

NORTHEASTERN

# STORMBUSTER

## A Newsletter for Emergency Managers & Storm Spotters

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### ARE YOU READY FOR OLD MAN WINTER?

*Hugh Johnson, Meteorologist, NWS Albany  
and*

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This year, it is on December 21<sup>st</sup> at 7:42 AM EST that the sun settles directly over the Tropic of Cancer in the Northern Hemisphere (23.5° N latitude), and is at its lowest possible azimuth angle (degrees above the horizon, with 90° being directly overhead). This day will have the shortest period of daylight, and is the official start of "astronomical winter". For a number of reasons, mainly as a matter of convenience, most meteorologists and climatologists generally consider the start of winter to be right when December rolls in, and the finish to be the very end of February, a period known as "climatological winter". Although not really the case for many geographic locations, the peak of Albany's coldest 90-day period of mean temperatures historically averages out to be very close to this period. In fact, the average date of our coldest mean temperature is 51 days into climatological winter, or January 20<sup>th</sup>, only 6 days off the midpoint of the 90-day period (day 45), or January 14<sup>th</sup>. Even so, the perils of winter, including snowstorms, blizzards, windstorms and cold spells, often spill over either side of this 90-day range, occurring anytime from November through early April, and anywhere across upstate New York and adjacent western New England.

The latest official long-range National Weather Service forecast calls for a "near normal"

winter for our area, in terms of both precipitation and temperatures. This does not necessarily mean snowfall will be near normal, for things could still tilt sharply either way. It is more a forecast of chances (or probabilities) of occurrence, with the percentage values assigned being typically quite conservative for such a long-range prediction. During a typical winter, the Greater Capital District can expect about 63" of snow, with normally much higher amounts at many locations north and west of town, to as much as nearly 200" near Old Forge! Further south, Poughkeepsie, New York and Torrington, Connecticut both average closer to just 40" of snowfall per season.

The more significant snow events, namely the nor'easters, Alberta Clippers and lake-effect snow events, combined, make up the bulk of the significant winter storms in our area. While nor'easters generally produce the greatest snow amounts, both the Clippers and lake-effect events produce the more rapidly fluctuating weather conditions...those which tend to produce the greater proportion of weather-related accidents during the season, compared to the steadier, though typically heavy, snow of a nor'easter.

Winter is the time of year to be sure your car is in optimum working order. Make sure your: battery is strong; anti-freeze, fresh; and, perhaps most importantly, snow or all-season tires, not bald or badly worn. Many accidents on slippery roads occur as a result of driving too fast on balding tires. In addition, it is recommended that you carry a basic survival kit. In this kit should be your jumper cables, flares and some non-perishable food items. This kit should also include a charged cell phone

with a charger, a small shovel and a bag of sand, in case you become stranded. Even over short travel distances in the winter, you could still get caught in a band of very heavy snow, or a blizzard, and conceivably become stranded just a few miles from home. Also, four-wheel drive vehicles will get through deep snow better than rear-, 2- or 4-wheel drive vehicles. Extreme caution must be maintained, though, as these vehicles are capable of sliding off ice- or snow-covered roads just as easily as any smaller passenger vehicle.

Blizzards, the most deadly of all winter storms, are defined as containing frequent wind gusts of 35 mph or greater that produce blowing snow with or without falling snow, with the blowing snow producing visibilities of a quarter mile or less. For any given event, these conditions need to exist for at least three straight hours in order to be officially defined a “blizzard”. Blizzards are quite rare right within the Capital District itself, but are more common across our more mountainous areas. The last official blizzard to affect Albany was the famous Blizzard of March, 1993, which also affected a large portion of the northeastern U.S. However, near-blizzard conditions were experienced with the Christmas Day Storm of 2002 right here in Albany.

Ice storms, while typically not as deadly as blizzards, are usually much more damaging to property, and probably produce a greater number of injuries. An ice storm is officially defined by the accretion of a half an inch or more of ice on most surfaces from freezing rain. Such storms often take down large tree limbs and power lines. Our latest major ice storm, in April of 2003, was one of our worst ever recorded.

Snowstorms are the most common type of winter precipitation event, and they usually come in “flavors”, some with heavy wet snow that can cause nearly as much damage as a typical ice storm, and some with the more “powdery” or dry snow, which, while easier to shovel, usually piles up faster. Flavors often become well-intermingled. Sleet accumulates a lot less than snow, but is much heavier and more difficult to shovel. It is often at

least a temporary ingredient in one of the numerous “impure” or “flavorful” snowstorms that typically affect our region, just as freezing rain is. Fortunately, sleet does not build on power lines and trees to nearly the extent that ice and heavy wet snow do, but it is still very tricky to drive in it. Often, several, or even all, of these “flavors” will become intertwined all at once during some portion of a snowstorm.

All the wintry types of precipitation make driving more difficult than it is on either dry or rain-covered roads, and perilous driving conditions are often the result, with freezing rain, or ice accretions, generally causing the biggest headaches. If you must drive in inclement winter weather, always allow extra time to reach your destination, and never tailgate, for you’d only be provoking disaster. If making a longer trip, or when driving in treacherous weather conditions, it is advisable to let someone know that you will be traveling. Be sure to tell them your intended destination. Re-evaluate your plans before heading out if it appears weather conditions may pose a problem. Gather as much weather information as possible before starting your trip. Each year, people across our region become stuck in lake-effect snow squalls produced off Lake Ontario while traveling on the I-90 thruway because they failed to anticipate this often sudden-onset and very local snow event that can produce a situation with a foot or more of accumulated snowfall just a few miles from bare ground. One can easily be caught off guard, if not by the sudden appearance of snow on the road, by a sudden drop in visibility due to heavy snow within a squall, oftentimes down to white-out, or zero visibility, conditions.

Take it easy when shoveling snow. A snow blower might be a safer way of going about clearing snow, especially from large areas. Unfortunately, people have experienced fatal heart attacks while partaking in the highly strenuous activity of shoveling heavy, wet snow in the winter cold.

At home, be prepared for possible power outages resulting from ice or snow buildups, or high winds. Have at least two flashlights with good working batteries handy. Check to see that you

have these before the winter cold has a chance to settle in, or you might be caught having to feel your way around the house in darkness. Be very careful with candles. Never use them in rooms with carpeted floors, and keep them a good distance away from wooden objects and other flammable materials, as well as walls. Don't place them too close to the edge of counters, or anywhere where high traffic may result in them being knocked over. Make sure the candle is placed in an appropriate container, such as a porcelain dish or glass cigarette tray. Be extremely careful with propane heaters, as these often are placed too close to curtains, causing fires. Never leave an active propane heater, or a gas oven or stove unattended.

Limit your time outdoors. In extreme cold, dress in layers, and wear a hat and/or hood. Most body heat is lost through the top of the head.

Following these simple but important rules should help sail you through another winter unscathed, and to the sprouting of crocuses that announce the arrival of spring.

## **2004 NATIONAL SKYWARN RECOGNITION DAY**

*Steve Pertgen, Skywarn Operations Manager, NWS Albany*

As in past years, this year's event was great! Despite some poor propagation on a few of the bands, we worked a total of 177 stations, including 43 National Weather Service Office stations.

Yours truly (WX2ALY/W2FXJ) held down the fort from Friday, December 3<sup>rd</sup> at 7 p.m. through Saturday, December 4<sup>th</sup> at 7 p.m., with Dennis Hudson (N2LBT) manning the digital fort from mid-morning Saturday through the end of the event. Many thanks to Dennis and his digital prowess, as he was able to make contact with approximately 45 stations through the use of IRLP and Echo Link.

As has been the case in past years, volunteers in the local vicinity have been hard to come by, so we worked the bands that were open,

one at a time. Ten and fifteen meters were pretty much a lost cause, while twenty meters yielded some nice QSO's from the midwest. We also made several long distance contacts on 75 and 40 meters.

The fact that we were able to contact so many National Weather Service offices proves that the use of radio communications is a viable course of action during significant weather events when conventional long-line communications are not functioning.

Our heartfelt thanks to you, our SKYWARN spotters, for your sacrifices in providing us with the critical information we need to provide high-quality forecasts and warnings to the citizens in our area. I hope that you who are licensed hams were able to enjoy this event.

## **TAKE HEART—THE WORST OF ‘THE DREARIES’ IS ALREADY BEHIND US!**

*Bob Kilpatrick, Meteorologist, NWS Albany*

The Christmas season here in eastern New York and adjacent portions of New England ought to remind us that at least one factor of our weather should soon start to improve. Of course, the snow season is still very much ahead of us. But take heart! While it may be cold and snowy in winter, it typically isn't as 'dreary' as in late fall.

Who doesn't get those late November and December 'blahs'? You know...that depressed feeling, with only Thanksgiving dinner and Christmas lights to brighten up your life?? While the 'blahs' will typically be experienced throughout the northern two-thirds of the U.S, it's particularly noticeable in the Northeast – with that dull grey overcast over that dull grey landscape! It's particularly obvious to us for several reasons. First of all, before the onset of the 'blahs', we experience a warm, pleasant summer, and then we are immediately pampered with a show of bright and glorious fall colors. With the first hard frost, leaves turn brilliant shades of yellow, orange and red.

Afterwards, they turn a dull brown, and then drop off, leaving a tangle of grayish twigs. What a downer! Only the evergreens refuse to participate. Thank you, O Tannenbaum!

At the same time, the days are getting shorter. Then at the end of October, the big shock hits: ‘fall back’ time – when we change the clocks, and suddenly it’s getting dark a whole hour earlier!

But the worst thing of all is that dull grey overcast, that pall that seems to hang over the northeast. The climate statistics bear this out. Here in Albany, November is the dreariest month of all, with, on average, the lowest percentage of possible sunshine of any month of the year. Albany normally gets only 37% of November’s possible sunshine. There’s even less possible sunshine available in December, but we average 39% of it, and this is the earliest sign of an upswing.

Generally, things begin to improve right at the start of astronomical winter – about December 21<sup>st</sup>, the shortest day of the year where daylight is concerned. Besides the days getting longer with winter pushing on, the normal percentage of possible sunshine received rises to 46% in January, and then jumps to 52% in February. Just compare November’s dreary 37% to more than 60% for each of June, July and August! Why this pattern? Our unique geographic location, along with the local terrain, is the reason. With the Atlantic Ocean just off to the southeast, all the Great Lakes to the northwest, icy Hudson’s Bay due north, the even drearier Labrador Coast to the far northeast, the Canadian Plains on the other side of the Great Lakes, and the Appalachian backbone, weather patterns that normally make sunshine abundant elsewhere, usually bring dark, low clouds to our area.

In late fall and early winter, the bodies of water around us are still relatively warm...except for Hudson’s Bay and the ocean off Labrador, which are almost always icy cold. The contrast between the ocean north and the ocean south of Newfoundland is striking – icy cold on one side, warm on the other. This contrast provides favorable conditions for cyclone intensification, which often

occurs over the Canadian Maritimes. The circulation around these giant systems draws in air off the damp, chilly waters of Labrador. Then this air gets chilled and dampened even more upon crossing Hudson’s Bay, and it arrives in our area with bone-chilling damp cold, and plenty of low clouds.

Normally, when a low pressure system passes by, it ushers in the “good” weather normally associated with a high pressure system. This is the cool, dry air accompanied by clear, sunny skies. But in this area, the cold air first must travel across the Great Lakes. Depending on the wind direction, a given air parcel may pass over as many as three of the lakes. Particularly in November and early December, the lake waters are still relatively warm – as much as 30 degrees warmer than the air. The resultant effect is that the wind lifts the moisture off the water surface and carries it off – and, all other things remaining equal, the stronger the wind, the faster the rate at which this occurs. The air becomes moisture-filled and unstable, and then gets “bumped” into the higher terrain it moves over after crossing the lake. The result is low clouds, and snow or rain showers downwind from the lake. Sometimes the air is so unstable, we get “thunder-snow” – lightning and thunder, but with snow instead of rain.

In general, the closer a location is to the Lakes, the more clouds and snow it tends to receive. Places in and around Buffalo, Erie, Rochester, Syracuse, Utica and Cleveland all receive a lot of lake-effect snow, but the real champion is a no-man’s land north and east of Syracuse, and northwest of Rome, known as the Tug Hill Plateau. It gets buried every winter, oftentimes with snow piling up over four feet deep. Because the air aloft is so cold, this “lake-effect” snow is often very light and fluffy.

As winter cold persists across the northern states, the waters of the Great Lakes continue to get colder, and finally begin to freeze, especially in shallow sections. Deeper areas generally take longer into the season to cool down, and often don’t completely freeze up at the surface. This is

particularly true of Lake Ontario, which almost never completely freezes over. The oceans off the east coast also continue to become cooler. When the temperature of the water starts to approach that of the air, the lack of contrast results in lower amounts of moisture and condensation, and, therefore, a reduction in lake-effect or ocean-effect cloudiness. So, lake-effect clouds and snow are more prevalent in November, December and early January, when the waters are still sufficiently warm, and are not as prevalent later on in winter, when air temperatures start to rise, but waters are coldest.

## **2004: A TYPICAL FALL IN ALBANY**

*Evan L. Heller, Meteorologist, NWS Albany*

Fall of 2004 was not one of the particularly more exciting Autumn seasons in Albany. Temperatures and precipitation were close to normal, and there were only two records, both daily records. The meteorological Fall season began with near normal temperatures, but both temperature and precipitation wound up a little above normal for the month. A couple of significant strings of above normal temperatures, from the 3<sup>rd</sup> to the 12<sup>th</sup>, and again from the 21<sup>st</sup> to the 29<sup>th</sup>, resulted in September 2004 being slightly above normal. The warmest temperature recorded was 82°, on the 4<sup>th</sup>. The coolest reading was 41°, on the 20<sup>th</sup>. The 9<sup>th</sup> was the warmest day, with an average temperature of 71.0°, the 19<sup>th</sup>, the coolest, with 52.5°. The coldest high reading was 58°, on the 30<sup>th</sup>, while the warmest low was 63°, on both the 5<sup>th</sup> and the 8<sup>th</sup>.

1.16" was the greatest amount of one-day precipitation during September, and this occurred on two consecutive days...the 17<sup>th</sup> and 18<sup>th</sup>. Precipitation occurred during only 8 days of the month. It was only a trace on two of those days, but was 0.35" or more for the remaining six. Dense fog occurred twice during September, and a thunderstorm occurred on the 30<sup>th</sup>. There were 19 clear, 6 partly cloudy and 5 cloudy days. The peak

wind gust was 37 mph, from the west-northwest on the 10<sup>th</sup>. There were no weather records of any kind established or tied during the month. The average temperature of 63.2° was 2.6° above normal for September. The precipitation total of 4.67" was 1.36" above normal.

Temperature-wise, October had some minor fluctuations, and the result was a month very close to normal. The first freeze occurred on the 24<sup>th</sup>, with a recorded low of 32°. The highest temperature recorded was 75°, on the 8<sup>th</sup>. The lowest, 31°, on the 27<sup>th</sup>. The warmest day was the 9<sup>th</sup>, with a mean temperature of 62.0°, the coolest, the 24<sup>th</sup>, with a 39.5° mean. The coolest high temperature was 47°, occurring on both the 21<sup>st</sup> and the 24<sup>th</sup>. The warmest low temperature was 55°, on the 9<sup>th</sup>.

There was precipitation on 12 days of the month, on 9 of which it was measurable. There was 0.10" or more on 4 of those days, with a quarter of an inch or more during two of them, the most occurring on the 19<sup>th</sup>, when 0.38" fell. There were 4 days with dense fog. Twelve days of the month were clear, 9 partly cloudy, and 10 cloudy. The month's peak wind gust of 31 mph occurred twice: first, on the 9<sup>th</sup>, from the south; and then again on the 31<sup>st</sup>, from the west-northwest. The month's total precipitation of 1.23" was exactly 2.00" below the normal for October, yet it was still too much to make the '100 Driest Months of All-Time' list. There was no snow in October, a month that normally receives just 0.2". The average temperature for the month of 49.9° was just 0.6° above normal.

The average temperature for November was even closer to normal, with the typically wavy pattern of above and below normal periods. The high temperature for the month was 65°, on the 7<sup>th</sup>, but it was the high of 64° on the 25<sup>th</sup> that tied a record set three short years earlier. This was the only temperature record of any kind during the Fall months at Albany. The only other record of any kind during the season involved the season's first snowfall. This occurred on the 4<sup>th</sup>. Although it amounted to only a trace, this tied a daily record for

snowfall for the date, last set 8 years ago. The low temperature for the month was 17°, recorded on both the 10<sup>th</sup> and 14<sup>th</sup>. The warmest day was the 7<sup>th</sup>, when the mean temperature was 50.0°. The 9<sup>th</sup> and 10<sup>th</sup> were tied for coldest day of the month. The mean temperature both days was 28.0°. The lowest maximum temperature was 34°, on the 12<sup>th</sup>, and the highest minimum was 41°, on the 28<sup>th</sup>.

Precipitation fell on 14 days of November, 10 days during which it was measurable. A tenth of an inch or more fell on 7 of those days, with a quarter of an inch or more on 4 of them, and a half an inch or more on two. The greatest calendar day total was exactly 1.00", and it occurred on the 28<sup>th</sup>. There was dense fog on the 23<sup>rd</sup>, and a thunderstorm on the 25<sup>th</sup>. Twelve days of the month were clear, 11 partly cloudy, and 7 cloudy. The peak wind was 41 mph from the west-northwest on the 5<sup>th</sup>. The 39.5° mean temperature for November is a mere 0.3° above normal. The 3.02" precipitation total is just 0.29" below normal. Snowfall totaled only 0.5", with all of the measurable amount received on the 12<sup>th</sup>. Traces fell a total of 3 days.

Summing up Fall of 2004, the average high temperature was 60.0°, 0.5° above normal, and the average low was 41.7°, 1.9° above normal, resulting in an average temperature for the season of 50.9°, which is 1.2° above normal. Precipitation over the three month period totaled just 8.92", 0.93" below normal. The snowfall total of 0.5" was 4.8" below normal.

## **SEVERE WEATHER IN NOVEMBER**

*Hugh Johnson, Meteorologist, NWS Albany*

A strong cold front plowed into an unseasonably warm air mass on Thanksgiving Day. The result was a rash of severe weather, the first since late August across upstate New York. While most of the 10 or so severe weather reports received were just of a scattering of downed trees and wires

in a few counties, one was a report of a microburst that blew down up to 80 trees in the village of Lomontville, Ulster County. One of the trees damaged a garage roof and travel trailer. Luckily, there were no injuries. A few large hailstones were also reported with the storms.

Unfortunately, a severe weather event on November 16, 1989 did cause a loss of lives in our CWA (County Warning Area). A fast-hitting tornado ripped through Orange County, NY (at the time, part of our CWA), and tore down a wall of a school in Coldenham, which resulted in 9 deaths and 18 injuries. This is possibly our region's all-time most fatal severe weather event. Widespread severe thunderstorm damage from this event was reported across many other counties, as well. In Orange County again, just four days later, straight-line winds were clocked as high as 90 mph at Stewart Field! This is sure to have resulted in some damage.

Other convective severe weather events have been noted in November, along with some of our most severe windstorms. The Great Appalachian Storm of late November 1950 holds the record for producing the highest official wind gust ever recorded at Albany...83 mph!

The main reason for severe weather and high winds in November is the presence of the subtropical jet stream. This jet stream is usually absent during the warmer months, and usually contains even stronger winds than the polar jet stream. On occasion, these winds can be translated to the surface via powerful surface lows and severe thunderstorms.

Severe thunderstorms have occurred at one time or another in Albany during each of the 12 months of the year. We had a significant severe thunderstorm outbreak back on December 17<sup>th</sup>, 2000.

No matter what time of year, it is to your advantage to have specially-equipped "All-Hazards Weather Radio" ready to alert you to any severe weather, whether it be a blizzard, high wind, severe thunderstorm, flash flood or tornado. Remember, even mere seconds can save lives.

## WCM Words

*Ray O'Keefe*

*NWS Albany Warning Coordination Meteorologist*

A couple of comments on two new NWS products:

**Hazardous Weather Outlook** is issued daily between 5 am and 7 am from our office. This product is designed to alert the public, emergency managers, and the media to weather events that may require the issuance of a Watch, Warning or Advisory. The Outlook extends for one week. I recommend you review this product each day to stay on top of potential weather problems. Look for the Hazardous Weather Outlook link at this web site: <http://www.erh.noaa.gov/er/aly/Products.htm>

**Watch Outline Update** will become operational on February 8 2005. The Update will provide a listing of all counties within a Severe Thunderstorm/Tornado Watch. For now, Update issuance will be confined to the initial and ending updates, but future plans call for hourly updates. With the availability of the Update, a familiar NWS product will be discontinued on February 22 2005 – the Areal Outline Statement (SLS).

Finally, recall our winter weather reporting criteria: (1) Snowfall of 4 inches or more in 24 hours; (2) Any freezing rain or drizzle; (3) One inch or more of rain in 4 hours or less; (4) Ice jams or flooding, including bankfull or near bankfull streams; (5) Damaging winds; and (6) Measured rainfall - 1.5 inches or more in 4 hours.

Happy Holidays!

### **From the Editor's Desk**

Northeastern StormBuster is assembled seasonally by a small team of people, all of whom are now being acknowledged on the cover page of each issue. I'd like to personally thank two people who, along with myself and the contributing

writers, help make each issue of Northeastern StormBuster possible: Raymond O'Keefe, for his work on making each issue of StormBuster web-ready, and; Kenneth LaPenta, our Webmaster, who gets the final product out to you via our homepage. We hope you enjoy this season's contributions. Happy holidays, and keep warm until we see you again first thing next spring.