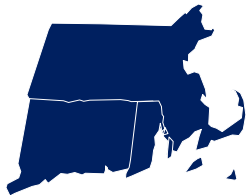


Community Collaborative Rain, Hail & Snow Network



# Southern



# New England

**January 2020**

December started off with feet of snow and inches rain for us to measure and report, making December an unusually wet month for all locations and a snowy month for those in our northern locales. The 2<sup>nd</sup> half of the month was quieter, but the year ended with more rain and snow to measure.

On the 30<sup>th</sup> into the 31<sup>st</sup>, something extremely rare occurred to MA-MD-12 Acton 1.3 SW and MA-MD-151 Cambridge 0.9 SSE. Both of those stations reported rain, hail and snow in the same day. Pure CoCoRaHS observers! Like hitting for the cycle in baseball, these observers captured something very few others have ever observed and reported: Rain, Hail and Snow in the same 24 hour period.

To learn more about snow, Joe has included an article about snow growth. A few more observer tips measuring snow depth and snow cores. We are the Rulers of the Snow.

We start off the Grand List. 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.

### **2000 Daily Reports**

MA-WR-28 Berlin 1.3 WSW  
CT-HR-22 East Hartford 1.3 E

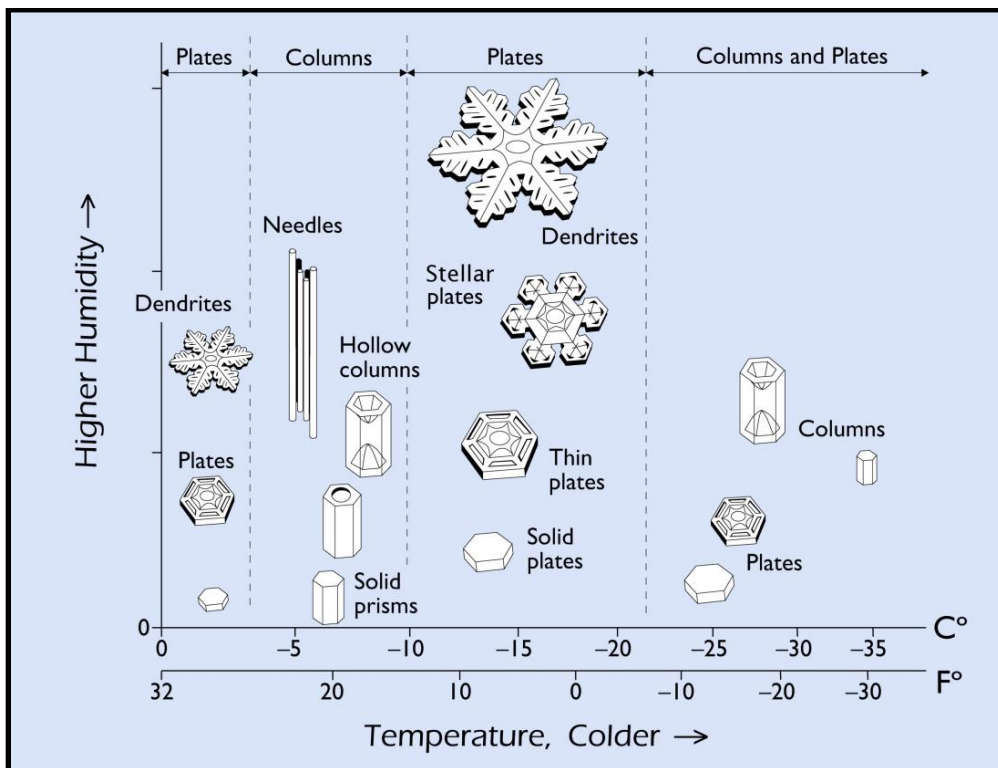
### **1000 Daily Reports**

MA-MD-85 Wilmington 2.2 WNW  
MA-HD-23 Springfield 2.5 WNW  
MA-ES-41 Danvers 0.8 ESE  
MA-WR-56 Sterling 4.3 NW  
CT-MD-11 Westbrook Center 1.5 NE  
MA-BA-59 Barnstable 3.6 W  
CT-LT-20 Warren 2.4 WNW  
RI-PR-53 Providence 1.7 N

# Snowflake Growth

Have you ever wondered why you see different types of snowflakes? Sometimes they can be small and hardly accumulate; other times they appear to be as large as silver dollars and pile up quickly. The difference has to do with the moisture and temperature in what is known as the “snow growth layer” - the layer in the atmosphere where the snowflakes are being produced.

The diagram below shows the different types of snowflakes and under which conditions they are favored to occur. Snowflakes become larger as moisture increases (going from the bottom to the top). They remain small when the air is relatively warm or cold (left and right sides of the diagram). Notice that there is a “sweet spot” in the middle between roughly -10 and -20 degrees Celsius, especially with higher moisture. The top middle portion of the diagram, where dendrites are favored, is known as the dendritic growth zone. These are those large snowflakes that can bring accumulations of more than one inch per hour, especially when they stick together (which is known as coalescence).



When forecasting snow, meteorologists look at where the lift in the atmosphere is occurring. If it's in an area where there is high moisture, and temperatures are roughly between -10 and -20 degrees Celsius, then there is a good chance there will be significant accumulations (since dendrites are favored). If the lift is in an area where it is very cold (colder than 20 degrees Celsius) or relatively warm (warmer than -10 degrees Celsius) then accumulations are usually limited by smaller snowflakes.

You can always include remarks on the type of snowflakes you observe in your Comments. Are they big and accumulating quickly? Or are they small and barely coating the ground? This information tells forecasters what is happening at the ground, which supplements what they are seeing on radar. You are also encouraged to send Significant Weather Reports (SWRs) whenever you observe more than one inch of snow in one hour.

## **Observer Tips**

**Significant Weather Reports:** As the snow and rains occur this winter, keep our reporting criteria in mind, as we can alert our area NWS Forecast Offices in real time with what is occurring. Report criteria are

- 1" or more of rain in 1 hour or less. **2" or more of rain.**
- **1" or more of snow in 1 hour or less.**
- **First 3" of new snowfall. Final total, if 6" or more of snow.**
- Flooding.
- **Anything you feel is significant.**

Continue to use mPING in real-time on your GPS enabled mobile device for whatever meteorological phenomena comes our way.

If you use a 2<sup>nd</sup> outer cylinder for snow measurements, keep the 2<sup>nd</sup> outer cylinder outdoors and covered, shortly before use, so that the cylinder is not at indoor temperature and the snow does not stick to its sides.

**Snow Depth Reporting:** Measuring and reporting precip every day, adds to weekly and monthly total and longer, helps define our water supply, and more. Measuring and reporting snow depth every day, defines how many days snow was on the ground, where the snow is and where it is not, and helps forecast the potential for flooding when the snow melts.

A depth measurement, to the nearest half inch, is all that is needed. Your reported measurement, with all of the others, makes a composite picture of where snow is and where it is not and what its flooding potential is as well. Most of us have bare ground at this time, but that can change as February and March comes.

This group of observers does very well with snow depth measurements, and continues to grow in percentages each year, and continues all year round. In this point of the winter season, take the time to look at the 2<sup>nd</sup> page of your mobile app, look down on the website reporting form. It is the 4<sup>th</sup> reported value, the 3<sup>rd</sup> value down from the daily precipitation.

We are the Rulers of the Snow!

**The Snow Swatter:** Taking core samples of snow seems simple. Gauge upside down, perpendicular plunge into the snow, and.... uh oh... what to use to slide underneath the gauge to keep the snow inside the gauge.

The plastic spatula, the snow swatter that you see in our training videos, works great for fresh snow, for powdery snow. The problems comes when the powdery snow changes, has a little sleet in it, and is a few days old after the sunshine has been out. Now, you have icy snow and the plastic spatula does not slide in well at all with the ice.

The same metal spatula that I use for cooking on the outdoor grill during the summer months is what I use for chopping and sliding underneath for snow cores during the winter months.

Another idea is use a grain scoop. From our MA-WR-42 observer, look at Ocean State Job Lot, SKU 167292, where you might find the bird food. Cutting tools, like a Dremel, coping saw, or oscillating saw are needed to make a modification. The black line marks the cut line.

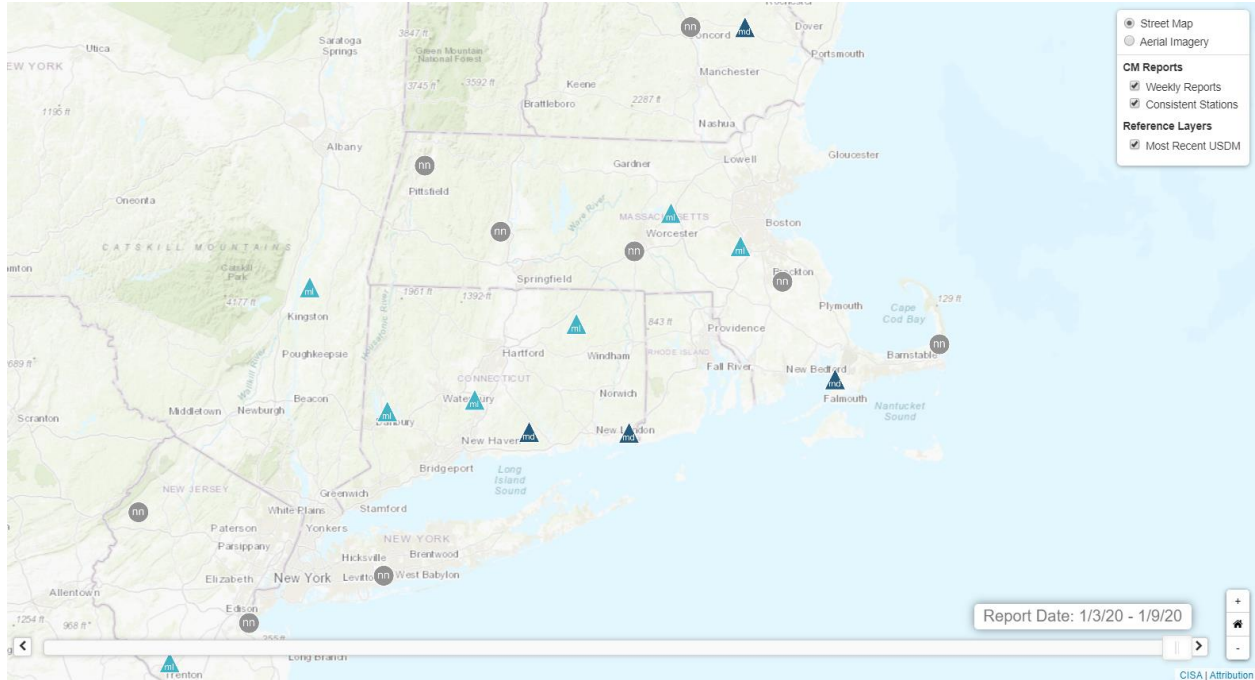


After the cuts, the scoop fits around the outer cylinder. Thanks to MA-WR-42 for this tip!



**Condition Monitoring Reports:** Yet another single month record established in December.

One report a week is all that we seek. Develop a reputation of being a Consistent Station by submitting over 20 reports in a 52-week timeframe.



 **Killingworth 2.6 ESE**  
Fri Jan 03 2020

Ponds and lakes are overflowing. Ground is very wet with standing water in low areas.

CT-MD-21 -- General Awareness


 **East Bridgewater 0.3 WSW**  
Sat Jan 04 2020

Near normal conditions for mid-winter, local rivers and streams look good, wildlife ok


MA-PL-22 -- General Awareness, Plants And Wildlife

# Detail and Summary for December 2019

From the National Weather Service (NWS) Climate sites for Dec 2019.




## December 2019 Regional Precipitation Summary




Location	Station ID	Dec 2019 Precip	December 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	5.20"	2.20"	17.41"	5.77"	25.99"	2.05"	48.58"	3.20"
Bridgeport CT	BDR	7.35"	4.02"	14.50"	4.14"	25.86"	4.60"	51.11"	8.37"
Hartford CT	BDL	7.93"	4.49"	17.05"	5.35"	25.42"	1.73"	52.46"	6.61"
Worcester MA	ORH	7.05"	3.23"	17.34"	4.56"	28.13"	3.48"	54.76"	6.69"
Providence RI	PVD	8.11"	3.89"	16.50"	3.84"	23.46"	-0.01"	51.97"	4.79"
Boston MA	BOS	6.07"	2.29"	13.89"	2.18"	25.34"	3.41"	50.38"	6.61"

### January 2020 Outlook

**Air Temperature**



**Precipitation**



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

### December Highlights

**11 stations listed reporting more than 10" of precip, from Plymouth County, Cape and the Islands. The Rulers of the Rain!**

**30"+ of snow in northern MA. The Rulers of the Snow!**

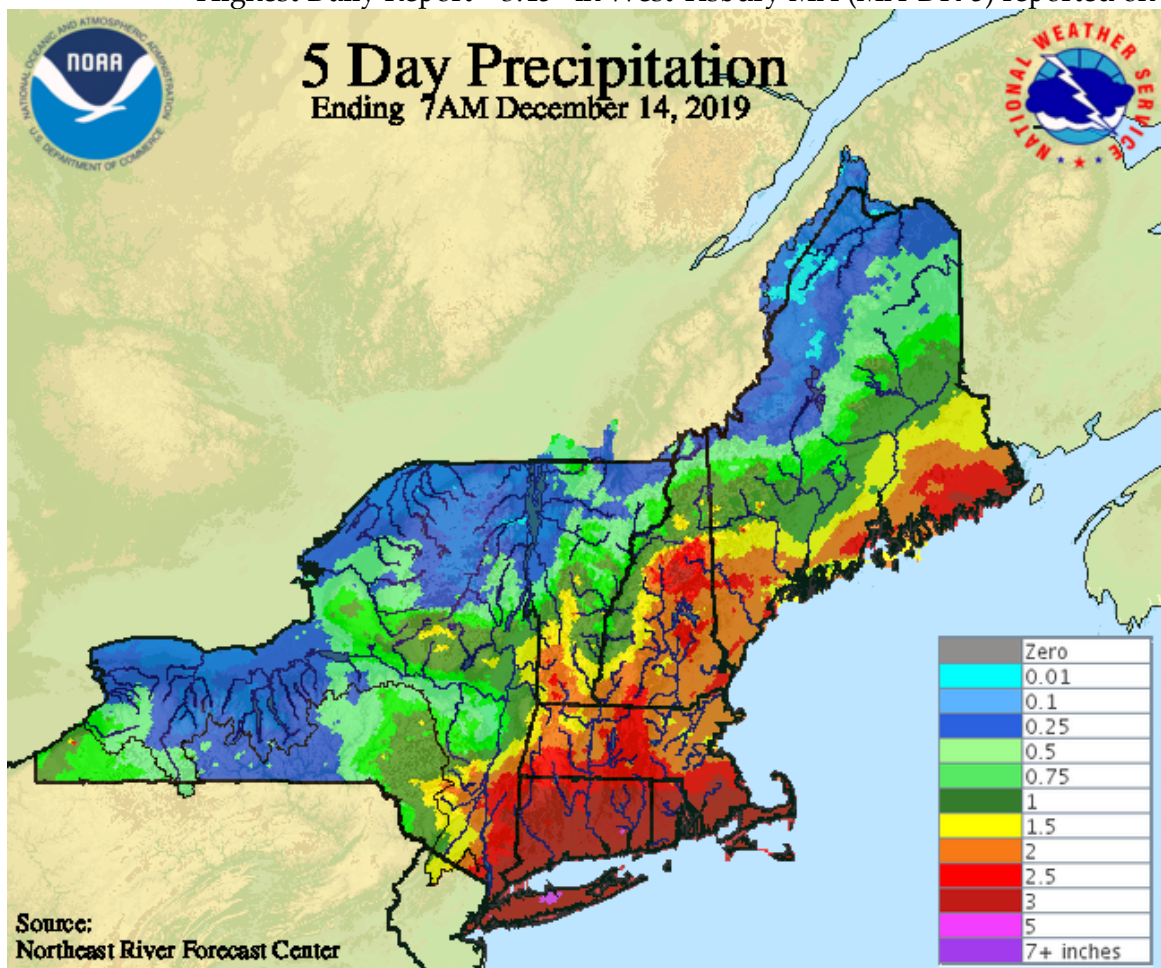
December started off very active. Snow, freezing rain, and plain rain depending upon where you were. 1 to 2 feet of snow in the north, less snow towards the shorelines on the 2<sup>nd</sup> into the 3<sup>rd</sup>. More activity along the Shoreline and highest on the Cape and Islands on the 10<sup>th</sup> & 11<sup>th</sup>, with less than 6" of snow for all stations. Widespread 1" rain for Saturday the 14<sup>th</sup> that brought out the Flood Warnings. Lighter amounts of precip and freezing rain for the 17<sup>th</sup> and 18<sup>th</sup>. Snow Squall Warning in southern CT on the 19<sup>th</sup>. Dry stretch, until the 30<sup>th</sup> and heaviest precip in MA on the 31<sup>st</sup> with 1"-3" of snow in our northern stations, thunder, hail, snow, something for everyone to close out the calendar year.

Take in the next section with appreciation of your efforts.



## From your reports for December 2019

Observers reporting	379
Reported all 31 days	181
Completed by Multi-Day Reports	51
Missing 1 or 2 reports	41
Daily Reports	9271
Zero Reports	4828
Non-Zero Reports	4443
Daily Comments	2253
Multi-Day Reports	226
Condition Monitoring Reports	68
Significant Weather Reports	30
Snowfall Reports	6314
Snow Depth Reports	4069
Total SWE Reports	1689
Highest Daily Report	3.45" in West Tisbury MA (MA-DK-5) reported on 12/10



Over a dozen stations were excluded from this list for reporting NA for precip during our several snow events. Otherwise, a wet month reported by our observers.

Watershed	Watershed Name	Station Number	Station Name	Precip
01070004	Nashua			
0107000401	North Nashua River	MA-WR-44	Westminster 0.6 WSW	8.06"
0107000401	North Nashua River	MA-WR-8	Fitchburg 1.6 SSW	6.17"
0107000401	North Nashua River	MA-WR-22	Fitchburg 2.0 NNE	8.62"
0107000402	Headwaters Nashua River	MA-MD-25	Ayer 0.1 SW	7.04"
0107000403	Squannacook River	MA-MD-47	West Townsend 0.5 W	8.31"
0107000403	Squannacook River	MA-MD-36	Townsend 2.6 S	8.38"
01070005	Concord			
0107000501	Sudbury River	MA-MD-156	Marlborough 2.8 ENE	6.78"
0107000502	Concord River	MA-WR-28	Berlin 1.3 WSW	7.26"
0107000502	Concord River	MA-WR-18	Northborough 0.6 SSE	6.68"
0107000502	Concord River	MA-WR-42	Northborough 2.3 N	6.60"
0107000502	Concord River	MA-MD-115	Hudson 1.4 NW	6.61"
0107000502	Concord River	MA-MD-12	Acton 1.3 SW	7.21"
0107000502	Concord River	MA-MD-51	Maynard 0.7 ESE	7.01"
0107000502	Concord River	MA-MD-62	Chelmsford 1.2 E	7.16"
01070006	Merrimack River			
0107000613	Shawsheen River	MA-MD-52	Lexington 0.6 SW	6.31"
0107000613	Shawsheen River	MA-ES-48	Andover 0.6 E	7.67"
0107000614	Powwow River - Merrimack River	MA-ES-20	Haverhill 0.7 N	7.19"
0107000614	Powwow River - Merrimack River	MA-ES-4	Groveland 0.5 WSW	7.60"
0107000614	Powwow River - Merrimack River	MA-ES-55	Groveland 0.8 S	7.46"
0107000614	Powwow River - Merrimack River	MA-ES-59	Amesbury 1.2 N	7.27"
0107000614	Powwow River - Merrimack River	MA-ES-56	Newburyport 1.0 ESE	6.69"
01080201	Middle Connecticut			
0108020106	Manhan River - Connecticut River	MA-HS-2	Westhampton 1.8 SW	7.26"
0108020106	Manhan River - Connecticut River	MA-HS-8	Williamsburg 1.2 WSW	6.74"
0108020106	Manhan River - Connecticut River	MA-HS-26	Easthampton 0.5 SW	6.95"
0108020106	Manhan River - Connecticut River	MA-FR-12	Sunderland 1.3 SE	6.35"
0108020107	Batchelor Brook - Connecticut River	MA-HD-13	Springfield 4.1 W	7.55"
01080202	Miller			
0108020201	Upper Millers River	NH-CH-20	Rindge 3.2 ESE	8.14"
01080203	Deerfield			

0108020303	North River	MA-FR-31	Colrain 3.7 WNW	6.97"
0108020305	Lower Deerfield River	MA-FR-22	Ashfield 1.4 NE	7.73"
0108020305	Lower Deerfield River	MA-FR-17	Buckland 1.8 ESE	7.35"
0108020305	Lower Deerfield River	MA-FR-13	Conway 2.9 NW	7.50"
0108020305	Lower Deerfield River	MA-FR-10	Conway 0.9 SW	7.18"
01080204	Chicopee			
0108020401	Swift River	MA-FR-8	New Salem 3.1 S	5.61"
0108020402	Ware River	MA-WR-54	Barre 1.4 NNE	7.77"
0108020403	Quaboag River	MA-WR-75	Warren 2.4 WSW	7.31"
0108020404	Chicopee River	MA-HD-25	Ludlow 2.3 SW	7.74"
01080205	Lower Connecticut			
0108020501	Mill River - Connecticut River	CT-HR-82	Suffield 0.5 NNE	7.46"
0108020501	Mill River - Connecticut River	CT-HR-57	Suffield Depot 3.3 NNE	7.95"
0108020502	Scantic River	CT-TL-26	Broad Brook 2.6 ESE	6.67"
0108020502	Scantic River	CT-TL-15	Central Somers 0.3 N	7.28"
0108020503	Park River	CT-HR-39	Farmington 1.6 SW	8.47"
0108020503	Park River	CT-HR-49	West Hartford 1.1 W	7.52"
0108020503	Park River	CT-HR-58	West Hartford 2.1 NNE	6.99"
0108020503	Park River	CT-HR-85	West Hartford 2.3 NNE	7.67"
0108020505	Roaring Brook - Connecticut River	CT-HR-6	Wethersfield 1.2 WSW	7.09"
0108020505	Roaring Brook - Connecticut River	CT-HR-68	Rocky Hill 1.3 E	7.15"
0108020505	Roaring Brook - Connecticut River	CT-HR-22	East Hartford 1.3 E	8.00"
0108020505	Roaring Brook - Connecticut River	CT-HR-7	Central Manchester 2.7 SW	7.30"
0108020506	Mattabeset River	CT-HR-15	Southington 3.0 E	8.27"
0108020506	Mattabeset River	CT-HR-80	Kensington 0.7 WSW	8.34"
0108020506	Mattabeset River	CT-HR-65	Newington 1.9 SSW	7.04"
0108020506	Mattabeset River	CT-MD-25	Middlefield 0.6 SE	8.63"
0108020507	Higganum Creek - Connecticut River	CT-MD-23	Higganum 0.7 N	9.04"
0108020507	Higganum Creek - Connecticut River	CT-MD-26	Higganum 0.8 NE	7.93"
0108020509	Eightmile River - Connecticut River	CT-MD-18	Essex Village 0.9 S	7.67"
01080206	Westfield			
0108020601	Headwaters Westfield River	MA-HS-7	Plainfield 2.2 SW	8.57"
0108020601	Headwaters Westfield River	MA-HS-14	Plainfield 2.4 ESE	7.70"
0108020603	Outlet Westfield River	MA-HD-28	Westfield 2.8 SE	6.43"
0108020603	Outlet Westfield River	MA-HD-29	West Springfield 1.6 SSW	6.01"
01080207	Farmington			
0108020701	Still River	CT-LT-15	Colebrook 1.0 NE	7.74"
0108020702	West Branch Farmington River	CT-LT-18	New Hartford Center 1.5 N	7.44"
0108020704	Headwaters Farmington River	CT-LT-9	New Hartford Center 3.2 SW	8.30"
0108020704	Headwaters Farmington River	CT-HR-28	North Canton 0.8 SSW	8.23"
0108020705	Salmon Brook	CT-HR-8	North Granby 1.3 ENE	7.82"

01090001	Charles			
0109000101	Plum Island Sound - Frontal Atlantic Ocean	MA-ES-24	Newburyport 0.8 SW	7.71"
0109000102	Ipswich River	MA-MD-85	Wilmington 2.2 WNW	6.80"
0109000102	Ipswich River	MA-MD-125	Tewksbury 3.6 SSE	6.71"
0109000102	Ipswich River	MA-ES-58	Middleton 1.4 SSW	6.87"
0109000102	Ipswich River	MA-ES-12	Boxford 2.4 S	6.96"
0109000102	Ipswich River	MA-ES-2	Beverly 2.8 NW	5.92"
0109000103	Essex River - Frontal Atlantic Ocean	MA-ES-41	Danvers 0.8 ESE	7.78"
0109000104	Saugus River - Frontal Broad Sound	MA-MD-81	Wakefield 0.5 NNW	6.46"
0109000104	Saugus River - Frontal Broad Sound	MA-MD-126	Melrose 0.5 NE	6.40"
0109000104	Saugus River - Frontal Broad Sound	MA-ES-45	Nahant 0.4 N	5.19"
0109000104	Saugus River - Frontal Broad Sound	MA-ES-8	Marblehead 0.8 SW	6.19"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-123	Lexington 1.3 SE	6.82"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-7	Winchester 0.7 SE	6.88"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-44	Medford 1.2 W	6.82"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-11	Cambridge 0.9 NNW	7.39"
0109000106	Upper Charles River	MA-WR-1	Milford 2.3 NNW	7.07"
0109000106	Upper Charles River	MA-MD-106	Holliston 2.4 W	7.34"
0109000106	Upper Charles River	MA-MD-55	Holliston 0.7 W	7.60"
0109000106	Upper Charles River	MA-MD-42	Holliston 0.8 S	6.74"
0109000106	Upper Charles River	MA-MD-158	Sherborn 1.1 NW	6.89"
0109000106	Upper Charles River	MA-NF-11	Millis 2.0 SW	6.38"
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-120	Natick 1.9 NNE	6.67"
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-71	Newton 2.2 NNW	4.85"
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-134	Somerville 0.5 SSE	7.00"
0109000108	Neponset River - Frontal Boston Harbor	MA-NF-1	Norwood 1.3 NW	5.99"
0109000109	Whitmans Pond - Frontal Boston Harbor	MA-NF-32	Quincy 1.8 WSW	6.09"
0109000109	Whitmans Pond - Frontal Boston Harbor	MA-PL-36	Hingham 0.8 ESE	7.19"
01090002	Cape Cod			
0109000201	North River - Frontal Massachusetts Bay	MA-PL-5	Kingston 3.3 WNW	9.05"
0109000201	North River - Frontal Massachusetts Bay	MA-PL-2	Sagamore Beach 1.0 NW	10.29"
0109000202	Cape Cod	MA-BA-2	Falmouth 3.1 NNW	10.21"
0109000202	Cape Cod	MA-BA-57	Falmouth 5.7 N	9.18"
0109000202	Cape Cod	MA-BA-14	North Falmouth 0.5 ENE	8.75"
0109000202	Cape Cod	MA-BA-13	Falmouth 0.6 NNW	10.11"
0109000202	Cape Cod	MA-BA-50	Falmouth 5.4 NNE	9.19"
0109000202	Cape Cod	MA-BA-17	East Falmouth 1.2 WNW	7.47"
0109000202	Cape Cod	MA-BA-19	East Falmouth 0.7 NW	9.61"
0109000202	Cape Cod	MA-BA-3	Falmouth 3.0 E	9.18"
0109000202	Cape Cod	MA-BA-11	East Falmouth 1.4 ESE	8.25"
0109000202	Cape Cod	MA-BA-18	Waquoit 0.6 SSW	9.54"

0109000202	Cape Cod	MA-BA-47	Mashpee 2.4 WSW	10.64"
0109000202	Cape Cod	MA-BA-45	Sandwich 0.9 NNE	8.91"
0109000202	Cape Cod	MA-BA-79	Mashpee 0.8 SSW	9.82"
0109000202	Cape Cod	MA-BA-78	Mashpee 4.6 S	9.60"
0109000202	Cape Cod	MA-BA-10	East Sandwich 2.3 SE	10.65"
0109000202	Cape Cod	MA-BA-59	Barnstable 3.6 W	10.37"
0109000202	Cape Cod	MA-BA-76	Barnstable 0.7 NE	9.28"
0109000202	Cape Cod	MA-BA-72	Yarmouth 2.0 S	9.55"
0109000202	Cape Cod	MA-BA-77	South Dennis 1.0 NW	10.25"
0109000202	Cape Cod	MA-BA-80	Brewster 1.4 W	10.38"
0109000202	Cape Cod	MA-BA-52	Truro 0.8 E	9.12"
0109000202	Cape Cod	MA-BA-27	Wellfleet 0.7 NW	7.90"
0109000202	Cape Cod	MA-BA-42	Orleans 1.8 S	10.24"
0109000202	Cape Cod	MA-BA-51	Orleans 3.0 S	11.04"
0109000202	Cape Cod	MA-BA-12	Orleans 1.1 E	9.07"
0109000202	Cape Cod	MA-BA-30	Eastham 0.6 SW	9.63"
0109000202	Cape Cod	MA-BA-43	Chatham 0.4 WSW	9.63"
0109000204	Paskamanset River - Frontal Buzzards Bay	MA-BR-14	Dartmouth 2.5 SSW	8.53"
0109000204	Paskamanset River - Frontal Buzzards Bay	MA-BR-52	New Bedford 4.3 N	7.34"
0109000205	Sakonnet Point - Frontal Rhode Island Sound	RI-NW-5	Little Compton 1.7 NW	7.16"
0109000205	Sakonnet Point - Frontal Rhode Island Sound	RI-NW-17	Tiverton 4.4 SSE	8.87"
0109000205	Sakonnet Point - Frontal Rhode Island Sound	RI-NW-7	Little Compton 0.6 E	8.34"
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-5	West Tisbury 2.9 N	10.48"
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-2	Vineyard Haven 0.8 WSW	9.18"
01090003	Blackstone			
0109000301	Upper Blackstone River	MA-WR-41	Auburn 2.6 SW	6.17"
0109000301	Upper Blackstone River	MA-WR-43	Leicester 2.4 ESE	6.57"
0109000301	Upper Blackstone River	MA-WR-76	Worcester 1.7 N	6.27"
0109000301	Upper Blackstone River	MA-WR-70	Grafton 1.5 W	7.49"
0109000302	Lower Blackstone River	RI-PR-50	Harrisville 1.2 SSE	7.54"
0109000302	Lower Blackstone River	RI-PR-28	North Smithfield 0.7 SE	7.74"
0109000302	Lower Blackstone River	RI-PR-63	Woonsocket 1.5 NW	6.94"
0109000302	Lower Blackstone River	RI-PR-45	Manville 0.4 WSW	7.49"
0109000302	Lower Blackstone River	MA-NF-26	Bellingham 2.4 S	6.72"
0109000302	Lower Blackstone River	RI-PR-55	Cumberland Hill 3.6 NNE	6.66"
01090004	Narragansett			
0109000401	Upper Taunton River	MA-BR-30	Taunton 3.9 N	6.84"
0109000401	Upper Taunton River	MA-NF-31	Stoughton 1.2 E	7.23"
0109000401	Upper Taunton River	MA-PL-22	East Bridgewater 0.3 WSW	6.38"
0109000403	Threemile River	MA-NF-19	Foxborough 1.8 SSW	6.18"
0109000403	Threemile River	MA-BR-55	NWS Boston/Norton 2.5 ESE	7.70"

0109000404	Ten Mile River	MA-BR-23	Attleboro 0.9 ENE	6.92"
0109000405	Wonnasquatucket River-Moshassuck River	RI-PR-33	Greenville 0.7 NNW	7.50"
0109000405	Wonnasquatucket River-Moshassuck River	RI-PR-51	North Smithfield 0.6 S	7.70"
0109000406	Pawtuxet River	RI-KN-21	Coventry 1.9 NE	8.09"
0109000406	Pawtuxet River	RI-PR-57	Cranston 1.2 SSE	8.46"
0109000407	Palmer River	MA-BR-2	Rehoboth 2.1 N	7.84"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-3	Norton 1.8 NNE	7.74"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-16	Somerset 0.4 SSE	7.51"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-58	Dighton 3.3 NNW	7.39"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-8	Dighton 1.1 WSW	8.04"
0109000409	Narragansett Bay	RI-KN-17	East Greenwich 1.2 NNE	9.37"
0109000409	Narragansett Bay	RI-WS-50	North Kingstown 3.1 NW	9.15"
0109000409	Narragansett Bay	RI-WS-31	Kingston 7.5 NNE	8.27"
0109000409	Narragansett Bay	RI-KN-2	East Greenwich 2.3 ESE	8.53"
0109000409	Narragansett Bay	RI-NW-18	Jamestown 0.3 SSE	7.80"
0109000409	Narragansett Bay	RI-BR-5	Barrington 1.3 WNW	8.22"
0109000409	Narragansett Bay	RI-NW-4	Middletown 1.1 SW	6.23"
0109000409	Narragansett Bay	RI-NW-19	Portsmouth 2.3 S	6.85"
0109000409	Narragansett Bay	RI-NW-16	Portsmouth 1.3 S	7.59"
0109000409	Narragansett Bay	RI-NW-20	Tiverton 1.0 SSW	7.80"
01090005	Pawcatuck-Wood			
0109000501	Wood River	RI-WS-1	Hope Valley 3.7 S	8.55"
0109000502	Upper Pawcatuck River	RI-WS-51	Richmond 2.4 SSE	8.33"
0109000502	Upper Pawcatuck River	RI-WS-42	Richmond 4.6 NNE	9.34"
0109000502	Upper Pawcatuck River	RI-WS-45	Charlestown 4.7 NNE	7.64"
0109000502	Upper Pawcatuck River	RI-WS-37	Kingston 2.4 SW	7.56"
0109000503	Lower Pawcatuck River	CT-NL-40	Pawcatuck 1.8 SSE	7.33"
0109000503	Lower Pawcatuck River	RI-WS-30	Westerly 2.4 NNW	7.77"
0109000503	Lower Pawcatuck River	RI-WS-47	Westerly 0.8 WNW	6.63"
0109000504	Frontal Block Island Sound	RI-WS-36	Charlestown 3.0 WSW	7.37"
0109000504	Frontal Block Island Sound	RI-WS-55	Wakefield 0.8 ENE	8.42"
01100001	Quinebaug			
0110000102	French River	MA-WR-68	Oxford 0.9 SSW	6.67"
0110000103	Fivemile River	CT-WN-4	East Killingly 1.3 SW	7.07"
0110000105	Moosup River	CT-WN-8	Moosup 1.7 NE	7.59"
0110000106	Pachaug River	CT-NL-21	Griswold 0.9 N	7.46"
01100002	Shetucket			
0110000201	Willimantic River	CT-TL-18	Hebron 5.3 NW	6.72"
0110000201	Willimantic River	CT-TL-28	South Coventry 1.2 NNW	7.11"
0110000201	Willimantic River	CT-TL-24	Stafford Springs 0.8 NE	5.40"
0110000201	Willimantic River	CT-TL-2	Staffordville 0.4 NNW	6.90"

0110000202	Natchaug River	CT-TL-27	Willington 2.7 SE	7.53"
0110000202	Natchaug River	CT-TL-30	Mansfield Center 2.7 NE	6.59"
0110000203	Shetucket River	CT-WN-10	South Windham 1.3 NNE	7.07"
01100003	Thames			
0110000302	Thames River-Frontal New London Harbor	CT-NL-6	New London 1.0 NNW	6.99"
0110000302	Thames River-Frontal New London Harbor	CT-NL-8	Uncasville-Oxoboxo Valley 1.6 ENE	8.14"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-38	Old Lyme 3.4 ESE	6.85"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-29	East Lyme 0.5 SW	7.70"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-32	Niantic 1.1 SW	6.22"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-22	Central Waterford 2.7 SSW	6.38"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-37	Mystic 1.6 W	6.82"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-19	Mystic 0.9 W	5.70"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-24	Stonington 1.4 NNW	7.05"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-18	Stonington 0.5 NNE	6.91"
01100004	Quinnipiac			
0110000401	Quinnipiac River	CT-NH-14	Prospect 1.9 ENE	7.97"
0110000401	Quinnipiac River	CT-HR-23	Southington 0.9 SSE	7.71"
0110000401	Quinnipiac River	CT-NH-44	Wallingford Center 1.9 WNW	8.25"
0110000401	Quinnipiac River	CT-NH-43	Wallingford Center 3.3 NNW	8.34"
0110000401	Quinnipiac River	CT-NH-42	Wallingford Center 1.1 N	7.92"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-NH-50	Madison Center 4.1 N	8.50"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-MD-21	Killingworth 2.6 ESE	7.96"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-MD-27	Clinton 3.7 N	8.32"
01100005	Housatonic			
0110000501	Headwaters Housatonic River	MA-BE-11	Great Barrington 3.0 N	6.21"
0110000501	Headwaters Housatonic River	MA-BE-3	Stockbridge .2 NNE	5.65"
0110000504	Macedonia Brook - Housatonic River	CT-LT-20	Warren 2.4 WNW	6.37"
0110000506	Candlewood Lake-Housatonic River	CT-LT-22	New Milford 5.3 SSW	6.58"
0110000508	Still River - Housatonic River	CT-FR-43	Bethel 0.5 E	6.69"
0110000508	Still River - Housatonic River	CT-FR-9	Brookfield 3.3 SSE	6.57"
0110000512	Outlet Naugatuck River	CT-NH-45	Naugatuck 1.7 NNE	5.94"
0110000512	Outlet Naugatuck River	CT-NH-22	Prospect 0.5 SW	6.23"
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-23	Shelton 1.3 W	7.47"
01100006	Saugatuck			
0110000601	Saugatuck River - Frontal Long Island Sound	CT-FR-64	Bethel 4.5 SSE	5.41"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-59	New Canaan 3.8 N	6.13"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-29	Ridgefield 1.9 SSE	7.08"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-63	Wilton 1.9 NW	7.86"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-3	New Canaan 1.9 ENE	7.33"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-25	Norwalk 2.9 NNW	7.36"
0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-20	Westport 2.5 ENE	7.22"

0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-60	Fairfield 1.5 NE	7.55"
0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-32	Monroe 0.8 W	6.96"
0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-26	Stratford 0.9 W	7.84"
0110000604	Mianus River-Rippowam River	CT-FR-39	Stamford 4.2 S	7.67"
0110000604	Mianus River-Rippowam River	CT-FR-50	Darien 2.8 NW	7.52"
0110000604	Mianus River-Rippowam River	CT-FR-35	Darien 1.8 ENE	7.43"
02020003	Hudson-Hoosic			
0202000306	Upper Hoosic River	MA-BE-21	Cheshire 0.5 NNW	6.42"
02030203	Long Island Sound			
0203020300	Long Island Sound	NY-SF-114	Fishers Island 0.5 NE	6.39"

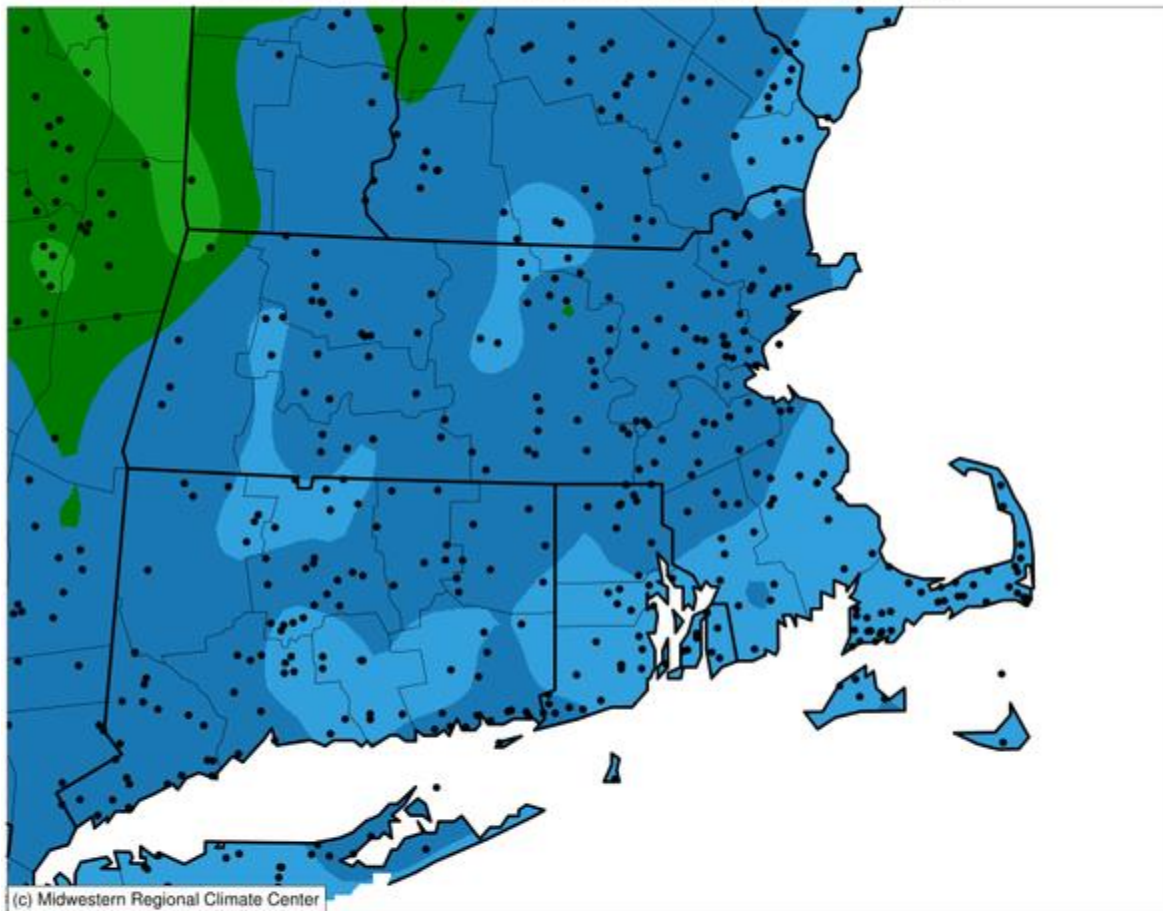


Green colors are under 5". Blue colors are over 5". Paler shade of blue is over 7.5"

We watch the weather. We define the climate! Keep a complete reporting record, don't miss many or any days, and the Regional Climate Centers take notice and your dot appears here.

### Accumulated Precipitation (in)

December 01, 2019 to December 31, 2019



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: 1/8/2020 8:09:59 PM CST

**“We do not live at the airport”**

The CoCoRaHS stations listed averaged 7.56” of precip for December 2019. The list of airport stations averaged 5.85”. Why the big difference this month? Who has the answer? Snow! That’s right. When it snows, automated tipping gauges do not tip. But you focus on the gauge catch and melt the contents of the gauge and report it as precipitation.

And it is this reason, and more, that our network does not use automated gauges. And we do not live at the airport!

Location	Station ID	Dec 2019 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	5.70"	1.38"	15.94"	3.24"	26.20"	0.91"	50.46"	1.11"
Danbury CT	DXR	5.27"	1.17"	15.17"	2.11"	21.03"	-5.45"	44.73"	-5.14"
New Haven CT	HVN	6.70"	3.09"	14.58"	2.80"	23.79"	-0.32"	48.35"	1.24"
Meriden CT	MMK	7.48"	3.87"	16.53"	4.75"	23.13"	-0.98"	49.58"	2.47"
Hartford CT	HFD	4.17"	0.82"	12.28"	0.95"	23.65"	1.18"	47.86"	4.26"
Willimantic CT	IJD	5.10"	0.85"	13.58"	0.55"	23.19"	-1.91"	46.22"	-2.20"
New London CT	GON	5.65"	1.92"	15.98"	4.08"	26.23"	2.40"	54.40"	7.91"
Westerly RI	WST	5.67"	1.91"	16.31"	4.11"	27.36"	3.30"	59.14"	11.75"
Newport RI	UUU	4.68"	0.92"	13.30"	1.24"	21.45"	-1.69"	48.93"	2.60"
New Bedford MA	EWB	6.43"	2.46"	12.76"	0.01"	24.48"	0.74"	43.73"	-4.63"
Hyannis MA	HYA	8.34"	4.06"	18.85"	5.98"	28.05"	4.44"	54.37"	6.68"
Nantucket MA	ACK	7.57"	3.77"	18.32"	6.17"	20.54"	-2.65"	45.53"	1.11"
Marthas Vineyard MA	MVY	7.37"	3.52"	17.00"	4.54"	24.93"	1.38"	50.50"	5.34"
Taunton MA	TAN	7.65"	3.33"	17.13"	4.02"	24.79"	-0.47"	49.73"	-0.01"
Plymouth MA	PYM	9.25"	4.86"	21.53"	8.40"	34.83"	10.50"	61.82"	12.67"
Norwood MA	OWD	5.86"	1.78"	14.79"	2.06"	24.21"	0.10"	47.10"	0.04"
Bedford MA	BED	5.20"	1.52"	13.28"	1.09"	23.42"	0.30"	44.33"	-1.38"
Beverly MA	BVY	6.41"	3.05"	14.31"	2.33"	21.51"	-1.66"	45.30"	-0.88"
Lawrence MA	LWM	5.75"	2.63"	14.87"	3.75"	24.46"	2.74"	41.47"	-1.69"
Fitchburg MA	FIT	0.27"	-3.45"	6.89"	-5.36"	15.00"	-8.98"	38.72"	-8.42"
Orange MA	ORE	5.34"	2.13"	13.67"	2.79"	23.18"	1.07"	45.11"	2.56"
Westfield MA	BAF	5.29"	1.86"	14.28"	1.98"	22.39"	-2.65"	44.57"	-3.82"
North Adams MA	AQW	3.38"	0.00"	12.68"	0.60"	21.26"	-3.67"	39.73"	-6.88"

## **Rulers of the Snow**

We are the Rulers of the Snow. We define where the snow is and where it is not. Satellites cannot see through clouds.

45 station list of those that measured snow fall and snow depth for all days in December. Over 2 feet of snow to the north, to 2" and less on the Cape.

Make a snow fall and snow depth measurement with every Daily Report, if you can safely do so, ***all year round.***

Station	Name	Dec 2019 Snowfall	Station	Name	Dec 2019 Snowfall
MA-MD-47	West Townsend 0.5 W	33.1"	MA-NF-1	Norwood 1.3 NW	13.9"
MA-BE-21	Cheshire 0.5 NNW	31.5"	MA-BR-8	Dighton 1.1 WSW	12.9"
MA-FR-17	Buckland 1.8 ESE	29.5"	MA-BR-55	NWS Boston/Norton 2.5 ESE	11.1"
MA-FR-13	Conway 2.9 NW	28.6"	MA-BR-30	Taunton 3.9 N	10.6"
MA-MD-12	Acton 1.3 SW	26.7"	CT-LT-22	New Milford 5.3 SSW	10.3"
MA-ES-48	Andover 0.6 E	24.9"	MA-BA-2	Falmouth 3.1 NNW	8.8"
MA-FR-12	Sunderland 1.3 SE	24.9"	RI-BR-5	Barrington 1.3 WNW	8.8"
MA-MD-51	Maynard 0.7 ESE	24.6"	CT-FR-9	Brookfield 3.3 SSE	7.7"
CT-LT-15	Colebrook 1.0 NE	24.2"	CT-NL-40	Pawcatuck 1.8 SSE	7.7"
MA-WR-42	Northborough 2.3 N	23.3"	CT-MD-21	Killingworth 2.6 ESE	7.1"
MA-ES-4	Groveland 0.5 WSW	22.1"	MA-BA-3	Falmouth 3.0 E	6.8"
CT-TL-2	Staffordville 0.4 NNW	21.4"	CT-FR-3	New Canaan 1.9 ENE	5.5"
MA-HS-26	Easthampton 0.5 SW	21.4"	CT-NL-22	Central Waterford 2.7 SSW	5.3"
MA-HD-25	Ludlow 2.3 SW	21.2"	CT-NL-6	New London 1.0 NNW	4.9"
MA-MD-156	Marlborough 2.8 ENE	21.0"	CT-FR-25	Norwalk 2.9 NNW	4.7"
CT-HR-8	North Granby 1.3 ENE	19.7"	CT-NL-32	Niantic 1.1 SW	4.7"
CT-LT-9	New Hartford Center 3.2 SW	19.3"	MA-DK-2	Vineyard Haven 0.8 WSW	4.7"
MA-MD-7	Winchester 0.7 SE	17.7"	CT-NL-19	Mystic 0.9 W	4.3"
MA-ES-12	Boxford 2.4 S	16.6"	CT-NL-29	East Lyme 0.5 SW	3.8"
RI-PR-33	Greenville 0.7 NNW	15.4"	MA-BA-76	Barnstable 0.7 NE	2.1"
RI-PR-51	North Smithfield 0.6 S	14.9"	MA-BA-72	Yarmouth 2.0 S	2.0"
MA-ES-41	Danvers 0.8 ESE	14.3"	MA-BA-12	Orleans 1.1 E	0.9"
CT-HR-15	Southington 3.0 E	14.0"			

December 2019 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.

Big changes from the beginning of the month to the holidays at the end of the month. 299 Reports per Day was our record reporting average for December.

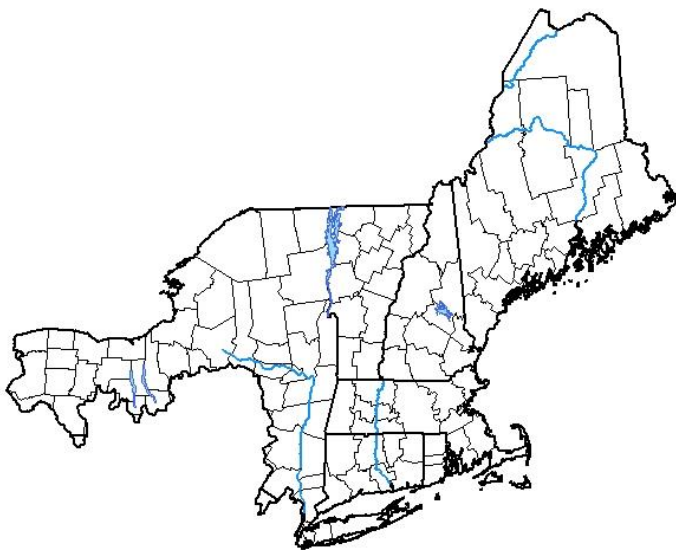
December 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1 307	2 322	3 316	4 300	5 301	6 302	7 296
8 297	9 308	10 324	11 318	12 300	13 304	14 321
15 317	16 300	17 292	18 293	19 299	20 295	21 287
22 290	23 285	24 281	25 280	26 282	27 284	28 283
29 280	30 304	31 303				

After the rain and snow that we received in December.... no drought here.  
 Every drop counts and zeros do too!

## U.S. Drought Monitor Northeast RFC

**January 7, 2020**  
 (Released Thursday, Jan. 9, 2020)  
 Valid 7 a.m. EST



*Drought Conditions (Percent Area)*

	None	D0	D1	D2	D3	D4
<b>Current</b>	100.00	0.00	0.00	0.00	0.00	0.00
<b>Last Week</b> <i>12-31-2019</i>	100.00	0.00	0.00	0.00	0.00	0.00
<b>3 Months Ago</b> <i>10-08-2019</i>	79.63	20.37	0.00	0.00	0.00	0.00
<b>Start of Calendar Year</b> <i>12-31-2019</i>	100.00	0.00	0.00	0.00	0.00	0.00
<b>Start of Water Year</b> <i>10-01-2019</i>	66.91	33.09	0.00	0.00	0.00	0.00
<b>One Year Ago</b> <i>01-08-2019</i>	97.16	2.84	0.00	0.00	0.00	0.00

Intensity:

- None
- 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. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>*

Author:

Curtis Riganti  
 National Drought Mitigation Center



[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

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

## **Wrap up**

Find yourself watching tropical cyclones during the summer months? See the Hurricane Awareness Tour last May at Quonset RI? The next WxTalk Webinar is for you. Don't miss Wednesday January 22<sup>nd</sup> webinar's titled **"Hunting Hurricanes. Heading Straight into the Eye of the Storm."** Presented by Warren Madden, formerly of The Weather Channel, formerly of the USAF Reserves "Hurricane Hunters", now assigned to the National Hurricane Center.

While everyone else in the aviation community flies away from tropical cyclones, learn about those that fly into them, and around them, and what they learn about them, and why it is important to the forecast track, timing and intensity of tropical cyclones.

Can't make the 1PM webinar on January 22<sup>nd</sup>? All of our webinars are uploaded shortly afterwards to YouTube. Don't miss this one.

We start February with a look at our furry four-legged climatologists. Stay tuned to "Groundhog Day" as we mark the mid-point of winter in a time-honored way.

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