



# Sterling Reporter



Newsletter of NOAA's National Weather Service Baltimore/Washington Forecast Office

Volume 5, Issue 2

Summer 2006

## Steve Rogowski Named July Eastern Region Employee of the Month

Sarah Allen

With Science and Operations Officer Steve Zubrick attending a 4 month DOC Executive Development Program from January through May, assistant SOO Steve Rogowski filled Mr. Zubrick's role in an outstanding manner. He did this while continuing to work rotating shifts with a high degree of competence.

During this period, Steve successfully oversaw all office science, technology, and training areas. This included participating and leading this year's severe weather workshop, conducting Unit Radar Committee activities,



participating in the office Open House and SKYWARN Revitalization teams, updating flash flood and training program materials, and developing 3 abstracts for submission to the 2006 National Weather Association conference.

For his commitment to teamwork and contribution to the WFO LWX, and for truly reflecting qualities all Eastern Region employees should strive to emulate, Steve Rogowski is recognized as Eastern Region Employee of the Month for July 2006.

**Congratulations Steve!**

## MIC's Corner

Jim Lee, Meteorologist-In-Charge

Since the publication of our last edition of the *Sterling Reporter* in the spring, our area experienced heavy rain June 23-29, which caused flash flooding and tested our operational readiness. The 4-day 12.11 inch rainfall at Reagan National Airport reached a 300 year recurrence interval.

However, prior to this rainfall, much of the region was in a moderate drought, with 6 month precipitation deficits approaching a foot. Believe it or not, the resultant flooding from the heavy rains during this period would have been a lot worse if we had not been in a drought.

I am often asked what my primary concern is for hazardous weather in the region. This area is unique in that practically all hazardous weather can impact us, and part of my responsibility as Meteorologist-in-Charge is to ensure our office is trained, ready, and equipped for any hazardous weather that comes our way. But the one hazard that concerns me the most is freshwater flooding, particularly flash flooding due to tropical weather systems. The reason that it concerns me the most is that it turns normally placid, peaceful feeder streams into raging currents. This is what catches people off-guard, and sometimes leads to loss of life. This was the case in June as there were 6 fatalities due to the flash flooding.

Operational readiness is not something that takes place by itself, nor is it something that takes place overnight. It takes resources to analyze policy, develop station duty manuals, train staff, prime office technology and field equipment. Finally, after the planning and preparation has been complete, the staff needs to execute when the hazards strike.

I am well pleased at our office's performance during this flash flood event. Our Flash Flood Warnings were issued with an accuracy of 90% and an average lead time of 93 minutes. Flash Flood Watches were posted hours before flash flooding took place, so this, coupled with our broadcast partners, helped notify the public to the potential of hazardous flooding.

If you read the column to the left, you will note that one of our staff, Steve Rogowski, was named July 2006 Employee-of-the-Month for the NWS Eastern Region. You may recall from the spring *Sterling Reporter* that another staff member, Brandon Peloquin, was selected as January 2006 Employee-of-the-Month. With approximately 800 employees in Eastern Region, this is no small feat for one office of 25 staff to have two Eastern Region Employees-of-the-Month in one year. Rather, it is a testament to their will in providing excellent weather services to the National Capital Region.

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## **Nature Provides Own Fireworks Show July 4<sup>th</sup>**

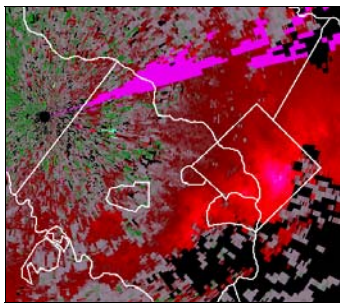
Steve Rogowski

Weather-wise, the first Tuesday in July was setting up in a typical severe weather fashion across the mid Atlantic. Southwest winds ahead of a cold front crossing Chicago were ushering in ample moisture as temperatures rose into 90s during the afternoon. Meanwhile, thunderstorms were developing near a convergence line east of the Appalachian Mountains by noon. Concern about this severe weather event began the prior weekend when computer models were indicating strong instability developing across the region. This was no ordinary Tuesday however; it was the 4<sup>th</sup> of July.

Residents across the area were drawn to the Capitol in numbers far greater than a typical fair weather summer day. Thousands were flocking to a small area in the District to gain a glimpse of colors flashing across the sky. The last thing on their minds was the danger bearing down on them in the form of severe thunderstorms as they gathered in the open mall.

Meanwhile, forecasters at your National Weather Service were hard at work, diagnosing the storms using data from several Doppler Radars across the region. At first, several of the storms became severe for a short time well northwest of the District. However, at about 4:30 pm, while a storm was moving east across Loudoun County, it became apparent that the storms were changing form from short-lived pulse severe storms to more organized storms which had a better capacity of producing more destructive damage.

At 4:30 pm a Severe Thunderstorm Warning was issued for Fairfax County as the storms moved east across Loudoun County. At 4:35 pm, a Special Weather Statement was issued for the District, giving a heads-up to organizers of the 4<sup>th</sup> of July Festivities. Then, with a growing amount meteorological data available to increase our confidence of a prolonged severe thunderstorm, a Severe Thunderstorm Warning was issued for jurisdictions including the District at 4:45 pm.



**Velocity image from the Doppler Radar located in Sterling, VA from 5:18 pm July 4<sup>th</sup>. The brightest pixel of purple indicates 75 mph winds crossing the District.**

Well before the warning, we were in close communications with festivity organizers both through a government command center which was staffed by our Meteorologist-In-Charge, and with forecasters in our operations via the Emergency Management phone network. About a quarter after 5 pm, these severe storms hit the National Mall with fury, knocking down large elm trees and tents set up for the celebration. It was estimated that 80,000 people were evacuated into museums in enough time to ensure everybody's safety. No injuries were reported.

## **MIC's Corner** *Continued from Page 1*

Piece-by-piece, we continue to build excellence at the Baltimore/Washington Weather Forecast Office. In fiscal year 2006, we had many successes with events like the Open House, establishment of the Marine Users Committee, re-establishment of the KLWX Unit Radar Committee, Student Volunteer Intern Program, Office Floor Plan Remodeling, Employee-of-the-Month selections, Skywarn Spotter Classes and Skywarn Program reinvigoration. We provided superior hydrometeorological services for the February snowstorm, June floods, and 4<sup>th</sup> of July severe thunderstorms. Success breeds support and commitment, which in turns builds more success, which then builds more support and commitment and so on it goes. But all of this success could not have been achieved without our staff. Steve Rogowski and Brandon Peloquin are two examples of this, and congratulations to them and the rest of the staff for their all of their achievements this year!

Our office's leadership team will be meeting next week to plan our objectives and goals for fiscal year 2007. Have a great remainder of the summer, and I'll be reporting in the fall *Sterling Reporter* on our 2007 objectives and goals

## **March through May 2006 Storm Data**

Sarah Allen

For the detailed report on these weather events, please visit:  
<http://www.erh.noaa.gov/lwx/Storms/Strmdata/index.htm>

A strong cold front brought strong winds to the region on March 2<sup>nd</sup>. There were reports of a few trees downed and minor property damage due to the strong winds in Allegany and Mineral Counties.

Nearly 100 acres were burned due to a wildfire in the Severn Run Natural Environment Area near Millersville on March 17<sup>th</sup>. Two firefighters were injured during the fire. Weather conditions were conducive to explosive fire growth, with very dry surface fuels, strong winds and low relative humidity.

A cold front combined with strong instability to cause numerous severe thunderstorms to occur on April 3<sup>rd</sup>. The majority of the severe weather reports were from large hail and damaging wind gusts. A wind gust of 54 knots was measured at Andrews AFB.

A fast moving upper level disturbance caused rain and snow squalls containing thunder and lightning to drop quickly from Pennsylvania south into central and eastern Maryland early in the morning of April 5<sup>th</sup>. A wind gust of 51 knots was measured at Martin-State Airport during a heavy snow squall.

A strong upper level disturbance caused scattered showers and thunderstorms to develop during the afternoon and evening of April 13<sup>th</sup>. A few of these storms reached severe limits with damaging winds and large hail.

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## Summer 2006 Student Volunteer Program

Sarah Allen, Katie LaBelle, Audra Hennecke

The Student Volunteer Program is designed to allow selected college and even high-school students to gain first-hand knowledge and experience of operations and research within an NWS forecast office. Students were required to submit an application, resume, transcript, and brief introduction in order to be selected. Two students were selected through a competitive application process to participate in this volunteer program. Both of these students work between 25 and 30 hours per week from the end of May through August.



Katie LaBelle will finish her final semester at Penn State University this fall and graduate with a Bachelor's degree in meteorology. Katie is working with Roger Smith on two research projects regarding Aviation Weather.

One project involves researching the 30-year climatology for all flight categories from Reagan National Airport, Washington Dulles Airport, BWI Airport, Martin State Airport, and Eastern West Virginia Regional Airport. It will examine seasonal flight rules between 1973 and 2002 for each airport to see if there is any correlation between flight rules and cloud ceilings or visibilities. The other project studies cold air damming events that resulted in Instrument Flight Rules (IFR) or lower. These events will be divided into two groups, one identifying longer duration events versus characteristics of shorter duration events, to identify any correlation.



Audra Hennecke will be a junior this fall at The Pennsylvania State University. Audra is working with Sarah Allen, Steve Rogowski, and Rich Hitchens on a flash flood awareness project. This project focuses on the counties located along and near the Blue Ridge.

After gathering information from the counties about their flash-flood prone areas, these locations were pinpointed on the maps within Advanced Weather Interactive Processing System (AWIPS), thus allowing forecasters to be more aware of the known flash flood-prone areas in the event of hazardous weather. Additionally, these locations will be incorporated into the warning decision making and generation processes, allowing these flash flood-prone locations to be included in the text of Flash Flood Warnings.

## Spring - Summer of 2006

Christopher Strong

While the first half of summer 2006 is off to a rather moderate start for temperatures, our rainfall is another story. Where many summers start off in drought or with the possibility of drought, this summer will have no such problems. June was either the wettest or one of the wettest Junes on record, depending on your location, and July has near normal precipitation already half way through the month.

The temperatures averaged near normal from June 1<sup>st</sup> through July 15<sup>th</sup>. At Reagan National Airport, Washington's average temperature was only about a half of a degree above our average. The average high was 84 degrees, with an average low of 67 degrees. Twenty-eight days of the forty five so far this summer had highs in the 80s, with the rest either in the 70s or low 90s. There have been eleven 90 degree days so far for this summer, the same as last year, and just below the average through this point in the year of fourteen.

At Baltimore/Washington International Thurgood Marshall Airport, Baltimore's average temperature was only about a half of a degree above our average. The average high was 85 degrees, with an average low of 64 degrees. About half of the forty five so far this summer had highs in the 80s, with the rest either in the 70s or low to mid 90s. There have been fourteen 90 degree days so far for this summer, five more than last year and just over the average through this point in the year of twelve.

Rainfall was rampant across the region, especially in June. While around five inches of rain would be the average amount from June 1<sup>st</sup> through July 15<sup>th</sup>, Washington had over seventeen inches of rain, while Baltimore had nine inches. Tropical air combined with a stationary front to produce several days featuring thunderstorms with extraordinarily heavy rain during late June, and that brought most of the rainfall. Flooding from this late June deluge was widespread and in some cases historic across the Mid-Atlantic States. There is an article in this edition of the Sterling Reporter with more details on that event.

There was also a severe weather outbreak on July 4<sup>th</sup>. This outbreak featured strong damaging winds that cause widespread power outages, and a temporary evacuation of the 4<sup>th</sup> of July festivities on the National Mall in downtown Washington. There is also an article in this edition with details about that severe weather.

## Late June Floods Strike Baltimore/Washington Forecast Area

Richard Hitchens, Senior Service Hydrologist

A weak cold front settled in over the forecast area beginning around the 22<sup>nd</sup> of the month, and decided to stay in place for five days. Waves of low pressure rode northeast along the front. Flow in the atmosphere was parallel to the boundary, producing several rounds of "training echoes", a term in radar meteorology used to describe multiple thunderstorms or heavy showers moving across the same area. As a result, double digit rainfall totals affected parts of the region from late Thursday night the 22<sup>nd</sup> into Tuesday the 27<sup>th</sup>. There were also several rounds of severe weather (damaging winds and/or large hail) during the period.

Scattered areas of flash flooding began late on Thursday night and continued into Saturday. Then, flooding began to take on a more serious nature since the ground had become saturated in so many spots.

Activity began quickly again on Sunday morning the 25<sup>th</sup>. Fairfax and Prince William Counties were hit first, with a large portion of the forecast area receiving Flash Flood Warnings and flooding during the afternoon and evening over northern and western Virginia, Maryland from the Baltimore and Washington areas westward to Washington County, and the District of Columbia. For the calendar day, 38 county/independent city warnings were issued due to flooding.

Mother Nature was not finished simply because the clock struck 12. Flash Flood Warnings continue to fly out of our office Monday the 26<sup>th</sup> and reports continued to stream in. To give you an idea of how prolonged this event was, here are the times Flash Flood Warnings were issued for locations in our County Warning Area: 1226 am, 101 am, 232 am, 344 am, 437 am, 934 am, 1049 am, 1109 am, 1115 am, 1131 am, 1213 pm, 106 pm, 116 pm, 117 pm, 222 pm, 334 pm, 456 pm, 608 pm, 709 pm, and 1047 pm. 20 Flash Flood Warnings added with the number of jurisdictions they contained, equaled 61 county warnings for the calendar day.

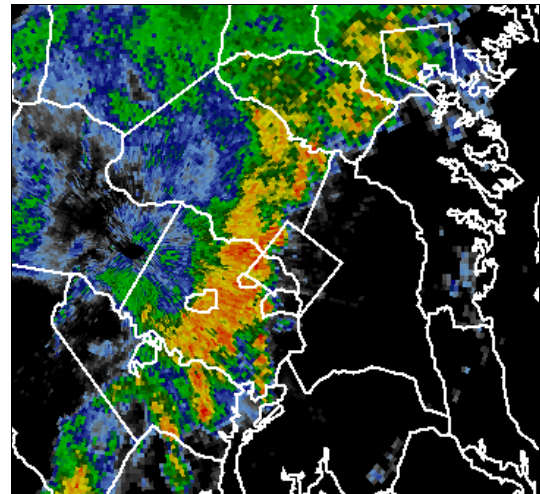
The Washington and Baltimore areas were severely hit on this day, the 26<sup>th</sup>. Rain poured down at the rate of 2 inches per hour at times on an already soaked ground. Mudslides and large numbers of roads and cars were impacted by high water. Numerous water rescues were needed by people stranded in their cars. Several federal government agencies in Washington had flooded buildings on this day, including the IRS, Commerce Department, the Environmental Protection Agency and the Justice Department. Major commuter routes were shut down in spots by high water. At one point, 4 feet of water was reported in the 9<sup>th</sup> Street tunnel in DC. Rock Creek flooded, and threw several vehicles up against trees due to the fast flowing high water. Flooding in underground tunnels also forced much of the Washington Metro rail to close.

Flash flooding and heavy rain continued on Tuesday the 27<sup>th</sup>. The first Flash Flood Warning was issued at 1210 am, and the last was sent at 1127 pm. On this day, 46 county warnings were issued. Reports came in from the following counties: Spotsylvania, Highland, Washington MD, Berkeley, Harford, Anne Arundel, Baltimore, Frederick, and Montgomery. 2000 people in Montgomery County were evacuated due to the potential failure of Needwood Dam near Rockville. Fortunately, this did not occur.

Unfortunately however, 5 people lost their lives on this day due to flooding. All of the fatalities took place in Frederick County, Maryland.

Some of the heavier rainfall totals for the period from 700 am Friday the 23<sup>rd</sup> through 800 am Wednesday the 28<sup>th</sup> include:

13.47" – Reagan Washington National Airport  
13.12" – Hyattsville, Prince George's County  
12.81" – Herndon, Fairfax County  
12.24" – Norbeck, Montgomery County  
11.71" – North Bel Air, Harford County  
11.63" – Dalecarlia Reservoir, Washington, DC  
10.85" – Fairfax City  
10.78" – Craigsville, Augusta County  
10.70" – Columbia, Howard County  
10.63" – Bowleys Quarters, Baltimore County  
10.28" – Dunkirk, Calvert County



A Reflectivity image of the torrential storms as they approached the District from the southwest shortly before 9:00 pm Sunday June 25<sup>th</sup>.

Remember, when flooding is imminent or occurring, **TURN AROUND DON'T DROWN**. Most flood fatalities are preventable. Do not drive or walk into flood waters. It does not take much flowing water to carry you or your vehicle away. Flood waters are dirty; chemicals, bacteria and debris can more swollen waterways even more dangerous. Cuts and scrapes can become infected, even if you are wading in water that is not moving.

## Outreach of Note

Sarah Allen

On May 15<sup>th</sup>, Chris Strong participated in the Fairfax County Emergency Response Fair. Chris distributed Emergency Preparedness pamphlets, Hurricane Tracking Charts, internet address sheets, and various other brochures. Over 400 people were in attendance for the event.

On May 17<sup>th</sup>, Sarah Allen conducted an office tour for members of a weather delegation from India and two representatives from NOAA International Affairs. The group included two Deputy Directors for the India Weather Service. They observed Brian Guyer perform a NWR Weekly test and Jim Decarful showed them one of the surface observation systems in the field.

On May 23<sup>rd</sup>, Sarah Allen and Audra Hennecke visited 4<sup>th</sup>-6<sup>th</sup> grade student at Holy Redeemer Catholic School in Kensington, MD. Later that day, Steve Zubrick and Brian Guyer conducted an office tour for six members of the Korean Meteorology Agency delegation and 2 NWS Headquarters meteorologists.

On May 25<sup>th</sup>, Chris Strong participated in a Career Fair at Glen Dale Elementary. On May 26<sup>th</sup>, Sarah Allen visited with 4<sup>th</sup> grade students at Leesburg Elementary School.

On June 6<sup>th</sup> and 15<sup>th</sup>, members of the TORCH Home School group visited the office and observed an evening weather balloon release.

On June 19<sup>th</sup>, students from the Presidential Classroom for Young Americans - Science and Technology Session toured the office. They began the visit with an introduction by Jim Lee, an overview of NOAA with Ida Hakkarinen of NESDIS and a Presidential Classroom Instructor, and a presentation conducted by Sarah Allen regarding the local affects of Hurricane Ivan and an overview of the SKYWARN Spotter Program.



**Presidential Classroom**

On June 21<sup>st</sup>, James Brotherton was a guest speaker for the monthly meeting of the Power Squadron from the Potomac River in Silver Spring, MD.

Steve Zubrick conducted an office tour for a group from Aberdeen Proving Ground on June 29<sup>th</sup> and for 3 delegates from Environment Canada on June 30<sup>th</sup>.

On July 25<sup>th</sup>, Dave Manning conducted a tour for NWS Headquarters student trainees in the verification branch, as well as an orientation to the new NWS Legislative Affairs Specialist and the new national Warning Coordination Meteorologist.

## March through May 2006 Storm Data

*Continued from Page 2*

Strong daytime heating combined with favorable winds and cold temperatures at higher altitudes contributed to scattered thunderstorm development during the afternoon and evening of April 15<sup>th</sup>. Some of these storms produced large hail up to 1.5 inches in diameter.

High moisture content and relatively light winds created prime conditions for flash flooding to occur with storms on the evening of April 22<sup>nd</sup>.

Strong thunderstorms were capable of producing very large hail during the late evening of April 23<sup>rd</sup> and into the early morning hours of the 24<sup>th</sup> due to very cold air aloft in the atmosphere. Severe criteria large hail reports were received from areas near Baltimore and the adjacent waters of the Chesapeake Bay. Later that evening, wet grounds contributed to the development of areas of dense fog across the Washington and Baltimore metro areas.

A cold front, combined with a strong upper-level disturbance, caused widespread severe thunderstorms to occur on May 11<sup>th</sup>. Most of the active weather occurred east of the Blue Ridge Mountains. Three F0 tornadoes occurred in Mastins Corner, Falmouth, and the Fredericksburg Spotsylvania Military Park in northern Virginia.

## Howard University Weather Camp 2006

Sarah Allen

The Howard University NOAA Center for Atmospheric Sciences (NCAS) hosted its annual Weather Camp from July 16<sup>th</sup> – 28<sup>th</sup>. NCAS has hosted Weather Camp since 2002 to give high school juniors and seniors the opportunity to explore options within the atmospheric sciences and related fields. Students gained knowledge and insight into meteorological phenomena, environmental sciences and applied physical sciences through a number of hands-on activities. In addition, they had the opportunity to visit several major organizations with atmospheric sciences professionals including NOAA, NBC-4, and Mitretek.

On July 18<sup>th</sup> Nikole Listemaa gave the students a tour of the office. Sarah Allen then visited Mitretek Systems to discuss extreme weather with the students on July 24<sup>th</sup>.



**Sarah Allen and retired NWS Employee Bob Saffle meet with a small group to discuss hazardous weather and careers within the NWS.**

## NWS Staff "Runs with the Currents"

Brandon Peloquin

On June 3, MIC Jim Lee and general forecasters Brandon Peloquin and Sarah Allen participated in the National Race for the Cure in downtown Washington D.C. The National Race for the Cure is an annual 5 kilometer run/walk that raises money for the fight against breast cancer. These funds are used for breast cancer research, education, screening and treatment.

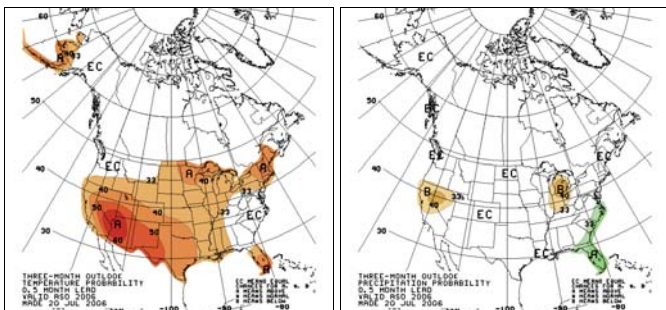


Members of NOAA's "Runs with the Currents" Team

Like recent years, our office joined NOAA's Running with the Currents Team. 168 NOAA Team Members participated in the race and raised \$6,439. This amount was a record for the team. In all, more than 40,000 participants came out on Race Day, and together raised over \$2.3 million.

## August-September-October Outlook

NOAA's National Weather Service Climate Prediction Center created these August-September-October temperature and precipitation outlooks during late July. 'EC' means Equal Chance, 'A' stands for Above Normal, while 'B' is Below Normal. These are probabilistic forecasts; the forecast probability anomaly is the difference between the actual forecast probability of the verifying observation falling in a given category and its climatological value.



Climate Prediction Center outlooks, discussions and explanations are available at:  
<http://www.cpc.noaa.gov/products/predictions/90day/>

## Upcoming SKYWARN Classes

For more information check out the SKYWARN website:  
<http://www.erh.noaa.gov/er/lwx/skywarn/classes.html>

### BASICS I SKYWARN CLASS

This class is essential for becoming a SKYWARN Spotter. It is a 3-hour class that covers the basics of how SKYWARN and the National Weather Service operate, what you need to report and how, and how to spot severe thunderstorms and tornadoes.

[This class is a pre-requisite for all other classes.](#)

### BASICS II SKYWARN CLASS

This class is an optional sequel to the Basics I class. It is 2 1/2 hours long. It is good for spotters who need a refresher or feel they want additional information and training. It reviews the basic spotting techniques and covers more information about thunderstorms and Doppler radar. You must have taken Basics 1 to attend this class.

### WINTER STORM CLASS

This is an optional 2 1/2 hour class that is occasionally offered seasonally (November - January). Its focus is on the Mid-Atlantic snow storms and nor'easters. It looks at the frequency and history of the storms, how they form and the difficulties in forecasting them, how to be prepared, how to measure snow and ice, and how SKYWARN operates during a winter event. You must have taken Basics I to attend.



## *Sterling Reporter*

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