STORMBUSTER

A Newsletter for Emergency Managers & Storm Spotters

Fall Edition, 2003

An all inclusive data network

by Dave Zaff, Information Technology Officer

The Albany National Weather Service (NWS) has begun a new project which collects real-time surface observational data from a variety of new sources, and plots it onto a single map of the area. Some data comes in courtesy of local TV stations, other data is from school networks and amateur radio. Much of the data is automated, with new information coming in at 5 or 15 minute intervals. Other data is manually entered by phone or via the Internet on an "as needed" basis. These data sets, sometimes known as "mesonets", (*meso* for local scale, *nets* for networks) will help the forecast office improve local weather modeling, short term forecasting, and aid in forecast verification.

The goal of this project is twofold. We hope to become a central repository for regional observations, but also would like to provide access to this information via the Internet. Thus, all data contributors will benefit from this new technology, as everyone will have a much larger network of observations. The process for providing data to the web will spin up later this winter.

This project is modeled on the MesoWest project, set up by the University of Utah and the NWS in Salt Lake City. Their original goal was to provide an enhanced network of observations for the 2002 Winter Olympics. The project evolved into a cooperative regional database of observations spanning the entire western half of the country. While we do not intend to have quite as extensive a network, we do hope to cover all of New York, New England, Pennsylvania and New Jersey.

Advanced Hydrologic Prediction Services

by Steve DiRienzo, Senior Service Hydrologist

Advanced Hydrologic Prediction Services (AHPS) are a new and essential component of the National Weather Service's Climate, Water, and Weather Services. AHPS is a web-based suite of accurate and information-rich forecast products. They display the magnitude and uncertainty of occurrence of floods or droughts, from hours to days and months, in advance. These graphical products are useful information and planning tools for many economic and emergency managers. These new products will enable government agencies, private institutions, and individuals to make more informed, risk based, decisions about policies and actions to mitigate the dangers posed by floods and droughts.

Why AHPS? Weather influences our economic and social lives in many ways. Severe weather can impact revenues and profits of businesses, large and small. Weather can also disrupt and disorganize communities. As our nation's population grows and infrastructure costs increase, natural disasters can threaten social stability. Weather forecasting was initially developed in response to the need of societies to protect themselves from storms, severe heat and cold, floods, etc., and minimize consequent economic losses. It is estimated that inland flooding claims 133 lives, and property losses from flooding exceed $4 billion in an average year in the U.S. The National Weather Service (NWS) is our nation's agency entrusted with the mission to protect life and property, and to enhance the economy.

Who Can Use AHPS? AHPS forecast products are a basis for operation and management of flood-control structures. Emergency management officials at local and state levels use these forecasts to fight floods, evacuate residents, and to take other measures to mitigate the impact of flooding. As the population grows, people increasingly choose to live near water, creating an increased need for the NWS to educate the public about flood hazards, and improve flood forecasts. These products can be used by a wide range of people, such as barge operators, power companies,

recreational users, farmers, households, businesses and environmental scientists.

Visit our AHPS Site. Advanced Hydrologic Prediction Service data may be obtained on-line at http://ahps.erh.noaa.gov/cgi-bin/ahps.cgi?aly We would also appreciate your feedback on these new AHPS forecast products. Let us know if they were helpful to you. What can we do to make them better?

Drop us a note at http://ahps.erh.noaa.gov/cgi-bin/ahps/comment.pl We are committed to working closely with our partners and customers to ensure their hydrologic information needs are met. Find out more about AHPS. Additional information on the Advanced Hydrologic Prediction Service may be obtained on-line at http://www.nws.noaa.gov/oh/ahps/ or drop me an e-mail at: stephen.dirienzo@noaa.gov

The July 21 Tornado Outbreak

by Evan Heller, Meteorologist

One of the most significant tornado outbreaks in the history of eastern New York and southern Vermont took place on Monday evening, July 21. An area of deep low pressure moved across the Great Lakes, and ahead of it, a warm front lifted through eastern New York and western New England. Within this warm, humid and very unstable air, a line of thunderstorms developed and produced spotty damage during the late afternoon hours as it traveled across portions of Albany, Greene, Rensselaer, Saratoga, Schenectady and Schoharie Counties.

But this was hardly the end of it. Following this episode, a Mesoscale Convective System (MCS) moved out of central New York and across eastern New York and southern Vermont during the evening hours. It was this complex of storms that produced far more serious weather and damage, including two separate tornadoes from a single supercell thunderstorm. The first tornado came about as a result of the merger of the MCS with thunderstorm cells which had developed ahead of it, as it moved across Ulster County. The merging of the cells into one supercell took place just north of Frost Valley in the Catskill Mountains at about 7:41 P.M. A funnel cloud began to develop shortly thereafter as it continued on its northeastward path toward the Mid-Hudson Valley and southeastern Greene County.

The supercell continued to strengthen and the first confirmed tornado touchdown occurred near the town of Palenville in Greene County at 8:14 P.M. The tornado traveled along a non-continuous path of 17 miles as it crossed eastern Greene County. It then crossed the river into Columbia County around 8:30 P.M., where it stayed on the ground throughout most of its 12.2 mile trip across the northwestern part of the county. About 15 minutes later, the tornado touched down again as it crossed into Rensselaer County in the town of Nassau. After a few more minutes of northeastward travel, the tornado once again lifted at 8:51 P.M. The supercell that produced the first tornado continued on, spawning a second tornado just across the state line in extreme southern Bennington County Vermont near North Pownal around 9:20 P.M.. The tornado traveled another 25 miles, ending its life just inside Windham County, Vermont near Stratton Pond around 10:00 P.M. At many points along the way, the tornado was classified as an F2 on the Fujita Scale of tornado intensity - not amongst the most powerful tornadoes, but a significant one, especially for the northeastern United States.

Overall, this supercell produced over a million dollars in damage. A state of emergency was declared in Columbia and Greene Counties. As many as 63,000 customers were without power in eastern New York, and another 2,000 in southern Vermont. It took the better part of a week for all power to be restored. Many communities applied for federal aid.

This supercell has the distinction of having produced tornadoes with the greatest distance between the points of initial touchdown and final point on the ground of any thunderstorm cell in the history of eastern New York or western New England since at least 1880. The total length of the supercell's track was approximately 125 miles, including 61 actual tornado miles in this broken tornado path. The path length of both the Great Barrington tornado of 1995 and the Mechanicville tornado of 1998 were far less; around 30 miles each.

An even more important distinction was that, despite its intensity and long path of destruction, the tornado of July 21, 2003 produced no fatalities. A series of anecdotes reported in the press, and to our damage survey teams, mentioned people taking shelter when they heard warnings. It seems likely that, without the timely warnings issued by the Albany office of the National Weather Service during this event, the human toll would have been far greater. The spotters who reported the storm's progress to the Albany office can take pride in this accomplishment. Without their help, the warning lead times would have been significantly shorter.

Severe Weather in the Summer of 2003

By Hugh Johnson

The theme for the summer of 2003 across the lower 48 states was the persistent long wave upper air trough in the east, and two upper air ridges, one in the west and one over the Atlantic ocean. This scenario allowed the polar jetstream, which normally retreats north of the Canadian border, to dive unusually far south for much of the season.

During most of June, the trough was strong, keeping the air cool and skies cloudy. The battle ground between the warm moist air and the cool Canadian air generally remained well to our south and severe weather was not much of a factor in eastern New York or adjacent New England. In fact, this was the quietest June in many years. The only severe weather to hit our region was on June 29th, when a severe thunderstorm caused a microburst in South Argyle, Washington County. Many trees were uprooted or snapped off, some as the result of continuous lightning strikes. Also on the 29th, lightning strikes resulted in house fires in Clifton Park, Saratoga County, and Clinton, Dutchess County. Slow moving thunderstorms produced flash floods in two portions of Becket, Berkshire County on the 23rd of June. A few roads were washed out and basements flooded.

A temporary shift in the pattern allowed a weak ridge to finally build over the area in late June and early July. The weather turned warm and dry, but the trend did not last long. By the second half of July, the trough re-established itself over the east. On the 21st, it was in the process of deepening over our region. At the same time, very humid air was pushed north by very strong winds aloft, producing strong shear. The stage was set for the most significant severe outbreak of the summer, which included the most tornados to hit our area since May 31, 1998.

The storms came in two batches. The first line of storms produced minor wind damage across eastern New York. Torrential rains brought a minor flash flood to the cities of Schenectady and Rotterdam.

Then, a stronger line came marching into eastern New York. This line had a history of producing widespread severe thunderstorms over central New York. As this line interacted with the southerly flow up the Hudson Valley, increasing shear, one storm became a supercell and then turned tornadic as it moved into Greene County. See Evan Heller's article on page two for details on the life of that supercell.

Straight line thunderstorm winds resulted in more spotty damage across the remainder of eastern New York as well as Berkshire and Litchfield Counties on July 21. The only hail associated with this series of storms fell in Stockport, Columbia County, with hailstones the size of golf balls.

A Flash Flood was also reported on July 21 in Fort Hunter, Montgomery County, where some roads were washed out. The only other severe weather of the month was a lone thunderstorm producing dime-sized hail in the town of Hartford, Washington County.

August will long be remembered by those affected in the series of flash floods that drenched our region throughout the month. The upper level trough that had become established at the end of July, became sandwiched between a pair of exceptionally strong ridges to the east and west during the first half of the month. Our region was on the cyclonic side of the trough as it continuously pumped tropical air into our area. A seemingly endless series of disturbances rotated through the trough. The storms were slow movers and loaded with moisture. As a result, flash flooding was reported in nearly every county in our County Warning Area between August 2 and August 13. Albany was the only county which reported no flash flooding.

Some of the more significant flash floods included Windham County on the 3rd, where route 121 was completely washed out and a house in Grafton, that was hit by the floods of 96, was washed off its foundation again. Montgomery and Herkimer Counties saw flood producing rains for several days in a row from August 3rd to 6th, with repeated torrential rains washing away several roads and flooding numerous homes. On Sunday, August 11th, it was Saratoga County's turn, as up to 3.5 inches of rain, falling on saturated ground, and in a very short time, caused flooding from Clifton Park east to Mechanicville and Stillwater. A state of emergency was declared in the city of Mechanicville, as the main road was completely flooded.

The only real severe thunderstorms during August happened on the 13th and 22nd. On the 13th, large hail, ranging from dime to golf ball size, fell at Kingston in Ulster County. On the afternoon of the 22nd, straight line winds from a thunderstorm complex knocked power out in Troy, and blew trees and wires down in Berkshire and Columbia Counties.

Summer 2003: The Numbers

by Evan Heller

The summer of 2003 in Albany was a little warmer than normal, with near normal precipitation. The average temperature for the season was 70.4°, while the total rainfall was 11.78". Normal values are 68.8° and 10.92".

June began with below normal temperatures, but highs in the 80s and 90s during the last week of the month resulted in an average June temperature right at the normal of 66.3°. The high temperature for June was 93°, on the 26th. The low was 42°, on the 3rd. There were no new daily temperature records of any kind in June or for the season. A brief heat wave, with three consecutive days of 90+ degree temperatures, occurred from the 24th to the 26th. The lowest high temperature for the month, 58°, occurred on the 1st, while the highest low was 68°, on the 26th. Precipitation for the month totaled 2.84", nearly an inch below the 3.74" normal. There were no daily precipitation records, either. The greatest daily rainfall was 0.77" on the 21st.

In July, we began trending toward a hotter and wetter than normal summer. The average temperature for the month was 72.2°, one degree above normal. This resulted in a tie for 88th hottest month on record at Albany. The high temperature was 92°, on the 4th, followed the very next day by another 90+ degree temperature day, the last for the month. The low was 52°, on both the 1st and the 19th. The lowest maximum temperature was 74°, on the 11th, while the highest low was 69°, on the 8th. Over half the days of the month were rain-free, but with precipitation over an inch on the 11th and the 23rd, the month ended up with 4.52" - just over an inch more than the 3.50" normal. The only daily record set for the month was a precipitation record: 1.54" on the 23rd.

August opened and closed on a cooler than normal note, with plenty of warmth sandwiched in between. The high temperature for August was 88°, on both the 14th and the 21st. The low was 48°, on the final day. The low maximum temperature was 71 degrees, on both the 1st and 31st, while the high low was 73°, on both the 4th and 10th. Only six days were cooler than normal. The average temperature for the month was 72.7°, an impressive 3.7° above normal. This is a tie for 70th hottest month on record at Albany. Nearly a third of the month's precipitation came on the first day, with a daily record amount of 1.41". The total for the month was 4.42", 0.74" above normal.

WCM Words

by Dick Westergard, Warning Coordination Meteorologist

Spring SkyWarn classes were a success, but ID cards for spotters trained this Spring have been delayed by weather events and staff shortages. By October 15, the last of them should be in the mail. Thanks for your patience!

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

As the hurricane season, (June through November) peaks, a reminder of precipitation reporting criteria:
1) Measured rainfall - 1.5 inches or more in 4 hours.
2) Flooding, including bankfull or near bankfull streams. Get your reports to the National Weather Service by the quickest means possible. 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/main.htm

StormBuster is an exclusively electronic newsletter. If you or any of your friends who are spotters do not have home access to the web, let me know. I will try to find a local public access point where they can view StormBuster. If you or any of your friends who are spotters have any difficulties viewing this electronic version, please drop me an e-mail. If you or a friend do not currently get e-mail notification when StormBuster is posted, please drop me an e-mail. I'll be happy to add more names to my e-mail list of spotters.

Advanced SkyWarn training for certified spotters will be held at eight locations during October and November. The dates, times and locations are:
October 18, 10 AM to Noon - Bennington, VT
October 21, 7 to 9 PM - Schoharie, NY
October 28, 7 to 9 PM - Kingston, NY
October 30, 7 to 9 PM - Albany, NY
November 1, 10 AM to Noon - Fort Edward, NY
November 6, 6:30 to 8:30 PM - Herkimer, NY
November 12, 6:30 to 8:30 PM - Torrington, CT
November 13, 7 to 9 PM - Pittsfield, MA
Check our web page at:
http://i777777o657268o6e6f6161o676f76/aly/index and click on the SkyWarn link to see a detailed list of training locations and fill out a pre-registration form.
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