

## Community Collaborative Rain, Hail & Snow Network



# Southern



# New England

**December 2018**

Another precipitation filled month of November. Our first measurable snowfall too. Our calendar year precip totals are climbing towards rarely seen amounts.

Back in February of this year, one of our observers asked to see precip amounts from nearby Westfield MA airport, so we built a table to show all of our airport precip totals. With all of the rain and snow we have had, there are some large differences between what our observers have totaled and what the nearby airports have totaled.

Within this month's Newsletter: We lead off with The Grand List Observers. Our "Observer of the Month" takes us to rolling hills of northern Tolland County CT.

If you want to participate in this "Observer of the Month" segment, please let us know.

Found another place where your reports end up. Data Quality is mentioned. With Gauge Catch first in your mind and on the Daily Report form, on to Snow Fall measuring and reporting.

Let's get into it.

## **The “Grand” List**

Congratulations to all of these observers from our three states who have recently passed a milestone of 1000 Daily Reports.

### **3000 Daily Reports**

MA-MD-12 Acton 1.3 SW  
CT-HR-8 North Granby 1.3 ENE

### **2000 Daily Reports**

MA-BE-10 Pittsfield 2.0 NNW

### **1000 Daily Reports**

CT-HR-28 North Canton 0.8 SSW

## **Observer of the Month – CT-TL-2**

Located just off Route 19 and about 6 miles from the CT/MA State Line here in Staffordville CT, northern Tolland County

I have always had an interest in weather since I was young. My interest really took off in the late 1990's. So, back in October 1999, a friend of mine signed me up for an education class on weather at WFSB-TV (Hartford) Channel 3, as a surprise for my birthday. I learned basic weather 101 and took a tour of the Channel 3 weather station. At the end, I told them that I would like to be an official weather watcher. They told me just send in your temp/rainfall etc. at that point, and from time to time my stats were aired. This went on for several years and that did not stop there.

In Spring 2002, the National Weather Service (NWS) was looking for someone to take rainfall/snowfall and record temps in the Stafford Springs area. When the NWS called the Town of Stafford, they referred them to me, knowing my interest in weather. The NWS came down from Taunton



**OBSERVER OF THE MONTH NEXT TO STANDARD RAIN GAUGE.**

MA to check my location and to make sure this would work. To make a long story short, the NWS showed up at my house in mid- June and set up equipment like a rain gauge, a device to record temps & a snowboard, so I went live with them on Aug 2002 and I became a NWS CoOp observer. And to this day, I send reports daily between 5am-6am which they post on their web site daily. I have not missed a day, even when on vacation the Nimbus box locks in my temps, so when I return, I just fill out what was missing. Over the years I have become very reliable to them and they know my readings are accurate. Every year the

NWS comes down to check out my equipment to make sure everything is

working OK. I also have records on temps, rain/snow every day from Aug 2002 to present.

In 2009, I saw the word “CoCoRaHS” come up on the NWS site and I was curious what that was, so I called the NWS and after talking to them I decided to sign up right away. Since Oct 2009, I have been sending in my precip reports, so it’s been 9+ years and over 3000 reports and still going strong. I figure every bit helps and I was already doing this for the NWS and as you say, “Every Drop Counts!” When I signed up, I was the 2nd CoCoRaHS observer in Tolland county and presently they have many more observers which is needed because different areas come in with different amounts on rain/snow.

This year, it is especially important being a wet year. Rainfall for Nov was 8.44” that’s about 4” above normal and YTD, I have recorded 59.14” the normal is 49.85”. Last winter season, we picked up 90.4” of snow it was



FEBRUARY 2011 SNOW

the 2nd highest total in the state. Staffordville is also one of the cooler towns in the state in any season with an elevation of 760’ with a few hills surround us and about 800’ from Staffordville Lake. We could be getting snow here and downtown Stafford Springs, which is 5 miles away, could be getting rain. I just tell people we are getting lake effect snows!

I think climate change is real. It seems like the storms are bigger and bigger each year. This year, CT alone has had 9 confirmed tornadoes. That’s the most in CT history over the past several years. I have gained knowledge of weather and can look at the models to tell the upcoming weather. I can thank a few local meteorologists that have given me helpful tips & information when I reached out to them as of the past few years. I e-mail or tweet my weather data daily to all 4 TV stations in the state. They consistently use my weather info in their reporting and I’m known as “Jeff from Staffordville.”

Over the years, I have had the Cub Scouts and Boy Scouts come out to view my equipment and to learn about Weather to earn their weather badge. I have gone to Stafford Middle School to talk to groups on weather. Several years ago, a local TV station came out and included me in a weather special produced right in my yard. They filmed me demonstrating the use of a snow board. I was interviewed on a show at WFSB-TV Channel 3 “Better Connecticut” to honor Weather Watchers on Weather Watchers Day several years ago. I am on [Facebook](#) and [Twitter](#) and even



CoCoRaHS ENTRY FORM WITH MORE



WEATHER WALL

have my own web page I have been putting my forecast on [social media](#) for several years now. I have many followers, and most will say that I’m right on

track, some even say “I don’t watch the weather on TV. I wait for your posts!” I also put up warnings/watches as I get them from the NWS. It’s all about giving the public heads up and keeping them informed.



DAVIS PRO2 WEATHER STATION

Back in March, I purchased a Davis Pro2 Weather System and that’s giving me much more data from wind speeds to dew points. When I go into town it never fails people will ask me what’s the weather for the next few days. I always know a week in advance, so I can give them an answer. To close I would say I’m a weather geek and really into weather. I certainly have put Staffordville on the map. I enjoy doing this as my main hobby I only work 2 days a week as I’m semi-retired. So I have 5 days now to keep track of this crazy weather!!!

Respectfully Submitted Jeff Aborn

Station: CT-TL-2 Staffordville 0.4 NNW

## Salute to the 70's

Not about music, movies, clothing styles, automobiles or historical events, this does remain a precipitation network. This stretch of wet months had us looking at your reported totals for the calendar year a little deeper and we found precipitation totals in and around 70 inches.

Remember the rule of thumb: Each and every month, normal precipitation totals should be 4", with the winter months a little less than 4", and the summer months a little more than 4". Total 12-month precipitation should be around 48"-52". Consider the probability of finding a 12-month precipitation total around 70". It should be the same probability of finding a 12-month precipitation total around 30." Should be.

Our network has been established in these states for about 10 years. How often has a calendar year total exceeded 70"? Below is a table of stations that broke 70", mostly in Year 2011 when storms named Irene & Lee came by before and after Labor Day and it snowed in late October. The Year 2018 totals are through November 30<sup>th</sup> and include totals up to 65", thinking that with one more month to go, a 70" precip total is possible.

Station	Name	Precip Total	Calendar Year
CT-HR-8	North Granby 1.3 ENE	76.13"	2011
CT-MD-2	Portland 0.9 S	74.27"	2011
CT-NL-5	Oakdale 2.6 WNW	72.61"	2011
CT-FR-9	Brookfield 3.3 SSE	72.51"	2011
MA-BE-4	Becket 5.6 SSW	72.40"	2011
CT-HR-5	Enfield 1.5 SE	71.40"	2011
CT-WN-8	Moosup 1.7 NE	70.89"	2018
MA-PL-5	Kingston 3.3 WNW	70.71"	2018
MA-BR-33	Taunton 2.4 W	69.44"	2018
CT-NH-41	Madison Center 1.6 W	69.20"	2018
CT-FR-32	Monroe 0.8 W	69.19"	2018
MA-HS-7	Plainfield 2.2 SW	69.01"	2018
CT-NL-8	Uncasville-Oxoboxo Valley 1.6 ENE	68.75"	2018
CT-FR-42	Monroe 0.1 SE	67.89"	2018
MA-BR-9	Taunton 2.6 NW	68.63"	2018
MA-BR-3	Norton 1.8 NNE	68.40"	2018

MA-PL-30	Duxbury 3.7 W	67.97"	2018
MA-HS-14	Plainfield 2.5 ESE	67.71"	2018
MA-HD-13	Springfield 4.1 W	67.57"	2018
MA-BE-4	Becket 5.6 SSW	67.41"	2018
RI-PR-17	Cranston 4.1 E	67.27"	2018
MA-FR-13	Conway 2.9 NW	67.02"	2018
MA-BR-30	Taunton 3.9 N	66.68"	2018
MA-BR-2	Rehoboth 2.1 N	66.60"	2018
MA-PL-31	Bridgewater 1.8 SE	66.11"	2018
MA-NF-11	Millis 2.0 SW	65.87"	2018
CT-TL-18	Hebron 5.3 NW	65.39"	2018
CT-NL-10	Norwich 2.5 NNE	65.37"	2018
MA-HD-25	Ludlow 2.3 SW	65.34"	2018
MA-FR-25	Conway 2.7 NW	65.16"	2018
CT-FR-29	Ridgefield 1.9 SEE	65.00"	2018

In the pages to come, see if any of the area airports have a 12-month precipitation total above 65". We have stations with an 11-month precipitation total above 65", a list of them.

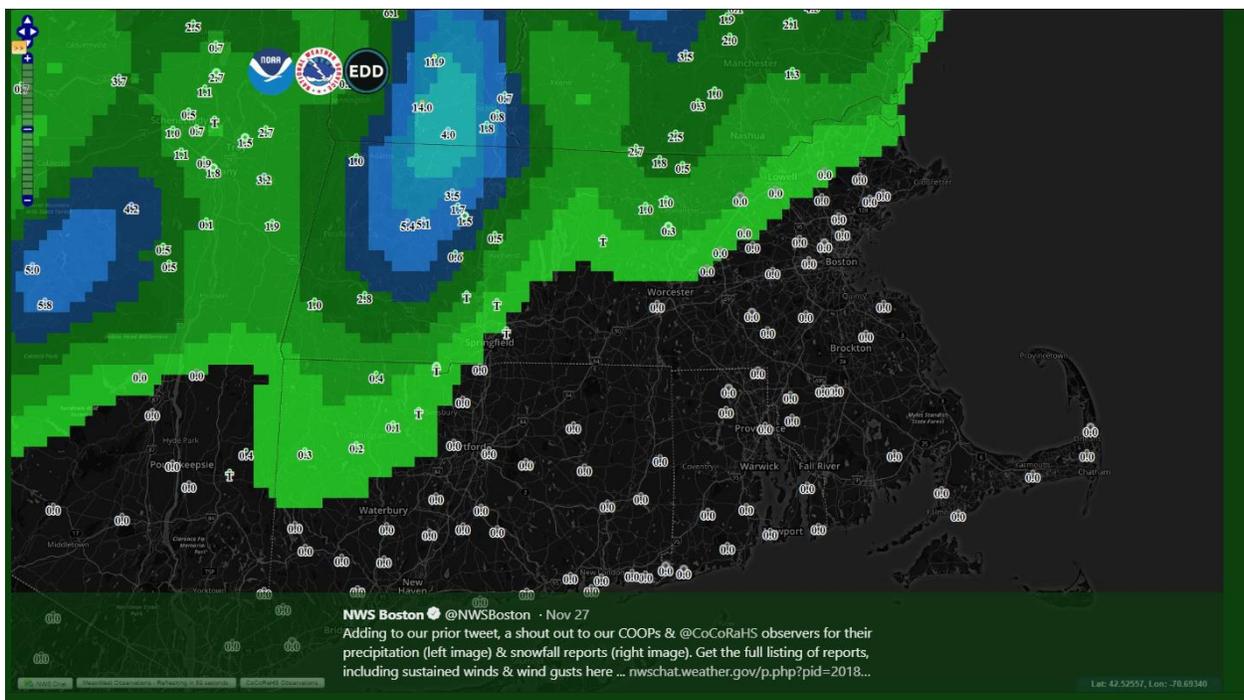
We focus on the "Gauge Catch" when winter weather comes. We measure and report the liquid content of frozen precipitation, snow and sleet, that falls within our Gauges. We prompt you and encourage you to measure and report all days that you safely and possibly can, either with Daily and Multi-Day Reports. We do not use automated equipment. And we certainly do not live at the airport!!

## **Found! Your reports!**

After Thanksgiving, the Monday after Thanksgiving, skies were overcast, and precipitation rolled in during the day, and continued overnight. We measured and reported it on Tuesday morning, November 27<sup>th</sup>.

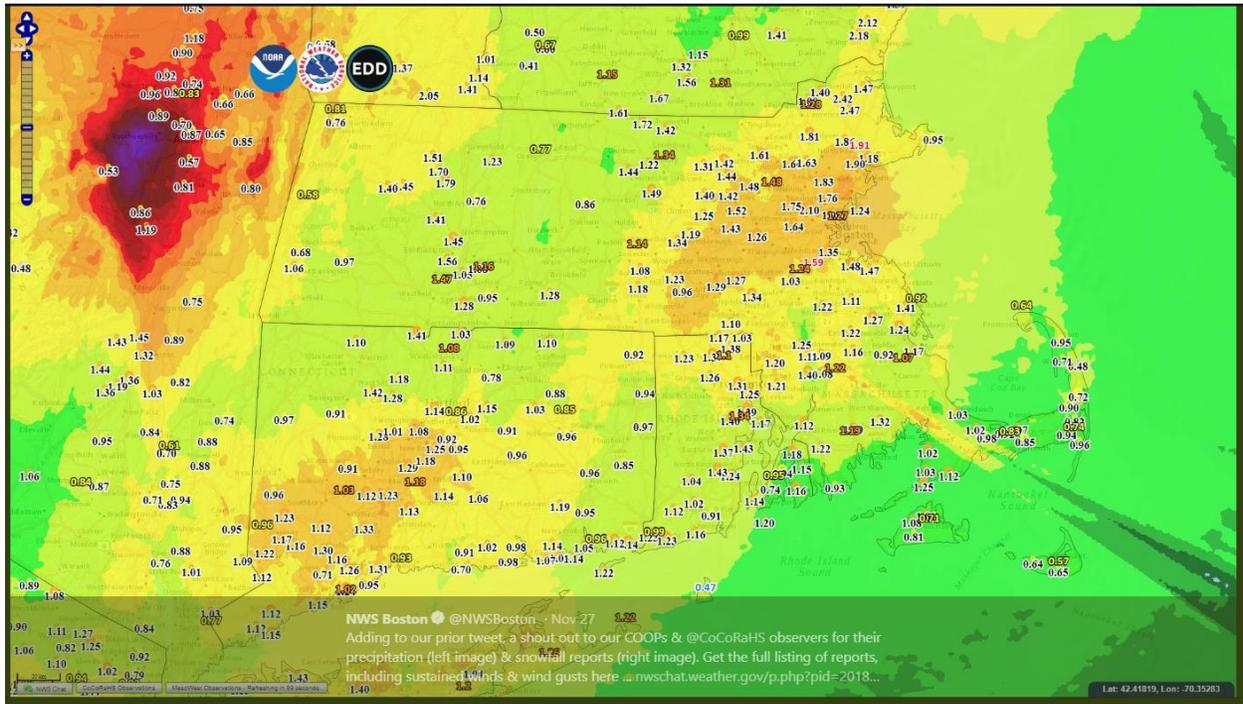
Your morning reports are brought into a mapping system at the NWS Forecast Office. Along with NWS CoOp and airport ASOS, below are reported values, primarily CoCoRaHS reports from our area for November 27<sup>th</sup>.

Reporting snow fall with every daily report, doesn't seem so silly after all. We define where the snow is and where it is not. When you report all rain, a zero (0.0") for new snow does help make that definition. The map below is an excellent illustration of that. The zeros stand out on the background.



**NEW SNOW FALL – MAP OF REPORTED VALUES - TUESDAY NOVEMBER 27 2018**

One small measurement to make. One giant impact that measurement makes upon so many, and so many different ways. Press “Submit” and your reports can end up in so many different places.



### PRECIPITATION - REPORTED VALUES – TUESDAY NOVEMBER 27 2018

1.22”? Even on Fishers Island!

Take in all of these reported measurements. This is the definition that our network of volunteer observers can provide. This goes to why we measure and report in the morning hours. A pool of reports can be gathered, and now, a map of their reported values can be made.

Accuracy matters!

## **Data Quality**

Submit it and forget it? Not exactly. Your reports are looked at and compared with surrounding reports. During this time of the year, when we add on snow fall and snow depth and snow water equivalent (SWE) reporting, more reported values do lead to more reporting mistakes.

Typically, we find mistakes are made with reporting, not with measuring.

The more common errors are

- 1) **Decimal point** in the wrong spot. 0.30" instead of 0.03" and so on. More common mistake to make with the mobile app because of larger fingers and smaller buttons. 15.00" instead of 0.15"
- 2) **Daily Report** form used instead of the **Multi-Day Report** form. Take some days off, a weekend off, holiday weekend, come back and use the incorrect form. As totals are gathered for this Monthly Newsletter, it is common to see the start date on the Multi-Day report not made correctly, leaving a gap in your reporting record.
- 3) **Snow fall / Precip mixup**. Snow fall amount reported in the 1<sup>st</sup> field, the precip field. Not correct. Enthusiasm is there to measure snow. But focus on the Gauge Catch. Measure the liquid content of your gauge and report that value 1<sup>st</sup>, new snow fall 2<sup>nd</sup>.

And with reports made not submitted on the same day

- 4) **Date shifting**. Example: Rain on Monday is reported on Tuesday's date, not Monday's.
- 5) **False zeros**. Enthusiasm is there to report zeros, fill in missing reports. Be certain there was no precip on those days. Having a separate written record helps if you do not report on the same day.

Days can occur with 0.50" of precip along with 0.5" of new snow, when rain and snow mix. In extremely rare tropical rain events, days can occur with 11"+ of precip also. CoCoRaHS prepared a [document](#) where you can read more as to how reports are looked at.

Quality Reporting is up to all of us. Look over what you have submitted. Accuracy matters.

## **Snow Fall Measuring and Reporting**

It seems simple, put a ruler in the snow and read the number, but there are few more techniques to pass on about Snow Measuring.

Two larger guidelines to pass on.

- 1) We work. We sleep. We have other activities.
- 2) Do the best that you can.

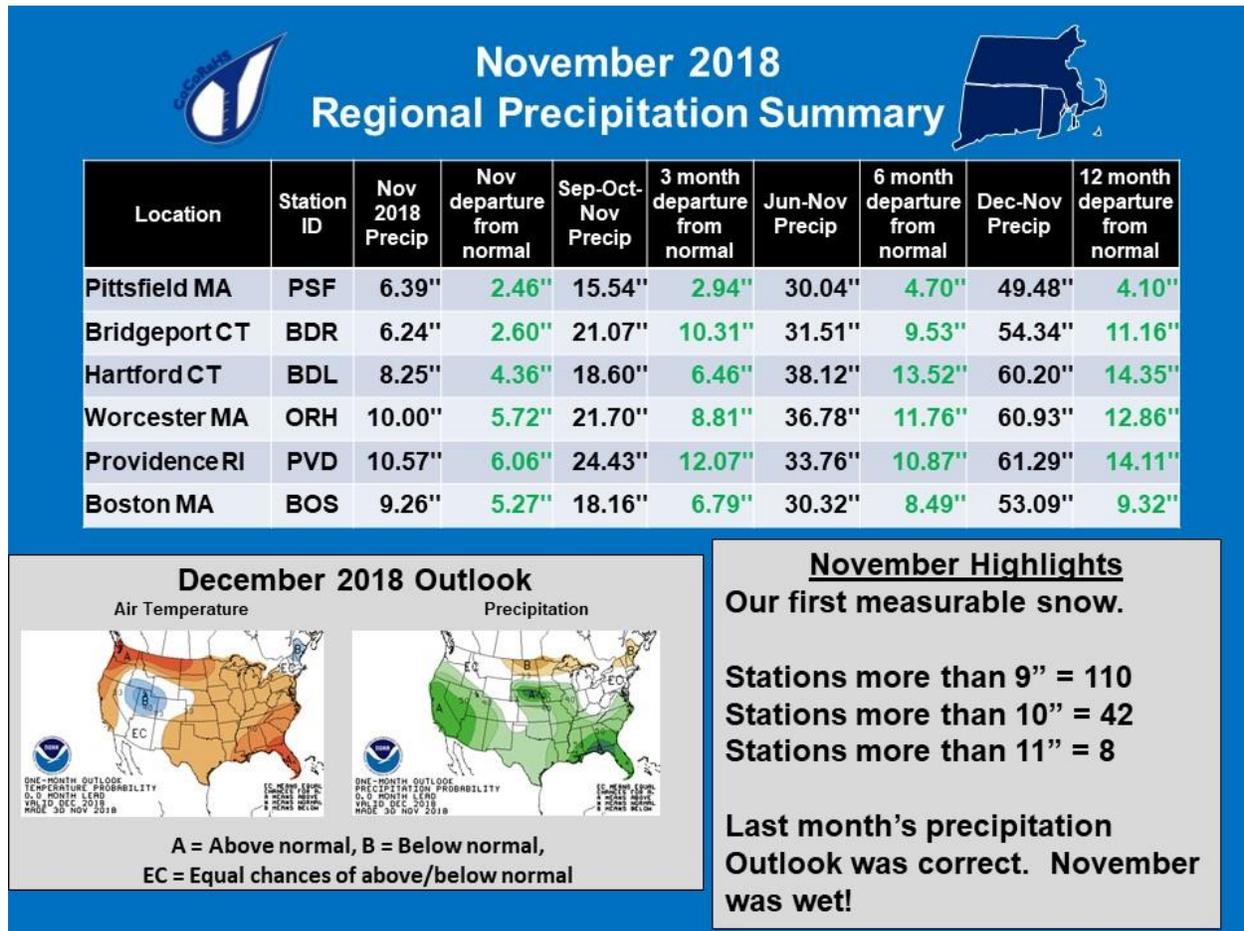
- ❄️ Have an open spot, away from buildings and trees.
- ❄️ Use a snow measuring board. Measuring off of grass, the picnic table, the wood deck near the house, can result in different amounts.
- ❄️ Measure new snow to the nearest 0.1".
- ❄️ Measure as soon as the snow ends or changes over to sleet/rain. Snow does settle, or melt, over time.
- ❄️ For snow lasting several hours, measure, cut a core, and sweep your snow measuring board every 6 hours. Do so less than 6 hours can result in a higher reported amount. Do so more than 6 hours can result in a lower reported amount. Why? Snow settles over time.
- ❄️ Snow Water Equivalent (SWE) is determined by cutting a core with your empty 4" diameter gauge and melting with a measured and known amount of hot tap water, or by weighing its contents.

Writing measurements down is helpful with gauge catch and snow fall and SWE numbers to be tabulated.

On the Daily Report form, report the snow fall as the 2<sup>nd</sup> reported value, and the SWE as the 3<sup>rd</sup> reported value.

# Detail and Summary for November 2018

From the National Weather Service (NWS) Climate sites for Nov 2018.



A big rainfall event started the beginning of the month, noted by the map from the River Forecast Center on the next page. An active first two weeks, was punctuated by a quick burst of snow on Thursday the 15<sup>th</sup>, reported the next day.

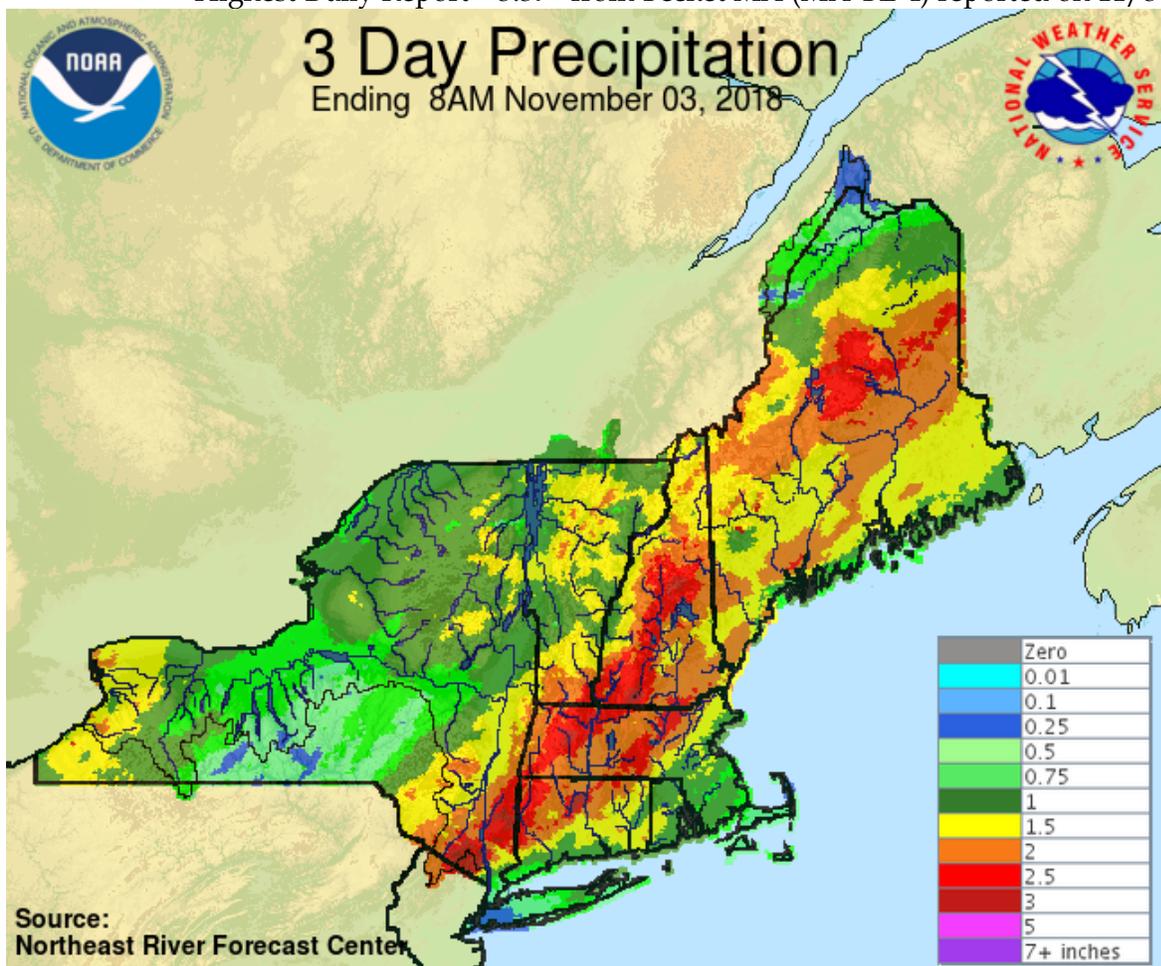
Thanksgiving came in cold, with below freezing air temps. Rain came late Saturday, and more rain and snow in the Berkshires on the following Monday noted by the maps earlier.

Pleased to see so many Comments, Condition Monitoring Reports and Significant Weather Reports, and mPING reports too!

Take in the next section with appreciation of your efforts.

## From your reports for November 2018

Observers reporting	377
Reported all 30 days	174
Completed by Multi-Day Reports	40
Missing 1 or 2 reports	57
Daily Reports	9062
Zero Reports	3861
Non-Zero Reports	5201
Daily Comments	1935
Multi-Day Reports	215
Condition Monitoring Reports	44
Significant Weather Reports	28
Snowfall Reports	4800
Snow Depth Reports	2883
SWE Reports	1679
Highest Daily Report	3.37" from Becket MA (MA-BE-4) reported on 11/3



A shorter list than in months past. An unusually high number of stations missing 1 or 2 reports. A few stations reported “NA” with precip for the snow event, and had to exclude those stations. With precip on October 30<sup>th</sup> and December 3<sup>rd</sup>, stations that had Multi-Day reports spanning those dates had their stations excluded from this list.

Amazing to see so many 9”, 10” and 11” station totals. Those are unusually high single month totals, and moreso without any tropical remnants. Added NWS Albany (NY-AB-21) to the list, making two NWS stations appearing (MA-BR-55)

For a viewing explanation on Watersheds, the CoCoRaHS animated video is on [YouTube](#).

Watershed	Watershed Name	Station Number	Station Name	Precip
01070004	Nashua			
0107000401	North Nashua River	MA-WR-44	Westminster 0.6 WSW	9.85"
0107000401	North Nashua River	MA-WR-8	Fitchburg 1.6 SSW	9.09"
0107000401	North Nashua River	MA-WR-22	Fitchburg 2.0 NNE	10.00"
0107000402	Headwaters Nashua River	MA-WR-64	Sterling 3.7 WNW	10.08"
0107000402	Headwaters Nashua River	MA-WR-56	Sterling 4.3 NW	10.37"
0107000402	Headwaters Nashua River	MA-MD-25	Ayer 0.1 SW	9.86"
0107000403	Squannacook River	MA-MD-47	West Townsend 0.5 W	9.68"
01070005	Concord			
0107000501	Sudbury River	MA-MD-100	Sudbury 1.6 N	10.03"
0107000501	Sudbury River	MA-MD-88	Wayland 2.1 SSE	9.55"
0107000502	Concord River	MA-WR-28	Berlin 1.3 WSW	11.19"
0107000502	Concord River	MA-MD-115	Hudson 1.4 NW	9.97"
0107000502	Concord River	MA-WR-55	Harvard 2.1 S	9.84"
0107000502	Concord River	MA-MD-12	Acton 1.3 SW	10.57"
0107000502	Concord River	MA-MD-51	Maynard 0.7 ESE	10.12"
0107000502	Concord River	MA-MD-53	Acton 4.0 ENE	9.65"
0107000502	Concord River	MA-MD-62	Chelmsford 1.2 E	9.92"
01070006	Merrimack River			
0107000612	Stony Brook - Merrimack River	MA-MD-104	Littleton 2.8 NNW	9.92"
0107000613	Shawsheen River	MA-MD-52	Lexington 0.6 SW	9.35"
0107000613	Shawsheen River	MA-ES-48	Andover 0.6 E	10.25"
0107000614	Powwow River - Merrimack River	MA-ES-20	Haverhill 0.7 N	9.67"
0107000614	Powwow River - Merrimack River	MA-ES-4	Groveland 0.5 WSW	10.34"
01080201	Middle Connecticut			

0108020106	Manhan River - Connecticut River	MA-HS-8	Williamsburg 1.2 WSW	8.66"
0108020106	Manhan River - Connecticut River	MA-HS-26	Easthampton 0.5 SW	9.19"
0108020106	Manhan River - Connecticut River	MA-HS-21	Northampton 0.6 ESE	8.79"
0108020106	Manhan River - Connecticut River	MA-FR-12	Sunderland 1.3 SE	8.15"
0108020107	Batchelor Brook - Connecticut River	MA-HD-13	Springfield 4.1 W	8.66"
01080202	Miller			
0108020201	Upper Millers River	NH-CH-20	Rindge 3.2 ESE	9.74"
01080203	Deerfield			
0108020305	Lower Deerfield River	MA-FR-17	Buckland 1.8 ESE	9.54"
0108020305	Lower Deerfield River	MA-FR-13	Conway 2.9 NW	9.74"
0108020305	Lower Deerfield River	MA-FR-10	Conway 0.9 SW	9.58"
01080204	Chicopee			
0108020402	Ware River	MA-WR-54	Barre 1.4 NNE	8.51"
0108020403	Quaboag River	MA-HD-26	Brimfield 3.6 NW	9.49"
01080205	Lower Connecticut			
0108020501	Mill River-Connecticut River	CT-HR-57	Suffield Depot 3.3 NNE	8.76"
0108020502	Scantic River	MA-HD-20	Wilbraham 3.7 SSW	8.22"
0108020502	Scantic River	CT-TL-15	Central Somers 0.3 N	9.32"
0108020503	Park River	CT-HR-11	West Hartford 2.7 SSE	8.73"
0108020503	Park River	CT-HR-49	West Hartford 1.1 W	8.43"
0108020503	Park River	CT-HR-63	West Hartford 1.1 NNE	8.11"
0108020504	Hockanum River	CT-TL-19	Vernon 2.8 N	7.82"
0108020505	Roaring Brook - Connecticut River	CT-HR-6	Wethersfield 1.2 WSW	7.75"
0108020505	Roaring Brook - Connecticut River	CT-HR-68	Rocky Hill 1.3 E	7.65"
0108020505	Roaring Brook - Connecticut River	CT-HR-22	East Hartford 1.3 E	8.29"
0108020505	Roaring Brook - Connecticut River	CT-HR-7	Central Manchester 2.7 SW	8.18"
0108020506	Mattabesset River	CT-HR-15	Southington 3.0 E	7.56"
0108020506	Mattabesset River	CT-HR-80	Kensington 0.7 WSW	8.02"
0108020506	Mattabesset River	CT-HR-65	Newington 1.9 SSW	7.97"
0108020506	Mattabesset River	CT-MD-25	Middlefield 0.6 SE	8.28"
0108020507	Higganum Creek - Connecticut River	CT-MD-2	Portland 0.9 S	8.31"
0108020507	Higganum Creek - Connecticut River	CT-MD-23	Higganum 0.7 N	8.07"
01080207	Farmington			
0108020701	Still River	CT-LT-15	Colebrook 1.0 NE	9.19"
0108020702	West Branch Farmington River	MA-BE-4	Becket 5.6 SSW	9.31"
0108020704	Headwaters Farmington River	CT-LT-9	New Hartford Center 3.2 SW	9.15"
0108020704	Headwaters Farmington River	CT-HR-71	Bristol 2.7 NNE	8.35"
0108020704	Headwaters Farmington River	CT-HR-28	North Canton 0.8 SSW	8.93"
0108020705	Salmon Brook	CT-HR-60	North Granby 0.7 N	9.38"
0108020705	Salmon Brook	CT-HR-8	North Granby 1.3 ENE	9.33"
01090001	Charles			

0109000101	Plum Island Sound - Frontal Atlantic Ocean	MA-ES-24	Newburyport 0.8 SW	10.43"
0109000102	Ipswich River	MA-MD-85	Wilmington 2.2 WNW	8.81"
0109000102	Ipswich River	MA-MD-125	Tewksbury 3.6 SSE	9.59"
0109000102	Ipswich River	MA-MD-45	Wilmington 1.5 NE	10.10"
0109000102	Ipswich River	MA-ES-12	Boxford 2.4 S	9.57"
0109000102	Ipswich River	MA-ES-2	Beverly 2.8 NW	8.40"
0109000103	Essex River - Frontal Atlantic Ocean	MA-ES-41	Danvers 0.8 ESE	10.26"
0109000104	Saugus River - Frontal Broad Sound	MA-MD-81	Wakefield 0.5 NNW	9.81"
0109000104	Saugus River - Frontal Broad Sound	MA-MD-126	Melrose 0.5 NE	9.57"
0109000104	Saugus River - Frontal Broad Sound	MA-ES-45	Nahant 0.4 N	8.85"
0109000104	Saugus River - Frontal Broad Sound	MA-ES-8	Marblehead 0.8 SW	9.38"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-123	Lexington 1.3 SE	10.39"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-7	Winchester 0.7 SE	10.28"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-44	Medford 1.2 W	10.44"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-11	Cambridge 0.9 NNW	11.52"
0109000106	Upper Charles River	MA-WR-1	Milford 2.3 NNW	9.38"
0109000106	Upper Charles River	MA-MD-106	Holliston 2.4 W	9.58"
0109000106	Upper Charles River	MA-MD-55	Holliston 0.7 W	9.74"
0109000106	Upper Charles River	MA-MD-42	Holliston 0.8 S	9.10"
0109000106	Upper Charles River	MA-NF-11	Millis 2.0 SW	9.09"
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-71	Newton 2.2 NNW	8.62"
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-119	Watertown 1.1 W	9.89"
0109000108	Neponset River - Frontal Boston Harbor	MA-NF-1	Norwood 1.3 NW	8.95"
0109000109	Whitmans Pond - Frontal Boston Harbor	MA-NF-32	Quincy 1.8 WSW	9.46"
0109000109	Whitmans Pond - Frontal Boston Harbor	MA-PL-36	Hingham 0.8 ESE	11.08"
01090002	Cape Cod			
0109000201	North River - Frontal Massachusetts Bay	MA-PL-43	Hanson 0.7 NW	10.04"
0109000201	North River - Frontal Massachusetts Bay	MA-PL-48	Marshfield 1.5 NNW	10.06"
0109000202	Cape Cod	MA-BA-2	Falmouth 3.1 NNW	8.39"
0109000202	Cape Cod	MA-BA-57	Falmouth 5.7 N	7.74"
0109000202	Cape Cod	MA-BA-13	Falmouth 0.6 NNW	8.33"
0109000202	Cape Cod	MA-BA-50	Falmouth 5.4 NNE	7.44"
0109000202	Cape Cod	MA-BA-19	East Falmouth 0.7 NW	8.44"
0109000202	Cape Cod	MA-BA-3	Falmouth 3.0 E	7.77"
0109000202	Cape Cod	MA-BA-11	East Falmouth 1.4 ESE	9.08"
0109000202	Cape Cod	MA-BA-18	Waquoit 0.6 SSW	8.84"
0109000202	Cape Cod	MA-BA-47	Mashpee 2.4 WSW	8.43"
0109000202	Cape Cod	MA-BA-45	Sandwich 0.9 NNE	8.66"
0109000202	Cape Cod	MA-BA-10	East Sandwich 2.3 SE	8.95"
0109000202	Cape Cod	MA-BA-59	Barnstable 3.6 W	9.83"
0109000202	Cape Cod	MA-BA-22	Yarmouth 0.9 NNW	9.97"

0109000202	Cape Cod	MA-BA-72	Yarmouth 2.0 S	9.14"
0109000202	Cape Cod	MA-BA-52	Truro 0.8 E	7.61"
0109000202	Cape Cod	MA-BA-51	Orleans 3.0 S	10.32"
0109000202	Cape Cod	MA-BA-12	Orleans 1.1 E	8.89"
0109000202	Cape Cod	MA-BA-7	Wellfleet 3.0 E	6.64"
0109000202	Cape Cod	MA-BA-30	Eastham 0.6 SW	9.08"
0109000202	Cape Cod	MA-BA-43	Chatham 0.4 WSW	8.41"
0109000203	Mattapoisett River - Frontal Buzzards Bay	MA-PL-19	Rochester 1.2 NNW	9.90"
0109000204	Paskamanset River - Frontal Buzzards Bay	MA-BR-14	Dartmouth 2.5 SSW	9.41"
0109000205	Sakonnet Point - Frontal Rhode Island Sound	RI-NW-5	Little Compton 1.7 NW	9.38"
0109000205	Sakonnet Point - Frontal Rhode Island Sound	RI-NW-7	Little Compton 0.6 E	10.08"
0109000205	Sakonnet Point - Frontal Rhode Island Sound	MA-BR-37	Westport 0.9 ESE	10.61"
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-5	West Tisbury 2.9 N	10.16"
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-2	Vineyard Haven 0.8 WSW	9.80"
01090003	Blackstone			
0109000301	Upper Blackstone River	MA-WR-41	Auburn 2.6 SW	10.59"
0109000301	Upper Blackstone River	MA-WR-43	Leicester 2.4 ESE	9.53"
0109000301	Upper Blackstone River	MA-WR-70	Grafton 1.5 W	10.10"
0109000302	Lower Blackstone River	RI-PR-50	Harrisville 1.2 SSE	9.69"
0109000302	Lower Blackstone River	RI-PR-28	North Smithfield 0.7 SE	10.12"
0109000302	Lower Blackstone River	RI-PR-63	Woonsocket 1.5 NW	9.33"
0109000302	Lower Blackstone River	RI-PR-45	Manville 0.4 WSW	5.72"
0109000302	Lower Blackstone River	RI-PR-55	Cumberland Hill 3.6 NNE	9.75"
01090004	Narragansett			
0109000401	Upper Taunton River	MA-BR-30	Taunton 3.9 N	9.44"
0109000401	Upper Taunton River	MA-NF-31	Stoughton 1.2 E	10.24"
0109000401	Upper Taunton River	MA-PL-22	East Bridgewater 0.3 WSW	9.21"
0109000402	Middle Taunton River	MA-PL-31	Bridgewater 1.8 SE	9.57"
0109000403	Threemile River	MA-BR-55	NWS Boston/Norton 2.5 ESE	10.37"
0109000403	Threemile River	MA-BR-9	Taunton 2.6 NW	10.31"
0109000404	Ten Mile River	MA-BR-23	Attleboro 0.9 ENE	10.46"
0109000405	Woonasquatucket River-Moshassuck River	RI-PR-33	Greenville 0.7 NNW	10.20"
0109000405	Woonasquatucket River-Moshassuck River	RI-PR-51	North Smithfield 0.6 S	9.86"
0109000405	Woonasquatucket River-Moshassuck River	RI-PR-60	North Providence 0.9 E	11.02"
0109000406	Pawtuxet River	RI-PR-57	Cranston 1.2 SSE	11.70"
0109000406	Pawtuxet River	RI-PR-17	Cranston 4.1 E	11.03"
0109000407	Palmer River	MA-BR-2	Rehoboth 2.1 N	10.18"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-3	Norton 1.8 NNE	10.60"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-16	Somerset 0.4 SSE	8.85"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-19	Somerset 2.0 NNE	8.83"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-8	Dighton 1.1 WSW	9.75"

0109000409	Narragansett Bay	RI-KN-17	East Greenwich 1.2 NNE	11.07"
0109000409	Narragansett Bay	RI-WS-31	Kingston 7.5 NNE	10.69"
0109000409	Narragansett Bay	RI-KN-2	East Greenwich 2.3 ESE	10.99"
0109000409	Narragansett Bay	RI-PR-64	Providence 1.8 NE	11.15"
0109000409	Narragansett Bay	RI-NW-18	Jamestown 0.3 SSE	8.77"
0109000409	Narragansett Bay	RI-BR-5	Barrington 1.3 WNW	9.99"
0109000409	Narragansett Bay	RI-NW-4	Middletown 1.1 SW	7.60"
0109000409	Narragansett Bay	RI-NW-19	Portsmouth 2.3 S	8.66"
0109000409	Narragansett Bay	RI-NW-11	Tiverton 0.8 SSW	9.94"
0109000409	Narragansett Bay	RI-NW-20	Tiverton 1.0 SSW	9.57"
01090005	Pawcatuck-Wood			
0109000501	Wood River	RI-WS-1	Hope Valley 3.7 S	9.52"
0109000502	Upper Pawcatuck River	RI-WS-42	Richmond 4.6 NNE	10.12"
0109000502	Upper Pawcatuck River	RI-WS-32	Kingston 6.9 NNW	10.24"
0109000502	Upper Pawcatuck River	RI-WS-37	Kingston 2.4 SW	9.06"
0109000503	Lower Pawcatuck River	CT-NL-40	Pawcatuck 1.8 SSE	8.89"
0109000503	Lower Pawcatuck River	RI-WS-47	Westerly 0.8 WNW	8.15"
0109000504	Frontal Block Island Sound	RI-WS-36	Charlestown 3.0 WSW	9.44"
01100001	Quinebaug			
0110000103	Fivemile River	CT-WN-6	Dayville 2.0 ENE	9.04"
0110000103	Fivemile River	CT-WN-4	East Killingly 1.3 SW	8.76"
0110000105	Mossup River	CT-WN-8	Moosup 1.7 NE	9.53"
0110000106	Pachaug River	CT-NL-21	Griswold 0.9 N	9.58"
01100002	Shetucket			
0110000201	Willimantic River	CT-TL-18	Hebron 5.3 NW	7.55"
0110000201	Willimantic River	CT-TL-2	Staffordville 0.4 NNW	8.44"
0110000202	Natchaug River	CT-TL-27	Willington 2.7 SE	8.33"
0110000202	Natchaug River	CT-WN-12	Eastford 2.0 W	8.92"
0110000203	Shetucket River	CT-WN-10	South Windham 1.3 NNE	8.10"
0110000203	Shetucket River	CT-NL-10	Norwich 2.5 NNE	8.96"
01100003	Thames			
0110000302	Thames River-Frontal New London Harbor	CT-NL-5	Oakdale 2.6 WNW	9.34"
0110000302	Thames River-Frontal New London Harbor	CT-NL-6	New London 1.0 NNW	9.04"
0110000302	Thames River-Frontal New London Harbor	CT-NL-8	Uncasville-Oxoboxo Valley 1.6 ENE	9.88"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-38	Old Lyme 3.4 ESE	8.59"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-29	East Lyme 0.5 SW	9.83"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-32	Niantic 1.1 SW	8.17"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-22	Central Waterford 2.7 SSW	8.82"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-37	Mystic 1.6 W	9.47"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-19	Mystic 0.9 W	8.22"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-24	Stonington 1.4 NNW	8.26"

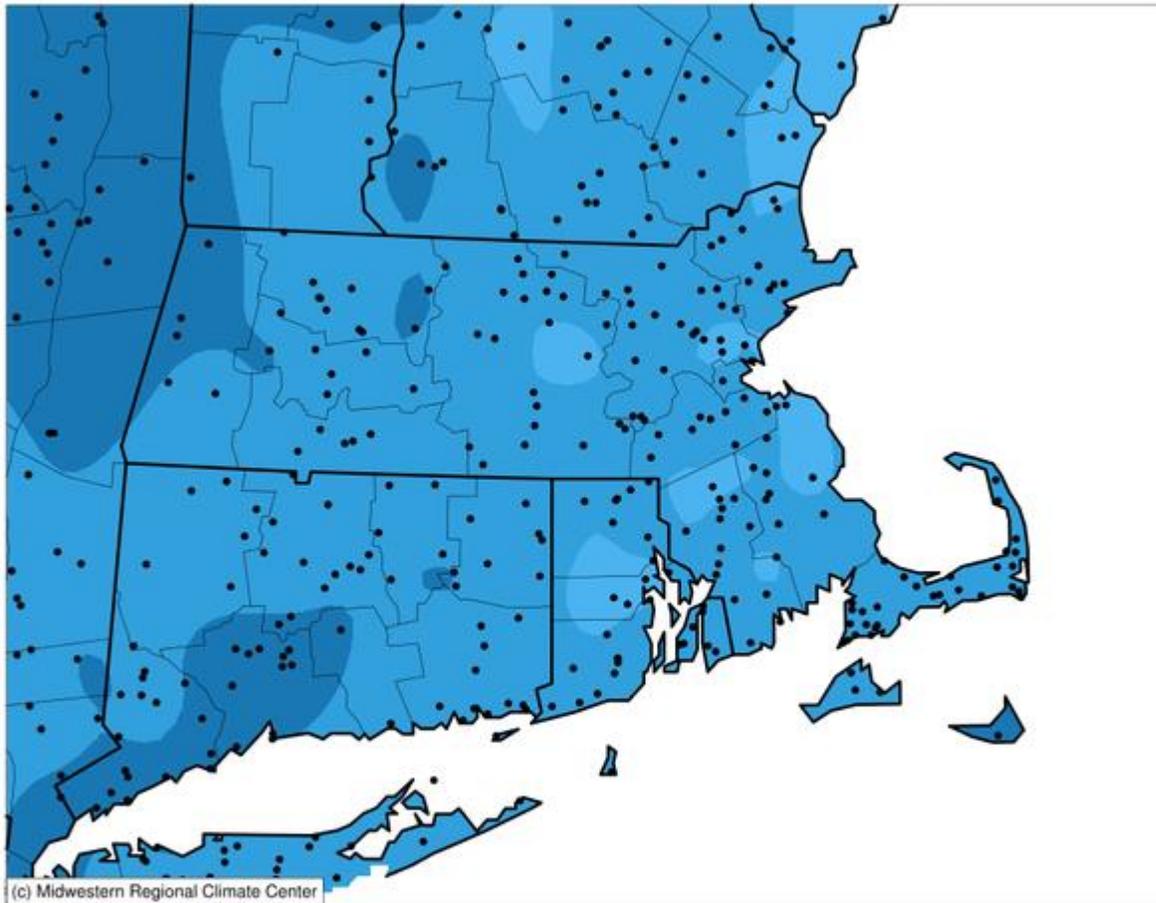
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-18	Stonington 0.5 NNE	8.49"
01100004	Quinnipiac			
0110000401	Quinnipiac River	CT-NH-14	Prospect 1.9 ENE	7.47"
0110000401	Quinnipiac River	CT-HR-55	Southington 1.7 WNW	8.06"
0110000401	Quinnipiac River	CT-HR-23	Southington 0.9 SSE	7.48"
0110000401	Quinnipiac River	CT-NH-44	Wallingford Center 1.9 WNW	7.47"
0110000401	Quinnipiac River	CT-NH-43	Wallingford Center 3.3 NNW	7.17"
0110000401	Quinnipiac River	CT-NH-42	Wallingford Center 1.1 N	6.45"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-NH-21	East Haven 3.5 SSW	7.56"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-NH-41	Madison Center 1.6 W	8.04"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-NH-50	Madison Center 4.1 N	7.98"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-MD-21	Killingworth 2.6 ESE	8.65"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-MD-11	Westbrook Center 1.5 NE	8.32"
0110000403	Mill River - Frontal Long Island Sound	CT-NH-16	Milford 1.8 E	7.05"
01100005	Housatonic			
0110000501	Headwaters Housatonic River	MA-BE-11	Great Barrington 3.0 N	7.69"
0110000501	Headwaters Housatonic River	MA-BE-3	Stockbridge .2 NNE	7.49"
0110000501	Headwaters Housatonic River	MA-BE-10	Pittsfield 2.0 NNW	7.31"
0110000504	Macedonia Brook - Housatonic River	CT-LT-20	Warren 2.4 WNW	8.18"
0110000506	Candlewood Lake-Housatonic River	CT-LT-22	New Milford 5.3 SSW	7.95"
0110000508	Still River - Housatonic River	CT-FR-43	Bethel 0.5 E	8.70"
0110000508	Still River - Housatonic River	CT-FR-41	Bethel 3.5 NNE	8.36"
0110000508	Still River - Housatonic River	CT-FR-9	Brookfield 3.3 SSE	8.33"
0110000510	Eightmile Brook - Housatonic River	CT-FR-44	Newtown 4.3 E	7.48"
0110000511	Headwaters Naugatuck River	CT-LT-7	Litchfield 2.3 NNE	7.57"
0110000512	Outlet Naugatuck River	CT-NH-47	Seymour 1.5 NE	7.74"
0110000512	Outlet Naugatuck River	CT-NH-45	Naugatuck 1.7 NNE	7.13"
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-42	Monroe 0.1 SE	7.78"
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-23	Shelton 1.3 W	7.08"
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-46	Stratford 0.2 ESE	7.33"
01100006	Saugatuck			
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-29	Ridgefield 1.9 SSE	7.58"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-3	New Canaan 1.9 ENE	6.82"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-25	Norwalk 2.9 NNW	6.65"
0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-20	Westport 2.5 ENE	7.13"
0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-60	Fairfield 1.5 NE	7.39"
0110000604	Mianus River-Rippowam River	CT-FR-39	Stamford 4.2 S	6.63"
0110000604	Mianus River-Rippowam River	CT-FR-50	Darien 2.8 NW	6.90"
0110000604	Mianus River-Rippowam River	CT-FR-35	Darien 1.8 ENE	7.07"
02020003	Hudson-Hoosic			
0202000306	Upper Hoosic River	MA-BE-18	North Adams 3.0 WNW	6.62"

02020006	Middle Hudson			
0202000603	Wynants Kill - Hudson River	NY-AB-21	NWS Albany	5.11"
02030203	Long Island Sound			
0203020300	Long Island Sound	NY-SF-114	Fishers Island 0.5 NE	8.34"

The darker shade of blue is for 5", the next shade of blue is the most common, more than 7.5". A few isolated pockets of 10"+.

### Accumulated Precipitation (in)

November 01, 2018 to November 30, 2018



0.01 0.1 0.5 1 1.5 2 3 4 5 7.5 10 12.5 15

Stations from the following networks used: COOP, FAA, CoCoRaHS,

Midwestern Regional Climate Center

cli-MATE: MRCC Application Tools Environment

Generated at: 12/4/2018 9:03:01 PM CST

**“We do not live at the airport”**

You can be equally confused looking at this as I was while fetching the data and verifying the formulas. Remember, it snowed this month of November. And when it snows, automated gauges do NOT tip!

See any 12-month precip totals larger than 65"? How about 60"? Take another look back at our list of stations with an 11-month precip total larger than 65".

Our network does not use automated gauges. And we do not live at the airport!

Location	Station ID	November 2018 Precip	November departure from normal	Sep-Oct-Nov Precip	3 month departure from normal	Jun-Nov Precip	6 month departure from normal	Dec-Nov Precip	12 month departure from normal
White Plains NY	HPN	6.16"	2.19"	19.77"	6.67"	35.44"	10.22"	54.51"	5.16"
Danbury CT	DXR	7.05"	2.80"	16.49"	3.23"	33.43"	6.57"	51.46"	1.59"
New Haven CT	HVN	6.61"	2.68"	18.83"	6.29"	29.00"	4.48"	48.24"	1.13"
Meriden CT	MMK	7.04"	3.11"	19.93"	7.39"	32.56"	8.04"	54.56"	7.45"
Hartford CT	HFD	7.23"	3.39"	19.07"	7.61"	33.94"	10.83"	53.76"	10.16"
Willimantic CT	IJD	7.04"	2.71"	22.08"	9.35"	30.90"	6.00"	51.76"	3.34"
New London CT	GON	5.80"	1.49"	10.70"	-1.47"	21.08"	-3.13"	33.49"	-13.00"
Westerly RI	WST	8.16"	3.64"	20.98"	8.62"	28.03"	4.05"	50.13"	2.74"
Newport RI	UUU	9.11"	4.64"	21.75"	9.52"	28.05"	4.85"	53.30"	6.97"
New Bedford MA	EWB	9.22"	4.57"	20.82"	8.44"	27.63"	3.91"	55.10"	6.74"
Hyannis MA	HYA	8.50"	4.02"	16.77"	4.31"	23.69"	0.81"	47.60"	-0.09"
Nantucket MA	ACK	6.76"	2.33"	15.80"	3.41"	21.09"	-1.79"	50.15"	5.73"
Marthas Vineyard MA	MVY	9.02"	4.48"	18.67"	5.86"	24.85"	1.83"	47.03"	1.87"
Taunton MA	TAN	9.67"	5.17"	23.29"	10.18"	33.03"	8.46"	60.12"	10.38"
Plymouth MA	PYM	9.26"	4.60"	22.15"	9.49"	32.56"	8.67"	59.72"	10.57"
Norwood MA	OWD	3.93"	-0.56"	18.18"	5.80"	29.27"	5.29"	53.13"	6.07"
Bedford MA	BED	8.85"	4.56"	18.22"	6.15"	28.88"	5.52"	46.61"	0.90"
Beverly MA	BVY	10.21"	5.97"	21.00"	8.43"	32.70"	9.25"	50.99"	4.81"
Lawrence MA	LWM	6.67"	2.84"	14.90"	3.39"	26.61"	3.94"	40.26"	-2.90"
Fitchburg MA	FIT	9.04"	4.79"	20.95"	8.57"	39.59"	15.08"	58.02"	10.88"
Orange MA	ORE	6.72"	2.84"	17.84"	6.62"	38.05"	14.72"	53.91"	11.36"
Westfield MA	BAF	8.07"	3.95"	23.54"	10.18"	39.32"	13.36"	58.63"	10.24"
North Adams MA	AQW	4.85"	0.89"	13.80"	0.99"	29.27"	2.76"	43.45"	-3.16"

November 2018 as a calendar. A count of your Daily Reports by Date. Magenta colors are for the highest counts. Lime green color for the lowest counts.

Our average was 302 Daily Reports per day.

November 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 313	2 328	3 324
4 308	5 300	6 323	7 331	8 321	9 311	10 325
11 300	12 292	13 323	14 319	15 295	16 299	17 271
18 281	19 281	20 290	21 286	22 271	23 269	24 266
25 298	26 294	27 327	28 307	29 310	30 299	

From the Drought Monitor.

Conditions are wet enough to keep erasing D2 and D1 and leave a small bit of D0 in our River Forecast area.

Please continue to make Condition Monitoring Reports. One report a week is all that we seek.

Every drop counts and zeros do too!

## U.S. Drought Monitor Northeast RFC

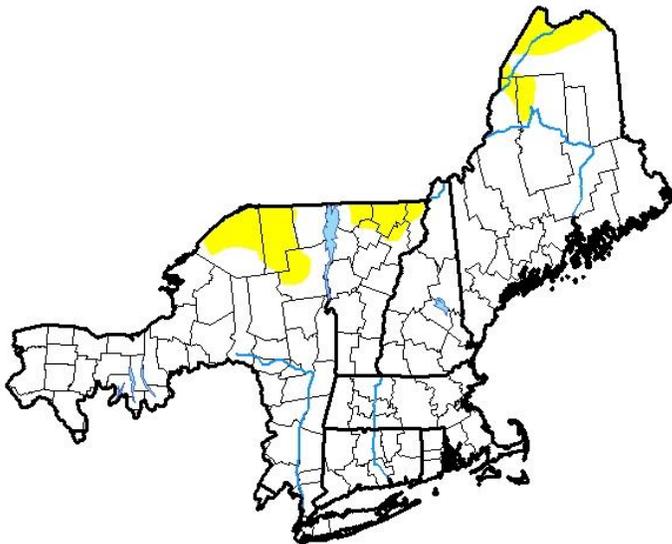
**November 27, 2018**

(Released Thursday, Nov. 29, 2018)

Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0	D1	D2	D3	D4
<b>Current</b>	91.58	8.42	0.00	0.00	0.00	0.00
<b>Last Week</b> <i>11-20-2018</i>	90.23	9.77	0.00	0.00	0.00	0.00
<b>3 Months Ago</b> <i>08-28-2018</i>	61.44	24.40	14.16	0.00	0.00	0.00
<b>Start of Calendar Year</b> <i>01-02-2018</i>	88.74	11.26	0.00	0.00	0.00	0.00
<b>Start of Water Year</b> <i>09-25-2018</i>	58.29	31.22	8.70	1.78	0.00	0.00
<b>One Year Ago</b> <i>11-28-2017</i>	95.55	4.45	0.00	0.00	0.00	0.00



*Intensity:*

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

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

*Author:*

Richard Heim  
NCEI/NOAA



<http://droughtmonitor.unl.edu/>

For a viewing explanation on the Drought Monitor, the CoCoRaHS animated video is on [YouTube](#).

## **Wrap up**

Winter cold comes and goes. Frozen water over long duration, a day or more, with the plastic gauge can result in hairline cracks that can leak precipitation in subsequent events. As cold air comes and goes, keep watch over your funnel and inner cylinder should rainfall occur with freezing temperatures afterwards. You may need to measure, write down, and empty your gauge before your regular observation time.

This is a unique time of the year. Take in the stillness and quiet that the early mornings and evenings have during this time of year. The Winter Solstice occurs on 5:21pm on Friday December 21. Daylight will increase when we get into January.

Our best wishes to you all, however you spend your year-end holidays.

Thank you for all that you do for CoCoRaHS, whether in the past, present and in the days to come.