# The Lake Breeze

## NATIONAL WEATHER SERVICE BUFFALO, NY FORECAST OFFICE

**Welcome to the resurgence issue of THE LAKE BREEZE newsletter.**

**After taking a few years off, we are back and happy to share what's going on at NWS Buffalo.**

**We hope you enjoy!**

**-Heather Kenyon, Meteorologist and Editor**

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## A Note from the Meteorologist in Charge
### By Judith Levan

The National Weather Service (NWS) office in Buffalo opened in 1870. Our mission has remained nearly the same since the beginning – to provide weather and water forecasts and warnings for the protection of life and property.

Our vision is one of a Weather Ready Nation – building community resilience in the face of increasing vulnerabilities to extreme weather, water and climate events. The NWS works at all levels, local, county and state and provides forecast information that better supports emergency managers, first responders, government officials, businesses and the public to make fast, smart decisions to save lives and property and enhance livelihoods. New science and technology in NWS operations are improving forecasts and ultimately increasing weather-readiness.

A part of building a Weather Ready Nation also involves every individual. You can do your part in three easy steps – know your risk, prepare, and be an example for your community.

Understand the types of hazardous weather that can affect where you live and work and how the weather could impact you and your family. Make sure that you and your family are prepared for severe weather and that includes making sure you can receive emergency messages and creating a disaster supplies kit. Be a positive influence on your community by sharing your weather preparedness story. Let your friends and family know what you did to become weather-ready.

**Together WE CAN be a Weather Ready Nation!**

## Meet the Observer—Carolyn Yerdon, Coop Observer, Redfield NY
### By Dan Kelly

With all eyes on Erie PA, and their quest to break the seasonal snowfall record of Buffalo, one location east of Lake Ontario, received nearly twice the snow that Erie received! Erie finished the season with 198.5 inches, while Carolyn Yerdon of Redfield 8N (8 miles north of Redfield, NY) received 387.9 inches of snow for the 2018 winter season! Despite being 32.3 feet of snow, this was only the 3rd snowiest winter season since Mrs. Yerdon began keeping records

Carolyn Yerdon reaching her 3rd snowiest season.

## Meet the Observer (continued)

in 1995. The snowiest winter was her second year of keeping records (1996-1997) when 424.3 inches, or 35.4 feet of snow fell! The second snowiest was 2006-2007 with 392.5 inches of snow.

Mrs. Yerdon has been providing invaluable snowfall reports to the National Weather Service since November of 2009 through the Community Collaborative Rain Hail and Snow network (CoCoRaHS – http://www.cocorahs.org), then became a NWS Cooperative Observer in September 2017. Carolyn takes pride in ensuring that her snowfall observations are as accurate as possible ensuring that these snow reports are properly documented for future generations. "*While it can be quite time consuming there was something that told me I was doing a good thing and I started getting incredible positive feedback.  Not just from locals, who were excited to hear their town included in local reports, but also from professionals such as meteorologists and scientists that used my data in their daily jobs. A few years back, I was also contacted by a local author and my snow info was published in two of his weather themed books*" Carolyn says.

*"I love knowing that our little town is acknowledged around the world at times because of our unique snowfall totals."*

While many people think snow is an annoyance when it falls and spring can't come soon enough, Carolyn actually enjoys the snow and tries to have fun with it. She says "*I also realized that snow is not EVERYONE'S favorite thing and it is usually associated with a lot of negativity. I decided to put a little twist to that and tried to take fun pictures that might make people smile at the snow for a change. While I have been called all kinds of crazy (and that's ok,) I like to think I bring a few extra smiles to some that don't always smile at the snow.*"

Carolyn continues, "*I try my best to get photos that represent how deep the snow is, as it is hard for some to comprehend feet of snow like we get. I love hearing from people in sunny places that they enjoy seeing the snow now that they don't live in it anymore.  I love knowing that our little town is acknowledged around the world at times because of our unique snowfall totals*".

Redfield is located on the western side of the Tug Hill, east of Lake Ontario, which is a prime location for lake effect snow. Lake effect snow occurs when cold air flows over a relatively warm large body of water. The relative warmth of the body of water, in this case Lake Ontario, provides moisture as well as heat to fuel bands of lake effect snow. The Tug Hill, as well as the Chautauqua Ridge, east of Lake Erie, only enhance the snowfall totals. This makes Redfield, NY, a perfect location for significant amounts of snow. As residents of Western and Central New York know, lake effect snow bands can produce very heavy snowfall over a small area. One location will be picking up feet of snow, while another location less than a mile away will only receive inches of snow! This was evident on December 25th and 26th of 2017, when Carolyn received 62.2 inches of snow over a 48 hour period! This preliminarily breaks the 48 hour snowfall record for Oswego County – the previous record was from Bennetts Bridge, when 57.0 inches of snow fell in 2 days in February 2008. The National Centers for Environmental Information (NCEI) needs to certify the record during their annual record review this summer.



Carolyn Yerdon after 62.2 inches of snow fell in 48 hours on 12-27-2017. This set a preliminary 48 hour record snowfall for Oswego County, NY

## 2018 Fire Weather Partners Meeting
*By Shawn Smith*

NWS Buffalo held its annual Spring Fire Weather Partners Meeting on March 7th, 2018. This meeting is held between the NWS Buffalo Fire Weather Program Leader and local fire weather partners ahead of the fire weather season, which for Western NY is approximately March-May. What is fire weather? Fire weather is the dangerous combination of gusty winds, low relative humidity and lack of recent rainfall which when combined with dry fuels would make any fires that develop spread rapidly and be hard to contain. NWS offices issue Fire Weather Planning Forecasts and Red Flag Warnings to help alert local partners of the potential for critical fire weather conditions. During this year's meeting, the Fire Weather Webpage, Spot Forecasts and Red Flag Warning Coordination was reviewed with fire partners from the New York State Department of Environmental Conservation (NYSDEC) and New York Office of Fire Prevention and Control (OFPC). Fire partners were also updated on the status of a New York Wildfire Climatology study being worked on by the Fire Weather Program Leader as well as a review of the weather during the 2017 Fire Weather Season. Fire partners were also introduced to the new NWS Buffalo Warning Coordination Meteorologist. Finally, two presentations were also given by the fire partners. The NY OFPC presentation shared information on how NWS forecasts are used in daily inspections, investigations, response and training and a presentation given by the Eastern Area Coordination Center included a Spring outlook for the 2018 Fire Season. This meeting is a great example of collaboration and sharing of information between the NWS and our partners.

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## Q & A with NWS Buffalo - Michael Fries, Warning Coordination Meteorologist
*By Heather Kenyon*

**We recently added Michael Fries, Warning Coordination Meteorologist to our team at NWS Buffalo. I sat down with him to get to know him a little better.**

**What interested you in becoming a Warning Coordination Meteorologist in Buffalo?**
Growing up in the Great Lakes region, it was lake effect snow that first got me interested in meteorology all the way back in the third grade. I never really wavered from wanting to be a meteorologist all the way through when I finished college and started working for the National Weather Service. Beyond that, when you think of a city that gets lake effect snow, Buffalo is the first one that comes to your mind as being one of the only bigger cities that gets substantial amounts of it. When you combine that with experiences I had working with different companies and agencies, it gives you a real appreciation for how important weather warnings and environmental data can be to a whole variety of organizations in the public and private sector. This job gives me the opportunity to work with a whole array of those organizations, help them prepare for hazardous weather, and help to mold the messages from our office in a way that's increasingly useful to our partner agencies and the general public.

**What are you looking forward to the most as WCM in Buffalo or what's the most fun part of your job?**
The best part of this job is that what you need to do changes on a daily basis. You may go from doing a SKYWARN® presentation to a meeting with emergency managers to doing school outreach to working with the forecast all in the span of a day or two. It keeps the work fresh and keeps you fresh. There's never a dull moment.

**I hear you have worked in many NWS offices around the country. How has that shaped your NWS career?**
It's true. I started my career at what was then the Hydrometeorological Prediction Center (now Weather Prediction Center) outside Washington, DC. After working there a bit, I knew I wanted to work in a field office rather than a national center. I made the jump to the field all the way out west in Spokane, WA. Working in the mountains was an immense challenge, but I really reveled in the opportunity. I worked out west for six years before moving back east for a job in Pittsburgh, PA. After that, Buffalo came calling, and the rest is history.

**What do you like to do outside of work?**
I'm a big travel fanatic. I enjoy going all over the country and world to experience new places. I've been to five continents so

## Q & A with NWS Buffalo (continued)

far, and I hope to add a sixth soon. I think Antarctica may be off the list, though. Beyond that, I enjoy food, and it certainly seems Buffalo has a lot of unique cuisine to sample.

**What is your dog's name?**
In the food theme, my dog's name is Padma. I've been watching Top Chef since it started on the air, and it's hosted by Padma Lakshmi. Seeing as my dog is almost 9 years old now, she was born when I probably was most interested in the show. and hence got the name Padma.

## 2018 Summer Seasonal Outlook
*By David Thomas*

The summer months of June, July and August 2017 featured near normal conditions across Western New York, with respect to temperature and precipitation at Buffalo N.Y. Precipitation increased to well above normal across the North Country with Watertown N.Y. recording its' wettest summer ever.

What does the summer of 2018 have in store for us? The Climate Prediction Center located in College Park, Maryland has weighed the odds towards a summer with above normal temperatures and above normal precipitation. Odds favor a warmer summer than 2017, though this warmth may also contain a few more showers and thunderstorms than normal. El Niño-Southern Oscillation (ENSO) conditions are expected to be neutral as we start the summer then tilt towards El Niño conditions late in the summer and through the fall months. Analyzing past summers with neutral ENSO conditions showed a strong signal towards a summer with above normal warmth for our region. For instance, past summers with neutral ENSO conditions reveals 70 percent of these summers in Rochester, N.Y. had above normal temperatures. This supports the CPC forecast, though many more signals go into a summer outlook.
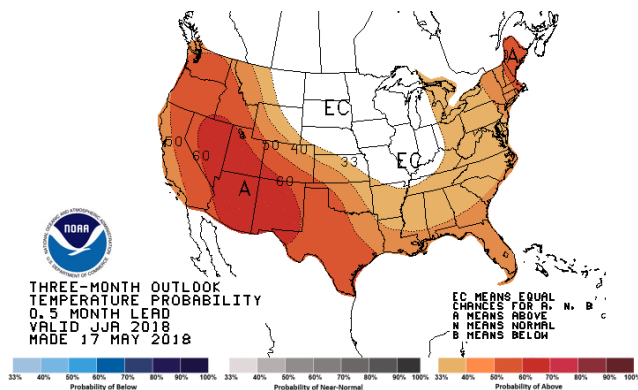
The three-month temperature outlook for June, July and August 2018 favors above normal temperatures for the Northeast United States.
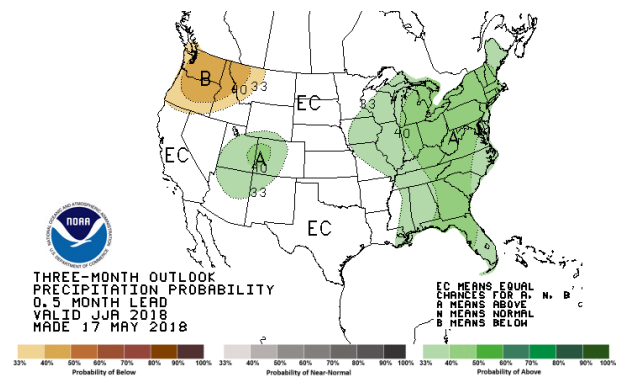
The three-month precipitation outlook for June, July and August 2018 favors above normal precipitation for the Northeast United States.

Traveling along the East Coast this summer? These warmer and wetter than normal temperatures and precipitation forecasts extend along the entire east coast. Speaking of coastline, the 2018 Atlantic hurricane season prediction has been issued and forecasters are predicting a 75-percent chance that 2018 will contain near or above normal activity. A developing weak El Niño and near normal sea surface temperatures across the tropical Atlantic are factors steering this forecast.

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

## 26th Annual Canada/US Great Lakes Operational Meteorology Workshop
*By Dave Zaff*

NOAA/National Weather Service and Environment and Climate Change Canada held the 26th Annual Great Lakes Operational Meteorology Workshop in Cleveland, OH, from 1-3 May 2018. Meteorologists, researchers, broadcasters, students, and other weather professionals gathered in Cleveland for a two and a half day workshop where 31 presentations were shared with over 70 attendees.  Presentation topics included severe convective weather, lake effect snow, numerical weather prediction developments, Lake Ontario flooding, and Weather Ready Nation (WRN) in the Great Lakes.  Scott Linstrom, from the Cooperative Institute for Meteorological Satellite Studies (CIMSS) at the University of Wisconsin-Madison Space Science and Engineering Center, was the Keynote speaker.  He provided an excellent presentation on the status and recent uses of the newly launched GOES-16.   Locally, Judy Levan, the NWS Buffalo Meteorologist in Charge, and forecaster David Church provided presentations.  Judy's talk covered last year's lakeshore flooding event around Lake Ontario.  David talked about verification results of locally created experimental lake effect polygons.
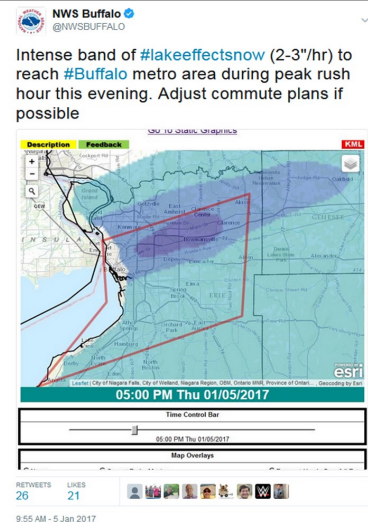


A post from the NWS Buffalo Twitter account showing where the intense lake effect band will be located using Lake Effect Polygons

## 2017-2018 Winter Summary
*By Steve Welch*

After a warmer than normal winter of 2016-2017, the outlook for the winter of 2017-2018 was also for above normal temperatures and precipitation.  The ENSO (El Nino/Southern Oscillation) cycle for the winter was that of a weak La Nina where a cooler than average sea surface temperature is present near the Eastern Equatorial Pacific Ocean.  This pattern of a weak La Nina usually supports cooler than normal temperatures for Western New York.

Thanks in part to a very warm February, the winter turned out to be near normal with temperatures slightly cooler than average in Buffalo and Watertown, and just above average in Rochester.  Other than February, every month at each of the three climate locations were at or below normal for temperatures, except one, January in Rochester, which was 0.3 degrees above normal.  Precipitation for the winter was above normal at both Rochester and Buffalo, but well below normal at Watertown.  Snowfall for both the Rochester and Buffalo Airports were near twenty percent above normal from October through April.  The Buffalo Airport received 112.3" of snow, which is 17.9" above the normal of 94.4".  The Rochester Airport received 120.5" of snow, which is 21.4" above the normal of 99.1".

*"The Buffalo Airport received 112.3" of snow, which is 17.9" above the normal of 94.4". The Rochester Airport received 120.5" of snow, which is 21.4" above the normal of 99.1" ."*

Lake effect snow didn't really ramp up until December, as there was just one lake effect event in November with areas east of Lake Ontario picking up the most snow on November 19-20th. During the month of November, Buffalo received just 0.1" of snow and Rochester received 2.6" of snow.  Starting in December, every month through April for Rochester and Buffalo experienced above normal snowfall except for February in Rochester.  For Cooperative Observer snowfall amounts from the winter, December and March were the months with the most locations reporting above normal snowfall amounts.  In all, there were 12 lake effect events that affected the Buffalo County Warning

## 2017-2018 Winter Summary (continued)

Area during the winter of 2017-2018.  This is two more lake effect events than the normal of ten for an average winter.

**Snowfall**
The winter started off slow for most of Western and North Central New York with only one lake effect snow event through the end of November, and most locations receiving below normal snowfall for the month.  Snowfall in December was well above normal for almost all of Western and North Central New York.  There were six lake effect events for the month of December that dropped several rounds of lake effect snow on different areas of Western and North Central New York.  Two cooperative observer locations received very high snowfall totals for December 2017, they are Perrysburg, NY with 126.4" and 8N Redfield, NY with 160.3"; both of these amounts are greater than amounts received for the entire winter for some other areas.  The month of January saw near normal snowfall amounts across much of the area, with some areas having slightly above or below normal snowfall.  The Buffalo and Rochester Airports were above normal by 5.9" and 4.7" respectively.  January 2018 brought three lake effect events across Western and North Central New York.  Snow in February was near normal.  The last two lake effect events of the season occurred in February, both of which impacted areas east of Lake Ontario the greatest.

Widespread synoptic snow events were certainly present during the winter of 2017-2018.  The first event occurred on December 11-13th, when a synoptic system moved through the area and a transition to lake enhancement occurred as the storm passed.  Another synoptic system moved through and transitioned to lake effect snow from December 24-26th, with this event bringing significant snowfall to the more favored lake effect areas.  Other synoptic events were fairly well spread out throughout the winter with the exception of January where no major synoptic event impacted the Western and North central New York area.  The largest synoptic snowfall for the Buffalo Airport occurred with the snowfall on March 1-2nd, when a storm total of 12.1" of snow accumulated.  Rochester also received its greatest storm total snowfall for the winter from this storm with a total of 13.3".  One last large synoptic storm affected Western and North Central New York from March 13-15th.  With this storm, the Rochester Airport received 9.5" of snowfall, and the Buffalo Airport received 6.0" of snowfall.



**Season Observed Snowfall**
Valid: 2017 - 2018
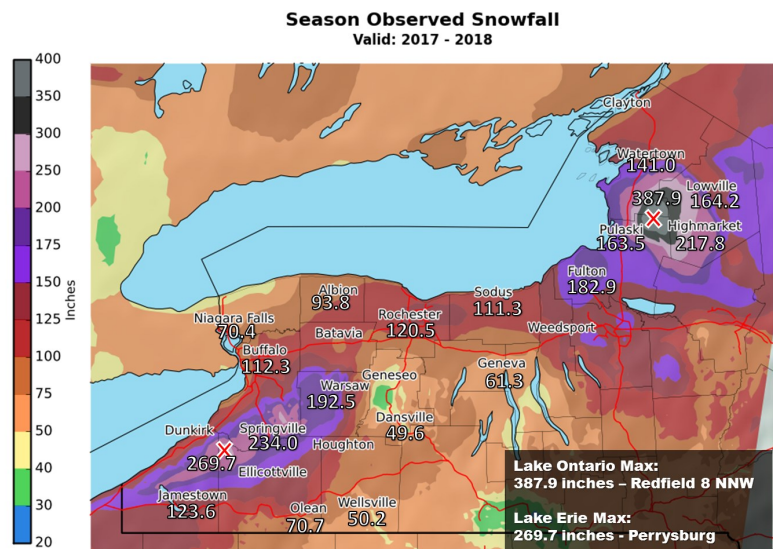
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Buffalo New York

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**Temperatures**
Temperatures this past winter were near normal for most areas, especially after a very warm February.  Temperatures through January across the Northeastern United States were running below normal, with Western and North Central New York no different.  A persistent trough was present over the Eastern U.S. through January, until a weak ridge resulting in warmer temperatures setup for the month of February.  Up until the month of February, the winter was well on its way to below normal temperatures.  February was warm enough not only to bring Rochester to above normal for the season, but it also ranked as the warmest February on record for Rochester (33.6F).  February 2018 also ranked 6th warmest for Buffalo (31.9F) and 4th warmest for Watertown (29.2F) for monthly February temperatures.  Another cool stretch, due to a persistent trough, extended from March through April.

For a complete write-up on the 2017-2018 Winter Summary, please visit https://www.weather.gov/buf/wintersummary1718 .

*"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."*
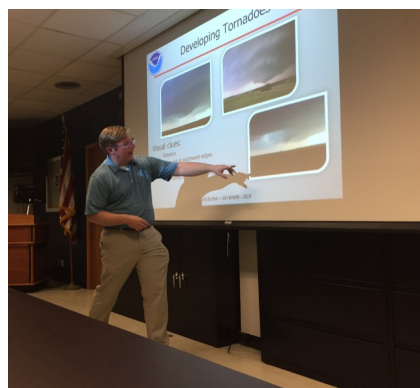
# 2018 SKYWARN® Training
*By Jon Hitchcock, Meteorologist*

Each year, National Weather Service offices across the nation provide SKYWARN® training sessions in communities throughout their forecast areas. The training sessions cover the ingredients that allow thunderstorms to develop, the different types of severe thunderstorms, tornadoes, weather safety, and how to report to the National Weather Service.

The Doppler radar network across the United States provides forecasters with a wealth of information about thunderstorms; such as hail potential, wind potential, and rotation deep within the storm. Despite this advanced radar technology, trained SKYWARN® spotters still provide National Weather Service forecasters with invaluable information about the impacts of severe thunderstorms on the ground. SKYWARN® spotters provide real time reports of hail size, wind speed, wind damage, rainfall, flooding, and tornado development to National Weather Service forecasters. These real time "ground truth" reports are combined with radar information to provide more accurate and timely severe weather warnings, furthering the mission of the National Weather Service to protect lives and property.

Jon Hitchcock, NWS Meteorologist, during a SKYWARN talk in Little Valley, NY on May 22, 2018

The National Weather Service in Buffalo provides SKYWARN® training sessions across Western and North Central New York each spring to prepare for the severe weather season. Each training session is led by a meteorologist from our office. Our training provides a local flavor to SKYWARN® by showing numerous examples of severe weather that has been observed in our region. This year, we held 14 SKYWARN® training sessions from late February through late May in 11 different counties across the region. A total of 298 SKYWARN® spotters have been trained by the National Weather Service Buffalo NY Forecast Office at training sessions so far in 2018.

With these new volunteers, the National Weather Service in Buffalo now has almost 1,200 trained SKYWARN® spotters across our Western and North Central New York. These volunteers provide our office with invaluable reports during severe thunderstorms, and also in the winter during heavy lake effect snow and widespread snowstorms. Spotters report to us by a variety of different methods; including phone, email, social media, and amateur radio. These reports help us to provide more accurate warnings to our partners and the public during severe weather. For more information about the SKYWARN® program, visit our website at: www.weather.gov/buf/Skywarn .

**The Lake Breeze—Spring 2018 Contributors:**

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