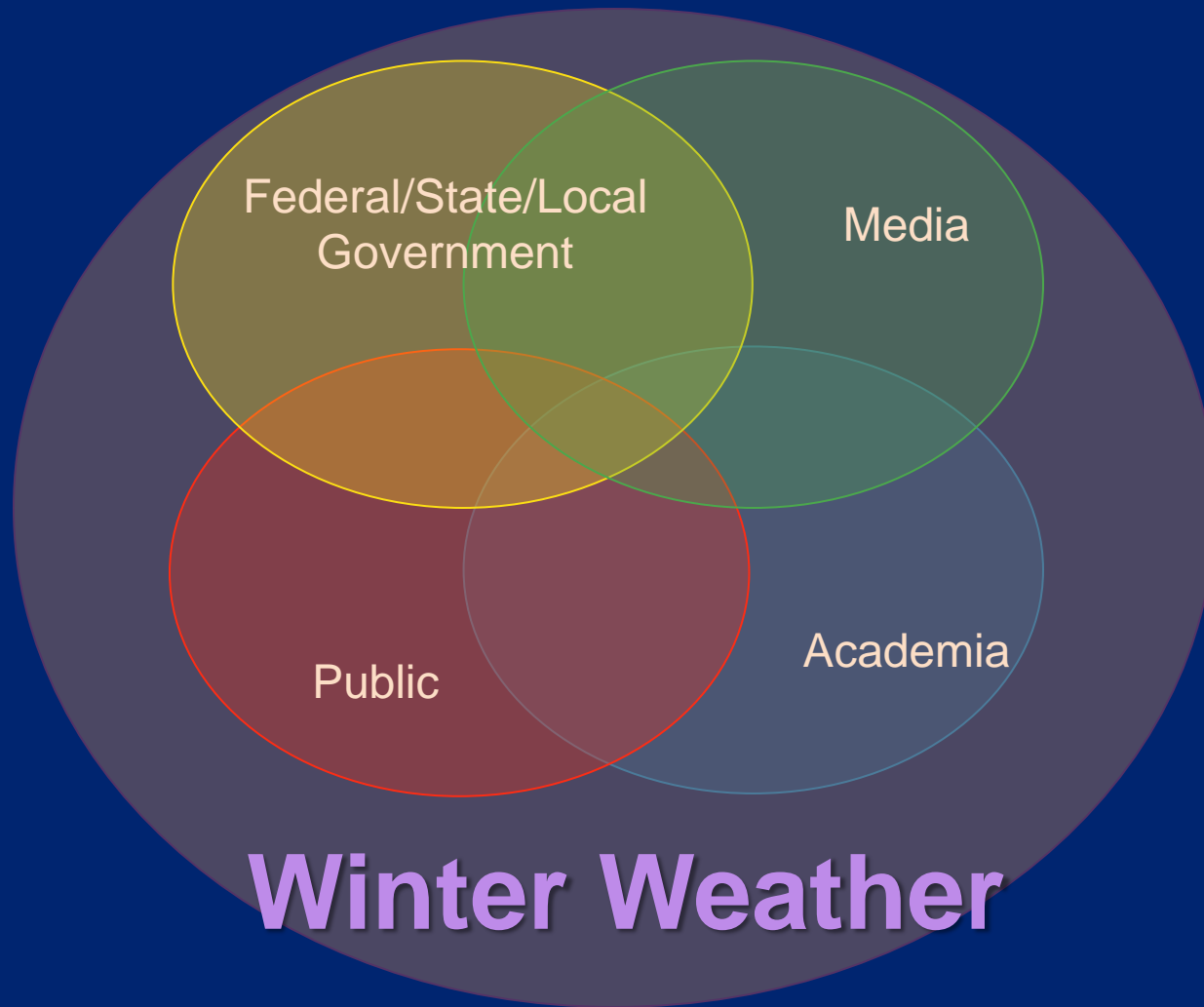


National Weather Service

Winter Weather Integrated Warning Team

8 December 2014



Outline



- **Changes based on 2014 Winter Season**
 - Keith Stellman, Meteorologist-in-Charge
- **Wind Chill/Winter Storm Warning Changes**
 - Trisha Palmer, Meteorologist, Winter Weather Program Leader
- **When Accurate Forecasts Are Not Good Enough**
 - Jason Deese, Senior Meteorologist
- **Interactive Session**



NWS CHANGES BASED ON 2014 WINTER SEASON

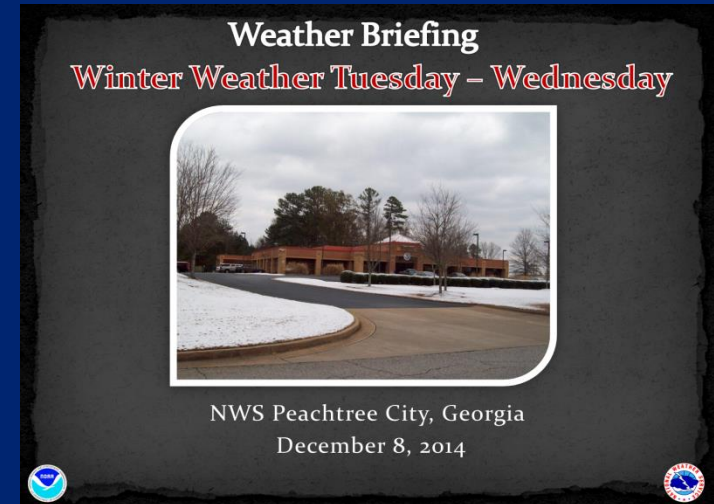


- Staffing structure/Briefings/SOC
- SPIA
- Road sensors/mesonet
- Statewide graphics

NWS Staffing Structure



- **We hear you!**
- Briefings and emails are extremely important
 - *Not part of our “Routine” duties*
 - *Rethink our normal operations plans to better serve you with these duties*
 - *To better accommodate, we are looking at our shift rotation to help free up a person dedicated to those duties....routinely! (** not adding people)*
- Staffing model for weather events includes a slot for SOC deployments



Ice Storm Index

SPIA -Sperry-Piltz Ice Accumulation Index



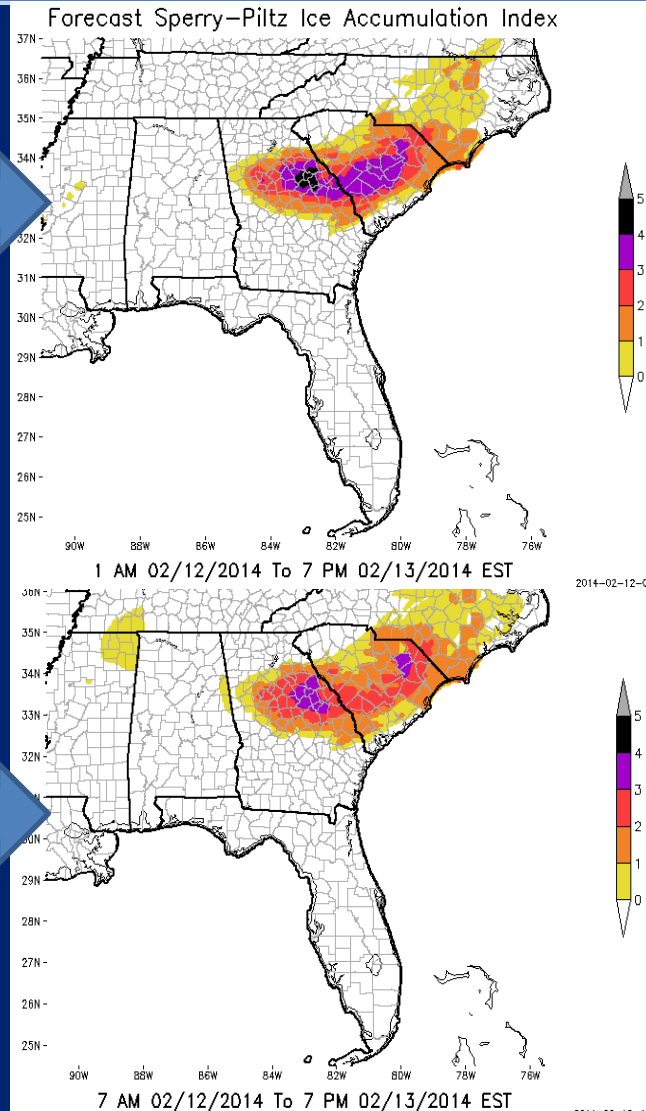
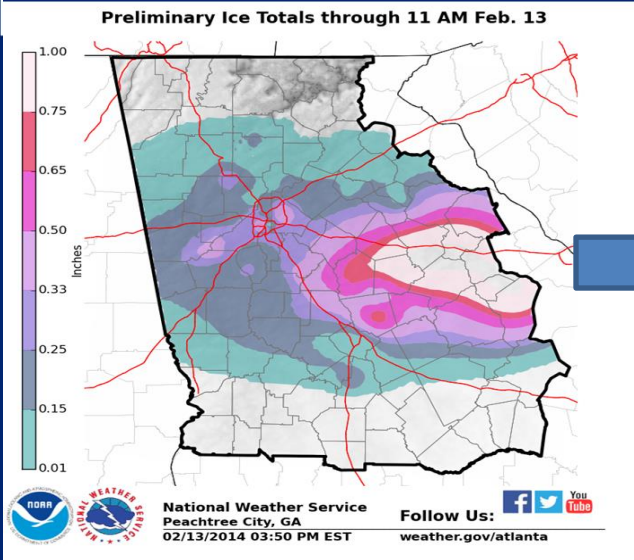
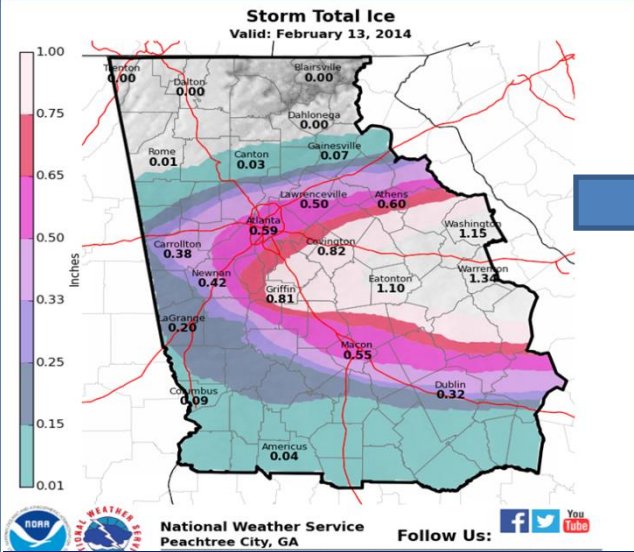
The Sperry-Piltz Ice Accumulation Index, or "SPIA Index" – Copyright, February, 2009

ICE DAMAGE INDEX	DAMAGE AND IMPACT DESCRIPTIONS
0	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
2	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
3	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
4	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
5	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.

(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

SPIA Index Example

Changes over time as forecast changes



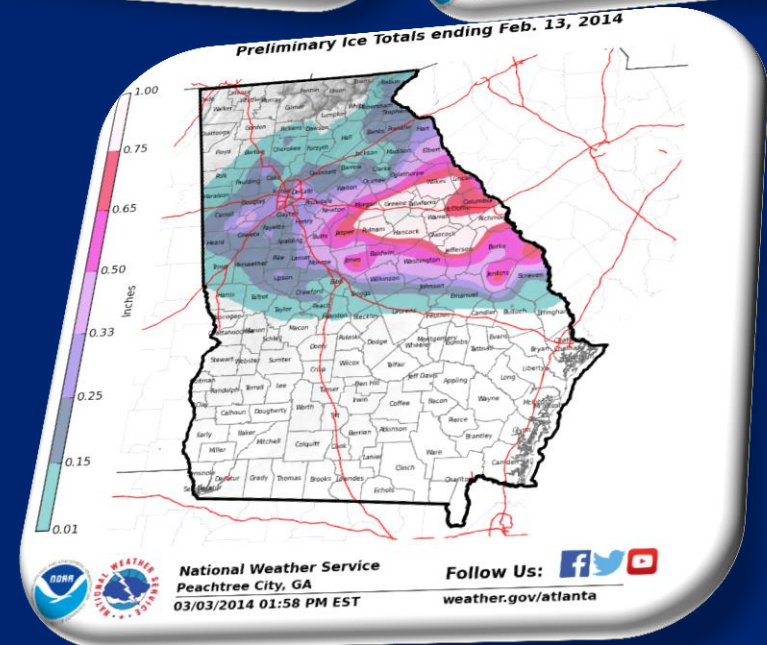
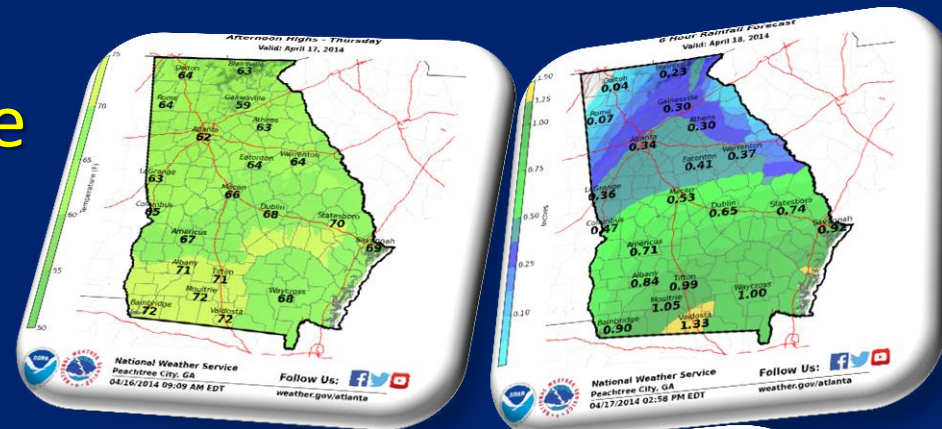
Here are 2 examples of how the index was impacted by the decrease/increase in winds, ice accumulation or both as the forecast was evolving

February 11-13, 2014

State Scale Graphics



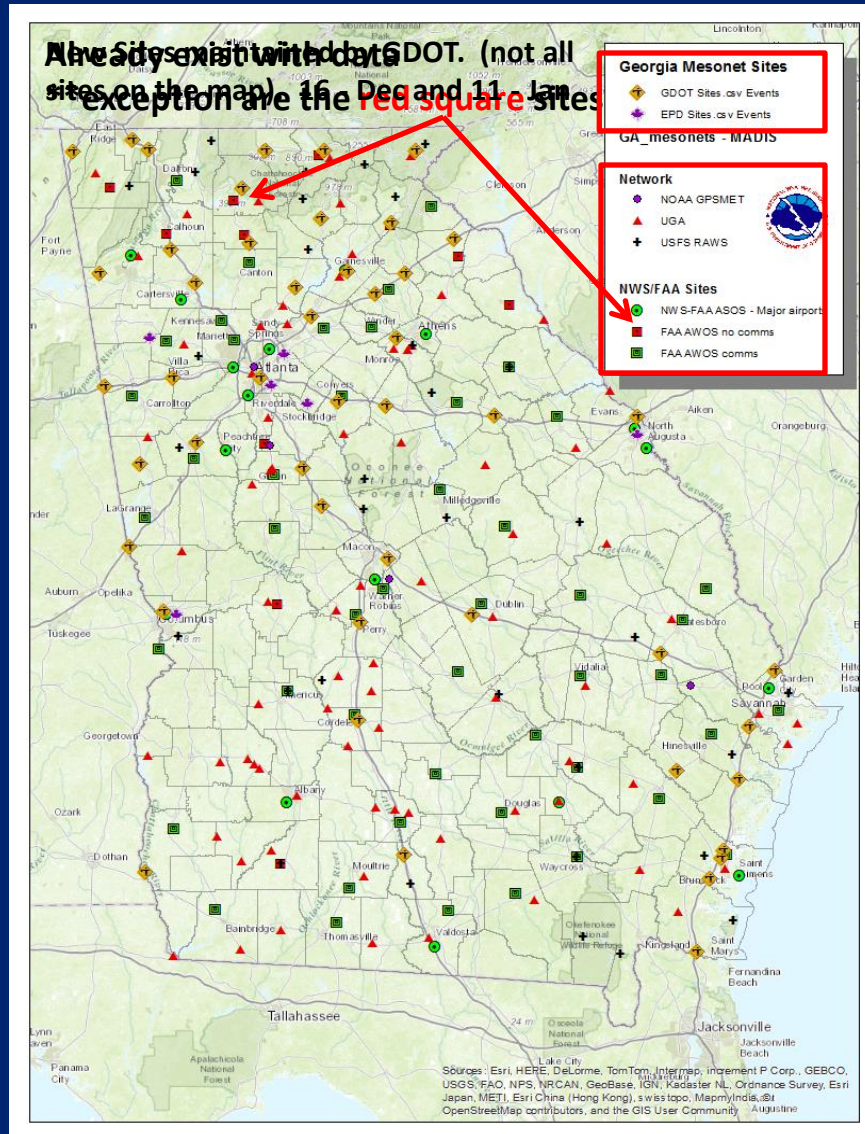
- Ability to auto-produce using surrounding office information
- Standard Weather Elements
 - Snow, ice, winds, temp, etc
- Non-Standard Elements
 - More manual
- Web page in development



MesoNet/Road Sensors



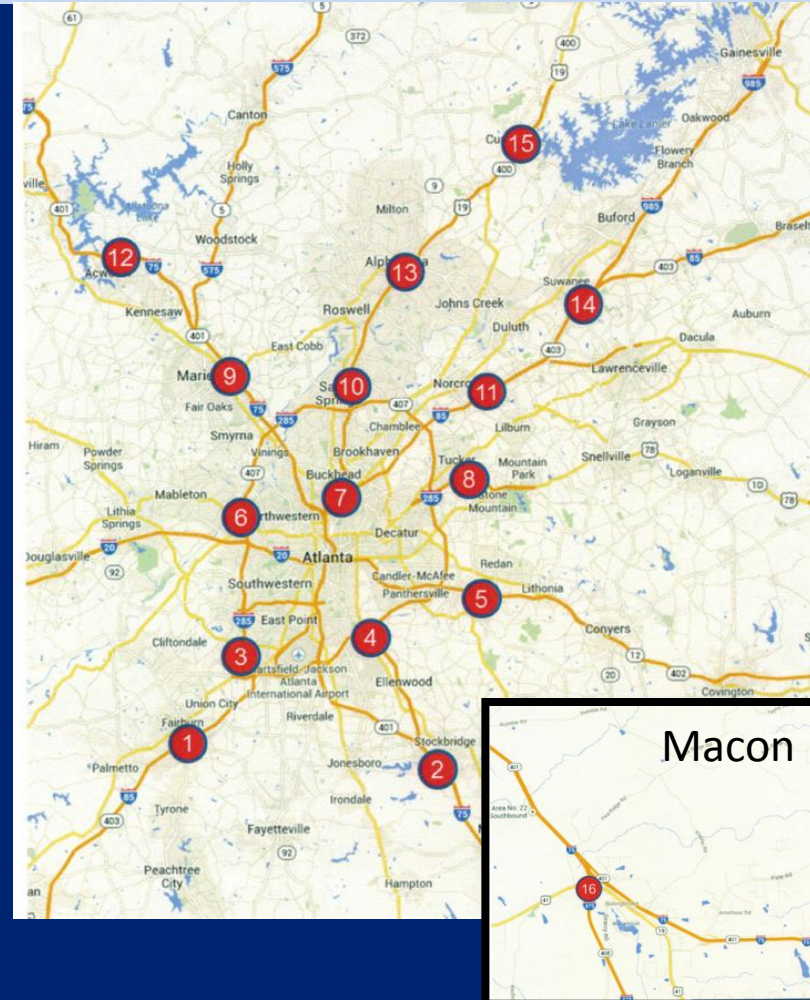
- #1 item on the Governor's Task Force recommendations from the Weather subgroup
- NWS Asked to be a part of the Mesonet subcommittee
 - Worked with all current system owners to define what this might look like
 - UGA, UFS, GFS, NWS (& FAA), EPD, GDOT
- GDOT/GEMA will talk later about the specifics of the system and the data
- The additional data will help us in the overall warning process



New Sites, New Data



- 16 new sites, 15 in the Atlanta Metro, 1 in Macon
 - NWS worked with GEMA/GDOT on density, data requirements, priorities
 - End of December online
 - Data will be pushed to MADIS*
 - <http://madis.noaa.gov>
 - NOAA's data assimilation system for mesonets
- Data will automatically be pulled in and populate our system



Not done yet...



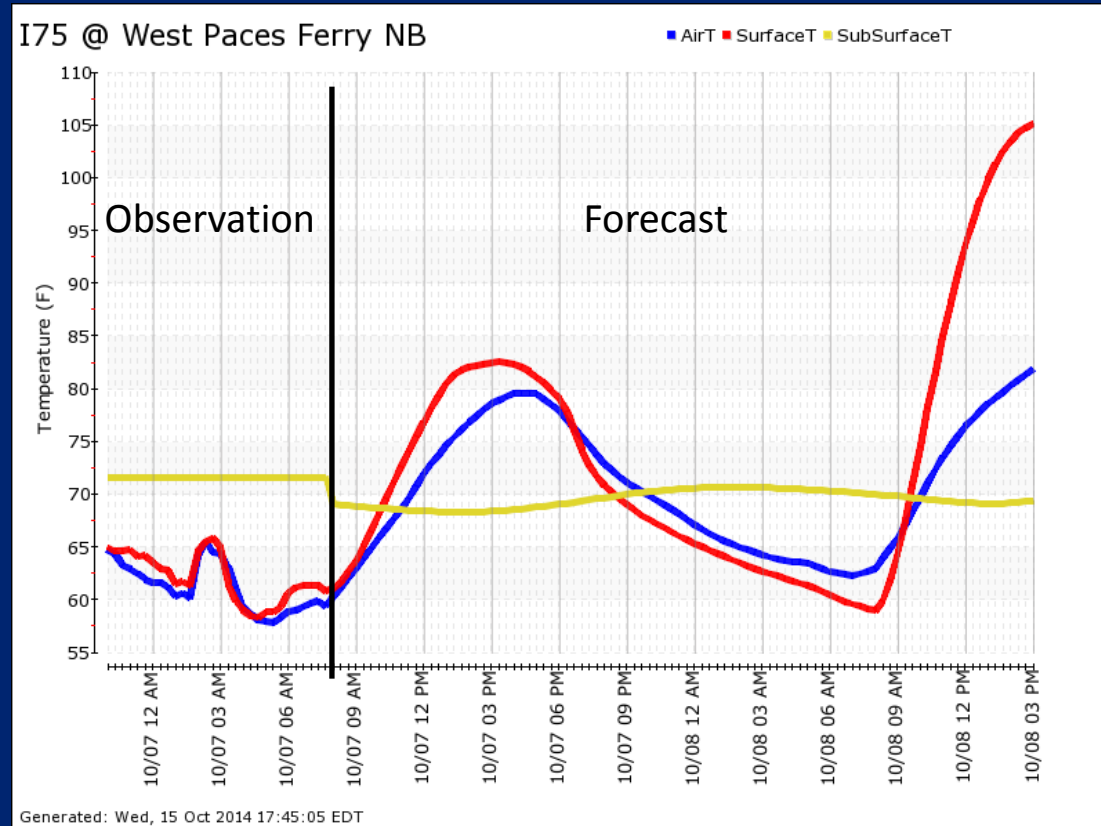
- **11 new sites across North GA by end of January**
 - NWS worked with GEMA/GDOT on density, data requirements, priorities
 - GDOT utilizing existing sites installed in the mid 2000's
- **All sites will relay Road Temperature and Road Sub-surface temperature.****
 - *Also a priority from Gov Task Force*





Road Sensor Data

- Ingest data and use as a supplemental data source in warning decisions and as guidance to GEMA
- Run road temperature model
- Factors such as:
 - black top/concrete, wind, dewpoint, cloud cover, temperature, precip, sub-surface temp all used





WIND CHILL/WINTER STORM WARNING CHANGES

Changes to Wind Chill Advisory/Warning Criteria



- Effective November 1 2014:

New Criteria	
<u>Advisory</u>	<u>Warning</u>
5°F	-10°F

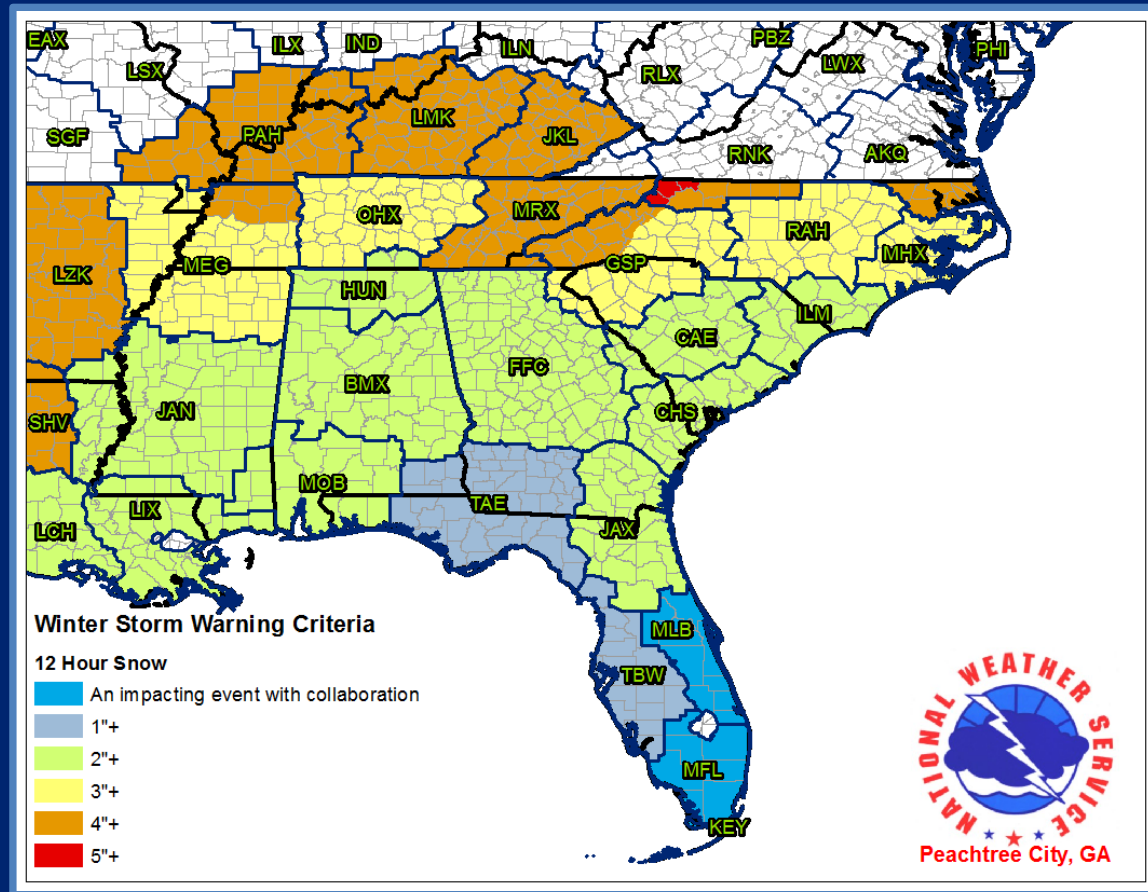
- Changes based on:
 - Updated climatological data
 - Public safety concerns
 - Collaboration with surrounding NWS offices

Old Criteria	
<u>Advisory</u>	<u>Warning</u>
0°F	-15°F

Changes to Winter Storm Warning Criteria



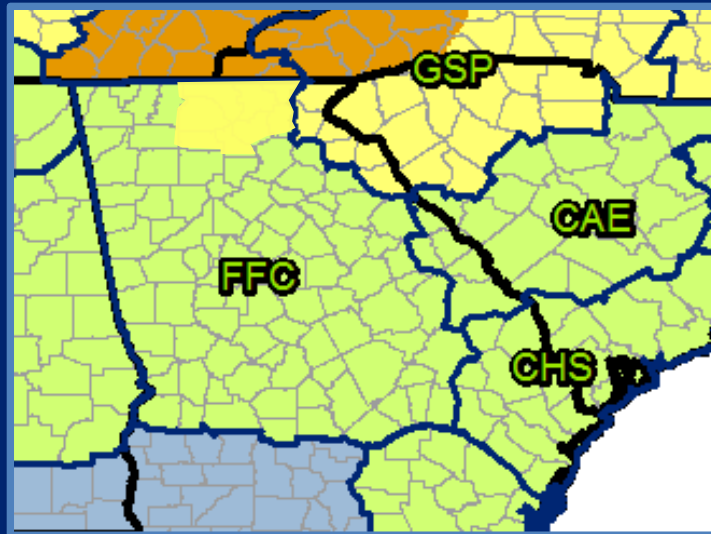
- Effective November 8 2014:
 - 2" of snow in 12 hours for most of Georgia, OR
 - **Any amount up to 2" which causes significant impacts**



Changes to Winter Storm Warning Criteria



- Compared to previous criteria
 - Fannin, Union, Towns, White, Lumpkin, Dawson, Pickens, and Gilmer needed 3" in 12 hours



- Change based on input from Emergency Managers in those northeast Georgia Counties (2013 IWT)

28 Jan
2014

Watch/Warning/Advisory Confusion



**I'm a bit of a weather geek and even I made the mistake of saying the NWS "downgraded" us to an Advisory Tuesday night. Advisory is an upgrade. But ask yourself this, if a weather geek can get this confused, how many other people went to bed that night thinking it would be a non-event? Another problem is the way the NWS communicates and this should be reviewed. More emphasis should be placed on impact instead of vague nomenclature..."*

– Mike Hassinger of the Peach Pundit

28 Jan
2014

Winter Weather Advisory



The details
matter...

Be sure to
read the
content of
the
message!

936 PM EST MON JAN 27 2014

.. **WINTER WEATHER ADVISORY** IN EFFECT FROM 10 AM TUESDAY TO 7 AM EST WEDNESDAY...

THE NATIONAL WEATHER SERVICE IN PEACHTREE CITY HAS ISSUED A WINTER WEATHER ADVISORY FOR PART OF NORTH GEORGIA INCLUDING THE ATLANTA METRO AREA...WHICH IS IN EFFECT FROM 10 AM TUESDAY TO 7 AM EST WEDNESDAY. THE WINTER STORM WATCH IS NO LONGER IN EFFECT. PLEASE UNDERSTAND THAT EVEN A SLIGHT SHIFT IN THE MOISTURE COULD RESULT IN SIGNIFICANT DIFFERENCES IN SNOW AMOUNTS AND MAY REQUIRE AN UPGRADE TO A WARNING.

* LOCATIONS...MAINLY ALONG A LINE FROM ATLANTA TO ATHENS.

* HAZARD TYPES...SNOW.

* ACCUMULATIONS...A HALF TO 1 INCH OF SNOW. ANY SLIGHT SHIFT IN THE MOISTURE COULD EITHER RESULT IN LOWER AMOUNTS OR UP TO A FEW INCHES AND MAY REQUIRE AN UPGRADE TO A WARNING.

* TIMING...SNOW IS EXPECTED TO BEGIN AS EARLY AS MID MORNING TUESDAY AND LAST INTO TUESDAY NIGHT.

* IMPACTS...SNOW COVERED ROADS WILL MAKE TRAVEL DIFFICULT MIDDAY TUESDAY INTO WEDNESDAY.

* VISIBILITIES...REDUCED VISIBILITIES IN AREAS OF SNOW WILL ALSO MAKE TRAVEL DIFFICULT IN ADDITION TO SLICK ROADWAYS.

December 15, 2010 “Black Ice” Event



**Not all high impact
events will have a
Winter Storm
Warning**



**We cannot
predict societal
response!**



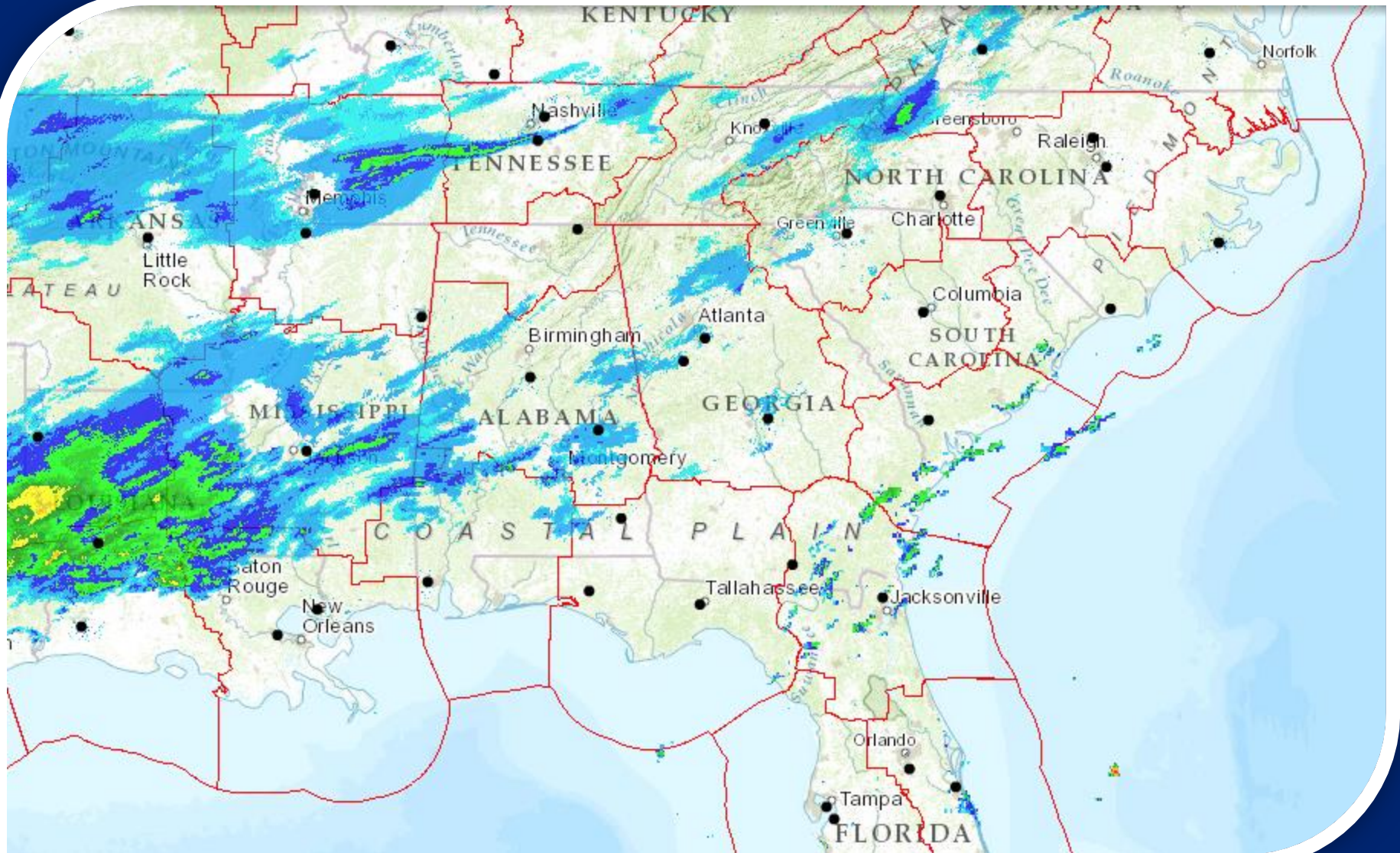


TODAY'S WEATHER SERVICE...WHEN ACCURATE FORECASTS ARE NOT ENOUGH

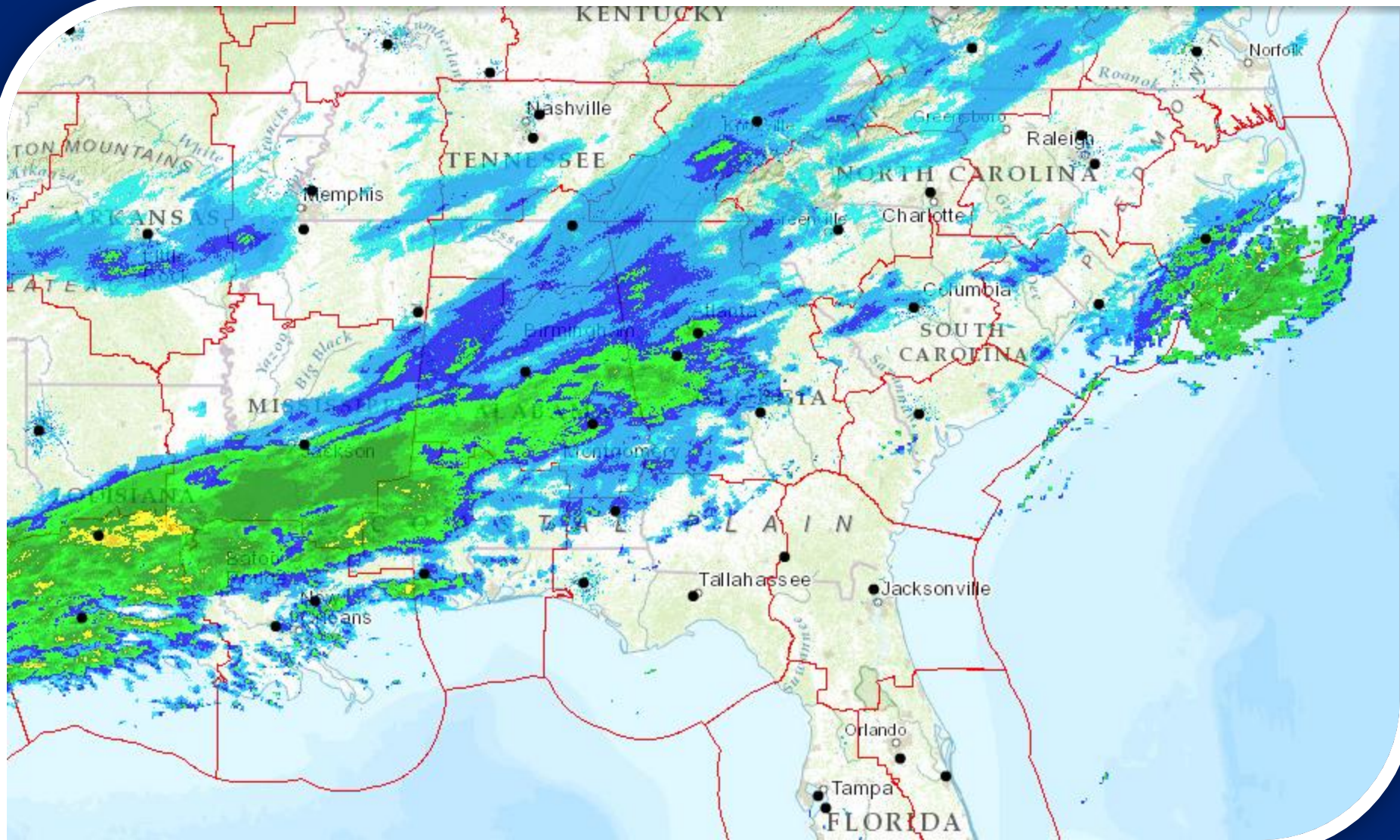
January 28th 2014 Midnight Shift



January 28th 2014...339 AM



January 28th 2014...900 AM



January 28th 2014 Results Forecast Perspective



Win!!!



January 28th 2014 Results

Forecast Perspective

A photograph of a forest with sunlight filtering through the trees. The sun is low in the sky, creating a bright glow and lens flare. The trees are tall and thin, with green foliage. The ground is covered in brown leaves and twigs.

“If a tree falls over in the forest and no one mentions it on facebook, did it really happen?”



Enhancing Partnerships

- Adopt-A-TV Station Program
- Increased presence with GEMA and EM partners.
 - GIS projects
 - Mesonet
- Burgeoning partnerships
 - CDC
 - DOT
 - Universities



Being Ready For The 3am Call



- Utility of Chatrooms
- Priority list of contacts
 - GEMA
 - EM's
 - Schools
 - Media
- Conference Calls
 - Set times...4am 11am 4pm 10pm
 - On the fly
- Partner Emails
 - Huge success
 - Increase frequency and lower thresholds
- Alerting the public
 - Tone alerted Winter Storm Warnings
 - GEMA Wireless Emergency Alerts



How Does This Look To The NWS?



36°

28°

3" of Snow

1/2" of Snow



Winter Storm Warning

How Does This Look To Our Partners?



36°

28°

3" of Snow

1/2" of Snow



Ask DOT

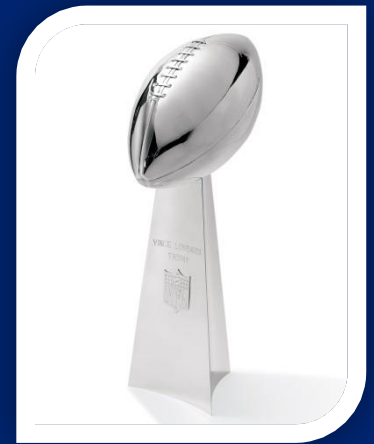
Communicating Impacts



- Our goal is to leave no ambiguity in our message.
- Doesn't equate to confidence or uncertainty.
- What should you be looking for in our message?

BROWNS

Win



Historical Context



Very Recent Example Buffalo

FROM A LARGE SCALE PATTERN...THIS HAS ALL THE MAKINGS OF A HISTORIC OR AT LEAST WELL REMEMBERED LAKE EFFECT EVENT...WITH SNOW TOTALS EXCEEDING 3 FEET IN SOME AREAS BY WEDNESDAY. THE 24 HR/36+ INCH

EVENT IN 12/1995 FOR KBUF IS HARD TO BEAT...BUT SOME LOCATIONS MAY REACH THIS VALUE TO THE SOUTH. SIMILAR AMOUNTS ARE EXPECTED EAST OF LAKE ONTARIO.

FOR LAKE ERIE...AS IS TYPICALLY THE CASE...EXPECT A VERY TIGHT NORTHERN GRADIENT WITH SNOW LIKELY REACHING BUFFALO/KBUF...BUT POSSIBLY BARELY GRAZING THE NORTHTOWNS. THIS IS NEARLY IMPOSSIBLE TO NAIL DOWN...AND WILL HAVE TO DEAL WITH THE NORTHTOWNS AS THE EVENT UNFOLDS. MEANWHILE...AREAS EAST OF BUFFALO...THE MAIN INTERCHANGES OF THE THRUWAY TO THE SOUTH...AND THE SOUTHTOWNS SHOULD

TAKE A HARD HIT. CONFIDENCE IS HIGH FOR FEET OF SNOW...WITH MAJOR DISRUPTIONS TO TRAFFIC AS SNOW RATES FAR EXCEED THE ABILITY TO KEEP ROADS CLEAR. WILL NOT BE SURPRISED TO SEE SEVERAL HOURS OF LOCALIZED 3-5 INCH/HR SNOW RATES LATE TONIGHT THROUGH TUESDAY WITH THUNDERSNOW. AT LEAST THROUGH TUESDAY...THE SOUTHERN BOUNDARY



Historical Context



Recent Example Our Area

**AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE PEACHTREE
CITY GA
339 AM EST WED FEB 12 2014**

**.SHORT TERM /TODAY THROUGH
THURSDAY/...
WE ARE WATCHING A WINTER STORM OF
HISTORICAL SIGNIFICANCE BEGINNING
TO UNFOLD ON THE MIDNIGHT SHIFT
TONIGHT.**

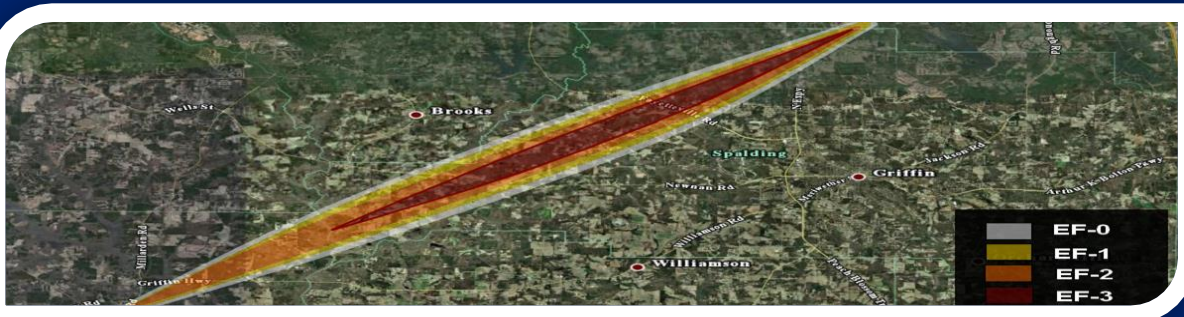
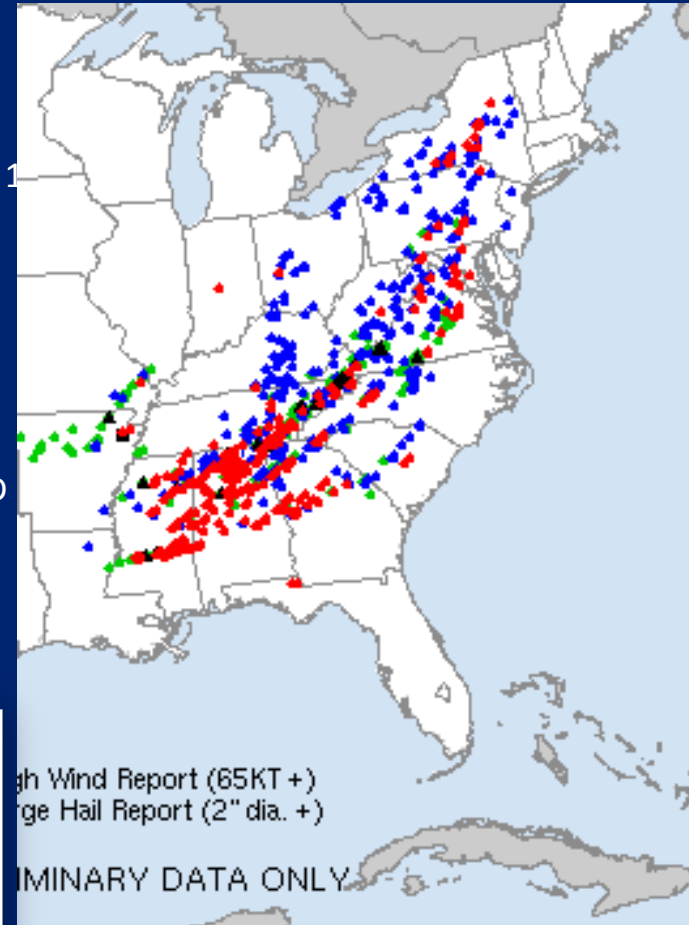




Historical Context

April 27th Discussion

12Z MODEL RUNS STILL INDICATE SIGNIFICANT SEVERE WEATHER MOSTLY FOR WED NIGHT. SIG TOR PARAMETER /STP/ VALUES ARE THE HIGHEST I PERSONALLY HAVE EVER SEEN FROM THE GFS OR NAM WITH VALUES OF 15 TO 20 PROGGED FOR ERN MS/NRN AL/CENTRAL TN 12Z TO 21Z WED. RECALL THAT STP COMBINES MLCAPE..0 TO 1 KM SHEAR AND LCL. VALUES GREATER THAN 1.0 INDICATE TORNADOES ARE POSSIBLE AND VALUES GREATER THAN 3.0 INDICATE TORNADOES LIKELY. THESE ARE OFF THE CHART GUYS. THE HIGHEST OBSERVED VALUES OF STP I HAVE SEEN ARE 14 FOR THE APR 2010 YAZOO CITY OUTBREAK AND 16 FOR THE MAY 10 2010 CENTRAL OK OUTBREAK. WE CAN TAKE SOME COMFORT FOR GA THAT STP IS PROGGED TO DROP SOME BY THE TIME THE STORMS GET TO NW GA AROUND 00Z BUT...UNFORTUNATELY... WERE STILL TALKING ABOUT VALUES OF 8 TO 11 IN NORTH GA AND EVEN 6 TO 10 IN MIDDLE GEORGIA AFTER MIDNIGHT. WE REALLY NEED TO BE PREPARED FOR THIS. MORE ON THE REST OF THE FCST AROUND 4PM.





Avoiding The Hype

Integrating Scenarios

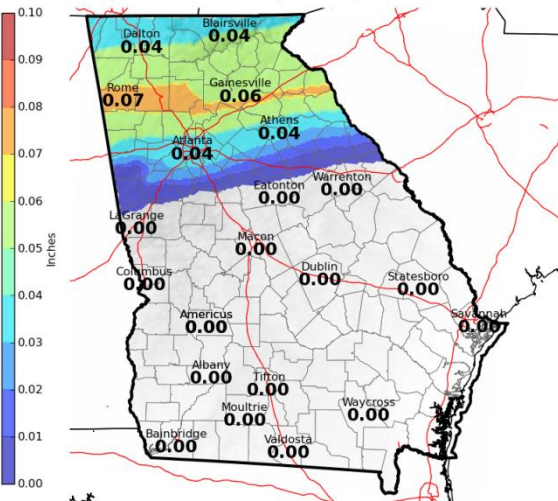
Best

Most Likely

Worst

Ice Forecast

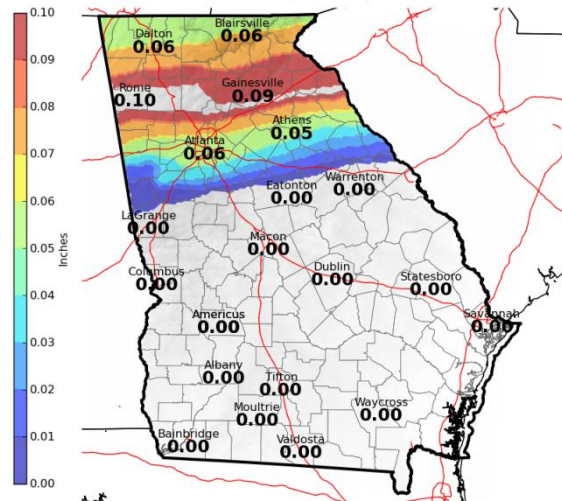
Valid: September 15, 2014



National Weather Service
Peachtree City, GA
09/10/2014 11:21 AM EDT
Follow Us:
weather.gov/atlanta

Ice Forecast

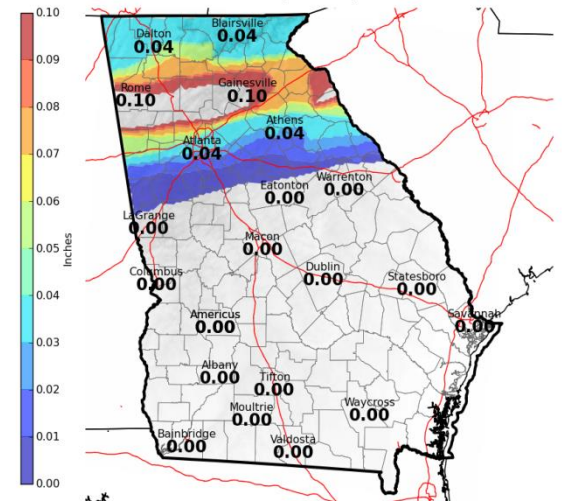
Valid: September 15, 2014



National Weather Service
Peachtree City, GA
09/10/2014 11:18 AM EDT
Follow Us:
weather.gov/atlanta

Ice Forecast

Valid: September 15, 2014



National Weather Service
Peachtree City, GA
09/10/2014 11:13 AM EDT
Follow Us:
weather.gov/atlanta



Taking It To The Next Level

Why Should You Have To Search For The Historical Context?



US National Weather Service Peachtree City Georgia

Posted by U.S. National Weather Service [?] · November 23

Tornado Watch has been extended eastward until 8 PM this evening (Sunday 11/23) for areas shaded in red. Remember: Stay weather aware!
www.weather.gov/atlanta



NWS Atlanta

@NWSAtlanta



Follow

Confidence has increased in crippling #ice event. Historic ice totals are expected for the #Atlanta metro. Winds and ice will make travel impossible and result in week long power outages

THROUGH THURSDAY



Through 1pm on Thursday...

Winter Storm Warning

- Wintry Mix of Sleet, Snow and Freezing Rain

Ice Storm Warning

- Prolonged period of freezing rain, with historic ice accumulations

Freezing Rain Advisory

- Freezing Rain, or a Freezing Rain mix

****see additional graphic for specific accumulations by location****



Open Discussion





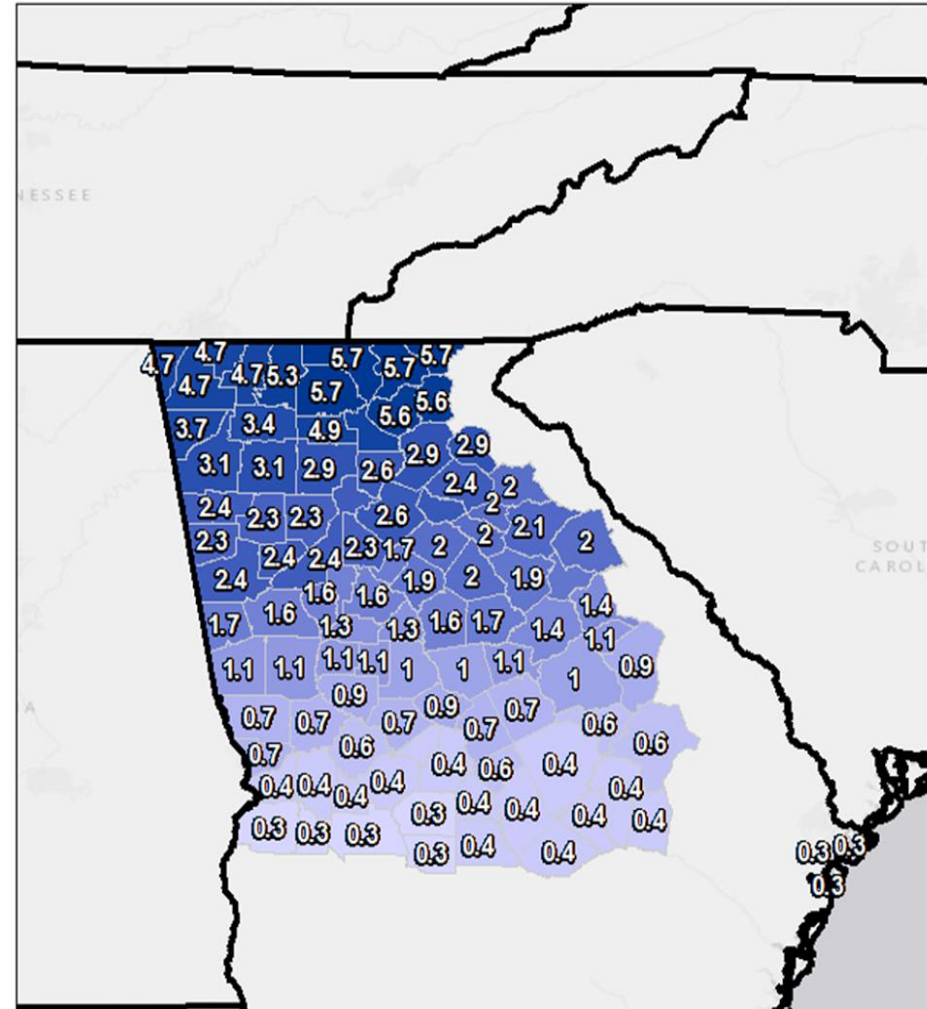
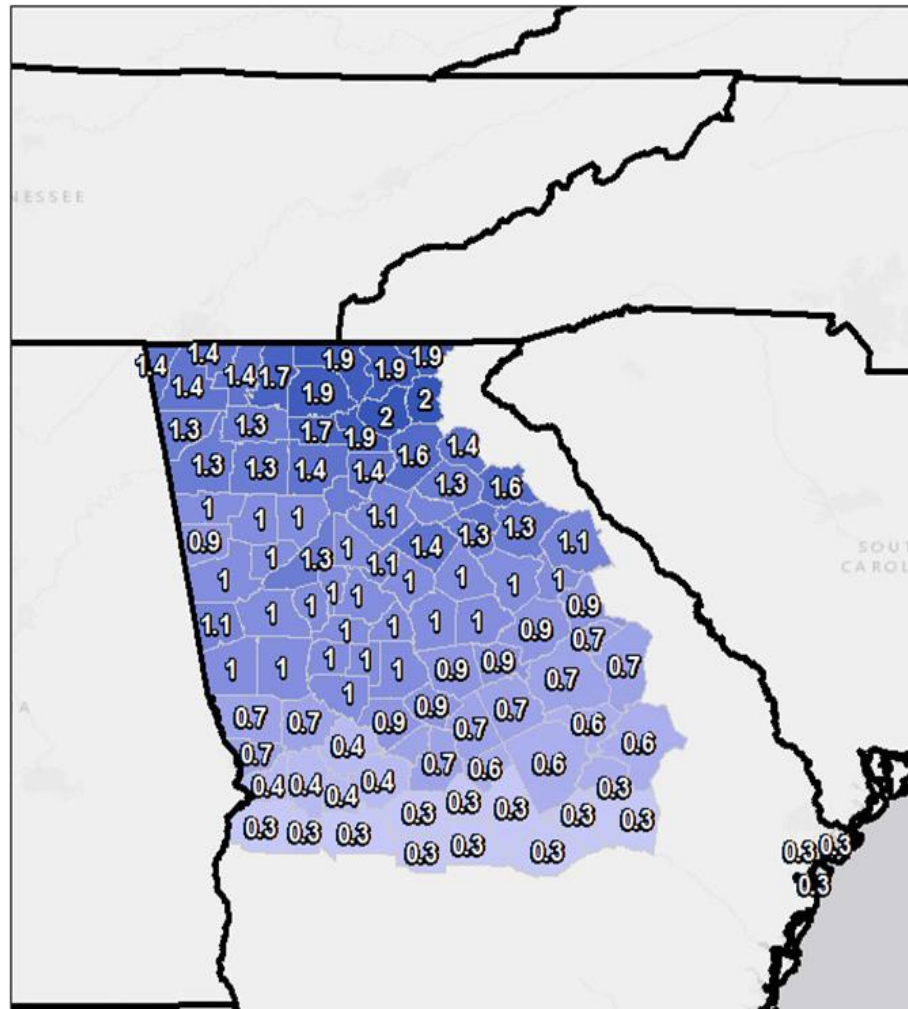
INTERACTIVE SESSION



Scenario Questions

Average Number of Winter Storm Warnings Issued Per Year Since 2007

Average Number of Winter Weather Advisories Issued Per Year Since 2007



Scenario Question



It is a Friday afternoon at 2:00 PM and you are concerned about rush-hour traffic. At 4:00 AM this morning, the NWS issued a Winter Weather Advisory for your county. It started snowing at about noon, and 1.5" of snow has accumulated outside of your EOC. It's still snowing. What would you do?



keith.stellman@noaa.gov / trisha.palmer@noaa.gov / jason.deese@noaa.gov

THANK YOU!
QUESTIONS?