

Sterling Reporter



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National Weather Service Baltimore MD/Washington DC Forecast Office

Winter 2012



MIC's Corner

*By, James E. Lee
Meteorologist in Charge*

I am pleased to announce two exciting new resources that arrived at our office recently: Dual Polarization radar technology, and Emergency Response Specialist (ERS) meteorologists.

Late this winter, the Baltimore/Washington Weather Forecast Office's Doppler Weather Surveillance Radar (WSR-88D) underwent a significant upgrade, utilizing new dual polarization technology. By the time you read this edition of *The Sterling Reporter*, the upgrade will be complete, and enhanced weather radar information will be in use by our staff. The Dual Polarization technology will give forecasters better information about heavy rainfall in flooding events, hail detection in thunderstorms, and even recognize whether precipitation is in the form of rain, snow or ice. In some situations, it can also detect the presence of airborne tornado debris, giving forecasters confirmation of an ongoing damaging tornado, which is especially helpful if the tornado is impossible to see, such as during the nighttime hours.

Currently, National Weather Service Doppler radars provide forecasters information on precipitation intensity and movement (direction and speed). Dual Polarization technology adds new information about the size and shape of airborne objects, which will improve estimates of how much rain is falling, improving flash flood detection and warnings. During winter weather, Dual Polarization radar can tell the difference between rain, snow and ice, which gives forecasters a much better idea of what type of precipitation to expect at

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Flood Safety Awareness Week

March 12 –16, 2012

By, Jason Elliott, Senior Service Hydrologist

As you've seen in recent issues of the *Sterling Reporter*, 2011 was an active year for flooding. From the spring floods to the extreme rains caused by Hurricane Irene and the remnants of Tropical Storm Lee, virtually every corner of the mid-Atlantic region experienced some flooding during the year. Six people lost their lives in floods or flash floods during the year in the Baltimore/Washington area.

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NWS Baltimore/Washington Pilot Project: Impact-Based Decision Support Services

*By, Christopher Strong,
Warning Coordination Meteorologist*

The Baltimore/Washington Weather Forecast Office (WFO) is always looking for how we can improve our warning and forecast services. After last year's staggering count of fourteen weather disasters of \$1 Billion or more in the U.S. (<http://www.noaa.gov/extreme2011/>), there is no better time than now to make a push for improvements. Last year, our office was selected to host a pilot project to demonstrate an important aspect of the NWS Strategic Plan: Impact-Based Decision Support Services (IDSS). IDSS will help push America closer to weather readiness through sound scientific information, effective interpretation, and proactive decision support.

The goals of this project include:

- Cataloging local impacts from weather
- Better explaining the range of possibilities for oncoming weather
- Working to improve how we convey tidal and storm surge threats
- Working with everyone towards the goal of a Weather Ready Nation .

Improving the distribution of weather information: This includes being able to give detailed weather briefings from our office to anyone. This can be through any method, from as advanced as video conferencing to as simple as briefing by phone – including using new communication technologies that constantly evolve and improve. Also, this will give us the ability to travel to government emergency operation centers for major weather events to give on-site on-demand briefings when it matters most. Information flow is a two way street, and being able to use social media and strong partnerships to get information both into and out of our office during dangerous weather will be improved.

A key transformational concept of IDSS is the concept of Emergency Response Specialist (ERS) Meteorologists (ERS-Mets). ERS-Mets will be trained and certified to provide IDSS to our core partners, in-person at emergency operations centers, or on the actual scene of incidents. As part of the pilot project, our existing office staff was supplemented this winter with three ERS-Mets. Our three new ERS meteorologists are Ken Widelski, Steve Goldstein, and Kyle Struckmann, and are introduced in this edition of *The Sterling Reporter*.

Cataloging local impacts from weather: Knowing how much rain will fall, how hot it will get, and where the tropical storm will strike is not enough to tell us how weather will affect the region. We need to know the impact weather will have on society – what areas need to be evacuated, when cooling shelters need to be opened, how much snow at what time of day will cause significant travel disruption. Knowing this important impact information will allow us to warn the public when it is needed, as well as warn areas with greater precision. It will also allow our warnings to contain more specific information that will help people know what actions they need to take.

Better explaining the range of possibilities for oncoming weather: The range of possibilities for what the weather will bring grows with time. Ask us what the temperature will be tomorrow, and you will get a much narrower range of expectation than you would if you asked us what the temperature will be seven days from now. The same is true with storms, but with much more impact. While the snowfall or rainfall forecast for tomorrow is typically very accurate, three or four days from now the forecast needs a greater range of values to explain what the possibilities are. This has been an issue that has always perplexed meteorologists. This project will help our office develop new ways to show not just what the most likely outcome is (the forecast), but what the range of possibilities are – a range that increases as the time of forecast increases.

Working to improve how we convey tidal and storm surge threats: Telling folks that there will be three feet of storm surge, or that tides will be three feet above normal, helps emergency managers have an idea of how extensive tidal flooding will be. However, being able to *show* people on a map what areas will likely flood during a hurricane or nor'easter will go a long way in keeping vehicles, people, and anything moveable out of harm's way when the tide starts to inundate shoreline areas. We will work with the NWS National Hurricane Center as well as other groups to improve our ability to convey where the danger will be from tidal flooding.

Working with everyone towards the goal of a Weather Ready Nation: This means establishing accurate and efficient information flow along with impact-based planning in our society - and it certainly isn't limited to our office. We will work with schools, government, the public, our media partners, and the entire weather forecast industry to attain a truly Weather Ready Nation - a nation where everyone gets a clear, understandable message when a weather disaster is imminent, and knows what to do to protect themselves and their family when they get that message.

Staffing Changes

*By, Nikole Winstead Listemaa,
Senior Forecaster*

In mid-January, the first of three new Emergency Response Meteorologists (ERS) reported for duty at the NWS Baltimore/Washington Forecast Office. Kyle Struckmann was the first ERS to arrive on station, with Ken Widelski following in late January and Steve Goldstein reporting in mid-February.

Kyle's Decision Support Services (DSS) forecasting experience began in 2008 at the Center Weather Service Unit in Ronkonkoma, NY, where he provided critical forecasts to support air traffic management in the northeastern United States. From 2009 through 2011, Kyle served as the DSS Program Leader at the National Weather Service New York, New York Forecast Office. He worked with the New York City Office of Emergency Management to provide weather support for the Macy's Thanksgiving Day Parade, concerts in Central Park and for hazardous winter weather outbreaks. Kyle has also partnered with the Federal Aviation Administration to provide on-site weather support for the Jones Beach Air Show.



Kyle Struckmann

Kyle holds a Bachelor of Science Degree in Atmospheric Science from Stony Brook State University (2006), a Master of Business Administration degree from the University of Missouri-St. Louis (1993) and a Bachelor of Science Degree in Mass Communication from Lindenwood University in St. Charles, MO (1990).



Ken Widelski

Ken's career in the National Weather Service began as a Student Employee at the National Weather Service New York, New York Forecast Office. Ken was promoted to a General Forecaster position at the Weather Service Office in Lubbock, Texas. During his five years in Texas, Ken was deployed to NWS Southern Region Headquarters as an Emergency Response Meteorologist during Hurricane Ike and also served at the Regional Operations Center. As a Lead Forecaster at the NWS Albuquerque Forecast Office, Ken was deployed to New Orleans during the Deepwater Horizon Oil Crisis in the Gulf of Mexico. Ken's other duties included leading a county visit program, serving as the StormReady Focal Point and assisting the Warning Coordination Meteorologist.

Ken graduated from SUNY Stony Brook in 2001 with a degree in Atmospheric and Oceanic Sciences with minor concentrations in Marine and Environmental Sciences.

Before starting with the Weather Service, Steve was a weekend TV Meteorologist for the NBC affiliate in Amarillo, TX and worked for private meteorology companies in Denver, Colorado and Austin, Texas. Steve has worked for the NWS since 1994, where he started at the Buffalo/Rochester, New York Forecast Office and later that year, he transferred to the San Diego Forecast Office. In 1996, Steve transferred to the Reno, Nevada Forecast Office as a General Forecaster. In 2004, Steve became a Lead Forecaster at the NWS Sacramento, California Forecast Office. Steve was the Fire Weather Program Leader in Sacramento and is also an Incident Meteorologist.



Steve Goldstein

Last year, Steve worked at National Weather Service Headquarters in Silver Spring, Maryland providing weather briefings to senior NWS officials and issuing significant event reports that were distributed at senior levels of NOAA and the Department of Commerce.

Flood Safety Awareness Week *(continued)*

That's why Flood Safety Awareness Week is so important: knowing what to do when flooding is a threat or is occurring can help keep you safe!

In 2012, Flood Safety Awareness Week is March 12th through the 16th. Each day features a different topic important to learning about flooding and flood safety.

Monday's topic is the **Advanced Hydrologic Prediction Service**, or **AHPS**. AHPS provides an easy-to-access format for viewing river forecasts, both deterministic (a single value) and probabilistic (the chance of flooding occurring). We have over 30 daily river forecast points in the Potomac, Shenandoah, and Rappahannock river basins, and the latest observations and forecasts for these locations are always available online. Recent enhancements to this page include the addition of more than a dozen non-forecast locations that are useful for earlier notification of high water conditions, and a new display which provides the data on a zoomable map image, rather than our previous static maps. Data updates also occur much faster than before, in some cases as frequently as every 15 minutes. View our local AHPS page by visiting <http://water.weather.gov> and clicking on the Washington DC area.

For persons who enjoy river recreation, or who have other interests along the river, we also highly recommend our *River at a Glance* pages, which show conditions along the entire reach of our biggest rivers. You can access the River at a Glance page for our major rivers on our hydrology page (<http://www.erh.noaa.gov/lwx/hydro.htm>)

Tuesday's topic is the **Turn Around, Don't Drown™** campaign. For many years, you've seen this slogan on our flood warnings, and perhaps even on road signs while traveling. Most flood fatalities are as a result of walking or driving through floodwaters. Simply following the phrase Turn Around, Don't Drown™ when you see a flooded area can prevent many of these tragedies. Please visit <http://tadd.weather.gov/> for dozens of Turn Around, Don't Drown™ resources.



On Wednesday, the focus moves to a number of different phenomena, each of which can have an impact here in the mid-Atlantic region: **Tropical Cyclone Inland Flooding**, which we experienced in August and September last year; **Drought**, which did not play a significant role in 2011 but has been an impact in past years; **Snowmelt Flooding**, which helped create moderate to major flood conditions in March 2010; **Ice Jams**, which occasionally cause flooding during winter months; and **Debris Flows**, which can occur during significant flash floods in our rugged terrain areas. All of these are issues that it is important for residents to know about, and each can cause major problems for our area.



Thursday is an entire day focusing on **Flood Insurance**. Did you know that if a flood affects your home, your homeowners insurance probably will not cover the damage? Since flooding causes the most damage in most years, flood insurance is an important thing for every family to consider. It is mandatory for anyone who lives in a designated high-risk flood hazard area and has a Federally-backed mortgage. But even those for whom it is not mandatory can still purchase it – and flooding does *routinely* affect people who live outside the designated highest risk areas. Most cities, towns, and counties in our area participate in the National Flood Insurance Program – but there are exceptions. Go to <http://floodsmart.gov> to find out about your flood zone and see if your area participates in the program.

The week wraps up on Friday with a general day on **Flood Safety**. We encourage you to visit <http://www.nws.noaa.gov/floodsafety/floodsafe.shtml> for a list of resources for learning basic flood safety rules. Most importantly – have a plan! If you encounter flood waters while traveling, know what to do...and what not to do. And if you live or work in a flood-prone area, determine in advance where you will evacuate if flooding impacts you.

For more information on Flood Safety Awareness Week, check out <http://www.floodsafety.noaa.gov/>!

MIC's Corner *(continued)*

Photo By: Heather Sheffield,
Meteorologist Intern



the ground. Look for a more detailed article on dual polarization technology and our installation in the spring edition of *The Sterling Reporter*, which will be published in May 2012.

Additionally, our office added three new staff members this winter in the form of ERS meteorologists. There is a separate article in this publication on the ERS meteorologists that provides detail on their functions and duties. I'd like to take this opportunity to welcome ERS meteorologists Ken Widelski, Steve Goldstein, and Kyle Struckmann to our office staff.

The dual polarization radar upgrades, coupled with the new ERS meteorologists, are two big steps in making our area part of the "Weather Ready Nation." For more information on Weather Ready Nation, please go to <http://www.nws.noaa.gov/com/weatherreadynation/>.

If you have any questions, feel free to call me at 703-996-2200, extension 222, or email me at James.E.Lee@noaa.gov.

Wave Model Discussed at Marine Users Committee

*By, Brandon Peloquin,
Lead Forecaster*

The Marine Users Committee (MUC) gathered again at NWS Sterling at the end of January. The last time the group met was the end of June 2011. At the January meeting, one of the focus topics was the potential implementation of the SWAN model into operations. SWAN stands for **S**imulating **W**aves **N**earshore, and is a computer model that forecasts wave heights. The model uses wind forecasts from the National Weather Service gridded database, and calculates the effects of spatial propagation, generation and dissipation to produce wave height forecasts.

For almost a year, Meteorologist Intern Carrie Suffern has been conducting a research project on the potential utility of the SWAN model at NWS Sterling. Carrie has been using buoys that are part of the Chesapeake Bay Interpretive Buoy System (CBIBS), including Gooses Reef, Patapsco and Potomac, to assess the accuracy of the model.



Group Picture of the January 2012 Marine Users Committee

At the MUC meeting, Carrie presented her research, highlighting the high accuracy of significant wave height predictions from SWAN (where significant wave height represents the average of the highest one-third of waves). With Carrie's research exhibiting the usefulness of SWAN, NWS Sterling plans to implement SWAN into operations by making SWAN wave height forecast output available to marine forecasters to use in their routine marine forecasts.

As always, if you are on the water and would like to call in a marine report (especially observations of winds and waves), feel free to contact our toll free number at 800-253-7091.

Coastal Flood Users Group Travels to Annapolis

*By, Howard Silverman,
Lead Forecaster*

One of the best ways to determine if we are meeting our partners' and customers' needs is to ask them. In that spirit of cooperation, the NWS Baltimore-Washington Forecast Office convened the Coastal Flood Users Group in Spring 2011. Recently, our second meeting was held at the Annapolis Maritime Museum in Annapolis, MD. Representatives from our sensitive coastal flood locations in Annapolis, Baltimore, Alexandria and Georgetown were invited to serve on this Group. Saint Mary's County was added this year. WFO Sterling staff participants included Meteorologist in Charge Jim Lee, Science Operations Officer Steve Zubrick, Warning Coordination Meteorologist Chris Strong, Senior Service Hydrologist Jason Elliott, Senior Forecaster/Coastal Flood Program Leader Howard Silverman, and General Forecaster/Assistant Coastal Flood Program Leader Bryan Jackson.



Group Picture of the Coastal Flood Users Group

The Group was welcomed by the Museum Director Jeff Holland and Annapolis Alderwoman Sheila M. Finlayson. After a refresher on Coastal Flood program structure and service delivery, several operational issues that were uncovered over the past year were discussed. Receiving this feedback is a crucial to our operations. Not only does it provide insight in how our warnings and advisories are being utilized, thereby reinforcing our forecast decision-making process, it also allows our customers to play a role in shaping future practices. Fostering these relationships is a key component for program improvement.

After the meeting, the NWS Sterling attendees surveyed the flood-prone areas in the City of Annapolis, as well as toured the City's Emergency Operations Center.

We would like to thank the City of Annapolis Harbormaster's Office and Emergency Management Agency for hosting the meeting, and the Annapolis Maritime Museum for providing us use of their facilities.

Fire Weather Users Meeting

*By, Brian Lasorsa,
General Forecaster*

On Wednesday, January 25th the National Weather Service held a Fire Weather Users meeting. Members from West Virginia Division of Forestry, the Maryland Department of Natural Resources, and the George Washington/Jefferson National Forest were able to attend. Our fire weather users are sensitive to the development and spread of forest fires. Therefore, weather forecasts are very important to their daily activities. The two weather elements that are most important to the fire weather community are wind and relative humidity.

When wind and relative humidity reach certain levels it can become dangerous toward the development and spread of wildfires. A Red Flag Warning or Fire Weather Watch will be issued when these conditions are possible. The threshold for issuing such products was discussed at the meeting. Generally when wind speeds reach 20 mph and the relative humidity is below 30 percent, a red flag warning or fire weather watch may be warranted. A third element that is important to the fire weather community is fuel moisture. Fuel moisture is the amount of water contained in the vegetation. During extended dry periods, fuel moisture can be quite low and this would enhance the threat for the spread and development of wildfires. Fuel moisture is determined in the field by the National Weather Service coordination contacts such as the Maryland Department of Natural Resources, West Virginia Division of Forestry, and the Virginia Department of Forestry.

The following website <http://www.erh.noaa.gov/lwx/fire.htm> contains information regarding our fire weather products as well as the latest policy regarding headlines and other statements. The following website <http://radar.srh.noaa.gov/fire/> contains fire weather information across the whole country. Just click on your area of interest to obtain the latest information regarding forecasts and potential fire weather concerns.

Winter 2011 – 2012 Review

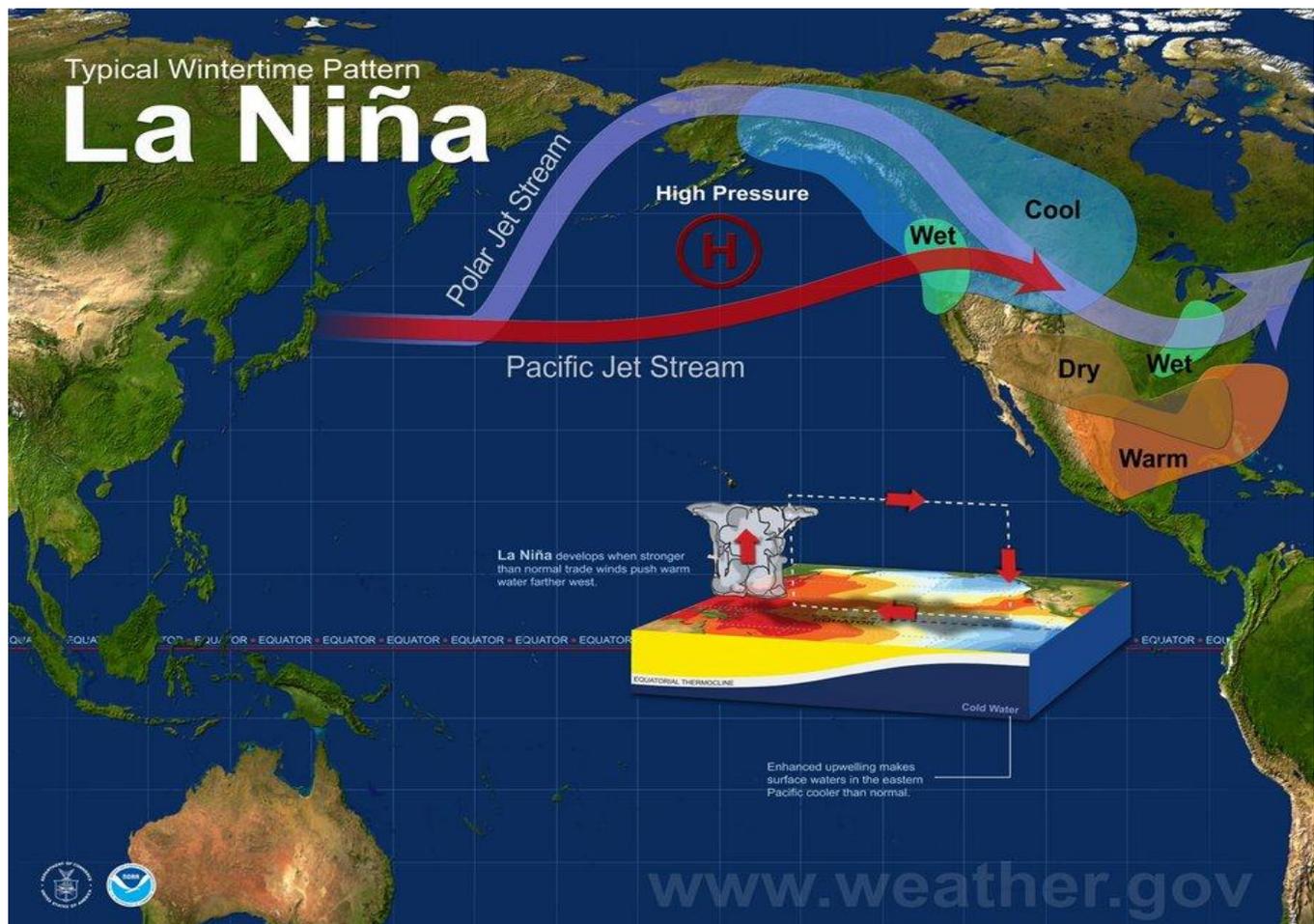
By, *Jared Klein,*
General Forecaster

The snowy winter of 2009-10 seems like a distant memory for snow lovers across the mid-Atlantic region. Just two winters after the record snow, the region has experienced one of the mildest and snowless winters in many years. Cold air from the Polar and Arctic regions rarely penetrated far enough southward to impact the mid-Atlantic region. Those rare times that the Arctic air did plunge far enough southward, it was often moderated by the time it reached the mid-Atlantic region due to a lack of snow cover over much of the northern continental U.S. and southern Canada. During these rare cold periods (e.g., January 3-4, January 14-15, January 20-22, February 12), the cold spell was transient, only lasting for a couple of days.

While there were several storms such as the early season snowfall just before Halloween as well as light snow events on December 6-7, January 3, 9, 20-21, February 4, 8, 11, most of the accumulating snow fell north and west of the cities. Arguably the biggest snow event this season after the October snowfall was February 19. Snowfall totals of 4-10 inches impacted central Virginia, but remained south of Washington D.C. and Baltimore.

Climate Factors that influenced the 2010-11 Winter

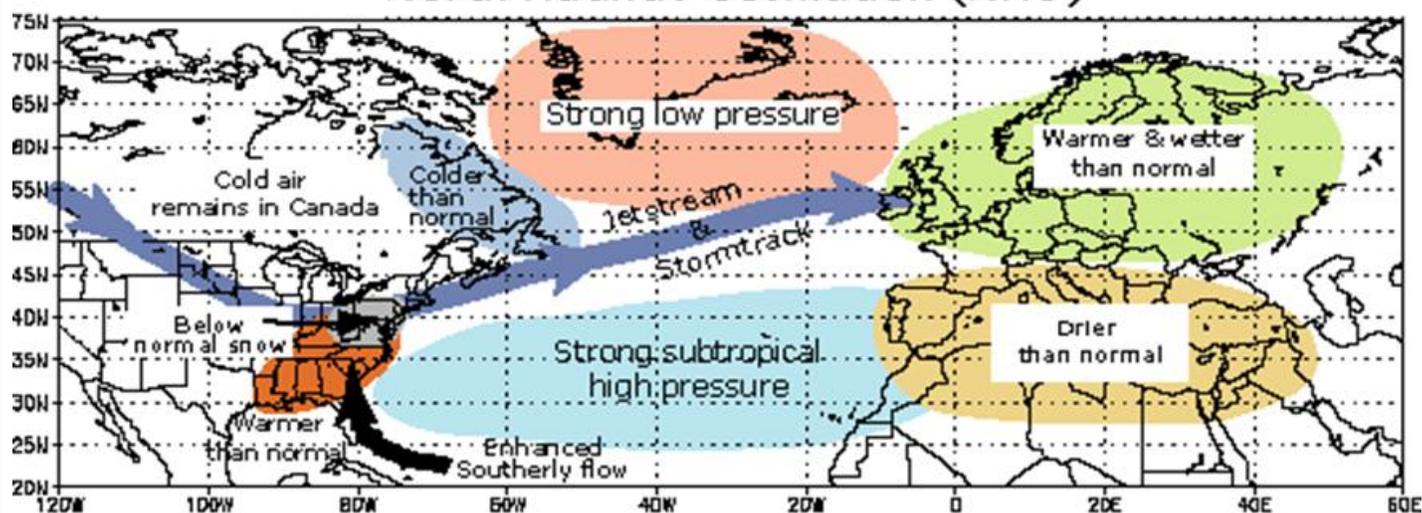
Most of the continental United States experienced above normal temperatures and below normal snowfall this winter. Two regional/global patterns that influence the seasonal climate pattern in the mid-Atlantic region are the El Niño-Southern Oscillation (ENSO) and North Atlantic Oscillation (NAO). The sustained mild and snowless conditions experienced in the mid-Atlantic region this winter can partly be attributed to these climate patterns. Throughout the past winter, ENSO has been in the negative phase while the NAO has predominately been neutral to positive. The negative phase of ENSO is called La Niña, which is characterized by unusually cool ocean temperatures in the tropical Pacific Ocean. During La Niña patterns, storms tend to track west of the area



(continued next page)

Winter 2011 — 2012 Review *(continued)*

Positive Phase of the Wintertime North Atlantic Oscillation (NAO)



across the Ohio Valley and Great Lakes region. A storm track like this usually draws warmer air northward, which greatly decreases the potential for snow for our region. During a positive NAO pattern, the polar low near Iceland is stronger than normal while the subtropical high over the northern Atlantic Ocean is stronger than normal. This pattern tends to keep the cold Arctic air over Canada while preventing sustained cold outbreaks farther southward into the mid-Atlantic region. The regional pattern becomes much less favorable for snow without cold air readily available.

Preliminary Climate Statistics for the 2010-11 Winter

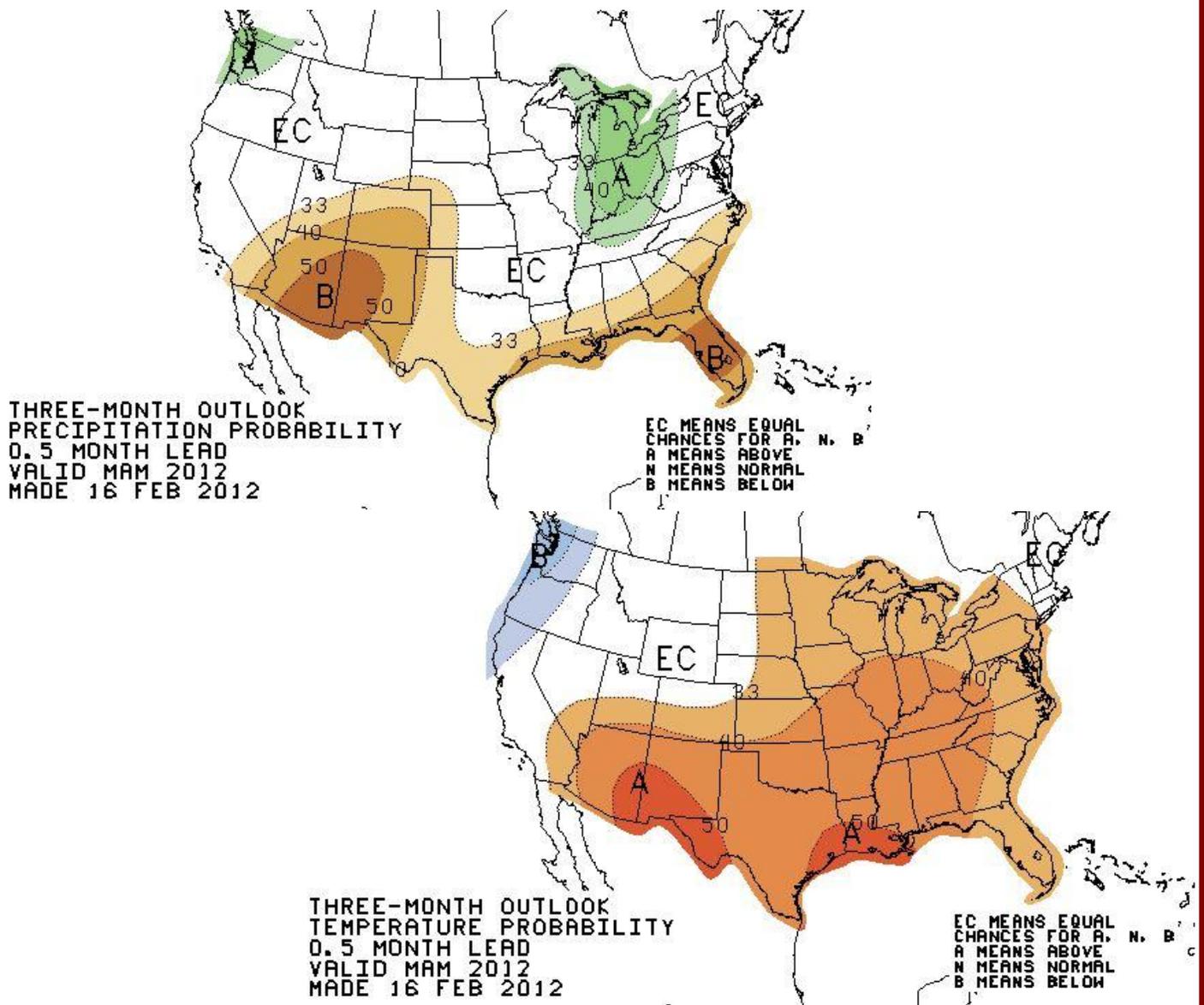
It was a mild winter. Preliminary average monthly temperatures for meteorological winter (spanning the period December 1, 2011 through February 29, 2012) were over 4.5 degrees F above normal at both Washington D.C. and Baltimore MD. For Washington DC, the average temperature of 43.4 degrees F this past winter ranks as the 3rd warmest on record behind only the winters of 1931-32 (44.6F) and 1889-90 (44.3F). The winter average temperature of 40.7 degrees F in Baltimore (as measured at BWI Airport) ranks as the 7th warmest on record and the warmest winter since 1949-1950. At Dulles Airport, having a shorter period of observations going back to 1962, the average winter temperature was 40.1F, making it the warmest winter on record and besting the previous warmest winter in 2001-02 of 39.8F.

For precipitation, it was a relatively dry winter. After a relatively wet (but snowless) December 2011, precipitation was below normal for both January and February 2012. Overall, precipitation averaged over the past winter season was below normal at both of the official Washington DC and Baltimore MD airport measuring sites.

Really cold days this past winter were rare. In Washington DC, daily temperatures averaging 5 degrees F or more *below* normal occurred on only 7 days this entire winter (1 in December, 4 in January and 2 in February). Similarly for Baltimore, only 6 days average 5 degrees F or more *below* normal (1 in December, 4 in January and 1 in February). The daily max temperature was above freezing in Washington on all but one day (January 22nd) this winter. Only six other winters on record had only one or fewer days where the daily temperature failed to break the freezing mark (the winters of 1931-32 and 1997-98 had no such days).

Snow lovers were disappointed this winter. For Washington, the snowfall total of 2.0 inches through the end of February was tied with the winter of 2008-09 for the 8th lowest snowfall total during this period. If no additional late-season snowfall is recorded in Washington, 2011-12 would be the 3rd least snowiest on record only behind 1972-73 and 1997-98 (only 0.1 inches were recorded both winters). For Baltimore, only 1.8 inches of snow has accumulated at the airport, which was the 5th lowest snowfall total through the end of February. If no additional snowfall is recorded at Baltimore, then the 2011-12 winter will rank as the 3rd least snowiest on record (behind only 0.7 inches in 1949-50 and 1.2 inches in 1972-73).

Spring Outlook (March/April/May)



Supplementary Climate Data Product Discontinued

Effective March 5, 2012 at approximately 10 am local time, the National Weather Service will discontinue the distribution of the Supplementary Climate Data product. SCD data are legacy products from the manual observation to the automated weather station era. This product includes 6 hourly precipitation and new snowfall data. This data will continue to be available in other products already familiar to the public, such as the Daily Climate Report for the airports and the daily Regional Summary which contains temperature and precipitation from cooperative observers and spotters.

*By, Calvin Meadows,
Observations Program Leader*

Routine Climatological Products Issued By NWS Baltimore/ Washington that contain Daily Temperature and Precipitation Data:

- WBCCLIID**
- WBCCLIDCA**
- WBCCLIBWI**
- WBCCLIMRB**
- WBCCLICHO**



Daily Climate Reports for the Airports. **NOTE:** WBCCLIBWI contains data for both Baltimore/ Washington International Airport & the Maryland Science Center.

WBCRTPLWX: Daily Regional Summary

Skywarn Reporting Procedures



1. Tornado or Funnel Cloud
2. Storm Rotation
3. Hail (any size and depth on ground)
4. Wind 50 MPH or greater (measured or estimated)
5. Wind Damage (downed trees and/or powerlines, structural)
6. Snow Accumulation (every two inches, storm total)
7. Ice Accumulation (any ice accumulation)
8. Heavy Rain (measured 1 inch, storm total)
9. Flooding (water out of banks and/or covering roadways)
10. Time of event & location

How to report:

Telephone: 1.800.253.7091

Amateur Radio: WX4LWX

This is very time critical information that needs to be relayed to the forecaster **immediately**. Give the person on the phone/radio your name and spotter number.

If you absolutely cannot get to a telephone to relay a report or to email *delayed* reports and storm totals:

LWX-report@noaa.gov

Skywarn Classes

| <i>Class</i> | <i>Date</i> | <i>Location</i> |
|--------------|-------------|--------------------------------------|
| Flood | 3/13/2012 | Ranson, WV |
| Basics I | 3/26/2012 | Westminster, MD |
| Basics I | 4/4/2012 | Sterling Park, VA |
| Basics I | 4/19/2012 | Charlottesville, VA |
| Basics I | 4/26/2012 | Columbia, MD |
| Basics I | 5/10/2012 | Gaithersburg, MD |
| Tropical | 5/14/2012 | La Plata, MD |
| Basics I | 5/15/2012 | District of Columbia (2 Sessions) |
| Flood | 5/23/2012 | Leonardtown, MD |




For more information on our Skywarn Classes, please visit our website:
weather.gov/washington OR weather.gov/baltimore


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Photo By: Tom Kierein (NBC 4)