



Southern



New England

November 2016

We started the new Water Year in forward motion. Reporting records continue to be surpassed for our three states. October is usually a month of firsts. Our first brush with a hurricane, Hurricane Matthew, our first frost and freeze and our first accumulating snow in northern and western parts of our region.

If this is your first newsletter, welcome to our network. Within this newsletter is a Thanksgiving feast of information.

It has appeared within a Message of Day. Condition Monitoring Reports are new in October. More details given on our new reporting function. Our annual refresher on Snow Measuring. Nicole wrote an article last March, asking for zeros among other details of where she uses your reports. She heard you. She heard all of you. Nicole wants to give thanks for the reports, the complete station data, the zeros and the non-zeros alike. A big mid-section of your reports and the Map of the Month is on Hartford County CT. To add another answer to the always asked question "Does anyone look at my reports?" there are some print screens provided on how your reports look to one of our customers, your NWS Forecast Office. The big finale is a comparison of your state's reports with similar states.

Are you ready for this feast?! Let us read, learn and enjoy, with our thanks to all of you.

Condition Monitoring Reports

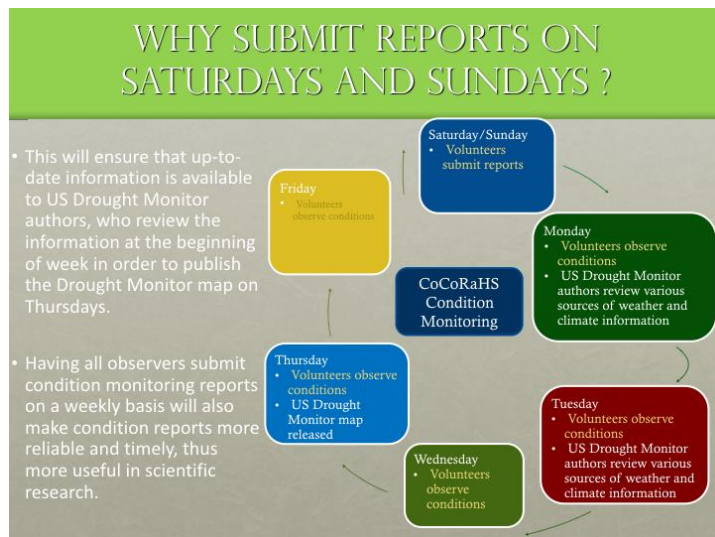
A change to our former Drought Impact Reports was made during October. Instead of commenting about Drought conditions, comments can be made about all conditions; wet, normal or dry.

You know your locale best. As you're outside, looking at stream, pond or river levels; as you see soil, grass or crop conditions, whether the conditions are dry, normal or wet, go to our website, fill out and submit a Condition Monitoring Report.



The form does a good job explaining the details about the report. Be honest and accurate. Express your Condition *relative to normal* at the time of the year. The strong summer sun does dry out the ground, a spring thaw does make the ground muddy, winter snows accompany slow stream flows and frozen ponds, and the day after we get roughly 1" of rain, the rivers and streams come alive and the

ground is a little soft and mushy. Think *relative to normal* at the time of the year. Our normal is 1" of precipitation per week, 4" per month, and so on.



These Condition Monitoring Reports can serve as a way for you to journal your conditions. They also serve as a way to send a message directly to the Drought Monitor team as they gather data each week, so look at and understand the "Cycle" in the diagram (left). The day of week that you submit your report can impact how far your

report reaches. We publish our monthly newsletter on Thursday so we can get the latest Drought Monitor update.

Our local observers have jumped in and used Condition Monitoring Reports to submit their weekly, monthly or longer rainfall totals along with their

observations of soil, pond or stream conditions. Join in, if you have not yet begun.

The concept of Condition Monitoring Reports started in the Carolinas. Which one? Both! Home of 1300 active CoCoRaHS observers between North and South Carolina. Kirsten Lackstrom, from the University of South Carolina, said “Condition Monitoring Reports not only gives us information about all types of conditions (dry-normal-wet) but also a better baseline understanding of local conditions so that drought onset, intensification, and recovery can be identified.”

CoCoRaHS has a map of precipitation reports. We all know what that map looks like. The Carolinas Integrated Sciences & Assessments (CISA) has a [map](#) of Condition Monitoring Reports. Click on the dots on this map to see the reporting details.

CoCoRaHS has prepared more details about these [Condition Monitoring Reports](#).

To further understand the background of this new feature, read this [article](#) from the National Drought Monitor Center.

And to see more information from CISA, their [article](#) on Condition Monitoring Reports.

Snow Measuring

Before we get into our annual refresher of Snow Measuring, a message towards Observer Safety. None of this is worth getting injured or worse over. Your safety and overall well-being is important to us and we understand if you skip, delay or omit values in the Daily Report during the upcoming winter season.

Nobody does it as good as you do. This goes to the “why” snow measuring is important and valued by many. A ruler in the snow, measuring snow fall or snow depth, and its liquid equivalent, is of high value during the winter months. We have a few tips to pass on to do that as accurately as possible. You can also view a 2 ½ minute [video](#) .

- Remove your funnel and inner cylinder from your CoCoRaHS gauge when the temperatures are below freezing. Only if you are certain you will receive all rain should you return your funnel and inner cylinder.
- Have a ruler to measure the depth of new and old snow. The 12" ruler of your school days may work for smaller amounts. Yard sticks work well for deeper amounts. Metal retractable tape measures may not be the best if snow piles up to the bottom metal clip of the tape measure. Some of these rulers may not measure easily when an icy layer develops on top of or at a lower layer within the snow pack. A metal ruler, in 0.1" increments, is like the hot knife through butter.
- A snow measuring board, measuring nearly 2' x 2' x ½" plywood, painted white, is helpful to measure new snow on top of a snow pack. Snow measuring boards are helpful to measure a snow pack, in case your grass is tall and thick before the snow fell.
- A marker, a stick, or a thin pole are helpful to locate near your snow measuring board(s).
- A 2nd outer cylinder, or a kitchen pot, is helpful during measurements of a snow event to change or empty the snow core to bring indoors.
- A spatula or something thin and metal that you can slide under your gauge when taking a core sample.

Never take a ruler to the side of your outer cylinder to measure the snow within the cylinder.

New snow. We work. We sleep. We have other activities. Measure new snow and take a core sample immediately after the snow ends or changes form to sleet/freezing rain/rain. Do the best that you can. We work. We sleep. We have other activities. Measure new snow in 6 hour intervals. Snow does settle slightly over time.

Measure new snow to the nearest 0.1". Measure snow depth of the snow pack to the nearest ½". Take multiple (3) measurements away from trees, buildings, drifts, warm pavement, car roofs and car hoods, picnic tables and back decks. Average those measurements.

It takes a complete coating of snow to measure 0.1". Any snow less than that, is just a Trace. Snow that melts on impact, is reported as a Trace. Trace amounts of snow can occur over 5 times in a season.

It is snowing or it has snowed. You're dressed and ready to go outside. How do we do this?

Go to your gauge. Any snow on or near the gauge, sweep away from the gauge opening. Change the gauge with a 2nd outer cylinder, if you have one. Empty the contents of the gauge into a kitchen pot.

Ruler to the snow measuring boards. Measure in multiple (3) locations your new snow, to the nearest 0.1". Find the spot that has the average. Take an empty outer cylinder, turn upside down, press down into the snow and cut a core. Use a spatula or something thin and metal to slide under the bottom of the core. Wipe off the remaining snow from your snow measuring board. Reposition your snow measuring board flush to the top of the snow pack.

Bring it all indoors. Be ready to write numbers down. Use your funnel and inner cylinder to add a measured amount of hot tap water. For new snow less than 5", I add about 0.50" of hot tap water. For more than 5" of snow, I add about 1.00" of hot tap water. Write down the measured amount of hot tap water.

Pour the hot tap water into the outer cylinder with the snow core. Slosh around until the snow core is completely melted. Pour out the liquid from the outer cylinder into your funnel and inner cylinder. Be careful not to spill out more than 1". Write that measurement down. Subtract the hot water amount from your total amount. That is your liquid equivalent, to the nearest 0.01". Save that number and your new snow depth number to the nearest 0.1".

You can repeat this process to the snow found in your gauge, if you want the additional experience, or if you have a mix of precipitation types occurring. You may find that the core sample and the gauge sample are close in amounts. The core sample from your snow measuring board is a more representative amount as to what fell on the ground.

Repeat these steps until the snow event ends or for your morning observation time. Total all of your measurements for your Daily Report.

For your daily observation time, measure the snow depth. Ruler to measure the snow depth. Measure in multiple (3) locations. Average to

the nearest $\frac{1}{2}$ ". You would be surprised how valuable a snow depth measurement is during the days in between snow events. We define where the snow is and where it is not. If many of us measure and report a snow depth, as many days as possible, and it only has to be the nearest $\frac{1}{2}$ ", even if it is zero or a trace, what a valuable composite map we make.

For Monday's Daily Report, we encourage your participation in our network's custom "SWE Mondays." Find the location of your average snow depth and cut a core sample with an empty outer cylinder. Use a spatula or something thin and metal to hold the bottom of the core. And follow the previous instructions about adding hot tap water, writing down, pouring out, and subtracting to obtain the snow water equivalent (SWE). If there is no snow on the ground, this is easy, be a hero and report a zero for total snow and ice on the ground, depth and liquid equivalent.

Have patches of snow not completely covering the ground? Take an average. Have no snow on the ground? Be a hero and report a zero! We define where the snow is and where it is not.

Next month, snow reporting will be mentioned; which values to put into which places. Avoid *the* most common mistake: Entering a snow depth value (2.30") where the liquid equivalent (0.22") is to be entered. Look at your State page off the CoCoRaHS site to see more about snow reporting.

Our low cost rulers and gauges have a high value impact. Your snow reports have far reaching destinations. Look at www.nohrsc.noaa.gov In the text box labelled "Observations near", enter your town and state. Press Enter or click "Go". CoCoRaHS reports should appear. After 7pm, the date advances. You may need to set the day back. Very new observers may need to wait 2-3 weeks to have their station appearing on this site, but all other stations should be there.

While the snow stays away, you ALL are encouraged to submit snow values of zero with every Daily Report. 4 additional zeros with every Daily Report. Be a hero and report your snow zeros. There are no zeros like snow zeros. Change those values of NA. When the snow returns, avoid submitting false zeros.

Nolan would tell you all to marvel at the beauty of snow. When you're outside, take a few moments to enjoy it.

No Drought from you!

By Nicole Belk – Senior Service Hydrologist, NWS Taunton MA

Your precipitation reports, including all of those reports of 0.00", have been and continue to be incredibly helpful throughout this drought. The more precipitation data that is available, the better we can help assess drought conditions across the region. It was amazing to check the CoCoRaHS website during late morning of October 31st and see how many of you had already completed your reports for the entire month!

We've been in drought conditions for quite some time now. In fact, you have to go back to the May 31st rendition of the US Drought Monitor to find all of MA, CT and RI *not* in Drought-designated areas on the US Drought Monitor (mapped as having D1 "Moderate Drought" conditions or worse). Here is a link to the latest [US Drought Monitor map](#) for the northeast US.

October was a month of extremes. RI, eastern MA and eastern CT received substantial rainfall, in some cases to the point of flooding. During the evening of Friday October 21st, we received numerous reports of urban flash flooding, especially in the Worcester area. One portion of Cambridge Street in Worcester was reported to be flooded with water 7 feet deep! Also in Worcester, an underpass bridge on MLK Boulevard was flooded all the way up to the base of the bridge overhead. The CoCoRaHS observers that had the most rainfall for this single event included MA-WR-43 Leicester 2.4 ESE, with 4.47", MA-WR-38 Worcester 2.7 S, at 4.23", and MA-WR-25 Holden 2.0 ESE, with 4.06", most of this occurring in under 2 hours.

In contrast, the western half of MA and central to western CT received far less rainfall over the course of the month. MA-HD-23 Springfield 2.5 WNW had only 2.02" of rainfall for the entire month, with 22 days of 0.00". CT-HR-36 West Hartford 1.1 W had only 2.27" of rainfall for the month, with 21 days of 0.00".

As we continue through this drought, your precipitation data continues to be utilized in reports and summaries that we provide to the States of Massachusetts, Connecticut and Rhode Island. These summaries in turn help the States in determining their drought declarations. Thank you for your rainfall reports, and thank you for ALL of your zeroes!!!

Detail and Summary for October 2016

From the National Weather Service (NWS) Climate sites for Oct 2016.

Location	Station ID	Oct 2016 Precip	Oct departure from normal	Aug-Sep-Oct Precip	3 month departure from normal	May-Oct Precip	6 month departure from normal
Pittsfield MA	PSF	3.85"	-0.86"	8.34"	-4.42"	18.97"	-6.65"
Bridgeport CT	BDR	4.25"	0.61"	10.14"	-0.94"	19.70"	-2.25"
Hartford CT	BDL	2.17"	-2.20"	8.78"	-3.40"	15.46"	-9.60"
Worcester MA	ORH	6.57"	1.89"	13.80"	1.48"	19.73"	-5.20"
Providence RI	PVD	4.83"	0.90"	10.28"	-1.17"	18.46"	-3.47"
Boston MA	BOS	5.46"	1.52"	8.56"	-2.17"	13.59"	-7.74"

At last, monthly values greater than 4" and some positive variances.

October started off with a rainy weekend. Our attention turned towards the tropics as Hurricane Matthew came through Haiti and the Bahamas, towards Florida and the Carolinas. Our southeastern areas saw some wind and rainfall as Matthew exited east during Columbus Day weekend. A dry middle of the month. The next significant rain came on the 21st ahead a front as rain streamed from the south, dropping large amounts from New London towards Portland Maine. Our first snow occurred on the 27th before it changed to rain in some areas and eventually melted.

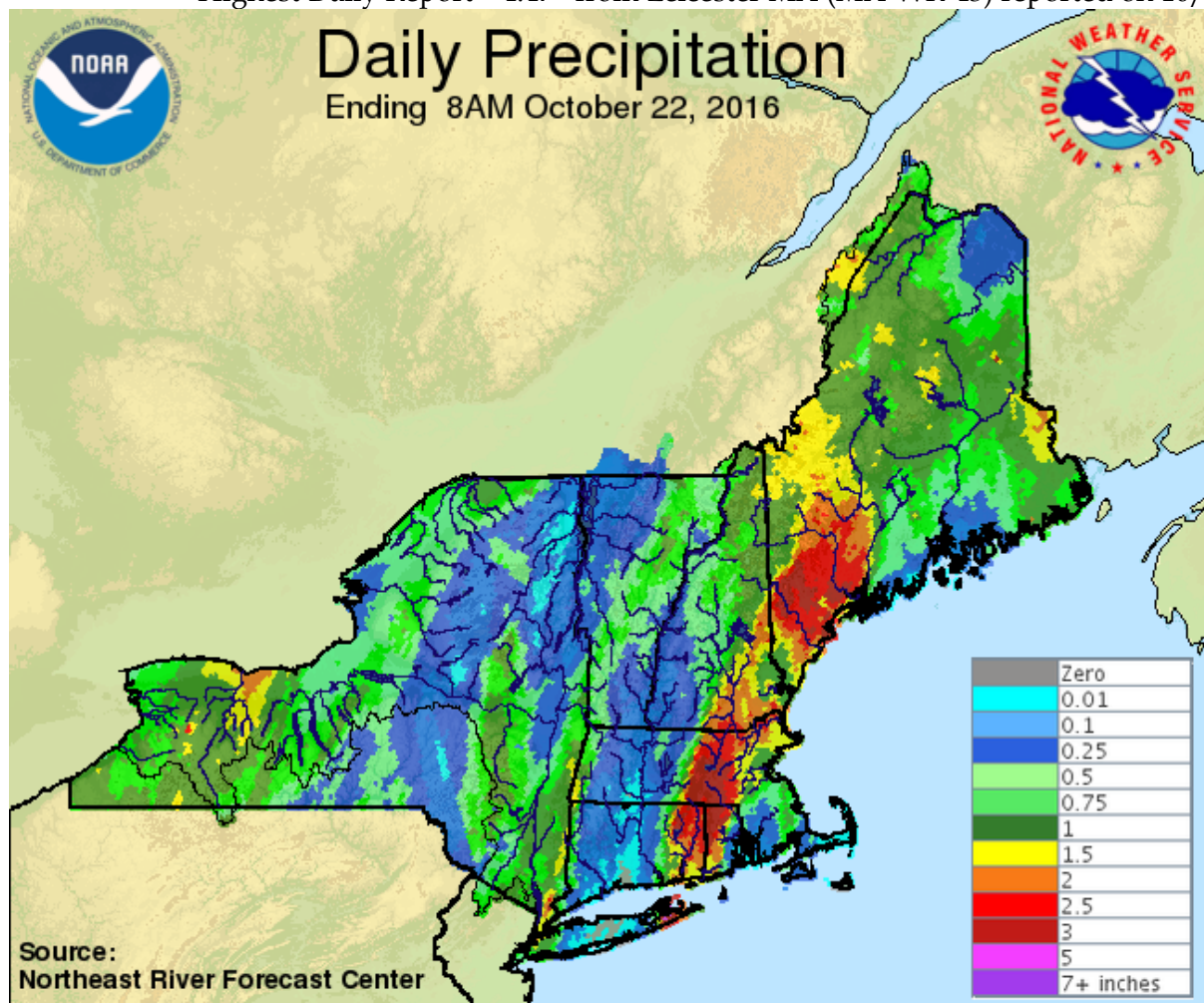
A tale of two sides of our region. Below normal precipitation around the Connecticut and Housatonic Rivers. Above normal precipitation along the Connecticut shoreline and east of New London and Worcester.

We were so close to achieving 7000 Daily Reports, so perhaps, we will reach that milestone in December. Last October, we had 3832 Daily Reports. Our 3811 reports of zero was also close to being able to say that our zeros surpassed last year's monthly total, one more time.

We broke through 1000 comments in a month for the first time and strive to go even higher than that. The most notable record that was broken was 135 stations that reported all 31 days of October, and 50 stations completed their station totals with a record amount of Multi-Day Reports.

From your reports for October 2016

Observers reporting	290
Reported all 31 days	135
Completed by Multi-Day Reports	50
Missing 1 or 2 reports	13 ** Email reminders, help!
Daily Reports	6981
Zero Reports	3811
Non-Zero Reports	3170
Daily Comments	1199
Multi-Day Reports	174
Condition Monitoring Reports	56
Significant Weather Reports	27
Hail Reports	0
Snowfall Reports	3217
Snow Depth Reports	738
Highest Daily Report	4.47" from Leicester MA (MA-WR-43) reported on 10/22



Something different coming next. The next section would normally have 150+ stations with complete data for the month. The sort sequence of stations is something I developed last year by taking counties and connecting them as the rivers would likely flow. The sort would start with Berkshire, Litchfield, Fairfield, wrap north-to-south while going east towards Cape Cod and the Islands. Looking back at it, it is impressive to see some of the newsletters last year with 50 or so complete stations, to today where the total stands at nearly 190 complete stations.

Towards the end of July's newsletter, Watersheds were mentioned. CoCoRaHS released an [animated video](#) on the topic. A [map](#) from the USGS was provided for you to find your hydrologic address to 8 places.

Recently, Coordinators were asked to evaluate a tool about Watersheds. A street address could be entered, or a lat/long address for those with PO Box's, and a watershed, with surrounding watersheds could be displayed.

That tool was evaluated on ALL of the recently reporting stations in our three states. A Watershed and your Station ID is within a spreadsheet that is used each month in conjunction with this newsletter.

We absolutely want your feedback on this next section. Take a look at your complete stations sorted by Watershed. We're very certain we have the correct county for each station, but slightly less certain which Watershed you are located in. Perhaps the tool we are evaluating does not work well on your street, or perhaps we have the wrong lat/long address for your station. There are about two stations we need to know where you have your gauge, because the dividing line is that close: Little Compton RI, Monroe CT, Prospect CT, Lexington MA are have multiple watersheds.

Think. Pause. Reflect. Don't be too quick in sending us your feedback. Coastline stations may be within a "Frontal" watershed name so we understand that you have no river near your station.

This is how the rivers flow. These are your hydrologic addresses. Take a look beyond your county or state borders. Your complete station data for the month of October sorted by Watershed, and grouped by sub-basin. Give it some thought. Let us know your opinions on this. A record 189 stations, from 185 + 4 given some generosity with their Multi-Day reporting over a month end. Enjoy it!

Watershed	Watershed Name	Station	Station Name	Precip
01070004	Nashua			
0107000401	North Nashua River	MA-WR-44	Westminster 0.6 WSW	4.17"
0107000401	North Nashua River	MA-WR-8	Fitchburg 1.6 SSW	5.88"
0107000401	North Nashua River	MA-WR-13	Leominster 1.5 S	6.54"
0107000402	Headwaters Nashua River	MA-MD-25	Ayer 0.1 SW	6.48"
0107000403	Squannacook River	MA-MD-47	West Townsend 0.5 W	6.15"
01070005	Concord			
0107000502	Concord River	MA-WR-30	Shrewsbury 1.6 NNE	6.99"
0107000502	Concord River	MA-WR-28	Berlin 1.3 WSW	7.28"
0107000502	Concord River	MA-WR-18	Northborough 0.6 SSE	7.19"
0107000502	Concord River	MA-WR-42	Northborough 2.3 N	6.83"
0107000502	Concord River	MA-WR-47	Northborough 1.0 NE	7.37"
0107000502	Concord River	MA-MD-61	Stow 2.3 NW	6.36"
0107000502	Concord River	MA-MD-12	Acton 1.3 SW	7.03"
0107000502	Concord River	MA-MD-51	Maynard 0.7 ESE	8.25"
0107000502	Concord River	MA-MD-53	Acton 4.0 ENE	6.57"
0107000502	Concord River	MA-MD-62	Chelmsford 1.2 E	5.97"
0107000502	Concord River	MA-MD-60	Billerica 2.0 W	6.04"
01070006	Merrimack River			
0107000613	Shawsheen River	MA-MD-52	Lexington 0.6 SW	5.87"
0107000614	Powwow River - Merrimack River	MA-ES-3	Haverhill 3.6 WNW	7.41"
0107000614	Powwow River - Merrimack River	MA-ES-29	North Andover 1.9 SSE	7.60"
0107000614	Powwow River - Merrimack River	MA-ES-20	Haverhill 0.7 N	7.12"
0107000614	Powwow River - Merrimack River	MA-ES-27	Amesbury 1.2 ENE	7.75"
01080201	Middle Connecticut			
0108020106	Manhan River - Connecticut River	MA-HS-2	Westhampton 1.8 SW	3.00"
0108020106	Manhan River - Connecticut River	MA-HS-8	Williamsburg 1.2 WSW	2.56"
0108020106	Manhan River - Connecticut River	MA-HS-10	Northampton 1.6 NE	2.39"
0108020106	Manhan River - Connecticut River	MA-FR-12	Sunderland 1.3 SE	2.54"
0108020107	Batchelor Brook - Connecticut River	MA-HD-13	Springfield 4.1 W	2.39"
0108020107	Batchelor Brook - Connecticut River	MA-HD-23	Springfield 2.5 WNW	2.02"
01080202	Miller			
0108020202	Lower Millers River	MA-WR-39	Gardner 1.2 SW	3.37"
0108020202	Lower Millers River	MA-WR-40	Gardner 1.4 SSW	2.83"
01080203	Deerfield			
0108020305	Lower Deerfield River	MA-FR-17	Buckland 1.8 ESE	3.30"
0108020305	Lower Deerfield River	MA-FR-13	Conway 2.9 NW	2.87"
0108020305	Lower Deerfield River	MA-FR-10	Conway 0.9 SW	2.09"

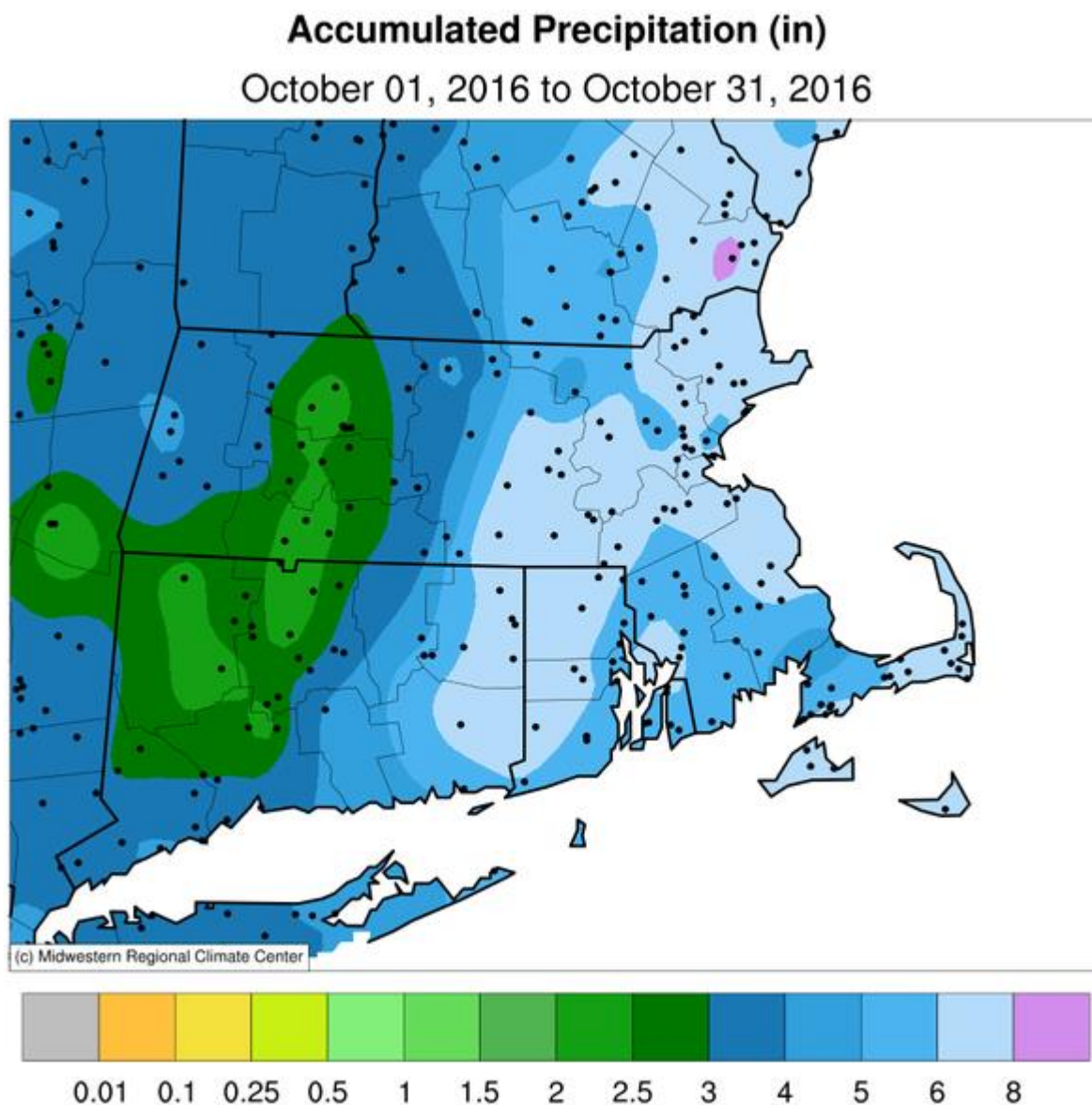
01080205	Lower Connecticut			
0108020501	Mill River - Connecticut River	CT-HR-5	Enfield 1.5 SE	2.77"
0108020502	Scantic River	MA-HD-20	Wilbraham 3.7 SSW	2.29"
0108020502	Scantic River	CT-TL-15	Central Somers 0.3 N	2.85"
0108020503	Park River	CT-HR-9	West Hartford 2.7 NNW	2.61"
0108020503	Park River	CT-HR-36	West Hartford 1.1 W	2.27"
0108020503	Park River	CT-HR-11	West Hartford 2.7 SSE	2.40"
0108020504	Hockanum River	CT-TL-16	Vernon 3.5 NNE	2.96"
0108020505	Roaring Brook - Connecticut River	CT-HR-6	Wethersfield 1.2 WSW	2.85"
0108020505	Roaring Brook - Connecticut River	CT-HR-22	East Hartford 1.3 E	3.04"
0108020505	Roaring Brook - Connecticut River	CT-HR-7	Central Manchester 2.7 SW	3.01"
0108020505	Roaring Brook - Connecticut River	CT-HR-40	Glastonbury Center 4.0 ENE	3.56"
0108020506	Mattabesset River	CT-HR-15	Southington 3.0 E	2.97"
0108020506	Mattabesset River	CT-HR-18	Berlin 2.4 SSE	3.05"
0108020507	Higganum Creek - Connecticut River	CT-MD-2	Portland 0.9 S	4.28"
01080206	Westfield			
0108020603	Outlet Westfield River	MA-HD-15	Westfield 1.5 SW	2.82"
01080207	Farmington			
0108020701	Still River	CT-LT-15	Colebrook 1.0 NE	2.80"
0108020702	West Branch Farmington River	MA-BE-4	Becket 5.6 SSW	2.95"
0108020704	Headwaters Farmington River	CT-LT-9	New Hartford Center 3.2 SW	2.91"
0108020704	Headwaters Farmington River	CT-HR-24	Collinsville 0.9 NW	2.78"
0108020704	Headwaters Farmington River	CT-HR-28	North Canton 0.8 SSW	2.83"
0108020705	Salmon Brook	CT-HR-8	North Granby 1.3 ENE	2.32"
0108020706	Outlet Farmington River	CT-HR-35	Weatogue 0.7 E	2.97"
01090001	Charles			
0109000101	Plum Island Sound - Frontal Atlantic Ocean	MA-ES-24	Newburyport 0.8 SW	7.31"
0109000102	Ipswich River	MA-MD-45	Wilmington 1.5 NE	6.48"
0109000102	Ipswich River	MA-ES-12	Boxford 2.4 S	6.61"
0109000102	Ipswich River	MA-ES-2	Beverly 2.8 NW	6.65"
0109000103	Essex River - Frontal Atlantic Ocean	MA-ES-28	Beverly 1.5 NE	6.99"
0109000104	Saugus River - Frontal Broad Sound	MA-SF-2	Winthrop 0.2 N	5.91"
0109000104	Saugus River - Frontal Broad Sound	MA-ES-8	Marblehead 0.8 SW	6.05"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-67	Lexington 2.3 SE	6.11"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-54	Belmont 0.3 SE	6.02"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-7	Winchester 0.7 SE	6.05"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-79	Woburn 1.2 ESE	6.19"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-44	Medford 1.2 W	5.71"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-11	Cambridge 0.9 NNW	5.98"
0109000105	Mystic River - Frontal Boston Harbor	MA-SF-10	Chelsea 0.8 N	6.27"
0109000106	Upper Charles River	MA-WR-1	Milford 2.3 NNW	7.87"

0109000106	Upper Charles River	MA-MD-55	Holliston 0.7 W	7.60"
0109000106	Upper Charles River	MA-MD-42	Holliston 0.8 S	7.74"
0109000106	Upper Charles River	MA-NF-11	Millis 2.0 SW	8.18"
0109000107	Lower Charles River - Frontal Boston Harbor	MA-SF-4	Brighton 0.5 W	6.42"
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-43	Somerville 0.8 SSE	6.22"
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-74	Somerville 0.7 SSE	4.68"
0109000107	Lower Charles River - Frontal Boston Harbor	MA-SF-1	Boston 0.5 WSW	5.21"
0109000108	Neponset River - Frontal Boston Harbor	MA-NF-1	Norwood 1.3 NW	6.23"
0109000109	Whitmans Pond - Frontal Boston Harbor	MA-NF-27	Quincy 1.5 SW	7.04"
0109000109	Whitmans Pond - Frontal Boston Harbor	MA-NF-5	Weymouth 0.5 NW	7.34"
01090002	Cape Cod			
0109000201	North River - Frontal Massachusetts Bay	MA-PL-5	Kingston 3.3 WNW	7.47"
0109000201	North River - Frontal Massachusetts Bay	MA-PL-2	Sagamore Beach 1.0 NW	6.17"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-8	Falmouth 1.8 WSW	5.16"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-14	North Falmouth 0.5 ENE	4.09"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-13	Falmouth 0.6 NNW	5.62"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-50	Falmouth 5.4 NNE	4.62"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-19	East Falmouth 0.7 NW	5.96"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-3	Falmouth 3.0 E	6.50"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-11	East Falmouth 1.4 ESE	5.44"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-18	Waquoit 0.6 SSW	6.21"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-47	Mashpee 2.4 WSW	5.93"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-45	Sandwich 0.9 NNE	5.18"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-49	Sandwich 3.5 SSE	8.09"
010900020206	Cape Cod - Wequaquet Lake	MA-BA-22	Yarmouth 0.9 NNW	6.03"
010900020205	Cape Cod - Wequaquet Lake	MA-BA-1	Yarmouth 2.3 SSE	6.74"
010900020205	Cape Cod - Long Pond	MA-BA-36	Harwich 2.6 ENE	7.54"
010900020205	Cape Cod - Long Pond	MA-BA-37	Orleans 0.8 W	7.49"
010900020205	Cape Cod - Long Pond	MA-BA-51	Orleans 3.0 S	8.56"
010900020205	Cape Cod - Long Pond	MA-BA-12	Orleans 1.1 E	6.52"
010900020204	Cape Cod - Nauset Bay	MA-BA-30	Eastham 0.6 SW	7.17"
0109000203	Mattapoisett River - Frontal Buzzards Bay	MA-PL-19	Rochester 1.2 NNW	5.35"
0109000203	Mattapoisett River - Frontal Buzzards Bay	MA-PL-6	Middleborough 5.5 E	5.31"
0109000204	Paskamanset River - Frontal Buzzards Bay	MA-BR-14	Dartmouth 2.5 SSW	5.71"
0109000204	Paskamanset River - Frontal Buzzards Bay	MA-BR-32	Acushnet 1.8 SSE	5.13"
0109000205	Skonnet Point - Frontal Rhode Island Sound	RI-NW-7	Little Compton 0.6 E	6.00"
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-5	West Tisbury 2.9 N	7.96"
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-9	West Tisbury 0.4 S	7.62"
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-2	Vineyard Haven 0.8 WSW	6.81"
0109000207	Nantucket Island	MA-NT-1	Nantucket 3.8 WNW	6.58"
01090003	Blackstone			

0109000301	Upper Blackstone River	MA-WR-41	Auburn 2.6 SW	7.69"
0109000301	Upper Blackstone River	MA-WR-48	Uxbridge 1.9 WSW	7.11"
0109000302	Lower Blackstone River	MA-NF-26	Bellingham 2.4 S	8.17"
0109000302	Lower Blackstone River	MA-NF-16	Bellingham 4.7 S	7.76"
0109000302	Lower Blackstone River	RI-PR-35	Cumberland Hill 3.7 E	5.68"
01090004	Narragansett			
0109000401	Upper Taunton River	MA-BR-30	Taunton 3.9 N	5.34"
0109000401	Upper Taunton River	MA-PL-22	East Bridgewater 0.3 WSW	5.97"
0109000401	Upper Taunton River	MA-PL-24	Whitman 1.1 WSW	5.76"
0109000401	Upper Taunton River	MA-PL-15	Abington 1.2 NNE	4.96"
0109000401	Upper Taunton River	MA-PL-28	Whitman 0.1 SSW	5.77"
0109000401	Upper Taunton River	MA-PL-23	Pembroke 2.8 SW	6.23"
0109000403	Threemile River	MA-NF-19	Foxborough 1.8 SSW	5.05"
0109000403	Threemile River	MA-BR-33	Taunton 2.4 W	6.09"
0109000403	Threemile River	MA-BR-9	Taunton 2.6 NW	5.98"
0109000404	Ten Mile River	MA-BR-17	North Attleboro 0.8 E	5.34"
0109000404	Ten Mile River	MA-BR-23	Attleboro 0.9 ENE	5.24"
0109000405	Wonnasquatucket River-Moshassuck River	RI-PR-33	Greenville 0.7 NNW	7.58"
0109000405	Wonnasquatucket River-Moshassuck River	RI-PR-48	Providence 1.2 NNW	5.64"
0109000406	Pawtuxet River	RI-PR-17	Cranston 4.1 E	5.61"
0109000407	Palmer River	MA-BR-2	Rehoboth 2.1 N	6.08"
0109000407	Palmer River	MA-BR-35	Swansea 4.6 WNW	5.77"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-3	Norton 1.8 NNE	5.37"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-16	Somerset 0.4 SSE	6.66"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-8	Dighton 1.1 WSW	6.13"
0109000409	Narragansett Bay	RI-KN-9	Warwick 2.4 SW	4.87"
0109000409	Narragansett Bay	RI-KN-2	East Greenwich 2.3 ESE	6.04"
0109000409	Narragansett Bay	RI-PR-32	Providence 2.3 NE	4.98"
0109000409	Narragansett Bay	RI-NW-4	Middletown 1.1 SW	4.61"
0109000409	Narragansett Bay	RI-NW-11	Tiverton 0.8 SSW	6.72"
0109000409	Narragansett Bay	RI-NW-5	Little Compton 1.7 NW	5.69"
01090005	Pawcatuck-Wood			
0109000501	Wood River	RI-WS-25	Rockville 0.4 E	7.59"
0109000502	Upper Pawcatuck River	RI-WS-32	Kingston 6.9 NNW	6.12"
01100001	Quinebaug			
0110000101	Upper Quinebaug River	MA-HD-16	Wales 0.4 SSW	3.26"
0110000103	Fivemile River	CT-WN-6	Dayville 2.0 ENE	6.83"
0110000103	Fivemile River	CT-WN-4	East Killingly 1.3 SW	6.94"
0110000105	Mossup River	CT-WN-8	Moosup 1.7 NE	7.64"
0110000106	Pachaug River	CT-NL-21	Griswold 0.9 N	6.65"
01100002	Shetucket River			

0110000201	Willimantic River	CT-TL-2	Staffordville 0.4 NNW	2.90"
0110000201	Willimantic River	CT-TL-18	Hebron 5.3 NW	4.17"
0110000202	Natchaug River	CT-TL-4	Mansfield Center 1.9 SW	5.55"
0110000203	Shetucket River	CT-WN-10	South Windham 1.3 NNE	5.86"
0110000203	Shetucket River	CT-WN-11	Scotland 2.3 SSW	6.10"
0110000203	Shetucket River	CT-NL-10	Norwich 2.5 NNE	7.06"
01100003	Thames			
0110000302	Thames River-Frontal New London Harbor	CT-NL-7	Uncasville-Oxoboxo Valley 5.6 W	6.39"
0110000302	Thames River-Frontal New London Harbor	CT-NL-5	Oakdale 2.6 WNW	7.21"
0110000302	Thames River-Frontal New London Harbor	CT-NL-17	Waterford 2.2 N	8.61"
0110000302	Thames River-Frontal New London Harbor	CT-NL-6	New London 1.0 NNW	8.19"
0110000302	Thames River-Frontal New London Harbor	CT-NL-8	Uncasville-Oxoboxo Valley 1.6 ENE	7.98"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-22	Central Waterford 2.7 SSW	7.34"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-23	Mystic 1.4 W	6.55"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-19	Mystic 0.9 W	6.46"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-18	Stonington 0.5 NNE	6.55"
01100004	Quinnipiac			
0110000401	Quinnipiac River	CT-NH-14	Prospect 1.9 ENE	2.89"
0110000401	Quinnipiac River	CT-NH-30	Cheshire Village 2.2 SE	2.57"
0110000401	Quinnipiac River	CT-HR-23	Southington 0.9 SSE	2.87"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-NH-21	East Haven 3.5 SSW	5.48"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-MD-5	Westbrook Center 1.1 N	5.92"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-MD-11	Westbrook Center 1.5 NE	5.72"
0110000403	Mill River - Frontal Long Island Sound	CT-NH-16	Milford 1.8 E	4.56"
0110000403	Mill River - Frontal Long Island Sound	CT-NH-29	Hamden 3.0 WSW	3.56"
01100005	Housatonic			
0110000501	Headwaters Housatonic River	MA-BE-11	Great Barrington 3.0 N	4.30"
0110000501	Headwaters Housatonic River	MA-BE-3	Stockbridge .2 NNE	4.10"
0110000501	Headwaters Housatonic River	MA-BE-10	Pittsfield 2.0 NNW	4.57"
0110000508	Still River - Housatonic River	CT-FR-43	Bethel 0.5 E	3.02"
0110000508	Still River - Housatonic River	CT-FR-41	Bethel 3.5 NNE	2.67"
0110000508	Still River - Housatonic River	CT-FR-9	Brookfield 3.3 SSE	2.57"
0110000510	Eightmile Brook - Housatonic River	CT-NH-15	Seymour 3.6 SW	2.86"
0110000511	Headwaters Naugatuck River	CT-LT-7	Litchfield 2.3 NNE	2.33"
0110000512	Outlet Naugatuck River	CT-LT-14	Watertown 0.5 S	2.87"
0110000512	Outlet Naugatuck River	CT-NH-26	Prospect 1.5 NW	3.07"
0110000512	Outlet Naugatuck River	CT-NH-22	Prospect 0.5 SW	3.55"
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-42	Monroe 0.1 SE	3.20"
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-23	Shelton 1.3 W	3.14"
01100006	Saugatuck			
0110000601	Saugatuck River - Frontal Long Island Sound	CT-FR-31	Newtown 4.6 SSW	2.87"

0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-29	Ridgefield 1.9 SSE	3.46"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-3	New Canaan 1.9 ENE	4.01"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-25	Norwalk 2.9 NNW	3.81"
0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-32	Monroe 0.8 W	3.34"
0110000604	Mianus River-Rippowam River	CT-FR-37	Stamford 0.4 WNW	4.43"
0110000604	Mianus River-Rippowam River	CT-FR-35	Darien 1.8 ENE	4.49"

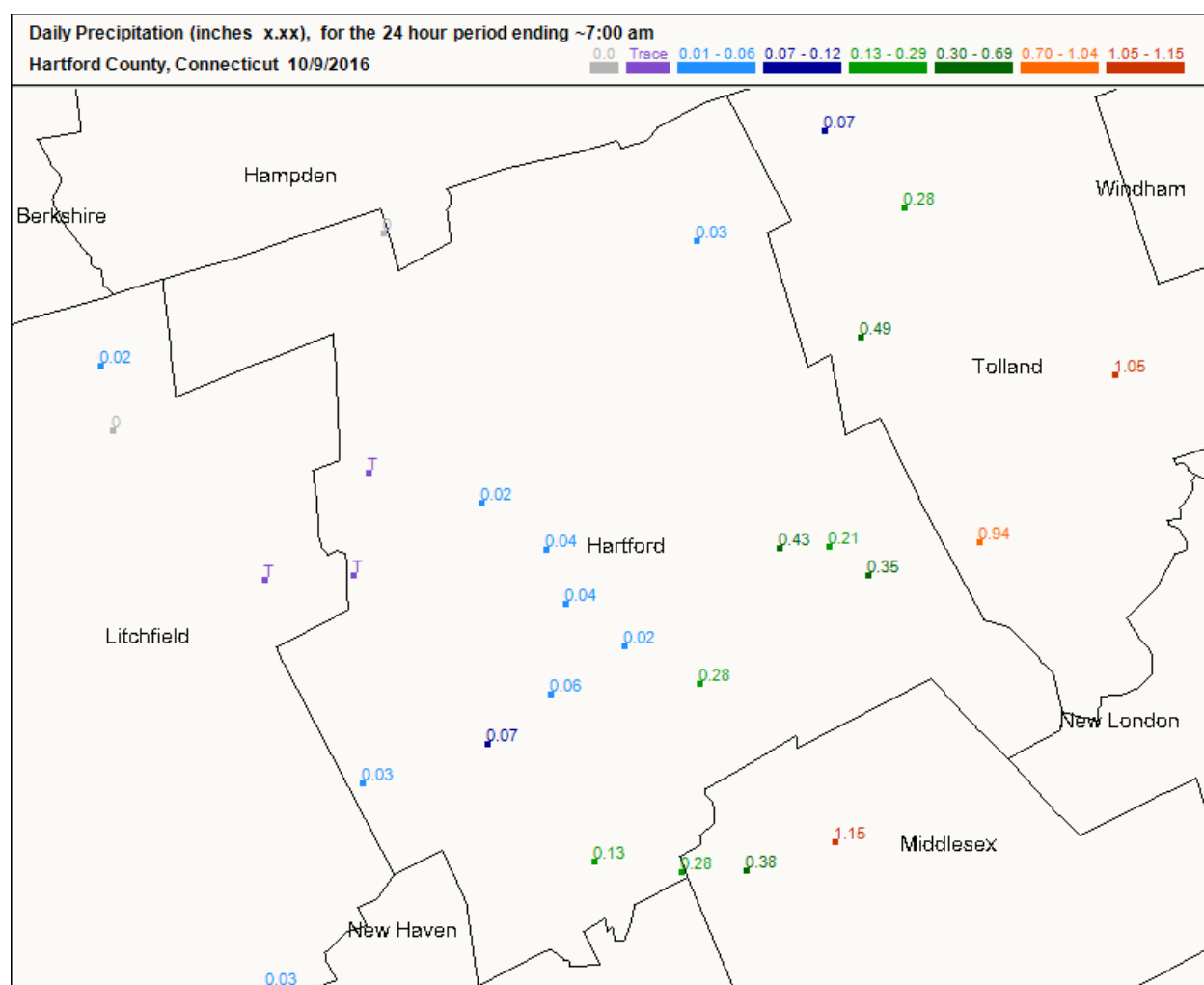


Map of the Month – Hartford County CT

Hartford is the capital of Connecticut and the county is home to nearly 900,000 residents on over 700 square miles of land. The Connecticut River valley in this county grows a unique crop, shade leaf tobacco.

Towards the northwest part of this county, the Farmington River valley contains two reservoirs. Barkhamsted Reservoir holds 30 billion gallons of water, the largest single reservoir in CT, and the Nepaug Reservoir holds 9.5 billion gallons. Together, these two reservoirs provide 50 million gallons drinking water per day to over 400,000 residents along the Connecticut River from Windsor to Portland.

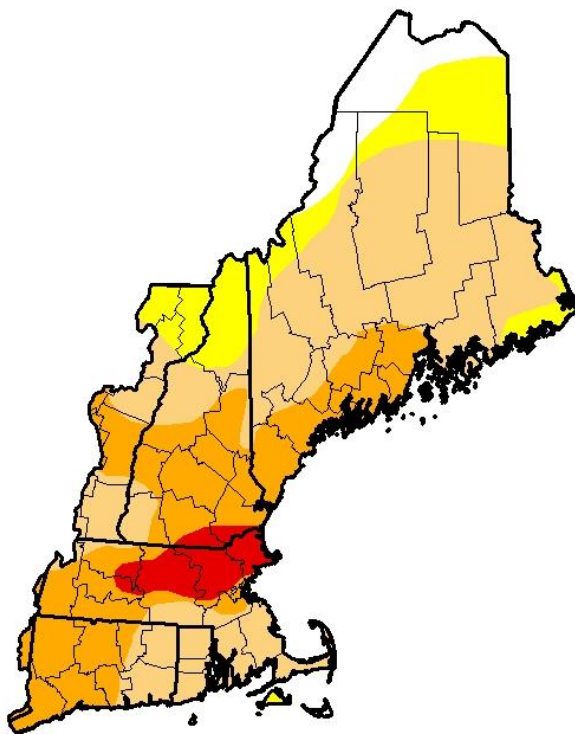
Over 15 reporting observers in Hartford County may seem plenty, but there are plenty of gaps to be filled in. If you know of someone who might be interested, ask them to join CoCoRaHS.



From the Drought Monitor.

The short term drought has been eased in eastern CT, RI and southeast MA, but a long term drought remains. Every drop counts and zeros do too!

U.S. Drought Monitor New England Watershed



November 8, 2016

(Released Thursday, Nov. 10, 2016)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0	D1	D2	D3	D4
Current	6.77	14.55	46.34	27.74	4.60	0.00
Last Week 11/1/2016	7.68	13.64	46.34	27.74	4.60	0.00
3 Months Ago 8/9/2016	34.57	28.37	22.78	13.79	0.49	0.00
Start of Calendar Year 12/29/2015	55.73	28.42	15.85	0.00	0.00	0.00
Start of Water Year 9/27/2016	26.52	15.24	18.41	25.39	14.44	0.00
One Year Ago 11/10/2015	71.61	12.96	15.42	0.00	0.00	0.00

Intensity:

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

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

Author:

Deborah Bathke
National Drought Mitigation Center



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

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

Who looks at CoCoRaHS data? Your NWS Forecast Office does!

It's a common question asked by the volunteer observers in our network. "Does anyone look at or see my/our reports?" Part of the determined effort as Editor of this newsletter is to find where your reports end up, and show all of you what is found.

A visit was made to the NWS Forecast Office in Taunton MA. These are the CoCoRaHS reports submitted on Sunday October 23 by observers within its County Warning Area (CWA).

ECLAIRS (Electronic Call Log And Image Recording System) VERSION 5.99D

File LSR/PHS options Backup Mode Show Only... Config Help

Call Time 1146 AM City: 011202 Distance: ADD OBS SITE
 Event Time 1146 AM Duplicate City Direction
 Event Date 10/24/16

Report Source: TRAINED SPOTTER MANUAL County: HARTFORD CT Site CWA: BOX
 SOURCE ID: EXTRACT Latitude: 41.68 Longitude: -72.94

LSR/PHS: Internal INITS: JD

Home Cursor Img/Archive Export Log Set Dates Print BOX Log Entry Wizard Clear Fields Save Report

EVENT REPORT: HEAVY RAIN Rainfall: 2.24 UNITS: INCH

LSR SUPPLEMENTAL INFORMATION: Number Dead Number Injured

EVENT TIME	CALL TIME	REFERENCE LOCATION	COUNTY ST	SOURCE	T/F	FAT INJ	SIGNIFICANT WK EVENT	REMARKS	INIT	ETH
0700 AM	0230 AM	2 S LEOMINSTER	WORCESTER MA	COCORAHs	W	0	M 0.54 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	1 SSW NORTH CANTON	HARTFORD CT	COCORAHs	W	0	M 0.38 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	1 E WEATOGUE	HARTFORD CT	COCORAHs	W	0	M 0.39 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	1 N NARRAGANSETT PIER	WASHINGTON RI	COCORAHs	W	0	M 0.25 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	3 SE WEST CLOCESTER	PROVIDENCE RI	COCORAHs	W	0	M 0.31 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	2 ESE EAST GREENWICH	KENT RI	COCORAHs	W	0	M 0.43 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	1 N NEWPORT	NEWPORT RI	COCORAHs	W	0	M 0.50 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	1 SSE SOUTHTON	HARTFORD CT	COCORAHs	W	0	M 0.28 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	2 SW WARWICK	KENT RI	COCORAHs	W	0	M 0.39 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	4 SSE AMHERST	HAMPSHIRE MA	COCORAHs	W	0	M 0.47 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	1 E ROCKPORT	ESSEX MA	COCORAHs	W	0	M 0.46 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	1 E LITTLE COMPTON	NEWPORT RI	COCORAHs	W	0	M 0.31 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	4 W SPRINGFIELD	HAMPDEN MA	COCORAHs	W	0	M 0.27 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	1 SW GARDNER	WORCESTER MA	COCORAHs	W	0	M 0.36 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	2 SE ENFIELD	HARTFORD CT	COCORAHs	W	0	M 0.30 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	2 SW FARMINGTON	HARTFORD CT	COCORAHs	W	0	M 0.27 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	2 NNE SHREWSBURY	WORCESTER MA	COCORAHs	W	0	M 0.39 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	2 SW WESTFIELD	HAMPDEN MA	COCORAHs	W	0	M 0.47 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	1 W WEST HARTFORD	HARTFORD CT	COCORAHs	W	0	M 0.34 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	2 ESE AUBURN	WORCESTER MA	COCORAHs	W	0	M 0.35 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	2 S WEST BOYLSTON	WORCESTER MA	COCORAHs	W	0	M 0.58 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	2 SSW SCOTLAND	WINDHAM CT	COCORAHs	W	0	M 0.25 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	2 SE LEXINGTON	MIDDLESEX MA	COCORAHs	W	0	M 0.36 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	3 WSW SOUTHWICK	HAMPDEN MA	COCORAHs	W	0	M 0.31 INCH RAIN_24	NONE; NONE	COC	
0700 AM	0230 AM	4 WNW HAVERHILL	COCORAHs	W	0	M 0.59 INCH RAIN_24	NONE; NONE	COC		

Take those same Daily Reports, from October 23, and with the click of a few buttons, all of your CoCoRaHS reports *can be* turned into a statement for all to see, called a Public Information Statement (PNS).

▼ PNS Text Content Preview (header appended in transmission)

PNS Narrative (editable)

THE FOLLOWING ARE UNOFFICIAL OBSERVATIONS TAKEN DURING THE PAST 36 HOURS FOR THE STORM THAT HAS BEEN AFFECTING OUR REGION. APPRECIATION IS EXTENDED TO SKYWARN SPOTTERS...COOPERATIVE OBSERVERS...COCORAHS OBSERVERS...MEDIA AND HIGHWAY DEPARTMENTS FOR THESE REPORTS. THIS SUMMARY IS ALSO AVAILABLE ON OUR HOME PAGE AT WEATHER.GOV/BOSTON

*****24 HOUR RAINFALL*****

LOCATION	24 HOUR RAINFALL /INCHES/	TIME/DATE OF MEASUREMENT	COMMENTS
CONNECTICUT			
...HARTFORD COUNTY...			
1 NW COLLINSVILLE	0.44	700 AM 10/23	COCORAHS
1 WSW WETHERSFIELD	0.41	900 AM 10/23	COCORAHS
1 E WEATOGUE	0.39	700 AM 10/23	COCORAHS
1 SSW NORTH CANTON	0.38	700 AM 10/23	COCORAHS
1 W WEST HARTFORD	0.34	700 AM 10/23	COCORAHS
1 ENE NORTH GRANBY	0.33	700 AM 10/23	COCORAHS
2 SE ENFIELD	0.30	700 AM 10/23	COCORAHS
1 SSE SOUTHLINGTON	0.28	700 AM 10/23	COCORAHS
2 SW FARMINGTON	0.27	700 AM 10/23	COCORAHS
4 ENE BRISTOL	0.25	900 AM 10/23	COCORAHS
...TOLLAND COUNTY...			
1 W CRYSTAL LAKE	0.37	800 AM 10/23	COCORAHS
...WINDHAM COUNTY...			
2 ENE DAYVILLE	0.26	900 AM 10/23	COCORAHS
2 SSW SCOTLAND	0.25	700 AM 10/23	COCORAHS
MASSACHUSETTS			
...BRISTOL COUNTY...			
3 SSW DARTMOUTH	0.27	700 AM 10/23	COCORAHS
...DUKES COUNTY...			
2 WSW VINEYARD HAVEN	0.32	700 AM 10/24	COCORAHS
1 WSW VINEYARD HAVEN	0.31	700 AM 10/24	COCORAHS
...ESSEX COUNTY...			
4 WNW HAVERHILL	0.59	700 AM 10/23	COCORAHS
2 W ANDOVER	0.49	700 AM 10/23	COCORAHS
1 E ROCKPORT	0.46	700 AM 10/23	COCORAHS
...HAMPDEN COUNTY...			
2 SW WESTFIELD	0.47	700 AM 10/23	COCORAHS
3 WSW SOUTHWICK	0.31	700 AM 10/23	COCORAHS
4 W SPRINGFIELD	0.27	700 AM 10/23	COCORAHS
...HAMPSHIRE COUNTY...			
2 SW PLAINFIELD	0.59	600 AM 10/23	COCORAHS

CLOSE COPY ALL COPY SELECTION RRM ONLY WRKPNS TRANSMIT

Here is the trail of a Significant Weather Report.

From CoCoRaHS.....

Significant Weather Report	
Station Number:	MA-MD-74
Station Name:	Somerville 0.7 SSE
Date:	10/21/2016 11:30 PM
Submitted	10/21/2016 11:40 PM
Notes:	Rain has mostly stopped, standing water in the yard is gone except in isolated puddles.
Taken at Registered Location:	True
Precip Duration Minutes:	60
New Precip Amount:	0.28 in.
Total Precip Amount:	1.77 in.
New Snow Depth:	NA
Total Snow Depth:	NA
Flooding:	

To the Forecast Office. It only took a minute to arrive there! Maybe less!

▼ Text 1: DENCCRAHS

File Edit Options Version Tools Scripts Products

AFOS Browser Load History WMO Search Enter Editor ☐ Accum ☐ Update Obs Clear

AFOS Cmd: WMO TTAaii CCCC: AWIPS ID:

NZUS45 KBOU 220341
CCRAHS

22nd of the month, 03:41 International time = 11:41PM EDT of the 21st of the month.

intense rain report from CoCoRAHS spotter:

10/21/2016 11:30 PM local time
County: Middlesex MA
Somerville 0.7 SSE (number MA-MD-74)
Latitude:
Longitude: Removed by Editor
1.77 inches so far, with 0.28 inches in the past 60 mins
Flooding:
Comments: Rain has mostly stopped, standing water in the yard is gone except in isolated puddles

Received NWS Boulder Fri Oct 21 21:41:19 2016 MDT
Sent to WFOs: BOX

21:41:19 MDT = 11:41:19PM EDT

All of today's CoCoRAHS observations are in WRKCCR (Boulder and Pueblo only)
Or at <http://www.cocorahs.org> (click on reports)

Who looks at CoCoRaHS data? Look back at previous newsletters and find.....

- You do!
- The River Forecast Center does!
- The National Operational Hydrologic Remote Sensing Center (NOHRSC) does!

And now, add one more to the list.

- Your NWS Forecast Office does!

We Dare to Compare

In previous newsletters, we dared to compare your nearby stations to their nearby airports' Automated Surface Observation Stations (ASOS) and uncovered differences in precipitation totals.

In this newsletter, we dare to compare your states' reporting numbers with other states in our network. We have grown tremendously this past year. Compared with other states of similar population and similar square mileage, we have more growing to do, and when our March recruiting drive returns, so will our recruiting efforts. Look towards Wake County in North Carolina to see the reporting density around a state capital, or Cook County in Illinois and its surrounding counties, and Hennepin County in Minnesota and its surrounding counties to see the reporting density with a large city.

October is a good month to do this comparison with reports. It is a month with no summer vacations, no holiday weekends, no impact from March recruiting, neutral climate to other states because winter reporting does have a negative impact in states with colder climates.

The values that you are about to see were gathered on November 5. It is understood and accepted that observers continue to fill in missing reports for weeks after a month has ended, however, those differences should not amount to much more than 1%-3% of what is displayed here.

Out of all of the reporting statistics that can be looked at, the one that was omitted was the one of "Completed by Multi-Day Reports." That statistic takes a manual and individual effort, looking through one station at a time that made a Multi-Day report to see if there are any other missing reports.

Compare Connecticut with other states with similar number of observers and similar reporting totals.

	Connecticut	New Hampshire	Vermont	Maine	Louisiana	Utah	Idaho
Observers reporting	86	89	108	120	104	77	93
Reported all 31 days	50	31	27	43	43	31	35
Daily Reports	2171	2043	2469	2718	2492	1851	2301
Zero Reports	1282	872	984	1305	2281	1236	854
Non-Zero Reports	889	1171	1485	1413	211	615	1447
Daily Comments	247	570	505	820	133	254	433
Multi-Day Reports	45	59	50	60	28	18	59
Condition Monitoring Reports	33	20	19	23	16	2	2
Significant Weather Reports	7	3	0	2	0	1	0
Snow Fall Reports	1099	1024	1474	1435	1664	1173	945
Snow Depth Reports	287	344	846	416	30	155	236
Zero Reports:Non Zero	1.4	0.7	0.7	0.9	10.8	2.0	0.6
Daily Reports / Observer	25.2	23.0	22.9	22.7	24.0	24.0	24.7
Reports:Comments	8.8	3.6	4.9	3.3	18.7	7.3	5.3
Complete Stations %	58%	35%	25%	36%	41%	40%	38%

You are welcome to go through all 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, Bahamas and all of the provinces of Canada. If you can find another area where Complete Stations % is greater than 50%, even with the laborious process of looking at Multi-Day reporting, and where Daily Reports / Observer is greater than 25, while taking on new observers, let us know.

The most counterintuitive part of our network is the emphasis of zeros. We mention zeros every month. The difference between Complete Station reporting and Incomplete Station reporting involves Daily Reports of zeros.

Needing improvement are Daily Comments, Snow Fall and Snow Depth reports.

Rhode Island. Competed with Delaware, per capita, during March Madness 2016. During October, Rhode Island has added 7 reporting observers.

	Rhode Island	Puerto Rico	Delaware
Observers reporting	31	31	56
Reported all 31 days	13	8	14
Daily Reports	707	815	1287
Zero Reports	416	268	864
Non-Zero Reports	291	547	423
Daily Comments	180	120	133
Multi-Day Reports	4	1	29
Condition Monitoring Reports	3	1	9
Significant Weather Reports	3	0	1
Snow Fall Reports	321	172	666
Snow Depth Reports	86	0	0
Zero Reports:Non Zero	1.4	0.5	2.0
Daily Reports / Observer	22.8	26.3	23.0
Reports:Comments	3.9	6.8	9.7
Complete Stations %	42%	26%	25%

All of Rhode Island's municipal drinking water comes from its inland reservoirs. Water is a big deal in Rhode Island. We do need as many observers to report as many days as possible.

A strong number of Daily Comments. While making Daily Comments, clarify your reports of precipitation with a duration, timing, additional details of the event, or repeat the value.

Snow Fall Reports ... from Puerto Rico and Delaware? We can and will do better. Right, everyone?

Massachusetts. The one and only state that has grown slowly and steadily since its introduction to CoCoRaHS in 2009, always experiencing year-over-year increases in reporting and observers.

	Massachusetts	Maryland	Montana	Iowa	Oklahoma	South Dakota
Observers reporting	173	167	179	176	194	306
Reported all 31 days	71	53	61	51	66	66
Daily Reports	4099	3734	3971	3612	4006	4486
Zero Reports	2111	2620	1750	2398	3189	2928
Non-Zero Reports	1988	1114	2221	1214	817	1558
Daily Comments	772	596	1166	385	245	516
Multi-Day Reports	125	61	87	58	43	49
Condition Monitoring Reports	20	18	25	28	12	14
Significant Weather Reports	17	1	5	0	0	0
Snow Fall Reports	1794	2340	2071	2048	2485	2704
Snow Depth Reports	364	355	385	385	87	392
Zero Reports:Non Zero	1.1	2.4	0.8	2.0	3.9	1.9
Daily Reports / Observer	23.7	22.4	22.2	20.5	20.6	14.7
Reports:Comments	5.3	6.3	3.4	9.4	16.4	8.7
Complete Stations %	41%	32%	34%	29%	34%	22%

Highest value of Reported all 31 days and Daily Reports / Observer in this grouping. All of the monthly newsletters and email messages do serve a purpose. Highest value of Multi-Day Reports, as well.

Last month's message about Significant Weather Reports, really made an impression upon the Massachusetts observers.

Needing improvement is Snow Fall Reports. And, of course, more comments that clarify and verify your precipitation report.

The Grand Conclusion. How do our three states in total compare?
 Southern New England = CT MA RI. Northern New England = VT NH ME.

	Southern New England	Northern New England	Georgia	New York
Observers reporting	290	317	345	351
Reported all 31 days	134	101	115	124
Daily Reports	6977	7230	7448	8513
Zero Reports	3809	3161	6824	3748
Non-Zero Reports	3168	4069	624	4765
Daily Comments	1199	1895	690	1983
Multi-Day Reports	174	169	121	171
Condition Monitoring Reports	56	62	69	83
Significant Weather Reports	27	5	3	22
Snow Fall Reports	3214	3933	5458	3877
Snow Depth Reports	737	1606	125	1016
Zero Reports:Non Zero	1.2	0.8	10.9	0.8
Daily Reports / Observer	24.1	22.8	21.6	24.3
Reports:Comments	5.8	3.8	10.8	4.3
Complete Stations %	46%	32%	33%	35%

We added 26 reporting observers in October, and look forward to seeing that increase translate to an additional 700 Daily Reports when we get to December. Your emphasis of zeros and not missing any Daily Reports puts your state ahead of all others, picking 15 other similar states shown here with Reported all 31 days and Daily Reports / Observer.

We emphasize Daily Comments to clarify and verify your reports of precipitation, large or small. We emphasize Snow Fall and Snow Depth reports because we define where there is snow and where it is not. We jump into something new with Condition Monitoring Reports.

We will grow and then compare ourselves to a different group of states. We believe that precipitation is important and highly variable. We stand on the threshold of experiencing the strongest group of observers.... ever!

Wrap up

Thanksgiving is a unique holiday, a day in which we pause to give thanks.

Thanks to you, the volunteer observers of this Southern New England region. You continue to amaze others, grow by leaps and bounds, and do something special every day, every month, every season and every year. You capture the variability of precipitation like no other network ever built. You watch the weather. You define the climate.

This past year, our gauges may have been empty and our rulers may not have gotten much work, but that did not stop you from growing in numbers, in reports, in complete stations each month, and in your commitment to why we do what we do.

The staff at Headquarters would like to express their thanks, at this time of the year, to the observers who reported from October 2015 to September 2016. Login in to your account on the website and access [My Account](#) . Towards the upper right, within your 2016 Water Year, click on the link for Certificate. That action will download a pdf file containing your Certificate of Appreciation, where you can view or print it. Please pass on your feedback about this Certificate to the team at Headquarters at info@cocorahs.org

Every newsletter concludes with a word of thanks and this Thanksgiving feast of information concludes in the same way. Thank you for all that you do for CoCoRaHS, whether in the past, present and in the days to come.