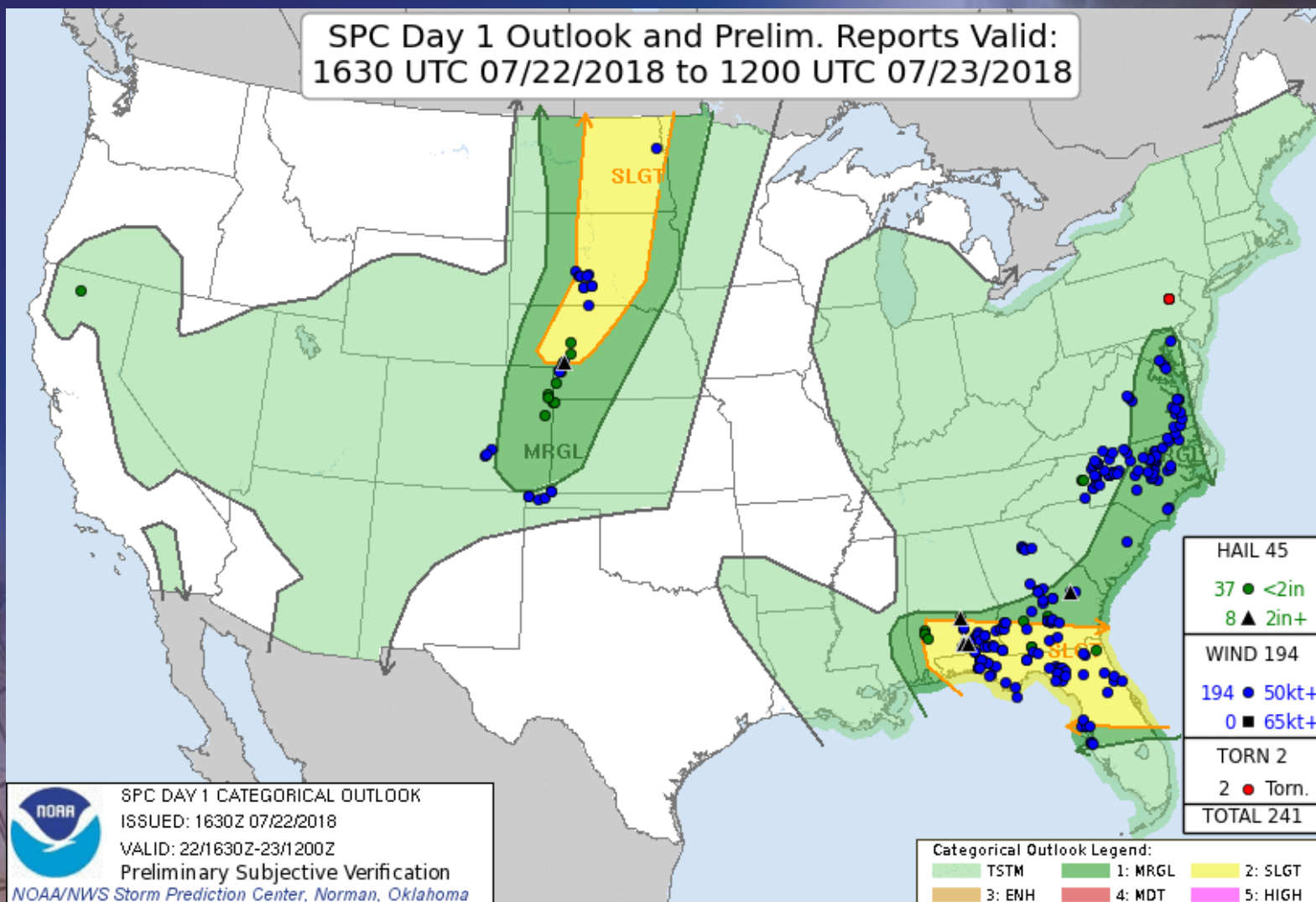
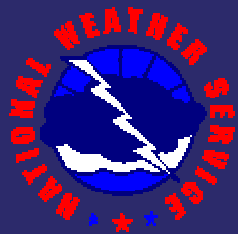


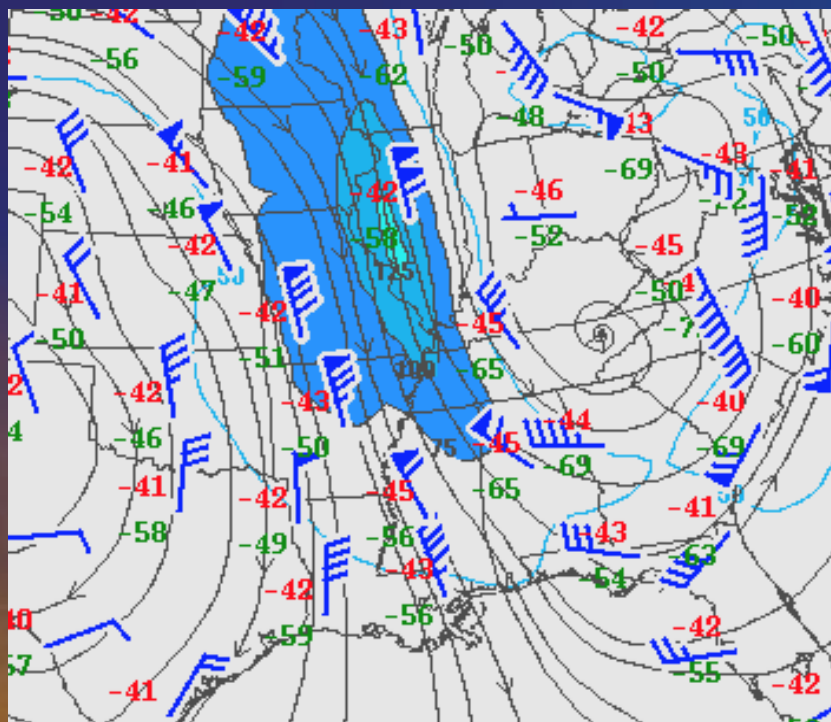
# Southwest and South Central Alabama Large Hail Event – July 22, 2018



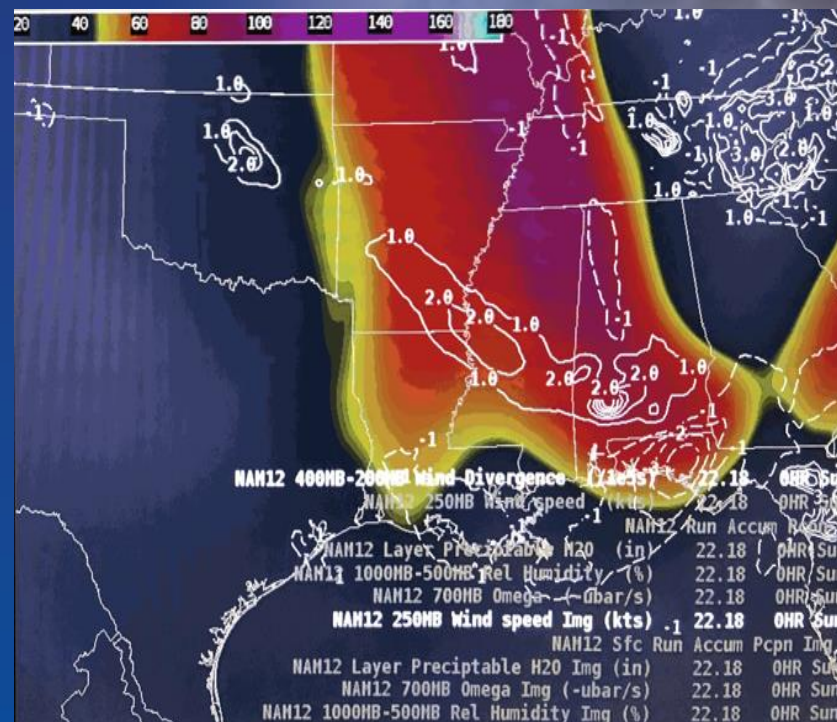
National Weather Service – Mobile, AL



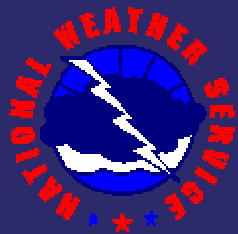
# 250mb Winds



**12z Upper Air Analysis showing strong NW flow aloft, a 125 knot Jet Max approaching the region, and a strong diffluent pattern over central/southern Alabama**

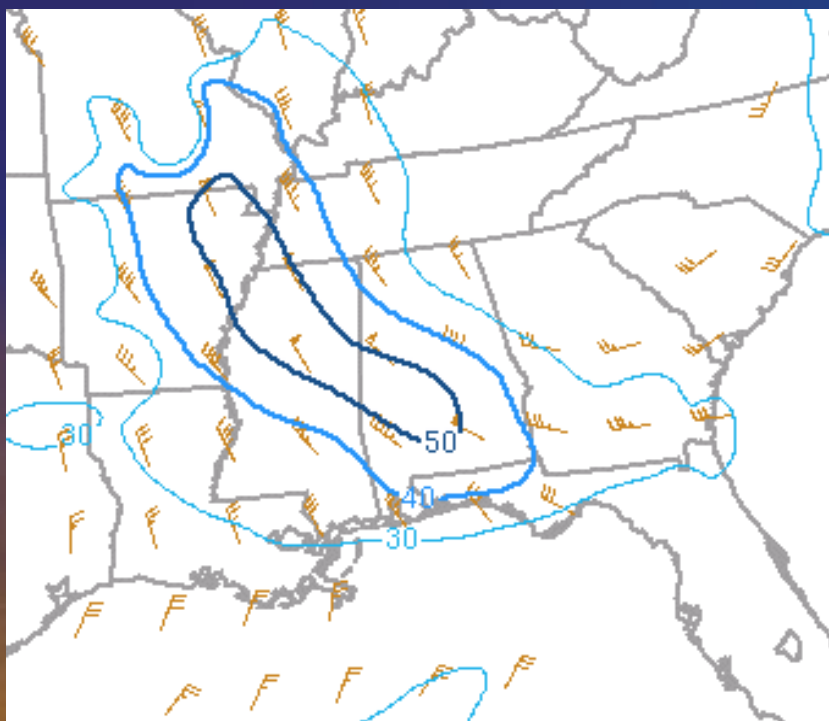


**18z NAM12 Model Data showing the nose of the 125 knot Jet Max moving into the region, and a divergence signature appearing over central/southern Alabama**

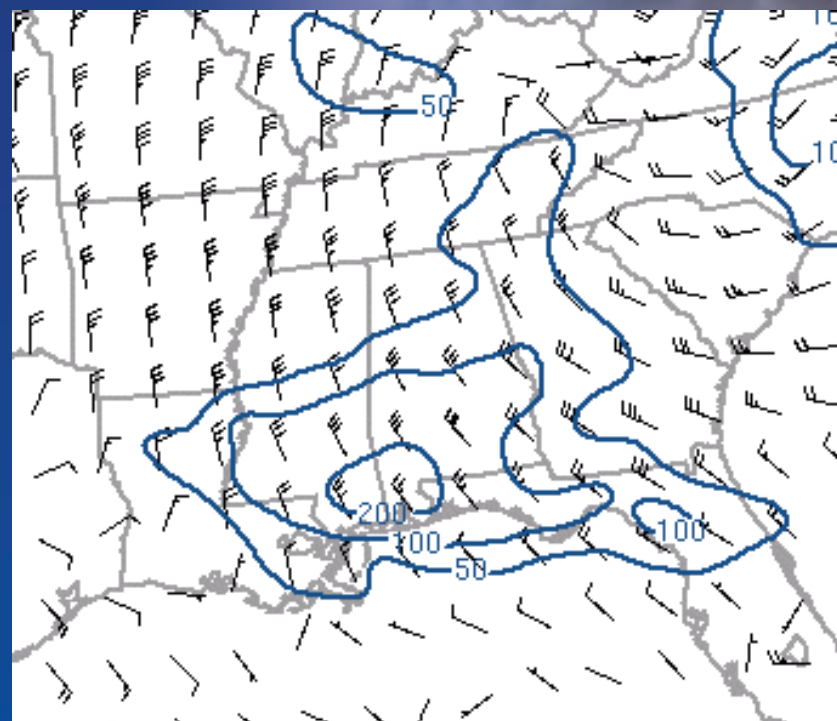


# Wind Shear

## 12:00 PM CDT

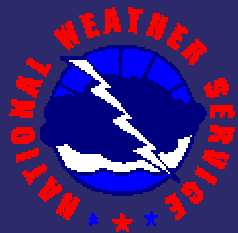


**Effective Bulk Shear  
showing 50+ knot contour  
nosing in over  
central/southern Alabama**



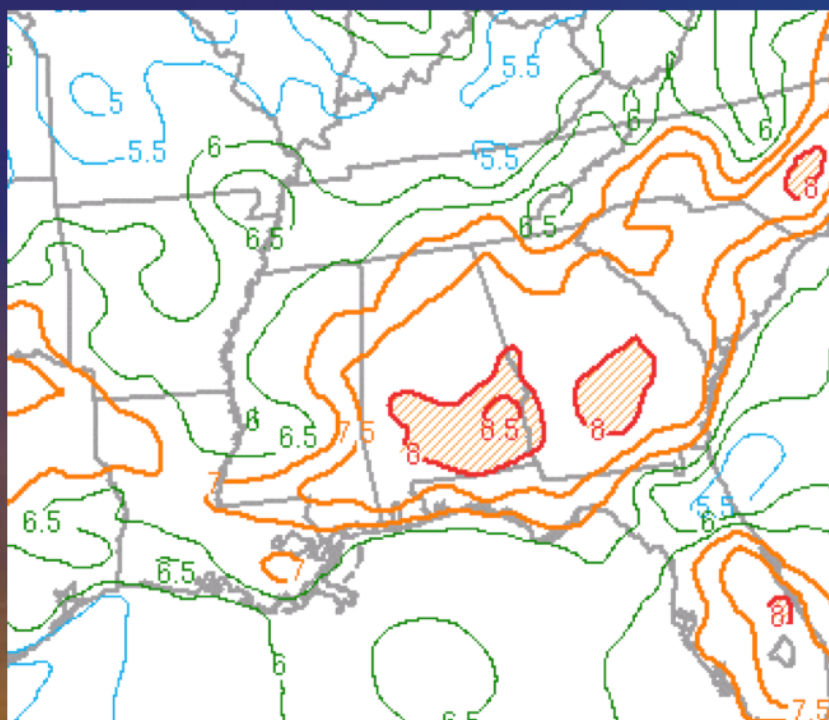
**Storm Relative Helicity  
showing 100-200 m<sup>2</sup>/s<sup>2</sup>  
across central/southern  
Alabama**



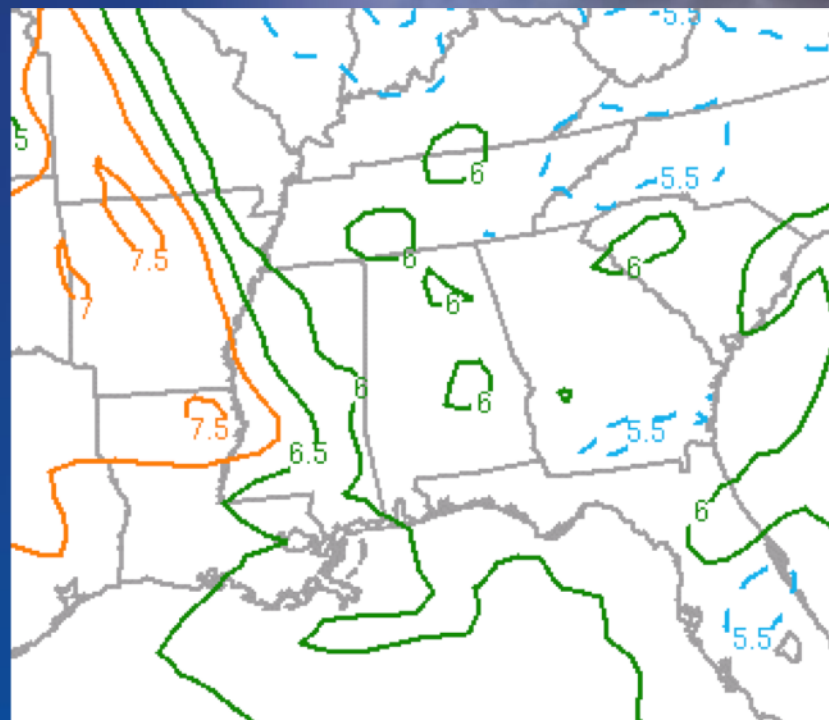


# Thermodynamics

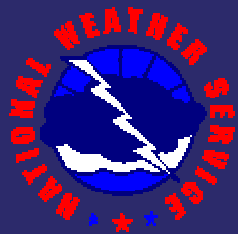
12:00 PM CDT



**Surface Analysis showing  
7.5-8.5 C/km Low-level (0-  
3km) Lapse Rates across the  
impacted areas**

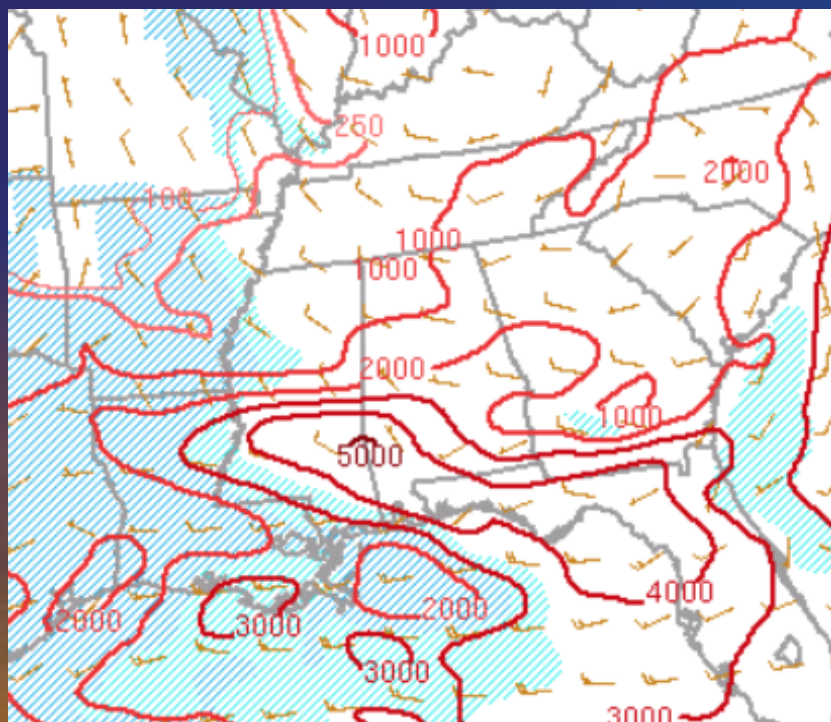


**Surface Analysis showing  
around 6 C/km Mid-level  
(700-500mb) (0-3km) Rates  
across the impacted areas**

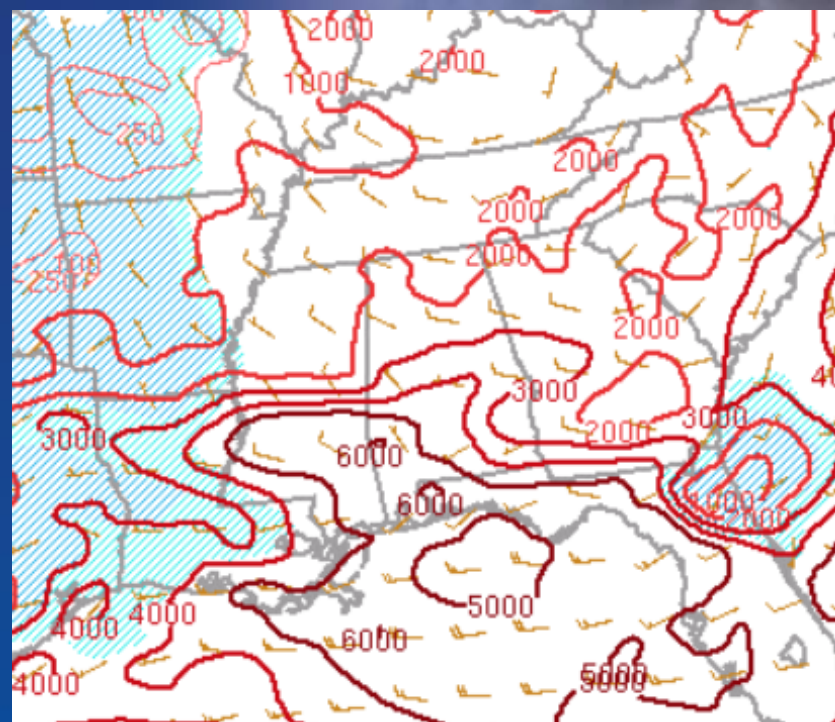


# Thermodynamics

1:00 PM CDT



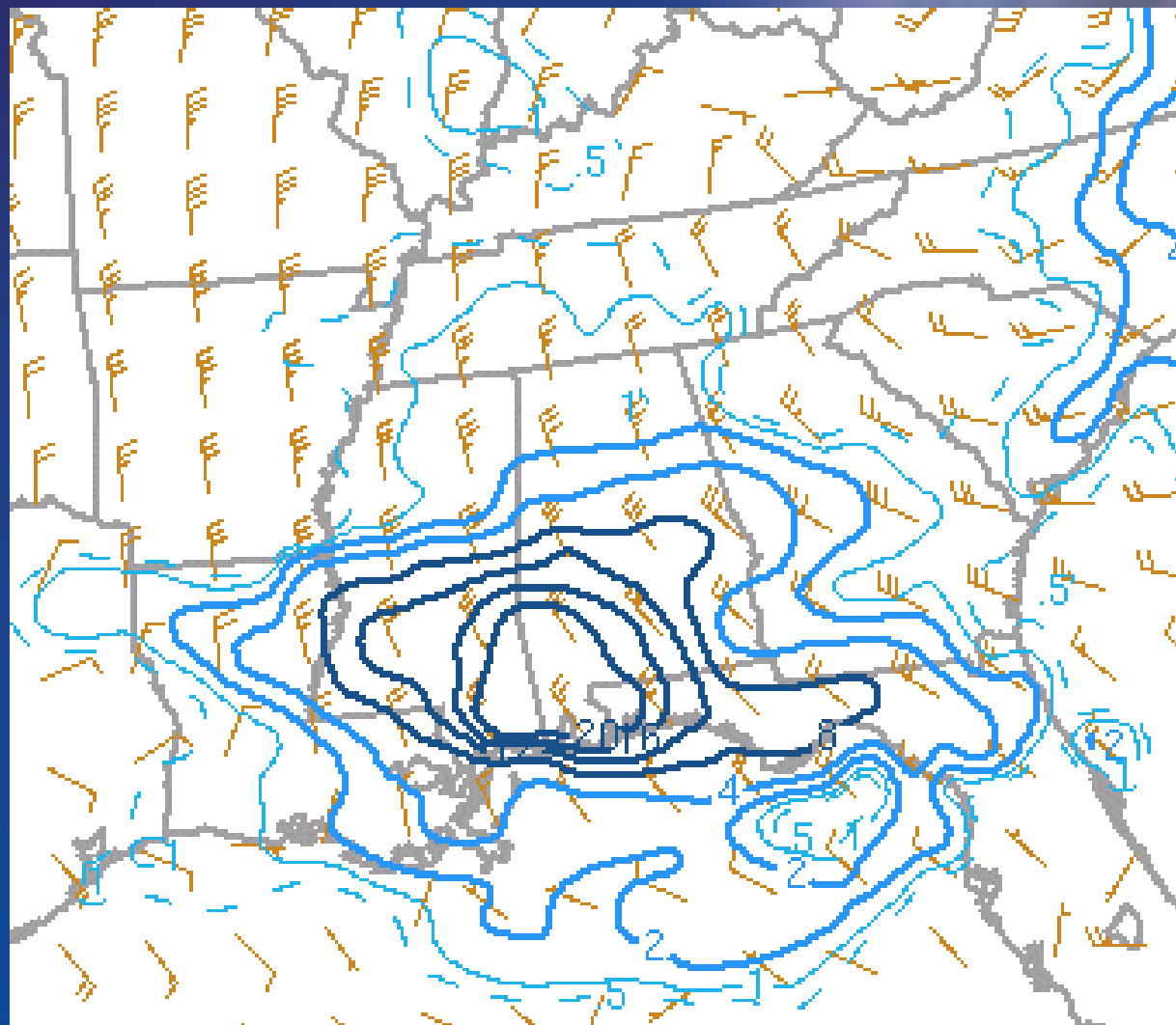
**Surface Analysis showing  
3000-5000 J/kg Surface to  
100mb MLCAPE Values  
across the impacted areas**

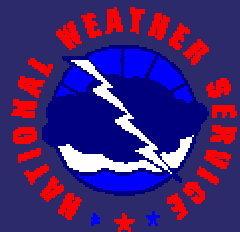


**Surface Analysis showing  
4000-6000 J/kg Surface  
Based Cape Values across  
the impacted areas**



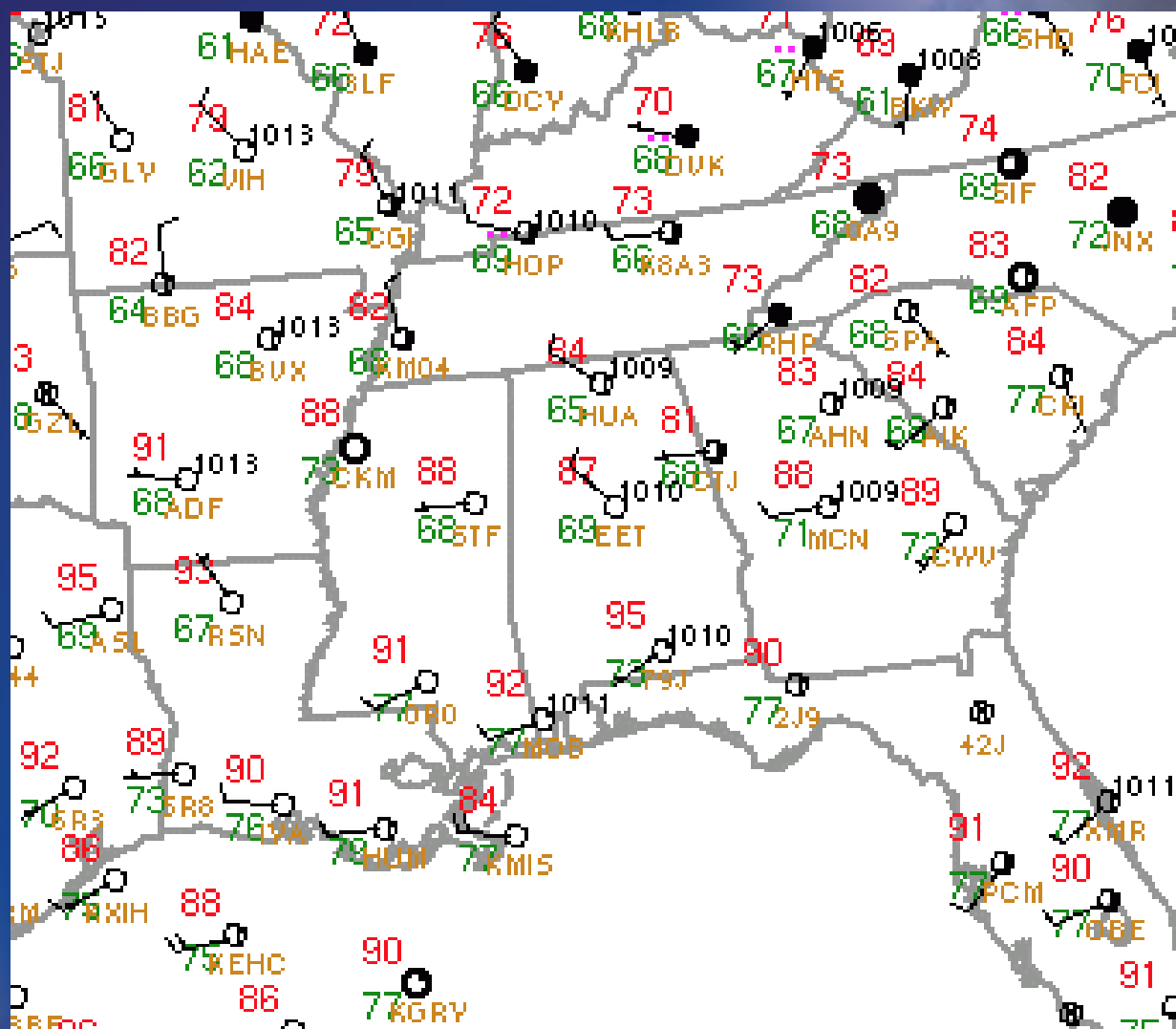
# Effective Layer Supercell Composite Parameter and Bunkers Storm Motion in Knots 12:00 PM CDT



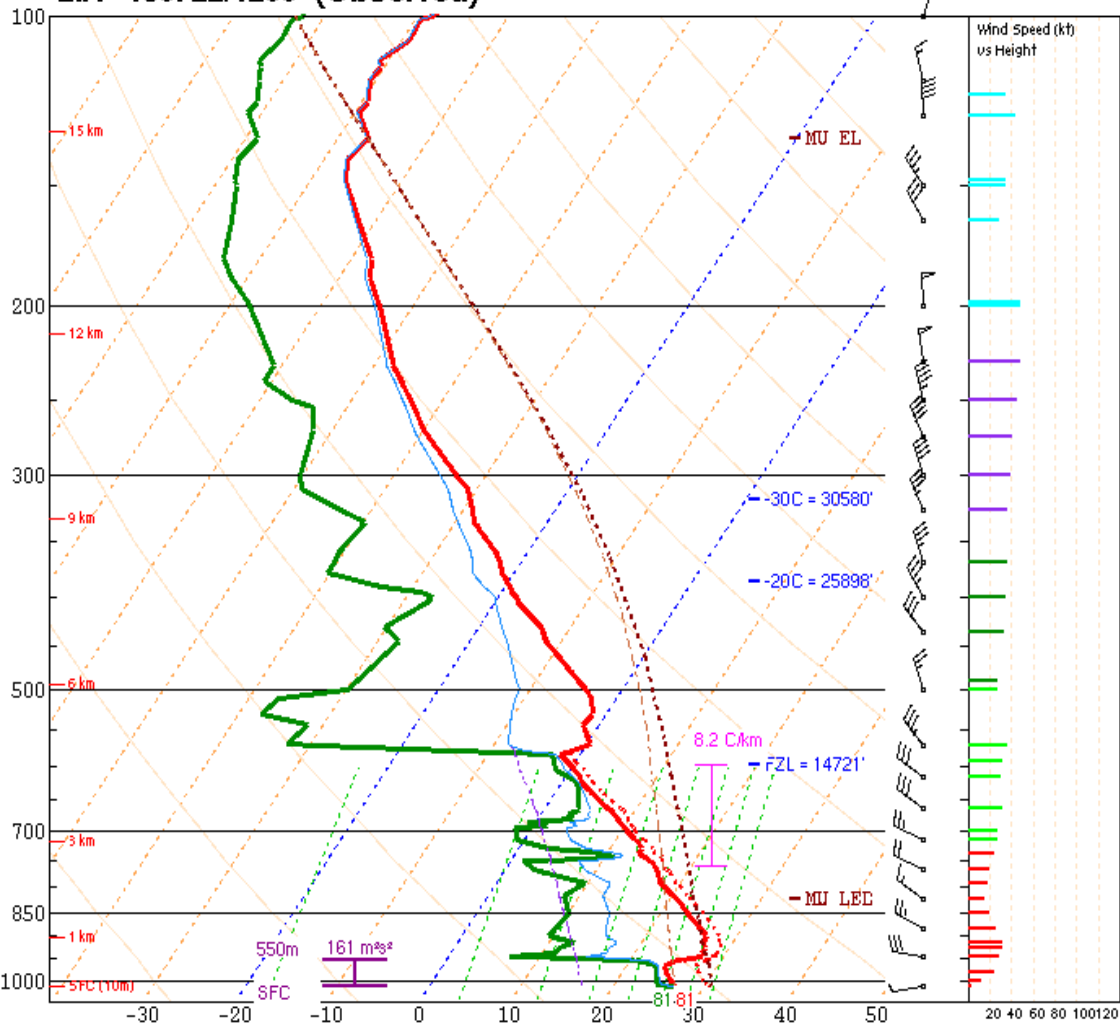


# Surface Observations

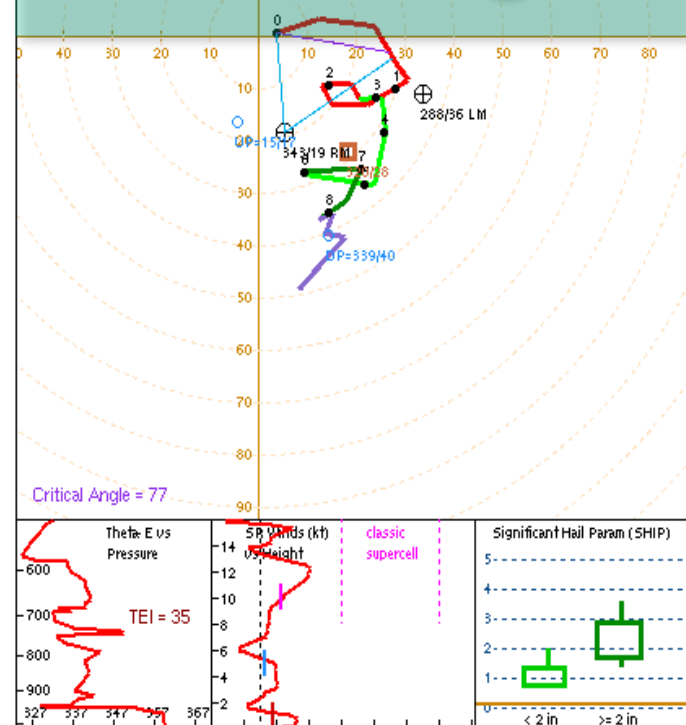
## 12:00 PM CDT







# 7 AM Slidell LA Sounding



PARCEL	CAPE	CINH	LCL	LI	LFC	EL
SURFACE	4719	-48	0m	-7	1819m	48909'
MIXED LAYER	252	-395	1834m	1	6837m	36391'
FCST SURFACE	1379	-35	2575m	-2	3097m	42737'
MU (1012 mb)	4719	-48	0m	-7	1819m	48909'

PW = 1.69 in	3CAPE = 0 J/kg	WBZ = 14338'	WWDG = 0.0
K = 25	DCAPE = 1668 J/kg	FZL = 14721'	ESP = 0.0
MidRH = 54%	DownT = 62 F	ConvT = 105F	MMP = 0.80
LowRH = 50%	MeanW = 12.5 g/kg	MaxT = 101F	NCAPE = 0.36
SigSevere = 3512 m3/s3			
Sfc-3km Agl Lapse Rate = 4.8 C/km			
3-6km Agl Lapse Rate = 5.7 C/km			
850-500mb Lapse Rate = 6.2 C/km			
700-500mb Lapse Rate = 5.3 C/km			

**Supercell = 12.8**  
**Left Supercell = 6.5**  
**STP (eff layer) = 0.0**  
**STP (fix layer) = 2.9**  
**Sig Hail = 0.1**

SRH(m2/s2)	Shear(kt)	MnWind	SRW
SFC - 1 km	202	276/24	229/24
SFC - 3 km	217	230/22	234/18
Eff Inflow Layer	161	267/19	216/23
SFC - 6 km	27	300/24	247/16
SFC - 8 km	36	304/24	251/16
LCL - EL (Cloud Layer)	40	311/25	261/14
Eff Shear (EBWD)	34	302/24	249/16
BRN Shear = 23 m/s²			
4-6km SR Wind = 288/17 kt			
.....Storm Motion Vectors.....			
Bunkers Right = 343/19 kt			
Bunkers Left = 288/36 kt			
Corfidi Downshear = 339/40 kt			
Corfidi Upshear = 15/17 kt			

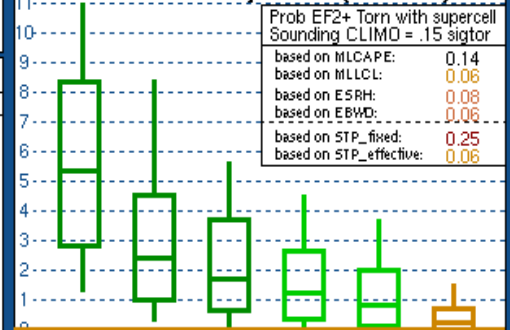
1km & 6km Agl Wind Barbs

\*\*\* BEST GUESS PRECIP TYPE \*\*\*  
**Rain.**  
 Based on sfc temperature of 80.6 F.

## SARS - Sounding Analogs

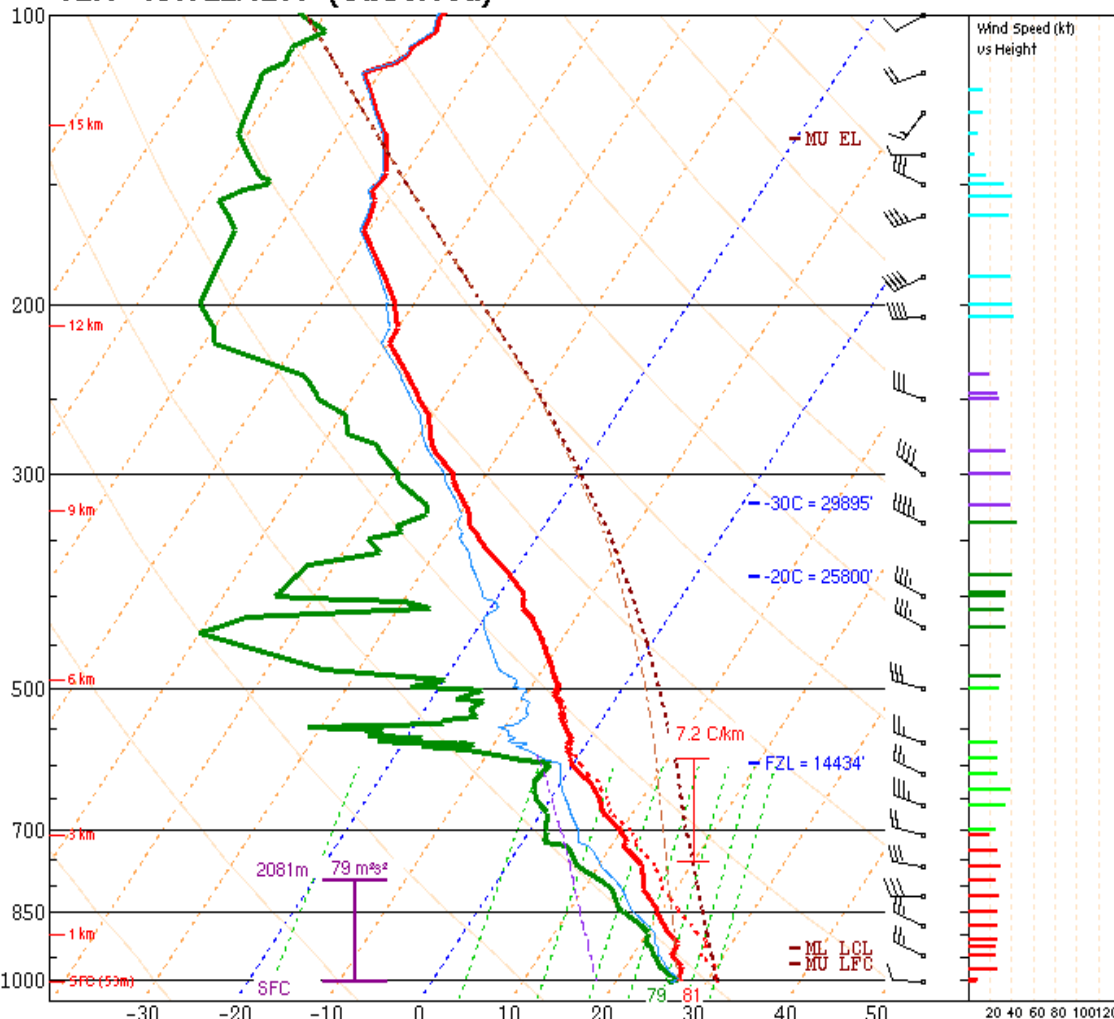
SUPERCCELL	SGFNT HAIL
No Quality Matches	No Quality Matches
(1 loose matches)	SARS: 100% TOR
SARS: 0% SIG	

## Effective-Layer STP (with CIN)

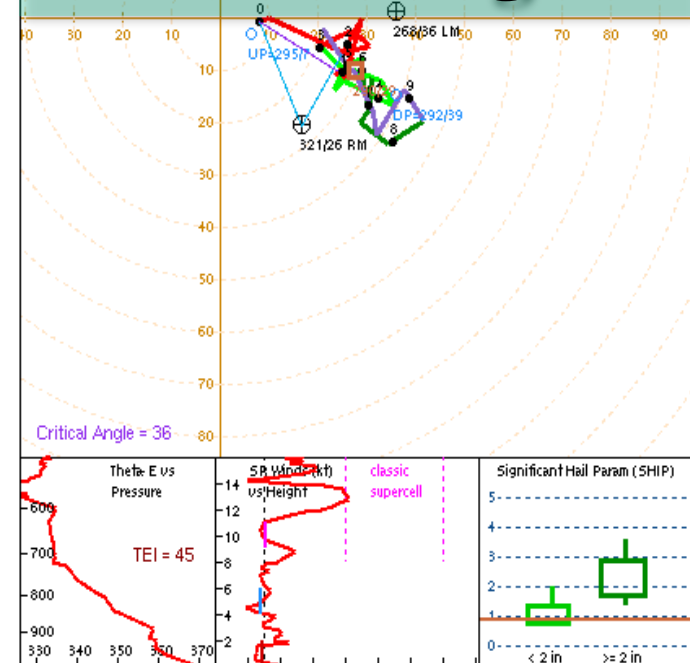




# TLH 180722/1200 (Observed)



## 7 AM Tallahassee FL Sounding



PARCEL	CAPE	CINH	LCL	LI	LFC	EL
SURFACE	4396	-15	183m	-10	1036m	46812'
MIXED LAYER	3827	-16	710m	-9	1265m	46366'
FCST SURFACE	5128	0	1290m	-11	1290m	48543'
MU (1000 mb)	5267	-0	76m	-11	353m	48543'
PW = 2.07 in	3CAPE = 131 J/kg	WBZ = 13372'	WNDG = 0.0			
K = 35	DCAPE = 1100 J/kg	FZL = 14434'	ESP = 0.0			
MidRH = 67%	DownT = 65 F	ConvT = 89F	MMP = 0.79			
LowRH = 88%	MeanW = 19.4 g/kg	MaxT = 94F	NCAPE = 0.36			
SigSevere = 45534 m3/s3						
Sfc-3km Agl Lapse Rate = 5.5 C/km						
3-6km Agl Lapse Rate = 6.2 C/km						
850-500mb Lapse Rate = 6.1 C/km						
700-500mb Lapse Rate = 6.2 C/km						

**Supercell = 5.5**  
**Left Supercell = -3.5**  
**STP (eff layer) = 0.9**  
**STP (fix layer) = 0.0**  
**Sig Hail = 0.9**

SRH(m2/s2)	Shear(kt)	MnWind	SRW
SFC - 1 km	93	19	289/24
SFC - 3 km	48	13	286/25
Eff Inflow Layer	79	18	288/25
SFC - 6 km	23	288/27	216/15
SFC - 8 km	36	289/27	219/15
LCL - EL (Cloud Layer)	9	289/29	223/15
Eff Shear (EBWD)	27	288/27	217/15
BRN Shear = 3 m/s^2			
4-6km SR Wind = 226/14 kt			
.....Storm Motion Vectors.....			
Bunkers Right = 321/26 kt			
Bunkers Left = 268/36 kt			
Corfidi Downshear = 292/39 kt			
Corfidi Upshear = 295/7 kt			

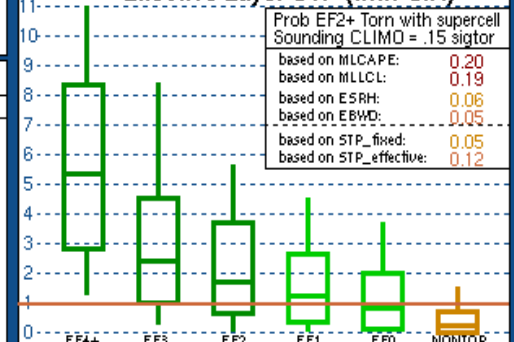
1km & 6km Agl  
Wind Barbs

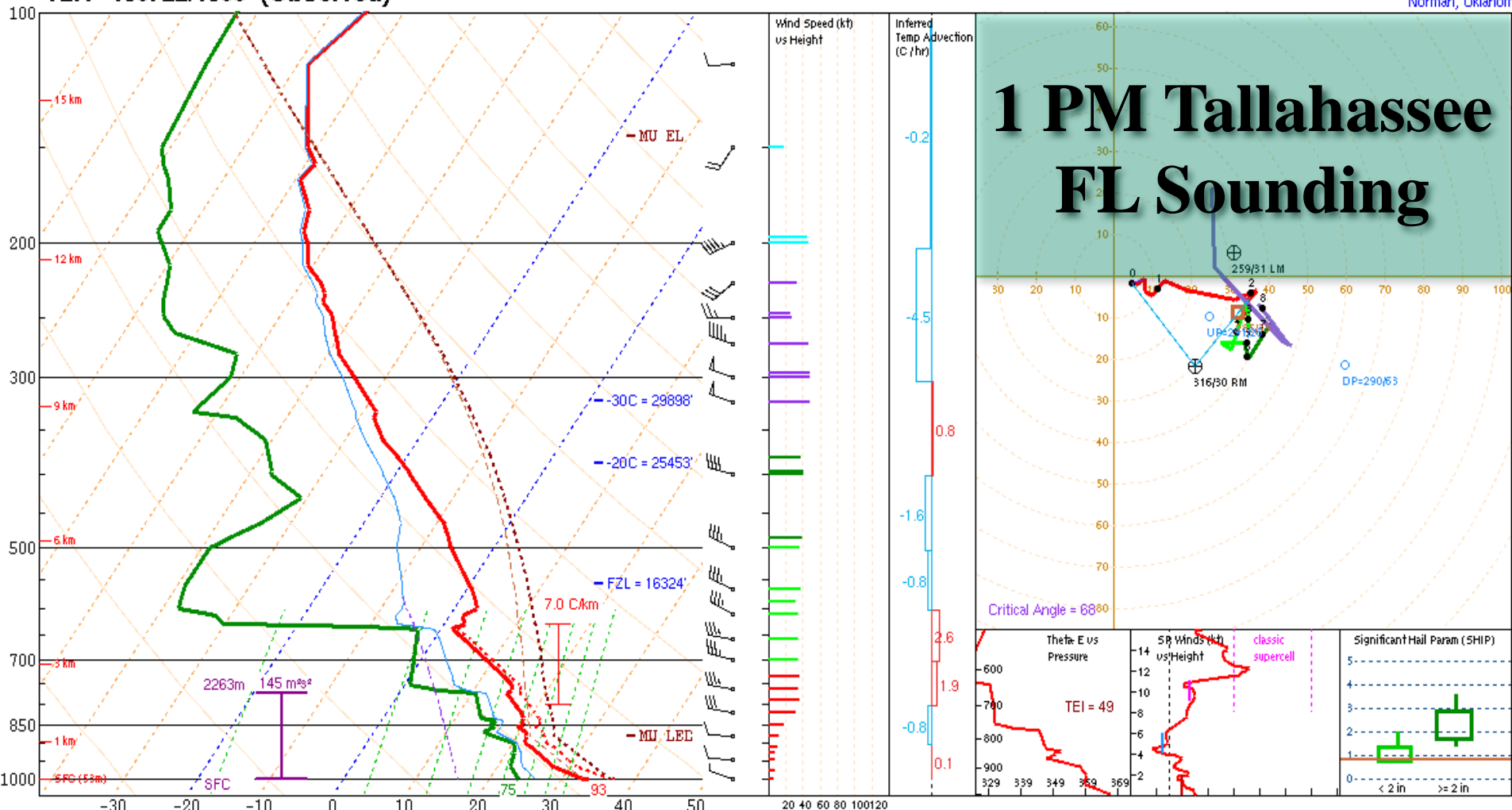
\*\*\* BEST GUESS PRECIP TYPE \*\*\*  
**Rain.**  
 Based on sfc temperature of 81.3 F.

### SARS - Sounding Analogs

SUPERCCELL	SGFNT HAIL
No Quality Matches	No Quality Matches
(1 loose matches) SARS: 0% TOR	(2 loose matches) SARS: 50% SIG

### Effective-Layer STP (with CIN)





PARCEL	CAPE	CINH	LCL	LI	LFC	EL
SURFACE	4592	0	1274m	-9	1274m	47076'
MIXED LAYER	3484	-8	1148m	-7	1148m	45076'
FCST SURFACE	3860	-0	1329m	-8	1329m	45335'
MU (1000 mb)	4636	0	1177m	-9	1177m	47076'

PW = 1.73 in	3CAPE = 107 J/kg	WBZ = 12332'	WWDG = 1.6
K = 31	DCAPE = 1564 J/kg	FZL = 16324'	ESP = 2.0
MidRH = 60%	DownT = 61 F	ConvT = 93F	MMP = 0.84
LowRH = 74%	MeanW = 18.0 g/kg	MaxT = 92F	NCAPE = 0.35
SigSevere = 61852 m3/s3			

**Supercell = 12.2**  
**Left Supercell = -7.3**  
**STP (eff layer) = 1.7**  
**STP (fix layer) = 0.4**  
**Sig Hail = 0.8**

	SRH(m2/s2)	Shear(kt)	MnWind	SRW
SFC - 1 km	28	7	284/8	147/24
SFC - 3 km	161	31	282/20	176/18
Eff Inflow Layer	145	31	280/17	164/20

SFC - 6 km	34	287/25	191/15
SFC - 8 km	34	287/26	196/15
LCL - EL (Cloud Layer)	16	285/34	222/17
Eff Shear (EBWD)	36	287/26	194/15

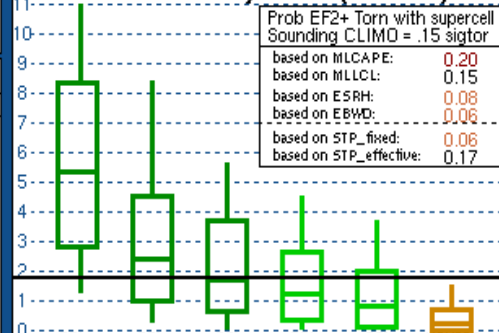
BRN Shear = 41 m/s²	
4-6km SR Wind = 244/13 kt	
.....Storm Motion Vectors.....	
Bunkers Right = 316/30 kt	
Bunkers Left = 259/31 kt	
Corfidi Downshear = 290/63 kt	
Corfidi Upshear = 291/26 kt	

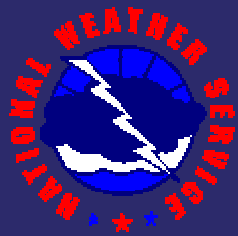
\*\*\* BEST GUESS PRECIP TYPE \*\*\*  
**Rain.**  
 Based on sfc temperature of 93.2 F.

**SARS - Sounding Analogs**

SUPERCCELL	SGFNT HAIL
No Quality Matches	90081700.CH5 0.75
(1 loose matches) SARS: 0% TOR	(61 loose matches) SARS: 34% SIG

**Effective-Layer STP (with CIN)**



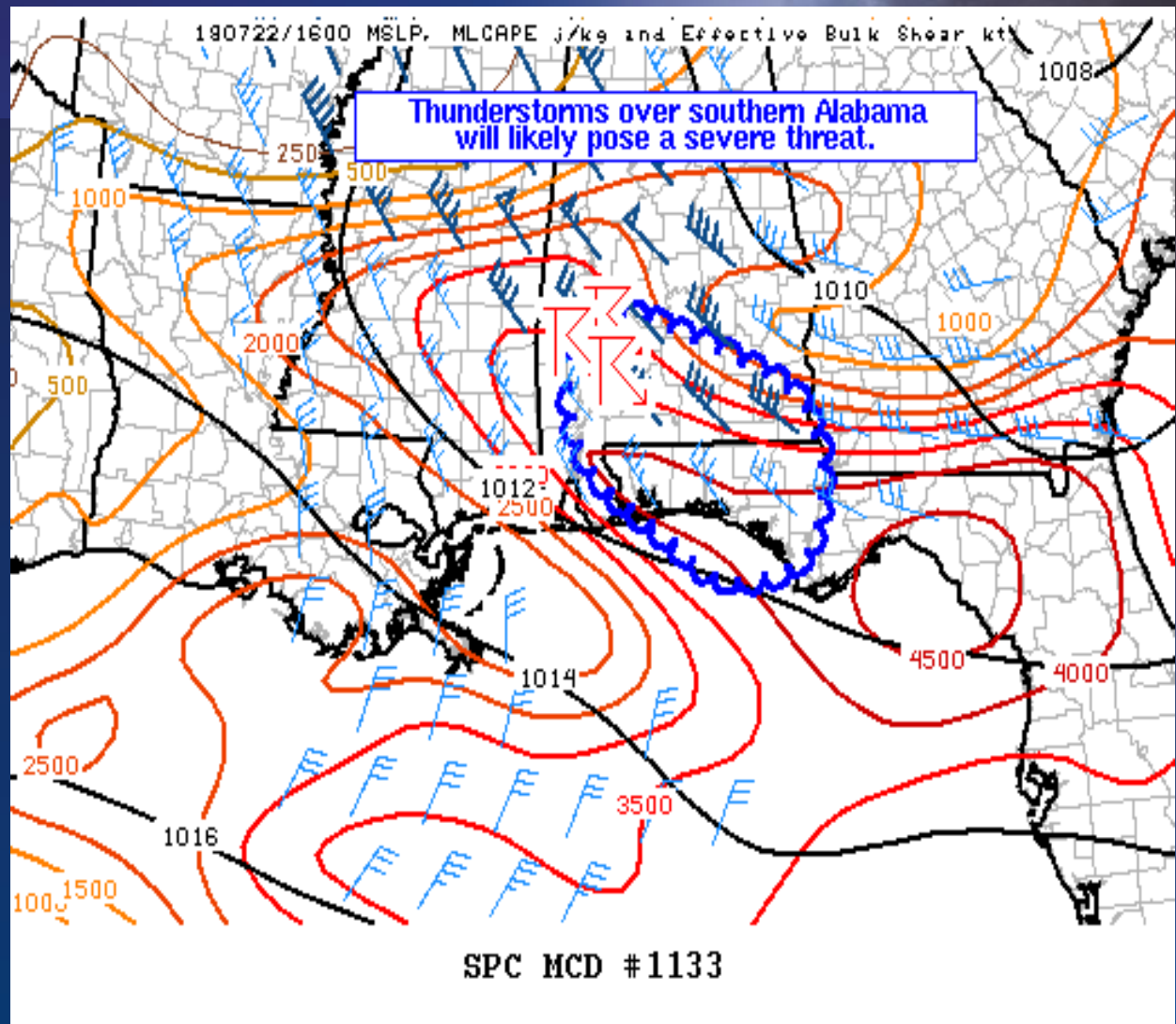


# Mesoscale Discussion 1133 Issued at 1127 AM CDT NWS Storm Prediction Center Norman OK

Thunderstorms are intensifying over southwest AL, between Meridian MS and Selma AL. These storms are ahead of a mid level speed maxima rotating southward across northwest MS.

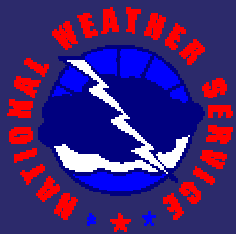
Storm are expected to increase in coverage through the early afternoon and spread across southern AL and into the FL Panhandle. Forecast soundings show steep low-level lapse rates and rather strong flow just above the boundary-layer.

This should be supportive of locally damaging wind gusts. Also, favorable cape and effective shear values suggest some risk of hail in the strongest cores.



## National Weather Service – Mobile, AL





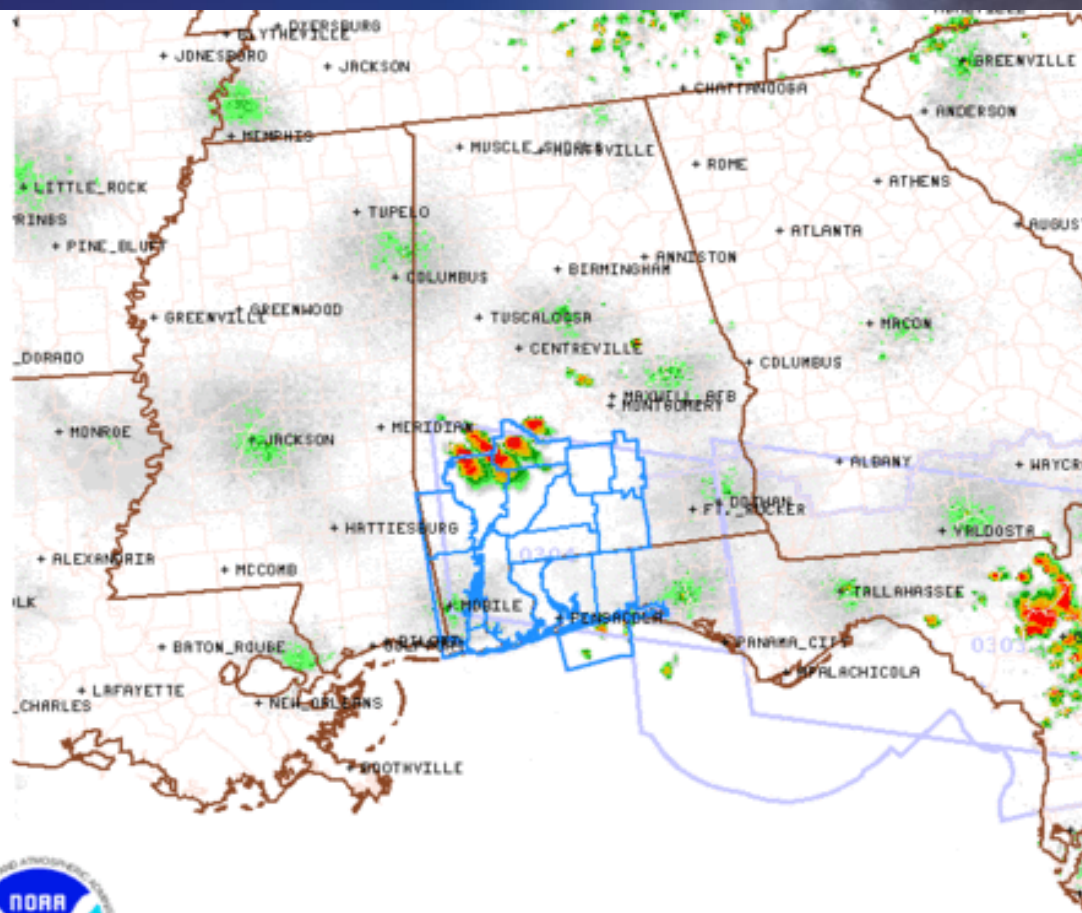
# Severe Thunderstorm Watch Number 304 NWS Storm Prediction Center Norman OK

**Severe Thunderstorm Watch for  
portions of southern Alabama  
western Florida Panhandle  
Coastal Waters effective from  
1155 AM until  
700 PM CDT.**

**Primary threats include...**

**Scattered large hail and isolated  
very large hail events to 2 inches  
in diameter possible. Scattered  
damaging wind gusts to 70 mph  
possible.**

**Storms are expected to increase  
in coverage this afternoon with  
both supercell and multicell  
structures promoting a threat  
for large hail and damaging  
wind gusts.**



**Severe Thunderstorm Watch # 304 - Valid from 1155 AM until 700 PM CDT**

NOAA/NWS/Storm Prediction Center

Updated: 20180722/1700 UTC

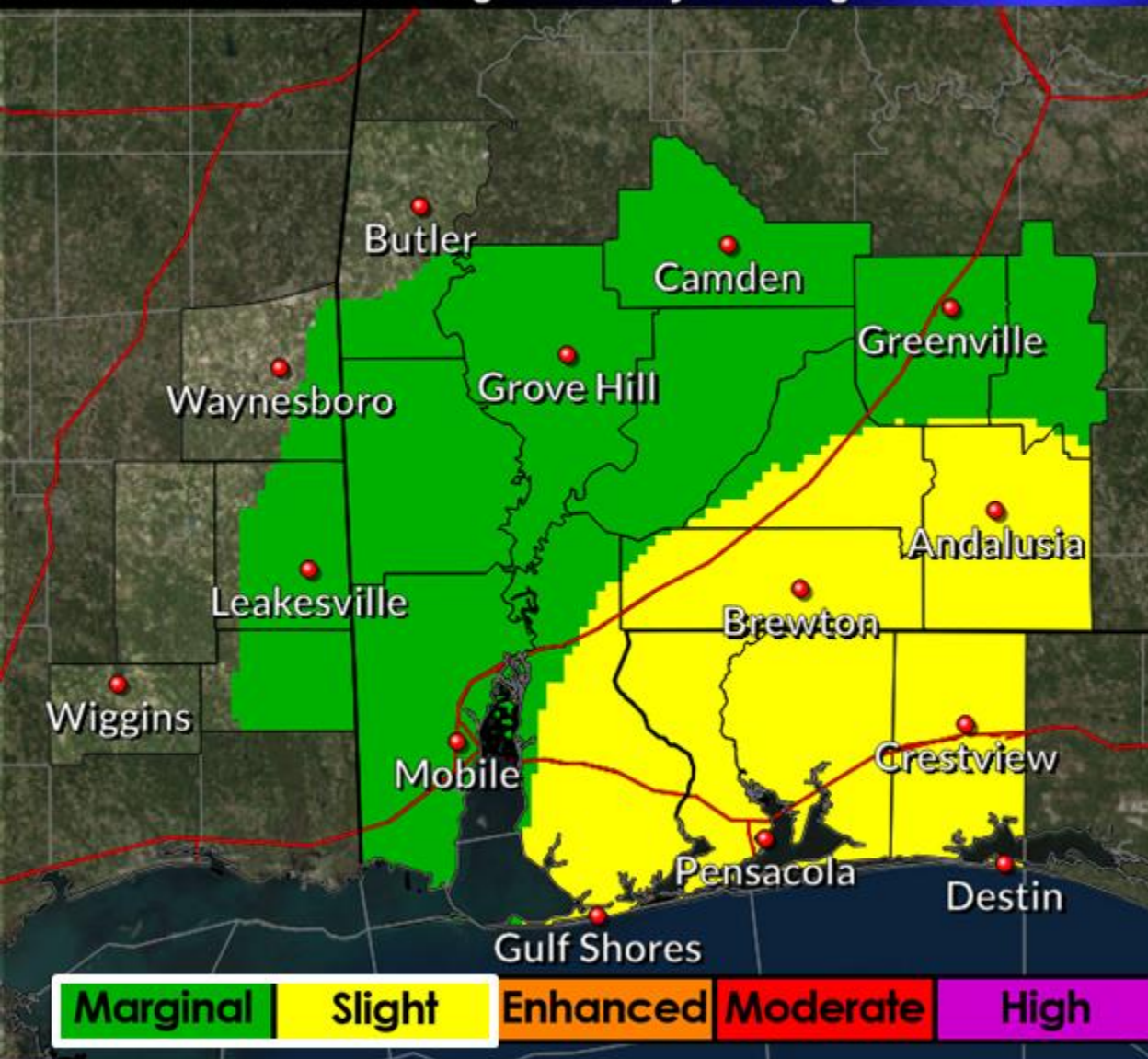
## National Weather Service – Mobile, AL



# Severe Storms Possible Today

Late this afternoon through the early evening

Weather Forecast Office  
Mobile/Pensacola  
Issued July 22, 2018 2:15 PM CT



## POTENTIAL THREATS

- Localized damaging wind gusts in excess of 60 mph.
- Hail up to two inches in diameter

## WHERE

- **Slight** risk of severe weather east of I-65 and along I-10 east of Mobile
- **Marginal** risk of severe weather throughout southern Alabama.

## WHEN

- Late this afternoon through early evening Sunday.

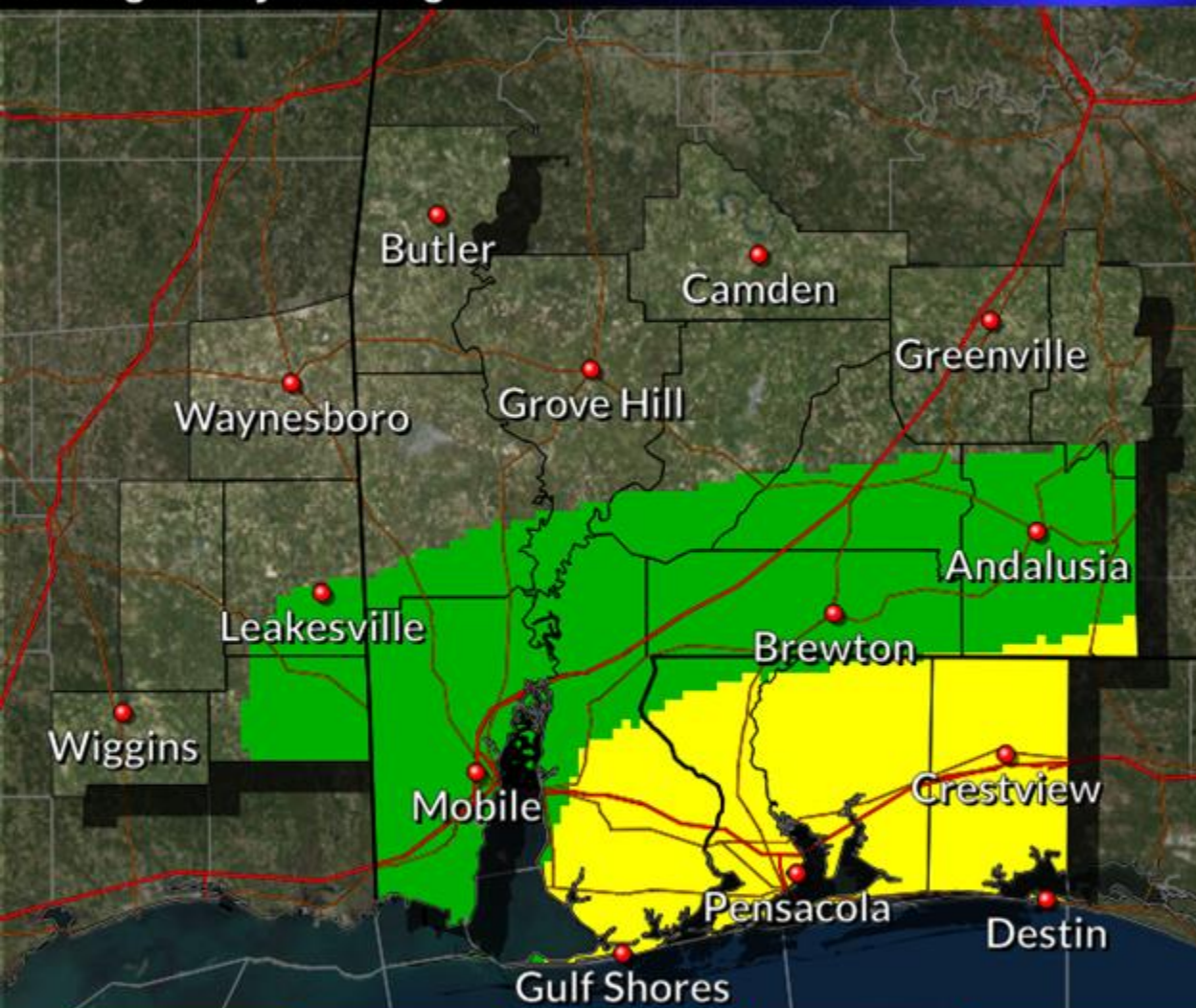
Always have **MULTIPLE** ways to receive warning information



# Severe Storms Possible

Through early evening

Weather Forecast Office  
Mobile/Pensacola  
Issued July 22, 2018 6:57 PM CT



## POTENTIAL THREATS

- Localized damaging wind gusts in excess of 60 mph.
- Hail up to two inches in diameter

## WHERE

- **Slight** risk of severe weather mainly over the western Florida Panhandle. From there, a **Marginal** risk of severe weather extends to Leakesville Mississippi to Andalusia Alabama.

## WHEN

- Through 9 PM.

Marginal

Slight

Enhanced

Moderate

High

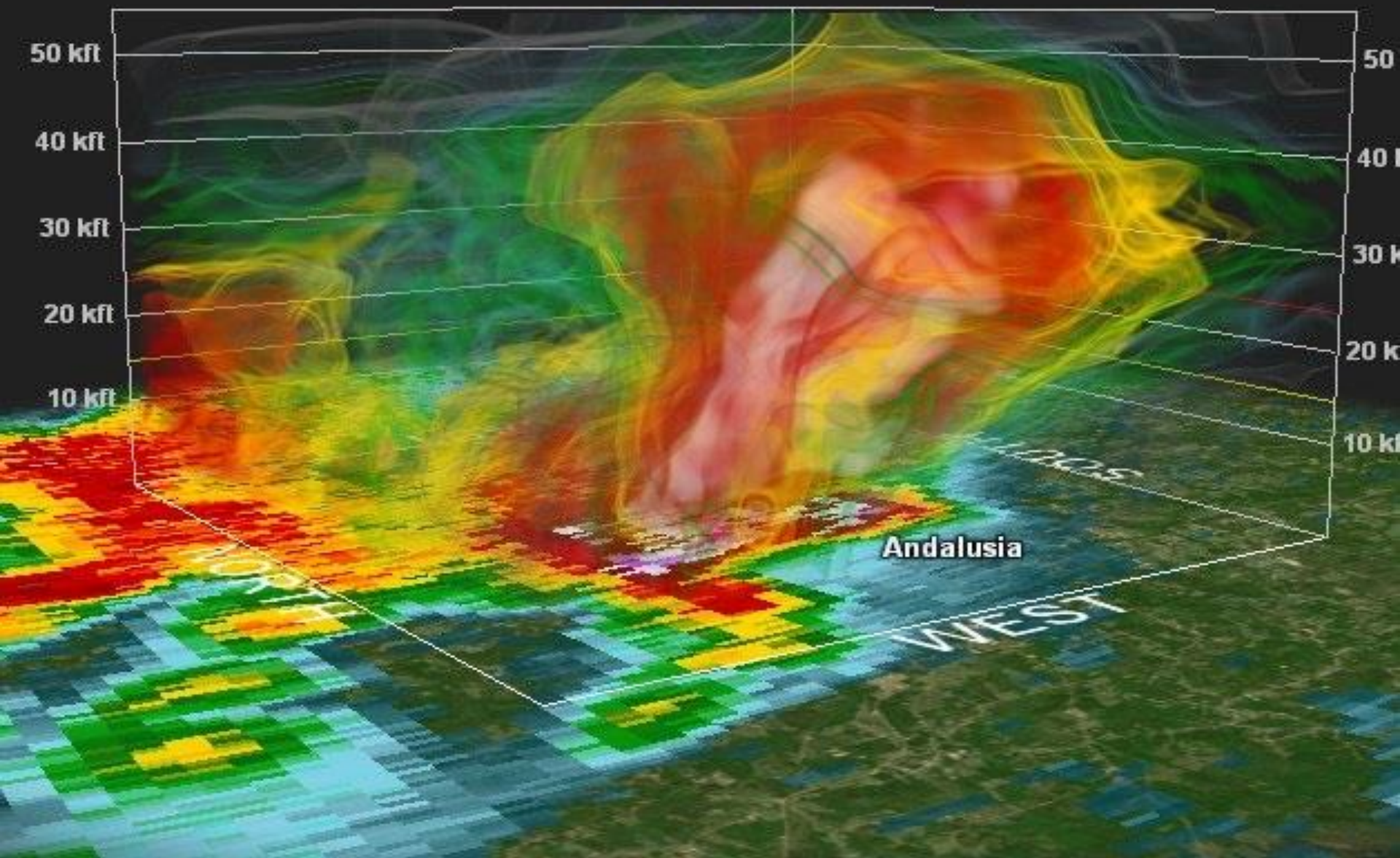
Always have **MULTIPLE** ways to receive warning information

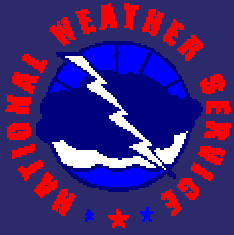






# 3D Cross-section of Severe Thunderstorm with Hail Core approaching Andalusia

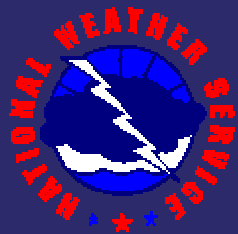




# Local Storm Reports

Local Time	Hail Size (In Inches)	City Location	County / State	REPORT
12:15 PM	1.00	TALLAHATTA SPRINGS	CLARKE / AL	QUARTER SIZE HAIL REPORTED BY EMERGENCY MANAGER
12:30 PM	1.50	0.6 MILES EAST OF CHILTON	CLARKE / AL	REPORTS OF 1-1.5 INCH HAIL NORTH OF GROVE HILL VIA THE PUBLIC AND MEDIA ON SOCIAL MEDIA
1:13 PM	2.75	HEATH	COVINGTON / AL	VIDEO ON SOCIAL MEDIA OF BASEBALL SIZE HAIL FALLING AND COVERING THE GROUND
1:15 PM	1.75	STRAUGHN	COVINGTON / AL	GOLF BALL SIZE HAIL AND HAIL COVERING THE GROUND (RESULTING IN HAIL FOG) IN THE STRAUGHN AREA. PICTURES VIA SOCIAL MEDIA
1:20 PM	4.00	2 NNW SANFORD	COVINGTON / AL	PICTURE ON SOCIAL MEDIA OF 4 INCH+ HAILSTONE NEAR SANFORD ... AL. TIME ESTIMATED FROM RADAR
1:20 PM	2.00	3 SE HEATH	COVINGTON / AL	PICTURES OF 2" HAIL (MEASURED WITH A RULER) JUST EAST OF ANDALUSIA. PICTURES VIA SOCIAL MEDIA
1:25 PM	2.50	ANDALUSIA	COVINGTON / AL	SEVERAL REPORTS AND PICTURES OF AT LEAST TENNIS BALL SIZE HAIL NEAR ANDALUSIA ... AL. PICTURES AND REPORTS VIA SOCIAL MEDIA
1:30 PM	2.50	BABBIE	COVINGTON / AL	PICTURES ON SOCIAL MEDIA OF GOLF BALL TO TENNIS BALL SIZE HAIL IN THE BABBIE COMMUNITY
1:30 PM	1.50	CHILTON	CLARKE / AL	REPORTS OF 1-1.5 INCH HAIL NORTH OF GROVE HILL VIA THE PUBLIC AND MEDIA ON SOCIAL MEDIA
1:35 PM	1.00	CAROLINA	COVINGTON / AL	PICTURES AND VIDEOS FOUND ON SOCIAL MEDIA OF QUARTER SIZE HAIL FALLING IN THE CAROLINA COMMUNITY
1:36 PM	1.25	1 NW OPP	COVINGTON / AL	HALF DOLLAR SIZE HAIL REPORTED IN OPP. TIME ESTIMATED FROM RADAR
7:40 PM	1.00	3 S GROVE HILL	CLARKE / AL	QUARTER SIZE HAIL REPORTED BY EMERGENCY MANAGEMENT AGENCY





**Need to get more  
images from Social  
Media\_See Morgan**

