Prevailing Winds

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Media Workshop: Communication & Uncertainty

by Stephanie Dunten, General Forecaster

During hazardous weather events, the National Weather Service relies on its partners in the media and emergency management communities to send and receive information. Every 2 years, our office hosts a Media Workshop to discuss the latest forecast techniques and find ways to improve communication. These workshops allow all of us to get together, network, and build relationships with one another, which is critical when hazardous weather occurs.

TV meteorologists Kelly Bates (NBC 10), Michelle Muscatello (WPRI 12) and Chelsea Priest (ABC 6) pose with NWS meteorologist Stephanie Dunten after the Media Workshop. Picture courtesy of Kelly Bates.

At our last workshop, we focused on dual-polarization radar and provided training on applying various radar signatures to the weather in New England. This year, we held our Media Workshop in March, with excellent turnout with meteorologists from most of the TV markets in attendance (Hartford/Springfield, Boston and Providence). The workshop was held over two sessions which allowed attendees to choose which day was most convenient for them.

The weather in southern New England has been active in the past few years, from the Massachusetts EF3 tornado to crippling blizzards and tropical storms. The theme of this year's workshop centered upon "Communication: Conveying the Message and the Uncertainty." The goal was to discuss new ways of sharing information and collaborating on forecasts of hazardous weather in order to send a consistent message. We reviewed the March 2013 winter storm, which was poorly forecast, and found ways to better convey uncertainty. We also discussed the Massachusetts EF3 tornado and the July 2013 tornadoes in Connecticut, focusing on the wording used in tornado warnings and how to better express confidence when a tornado is producing damage versus one that is based upon strong rotation on the radar. There was a discussion on Sandy and we conversed on ways to work together to better prepare southern New England residents should a hurricane threaten the Northeast. This was an excellent discussion as it has been over 50 years since we last saw a major hurricane and over 20 years since Hurricane Bob impacted the region.

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NWS Taunton Media Workshop. Picture taken by WWLP-22 Springfield.

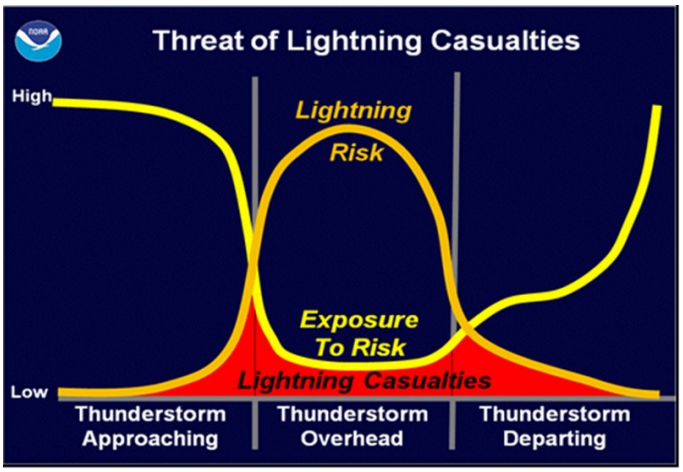
In addition to these discussions, we also took the opportunity to review some new products and services. This included the new Storm Surge Warning which will be issued by the National Hurricane Center, and which our office will test this year. We also demonstrated new storm-specific inundation maps that are being developed by a student volunteer at our office. Finally, we obtained feedback on improving our probabilistic forecasts for snow amounts, which will be expanded to include rainfall amounts and wind speed in the next couple of years.

We found this workshop to be very successful. Whether it is by mentioning confidence by our forecasters in Area Forecast Discussions, holding media conference calls prior to significant weather events, or being more engaged on social media, there are always ways to improve communication with our media partners. We always enjoy seeing our colleagues at these workshops and look forward to hosting another one soon.

Lightning Safety

by Hayden Frank, Senior Forecaster

When people think about thunderstorm safety, the first things that come to mind are destructive tornadoes, damaging winds and very large hail. While that is important, all thunderstorms produce lightning so we cannot neglect this potential life threatening hazard.



Over the past 10 years, lightning has resulted in an average of 37 fatalities along with 300 injuries per year in the United States. While many lightning victims do survive, they often suffer serious long term side effects.

The most important thing to remember is that during a thunderstorm, there is no safe place outside. There are five words that you need to memorize, "When Thunder Roars, Go Indoors." You need to have a lightning safety plan in place and cancel or postpone outdoor activities early if thunderstorms are expected. The plan should include a nearby sturdy indoor shelter or a hard-topped vehicle, if lightning threatens.

People often wait too long to take shelter ahead of an approaching thunderstorm. If you hear thunder, it means you are close enough to get struck by the lightning, as lightning can strike 10 miles away from a storm. It is important to go inside to a sturdy shelter. Another mistake made is going back outside too soon after the rain has ended. You want to wait approximately 30 minutes after the last clap of thunder, before going back outside. The graph above depicts peoples' misunderstanding of the lightning risk. You can see how lightning fatalities are actually highest before and after the rain from a thunderstorm.

We have talked about the importance of seeking a safe indoor shelter ahead of an approaching thunderstorm. This can be a building with electricity or a hard-topped vehicle with the windows closed. A soft-top convertible is not safe from lightning! Picnic shelters, dugouts, small buildings without plumbing or electricity are also *not* safe. Please be safe this upcoming summer and remember when thunder roads go indoors.

Key Indoor Safety Tips

- Stay off corded phones. You can use cellular or cordless phones.
- Don't touch electrical equipment or cords.
- Avoid plumbing. Do not wash your hands, take a shower or wash dishes.
- Stay away from windows and doors and stay off porches.
- Do not lie on concrete floors or lean against concrete walls.

MIC Musings

by Robert Thompson, Meteorologist-in-Charge

Introduction

Every Meteorologist-in-Charge (MIC) probably can think of one or two scenarios that could provoke insomnia. For this MIC, the threat of a landfalling hurricane, especially a major hurricane (category 3 or higher), does the trick. But just how serious is that risk?

New England Hurricane History

Hurricanes are infrequent but certainly not unheard of visitors to New England. Records of hurricanes striking New England go back to the Great Colonial Hurricane in 1635, one of the strongest in recorded history to strike this part of the country with storm surges thought to be at least as high as 20 feet in Buzzards Bay. Core samples along some of the New England south coast beaches indicate comparably strong tropical cyclones before the keeping of any records. Since colonial times, other category 3 hurricanes that landfalled in New England include the 1815 Hurricane, the 1938 Hurricane, and Carol in 1954, 60 years ago this coming August. History suggests we should anticipate a landfalling major hurricane about once each century. The frequency of a hurricane of any intensity making landfall in New England appears to be about once every 15 years or so. The last hurricane to directly hit New England was Bob in August of 1991. We are also impacted now and then from tropical storms (e.g. Irene in 2011) or storms of tropical origin that come close enough for significant impact (e.g. Sandy in 2012). All of this means that New England hurricanes are infrequent but hardly non-existent.

Frequency doesn't tell the whole story. One needs to look at impact as well to address how serious the risk is. It was indeed a big footprint left by the 1938 Hurricane and Carol in 1954. The 1938 Hurricane, which struck with no warning, killed some 600 to 700 people. Besides storm surges up to 14 feet in Narragansett and Buzzards Bays, the 1938 Hurricane blew down an enormous number of trees (e.g. over 90 million in landlocked Windham County Connecticut alone!) and produced record river flooding. Although not as large as the 1938 storm, Carol still produced storm surges up to 14 feet in Narragansett and Buzzards Bays with widespread destruction (e.g. essentially wiped out Crescent Beach in Mattapoisett, MA). Given more second growth trees, more roads and buildings under those trees, greater dependence upon electric power, and increased development along our coast and river shores, a comparable hurricane to the 1938 storm or Carol today would more than likely cause a still greater impact. As extreme as the damage potential is, it's the threat to life that worries this MIC.

Unlike the 1938 Hurricane, it seems nearly inconceivable that a major hurricane could strike New England without warning. And today's interagency emergency management infrastructure with a wide range of preparedness/response capabilities didn't exist in 1938 or 1954. The concern lies with an inexperienced population at risk. For example, no one alive today has experienced even close to the potential worst case scenario for storm surge flooding along Buzzards Bay. The 1938 Hurricane and Carol brought about a 14 foot storm surge to upper Buzzards Bay, but a worst case scenario could bring twice that amount (25 to nearly 30 feet) to that area. And the issue isn't limited to the coast. Irene was a wake-up call for many in Vermont and northwest Massachusetts on how severe small stream and river flooding can be from a tropical storm. Wind, too, presents a grave danger to anyone still out on the roads, especially secondary roads, when widespread winds of just tropical storm force overspread the area. Be it on the coast or inland, we've seen it before. A person's response is usually closely tied to his/her personal experience, not in some theory of what could happen. Hence, we cannot ease off on our preparedness efforts.

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For the latest weather information, check out:

www.weather.gov/boston

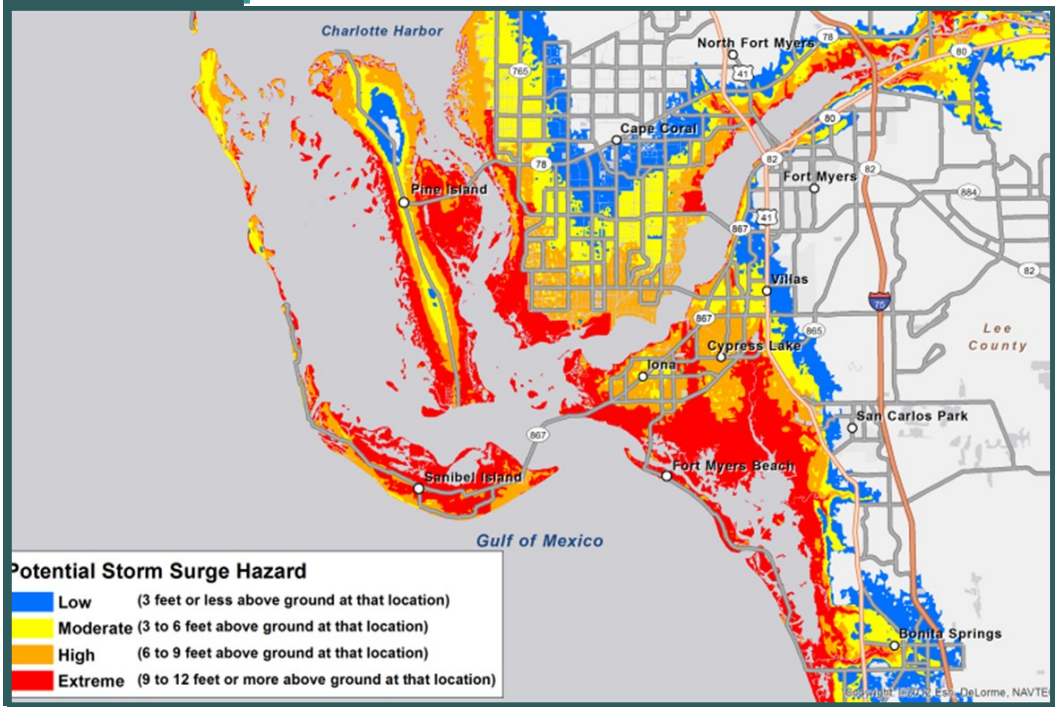
Cont'd from pg 3…MIC Musing

Implications of Climate Change

The jury remains out whether or not hurricanes will become more intense in a climate change scenario. There is less debate, however, on sea level rise raising the stakes. In essence, sea level rise allows water to get to new places and increases the impact of storms with comparable intensity of past events. Hence, we have to revise upward our assumptions of worst case scenarios. But we need to be cautious of just focusing on impacts presumed for the distant future. Sandy illustrates this point. She brought a storm surge of 4.5 feet to Boston Harbor, even though over 200 miles away. That magnitude of surge on a spring high tide (sun and moon in conjunction) would break the all time high water mark set by the February 1978 Blizzard. And consider that a path trajectory just another 150 to 200 miles north for Sandy would have triggered a 6.5 surge in Boston Harbor. The resultant impact on Boston's transportation, communications, and power infrastructure would likely have been massive, although just how bad is largely unknown. Hence, we have recommended a combined federal, state, and local tabletop exercise to better ascertain the potential impact and preempt mother nature with affordable mitigation steps before she throws another Sandy-like storm in Boston's direction.

The Bottomline

The bottomline is that we (meteorologists, emergency managers, other key decision-makers, and the general public) must be ready to respond when threatened. New maps (see prototype shown below) will become available to depict potential inundation from a threatening hurricane. The maps will depict the "plausible worst case" scenario rather than the most likely result. This should be a great tool to help personalize risk for specific storms. We need to effectively communicate that the "plausible worst case" scenario translates to where the risk has become too high to ignore. People need to understand that the inundation maps will not depict what *will* happen but rather what *could* happen. And what could happen is bad enough to warrant evacuation and/or other action. The cost of taking that action in time, money, inconvenience, etc. is still worth it given the consequences from the worst case scenario. After all, we buy life insurance not because we expect to be run over by a truck tomorrow but the consequences of a fatal accident or illness are just too much to risk. The same reasoning should apply to protective actions in the face of a hurricane threat, especially in those areas vulnerable to flooding from storm surge. Our task in the NWS is to partner with the media and others to get this message out. It is hard for this MIC to rest until every possible effort has been made to prepare our vulnerable, yet inexperienced, population for these low frequency but extremely high impact tempests from the tropics. In short, our New England hurricane risk cannot be ignored.



Prototype of a future inundation map that depicts the "plausible worst case" for a hurricane threatening an area. This map depicts the inundation that *potentially* could occur. Such maps will be issued for those coastlines that become covered by a Hurricane Watch/ Warning.

It's All about Bob Skilling: Hingham Coop Observer

by Kim Buttrick, Cooperative Program Manager

Pictured is Robert Skilling holding his John Campanius Holm award. Pictured with Bob from left to right are: Cooperative Program Manager Kim Buttrick, lovely wife Beverly, and good friend Hingham Fire Chief Mark Duff.

On February 26, 2014, Mr. Robert Skilling (Bob) a Cooperative Weather Observer from Hingham, MA received the prestigious John Campanius Holm Award for outstanding accomplishment in the field of meteorological observations. This award is named in honor of John Campanius Holm, a Lutheran minister who was the first person known to have taken systematic weather observations in the American Colonies (1644-1645). Each year up to 25 Cooperative Weather Observers are selected across our Nation for their outstanding public service in the provision of daily observations in support of the climate and weather programs of the National Weather Service (NWS).

Presenting Bob's award were NWS Taunton's Meteorologist-in-Charge Robert Thompson and Cooperative Program Manager Kimberly Buttrick. Bob's wife of 43 years, Beverly, and his good friend and colleague, Hingham Fire Chief Mark Duff took part in the presentation and celebration. To celebrate, Bob and company dined for lunch at Schooner's in Hull, MA where a favorite lunch combo was New England clam chowder with side Caesar Salad. And lunch wouldn't be complete for Bob without a trip to Dunkin Donuts for a cup of coffee!

A bit about our Cooperative Weather Observer Bob:

Bob takes pride in the fact he does not miss an observation. In fact, Bob has not missed an observation since his date of service, September 10, 1960. Whether rain, snow, hail or sunshine, for the past 54 years, Bob has been and continues to be a dedicated weather observer. At age 75, even in this past winter's blinding blizzards, Nor'easters and polar vortex episodes, Bob did not miss an observation.

Bob is passionate about the weather and observing it, and has been since high school. Since 1964 during his full time position as a Contract Weather Observer atop Blue Hill Observatory in Milton, MA, Bob has trained numerous observers over his tenure, and continues to do so atop Blue Hill in a part-time capacity these days. Bob is an expert in the field of weather observing, whether observing from a mercurial barometer, micro-barograph, Universal Rain Gauge, Standard Rain Gauge, Liquid-in-Glass Max/Min thermometers, sling psychrometer, ombroscope (detects precipitation type), pyranometer (sunshine meter), aerovane, Automated Surface Observing System (ASOS), F420C wind recorder, Contacting Wind Recorder, or the electronic Max/Min Temperature System. Not only is Bob a weather observing expert at work but also at home in Hingham, MA where Cooperative Weather Observing equipment resides in his backyard. Thus weather observing for Bob is a job, a hobby ***and*** a passion!

Bob also has been writing for the "Hingham Journal" - a weekly periodical - since 1994. Bob submits weekly articles that consist of his weekly data of temperature and precipitation and a narrative where he discusses unusual weather phenomena during that week. He cites weather normals (precipitation, snowfall and temperature) and any records reached or broken based on his 54 years of climate data from his home in Hingham, MA. Bob also contributes to the nearby town of Scituate, MA where he writes a column for the weekly periodical called "The Mariner." Bob tailors this weekly column to the South Shore of Boston, which includes Scituate. He discusses coastal effects and first hand weather reports from colleagues in that area who are unofficial weather observers.

Bob is a respected member of his local community and the weather community of Southern New England. He is a loving and supportive husband to Beverly and loving and supportive father to a son and daughter and grandfather to 3 grandsons.

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Learn about the NWS's effort to become a Weather Ready Nation: http://www.nwsnoaa.gov/com/weatherreadynation/

Cont'd from pg 5…Bob Skilling

BOSTON
WEATHER FORECAST OFFICE

WINTER CLIMATE FROM HINGHAM, MA

Climate from Hingham, MA is measured from Bob's backyard. As a Cooperative Weather Observer, Bob has been supplied with official National Weather Service observing equipment. Precipitation is measured from a Standard 8-inch Rain Gauge while temperature is measured from an electronic Max/Min Temperature System. Snowfall is measured with either a 20 inch or 40 inch snow stick with the help of a Snow Board.

Astronomical winter begins with the Winter Solstice in December (around December 21) and ends at the Spring Equinox in March (around March 21). But for meteorological purposes, winter occurs from December 1 through February 28. Meteorologists affectionately coin winter as the initials "DJF" for December, January and February.

This past winter (DJF) definitely felt like a season of extremes. But is what we felt in Southern New England supported by facts? Let's look at Hingham's 30 year normals for DJF and compare these normals with actual measurements of temperature, precipitation and snowfall from this past winter.

WINTER TEMPERATURE DATA FROM HINGHAM, MA

Month	Mean Max Temp Normal	Mean Max Temp Observed	Mean Min Temp Normal	Mean Min Temp Observed
December 2013	42.2	40.5 (-1.7)	26.0	25.4 (-0.6)
January 2014	37.3	36.6 (-0.7)	20.2	18.6 (-1.6)
February 2014	40.2	37.1 (-3.1)	22.8	19.2 (-3.6)

WINTER PRECIPITATION AND SNOWFALL DATA FROM HINGHAM, MA

Month	Total Precip Normal	Total Precip Observed	Total Snowfall Normal	Total Snowfall Observed
December 2013	4.57	5.46 (+0.89)	9.4	14.0 (+4.6)
January 2014	4.34	4.46 (+0.12)	14.2	28.4 (+14.2)
February 2014	3.98	5.13 (+1.15)	12.0	23.0 (+11.0)

The observed temperatures from Hingham, MA this past winter revealed readings below normal for both max and min temperatures. The observed precipitation and snowfall from Hingham this past winter were both above normal. Thus it was a DJF of extremes – at least from Bob Skilling's backyard in Hingham, MA – proving that what we felt in Southern New England was in fact true!

Much thanks to Bob Skilling for his dedication and exemplary reporting of meteorological observations. His extraordinary public service in the field of weather observing for over 50 years leaves a climate footprint for the ages.

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Hydrology Highlight: River Stage Forecasts Now Routinely Issued for the Pawcatuck

by Nicole Belk, Service Hydrologist

"Because the Pawcatuck River empties into Rhode Island Sound, the lower Pawcatuck is also susceptible to storm surge. The worst storm surge event in recent history was from the 1938 Hurricane."

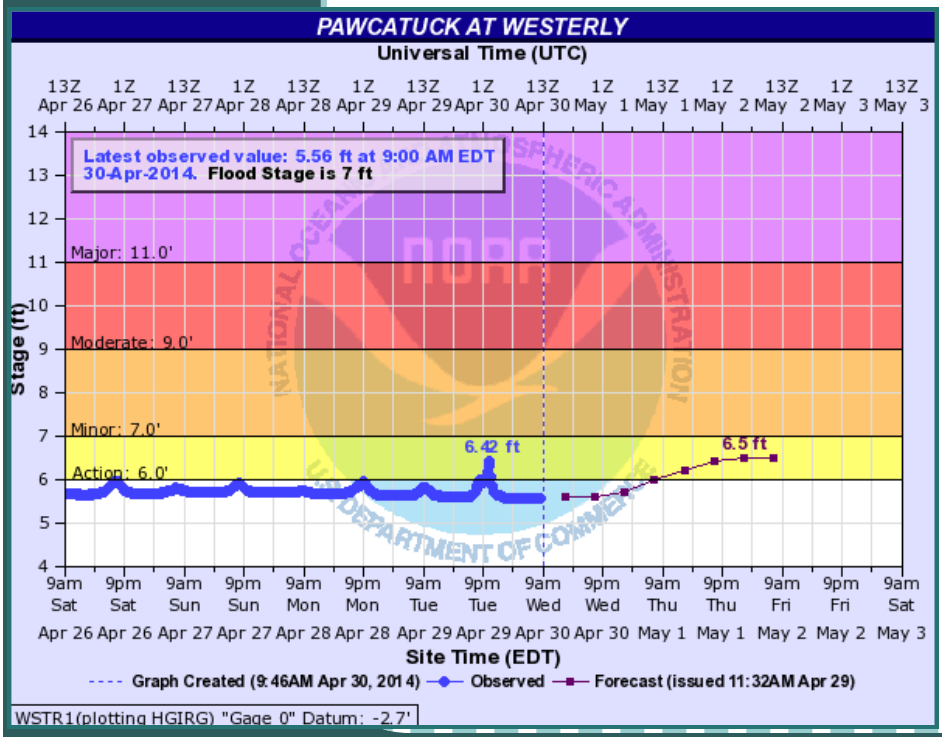
Late last fall, the National Weather Service began issuing daily river stage forecasts, including River Flood Warnings as needed, for the Pawcatuck River in southern Rhode Island. The forecasts are for two river gaging stations operated by the United States Geological Survey. The first gage is adjacent to Route 91 above Wood River Junction, and the second site is off of Canal Street in Westerly.

The Pawcatuck River originates from Wordens Pond in South Kingstown Rhode Island. It then flows from east to west along the communities of Richmond, Charlestown, Hopkinton and Westerly in Rhode Island; as well as Stonington and North Stonington in Connecticut. The Pawcatuck River is frequented for recreational activities such as kayaking. During significant heavy rain (or rain combined with snowmelt) events, this river can bring the threat of flooding to area roads, residences, businesses, and other infrastructure. Communities which harbor this river were especially hard hit during the late March 2010 floods. Six to 10 inches of rain fell state-wide during March 29-30 2010, but to make matters worse many rivers in the Ocean State, including the Pawcatuck, were already swollen due to heavy rains that fell earlier in the month. The river gages on the Pawcatuck River above Wood River Junction and at Westerly both recorded their highest crests on record as a result of the late March 2010 rains. River stage data dates back to around 1940 for both sites.

Because the Pawcatuck River empties into Rhode Island Sound, the lower Pawcatuck is also susceptible to storm surge. The worst storm surge event in recent history was from the 1938 Hurricane. USGS records indicate that the storm surge in Westerly produced a flood crest almost as high as the crest from the late March 2010 floods.

The current river stage forecasts are generated by the NWS Northeast River Forecast Center, co-located with our Weather Forecast Office here in Taunton. River stage forecasts, as well as flood stages and information on flood impacts for given river heights, can be found via our web site http://weather.gov/boston. Click on the link "Rivers and Lakes". This will take you to our Advanced Hydrologic Prediction Service (AHPS) web page, with river stage data and forecasts for numerous river gages across southern New England, including our new sites in southern Rhode Island.

If you know of additional flood impacts that occur on the Pawcatuck River that are not listed in the impact statements on AHPS, please contact Nicole.Belk@noaa.gov . Your information is much appreciated.

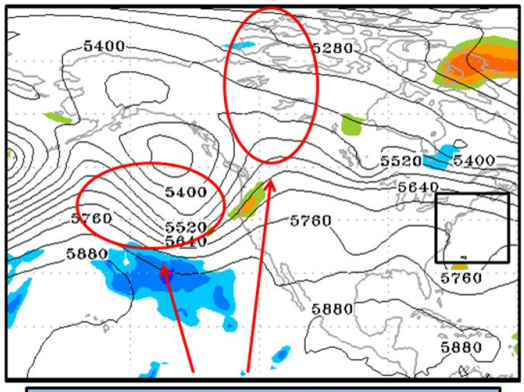


To the left is an example of a graph showing river stage data and the river stage forecast for the Pawcatuck River gage at Westerly, Rhode Island.

Uncertainty in Winter Storm Forecasting

by Joe DelliCarpini, Science Operations Officer

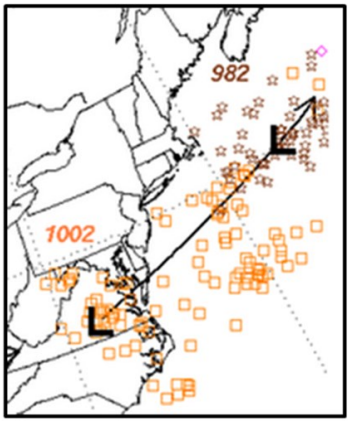
The winter of 2013-14 was certainly an active one in regard to the number of winter storms, especially from January through early March when it seemed we had at least one storm affect the East Coast each week. Each of these storms presented a challenge to the forecasters here at NWS Boston, as we dealt with uncertainties in the storms' track.



These data-sparse regions can lead to uncertainty or "flip flops" in model forecasts of winter storms on the East Coast.

But why was there so much uncertainty? To answer that question, forecasters utilized a relatively new tool this past winter to help assess the "predictability horizon" or time frame of when computer model forecasts are most reliable. The tool was the result of a CSTAR project led by the State University of New York at Stony Brook. CSTAR stands for Collaborative Science, Technology, and Applied Research program. It represents an NOAA/NWS effort to create a cost-effective transition from research to operations through collaboration between operational forecasters and academic institutions which have expertise in the environmental sciences.

Using an online viewer, the forecasters can "back track" from a model forecast to see where the energy supporting storm development originated. In many cases this past winter, that ended up being near the Arctic Circle, or over the central Pacific, neither of which has a dense network of upper air observations.



Spread in surface low position (boxes) 48 hours prior to the January 3, 2014 Blizzard.

In these areas, computer models estimate the observed conditions instead, which often leads to errors in 3-5 day forecasts downstream (such as the East Coast). It is not until the weather system reaches the U.S. West Coast that it becomes better sampled by the upper air network, leading to a more reliable forecast. Knowing this, forecasters most often used a blend of the model forecasts in that time frame, which best helps to convey the level of uncertainty by smoothing out the differences.

A good illustration of this was the January 3rd Blizzard, which dumped 1 to 2 feet of snow across parts of the region. In the image to the left, you can see the "spread" or variation in model forecast positions about two days prior to the storm. This can have significant implications on the forecast for southern New England – a storm track closer to the coast would dump much more snow on the region than a more offshore track.

The uncertainty in forecasts is what led our office to begin producing probabilistic snowfall forecasts, which you have probably seen on our web site before. These forecasts are intended to give a sense of confidence as to where certain thresholds (2, 4, 6, 8, 12, and 18 inches) are most likely to be exceeded. Next winter, we plan to issue Minimum and Maximum snowfall forecasts as well, which give a reasonable "best case" and "worst case" scenario.

Getting to know your NWS Team: Eleanor Vallier–Talbot, Meteorologist

Eleanor Vallier-Talbot is a native New Englander, growing up in Quincy, Mass. She had a "quiet" interest in weather during her middle school years, but eventually followed her passion to the University of Lowell (now University of Massachusetts at Lowell). After two years, she transferred to Lyndon State College in Vermont where she received her Bachelor of Science degree in Meteorology in 1982. Eleanor started her career as a part time weather observer at the Blue Hill Observatory in Milton and eventually joined the National Weather Service in Providence in May 1985. Eleanor also worked at the NWS offices in Portland, Maine and Charleston, South Carolina, as well as two stints at Boston/Taunton office, first from 1993 to 1998, returning in 2001.

Eleanor has always had a keen interest in educating school age children, having a second interest in becoming a teacher. After the move to Taunton in 1993, she worked to revitalize the office's Outreach Program. Since then, the NWS Taunton is one of the national leaders in outreach visits, tours and presentations to a wide variety of organizations, educational institutions and training sessions including SKYWARN. Since the revitalization of the outreach program, NWS Taunton has reached close to 150,000 people from across our area of responsibility through the office's Outreach activities. On top of working for the Weather Service, Eleanor has been an active member of the National Weather Association, serving on the Education Committee. She recently stepped down as Co-Chair of the committee after six busy years.

Eleanor is an avid Boston sports fan, especially her beloved Red Sox, and also enjoys traveling including cruises to Nova Scotia and Bermuda. She met the love of her life and fellow weather enthusiast, Dean, while working at Blue Hill. Married since 1992, they have two furry babies, their cats, Christy and Ollie.

SKYWARN Amateur Radio Update

by Rob Macedo, SKYWARN Coordinator

The Winter of 2013-2014 brought numerous SKYWARN Activations with Amateur Radio Operations (Ops) at NWS Taunton during this timeframe along with planning for SKYWARN Training sessions and one of our two annual SKYWARN Coordinators Meetings for 2014 on March 1st, 2014. From late November 2013 through April 2014, there were 26 total SKYWARN Activations with Ops at NWS Taunton be initiated 10 times. The other 16 were 'remote' or 'self-activations' of SKYWARN, where Amateur Radio Nets and social media were monitored via Amateur Radio coordinators at their home locations. The winter of 2013-2014 brought four Blizzard Watch/Warning issuances to Cape Cod and the Islands and portions of East Coastal Massachusetts over the course of this winter.

Both non-Amateur Radio and Amateur Radio SKYWARN Spotters brought a significant number of reports during all of these SKYWARN activations. This was especially true during several of the Blizzard Warning….

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Learn more about becoming an Amateur Radio Operator: http://www.wx1box.org

Cont'd from pg 9…SKYWARN Update

events where it was particularly difficult to accurately measure the snowfall. Strong to damaging winds also occurred during these events across Cape Cod and the Islands. During the March 26th, blizzard, hurricane force wind gusts up to 88 MPH were recorded on Nantucket Island by W1NQT-Ken Blackshaw and a 75 MPH hurricane force wind gust was recorded at Cape Cod Hospital in Hyannis via WQ1O-Frank O'Laughlin. The Amateur Radio SKYWARN Net on the 146.955-Barnstable Repeater was very active during the various blizzard events this winter and we thank the Cape Cod ARES/SKYWARN Net and Cape and Islands Weather Net for their support this winter.

Tree Damage in West Harwich, MA from the Wednesday 3/26/14 Blizzard (Photo by: W1JAW: Jack Wyatt)

Numerous SKYWARN Nets were called across the entire NWS Taunton coverage area for the various winter storms and we'd like to recognize John Kennedy-WA1WTQ. John called many nets in Worcester County on the 146.970-Paxton Repeater during the winter storms that affected Central Massachusetts. He also coordinated a SKYWARN Training class in Petersham, MA which occurred on Thursday April 3rd. Unfortunately, John passed away unexpectedly on Thursday February 6th, 2014. Although he was a relatively new Amateur Radio SKYWARN Coordinator, his contributions were significant in a rather short period of time for our program and we are still sorrowed by his passing and wish his family our condolences for their loss.

Many of our winter storms during this past season had snowfall rates reaching 2-3" of snow per hour (and sometimes even higher rates). In some of our most potent winter storms and blizzards during this season, wind damage and coastal flood reports were also critical data points during those events. Amateur Radio SKYWARN Nets occurred every hour to 2 hours across the coverage area along with reports received via social media and through monitoring of various Amateur Radio repeaters throughout the storms allowed for a consistent flow of weather data and damage reports. This flow of data allowed for a high level of situational awareness not only for the National Weather Service but for state and federal emergency management, the media and non-governmental organizations that would benefit from this information. Several hundred hours of volunteer service were rendered by Amateur Radio SKYWARN Spotters and Coordinators and non-Amateur Radio SKYWARN Spotters over the course of this winter.

Despite the busy winter season of SKYWARN Activations, the Amateur Radio Coordinator team working closely and diligently with Stephanie Dunten, NWS Taunton SKYWARN Program leader, to put together a slate of 18 SKYWARN Training sessions. These sessions are taught by both NWS Taunton forecaster staff and Amateur Radio Coordinators. We hope you and your family can attend one of the SKYWARN sessions soon.

The Amateur Radio Staff at WX1BOX, the Amateur Radio station at NWS Taunton, looks forward to working with you as we head towards the winter weather season. We hope to hear from you when weather begins to meet or reach the reporting criteria. If interested in joining the SKYWARN Announcement email list sign-up (you don't have to be an amateur radio operator to join): contact Rob Macedo-KD1CY: rmacedo@rcn.com

2014 Preparedness Week Information

- **March 17th - 21st:** Flood Preparedness Week
- **April 28th - May 2nd:** Severe Weather Preparedness Week
- **May 17th - 23rd:** Safe Boating Preparedness Week
- **June 1st - 7th:** 'Break the Grip of the Rip' Awareness Week
- **June 23rd - 27th:** Lightning Safety Preparedness Week
- **July 14th - 18th:** Hurricane Preparedness Week
- **November 3rd - 7th:** Winter Weather Preparedness Week

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

Want to be an official spotter for the NWS? Check out the following dates for a class near you!

5/8/14 - Walpole, MA at 7:00 PM
5/10/14 - South Dartmouth, MA at 10:00 AM
5/13/14 - Wilton, NH at 7:00 PM
5/15/14 - Burrillville, RI at 7:00 PM
5/20/14 - Brooklyn, CT at 7:00 PM
5/20/14 - Plymouth, MA at 7:00 PM
5/22/14 - Salisbury, MA at 7:00 PM
5/22/14 - Tiverton, RI at 7:00 PM
5/29/14 - East Longmeadow, MA at 7:00 PM
6/14/14 - Natick, MA at 10:00 AM

More Information: **http://www.weaather.gov/box/skywarnprogram**

Is My Community StormReady® ?

by Glenn Field, Warning Coordination Meteorologist

Cars on top of seats at movie theater in StormReady® Van Wert, Ohio – no injuries!

A deadly tornado struck Springfield/Monson, MA in 2011 -- the worst since the Worcester Tornado in 1953. Major Hurricanes Carol and Edna both pounded the area in 1954. Tropical Storms Diane in 1955 and Irene in 2011 caused major flash flooding. Superstorm Sandy pounded the RI coast in 2012. And let's not forget the Blizzard of 1978 and the "Perfect Storm" on Halloween, 1991. Clearly, southern New England is at risk from a number of weather issues. While no community can ever be "storm-proof," they can become "StormReady®."

StormReady® encourages communities to take a new, proactive approach to improving local hazardous weather operations and public awareness. It arms communities with improved communication and safety skills needed to save lives and property – before and during an event. After the application process, the StormReady® Advisory Board, consisting of the NWS and other local, state, and federal officials, recommends recognition. A StormReady® designation is good for three years, after which a renewal application must be submitted.

More specifically, in order to become StormReady®, criteria must be met or exceeded in six areas:
1) Communications, 2) NWS Information Reception, 3) Weather & Water Monitoring Systems, 4) Local Warning Dissemination, including NOAA Weather Radios placed in key locations, 5) Community Preparedness - Safety/Spotter Talks and public education, and 6) Administrative Tools/Record Keeping.

There are many different types of StormReady® entities: In the NWS-Taunton area of responsibility, we have 16 towns/cities (including the major cities of Boston, Providence, and Worcester); 4 colleges/ universities (Harvard Univ., Boston Univ., Boston College, and Brown Univ.); 2 Commercial Sites (ESPN, Inc. in Bristol, CT and Six Flags Theme Park in Agawam, MA); and 1 Military Site (Natick, MA Soldier Systems Center). There also are StormReady® Supporters (such as ABC6 TV station in Providence, RI) that espouse the principles of the program and have plans in place for their own employees, etc.

Cont'd on page 12

Cont'd from pg 11…StormReady®

Perhaps the best success story from a StormReady® Community is from the small town of Van Wert, Ohio. Back in 2002, an F4 tornado plowed through the town, destroying the movie theater, in which 50 people had been watching The Santa Clause 2 movie just minutes before it struck. But, the emergency manager of Van Wert had a plan in place ahead of time and had given the manager a weather radio with a warning alarm tone. When the Tornado Warning was issued, he confirmed that it was real and notified the movie theater. Per the plan, all people were ushered to the reinforced bathrooms and there were no injuries.

Charles Dunlap, Emergency Management Director of Southwick, MA, the first StormReady® Community in southern New England, continually sings the praises of the program. Prior to the big "Snowtober" storm (10/29/11), he said that he and town officials "had discussions regarding possible gas shortages and the potential need for water and warming shelters. We were able to staff up for dispatchers, since they would need to take many calls from the public about downed wires. In general everyone is more weather savvy now. They read NWS Forecast Discussions and knew this was going to be a serious storm. Continual outreach makes townspeople more aware of adverse weather impacts on families. And, the StormReady® road signs as one enters the community are a constant reminder." What a great testimonial!

For more information about the process, please visit http://www.stormready.noaa.gov/publications.htm and click on the link to the mp3 video from WGGB-TV40 in Springfield, MA.

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**
- **Your spotter ID**

SKYWARN

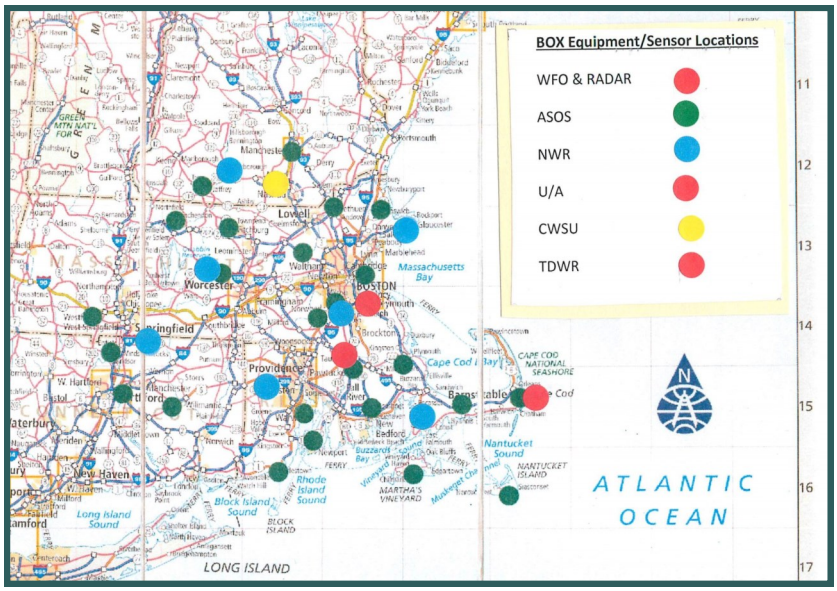
What to report to the NWS

Hail (report any hail)		Wind (report gusts ≥ 40 mph or damage)	
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.
Golf Ball	1.75 inches	73+ mph	Extreme destruction, devastation.
Lime	2.00 inches		
Tennis Ball	2.50 inches		
Apple	3.00 inches		
Grapefruit	4.00 inches		
Softball	5.00 inches		

Prevailing Winds

Visit to a Remote Sensor: Camp Edwards NWR

by Mike Esip, Electronics System Analyst



This is the first of several articles that will take you to various remote sensors assigned to NWS Taunton. Each article will visit a selected sensor and provide you with a brief description of that site from the eyes of an ET (Electronics Technician). Excluding our main facility within the Myles Standish Industrial Park in Taunton, MA, Taunton ETs support an additional 36 remote equipment locations as depicted in the image to the left. These locations include 25 ASOS (Automated Surface Observation System) sites, 7 NWR (NOAA Weather Radio) transmitter sites, 1 CWSU, 1 Upper Air site, and finally our KBOX and TBOS RADAR sites. Each article will take you to one of these sites and provide a brief overview. This article will take you to Joint Base Cape Cod (JBCC). JBCC is also known as the Massachusetts Military Reservation (MMR). The United States Army National Guard hosts NOAA Weather Radio Transmitter KEC-73 on the Camp Edwards portion of the base.

The JBCC is a joint use base to the US Air Force (PAVE PAWS), US Coast Guard (Air Station Cape Cod), and the US Air Force and Army National Guard. It is also the location for one of the United States Veteran's Administration's National Cemeteries, as well as the location for the Barnstable County Jail. KEC-73, a new 1000 watt Armstrong National Weather Service transmitter, broadcasts to the Cape and Islands on 162.55 MHz. The transmitter is housed at a secure location called Range Control. Geographically, Range Control is located on Pine Hill in the Camp Edwards portion of JBCC. A USGS benchmark annotating the 306' summit of Pine Hill is only a few short yards away from our transmitter and antenna. This is the highest location on Cape Cod (Barnstable County).

To access the site, a technician must first pass through a security check point at the Main Gate of JBCC. Once through the checkpoint, the technician must travel approximately 5 miles to reach Range Control at the top of Pine Hill. Housed within a fenced area are two buildings. One is the administration building for Range Control, and the other is a smaller building housing the NWS transmitter and an Army maintenance facility. The NWS antenna is mounted to a 65' tower sandwiched between the two buildings. Emergency power is provided by a NWS owned emergency generator. The generator provides full power to the NWS transmitter, and partial power to the Range Control facility. Fuel for that generator is supplied by the Army and contained in three 1000 gallon propane tanks. Telephone communications to the site is provided by Verizon to a central location communications building on the base. From that building the Army and Air National Guard supports the 7 miles of cable which carries our NWR audio and ROAMS lines. Generally speaking, maintenance at this site is performed quarterly or whenever outages warrant a visit.

The NWR tower at Camp Edwards.

Working with the Federal Communication Commission's Emergency Alert System, NWR is an all hazards radio network, making it your single source for comprehensive weather and emergency information. NWR broadcasts official warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week. Without this transmitter, the Cape and the Islands would not be able to receive their weather information from the NWR. That is why it is our duty to make sure the proper maintenance is done and that it is broadcasting properly.

My NWS Volunteer Experience

by Chris Roller, UMass Lowell Graduate Student

"While interning during the summer, not only did I work inside the office, but I also went outside the office to meet those who run the observation stations in the field."

Experience is important in the meteorology world. Companies are looking for employees who have prior knowledge and experience that they can bring to their employment. That is why the internship at the National Weather Service in Taunton has been important for me. My graduate studies at the University of Massachusetts Lowell have given me a considerable understanding of meteorology. But working at the NWS provided me with a more in depth knowledge of forecast methods and the way to apply meteorology that the public can see it, interpret it and then act upon it. In some cases the employer can learn new methods from the new employee to apply in the work place. In fact, I have been able to show fellow forecasters at the NWS some methods that I use that have helped them. This learning and giving is one of the many reasons why I have enjoyed my internship with the NWS.

I was originally accepted as an intern during the summer of 2013 and worked on updating the storm spotter logs. This involved identifying those who have been certified within the last 5 years and finding out which town they are from so areas lacking in spotters can be reinforced and active members can be logged for better recognition. I helped with receiving calls from the public and the media as well as gathering marine reports of the current meteorological state of the seas to help the short term forecaster's understanding of the local waters. While I was helping them, they helped me to gain a better understanding of the many tasks that forecasters and other employees perform during their time at the NWS.

While interning during the summer, not only did I work inside the office, but I also went outside the office to meet those who run the observation stations in the field. There I learned what the observers do to record the weather. Also, it was interesting to see the instruments firsthand and blend the meteorology and engineering to understand how the instruments record the various meteorological parameters like dew point, temperature, and wind speed. I also got to replace and update some of the instruments. It was interesting to learn that there are more tasks than just forecasting that the NWS undertakes.

At the start of the internship, it was important for me to shadow the forecaster and learn how to update the packet of grids, which is the visual forecast, and is disseminated to the public. This involved taking the parameters and physics in the models like CAPE, frontogenesis, and vorticity and creating a final forecast. This tells the story of the next week's weather in a visual and text form that the public can immediately understand. My familiarity with New England weather events grew greatly during my time shadowing forecasters at the NWS as they had their own way of forecasting different events. All of the Taunton forecasters knew the climatology of the area and some of the little intricacies were interesting to learn while shadowing.

I have then been able to apply these techniques in my own forecasts for UMass Lowell, but also, after being asked to continue volunteering during my current school year, I work to produce the long-term forecast (under supervision of a NWS Forecaster). I have enjoyed working with the forecasters at the NWS and would value employment with them in the future.

NWS SUMMER INTERNS PRESENT A COOPERATIVE WEATHER OBSERVER AWARD

Pictured left: Mike Bumpus, Operator at the Middleboro Pumping Station, receives a 10 year Length of Service award for his contribution to weather observing in Middleboro, MA. Presenting the award are 3 summer interns with the National Weather Service (NWS) in Taunton. Pictured from left to right are: Chris McCray (sophomore at Lyndon State College in VT), Chris Roller (graduate student at UMASS Lowell), Mike Bumpus receiving his award, and Alyssa Hammond (Senior at Plymouth State University in NH). All 3 interns are studying Meteorology and have high hopes of some day working for the NWS! The Middleboro Pumping Station has a long history of weather records that date back to 1887 – a few years after the pump house was erected.

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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.

Visit our Website:
www.weather.gov/boston

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Science and Operations Officer: Joe DelliCarpini

Editor: Stephanie Dunten

2014 Hurricane Names

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H	A	A	C	R	I	S	T	O	B	A	L	S	S	K
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Find the following names:

ARTHUR
BERTHA
CRISTOBAL
DOLLY
EDOUARD
FAY
GONZALO
HANNA
ISAIAS
JOSEPHINE
KYLE
LAURA
MARCO
NANA
OMAR
PAULETTE
RENE
SALLY
TEDDY
VICKY
WILFRED