



The Four Seasons



National Weather Service Burlington, VT

VOLUME II, ISSUE III

FALL 2015

Table of Contents

2015 Wildfire Support	1 - 2
The August 15 th Ticonderoga Severe T-Storm	3 - 5
Champlain Valley Fair	6
2015 Atlantic Hurricane Season	7 - 8
Summer 2015 Summary	9 - 11
Vehicle Winterization	12 - 14
Watches, Warnings, & Advisories	15



Letter from the Editors

Welcome to the Fall 2015 edition of *The Four Seasons*, a quarterly newsletter issued by the National Weather Service in Burlington, VT. In this edition we'll take a look back at this past summer and hurricane season, explore what the Incident Meteorologist Program is and how we at this office support it, and take a closer look at a severe thunderstorm that hit Ticonderoga NY in August. We'll recap our outreach effort at the Champlain Valley Fair, and also take a look forward to what you can do now to make your vehicle safer to drive in the winter. Finally, we'll try to clear up any confusion that you may have with our watch, warning, and advisory system in the winter. Thanks for reading and we hope you enjoy the newsletter.

2015 Wildfire Support

-ERIC EVENSON

Wildfires were in the news quite a bit this summer, especially in Alaska, California, and the Pacific Northwest. Weather plays a significant factor on wildfires – hot temperatures, low humidities, wind, and lightning can have a large impact on fire growth and intensity. Thus knowing what weather conditions to expect on a wildfire can help the fire management team and all of the wildland firefighters working to contain the fire. Firefighter and public safety is the number one priority when dealing with a wildfire, and this is why it is important to have a meteorologist at the specific fire incident. The National Weather Service (NWS) has just over 80 specially trained meteorologists, known as incident meteorologists or IMETs, who provide highly detailed weather forecasts and briefings onsite at these large wildfires. The National Weather Service in Burlington has two IMETs, Brooke Taber and Eric Evenson, who spent parts of the summer providing weather support at large wildfires out west. IMETs typically work 16 hour days for two straight weeks and utilize a variety of tools (satellite, radar, observations) and techniques to accurately forecast weather conditions in remote wilderness locations with steep mountainous terrain. This August Brooke spent two weeks on the River Complex near the town of Denny in northern California. Eric took over for Brooke on the River Complex for a week before the fire threat diminished. Eric was then moved to far northwest California and worked on the Gasquet Complex just east of Crescent City, CA for a week. *(Continued on Page 2)*



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And in late June and early July, Eric spent two weeks on the Aggie Creek fire near Fairbanks, Alaska. Brooke and Eric both agree the challenge of providing critical weather information to ensure the safety of the men and women on the fire lines is an incredibly rewarding experience.



A – Brooke Taber briefing fire crews on the River Complex in northern California.

B – Torching tree on the River Complex in northern California.

C – Smoke plume on the River Complex in northern California.

D – Automated weather observing station on the River Complex in northern California.

E – Plumes of smoke on the Gasquet Complex in northern California.

F – Eric Evenson preparing a weather forecast on the Aggie Creek Fire near Fairbanks, Alaska.

G – Three large columns of smoke on the Aggie Creek Fire near Fairbanks, Alaska.

Insights and Warning Strategies for Pulse Convection:

The August 15th 2015 Ticonderoga Severe Thunderstorm

- John Goff

Overview

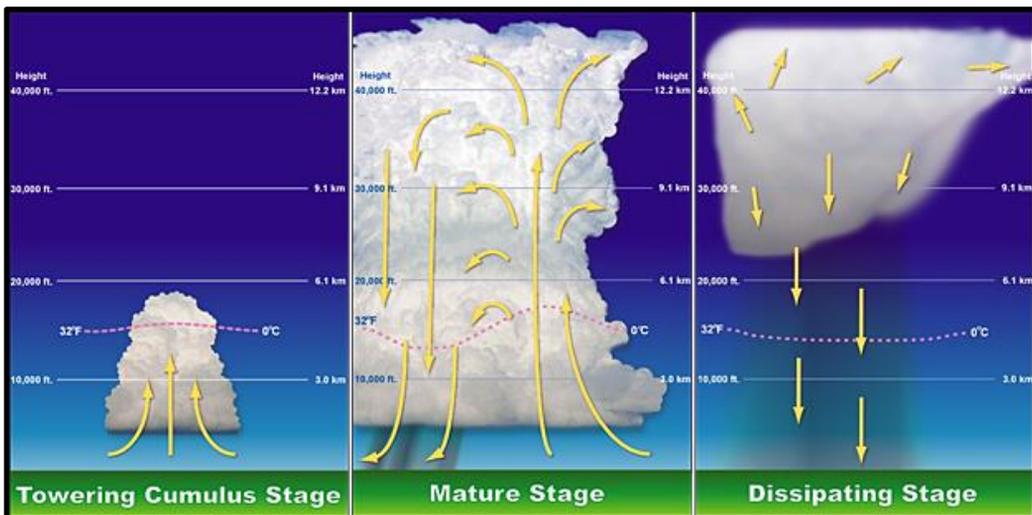
During the afternoon of August 15th, 2015, scattered thunderstorms developed across portions of Vermont and northern New York. While most of the activity was run of the mill summertime fare, one particular storm became severe, producing strong winds, and large and damaging hail over and just north of Ticonderoga, New York.

Pulse Thunderstorms

The storms that developed that afternoon were known as air-mass, or pulse thunderstorms. In the field of meteorology these are common, fairly generic terms describing relative storm structure and evolution, in this case storms with short lifespans on the order of 30 minutes comprised of a single updraft/downdraft couplet (Figure 1). During a typical pulse thunderstorm day, winds are relatively light through the lower atmosphere despite ample buoyancy and warmth. There is also a distinctive lack of a larger scale forcing mechanism for storm

formation and organization, with initial updrafts often being triggered by weakly defined convergence zones. These zones often occur along mountain ridges where slope winds gather, and on lake/sea breeze boundaries. One of the favored areas for pulse thunderstorm development in our area is along the lake breeze in Essex County, New York. In this area, the westerly pushing lake breeze interacts with the terrain along the eastern slopes of the Adirondacks which may foster enhanced convergence and updraft genesis (Figure 2, next page). Indeed, this is exactly where scattered pulse storms developed on the afternoon of the 15th.

Figure 1. Life cycle of an ordinary air-mass, or pulse, thunderstorm showing a distinct updraft/downdraft couplet during the mature phase. Typical time from towering cumulus stage to dissipating stage ranges from 30 to 45 minutes.



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Understanding Pulse Thunderstorm Development

As meteorologists, there are a few philosophical concepts that are taken into consideration when forecasting and warning for pulse thunderstorms. The first idea is that, in general, overall storm organization will be low with activity likely being scattered at best. A second rule of thumb is that pulse storm activity has a relatively high degree of unpredictability. What this means is that while we may have a good idea of roughly when storms will form, confidence on their exact location and which ones, if any, will trend strong to severe is much lower. However, with recent improvements to high resolution modeling schemes, these levels of unpredictability continue to improve.

Pulse Storm Warning Philosophy

In a broader sense, warning strategies for pulse thunderstorms are similar in many respects to larger more organized convective complexes. Key radar signatures and the idea that the larger degree of rain and hail transport aloft within the storm will in turn lead to larger resultant transport of this mass downward to the surface are critical in assessing storm severity. In general, the higher and larger a dense rain and hail core can become, the greater the potential for strong downdraft winds and large hail within the storm. As this mass evolves within the convective core, it cools a larger amount of air which will eventually sink and rush downward to the surface. As you can imagine, a larger mass of rain and hail falling out of a storm will have greater momentum and resultant impact than a smaller one (Figure 3). In fact, downbursts can reach speeds of 100 mph or more in the most severe cases.

Figure 3. Illustration of downward mass transport within a pulse thunderstorm. A larger and higher mass of precipitation within a storm will lead to a greater potential of severe downdraft winds and large hail.

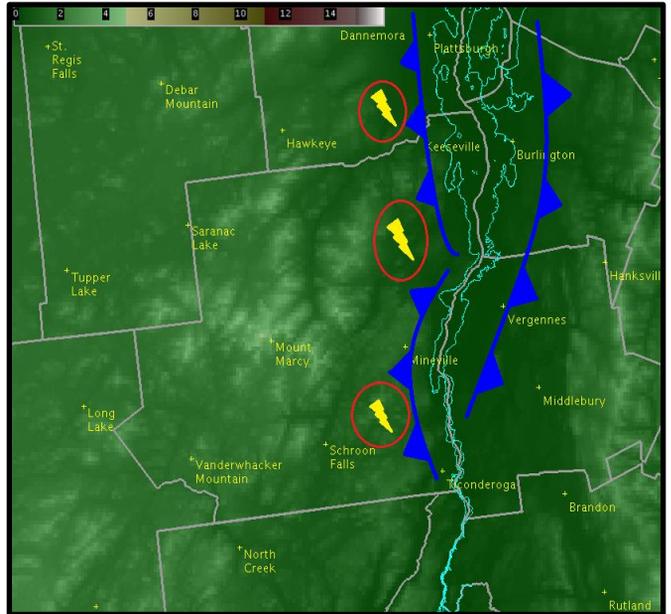


Figure 2. Lake Champlain lake breeze typical orientation (blue cool frontal lines) and favored areas for pulse thunderstorm development, where the lake breeze interacts with the eastern slopes of the Adirondacks (red circles).

The Ticonderoga, NY Severe Pulse Thunderstorm

Around or just before 2:15 PM on August 15th, 2015, a small thunderstorm developed in the vicinity of Crown Point, NY and began to intensify. Within 20 minutes, the storm had grown in height to near 45 thousand feet with radar indicating a large rain and hail core above 20 thousand feet as it drifted slowly south (Figures 4a & 4b). At this level temperatures were well below freezing, so large hail and strong downdraft winds seemed likely as the updraft weakened and this mass began to accelerate (Continued on Page 5)

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downward towards the ground. A pronounced three body scatter spike, or TBSS, signature was also observed on radar (Figure 4c). TBSS signatures are a backscattering radar artifact observed when dense objects (in this case hail) interfere with the radar beam and create false returns on the back side of a thunderstorm core. In general, the deeper and more pronounced a TBSS is the larger the hail is in a storm core. After observing these features, confidence increased on the potential for severe winds and hail, and a Severe Thunderstorm Warning was issued for the Ticonderoga area and portions of western Addison County, VT accordingly. As the precipitation core reached the surface about 10 minutes later, numerous reports of damaging winds and large hail were received from the Ticonderoga vicinity. The largest hail size reported was near or just shy of golf ball size, or 1.5 inches in diameter (Figure 4d).

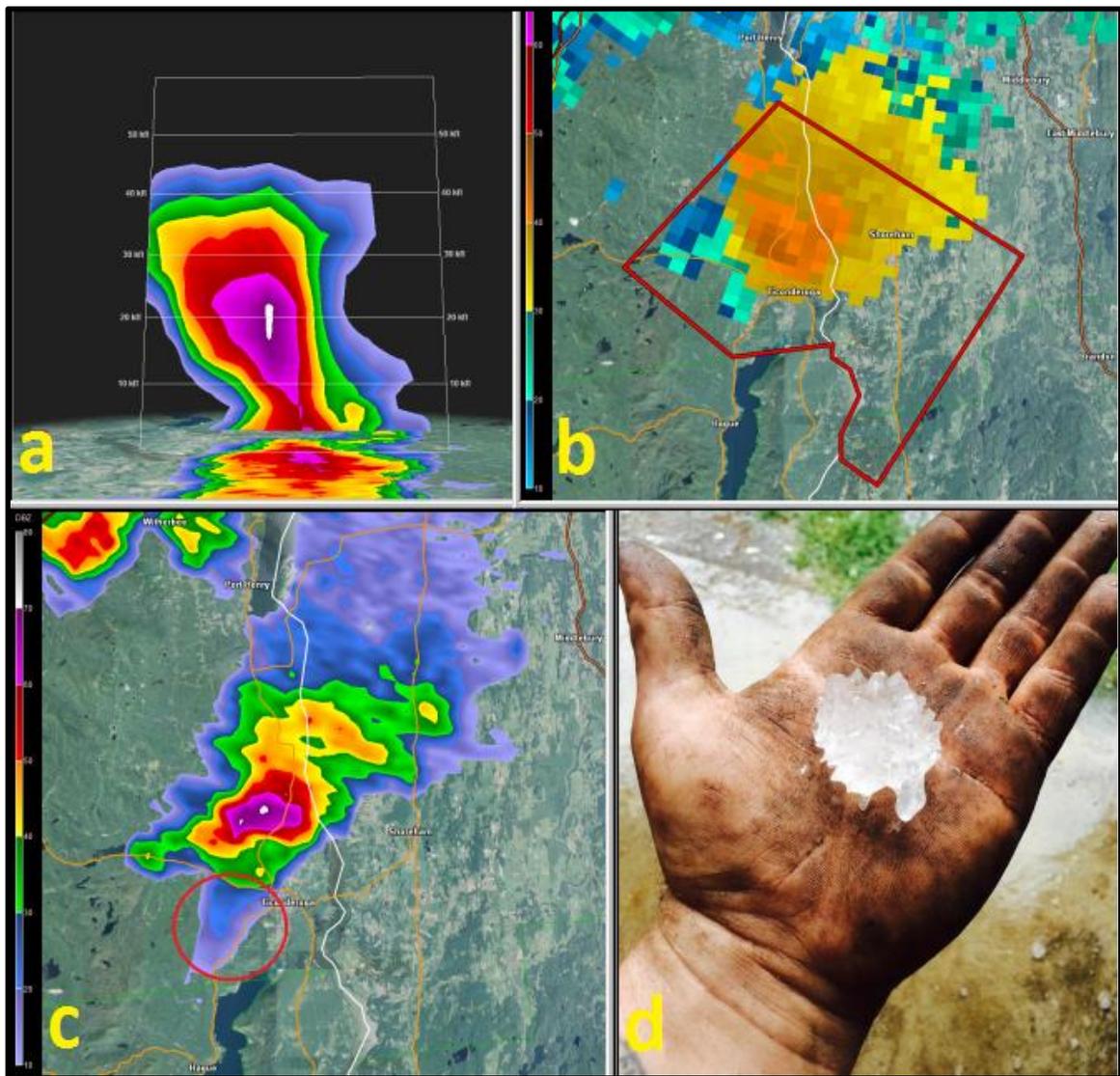


Figure 4. Images of the severe Ticonderoga, NY thunderstorm on August 15th, 2015; a) KCXX radar cross section showing enhanced core of heavier precipitation (purple and white) at or above 20 thousand feet; b) Severe Thunderstorm Warning (red box) and KCXX radar storm height product showing a maximum value near 45 thousand feet; c) Three Body Scatter Spike (red circle) evident on the 4.0 elevation slice from the KCXX radar; d) One of many larger hailstones observed in the city of Ticonderoga.



Your National Weather Service at the Champlain Valley Fair!

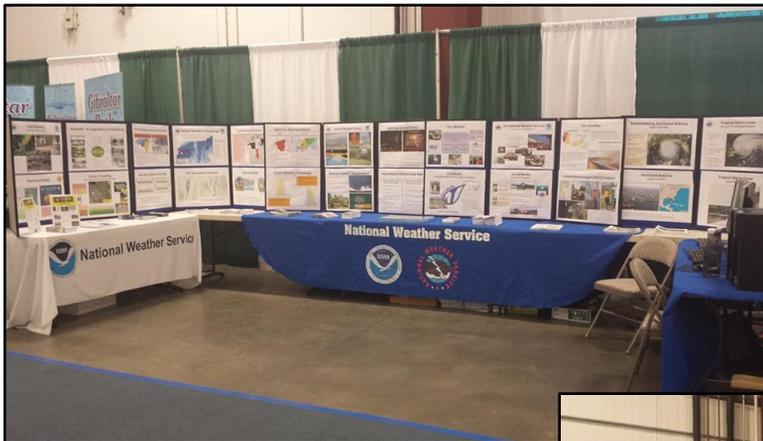
-Kimberly McMahon

For 10 days from August 26th – September 6th, the North Country celebrated the Champlain Valley Fair in Essex Junction...and we were there! Twelve staff members helped out at the fair this year, making for a great opportunity for us to reach out to the public. Perhaps you saw us there? Even talked with us? Grilled us about the upcoming winter?

We had informational posters on topics ranging from past weather events such as Hurricane Irene to average winter snowfall to watches and warning to observations gathered from differing sources like the CoCoRaHS network. Our staff manning the booth also supplied interesting hand-outs on the hazards of flooding, severe thunderstorms and winter weather...and everyone’s favorite cloud chart posters.

The staff always enjoys reaching out to the public we serve, talking about what we do and how we can help our community; as well as partake in the fun atmosphere of the fair.

“It was a great experience to meet with our customers and find out their needs” -Michael Muccilli



A hearty thank you to everyone that came over to talk with us at our booth!

Photos from the National Weather Service booth at the Champlain Valley Fair.



2015 Atlantic Hurricane Season

-Kimberly McMahon

The Atlantic hurricane season runs from June 1st to November 30th. This year, most folks in the North Country, may be thinking “what hurricane season?” It’s true, the tropical activity across the Atlantic Basin has been below normal, especially with several of the storms staying out to sea. Why is this?

First let’s talk about what the outlook was and what has occurred. The Atlantic Basin covers areas off the coast of West Africa north of the Equator, extending westward across the Atlantic Ocean and to the Americas (See Figures 1 and 2). This includes the Caribbean Sea and Gulf of Mexico. Over the past 5 months, we have seen nine named storms: from Ana to Ida; only two of which became hurricanes (See Table 1 on page 8). In order for tropical cyclones to form, there are a few essential ingredients:

1. Warm ocean waters (80°F or warmer) throughout a sufficient depth (at least on the order of 164 feet).
2. An atmosphere which cools fast enough with height such that it is potentially unstable to moist convection.
3. Deep moisture: Moist atmosphere throughout the mid-troposphere.
4. A low level disturbance in the atmosphere accompanied by vorticity and convergence.
5. Little vertical wind shear between the 850 and 200-mb levels. Vertical wind shear is the magnitude of wind change with height. Large values of vertical wind shear can weaken or destroy the tropical cyclone by interfering with the organization of deep convection around the cyclone center.

With the last ingredient, too much vertical wind shear can essentially suffocate a tropical cyclone; whether it is just starting to form or has already developed into a hurricane. The wind shear does not allow the rising air from convection to rise to great heights unencumbered (*Continued on Page 8*).

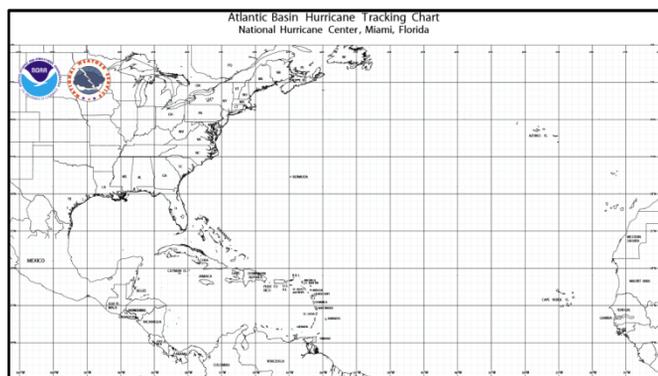


Figure 1. The extent of the North Atlantic Basin (NWS/NHC).



Figure 2. The updated 2015 outlook (NWS/NHC)

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Named Storms of 2015 thus far	Dates of National Hurricane Center Statements
Tropical Storm Ana	May 8-11
Tropical Storm Bill	June 16-20
Tropical Storm Claudette	July 13-14
Hurricane Danny	Aug 18-24
Tropical Storm Erika	Aug 25-29
Hurricane Fred	Aug 30 - Sept 6
Tropical Storm Grace	Sept 5-9
Tropical Storm Henri	Sept 9-11
Tropical Storm Ida	Sept 18-27

As you may have heard, there is a strong El Niño occurring over the equatorial Pacific Ocean. This means that the waters off the western South American Coast have been warmer than normal (Figure 3). This leads to weaker trade winds and increased convection over parts of the Pacific (Figure 4). The North Atlantic basin feels these effects remotely through changes in the vertical wind shear. During El Niño events, the vertical shear increases primarily due to increases in the westerly winds in the upper troposphere. The larger vertical shear accompanying El Niño events correlate directly with decreased numbers of Atlantic hurricanes.

Table 1. 2015 North Atlantic Basin named tropical systems as of September 28th, 2015 (NWS/NHC).

In years with a moderate to strong El Niño, the North Atlantic Basin experiences:

- A substantial reduction in cyclone numbers
- A 60% reduction in numbers of hurricane days
- An overall reduction in system intensity.

This shows the interconnection of a global atmosphere: what’s happening in the Pacific with a strong El Niño has produced a pattern conducive for stronger wind shear over the Atlantic and has in turn limited the tropical cyclone activity over the North Atlantic Basin.

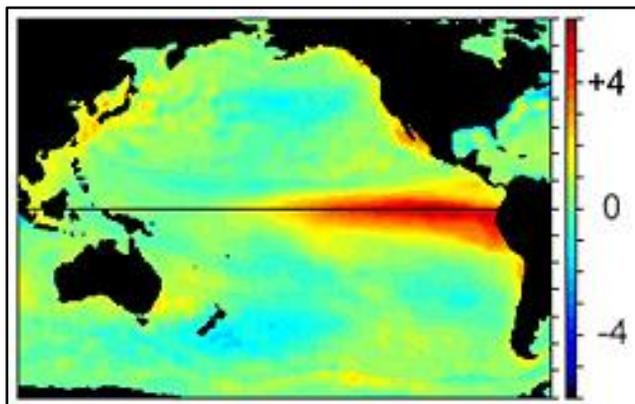


Figure 3. Water temperature anomalies in an El Niño.

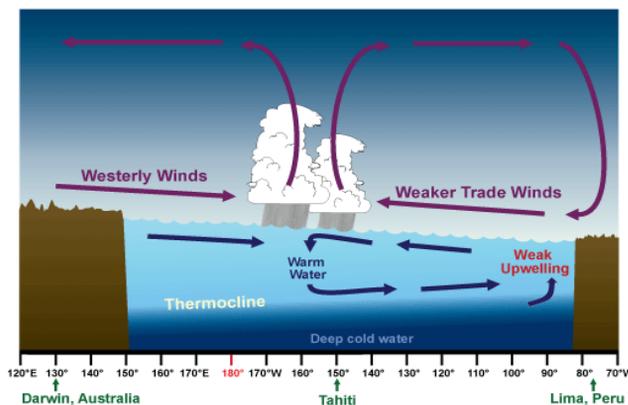


Figure 4. Idealized schematic of El Niño forcing.

Summer 2015: A Balancing Act

Michael Muccilli

Despite the record breaking warmth of May 2015, the weather seemed to take a step backward as the meteorological calendar was flipped to summer, with June finishing cooler and much wetter than normal. However summer did begin to take hold and eventually closed out much differently, as those initial anomalies began to be balanced by a drier and above normal August. July, sandwiched in between, came in very close to normal.

For the three month summer period (June 1st – August 31st), the temperatures at Burlington, VT were 1.2 degrees above the 30-year normal, the warmest relative to normal climate site in the region. Elsewhere most locations were near normal with Montpelier, Saint Johnsbury, and Massena all within 1 degree of normal. Precipitation was above normal for most by about 1 to 3 inches, thanks to the excessive rainfall that fell in June, where monthly departures were between 2" and 5.5" above normal. Figures 1 and 2 below show the 2015 departures from the 1981 – 2010 climate normals across the North Country for both temperature and precipitation.

The Summer of 2015 started off cool and exceptionally wet, leading to below normal temperatures and above normal precipitation for June. This gave way to a very quiet and near normal *(Continued on Page 10)*

Departure from Normal Temperature (F)
6/1/2015 – 8/31/2015

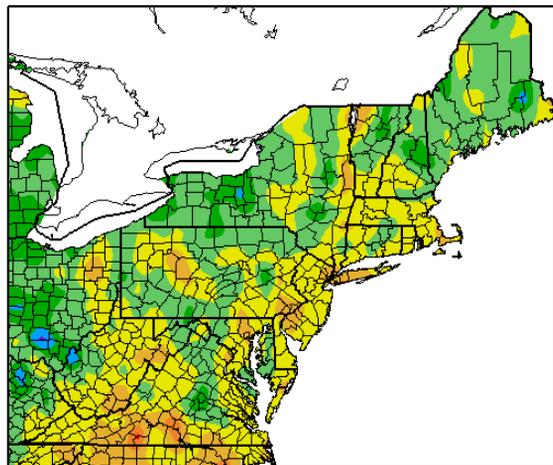


Figure 1. Average June – July 2015 Temperature Departures from 1981-2010 Normals (Northeast Regional Climate Center)

Departure from Normal Precipitation (in)
6/1/2015 – 8/31/2015

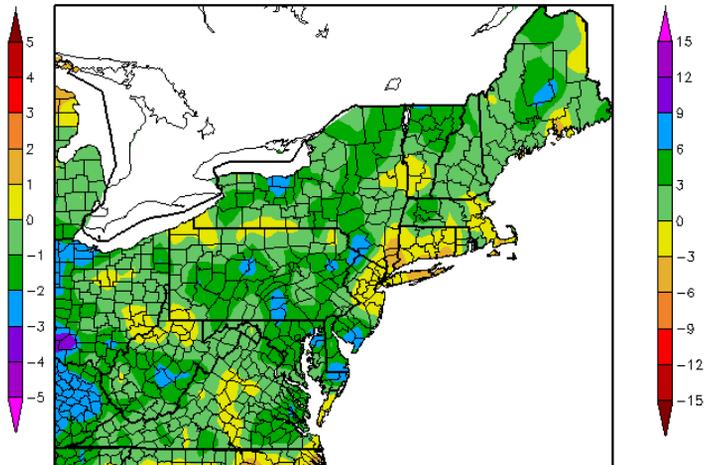


Figure 2. Average June – July 2015 Precipitation Departures from 1981-2010 Normals (Northeast Regional Climate Center)

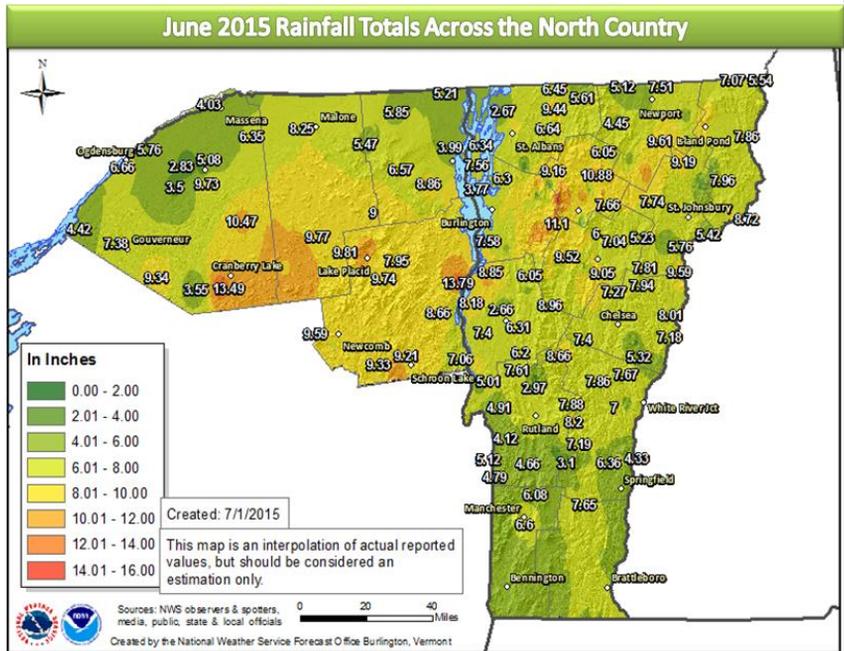
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July. The warmest month in terms of actual temperatures as well as departures then came in August. The month featured plenty of sunshine, warmth, and dry weather.

June

June may have seemed more like a Spring month than May did. The month was exceptionally wet and broke records for the wettest June in recorded history at both Mount Mansfield (15.54") and Montpelier (9.05"), Vermont. At Burlington, June 2015 was the third wettest on record at 8.67".

The widespread heavy rainfall event from the end of May continued into the first day of June, which kept maximum temperatures well below normal with highs only in the 50s. The below normal temperatures continued through the first week of the month with many highs in the 60s and 70s and morning lows in the 30s and 40s. Saranac Lake even had an observed low of 28 degrees on the 7th. Some warmer weather arrived mid month with highs reaching into the 80s, however the persistent shower and thunderstorm activity continued with several daily rainfall amounts exceeding 1 – 2 inches. Another cool stretch closed out the month with the high temperature on June 28th only 65 degrees.



Total observed rainfall from June 1st – June 30th, 2015.

Warmest: 87°- Danby, VT Jun 23rd
 Coolest: 28°- Saranac Lake, NY Jun 7th
 Warmest at Burlington: 85°- Jun 23rd
 Coolest at Burlington: 41°- Jun 3rd

July Recap

July was a very quiet month with near or slightly above normal temperatures and precipitation. At Burlington there were no double digit departure days, meaning that each day was within 9 degrees of its normal.

The month started out with a significant rainfall event on July 1st, where 2.04" of rain was measured at Burlington. Following that event, there were waves of warmer weather interspersed with normal summer-time showers and thunderstorms, and the occasional cooler shot of air.



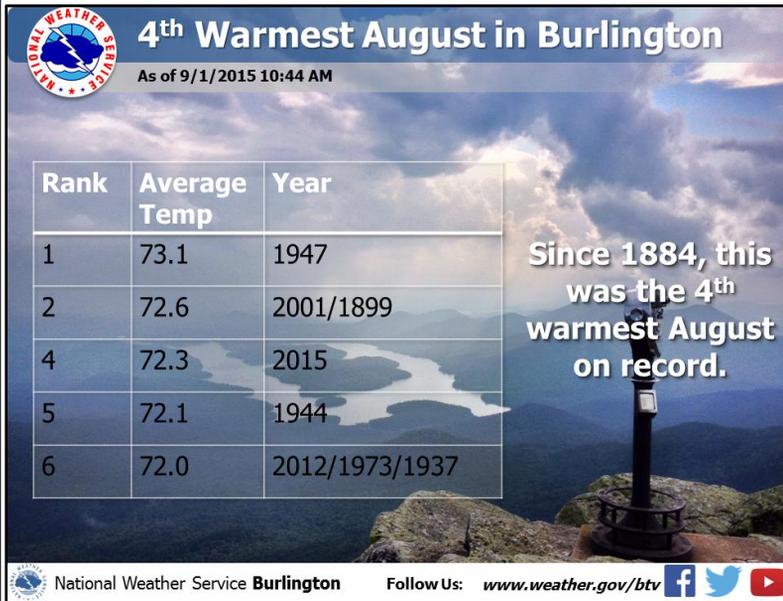
Figure 2. Smoke plume as seen on visible satellite imagery from July 12th, 2015

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The hottest temperatures came towards the end of the month where 2 90+ degree days were observed at Burlington, VT on July 28th and 29th. One memorable characteristic from July might have been the numerous days where smoke from western Canadian and United States forest fires gave a milky/hazy hue to the sky (Figure 2).

Warmest: 94°- Springfield, VT Jul 29th
Coollest: 34°- Saranac Lake, NY Jul 16th
Warmest at Burlington: 93°- Jul 29th
Coollest at Burlington: 49°- Jul 3rd



August Recap

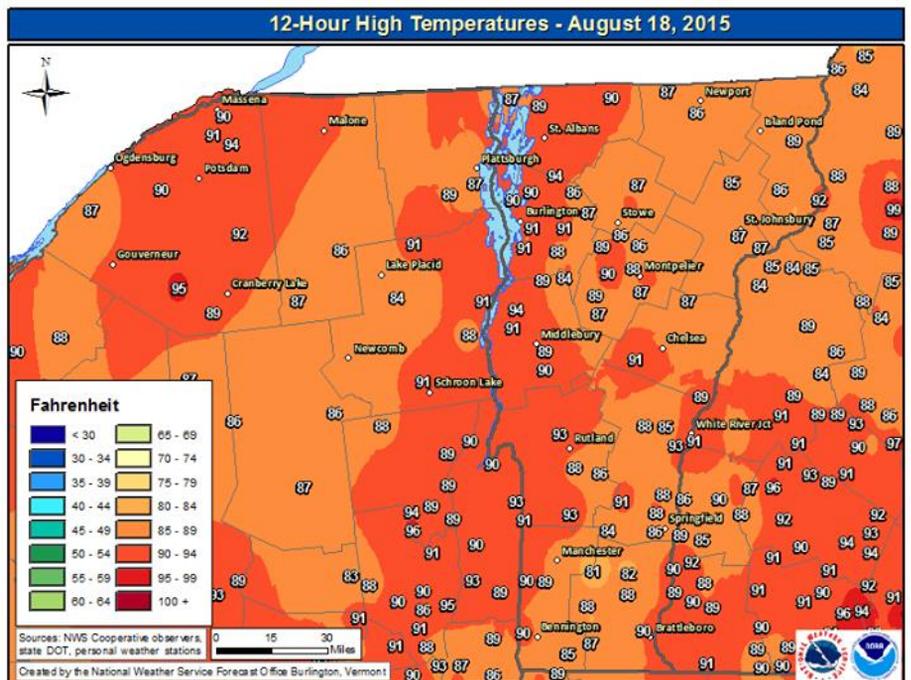
The real summer month came in August with sunny, dry, and very warm weather. The month featured a heat wave from the 17th – 20th (3+ days of 90+ degree high temperatures) and the month finished as the 4th warmest on record at Burlington (since 1884) (Figure 3).

One of the highlights of the month was a severe thunderstorm in Jonesville, VT on August 4th that dropped golf ball sized hail of 1.75” in diameter. Another significant severe thunderstorm brought hail to the size of ping pong balls (1.5” diameter) in Ticonderoga, NY on

Figure 3. August Temperature Records at Burlington from 1844 – 2015

August 15th. The main story however was the heat wave from the 17th to the 20th which featured highs at Burlington of 90, 91, 90, and 91 degrees respectively. It was the first heatwave to affect the region since 2013. See Figure 4 for observed high temperatures on August 18th. Furthermore, 29 of 31 days were at or above normal, with August 7th and 8th the only recorded below normal days at Burlington, VT. The month finished 3.5 degrees above normal at Burlington and was 1.93 inches below normal for precipitation.

Figure 4. Observed Maximum Temperatures from August 18th, 2015



Warmest: 93°- Springfield, VT Aug 3rd

Coollest: 39°- Saranac Lake, NY Aug 8th

Warmest at Burlington: 91°- Aug 18th & 20th

Coollest at Burlington: 53°- Aug 8th

Is Your Vehicle Ready for “Old Man Winter”?

-Peter Banacos

When weather and road conditions deteriorate owing to snow and ice, having a vehicle that is properly winterized becomes critically important to its operation. Driving in snow and ice is made difficult by low traction, long stopping distances, and low visibility. While it is always best to plan around the worst weather, traveling in slippery conditions is often not avoidable, especially during long North Country winters. When faced with poor road conditions, *will your vehicle be ready?*

Now is the time to start thinking about how your vehicle will perform during the upcoming winter. Preparing your vehicle in advance will make your driving experience as safe and stress-free as possible. Below are a few key items to check.



✓ Tires

Parents: If you have a teen driver at home, take the opportunity to educate them on the need to keep their vehicle in proper shape for winter conditions, and on the idea of driving appropriately and safely as the road conditions warrant.

Tires should be your #1 investment when dealing with winter travel conditions. A good set of winter tires will provide the best possible grip in snowy, slushy, and icy conditions, due to their deeper tread pattern. Winter tires are also made from compounds that work well at colder temperatures. Whether you have all-season or winter tires, make sure you have proper inflation pressure and ample tread remaining on your tires to ensure good traction and stopping capability. The placard showing the vehicle manufacturer’s recommended tire pressure can be found on the driver’s side doorjamb, or rear edge of the driver’s door. Your car care professional or tire dealer can advise on the status of your current tires, and/or recommend winter tires ideal for your make and model of vehicle.

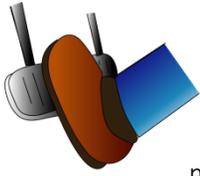
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Did You Know?

Studded winter tires provide an extra measure of traction (mainly on ice), but state laws limit, in some instances, their use to certain times of the year to help preserve asphalt surfaces. To the right area the northern New England and New York studded snow tire regulations for 2015. Consult state or local Department of Transportation officials if you have any questions about legality in your area.

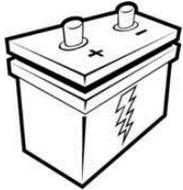
State	Permission	Contact Information
Maine	Permitted: October 2 – April 30	207-626-3800 (Department of Public Safety)
NH	Permitted: No Restrictions	603-271-2371
NY	Permitted: October 16 – April 30	518-783-3211 (State Police)
Vermont	Permitted: No Restrictions	802-244-7345 (Highway Patrol)

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✓ Brakes

As should be part of routine maintenance, have your car care professional ensure your brakes and braking system are in good working condition. Stopping distances are much longer when road surfaces are slick, and poor brakes can make the situation worse. All-wheel drive vehicles may handle best in the snow – but no matter the driver train of your vehicle – you are reliant on your brakes (and tires) to slow down and stop effectively.



✓ Battery

Have your vehicle's battery checked your car care professional or your favorite auto parts store. Electrical current provided by the battery is reduced at colder temperatures, so a failing battery may not make itself known until the winter months. Few things are more frustrating than a vehicle that won't start in the cold. If you need to purchase a new battery, many auto parts stores are able to install it for you at little or no added charge.

Another device that can come in handy is a *portable battery jump starter*. These portable devices can provide starting power in a manner similar to traditional "jump starting", but without the need of hooking up a dead battery to some else's car or truck. Again, see your favorite auto parts supplier for details.

Helpful Links for Road Conditions

Road conditions for Vermont:

<http://511.vermont.gov>

Road conditions for New York:

<http://www.511ny.org>

Road conditions for New Hampshire:

<http://hb.511.nh.com/main.jsf>

Road conditions for Maine:

<http://www.511maine.gov/>



✓ Wipers/Wiper Fluid

Outward visibility is critically important when driving in snow. Do your *wiper blades* work well? Examine each wiper blade to ensure they aren't splitting or peeling. Do the blades adhere uniformly to the windshield? If not, have them replaced. The buildup of snow and slush will only exasperate issues of poor visibility when the wiper blade is not making consistent contact across your windshield.

Do you have enough *washer fluid*? Make sure you do, and that it is rated for below freezing temperatures (and preferably -20°F or lower due to possible frigid temperatures). You'll likely need a significant amount of washer fluid during a snowstorm due to the accumulation of snow and slush as well as the increased spray from the roadways and other vehicles. A good *ice scraper and snow brush* are also requisites to have in your vehicle, even if it is just to the scrape the windshield on a clear, frosty morning.



✓ Winter Survival Kit

A winter survival kit is also a good idea, in the event that you become stranded. Survival items can be kept in your trunk or storage area, to have on hand when you need them. This might include a blanket, some non-perishable food, a small or collapsible snow shovel, and a portable battery jump starter. If you are stranded in a snowstorm, stay with your vehicle but make yourself visible by using hazard lights or interior dome lights. *To prevent carbon monoxide poisoning, ensure the exhaust pipe stays clear of snow and crack your window slightly for fresh air.* Run your vehicle for short periods of time only as needed to provide heat and conserve fuel. A car adaptor for your cell phone is also a good idea, so that you can ensure adequate charging for the device in the event that are stranded and need to call for help. *(Continued on Page 14)*

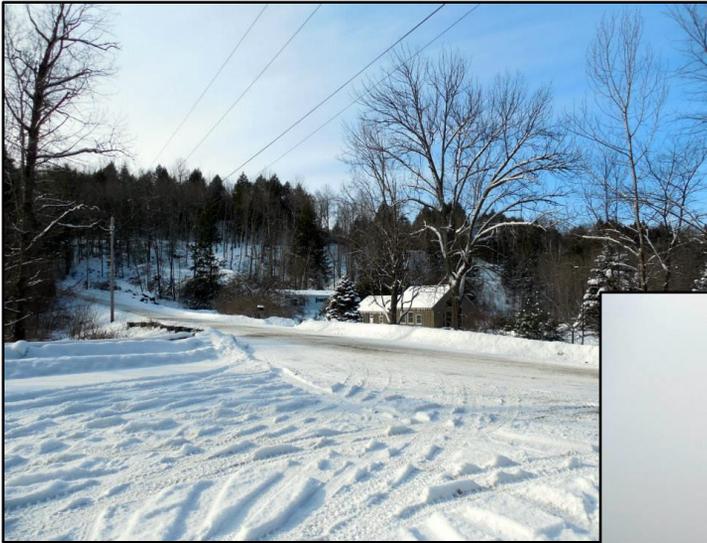
NWS Forecasts are available 24/7 at
<http://weather.gov/btv>, via NOAA Weather
 Radio, and by forecast hotline at (802) 862-2475.

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Weather Forecasts and Road Conditions

Plan around winter weather whenever possible. The National Weather Service provides local forecasts out through seven days, including watches, warnings, and advisories for wintry precipitation and other winter hazards (e.g., low wind chill values). You can learn more about NWS winter weather forecast products and preparedness at the following link: <http://www.weather.gov/om/winter/> . Also, visit NWS Burlington's local winter weather page here to keep track of winter weather forecasts and hazards across Vermont and northern New York: http://www.weather.gov/btv/snow_info .

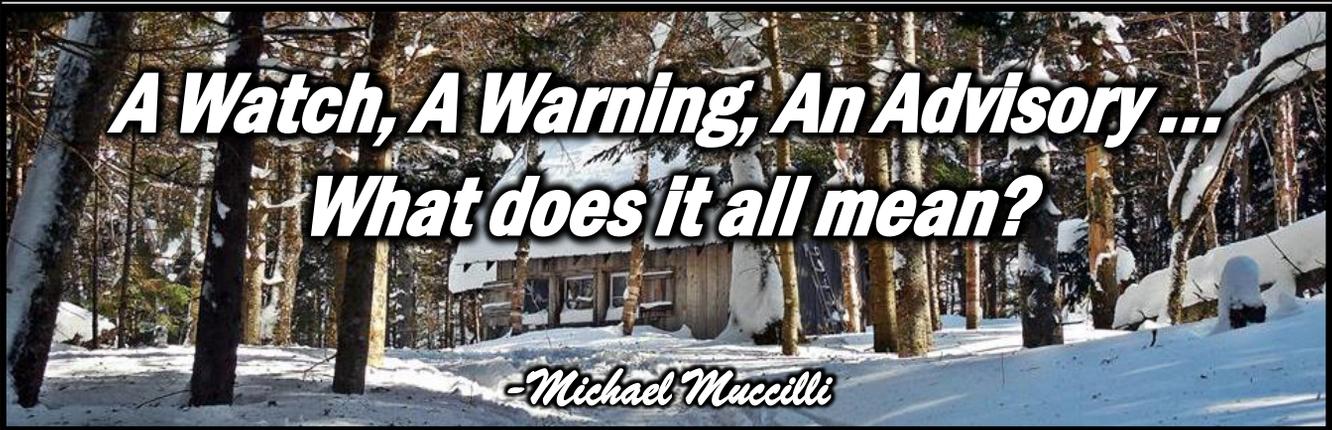
Building flexibility into your travel plans in the wintertime is a good idea. Traveling when roads are mostly free of snow and ice will make your trip less stressful and you won't be slowed by poor travel conditions. Regardless, properly winterizing your vehicle will provide an extra measure of safety and peace of mind in the event you are traveling in less than ideal winter conditions to work, home, or your favorite winter activity. If you must travel, each state provides resources to keep you up to date on the latest road conditions. More information can be found at the bottom of the previous page.



A collection of winter driving photos from around the North Country.



Clockwise from Top Left: Stowe, Vermont; Colchester, VT; Plainfield, VT



A Watch, A Warning, An Advisory ... What does it all mean?

-Michael Muccilli

As we head into the cooler months, when first frosts, freezes, and snowfalls begin to occur, you'll undoubtedly begin to hear more of the terminology of watches, warnings, and advisories. *Do you know what each means and how each one is different?* Hopefully we'll be able to clear a few things up for you below...

Frost/Freeze Headlines

Frost Advisory – This is issued during the defined growing season (locally different) when widespread frost formation is expected over an extensive area within 24 hours. Surface temperatures are usually between 33F and 36F with light winds.

Freeze Warning – Issued during the defined growing season when surface temperatures are expected to drop below freezing over a large area for an extended period of time (usually 3 or more hours), regardless whether or not frost develops., within 24 hours.

Freeze Watch – Issued when the same conditions for a Freeze Warning are expected between 24 and 48 hours away.

Winter Weather Headlines

Winter Weather Advisory – Issued when a single event or combination of winter weather phenomenon (snow, sleet, freezing rain) is forecast to present a hazard, but will not reach warning criteria. This is generally issued within 36 hours of an event that is expected to produce from 4 to less than 6 inches of snow or ice accumulations less than a half inch.

Winter Storm Warning – Issued when a winter storm is currently producing or is forecast to produce significant snow and/or ice accumulations. This is generally issued within 36 hours of an event that is expected to produce 6" of snow or more in 12 hours, 9" of snow or more in 24 hours, or a half inch of ice or more.

Winter Storm Watch – Issued for a lower confidence forecast of an event between 24 and 72 hours away

that may produce warning-criteria snow and/or ice.

Blizzard Warning – Issued when a blizzard is imminent or expected in the next 12 to 36 hours. A blizzard is defined as an event with sustained or frequent wind gusts greater than or equal to 35 mph with visibilities less than a quarter of a mile due to snow and/or blowing snow for 3 or more hours.

Blizzard Watch – Issued for a lower confidence forecast of a blizzard between 24 and 72 hours away.

Freezing Rain/Drizzle Advisory – This is issued when light freezing rain or drizzle is expected in the next 12 to 36 hours that will create an accumulation of ice less than a half inch.

Ice Storm Warning – Issued when a winter storm is currently producing or forecast to produce significant and damaging ice accumulations of a half inch or more within the next 36 hours.

Lake Effect Snow Watch/Warning/Advisory – These are issued for the same criteria and time lengths as other snow products, however the snow will be produced by Lake Effect Snow bands, which are typically narrow, very intense squalls.

Wind Chill Headlines

Wind Chill Advisory – Issued when wind chills (combination of temperature and a 6 mph sustained wind or greater) are expected to be between -20F and -29F within 36 hours.

Wind Chill Warning – Issued when wind chills are expected to be -30F or colder within 36 hours.

Wind Chill Watch – Issued for a lower confidence forecast when wind chills may be -30F or colder in the next 24 to 72 hours.



The Four Seasons

Volume II, Issue III



Contributors:

Peter Banacos, Meteorologist
Eric Evenson, Meteorologist
John Goff, Meteorologist
Kimberly McMahon, Meteorologist
Michael Muccilli, Meteorologist

Editors:

Kimberly McMahon, Meteorologist
Michael Muccilli, Meteorologist



We Need Your Storm Reports!



Please report snowfall, flooding, damaging winds, hail, and tornadoes. When doing so, please try, to the best of your ability, to measure snowfall, estimate hail size, and be specific as to what damage occurred and when. We also love pictures!

For reports, please call:
(802) 863-4279

Or visit:

<http://www.weather.gov/btv/stormreport>



National Weather Service Burlington, VT
Burlington International Airport
1200 Airport Drive
South Burlington, VT 05403
Phone: (802) 862 2475
www.weather.gov/btv
Email: btv.webmaster@noaa.gov

Follow us on Facebook and Twitter!



US National Weather Service
Burlington, VT



@NWSBurlington