

The Lake Breeze

NATIONAL WEATHER SERVICE BUFFALO, NY
FORECAST OFFICE

Photo Credit: David Church

Volume 3, Issue 1

Spring 2020

Welcome to the latest issuance of The Lake Breeze.

We are approaching Lightning Awareness Week this June and while we have already seen severe thunderstorms in parts of the region, more are expected. Interested in becoming a storm spotter? Flip through for more details.

- The Editor's

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A Note from the Meteorologist in Charge

By Judy Levan

Under the shadow of COVID-19, we make our transition from spring to summer. Delayed a bit by the pandemic, the office staff will be gearing up for the convective season with our bi-annual change of season workshop in just a couple of weeks. These workshops allow us to brush up on those summer skills we haven't had an opportunity to use in a while and remain at the top of our forecasting game.

In a few weeks, we'll be welcoming a new meteorologist to the office and we will have a full roster of meteorologists on staff. Phillip Pandolfo is from Long Island and studied for two years at University of Buffalo (majoring in Physics with a minor in Mathematics) and then got his Bachelor of Science Degree in Atmospheric and Oceanic Sciences from Stony Brook University. He was a student volunteer at the NWS New York City office in Upton, N.Y. -- volunteering over 800 hours in the last 2 years. Phillip recently served as the co-lead of a team of students and faculty from Stony Brook on a NASA IMPACTS Field Campaign. The Investigation of Microphysics and Precipitation for Atlantic Coast-Threatening Snowstorms (IMPACTS) is a NASA program that studied snowstorms along the eastern seaboard of the United States. During high impact winter weather events, they launched weather balloons, recorded surface observations and collected radar data. Phillip will bring a wealth of knowledge and talent to our team. Welcome Phillip!

The pandemic has affected some of our operations at the office. For instance, we've had to cancel all office tours and planned outreach. Our spring SKYWARN training sessions went virtual and around three hundred "attended" those sessions online.

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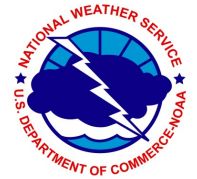
Meet the Observer—Gerald Morczek, COOP Observer, Highmarket, NY

By Dan Kelly

Gerald Morczek was born in Constableville NY. He is the third generation to live in his family's farmhouse in nearby Highmarket. Mr. Morczek graduated from SUNY Morrisville in 1970 with a degree in Natural Resources and Conservation. He was on the SUNY Morrisville wrestling team and loves to show his school pride by wearing his Morrisville sweatshirt. He has fond memories of large meals after wrestling meets.

Gerald learned a lot about weather from the "old timers" on the Tug Hill Plateau and quickly developed a passion for it. In an area that typically receives over 200 inches of snow per year (208.1 inches to be exact,) how could you not like weather in Highmarket? In 1985, Gerald started taking precipitation readings for the Hudson River and Black River Regulating District

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Meet the Observer (continued)



Gerald Morczek of Highmarket NY is presented a 30-year Length of Service Award. He is standing in front of his standard and recording rain gauge.

(HRBRRD.) In September that year, he became a Cooperative Weather Observer for the National Weather Service and since then has reported every day. In the winter, he used to get up very early to plow snow for Lewis County and would always take his weather observation before going to work. His report was always the first received, before 5 am every day. Since retiring from the county, his observation comes in just before 6 am which still remains the first or second report of the day. The only time we do not see his observation is if there is an issue with the reporting system. If that's the case he would call his report into the HRBRRD's Watertown office. They look forward to Gerald's calls or messages as he always has a good story to tell.

The Tug Hill Plateau can see rough winter conditions. It is common for snowfall rates to reach 2-4 inches per hour in intense lake effect snow bands. With an average yearly snowfall total of 208.1 inches per year, Gerald has to snow blow a path to his rain gauges.

Here are a few of his memorable weather events from Highmarket:

- On January 6th, 1988, he observed a 24-hour snowfall of 47.5 inches and 69.4 inches over a 36-hour period (Jan 5th & 6th). The day after the storm, the snow depth was 54 inches. Gerald remembers driving his tractor down his road and the snow was piled as high as his lap!
- In August 2016, a tornado struck the Highmarket Church which is less than a mile north of Gerald's location. The tornado tore through the steeple. People that were across the street at the Highmarket Inn said it sounded like a freight train.

There are a few weather proverbs he goes by. In the summer in Highmarket, if there isn't dew in the morning then it will rain later in the day. That was the case on May 28th this year. If you can clearly see the Adirondack Mountains from across the Black River Valley in Constableville then expect active weather later in the day. If the mountains seem hazy then expect to have good weather.

A few years ago, Gerald retired from his job as a snowplow driver and maintenance worker from the Lewis County Highway Department. While officially retired, he still helps plow during significant snow storms. Mr. Morczek has been a volunteer firefighter since 1973 risking his life to save others. He is very active in his local church, St. Mary's in Constableville. Gerald has a passion for airplanes and has built amazing model planes, some can even fly. He enjoys helping out his son at the farm and caring for his grandchildren.

Time to Hit the Water– Safely

By Jason Alumbaugh

Boating and swimming will be in full swing before you know it. It is great to head to the beach or take a dip in the Great Lakes, but it is also good to do it safely. In addition to swimming and boating safety tips, knowing the weather forecast is a great way to avoid trouble while at the beach or on the water this summer. The National Weather Service has many sites to allow you to stay ahead of the weather when making your summer recreation plans. Now, we'll highlight a couple of these sites.



WEAR IT
A program of the National Safe Boating Council

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A Note from the MIC (continued)

We continue to support our core partners, including emergency management, in the weather and non-weather hazards they may deal with. We have adjusted our staffing, trying to minimize the number of folks in the office at one time while practicing social distancing while in the office. That said, a minimum of two forecasters are always in the office – more if there's active weather – keeping a constant weather watch, making forecasts and issuing any needed headlines. Throughout this pandemic, your National Weather Service will continue to be there for you!

Be well. Stay safe.

Q & A with NWS Buffalo - David Thomas, Meteorologist

By Heather Kenyon

How and when did you become interested in meteorology?

Unlike most meteorologists, there wasn't a big storm or weather event that made me want to get into the field, nor did I know at an early age that I wanted a future in meteorology. I remember in 9th grade Earth Science class in Geneva, N.Y. people starting asking what career you might want. I loved earth science and thought I could either study rocks or weather. I wasn't aware of any careers involving rocks so the beginning of my weather career started to take shape when I was 15 years old.

Where did you go to school for becoming a meteorologist?

I went to school at the State University of New York at Albany. I obtained a Bachelors and Masters degree in Atmospheric Science.

What is the best part of the job?

That is a good question. The best part is meeting and working with different people. I enjoy communicating a forecast, not only to the general public but also to various outlets to help them understand the impacts of a big storm. Also, I like talking to our partners about climate data. I work with a great group of forecasters in Buffalo as well.

What is the most challenging part of the job?

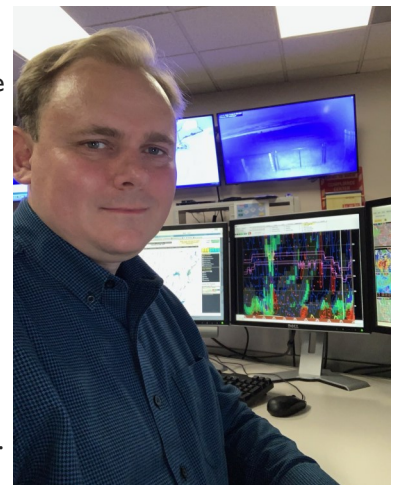
The most challenging part of the job would have to be shift work. While there are positives to working different hours every week, it takes you away from social events such as my kids regular activities and holiday gatherings with families.

During your career at the National Weather Service, what weather event stands out and why?

The weather event that stands out in my National Weather Service career so far would be June 1, 2013. This was a very warm and steamy day that ended with strong thunderstorms and torrential downpours that dropped over an inch of rain at the Buffalo airport and much more to the southeast of the airport. Why does this event stand out? The torrential downpour occurred 10 minutes after the end time of my outdoor wedding. I've never seen it rain so hard and my wife and I somehow managed to stay dry. Great planning right?

What do you like to do outside of work?

My boys keep me busy outside of work. We love the outdoors. I like to take bike rides, try my hand at gardening and do a little reading. My wife loves to cook so I stay out of the kitchen.



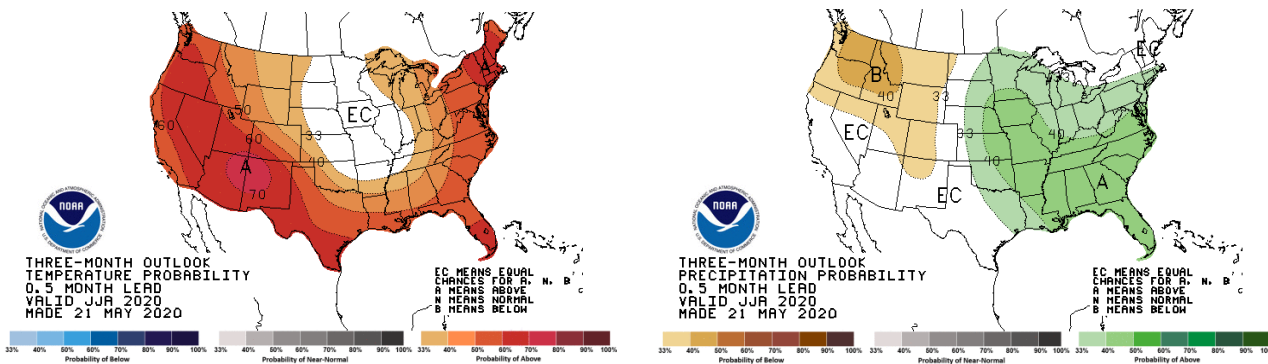
**David Thomas, Meteorologist
forecasting at NWS Buffalo**

2020 Summer Seasonal Outlook

By David Thomas

The summer months for Western and North Central New York are defined as June, July and August. For the past 5 years, summer's average temperature pendulum has swung back and forth for our climate sites. The odd number summers were cooler than the even numbered summers. What does the summer of 2020 have in store for us? The Climate Prediction Center (CPC) located in College Park, Maryland has weighed the odds towards a summer with above normal temperatures. A typical summer day in Western and North Central New York will have high temperatures in the mid 70s to around 80°F. Normal low temperatures during the summer months will drop back into the mid 50s to around 60°F. Taking the high and low temperatures from all summer days, odds will favor the average temperature this summer will be warmer than normal.

Precipitation last summer was near to above normal, though there were several pockets across the region that remained below normal. One of these pockets included the Rochester area, where precipitation last summer was almost 2 inches below the summer normal. There are no signals this year to suggest an abundance or lack of rainfall, and CPC forecasts equal chances for above or below normal precipitation for much of our region. Large scale patterns suggest the Southern Tier has the greatest odds of above normal precipitation, and this area falls within the 33 to 40% probability of above normal precipitation.



One phenomena that could help swing our precipitation above normal is the influx of deep tropical moisture. The Climate Prediction Center is forecasting an active year in the tropics and depending upon the tracks of these tropical systems, they could bring deeper moisture across our region. CPC's official forecast calls for 13 to 19 named storms, of which 3 to 6 could strengthen to major hurricane status (category 3 or higher) this year.

In summary the signals and trends in the atmosphere favor a warmer than normal and near to above normal precipitation summer for Western and North Central New York.

Lightning Awareness Week and Hazard Simplification

By Mike Fries

While Severe Weather Awareness Week and Safe Boating Week started off the warm season safety campaigns at the National Weather Service, Lightning Safety Awareness Week arrives at the start of summer this year (June 21-27.) Lightning Safety Awareness week was started in 2001 to call attention to the numerous annual deaths due to lightning. In the intervening years, lightning deaths have dropped by about one half. This reduction in fatalities is largely due to greater awareness of the lightning danger and people seeking safety when thunderstorms threaten.

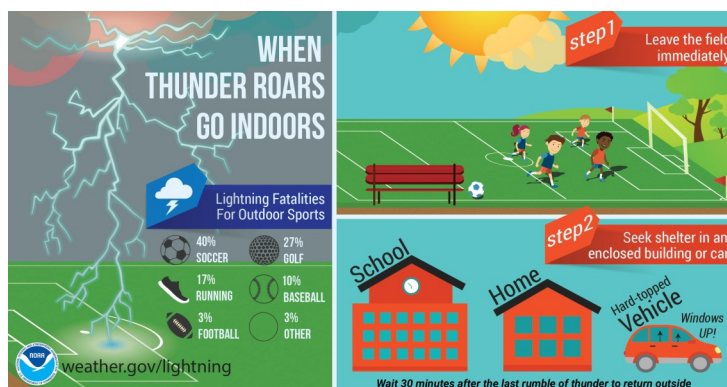
Much like other safety campaigns the National Weather Service holds throughout the year, during each day of the week, we will highlight different types of information on lightning, as well as



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Lightning Awareness Week and Hazard Simplification (continued)

safety tips when lightning starts. This year's campaign will go day-by-day with a focus on An Introduction to Lightning Safety (Sunday), The Science of Lightning and Thunder (Monday), Lightning Safety Outdoors (Tuesday), Lightning Safety Indoors (Wednesday), Lightning Safety and Sports Activities (Thursday), Medical Effects on Lightning Victims (Friday), and Protecting Your Home from Lightning (Saturday). Posts about these will be featured on our Facebook page, Twitter feed, and via public information statements from our office.



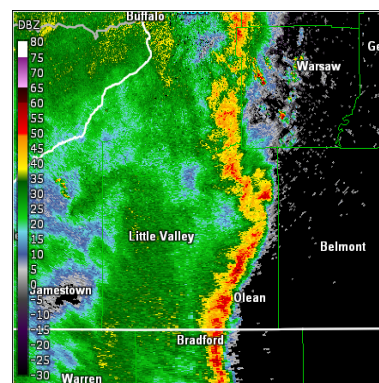
In addition to Lightning Awareness Week, a proposal to change services provided by our office has started from the National Weather Service Headquarters. This change is being called “hazard simplification.” Social science research has told us that the watch/warning/advisory paradigm the National Weather Service uses is confusing to users. In general, users aren’t fully grasping the differences between the terms. In order to help alleviate this problem, the National Weather Service is proposing to change this paradigm such that only watches and warnings will be issued, eliminating all advisories. More information on this proposal can be found at https://www.weather.gov/media/notification/ref/Hazard_Simplification_Proposal.pdf. Feedback from the public will be solicited this summer so watch the “Top News of the Day” on our webpage for your chance to provide valuable feedback to us about these changes.

Quasi-Linear Convective System (QLCS)

By Dave Zaff

If you've ever read our forecast discussions, located at www.weather.gov/buf, you'll know that meteorology is full of interesting acronyms. For the thunderstorm season, one that occasionally pops up is, QLCS and is short for (Q)uasi-(L)inear (C)onvective (S)ystem. This is a type of thunderstorm complex that roughly takes the shape of a line over time. Like any language, meteorological words and phrases morph and change with time. The term QLCS appears to have originated in the 1990s, likely from research related to the increased radar coverage associated with the NWS Modernization. But QLCS have always been around. It's just a general classification of a broader category of storms called MCS, or (M)esoscale (C)onvective (S)ystem.

Western NY gets numerous weak QLCS events over the years with stronger systems generating severe weather. While some of these events can produce hail or even a brief tornado, the most common type of severe weather associated with QLCS's are strong winds. Depending on the speed and direction of the overall system, flash flooding may also result from parts of a QLCS. The “Q” in QLCS is often what makes these systems interesting and potentially cause severe weather. In order to understand this, one can first focus on the basic mechanisms of a single storm, which is essentially the part of the water cycle we all learned about in elementary school. An updraft forms as warm air rises, then cools and con-



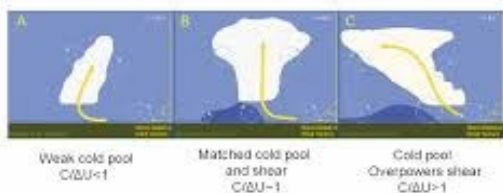
A QLCS shown on kbuf radar.

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QLCS (continued)

denses into rain and becomes the storm's downdraft. If you put this into motion and make a line of storms, a downdraft will eventually affect the updraft ahead of it. When coupled with the larger scale environment, the downdraft may enhance the low level flow partly responsible for the storm movement in the first place. The resulting RIJ, or (R)ear (I)nflow (J)et may cause a portion of the line to bow out. At this point, the line of storms isn't quite linear anymore, so it's termed a QLCS.

Generic Lifecycle of a QLCS



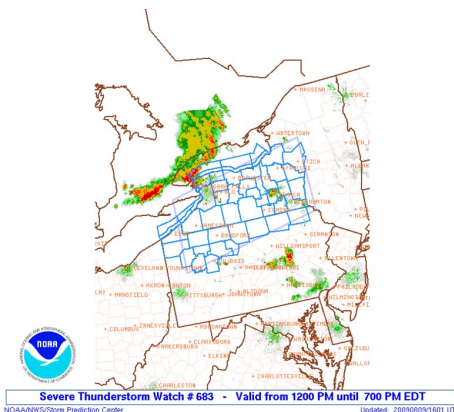
A schematic of an updraft and eventual downdraft of a storm. Stronger storms will result when the downdraft doesn't cut off the updraft.

A linear system of storms can quickly become quasi-linear, a QLCS, with a bowing segment that forms from the combination of a low level jet and part of a storm's downdraft. Brief tornadoes are possible at the leading edge of these lines, although other brief spin ups are possible, typically on the poleward side of the bow.

A particularly strong QLCS moved through western NY on August 9, 2009 (image on the right.) It resulted in a brief tornado near Cuba and Rushford NY and included widespread reports of wind damage. This particular event also set the stage for a major flash flooding event that followed after a second QLCS moved into the area later that night.

Now that we have a QLCS, there are a number of interesting things that can happen. Sometimes the downdraft can completely cut off the updraft. This will soon end the storm system altogether. But other times, the downdraft can enhance the updraft and intensify the storm, sort of like a feedback mechanism. When coupled with the RIJ, you can create a bowing segment with locally strong, sometimes damaging winds. Brief tornadoes may also result, particularly along the leading edge of the bowing segment of the QLCS. The QLCS can also become fragmented. When repeating the above updraft and downdraft scenarios, damaging winds may result near the breaks in these linear systems. Brief tornadoes are possible here as well.

NWS Forecasters across the country have been trained to carefully look at these features so they can quickly diagnose and isolate the stronger storms with appropriate weather statements or warnings. We'll never use an esoteric acronym like QLCS in a warning, but it often is the basis for one.



Summer Weather Safety

By Steve Welch

The recent stretch of warm weather has been welcomed by many people across Western and North Central NY. While we recently went through a colder than normal May, the summer months are here and people want to get outside. With the warmer weather come different types of hazards that can cause dangerous situations. From swimming in cold water to working in extreme heat, they can all pose dangers if not properly prepared.

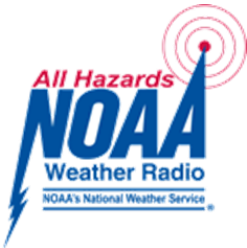
As the weather turns warmer and more humid, it can be enticing to cool off in local streams and nearby bodies of water. People might not realize that those bodies of water can be cold during the start of summer. Many sources of water come from snowmelt and/or cold springs that runoff into area lakes and streams. A cool start to the season may

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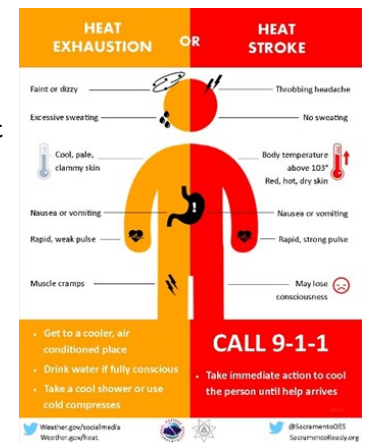
Summer Safety (continued)

keep the water cold enough to be dangerous. Cold water may cause your body to become hypothermic or make it difficult to swim. It is highly suggested that anyone going into local streams or bodies of water to wear a properly fitting Coast Guard approved Personal Flotation Device. Not only is this important when the water is cold but it is important whenever you find yourself around water.

To be prepared for impending weather hazards on area waterways use a NOAA Weather Radio (NWR). By having an NWR handy you can be alerted to strong thunderstorms that may cause dangerous conditions for a small craft. These alerts would come across the airwaves as a Marine Weather Statement or Special Marine Warning. When a thunderstorm requires one of these two products, the safest thing to do is to return to land or safe harbor. The smaller the boat/vessel you are on the more likely it is to be impacted by strong winds and waves associated with the strong thunderstorm. In addition to wind and waves, the threat for lightning, hail and waterspouts/tornadoes are possible with thunderstorms that move over waterways. All of these hazards should be taken seriously to protect life and property.



Excessive heat can be a serious cause for concern, especially when combined with high humidity values. When a **Heat Advisory** or an **Excessive Heat Warning** are issued, the proper precautions should be exercised if planning outdoor activities. A Heat Advisory is issued by NWS Buffalo when the combination of high temperatures and humidity cause heat index values between 95-104 degrees Fahrenheit. An Excessive Heat Warning is issued by NWS Buffalo when the combination of high temperatures and humidity cause heat index values above 105 degrees Fahrenheit. If exposed to the heat for too long, a person can be susceptible to heat exhaustion which may lead to heat stroke. Some of the symptoms of heat exhaustion include feeling faint or dizzy, excessive sweating, muscle cramps, and nausea or vomiting. Anyone who experiences these conditions should get out of the heat and into an air conditioned area immediately. Additionally, drinking water, taking a cool shower, or using a cool compress, will help to alleviate symptoms of heat exhaustion. Heat stroke is more serious and occurs when someone who is suffering from heat exhaustion can't relieve their symptoms and can't get out of the heat. Symptoms of heat stroke include, but are not limited to: throbbing headache, no sweating, a body temperature above 103 degrees Fahrenheit and the person appears to be red, hot or have dry skin, nausea or vomiting with a rapid strong pulse. If the symptoms of heat stroke are exhibited by someone then immediate medical attention is needed. In the meantime, all attempts to cool down that person should be made until help arrives.



Time to Hit the Water– Safely (continued)

If going swimming or heading to the beach, check out weather.gov/beach/buf. This site provides experimental color coded swim risk along the shorelines of the Great Lakes. You can also click on the umbrella icons to get a specific point forecast which also includes the forecasted UV index and a look at the water temperatures. If venturing out of our area, you can also use this site to see the forecasted swim risk on the rest of the Great Lakes and also the potential for rip currents along the Gulf of Mexico and the Atlantic Seaboard.

Another web site that is useful, especially for those boating and fishing on the waters of the Great Lakes is weather.gov/greatlakes. On this site, you can see the latest forecast of winds, waves, weather and associated hazards for any of the nearshore and open lake waters the Great Lakes. Later this summer this site will be revamped and will also feature a more robust mobile friendly format.

Boating Word Find

L W N A P U U P H P T C M
 Y B A F F V F M E F E Y S
 A P L T L J Y D Z I K D T
 E N B M E B G E E S C I A
 U T T T S R N L E H A Y R
 Z M S E Z I S O R I J B B
 Z K V P H A W K B N E M O
 I A E S P O R T I G F J A
 W C N D O K T L M K I R R
 L U S A I L B O A T L K D
 S A N I R A M R Y K A M K
 R E L J L M T S S L E V W
 H N D A I H E W J P Q X A

The following boating words are hidden. See if you can find all listed words

- | | |
|-----------|-------------|
| Jet ski | Waterski |
| Marina | Port |
| Sunshine | Fishing |
| Breeze | Life Jacket |
| Lake | Sailboat |
| Starboard | Waves |

Word Scramble

Unscramble the words on the left, placing one letter per box to form a word associated with going to the beach. Using the letters that fall within the circled boxes, answer the question on the right.

LESTAC

○		○	○			
---	--	---	---	--	--	--

NINUSSHE

○							○
---	--	--	--	--	--	--	---

FULFB

		○	○	○
--	--	---	---	---

REHOS

		○	○	
--	--	---	---	--

HARIC

		○		○
--	--	---	--	---

Using the letters within the circles at left, what National Weather Service product should you check before swimming at the beach?

**NATIONAL
WEATHER SERVICE
BUFFALO NY**

587 Aero Drive
Cheektowaga, NY 14225
(716) 565-0204
www.weather.gov/buf
Email: buf.webmaster@noaa.gov



“The National Weather Service provides weather, water, and climate data, forecasts and warnings for the protection of life and property and enhancement of the national economy.”



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SKYWARN® News

By Jon Hitchcock, Meteorologist



**SKYWARN
WEATHER.GOV®**

The Skywarn® spotter program began in the 1970's when forecasters realized the need for real time reports from severe thunderstorms. Technology has advanced significantly since then, with powerful Doppler radar, high resolution satellites, detailed atmospheric modelling, and a more complete understanding of physical processes that produce severe thunderstorms. Despite all these advancements, there is still no substitute for a timely spotter report from a trained spotter in the storm. Skywarn® spotters can tell us in real time how large the hail is, if strong winds are producing damage, and if heavy rain is resulting in flooding. Our Skywarn® training is free and open to everyone, and covers the basics of severe thunderstorm formation, tornado formation, hail, flooding, severe weather safety, and how to report to the National Weather Service.

Our spring 2020 Skywarn® training plan started out like any other year, with about a dozen training sessions planned across the region. During March we had to make rapid and sweeping changes to our plans, like many other aspects of our lives due to the spreading global pandemic. We made the decision to move all of our Skywarn® severe weather spotter training to a virtual format. Five live training sessions were held online, including one during the daytime to accommodate those who could not attend virtually during the evening. Fortunately, we have gained some experience in online Skywarn® training over the past few years, offering a few online sessions each year for those that could not attend an in-person training session. We leveraged that experience to provide quality training to our Skywarn® spotters in a virtual format.

The online training was well received by those who joined us virtually. We trained a total of 252 Skywarn® spotters during the five online sessions. Spotters were trained from all 16 counties in the area of responsibility. We were very happy with the great turnout, training a similar number of spotters as we have the past few years despite the move towards the online only format. We have had several days with severe thunderstorms since the spring Skywarn® spotter training was completed, and our office has received many valuable severe weather reports from our newly trained spotters. We appreciate the help as we strive to keep the public safe from severe weather! For more information, visit www.weather.gov/buf/Skywarn

The Lake Breeze—Spring 2020 Contributors:

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