Community Collaborative Rain, Hail & Snow Network

Southern New England

January 2019

The New Year of 2019 started the same way 2018 ended: Wet! Many of you have reported over 50" for Year 2018, over 60", and we will Salute those that have reported over 70" in Year 2018. Your 12 month precipitation totals are impressive.

Within this month's Newsletter: We lead off with The Grand List Observers.

Our "Observer of the Month" takes us to our Massachusetts State Coordinator in Norfolk County, our leader of this Southern New England region.

Snow Depth and Snow Water Equivalent (SWE) completes our series on Snow Measuring and Reporting. If you are one for looking at the map of precip reports, switch the drop-down box to look at the same map with "Snow fall" and "Snow depth". We are The Rulers of the Snow.

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-NF-5	Weymouth 0.5 NW
RI-NW-5	Little Compton 1.7 NW

2000 Daily Reports

CT-NH-16	Milford 1.8 E
MA-WR-8	Fitchburg 1.6 SSW

1000 Daily Reports

CT-NH-22	Prospect 0.5 SW
MA-WR-6	Southbridge 0.6 E
CT-FR-31	Newtown 4.6 SSW
CT-NL-22	Central Waterford 2.7 SSW

Observer of the Month – MA-NF-1

You probably know me as the Southern New England Coordinator for CoCoRaHS, but I've also been a CoCoRaHS observer since March 2009 at my station in Norwood Massachusetts.

My interest in weather began when I was in elementary school, growing up in Westchester County, New York. I took my own daily weather observations and experienced such notable storms as the Blizzard of '78, the Presidents' Day Blizzard in 1983, and Hurricanes David, Frederick, and Gloria. In high school, I volunteered at the National Weather Service offices at LaGuardia Airport where I first learned how to take weather observations (they were done manually then) and in Rockefeller Center, New York City where I broadcasted on NOAA Weather Radio (before the automated voice!) I attended college at the State University of New York at Oswego and was hired as a Student Trainee at the National Weather Service in Boston at the end of my junior year.

After graduating the next spring, I accepted a job at the National Weather Service in Binghamton, New York and spent the next five years there. One of my main duties was taking weather observations. I've been at the Taunton (now Norton) office for more than 20 years, having worked as both as a Hydrologist and Meteorologist. In my current job as Science and Operations Officer, I manage the office's science program which includes research and staff training.

As you may already know, Henry Reges from CoCoRaHS contacted me to try and get our three southern New England states integrated into the CoCoRaHS network more than ten years ago. Once Rhode Island was established in 2008, we set our sights on Massachusetts with the help of the American Meteorological Society, since their national headquarters are in Boston. We gave them the honor of becoming the first station in Massachusetts, MA-SF-1, which is still active today. Since I already had

my own 4” plastic rain gauge, I became the second station and began reporting in March 2009 when the Bay State joined CoCoRaHS.

One thing I like to do is review all my past observations and see the year to year trends. I encourage you to do the same!
Greatest 24-hour precipitation total: 4.05” on October 23, 2014.
Greatest 24-hour snowfall: 24.0” on February 9, 2013.
Greatest snow depth: 44.0” on February 15, 2015.
Greatest annual precipitation: 60.75” (Year 2018) surpassing 59.17” (Year 2011)

FEBRUARY 2011 IN NORWOOD MA, WHEN THE SNOW WOULD NOT STOP!

Ten years have almost passed and I’m still reporting daily. Both of my children, one in high school and one in middle school, also enjoy reading the rain gauge, melting snow, and taking snow core samples. It’s been a great way to reinforce math and science skills. I hope you enjoy participating in the CoCoRaHS network as much as I do!

Snow Depth

Continuing from our series of articles about snow measuring and reporting. We started with “Gauge Catch”, then onto snow fall, and this month, snow depth.

Find an open area, away from snow drifts, plowed or shoveled snow, measure with a ruler, or have a snow depth gauge in the ground, and find an average depth of snow, and then round off that value to the nearest 0.5”. When the snow cover becomes blotchy, and bare spots appear, the same guidelines as the others apply: Do the best that you can. Sometimes a “T” for trace is accurate.

Mobile app observers, the snow reporting section is on the 2nd page of reporting screen.

For some of you, snow depth can be easy to determine, and zeros are the most common measurement and a valuable measurement to report. We determine where the snow is and where it is not.

Be safe! Accuracy matters! With a measurement each day, you can see how snow settles, compacts and comes and goes through the winter season. Throughout the winter months, we are captivated by our observers in our northern and western elevations that do amazing work each year reporting snow depth through ice each day.

Do marvel at the beauty of snow. At the same time, understand that snow does eventually melt, and can cause flooding.

For hydrologists, and our River Forecasters, a snow depth report is of high value. We are the Rulers of the Snow.

Snow Water Equivalent (SWE)

How much water is in the snow? What potential flood impact does the snow pack hold? Taking that snow depth measurement is the first step to answering those questions.

Find the location of the average depth of snow. Take an empty outer cylinder, turn it upside down and cut a vertical core of snow. Slide a spatula underneath the outer cylinder to keep the core sample from falling out of the outer cylinder.

Find the liquid content of this core sample of snow by adding a measured quantity of hot water, sometimes several 1.00" inner cylinders of hot water, and then pouring out the contents, subtracting the 1.00" inner cylinders of hot water.

Another approach involves weighing the core sample. A gram scale, the known weight of the outer cylinder (460g-480g) (every outer cylinder is different and should be weighed precisely ahead of time) and that 201g of added weight = 1.00" of water with our 4" diameter gauges.

Because of the time involved in making this measurement, and the available terrain to cut a core sample, we make this measurement with Monday morning's report. We call this SWE Monday, a network wide custom during these winter months.

For a viewing explanation on Snow Depth and SWE Measuring, in 2 minutes, the CoCoRaHS animated video is on YouTube.

Wrapping up Snow Measuring and Reporting

- ✓ Gauge Catch, the melted amount, as the 1st value reported.
- ✓ Snow fall and its water equivalent, measuring and sweep your snow measuring board when the snow stops, or every 6 hours.
- ✓ Snow depth and its water equivalent, SWE Monday.

The 5 measurements with every Daily Report during these winter months and throughout the year. When accurate, zeros are valuable. We define where the snow is and where it is not.

Salute to the 70's

Below is a list of observers who reported more than 70" of precip during the Year 2018 that has ended.

No time was spent, looking for missing reports. If there were missing reports, the end total may have been even higher. We stress "Be a hero. Report your zeros", not missing reports, send out reminder messages, show the list of stations that did not miss any days, for several reasons. A complete record of precipitation is valued and does not leave others with doubts or questions.

Station	Name	Precip Total
CT-WN-8	Moosup 1.7 NE	76.89''
MA-PL-5	Kingston 3.3 WNW	74.90''
CT-NL-5	Oakdale 2.6 WNW	74.53''
CT-FR-32	Monroe 0.8 W	74.45''
CT-FR-42	Monroe 0.1 SE	74.13''
CT-NH-41	Madison Center 1.6 W	73.82''
MA-HS-7	Plainfield 2.2 SW	73.70''
CT-NL-8	Uncasville-Oxoboxo Valley 1.6 ENE	73.05''
MA-BR-33	Taunton 2.4 W	72.97''
MA-HS-14	Plainfield 2.4 ESE	72.60''
MA-BR-9	Taunton 2.6 NW	72.43''
MA-BR-3	Norton 1.8 NNE	72.15''
MA-PL-30	Duxbury 3.7 W	71.84''
MA-HD-13	Springfield 4.1 W	71.77''
MA-FR-13	Conway 2.9 NW	71.61''
MA-HS-2	Westhampton 1.8 SW	71.61''
CT-FR-29	Ridgefield 1.9 SSE	71.57''
MA-BE-4	Becket 5.6 SSW	71.27''
RI-PR-17	Cranston 4.1 E	71.24''
CT-TL-18	Hebron 5.3 NW	70.65''
MA-PL-31	Bridgewater 1.8 SE	70.31''
MA-BR-2	Rehoboth 2.1 N	70.28''
MA-BR-30	Taunton 3.9 N	70.12''

Emphasizing reporting, day after day, month after month, does pay off when you look back at the wet year that Year 2018 turned out to be.

Before the Federal Government shutdown, this posting of Year 2018 precipitation totals illustrates that…. someone else is looking at CoCoRaHS totals. Recognize these stations? 23 out of these 54 stations are … probably… CoCoRaHS stations.

Top 3 Highest 2018 Precipitation Totals By State Eastern US – As of December 19th

Connecticut		Massachusetts		Pennsylvania	
Moosup CT	72.95"	Kingston MA	72.81"	Hidden Valley PA	85.56"
Madison Center CT	71.40"	Taunton MA	71.10"	Fairfield PA	81.35"
Hampton CT	67.66"	Norton	70.36"	Tamaqua PA	81.10"
Delaware		**New Hampshire**		**Rhode Island**	
Smyrna DE	66.09"	Mount Washington NH	88.75"	Cranston RI	68.84"
Laurel DE	63.80"	Pinkham Notch NH	68.51"	Woonsocket RI	65.95"
Dover DE	63.66"	Greenville NH	65.57"	North Foster RI	65.64"
Florida		**New Jersey**		**South Carolina**	
Alford FL	100.21"	Mine Hill Township NJ	76.31"	Caesars Head SC	106.27"
De Funiak Springs FL	93.62"	Rockaway NJ	75.35"	Jocassee SC	104.14"
Vernon FL	91.62"	Hardyston Township NJ	74.83"	Table Rock SC	92.76"
Georgia		**New York**		**Vermont**	
Germany Valley GA	107.50"	Phonecia NY	70.76"	Peru VT	62.04"
Helen GA	98.56"	Wurtsboro NY	70.20"	Wilmington VT	57.92"
Sautee GA	96.12"	East Jewett NY	67.92"	Jeffersonville VT	51.56"
Maine		**North Carolina**		**Virginia**	
West Rockport ME	59.34"	Mount Mitchell NC	131.08"	Montebello VA	93.56"
Eastport ME	58.93"	Jonas Ridge NC	129.18"	Roanoke VA (5.8 mi SW)	83.36"
Kennebunkport ME	57.39"	Lake Toxaway NC	114.12"	Sperryville VA	83.02"
Maryland		**Ohio**		**West Virginia**	
Catonsville MD	81.89"	Hannibal OH	68.41"	Parsons WV	94.40"
Thurmont MD	81.15"	Steubenville OH	67.42"	Snowshoe WV	82.61"
Mechanicsville MD	78.60"	Newport OH	64.15"	Savis WV	77.77"

Measure and report every day that you can. Regardless of wet, dry, normal, snow fall, snow depth, someone else is looking at your station reports.

Detail and Summary for December 2018

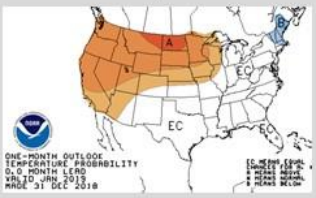
From the National Weather Service (NWS) Climate sites for Dec 2018.

December 2018
Regional Precipitation Summary

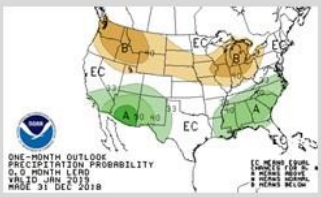
Location	Station ID	Dec 2018 Precip	Dec departure from normal	Oct-Nov-Dec Precip	3 month departure from normal	Jul-Dec Precip	6 month departure from normal	Jan-Dec Precip	12 month departure from normal
Pittsfield MA	PSF	3.94"	0.94"	12.71"	1.07"	30.56"	6.62"	51.27"	5.89"
Bridgeport CT	BDR	5.98"	2.65"	19.58"	9.22"	35.20"	13.94"	60.40"	17.66"
Hartford CT	BDL	4.96"	1.52"	17.23"	5.53"	39.05"	15.36"	62.75"	16.90"
Worcester MA	ORH	4.65"	0.83"	19.10"	6.32"	37.41"	12.76"	62.73"	14.66"
Providence RI	PVD	4.77"	0.55"	21.39"	8.73"	35.82"	12.35"	63.49"	16.31"
Boston MA	BOS	2.72"	-1.06"	15.76"	4.05"	30.08"	8.15"	53.32"	9.55"

January 2019 Outlook

Air Temperature



Precipitation



A = Above normal, B = Below normal,
EC = Equal chances of above/below normal

December Highlights

The rains continued

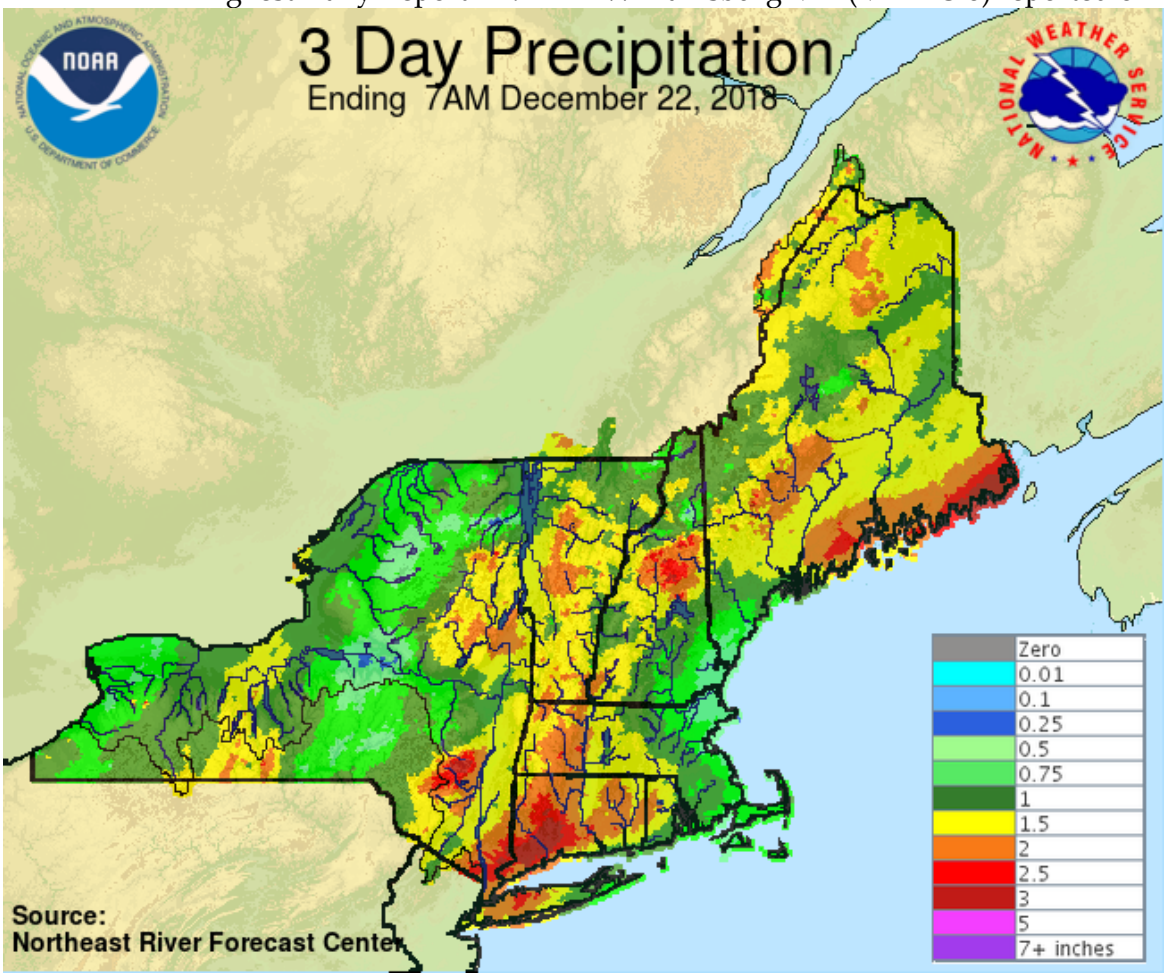
Daily Reports >= 1.00" = 316
Daily Reports >= 2.00" = 30

The rains continued in December. The first event happened early in the month, from the 2nd into the 3rd. A stretch of zeros until the 15th, ending with rain on the 16th into the 17th. The Main Event for the month was a widespread rain that spanned the 21st to the 22nd, noted by the map on the next page. Light snow for the 24th. One last rain event for the 28th into the 29th.

Take in the next section with appreciation of your efforts.

From your reports for December 2018

Observers reporting	366
Reported all 31 days	184
Completed by Multi-Day Reports	43
Missing 1 or 2 reports	44
Daily Reports	9300
Zero Reports	5411
Non-Zero Reports	3889
Daily Comments	1794
Multi-Day Reports	188
Condition Monitoring Reports	34
Significant Weather Reports	12
Snowfall Reports	5726
Snow Depth Reports	3215
SWE Reports	1931
Highest Daily Report	2.72″ in Williamsburg MA (MA-HS-8) reported on 12/22



A larger list than last month, over 230 stations. A surprising large number of stations reported all days without Multi-Day Reports. About 6 stations elimated for “NA” precip reporting. The timing of the rain on New Year’s Day was not favorable to those stations that did submit a Multi-Day Report over the end of December to the beginning of January.

Keep up the day-by-day reporting.

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-8	Fitchburg 1.6 SSW	3.86''
0107000401	North Nashua River	MA-WR-22	Fitchburg 2.0 NNE	2.82''
0107000402	Headwaters Nashua River	MA-WR-64	Sterling 3.7 WNW	3.62''
0107000402	Headwaters Nashua River	MA-WR-56	Sterling 4.3 NW	3.69''
0107000403	Squannacook River	MA-MD-47	West Townsend 0.5 W	3.57''
01070005	Concord			
0107000501	Sudbury River	MA-MD-89	Sudbury 3.6 W	3.10''
0107000501	Sudbury River	MA-MD-88	Wayland 2.1 SSE	2.96''
0107000502	Concord River	MA-WR-28	Berlin 1.3 WSW	3.49''
0107000502	Concord River	MA-WR-18	Northborough 0.6 SSE	3.98''
0107000502	Concord River	MA-WR-42	Northborough 2.3 N	3.45''
0107000502	Concord River	MA-MD-115	Hudson 1.4 NW	3.03''
0107000502	Concord River	MA-WR-55	Harvard 2.1 S	2.98''
0107000502	Concord River	MA-MD-12	Acton 1.3 SW	3.15''
0107000502	Concord River	MA-MD-51	Maynard 0.7 ESE	3.22''
0107000502	Concord River	MA-MD-53	Acton 4.0 ENE	2.66''
01070006	Merrimack River			
0107000612	Stony Brook - Merrimack River	MA-MD-104	Littleton 2.8 NNW	2.73''
0107000612	Stony Brook - Merrimack River	MA-MD-93	Westford 1.5 SSW	1.98''
0107000613	Shawsheen River	MA-ES-48	Andover 0.6 E	2.80''
0107000614	Powwow River - Merrimack River	MA-ES-20	Haverhill 0.7 N	2.57''
0107000614	Powwow River - Merrimack River	MA-ES-4	Groveland 0.5 WSW	2.58''
01080201	Middle Connecticut			
0108020106	Manhan River - Connecticut River	MA-HS-2	Westhampton 1.8 SW	5.16''
0108020106	Manhan River - Connecticut River	MA-HS-8	Williamsburg 1.2 WSW	5.31''

0108020106	Manhan River - Connecticut River	MA-HS-21	Northampton 0.6 ESE	4.95''
0108020106	Manhan River - Connecticut River	MA-FR-12	Sunderland 1.3 SE	4.42''
0108020107	Batchelor Brook - Connecticut River	MA-HD-13	Springfield 4.1 W	4.20''
0108020107	Batchelor Brook - Connecticut River	MA-HD-23	Springfield 2.5 WNW	4.21''
0108020107	Batchelor Brook - Connecticut River	MA-HS-30	South Hadley 2.1 SSE	4.48''
01080202	Miller			
0108020201	Upper Millers River	NH-CH-20	Rindge 3.2 ESE	3.79''
0108020202	Lower Millers River	MA-WR-40	Gardner 1.4 SSW	3.55''
01080203	Deerfield			
0108020305	Lower Deerfield River	MA-FR-17	Buckland 1.8 ESE	4.75''
0108020305	Lower Deerfield River	MA-FR-13	Conway 2.9 NW	4.59''
0108020305	Lower Deerfield River	MA-FR-10	Conway 0.9 SW	5.22''
01080204	Chicopee			
0108020401	Swift River	MA-FR-8	New Salem 3.1 S	4.00''
0108020402	Ware River	MA-WR-54	Barre 1.4 NNE	3.52''
0108020403	Quaboag River	MA-HD-26	Brimfield 3.6 NW	3.75''
0108020404	Chicopee River	MA-HD-25	Ludlow 2.3 SW	3.86''
01080205	Lower Connecticut			
0108020501	Mill River-Connecticut River	CT-HR-57	Suffield Depot 3.3 NNE	4.44''
0108020501	Mill River - Connecticut River	CT-HR-5	Enfield 1.5 SE	4.21''
0108020502	Scantic River	CT-TL-15	Central Somers 0.3 N	3.87''
0108020503	Park River	CT-HR-39	Farmington 1.6 SW	5.81''
0108020503	Park River	CT-HR-49	West Hartford 1.1 W	4.66''
0108020503	Park River	CT-HR-11	West Hartford 2.7 SSE	4.30''
0108020504	Hockanum River	CT-HR-52	Central Manchester 0.8 N	3.27''
0108020504	Hockanum River	CT-TL-19	Vernon 2.8 N	3.54''
0108020505	Roaring Brook - Connecticut River	CT-HR-6	Wethersfield 1.2 WSW	4.93''
0108020505	Roaring Brook - Connecticut River	CT-HR-68	Rocky Hill 1.3 E	4.05''
0108020505	Roaring Brook - Connecticut River	CT-HR-22	East Hartford 1.3 E	3.63''
0108020505	Roaring Brook - Connecticut River	CT-HR-7	Central Manchester 2.7 SW	3.67''
0108020506	Mattabesset River	CT-HR-15	Southington 3.0 E	5.87''
0108020506	Mattabesset River	CT-HR-80	Kensington 0.7 WSW	4.72''
0108020506	Mattabesset River	CT-HR-65	Newington 1.9 SSW	4.48''
0108020506	Mattabesset River	CT-MD-25	Middlefield 0.6 SE	5.31''
0108020507	Higganum Creek - Connecticut River	CT-MD-2	Portland 0.9 S	4.28''
0108020507	Higganum Creek - Connecticut River	CT-MD-23	Higganum 0.7 N	5.23''
0108020507	Higganum Creek - Connecticut River	CT-MD-26	Higganum 0.8 NE	5.46''
0108020509	Eightmile River - Connecticut River	CT-MD-19	Ivoryton 0.9 WSW	4.17''
0108020509	Eightmile River-Connecticut River	CT-MD-18	Essex Village 0.9 S	4.10''
01080206	Westfield			
0108020601	Headwaters Westfield River	MA-HS-14	Plainfield 2.4 ESE	4.89''

01080207	Farmington			
0108020701	Still River	CT-LT-15	Colebrook 1.0 NE	4.69''
0108020702	West Branch Farmington River	CT-LT-18	New Hartford Center 1.5 N	4.48''
0108020704	Headwaters Farmington River	CT-LT-9	New Hartford Center 3.2 SW	5.08''
0108020705	Salmon Brook	CT-HR-8	North Granby 1.3 ENE	5.20''
01090001	Charles			
0109000101	Plum Island Sound - Frontal Atlantic Ocean	MA-ES-46	Georgetown 1.3 ENE	2.82''
0109000101	Plum Island Sound - Frontal Atlantic Ocean	MA-ES-24	Newburyport 0.8 SW	2.71''
0109000102	Ipswich River	MA-MD-85	Wilmington 2.2 WNW	2.97''
0109000102	Ipswich River	MA-MD-125	Tewksbury 3.6 SSE	2.84''
0109000102	Ipswich River	MA-MD-45	Wilmington 1.5 NE	3.11''
0109000102	Ipswich River	MA-ES-12	Boxford 2.4 S	2.52''
0109000102	Ipswich River	MA-ES-2	Beverly 2.8 NW	2.34''
0109000103	Essex River - Frontal Atlantic Ocean	MA-ES-41	Danvers 0.8 ESE	2.68''
0109000104	Saugus River - Frontal Broad Sound	MA-MD-81	Wakefield 0.5 NNW	2.46''
0109000104	Saugus River - Frontal Broad Sound	MA-MD-126	Melrose 0.5 NE	2.31''
0109000104	Saugus River - Frontal Broad Sound	MA-ES-8	Marblehead 0.8 SW	2.10''
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-123	Lexington 1.3 SE	2.56''
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-67	Lexington 2.3 SE	2.84''
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-7	Winchester 0.7 SE	2.62''
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-44	Medford 1.2 W	2.65''
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-11	Cambridge 0.9 NNW	2.84''
0109000105	Mystic River - Frontal Boston Harbor	MA-SF-10	Chelsea 0.8 N	2.60''
0109000106	Upper Charles River	MA-WR-1	Milford 2.3 NNW	3.55''
0109000106	Upper Charles River	MA-MD-106	Holliston 2.4 W	3.50''
0109000106	Upper Charles River	MA-MD-55	Holliston 0.7 W	3.29''
0109000106	Upper Charles River	MA-MD-42	Holliston 0.8 S	3.14''
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-120	Natick 1.9 NNE	2.96''
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-71	Newton 2.2 NNW	2.41''
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-119	Watertown 1.1 W	2.74''
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-134	Somerville 0.5 SSE	2.86''
0109000108	Neponset River - Frontal Boston Harbor	MA-NF-1	Norwood 1.3 NW	2.71''
0109000109	Whitmans Pond - Frontal Boston Harbor	MA-NF-32	Quincy 1.8 WSW	2.78''
0109000109	Whitmans Pond - Frontal Boston Harbor	MA-PL-36	Hingham 0.8 ESE	3.20''
01090002	Cape Cod			
0109000201	North River - Frontal Massachusetts Bay	MA-PL-30	Duxbury 3.7 W	3.87''
0109000201	North River - Frontal Massachusetts Bay	MA-PL-47	Plymouth 1.1 NNW	3.75''
0109000201	North River - Frontal Massachusetts Bay	MA-PL-2	Sagamore Beach 1.0 NW	2.86''
0109000202	Cape Cod	MA-BA-2	Falmouth 3.1 NNW	3.83''
0109000202	Cape Cod	MA-BA-57	Falmouth 5.7 N	3.24''
0109000202	Cape Cod	MA-BA-50	Falmouth 5.4 NNE	3.50''

0109000202	Cape Cod	MA-BA-19	East Falmouth 0.7 NW	3.77''
0109000202	Cape Cod	MA-BA-3	Falmouth 3.0 E	3.42''
0109000202	Cape Cod	MA-BA-11	East Falmouth 1.4 ESE	3.37''
0109000202	Cape Cod	MA-BA-18	Waquoit 0.6 SSW	3.78''
0109000202	Cape Cod	MA-BA-47	Mashpee 2.4 WSW	4.09''
0109000202	Cape Cod	MA-BA-45	Sandwich 0.9 NNE	3.44''
0109000202	Cape Cod	MA-BA-10	East Sandwich 2.3 SE	4.14''
0109000202	Cape Cod	MA-BA-59	Barnstable 3.6 W	5.08''
0109000202	Cape Cod	MA-BA-76	Barnstable 0.7 NE	4.23''
0109000202	Cape Cod	MA-BA-22	Yarmouth 0.9 NNW	4.47''
0109000202	Cape Cod	MA-BA-72	Yarmouth 2.0 S	4.16''
0109000202	Cape Cod	MA-BA-1	Yarmouth 2.3 SSE	4.06''
0109000202	Cape Cod	MA-BA-74	Yarmouth 3.4 SSE	3.36''
0109000202	Cape Cod	MA-BA-77	South Dennis 1.0 NW	5.02''
0109000202	Cape Cod	MA-BA-33	Brewster 1.5 ESE	3.41''
0109000202	Cape Cod	MA-BA-52	Truro 0.8 E	3.80''
0109000202	Cape Cod	MA-BA-27	Wellfleet 0.7 NW	3.35''
0109000202	Cape Cod	MA-BA-36	Harwich 2.6 ENE	4.71''
0109000202	Cape Cod	MA-BA-51	Orleans 3.0 S	5.56''
0109000202	Cape Cod	MA-BA-12	Orleans 1.1 E	4.41''
0109000202	Cape Cod	MA-BA-30	Eastham 0.6 SW	4.54''
0109000202	Cape Cod	MA-BA-43	Chatham 0.4 WSW	4.29''
0109000202	Cape Cod	MA-BA-65	Chatham 0.2 SSE	3.64''
0109000203	Mattapoisett River - Frontal Buzzards Bay	MA-PL-19	Rochester 1.2 NNW	3.57''
0109000204	Paskamanset River - Frontal Buzzards Bay	MA-BR-14	Dartmouth 2.5 SSW	3.36''
0109000204	Paskamanset River - Frontal Buzzards Bay	MA-BR-52	New Bedford 4.3 N	3.82''
0109000205	Sakonnet Point - Frontal Rhode Island Sound	RI-NW-5	Little Compton 1.7 NW	3.39''
0109000205	Sakonnet Point - Frontal Rhode Island Sound	RI-NW-7	Little Compton 0.6 E	4.04''
0109000205	Sakonnet Point - Frontal Rhode Island Sound	MA-BR-37	Westport 0.9 ESE	4.03''
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-5	West Tisbury 2.9 N	3.59''
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-9	West Tisbury 0.4 S	2.76''
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-2	Vineyard Haven 0.8 WSW	3.59''
01090003	Blackstone			
0109000301	Upper Blackstone River	MA-WR-41	Auburn 2.6 SW	4.21''
0109000301	Upper Blackstone River	MA-WR-43	Leicester 2.4 ESE	3.98''
0109000301	Upper Blackstone River	MA-WR-70	Grafton 1.5 W	3.76''
0109000301	Upper Blackstone River	MA-WR-69	Northbridge 1.7 WNW	3.49''
0109000302	Lower Blackstone River	RI-PR-28	North Smithfield 0.7 SE	4.51''
0109000302	Lower Blackstone River	RI-PR-63	Woonsocket 1.5 NW	4.31''
0109000302	Lower Blackstone River	MA-NF-26	Bellingham 2.4 S	3.67''
0109000302	Lower Blackstone River	RI-PR-59	Cumberland Hill 0.9 NW	4.37''

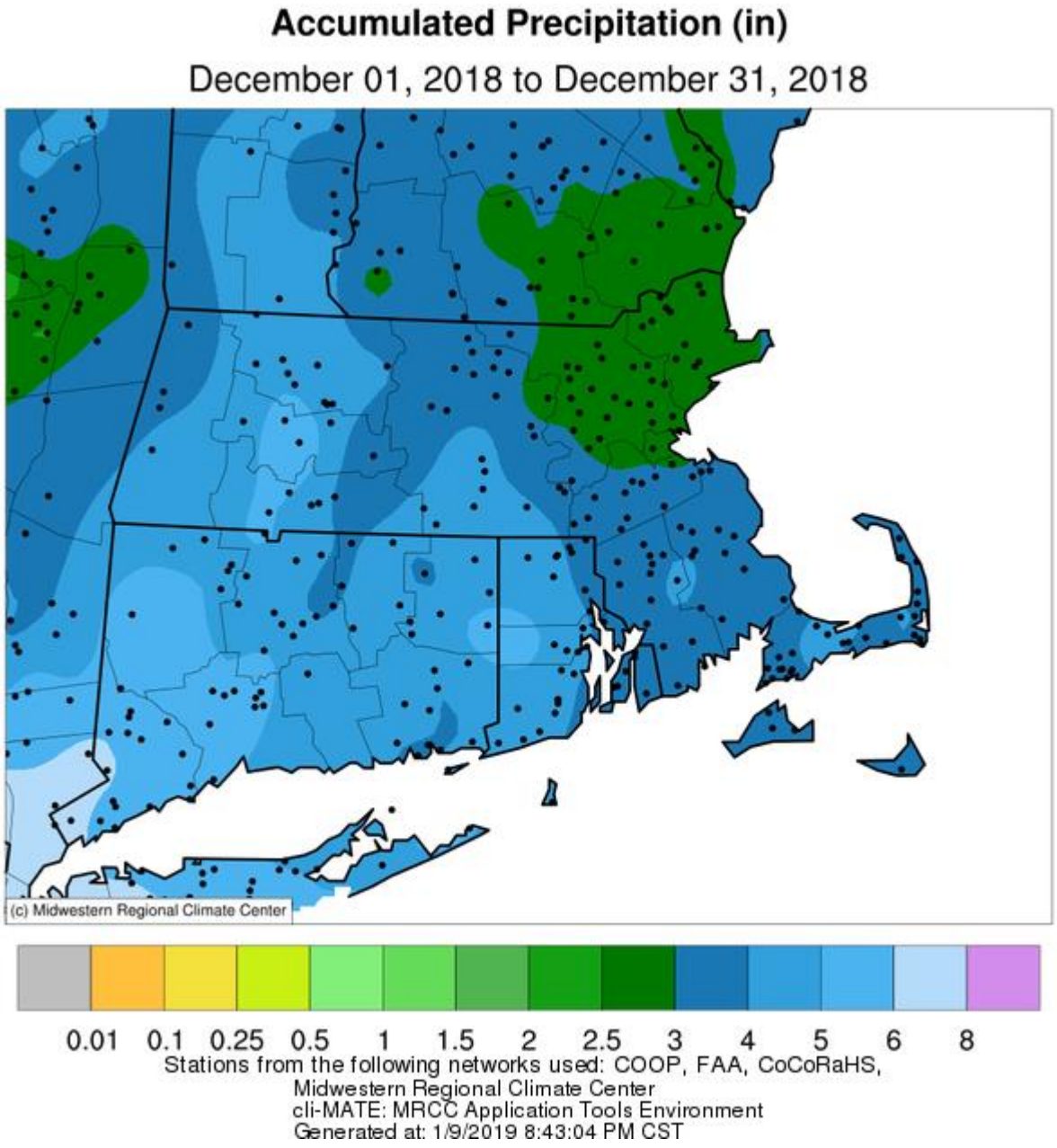
0109000302	Lower Blackstone River	RI-PR-55	Cumberland Hill 3.6 NNE	3.83''
01090004	Narragansett			
0109000401	Upper Taunton River	MA-BR-30	Taunton 3.9 N	3.44''
0109000401	Upper Taunton River	MA-NF-31	Stoughton 1.2 E	3.67''
0109000401	Upper Taunton River	MA-PL-22	East Bridgewater 0.3 WSW	3.17''
0109000401	Upper Taunton River	MA-PL-15	Abington 1.2 NNE	2.83''
0109000401	Upper Taunton River	MA-PL-23	Pembroke 2.8 SW	3.85''
0109000402	Middle Taunton River	MA-PL-31	Bridgewater 1.8 SE	4.20''
0109000402	Middle Taunton River	MA-PL-17	Plympton 0.9 NNE	3.82''
0109000403	Threemile River	MA-NF-19	Foxborough 1.8 SSW	3.29''
0109000403	Threemile River	MA-BR-55	NWS Boston/Norton 2.5 ESE	3.49''
0109000403	Threemile River	MA-BR-33	Taunton 2.4 W	3.53''
0109000403	Threemile River	MA-BR-9	Taunton 2.6 NW	3.80''
0109000404	Ten Mile River	MA-BR-23	Attleboro 0.9 ENE	3.53''
0109000405	Wonnasquatucket River-Moshassuck River	RI-PR-33	Greenville 0.7 NNW	4.65''
0109000405	Woonasquatucket River-Moshassuck River	RI-PR-51	North Smithfield 0.6 S	4.56''
0109000405	Woonasquatucket River-Moshassuck River	RI-PR-53	Providence 1.7 N	3.72''
0109000406	Pawtuxet River	RI-KN-21	West Warwick 1.8 WNW	4.29''
0109000406	Pawtuxet River	RI-PR-57	Cranston 1.2 SSE	4.50''
0109000406	Pawtuxet River	RI-PR-17	Cranston 4.1 E	3.97''
0109000407	Palmer River	MA-BR-2	Rehoboth 2.1 N	3.68''
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-3	Norton 1.8 NNE	3.75''
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-16	Somerset 0.4 SSE	3.14''
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-19	Somerset 2.0 NNE	3.10''
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-8	Dighton 1.1 WSW	3.68''
0109000409	Narragansett Bay	RI-KN-17	East Greenwich 1.2 NNE	4.75''
0109000409	Narragansett Bay	RI-WS-31	Kingston 7.5 NNE	4.64''
0109000409	Narragansett Bay	RI-WS-44	North Kingston 1.5 SSW	5.89''
0109000409	Narragansett Bay	RI-KN-2	East Greenwich 2.3 ESE	4.63''
0109000409	Narragansett Bay	RI-NW-18	Jamestown 0.3 SSE	3.94''
0109000409	Narragansett Bay	RI-BR-5	Barrington 1.3 WNW	3.57''
0109000409	Narragansett Bay	RI-NW-4	Middletown 1.1 SW	2.58''
0109000409	Narragansett Bay	RI-NW-16	Portsmouth 1.3 S	4.07''
0109000409	Narragansett Bay	RI-NW-20	Tiverton 1.0 SSW	3.39''
01090005	Pawcatuck-Wood			
0109000501	Wood River	RI-WS-1	Hope Valley 3.7 S	4.59''
0109000502	Upper Pawcatuck River	RI-WS-42	Richmond 4.6 NNE	4.59''
0109000502	Upper Pawcatuck River	RI-WS-45	Charlestown 4.7 NNE	4.07''
0109000502	Upper Pawcatuck River	RI-WS-37	Kingston 2.4 SW	4.57''
0109000503	Lower Pawcatuck River	CT-NL-40	Pawcatuck 1.8 SSE	4.71''
0109000503	Lower Pawcatuck River	RI-WS-47	Westerly 0.8 WNW	4.59''

0109000504	Frontal Block Island Sound	RI-WS-36	Charlestown 3.0 WSW	4.23''
01100001	Quinebaug			
0110000102	French River	MA-WR-68	Oxford 0.9 SSW	4.26''
0110000103	Fivemile River	CT-WN-4	East Killingly 1.3 SW	4.21''
0110000105	Mossup River	CT-WN-8	Moosup 1.7 NE	6.00''
0110000106	Pachaug River	CT-NL-21	Griswold 0.9 N	4.34''
01100002	Shetucket			
0110000201	Willimantic River	CT-TL-18	Hebron 5.3 NW	5.26''
0110000201	Willimantic River	CT-TL-28	South Coventry 1.2 NNW	4.38''
0110000201	Willimantic River	CT-TL-2	Staffordville 0.4 NNW	4.22''
0110000202	Natchaug River	CT-WN-12	Eastford 2.0 W	4.08''
0110000203	Shetucket River	CT-NL-10	Norwich 2.5 NNE	4.41''
01100003	Thames			
0110000302	Thames River-Frontal New London Harbor	CT-NL-5	Oakdale 2.6 WNW	4.90''
0110000302	Thames River-Frontal New London Harbor	CT-NL-8	Uncasville-Oxoboxo Valley 1.6 ENE	4.30''
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-38	Old Lyme 3.4 ESE	3.58''
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-29	East Lyme 0.5 SW	4.15''
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-32	Niantic 1.1 SW	3.73''
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-22	Central Waterford 2.7 SSW	3.37''
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-37	Mystic 1.6 W	4.00''
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-35	Mystic 5.8 N	4.00''
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-24	Stonington 1.4 NNW	3.74''
01100004	Quinnipiac			
0110000401	Quinnipiac River	CT-NH-14	Prospect 1.9 ENE	5.02''
0110000401	Quinnipiac River	CT-HR-55	Southington 1.7 WNW	6.14''
0110000401	Quinnipiac River	CT-HR-23	Southington 0.9 SSE	4.34''
0110000401	Quinnipiac River	CT-HR-76	Southington 1.0 ENE	5.05''
0110000401	Quinnipiac River	CT-NH-44	Wallingford Center 1.9 WNW	5.44''
0110000401	Quinnipiac River	CT-NH-43	Wallingford Center 3.3 NNW	5.56''
0110000401	Quinnipiac River	CT-NH-42	Wallingford Center 1.1 N	5.27''
0110000402	Hammonasset River - Frontal Long Island Sound	CT-NH-21	East Haven 3.5 SSW	4.70''
0110000402	Hammonasset River - Frontal Long Island Sound	CT-NH-41	Madison Center 1.6 W	4.62''
0110000402	Hammonasset River - Frontal Long Island Sound	CT-NH-50	Madison Center 4.1 N	4.69''
0110000402	Hammonasset River - Frontal Long Island Sound	CT-MD-21	Killingworth 2.6 ESE	5.05''
0110000402	Hammonasset River - Frontal Long Island Sound	CT-MD-11	Westbrook Center 1.5 NE	3.87''
0110000403	Mill River - Frontal Long Island Sound	CT-NH-16	Milford 1.8 E	5.11''
01100005	Housatonic			
0110000501	Headwaters Housatonic River	MA-BE-3	Stockbridge .2 NNE	4.10''
0110000501	Headwaters Housatonic River	MA-BE-10	Pittsfield 2.0 NNW	3.72''
0110000506	Candlewood Lake-Housatonic River	CT-LT-22	New Milford 5.3 SSW	5.43''
0110000508	Still River - Housatonic River	CT-FR-41	Bethel 3.5 NNE	5.58''

0110000508	Still River - Housatonic River	CT-FR-9	Brookfield 3.3 SSE	5.31''
0110000510	Eightmile Brook - Housatonic River	CT-FR-44	Newtown 4.3 E	6.19''
0110000511	Headwaters Naugatuck River	CT-LT-7	Litchfield 2.3 NNE	5.52''
0110000512	Outlet Naugatuck River	CT-NH-47	Seymour 1.5 NE	5.74''
0110000512	Outlet Naugatuck River	CT-NH-45	Naugatuck 1.7 NNE	5.18''
0110000512	Outlet Naugatuck River	CT-NH-22	Prospect 0.5 SW	5.20''
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-42	Monroe 0.1 SE	6.24''
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-23	Shelton 1.3 W	5.75''
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-46	Stratford 0.2 ESE	6.68''
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-55	Shelton 2.7 SSE	6.19''
01100006	Saugatuck			
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-29	Ridgefield 1.9 SSE	6.57''
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-3	New Canaan 1.9 ENE	5.66''
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-25	Norwalk 2.9 NNW	5.58''
0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-60	Fairfield 1.5 NE	5.34''
0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-32	Monroe 0.8 W	5.26''
0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-26	Stratford 0.9 W	5.47''
0110000604	Mianus River-Rippowam River	CT-FR-39	Stamford 4.2 S	5.30''
0110000604	Mianus River-Rippowam River	CT-FR-50	Darien 2.8 NW	5.34''
0110000604	Mianus River-Rippowam River	CT-FR-35	Darien 1.8 ENE	4.60''
02020006	Middle Hudson			
0202000603	Wynants Kill - Hudson River	NY-AB-21	NWS Albany	2.23''
02030203	Long Island Sound			
0203020300	Long Island Sound	NY-SF-114	Fishers Island 0.5 NE	4.03''

More rain fell to the south and west. Less in the north and east.

Lots of dots is always good to see. Keep up with the day-by-day reporting.



"We do not live at the airport"

Certainly can see no surprises for the month, wet 3 and 6 month totals, but these 12 month totals do not look anything like your 12 month totals.

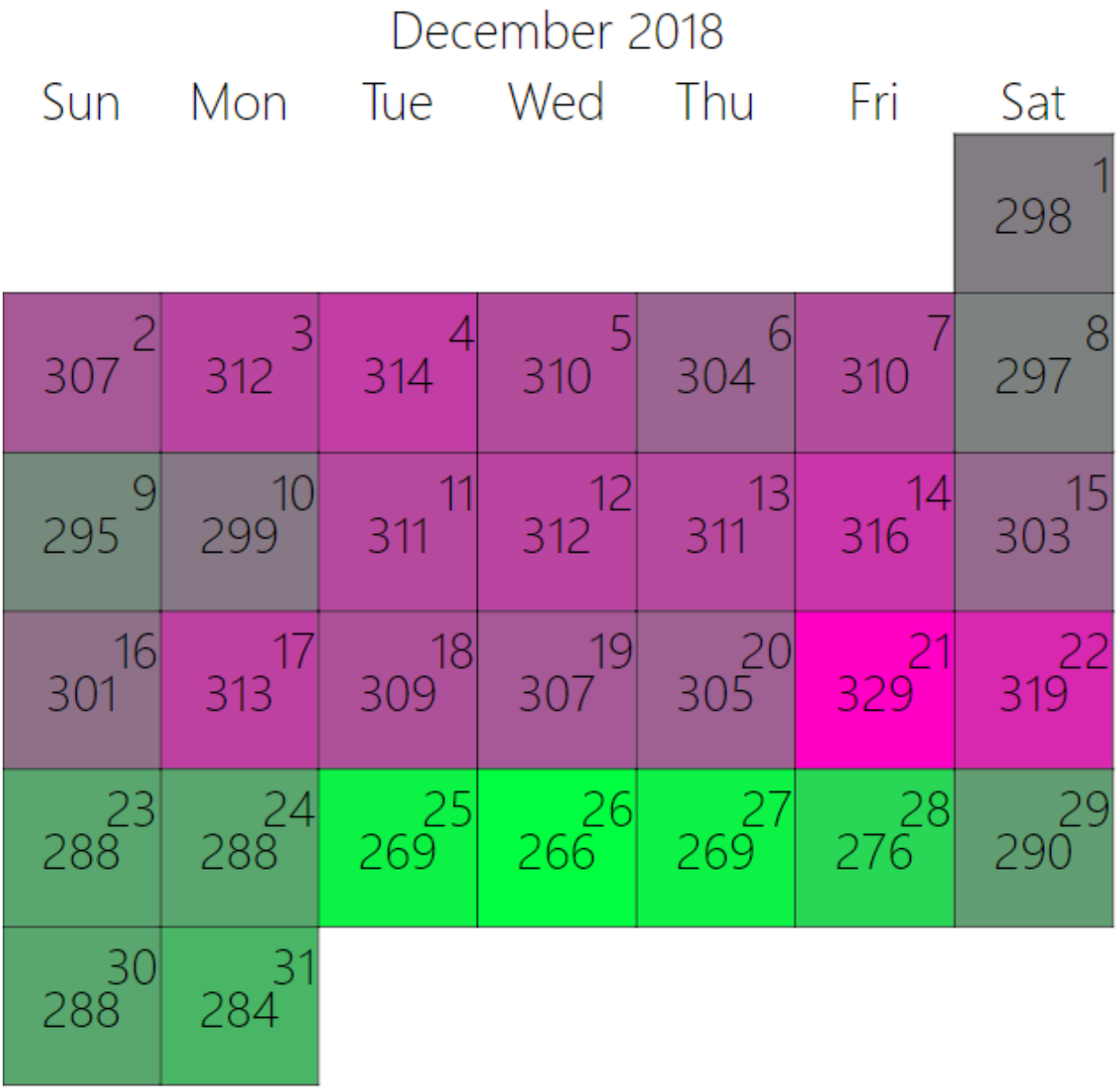
Oh, how others love your simple 4" diameter rain gauges. Keep the focus on the "Gauge Catch" when the snow comes.

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

Location	Station ID	December 2018 Precip	Dec departure from normal	Oct-Nov-Dec Precip	3 month departure from normal	Jul-Dec Precip	6 month departure from normal	Jan-Dec Precip	12 month departure from normal
White Plains NY	HPN	6.43''	2.11''	17.09''	4.39''	38.34''	13.05''	59.49''	10.14''
Danbury CT	DXR	5.96''	1.86''	16.81''	3.75''	34.26''	7.78''	55.84''	5.97''
New Haven CT	HVN	5.08''	1.47''	15.75''	3.97''	31.64''	7.53''	52.02''	4.91''
Meriden CT	MMK	5.92''	2.31''	17.06''	5.28''	34.98''	10.87''	58.39''	11.28''
Hartford CT	HFD	3.78''	0.43''	15.62''	4.29''	34.57''	12.10''	55.27''	11.67''
Willimantic CT	IJD	4.43''	0.18''	15.81''	2.78''	33.15''	8.05''	54.10''	5.68''
New London CT	GON	4.02''	0.29''	9.82''	-2.08''	22.14''	-1.69''	37.00''	-9.49''
Westerly RI	WST	4.86''	1.10''	19.43''	7.23''	30.64''	6.58''	52.99''	5.60''
Newport RI	UUU	4.36''	0.60''	19.42''	7.36''	30.94''	7.80''	55.37''	9.04''
New Bedford MA	EWB	3.87''	-0.10''	18.99''	6.24''	29.04''	5.30''	56.05''	7.69''
Hyannis MA	HYA	3.88''	-0.40''	17.45''	4.58''	24.69''	1.08''	49.18''	1.49''
Nantucket MA	ACK	3.30''	-0.50''	16.76''	4.61''	20.09''	-3.10''	50.79''	6.37''
Marthas Vineyard MA	MVY	3.90''	0.05''	19.40''	6.94''	25.81''	2.26''	48.62''	3.46''
Taunton MA	TAN	4.37''	0.05''	20.39''	7.28''	34.21''	8.95''	61.98''	12.24''
Plymouth MA	PYM	4.16''	-0.23''	19.77''	6.64''	32.82''	8.49''	61.07''	11.92''
Norwood MA	OWD	3.29''	-0.79''	11.77''	-0.96''	30.51''	6.40''	54.16''	7.10''
Bedford MA	BED	3.16''	-0.52''	15.61''	3.42''	28.55''	5.43''	48.13''	2.42''
Beverly MA	BVY	3.00''	-0.36''	18.11''	6.13''	32.26''	9.09''	52.51''	6.33''
Lawrence MA	LWM	2.02''	-1.10''	11.85''	0.73''	25.06''	3.34''	40.55''	-2.61''
Fitchburg MA	FIT	3.62''	-0.10''	16.78''	4.53''	38.47''	14.49''	59.14''	12.00''
Orange MA	ORE	4.24''	1.03''	14.60''	3.72''	37.70''	15.59''	58.15''	15.60''
Westfield MA	BAF	5.17''	1.74''	19.12''	6.82''	39.45''	14.41''	61.79''	13.40''
North Adams MA	AQW	3.13''	-0.25''	10.75''	-1.33''	29.30''	4.37''	44.95''	-1.66''

December 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 300 Daily Reports per day. 31 days x 300 reports / day = 9300 Daily Reports, on the nose. Very good to see little drop off in December.

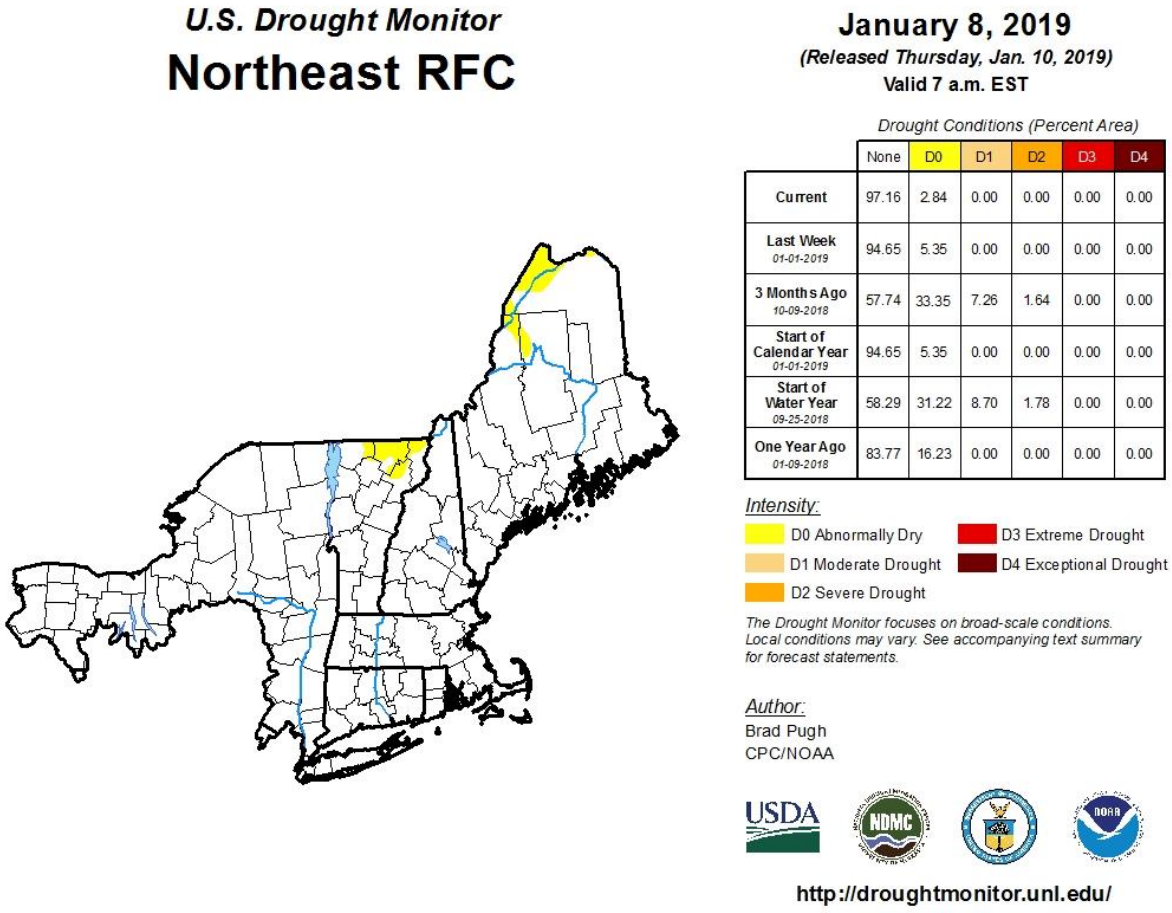


From the Drought Monitor.

D0 continues to shrink ever so slightly.

Please continue to make Condition Monitoring Reports. A map of reports is shown here. One report a week is all that we seek.

Every drop counts and zeros do too!



For a viewing explanation on the Drought Monitor, the CoCoRaHS animated video is on YouTube.

Wrap up

January is named after Janus, the two headed God. Fitting for this month, the temperatures may be two headed, snow cover may be two headed, and your own gauges may have two different appearance, with and without the funnel and inner cylinder.

Thursday January 17th is the next WxTalk Webinar, put on by CoCoRaHS, titled "Winter Weather, Climate and Snow". See another place where your snow fall and snow depth and SWE reports are used. All of the WxTalk Webinars are on YouTube for later viewing. Don't have time to watch the 1+ hour length of it? Skip around. There is usually something within these Webinars that you did not know about.

In the weeks to come, you may see a reporting section for "Ice Accretion". Until a more formal protocol is finalized, this first year will be a pilot, and the reporting form may not look like the normal appearance of a reporting form. When the protocol is finalized in a following year, then the reporting form will have a more normal look to it.

The National Weather Service has an experimental product for Winter Storms. Do take the various forecasts, warnings and watches seriously, but when a winter storm comes, look at this color-coded Severity Index. Read the explanations. Look at the 6 Component maps. Pay attention to the 'Valid Through' and 'Last Updated' dates and times. For Albany, Boston, New York City and many other Forecast Offices in the northern part of our continent.

Starting off in February, we look to the Groundhogs to be our climatologists. Our once-a-year prognostication of winter's end marks our winter's midpoint.

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