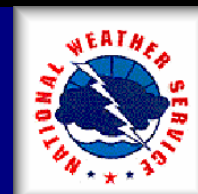




## Sterling Reporter



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

Volume 4, Issue 4

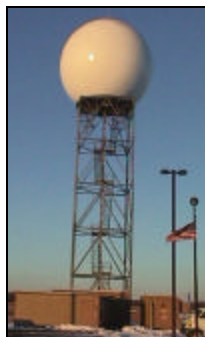
Winter 2005-2006

### Open House Planned April 29-30

Sarah Allen

NOAA's Baltimore/Washington National Weather Service office in Sterling, VA, will host an Open House on Saturday April 29<sup>th</sup> from 9 AM to 5 PM and Sunday April 30<sup>th</sup> from 12 PM to 5 PM. This Open House is designed to educate the public in weather safety and National Weather Service operations.

Several of our staff members will make presentations on severe and tropical weather, weather safety, and careers in meteorology. A weather balloon will be released Saturday and Sunday afternoons.



A Basics 1 SKYWARN class will also be held during the Open House. Those interested in participating in the class must pre-register on our website.

Please continue to check out our website at <http://www.weather.gov/washington> for more information.

### Technology Advances

to be Displayed at Open House

Jim Lee, Meteorologist-In-Charge

After the seventh warmest January on record at Ronald Reagan National Airport, winter came back in a "flurry" to the northeast United States over the weekend of February 11-12, 2006. During that weekend, between 8 and 14 inches of snow fell across the Baltimore/Washington Weather Forecast Office's County Warning Area, with amounts near or over twenty inches recorded in the Maryland counties of Howard, Baltimore, and Harford. Those twenty inch amounts were enhanced due to slantwise convection, which resulted in 6-to-15 mile wide linear areas of heavy snow (also known as mesoscale snow bands) and thundersnow (a snow-lovers dream).

This storm reinforced a couple of concepts that have been on my mind over recent months. The era of four-panel facsimile charts, the LFM, AFOS, acetate overlays and grease-pencils are well behind us, but their legacy lives on. What we know view as relics were actually pioneering technology in their day, and they helped usher in major changes to the way weather forecast offices did business. Technology has changed our entire society, and especially the world of the operational meteorologists, hydrologists, and technicians.

In my "twenty-something" years in the business of weather/water/climate, two things come immediately to mind that were particularly significant in changing our profession: The advent of the WSR-88D Network in the early 1990s, and the evolution of numerical weather prediction models. Both of these technologies were used extensively during the February 11-12 snowstorm, and assisted our operational staff in forecasting.

While developing the Weather Surveillance Radar (WSR) 88D radar system to replace the aging WSR-57s and WSR-74Cs, engineers and scientists did not have in mind slantwise convection during snowstorms. However, the WSR-88D's resolution enabled scientists to observe, and then study this important winter weather phenomenon. The direct result of this technology is enhanced warnings and short-term forecasts during winter weather.

Currently, scientists at the NOAA Severe Storms Research Laboratory will soon begin adapting SPY-1 radar technology currently deployed on Navy ships for use in weather and water forecasting. A National Weather Radar Testbed has been established at NSSL. This testbed will provide the first surveillance phased array radar facility available on a full-time basis to the radar meteorological research community. What will be the forecasting enhancements of the future as a result of implementing phased array radars? Time will tell.

(Continues on Page 2)

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## November and December 2005

Brian Guyer

Much of the weather during November and December 2005 was a roller coaster ride for the Mid Atlantic region. The pattern was comparable to the variability seen in the North Atlantic Oscillation (NAO). The NAO is a large-scale fluctuation in atmospheric pressure between the subtropical high pressure system located near the Azores in the Atlantic Ocean and the sub-polar low pressure system near Iceland. When the difference is positive, the northeastern United States sees an increase in temperature and decrease in snowy days. When the difference is negative, the northeastern United States sees a decrease in temperature and increase in snowy days.

During the first two weeks of November, the NAO was slightly positive. At Reagan National Airport, the average temperature was above the two week normal, precipitation well below. During the second half of November, the NAO trended negative and remained so through mid December. The average temperature from mid November through mid December was well below normal, and precipitation was slightly above normal. This combination led to early season snowfall ranging from 5-6" across the metropolitan area to around 12" at the higher elevations. Locations along and west of the Allegheny Front saw considerable snowfall amounts, with over 3 feet at Bayard, WV. During the last half of December, the NAO trended positive. The average temperature was slightly above the two week normal, precipitation slightly below.

The impact of the NAO on weather patterns over the Mid Atlantic states is clearly evident for November and December 2005. However, it is still unclear how the variability of the NAO is affected by its complex interaction with other large scale climate cycles, such as El Nino and La Nina. More information about the NAO can be found at the Climate Prediction Center's web site:

<http://www.cpc.ncep.noaa.gov/index.html>

## Student Volunteer Program

Sarah Allen

Competition for positions within NOAA's National Weather Service (NWS) has increased in recent years. It has proven beneficial for recent college graduates to have prior NWS job experience when they apply for positions within the NWS. Hence, we have developed a student volunteer program at the NWS forecast office in Sterling, Virginia, aimed at allowing selected college students to gain first-hand knowledge and experience of operations within an NWS forecast office. Because of resource restraints, only a few students are selected to the student volunteer program at NWS-Sterling through a competitive application process.

Applications for the Summer Student Volunteer Program are due by March 1, 2006. More information about the Student Volunteer Program can be found on our web page.

[http://www.erh.noaa.gov/lwx/outreach/Student\\_Volunteer\\_Webpage.htm](http://www.erh.noaa.gov/lwx/outreach/Student_Volunteer_Webpage.htm)

*( 'Technology Advances to be Displayed at Open House' continued from Page 2)*

Second, the evolution of numerical weather prediction (NWP) models and their increased accuracy in the three-to-seven day forecast period is remarkable. Over the past twenty years, the NWS continues to increase computing capability, along with increased quantity and quality of ocean, surface, tropospheric, and NOAA satellite observations. Couple these technology enhancements with world-renowned atmospheric modelers, and you can see why our NWP models continue to improve. The Global Forecast System (GFS) Model is now run four times-a-day at a 35 km horizontal resolution out to 180 hours, with 64 vertical layers. Just eight years ago, the precursor to this model was being run four times-a-day at approximately 80 km horizontal resolution out to 84 hours, with only forty-two vertical layers. If a forecaster wanted a model beyond 84 hours, your choices were mainly limited to the MRF model, and you could only obtain it once-a-day. Our forecasters are presented new operational model guidance every six hours, and in the case of the Rapid Update Cycle model, every three hours.

Moreover, for the three-to-seven day forecast period, GFS ensemble forecasts are now available to forecasters, and provide them with the ability to forecast uncertainty and potential, instead of straight-objective predictions. Our colleagues at the NWS Environmental Prediction Center are constantly looking at ways to improving our numerical models, which we rely on significantly here in our office. What advances will numerical weather prediction take over the next ten years? Again, only time will tell, but the prognosis is outstanding!

Please mark your calendars for April 29-30, 2006, when our office will hold an Open House. The Open House will include several informative presentations, including how the WSR-88D Radar and numerical weather prediction models are used by forecasters. Additionally, tours of the operations area, weather balloon demonstrations, and exhibits by our emergency management partners will be part of the Open House. I hope to see you here!

## 2005 COOP Program Awards

John Darnley

The National Weather Service office in Sterling, VA relies on over one hundred dedicated weather observers in our forecast/warning area. The observers report daily precipitation amounts, high and low temperatures, and sky condition. Their data is used to improve weather and river forecasts and warnings, along with enhancing the Nation's climate database. We at the Sterling office furnish and maintain the equipment used by the observers. However without the observer's dedication and commitment to the program, it would not be possible to accomplish the task of recording the climatic history for our region. The Cooperative Observing Program has been collecting weather data for over a hundred years, and we like to recognize our observers for their years of service to their community and country. This past year the Sterling office gave out a number of Length of Service Awards to our devoted observers. Due to the space limitation, a select few will be presented via this newsletter.

*(Continues on Page 3)*

( '2005 COOP Program Awards' continued from Page 2)



The Workers of the Front Royal Water Treatment Plant are dedicated weather observers of the COOP program, providing the Weather Forecast Office with daily temperature and precipitation reports. They received the Special Service Award for ten years of service by an institution.



Through their dedication and perseverance Bill and the late Sandra Speiden have provided excellent Max/Min Temperature and precipitation reports daily for 40 years. These reports have been vital to the NWS particularly in Orange County, Virginia where flooding can occur along the Rapidan River.



The 10 year Length of Service Award was presented to Scott Tester (right) from Sperryville, VA. The award was presented on November 15, 2005 by John Darnley, OPL, Sterling WFO.



75 year Institutional Length of Service Award presented to employees of the Parkins Mills Waste Water Treatment Plant, in Winchester, Virginia. From left to right are current observers Grey Grim and Harold Stepp. The award was presented on September 15, 2005 by John Darnley, OPL, WFO Sterling

## Recent Tours at the Baltimore/Washington Forecast Office

Sarah Allen

November was a busy month for the Office Tour Program, with more than 70 people visiting the office. On November 10<sup>th</sup>, a small group of students from the University of Maryland toured the office to learn about operational meteorology. Later that evening, 30 members of the Washington DC Chapter of the American Meteorological Society (DC-AMS) visited with members of our staff. The DC-AMS was given an introduction to the office from Jim Lee, toured the operations area, and a viewed demonstration of the Weather Event Simulator (WES) from Steve Zubrick.

On November 23<sup>rd</sup>, Jim Lee conducted a tour for the Korean Meteorological Administration, including the Director and several members of his staff. Dave Ruth of NOAA/NWS/MDL attended along with Mara Browne of NOAA/NWS/IA.



On December 2<sup>nd</sup>, two classes of 5<sup>th</sup> grade students from the Oakwood School visited the office to support their classroom study of weather. On December 29<sup>th</sup>, Brian Guyer was interviewed and demonstrated a weather balloon release for Chris Rose from the Aircraft Owners and Pilots Association (AOPA.) Photos taken will appear in an article on aviation-related jobs.

Office tours are conducted Monday through Friday, from 10 AM to 1 PM and 5 PM to 7 PM. Tours are limited to 20 people, with students in the 6<sup>th</sup> grade or higher. Tours will be conducted on "fair" weather days only. If winter weather, severe weather, or flooding is expected on the day of a scheduled tour, the tour will be cancelled and/or rescheduled. To schedule an office tour, please visit our web site at <http://www.erh.noaa.gov/lwx/wesh/tourrequest.htm> and complete the **Tour Request Form (PDF)** at the top of the page.

## September, October, and November 2005 Storm Summaries

James Brotherton

For a complete report of storm events for your specific location, and around the country, please use our online interactive database located at:

<http://www4.ncdc.noaa.gov/cgi-win/wwwcgi.dll?wwEvent~Storms>

### *September Events:*

Isolated Severe Thunderstorms occurred on the 16<sup>th</sup> and 17<sup>th</sup> of the month across portions of Northern Virginia and Southern Maryland, including Frederick County, VA and St. Mary's County, MD. Winds gusting near 60 mph and hail to the size of pennies were produced by a few of these storms. Gusts of 35 knots or greater also occurred on the Tidal Potomac River and Maryland portion of the Chesapeake Bay.

On the 20<sup>th</sup>, nickel size hail and wind gusts of 38 knots occurred on portions of the Chesapeake Bay and Tidal Potomac River.

On the 23<sup>rd</sup>, severe thunderstorms occurred across Fauquier and Rappahannock Counties in Virginia, with wind gusts around 60 mph. Several trees and powerlines were downed, and damage was reported to a house near Ada, VA.

On the 30<sup>th</sup>, the first widespread frost occurred across the Potomac Highlands Region, including Allegany County, MD, Grand, Mineral, and Pendleton Counties in Maryland, and Highland County, VA.

### *October Events:*

On the 8<sup>th</sup>, the remnants of Tropical Storm Tammy caused widespread heavy rainfall between 3 to 7 inches across the region. Numerous reports of flooded roads were received due to the prolonged rains. Some areas received close to 12 inches of rainfall (an automated rainfall gauge at Montebello in Nelson County Virginia measured 11.36 inches). Other rainfall totals across the area included Washington National with 7.34 inches, Sterling NWS with 7.14 inches, Baltimore International with 6.72 inches, Dulles with 6.62 inches, Charlottesville with 5.50 inches, and Martinsburg with 2.91 inches. Amtrak commuter trains were delayed for 2.5 hours due to a downed tree on signal wiring. One man was killed when a large tree limb fell on the vehicle he was driving, and the passenger in the vehicle was seriously injured.

A crippling winter storm occurred on the 25<sup>th</sup> and 26<sup>th</sup>

across the higher mountains of Maryland, West Virginia, and Virginia. This winter storm was attributable to strong northwest winds and Great Lakes moisture plowing into the mountains, causing "upslope snow". Between 4 and 8 inches of heavy, wet snow fell in locations from Frostburg, MD to Mount Storm, WV, to Skyline Drive in the Shenandoah National Park in Virginia. Skyline Drive was shut down for a period of time. Numerous trees were downed along Route 211 at New Market Gap, VA, near the national park. The Allegheny Power Company, which supplies power to much of the affected region, reported power outages of 310,000 at one point.

Most areas across the region received a killing frost on the mornings of the 27<sup>th</sup>, 28<sup>th</sup>, or 29<sup>th</sup>. These frost events ended the growing season for most areas, including the Baltimore and Washington Metro Areas.

### *November Events:*

On the 16<sup>th</sup>, strong winds affected much of the region. In Washington, DC, a woman was seriously injured when a tree limb fell on her as she was walking down the street. Dominion Power Company, which serves much of Northern Virginia, reported 3300 Virginia customers without power. Most of these outages occurred in Fairfax County. Also, wind gusts of 35 to 40 knots occurred across much of the Chesapeake Bay.

On the 22<sup>nd</sup> and again on the 24<sup>th</sup>, strong and prolonged winds occurred as strong cold fronts moved across the West Virginia Panhandle, and parts of Northern Virginia and Maryland. Wind gusts were measured between 40 to 50 mph. These winds caused widespread power outages across much of Maryland from Allegany County, southeast to Anne Arundel County. Local newspaper reports indicated that 14,000 Baltimore Gas & Electric customers were without power at one point on the 22<sup>nd</sup>. On the 24<sup>th</sup>, widespread outages were reported around Shepherdstown, in Jefferson County, WV. The nearby Martinsburg Airport measured a peak wind gust of 43 mph.

On the 29<sup>th</sup>, a strong large low pressure system moved from the Ohio Valley into the Middle Appalachians. Southerly winds brought abundant moisture into the region, generating prolonged heavy rainfall which led to widespread flooding conditions across much of the region. A few severe thunderstorms also occurred with wind gusts up to 70 mph. A roof was blown off a house in Frederick County, MD, rendering the house uninhabitable.

## Baltimore/Washington National Weather Service Hosts Marine Users Committee Meeting

Brandon Peloquin

On December 2, 2005, WFO Baltimore-Washington hosted its first Marine Users Committee Meeting.

In an effort to gain feedback on marine products, services and forecasts for the Chesapeake Bay north of Smith Point, Virginia and the Tidal Potomac River, a diverse group of marine users and partners were invited to the Weather Forecast Office located in Sterling, Virginia. Among those who participated on the Marine Users Committee were representatives from the U.S. Coast Guard, local Power Squadrons, a local Sailing Club, the Chesapeake Area Professional Captain's Association, the NOAA Chesapeake Bay Office and NOAA's Ocean Prediction Center.

The meeting lasted over three hours and included a presentation from Marine Program Leader and Marine Users Committee Organizer Brandon Peloquin regarding products and services the NWS provides to local marine customers. Assistant Marine Program Leader Steve Rogowski also gave a presentation which discussed the marine forecast process. The most important part of the Marine Users Committee Meeting turned out to be an open forum session where marine users provided useful feedback on ways to improve the WFO Baltimore -Washington Marine Program.

Several action items were also developed, including the creation of a new repertoire of marine outreach materials, including pamphlets, brochures and stickers. The committee also discussed the need to acquire additional observations to aid in marine forecasting.

The WFO Baltimore -Washington Marine Users Committee will meet two times per year, and the next meeting will occur in the spring in Annapolis, Maryland.



PICTURED...FROM LEFT TO RIGHT:

Steve Rogowski, Meteorologist and Assistant Marine Program Leader; Steve Zubrick, Science and Operations Officer; Jay Nelson, Northern Virginia Sail and Power Squadron; Raul Chiesa, Annapolis Power Squadron; Doug Wilson (kneeling), NOAA Chesapeake Bay Office; Marc Cruder; Marine Inspector Coast Guard DC Headquarters; PO Brad Stickles, Coast Guard Baltimore; Captain Nancy Gardner, Chesapeake Area Professional Captain's Association; Rich Kowalczyk, Pentagon Sailing Club; Lee Chesneau, Ocean Prediction Center; Brandon Peloquin, Meteorologist and Marine Program Leader; Jim Lee, Meteorologist In Charge; and James Brotherton, Meteorologist.

## SKYWARN Recognition Day

David Manning

On 2 December 2005, NOAA's National Weather Service Forecast Office in Sterling, VA participated in the annual SKYWARN Recognition Day. Amateur radio operators staffed the amateur radio station at NWS Sterling throughout the event and reached countless contacts across the country during the event. The SKYWARN program is an integral part of the NWS warning process by providing 2-way communications to spotters in the field during periods of severe weather. This real time information exchange helps provide the latest information to those in the field. In addition, the information received from the spotters on the ground is critical to forecasters in providing the most accurate warnings possible.



SKYWARN Recognition Day was developed in 1999 by NOAA's National Weather Service and the American Radio Relay League. It celebrates the contributions that volunteer SKYWARN radio operators make to the National Weather Service.

NOAA's National Weather Service continues to extend its appreciation to the amateur radio operators whose selfless service benefits the residents of Maryland, West Virginia, Virginia, and the District of Columbia.

## NWS Spring Related Product Criteria

**Severe Weather Outlook:** Issued as a Special Weather Statement, this outlook provides the expected timing, extent and potential hazards posed by forecasted thunderstorms, 6 to 18 hours before the expected event.

**Severe Thunderstorm Watch:** Issued for an area that appears favorable to receive at least 6 reports of severe thunderstorms (hail>0.74" in diameter and/or winds >57 mph) within the next 2-6 hours in collaboration with the Storm Prediction Center in Norman, Oklahoma. A Typical watch covers about 8,000 square miles.

**Severe Thunderstorm Warning** – A thunderstorm is currently or will likely imminently produce hail>0.74" in diameter and/or winds >57 mph. These warnings are usually issued for a county for 30 to 60 minutes.

**Tornado Watch** – Issued for an area that appears favorable for at least 2 tornadoes, or any tornado F2 or greater within the next 2-6 hours in collaboration with the Storm Prediction Center in Norman, Oklahoma. A Typical watch covers about 8,000 square miles.

**Tornado Warning** – A thunderstorm is currently or will likely produce a tornado. Hail>0.74" in diameter and/or winds >57 mph may also occur. These warnings are usually issued for a county for 15 to 45 minutes.

## Baltimore/Washington Office to Participate in 2006 Washington Boat Show

Brandon Peloquin

Throughout the year, our Weather Forecast Office participates in a variety of outreach events. From January to December, members of our staff give office tours to boy and girl scout troops, make presentations to National Weather Service (NWS) partners and customers, and visit area schools and businesses. Each one of these types of outreach typically lasts a few hours. However, in the late winter each year, our Weather Forecast Office participates in an outreach event that lasts for five days, making it the biggest outreach event that our office is involved in. This event is the Washington Boat Show.

The Washington Boat Show is one of the biggest boat shows on the East Coast. It displays over 500 boats of all sizes and features hundreds of exhibitor booths. Last year, hundreds of people stopped by the NOAA/NWS booth to discuss the impacts that weather has on sailing and other marine activities. Conversations with mariners provided us with ideas on ways we can improve our marine forecasts and services.

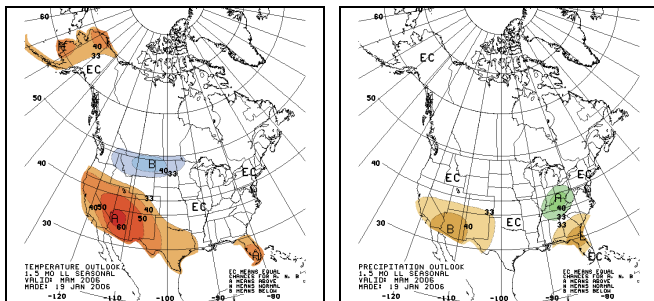
Our office will be back at the Boat Show this year as it celebrates its 45<sup>th</sup> anniversary. We'll have a brand new NOAA/NWS background and visitors will find numerous informational pamphlets about boating safety and marine forecasting. Forecasters from our office will also be available to interact with visitors to answer questions about our forecasts and services.

The Boat Show will be held at the Washington Convention center in downtown Washington D.C on Wednesday, February 22 through Sunday, February 26. If you attend the Boat Show, please stop by our booth to say hi!

More information about this year's Washington Boat Show can be found at: <http://www.washingtonboatshow.com>.

### March-April-May Outlook

NOAA's National Weather Service Climate Prediction Center created these March-April-May temperature and precipitation outlooks during mid January. '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>

SKYWARN observers are being called in order to update our database. If you receive a phone message, you have the option of either calling us back, or filling out a form at:

[http://www.erh.noaa.gov/lwx/skywarn/skywarn\\_update.php](http://www.erh.noaa.gov/lwx/skywarn/skywarn_update.php)

### 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.



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