The ArkLaMiss Observer

Winter 2007/2008 Edition

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Stormy Early January for the ArkLaMiss

By: Brad Bryant, Journeyman Forecaster

Residents of extreme southeast Arkansas, northeast Louisiana, and central and southern Mississippi endured two days of potent storms between January 8th and January 10th. These days were preceded by a period of near-record warmth across the Arklamiss (January 5th-7th) that helped to entrench a near-tropical air mass over the Gulf Coast region. Weather disturbances passing through this "juicy" and unstable air mass produced strong to severe thunderstorms on both January the 8th and 10th, although the impact of storms across the Lower Mississippi River Valley on the 10th was much more pronounced.

The combined upper level atmospheric disturbance and cold front that produced thunderstorms over our region on January 8th delivered its greatest punch a day earlier over the Missouri Valley and Midwest. Atmospheric lift, shear, and instability (all key ingredients needed for severe weather) were maximized across these areas that Monday with the end result being over 325 reports of severe weather ranging from large hail, to high winds, to tornadoes. Of course, tornadoes were most devastating and the Storm Prediction Center (SPC) now calculates that 71 tornadoes touched down across central and southern Missouri, far northwest Arkansas, central Illinois, and far southeast Wisconsin during this time. At least 4 fatalities have been attributed to these tornadoes with the number of injuries being far higher.

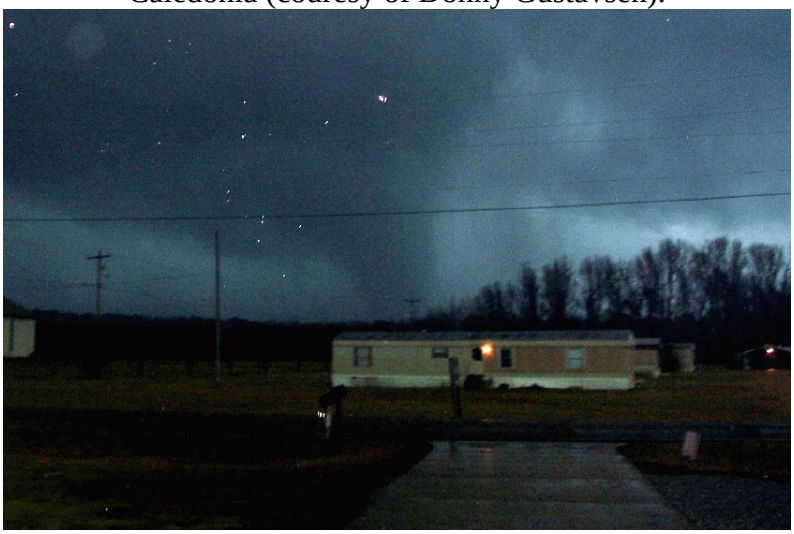
Although this system lost a bit of its steam as it headed east on January 8th, severe weather continued and the impact area actually expanded (from the eastern Great Lakes south southwest through the Lower Mississippi River Valley). The best combinations of wind shear, atmospheric lift, and instability

were expected to only brush northern sections of the area (along and north of the Highway 82 corridro) and this was where the worst of the weather was anticipated in our neck-of-the-woods. A tabulation of storm reports shows that these areas did receive the bulk of the hail and high wind reports within the Jackson, MS, County Warning Area. However, high instability levels overcame relatively weak atmospheric forcing in the afternoon hours to produce a vigorous supercell over northeast Louisiana and southwest Mississippi, which subsequently tracked northeast across central Mississippi, just south of Metropolitan Jackson. This supercell produced 3 different tornadoes across Jefferson, Simpson, Rankin, and Smith counties. One of these tornadoes produced enough damage in Simpson County to warrant an EF1 rating (on the enhanced Fujita Scale) while the two others only generated EF0 damage to trees. Fortunately, no injuries were associated with any of the severe weather in the Arklamiss on Tuesday, January 8th.

The cold front that pushed southeast through the region late on January 8th was only able to get into the far northern Gulf of Mexico before stalling. This allowed the next vigorous disturbance headed at the Arklamiss early on Thursday, Janurary 10th, to lift the boundary back north through the region as a warm front. Strong southerly flow in the wake of the warm front's passage early on the 10th allowed warmth, gulf moisture, and associated atmospheric instability to quickly spread back inland before a potent low pressure passed by in the vicinity. The combination of all these factors allowed for levels of wind shear, atmospheric lift, and instability to be maximized across the region from midday through the afternoon on the 10th, and numerous severe thunderstorms were the result. The SPC counts 179 total severe weather reports on January 10th, ranging in geographical extent from the southern Ohio Valley, south through the Tennessee Valley and down to the central Gulf Coast. There were 36 reports of tornadoes, with the bulk of these reports originating from southern Louisiana, Mississippi, and western Alabama.

Across the Arklamiss, most of the severe weather reports (high winds and/or large hail) were generated by supercell thunderstorms and broken thunderstorms line segments marching west to east from midday near the axis of the Mississippi River to late afternoon when they were exiting east-central and southeast portions of Mississippi. There were four large supercells that contributed to the bulk of reports as they tracked northeast across central and southern Mississippi. The two most southern supercells passed over Marion, Lamar, Forrest, and Jones counties in the early afternoon, producing large hail (up to baseball size) and a wind gust to 80 mph just outside of downtown Hattiesburg. Further north, a larger supercell that organized near the Mississippi River in southwest Mississippi before midday tracked from Claiborne County, through the northern Jackson Metropolitan Area, and finally into Noxubee County in northeast Mississippi by mid afternoon. This storm was

IMAGE #1: Lowndes County Tornado as it approached Caledonia (couresy of Donny Gustavsen).



responsible for 5 different tornado touchdowns along its path, as well as many reports of high winds and hail. National Weather Service storm survey teams rated these tornadoes as EF0s and EF1s and a majority of the relatively minor structural damage associated with them occurred just southwest of the Pearl River Resort in Neshoba County.

By far, the most damage was produced by a particularly devastating supercell that moved from north of Vicksburg through north central and northeast Mississippi during the late morning and early afternoon hours. This single storm produced three strong tornadoes, all of which produced damage warranting a rating of EF3. The most significant damage occurred in Caledonia in Lowndes County, where a school gymnasium was destroyed along with a number of school buses and vehicles in the area. Even though the school complex had 1900 people in it at the time of the tornado, only three minor injuries were reported at that location. A tornado warning was issued for this area by the NWS in Jackson about 39 minutes before the tornado developed to the southwest of Caledonia, and approximately 41 minutes before the damage occurred at the school in Caledonia. Images #1 through #3 included in this article are photographs, radar reflectivity snapshots, and radar velocity snapshots, respectively, of this tornado in the vicinity of Caledonia. The longest track tornado from this storm (and this event) occurred in eastern Attala and Choctaw counties. Here, a tornado tracked for 24 miles from just west of the Ethel community in Attala County to about two miles south of Ackerman in Choctaw County and was responsible for heavy damage to a dairy complex south of the Weir community along the way. This is the longest track for a tornado in the central Mississippi region since the tornado outbreak of November 24, 2001. Thanks in part to efforts by local Media, Emergency Management Officials, and the National Weather Service Office in Jackson, Mississippi, no fatalities occurred with these 3 strong tornadoes and the number of injuries was limited to less than 10.

Image #2: Base reflectivity image of Lowndes County Supercell as it was producing a tornado near Caledonia (from KGWX radar just to the north).

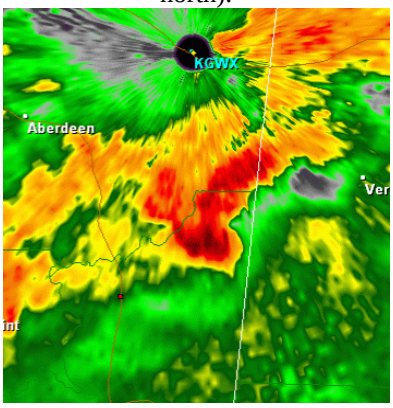
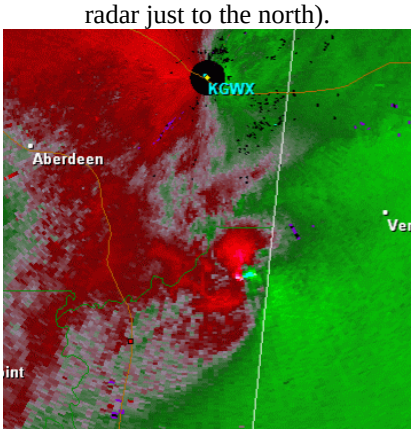


Image #3: 0.5 degree SRM (velocity) image of tornadic circulation near Caledonia (from KGWX radar just to the north).



While significant tornadoes in January are not common in our region, they are also not rare. Several tornado events have occurred historically in January and some of the most significant over the last forty years include:

- January 21-22, 1999: Nearly 20 tornadoes occurred across Mississippi, including a strong tornado in Sunflower County
- January 19, 1988: A violent tornado (F4) carved out a 26 mile long path over northeast Attala County.
- January 10, 1975: A deadly violent tornado killed 10 people while moving 60 miles across south Mississippi. Strong tornadoes also occurred on this day in Hinds, Madison and Rankin counties.
- January 28, 1974: Five strong tornadoes occurred across central Mississippi, one carving a 32 mile long path across Hinds County.
- January 23, 1969: One of the strongest and deadliest tornadoes in Mississippi history killed 32 people and injured 241 as it tore a path across Jefferson, Copiah, Simpson, Rankin, Smith, Scott, and Newton counties. The tornado was on the ground for 67 miles.

The tornadoes from January 10th, 2008 were:

Time	Counties Effected	Length (mi)	Width (yd)	Rating/Max Wind
1125 am	Claiborne	4	250	EF1/105 mph
1151 am	Holmes, Attala	10	1320	EF3/140 mph
1228 pm	Attala, Choctaw	24	880	EF3/145 mph
1239 pm	Rankin	1.5	40	EF0/75 mph
141 pm	Neshoba	1.75	75	EF0/75 mph
207 pm	Lowndes	9 (In MS)	400	EF3/155 mph
258 pm	Noxubee	1.5	75	EF1/100 mph
302 pm	Noxubee	1	40	EF0/70 mph

Enhanced Fujita Scale:
EF0: 65-85 mph
EF1: 86-110 mph
EF2: 111-135 mph
EF3: 136-165 mph
EF4: 166-200 mph
EF5: >200 mph

SECOND DRIEST YEAR ON RECORD IN JACKSON

By: Ashley Wester, Journeyman Forecaster/Editor

A common topic of discussion across the ArkLaMiss region through the past year has been the drought. In fact, the entire year has been dry with 10 out of 12 months of the year in Jackson, MS experienced below normal rainfall. March, normally the second wettest month of the year, saw its driest year on record with less than an inch of rain at the Jackson International Airport.

December ended with 3.57 inches of rainfall in Jackson, which was 1.77 inches below normal. Overall, the total rainfall for 2007 for the Jackson International Airport through December 31st totaled 34.82 inches, which was 20.95 inches below normal. This gives Jackson a ranking of the second driest year on record. The following are two tables with rainfall information. The first lists the rainfall for the year and ranking for the driest years on record at the Jackson International Airport. The second table lists each month with its normal rainfall, recorded rainfall in 2007, and departure from normal for the Jackson International Airport.

Rank	Year	Jan 1 – Dec 31 Rainfall
1	1952	31.66”
2	2007	34.82”
3	1963	35.03”
4	1924	35.10”

Month	Normal	2007 Rainfall	Departure from Normal
January	5.67”	5.54”	-0.13”
February	4.50”	2.52”	-1.98”
March	5.74”	0.90”	-4.84”
April	5.98”	2.42”	-3.56”
May	4.86”	2.02”	-2.84”
June	3.82”	1.39”	-2.43”
July	4.69”	7.34”	+2.65”
August	3.66”	1.31”	-2.35”
September	3.23”	4.23”	+1.00”
October	3.42”	1.84”	-1.58”
November	5.34”	3.57”	-1.77”

COOP CORNER

By: Carolyn Bryant, Observations Program Leader

How about a little refresher training for our official weather observers? Everyone can always use a few reminders!

When it is time for your observation, your observation should go onto one line of the B91 (the B91 is your monthly form). For example, if you take your ob at 7 am, your 24 hour max, min, and precipitation will all go on one line. Please do not shift your max temp or precipitation to the previous day, even though it may have occurred then. **Remember your ob is a 24 hour observation ending at your observation time.** For those time shifters among us (those who shift their max temp and precipitation to the previous day), I will eventually visit your station and explain what I mean.

Even if you area a 5 pm or midnight observer, the ob time is a 24 hour snapshot of what occurred during the past 24 hours – and it all gets recorded ***on one line***.

Here is an example of the correct way to do your ob. It is Sunday December 16th and your ob is at 7 am. During the past 24 hours it rained. The rain occurred on Saturday, December 15th between 2 pm and 8 pm with a total of 0.25 inches. A max temp of 45 degrees occurred at 2 pm on Saturday. A min of 32 degrees occurred Sunday morning and the 7 am reading was 35. On Sunday morning, December 16th at 7 am you would jot down the following on the 16th line of the B91:

Max	Min	Ob	Rain
45	32	35	0.25

Even though the max temp and precipitation occurred the previous day, your 7 am ob on Sunday is a ***24 hour total***. It is a snap shot of what occurred during the past 24 hours. You can use the remarks section on the 16th to say that the rain occurred the previous day on the 15th. Another way to let folks know when it rained is to utilize the precipitation boxes that are labeled from Midnight to Midnight on the calendar day. You can draw a straight line (------) through the hours of occurrence. If the time is uncertain, you can draw a wavy line (~~~~) through the hour when precipitation probably occurred. Remember, precipitation times are shown for the **calendar days** on which it actually occurred.

Please refer to the front of the B91 booklet, section 8 for more information on noting when precipitation fell.

What if You Take your Ob at a Different Time than Scheduled?

No problem! That is why there is a remarks section! Just note in the remarks, if you take your ob late or early. Use the remarks section to also indicate any missing obs and why. For example, you may go on vacation for a week and miss a whole week of data. You can use remarks to let us know why data is missing. Sometimes equipment is faulty. Jot this down in remarks, too.

Winter Weather

Well, it happened. Many of you south of Interstate 20 received measurable snowfall on January 19th. What a rare occurrence for you! Here are some tips for next time:

Remove the funnel and inner tube from your rain gauge when snow is expected (or possible). Let the snow fall directly into your 8 inch standard rain gauge. When it is time for your observation, bring the gauge inside, melt down the contents, and then pour into the inner tube and measure its contents for water equivalent.

Rainfall or melted precipitation is measured in hundredths:
Example: 0.23

Snowfall is measured in tenths:
Example: 4.7

Please refer to the front of the B91 booklet, section 8a and 8b for more information on measuring liquid and frozen precipitation.

Here is an example of a snow observation. It is December 16th and it has snowed during the past 24 hours. You are a 7 am observer. You note that 2.5 inches of new snow fell. The amount of snowfall can be measured on any flat surface with a ruler or yardstick. After melting the snow catch from your standard rain

gauge, you measure a water equivalent of 0.17 inches.

On your B91 form for December 16th you will note the following in the precipitation fields:

Rain melted	Snow
0.17	2.5

End of the Month

Please sign your B91 in the lower right hand corner and forward the original to our office. Please send your B91s (and other monthly forms) to me **by the 10th** of the following month (or sooner if you can). I need to have your B91s (an other monthly forms) consolidated, packaged and sent to the National Climate Data Center (NCDC) by the 15th of the month. So if you get your B91s to me by the 10th, that will give me a cushion of a few days to process and quality control the forms before sending off to NCDC. Thanks for helping me keep your data timely and flowing!

Congratulations to Mr. Ted Robinson, Jr. He received the Edward H. Stoll Award for taking observations for the NWS for 50 years! Pictured are Mr. Robinson and his wife Wanda.

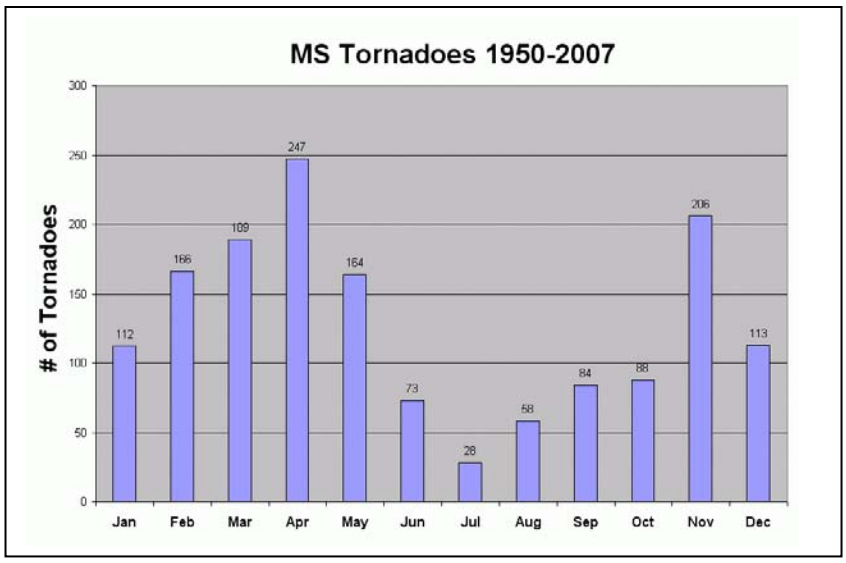
Year in Review: MS Tornadoes of 2007

By: Chad Entremont, Senior Forecaster

2007 started and ended on an active note with the most active events, the ones with strong tornadoes, occurring in early January and then late December. Mississippi saw 33 tornadoes, slightly above the average since 1950 which is 26. The year was typical with a couple of large events hosting about 1/3 of the total tornadoes and the rest of the year containing a mix of weak tornadoes.

On January 5th, Eastern Mississippi saw 7 tornadoes, all of which occurred between midnight and 2 am as a squall line moved across the area. Of these 7, two were strong (rated EF2), with one in Kemper County accounting for 9 injuries. For January, these were the strongest tornadoes since 1/7/05 where an F2 struck Lamar County.

To wrap up the year, December 20th brought another round of tornadoes. These occurred across South Mississippi, generally along the Highway 84 corridor. Five tornadoes occurred during the mid morning hours with 2 falling in the strong (EF2) category. Three injuries occurred with the 2 strongest tornadoes across Lincoln and Jones counties. For December, these were the strongest tornadoes since 12/7/04.



To the side is a graph of the monthly distribution of tornadoes since 1950. As you can see, we are heading into our main tornado and severe weather season, Feb-May.

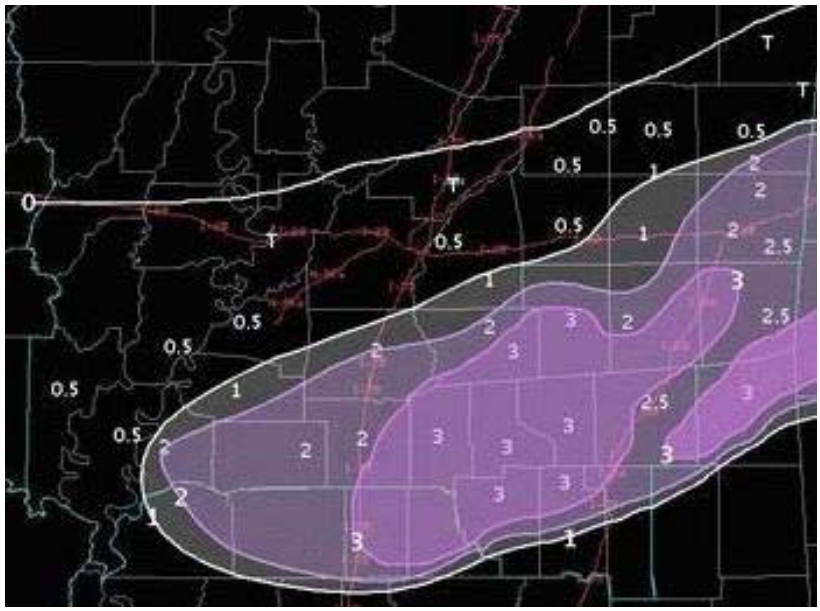
Snow in the ArkLaMiss Region

By: Ashley Wester, Journeyman Forecaster/Editor

Portions of the ArkLaMiss region received a taste of a winter wonderland on the morning of Saturday, January 19th as one to three inches of snow fell over much of central and south Mississippi. A low pressure system tracked across the northern Gulf of Mexico, which brought widespread rain to most of the region, especially for areas south of the Interstate 20 corridor. Temperatures began to cool through the evening of the 18th and into the early morning hours of the 19th. With temperatures already cold in the upper levels of the atmosphere, this allowed for an easy change-over to snow for most of the region by around 7:00 am on the 19th. Most areas stayed just above freezing through most of this event. But with high snowfall rates, accumulations were possible, especially for grassy surfaces.

The greatest snowfall rates occurred mainly south of the Interstate 20 corridor, where the bulk of the moisture was located. This allowed for accumulations of around two to three inches or more in isolated locations. Attached is an image showing the snowfall over the ArkLaMiss region.

Photo taken from Highway 49 S from just south of Magee, MS



!!Fun Stuff for the Kids!!

Tornado Myths:

Myth: You should open the windows before a tornado comes to help prevent damage to the building.
Fact: Don't waste time opening windows. Leave the windows alone and take shelter immediately. Opening windows is useless and can be very dangerous. You may be hit by flying glass by trying to do it. If a tornado hits your home, it will blast the windows open anyway.

Myth: Highway overpasses are a safe place if you are caught on the road when you see a tornado coming.
Fact: By climbing under an overpass, you will be exposed to higher winds and flying debris. People have been killed or injured when tornado winds have blown them out from under the bridge.

Myth: Areas near rivers, lakes and mountains are safe from tornadoes.
Fact: No place is safe from tornadoes. In the late 1980's, a strong tornado swept through Yellowstone National Park leaving a path of destruction up and down a 10,000 ft mountain.

Winter Storm Quiz:

winter watch	antenna mittens	snowdrift warning	carbon monoxide layers	kitty litter wind chill

1. A winter storm _____ means there is a chance of heavy snow or blizzards.
2. A winter storm _____ means severe winter weather is coming.
3. If a winter storm is expected you should have sand or _____ , _____ in your trunk in case your car gets stuck.
4. If a winter storm is expected, you should put a bright colored cloth on the _____ so someone can find you.
5. If you keep your car engine running to keep warm, you could die from _____ _____ poisoning unless your windows are open to get fresh air.
6. If you go outside in severe winter weather, you will be warmer if you wear _____ of wool clothing.
7. _____ are warmer than gloves.
8. Snow storms and blizzards usually occur in _____.
9. The temperature your body feels when the actual temperature and wind are combined is called _____ _____.
10. If you are driving during a blizzard, your car could be stalled in a huge _____.

Answers: 1. watch, 2. warning, 3. kitty litter, 4. antenna, 5. carbon monoxide, 6. layers, 7. mittens, 8. winter, 9. wind chill, 10. snowdrift

Reaching Out to You

By: Ashley Wester, Journeyman Forecaster/Editor, and Alan Campbell, Journeyman Forecaster

Our goal here at the National Weather Service in Jackson, MS is to protect life and property. In an attempt to do this, we issue various types of watches, warnings, and advisories to alert you, the public, of impending hazardous weather that is either occurring or could possibly occur in your area. Knowing that hazardous weather is possible is one thing, but what should you do if hazardous weather is threatening you and/or your family?

When hazardous weather occurs, seconds can literally mean the difference between life and death. Staying calm and knowing the correct instructions to follow could save your life. This is why the National Weather Service in Jackson, MS believes it is important to educate people about severe weather safety and preparedness. In our efforts to accomplish this task, we offer various forms of outreach, such as talks and setting up booths at area events, just to name a few. We provide these services for any community, school, public/private group, or business that is interested in learning about severe weather safety and how to prepare for it. We also offer office tours that allow you to see what the National Weather Service is and what we do.

If you would like to schedule to have someone come and talk to your community, school, group, business, or if you would like for us to set up a booth at your next event, please contact Steve Wilkinson, Alan Campbell, or Ashley Wester. If you would like to schedule an office tour, please contact Marty Pope or Karen White. All can be reached at the National Weather Service in Jackson, MS at (601) 936-2189.

Events in Which We Recently Participated:

October 17, 2007: Meteorologists Mike Edmonston and Brad Bryant gave safety presentations to about 150 5th grade students for the Marion County Farm Safety Day.

October 22-24, 2007: Meteorologist Ashley Wester spoke to approximately 60 students about severe weather safety and basic meteorology at the Starbase Atlantis Program in Philadelphia, MS.

November 28, 2007: Warning Coordination Meteorologist Steve Wilkinson spoke to a group of 20 on severe weather safety at the Entergy in Clinton, MS.

December 10, 2007: Warning Coordination Meteorologist Steve Wilkinson spoke to a group of 20 on severe weather safety at a meeting of the Rotary Club in Bay Springs, MS.

December 17, 2007: Meteorologist Alan Campbell spoke to a group of 300 2nd graders at Frazier Primary School in Natchez, MS on severe weather safety.

January 16, 2008: Meteorologist Chad Entremont spoke to a group of approximately 15 on severe weather safety at a Civic Club meeting in West, MS.

Cream: Jackson, MS service area
Blue: Memphis, TN service area
Purple: New Orleans, LA service area
Green: Mobile, AL service area

Thank You!

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