SERFC
The Channel
Tropical Season '05
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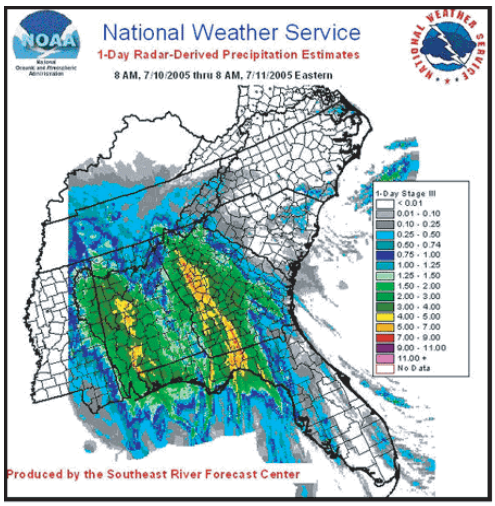
The 2005 Tropical Season Keeps SERFC Busy

by Jeff Dobur

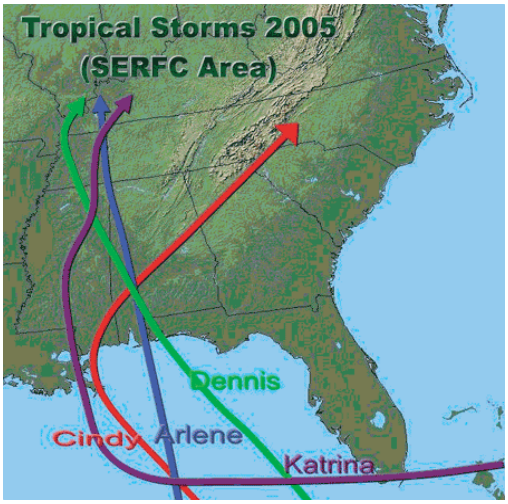
The 2005 Tropical Season remains extremely active, with seventeen tropical storms and nine hurricanes (four major hurricanes) so far through early October in the Atlantic basin. While Florida took the brunt of the hurricanes in 2004, the Gulf Coast has been the hardest hit in 2005 (Tropical Storm Arlene, Tropical Storm Cindy, Hurricane Dennis, Hurricane Katrina, Hurricane Rita). The very active tropical season has kept soils moist and primed for runoff as rivers remain at above-normal flows across parts of Mississippi, Alabama, and Georgia through early September. This has resulted in increased flood vulnerability for most of the late summer.

After a relatively dry start to the summer, with the exception of south Florida, Tropical Storm Cindy made landfall along the central Gulf Coast during the first week of July, resulting in a 3- to 6-inch swath of rainfall from southern Mississippi through central Alabama and north Georgia into far western South and North Carolina. The moderate-to-heavy rainfall from Cindy moistened soils and brought many rivers across central Alabama and north Georgia to bank-full. After heavy rain bands from Hurricane Dennis skirted the western coastline of the Florida peninsula on July 8th and 9th, the strong category-three hurricane made landfall along the far western Florida panhandle on July 10th. The expansive storm, nearly 400 miles in circumference, provided heavy rainfall from New Orleans, Louisiana, to Jacksonville, Florida.



24-hour Multisensor precipitation estimates of Hurricane Dennis ending the morning of July 11th, 2005.

The heavy rainfall pattern with Hurricane Dennis fell in two distinct areas, highly evident when looking at the precipitation total through the event. During the evening of the 10th, heavy rain continued within the core of the tropical convection across west-central Alabama. A secondary and more pronounced heavy rain axis developed across the central Florida Panhandle and across western Georgia. The nearly stationary feeder band produced 4 to 7 inches of rainfall in a narrow band from Tallahassee, Florida, to Atlanta, Georgia, during a 6-hour period from late evening on the 10th through the morning of the 11th. The excessive rainfall across the Atlanta urban area caused rapid rises on many local streams and rivers. Record flooding occurred on Sweetwater Creek near Austell, with moderate flooding on parts of the Chattahoochee and Flint Rivers. Several western suburbs of Atlanta needed evacuations as rising flood waters reached rooftops.



While Katrina has been the most impacting hurricane so far across the United States in 2005, the track affected basins mainly outside of the SERFC's area of responsibility. The only exception to this was during Katrina's early stages, when heavy rain across extreme southern Florida August 25th and 26th caused flooding in Miami and its urban surroundings.

Contents

John Feldt-HIC, SERFC
Mark Fuchs, Editor
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From the HIC

by John Feldt

I write this in the aftermath of Hurricane Katrina. Our sister office, the Lower Mississippi River Forecast Center (LMRFC) in Slidell, Louisiana, was greatly impacted by this devastating storm. Not only did the office experience considerable disruption of communication lines and vital services, but many staff members' homes were either damaged or destroyed. Our thoughts and prayers go out to the LMRFC staff as they recover from this destructive event.

Please welcome our newest staff member – Jeff Dobur. Jeff joins Judi Bradberry and Jack Bushong as a Hydrometeorological Analysis and Support Meteorologist. Jeff comes to the SERFC from WFO Atlanta, where he was a staff meteorologist. Prior to coming to Georgia, Jeff worked as a hydrologist for the Ohio River Forecast Center.

Briefing the Corps

by John Feldt

One of our closest partners is the U.S. Army Corps of Engineers (USACE). We work closely with the USACE in a number of ways, from daily coordination of reservoir proposals to conference calls during flood events.

Another aspect of coordination between the SERFC and the USACE is a series of conference calls on water resource planning and management. Currently, the SERFC is conducting the following calls:

South Atlantic Division (SAD)
The SERFC provides a 15- to 30-minute general water resource management briefing on a monthly basis to all SAD district offices. The briefing includes the Wilmington, Savannah, Jacksonville, and Mobile Districts, as well as SAD officials. Todd Hamill (Senior Hydrologist) is overall coordinator of this call.

Lake Okeechobee User Group
This call coordinates long-lead time information among the WFO Miami, the South Florida Water Management District, and the USACE District office in Jacksonville. Typically, the Climate Prediction Center also is included. Reggina Cabrera (Senior Hydrologist) is overall coordinator for this user group.

Roanoke User Group
The Wilmington USACE District meets with its local constituents on a quarterly basis. The SERFC provides a water resource outlook as part of this meeting. Todd Hamill (as North Carolina Caretaker) coordinates this call.

The intent of all three of these calls is to communicate the latest hydrometeorological information to key water managers for use within their operations. Feedback has been positive, and we plan to continue these calls into 2006.

Reaching Out to Florida EMs

by Ben Weiger, Regional Hydrologist

During the week of June 13-16, 2005, the SERFC, in collaboration with WFOs Tampa Bay and Melbourne, conducted three constituent workshops for NWS partners and customers in the St. Johns, Peace, and Withlacoochee River basins. The focus of the workshops was to obtain feedback from partners and customers about hydrologic products and services during last year's hurricane season and to provide information to partners and customers about new products and services and other activities in the NWS.

The workshop for the St. Johns River basin was held in Sanford, Florida, on June 14-15. NWS participants included John Feldt (HIC) and Reggina Cabrera (senior hydrologic forecaster) from the SERFC; Peggy Glitto (Hydrology Focal Point), Dennis Decker (WCM), and Bud Dietzmann (HMT) from WFO Melbourne; Joel Lanier (Senior Service Hydrologist) from WFO Tallahassee; Mike McAllister (DAPM) and Wayne Davis (ET) from WFO Jacksonville; and Kandis Boyd (Southern Region Hydrologic Services Program Manager) from Southern Region Headquarters. External partners and customers included the City of Sanford (fire department, public works); emergency management officials from Brevard, Volusia, and Seminole Counties; local media; officials from the USGS and Corps of Engineers; and officials from the Suwannee and St. Johns Water Management Districts.

Presentations included an overview of SERFC products and services; a review of the 2004 hurricane season from a hydrologic services delivery perspective; and information about the Melbourne WFO AHPS web page, activities underway to enhance hydrologic services delivery in the St. Johns River basin, and the various data sources used to deliver weather and water forecast and warning services during last year's hurricane season. The workshop also included an NWS open exhibit with technical information about the St. Johns River basin, NWS hazard awareness brochures, hurricane charts, and some AHPS luggage tags.

The workshops for the Peace and Withlacoochee River basins were held in Arcadia and Brooksville, Florida, on June 15-16. Representatives from the USGS and emergency management officials from Desoto and Hardy Counties attended the Peace

Reaching Out to Florida EMs continued

River basin workshop June 15th. The following day, representatives from the USGS and Southwest Florida Water Management District, and emergency management officials from Sumter, Hernando, and Citrus Counties attended the Withlacoochee River basin workshop. NWS participants included John Feldt (HIC) and Jonathan Atwell (senior hydrologic forecaster) from SERFC, Eric Oglesby (Service Hydrologist) and Shawn Bennett (MIC) from WFO Tampa Bay, and Ben Weiger from SRH. The workshop included presentations about SERFC and WFO Tampa Bay products and services during last year's hurricane season, the WFO's AHPS web page, and potential USGS gage closures in FY06. After each workshop, Eric, Jonathan, and Ben went to a local Wal-Mart store, set up an NWS exhibit, and provided store customers with various NWS hazard awareness brochures and hurricane tracking charts. The NWS exhibit was well attended by store customers.

Hydrologic Vulnerability Assessment: A Look at Pre-Storm Conditions

by Christine McGehee

The SERFC has begun issuing an experimental product called the "Hydrologic Vulnerability Assessment" (HVA). The HVA discusses the likelihood of significant flooding if a tropical system made landfall in the southeast U.S. The product does not make any predictions about tropical cyclone activity, just what would happen if torrential tropical rainfall affected particular areas.

To create the product, SERFC hydrologists and meteorologists meet periodically to discuss recent rainfall and the amount of moisture currently in the soil in various areas. Summary graphics of soil moisture and accumulated precipitation are often included with the narrative, as well as links to more detailed information. The HVA is routinely issued every two weeks, with special issuances as events warrant.

Early this summer, Georgia, Alabama, Florida, and the mountains of North and South Carolina were consistently at higher risk for flooding due to above-normal rainfall. Tropical Storm Cindy and Hurricane Dennis contributed to these high totals. In recent weeks, though, Georgia and Alabama have dried out considerably. Parts of the Atlantic coast have seen some rain from the fringes of Tropical Storm Ophelia; this rain has kept soils moist on the east coast of Florida, but has provided little relief for the parched Carolinas.

The HVA is emailed to many SERFC customers and partners and has been very well received. The SERFC is considering expanding this product beyond the hurricane season. As always, we invite your comments and suggestions.

An Update on Florida River Modeling Projects

by Reggina Cabrera

The Southeast River Forecast Center (SERFC) continues to collaborate with a variety of partners in Florida to improve forecast services in the St. Johns River basin and the Lake Okeechobee area.

St. Johns River

The SERFC began forecasting water levels for a reach in the middle section of the St. Johns River in 2001. At that time, the river model extended from the entrance to Lake Harney to a river gage near Deland, Fla., and it was used during the busy 2004 Hurricane season.

As a result of the Coastal Storms Program (CSP) and the collaboration between the National Weather Service (NWS) and the National Ocean Service (NOS), the modeled section of the St. Johns River was expanded to include the lower reach of the basin, from Deland to the mouth of the river into the Atlantic Ocean (near Mayport). The goal is for the SERFC to provide forecasted flows to the NOS to be used as boundaries for their estuary model.

Because of the dynamics of the St. Johns River, a hydraulic model is being implemented as well. The Office of Hydrologic Development (OHD) has developed, and is in the process of finalizing, the calibration of the expanded hydraulic model. The hydrologic model is used to determine local inflows to the channel due to precipitation. The NWS hydraulic model Flood Wave (FLDWAV) is used to perform the routing along the reach.

Evaluation of the different components of the St. Johns River model are taking place at this time, as a joint effort between the OHD and the SERFC.

Lake Okeechobee Basin

The Southeast River Forecast Center (SERFC) has been charged with the duty of setting up and maintaining a modeling scheme for the Lake Okeechobee hydrologic system for the purpose of providing river and lake forecasts. As a result, a preliminary setting including Lake Okeechobee and two of the major tributary inflows, Kissimmee River and Fisheating Creek, are currently

An Update on Florida River Modeling Projects

continued

defined in the National Weather Service River Forecast System (NWSRFS).

This project is a joint effort between the U.S. Corps of Engineers (COE); South Florida Water Management District (SFWMD); Office of Hydrologic Development (OHD); Weather Forecast Offices in Miami, Melbourne, and the SERFC. The experimental forecasts are under evaluation now. Improvements to the setting are being implemented based on periodic meetings between the parties involved.

Bonus Feature

On October 3rd, the SERFC introduced the first episode of NOAA Weather Warrior. This is a new public outreach and education project that combines popular superhero-style cartooning with weather safety rules and information. Hydrologist Rick Ullom is the creator and artist and Senior Hydrologist Todd Hamill is the co-author and marketer. We are planning to release several episodes each year and are very excited about the possibilities.

With each episode release, we will include a poster, a CD with MS PowerPoint presentations, trading cards, and a marketing plan. We are hopeful to expand this package to include more features as funds and interest allows.

The NOAA Weather Warrior is a champion of incredible strength and ability who fights against mankind's ignorance, apathy, fear, and blantant disregard for weather's most devastating consequences. In each episode, he will recognize a weather danger and race to the rescue. He leaves each victim a card (trading card) with relevant weather safety rules and information.

We are excited about the future of our NOAA Weather Warrior and look forward to hearing from you about him. You can find him on the web at:

www.srh.noaa.gov/serfc/WeatherWarrior

At this time, we have limited distribution, mainly to our SERFC Partners, but look forward to a future of more support and possibilities.