

The Lake Breeze

NATIONAL WEATHER SERVICE BUFFALO, NY
FORECAST OFFICE

Photo Credit: David Church

Volume 3, Issue 2

Fall 2020

Welcome to the latest edition of The Lake Breeze newsletter.

It's our 150th birthday! We have been serving the people of Western NY and North Central NY for a long time and while technology has drastically changed our mission has not. Enjoy this edition!

The Editors-
Heather Kenyon and
David Thomas

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A Note from the Meteorologist in Charge

By Judith Levan

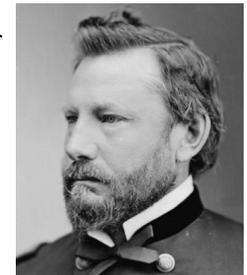
Happy Birthday to US!

On November 1st, the Buffalo office of the National Weather Service celebrates 150 years of service to the people of Western New York.

On February 9, 1870 President Ulysses S. Grant signed into law a resolution requiring the Secretary of War "to provide for taking meteorological observations at the military stations in the interior of the continent and at other points in the States and Territories...and for giving notice on the northern (Great) lakes and on the seacoast by magnetic telegraph and marine signals, of the approach and force of storms." Thus began the National Weather Service.

The weather office in Buffalo was one of the original 24 offices that opened on November 1, 1870. The new weather agency operated under the Army Signal Service from 1870 to 1891. The main office was located in Washington, D.C. with field offices concentrated mainly east of the Rockies. Most forecasting was done in D.C. with weather observations provided by field offices. The weather forecasts were simple – weather that occurred at one location was assumed to move into the next area downstream.

Interestingly, the first head of the new agency was Gen. Albert Myer. Myer was born in Newburgh, New York but his family moved to western New York. After the death of his mother, he was raised by his aunt in Buffalo. He graduated from the University at Buffalo Medical School and is interred at Forest Lawn Cemetery.



General Albert Myer
Source: Library of Congress



Weather office in Buffalo, 1899
Source: NOAA Photo Library

From first opening, the office was located in the Brown Building on Main and Seneca Streets. It was moved on August 31, 1871 to the Weed block at Main and Swan Streets. The office remained at that location for over ten years, when it was moved into the White Building at the same intersection. In 1883, the office was once again moved, to the Board of Trade Building at Seneca and Pearl Streets.

On October 1, 1890, Congress voted to transfer us into the Department of Agriculture and we became the "Weather Bureau". With the "official" transfer in the summer of 1891, we transitioned into a civilian (not

(continued on page 3)



Meet the Observer—Dean Aschenbrenner, COOP Observer, North Tonawanda, NY

By Dan Kelly

Dean Aschenbrenner was born and raised in Buffalo. He later moved to North Tonawanda after he married his wife Barbara in 1975. During his 38 years as a middle school science and math teacher in Williamsville Central School District, he developed a true passion for weather, which he shared with his students. Mr. Aschenbrenner's classes took daily snow and precipitation readings, and he joined the NWS Buffalo Snow Spotter Network around 1990. His students really enjoyed going outside during class to find out how much snow fell. Unfortunately when he retired in 2005, there was no interest at the school to continue taking snowfall observations.

Mr. Aschenbrenner continued to take observations at his home for the NWS Buffalo Snow Spotter Network, which was converted over to the Community Collaborative Rain Hail and Snow (CoCoRaHS) observing network in 2007. Since October 20, 2007, Dean has observed a total of 1009.5 inches of snow for North Tonawanda for CoCoRaHS (through Oct 26, 2020)!! In past years he worked closely with retired North Tonawanda Coop Observer Jack Kanack and Dr. Stephen Vermette from Buffalo State by taking daily frost depth observations in addition to his precipitation readings. These frost depth observations were used in a research project to determine if snow cover impacted frost depth. Dean took over as Cooperative Observer for North Tonawanda on November 1, 2018, and presently takes temperature, precipitation, snow and frost depth readings.

In his free time, Dean likes to sail on Lake Ontario. He's been doing this since the early 1970s and a knowledge of weather is vital for a good day on the Lake.

He is very active in the weather community in western NY. Dean is an active member of the Western NY chapter of the American Meteorological Society. He has presented to the group. In "The Face of WNY's Weather" by Dr. Vermette, Mr. Aschenbrenner was the subject of a story about sailing in Lake Ontario and encountering a thunderstorm several miles from shore.

Dean also volunteers at the Herschell Carrousel Factory Museum in North Tonawanda where he helps keep the beautifully restored hundred year old carousels operating. The museum features not only working carousels that are over 100 years old, but also the only known Wurlitzer Music Roll perforator machine in existence.

He is an active member of Habitat for Humanity Eastern Niagara County chapter and has worked on 10 out of their 18 houses! If that isn't enough, Dean is a naval history enthusiast. He has dedicated many hours to review and transcribe the preserved and digitized World War I ship log books from several Royal Navy ships.



Dean Aschenbrenner, Cooperative Observer for North Tonawanda stands next to his Standard Rain Gauge. His temperature sensor and frost gauge are out of the view to the left.

Winter Weather Awareness Week

By Mike Fries

Each year, the National Weather Service has awareness weeks during which we share safety information for specific upcoming hazardous weather seasons. We do this in advance of severe thunderstorm/tornado season, boating season, and hurricane season during the warmer months. As the calendar moves later in the year, the days shorten, and the first flakes of the year flutter from the sky, our awareness week calendar moves to winter weather. This year, National Weather Service offices in New York are recognizing the week of November 1-7 as Winter Weather Awareness Week.

As with the other awareness weeks, each day during the week will feature different information about weather

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A Note from the MIC (continued)

military) organization. For the next 50 years, the Weather Bureau was part of the Department of Agriculture and considerable improvements were made in our operations and advancement were made in the science of meteorology.

From March 1, 1896 through February 13, 1913, the Weather Bureau Office was located in the Guaranty (Prudential) Building at Church and Pearl Streets. The final downtown location was at Church and Franklin Streets in the New York Telephone Building from 1913 through 1943. Why all the moving? As new buildings were built in the city we lost our “view”, so we would move to the new tallest building, to take our observations.

While under the Department of Agriculture, aviation weather services expanded rapidly. The Air Commerce Act of 1926 made the Weather Bureau responsible for weather services to civilian aviation. This new law also provided funds to establish a network of stations across the U.S. to take surface and upper-air observations.

As the Weather Bureau became more associated with the aviation community, it became apparent that the agency belonged in the Department of Commerce and on June 30, 1940 President Franklin Delano Roosevelt transferred us into the Department of Commerce where we became the “National Weather Service” and it remains today.

In July of 1943, the official location of the office became the Buffalo International Airport. Observations there were taken at the Administration Building through August of 1960 at which time the Weather Bureau Observatory was completed at the east end of the airport on Amherst Villa Road.

In April of 1995, the Weather Forecast Office moved from the East Terminal of the airport to the Albert J. Myer Forecast Office Building on Aero Drive.

Those of us currently working at the Forecast Office in Buffalo are proud of the rich heritage the office has had in the history of our agency. We proudly serve Western NY and North Central NY and look forward to many more years of service. Happy Birthday, NWS Buffalo!



National Weather Service Observatory, Buffalo NY, 2020

Winter Weather Awareness Week (continued)

threats during the cold season, safety information for the cold season, and our winter weather products. These messages are all in concert with the [Winter Safety Campaign](#) of the [Weather Ready Nation Program](#). Our location in the country makes our region especially vulnerable to almost every threat due to winter weather from heavy snow and snow squalls to ice storms and ice jam flooding. Because of this, our office was asked as part of the Winter Safety Campaign to record a brief national-level safety message about snow squalls. This will be up and available on the Winter Safety Campaign website in the near future.

The messages our office delivers during Winter Weather Awareness Week will be primarily delivered through our social media feeds on [Facebook](#) and [Twitter](#). We encourage you to share these with your family, friends, customers, clients, and the like widely. Additionally, to ensure that you get information in advance of each of the safety campaigns the National Weather Service has throughout the year, you are encouraged to sign up your local groups, businesses, schools, churches, and other local organizations for the [Weather Ready Nation Ambassador Program](#). Safety information is shared seasonally with all Weather Ready Nation Ambassadors, and once you are signed up for this program, you are free to use all of that information on your social media feeds and websites. Sharing this information widely helps to build a nation that is prepared for and responds to dangerous weather conditions throughout the year, and the help of all our Ambassadors ensures the success of each of our safety campaigns. If you have more questions about this program, please contact our Warning Coordination Meteorologist, Michael Fries, at michael.j.fries@noaa.gov.

Winter Seasonal Outlook 2020-2021

By David Thomas

As 2020 draws to a close it's time to look at the 2020-2021 NOAA Winter Outlook. This Outlook is created by scientists near Washington D.C., who analyze the state of the atmosphere and ocean, both present and in the future, and compare it to historical data to derive what the upcoming winter may have in store for the United States.

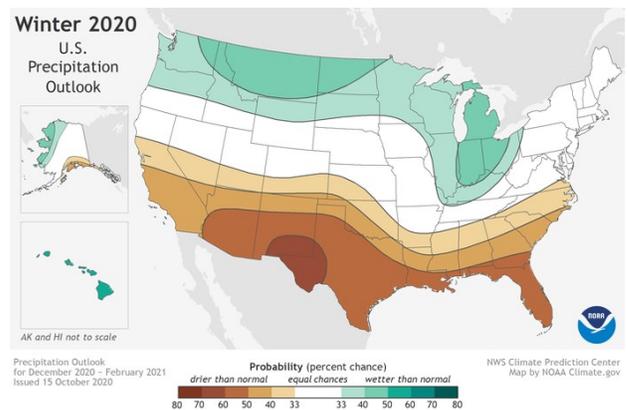
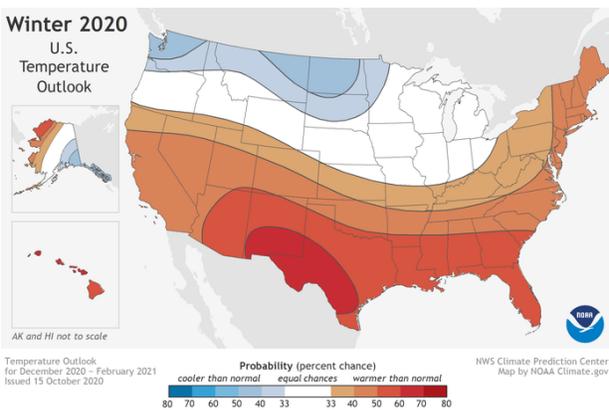
Looking back at last winter, the 2019-20 season featured above normal temperatures for much of our area except for November 2019 and April 2020 which were below normal. Snowfall was lacking across our region with many Cooperative Observers reporting less than normal snowfall. Only portions of the Upper Genesee Valley featured more snow than normal. Lake effect snow was lacking as evident by only 7 events. A Lake Effect Snow event is defined as a plume of lake effect snow producing seven inches of snow in 12 hours and nine inches of snow in 24 hours. Of the seven events of last winter, they were weak, dropping a maximum snowfall of less than a foot and a half.

One of the driving forces for this winter season is the phenomena of La Niña, which is the counterpart of El Niño both of which make up the El Niño Southern Oscillation (ENSO) cycle. La Niña is the pooling of cooler ocean waters near South America and warmer waters sliding towards Indonesia. When this happens, the change in tropical rainfall patterns affect weather patterns throughout the world, including the jet stream across North America. These effects are usually strongest during the winter months.

The official winter forecast has above normal temperatures favored within the meteorological winter months of December, January and February. When La Niña is within the weak or moderate phase, local research has displayed February as the month with highest probability for above normal temperatures.

There are no clear signals for above or below normal precipitation. While odds do favor above normal precipitation within the Ohio Valley, typical of a La Niña winter, there are no signals within the expected upcoming winter that point to either below or above normal precipitation for our region. Of course, precipitation could fall as either rain, snow or ice, thus purely from precipitation we cannot derive how much snowfall may occur this winter. A look at prior weak and moderate La Niña winters displays a slight tilt to above normal snowfall for points within Western and North Central New York. However in any given La Niña winter, and just winter in general, location of the lake effect snow bands could make the difference between an above or below normal snowfall winter. Many times there are other atmospheric circulations and patterns that are hard to forecast months in advance that have a major influential role in our winter seasonal snowfall. Without overwhelming atmospheric or oceanic evidence any prediction for winter snowfall is made with low assurance.

Since we have already seen the first snowflakes fly around Western and North Central NY, it's a good time to prepare for winter including: dusting off those gloves, boots and hats, getting snow removal equipment ready to use, and preparing an emergency winter car kit.



Q & A with NWS Buffalo - Elizabeth Jurkowski, Meteorologist

By Heather Kenyon and Elizabeth Jurkowski

How and when did you become interested in meteorology?

Unlike most of my peers, I didn't become interested in meteorology at a young age or one major weather event got me hooked. I became fascinated in meteorology through my 8th grade earth science teacher, and even then, it was something I didn't think I would pursue as a career. While meteorology was never on the front burner until later on in my schooling, I have to thank my calculus and physics teachers and especially my 8th grade earth science teacher for instilling the passion for the subject

What was your path into the National Weather Service?

I went for my undergraduate degree in meteorology at SUNY-Oswego. I was a student volunteer at NWS Buffalo the summer between my junior and senior year. It was also during my undergraduate studies where I found out that I liked the computer programming aspect of the field. From here, I decided to further my education and get my graduate degree in applied meteorology from Plymouth State University, Plymouth, NH. In New Hampshire I was a part of a research team studying a variety of topics in the field of hydrometeorology. One of our main goals was to collect data using self-built and programmed sensors. The one topic I specifically researched was measuring snowpack dynamics on the eastern slopes of Mount Washington. It was also during my time at Plymouth where I spent a summer as a Pathways Intern for the NWS office in Milwaukee, Wisconsin. My experiences in Wisconsin not only fed my ice cream cravings but also my craving for computer programming. A very short turn around later, I started my career here in Buffalo.



Elizabeth Jurkowski, standing in front of Tuckerman Ravine AMC hut on Mount Washington, NH in January 2019. She was collecting data for her Master's degree.

What is your favorite part of working for the NWS? Most challenging?

I absolutely love my job and working for the NWS, but I suppose my favorite part of the job is doing the balloon launches. I love the hands-on part of the data collection, however being honest it really is the 6 ft diameter balloon. How could you not like a big balloon? I would have to say the most challenging aspect of the job would be overcoming the stereotypes. For example, the most common one would be meteorologists are never right. And for that I have a few questions for you: Have you ever tried to predict the future? Can you tell me how tomorrow will go? Not easy to do right, so please bear with us, we are doing our best. There are a lot of moving parts that must align in the right time to predict the weather. Additionally, we are not forecasting for one exact location, it's quite a large area that spans most of New York state. So, while we may not get the exact conditions right down to the tee we are at least in the right ballpark.

Are there any past weather events that stand out?

While I haven't been working here at NWS Buffalo for long, I am a native western New Yorker and the one weather event that stands out in my mind is the 7 feet of snow that fell around Christmas time in 2001. Since I was 5/6 at the time, I only have 2 specific memories from this event. The first is how long it took my dad, uncle and cousins to clear the driveways on Christmas Eve. Now these were not the longest driveways but due to the heavy snow fall rates that Christmas Eve, it took a while to clear. I can also remember driving around a week later and looking out the car window and just seeing snowbanks with the snow way over the top of the car. At the time this was the most snow I have ever seen.

What do you like to do outside of work?

Outside of work I keep myself quite busy. I volunteer and am a part of the local Kiwanis club where I do most of their social media. Otherwise, I can be found doing needle work, in the kitchen cooking or baking, or outside on a hike with my friends.

Winter Storm Severity Index (WSSI)

By Jason Alumbaugh

A new tool to communicate possible impacts from winter storms is now operational at the National Weather Service (NWS). The WSSI is created through the use of Geographic Information Systems (GIS) by incorporating gridded forecasts from the NWS of weather elements (e.g. temperatures, winds, snow amounts, liquid equivalent, etc) and combining those data with non-meteorological or static information datasets such as climatology, land-use and urban areas. The net result is a graphical depiction of forecasted potential of damaging and life-threatening effects brought on by winter weather. These effects could include, but are not limited to, tree damage, school closures, transportation issues like flight cancellations, traffic accidents, and road closures.

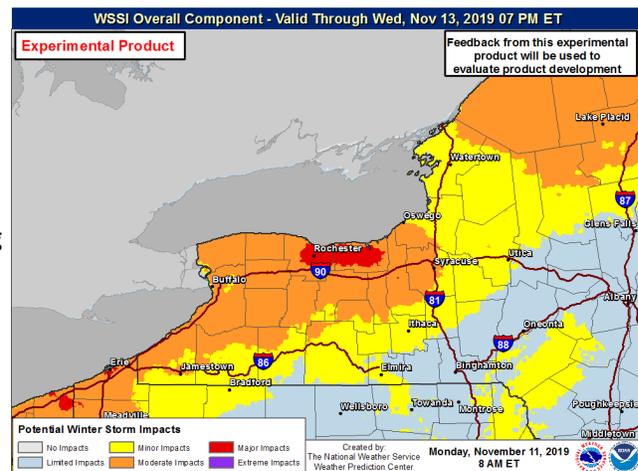
The WSSI is composed of six individual, but equally weighted components of winter storms. The summary graphic (Overall WSSI) is the maximum forecasted impact from any of the six impact components. The six components are:

- Snow Amount
- Snow Load
- Blowing Snow
- Ice Accumulation
- Flash Freeze
- Ground Blizzard

The WSSI then provides a classification of the overall expected severity of a winter weather event using the following terminology: “None,” “Limited,” “Minor,” “Moderate,” “Major,” and “Extreme.”

The WSSI product allows forecasters, emergency management, and the general public to make informed and tactical decisions about the potential for significant weather related impacts. Using the winter storm severity index, experts are able to effectively assist in preparing the public for upcoming winter hazards. One last note. The WSSI is not meant to be the sole source of information about a winter storm. The output should always be used in context with other NWS forecast and warning information. This can just serve as another tool in your toolbox in gauging the impact from a winter storm.

To view the WSSI page across the entire country with options to zoom in to only see impacts across a specific area, please visit <https://www.wpc.ncep.noaa.gov/wwd/wssi/wssi.php>. Please let us know what you think of the WSSI as we move through the upcoming winter season.



Drought across Western and North Central NY

By Kirk Apffel

Although dry weather can be great for those making outdoor plans, if it persists it will eventually result in drought. Precipitation averaged below normal across the area between June and September, with total precipitation amounts during this 4 month period averaging 1 to 4 inches below normal. This combined with much hotter than normal weather increased evapotranspiration rates and accelerated the onset of drought conditions.

As is typical during the warm season much of the precipitation was convective (showers) so rainfall amounts varied by location. Impacts ranged from relatively minor, such as brown grass, to more significant. For most of Western New York, the impact was minor with abnormally dry conditions but a limited agricultural impact. However the drought

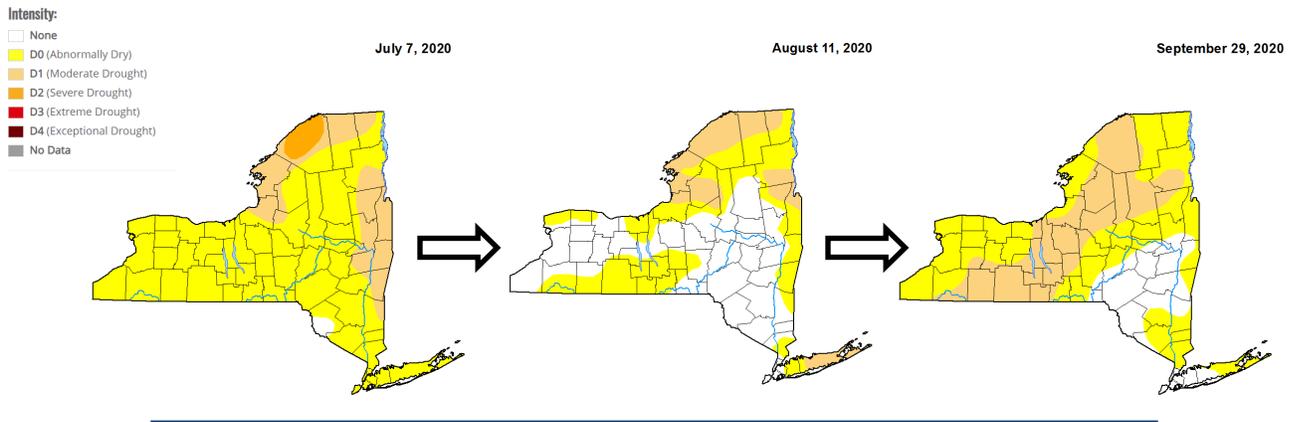
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Drought 2020 (continued)

had a greater impact across the Eastern Lake Ontario region and the interior Western Southern Tier. At these locations the drought impacted crops and reduced yield in some cases. This is a common impact of short term drought conditions. If the drought persists longer, it can lead to a lower water table which can dry up shallow wells, and lower streams to just a trickle. Drought can also increase fire risk, since dried up vegetation is more prone to catch fire.

A common misconception is that heavy rainfall will instantly end a drought. For example, a downpour of several inches will quickly make up a precipitation deficit, but heavy rain is not ideal to end a drought since much of it will run off and not soak into the ground. Ironically, if heavy rain persists it's actually possible to have flooding during a drought.

The last time our region was impacted by drought was during the summer of 2018, with a more significant one occurring in 2016. Drought conditions will typically improve during the cool season when there is less evaporation and more reliable and steady precipitation.



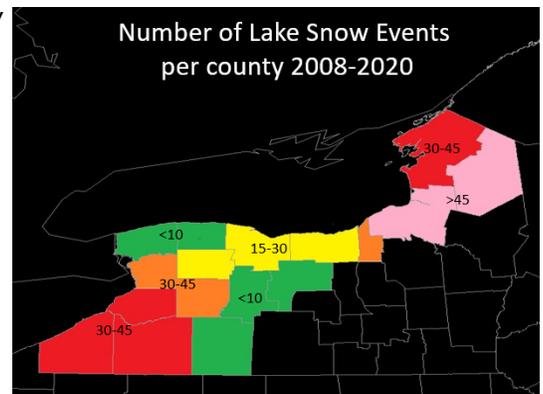
Virtual Winter Weather Workshop for NWS Buffalo staff

By Bob Hamilton

Twice a year, the National Weather Service in Buffalo holds a 'change of season' workshop for their staff. One is held in the spring as we transition into severe weather season, and the other is held in October ahead of the winter season. The workshop serves as a way to update the staff on new procedures and to present fresh operational research that pertains to the upcoming season.

Given our 24/7 operation with rotating shifts (including working over-night), it can be challenging for some of the staff to attend the entirety of these workshops. This issue was further complicated this year by the need to social distance because of the COVID epidemic. As was the case with the workshop in the spring, this year's winter weather workshop was held virtually with the bulk of the staff 'attending' from remote locations.

Some of the items that were discussed in this year's winter weather workshop included a satellite perspective of the blizzard of 2019, the relatively new product known as the Winter Storm Severity Index (WSSI), using the current La Nina as a winter forecast tool, an examination of our verification statistics for both our aviation program and last year's winter storm/high wind warnings, and even a look at the future of weather forecasting using statistical guidance.



A Lake Effect Event is defined as 7" or more of snow in 12 hours or 9" of snow in 24 hours for Western and North Central NY

Balloon Launch Word Find

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

The following words associated with a weather balloon launch are hidden in the puzzle. See if you can find all listed words

- | | |
|-------------|-------------|
| Antenna | Lift |
| Humidity | Parachute |
| Observatory | Pressure |
| Radiosonde | Wind |
| Atmosphere | Temperature |
| Inflation | Balloon |

Word Scramble

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

dornmiwts

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trosf

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kuppmin

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pcisr

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--	---	--	--	---

vhreset

	○			○		○
--	---	--	--	---	--	---

Using the letters within the circles at left, what is an intense columnar vortex that occurs over a body of water?

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warnings for the
protection of life
and property and
enhancement of the
national economy.”**



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SKYWARN® News
By Jon Hitchcock, Meteorologist

As we head into late fall, the focus of the Skywarn® program shifts from thunderstorms to snow. During the winter season, we rely heavily on volunteer spotters to provide us with measurements of snow and ice, along with real time reporting of weather conditions. Our network of volunteer Cooperative Observers provides us with daily measurements of precipitation, snow, and temperatures. We further rely on Skywarn® and CoCoRaHS volunteers to provide additional precipitation and snow reports to fill in the gaps between reporting stations. Skywarn® spotters can report their snow measurements to us via phone, email, and social media. CoCoRaHS is a volunteer network organized by Colorado State University. Volunteers report rain and snow daily via their website or smart phone app, and the reports are automatically forwarded to the National Weather Service. The CoCoRaHS website also keeps a permanent record of all reports. If you are interested in joining, see www.cocorahs.org for more information.

We held our first Winter Skywarn® virtual training on October 29. We have two more virtual training dates November 17 at 7pm, and December 7 at 7pm. The virtual training will cover winter storms, lake effect snow, winter weather safety, and how to measure snow. If you would like to join us, the registration information is available on our website at: www.weather.gov/buf/Skywarn

Measuring snow only requires a few basic pieces of equipment. You will need a ruler or yardstick, a board, and a flag or stake to mark the board location. Choose a measuring location in your yard that is well away from the house, trees, and known drifting areas. Your snow measuring board can be any board that is about 2ft by 2ft, and lightly colored so it doesn't warm up in the sun. Place the board on the ground in your measuring location and mark it with a stake. A snow board is the best option for measuring snow. Once you measure, brush the snow off the board so the next time it snows you can easily determine the new snow amount without measuring snow that was previously on the ground. Measure the new snowfall to the nearest tenth of an inch. Most rulers are in quarters and eighths, so do the best you can to convert to the nearest tenth of an inch. The total snow depth (both old and new snow) is typically measured to the nearest inch, and measured in the grass.

If you don't have a snow board, the best place to measure is on your lawn well away from the house and trees. Snow will often blow off your roof during a storm, resulting in snow collecting around your house, so stay clear of the house when measuring. If you measure on the grass, be careful not to push the ruler too deep into the grass, resulting in a measurement that is too high. Also, never measure snow on a deck, picnic table, or on top of your car. These elevated surfaces can collect more snow than the ground when temperatures are near freezing and the ground is not frozen. Here are a few more special cases for measuring snow. If snow falls, but never sticks to the ground, it is reported as a trace. If snow accumulates and then melts, the snowfall is the maximum depth reached on your snow board or the ground before melting begins.

Please consider taking a few minutes out of your day this winter season to measure the snow. If you have kids, this is a great way to get them involved in hands on science!



The Lake Breeze—Fall 2020 Contributors:

- Judy Levan, Meteorologist in Charge
- Dan Kelly, Observation Program Leader
- Mike Fries, Warning Coordination Meteorologist
- Elizabeth Jurkowski, Meteorologist
- Jason Alumbaugh, Meteorologist
- Kirk Apffel, Meteorologist
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