

2012 ANNUAL SHAREHOLDERS REPORT

NATIONAL WEATHER SERVICE PEACHTREE CITY, GEORGIA

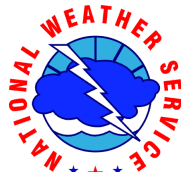


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Welcome From the New MIC

*By, Keith Stellman,
Meteorologist In Charge*

As the new manager here, many folks may be waiting to see what drastic or revolutionary changes are made to our office or our services. However, my goal is to step in and seamlessly continue where my predecessor Lans Rothfutz left off. There were many very creative and innovative projects ongoing when I arrived in August of 2012 and we will continue many of them as well as bring you some new products and services....one of which being this newsletter. For more about me, feel free to check it out on our website: http://www.srh.noaa.gov/ffc/?n=stellman_bio

We hope you enjoy this newsletter, which we want to use as a way to inform you of what we're working on at the National Weather Service in Peachtree City. As always, our goal is to serve you and meet your needs, and to do that effectively, we need your feedback. Our hope is that by our giving you a better idea of what we are working on here today, it will enable you to let us know what we should be working on tomorrow.

It has been a wet and active year thus far and our area did not escape some violent tornadoes. The strongest thus far was the Adairsville and Gordon County EF3 tornado on January 30. This tornado was the strongest tornado on record in January in the state of Georgia. Unfortunately, it was a killer tornado and it ended the longest running streak of days without a killer tornado in the United States. We also experienced our first June tornadoes since 1998! The 2 EF1 tornadoes in the northern Atlanta metro ended the longest running streak of tornadoless June's dating back to 1950.

In this newsletter, you will read more about these weather events, as well as status reports on some of our programs such as the cooperative observer network. Again, we are always striving to improve our services, and it is only through input from you, our customers and partners, that we can accomplish this. Please feel free to let us know how we are doing, and what we can do to better meet your needs.

-- Keith

2012 Storm Data & Verification Statistics

*By, Laura Belanger,
General Forecaster*

Following the catastrophic 2011 tornado outbreak and near record severe weather events, 2012 will be remembered as a generally quiet year with little winter, a hot summer, and the second fewest severe events in north and central Georgia since 1995.

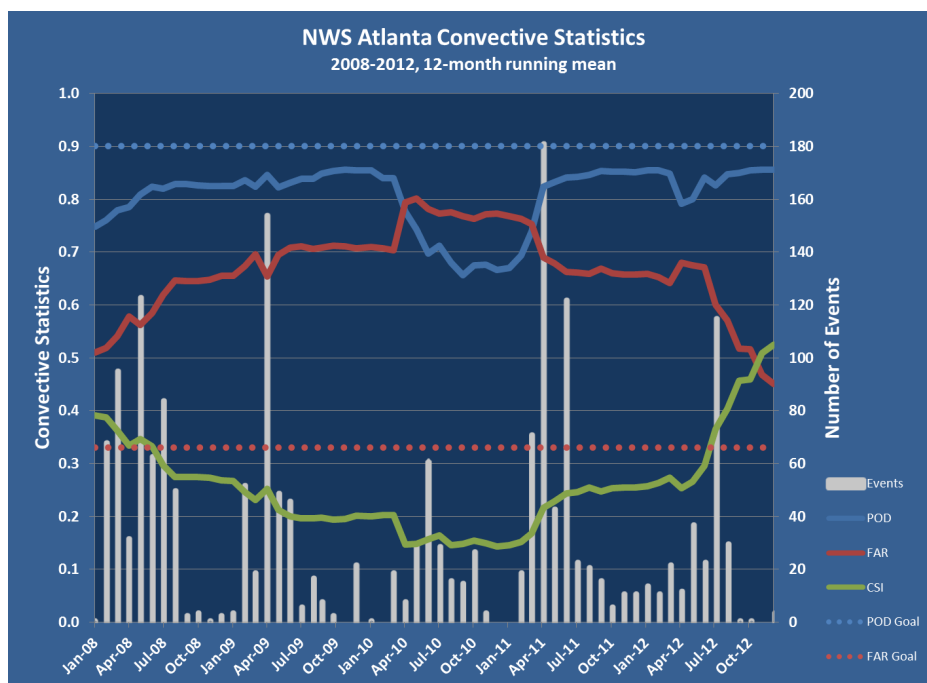
- A series of systems moving into the region in July, combined with hot temperatures and increased humidity, produced damaging storms with excessive lightning. July saw the most severe convective activity of the year with more than 115 events, including numerous golf ball size hail reports and almost a million dollars in damage to the Carters Lake Marina from a significant thunderstorm wind.
- Tornado activity was at a minimum in 2012, similar to the lull in activity in 2010. The lack of tornadic events was a welcome reprieve following the catastrophic events from 2011. In total, there were nine tornadoes in the WFO FFC area, well below the 17-year tornado average of 15. Of the nine, six tornadoes resulted from cool season quasi-linear convective systems as they pushed through the state in January and December.
- Only one direct fatality was attributed to weather in north and central Georgia in 2012, the fewest weather-related deaths since 2006. Excessive lightning activity in a July thunderstorm resulted in one death and one injury as lightning struck a tree where two individuals were seeking shelter. A total of 17 people were injured as a result of weather in 2012, 14 of which were from lightning. The number of injuries was greatly reduced from 2011 where a record 161 people were injured, largely from the April 27, 2011 tornado outbreak. Over the last several months, one injury in particular has captured the hearts of Atlantans. In October, strong winds resulting from Hurricane Sandy's close proximity to the region caused several trees to fall. In Winder, GA a two-year-old boy was critically injured when a tree fell on him at daycare. After numerous surgeries, as of April 2013, this child continues on the road to recovery.
- The year finished with an overall quiet period, with lack of precipitation activity exasperating drought conditions across the area. From September to December, there were only six severe convective events – tying 2001 for the fewest number of events for this four month period since 1995. In total there were only 272 events for the year, a far cry from the 17-year average of 415 events or the 524 events reported in active 2011.

Property Damage

Weather-related property damage in 2012 (\$44.13M) placed second lowest over the last 5 years, only trailing behind the \$31.76M reported in 2010. The damage in 2012 fell well below 2011, 2009, and 2008 which reported \$258.16M, \$362.94M and \$261.78M, respectively. Approximately 43% of the damage for 2012 was caused by hail events, with tornadoes being the next highest contributor at 31%. Only 10 events produced damage of at least \$250,000, compared to 112 events in 2011 and 31 in 2010.

Verification

In 2012 there were a total of 377 Severe Thunderstorm and Tornado Warnings issued (compared to 630 in 2011), with 70% of those issued between May and August. The Probability of Detection (POD), which measures the ability to issue warnings before damage occurs, took a tumble in the spring before recovering and ending the year at a high 85.3%, just shy of the 90% goal. The False Alarm Rate (FAR), which is the percentage of unverified warnings compared to the total warnings, dropped to the lowest it has been since 2008, as evidenced in the provided graph. By December 2012, the FAR had dropped to 45.3%, largely influenced by the lack of events at the end of the year. The lowest individual month FAR (12-month running mean not applied) was in June 2012 with a low 29.0%. A new office strategy in tackling verification and logging/receiving reports likely contributed to the increase in POD and drop in FAR.



Reaching Our Customers: The 2012 Marketing & Outreach Team Report

*By, Dan Darbe,
Senior Forecaster*

The Atlanta/Peachtree City, Georgia National Weather Service Office had a busy 2012 with numerous significant outreach events. Some more worthy of noting were:

- The maiden voyage of our Mobile Outreach Vehicle in February that resulted in nearly 250 Fayette County manufactured home community residents receiving vital live-saving severe weather information during severe weather awareness week
- A September Severe Weather Awareness Fair in Carrolton, Georgia in support of National Preparedness Month
- Our first “Student’s Day at the NWS Office” in October with hundreds of middle grade students and parents receiving a plethora of various science and weather related instruction
- The annual Atlanta weather media workshop in November, hosted by Glenn Burns, David Chandley, and Brad Nitz at WSB with numerous broadcast meteorologists from across Atlanta and other Georgia media markets attending
- Our participation in the annual Emergency Management Association of Georgia (EMAG) Conference
- Staffing our NWS booth at the annual Georgia Science Teachers Association
- Conducting over a dozen storm spotter classes across north and central Georgia that trained over 300 participants in important storm spotting and reporting duties
- From March through November, 27 counties and their associated Emergency Managers were visited by NWS Atlanta/Peachtree City Meteorologist through the office Adopt-A-County visit program



NWS Meteorologist Dan Darbe bringing vital severe weather safety information to residents at a vulnerable manufactured home community in Fayette County.

The first “Student’s Day at the National Weather Service” was a great success. Over 300 students and family members toured the office.



In office, we reached approximately 500 individuals through just over 50 office tours. Staff also provided weather information to local and national media in at least 225 phone interviews that included FOX, CNN, Associated Press and National Public Radio.

2012 Fire Weather Season

*By, Brian Lynn,
General Forecaster*

2012 was the second year with new Red Flag Warning criteria. Starting in February of 2011, in cooperation with the U.S. Forest Service and the Georgia Forestry Commission, the criteria for Red Flag Warnings changed. The criteria for Red Flag Warnings is now Relative Humidities 25 percent or less AND Sustained Surface Winds 15 mph or greater and/or Frequent Gusts 25 mph or greater. These weather criteria are in conjunction with 10 hour Fuel Moistures of 6% or less. In addition, Fire Danger Statements will be issued to heighten awareness when low relative humidities OR winds occur with dry fuels.

A total of 97 Red Flag Warnings were issued on 1 day in April of 2012. This much lower number of Red Flag Warnings than years previous to 2011 was due to the change to more severe red flag warning criteria. Fire Danger Statements were issued on 39 days during 2012. The months of April and November had the



Photo Courtesy: ajc.com



most fire danger statements totaling 16, 8 for each month. This was followed by June that had 6, largely due to drought conditions. These 3 months represented 56 percent of the fire danger statements issued.

Verification of the Red Flag Warnings was near perfect for the year. The national goals for Probability of Detection (POD) and Lead Time for 2012 were set at 88% and 10.5 hours. Our POD for 2012 was 100% with an average lead time of 23 hours. The POD of 100% represented a perfect score. The lead time of 23.0 hours was well above the national goal and a large improvement over the lead time of 7.5 hours in 2011.

2012 Aviation Services Report

*By, Patricia Atwell,
Aviation Services Meteorologist*

Hartsfield International Airport
Photo Courtesy: weburbanist.com



The Peachtree City WFO Aviation program continued to improve services to our aviation partners throughout 2012. Members of the WFO regularly collaborate with the NWS meteorologists at the Center Weather Service Unit (CWSU) in Hampton, applying a "one-office" approach. This means that any aviation forecast received from either office is consistent with the other. By the end of 2012 all but two forecasters had visited and toured our local aviation partners, namely the Atlanta Terminal Radar Approach Control facilities (TRACON), the Air Route Traffic Control Center (ARTCC), the Atlanta Hartsfield-Jackson International Air Traffic Control Tower, as well as the Center Weather Service Unit (CWSU) located within the ARTCC. These visits gave our forecasters a first-hand look at how weather can impact aviation activities. For 2012, our forecasting scores improved slightly in most categories. Terminal Aerodrome Forecasts

(TAFs) showed a 12% improvement over model data for the Instrument Flight Rules (IFR) category when cloud ceilings were anticipated below 1000 feet and/or visibilities were expected to be 3 miles or less. As an office we continued an initiative to provide Digital Aviation Services (DAS) to the aviation community which means all aviation parameters will be available through our existing digital forecast database. The transition to DAS improves the consistency of our aviation and public forecasts, and provides an important guidance tool for customers with operations at airports not currently receiving a TAF. By having a digital database which graphically depicts the aviation elements, non-official TAFs can be generated for these additional airports, which are utilized by aircraft with medical service, search and rescue, and general aviation interests. The WFO also provided Decision Support to the Atlanta TRACON and ARTCC during convective events throughout the year, as well as key Federal Aviation Administration (FAA) partners in advance of Tropical Storms Debby and Isaac, as well as Hurricane/Superstorm Sandy. This support was provided in daily (and sometime twice a day) briefings concerning expected winds, rainfall, flooding, storm surge with each storm, so the FAA could take evasive action to mitigate impacts from the storms. These briefings were provided to partners from Mississippi to Florida and up the east coast into New England.

Upper Air Program Review

*By, Nathan Mayes,
Hydrometeorological Technician*

We here at the Weather Forecast Office in Peachtree City send up weather Balloons with Radiosondes attached (see picture) at least two times a day (am & pm). There are other circumstances where additional releases are needed. In case of an approaching hurricane, the National Hurricane Center might request a special Upper Air launch. The request for a special launch also occurs whenever the Storm Prediction Center anticipates possible severe weather approaching Georgia.

For the year of 2012 we had a total of 754 Upper Air Balloon launches of which 28 were special releases for additional support for the Storm Prediction Center and the National Hurricane Center!

How is radiosonde data used?

Understanding and accurately predicting changes in the atmosphere requires adequate observations of the upper atmosphere. Radiosonde observations are a primary source of upper-air data and will remain so into the foreseeable future.

Radiosonde observations are applied to a broad spectrum of efforts. Data applications include:

- Input for computer-based weather prediction models;
- Local severe storm, aviation, and marine forecasts;
- Weather and climate change research;
- Input for air pollution models;
- Ground truth for satellite data



2012 Staffing Overview & Administrative News

*By, Deborah Connell,
Administrative Support Assistant*

Regular Staffing

1 Meteorologist in Charge (MIC)	3 Electronics Technicians (EL TECH)
1 Administrative Support Assistant (ASA)	0 Student Interns
1 Warning Coordination Meteorologist (WCM)	
1 Science and Operations Officer (SOO)	
1 Aviation Services Meteorologist (ASM)	
1 Senior Service Hydrologist (SSH)	
1 Information Technology Officer (ITO)	
1 Observations Program Leader (OPL)	
5 Senior Meteorologist (SR MET)	
7 General Meteorologist (MET)	
2 Meteorologist Interns	
1 Electronics Systems Analyst (ESA)	

3 Electronics Technicians (EL TECH)

0 Student Interns

2012 Staffing Changes

Retirees:

Clark Safford, ITO

Shirley Lamback, SR MET

Paul DeNault, CWSU Aviation MET
(pictured to the right)

NWS Transferees:

Lans Rothfusz, MIC transferred to
NSSL, Norman, OK

Keith Stellman, MIC transferred from
WFO, Shreveport, LA

Robert Beasley, MET transferred to
WFO, Blacksburg, VA

Adam Baker, MET transferred from
WFO, Indianapolis, IN

George Wetzel, OPL transferred from
WFO, Grand Rapids, MI

Robert Garcia, MET transferred to
WFO, Tampa, FL



2012 Hydrology Report

*By, Kent Frantz,
Senior Service Hydrologist*

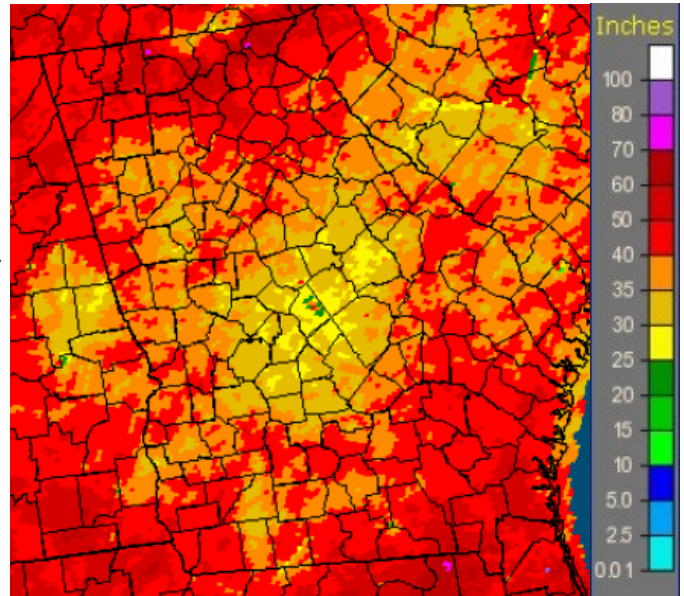
A powerful new online flood mapping tool that will help emergency managers protect lives and property in the flood-prone Sweetwater Creek area was unveiled at Austell’s Legion Regional Park in August 2012. The interactive web-based tool, called a “flood inundation map,” is the first of its kind to be created for a major urban area in the southeastern United States.

http://water.weather.gov/ahps2/inundation/inundation_google.php?gage=ausg1

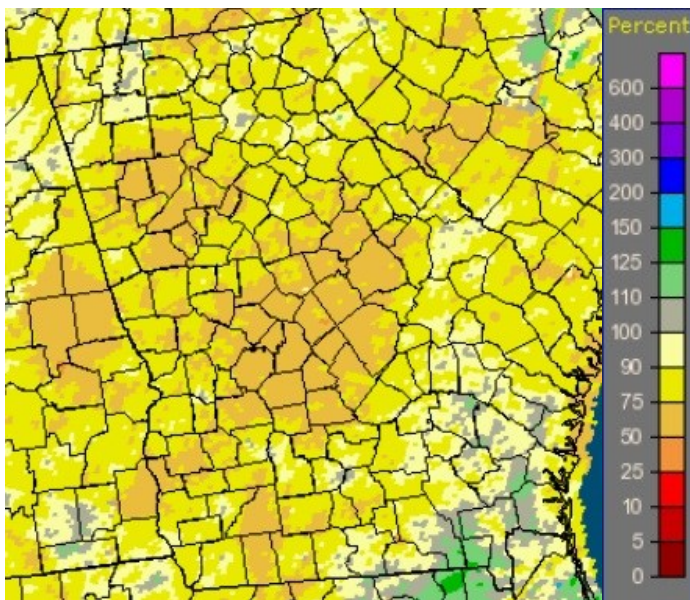
Cobb and Douglas Counties were ground zero for record flooding and damage from the epic 2009 flood.

Rainfall amounts in 2012 were similar to 2011, with a generally drier than normal year across most of Georgia. This was due to a weak La Nina weather pattern which transitioned to a neutral pattern by the end of the year. Most of Georgia received 50 to 95 percent of its normal annual rainfall. The exception were isolated locations near 100 percent of normal in north Georgia.

Consequently, a severe to extreme drought continued mainly over central Georgia. This also included portions of north Georgia mainly south of Interstates 20 and 85. Selected locations with annual rainfall and departure amounts include: Atlanta (37.03”, -12.65”), Athens (37.36”, -9.30”), Columbus (35.21”, -11.53”) and Macon (32.41”, -13.57”). This rainfall deficit over most of Georgia caused numerous streams to remain at or below base flows. The lack of rain in



2012 Observed Precipitation Across Georgia



2012 Percent of Normal Precipitation

many locations was reminiscent of the historic drought in 2007 and 2008.

However, the greatest annual rainfall of 60 to 70 inches across the state occurred on the Tennessee Valley Divide ridge line southwest of Clayton. This allowed Lake Lanier to recover its pool elevation to near 1066 feet by late April. The warm season gradually took its toll and by mid-December the lake level was near 15 feet below full pool.

The most hydrologic-active months were January and March when heavy rain associated with gulf moisture produced widespread minor flooding in northwest Georgia. This occurred in portions of the Tennessee, Coosa, Chattooga, Tallapoosa and Chattahoochee River basins.

No significant damage was reported.

In 2012, we issued 23 flood watches, 22 flash flood warnings, 34 flash flood statements, 19 river flood warnings, 48 flood statements, 5 flood potential outlooks and 24 drought information statements.

2012 Climate Overview for North & Central Georgia

*By, Adam Baker,
General Forecaster*

You could summarize the year as dry and hot, but that would be an understatement – try **all-time warmest** and **11th driest** on record at Atlanta! Other sites across North and Central Georgia reached impressive ranks as well (see Table 1 and 2).

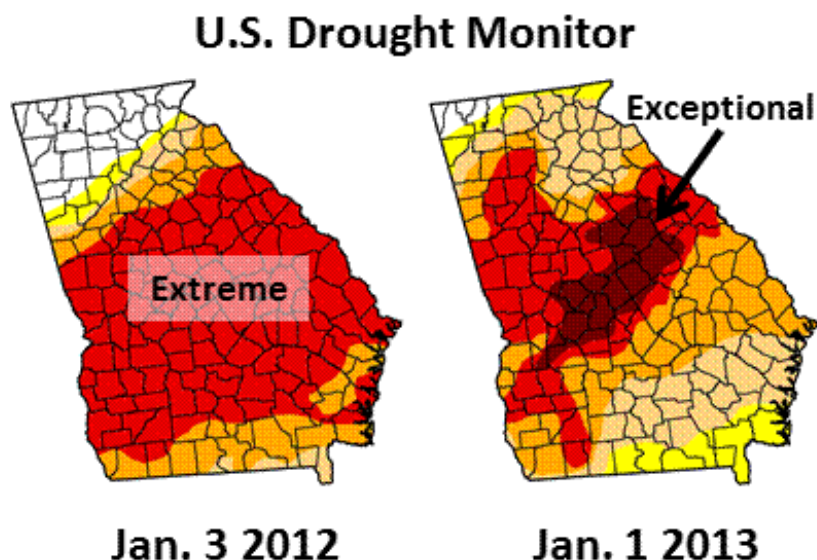
Table 1 - Annual Avg. Temperature (°F) and Rankings

Site	Avg. Temp. and Current Ranking	Normal	Dep. from Normal	Previous Records
Athens	64.1 (4 th Warmest)	62.6	+1.5	#1: 65.8 in 1933
Atlanta	65.6 (Warmest)	62.6	+3.0	#2: 65.0 in 1990
Columbus	67.9 (Warmest)	65.7	+2.2	#2: 67.8 in 1998
Macon	66.0 (6 th Warmest)	64.6	+1.4	#1: 67.0 in 1990

Table 2 - Annual Precipitation Totals (in) and Rankings

Site	Total Precip. and Current Ranking	Normal	Dep. from Normal	Records
Athens	37.36 (11 th Driest)	46.33	-8.97	#1: 28.61 in 1954
Atlanta	37.03 (11 th Driest)	49.71	-12.68	#1: 31.80 in 1954
Columbus	35.21 (4 th Driest)	46.75	-11.54	#1: 26.39 in 1999
Macon	32.41 (4 th Driest)	45.68	-13.27	#1: 26.05 in 1904

Such conditions allowed for portions of central Georgia to worsen drought categories from “Severe” to “Exceptional” by the end of the year (see below).



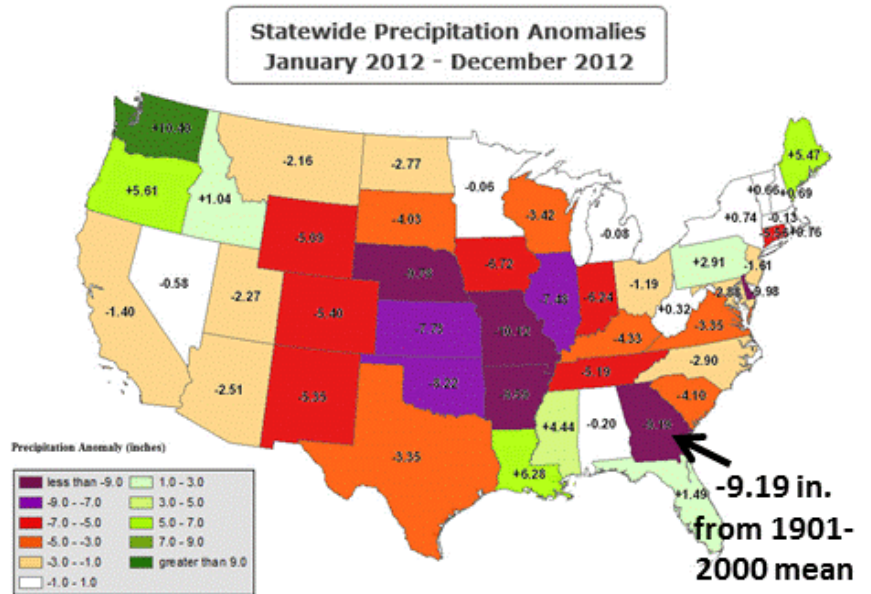
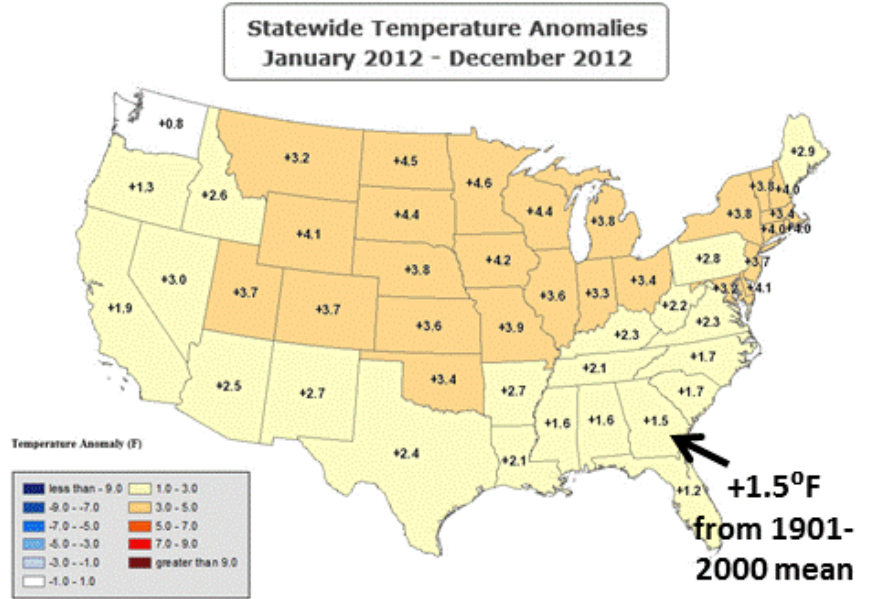
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2012 Climate Overview *(continued)*

The lack of rainfall and warm temperatures were persistent throughout the year and were not just from one intense period. Abnormally dry months occurred for 8-10 of the 12 months for the Atlanta, Athens, Columbus, and Macon areas. At least 9 of the 12 months for the Atlanta, Columbus, and Macon areas were above normal, with last March standing out as the most abnormally warm month, ranging from about 8-10 degrees above normal! If we zoom out and look at the bigger picture, the state of Georgia was only 1.5 degrees above the 100-year mean (1901-2000) with much of the Central Plains and Midwest being the most abnormally warm. As far as precipitation goes, Georgia stands out with over 9 inches below the mean (picture to the right).

So how will 2013 pan out? Well, we are off to quite a wild start! Most sites across North and Central Georgia finished out the winter in the top 10 warmest rankings and the Columbus and Macon areas ranking in the top 5 wettest. A large temperature swing came with the start of the spring season as the Atlanta area had the coolest March since 1971 and more than 5 degrees below normal – not to mention also cooler than the overall winter average. Such climate variability with having abnormally low temperatures can be attributed to a strongly negative Arctic Oscillation.

Changes in atmospheric pressure at polar and middle latitudes with this pattern typically allows for colder air to make surges farther southward. With the spring forecast to have a greater chance for above normal temperatures, another big swing in temperatures might just be on its way!



Dual Polarization Radar Technology Comes to NWS Peachtree City in 2012

*By, Laura Belanger,
General Forecaster*

As part of a nation-wide implementation, the Peachtree City (KFFC) and Warner Robins (KJGX) WSR-88D radars were upgraded with the new Dual Polarization technology by early 2012. These radars were one of the first to receive this most significant upgrade to the radars since were they deployed in the mid-1990s.

The dual-polarization technology greatly enhances the radars by providing the ability to collect data on both the horizontal and vertical planes, establishing a profile of the targets (rain, hail, insects, etc). The 14 added radar products allow meteorologists to infer new information, such as the uniformity of targets (i.e., all rain versus a rain-hail mix) or the transition of precipitation (i.e., areas of snow versus areas of sleet). The new radar imagery has also been useful in determining tornadic debris signatures (TDS), or where there is indication that a tornado has lofted debris from the surface. Research has shown that in a few cases a TDS has been observed with little to no damage reported on the ground – an indication that the sensitive radar picked up on lofted grass, pine needles and/or dust.

The new dual-polarization technology was paired with a highly comprehensive forecaster training program and workshop held in late 2011 and January 2012. The same workshop was offered to and attended by many broadcast meteorologists from the Atlanta market. Continuing research strives to offer best practices and applications of the new radar imagery, and these new radar forecasting tools are expected to improve warnings and provide longer lead times.

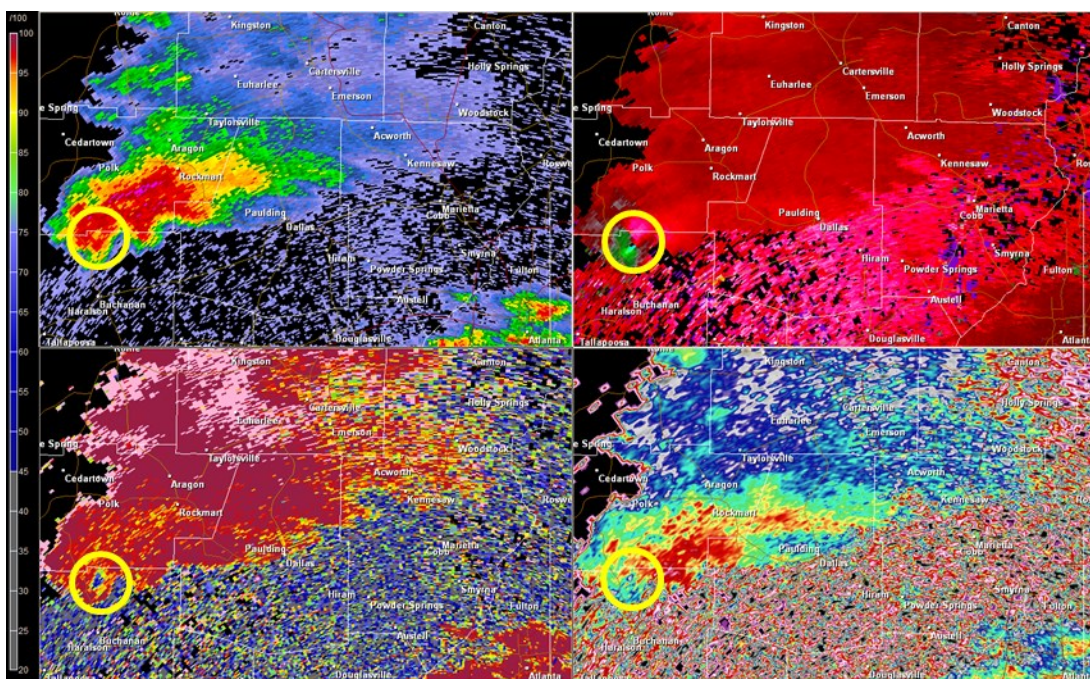


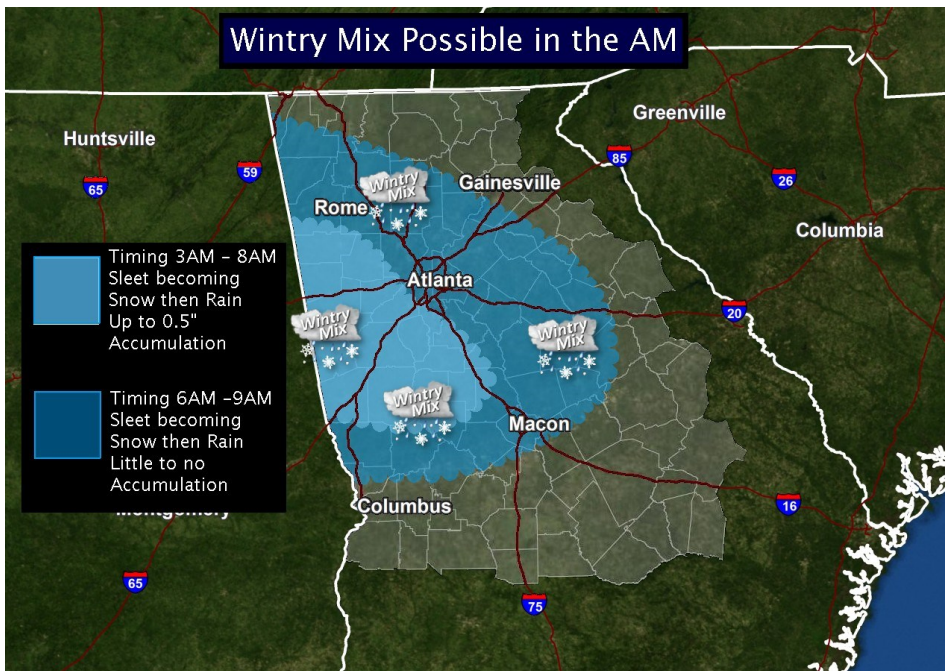
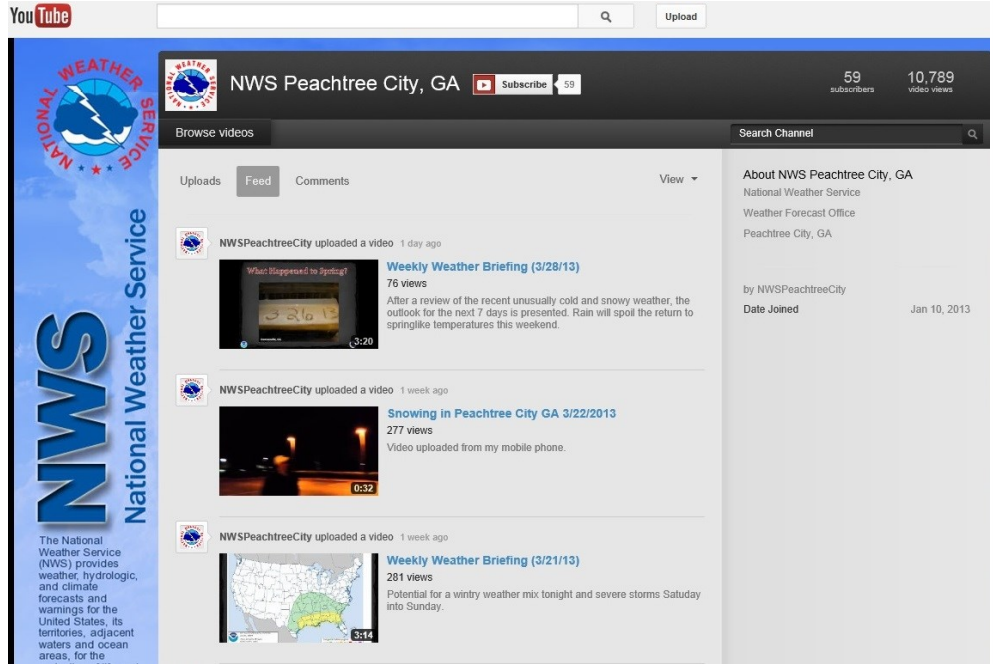
Photo Caption: Dual-Pol imagery from 01:18 UTC on 03 March 2012. Clockwise from the top left: Reflectivity, Storm Relative Motion, Differential Reflectivity, and Correlation Coefficient. The circled region shows a tornadic debris signature identified by a minimum in Correlation Coefficient, near zero Differential Reflectivity, high Reflectivity and high rotational velocity in Storm Relative Motion.

2012 Decision Support Highlights

*By, Matthew Sena,
General Forecaster*

During 2012 the National Weather Service Office in Peachtree City continued to expand our Decision Support Services, most notably on the severe/high-impact weather event notification front for our Emergency Management and media partners. We have implemented a weekly planning webinar to highlight potential weather impacts during the upcoming 5 to 7 days. We also began sending event-driven email briefings for short range weather events.

The weekly webinar is conducted each Thursday between 11 AM and noon via CitrixOnline's GoToMeeting web-conferencing services. Attendance at this live webinar is limited to those in the Emergency Management community and local media; however a recorded version of the conference is linked from our homepage each Thursday afternoon at www.weather.gov/atlanta and is available on YouTube at www.youtube.com/user/NWSPeachtreeCity.



In the past we have conducted event-driven live webinar briefings with our Emergency Management and local media partners in advance of large-scale/especially dangerous weather events such as the tornado outbreak in April 2011 or the severe winter weather event in January of 2011. For smaller-scale/lower-impact events we have now implemented an email briefing. This product is sent to the members of our live briefing list and consists of a description of the expected impacts, timing and areal coverage of the weather event, accompanied by one or two graphic images to visually illustrate these ideas. If you are a member of our Emergency Management community or our local media and would like to be included in the dissemination of this product,

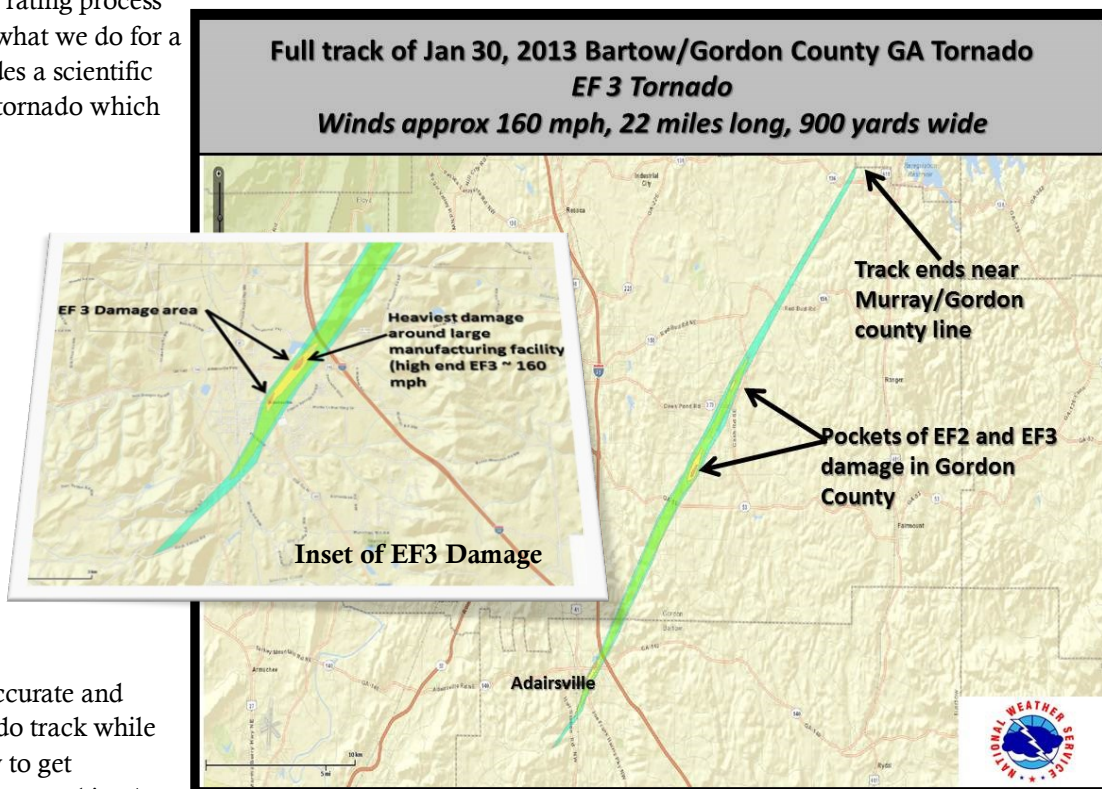
contact matthew.sena@noaa.gov. Be sure to include not only your name and email address, but also your agency, title and contact information.

Technology Infusion in Storm Surveys

*By, Jason Deese,
Senior Forecaster*

2012 brought about big changes in the way Peachtree City forecasters rate tornadoes after severe weather episodes. For a little background, the rating process is a very important part of what we do for a variety of reasons. It provides a scientific record of the intensity of a tornado which helps with research and the development of new tools to increase tornado lead times. It also serves to aid local and Federal authorities in getting the help a community needs in the immediate aftermath of an event. This is not to mention the insurance implications that ratings can have for a particular event.

For these reasons and more, it is imperative that we provide the most accurate and detailed analysis of a tornado track while providing some expediency to get information out to those who need it. A consequence of this was the implementation of a more detailed Geographic Information System (GIS) based and database driven methodology of plotting tornado tracks and providing detailed rating information complete with visual evidence on a data point by data point basis. The image below demonstrates the detail we are now able to achieve through acquiring and storing data from within a GIS framework. In addition to this detail, through the utilization of a web based database, we are able to leverage the use of WiFi enabled tablets, phones and laptops to transmit our findings while still in the field collecting data. Forecasters on station can then take this data transmit the relevant track and rating data to local and Federal officials as well as the media in a more streamlined manner than ever before.



Web Services 2012

*By, Jessica Fieux,
General Forecaster*

It was another busy year in terms of web services! In social media news, we joined Twitter in 2012. Although our office had been searching for storm reports via #gawx on Twitter in the past, you can now follow us on twitter @NWSAtlanta and directly tweet us your storm reports!

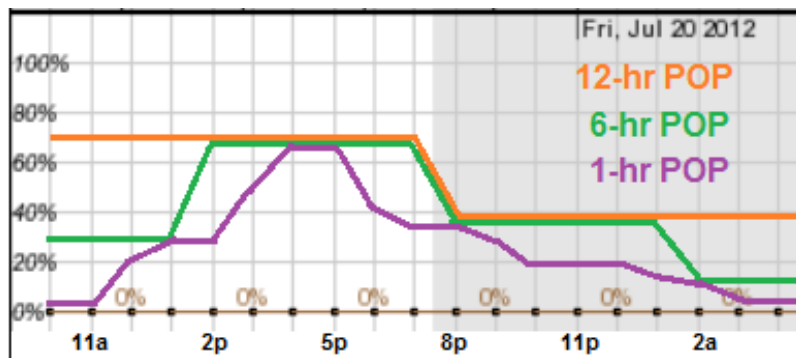
In addition to Twitter, we've made some changes to our webpages. For example, at the bottom of our [homepage](#), we now provide Georgia weather history for each day of the year. If you are interested in weather history, you can now graphically see how our temperatures and precipitation for each day during the current year compare to average and record values for the corresponding day. This can be viewed via the [Yearly Climate Graphs](#) link of the left hand side of our [homepage](#). In 2012, we also began providing a way to graphically view [observations](#) such as temperature, dew point, relative humidity and wind data across the entire state of Georgia. This graphical format has proved to be much easier to review observation data as opposed to the text format previously provided. One other significant change we made last year was to introduce a new

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2012 Public Program Review

By, *Trisha Palmer,*
General Forecaster

In 2012, WFO Peachtree City made some significant changes to how we complete our forecasts. First was the realignment of shift duties from an “aviation”/“public” concept to a “short-term”/“long-term” concept. This was done primarily to ensure consistency between products, specifically, the short-term public and aviation forecasts. This also freed up the former “public” forecaster to focus on additional decision support services, namely the increase in graphical products that our office is producing. Additionally, we began a paradigm shift when it comes to our near-term forecast, concentrating on grids produced every hour. Specifically, this was to add usefulness to our Probability of Precipitation (PoP) and related Weather (Wx) forecasts. Up until 2012, we produced PoP and Wx grids in 6-hourly blocks of time. We have already received positive feedback on our hourly PoP/Wx forecasts especially as it comes to decision support – this of course can range the gamut from a significant hazardous spill to an individual’s question of what time it might rain this afternoon.



Comparison of 12-hr, 6-hr, and 1-hr PoPs on a sample graphic from the www.weather.gov/atlanta point and click forecast. Specifically, note the substantial improvement in information relayed by using 1-hr PoPs versus the longer time periods.

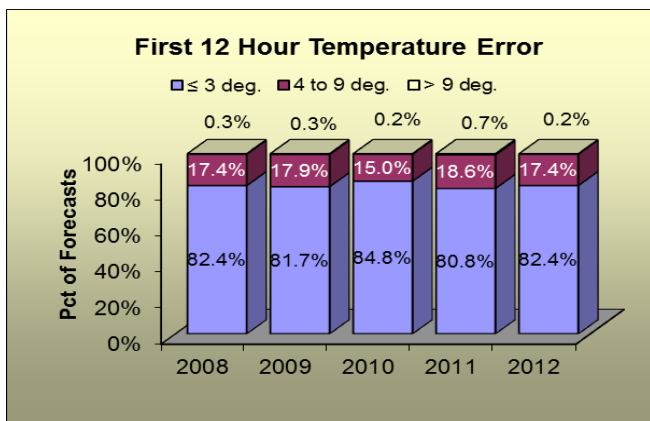


Chart showing combined distribution of first period (first 12 hours) forecast temperature errors for Atlanta, Athens, Rome, Macon, and Columbus.

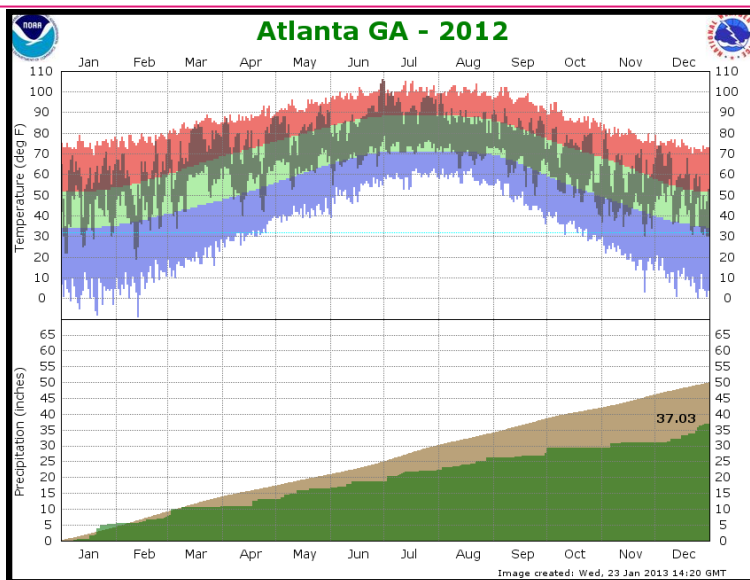
However, because of the extra workload added to the former aviation desk, we expected that there might be a temporary decrease in forecast skill as we got used to the adjustment in shift duties. For temperatures, we were pleasantly surprised to see that while the computer guidance we used did indeed suffer this year (which of course has absolutely nothing to do with our internal shift duty alignment!), the forecasts that we produced actually improved in skill over those in 2011. For precipitation (PoP), we are no longer comparing apples to apples: our focus shifted to producing hourly PoP values, yet verification is still performed in 12-hour blocks. Because of this discrepancy, our official verification did indeed decrease slightly in skill from 2011, but the improvement in “usefulness” of our forecasts far outweighs the slight decrease in “official” skill.

Web Services *(continued)*

web-based format to submit damage reports. You can now use the [Submit a Storm Report](#) webpage to submit any damage reports or snowfall amounts.

2013 has even more changes in store for our web services. Already this year, we began providing weekly weather briefings each Thursday that are accessible via the banner at the top of our [homepage](#). In addition, we joined YouTube recently, allowing us to post our weekly video briefings to this avenue.

Photo to the Right: An example of the yearly climate graph for Atlanta in 2012 is shown. This depicts the temperature and precipitation for each day compared to normal and record values.



2012 Student Volunteer Program

*By, Trisha Palmer & Laura Belanger,
General Forecasters*

The Student Volunteer Program continues to grow and remain very active. This spring we welcomed our 100th volunteer student since we began keeping records in 2002, and as of March, our volunteers have logged over 13,000 hours! Currently, we have a total of nine active volunteers:

Undergraduate

- 3 from Georgia Tech
- 1 from University of St. Thomas in Minnesota
- 1 from North Georgia College and University

Graduate

- 1 M.S. student from Georgia Tech
- 1 Ph.D. student from UGA

High School

- 2 students, one participating in a for-credit Work-Based Learning program

All volunteers are exposed to at least some of the forecast and warning operations, with varying levels of exposure based on the volunteer's experience level, and all complete a project of some sort, working with one of our forecasters. Some of the projects and studies this semester include: temperature "busts" associated with cold air damming; fatalities due to hypothermia; a new Threats-In-Motion warning concept; and comparing forecast to observed snowfall amounts in the northeast mountains during Winter Weather Advisories. The Georgia Tech undergraduate students are participating in a course for credit called Practical Internship, where they spend two weeks shadowing forecasters and the remainder of the semester working on a project with an associated paper and presentation. In the past, students who have participated in this course have gone on to present their results at meteorological conferences.

If you are a student or know of one who is interested in being a volunteer at our office, you may contact our Student Volunteer Program Coordinators, Trisha Palmer (Trisha.Palmer@noaa.gov) and Laura Belanger (Laura.Belanger@noaa.gov), to inquire about an application package.

April Haneklau, one of our Georgia Tech Practical Internship students from fall 2012, helps with the Student's Day event held on October 27,



NWS Peachtree City Strives to Incorporate Social Science into Weather through the Atlanta Integrated Warning Team

*By, Jessica Fieux,
General Forecaster*

The Atlanta Integrated Warning Team (IWT) is a group made up of folks from the local National Weather Service (NWS), local, state and federal emergency managers, local and national media, and social scientists designed to discuss severe weather challenges. This group strives to try new ways to get the public to protect themselves from severe weather. The second IWT workshop was held in March 2012 at the Gwinnett County Emergency Operations Center and focused on tools to understand the characteristics and vulnerabilities of a community, surveying populations after an event to better understand each person's actions and the effective use of social media. Based on relationships developed in 2011, the 2012 workshop heavily involved the Centers for Disease Control and Prevention (CDC). In particular, the CDC presented their initial results from a survey on the fatalities and injuries associated with the April 27th tornadoes in Alabama.

In addition to the workshop held in March 2012, Social Scientist, Dr. Laura Myers, conducted a one-day workshop in May with NWS officials, local emergency managers, and the media at the National Weather Service in Peachtree City. The workshop focused on using the Integrated Warning Tool, a tool designed to assist all emergency planning stakeholders in defining

(Continued Next Page)

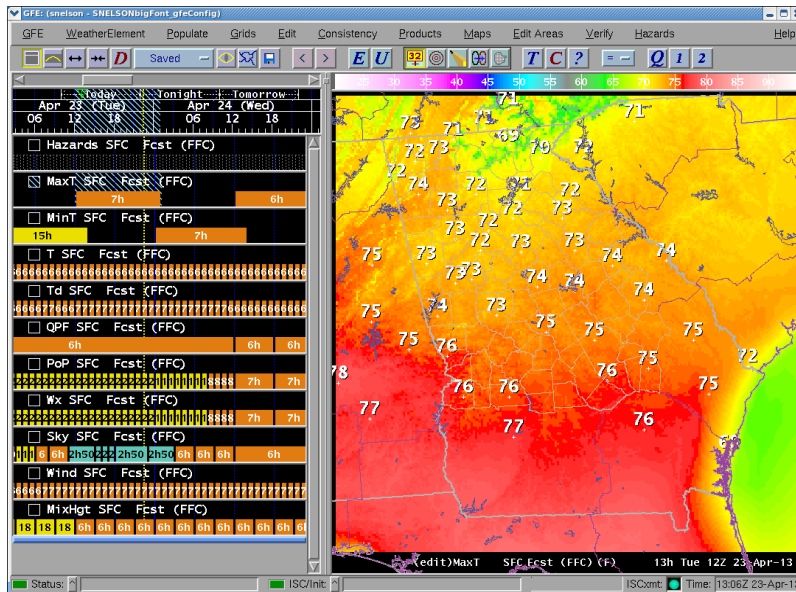
Graphical Forecast Editor

*Trisha Palmer,
General Forecaster*

The Graphical Forecast Editor (GFE) is the software used by National Weather Service offices to prepare the forecasts. In GFE, forecasters can graphically manipulate data, which the software then turns into the text products that our users are familiar with. Long gone are the days when forecasters would sort through sheets of printed computer guidance bulletins to decide on a high and low temperature for different groups of counties. Now forecasts are produced on a graphical grid, with each grid point spanning approximately 1.6 miles. This allows unprecedented accuracy to specific point forecasts that are now commonly found on our website (www.weather.gov/atlanta).

Every weather element that we forecast is done through GFE. That includes the typical elements such as high and low temperatures, dewpoints, relative humidity, sky cover, probability of precipitation (PoP), weather type, wind, and wind gusts, but also some elements that are specific to certain users, such as aviation (e.g., ceilings and visibility) and fire weather (e.g., 20-ft winds, transport winds, and dispersion). Most of these elements are actually derived from other elements by using what we call “smart tools” – specific pieces of computer code that perform certain calculations. For example, relative humidity is not specifically forecast, but rather derived from temperature and dewpoint using an equation. Hourly temperature forecasts are typically derived from high and low temperatures by applying a climatological diurnal curve (i.e., it is warmer in the afternoon and cooler overnight).

Especially with the recent adjustments to our shift duties into a short-term/long-term paradigm with more focus on decision support, GFE has allowed our forecasters to manipulate the grids in ways that were not necessarily envisioned even five years ago. This is particularly applicable as we manipulate hourly PoP and weather grids to show more specific timing of weather impacts across our forecast area.



IWT (continued)

their communities' vulnerabilities and chart areas to address improving products and services. We hope to hold another workshop like this in the future.

Looking toward the future of the Integrated Warning Team, we are planning to create severe weather safety videos that the NWS, emergency managers and media can use to promote a unified safety message to the public. Although no formal workshop has been planned for 2013, we are looking at adding a winter weather focus to the team with a workshop regarding this weather phenomenon possible late this year.

Photo: Dr. Laura Myers presents the Integrated Warning Tool to the Atlanta IWT participants.



Electronic Systems

*Richard Black,
Electronic Systems Analyst*

Over the past year we have made steady improvements in our Information Technology infrastructure. Most of our major systems have gone through some sort of replacement or upgrade. This constant turnover of hardware and software allows us to compete with the ever changing weather world.

AWIPS: continues to evolve through upgrades, modifications and enhancements to become more effective and efficient in fulfilling its role as the hub technology-based forecasting tool. This fiscal year AWIPS was the recipient of several hardware upgrades. Several main processors and data servers were upgraded. AWIPS also received several software upgrades to better equip the local Meteorologist with the needed tools to produce timely and accurate forecast.

WSR-88D Radar: the Doppler radar received a few software upgrades this. Our radar still maintains an impressive availability rate of 98%.



Photo above is the AWIPS servers.

Scientific Accomplishments for 2012

*Steven Nelson,
Science and Operations Officer*

The forecast staff at the Weather Forecast Office (WFO) and Center Weather Service Unit (CWSU) participated in several exciting research projects during the last year, which advanced not only their knowledge and skills on the job, but also advanced the knowledge of the atmospheric scientific community as a whole.

Trisha Palmer, a Forecaster at the WFO, created a presentation with a team of WFO and CWSU staff for the 2012 National Weather Association (NWA) Annual Meeting in Madison, WI and at the 2013 American Meteorological Society (AMS) Annual Meeting in Austin, TX (expertly presented by Former Meteorologist-in-Charge, Lans Rothfusz). Trisha's presentation, titled "Transition to Enhanced Short Term and Aviation Grids at the NWS Atlanta Forecast Office", summarized the years of hard work by our Enhanced Short Grids Team and the WFO forecast staff and was well received by meeting attendees.

Laura Belanger, another Forecaster at the WFO, and I created a presentation on debris signatures from four weak tornadoes that were detected by our new Dual-Polarization radar. This was presented at the 2012 NWA Annual Meeting, the 2012 Southeast Severe Storms Symposium in Starkville, MS and as a national "Storm of the Month" teletraining session led by the NWS Warning Decision Training Branch in February 2012. These tornado debris signatures were the first detected by an operational, NWS dual-polarization radar.

Chip West, the Meteorologist-in-Charge at the CWSU, created two presentations with a group of WFO and CWSU employees on convective gate forecasts, which aid decision makers at the Traffic Management Unit at the FAA Control Center in Hampton, GA. The convective gate forecasts are now being made using guidance from NOAA's High-Resolution Rapid Refresh model and displayed in an advanced web page with a Google Map interface. In Chip's absence, these oral presentations were given by Lans Rothfusz at the 16th Conference on Aviation, Range and Aerospace Meteorology at the 2013 AMS Annual Meeting.

I was fortunate to present research on tornado warning verification based on the convective environment and mode of the tornadic storm at the 26th Severe Local Storms Conference in Nashville, TN in November 2012. The results of the research, conducted by Jerry Brotzge, a Senior Research Scientist at the Center for Analysis and Prediction of Storms, were that tornadoes from supercells and from favorable environments (high CAPE and Significant Tornado Parameter values) are much more likely to be warned with greater lead time than from low CAPE environments and linear storm modes. This research will be published in the AMS Weather and Forecasting Journal later this year.

All these accomplishments were in addition to our continued mentoring of area University and High School students, who research local problems as part of their appointment. From Georgia Tech alone, about eight Senior Undergraduate and Graduate students per year complete a research project, supervised by myself and several of the WFO staff. Recent research by students has been very interesting. Their research and that of our WFO and CWSU staff has certainly led to improvement of our forecasts and warnings. See for yourself, at <http://weather.gov/Atlanta/?n=research>.