The ArkLaMiss Observer

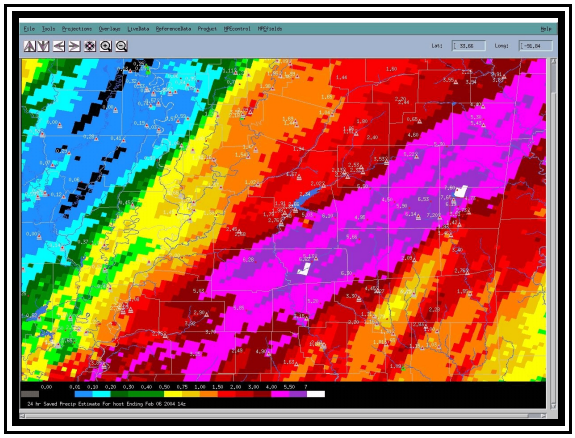
Fourth Edition, Spring 2004

The official newsletter of the Jackson, MS Forecast Office

February 5th, 2004: The Season's First Severe Weather Outbreak

What a day it was! All severe weather features were well represented on February 5th as a potent system moved through the area from the southwest. Recall that moisture, instability, lift and wind shear are all ingredients that are needed for organized severe thunderstorm development. On this day, we had an abundance of each. By day's end, a total of 117 warnings were issued: 55 flash flood warnings, 45 severe thunderstorm warnings and 17 tornado warnings.

Of the 74 storm reports received, 40 pertained to flooding with many coming from eastern Mississippi. Doppler radar estimates showed total rainfall amounts over 7.0 inches having occurred over portions of Lauderdale, Kemper and Simpson counties. Several reports of flooding along Interstate 20, at the intersection with Interstate 59, were received. In Rankin county, several homes were flooded in Brandon along highway 468. Street flooding reports were widespread and common. River and stream levels responded by rising to be above flood stage. It took several days for the water levels in most areas to crest.



White areas in the image above indicate rainfall totals of over 7 inches; dark purple areas indicate 6 or more inches.

Wind damage reports were also common. There were 5 tornado reports and 23 wind damage reports. An F-2 tornado was reported to have occurred over Simpson County, about 2 miles WNW of Braxton. The tornado's 10 mile track continued into Rankin county (with F-1 damage) before dissipating. A second, F-0 tornado was found to have occurred over Simpson county. An F-1 tornado was reported to have occurred over Newton county, and yet another F-1 tornado over Lauderdale county. Wind damage reports were mostly due to large trees being blown down or due to large branches being broken off.

There were a total of 6 hail reports that reported hail stone sizes between .75 and 1.0 inches. The largest hail stones were reported to have fallen over Rankin county (near Starr), over Lauderdale county (near Collinsville), and over Newton county (near North Chunky).

The National Weather Service Office In Jackson, Mississippi would like to thank all emergency management, law enforcement, ham radio, utility management and media personnel for their efforts in relaying timely reports during this event. Your support is greatly appreciated.

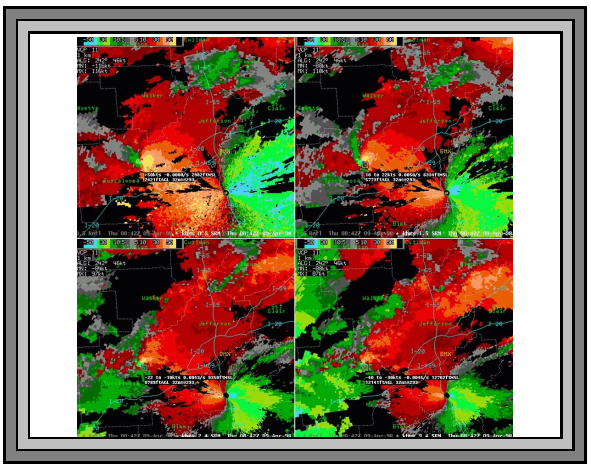
The 2004 Emergency Manager and Media Workshop

The 2004 emergency manager and Media workshop was held on Wednesday February 4th at the Brandon EOC in Rankin County, Mississippi. With over 150 people in attendance, participants were taught some of the basic skills of radar image interpretation and were also taught the methodology used in the warning decision making (WDM) process. New products were introduced and a round table discussion at the end of the workshop led to some very insightful feedback from the audience.

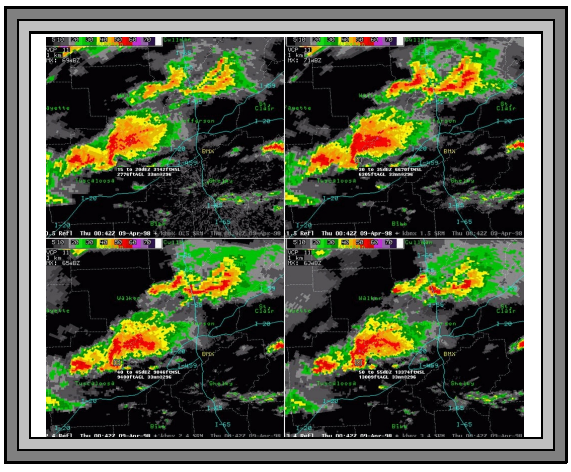
The workshop kicked off with a discussion on radar velocity image interpretation. Jeff Craven led the discussion and showed the differences between convergence, divergence, and rotation in the velocity image data. He showed that the green colors indicated velocities that head toward the radar and that red colors indicated velocities that head away from the radar. He also showed how the echo sampling heights (at a particular elevation "slice" like the .5 °) increase as greater distance from radar is gained.

Following the initial discussion, Bryan Henry discussed the ingredients needed for organized severe thunderstorm activity. A schematic diagram of a mesocyclone (supercell) was shown to illustrate their complex nature. Favored locations for tornado formation were shown. From there, the discussion shifted back to radar image interpretation. Examples of severe thunderstorm indicators were shown. Among them were: 3-body scatter spikes, hail flares, hook echoes, BWERs (Bounded Weak Echo Region, WERs (Weak Echo Region), LEWPs (Line Echo Wave Pattern), and MARCs (Mid Altitude Radial Convergence).

Chad Entremont led the audience through a couple of examples that illustrated the WDM process. The Birmingham F-5 tornado event of 1997 was used to show how warning meteorologists use radar data to diagnose a storm. He also demonstrated the process by leading the participants through an analysis of the storm and then by asking them what type of warning needed to be issued.



SRM velocity data shows an intense velocity couplet.



Reflectivity 4 panel shows a well defined hook echo.

A second example was used to show that the WDM process sometimes becomes difficult. In this case, the supercell had a well defined hook echo, which suggested tornadic activity. Despite favorable radar signatures for tornadic activity, the storm failed to produce a tornado. However, it did produce large hail.

Figure 9 Similar flooding like this was expected the next day.

After a break, the conference agenda was changed to introduce a new product called the web-briefing. Using a slide show downloaded from a NWS website, Jeff Craven briefed the audience on an impending severe weather event that was expected to occur the next day. Map by map, he stressed the expected flooding potential as well as the severe thunderstorm threat. (The results of the event can be found in the next article.) He stated that this briefing technique will be available on future conference calls.

Guest speakers Jim Duke and Frank Revitte provided insightful discussions as well. Mr. Duke briefed the audience on the products and services that were available to the public through the NWS Memphis website. Mr. Revitte discussed tornado climatology in southern Mississippi. Among other things, the data presented showed that frequency dangerous tornadoes decreased heading south, towards the coast (from central Mississippi.)

At the conclusion of the event, Alan Gerard and Jeff Craven led a round table discussion with the audience regarding the usefulness of the products and services provided. The use of short term forecasts, NOWCASTS, remained one of the favorite products used. The GraphiCast, which utilizes a program called FX-Connect, received a favorable review a when used as a "quick glance" short term 12 to 72 hour forecast. Emergency managers were also supportive of the conference calls prior to significant events, and were impressed by newly developed web briefing.

Spotter Training
Spring 2004

Spring has arrived and so has severe weather. Are you prepared? Now is the time to schedule your spring spotter training session. To schedule, contact Jim Butch at (601) 936-9206.

Stay Safe This Summer

Summertime means hot temperatures and high humidity. This causes afternoon thunderstorms to randomly develop throughout the season. With summer also being the greatest time for outdoor sports and activities, here are a few safety tips to keep in mind if you're ever caught outside when a thunderstorm strikes.

Lightning Safety:

1) If possible, get indoors immediately! If you can hear thunder, you are close enough to be struck by lightning. Once indoors, unplug all appliances not needed to obtain weather information and avoid using the telephone or taking a shower.

2) If shelter is not available, find a low spot away from trees, poles and fences. Squat low to the ground on the balls of your feet to make yourself the smallest target possible, and to minimize your contact with the ground. Then, place your hands over your ears and put your head between your knees.

Flash Flood Safety:

1) Avoid walking, swimming, or driving in flood waters. Seek higher ground if you are in an area susceptible to flooding.

2) Stay away from high water, ditches and storm drains. If you come upon flood waters, turn around and go another way. If it is moving swiftly, even water six inches deep can knock you off your feet.

Tornado safety:

1) Seek shelter in a sturdy building. Move into a small interior room or hallway on the lowest floor, and get under a sturdy piece of furniture. Stay away from windows, and try to put as many walls as possible between you and the outside.

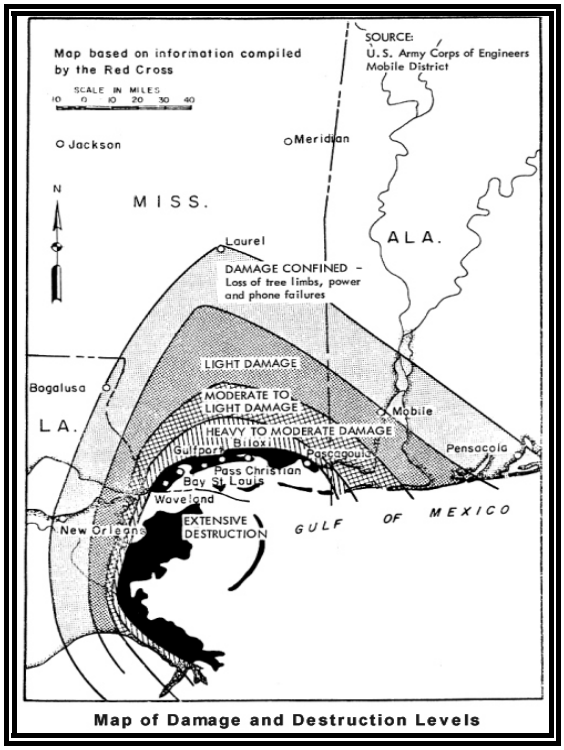
2) If caught in your automobile,

leave it for safe shelter immediately. Do not try to outrun a tornado in your car (like the guy in this image.) Lie flat in a nearby ditch or depression and cover your head with your hands. Be aware of flying debris...this is what causes most injuries and fatalities.

To avoid being caught outside, remember to monitor the weather and recognize when the potential for thunderstorms is high. If you hear that the county in which you live is under a tornado or severe thunderstorm watch, this means that conditions are favorable for tornados or severe thunderstorms to occur. If you hear that a tornado or severe thunderstorm warning is in effect for your county, seek shelter immediately! A warning means that a tornado or severe thunderstorm is occurring or imminent, and those in the path of the storm are in imminent danger to life and property.

Remembering Hurricane Camille

How quickly the years pass. Over 35 years ago, on August 17th 1969, Hurricane Camille struck the gulf coast with an unprecedented fury. Upon landfall, the storm was rated a category 5 on the Saffir-Simpson scale with winds of 200 mph reported and a storm surge that was 24 feet above the normal high tide level. The damage was unimaginable and the loss of life was devastating. Along the coast, 143 people lost their lives as the storm moved onshore. Storm damage assessments totaled $1.42 billion which ranks it as the 12th costliest storm on record.



Map of Damage and Destruction Levels

As the storm moved inland and over Mississippi, the winds weakened considerably. By the time it passed over Jackson, winds had decreased to 45 mph. The primary storm threats had shifted from winds and storm surge to flash flooding. Widespread flooding reports from across much of Mississippi began coming in.

After devastating Mississippi, the storm continued to weaken and was downgraded to a tropical depression. After moving over Memphis, Tennessee the storm's track changed and became northeasterly over Tennessee and then easterly over Kentucky. It wasn't through. As Camille's remnants moved through the high terrain of southern Virginia, torrential rains produced landslides and flash flooding that killed an additional 113 people. The remnants moved off shore near Northfolk, Virginia and the storm reintensified.

Hurricane Camille was not the only Category 5 hurricane to strike the coast of the United States. Two other deadly and costly Category 5 storms, Andrew in 1992 and the unnamed Labor Day Hurricane of 1935, both struck the coast of Florida.


Typical Small Boat Damage in Gulfport, Mississippi

NWS Employee Meeting Welcomes New Director

An all-hands meeting at the American Meteorological Society Annual Meeting in Seattle provided many National Weather Service employees their first opportunity to hear from General D.L. Johnson, new NWS Director, and welcome him aboard.

Johnson opened the session by thanking John Jones for ably guiding NWS during the transition of leadership and telling a full room of employees, “I am in the rapid data assimilation mode. Right now,” he said, “I am a blank piece of paper. I need to do a whole lot of listening.”

Johnson acknowledged hearing some concerns about how he will run the weather service. “You have my commitment not to take a cookie-cutter approach.” He said the approach he will take will be different than the one he took as the U.S. Air Force director of weather.

Johnson’s career is marked by strong management and fiscal capabilities. He said that his strengths are in “planning, programming and budgeting.” “There’s an impression that we have a big wallet. We’re the big dog in NOAA. But what would happen if we didn’t get a significant portion of our budget?” he challenged the audience. “The way you compete is numbers and value added,” he said.

Johnson acknowledged that he needs to learn about a lot of issues including metrics and the NWS Employees Organization. In wrapping up his comments, he said, “My position earns me your loyalty, now it is up to me to earn your respect.”

New NWS Director General G.L. Johnson (right) shown standing next to NWS Deputy Director John Jones.