

The Lake Breeze

The Newsletter of the Buffalo Forecast Office

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CoCoRaHS comes to New York State!

What is CoCoRaHS??

CoCoRaHS is an acronym for the Community Collaborative Rain, Hail and Snow Network. CoCoRaHS is a unique, non-profit, community-based network of volunteers of all ages and backgrounds working together to measure and map precipitation (rain, hail and snow). By using low-cost measurement tools, stressing training and education, and utilizing an interactive Web-site, our aim is to provide the highest quality data for natural resource, education and research applications.

Who is sponsoring this network??

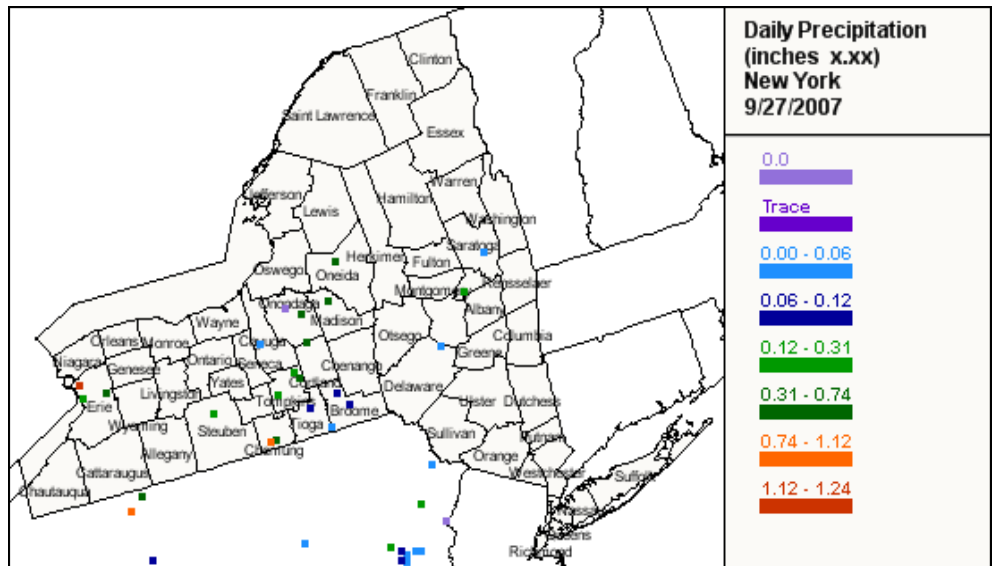
The National Oceanic and Atmospheric Administration (NOAA) is a major sponsor of CoCoRaHS. Other organizations have contributed either financially, and/or with supplies and equipment. The list of sponsors continues to grow. Many other organizations and individuals have pitched in time and resources to help keep the network up and running.

Where did the CoCoRaHS Network originate??

The network originated with the Colorado Climate Center at Colorado State University in 1998 thanks in part to the Fort Collins flood a year prior. In the years since, CoCoRaHS has expanded rapidly with over 4,500 observers in twenty-two states with more states being added monthly.

Who can participate??

This is a community project. Everyone can help, young, old, and in-between. The only requirements are an enthusiasm for watching and reporting weather conditions and a desire to learn more about how weather can effect and impact our lives.



Example of Daily Precipitation map on 09/27/07 from the CoCoRaHS website



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CoCoRaHS (continued)

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CoCoRaHS has several goals

1. provide accurate high-quality precipitation data for many end users on a timely basis (including the National Weather Service)
2. increasing the density of precipitation data available throughout the country by encouraging volunteer weather observing

3. encouraging citizens to have fun participating in meteorological science and heightening their awareness about weather
4. providing enrichment activities in water and weather resources for teachers, educators and the community at large to name a few.

For more information or to sign up, visit the website www.CoCoRaHS.org. At our office, you can contact Steve McLaughlin (stephen.mclaughlin@noaa.gov).

Winter Weather Awareness Week October 28—November 3

The National Weather Service and state and local governments want you to know that now is the time to prepare for the severe winter weather our area can experience. It's never too early to think safety. While winter "officially" begins on December 22nd, you know that winter weather arrives much earlier.

By taking a few simple steps, you can protect yourself and your family from the harsh effects of winter.



The first step is to be aware of local weather conditions by listening to broadcasts of NOAA Weather Radio All Hazards, the National Weather Service, and local television and radio stations. During major winter storms, it's usually best to remain at home rather than venturing outdoors. However, if you must, before going out on the road, listen to the local media reports for the latest road conditions.

You should always be prepared to ride out any adverse weather. Your primary concerns at home include the possible loss of heat, electricity, and telephone service. You may also run out of supplies if the storm persists for several days. You should keep a three-day supply of non-perishable food that requires no cooking or refrigeration. Have a non-electric can opener available. Store one gallon of water per person, per day. Your disaster supplies for the home should also include a first aid kit along with essential prescription medication (a minimum one-week supply of essential medicines), a portable radio with extra batteries, a NOAA weather radio, flashlights with extra batteries, and several blankets.

Make sure you have a supply of heating fuel. Fuel carriers may not reach you for days after a severe winter storm. Since most furnaces are controlled by electric

thermostats, if the power goes out, residents should have some kind of emergency heating equipment and fuel available to keep at least one room of the house warm enough to be livable. Common examples of emergency heating equipment are kerosene heaters or a supply of wood if you have a fireplace or woodstove. Learn to use equipment properly to prevent a fire. Have proper ventilation. If necessary, conserve fuel

by keeping the house cooler than usual, or by "closing off" some rooms temporarily. Never operate a generator indoors.

Give your home a safety check. Have a professional check out your furnace, woodstove and chimney. Make certain they are in good working condition. Replace the batteries in your smoke, heat and carbon monoxide detectors. It's also a good idea to make certain your snow blower is ready to go to work.

Be sure your vehicle is ready for the winter driving season. Have your engine tuned up, your battery checked, and your engine coolant or antifreeze tested to see if it can withstand the extreme cold. Also, you can increase your visibility by installing new windshield wipers. Finally, be sure your snow tires or all season tires are properly inflated and have enough tread to grip the road. You should consider a survival kit for your car, especially if you drive in rural areas. Have a blanket or sleeping bag on hand along with a supply of non-perishable food, a first aid kit with prescription medication if necessary, and bottles of drinking water or juice. If you become stuck or stranded, your chances of survival will be greater. Also include a shovel, sand or cat litter, booster cables, an ice scraper, and a snowbrush.

Judith Levan
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National Weather Service Winter Weather Products

Let's review what winter weather products are issued by the National Weather Service and when.

The potential for a Winter Storm is included in the Hazardous Weather Outlook issued daily when there is a chance of a major winter storm from 3 to 7 days in the future. This is meant to assist people with their long range plans. However, since the outlook is issued so far in advance, the accuracy of the prediction may be limited.

As the event gets closer in time, a **WATCH** may be issued. A watch is issued when there is a 50% or greater chance of a hazardous winter weather event occurring. Although a watch indicates the risk of a hazardous winter weather event has increased, the occurrence, location, and/or timing is still uncertain. Specifically...

A **WINTER STORM WATCH** is issued when there may be hazardous winter weather due to various elements such as heavy snow, sleet, or ice accumulation from freezing rain. In our region, heavy snow means 7" or more of accumulation in 12 hours or less, or 9" or more of accumulation in 24 hours or less.

A **LAKE EFFECT SNOW WATCH** is issued when there is a possibility of heavy lake effect snow (accumulating 7" or more within a 12 hour period or 9" or more within a 24 hour period). Lake effect snow usually occurs in narrow bands over limited areas.

A **BLIZZARD WATCH** is issued when conditions are favorable for a blizzard event within the next 12 to 48 hours.

Finally, a **WARNING** is issued when there is an 80% or greater likelihood of a hazardous winter weather event meeting or exceeding the warning criteria within the next 36 hours.

A **HEAVY SNOW WARNING** is issued for 7" or more of snow within a 12 hour period or 9" or more of snow within a 24 hour period.

A **LAKE EFFECT SNOW WARNING**: Issued when heavy lake effect snow is occurring, is imminent, or has a very high probability of occurring within the next 12 hours. The snow is expected to accumulate 7" or more within a 12 hour period or 9" or more within a 24 hour period. Lake induced squalls/showers occur in narrow bands and over limited areas. They can occur quite suddenly and cause blizzard-like conditions. An **ICE STORM WARNING** is issued when ice accumulation of ½ inch or greater (enough to bring down power lines) is expected within the next 12 hours.

A **WINTER STORM WARNING** is issued when severe winter weather having more than one predominant hazard (for example heavy snow and blowing snow, snow and ice, or combination of heavy snow, sleet, and/or freezing rain) is expected within the next 12 hours.

A **BLIZZARD WARNING** is issued for severe winter conditions including a combination of strong winds averaging or frequently gusting to or above 35 mph and very low

visibility due to blowing or falling snow. These are the most dangerous winter storms.

ADVISORIES, in general, are issued for weather conditions that are expected to cause significant inconveniences and may be hazardous. These situations are normally not life threatening if caution is exercised.

SNOW ADVISORY is issued for snowfall accumulation of 4" to 7" of snow within a 12 hour period.

LAKE EFFECT SNOW ADVISORY is issued for lake induced snowfall in western and central New York totaling greater than 4", but less than 7" in a 12 hour period. Blowing and drifting snow is also common in relatively limited areas and in narrow bands

BLOWING SNOW ADVISORY: widespread or localized blowing snow reducing visibilities to ¼ mile or less with winds less than 35 mph.

SNOW AND BLOWING SNOW ADVISORY: sustained wind or frequent gusts of 25 to 34 mph accompanied by falling and blow snow, occasionally reducing visibility to less than ¼ mile.

FREEZING RAIN ADVISORY: Light ice accumulation is expected either from freezing rain or freezing drizzle.

WINTER WEATHER ADVISORY: issued for winter events having more than one predominant hazard, meeting the advisory criteria for at least one of the elements, but remaining below warning criteria. Examples include could include snow and ice or snow and sleet.

The National Weather Service also issues several "non-precipitation" watches, warnings and advisories:

A **HIGH WIND WATCH** is issued when conditions are favorable for damaging winds within 12 to 48 hours.

HIGH WIND WARNING: Expected winds will average 40 mph or more for at least 1 hour or winds gusts will be greater than 58 mph. Trees and power lines can be blown down

WIND ADVISORY: Issued for average wind speeds between 31 and 39 mph, or for frequent wind gusts between 46 and 57 mph.

A **WIND CHILL WATCH** is issued when there is a possibility of dangerous wind chill values.

WIND CHILL WARNING: Life threatening cold with wind chill temperatures computed to be -25 degrees or less (-30 degrees or less in Jefferson and Lewis counties) for at least 3 hours. Exposure to this combination of strong winds and low temperatures without protective clothing will quickly lead to frostbite and/or hypothermia. Longer exposures can be fatal.

WIND CHILL ADVISORY: Issued for cold temperatures and winds, with wind chill temperatures computed to be -15 degrees or less (-20 degrees or less for Jefferson and Lewis counties) for at least 3 hours. Exposure to this combination of strong winds and low temperatures without protective clothing can lead to frostbite and/or hypothermia. Prolonged exposure may be fatal.

2007 SKYWARN Recognition Day

The 2007 Special Event is fast approaching. It will take place on December 1st from 0000 UTC – 2400 UTC... that's Friday November 30 7PM EST through Saturday December 1 7PM EST.

SKYWARN Recognition Day was developed in 1999 by the National Weather Service and the American Radio Relay League. It celebrates the contributions that volunteer SKYWARN amateur radio operators make to the National Weather Service. Many NWS offices use the real-time information in their warning decision-making process.



Last year, base operators here at the Buffalo office made 346 contacts in 38 states, including contact with 34 other NWS offices across the nation. If you're interested in being a base operator here at the Buffalo Office for this year's event, you can contact Judy N2TEZ at judith.levan@noaa.gov.

More information about the Special event and a list of participating NWS offices can be found at on the Special Event website at <http://hamradio.noaa.gov>

NOAA Deactivates Polar Orbiting Satellite

The National Oceanic and Atmospheric Administration officially shut down the nation's longest serving polar-orbiting satellite, NOAA-12 on August 10, 2007. While in operation, NOAA-12 logged 16 years of service and 84,402 Earth orbits, capturing critical environmental data from space. The spacecraft was deactivated following a series of power system problems.

NOAA operates two polar-orbiting environmental satellites, or POES. These spacecraft are critical for monitoring changes in the atmosphere and ocean temperatures and observing climate phenomena such as El Niño and La Niña. NOAA-12 was launched on May 14, 1991, and became the operational replacement for NOAA-10 four months later on September 19.

"NOAA-12's performance over its lifetime is a credit to the engineers who built and operated it as well as the technology that sustained it," said Mary E. Kicza, assistant administrator for NOAA's Satellite and Information Service.

When it was launched, NOAA-12 was a third-generation, operational meteorological satellite and considered an upgrade from earlier spacecraft because it featured higher resolution global data and images. "The technology of NOAA-12 gave scientists more day- and night-time data on local and global scales than earlier satellites were able to provide," Kicza added.

NOAA-12 was replaced operationally by a newer satellite, NOAA-15, in December 1998, but was configured to send real-time data directly to users on the ground as it passed over their receiving stations, extending the usefulness of the spacecraft.



NOAA assigns a letter to the satellite before it is launched, and a number once it has achieved orbit. For example, GOES-H, once in orbit, was designated GOES-7, GOES-G, which was lost at launch, was never assigned a number. The same system is used for polar orbiters; for example, NOAA-11, still in orbit, was designated NOAA-H before launch. NOAA-J became NOAA-14.

The POES satellite system offers the advantage of daily global coverage, by making nearly polar orbits roughly 14.1 times daily. Since the number of orbits per day is not an integer the sub orbital tracks do not repeat on a daily basis, although the local solar time of each satellite's passage is essentially unchanged for any latitude. Currently in orbit we have a morning and afternoon satellite, which provide global coverage four times daily. The POES system includes the Advanced Very High Resolution Radiometer (AVHRR) and the Tiros Operational Vertical Sounder (TOVS).

Because of the polar orbiting nature of the POES series satellites, these satellites are able to collect global data on a daily basis for a variety of land, ocean, and atmospheric applications. Data from the POES series supports a broad range of environmental monitoring applications including weather analysis and forecasting, climate research and prediction, global sea surface temperature measurements, atmospheric soundings of temperature and humidity, ocean dynamics research, volcanic eruption monitoring, forest fire detection, global vegetation analysis, search and rescue, and many other applications.

NOAA Provides Easy Online Access To Historical Hurricane Tracks

Visitors to NOAA's Historical Hurricane Tracks Web site and mapping application can easily generate customized maps based on more than 150 years of Atlantic hurricane data. The recently updated Web site includes historical tropical cyclone data and information on coastal county hurricane strikes through 2006.

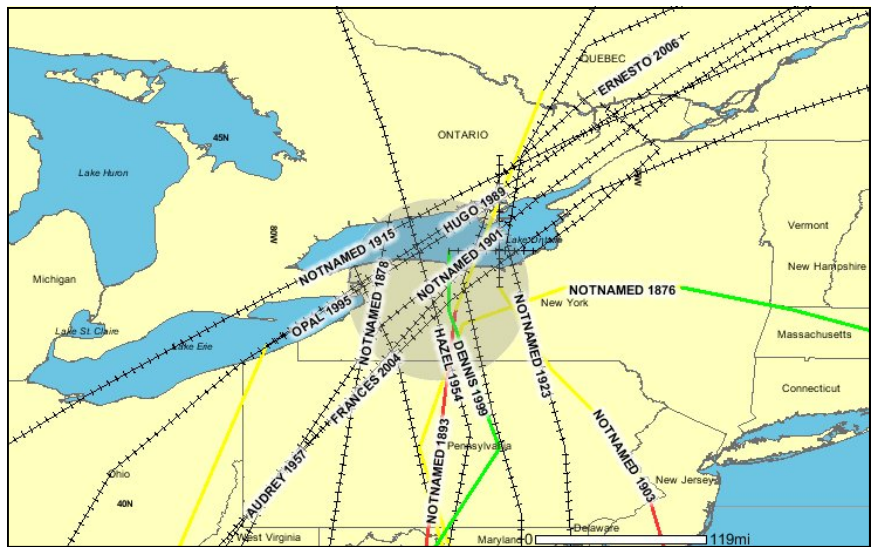
Developed by the NOAA Coastal Services Center in partnership with the National Hurricane Center, the site allows users to search by U.S. ZIP code, state or county, or latitude and longitude points. Visitors can also search the site, <http://hurricane.csc.noaa.gov>, using a storm's name or year. From this information, they can generate a map showing the track of the storm or storms along with a table of information. Searches can be narrowed to specific storm categories, years, or months.

"Understanding the history of hurricane landfalls in your community is an important step toward assessing your vulnerability to these potentially devastating storms," said Ethan Gibney, a senior geospatial analyst for NOAA and one of the site's developers. "The Historical Hurricane Tracks Web site allows visitors to quickly and easily conduct highly customized searches of historical hurricane data."

The site also features a searchable database of population changes from 1900 to 2000 for U.S. coastal counties versus hurricane strikes, as well as links to detailed text reports on the life history and effects of U.S. tropical cyclones since 1958.

"The increasing coastal population means more people are at risk when the next big storm approaches," said Margaret Davidson, director of the NOAA Coastal Services Center in Charleston, S.C. "And in many cases, the majority of these residents have never experienced a hurricane. With the coastal population tool found on the site, emergency managers can get a quick picture of which counties face the greatest potential risk and then plan outreach and education efforts accordingly."

For municipalities or individuals who use geographic information systems, the data can also be downloaded as a GIS file, along with accompanying metadata.



An example of a website query for all tropical storms within 75 miles of ZIP code 14423 (Caledonia, New York)

New Administrative Support Assistant

It's with great pleasure that we introduce our newest employee at NWS Buffalo. On September 4th, Timothy Wright joined the staff as our Administrative Support Assistant.

Tim has extensive experience with over 20 years in the U.S. Army in administrative and personnel management roles. He is a retired Captain with a B.A. in Business Administration, a B.S. in Political Science and a Master's Degree in Business Administration.



Severe Drought Continues Over Portions of New York

Although the area has received some needed rains over the past week, dry weather is expected to return for the first week of October and reinforce the drought conditions across parts of western and central New York.

After a 16 day dry spell, some welcome rainfall spread across the region during the week of September 9-15. One to two inches fell across most areas and this allowed some long dormant lawns and fields to green up again. But, the pattern reverted to its previous chronically dry one with no rain for another 7 to 9 days as high pressure has become anchored over the northeast and eastern Great Lakes region. Sunshine and near record warmth also aggravated the dry conditions with increased evaporation, although the lateness of the season has limited this somewhat due to the lower sun angle and longer nights. More welcome rains again came over the past several days (Sept 25-28) however little or rain is forecast for the first week of October as we return to a dry and warm pattern.

According to the latest US Drought Monitor (Sept. 24) conditions remain at a "D2" status or "severe drought" across the lakeshore counties from Erie and Niagara east through Orleans, Genesee, Monroe and Wayne counties. These areas have received 50 about percent or less of normal rainfall for the entire five month growing season (May 1-Sept. 24).

For example, Buffalo's rainfall total from May 1 to Sept. 27 of 9.79 inches was 51 percent of the normal 19.23 inches. Rochester's total of 8.05 inches was 51 percent of the normal 15.80 inches. These stations are representative of the rainfall status of the region with some areas

U.S. Drought Monitor New York

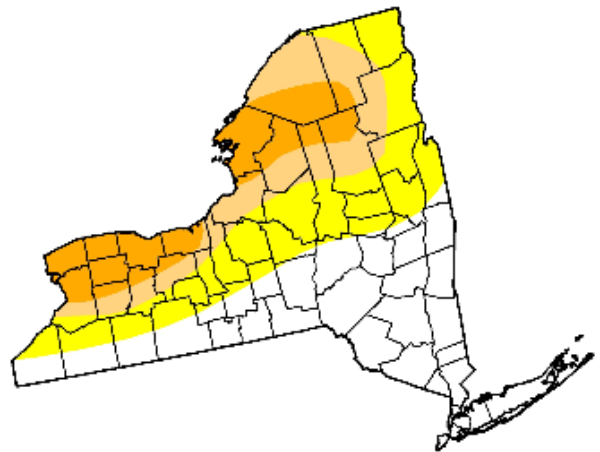
September 25, 2007
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	38.1	61.9	33.0	16.4	0.0	0.0
Last Week (09/18/2007 map)	47.6	52.4	24.4	6.8	0.0	0.0
3 Months Ago (07/03/2007 map)	78.6	21.4	10.1	0.0	0.0	0.0
Start of Calendar Year (01/02/2007 map)	100.0	0.0	0.0	0.0	0.0	0.0
Start of Water Year (10/03/2006 map)	100.0	0.0	0.0	0.0	0.0	0.0
One Year Ago (09/26/2006 map)	100.0	0.0	0.0	0.0	0.0	0.0

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

<http://drought.unl.edu/dm>



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Author: David Miskus, JAWF/CPC/NOAA

just north of Buffalo even drier, for example Tonawanda receiving just over 7.0 inches during this period. Only July saw near normal rainfall with the other months substantially dry.

Another area of "D2" or "severe drought" covers portions of the eastern Lake Ontario Region including Jefferson and northern Lewis Counties. Watertown's rainfall since May 1 has been 7.99 inches...or 56 percent of the 14.30 inch normal.

The US Drought Monitor also surrounds the "severe drought" areas with a "D1" "moderate drought" region which extends across Wyoming, Livingston and Ontario, Northern Cayuga and Oswego counties. This region started the summer off with decent rains, but has been very dry since late July.

The southern tier has been in much better shape. The late spring was dry, but August's 4 to 6 inch rainfall has been sufficient to prevent this area from developing drought status. Another 1 to 3 inches fell during the mid-September rainy period.

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Storm Based Warnings

NOAA's National Weather Service will introduce Storm Based Warnings for tornadoes, severe thunderstorms, flash floods and marine hazards that are more geographically specific for these short-duration weather events. Currently, such warnings are issued county wide. When issuing a warning, the NOAA National Weather Service will specify areas within a county and refer to commonly known landmarks such as highways or rivers. The new Storm Based Warnings will officially take effect October 1, 2007.

Why Storm Based Warnings?

Storm Based Warnings will show the specific meteorological or hydrological threat area and are not restricted to geopolitical boundaries. By focusing on the true threat area, warning polygons (a shape with many sides as depicted on the right) will improve NWS warning accuracy and quality. Storm Based Warnings will promote improved graphical warning displays, and in partnership with the private sector, support a wider warning distribution through cell phone alerts, pagers, and web-enabled Personal Data Assistants (PDAs). The media will be able to display the polygons showing the public at large where the area of maximum threat is, and better depict who or what is at greatest risk.

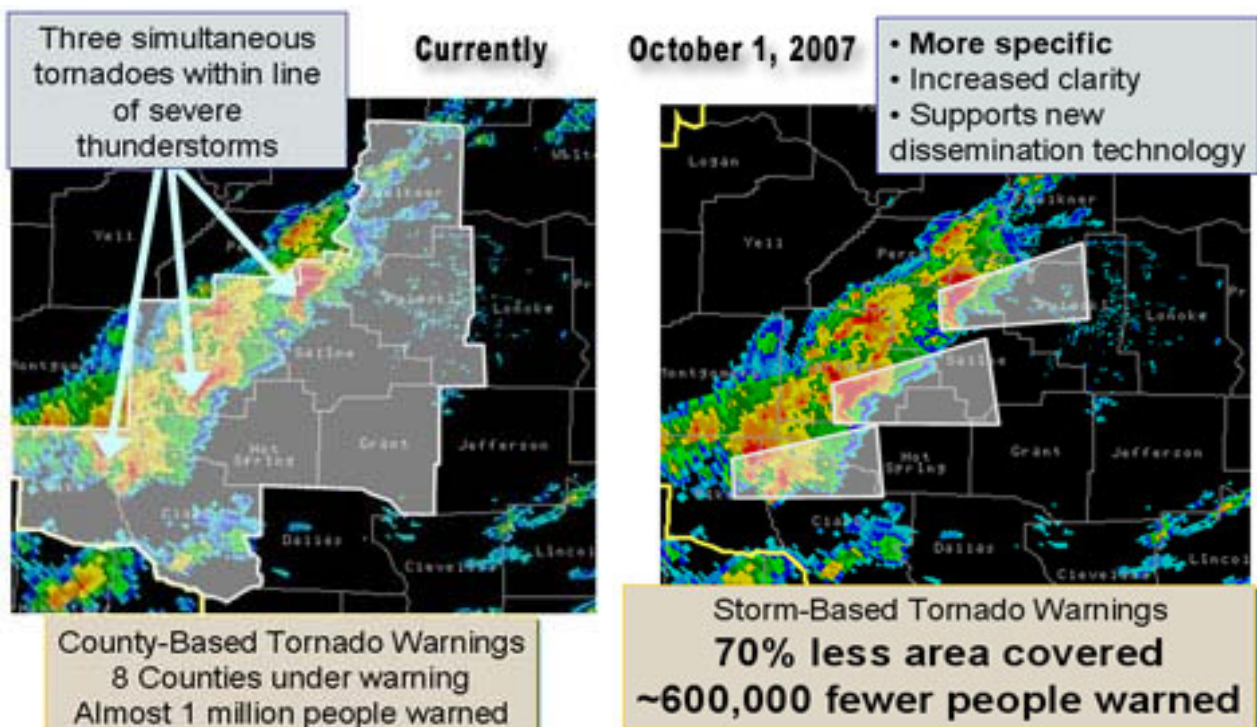
If the typical Storm Based Warning was one-quarter the size of the typical warned county, the economic value to the public due to reduced cost of sheltering is a minimum

of \$100 million per year! Emergency managers will be able to make better decisions on what resources may be required and where. Law Enforcement and Fire Departments can know which areas need to be put on alert. Schools and businesses can more accurately determine whether they may or may not need to activate their tornado procedures and close down operations. Other government agencies and customers, such as the FAA and airlines, will be able to make better risk assessments. For example, airport operators will be able to better ascertain whether or not they need to temporarily shut down an airport.

Short-term Challenges

With any change in service, come a few short-term challenges that must be overcome. The most significant with Storm Based Warnings is there will be times where multiple warnings are in effect for the same county. This possibility must be managed with clear wording in NOAA NWS messages, and by raising the awareness of NOAA NWS customers and partners.

A second challenge is that legacy warning dissemination technologies cater to the 'warning by county' culture. The advent of digital technology has, almost overnight, revolutionized communication. Storm Based Warnings, unlike textual warnings by county, meshes well with digital communication technologies such as Graphical Information Systems (GIS).



Severe Drought (Continued)

(Continued from page 6)

Streamflow levels, river and creek flows were well below normal on September 24. Most were in the lowest 20 percent of historic flow for early September. In fact, several of the Buffalo area creeks were at or near record low flows. The exception was the Allegheny River and some creeks near the Pennsylvania line which were just slightly below normal. The Black River east of Lake Ontario was also running very low with flows at Watertown in the 10 percentile for late September.

Groundwater—groundwater levels were below normal across all of the region, again more so across northern sections and less so along the southern tier. Conditions are not as severe as could be expected due to excessive rains from last winter and early spring.

Soil moisture—the Palmer Drought Severity Index indicated severe drought conditions along the lakeshore counties but ranging up to near normal conditions across the southern tier.

Outlook

There is some relief on the horizon with more frequent frontal passages into early October and simple climatology suggesting that drought conditions should ease somewhat as the autumn progresses as evaporation levels lower significantly. Overall, temperatures should still

generally average above normal for the next two weeks with rainfall near to slightly below. We should expect a continuation of the drought conditions during the next couple of weeks with perhaps a slight improvement.

Precautions

Although water shortages are not widespread, water supplies in a few towns have become stressed and well levels are quite low. There are a few simple common sense precautions you can take:

Water your lawns and gardens early in the morning or in the evening. Evaporation rates are much lower during these time periods and water usage will be more beneficial. Similarly, limit other water related activities such as washing your car.

Your National Weather Service will continue to monitor the situation. Refer to the following websites for further information...

Current streamflows...<http://water.usgs.gov/waterwatch>

The NWS Buffalo website (AHPS section)...

<http://weather.gov/buf> (AHPS section)

The River Forecast Center...<http://weather.gov/nerfc>

We're on the Web!
weather.gov/buf

NOAA's
National
Weather Service



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EDITORS NOTE:

Published quarterly, each of issue of "The Lake Breeze" contain articles about our operations, products and services, and interesting weather submitted by various members of our staff and NOAA Headquarters. If you have a comment about our programs, or an idea for something you'd like to see included in an upcoming issue, we'd like to hear from you. You can email me at judith.levan@noaa.gov.

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