Winter Storms of January 2014 and Winter Weather Safety Tips

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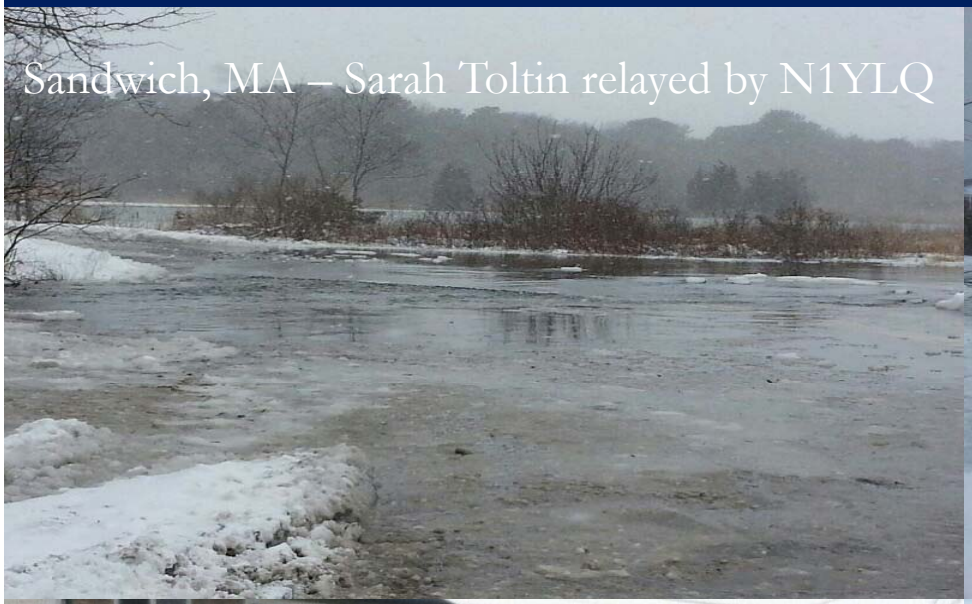
Topics

- Discuss Blizzard of January 2nd-3rd 2014 impacts on Northeast US/New England States
- Discuss 'near blizzard' of January 21st-22nd 2014 in Northeast US/New England region.
- Discuss the 'Polar Vortex'
- Discuss latest winter storm of Tuesday January 28th-Wednesday January 29th across the US.
- Measuring Snow and Ice
- Situational Awareness/Disaster Intelligence Information
- Winter Weather Safety Tips
- Quick Discussion of upcoming active winter weather pattern
- Quick sidebar update on updated storm surge map products for hurricanes from the National Hurricane Center

January 2nd-3rd 2014 – Southeast Massachusetts Blizzard

- Coastal Storm/Nor'easter system tracked to the 'benchmark location' – 40 North/70 West.
  - Track of storm brings the heaviest snow to Eastern New England and portions of Connecticut.
  - Widespread snowfall of 7-14". Higher amounts of 18-24" recorded in the North Shore of Massachusetts due to 'ocean effect' snow.
  - Moderate to isolated pockets of major coastal flooding across north and east facing coastlines in East Coastal Massachusetts.
  - Strong wind gusts as high as 50-64 MPH were recorded along East Coastal Massachusetts, Cape Cod and Nantucket Island.
  - 'Blizzard criteria' was met in portions of the Blizzard Warning area south of Metro Boston.
    - Blizzard criteria 'strict definition' is falling and/or blowing snow reducing visibility to below ¼ mile along with winds that frequently gust to 35 MPH or more and that these conditions were the predominant condition for 3 consecutive hours.
    - Blizzard criteria definition was met in Hyannis, Marshfield, Falmouth & Nantucket Massachusetts via ASOS (Automated Surface Observing Station) reports.
    - Visibilities at ¼ mile were counted given that is quite low for an automated visibility sensor to detect.

January 2nd-3rd 2014 – Southeast Massachusetts Blizzard Pictures



Sandwich, MA – Sarah Toltin relayed by N1YLQ

Sandwich, MA - WQ1O-Frank O'Laughlin

Marshfield MA – Jeff Simpson

Marshfield, MA – Jeff Simpson

January 2nd-3rd 2014 – Southeast Massachusetts Blizzard Pictures


KA1RSY-Ed Caron – New Bedford MA


N1XRS-Tony Duarte – Taunton MA

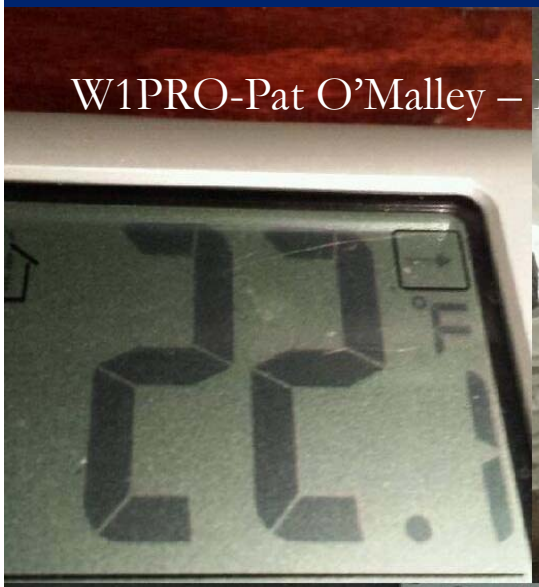
WQ1O-Frank O'Laughlin-Sandwich MA EOC


WQ1O-Frank O'Laughlin – Sandwich MA EOC

January 21st-22nd, 2014 'Near Blizzard' in Southeast New England

- January 21st-22nd 2014 coastal storm was more offshore than earlier January storm.
  - Heaviest snow across Southeast Massachusetts, Rhode Island and Northeast Connecticut with a widespread snowfall of 6-12".
  - Heavier band of 12-18" of snow setup over parts of Southeast Coastal Massachusetts into the Brockton/Weymouth Mass area.
  - Strongest winds were confined to Nantucket Island with wind gusts measured in the 50-60 MPH range. Wind gusts of 35-45 MPH were measured on Cape Cod.
  - Coastal Flooding was not an issue due to a more northerly wind direction and lower astronomical high tides.
  - Storm brought 'near blizzard' conditions to similar sites as the January 2nd-3rd 2014 storm but only for a 2 hour period versus 3 consecutive hours.
    - Blizzard Warning was in effect for similar areas in Southeast Coastal Massachusetts as the January 2nd-3rd storm but fell just short of blizzard criteria.

January 21st-22nd, 2014 'Near Blizzard' in Southeast New England



What is the “Polar Vortex”?

- **Polar Vortex is not a ‘new’ phenomenon nor is it a new meteorological term.**
  - It is a large scale cyclone that typically is located near Baffin Island in our hemisphere and a second vortex is located over Siberia.
    - When the polar vortex is strong, cold air typically stays north of most of the US except potentially the northern tier states depending on the strength of the vortex.
    - When the vortex weakens, it allows cold Arctic air to dive southward as the jet stream flow buckles allowing cold air to penetrate deep into the US and allow for significant cold outbreaks as seen over much of the US in January.
    - Can play a role in how southern areas can get winter weather into their area under rare circumstances.

Major Winter Storm for Southeast US – Tuesday 1/28/14-Wedesday 1/29/14

- Major Winter Storm for the Southeast United States caused by cold air diving deep into the US followed by a coastal system emanating in the Gulf of Mexico.
- Storm system moved offshore well south of New England, grazing Cape Cod and the Islands and portions of South Coastal Massachusetts with 2-7” of snow Wednesday AM 1/29/14.
- Major Winter Storm caused significant issues across the Southeast United States with a Trace to as much as 3” of snow/sleet/freezing rain accumulation.
  - Situation was aggravated by lack of ability to treat and plow roads in the Southeast US.
  - Timing of the storm and how people were released from work and school could help or ‘hurt’ (i.e.: Atlanta, GA) how bad the storm was over the region despite similar impacts region wide.
  - Higher snow amounts occurred in northern parts of Southeast US (North Carolina etc.).

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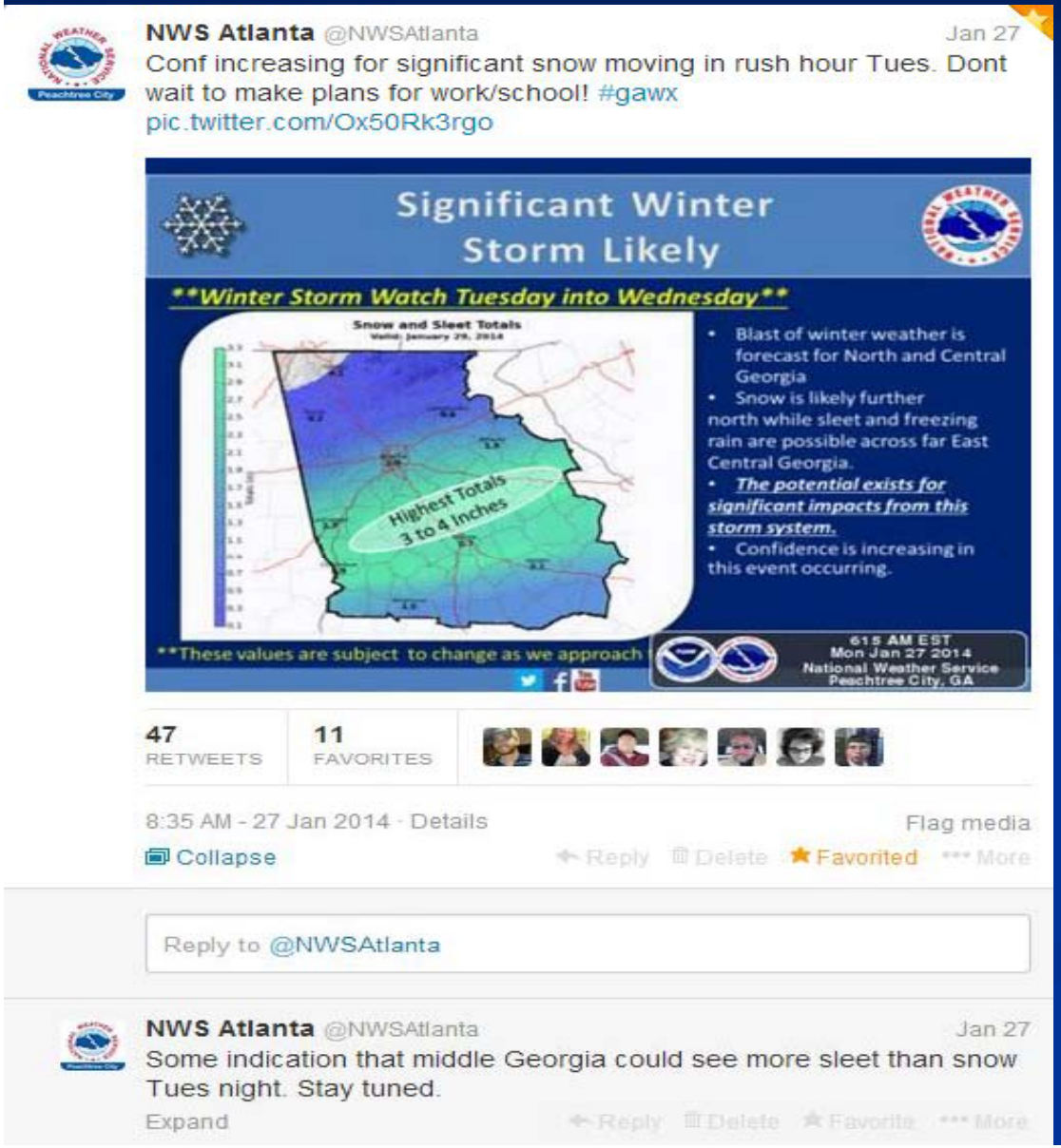

- NWS Atlanta, GA had watches, warnings, and advisories out well ahead of the storm.
- Advised on making plans ahead of time concerning commuter traffic.
- Similar situation occurred in the Metro Boston area with higher snowfall rates/totals in December 2007. (All in timing of release of students/workers.)
  - Scenario was centered around midday-evening commute. Needed to travel before storm or shelter till storm had passed.

Major Winter Storm for Southeast US – Tuesday 1/28/14-Wedesday 1/29/14

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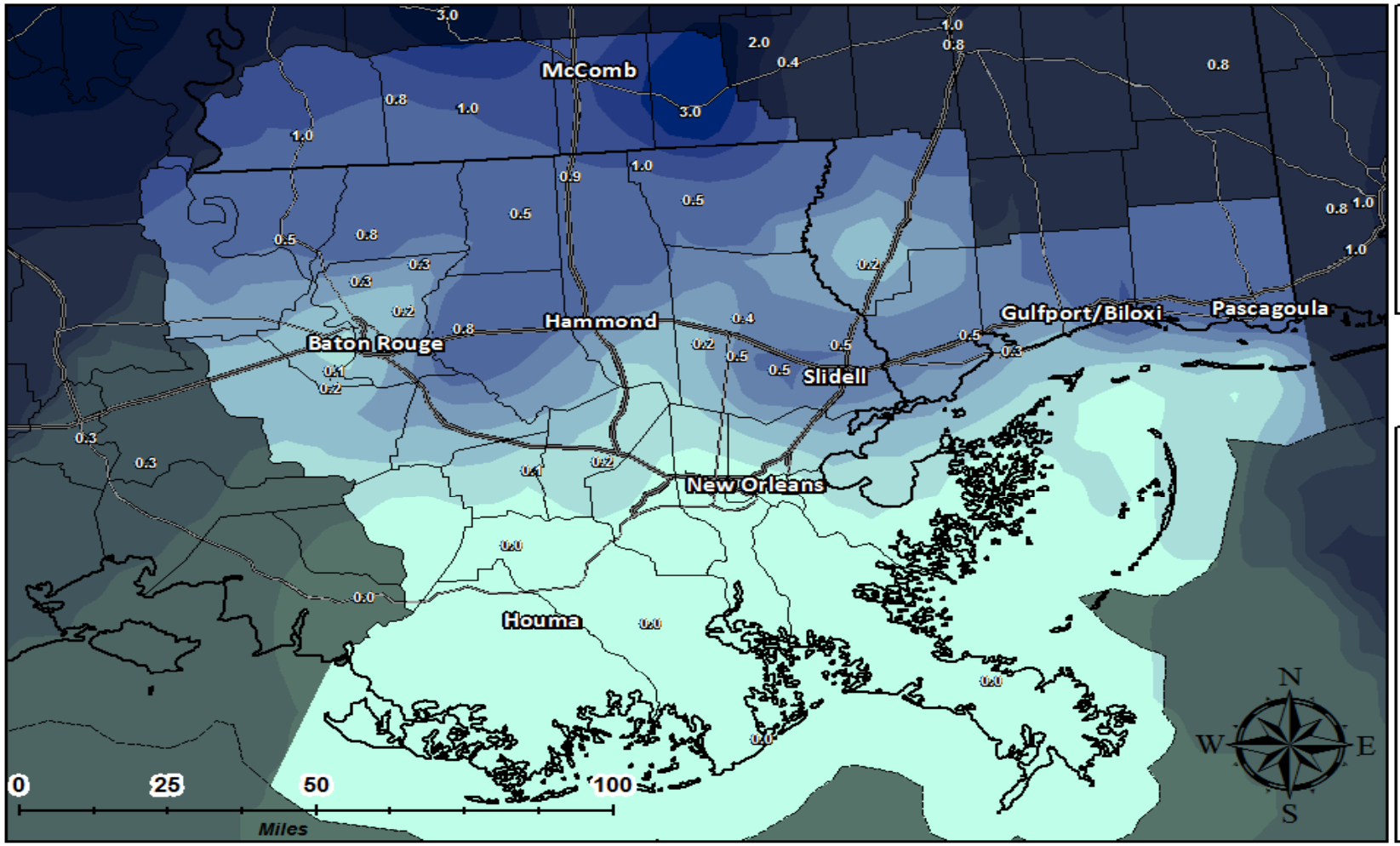
Estimated Sleet/Snow Accumulation

Graphic prepared by: NWS New Orleans

Interpolated from point reports, both estimated and measured.
Report sources include emergency managers and the public.
Data subject to change if additional reports are received.



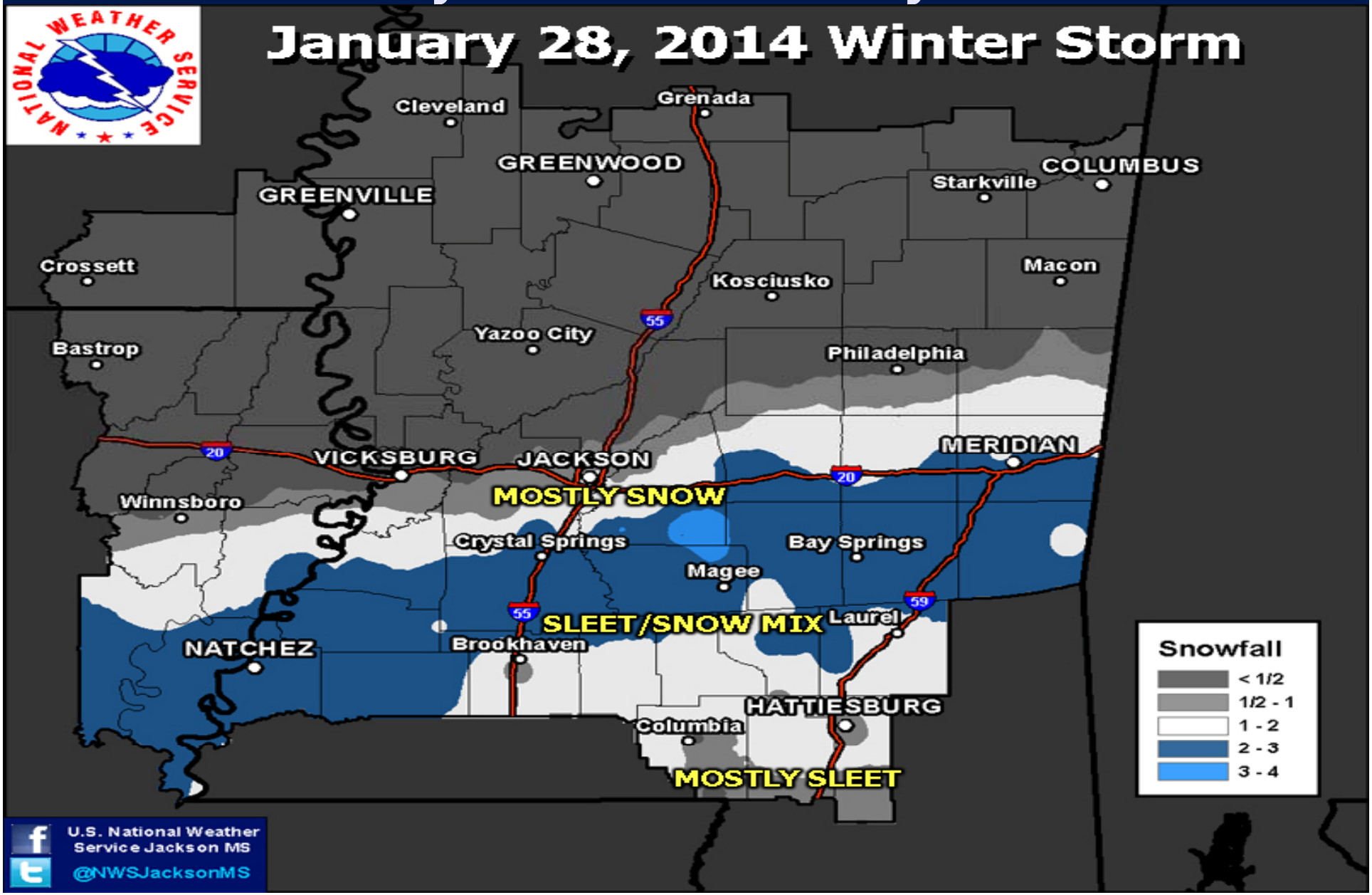
Event Total
2014/01/28

Created:
2014-1-29

Sleet and Snow Accumulation

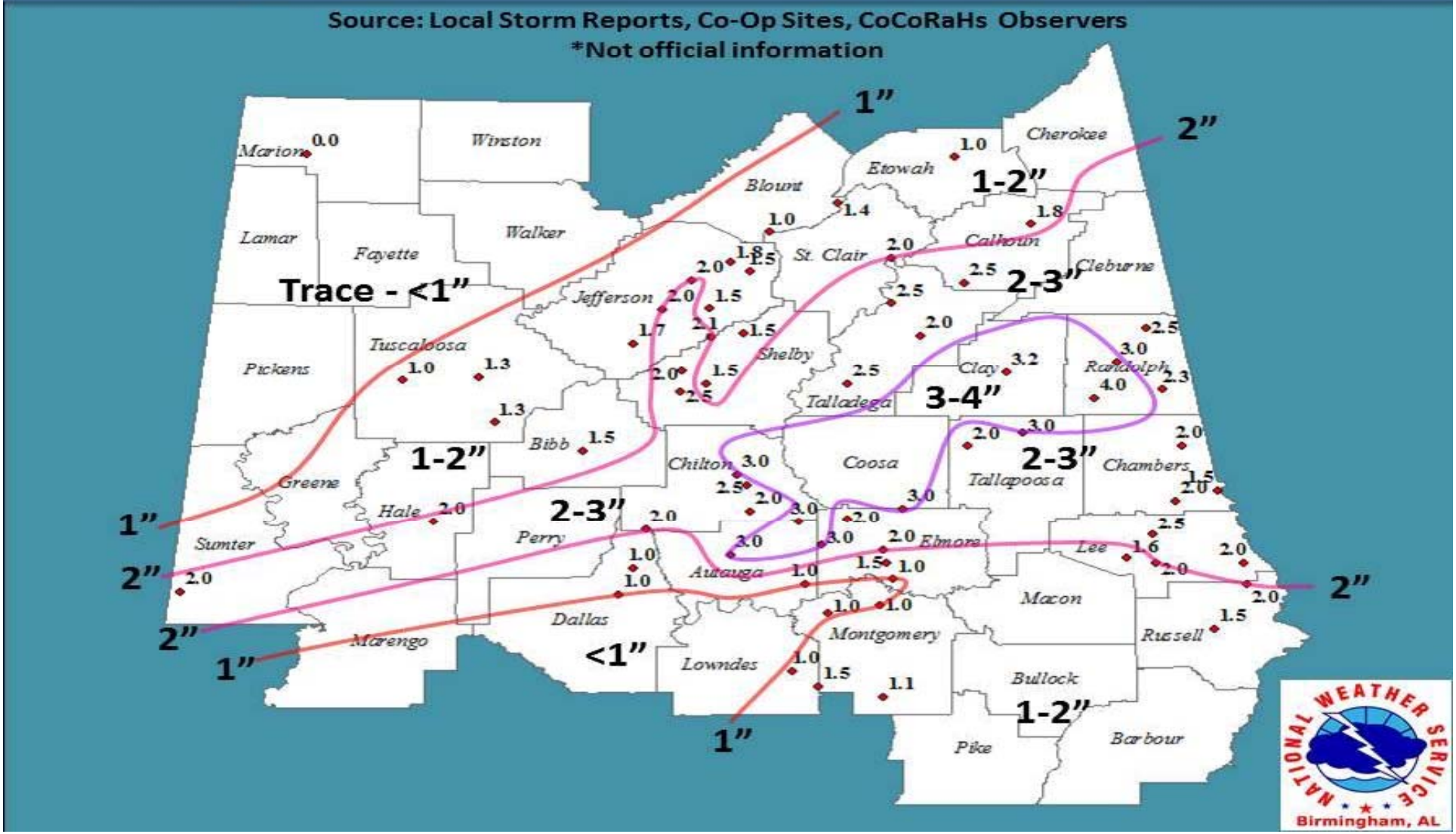
- TRACE
- 0.10
- 0.20
- 0.30
- 0.40
- 0.50
- 1.00
- 1.50
- 2.00+

Major Winter Storm for Southeast US – Tuesday 1/28/14-Wedesday 1/29/14



Major Winter Storm for Southeast US – Tuesday 1/28/14-Wedesday 1/29/14

January 28, 2014 Preliminary Snowfall Estimates



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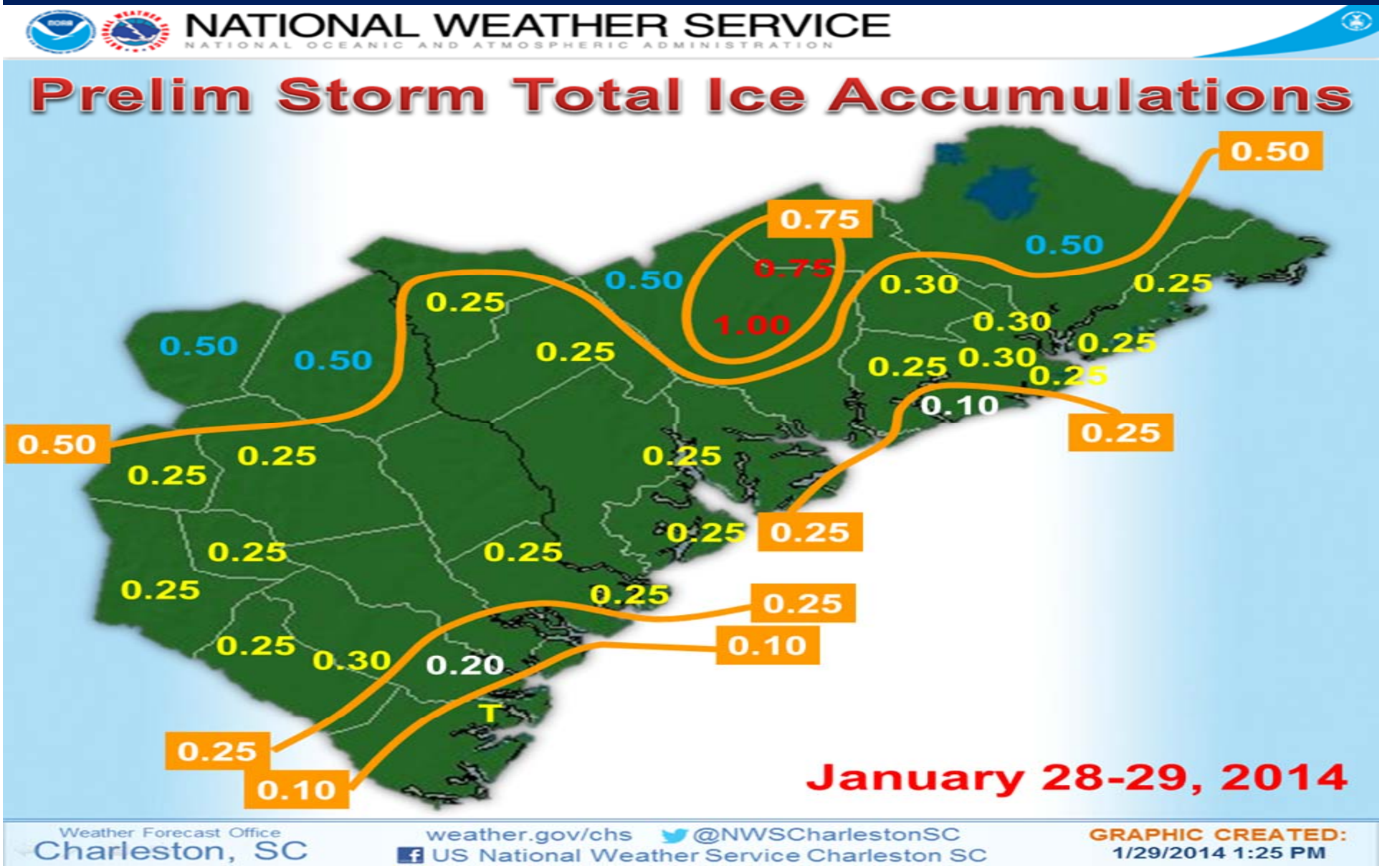

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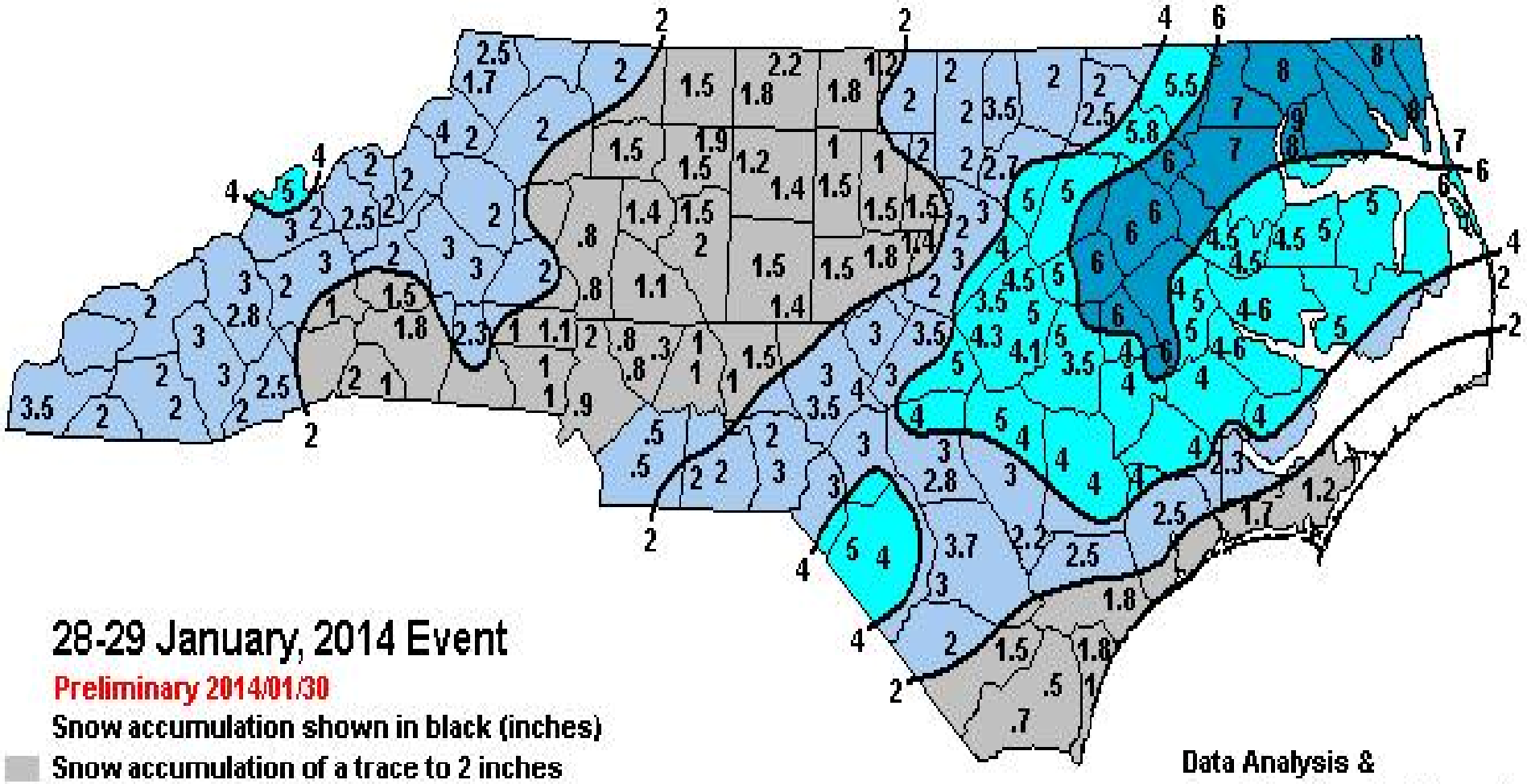


28-29 January, 2014 Event

Preliminary 2014/01/30

Snow accumulation shown in black (inches)

Snow accumulation of a trace to 2 inches

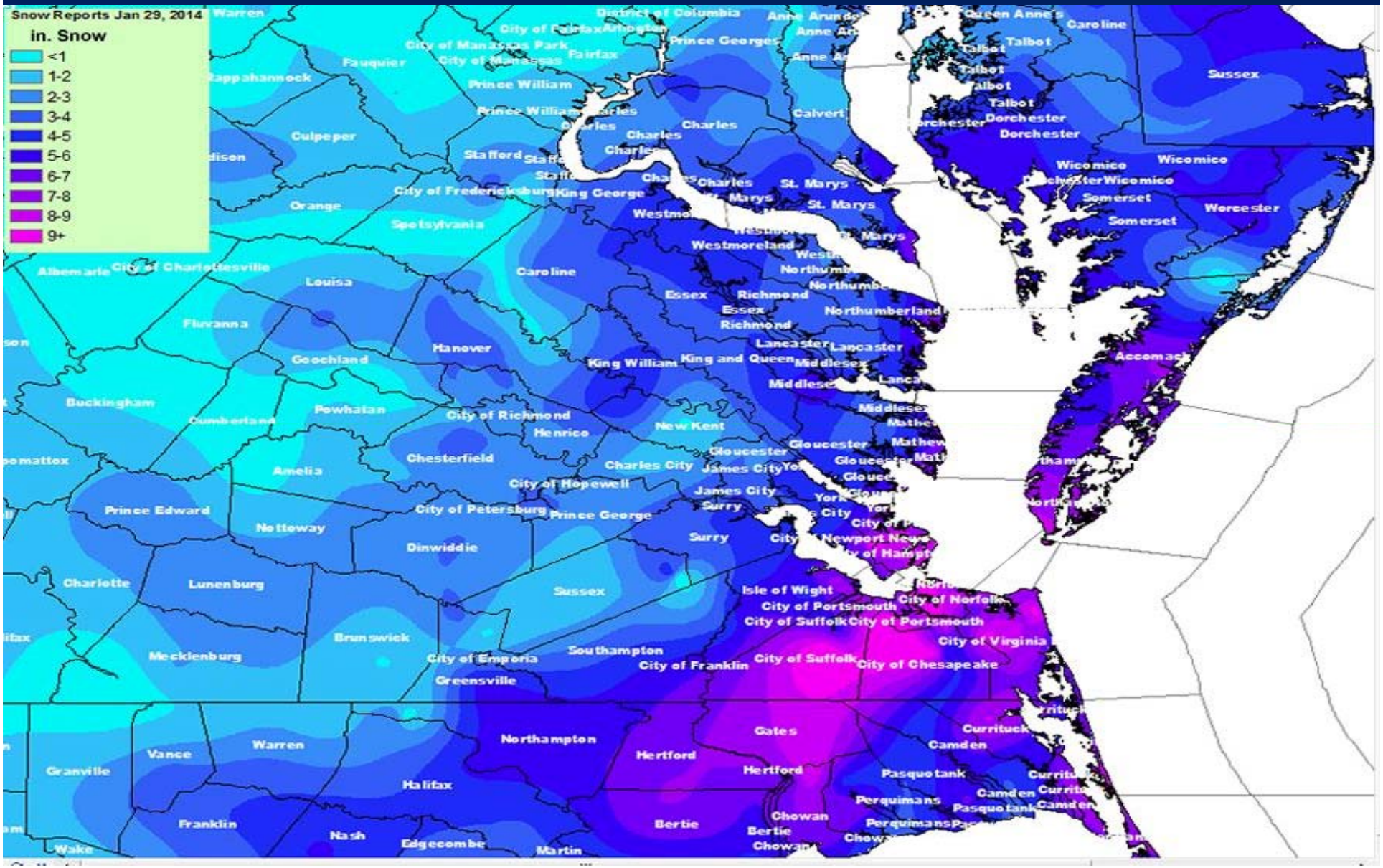
Snow accumulation of 2 to 4 inches

Snow accumulation of 4 to 6 inches

Snow accumulation of 6 to 12 inches

Data Analysis &
Graphic - Brandon Vincent
NWS Raleigh, NC
www.weather.gov/raleigh

Major Winter Storm for Southeast US – Tuesday 1/28/14-Wedesday 1/29/14



Major Winter Storm for Southeast US – Wednesday 1/29/14 Grazes Southeast Coastal New England

Notable Snow Totals

Massachusetts

• Sandwich	7.0
• Woods Hole	6.8
• Falmouth	6.8
• West Barnstable	6.0
• Nantucket	6.0
• Dennis	5.0
• Harwichport	4.3
• Edgartown	4.2
• New Bedford	3.0

Rhode Island

• Westerly	2.0
• West Warwick	1.7
• Warren	1.0
• Cranston	1.0
• East Providence	0.8

Website: www.weather.gov/boston Twitter: @NWSBoston

Facebook: http://www.facebook.com/US.NationalWeatherService.Boston.gov

Measuring Snow and Ice

- To Measure Snow and/or sleet, you want to find a flat surface that is not subjected to blowing and drifting snow where possible to avoid drifts and bare spots.
  - In a blizzard or near blizzard scenario, this may be very difficult to do but find the best flat surface and also measure the drift and take into account the bare spot value as well.
- Take up to 10 measurements and average the value. Round to the nearest tenth of an inch.
- For Ice accretion, you measure ice radially off a tree branch or other surface where you can actually measure the ice in a radius.
- Complete snow measuring information including how to melt the snow can be found via the following link:
  - http://www.nws.noaa.gov/om/coop/reference/Snow_Measurement_Guidelines.pdf

Situational Awareness/Disaster Intelligence Information

- Amateur Radio is well known for being there ‘when all else fails’.
- An equally important mission for Amateur Radio is the ability to gather quality situational awareness/disaster intelligence information through SKYWARN during weather and other significant events.
- Snow and Ice reports during winter storms and winter weather related accident/traffic jam info can be very critical particularly in Southeast US states when they receive rare winter storms.
- Damage and power outage reports for winter storms and other weather events are not only helpful for SKYWARN and NWS but for Emergency Management and other entities.
- Supporting and helping to manage other social media outlets can also be helpful and can be vetted by a strong Amateur Radio Network capable of providing situational awareness.
  - Highly encourage local SKYWARN Groups to obtain a Facebook page/twitter handle.
- Amateur Radio Operators are considered by FEMA’s Craig Fugate ‘the inventors of social media’.
    - Our future in emergency communications is the continued creation of as well as management of social media/situational awareness and disaster intelligence.

Winter Weather Safety Tips

- Assure your car is winterized before entering the winter season.
- Have a winter storm survival kit in your car in case you get stuck in a winter storm including non-perishable goods where possible.
- Dress in layers versus one large winter jacket to stay warm.
- Know the difference between Winter Storm Watches, Warnings and Advisories.
- Some useful winter weather resource links via the National Weather Service:
  - Winter Weather Preparedness Web Site: http://www.nws.noaa.gov/om/winter/index.shtml
  - Winter Storms Safety Tips Pamphlet: http://www.nws.noaa.gov/om/winter/resources/Winter_Storms2008.pdf
  - NOAA National Weather Service Weather Terms: http://www.noaanews.noaa.gov/stories/s794c.htm

Quick Discussion of upcoming active winter weather pattern

- Weather Pattern will become active particularly across the North-Central/Northeast US during the week for winter weather (southern areas should remain warm with potential rain events).
- One major storm system will affect portions of the Eastern/Central US region early to mid week (2/2-2/5/14). Another storm is possible next weekend. (2/8/14-2/9/14).
- Additional storms are possible into the week of 2/9/14.
- While an active pattern can be discerned from computer weather models, specific details even 3-5 days out are harder to pin down.
- What can be determined from the weather models now is that the weather can be active, monitor NWS and reputable media/social media outlets for further information.
- Remain prepared for any storm season with a personal safety preparedness kit as well as an Amateur Radio “Go Kit”.

New Storm Surge Map Products for Hurricanes from the National Hurricane Center

- The National Hurricane Center announced a new storm surge map product for the 2014 Atlantic Hurricane Season in response to the growing need per the Emergency Management/broadcast meteorological community.
- The map will show:
  - Geographical areas where inundation from storm surge could occur.
  - How high above ground the water could reach in those areas.
- The graphic will be issued with each full advisory package approximately one hour after the full advisory package is issued on the initial 'Hurricane Watch' issuance and possibly on initial issuance of a 'Tropical Storm Watch'.
- Announcement and sample storm surge graphic can be seen here: http://www.nhc.noaa.gov/news/20140131_pa_stormSurgeGraphic.pdf

Key Web Site Resources for this Presentation

- Winter Storm Information from NWS Peachtree GA Office:
  - http://www.srh.noaa.gov/ffc/?n=20140128winterstorm
- Amateur Radio Operators and SKYWARN weather spotters are encouraged to follow their NWS Forecast Office Twitter feed and 'like' their Facebook page.
  - Many of the NWS Office graphics were provided via images from the NWS Forecast Office Facebook page and this info may not always be on the NWS Forecast Office web site.
  - Check your local NWS Office Web Site for information on their Facebook page and Twitter feed.
- Other key web site resources listed throughout this presentation.