OYBACHI NEWSLETTER

VOLUME 1, ISSUE 2 FALL 2005 EDITION

SPECIAL WEATHER NOTES:

- **Fall Begins September 23rd at 523 AM CDT**
- **Fall Severe Weather Awareness Day is October 19th**
- **Skywarn Recognition Day is Friday, December 2nd and Saturday, December 3rd**
- **December 4th-10th is Winter Awareness Week**

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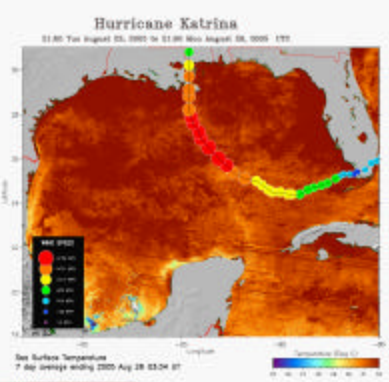
Why Katrina, Why Now?

By: Kristina Sumrall

In the memory of most Americans, 2005 will long remain the year of Hurricane Katrina; the year when the unimaginable occurred. With 24-hour news coverage of mass destruction across the Gulf Coast from Grand Isle, Louisiana, to Biloxi, Mississippi, and Mobile, Alabama, the nation and the world watched in horror as the devastating images scrolled across our screens.

As the survivors begin to put their homes and lives back together, the scientists will begin the massive effort to understand the science behind Katrina and her development into one of the most powerful storms to make a United States landfall since record-keeping began.



Hurricane Katrina's track over warm Gulf of Mexico waters.

Although Katrina strengthened into a Category 5 hurricane while in the Gulf of Mexico, at landfall, she had weakened slightly into a strong Category 4 on the Saffir-Simpson scale. With sustained winds of 140 mph, Katrina became the 4th strongest storm to make landfall in the U.S. during the past 100 years.

Many have questioned why Katrina became such a powerful hurricane and why the past few years seem to have been so active in regards to tropical weather. While meteorology and climatology remain inexact sciences, much ***is*** known about the recent increase in activity and the reasons behind Katrina's intensity.

Unfortunately, the trend of more active tropical weather will likely continue for another 10 to 20 years. Many weather patterns are cyclical… some lasting from days to weeks… others from years to decades. Currently, we are in an active phase of one of these cycles, called the multi-decadal cycle. This particular pattern tends to last for 30 to 50 years and is believed to be tied to multi-decadal changes in sea surface temperatures and salinity in the North Atlantic Ocean.

During this 30 to 50 year period, tropical weather becomes more frequent, although year-to-year trends can vary greatly. One reason for the variance is the effect of El Niño-Southern Oscillation. During strong El Niño years, tropical activity is decreased. During strong La Niña years, the opposite is true. Neutral conditions (like this year and last) and

La Niña both coincide with an increased risk of landfalls along Florida and the Gulf Coast.

Another phenomenon which influences year-to-year trends is the Saharan Air Layer or SAL. The SAL is an airmass that forms over the Sahara Desert and then moves out over the tropical Atlantic with high winds and extremely dry air. The SAL has shown to have an extremely negative impact on the intensity of storms in the Atlantic Basin.

Fortunately for the hurricane ravaged areas of the Gulf Coast, during the latter months of the hurricane season, tropical systems tend to develop and move further east. While the Eastern Seaboard must become more vigilant, the Gulf States can begin to relax a little bit. However, we are just entering into peak hurricane season, and we must all remain aware of potential landfalling tropical systems.

If there is anything positive to come out of the Hurricane Katrina catastrophe, hopefully we all learned to PREPARE AHEAD OF TIME!!! Prepare for the worst and hope for the best.

NOTE: At the National Weather Service Office in Birmingham, we have decided to name our Quarterly Newsletter Oybachi which is a well-known Alabama Cherokee Indian word meaning weather maker. Below is the official definition from the Alabama Indian Dictionary.

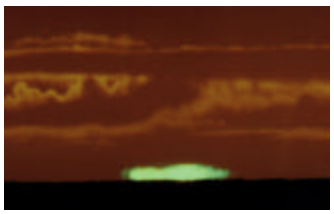
Oybachi: 1. to make rain [/oyba-chi[1]] 2. weather maker, rainmaker Cul: When the oybachi died he was buried in a low place so that when it rained and covered his grave, the rain would stop. This helped prevent floods. The oybachi could do anything to control the weather: start or stop rain, winds, storms, etc.

Mark's Wacky Weather World

Some of you may be surprised that I am writing about something that sounds like a supernatural hero. It does sound very similar to The Flash

or The Green Lantern,

but it's really no five star superhero or super villain comic book character.



Which one is THE "real" Green Flash?

The Green Flash is a term that lumps together several specific atmospheric phenomena that can be viewed at sunrise and sunset. Areas in very close proximity to the suns disk change color from a red or orange shade to a green or blue tint. The flash description is attached due to the very short period of time the phenomenon occurs, generally only a few seconds or less.

The Green Flash can be deceptive to the naked eye because all the right conditions have to occur simultaneously and the observer has to know exactly what to look for and where to look. The Green Flash occurs due to light refraction, which bend the rays of the sun as it moves into the atmosphere. This causes objects near the horizon to appear higher in the sky than they really are. The effect is heightened by the amount of atmosphere traversed before being received by the observer. Therefore, sunrise and sunset are the best time to see this phenomenon just because of the thickness of the atmosphere at that observing angle.

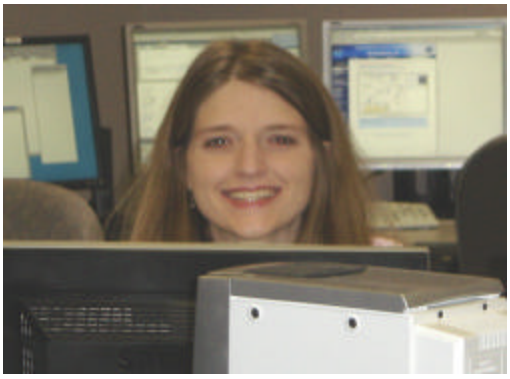
The best way to observe The Green Flash would be to find an uncluttered, clear view of the horizon without clouds or haze. Position yourself where there are several miles of clear view along the horizontal where the curvature of the Earth is the defining limit.

The best place to view the Green Flash is at the beach or in a airplane.

If you ever experience The Green Flash or any other unusual weather phenomenon, please forward your accounts, stories or pictures to…

Mark.Linhares@noaa.gov

Jessica Smith: In the Hot Seat By: Krissy Hurley



Position: Meteorologist Intern

Originally From: Iota, Louisiana - about 45 miles west of Lafayette

School: University of Louisiana at Monroe - 2001 (B.S.) and Florida State University - 2003 (M.S.)

Offices Worked: NWS Lake Charles and NWS Birmingham

Interests at the Office: Lightning, GIS, Tropical Weather, writing articles for the Newsletter, Outreach

Favorite Part About Your Job is: making all Thunderstorm Ladies across Central Alabama feel safe!

Most Memorable Weather Event Worked: April 30th, 2005 Severe Weather Outbreak where I worked for 14 hours consecutively and launched 3 weather balloons. Also memorable was Tropical Storm Allison in 2001 when I was in WFO Lake Charles. It was my first day back that summer when Allison made landfall.

Interest in Weather Started Because: my small town was hit by so many different weather phenomena including tornadoes, hurricanes, and even an ice storm!

What Do You Like About Birmingham: Four Seasons. Being from Louisiana, its nice to have somewhat of a winter! This is the farthest north in latitude I've ever lived!

What's Next Career Wise: Getting a Journey Forecaster position in the Deep South.

Autumn Artwork

By: Jessica Smith

The transition from summer to fall produces one of nature's greatest displays—leaves changing colors. How does this process happen, and what role does weather play?

During the springtime and summertime, trees undergo photosynthesis, a process where leaves turn water and carbon dioxide into the sugars and starches required to sustain growth. A leaf pigment known as chlorophyll helps in this process and gives the leaves their green color. Chlorophyll is so prevalent during spring and summer that it masks the carotenoid pigments, those which produce shades of yellow, orange, and brown.

When the days grow shorter, the nights grow longer, and the temperatures begin dropping, the tree starts its preparations for winter. Leaves stop photosynthesizing, and chlorophyll pigments break down. Once this occurs, the already-present carotenoid colors become visible. As autumn progresses, the remaining sugars in the leaves are used up. If conditions are right, these sugars contribute to the production of anthocyanin pigments. These pigments produce the red and purple hues which can make autumn colors brilliant. So what weather conditions are ideal for bright reds? Warm, sunlit days with cool, but not freezing, nights are perfect for the chemical changes needed for red and purple development. Direct exposure to sunlight encourages red development, while shade results in little or no red color.

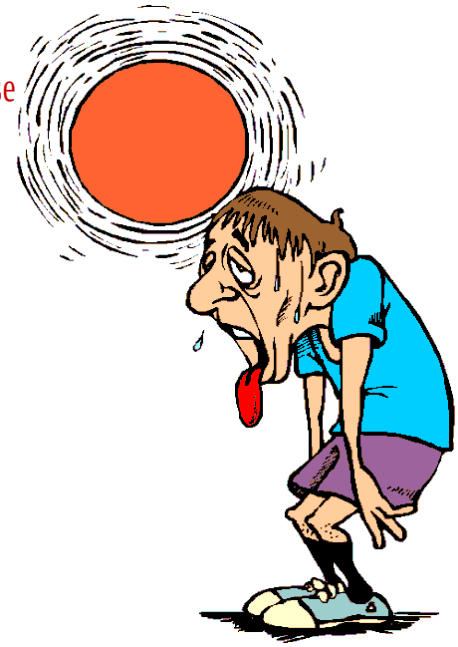
Each tree, and thus each year of leaf viewing, will be different. The degree and intensity of fall colors depend on the different combinations of color pigments and on the weather. Colors will be brightest with a warm, dry late summer and warm fall days with cool nights. Persistent wet weather or cloudy days with warm nights will produce a duller color display. An early frost will cause leaves to fall early, thereby shortening the viewing time.

Where and when can one see the best color displays? The answer is in the eastern United States, where deciduous trees are most abundant and seasonal weather changes are ideal. The best viewing time starts in the Northeast in mid to late September, progressing southward over time. Leaf viewing wraps up in the Deep South in mid to late November.

Happy leaf peeping!

Humidity...It's all Relative

By: Mark Rose



Have you ever heard someone say, "The temperature outside is 90 degrees so the humidity must be over 90 percent"? Well, that may be possible in other parts of the world near the equator, but here in Alabama in the middle of summer when temperatures are in the 90s, the relative humidity is likely less than 60 percent.

Relative humidity (RH) is expressed as a percentage, which means it takes two numbers to be calculated. RH is determined from the air temperature and the dewpoint temperature. The dewpoint is just the temperature when the air becomes saturated. The closer the two numbers are together, the higher the RH. If the air temperature is 70 degrees and the dewpoint temperature is 70 degrees, the RH is 100 percent.

A quick and easy way to approximate RH is for every degree of difference between the air temperature and the dewpoint temperature, multiply by 3 and subtract this number from 100. For example, if the air temperature is 85 degrees and the dewpoint is 70, the difference is 15. Multiply the difference (15) x 3 = 45, and subtract 45 from 100 = 55. The RH is 55 percent. The actual value is 61 percent, so the approximation is within 10 percent.

"Relative Humidity is determined from the air temperature and the dewpoint temperature."

In late August and early September when afternoon temperatures are normally in the upper 80s and dewpoints near 70, the RH is only 55 percent. But to a person working outside, the humidity probably feels much worse. This is why RH is not a good indicator of how humid it feels. When I analyze a weather map and want to see where the humid air is located, I only need to look at surface dewpoints. The table to the right is a simple way to compare dewpoints and comfort level.

Quick Dewpoint Chart

Dewpoint	Comfort Level
Below 60	Comfortable
60-65	Sticky
65-70	Muggy
70-75	Very Muggy
>75	Oppressive

SEPTEMBER 2005

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	***5***	6	7	8	9	10
11	12	13	14	15	16	***17***
18	19	20	21	22	***23***	24
25	26	27	***28***	29	30	

OCTOBER 2005

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	***10***	11	12	13	14	15
16	17	18	***19***	20	21	22
23	24	25	26	27	28	29
30	***31***					

Schedule of Events

- 9/17 & 9/18 - Shelby County Air Show and National Weather Service Birmingham Open House from 10am-6pm.
- 9/28 - Severe Weather Awareness Day at Quintard Mall in Anniston from 1pm-6pm.
- 10/19 - Fall Severe Weather Awareness Day

NOVEMBER 2005

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	***11***	12
13	14	15	16	17	18	19
20	21	22	23	***24***	25	26
27	28	29	30			

Important Dates

- 9/5 - Labor Day
- 9/23 - Fall Begins
- 10/10 - Columbus Day
- 10/31 - Halloween
- 11/11 - Veteran's Day
- 11/24 - Thanksgiving

Fall Severe Weather Season

By: Michael Scotten

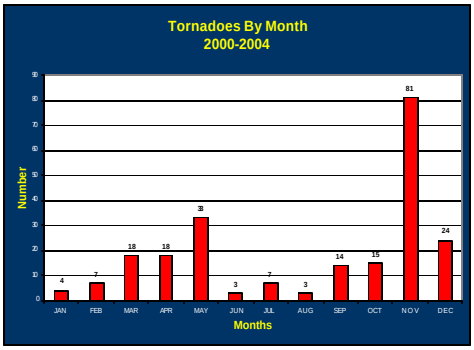
With football in the air, shorter days, and the change of leaves, fall is underway. Unfortunately, fall usually brings another period of severe weather to Alabama. This period of severe weather is known as the Fall Severe Weather Season.

F2 tornado damage in Coldwater (Calhoun County) on 11/24/ 2004.

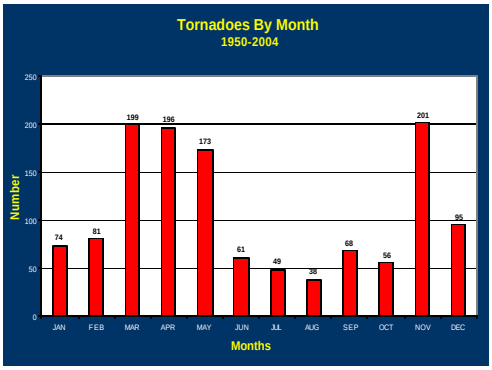
The Fall Severe Weather Season, previously known as the Secondary Severe Weather Season, generally occurs late October through mid December in Alabama. During this time, there is an increase in severe thunderstorms that produce straight-line damaging winds, large hail, and tornadoes. The other peak period for severe thunderstorms occurs in the spring which is known as the Spring Severe Weather Season.

Throughout the Fall Severe Weather Season, the right ingredients have a better chance of coming together to produce severe thunderstorms. Airmasses collide as warm moist air from the Gulf of Mexico meets up with cooler and drier air from the north. This collision of airmasses produces stronger low pressure systems and higher winds, allowing severe thunderstorms to develop.

November, in particular, has been an active severe weather month years in Alabama. A substantial increase of tornadoes during the Fall has been noted over the past five years. Since 2000, 81 tornadoes have occurred across the state during November with an amazing 56 tornadoes on the 24th of the month. Just last November, 26 tornadoes occurred, which is nearly half of all tornadoes in 2004.



This large number of tornadoes pushed November to the top as the month for most tornadoes in Alabama.



NOW is the time to prepare for the Fall Severe Weather Season!

Here are general safety tips to survive tornadoes and severe thunderstorms:

- Seek shelter immediately in a strong, sturdy structure!
- Abandon mobile homes and automobiles.
- Go to the lowest floor, basement, or small interior room.
- Stay away from windows and doors!
- Keep as many walls between you and the outside as possible.
- Protect your head from possible flying debris.

MSU and NWS Team Up Once Again

By: John Sirmon

The main goal of the National Weather Service is to save lives and limit property damage. Since the broadcast industry is the most visible source for relaying weather information to the public, the NWS relies on a cooperative relationship with the broadcast community to help fulfill this goal. With this is mind, several National Weather Service offices recently participated in the Mississippi State University Broadcast Meteorology Program's annual summer workshop at the Radisson Hotel in Birmingham.

Each summer, the students of the Broadcast Meteorology Program must complete several days of rigorous training in different aspects of scientific presentations. This workshop is intended to help the students become better scientific presenters and to enhance their ability to take in and learn lots of scientific information over a short period of time. For the NWS, it enables our meteorologists to meet and get to know many broadcast meteorologists, impart some of the scientific lessons learned on the job, and to better understand the similarities *and* differences between our missions and goals.

Around 75 meteorologists and meteorology students attended the workshop, with an entire day devoted to presentations by NWS meteorologists. Most of the attendees were distance learning students from across the country working to attain their certificates in Broadcast Meteorology from MSU and most are on-air broadcast meteorologists. Meteorologists from the National Weather Service offices in Birmingham and Huntsville, Alabama, Louisville, Kentucky, and Jackson, Mississippi, were able to meet many current (and soon-to-be) on-air broadcasters to enhance the cooperative relationship that currently exists between the NWS and local media. Many of the presentations made by the NWS staff highlighted ways in which the NWS can continue to improve this relationship and also highlighted some of the "best practices" currently in use around the Southeast.

Throughout the day-long session, a theme of cooperation resonated. The broadcasters and the NWS meteorologists were able to easily recognize the benefits of working together to ultimately benefit both the NWS and the broadcast community.

For all involved, the event was a positive learning experience and hopefully the continuation of an ever-improving and evolving relationship between academia, the broadcast community, and your National Weather Service.

Topics	Presenters	Office
An Introduction and Doppler Radar Familiarization	Jim Stefkovich	Birmingham
WSR 88-D Past, Present, and Future	Jim Westland	Birmingham
IFPS/GFE	John DeBlock	Birmingham
Get to Know Your National Weather Service	John Sirmon	Birmingham
An Operational Comparison Between Hurricane Ivan and Hurricane Dennis	Michael Scotten & Kristin Hurley	Birmingham
Beyond Text products	Mike Coyne	Huntsville
Interesting/Atypical Severe Weather Case Studies	Andy Kula	Huntsville
NWS Innovation Benefiting the Media	John Gordon	Louisville
The Polygon Warning Project	Jim Butch	Jackson
Probabilistic Hazardous Weather Outlooks	Jeff Craven	Jackson
Initiatives to Improve Partner Coordination and Communication	Alan Gerard	Jackson
Instant Messaging - Improving Communications With the Media	Faith Borden	Birmingham

Crustacean Invasion

By: Krissy Hurley

It was early one morning on June 9th, when a unique visitor decided to stop by the office. We heard a loud scream outside the office from our Data Acquisition Program Manager, Dave Wilfing. Once we rushed out to see what had scared him, we found this crustacean stomping around. Actually this creature is what is called a crawdad and is only about 6 inches in body length. However, including his claws, this crawdad was over 12 inches long! Instead of catching and boiling him, we decided to gaze in amazement at the fact that a crawdad was just outside of our office. Turns out that our office is next to wetlands at the airport.

To the right is a recipe for Garlic Crawdad Angel Hair Pasta. We suggest you use fresh crawdads from the seafood market, not those found at your local National Weather Service Office!

Picture of Crawdad outside National Weather Service Office in Birmingham.

Garlic Crawdad Angel Hair Pasta

Ingredients

50 large crayfish, tails and claws
1 tb coarse grind garlic powder
1/8 lb angel hair pasta
3 tb butter
Black pepper
1/4 tsp paprika

Instructions

- Boil 50 crayfish in lightly salted water for three minutes. Drain and put briefly in cold water. Remove tails from shells and devein. Crack claws and scoop out meat.
- Boil angel hair pasta until soft. Divide into two portions and spead out on plates.
- Prepare crayfish topping for pasta. Melt the butter in a medium frying pan. Stir in garlic powder. Add the crayfish meat, and stir until all pieces are covered. Shake pepper and paprika over the pieces. Immediately pour crayfish over pasta and serve.

An Atypical Summer

By: Isaac Williams

As a high school student, I had the privilege to do volunteer work over the summer for the National Weather Service in Birmingham. It was very exciting for me to have this opportunity, because I have been interested in weather for many years and plan to become a meteorologist.

While working at the National Weather Service, there were many different aspects of volunteer work. Some of the things I did included: writing Area Forecast Discussions, inputting climate data for Tuscaloosa and Anniston, writing numerous short term forecasts, answering the many phone calls prior to Hurricanes Dennis and Katrina, and launching the weather balloon. Time that is spent in any one of these areas may vary depending upon what type of weather was occurring. For example, something as simple as answering telephones can become quite time-consuming as was the case before Hurricane Dennis and Katrina.

It would be very difficult to say which of these were my favorite. The top three would have to be writing Area Forecast Discussions, writing Short Term Forecasts, and launching the weather balloon. Writing Area Forecast Discussions entails interpreting many different model outputs and can take quite some time. Analyzing radar data and radar trends is a common tool for writing Short Term Forecasts. The weather balloons are launched twice daily and have a radiosonde attached for measuring relative humidity and temperature.

Student Volunteer, Isaac Williams intently studies model data to prepare for the afternoon Area Forecast Discussion.

Lastly, I got the chance to meet some really incredible people. The staff that works here is simply great...and I would highly recommend this position to anyone that is interested in weather.

Wind Damage-Most of it is NOT from Tornadoes!

By: Jim Stefkovich

Each of us has opened a newspaper or turned on a TV and seen images of horrific storm damage. If you are like most folks, you may be surprised to learn that most of the storm damage that occurs across the country, including Alabama, is from thunderstorm straight-line winds, NOT tornadoes. Skeptical about what I just said? Read on!

It is a common misperception that any significant damage "has" to be from a tornado. Well, here are some interesting facts. From 1950-2004, the entire *state* averaged 23 tornadoes a year. Interestingly, since the 1980s, the state averaged just over 30 tornadoes a year. Think about this for a second. All the damage we have experienced, seen on TV or in the newspaper, and **ONLY** 20-30 tornadoes for the entire state for an entire year? YES!!!

Look at the pictures to the right. These pictures were taken during a storm survey in Montgomery. This damage was from non-tornadic straight-line wind damage and NOT from a tornado. Unfortunately, people have been conditioned to believe significant damage is just from tornadoes, and that tornado warnings should be taken more seriously than severe thunderstorm warnings.

We all have felt the rush of wind hit us in the face with the thunder, lightning, and rain some distance away. The downdraft (non-tornadic, straight-line winds and rain) is like taking a bucket of water and pouring it on the ground. The highest force (and wind speed) is right at the center of impact, and decreases as it spreads away from the center of impact. It is when these winds exceed 58 mph that the National Weather Service classifies them as "severe" and thus issues Severe Thunderstorm Warnings. At times, as the pictures above indicate, these straight-line winds can exceed 70, 80, or even 100 mph, and produce the same amount of damage as a strong tornado. It is difficult to convince many people of this fact, but it remains true.

"It is a common misperception that any significant damage "has" to be from a tornado."

So, here's the bottom line. You should take severe thunderstorm warnings *just as seriously* as tornado warnings. Certainly, 100 mph winds, which are very rare like tornadoes, will produce much more damage than 60 mph winds. The National Weather Service routinely puts the expected wind speeds and impact of the downburst winds in our warnings, so read them and see just what is headed your way.

Finally, do not place your entire confidence of receiving severe weather notification in sirens. Sirens are intended to be *outdoor* warning systems. You also need an *indoor* warning system, especially while you are asleep. Your best bet is to purchase an inexpensive weather radio with a tone-alert feature which will notify you and wake you up when severe weather warnings are issued. You can learn more about weather radios at:

http://www.srh.noaa.gov/bmx/aware/noaawxr.html

CO-OP WORLD

Left: C.A. Turner, Ima Jean Turner, and Belva Johns (pictured from left to right) from Clanton, Alabama received the 15 Year Length of Service Award on 6/22/05.

Right: Lucille and Arlon Otts from Hightower, Alabama received the 35 Year Length of Service Award on 6/26/05.

Left: Jerry and Jane Cope from Union Springs, Alabama received the 30 Year Length of Service Award on 6/02/05.

Right: Joel Holmes (pictured left), chief plant operator of the Sylacauga Water Plant, received the Honored Institution Award for 50 Years of Service on 5/10/05 from Data Acquisition Program Manager Dave Wilfing (the one who screamed at the crawdad).

Left: Fay and Earl Chance from Clayton, Alabama received the 10 Year Length of Service Award on 6/20/05.

Right: Steve Papp and his assistant Lulu from West Blocton, Alabama received the 20 Year Length of Service Award on 6/30/05.

These Cooperative Observers take daily meteorological observations for the National Weather Service on a volunteer basis.

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TO

How many ways do you get National Weather Service information?

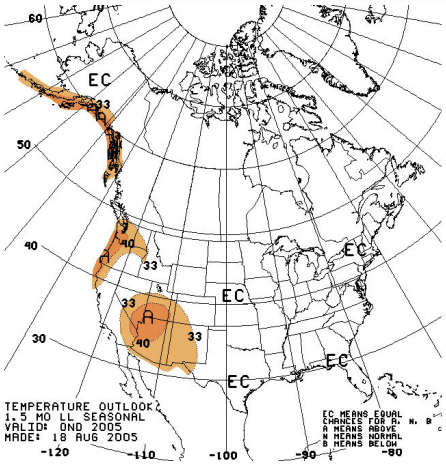
New On the Web
By: Darone Jones

You asked for it...and you'll get it...if the tropics would ever let up. I'm very close to getting a whole new set of pages that details all the products that NWS Birmingham issues. I plan on calling it the Product Guide. Nice huh? When I've got it ready for primetime, it will be advertised on our front page under Top News of the Day. There will also be a standard link on the left bar.

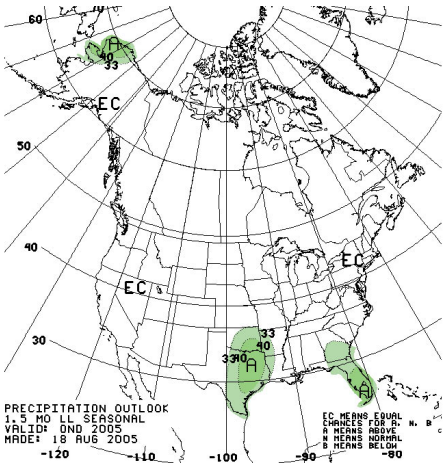
Speaking of the tropics, our tropical page has been getting quite a workout this season. Visit:

http://www.srh.noaa.gov/bmx/tropical/index.php

If you haven't checked it out yet, it has a ton of great information such as models (the computer kind), satellites, radars from around our part of the world, historical storm tracks, and several other useful links. Basically, everything a weather enthusiast would want to know. So don't wait till the tropical season is over, go check it out NOW!



October November December
Temperature Outlook



October November December
Precipitation Outlook

Climate Outlook
By: Krissy Hurley

By looking at the images on the left, there is not much we can say about the temperature and precipitation outlooks for Alabama during October, November, and December. What we can say is that we are currently in what is referred to as ENSO-neutral which means we are experiencing neither El Niño or La Niña conditions.

Typically during the fall season under ENSO-neutral conditions, area temperatures are near normal and precipitation is near normal or just below. For right now, it looks like we have equal chances for warmer, cooler, drier, wetter, and don't forget normal conditions for the next three months as no strong climate signals are forecast to influence our weather anytime soon!