Volume 11, Issue 1

March 2012

Shareholders' Report 2011

National Weather Service • Weather Forecast Office • Peachtree City, Georgia

Big News Items of 2011

In Fiscal Year 2011, Congress appropriated $998,245,000 to the NWS which equates to an "investment" of $3.20 per U.S. resident.

This Shareholders' Report provides an accounting of what the NWS office in Peachtree City is doing with its portion of your investment.

Inside this issue:

Linking Social and Physical Sciences to Save Lives

Lans P. Rothfusz
Meteorologist in Charge

Her question was fair. "What did you learn from the extreme weather events of 2011?" The moderator was asking me and my fellow workshop panelists to share our lessons learned from the events we experienced. What had I learned from the April 27 tornado outbreak in Georgia? An event where 14 people died from tornadoes despite a well-advertised event with lead times well over 24 minutes? My frustration overcame me and I blurted, "I didn't learn a bloody thing!" I obviously stunned the audience, so I explained how on April 28th, I stood in yet another debris field and watched yet another scene of shocked people picking through rubble and weeping over lost loved ones. Because it was a scene I had witnessed often in my career, I just couldn't say I had learned anything new.

EF4 tornado damage in Catoosa County, GA after the April 27th outbreak. Four fatalities occurred in this area.

But maybe we have learned something. Maybe we've finally learned that technology and physical sciences can only go so far without integrating social sciences! Our profession is at the brink of some important changes in this regard. I am proud our office is at the forefront of this "next wave" in warning improvement. We initiated Georgia's first-ever "Integrated Warning Team" (see p. 13) and are collaborating with social scientists to better understand human behavior during severe weather. Our aim is to change the outcome of weather disasters so the scene I described above becomes a rarity. Read on, shareholders, to learn how we've applied your "invested" tax dollars toward that outcome. ☼

Severe Weather 2011

Robert Beasley & Laura Belanger
Meteorologists

The year 2011 will best be remembered for the devastating, historic tornado outbreak of April, including the first EF4 within our County Warning Area (CWA) since 1994. This outbreak, along with other severe weather events during the spring and late fall, contributed to 21 fatalities, the highest ever for our area in one year. Five major severe weather events occurred in April alone, culminating with the historic April 27-28th tornado outbreak. While the late April tornado outbreak resulted in 14 deaths and millions in property damage, an April 4-5th squall line event impacted every county in our area with damaging wind events, some resulting in fatalities.

Thirty-two tornadoes affected 55 counties, just below our CWA's highest-ever tornado total of 38 and 34 in 2008 and 2009, respectively. The 16-year tornado average for WFO FFC is only 15. Only one of these 32 tornadoes was tropical-storm related.

April was clearly the most active month of the year with 236 severe events, of which 40 were tornadoes and 145 were thunderstorm wind events. As with the past several years, June proved to be one of the most active severe weather months of the year, coming in second place for 2011 with 114 severe convective events. March was third with 92 events. Several other months saw in excess of 30 severe convective events, including February, May, July, August, and September. January was the only month during which no

(Continued on page 3)

Top 25 North and Central Georgia Weather Events for 2011

	Date	Counties	Cause	Damage	Deaths	Injuries	Cost
1	27-Apr	Catoosa	Tornado	Major devastation occurred in Ringgold when an EF4 tornado damaged 80-90 damaged homes and commericial businesses, and downed hundreds of trees and power lines. Eight fatalities and 30 injuries reported.	8	30	25.00M
2	27-Apr	Dade	Tornado	An EF3 tornado destroyed dozens of homes and several apartment and commerical buildings. Deaths and injuries mainly occurred in Trenton.	2	25	20.00M
3	27-Apr	Lamar	Tornado	An EF3 tornado destroyed several homes, a gas station and a church. Two fatalities and 12 injuries occurred.	2	12	10.00M
4	27-Apr	Spalding	Tornado	An EF3 tornado overturned and destroyed a mobile home, killing two people. In total, 400 structures were damaged, 45 of which were completely destroyed.	2	0	25.00M
5	4-Apr	Butts	Tstm Wind	More than 100 trees were down across the county. One large tree fell on a home in Jackson killing a 34-year old man and his 4-year old son.	2	0	0.20M
6	26-May	Fulton	Tstm Wind	Two women in their 60s died when a large tree fell on their vehicle on West Paces Ferry Road. A large tree also fell on a UPS truck, setting it on fire.	2	0	0.10M
7	5-Apr	Dodge	Tornado	An EF2 tornado completely destoryed a double-wide mobile home, killing a 45-year old man and injuring two others.	1	2	0.15M
8	18-Jun	Bibb	Tstm Wind	A 55-year old Marietta woman died when a large tree fell on her vehicle while traveling along Powers Ferry Road.	1	0	30.00K
9	16-Nov	Forsyth	Tstm Wind	A 51-year old male died when a tree fell on his SUV on Brookwood Drive.	1	0	20.00K
10	5-Apr	N. Fulton	Strong Wind	A 22-year old male died when a large tree fell on his vehicle while traveling on West Marietta Street near Georgia Tech.	1	0	0.00K
11	27-Apr	Bartow	Tornado	An EF3 tornado completely destroyed 40 homes and several chicken houses, and caused minor damage to 240 others. Twenty-five injuries were observed.	0	25	15.00M
12	27-Apr	Walker	Tornado	An EF2 tornado completely destroyed 7 homes, and caused severe damage to dozens of others. Twenty-five injuries were observed.	0	25	5.00M
13	27-Apr	Monroe	Tornado	An EF2 blew 3 tractor trailers off the Interstate 75, destroyed 4 homes, and caused minor to major damage to 44 others. Ten injuries were reported.	0	10	5.00M
14	27-Apr	Troup	Tornado	An EF2 tornado destroyed 12 homes, damaged 41 other structures, and downed thousands of trees and power lines. Six injuries resulted.	0	6	10.00M
15	27-Apr	Floyd	Twtm Wind	Thunderstorm winds downed 300 trees. Injuries resulted when trees fell on a vehicle and on a home. Winds damaged 157 homes and 13 businesses.	0	4	20.00M
16	27-Apr	Floyd	Tornado	An EF2 tornado completely destroyed one home, caused moderate damage to several others. Four injuries occurred at damaged homes.	0	4	5.00M
17	22-Dec	Floyd, Bartow, Gordon	Tornado	An EF0 tornado strengthened to EF3 just south of Calhoun where a home was completely destroyed, and 4 accupants sustained injuries. Many other homes were damaged and numerous trees were downed along the path.	0	4	0.65M
18	22-Dec	Floyd	Tornado	An EF2 tornado damaged 20 homes, and downed numerous trees and power lines. Three people sustained minor injuries in one damaged home.	0	3	2.25M
19	16-Nov	Harris and Talbot	Tornado	An EF2 completely destroyed 2 homes, damaged 68 other structures, and downed hundreds of trees. A couple sustained injuries when their mobile home was damaged.	0	2	5.00M
20	5-Sep	Cherokee	Tornado	An EF1 tornado caused extensive damage to 600 homes, 6 apartment units, 20 businesses, 3 churches and the Dixie Speedway. One injury was reported.	0	1	17.00M
21	27-Apr	Heard	Tornado	An EF1 tornado uprooted thousands of trees, and caused damage to a horse trailer and 15 structures. One injury was observed.	0	1	1.50M
22	27-Apr	Lumpkin	Tornado	An EF2 tornado downed thousands of trees and powerlines, and caused damage to 14 homes. One injury was reported at one of the damaged homes.	0	1	0.75M
23	4-Apr	Henry	Tstm Wind	Fourteen homes were damaged from downed trees. At one of the affected homes, an injured person was trapped and had to be extricated.	0	1	0.50M
24	28-Feb	Cherokee	Tstm Wind	Fifteen homes were damaged by downed trees. A middle-aged female was injuried at one of the badly damaged homes.	0	1	0.50M
25	25-Apr	Muscogee	Tstm Wind	Over 100 mature trees were either uprooted or split, destroying several mobile homes and fences. Two injuries occurred at a crushed mobile home.	0	1	0.35M

Severe Weather 2011 (cont.)

(Continued from page 1)

severe convective events were observed

A winter storm crippled metropolitan Atlanta and much of north Georgia the second week of January, with three to eight inches of snow and sleet. Several successive days of subfreezing temperatures prolonged the event and shut down much of north Georgia for a week.

Overall, 524 severe convective events were recorded during the year, up considerably from 210 events in 2010 and well above the the 16-year average of 418. There were only 13 flash flood events, safely below the average of 45 and well below the record number of 81 recorded in 2009. The number of severe convective events was 125% of the 16-year WFO FFC CWA average of 418. The 2011 seasonal breakdown and 16-year normal values are as follows: January - March (90/67), April - June (346/227), July - September (60/103), October - December (28/25).

Deaths and Injuries

Twenty-one weather-related fatalities were recorded during 2011. All but six of these were the result of tornadoes. Fourteen tornado-related deaths occurred during the April 27-28th outbreak alone. Of the others, five were caused by thunderstorm winds, again mostly in April, and one from "strong wind," also in April. Considering the excessive amount of severe thunderstorms, it was quite unusual to not have any lightning-related deaths, perhaps attributable to the below-normal thunderstorms in July and August, when many lightning-related deaths tend to occur. All but 10 of the 161 injuries observed were the result of tornadoes, again nearly all of which occurred during the April 27-28th outbreak.

Property Damage

Weather-related property damage in 2011 ($258.16M) was the third highest total for our area, trailing 2009 and 2008 with $362.94M and $261.78M, respectively. Sixty-five percent, or $168.02M of these damages were tornado-related. Other damages included hail ($45.08M), thunderstorm wind ($39.14M), and lightning ($5.19M). One-hundred-two weather-related events in 2011 caused monetary damage in excess of $250,000, a dramatic increase from the 31 of 2010. Tornadoes contributed to 37 of these events. Finally, a persistent long-term drought caused an estimated $100M+ in crop damages throughout north and central Georgia. ☼

2011 Deaths and Injuries		
Event	Deaths	Injuries
Tornado	15	151
T-storm Wind	5	9
Hail	0	0
Lightning	0	1
Flash Flood	0	0
Flood	0	0
High Wind	0	0
Strong Wind	1	0

2011 Weather-Related Damage	
Phenomenon	Losses
Tornadoes	$168,020,000
Hail	$45,080,177
Thunderstorm Winds	$39,142,500
Lightning	$5,189,250
Heavy Rain	$501,000
Flash Floods	$122,000
Wild Fires	$46,000
Strong Winds	$44,000

Special Feature: A Wicked April

Verona Murrell
Senior Forecaster

April 2011 was marked by several rounds of severe weather. A strong squall line moved across the state the afternoon of April 4 and into early morning April 5. Wind gusts up to 70 mph were common along this line of thunderstorms as it traveled across our entire CWA. This system produced four tornadoes as it moved through north and central Georgia; two EF1 tornadoes, one EF0, and an EF2. The EF2 caused one fatality and two injuries near Eastman in Dodge County.

A deep, slow-moving, upper trough swept into the southeast on April 15 and 16, bringing a strong cold front and a line of severe thunderstorms. These storms produced two EF1 tornadoes and one EF0 tornado. There were no deaths or injuries with these tornadoes as they moved through Harris, Chattahoochee, and Bibb counties. Property damage however, amounted to over 2.25 million dollars.

The next event to affect Georgia occurred on April 27th and into the early morning of the 28th. A highly unstable and unseasonably warm air mass was in place over the Southeast during that time. This outbreak has been termed the 2011 Super Outbreak and was even worse than the 1994 and 1974 super tornado outbreaks across the eastern U.S. With this event, there were 15 tornadoes affecting 28 counties within our CWA. One of these tornadoes was an EF4 – the first EF4 in Georgia since the Palm Sunday outbreak in 1994. There were seven fatalities and 30 injuries associated with this tornado as it moved across Catoosa County around 8:15 p.m. on April 27th. Three EF3 tornadoes also occurred with this outbreak. The first affected Dade and Walker counties, moving across the state line from Alabama. There were two fatalities and 50 injuries with this storm. Two other EF3 tornadoes occurred that evening and into the early morning, affecting seven counties and injuring six people. Nine counties were affected by EF2 tornadoes with this outbreak, causing eleven injuries. Ten counties were affected by EF1 tornadoes. Dade County was struck by three tornadoes on the 27th, one in the morning and two in the evening. Overall, the tornado outbreaks of April 2011 caused 15 deaths, 141 injuries, downed tens of thousands of trees and caused over $140 million in property damage. ☼

Tornadoes in Peachtree City NWS Forecast Area in 2011

Date	County	Location	Strength	Path Length (mi)	Path Width (yds)	Deaths	Injuries	Damage
26-Mar	Sumter, Crisp	2.3 SSE Flintside - 3.1 SW Coney	0	0.4	200	0	0	30.00K
26-Mar	Laurens	1.8 W Brewton - 1.7 E Brewton	1	3.5	500	0	0	0.25M
04-Apr	Gilmer	2.29 NNW Roundtop - 1.9 NW Ellijay	1	2.6	880	0	0	1.00M
04-Apr	Gilmer	2.4 NW Elders - 1.5 W Ratcliff	0	1.8	880	0	0	0.50M
05-Apr	Bibb	2.6 WNW Walden - 1.9 S Skipperton	1	1.1	50	0	0	0.30M
05-Apr	Dodge	3.3 WSW Dubois - 0.2 WNW Dubois	2	3.1	50	1	2	0.15M
15-Apr	Harris	0.8 ESE Kingsboro - 1.2 ESE Kingsboro	0	0.4	50	0	0	5.00K
16-Apr	Chattahoochee	1.8 S Ochillee - 1.9 SSW Ochillee	1	0.3	50	0	0	0.25M
16-Apr	Bibb	0.6 SSE Rivoli - 2.5 SE Arkwright	1	3.5	500	0	0	2.00M
27-Apr	Dade	1.2 ENE Gass - 1.3 W Hooker	1	9.9	100	0	0	1.00M
27-Apr	Dade, Walker	1.8 WSW Gass - 0.8 ENE Spencer Hills	3	19.3	1056	2	50	20.00M
27-Apr	Dade	1.6 W Sulphur Springs Station - 1.1 NNW Rising Fawn	1	3.0	100	0	0	0.15M
27-Apr	Catoosa	2.4 E Blue Spring - 4.3 NNE Post Oak	4	10.7	586	8	30	25.00M
27-Apr	Polk, Floyd, Bartow	3 WNW Hematite - 1.9 ESE Wooleys	2	26.0	880	0	4	12.25M
27-Apr	Bartow, Cherokee, Pickens	1.7 NW Cassville - 1.6 E Hinton	3	23.0	880	0	25	23.35M
27-Apr	Lumpkin, White	1.3 WSW Walnut - 5.9 NE Cleveland White Aprt	2	17.8	440	0	1	0.85M
27-Apr	Troup, Herd, Coweta	0.8 NW Buena Vista - 5.5 NNW Grantville	1	17.0	100	0	1	1.80M
27-Apr	Troup	2.9 E Cannonville - 1.6 SE Knott	2	6.7	440	0	6	10.00M
27-Apr	Harris, Meriwether, Upson	Hog Gap - 1.2 SE Thunder	2	24.5	1320	0	0	8.50M
27-Apr	Meriwether, Spalding, Henry	0.3 S Alvaton - 1.8 SSE Hampton	3	21.7	880	2	0	25.40M
27-Apr	Pike, Lamar, Monroe, Butts	1.7 S Clearwater Springs - 2.0 SE Cork	3	30.8	1056	2	22	15.04M
28-Apr	Newton, Morgan, Greene	0.9 SW Newborn - 1.2 ENE Greshamville	1	25.2	880	0	0	8.15M
28-Apr	Putnam, Hancock	0.4 ESE Flat Rock - 6.2 NW Sandy Run	1	6.7	200	0	0	1.02M
28-Apr	Warren	3.5 SW Norwood - 1.4 NE Camak	1	7.8	440	0	0	1.00M
05-Sep	Cherokee, Pickens	2.7 WSW Woodstock - 2.4 NNW Marblehill	1	28.4	440	0	1	20.00M
16-Nov	Harris, Talbot	3 WNW Bartlett's Ferry Lake - 1.4 ENE Tax	2	28.1	880	0	2	5.01M
22-Dec	Floyd	0.5 ESE Coosa - 2.2 E Alto Park	2	12.7	200	0	3	2.25M
22-Dec	Floyd, Bartow, Gordon	3.2 E Pinson - 1.8 WNW Big Spring	3	11.4	880	0	4	0.65M
22-Dec	Gilmer	4.2 WNW Carlisle - 3.2 WSW Roundtop	1	1.5	300	0	0	0.08M
22-Dec	Coweta	1.5 WSW St. Charles - 0.3 NW St. Charles	1	1.1	100	0	0	0.15M
22-Dec	Fayette	0.9 NW Woolsey Aprt. - 1.8 ESE Woolsey	1	1.6	100	0	0	0.03M
22-Dec	Fayette	1 NW Lee's Mill - 2.6 ENE Lee's Mill	0	2.9	200	0	0	0.03M

Administration & Staffing

Deborah Connell
Administrative Support Assistant
Lans Rothfusz
Meteorologist in Charge

Administrative activities kept on an even keel this year, with few major changes seen. Staffing was also rather stable, with only a few personnel changes in 2011. Mr. Kevin McConnell arrived from Syracuse, Indiana to fill the vacancy left by the retirement of Mr. Barry Brodnax's at the end of 2010. As mentioned in the Cooperative Observer Program section, Mr. Frank Taylor retired after nearly 37 years of Federal service. His replacement, Mr. George Wetzel of Grand Rapids, Michigan, was selected at the end of 2011 and reported for duty the first week of 2012. ☼

2011 General Weather Overview: Hot and Cold Extremes

Paul Denault
CWSU Meteorologist

As was the case for much of the country, Georgia experienced its share of extreme weather in 2011. A mild early January was dramatically reversed by an arctic outbreak on the 8th, followed by a record setting winter storm on the 9th-10th. This system tracked across the northern Gulf dumping 8.8" of snow on Athens, while Atlanta received a wintery mix totaling 4.4". For Athens, it was a record snowfall from a single storm. Colder than normal temperatures dominated, as monthly averages ranged from 39.7°F in Athens to 43.6°F in Columbus, which represented departures of -2.5° and -3.2°, respectively. However, the cold, dry air masses led to precipitation deficits in all four cities, as Atlanta received just over half their normal amount.

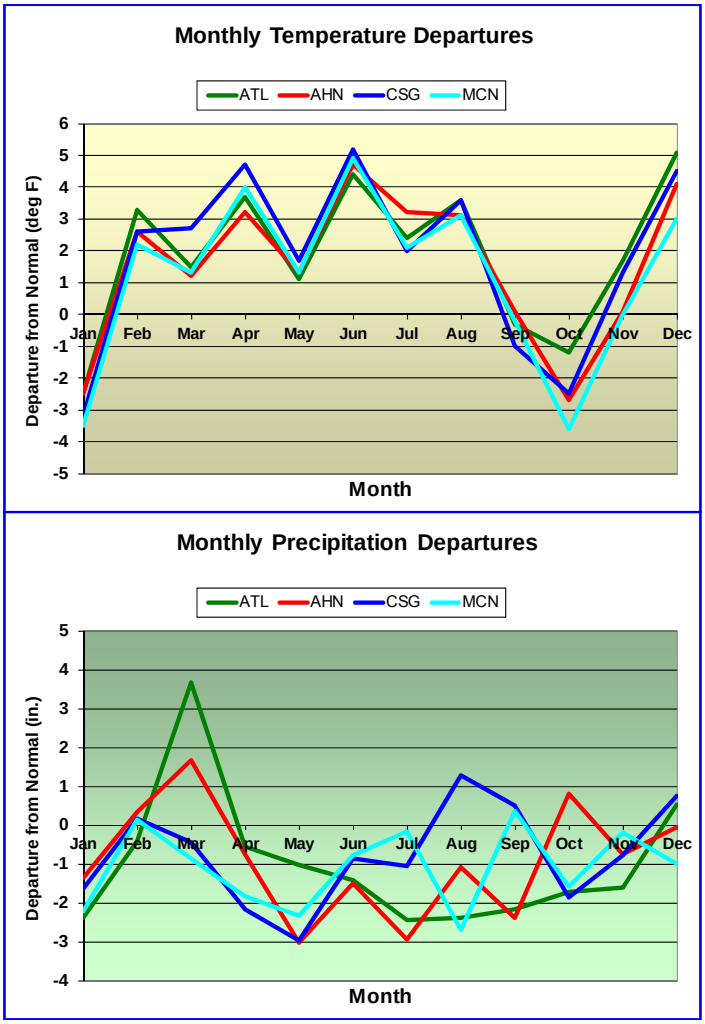
Below average temperatures continue into February, but rebounded remarkably to daily averages 14-18 degrees above normal after mid-month. This mild spell with record highs on the 19th (80°F) and 22nd (79°F) in Columbus contributed to above normal monthly readings in all four locations. Departures ranged from +2.2°F in Macon to +3.3°F in Atlanta. On the 4th, moist air combined with a stalled front resulted in daily rainfall totals between 1.38" in Atlanta and 2.54" in Macon. By the month's end, only Atlanta showed a deficit with -0.43". Unseasonably mild conditions continued through March, as the four sites again posted above-average departures. Although Columbus and Macon recorded rainfall deficits of 0.45" and 0.87", respectively, Atlanta and Athens were well above their averages. An inch or more fell on five separate days in the capital, and on three days in Athens. Monthly precipitation of 9.06" in Atlanta and 6.65" in Athens was 3.68" and 1.66" above normal, respectively.

In April, temperatures surged again, as departures were +3.7°F in Atlanta, +3.2°F in Athens, +4.7°F in Columbus, and +4.0°F in Macon. The excessive warmth helped fuel three severe weather events (see previous pages). However, this active pattern wasn't enough to offset a drier than normal month. Rainfall deficits ranged from -0.56" in Atlanta to -2.17" in Columbus. Drought conditions intensified in May, as Athens, Columbus, and Macon received less than an inch of rainfall. The sparse amounts reflected year-to-date deficits of -3.04", -2.97", and -2.32", respectively. Temperatures remained above normal for the fourth consecutive month, as each tallied departures of +1.1 degrees or more.

A persistent high pressure ridge entrenched over the south-central U.S. produced the second hottest summer on record for Georgia. In early June, Columbus and Macon recorded highs of 100°F or more on four and three days, respectively. Three broke records in Columbus on the 1st-3rd, and one in Macon on the 3rd. Columbus' June average of 84.4°F was their warmest on record. June through August monthly averages remained above normal with departures ranging from +2.0° to a sultry +5.2°. Rainfall deficits accompanied the summer heat in all instances, except August in Columbus where a surplus of 1.28" occurred.

Relief finally arrived in early September, as a polar front dropped daily averages to as much as 10°-15° below normal. Monthly averages in Atlanta (-0.3°F), Columbus (-1.0°F), and Macon (-0.2°F) were below normal for the first time since January. Cooler temperatures reigned again in October, as monthly departures ranged between -1.2°F in Atlanta to -3.6°F in Macon. Unfortunately, rainfall deficits dominated autumn, but were replenished slightly in December with surpluses in Atlanta (0.53") and Columbus (0.75"). ☼

"A persistent high pressure ridge entrenched over the south-central U.S. produced the 2nd hottest summer on record for Georgia."



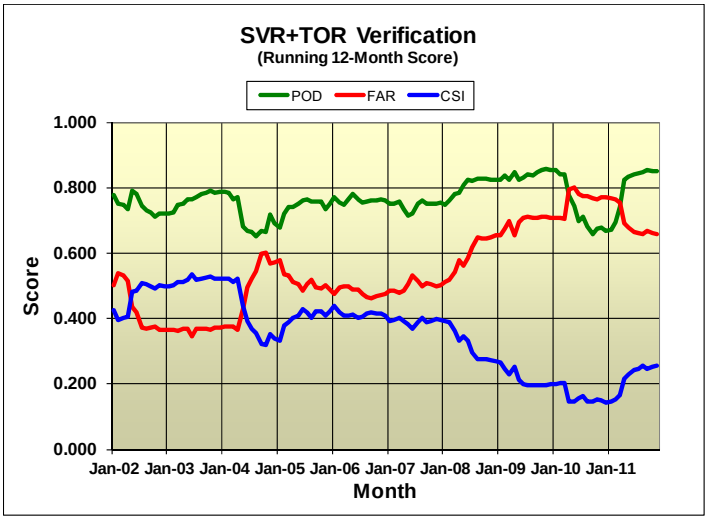
Charts showing the departures from normal for temperatures (top) and rainfall (bottom) in 2010.

"The POD, which measures the ability to issue warnings before damage occurs, increased in 2011 to 0.799 (79.9%) after a subpar 2010."

Severe Weather Performance Improves in 2011

Laura Belanger
Meteorologist

If a theme were to be assigned to 2011's Warning Operations and Performance, it might be "Stemming The Tide". The rolling 12-month graph (below) showing performance data for Severe and Tornado events indicated a disturbing trend of increased False Alarm Rate (FAR) and decreased Probability of Detection (POD) over the course of four consecutive years. Our focus in 2011 was to address the decreasing performance scores by developing and implementing new warning methodologies. One new methodology was enhanced verification techniques that targeted areas most likely to have received severe weather in the wake of a significant storm. The end result of this more robust verification effort is hoped to be a more accurate depiction of our true warning performance.



(Above) Performance statistics for severe weather warnings using a rolling, 12-month methodology. Low FAR, high POD and high CSI are desired.

	Exclusive Verification Method*			Inclusive Verification Method**
	Svr Tstm	Tornado	Flash Floods	Svr Tstm & Tornado
Warnings Issued	1565	300	32	1865
Warned Events	354	41	10	446
Unverified Warnings	1071	240	22	1227
Unwarned events	114	16	3	78
Total Events	468	56	13	524
POD	0.756	0.732	0.769	0.851
FAR	0.684	0.800	0.688	0.658
CSI	0.287	0.186	0.286	0.323
Lead Time (min.)	16.4	24.6	59.1	17.6

POD = Probability of Detection, our ability to issue warnings before damage occurs. Optimum POD is 1.00.
FAR = False Alarm Rate, the percentage of warnings not verified. Optimum FAR is 0.00.
CSI = Critical Success Index, a combination of the POD and FAR. Optimum CSI is 1.00.
Lead Time = The time between warning issuance and first damage.

*Severe Thunderstorm warnings only verified by large hail or damaging winds. Tornado warnings verified by tornadoes only. Flooding only verified by flash floods.
** Tornado warnings verified with tornadoes, large hail, or damaging winds. Tornadoes also verify severe thunderstorm warnings.

So how does an office improve verification scores through this targeted verification methodology? Simply put, we combine innovation with relentless effort to determine if the conditions we say will impact a community from a storm actually occurs. This is only year one of this new approach but from the positive changes to the trend, we are encouraged going forward. The ultimate goal is to verify warnings so consistently that the results would clearly identify needed areas for improvement in the warnings themselves. We have a great desire to infuse new science into the warning program, but we need to know our true performance first.

In 2011, NWS Peachtree City returned to a more active severe weather season, issuing 630 severe convective polygon warnings, affecting 1,865 counties. This is in contrast to 2010 when 915 counties were warned by 394 polygon warnings. The 2011 warning numbers are more than twice the 15-year average of 886 counties warned.

The POD, which measures the ability to issue warnings before damage occurs, increased in 2011 to 0.799 (79.9%) after a subpar 2010. The improvement in the POD can be partly attributed to an increase in significant severe weather events. For example, in 2011 there were 446 total convective events, in contrast to 210 in 2010.

The FAR provides a percentage of warnings not verified in comparison to the total number of counties warned. In 2010, the FAR decreased to 0.462 (46.2%) from 0.652 (65.2%) in 2010. This improvement can also be explained by the increased severe weather events but also is influenced by enhanced verification efforts.

The estimated average lead time (the time between warning issuance and the first report of damage) increased substantially from 9.0 minutes in 2010 to 17.6 minutes in 2011. This can be attributed to more substantial events such as the long track tornadoes of April 27th.

A total of 32 flash flood warnings were issued in 2011 with 10 reported events. Lead time for flash flooding also increased, with an average of 59.1 minutes between warning issuance and first damage. ☼

A Tough Year for Temperature Forecasts

Trisha Palmer
Meteorologist

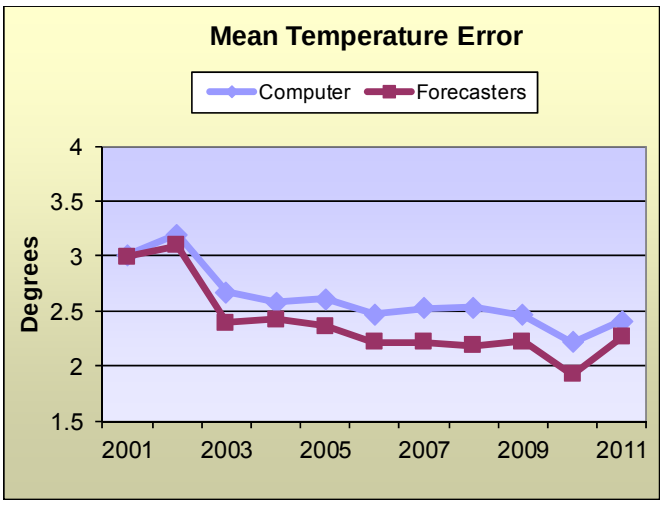
Our forecasters continue to outperform computer models, but the difficult weather patterns of 2011 led to a decrease in the accuracy of our temperature forecasts. Our 2011 temperature errors jumped to 2005 levels following several years of steady improvement. The Mean Temperature Error chart shows this running trend and the jump in 2011. Even though we improved upon computer model forecasts, the diffference between the human and model forecasts shrank this year (0.15°F) from that of 2010 (0.29°F).

What happened? Although Georgia was near average for a yearly temperature, we started off with our 13th coldest winter on record and then had our 2nd warmest summer on record. These temperature extremes illustrate part of the problem. An extremely active weather pattern dominated this spring, influenced by a strong La Niña, and resulted in multiple rounds of significant severe weather events. Also according to the NCDC's Climate Extreme Index – a variable to measure the amount of extreme weather across the U.S. or a specific region – 2011 ranked as the 4th-most extreme across the Southeast in over 40 years. Extreme and record-setting conditions are quite difficult for models and humans alike to forecast. Overall, these highly changeable weather patterns were obviously challenging for our computer model guidance, and our forecasters, to accurately capture.

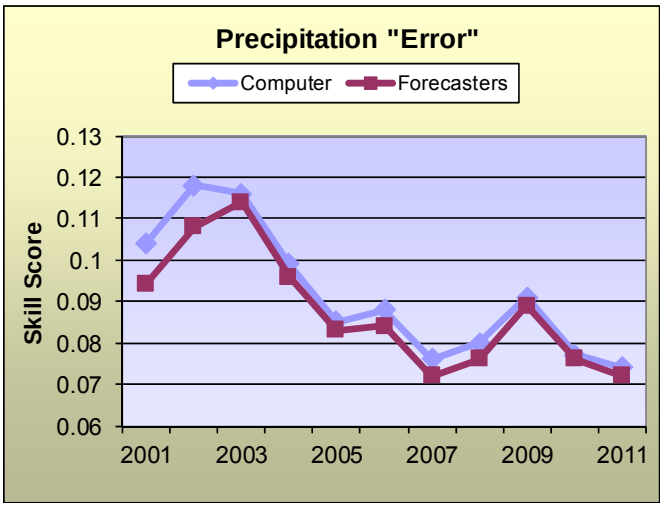
Precipitation this year was below normal, compared to more near-normal 2010. In general over the past several years, the drier the year, the better our precipitation scores have been. In 2011 we tied 2007 (a significant drought year) for our lowest precipitation error and was a marked improvement over 2009.

We also compare our forecasts to observed (actual) temperatures. Our goal is to forecast high and low temperatures within three degrees of the actual high and low. The bottom chart shows that this past year we achieved this goal almost 81% of the time for the first period of each forecast for Atlanta, Athens, Macon, Columbus, and Rome. Again, this is a decrease over last year, but we have been greater than 80% since 2008. Our temperature forecasts were perfect (0 error) over 16% of the time. We "busted" the temperature forecast (that is, our forecast was 10 degrees or more off of the actual temperature) 0.7% of the time for these five locations. This is the largest number of temperature busts since we began tracking this information back in 2003.

Clearly the forecasts issued by WFO Peachtree City continue to add significant value to what the models alone could provide. Despite a decrease in the quality of our temperature forecasts in 2011, our precipitation forecasts were one of the best we have had in years. We will continue to study model biases and trends in order to continue improving upon model forecasts. ☼



Comparison of WFO Peachtree City forecasters' temperature forecasting skill versus that of the computer models they use. Lower scores are better.



Comparison of WFO Peachtree City forecasters' precipitation forecasting skill versus that of the computer models they use. Lower scores are better.

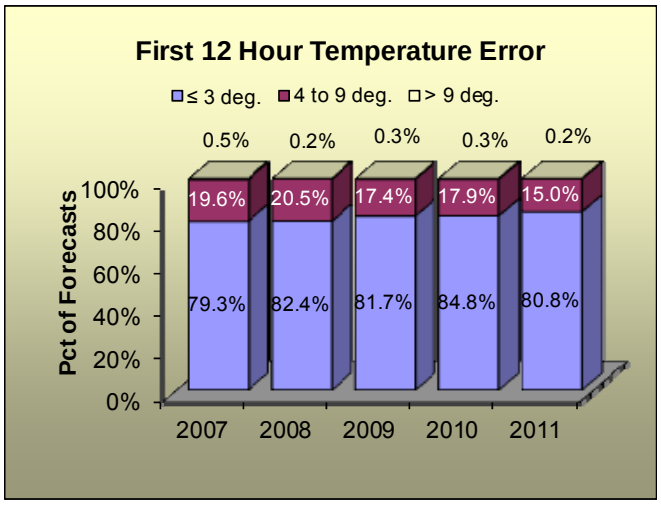


Chart showing distribution of first period (first 12 hours) forecast temperature errors for Atlanta Hartsfield-Jackson Airport.

Aviation Program Going Digital

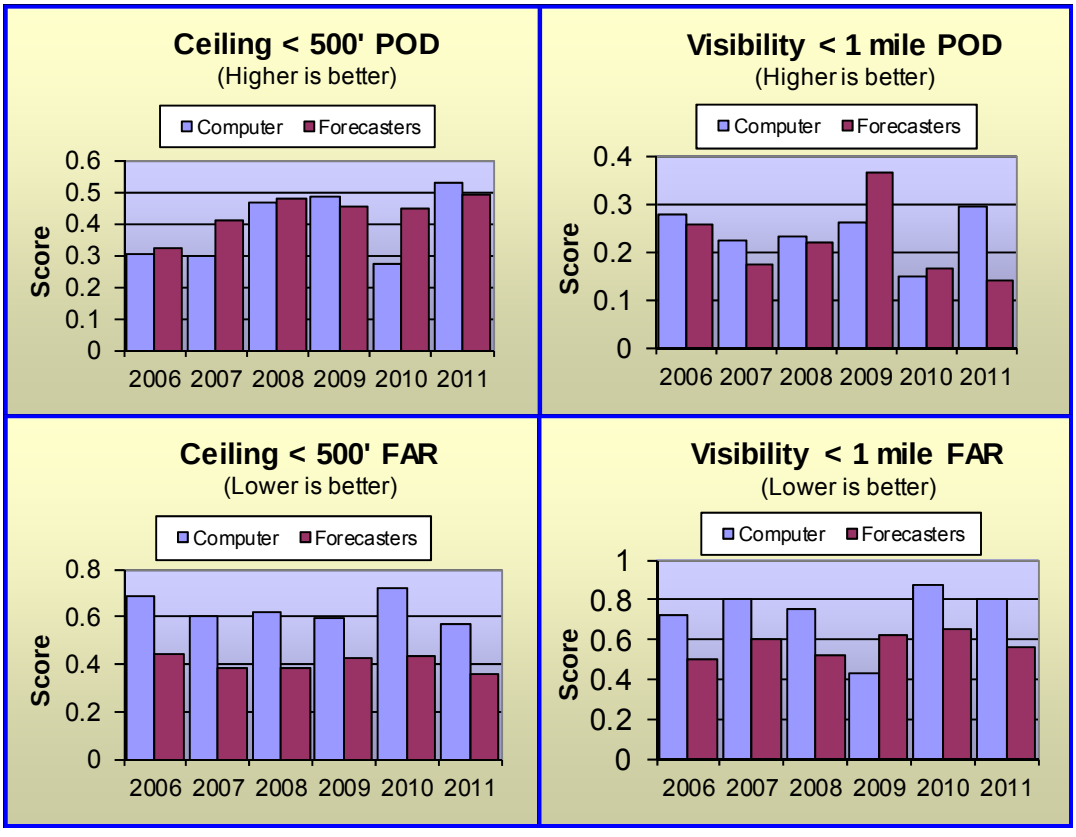
Patricia Atwell
Aviation Services Meteorologist

"In early 2011, we began 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 Peachtree City WFO Aviation program continued to improve services to our aviation partners. 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. In order to further this concept, we had several forecasters from the WFO and CWSU "shadow" forecasters from the other office in order to better understand the overall aviation program. Several forecasters from both the WFO and CWSU also visited the Atlanta Hartsfield-Jackson International tower to see first-hand how weather impacts airport operations.

For 2011, our forecasting scores improved slightly in most categories. Terminal Aerodrome Forecasts (TAFs) showed a 10% 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. Additional improvement (23%) was noted in the Low IFR category (see charts below).

In early 2011, we began 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. It also 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. As with any new endeavor, we want to do this "right." We have spent a significant amount of time researching the most accurate and efficient ways to create these new digital parameters. We look forward to completing this project by the end of 2012. ☼



Low Instrument Flight Rules (LIFR) forecast stats for the seven airports in the WFO area of responsibility. For Probability of Detection (POD), higher scores are better. For False Alarm Rate (FAR), lower scores are better.

Decision Support Expands

Matt Sena
Meteorologist

There is a well-kept secret in the world of incident support: Our office can provide important weather support to Emergency Managers, Fire Chiefs and other Incident Commanders during natural and man-made incidents and large scale public events. This support can range from localized forecasts and weather observations to small-scale modeling of plume dispersion. For more information about this, look for the Decision Support link on our office web page.

Staff members worked this year to introduce and explain our Decision Support services during several county visits with emergency managers. Several staff members attended disaster training exercises in various counties. For example, during Coweta County's Southern Heat exercise, our office demonstrated our on-site support capabilities over three days of simulated disaster situations. This was the largest exercise of its kind ever held by Coweta County and involved over twenty local, state and federal agencies and organizations.

We encourage any of our partners planning disaster drills in 2012 to contact us if you would like the National Weather Service to participate. Of course we also encourage our Emergency Management partners to contact us for support during any actual emergencies as well as large-scale public events. ☼

"We encourage any of our partners planning disaster drills in 2012 to contact us if you would like the National Weather Service to participate."

Senior Meteorologist Dan Darbe at the 2011 Southern Heat Exercise in Coweta

New Fire Weather Criteria Implemented

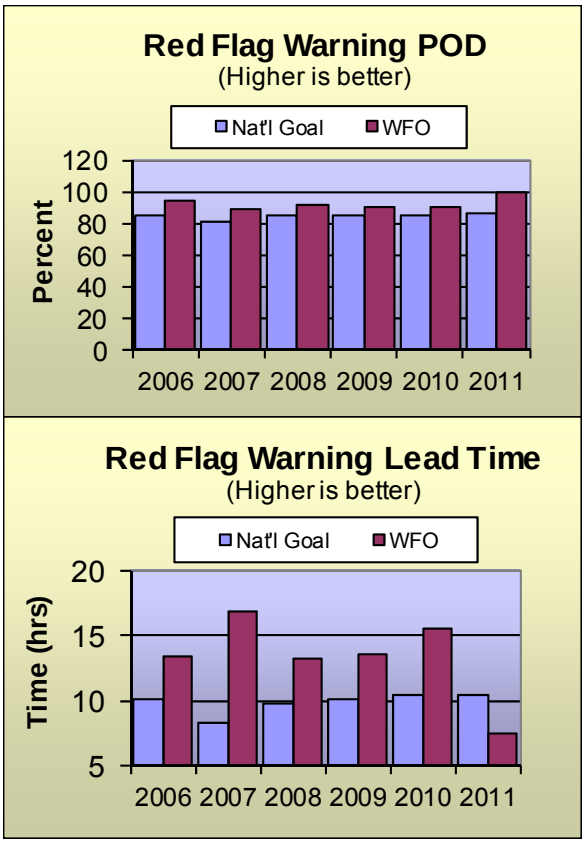
Brian D. Lynn
Meteorologist

Our office collaborated with the U.S. Forest Service and the Georgia Forestry Commission to improve fire weather services by changing Red Flag Warning (RFW) criteria. These criteria now require relative humidities 25 percent or less AND sustained surface winds 15 mph or greater (and/or frequent gusts 25 mph or greater). RFWs are issued if these criteria are met and the ten-hour fuel moistures are 6% or less. In addition, Fire Danger Statements (FDSs) are now issued to heighten awareness when low relative humidities OR winds occur along with dry fuels.

The changes in criteria dramatically reduced the number of RFWs, with only 80 counties being warned on two different days in 2011 (one in March and one in October). FDSs were issued for 42 days in 2011 – mainly March (6), April (13), May (6), October (5) and September (4). These five months represented 81% of the FDS issuances.

The RFWs verified well for the first year with new criteria. The national goals for Probability of Detection (POD) and Lead Time for 2011 were set at 87% and 10.5 hours. Our POD for 2011 was 100% (a perfect score) with an average lead time of 7.5 hours. The lead time fell short of the national goal by three hours due to the new and more difficult RFW criteria.

Finally, Brian Lynn and Kent Frantz were dispatched to Merkel, Texas for a total of 46 days in 2011 to provide weather support to the Texas Forest Service battling major wildfires there. ☼



Verification scores for Red Flag Warnings in the Peachtree City WFO area of responsibility.

Aviation Program Grows an "ARM"

"The ARM concept is the first in the nation to introduce a decision support meteorologist to the non-operational aviation community within the FAA community."

Dr. Chip West
MIC, CWSU Atlanta

The Peachtree City WFO and the Atlanta Center Weather Service Unit (CWSU), teamed together in 2011 to develop an Aviation Response Meteorologist (ARM) to help provide decision support to non-traditional aviation customers. The ARM concept is the first in the nation to introduce a decision support meteorologist to the non-operational aviation community within the Federal Aviation Administration (FAA) community. During operational testing in 2011, the ARM staffed the Atlanta Terminal Radar Approach Control (TRACON) during thunderstorm events impacting the Atlanta Hartsfield-Jackson International Airport (ATL). ARM forecasters provided the latest timing for thunderstorms that could have impacted the world's busiest airport (ATL), and addressed potential impacts at smaller airports covered by the TRACON. These forecasts also include expected wind speeds at ATL and potential impacts on gate sectors feeding into ATL.

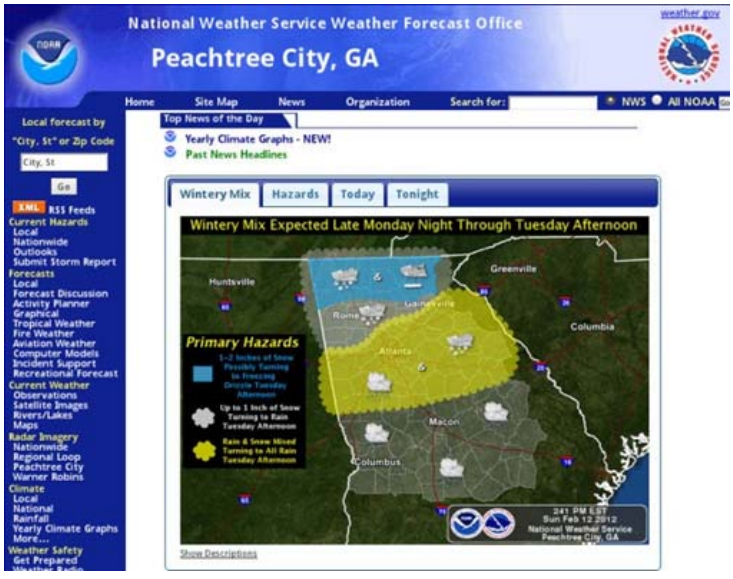
The ARM was also activated in 2011 to support the FAA's Southern and New England Region facilities during tropical events, most notably, Hurricane Irene as it moved up the East Coast. The FAA Southern Region was also briefed by the ARM during Tropical Storms Emily, Maria and Nate.

In 2012, the ARM team will continue to provide decision support to the local aviation community, and additionally work with NWS Southern Region's decision support meteorologists to expand the program nationally. ☼

A Whole New Language: "Like" Our "Graphis!"

Vaughn Smith
Meteorologist

Early in 2011, we began implementing "GraphiTabs" on the front page of our web site (see below). GraphiTabs allow us to draw maps of expected temperatures, precipitation chances, anticipated or ongoing hazardous weather, and any other relevant "weather stories." This new vehicle for communicating important weather information was a big hit with our customers.



Our office officially joined Facebook in July and it has been an overwhelming success. Facebook is a great tool for sharing forecasts, education information, outreach opportunities, and connecting with our local media and government officials. If you haven't already done so, "Like" us on Facebook and follow our news feeds.

We unveiled our recorded "web briefings" in mid-2011. These briefings are only being used when we expected a "big" weather event to occur, such as a hurricane moving on shore, a winter weather event, or a major severe weather outbreak like April 27th, 2011. These web briefings are short videos which can go into more plain-language detail than some of our other products during a particular event.

Finally, our office started working with Georgia Public Broadcasting this past year. We have done a few small projects with them, but in Decenber we worked on our biggest one yet. We decided to make a series of short videos for Winter Weather Awareness Week. Thanks to Chrissy Warrilow of GPBTV we were able to post 10 short clips. This was a huge success and we received a lot of great feedback from it. Check it out by accessing the QR code below. ☼

Hydrology: Back to (and Below) Normal

Kent Frantz
Senior Service Hydrologist

Rainfall amounts continued to decrease in 2011, with a generally drier-than-normal year across most of Georgia. This was due to a weak to moderate La Nina weather pattern during the year. Most of Georgia received only 35 to 90 percent of its normal annual rainfall. The exception was the northwest portion of the state which received 100 to 115 percent of normal.

Consequently, a severe to extreme drought expanded mainly over central and south Georgia. This also included portions of north Georgia mainly south of Interstate 85. Annual rainfall and departure amounts, respectively, for selected sites include:

Atlanta (39.23", -10.45"), Athens (37.11", -9.55"), Columbus (33.14", -12.84") Macon (39.74", -7.00").

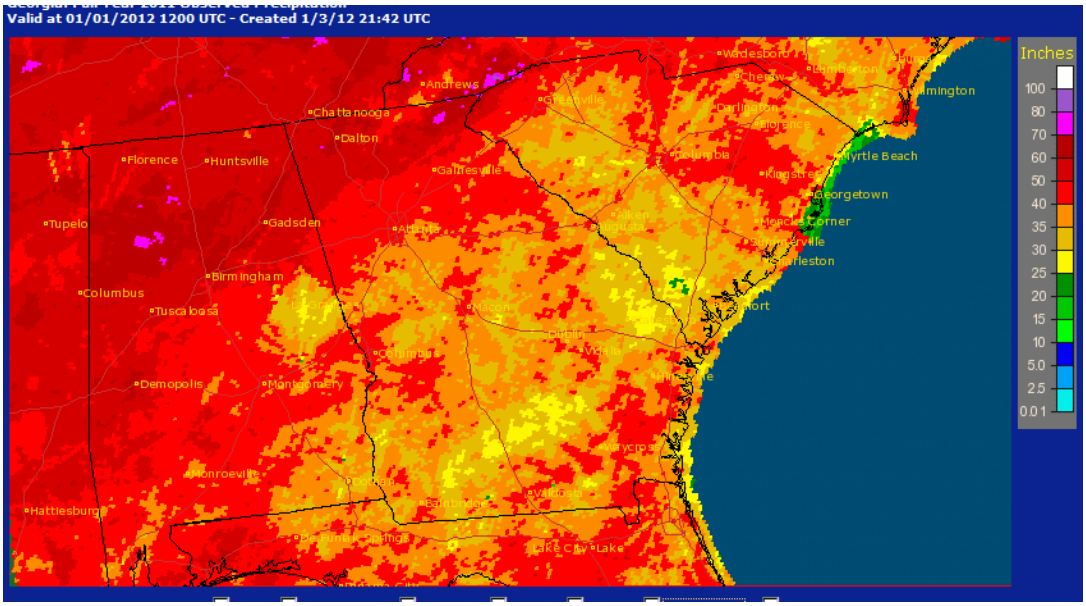
This rainfall deficit over most of Georgia caused many streams to remain at or below base flows. The lack of rain was reminiscent of the historic drought in 2007 and 2008.

It wasn't dry everywhere, though. Annual rainfall totals of 70 to 80 inches occurred on the Tennessee Valley Divide ridge line near Helen. This allowed Lake Lanier to remain around full pool in March and April. The warm season gradually took its toll and by late fall the lake level was around 12 feet below full pool.

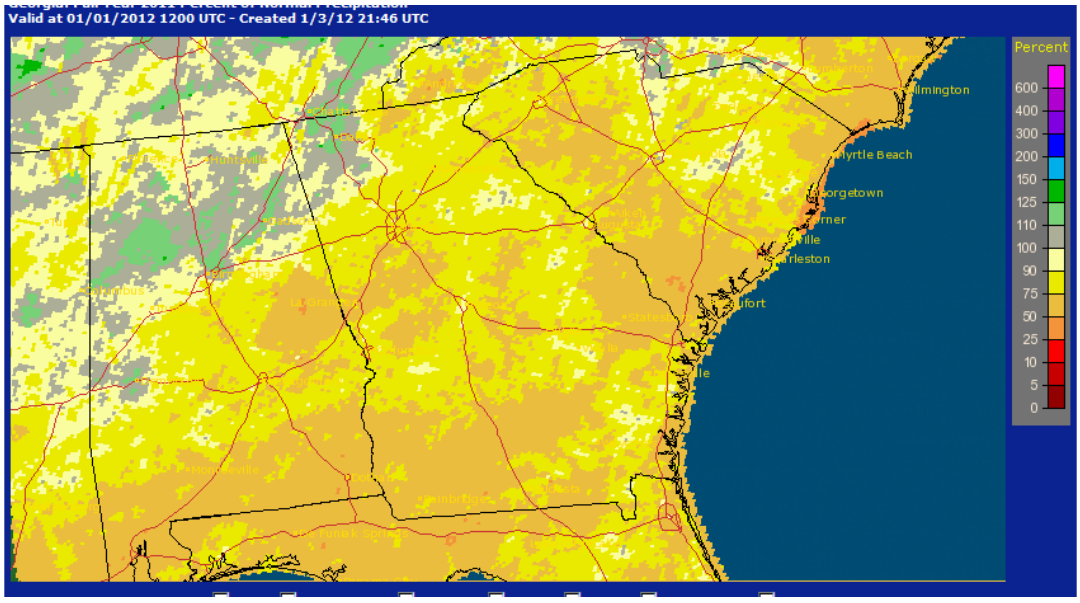
The most hydrologic-active month was March when heavy rain associated with Gulf moisture produced widespread minor flooding in northwest Georgia on the 6th through 12th. This occurred in portions of the Tennessee, Coosa, Chattooga, Tallapoosa and Chattahoochee River basins. Also the remnants of Tropical Storm Lee on Labor Day caused 5 to 10 inches of rain and widespread minor flooding in northwest Georgia as well. No significant damage was reported. ☼

Hydro Tally for 2011

26	Flood watches
15	Flash flood warnings
17	Flash flood statements
60	River flood warnings
178	Flood statements
13	Flood potential outlooks
13	Drought info statements



2011 observed precipitation percent of normal (below).



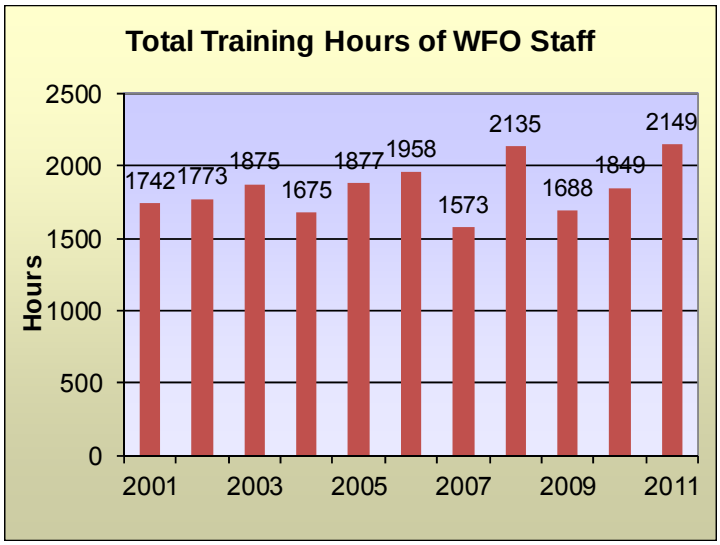
2011 observed precipitation total in inches (above).

"Forecasters completed a record 2,150 hours of training, including four all-day workshops."

Big (and Fun) Year for Training

Steven Nelson
Science and Operations Officer

The goal of improving our forecast and warning skills progressed even further in 2011. Forecasters completed a record 2,150 hours of training, including four all-day workshops. The workshops emphasized effective communication along with forecasting for severe, winter and aviation weather. Our summer workshop, or "Funshop", employed a scavenger hunt and fast-paced Jeopardy-like quiz game (complete with visual and sound effects) to keep our soft skills up to date.



Annual totals of staff training hours through the years.

Scientific research in the office and collaboration with experts at universities and laboratories continued. This year, we worked with the University of Georgia, Georgia Tech, the University of Oklahoma, and North Carolina State and hosted/mentored six college students and four high school students. Presentations were given at conferences of the National Weather Association (Birmingham) and American Meteorological Society (New Orleans) on research results related to the warnings and public response to the April 27 tornadoes, the Atlanta Integrated Warning Team (see p.13), and Georgia hyperthermia mortality. One of the findings from the April 27 tornado study was that while most people knew dangerous weather was approaching, many did not take action until the tornado was almost on top of them. Another disturbing finding was that of the 37 surveyed, none owned or used a NOAA Weather Radio. The research on hyperthermia, led by Trisha Palmer, was the first to feature collaboration by a NWS employee with officials from Georgia Department of Health and the Centers for Disease Control and Prevention.

Exciting plans for science and training are in the works for 2012. Research is underway on the location of lightning fatalities relative to storm location and phase as well as recent tornado detection capabilities of our new dual-polarization radar. ☼

Weather balloon (and radiosonde) launch in front of a large and excited crowd.

Upper Air Program Stable

Nate Mayes
Hydrometeorological Technician

It has been a roller coaster year for our office. 2011 started off with a major snowstorm followed in April by one of the largest tornado outbreaks in history. Summer brought record high temperatures and then on into hurricane season. Through it all, the Upper Air program remained the primary tool for measuring critical data in the upper atmosphere.

By launching "radiosondes" in advance of a changing weather pattern and collecting the meteorological data in the jet stream and at other levels, we get valuable information needed to forecast and warn the public of impending dangerous weather conditions. This year also provided for an upgrade to the Upper Air system used to track the weather balloons. Equipment is getting better, so we are now getting to measure even more valuable information from each and every radiosonde release. This, again, helps to make our forecasts and warnings more accurate and thus more valuable. For the year of 2011 we had a total of 755 Upper Air Balloon launches at WFO Peachtree City! ☼

NOAA All-Hazards Radio: Current and Future Communications

Robert Garcia
Meteorologist Intern

It was a busy weather year for NOAA Weather Radio (NWR). With the historic winter and spring seasons, Georgians were able to receive word directly from the NWS from our 17 transmitters in North and Central Georgia. On Mother's Day weekend, a second voice was added for certain parts of the program to freshen the broadcast. During severe weather, the second voice will read routine products like the local observations or the shortened local forecast while the primary voice will focus on warnings, watches, and advisories.

On the horizon, we are awaiting arrival of the Weather Radio Improvement Program (WRIP) which will bring many improvements to our weather radio service. WRIP computers will improve the efficiency and reliability of NWR, including the ability to uniquely program all 17 transmitters. Currently, we have four sets of "paired transmitters" carrying simulcast programming at Athens and Washington; Taylor's Ridge & Chatsworth; Brasstown Bald and Blue Ridge; and Buchanan and La Grange. Your current weather radio will be ready for all the improvements, so there will be no need to purchase a new one. For more information, visit our new Weather Radio page at weather.gov/atlanta ☼

Special Report: IWT Aims to Reduce Weather Deaths

Jessica Fieux
Meteorologist
Shirley Lamback
Sr. Meteorologist

Over 500 people died from tornadoes in the U.S. in 2011, making it the 4th deadliest tornado year on record. In September 2009, ten people died from flash flooding across north Georgia. Such outcomes, despite advances in technology and warning lead times, prompt the question: Why are people still dying from weather disasters? Did they receive and understand the warning? Did they take the proper protective action? Even if they followed all the proper steps, did they still perish? To help answer these questions, new initiatives called Integrated Warning Teams (IWTs) of physical and social scientists are springing up around the country. Our office saw the value of the initiative and organized Georgia's first-ever IWT.

The IWT workshop was held June 1-2 and brought together representatives from the NWS; Federal, state, and local emergency management agencies; the media; private sector and academia. Workshop participants learned about the different responsibilities, challenges, constraints and concerns of the group. Discussions included the importance of incorporating social science into meteorology, how to better educate the public and the best way to communicate severe weather information.

The workshop led to the formation of working teams that were tasked with pursuing a number of action items. One success of this effort is that our warnings now encourage the public to "tweet" their damage reports to #gawx. NWSChat usage, which is used for coordination between the weather service, emergency managers and the media has also increased. In addition, the team is working with the Centers for Disease Control and Prevention to develop questions that can be asked of victims after a disaster to better understand the public's actions during an event.

The IWT efforts will continue into 2012, focusing on tools to understand the characteristics and vulnerabilities of a community. Although the IWT right now is limited to the Atlanta metro area, future plans are to expand ideas and best practices to the rest of north and central Georgia. ☼

"Our office saw the value of the initiative and organized Georgia's first-ever Integrated Warning Team."

Participants at the (first-ever) Atlanta Integrated Warning Team Workshop

The Value of Cooperative Observers and Their Data

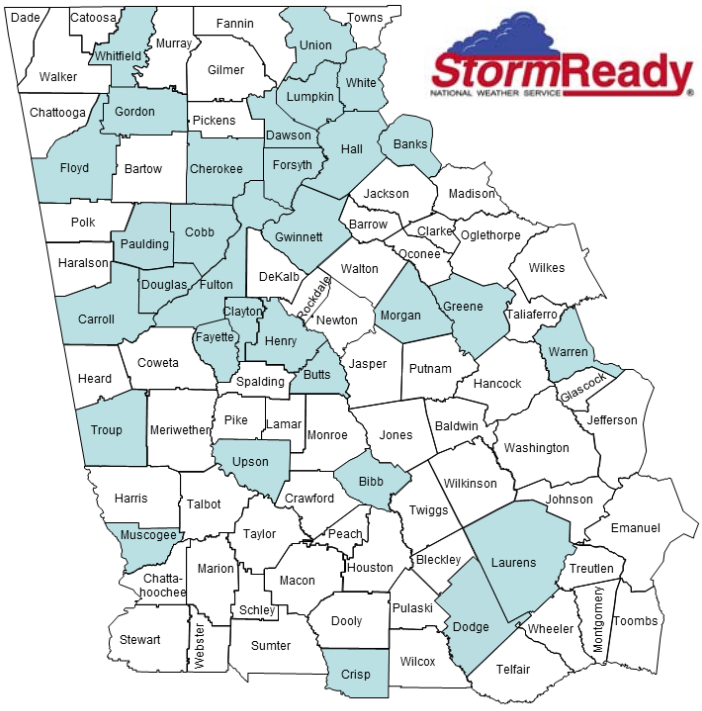
George Wetzel
Observations Program Leader

"...this data collection program is the backbone of how the United States defines the climate of the country to help measure long-term climate changes"

The NWS Cooperative Observer volunteer program has over 11,000 people nationwide who take observations on farms, in urban and suburban areas, National Parks, seashores, and mountaintops. The Cooperative Observer Program was formally created in 1890 under the Organic Act. The program's mission is to collect observation weather data which usually consists of daily high and low temperatures, snowfall, and 24-hour precipitation totals. The program also is there to provide observational meteorological data in near real-time to support forecast, warning and other public service programs of the NWS.

Most people don't realize that this data collection program is the backbone of how the United States defines the climate of the country to help measure long-term climate changes. Some of the sites in the country go back almost 150 years. The body of collected data allows engineers and developers to determine how tall buildings should be oriented, how airports and their runways should be configured, what road and building materials should be developed for the proper climate, etc. These are but a few examples of the value of these observations – and by extension – the obervers themselves. To that end, we recognized L. G. "Buddy" Scott of Buena Vista for 15 years of service in 2011.

The biggest (and bittersweet) change to the program in 2011 was the retirement of our Observations Program Leader, Mr. Frank Taylor. Frank left behind a legacy of commitment to the Coop Program and its observers. He misses them, but is enjoying his retirement! ☼



StormReady Counties in the Peachtree City County Warning Area.

StormReady® News

Barry Gooden
Warning Coordination Meteorologist

The StormReady program in Georgia is alive and well. Unfortunately, there were no new communities added to the StormReady family during the 2011 year, just those renewing their recognition. There was one community that did not maintain its recognition and allowed it to expire. As a result, there were 31 StormReady County within the Peachtree City County Warning Area going into 2012, and 67 statewide.

There has been some transition in the program with its partners. This transition has infused the program with new insight and support from both EMAG and GEMA, as the StormReady Advisory Board encourages other counties to recognize the benefit of the program. StormReady is much like a road map to preparedness, showing the community that its government has taken steps to be prepared for disasters. Being prepared does not prevent disasters from happening, but it does help to mitigate the costly outcome of such an event. It also encourages the individual to be a part of the mitigation process, and be more prepared for when the big event does happen.

There was a first for the year, in that Southern Polytechnic State University became our office's first university to become a StormReady Supporter. For information on becoming StormReady, please contact Barry Gooden, Warning Coordination Meteorologist, at (770) 486-1133 ext. 223.

Are you StormReady? ☼

Dual-Pol Radar Comes to NWS Peachtree City

Richard Black
Electronics Systems Analyst

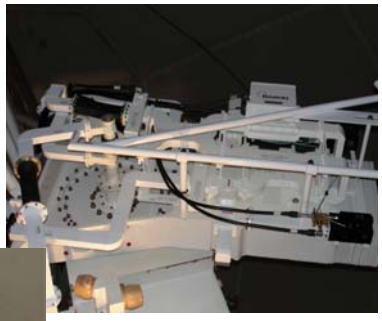
Every year, we see improvements in our core warning systems, and 2011 was no different. Keeping pace with technology is a responsibility we take seriously.

WSR-88D Radar: Installation of the Dual-Polarization enhancement was completed in December. This upgrade transmits radio wave pulses in both horizontal and vertical orientations, greatly improving storm interrogation techniques by our meteorologists. Dual-pol provides significant improvements in data quality, rainfall estimation, hail detection and rain/snow discrimination.

Automated Surface Observing Systems (ASOS): Several software and hardware upgrades were completed. The Laser Beam Ceilometer was replaced to enhance cloud measuring abilities.

AWIPS: This fiscal year, our core operational system had several main processors and data servers upgraded. With the newly-upgraded radar, AWIPS now has even more tools available for meteorologists to dissect storms and improve the warning and forecast accuracy.

Our office prides itself in the stability of its core electronics systems. These systems are available 97% of the time and is the result of a dedicated team of electronics professionals. ☼



(Left and above) New components added to the NWS Doppler radar to give it dual-polarization capabilities.

Outreach Highlights 2011

Laura Belanger
Meteorologist

We kicked off the 2011 hurricane season with another visit by the Air Force Reserve "Hurricane Hunters" WC-130J. Over 2,500 people toured the plane and learned about inland impacts of tropical cyclones. An office open house was held in tandem with this event, with nearly 900 attendees!

Our 4th ReadyFest was held in Rome in September, in support of the Department of Homeland Security's "National Preparedness Month." With the help of co-host Floyd County Emergency Management, emcee Ken Cook, and speakers from NWS, GEMA, the Red Cross, the CDC, Rome Radio Partners and the National Center for the Prevention of Home Improvement Fraud, more than 100 attendees received valuable emergency preparedness information. A few lucky winners took home ready kits and other preparedness supplies!

Other outreach events included NWS booths at the Atlanta Boat Show and the Georgia Science Teachers Association Conference. NWS staff also participated in several scout events, including two Weather Merit Badge days, and the Atlanta Braves Weather Day. We held two media workshops, meeting with broadcast meteorologists from Atlanta, Columbus and Macon.

Thirteen storm spotter classes brought vital training to 412 participants. In office, we reached approximately 740 individuals through 65 office tours. Staff also provided weather information to local and national media in at least 175 phone interviews, including CNN, CNN Spanish and the Associated Press. ☼

Open House attendees learned about severe weather operations at NWS Peachtree City's Open House.

An Open House, held in tandem with the Hurricane Hunter WC-130J event, welcomed 900 visitors to our office.

National Weather Service • Weather Forecast Office • Peachtree City, Georgia

Phone: 770-486-1133
Fax: 770-486-9333

Mission Statement

We deliver science-based, decision-support services to minimize hazardous weather's impact on life, property and commerce in North and Central Georgia.

www.weather.gov/atlanta

A Final Word

Lans P. Rothfusz
Meteorologist in Charge

This will be my final issue as editor of the WFO Peachtree City Shareholders' Report. On 18 June 2012, I will be reporting to the National Severe Storms Laboratory in Norman, Oklahoma as the Deputy Chief of the Warning Research and Development Division.

I have been MIC of this WFO for almost 12 years and it has been a most rewarding experience. I have thoroughly enjoyed the opportunity to help the WFO provide vital forecasts, warnings, decision support and data to the citizens of north and central Georgia. Moving (back) to Oklahoma is a bittersweet change for me and I shall miss the extraordinary colleagues, peers and friends I have come to know in emergency management, media, academia, public health, aviation, forestry, Federal service and, of course, NWS operations.

It is somewhat comforting, however, that my new position will be focused on ensuring the latest and best warning research advances are delivered to NWS field forecasters. In that regard, I'm not really leaving the agency I love, I'm going to a position to better assist it from a national level.

Mr. Barry Gooden, our Warning Coordination Meteorologist, will be Acting MIC upon my departure until a new MIC is selected. I can leave, therefore, knowing you and the WFO will be in capable hands.

It has been a pleasure serving you. I wish you peace, safety and great weather! ☼

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Peachtree City, GA 30215