

STORMBUSTER

A Newsletter for Emergency Managers & Storm Spotters

Spring, 2004 Edition-VOL. 9, NO. 1

Evan L. Heller, Editor



2003-2004: A "TRILOGY" WINTER

by Evan L. Heller, Meteorologist, NWS Albany
and Hugh W. Johnson IV, Meteorologist, NWS Albany

During the meteorological winter of 2003-2004 (December-February), a distinct weather pattern was noted for each of the three months in Albany. December was white and wet, January, cold, and February, dry. The winter, overall, turned out to be a little colder than normal (22.7°, compared to a 25.1° normal), with snowfall a little above normal (50.1", compared to a 43.7" normal), and near normal precipitation (7.97", compared to a 7.74" normal).

December roared in with wind gusts of up to 47 mph, and snow squalls. The winds produced some minor damage across the region, with a roof peeled off of a house in Amsterdam. In the town of Guilderland, a large tree fell onto power lines, producing power outages in eastern portions of that town. This was only the beginning of what turned out to be a very stormy month. An arctic outbreak followed the high wind event, bringing well below normal temperatures from the 2nd through the 9th. The high temperature of 20° on the 6th was the coldest high reading for the month. In the middle of the cold snap, the season's first nor'easter produced the heaviest snowfall of the entire season. The flakes started falling early on the 6th, and by the time the last flurries fell late on Sunday, the 7th, 18.0" had officially fallen at Albany, making this the city's 15th greatest snowfall on record, and its 7th greatest December snowstorm. Both the 12.5" total on the 6th, and the 5.5" total on the 7th, set new daily snowfall records. Most of our County Warning Area was buried under a foot or more of snow, with the heaviest snowfalls taking place over the foothills of the Taconics. A National Weather Service employee measured a total of 32" in Averill Park, and a weather spotter recorded a whopping 39" at West Sand Lake! Since the storm fell during

a weekend, its impact was somewhat minimized. With a still fresh snowpack in place, the temperature at Albany fell to 8° on the morning of the 9th, the coldest reading of the month. The average temperature of 17.0° on the 9th made it the coldest day of the month. Two days later, another storm hit. This time, the low pressure system pulled well to our west, bringing in much milder air, followed by a soaking rainstorm. Nearly an inch of rain fell with this system, with some spots in mountainous locations receiving up to 2 inches. Some cold air became entrapped in the Lake George-Saratoga region, resulting in freezing rain for a time. Roads turned into ice-skating rinks just in time for the morning drive, with many vehicular mishaps resulting. A portion of the Adirondack Northway near Lake George was closed for awhile. But with temperatures rising to around 50 degrees, all the ice quickly melted, and so did most of the snow. The combination of the melting snow and the rainfall produced an excessive runoff, resulting in minor flooding of many streams in our area, as well the Mohawk, Hudson and Housatonic Rivers. Strong winds on the back side of the storm peaked at 52 mph at Albany, the strongest wind gust recorded during the month. Colder air returned with a vengeance, which stopped the runoff in its tracks before it became a more serious flooding problem. Then, the second nor'easter of the season hit during the second weekend of the month. Snow quickly overspread the region from south to north by Sunday afternoon, the 14th. However, this time, the snow mixed with and turned to sleet from about Saratoga Springs southward. As a result, accumulations, though still heavy enough to verify a winter storm warning, were only in the 6 to 12 inch range...lower amounts than with the previous storm. Albany recorded just 7.5". However, more than 20 inches fell north of Saratoga Springs, in the towns of Old Forge and West Wardsboro. The 1.12" water equivalent recorded on the 14th with this

storm was the most for any one day during the month, but it was not a daily record. Just as folks finished shoveling this much heavier snowfall, another storm followed on its heels, from the 17th to the 18th. This was a complex storm, consisting of snow and sleet across the Adirondacks, while most other places had rain, changing briefly to snow before ending. Some freezing rain fell, this time mainly in the Mohawk Valley. Once again, 1 to 2 inches of liquid fell with this storm, producing more minor flooding, mainly on the Housatonic River. Cold temperatures behind this system were eventually replaced by milder air of Pacific origin...just before Christmas. This set the stage for our fifth, and final, major storm of the month. With mild air in place, almost all of the precipitation on the 24th fell as liquid rain. Heavy rain totaling between 1 and 2 inches fell on Christmas Eve, producing another round of widespread minor flooding. Many rivers rose over their banks, as did some smaller creeks. The temperature at Albany rose to 53° on the 24th, the warmest reading of the month. The low temperature of 39° on the 24th was the mildest low for the month. With an average temperature of 46.0°, the 24th was also the warmest day of the month, overall. Cooler, but still above normal temperatures, and drier conditions took shape on Christmas Day. The remainder of the month was mercifully quiet, with mild temperatures, and almost no additional precipitation. Even so, the monthly total precipitation at Albany was 5.48", nearly double the normal for December, 2.76". It was the wettest December in 25 years, and the 6th wettest on record. The total snowfall was 28.5", the 9th greatest December total on record, and it was 15.7" above the December normal. It was the 31st snowiest month on record at Albany. Meanwhile, the average monthly temperature of 29.2° finished just 1.2° higher than normal.

January rang in the New Year on the mild side, and it stayed that way for the next three days. The temperature crested at 46° on both the 3rd and 4th at Albany, the highest readings recorded during the month. A low temperature of 35° on the 3rd was the

highest minimum reading for the month. With an average temperature for the day of 40.5°, it was also the warmest day of the month, overall. The weather pattern began to change on the 5th, with a modest snow event producing generally between 2 and 6 inches. Some places from Albany on south also received sleet, and a little glazing from light freezing rain. By the 7th, the jetstream began to steer a relentless series of arctic air masses over the region for the balance of the month. The leading edge of the first blast of truly arctic air produced very impressive snow squalls that produced whiteout conditions throughout the region, including downtown Albany. Wind gusts to 56 mph added insult to injury. This was the strongest wind gust of the month, as well as of the entire winter season, in Albany. Only half an inch of snow fell at Albany with the snow squall, but some areas recorded several inches of snow along with blowing and drifting. Temperatures in Albany tumbled to sub-zero readings for the very first time on the morning of the 9th, when the mercury dived to a low of -8°. Sub-zero readings were recorded during 11 days of the month, a greater occurrence by one day over last January, and the most occurrences in 10 years. The cold was often accompanied by fairly strong winds. Even daytime high temperatures were extremely cold. The high of 4° on the 10th established a new low maximum temperature for the date, replacing the old record of 5° set in 1968. On the 14th, the lowest reading of the month occurred at Albany, -14°. The high on that day was only 0°, which was the coldest high reading since January 4, 1981, and this tied the daily low maximum temperature, last set in 1915. The average, or mean (average of the high and low) temperature for the 14th was -7°, the coldest such mean since 1981. The next day was no better, as especially strong winds accompanied the increasing cold. Temperatures plummeted to -9° by early evening, to produce abominable wind chills throughout the nighttime and early morning hours of the 16th. Wind chill values as low as -40 degrees were recorded locally, but some spots had wind chills in excess of 50 below zero! Schools, and

even some businesses, were closed on account of the nanook conditions. The cold air moderated enough to nudge readings just above the freezing mark on the 22nd, but then took a nose dive once more from the 23rd through the 27th. During this cold siege, snowfall, generated by lake effect, was light in the Capital District. However, much heavier lake effect snow brought at least 7 inches to the town of Poland from the 22nd through the 23rd. The snow, combined with more wind, produced extensive blowing and drifting, which resulted in a portion of the New York State Thruway having to be shut down in the Mohawk Valley region. The biggest synoptic snowfall of the month took place from the 27th to the 28th, when 5.6" fell at Albany. Slightly higher amounts fell to the south, but this was no blockbuster storm. Seasonable cold, as opposed to exceptionally frigid weather, closed out the month. The temperature for January averaged 14.6° (7.6° below normal for January), making this the coldest January in 10 years. It tied with 1968 as the 13th coldest month in Albany history. The 1.16" precipitation total was 1.55" below the January normal, reversing a three-month trend. Total snowfall for the month was 13.3", which was 4.7" below normal.

February started out rather active, with two snowstorms pelting the region, one on the 3^d, and another on the 6th. The 6.1" snowfall on the 3^d established a new daily record, and wound up being the greatest daily amount for the month, coming just after the evening drive. Up to 12 inches fell across the Adirondacks with this storm. Just 2.0" fell on the 6th at Albany, and only because the snow turned to sleet and a little freezing rain. The freezing rain resulted in many accidents, but there was not enough to cause any major power outages. Seasonably cold weather continued for the majority of the month, but the mostly Pacific-based storms that pelted our region during the early portion of the winter season were now mostly missing it. No precipitation was measured for 12 consecutive days, from the 8th to the 19th of the month, the longest such streak since the spring of 2001. 0.21" of a wintry mix fell on the 20th and 21st that caused few

headaches. After that, more dry weather, and mainly clear conditions finished out the month. The coldest temperature was -3° on the 16th, the only sub-zero low temperature day of the month. Meanwhile, temperatures failed to reach the 40 degree mark until the 28th, so 55 days had elapsed since readings last reached 40 degrees or higher. This is the second longest such streak on record in Albany. The longest stretch of '40-less' days was 59, during the winter of 1947-48. Thanks to this month being a leap year, we scored a bonus on the very last day of February, as temperatures wasted no time reaching the 50 degree mark, thus closing out February with the highest reading of the month. Overall, the mean temperature for February of 24.8° was very close to the normal of 25.1°. For the second month in a row, both total water equivalent and snowfall amount were well below normal, 1.33" and 8.3" respectively. The normals for the month are 2.27" and 12.7", respectively.

UNIV. AT ALBANY-FIRST COLLEGE IN NYS TO BE STORMREADY

by Gene Auciello, Meteorologist In Charge, NWS Albany

As part of a nationwide program to help communities prepare against the ravages of severe weather, officials from the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) Forecast Office at Albany, New York, presented the University at Albany, State University of New York, with a letter of recognition designating the university as a StormReady community on March 1, 2004. The University at Albany is the first university in New York State to achieve StormReady status, and is the seventh university to achieve StormReady status in the Nation. Other universities declared StormReady include Northeastern Illinois University, Abilene Christian University, University of Maryland, University of Kentucky, University of Louisville, and Midwestern State University.

StormReady is a voluntary program that gives communities the skills and education needed to survive severe weather-before and during the event.

StormReady helps community leaders and emergency managers strengthen their local hazardous weather operations by ensuring that they have the tools needed to receive life-saving NWS warnings in the quickest time possible. On average, New York experiences about six tornadoes a year. In 1983, a severe weather outbreak produced 6 tornadoes, and caused 3 deaths, and a 1998 event produced 11 tornadoes, but, incredibly, no deaths. A devastating severe weather outbreak, known as a derecho, occurred in 1995, causing 5 deaths. Major floods that occurred in the state were caused by Hurricanes Agnes, Bertha and Floyd, and the January 1996 snow melt. StormReady helps communities understand the types of weather they can expect, when it is most likely to occur, and how they can prepare for it in advance.

Another StormReady milestone was reached in late February 2004, when the town of Brattleboro, Windham County, Vermont became the first community in the state to become StormReady. Southern Vermont also experiences significant weather events.

Both the University at Albany and Brattleboro, Vermont communities are served by the modernized NWS Weather Forecast Office, located on the University at Albany campus. The office is equipped with Doppler weather radar, advanced computer and communication equipment, automated observing systems, and data from weather satellites, each giving forecasters the ability to provide communities with more accurate and timely weather information than ever before. NWS preparedness information, awareness materials, and other data can be accessed at a website devoted to StormReady at www.stormready.noaa.gov

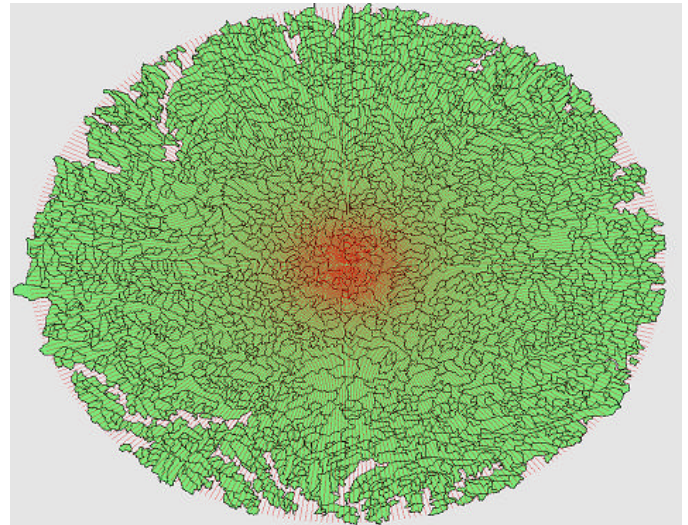
FLASH FLOOD MONITORING PROGRAM

by Steve DiRienzo, Service Hydrologist, NWS Albany

The Flash Flood Monitoring and Prediction (FFMP) system is an integrated suite of applications which detects, analyzes and monitors precipitation,

and generates short-term warning guidance for flash flooding automatically within the National Weather Service Advanced Weather Interactive Processing System (AWIPS). FFMP provides forecasters with accurate, timely and consistent guidance by supplementing flash flood event monitoring with radar and automated rain gage data. Some of the goals of FFMP include: more detailed flash flood warnings; longer lead times for warned events; fewer missed events, and; increased forecaster situational awareness.

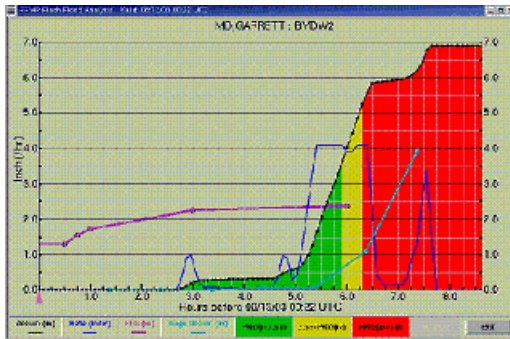
The FFMP has two main parts. The first is a detailed map of the watersheds underneath a radar area of coverage, or umbrella. In our case, watersheds are mapped underneath the Albany WSR-88 Doppler Radar umbrella.



The second is software that automatically computes rainfall accumulation and rainfall rates for each watershed, and compares these values to flash flood guidance. Flash flood guidance is an estimate of the amount of rain needed to fall over a watershed or basin to begin flooding. This guidance is based on soil moisture conditions from the Northeast River Forecast Center's River Forecast System model.

The FFMP provides continuous monitoring of rainfall rate and its comparison to flash flood guidance for high resolution stream basins. For the forecaster, rainfall and rain rate information is graphically displayed in a color-coded format where

green is “good” and red is “bad”.



FFMP will also provide National Weather Service forecasters with automated alerts when a dangerous flood situation may be developing on a given stream or catchment.

National Weather Service flash flood warnings are issued when flooding is imminent. They are reserved for those short-term events which require immediate action to protect lives and property, such as dangerous small stream flooding or urban flooding, and dam or levee failures. National Weather Service Instruction 10-922 says that Flash Flood Warnings (FFWs) may cover counties, portions of counties, well-known geographical areas, or river basins. However, FFWs are county-based products. Through the use of FFMP, National Weather Service forecasters will be able to quickly determine threat areas, and refer to particular streams and watersheds under the threat of flash flooding within the warning text.

SPRING AND SEVERE WEATHER: RIGHT AROUND THE CORNER

by Hugh W. Johnson IV, Meteorologist, NWS Albany

By the time you read this edition of StormBuster, chances are you will be putting your shovels and snow blowers away, and thinking about replacing them with rakes and mowers. Spring will be blossoming with its warmer, longer days...with blooming crocuses, and the increasing prevalence of thunderstorms. Now is a good time to review your warm season safety rules regarding severe weather?

While thunderstorms have occurred during each of the 12 months, they become more frequent as we head later into spring, and especially, summer. Some of these storms become severe. Severe thunderstorms are those that produce wind gusts in excess of 57 mph and/or hail the diameter of a dime or greater. They can spawn tornadoes. On average, about 100 severe thunderstorm events occur throughout our 19-county warning area each year. Most years, several tornadoes touch down in our region. 1999 was the last year without any tornadoes reported. Last year, we had several significant tornado touchdowns in Greene County of eastern New York, which continued northeast across the Mid Hudson Valley, Taconics and southern Vermont, destroying many homes. Luckily, no lives were lost.

When atmospheric conditions appear conducive to the development of either severe thunderstorms or tornadoes, the National Weather Service will issue either a Severe Thunderstorm Watch or Tornado Watch. A watch means there is the potential for such weather, and it usually covers many counties. A Severe Thunderstorm Warning or Tornado Warning is issued when: there is a strong indication that a severe thunderstorm or tornado is or might be occurring, or is imminent, as indicated by radar signatures, or; if one is reported, possibly by you! Warnings are issued by county, and they can be issued with or without a watch being in effect.

If a watch is issued for your region, you can generally go about your business, but keep a watchful eye to the sky, and be prepared for the possibility of a rapid onset of threatening weather. Better yet, have a NOAA Weather Radio with a built-in alarm, as well as SAME coding that can differentiate warnings for particular counties, or have a cell phone. If a Severe Thunderstorm or Tornado Warning is issued for your locality, take shelter at once in a sturdy building, not a mobile home. You need to evacuate a mobile home during a tornado warning, and have a plan in place that takes you to a place of shelter. Once inside a sturdy

building, head for the interior, away from windows. If you have a basement, go to it. Never try to outdrive a tornado. If caught out on the road near a tornado, abandon any vehicle and lie down flat in a ditch.

As a Weather Spotter, you are strongly encouraged to report anything which may indicate the presence of severe weather, including high winds, rotating wall clouds, funnel clouds, or hail of any size. Of course, never place yourself in jeopardy by making a phone call to the National Weather Service if your life may be on the line. Your own safety should be your primary concern.

Remember that lightning actually kills more people than tornadoes. Whenever you suspect a thunderstorm is near, severe or not, it is best to get inside. Lightning can strike as far as 10 miles away from its parent cloud. If you are outdoors and see any threatening weather near the horizon, please do not wait to hear the thunder or see the lightning. Assume the worst, and postpone that tennis or golf game until a later time. Once inside, it is best to not use the phone or any electrical devices. It is also not completely safe to shower during a thunderstorm, as electric currents can enter a home and travel through water.

Another product of some thunderstorms is flash flooding. The heaviest rainfall rates are usually associated with thunderstorms. Rain can fall heavily enough to swell a trickling stream in minutes, turning it into a wild and lethal torrent. If you live near a small stream or any flood prone area, have a plan to quickly get to higher ground. Last year, 35 flash flood events took place across our county warning area. NEVER attempt to drive through a flooded roadway. As little as six inches of running water can be enough to sweep a car off a road and down a stream or river. By that point, the odds of your surviving are slim.

NEW WCM AT WFO ALBANY

by Gene Auciello, Meteorologist In Charge, NWS Albany

Raymond G. O'Keefe, Senior Forecaster at the National Weather Service (NWS) Weather Forecast Office (WFO) in Detroit, Michigan, has been selected as the new Warning Coordination Meteorologist (WCM) at WFO Albany, New York, replacing the recently retired Richard Westergard.

Ray has been a Senior Forecaster at WFO Detroit since 2001, where, since 1998, he also served as the Assistant WCM, involved in all service and outreach program activities. As a General Forecaster at the Detroit office from 1998 to 2001, Ray facilitated focus groups for the aviation and marine communities, performed liaison with state government, and developed a congressional briefing program for which he was awarded the coveted Michigan Public Service Award. He also was part of the warning and forecast team at WFO Buffalo, New York, from 1996 to 1998.

Prior to 1996, Ray served in a high-level, high-visibility position at NWS Headquarters in Silver Spring, Maryland, as the Deputy Strategic Planner for NOAA/NWS. He was responsible for advising NWS senior management, including the Assistant Administrator for Weather Services, the Deputy Assistant Administrator for Modernization, and the Deputy Assistant Administrator for Operations, on initiatives to promote integrated weather, water, and climate services. In this advisory role, from 1991 to 1996, he was also responsible for speech writing, the development of position papers for presentation to congressional committees, and quick-response analyses for tiger teams. Other duties included planning initiatives for science and technology, and collaborative efforts with Federal, state and local governments. Most notable was his key role in the Department of Commerce Insurance Industry Roundtable to explore partnerships to mitigate the impact of natural hazards.

Prior to entering Government service, Ray

worked in the private sector. He received his M.S. degree in meteorology from the University of Wisconsin in 1983, and a B.S. degree in meteorology from Pennsylvania State University in 1978. His reporting date is May 2, 2004. Please join me in welcoming Ray to the NWS staff.

SPRING 2004 SKYWARN SPOTTER TRAINING SESSIONS

by John S. Quinlan, SKYWARN Coordinator, NWS Albany

4/05/04 1930-2130 **SCHENECTADY COUNTY**
NISKAYUNA, NY-NISKAYUNA HIGH SCHOOL
CAFETERIA

4/08/04 1830-2030 **HERKIMER COUNTY**
HERKIMER, NY-911 CENTER AT HERKIMER
COUNTY COMMUNITY COLLEGE

4/12/04 1900-2100 **ALBANY COUNTY**
ALBANY, NY-CESTM 1ST FLOOR AUDITORIUM 251
FULLER RD.

4/14/04 1900-2100 **BERKSHIRE COUNTY**
GREAT BARRINGTON, MA- MONUMENT
MOUNTAIN REGIONAL H. S. CAFETERIA

4/15/04 1900-2100 **LITCHFIELD COUNTY**
TORRINGTON, CT-TORRINGTON CITY HALL
2ND FLOOR AUDITORIUM AT 140
MAIN ST.

4/21/04 1900-2100 **ULSTER COUNTY**
KINGSTON, NY-HOSE #5 FIRE HOUSE; 830 ULSTER
AVE.

4/22/04 1900-2100 **SCHOHARIE COUNTY**
SCHOHARIE, NY-PUBLIC SAFETY FACILITY 2ND

FLOOR EMO TRAINING RM; 1 DEPOT LANE

5/11/04 1830-2030 **WINDHAM COUNTY**
TOWNSHEND, VT-GRACE COTTAGE HOSPITAL
EMS TRAINING ROOM;185 GRAFTON RD. (ON
ROUTE 35)

5/15/04 1000-NOON **WASHINGTON COUNTY**
FORT EDWARD, NY-PUBLIC HEALTH TRAINING
FACILITY (YELLOW BUILDING BEHIND
COUNTY ANNEX OFF BROADWAY)

5/18/04 2000-2200 **ALBANY COUNTY**
GREEN ISLAND, NY-GREEN ISLAND MUNICIPAL
CENTER

5/19/04 1900-2100 **HAMILTON COUNTY**
PISECO, NY-PISECO COMMONS SCHOOL
ADIRONDACK COMMUNITY EDUCATION
CENTER, ROUTE 8

5/20/04 1900-2100 **DUTCHESS COUNTY**
EAST FISHKILL, NY
EAST FISHKILL FIRE DISTRICT TRAINING
BUILDING; 2502 SR 52

5/24/04 1900-2100 **COLUMBIA COUNTY**
GREENPORT, NY-COLUMBIA GREENE
COMMUNITY COLLEGE; ROOM 206 IN THE
MAIN BUILDING

Pre-registration is required for all SKYWARN spotter training sessions. Please call 518-435-9580 to pre-register, you will then press 7 for SKYWARN spotter training. You will be asked to leave your name...a phone number and the session you are signing up for. You must use a touch-tone phone to pre-register, and once you have pre-registered, you will not receive a call back unless the session has been cancelled or the session is full. In addition, you may register via the internet by going to www.weather.gov and clicking on eastern New York. This will take you to the National

Weather Service in Albany. Then simply click on the link for SKYWARN registration.

YOUR NEW STORMBUSTER EDITOR

by Evan L. Heller

It is my pleasure to be the new editor of StormBuster. Our goal is to provide a publication that is useful, informative and enjoyable. Our continued commitment to the Emergency Management and Spotter communities includes input from you. Therefore, we welcome your contributions to our newsletter. If you have a weather-related article you wish to write and submit, please email us at alywcm@noaa.gov for instructions on what you need to do. We cannot guarantee publication of your article. Address your message to me, Evan L. Heller.

From the Editor's Desk

StormBuster is a quarterly newsletter primarily for our trained SkyWarn spotters. Reader articles, or suggested topics, are always welcome. Do you have any ideas? Drop us an e-mail.

Here is the usual reminder of what we'd like you, the spotter, to call us about. First, during the Winter (November through April):

- 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.
- 6) Measured rainfall of 1.5 inches or more in 4 hours. During the convective season, (May through October) the reporting criteria are:
 - 1) Tornadoes, water spouts, funnel clouds and wall clouds.

- 2) Damaging Winds (58 mph or more).
- 3) Any hail.
- 4) Damaging lightning.
- 5) Flooding, including bankfull or near bankfull streams.
- 6) Measured rainfall - 1.5 inches or more in 4 hours.

Get your reports to the National Weather Service by the quickest means available. Possible communications links include: Amateur Radio; the 800 number you were given at your training; and the "Severe Weather Report" form on the internet at: http://cstar.cestm.albany.edu:7775/Severe_WX

StormBuster is now an electronic-only newsletter. If you, or any of your friends who are spotters, have any difficulties viewing this electronic version, please drop us an e-mail and explain the problem. If you do not have internet access at home, most local libraries have internet connections available to the public. If you or a friend do not currently get e-mail notification when StormBuster is posted, and wish to be added to our list, please drop us an email.