



# Prevailing Winds

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## Inside this issue:

Irene's Impact 3  
on Southern  
New England

Getting to 4  
know your  
NWS Team

From the 5  
Skywarn Train-  
ing Desk

The Coopera- 6  
tive Weather  
Observer  
Program

Historic Winter 7  
Storm of  
October 29th-  
30th

Look back at 9  
the Northeast  
Blizzard in  
January 2005

Dual- 10  
Polarization  
Radar

Southern New 12  
England  
Weather Con-  
ference

## MIC Musings

by Robert Thompson



We hope that this inaugural electronic version of The Prevailing Winds newsletter will give you a taste of what we do, how you may be able to help us, and new initiatives that we have taken on. Your Southern New England Weather Forecast Office is blessed with a talented staff eager to apply new science and go the extra mile to meet customer needs.

Over the past couple of years, this office has successfully implemented enhanced short term forecasting, produced digital aviation forecasts, and established new coastal inundation forecast techniques and visualization. Our office now updates our forecast database for the next 12 to 24 hours every three hours. This ensures that you see the latest forecast trends with a digital forecast database that is always fresh. We have been one of the first offices in the country to produce digital aviation forecasts and have been actively training other offices. Our digital aviation forecasts provide a spatial view of hour by hour ceiling heights, visibility, low level wind shear, and other weather elements critical to aviation operations. This fills a much needed gap for aviation operations at airports outside of the designated terminal aviation forecast (TAF) sites as well as medevac and search and rescue activities. And it's not just pretty maps; we have been consistently exceeding national aviation forecast performance goals. This office has also been aggressively enhancing coastal flood forecast techniques over the past several years. We have developed an enhanced process for coastal flood warnings and advisories that display expected impact as a function of both storm tide and waves and now produce tide forecasts for selected points out to 96 hours. Reference coastal inundation visualization maps for various water levels are now available on our website for the coastal communities of South Boston, Quincy, Weymouth, Hingham, Hull, Cohasset, Scituate, Marshfield, Duxbury, Kingston, and Plymouth. Similar visualization maps for the north shore will be available soon. Our Surf Zone Forecast, a model for other offices, was recently expanded year round to support Coast Guard training efforts.

Looking ahead, we are preparing to be a beta test site for the NWS next generation field office computer/communications system. Although its implementation will be transparent to most of you, it will enable us to apply new science into our forecast operations and produce key forecast information more efficiently. Another major initiative this year for our office is to enhance our decision support services. Increasingly, more federal, state, and local agencies depend upon NWS forecast weather information for strategic and tactical decision making for public safety and economic well-being. For example, Tropical Storm Irene forecasts and emergency management briefings allowed for a more proactive approach by emergency managers, dam tenders and other water management entities (e.g. Corps of Engineers), Red Cross, U.S. Coast Guard, etc. to prepare for flooding, wind, and coastal impacts. We have begun to test market a new product this year, snow probabilities for various amount thresholds, during our storm briefings to better communicate the level of uncertainty for each event. We stand ready to render decision support services for major special events that require a focus on public safety. For instance, we will be providing weather support to

Cont'd on page 2

## Cont'd from pg 1...MIC Musings



Pictured is Fintan P. Moore, Jr. of Keene, NH receiving a 10 year Length of Service Award.

Fintan is part of a long tradition of observing as Keene weather records date back to 1892! Keene is part of our Nation's Historical Climate Network with over 100 years of data.



**BOSTON**

**WEATHER FORECAST OFFICE**

enhance safety of participants and spectators associated with the War of 1812 commemoration activities this summer. The support will address weather impacts on land, water, and air. We have also begun looking at restructuring our operations staffing model to enable greater focus on public safety decision support.

We do not initiate new projects in a vacuum. We strive to ground new initiatives in reality by using feedback from our customers combined with our vision. I cannot stress enough the importance of customer feedback to all that we do. We are a service organization, funded by the taxpayers, and so are continually reviewing our ability to meet the needs of customers and partners as well as prepare for your future expectations.

**How does your local Weather Forecast Office fit into the larger NWS?** The NWS contains nine specialized centers under the umbrella of the National Centers for Environmental Prediction (NCEP), 13 River Forecast Centers, and 122 Weather Forecast Offices. We work closely with the National Centers (such as the National Hurricane Center, Storm Prediction Center, Ocean Prediction Center, etc.) when faced with specific phenomena such as tropical cyclones, severe thunderstorms, major ocean storms, etc. We are fortunate that one of the thirteen River Forecast Centers, the Northeast River Forecast Center, is co-located with us. We look at the people from the National Centers and Northeast River Forecast Center as the specialists for specific weather phenomena and look at ourselves as general practitioners predicting all kinds of weather for the southern New England area. And if you have lived in New England for any length of time, you know that we get a sampling of just about any kind of weather, sometimes in rapid succession!

Of the 122 Weather Forecast Offices, this is one of the busiest that you will find. We service major population centers in four states, have one of the heaviest aviation forecast loads in the country, have the most complex marine forecast area in the eastern portion of the United States, produce daily river forecasts for 3 dozen points, and maintain more automated surface observation stations than any other office in the country. In addition, we provide fire weather forecasts, disseminate weather information over 7 All Hazards NOAA Weather Radio transmitters, manage large networks of volunteer cooperative observers and storm spotters, and actively collaborate with other National Oceanic and Atmospheric Administration (NOAA) offices in the region. You will learn more about our services and partners in this and future issues.

So, we are busy but that won't prevent us from genuinely caring about the service we provide. Consider our name: National Weather Service. We are part of a greater national-based organization. We are a science-based organization committed to integrating cutting edge meteorology into our operations. And most importantly, we are about service. All of our people (meteorologists, hydrometeorological technicians, electronic technicians, information technology officer, and administrative support assistant) seek satisfaction in providing the best service possible with the ever evolving state of the science. It is the science that drew most of us into the National Weather Service. It is the service we provide that motivates us to remain with the National Weather Service as a fulfilling career. And for many of us, it is the wonders and the challenges of New England weather that keeps us in this area.

We hope that you will find this and future editions informative about what we do, how we do it, and how you help us achieve our mission of saving lives and property and enhancing America's economy. ~ **Bob Thompson**

For the latest weather information, check out:  
[www.weather.gov/boston](http://www.weather.gov/boston)

## Irene's Impact on Southern New England

by Joseph DelliCarpini

Hurricane Irene, which weakened to a Tropical Storm as it reached New England, brought strong winds and torrential rainfall to the region on August 27 and 28, 2011 resulting in widespread wind damage and record flooding. Irene tracked from southeastern New York into western Connecticut, western Massachusetts, and southern Vermont. As with most tropical systems in New England, damaging winds were confined to the east of the center, mainly across Rhode Island and southeast Massachusetts, while the heaviest rains were focused along and to the west across much of interior New England.

Wind gusts of 50 to 60 mph were reported from southern and eastern Connecticut across Rhode Island and into much of central and eastern Massachusetts. This resulted in widespread tree damage and power outages to roughly two million customers, some of whom did not get their power restored until a week later.



**Above:** Peak wind gusts associated with Tropical Storm Irene (left), a boat washed ashore on Cape Cod (center), and wind damage on Boston's North Shore (right)

Rain bands ahead of Irene on Saturday, August 27th produced a quick 2 to 4 inches of rainfall across parts of eastern Massachusetts. More substantial rains reached the area during the overnight hours on Saturday into the morning of Sunday, August 28th. The heaviest rainfall was focused on western Massachusetts and western and central Connecticut, where as much as 6 to 10 inches of rain was reported. Farther to the east, somewhat lesser amounts of 3 to 6 inches were reported in much of southwest New Hampshire, central Massachusetts, and northeast Connecticut and totals of 1 to 3 inches were observed across Rhode Island and eastern Massachusetts.

Freshwater flooding from Irene affected much of the Northeast. In southern New England, the hardest hit areas included the east slopes of the Berkshires into the Connecticut Valley. Several river gauges maintained by the USGS set new records, including the Deerfield River which crested 6 feet higher than its previous flood of record.

Major flooding occurred in northwest Massachusetts where there were numerous evacuations and a number of homes that were flooded and others condemned. One building in Shelburne Falls was moved quite a distance downstream of its foundation. Another home was reported to have been washed away in Leyden on the Green River. Many highways and main roadways were affected by flooding including Interstate 91 and Routes 2, 5, 20, and 112. Large swaths

Cont'd on page 4

## Getting to know your NWS Team: Rebecca Gould, General Forecaster



Rebecca Gould came to the Taunton, Massachusetts WFO as a general forecaster in November of 2007. Prior to arriving in Taunton, Rebecca, originally from Golden, Colorado worked for 4 years in the Midland, TX WFO. While completing her degree in meteorology at the University of Northern Colorado, Rebecca participated in the Student Career Experience Program during which she worked at the Midland, TX office and upon graduation in 2004, she was hired as a meteorological intern.

Growing up in Colorado and west Texas, Rebecca has experienced many types of weather from snowstorms to severe weather, tornadoes, and flooding. Since she began forecasting in New England, she has learned about forecasting in a coastal environment and experienced marine weather, nor'easters, and tropical storms. She has also been active in organizing the annual Southern New England Weather Conference and the 2011 Hurricane Awareness Tour stop in Falmouth, Massachusetts. In her spare time, Rebecca has taken up knitting and ballroom dancing and enjoys frequent trips back to Colorado and Texas to visit family.

### Cont'd from pg 3...Irene's Impact

of farmland were inundated along the Deerfield River. On the Greenfield River in Greenfield, the Eunice Williams covered bridge was dislodged from its abutments and river scouring was so severe the river diverted itself around the bridge.

Flooding also occurred in Hampshire and Hampden Counties in western Massachusetts along the Westfield River as well as along its uncontrolled tributaries. Hartford County in Connecticut was also affected by significant flooding. In Bristol, the Pequabuck River overflowed its banks onto Main Street. Two people went canoeing in the flood waters before their canoe was overturned. One person drowned and the other person was rescued. In Burlington, Bunnell Brook reached its 3rd worst flood on record (dating back to the 1930s).

Since heavy rain fell throughout the entire Connecticut River Basin, significant flooding affected all of the middle and lower reaches of the river. Gauges at Montague, Northampton, Holyoke, Thompsonville, Hartford, and Middletown all experienced their highest crests since the 1980s. In North Walpole, NH the river crested at its highest level since 1938.

Irene was a strong reminder that impacts from tropical storms and hurricanes are not limited to the coastline. These systems can produce damaging winds and torrential rainfall far inland, creating devastating flooding.



**Above:** Observed rainfall totals (left), flood damage on the Deerfield River (center) and Miller's River (right)

# From the Skywarn Training Desk

by Bill Babcock

"I'm interested in being trained as a spotter. When will you be holding a class in my town?" We frequently receive this question.

During November, the local NWS Skywarn Team reviews our database of spotters. We look at the spotters in each of the 470 cities and towns in Massachusetts, Rhode Island, Northern Connecticut, and Southern New Hampshire. We determine the training year of the most recently trained person in each town. The towns where this value is at least five years old are noted on a map. These locations become our priorities for the upcoming training season.

## Training Locations 2012:

- 4/2/12 - Hancock, NH
- 4/17/12 - Wilton, NH
- 4/21/12 - Gloucester, MA
- 4/30/12 - Keene, NH
- 5/3/12 - Walpole, MA
- 5/5/12 - North Smithfield, RI
- 5/12/12 - Brookline, MA
- 5/16/12 - Canton, CT
- 5/24/12 - Dayville, CT
- 5/31/12 - Chicopee, MA
- 6/2/12 - Brimfield, MA

Our work schedule offers another challenge to schedule training. The local forecast office has a staff of ten meteorologists that cover a 24/7/365 work schedule. Each of us has a few days each month to work on non-forecast assignments, including the Skywarn program. We normally can handle 10 to 12 dates each training season. Those of us who are able to administer the Skywarn training will look at the planning schedule and note which days during the training season that we will be available.

Members of the amateur radio community then step in. They are located all around the region, and some have the local contacts needed to arrange for facilities to be used for the training. In November or December, we send them the available dates and our preferred locations. Once they are able to secure a date and location, that information is relayed back to NWS Taunton. We then place the information on the Skywarn section of our web page; this usually happens in late February or March.

The training season is primarily in April, May, and June. However, the weather can also get in the way for both instructor and audience to reach the site; the average date of the last snowstorm is in late March or early April. By late June thunderstorms are becoming more frequent, and there is a greater need for increased staffing at the office during an event. We may be able to add one or two more dates in July, August, or September. But our desire is to complete most, if not all, of the needed training by the time thunderstorm season ramps up.

## Check out the link for more details about the 2012 Skywarn Training Sessions:

<http://www.erh.noaa.gov/box/officePrograms/skywarn/skywarnTraining.shtml>

## 2012 Preparedness Week Information



- March 12th - 16th: Flood Preparedness Week
- April 29th - May 5th: Severe Weather Preparedness Week
- May 19th - 25th: Safe Boating Preparedness Week
- June 3rd - 9th: 'Break the Grip of the Rip' Awareness Week
- June 24th - 30th: Lightning Safety Preparedness Week
- July 16th - 20th: Hurricane Preparedness Week
- October 22nd - 26th: Winter Weather Preparedness Week

<http://www.nws.noaa.gov/om/severeweather/severewxcal.shtml>



# The Cooperative Weather Observer Program: A National Treasure

By: Kimberly Buttrick



Deb Cannon, an observer at the Univ. of MA Cranberry Station located in E. Wareham, MA, measures precipitation from a Standard Rain Gauge.

The National Weather Service (NWS) Cooperative Observer Program (COOP) is truly the Nation's weather and climate observing network of, by and for the people. More than 11,000 volunteers across our Nation take weather observations on farms, in urban and suburban areas, National Parks, U.S. Army Corps of Engineer Projects, water plants, seashores and mountaintops. The weather data collected is representative of where people live, work and play.

The COOP was formally created in 1890 under the Organic Act. Its mission is two-fold:

- To provide observational meteorological data, usually consisting of daily maximum and minimum temperatures, snowfall and 24-hour precipitation totals, required to define the climate of the United States and to help measure long-term climate changes; and
- To provide observational meteorological data in near real-time to support forecast, warning and other public service programs of the NWS.

Your local NWS COOP Manager's responsibilities include:

- Selecting data sites;
- Recruiting, appointing and training observers;
- Installing and maintaining equipment;
- Maintaining station documentation;
- Collecting data and delivering it to users;
- Ensuring data quality control; and
- Managing fiscal and human resources required to accomplish program objectives.

**“ Volunteer COOP observers conscientiously contribute their time and are the weather eyes and ears for their community. “**

Equipment used at COOP stations may be owned by the NWS, the observer or by a company or other government agency, as long as it meets NWS equipment standards. COOP observers record temperature and precipitation daily on an official standardized NWS form. Some COOP observers provide additional hydrological or meteorological data, such as evaporation, soil temperature or river stage/pool/tail water elevations. This additional data also gets documented on official standardized NWS forms. Data is transmitted by the COOP observer via telephone or computer. At the end of each month, the NWS weather forms are sent by the COOP observer either electronically or by mail to the local NWS office COOP Manager. The COOP Manager quality checks the forms then forwards onto the National Climatic Data Center (NCDC) in Ashville, NC where the data gets digitized. Further quality checks are conducted by NCDC personnel before the data gets archived.



Mark Alan Lovewell of Edgartown, MA receives a 25 year Length of Service award from Cooperative Program Manager Kim Buttrick.

Volunteer COOP observers conscientiously contribute their time and are the weather eyes and ears for their community. The weather observed by our Nation's COOP observers is vital to learning more about the floods, droughts, heat and cold waves affecting us all. Users of COOP data include climatologists, builders, architects, engineers, hydrologists,

Cont'd on page 7

## Cont'd from pg 6...Observer Program

insurance companies, attorneys and/or public utilities to name but a few. Long term COOP data plays a critical role in the efforts to recognize and evaluate climate trends from local to global scales.

COOP observers collectively are a National treasure. These volunteers are silent patriots who on a daily basis throughout the year provide an imprint of climate history across our great Nation. Locally, we have 78 COOP sites across Southern New England. Many of our observers have been recognized for their length of service to the program. To get a glimpse of the observers in Southern New England, you can check out a published edition of The Weather Eye – a Southern New England COOP newsletter. While perusing an edition, perhaps you will recognize a COOP station or observer – a National treasure - from your community!

Check out the link for more details about the COOP Program:

<http://www.erh.noaa.gov/box/officePrograms/Coop.shtml>

## Historic Winter Storm of October 29-30, 2011

By: Hayden Frank

An unprecedented and historic early season winter storm deposited over 2 feet of snow across the Monadnocks of southern New Hampshire and the Berkshires in western Massachusetts. Twelve to twenty inches of snow fell across the Connecticut River Valley of New Hampshire, Massachusetts, and Connecticut as well as the Worcester Hills. Four or more inches of snow accumulated across the rest of interior southern New England to the northwest of Route 128 in Massachusetts and northwest Rhode Island.

The highest snowfall amounts from this storm were reported at both Plainfield, MA and Jaffrey, NH with amounts of 31 inches. These totals would be extraordinary for the heart of winter, but a storm of this magnitude occurring before Halloween is unprecedented. To add insult to injury, since this was such an early season storm much of the foliage remained on the trees. This combined with the very heavy wet snow resulted in widespread tree damage and power outages across interior southern New England. One day after the storm, 1.5 to 2 million people were without power, exceeding the numbers that resulted from Tropical Storm Irene! Many people remained without power for over a week! In addition, damaging winds of up to 70 mph were experienced across the southeast New England coast. The storm also resulted in minor coastal flooding across along east facing shorelines. However, if the high storm tide had occurred 6 hours earlier or later during the time of astronomical high tide the coastal flooding would have been much worst.



The effect from Snow-tober in Shrewsbury, MA

This historic winter storm was the result of a rapidly deepening low pressure system developing off the North Carolina coast. The storm system tracked to a position just southeast of Nantucket on Saturday evening, October 29. Heavy

**“One day after the storm, 1.5 to 2 million people were without power, exceeding the numbers that resulted from Tropical Storm Irene!”**

snow rapidly overspread most of interior southern New England Saturday afternoon, as unseasonably cold air was in place. Hourly snowfall rates of 1 to 3 inches per hour were common across this region into Saturday night. Meanwhile, across Eastern MA and Rhode Island it was warm enough to initially support rain Saturday afternoon. Colder air worked in from the northwest Saturday evening, allowing the rain to change to snow even along the immediate coast. The snow finally came to an end across the western New England after midnight and ended across eastern New England early Sunday morning.

Cont'd on page 8

# Cont'd from pg 7...October Storm

The National Weather Service in Taunton MA saw the potential for a freak early season winter storm nearly a week before it occurred. In fact, an initial email was sent to a 175

member external coordination list letting them know of the potential several days in advance. It remained uncertain through the middle of the week if the storm would track close enough to the coast to impact southern New England. That all began to change by Thursday October 27, as confidence rapidly grew that a high impact event would occur in southern New England that weekend. This information was distributed via the Hazardous Weather Outlook's, and Area Forecast Discussion's, as well as conference calls to the emergency managers. Winter storm watches were issued for all of interior southern New England Friday morning and upgraded to winter storm warnings that afternoon. The winter storm warning mentioned that the heavy wet snow would

result in damage, with the potential for an area of widespread power outages and tree damage. The snowfall amounts were underdone, but forecasters correctly located where the axis of heaviest snow would occur and result in widespread damage.

The unprecedented, major winter storm that struck before Halloween will not soon be forgotten. This storm would have been considered historic if it had occurred during the middle of the winter. The fact that it occurred in late October is extraordinary, and that the wet snow combined with lots of foliage on the trees resulted in one of the highest impacts events in recent memory.



Trees and power lines down across Hartford, CT. Picture by the Hartford Courant.

**Skywarn Spotters, don't forget to call the National Weather Service and report the following:**

- What you see (hail, wind, tornado etc.)
- Your location
- The time you witness the event
- And your spotter id

## What to report to the NWS

Hail		Wind	
Plain M&M	0.50 inches	25-31 mph	Large tree branches move, telephone wires begin to "whistle" .
Penny	0.75 inches	32-38 mph	Large trees sway, becoming difficult to walk.
Nickel	0.88 inches	39-46 mph	Twigs and small branches are broken from trees, walking is difficult.
Quarter (Severe)	1.00 inches	47-57 mph	Slight damage occurs to buildings, shingles are blown off of roofs.
Half Dollar	1.25 inches	58-63 mph (Severe)	Trees are broken or uprooted, buildings damage is considerable.
Ping Pong	1.50 inches	64-72 mph	Extensive widespread damage.
Lime	2.00 inches	73+ mph	Extreme destruction, devastation.
Tennis Ball	2.50 inches		
Apple	3.00 inches		
Grapefruit	4.00 inches		
Softball	5.00 inches		

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 US.NationalWeatherService.Boston.gov](http://www.facebook.com/US.NationalWeatherService.Boston.gov)

## A Look Back at the Northeast Blizzard of January 22-23, 2005

by Hayden Frank

The January Blizzard of 2005 affected a large part of the Northeast and Mid Atlantic states. This storm had it all; very heavy snow, strong damaging winds, and coastal flooding. The hardest hit areas were in Southern New England, particularly across eastern Massachusetts and Rhode Island.

**“In fact, the low that morning in Boston, MA was -2F.”**

It all began with a weak low pressure system that dropped southeast from Central Canada and moved into the Upper Midwest on Thursday, January 20th. The system continued to move southeast across the Ohio Valley by Friday, January 21st. This storm brought a light to moderate snowfall across much of the Midwest and Ohio Valley.

The initial low pressure system began to weaken and transfer its energy towards the Mid Atlantic Coast on Saturday. This is when the storm really came into its own, under going very rapid intensification as it tracked up the Northeast Atlantic Coast Saturday night and Sunday, January 22-23, 2005.

Early Saturday morning, bitterly cold air was locked in place over Southern New England and most locations were below zero! In fact, the low that morning in Boston, MA was -2F. Most of the day was dry across the region. However...winds began to shift to the northeast which brought in bands of ocean effect snow showers to portions of the immediate coast. A few coastal locations in northeast Massachusetts actually received several inches of ocean effect snow before the main event.

Heavy snow began to rapidly over spread the region Saturday evening from southeast to northwest, as low pressure began to rapidly intensify off the mid Atlantic coast. Widespread snowfall rates of 2 to 3 inches per hour affected much of the region late Saturday night and Sunday,

and thunder accompanied the heaviest bands. In addition, very strong damaging winds developed along the coast. This was a



**Beacon Hill back in 2005. Picture taken by Hayden Frank.**

**“Heavy snow began to rapidly over spread the region.....”**

result of a strong high pressure system to the northwest, and rapidly deepening low pressure system off the coast.

**Cont'd on page 10**

“While the late January blizzard of 2005 fell short of the historic '78 Blizzard, it was a top 5 storm for much of Eastern New England and will not be forgotten.”

## Cont'd from pg 9...Blizzard of 2005

During the height of the storm, winds along the coast gusted between 55 and 75 mph and there were pockets of moderate coastal flooding during the time of high tide. This not only resulted in damage but tremendous blowing and drifting of snow, resulting in whiteout conditions. Areas along the coast reported snow drifts up to 6 feet with zero visibility during the height of the storm. The main effects from this storm were felt across southern New Hampshire, central and eastern Massachusetts, as well as Rhode Island. Meanwhile, across western Massachusetts and northern Connecticut snowfall was heavy, but not extraordinary and winds were much weaker.

As the powerful low pressure system continued to lift off to the northeast, snow finally began to taper off across much of the region Sunday afternoon. However, heavy snow and strong winds persisted on the Cape and islands into Sunday evening before finally winding down in that region. Total accumulations ranged from between 8 and 16 inches across much of western Massachusetts and northern Connecticut; to between 20 and 30 inches with locally higher amounts across parts of southeast New Hampshire, eastern Massachusetts and Rhode Island. It was the wind along the coast that combined with the heavy snow to result in a blizzard across this region.

The snow finally came to an end across the entire region Sunday night. However, many schools and businesses were closed for several days. Snow piles in excess of 10 feet along city streets made roads very narrow and congested, as many parked cars were simply plowed in for days. While the late January blizzard of 2005 fell short of the historic '78 Blizzard, it was a top 5 storm for much of eastern New England and will not be forgotten.



Near whiteout conditions in Boston. Picture taken by Hayden Frank.

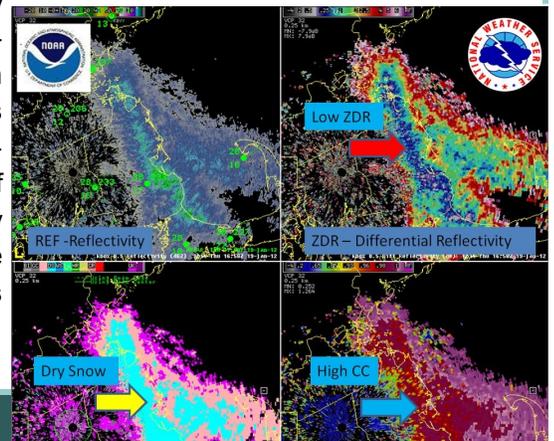
“Dual-Pol is part of the NWS vision to build a Weather-Ready Nation.”

## Dual-Polarization Radar

by Stephanie Dunten

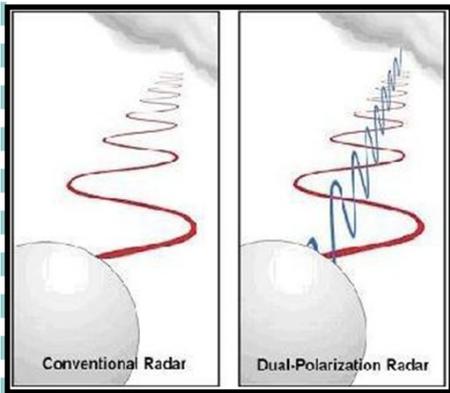
As part of a nation-wide implementation, the exciting dual-polarization radar upgrade to the KBOX WSR-88D occurred on January 4th and lasted approximately 7 days. This upgrade incorporates a new technology called dual-polarization, or dual-pol, that is part of the NWS vision to build a weather-ready nation to better protect lives and livelihoods. This new technology has resulted in 14 new radar products that has enabled us to continue providing our suite of high quality products and services to the citizens of Southern New England. This technology and data will help forecasters to identify the type of precipitation that is falling as well as improve rainfall estimates.

Cont'd on page 11



## Cont'd from pg 10...Dual-Pol

So what exactly is Dual-Pol? The current Doppler radars transmit and receive pulses of radio waves in a *horizontal* orientation.

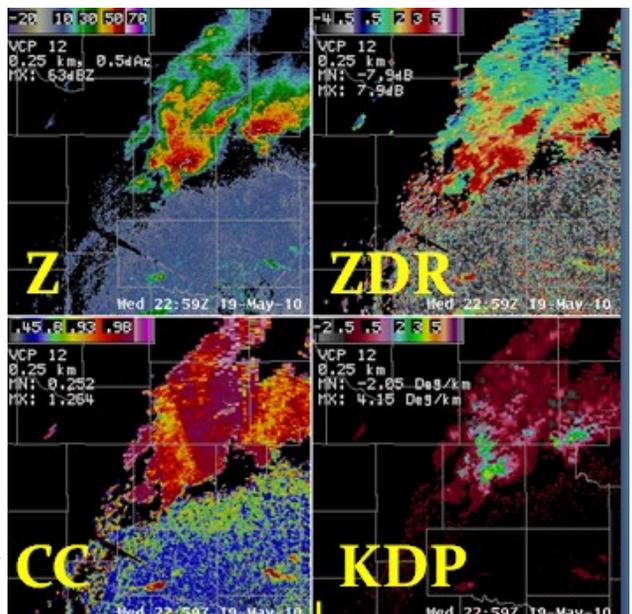


As a result, the radar only measures the horizontal dimensions of targets (e.g. cloud and precipitation droplets). Dual-pol radars transmit and receive pulses in both a *horizontal* and *vertical* orientation. Therefore, the radar measures both the horizontal and vertical dimensions of targets. Since the radar receives energy from horizontal and vertical pulses, we can obtain better estimates of the size, shape, and variety of targets. It is expected that this will result in significant improvements in the estimation of precipitation rates, the ability to discriminate between precipitation types (e.g. hail vs. rain), and the identification of non-meteorological returns.

There are several benefits of the Dual-Pol radar. First, it will improve accuracy of precipitation estimates, leading to better flash flood detection. Next, it will have the ability to discern between heavy rain, hail, snow, and sleet. It also will improve detection of non-meteorological echoes (e.g. ground clutter, chaff, anomalous propagation, birds, and tornado debris). Lastly, it will help in the detection of aircraft icing conditions and identify the location of the melting layer (e.g. bright band). Dual-Pol will not improve tornado lead times or be able to provide exact precipitation type on the ground.

With the upgrade to Dual-Pol we have received several new products to help us determine the size, shape, and variability of the hydrometeors. The base radar products that have been available to users are base reflectivity, base velocity, and spectrum width. Three new base products will now be available, these include differential reflectivity (ZDR), correlation coefficient (CC), and specific differential phase (KDP). In addition to these three new base products, we also have several derived products. These include a melting layer (ML) product, hydrometeor classification algorithm (HCA) product, and eight new precipitation products.

Here at WFO Boston have already put our new Dual-Pol radar into excellent use. It so far has helped us determine where the snow/rain line was located during winter events, dry vs. wet snow during an ocean effect snow shower, fires, and melting hail vs heavy rain within a thunderstorm. We at the WFO are excited for this new technology and cannot wait to see what else we may learn from it.



## “Irene” retired from list of Atlantic Basin storm names

Irene has been retired from the official list of Atlantic Basin tropical storm names by the World Meteorological Organization’s (WMO) hurricane committee because of the fatalities and damage it caused in August 2011. Irene’s place on the list of Hurricane names will now be filled with Irma.

Storm names are reused every six years for both the Atlantic Basin and eastern North Pacific Basin, unless retired for causing a considerable amount of casualties or damage. Irene is the 76th name to be retired from the Atlantic list since 1954.

# 13th Annual Southern New England Weather Conference Sat., Oct. 27, 2012



Keynote speaker, Dr. Greg Forbes, Severe Weather Expert from The Weather Channel.

Since 2000, the Southern New England Weather Conference has provided a place for weather enthusiasts and professionals to gather and share their knowledge and expertise regarding topics such as winter weather forecasting, severe weather, hurricanes, advances in the science of meteorology, emergency preparedness, etc.

Regardless of whether you are a seasoned professional or have just a casual interest in weather, the Southern New England Weather Conference is sure to offer topics of interest to you! This year's conference will take place on **Saturday October 27, 2012**. The conference will again be held at Meditech Corporation, at the base of Great Blue Hill in Canton, MA.

**Unlike previous years, which have focused on a myriad of meteorological topics, this year, we are devoting just about the entire conference to three significant storms that impacted Southern New England in 2011:**

- The June 1 tornado that struck Springfield, Monson, Brimfield and other nearby communities
- Tropical Storm Irene on August 28-29
- The "Snowtober" winter storm on October 29-30

We will be covering these three storms in-depth, from a variety of aspects, from both the meteorological and human side.

A special keynote speaker will be Dr. Greg Forbes, Severe Weather Expert from The Weather Channel in Atlanta, GA, barring any severe weather outbreak at the end of October!

**Attention teachers:** You can receive 10 Professional Development Points (PDPs) for attending the conference, issued by the Blue Hill Observatory.

The Southern New England Weather Conference is a non-profit venture that is sponsored by the National Weather Service Taunton MA, the Blue Hill Observatory and Science Center, the University of Massachusetts-Lowell Student Chapter of the American Meteorological Society. Conference fees are used only to cover event expenses by Blue Hill Science Center, a not-for-profit organization.

"...we are devoting just about the entire conference to three significant storms that impacted Southern New England in 2011."

**Conference website:**

**<http://www.sneweatherconf.org>**



## National Weather Service Southern New England

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The National Weather Service provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.

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## Meteorology Terms

S E L I H H A E D R N A O A E S M N  
 U I A O R W E A T H E R T E Z O M S  
 N R R L W E L G U N L W M L G I T F  
 W R T E M P E R A T U R E O N N W N  
 A E U T N O R F D L O C F A I I L A  
 R N A R E I I E H T I L H O N A L E  
 M L U T C V A O S O A H T D T R H V  
 F F T A H Z E R U S S E R P H G I H  
 R Z N N D E E O H U U W W T G N A L  
 O E O N S D R F N I A R H S I I N A  
 N N W O N S L R Z L O U E D L Z E E  
 T T S U E O S C A Z N C E S A E L P  
 U O H T O S D A I D R I Z Z L E E S  
 Y T I D I M U H E V I T A L E R T T  
 F A I G R T O R N A D O E A O F Z Z  
 T N I T N G L S I I M E N T M C I N  
 G O O D A T C I T U R A R L S L C U  
 T L H I H H S Z I L T L N N A D U R

## Find the following words:

- |               |                   |
|---------------|-------------------|
| CLOUDS        | HURRICANE         |
| FLOODING      | RAIN              |
| HIGH PRESSURE | TEMPERATURE       |
| LOW PRESSURE  | WARM FRONT        |
| SNOW          | DRIZZLE           |
| TORNADO       | FREEZING RAIN     |
| WIND          | ICE               |
| COLD FRONT    | RELATIVE HUMIDITY |
| FOG           | FLASH FLOOD       |
| THUNDER       | LIGHTNING         |
| WEATHER       | THUNDERSTORM      |
| HAIL          | WEATHER RADIO     |
| SLEET         |                   |

U I A O R W E A T H E R T E Z O M S  
 N R R L W E L G U N L W M L G I T F  
 W R T E M P E R A T U R E O N N W N  
 A E U T N O R F D L O C F A I I L A  
 R N A R E I I E H T I L H O N A L E  
 M L U T C V A O S O A H T D T R H V  
 F F T A H Z E R U S S E R P H G I H  
 R Z N N D E E O H U U W W T G N A L  
 O E O N S D R F N I A R H S I I N A  
 N N W O N S L R Z L O U E D L Z E E  
 T T S U E O S C A Z N C E S A E L P  
 U O H T O S D A I D R I Z Z L E E S  
 Y T I D I M U H E V I T A L E R T T  
 F A I G R T O R N A D O E A O F Z Z  
 T N I T N G L S I I M E N T M C I N  
 G O O D A T C I T U R A R L S L C U  
 T L H I H H S Z I L T L N N A D U R