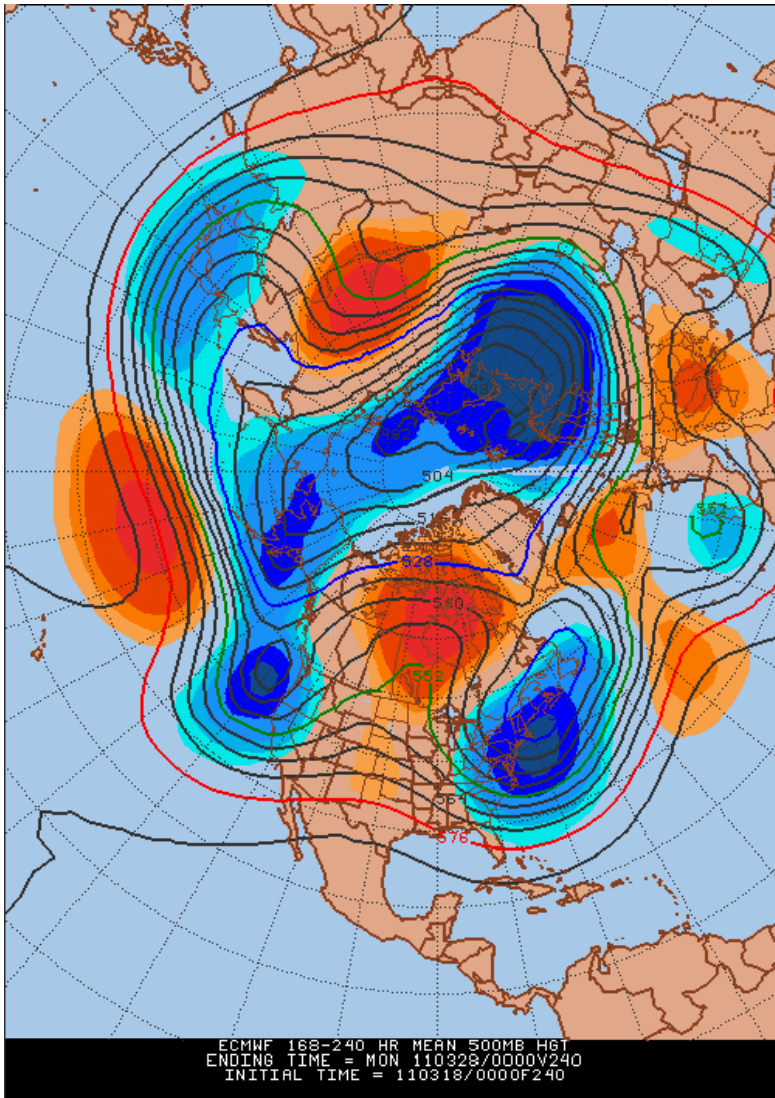
Runs two (2) times a day; (7p, 7a)

Canadian Global Environmental Multi- Scale Model (Canadian or GEM)

Runs two (2) times a day; (7p, 7a)

Inconsistencies

Euro



GFS

Why RWIS Helps

**RWIS Fills This Gap By
Validating, Modifying or Refuting
Forecast Guidance Based on Live
Data**

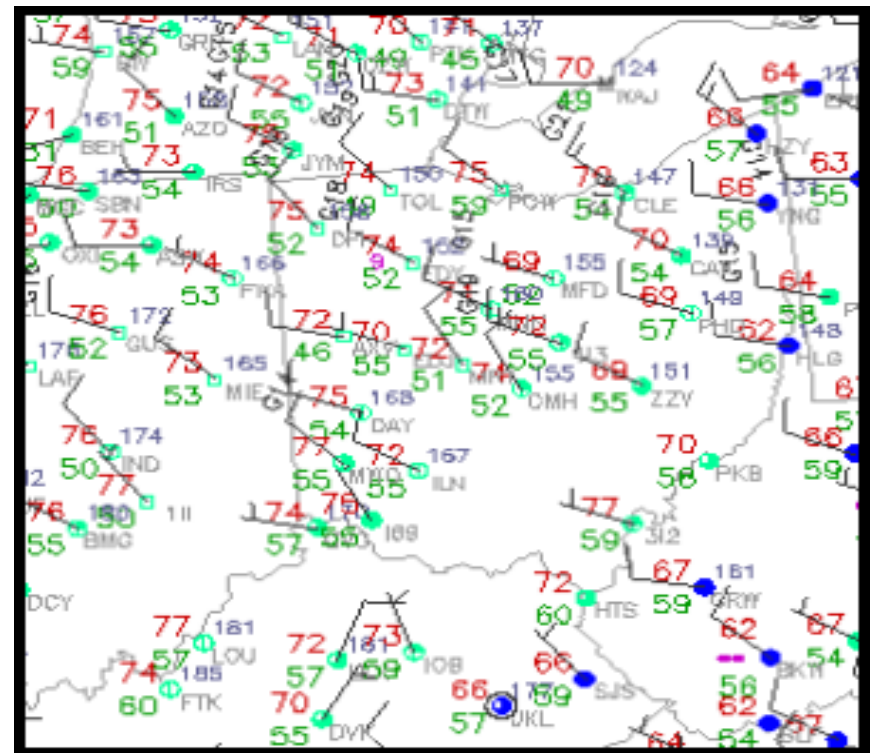
Why RWIS Helps

**RWIS Helps Because NWS
Sampled Data Can Be Inaccurate
or Late**

NWS Sampled Data

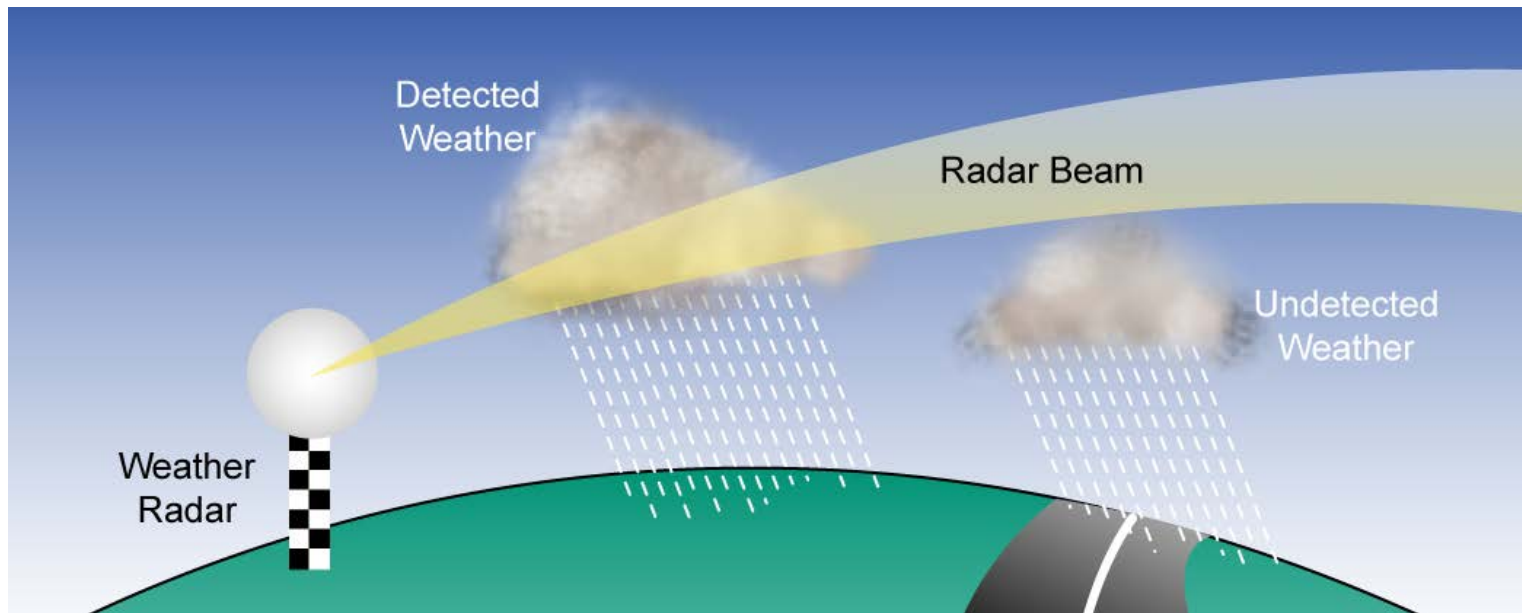
NWS Surface Observations (AWOS & ASOS)

- Hourly Updates
- Airport Obs



NWS Sampled Data

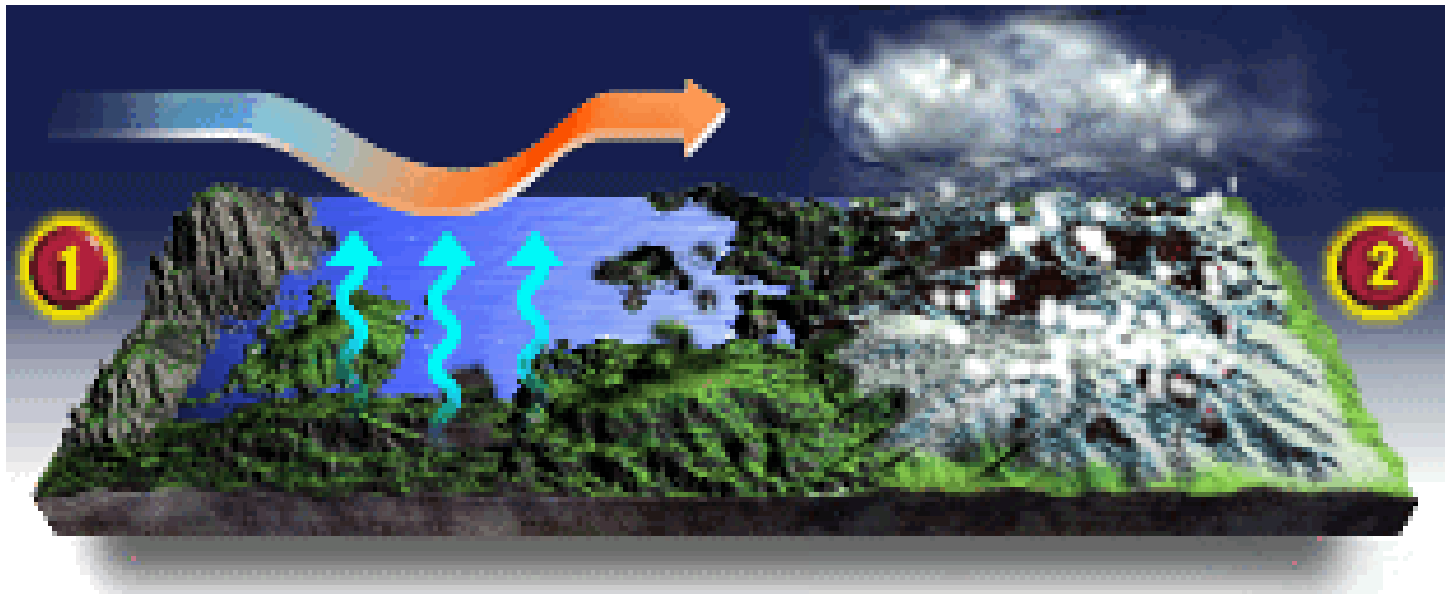
Radar



**RWIS Helps by Detecting
Precipitation Not Seen By Radar**

Lake Effect Snow

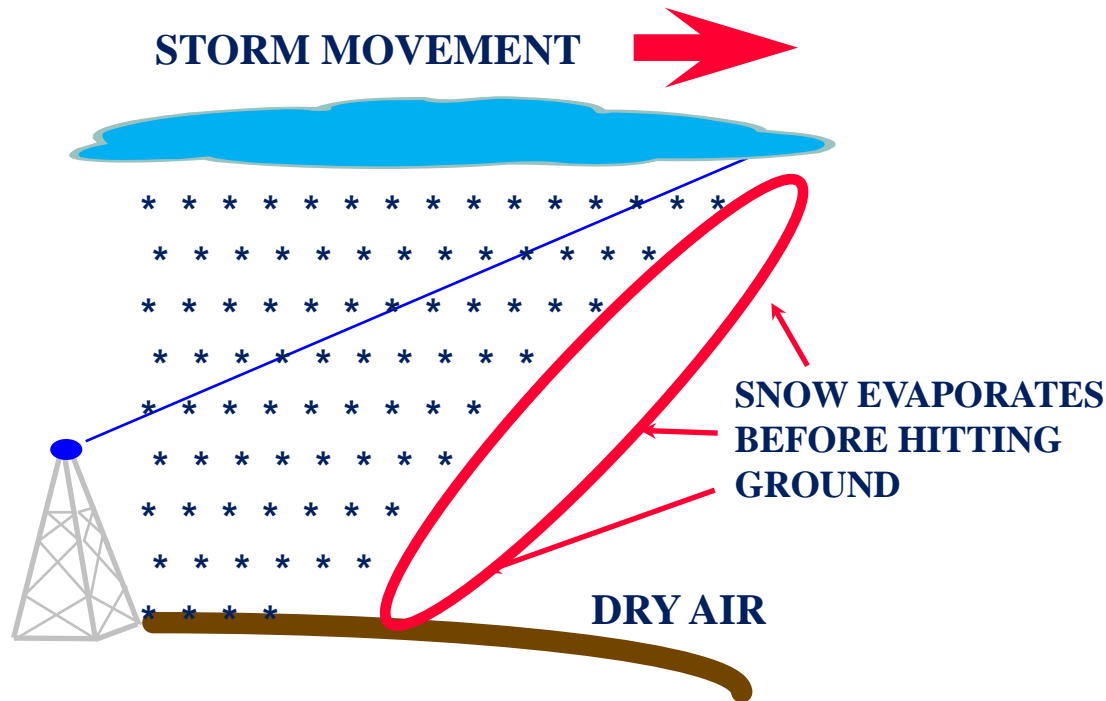
Air is at least 15 degrees colder than the lake at 5,000 ft. (850mb)



Wind blows warm moist air over land which cools and forms snow.

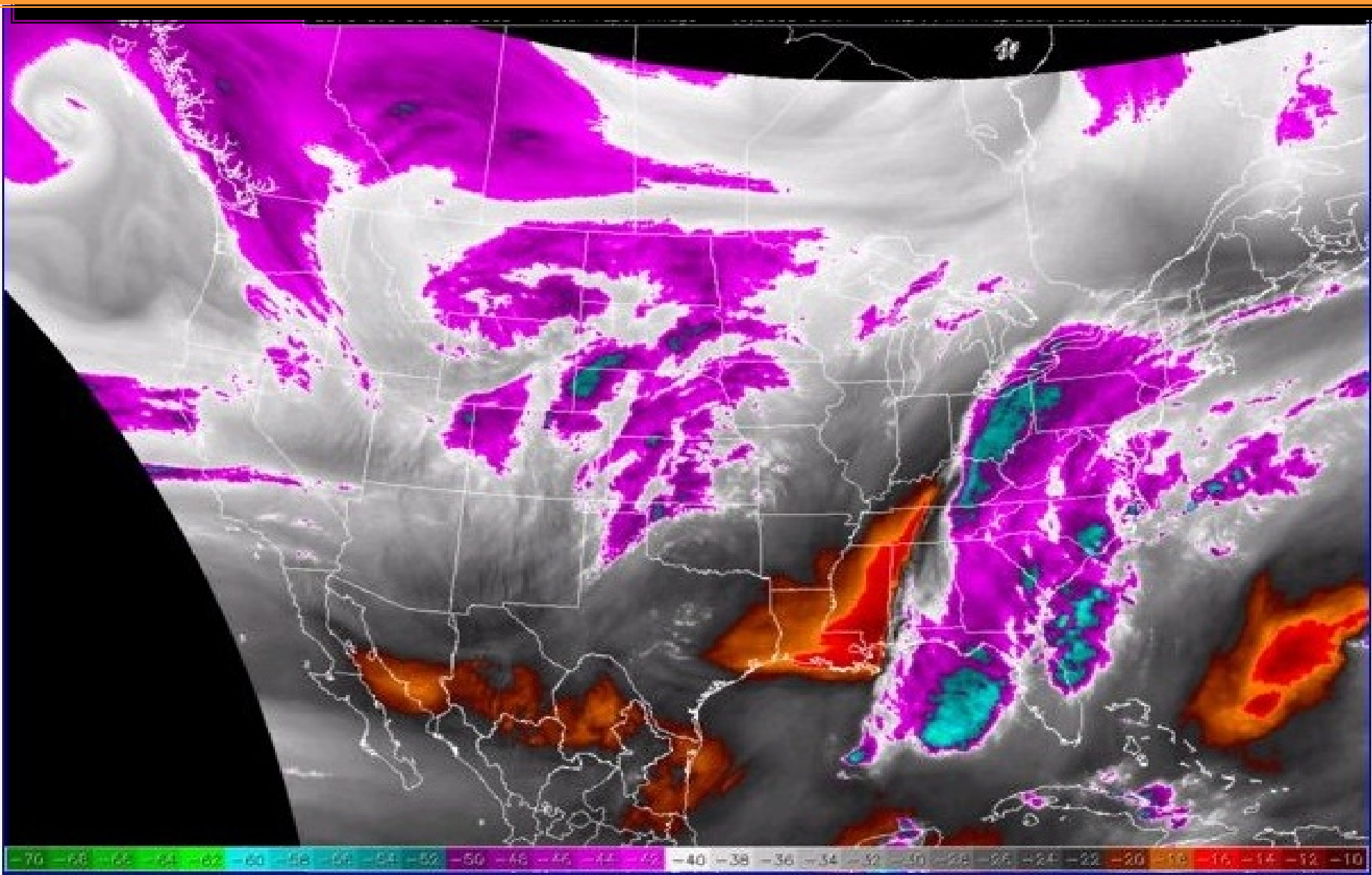
NWS Sampled Data

Radar



**RWIS Helps by
Confirming Radar Precipitation**

NWS Sampled Data



Why RWIS Helps

**RWIS Fills These Gaps By
Validating Actual Precipitation:**

- **Start Times**
- **Stop Times**
- **Types and**
- **Intensities**

Based on Live Data

RWIS and ESS

Tips

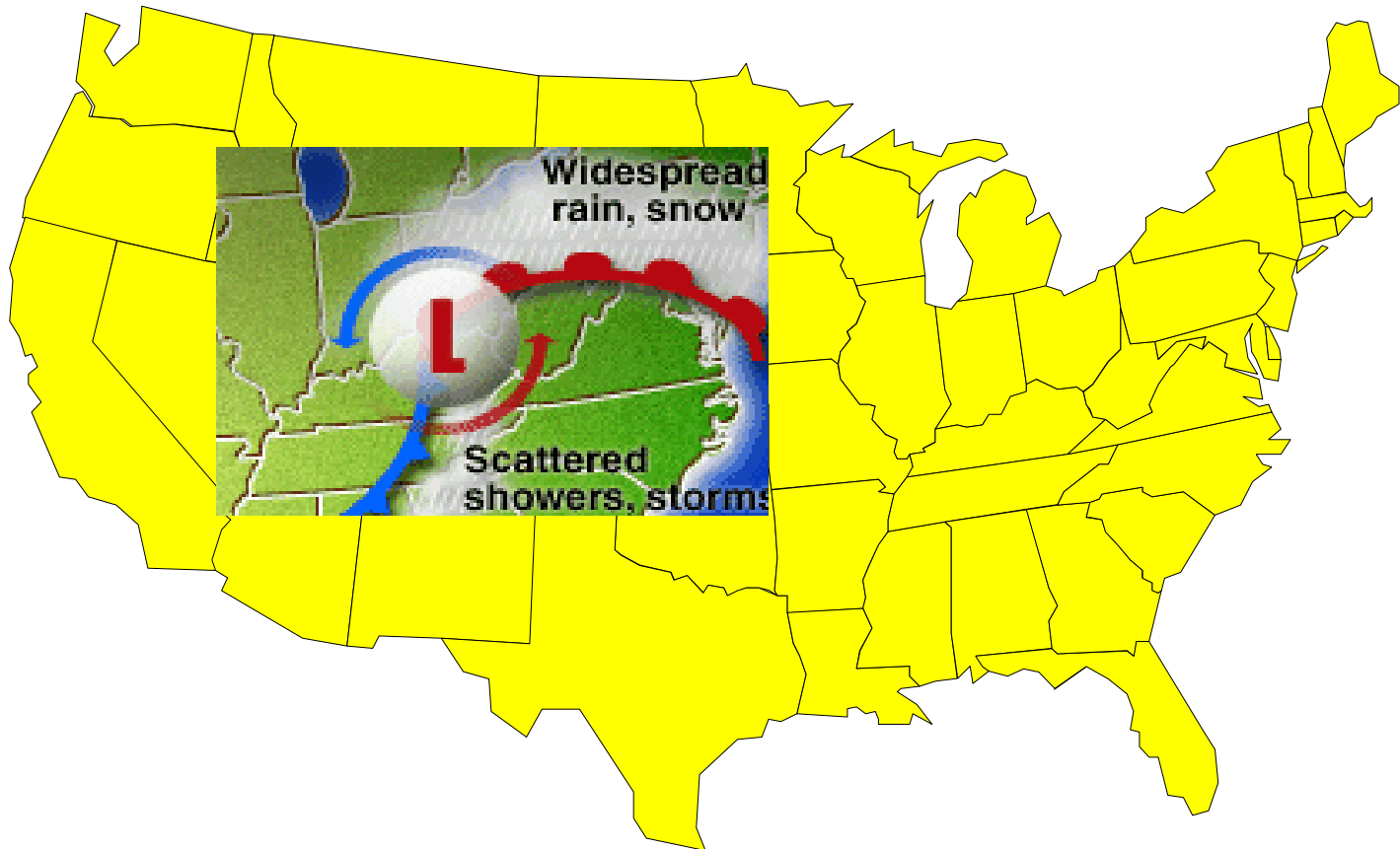
Wind



"Wind Direction"
***Origination, Not
Destination!***

Low Pressure Systems

**Lows Bring us Moisture
Highs Clear us Out**



How it Works



- **Automated “Ground Truth”**

- *Every 5 Minutes*
- *178 ESS Locations*
- *All Major Highways*
- *All 88 Ohio Counties*

- **Atmospherics**

- *Air Temperature*
- *Dew Point*
- *Wind (Speed /Gusts /Direction)*
- *Precipitation (Type /Intensity)*

- **Pavement**

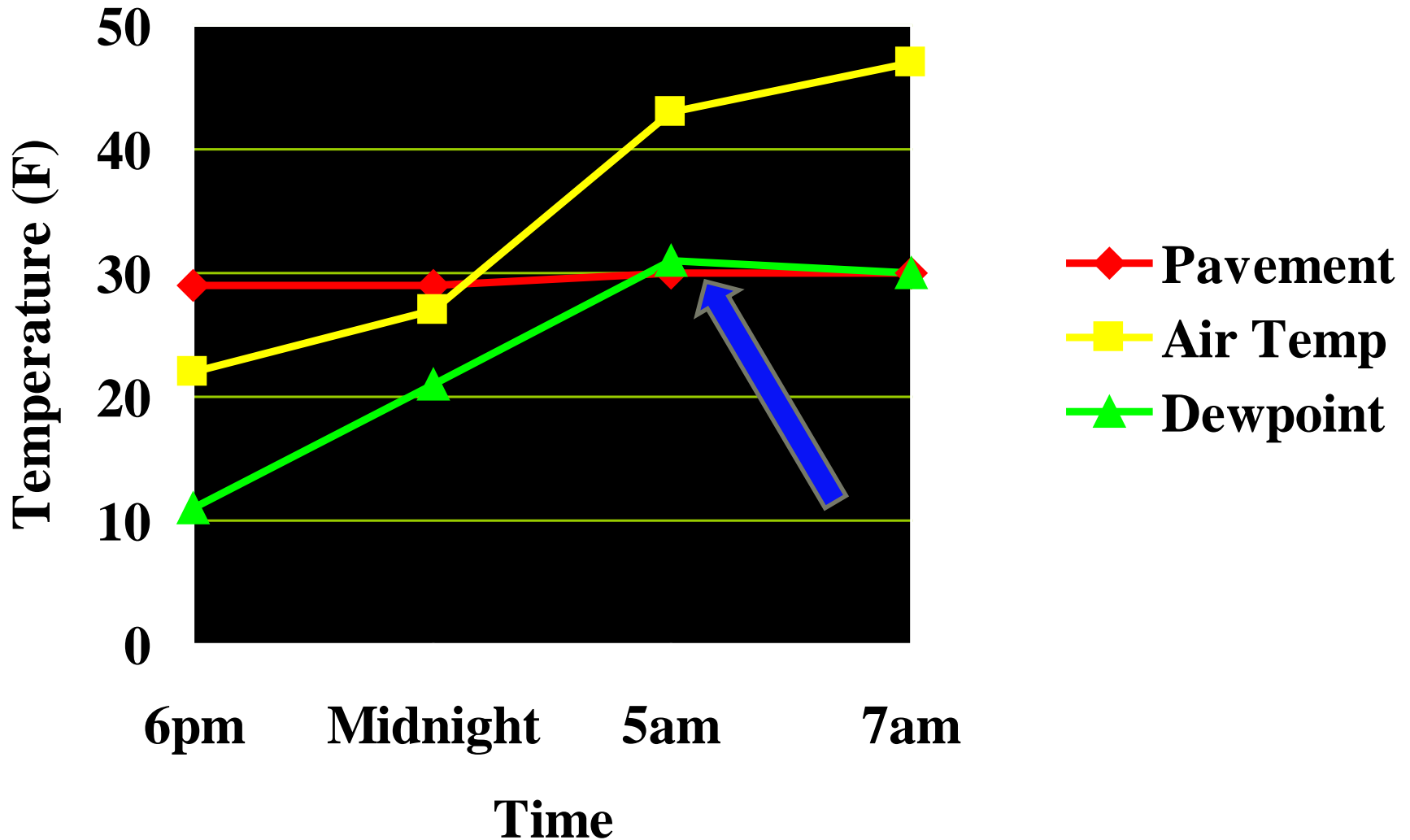
- *Temperature (Surface/ Sub)*
- *Wet/Dry Condition*



How It Works

**Pavement Temperature
Determines the
Type, Timing & Duration of
Snow & Ice Operations**

How It Works



Using RWIS

Gregory Glover

**Seneca County
Transportation Manager**

Ohio Department Of Transportation

Using RWIS

Using RWIS

Using RWIS

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THANKS!

