The SPIA Index™

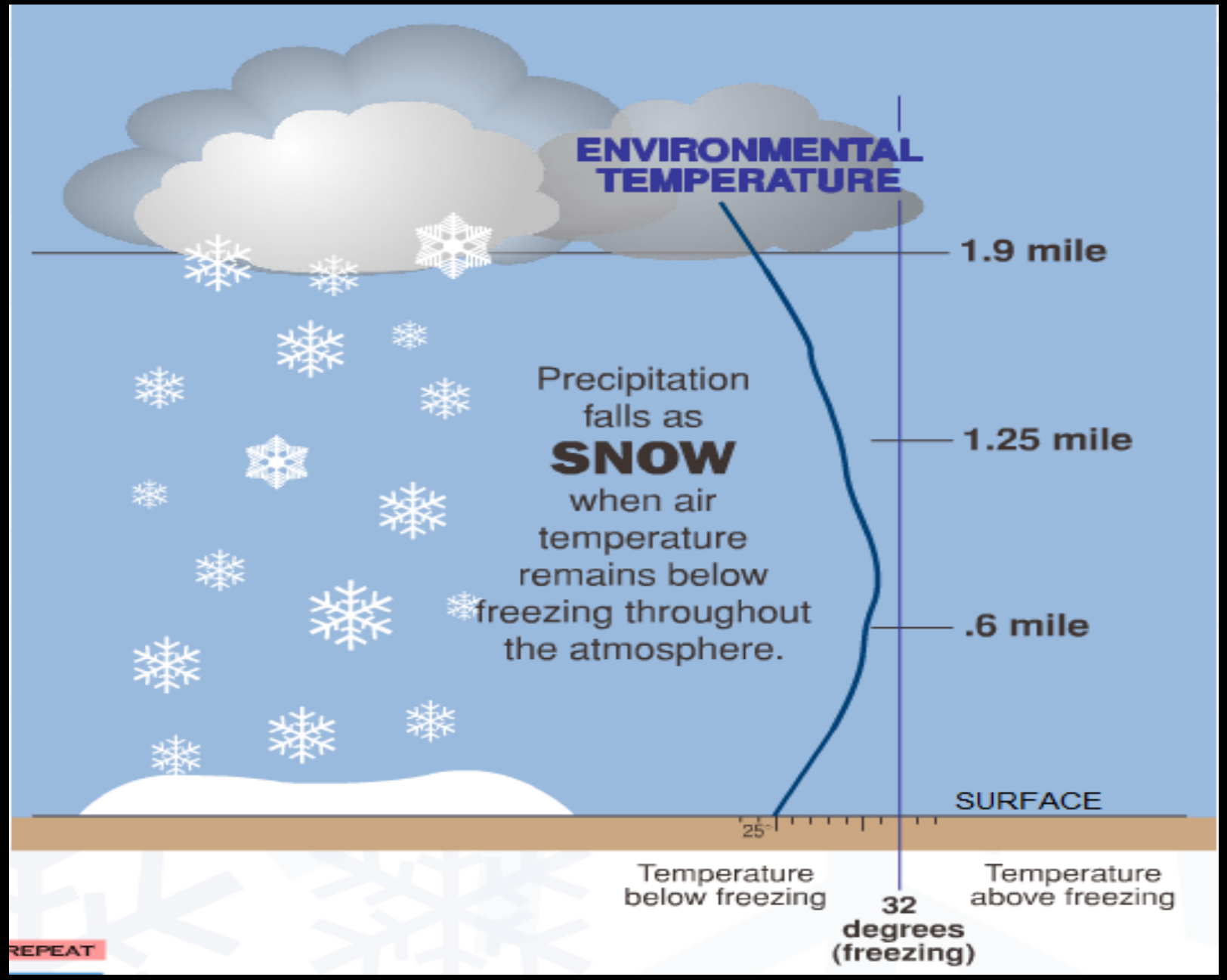
A collaborative project between a local NWS-WFO & a private individual - for the public good!

Developed by Sid Sperry,
Director of PR, Communications & Research
Oklahoma Association of Electric Cooperatives, Oklahoma City, OK
President & CEO, SPIDI Weather Solutions
&
Steven Piltz,
Meteorologist In Charge (MIC)
National Weather Service Forecast Office (WFO), Tulsa, OK

"Sperry-Piltz Ice Accumulation Index©" or "SPIA Index™"

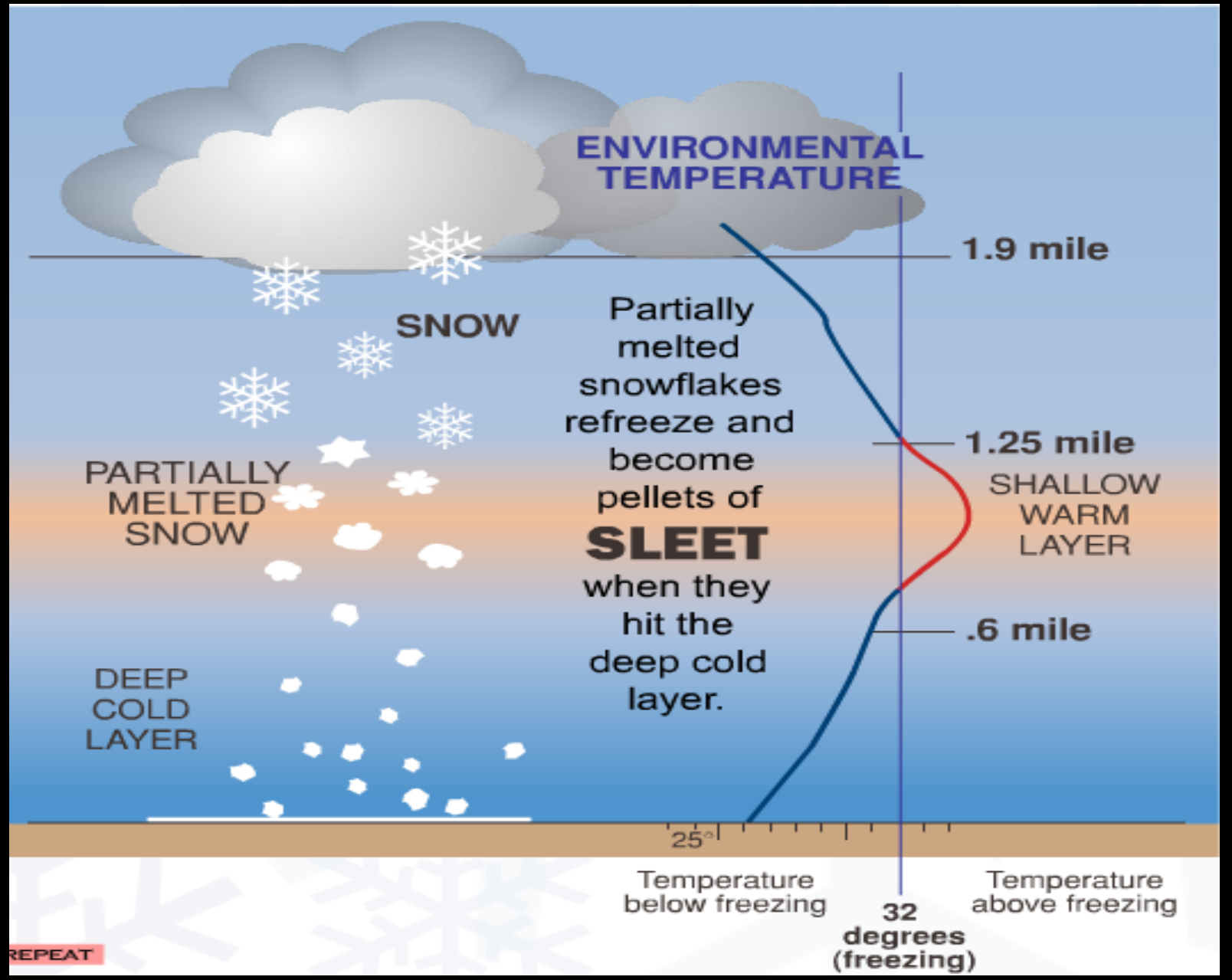
Forecasting Winter Weather Precipitation Types Can be DIFFICULT!

Snow



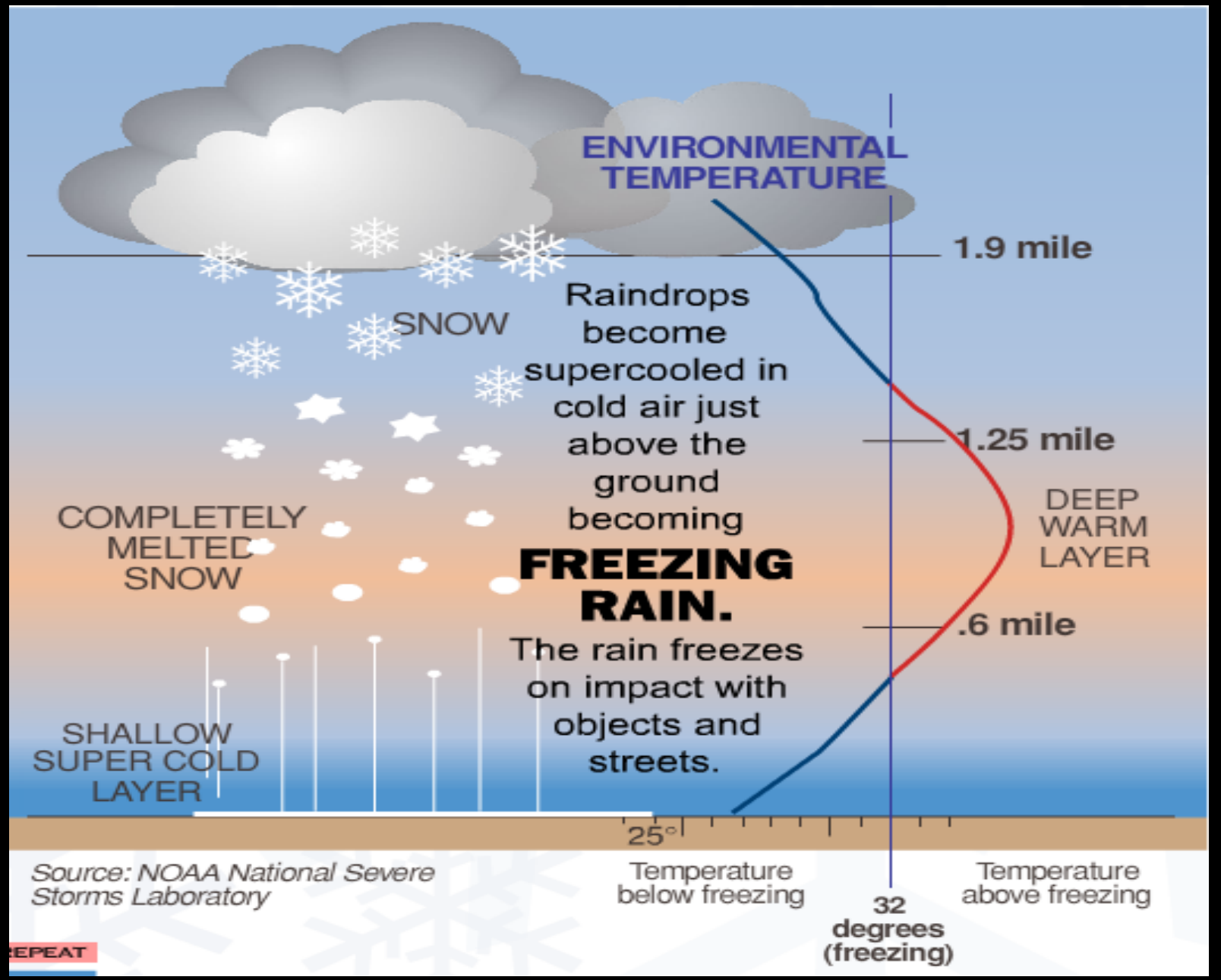
Graphics Source: NOAA National Severe Storms Laboratory

Sleet

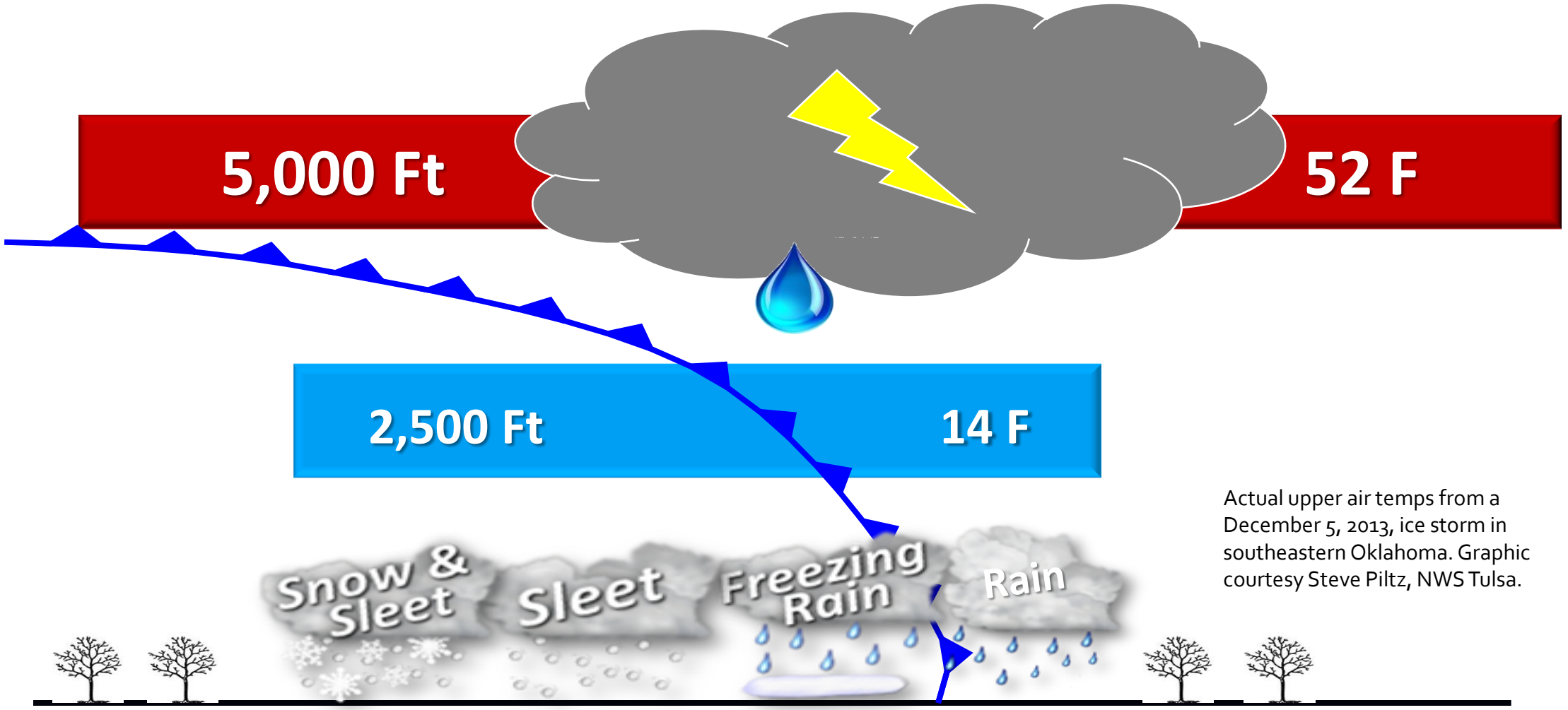


Graphics Source: NOAA National Severe Storms Laboratory

Freezing Rain



Graphics Source: NOAA National Severe Storms Laboratory



Actual upper air temps from a December 5, 2013, ice storm in southeastern Oklahoma. Graphic courtesy Steve Piltz, NWS Tulsa.

Upper air temperatures are critical to winter weather forecasting. How are they obtained?

Different kinds of ‘extreme’ weather events are now becoming much more common. *Preparedness* is key.

January, 2002 Ice Storm:
Cimarron Electric Co-op, Kingfisher, OK

February, 2013 Snow/Ice Storm:
Cimarron Electric Co-op, Kingfisher, OK

What *is* the ‘Sperry-Piltz Ice Accumulation Index©’ or SPIA Index™?

- The **SPIA Index™** was conceived in late December, 2006, following back-to-back ice storms in the OK panhandle.
- The **SPIA Index™** is a forward-looking ice accumulation & ice damage prediction index that uses an algorithm of researched parameters that, when combined with NWS forecast data (NDFD), predicts the projected footprint, total ice accumulation, and the resulting potential damage from approaching ice storms.
- It is a ***decision-support tool*** to be used for ***risk management*** and/or winter-weather ***preparedness*** by numerous entities.

What *is* the ‘Sperry-Piltz Ice Accumulation Index©’ or SPIA Index™?

- The **SPIA Index™** is to ice storms what the ***Enhanced Fujita Scale*** is to tornadoes and what the ***Saffir-Simpson Scale*** is to hurricanes; unlike the Fujita Scale, the **SPIA Index™** measures an ice storm and its impact ***before*** the event.
- Prior to its creation, no such ice-impact scale existed for gauging potential damage ***before*** a freezing rain event occurred.
- The **SPIA Index™** is now listed as a NWS ‘experimental product’ and is being tested by 11 NWS WFOs with CWAs in parts of **9** states: **AR**, **GA**, **IL**, **KY**, **LA**, **MO**, **OK**, **TN** and **TX**. (CRH & SRH regions)

Where can I find it on the Web?

SPIA INDEX™

www.spia-index.com

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

ICE DAMAGE INDEX	* AVERAGE NWS ICE AMOUNT (in inches) *Revised-October, 2011	WIND (mph)	DAMAGE AND IMPACT DESCRIPTIONS
0	< 0.25	< 15	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	0.10 – 0.25	15 - 25	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
	0.25 – 0.50	< 15	
2	0.10 – 0.25	25 - 35	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
	0.25 – 0.50	15 - 25	
	0.50 – 0.75	< 15	
3	0.10 – 0.25	> = 35	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
	0.25 – 0.50	25 - 35	
	0.50 – 0.75	15 - 25	
	0.75 – 1.00	< 15	
4	0.25 – 0.50	> = 35	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
	0.50 – 0.75	25 - 35	
	0.75 – 1.00	15 - 25	
	1.00 – 1.50	< 15	
5	0.50 – 0.75	> = 35	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.
	0.75 – 1.00	> = 25	
	1.00 – 1.50	> = 15	
	> 1.50	Any	

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

Weather Conditions and SPIA Index Levels at a Glance:

Ice and Wind: *Average NWS Ice in Inches; Wind in MPH.	< 15 mph	15-25 mph	25-35 mph	> = 35 mph
0.10 – 0.25 inches	0	1	2	3
0.25 – 0.50 inches	1	2	3	4
0.50 – 0.75 inches	2	3	4	5
0.75 – 1.00 inches	3	4	5	5
1.00 – 1.50 inches	4	5	5	5
> 1.50 inches	5	5	5	5

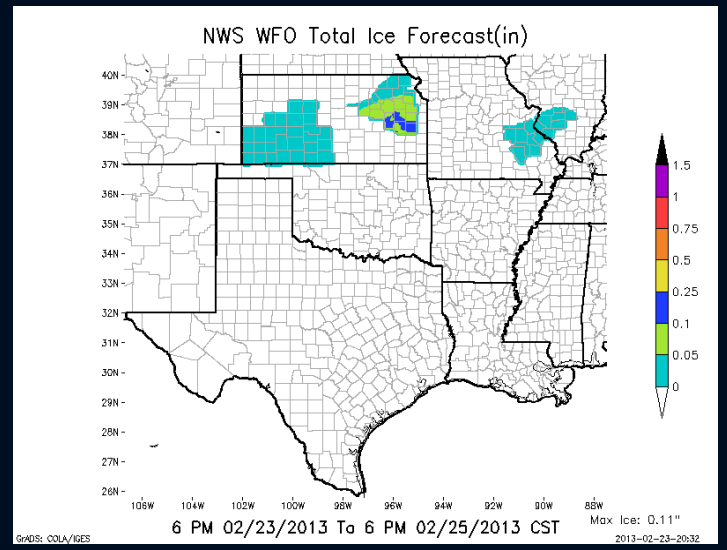
SPIA-Index.com website overview

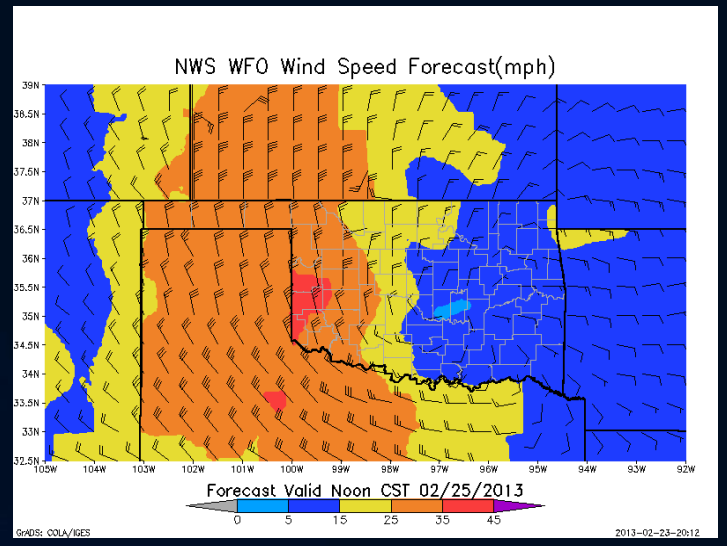
- Regional NWS Forecasts Featuring Multi-State ‘Regional’ Views, Plus an ‘Oklahoma Only’ View.

- Five Displays Available in Each Region:
  - SPIA Index™ (Ice Accumulation & Wind Forecast)
  - QPF (Quantitative Precipitation Forecast)
  - Snow & Ice Forecast
  - Temperature Forecast
  - Apparent Temperature Forecast.

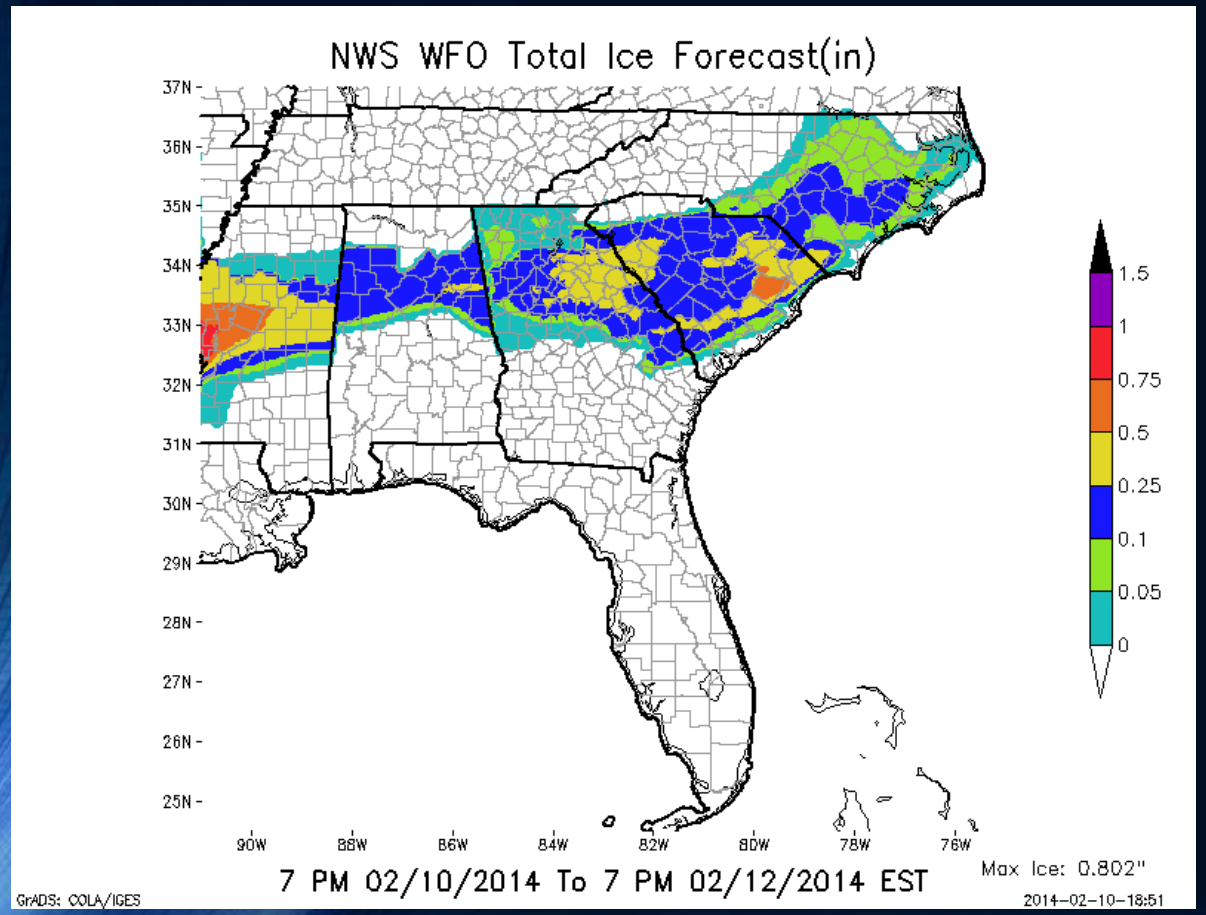
- ‘Oklahoma Only’ View Displays Additional Content:

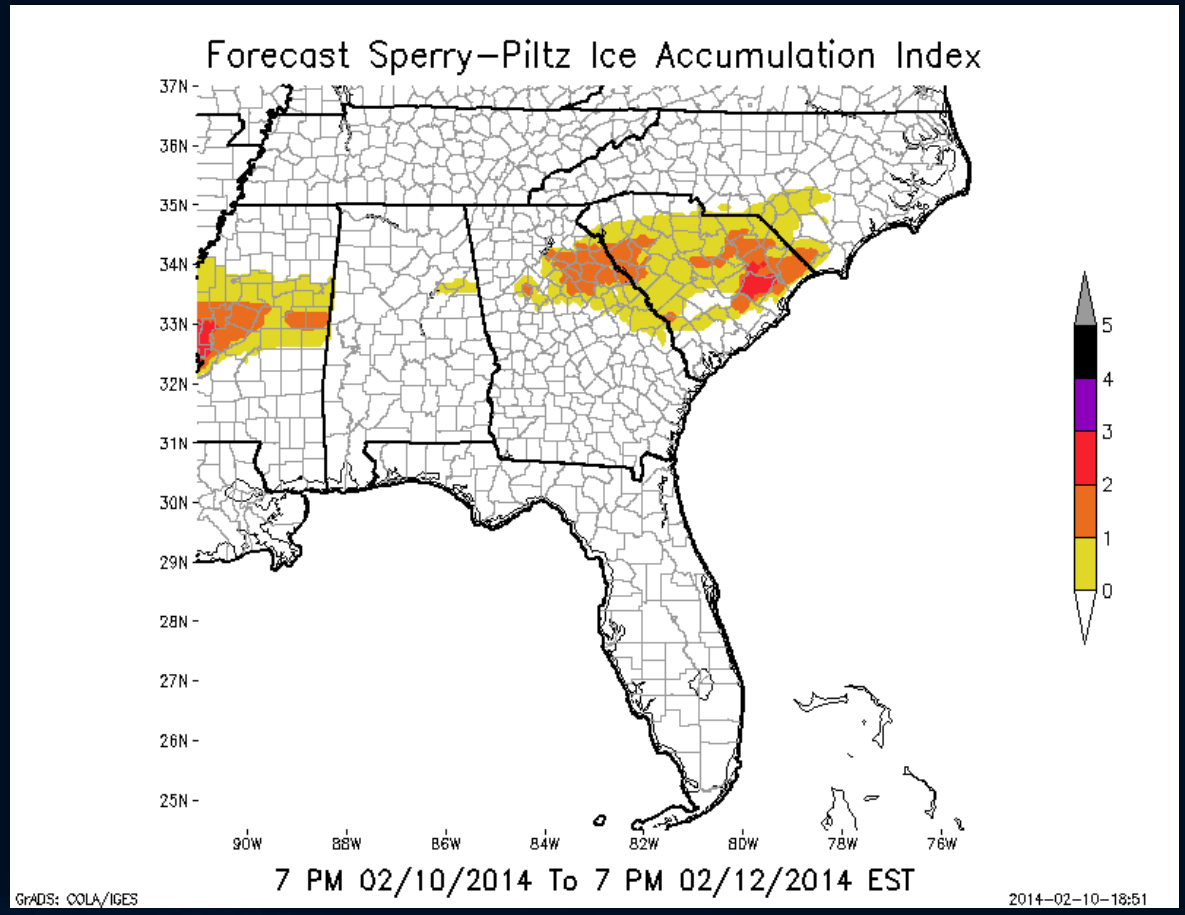
  NWS Fire Weather Products
  - Fire Weather Relative Humidity
  - Fire Spread Index



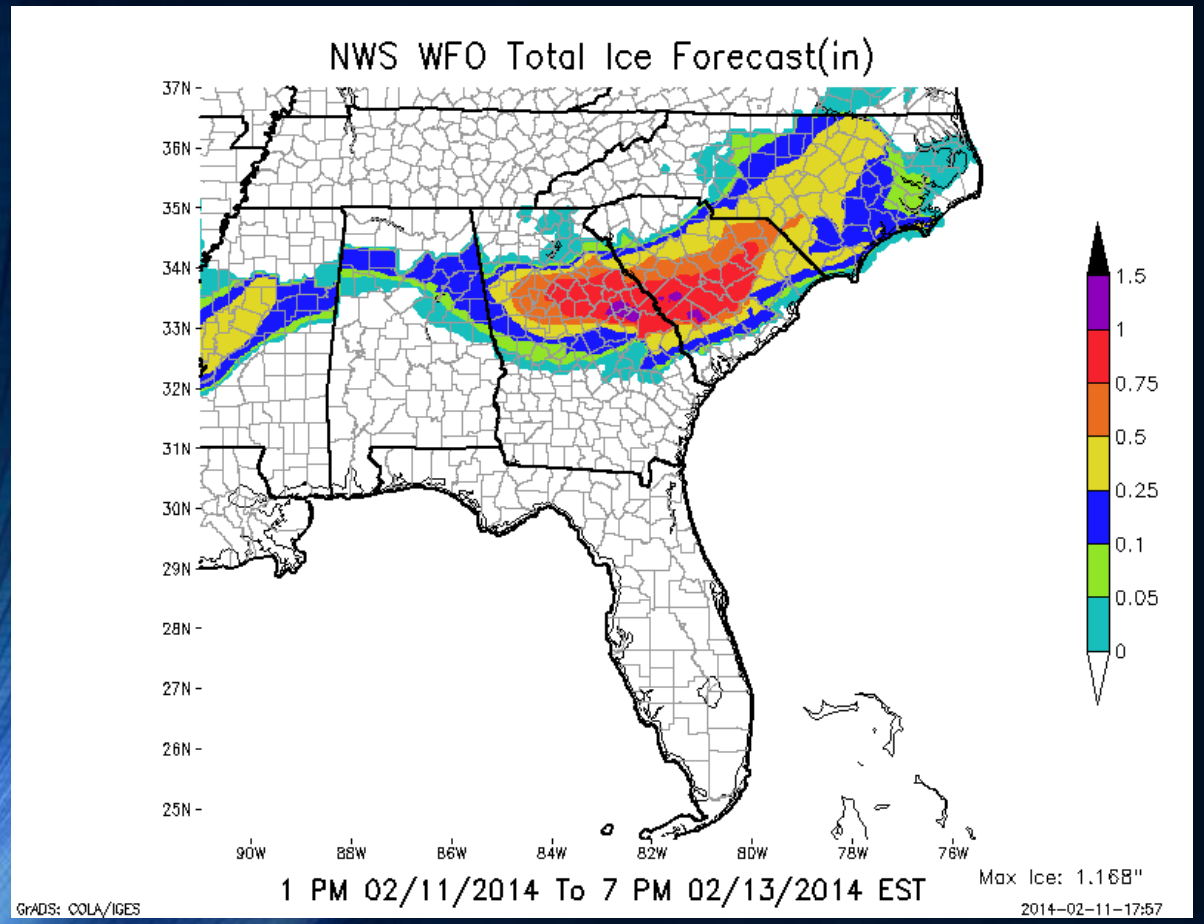


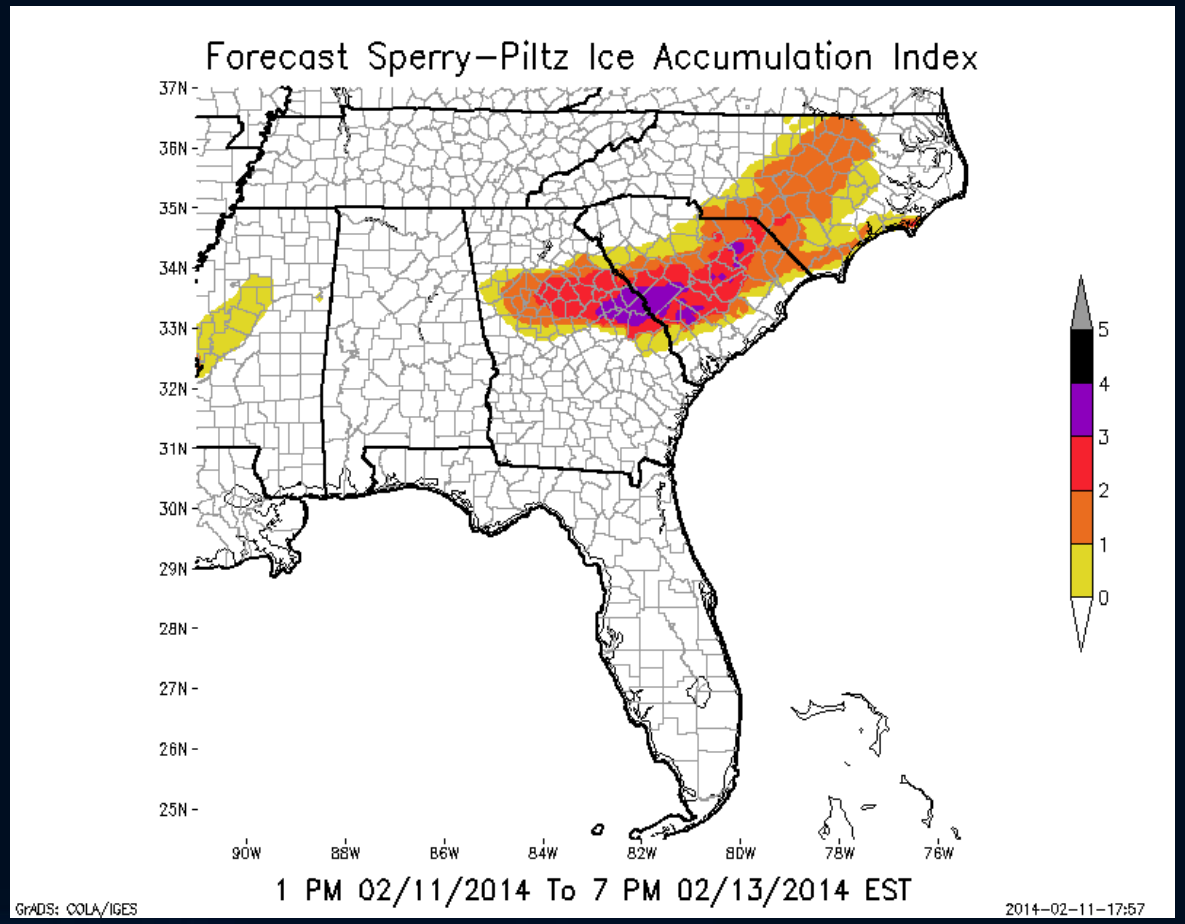
Georgia – South Carolina Ice Storm
February 12-13, 2014: Forecast 7 pm 2/10/14



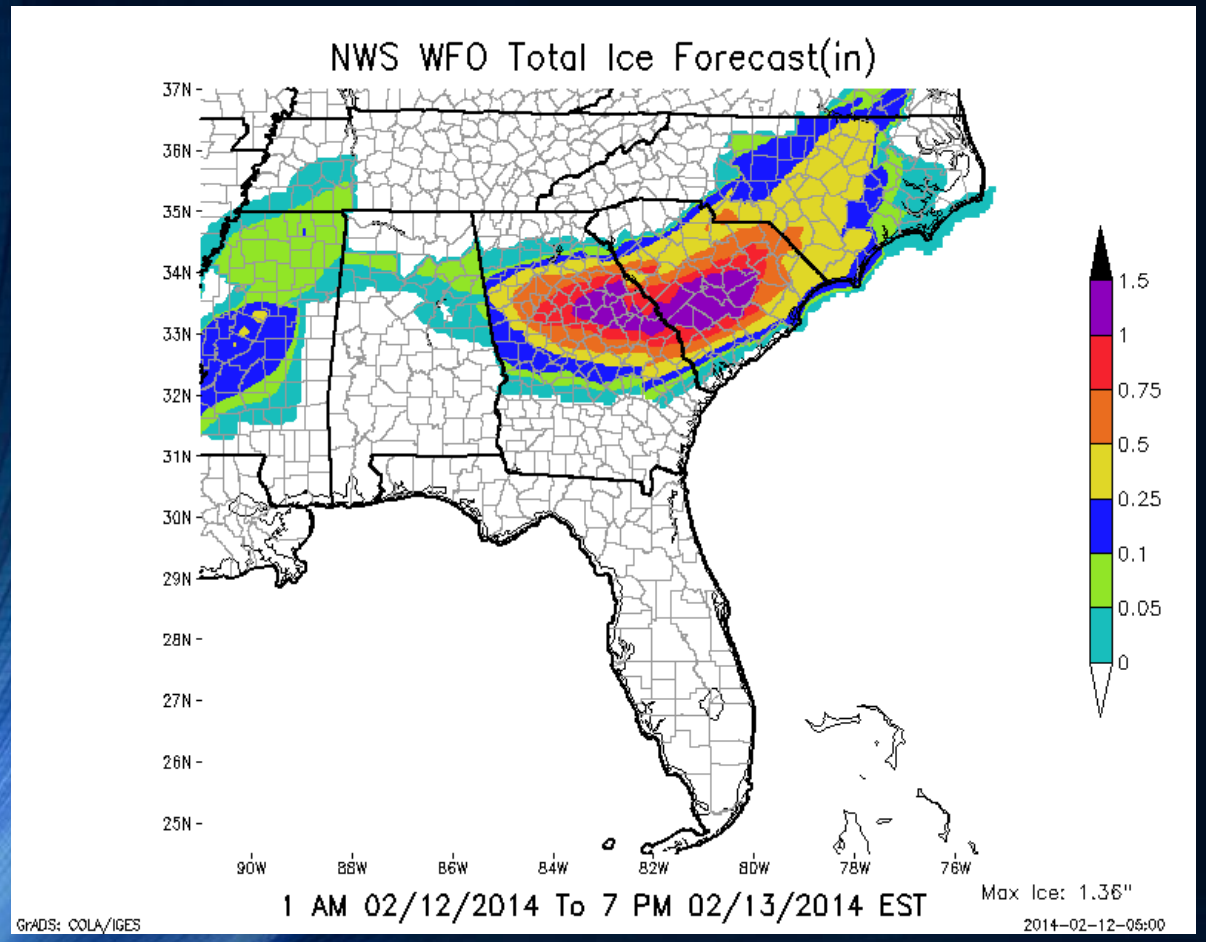


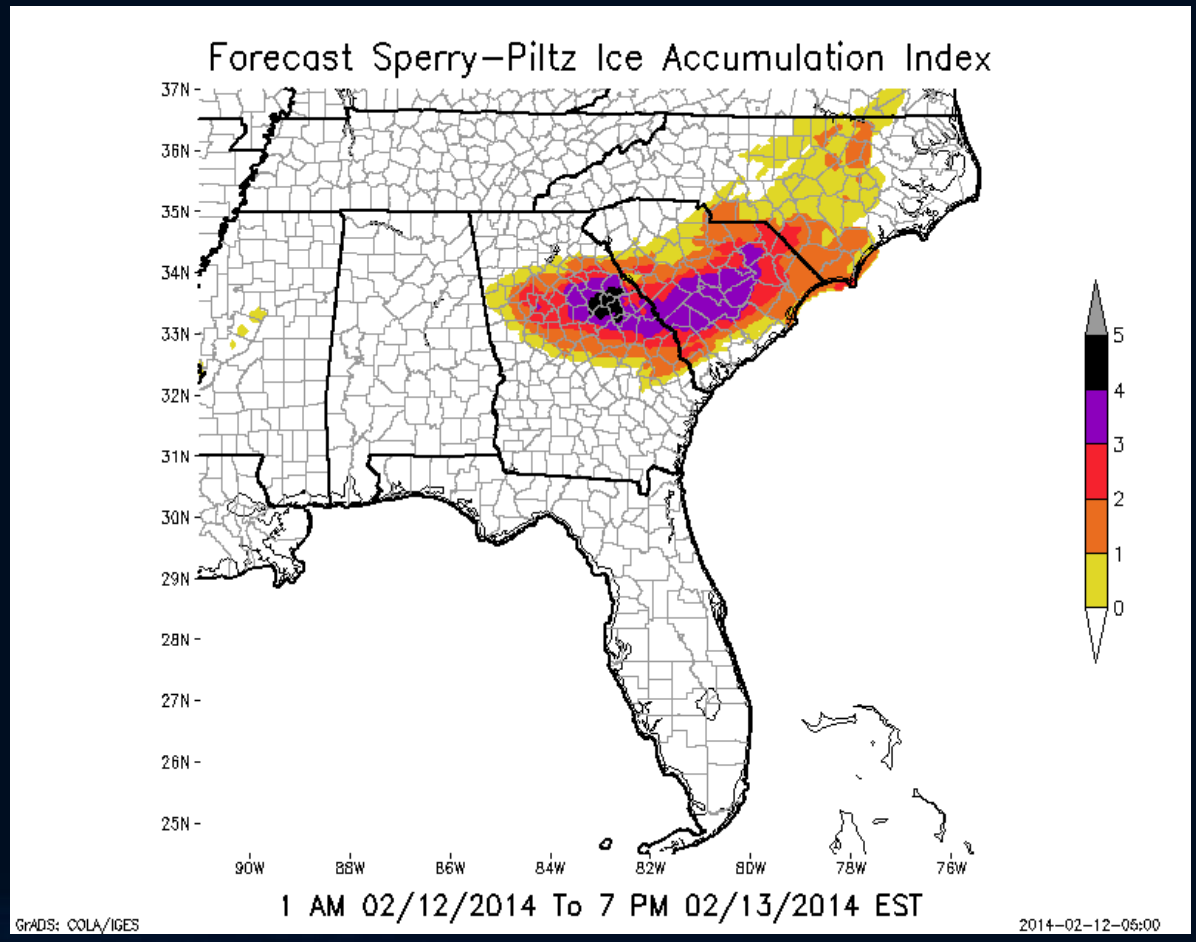
Georgia – South Carolina Ice Storm
February 12-13, 2014: Forecast 1 pm 2/11/14



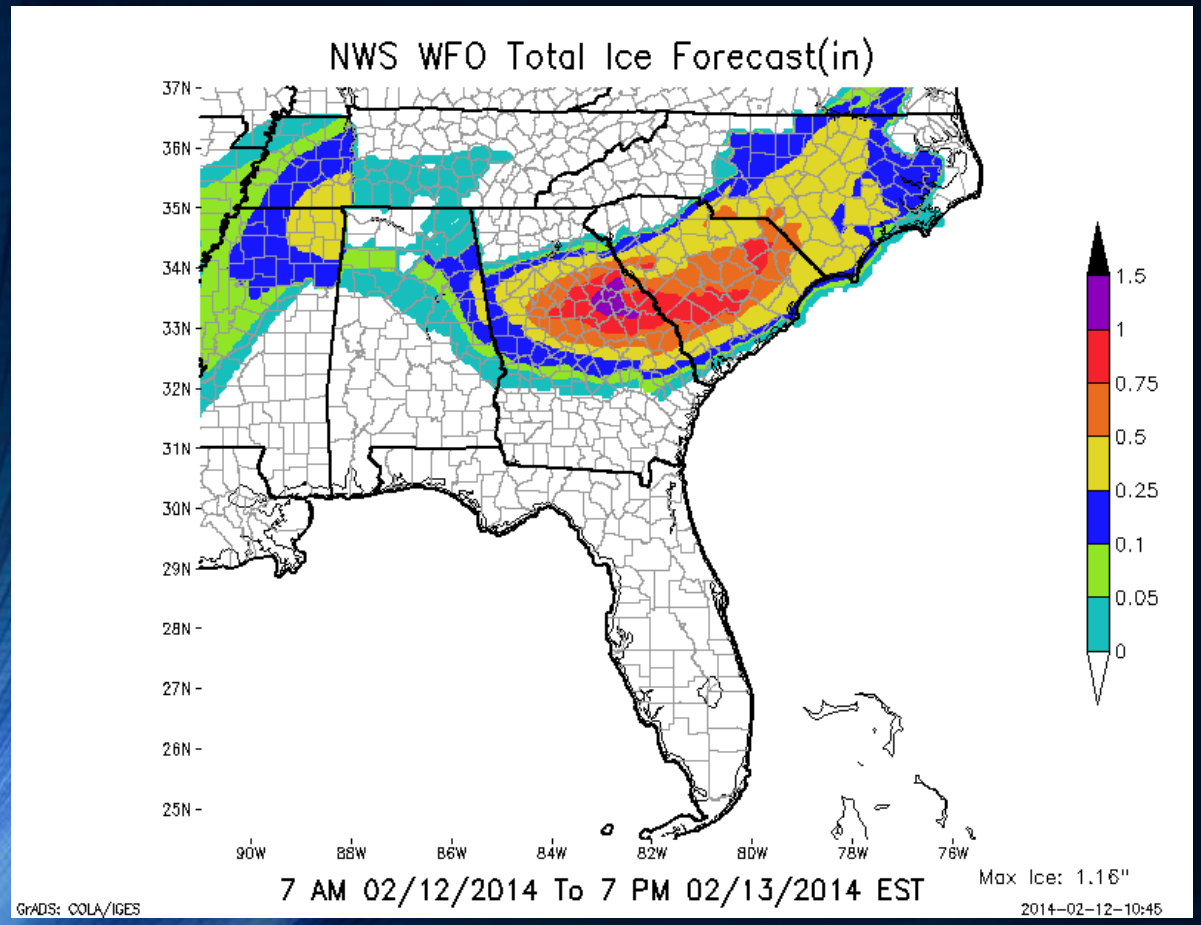


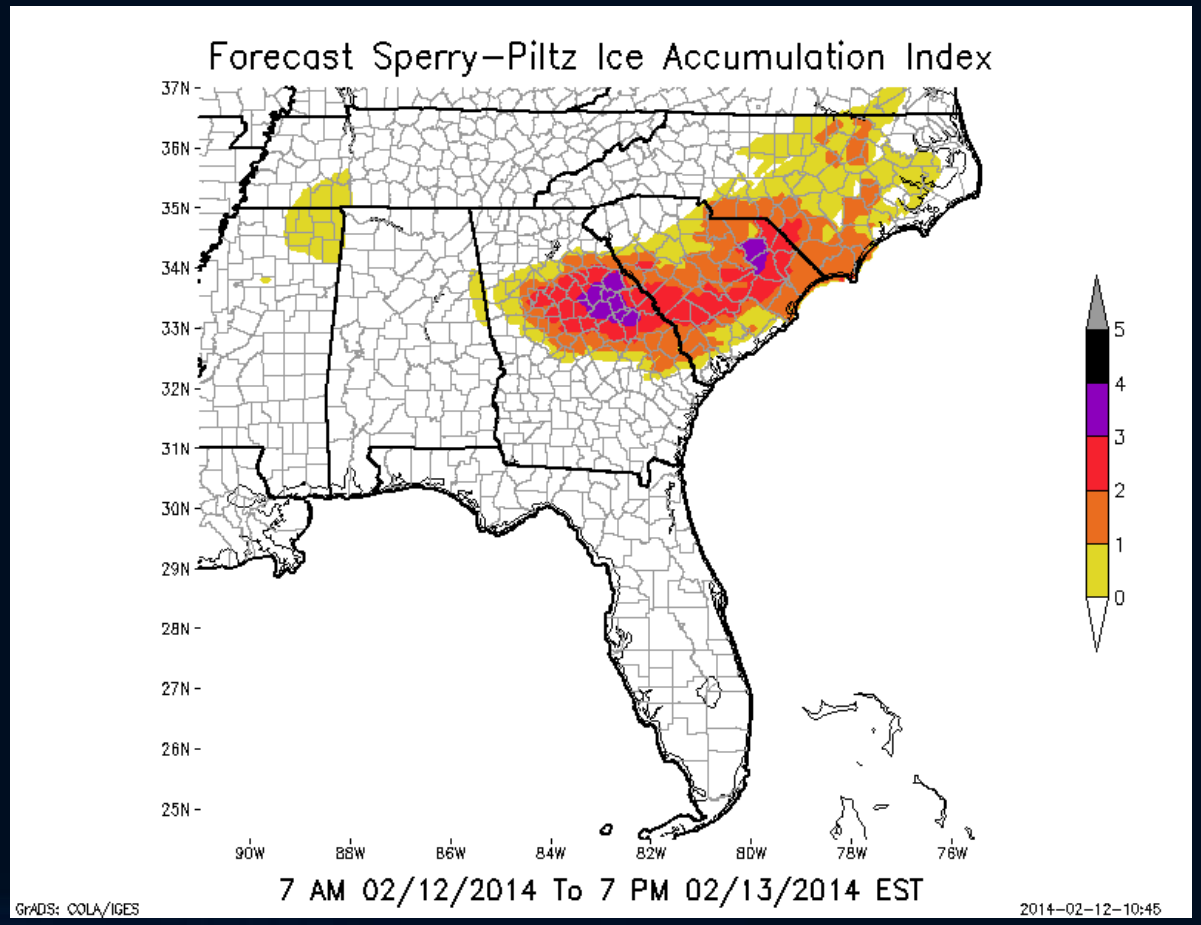
Georgia – South Carolina Ice Storm
February 12-13, 2014: Forecast 1 am 2/12/14





Georgia – South Carolina Ice Storm
February 12-13, 2014: Forecast 7 am 2/12/14

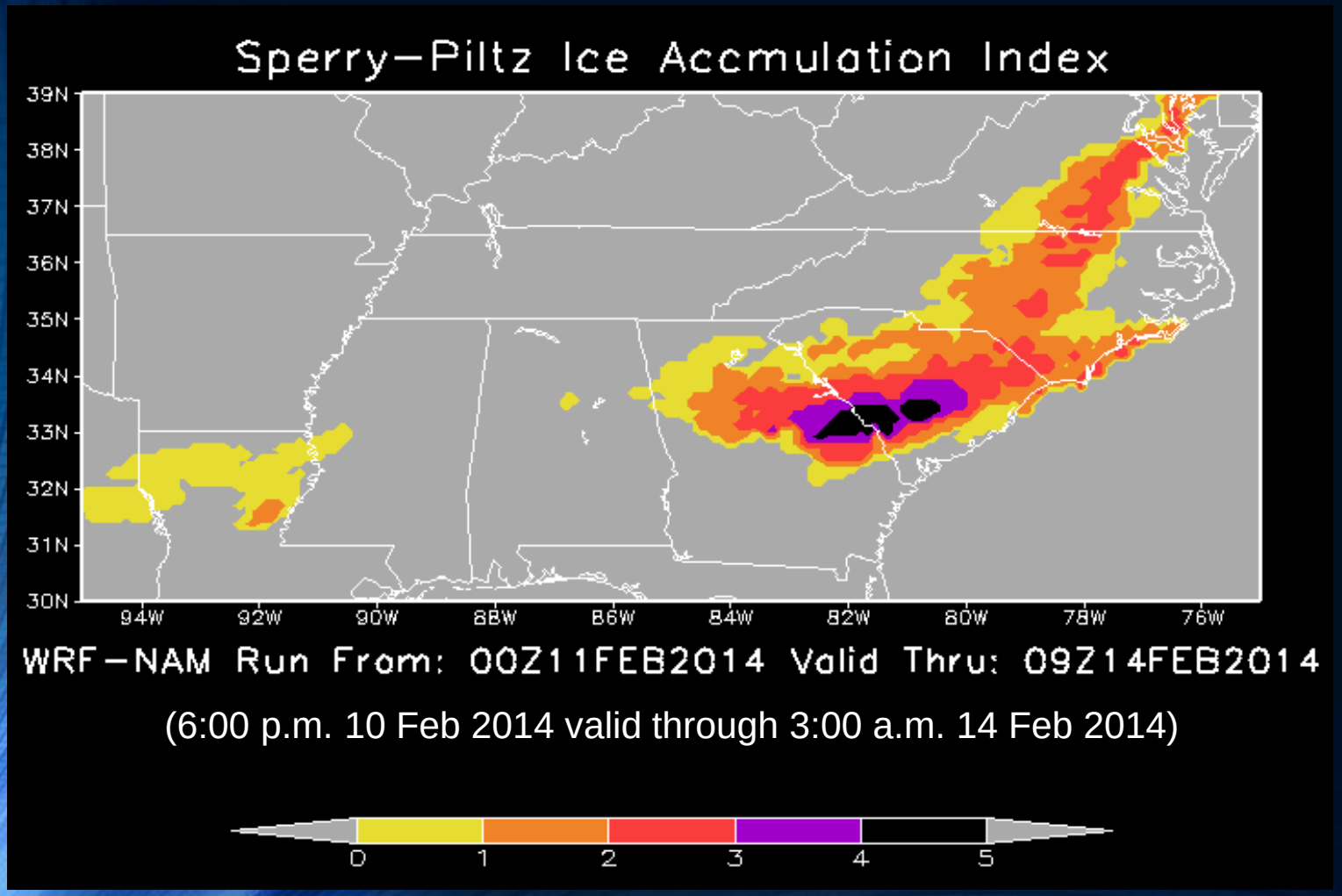


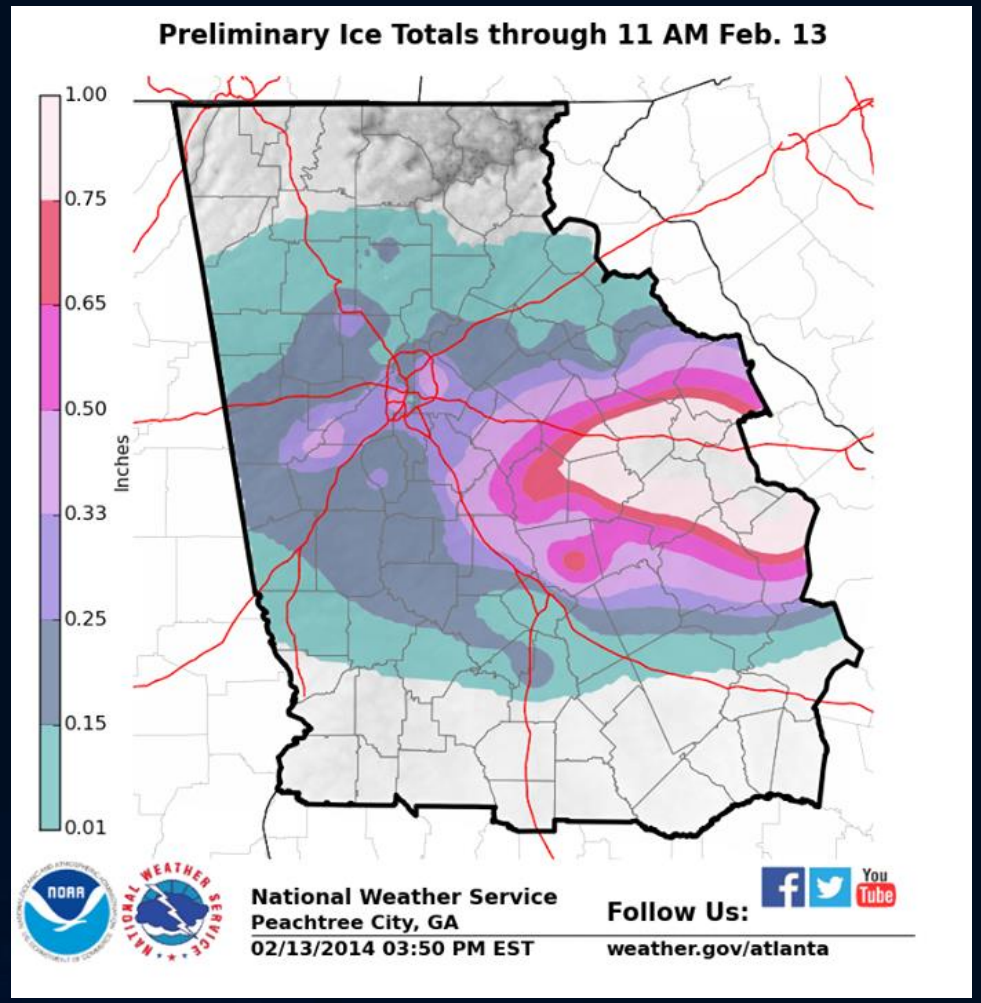


Over 850,000 customer outages were reported with this storm by 15 electric utilities; outages lasting 7-10 days.

How accurate is the SPIA Index™?

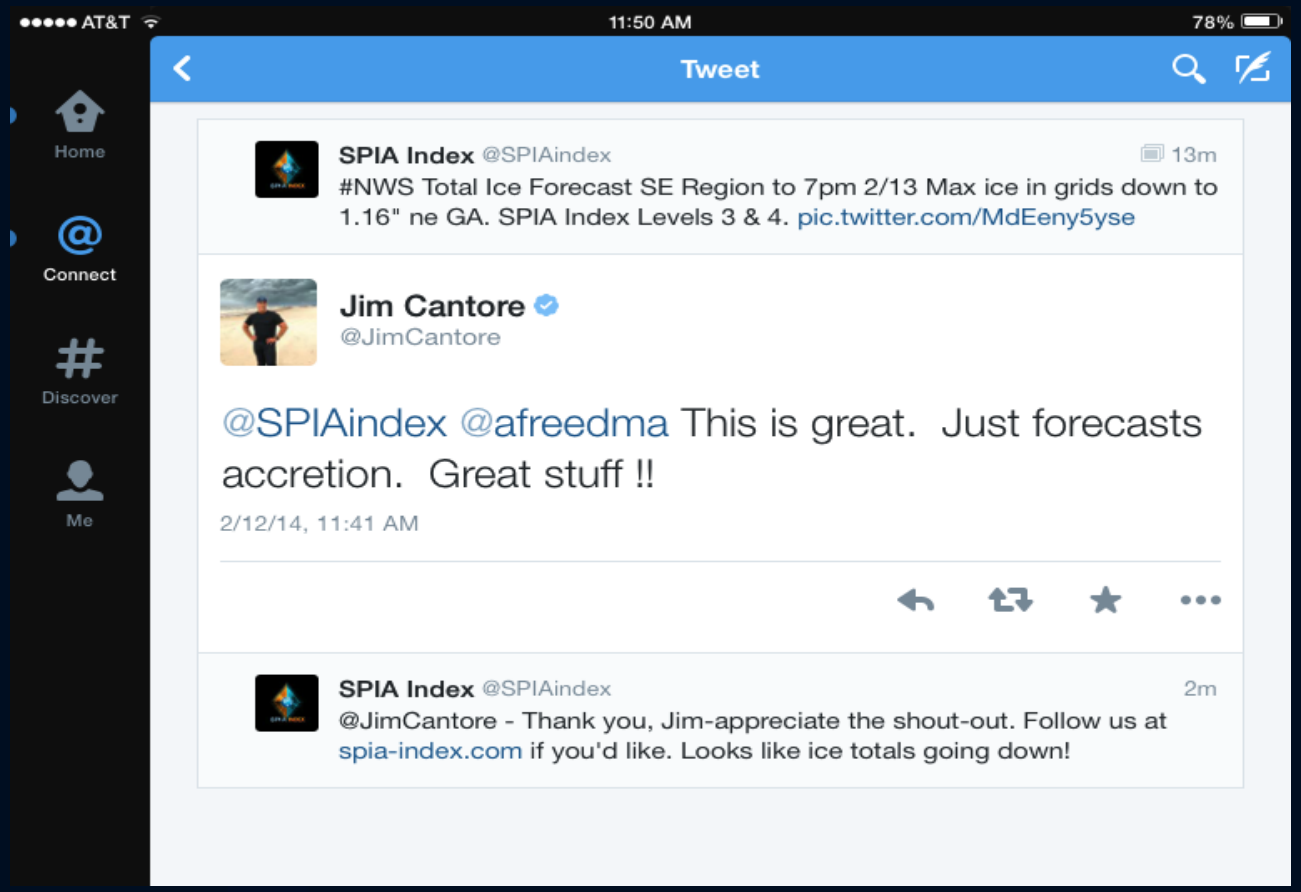
You decide.



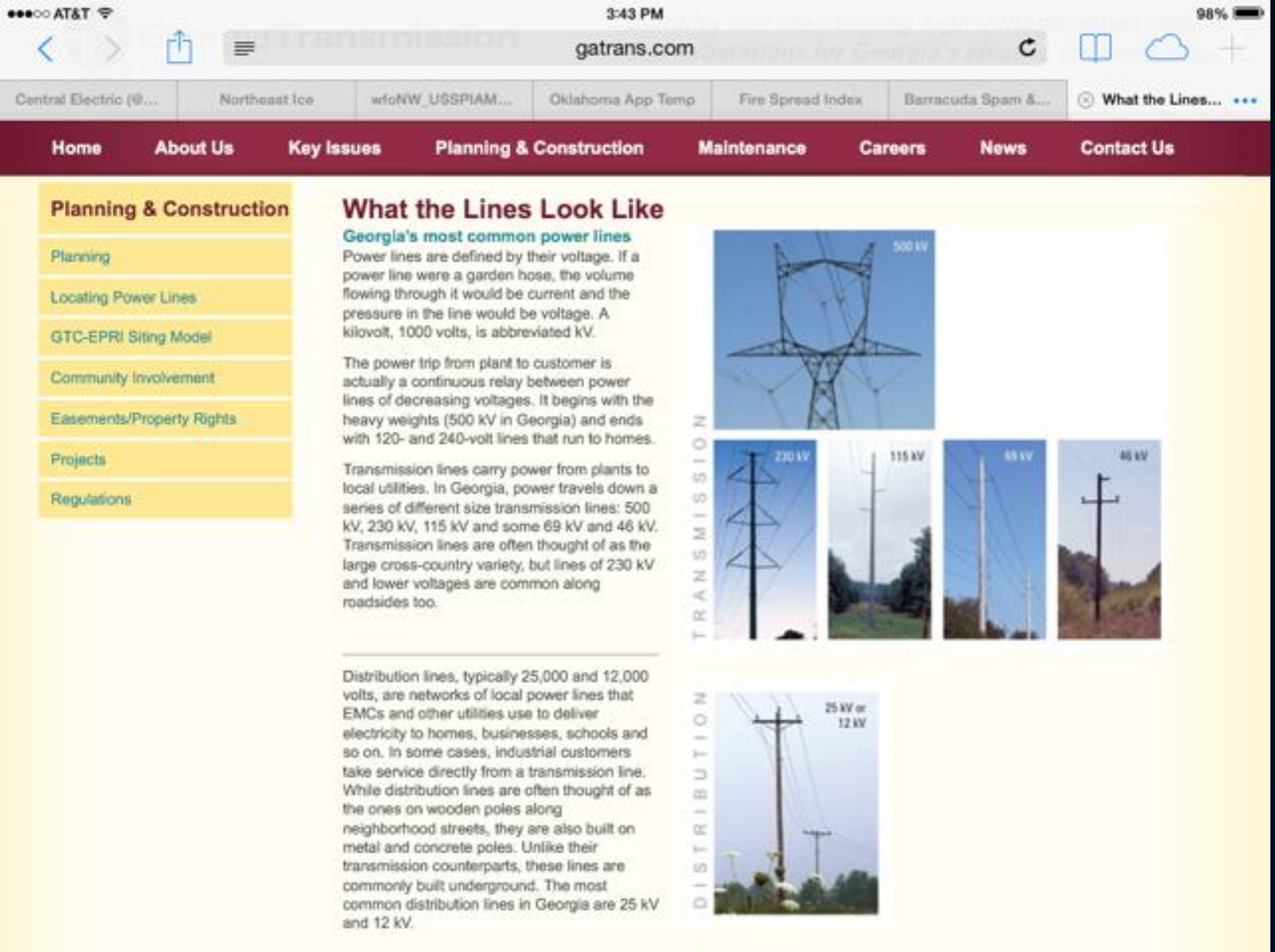


SPIA INDEX ™

A "Shout-Out" from The Weather Channel's **Jim Cantore** via Twitter:



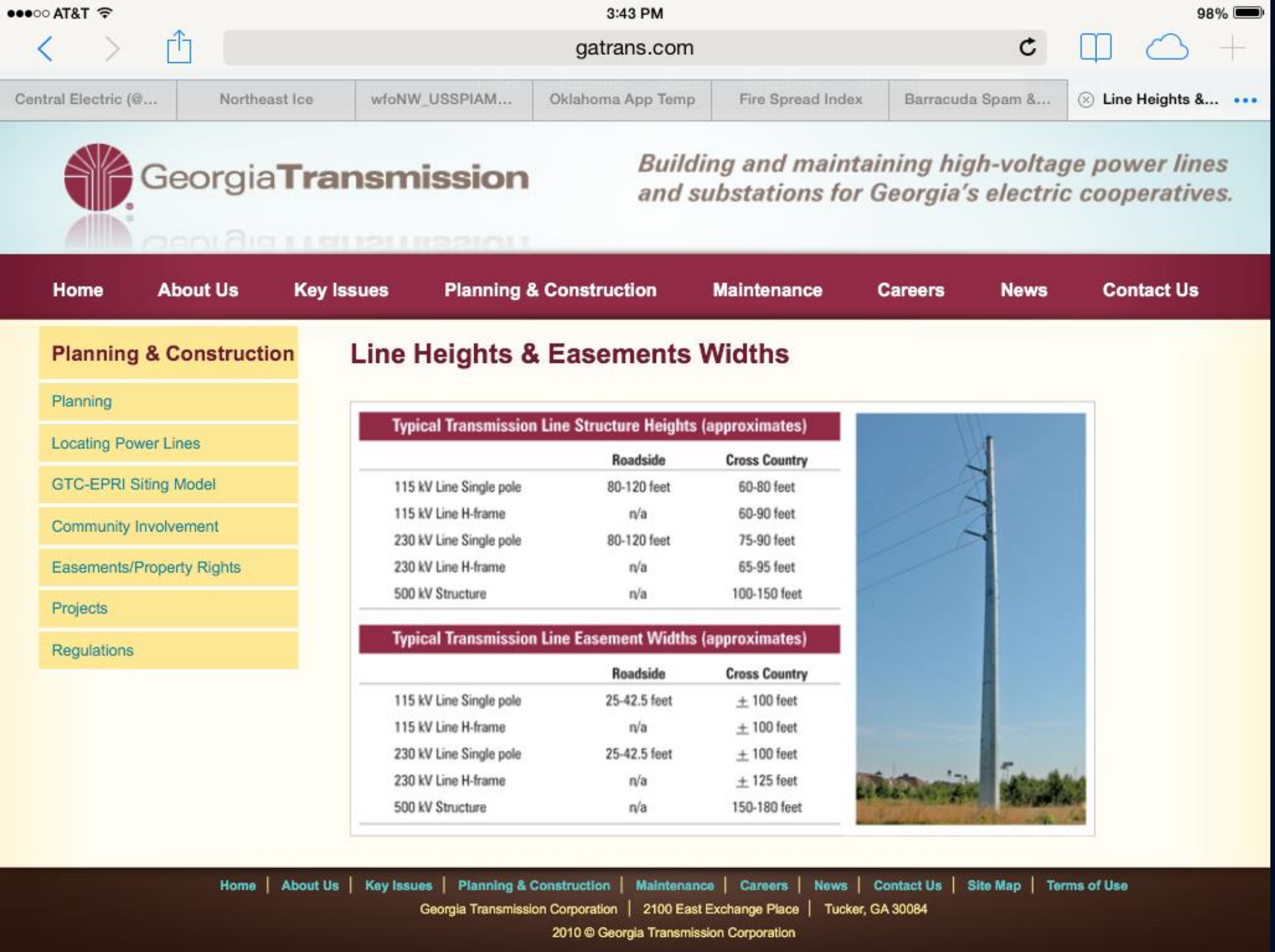
Find SPIA Index™ info and alerts by following us on Twitter: @SPIAindex



Tree Damage and the SPIA Index™:

'Excessive Tree Damage' begins with

Level 3



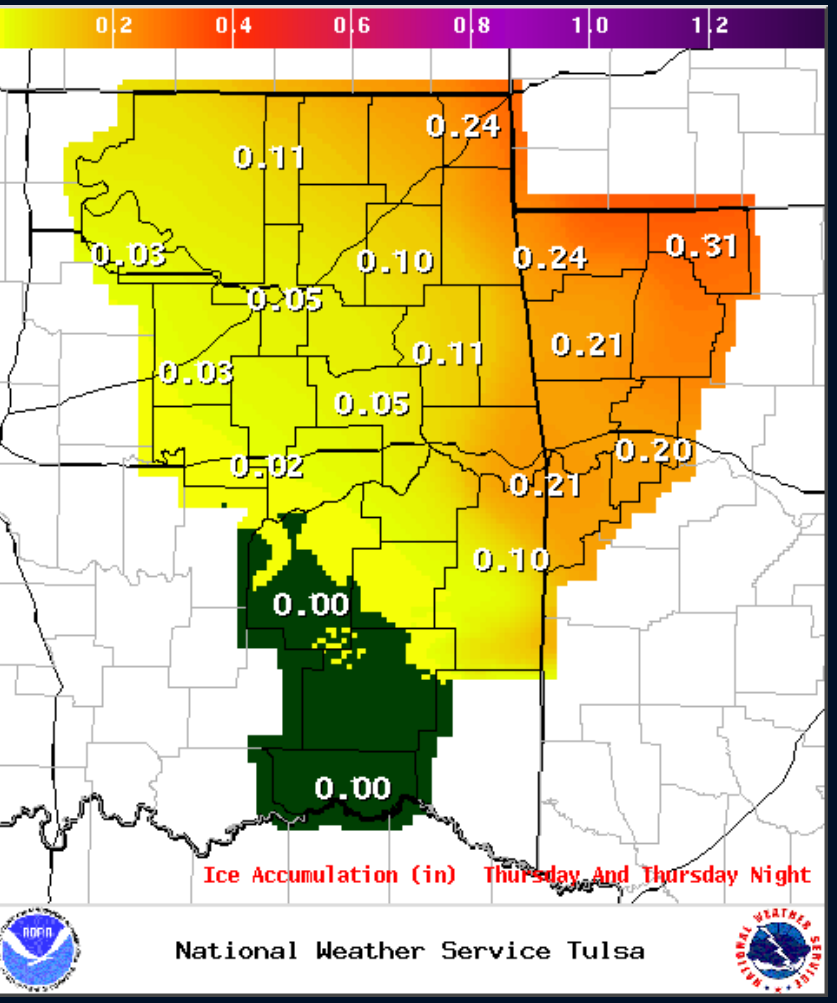
Georgia Transmission Corporation, a wholly-owned subsidiary of Georgia's Electric Cooperatives, requires certain R-O-W easements based on line **type** & **height**.

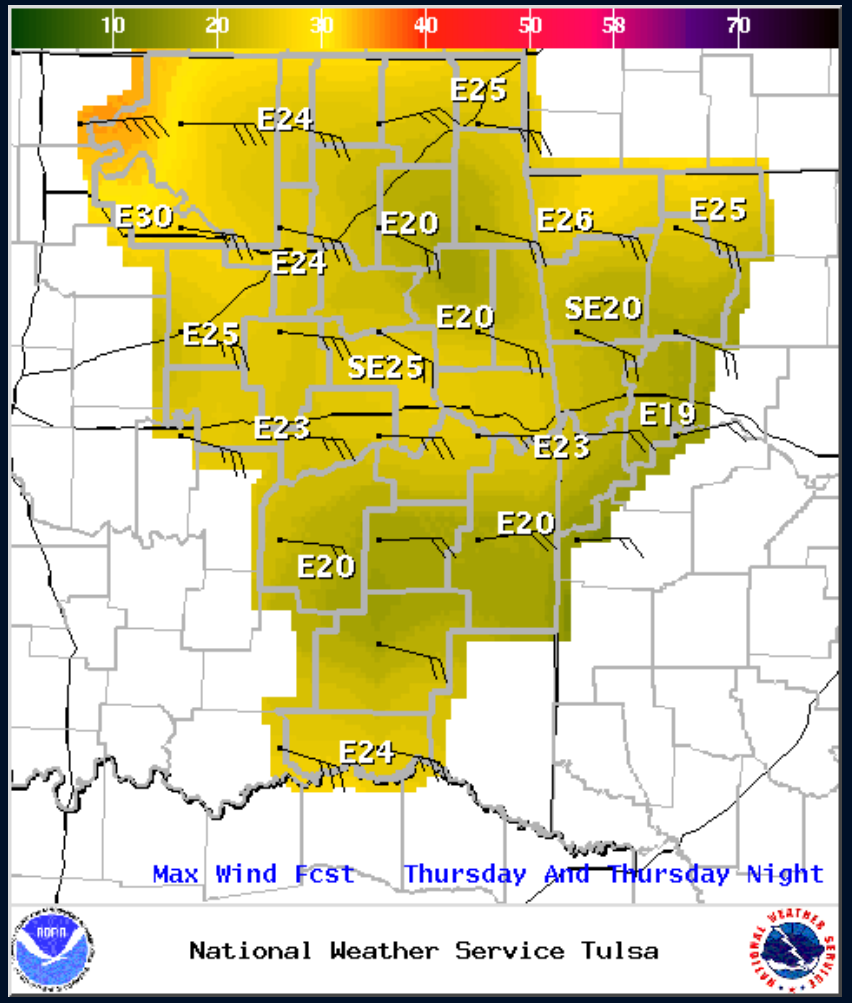
QUESTIONS?

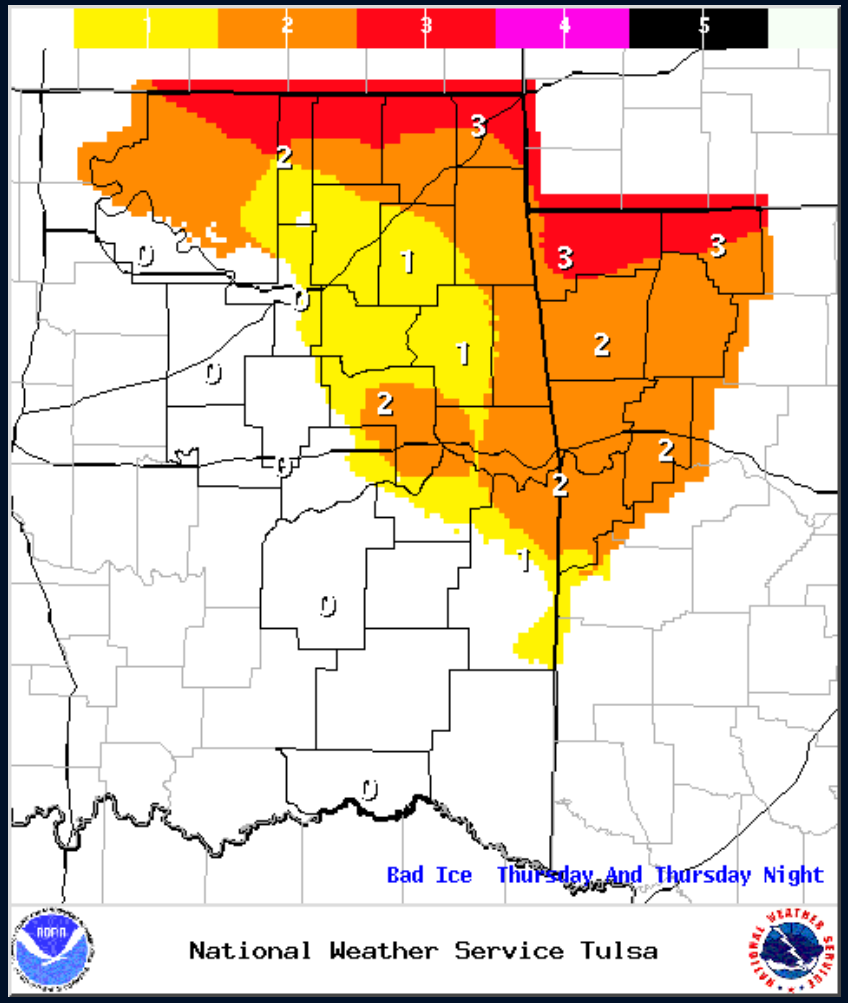
Thank You!

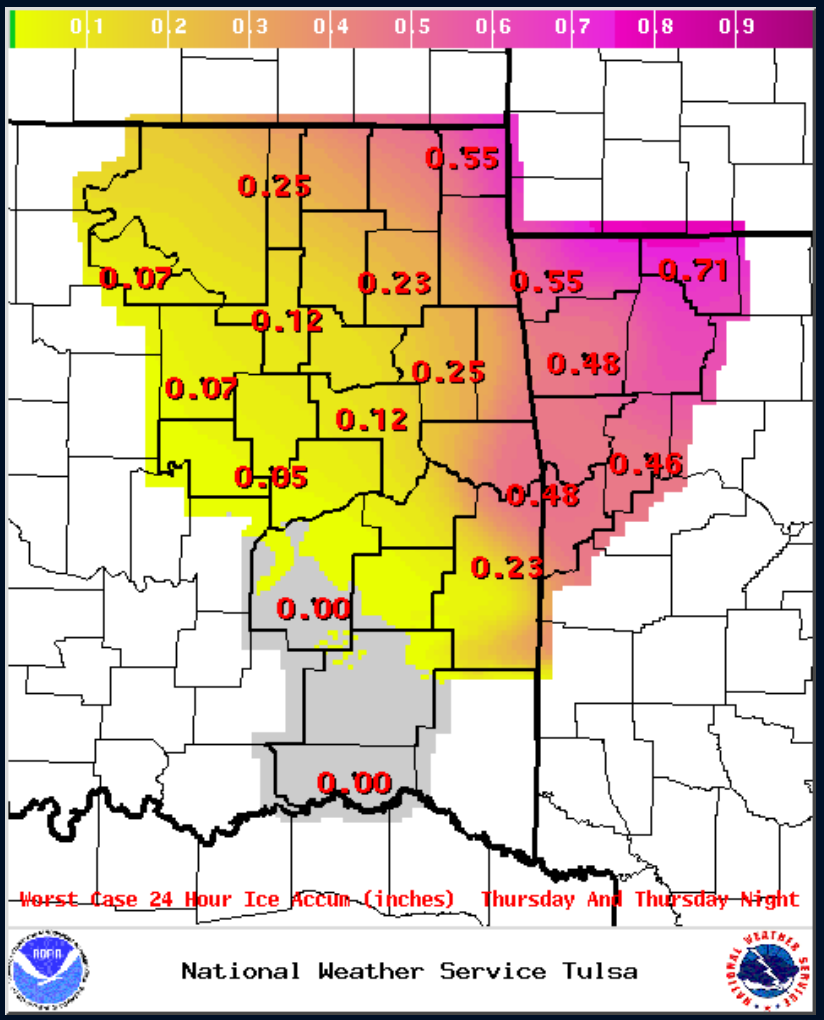

ARCTIC CAT

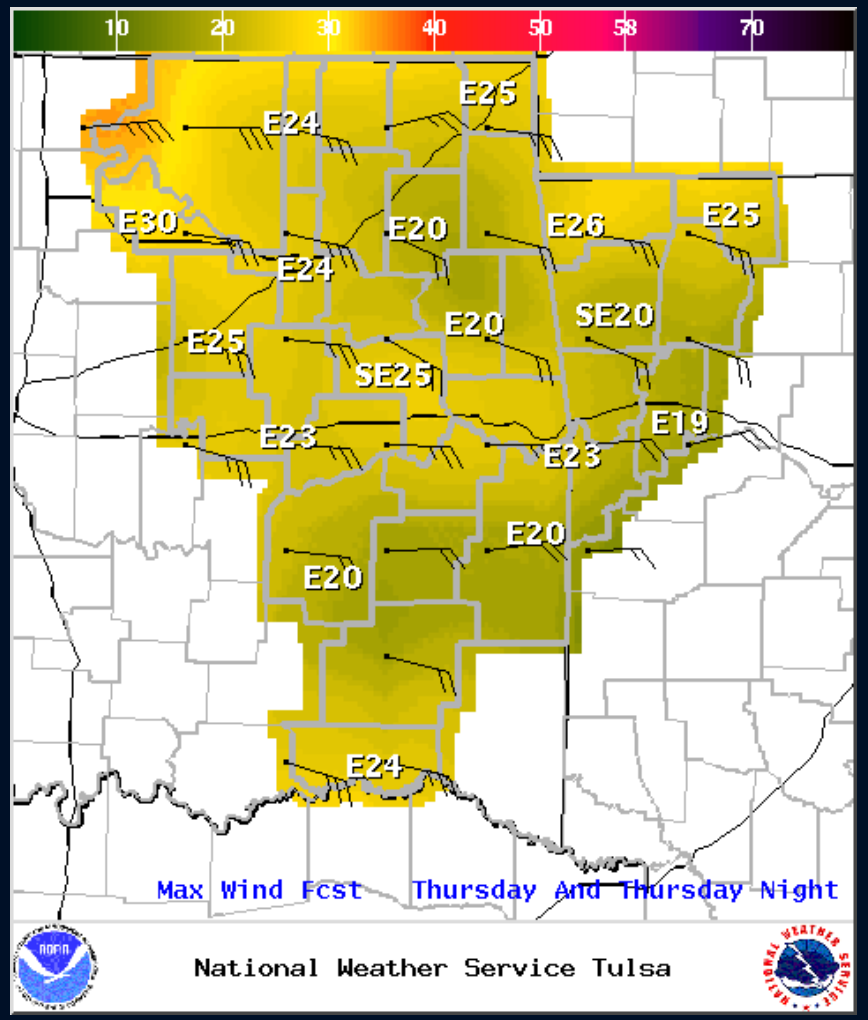

150

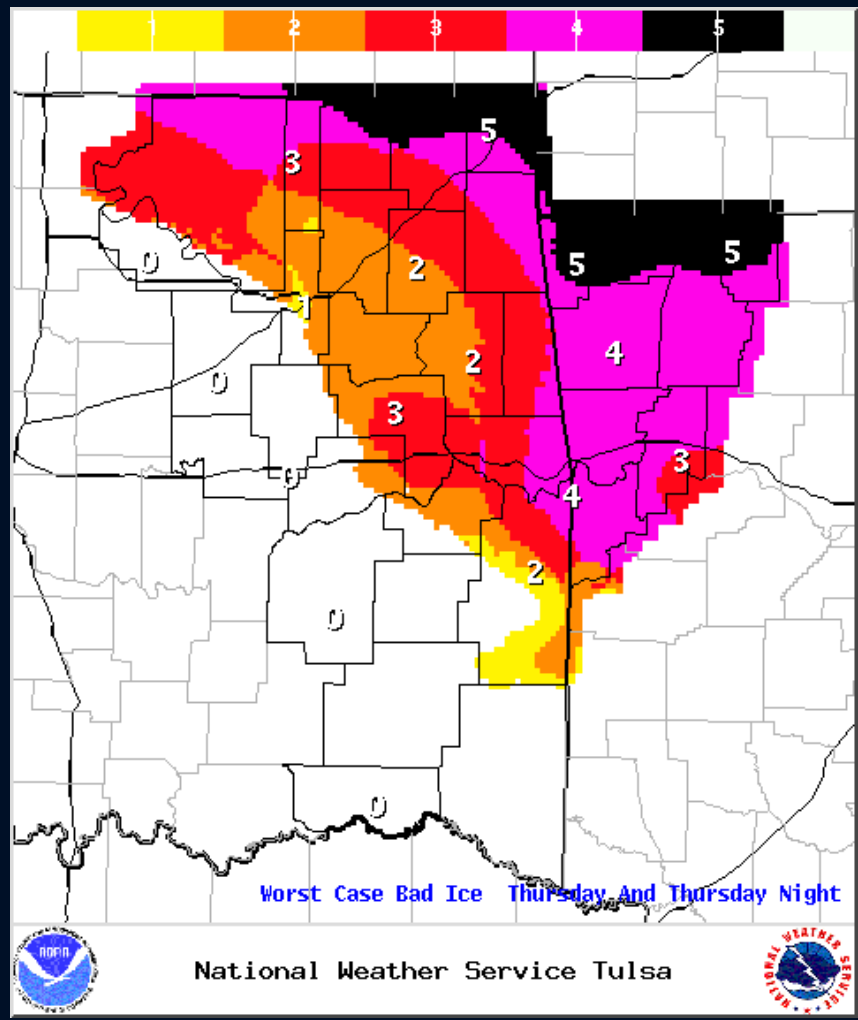

0.2
0.4
0.6
0.8
1.0
1.2
0.24
0.11
0.03
0.10
0.24
0.31
0.05
0.11
0.21
0.03
0.05
0.20
0.02
0.21
0.10
0.00
0.00
Ice Accumulation (in) Thursday And Thursday Night
National Weather Service Tulsa

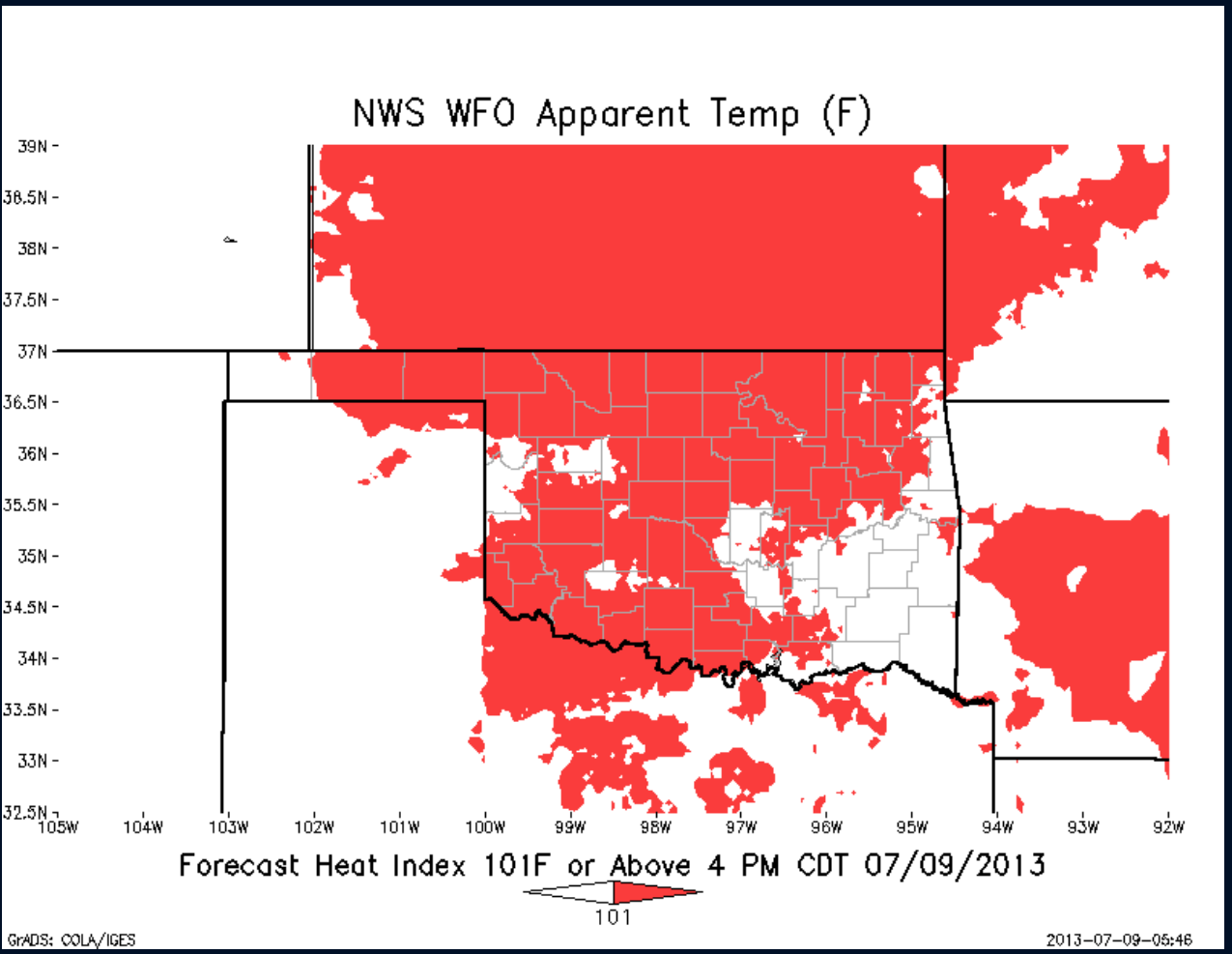

10
20
30
40
50
58
70
E25
E24
E30
E20
E26
E25
E24
E20
SE20
E25
SE25
E19
E23
E23
E20
E20
E24
Max Wind Fcst Thursday And Thursday Night
National Weather Service Tulsa

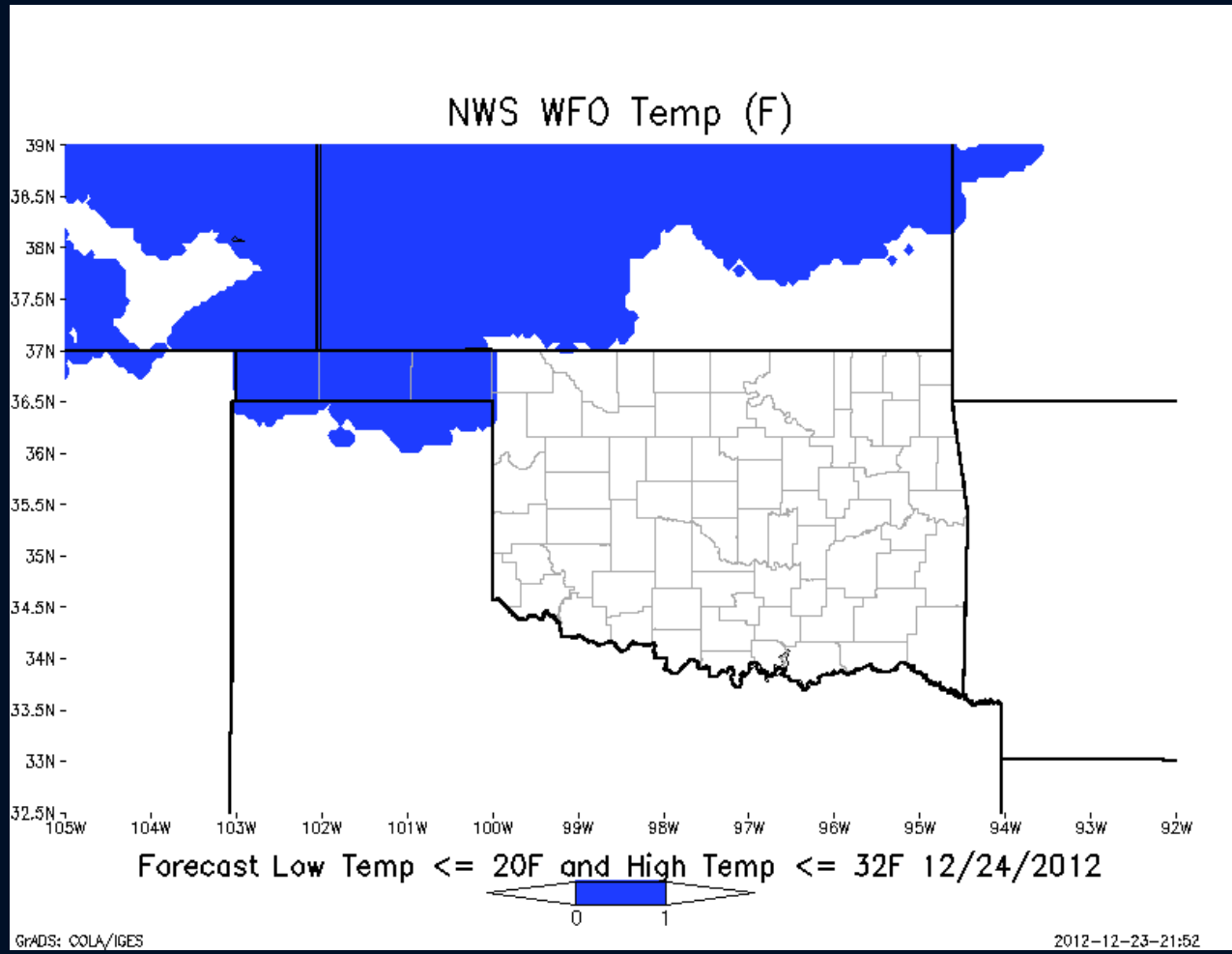

1
2
3
4
5
3
2
3
1
3
0
0
1
2
2
2
2
1
0
0
Bad Ice Thursday And Thursday Night
National Weather Service Tulsa


0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
0.25
0.55
0.07
0.23
0.55
0.71
0.12
0.07
0.25
0.48
0.12
0.05
0.48
0.46
0.23
0.00
0.00
Worst Case 24 Hour Ice Accum (inches) Thursday And Thursday Night
National Weather Service Tulsa

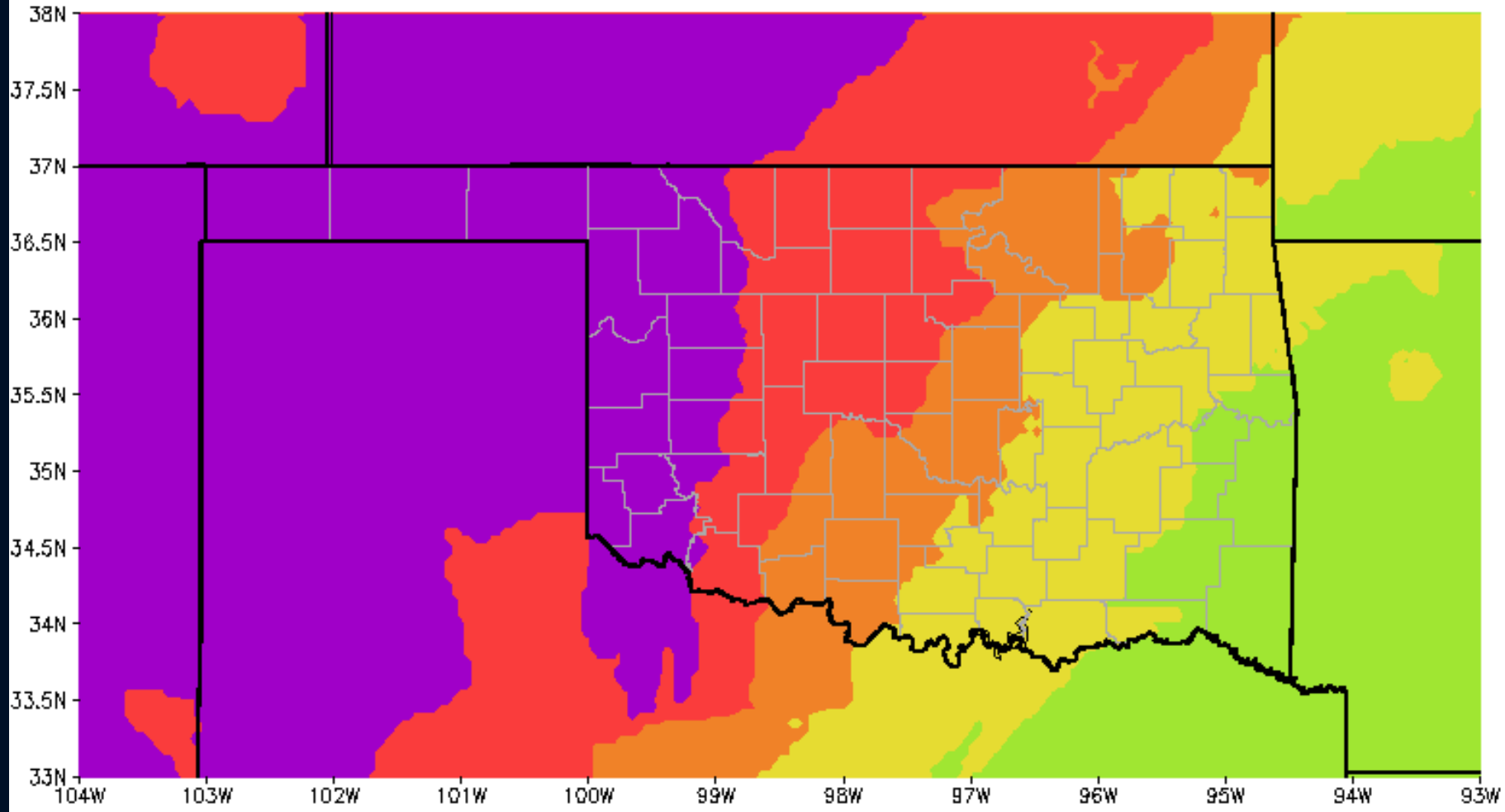

10 20 30 40 50 58 70
E25
E24
E30
E20
E26
E25
E24
E20
SE20
E25
SE25
E23
E19
E23
E20
E20
E24
Max Wind Fcst Thursday And Thursday Night
National Weather Service Tulsa


1 2 3 4 5
5
3
5
5
2
1
4
2
3
3
4
2
Worst Case Bad Ice Thursday And Thursday Night
National Weather Service Tulsa


NWS WFO Apparent Temp (F)
39N
38.5N
38N
37.5N
37N
36.5N
36N
35.5N
35N
34.5N
34N
33.5N
33N
32.5N
105W
104W
103W
102W
101W
100W
99W
98W
97W
96W
95W
94W
93W
92W
Forecast Heat Index 101F or Above 4 PM CDT 07/09/2013
101
GrADS: COLA/IGES
2013-07-09-05:46


NWS WFO Temp (F)
39N
38.5N
38N
37.5N
37N
36.5N
36N
35.5N
35N
34.5N
34N
33.5N
33N
32.5N
105W
104W
103W
102W
101W
100W
99W
98W
97W
96W
95W
94W
93W
92W
Forecast Low Temp <= 20F and High Temp <= 32F 12/24/2012
0
1
GrADS: COLA/IGES
2012-12-23-21:52

NWS WFO Forecast Fire Spread Index



Spread Index Forecast 4 PM CDT 03/17/2014

GrADS: COLA/IGES

2014-03-16-21:19