



# Southern



# New England

**July 2017**

This time of year is always a good time of year to look at an old flag and realize that our states were the original colonies that declared independence and wrote our nation's Constitution.

As CoCoRaHS observers, you get to write your own history, with each report of zero or non-zero amount. Our feature article highlights the value your reports for a complete month has in each of our states. String together a month of no missing reports and the value of all of your precipitation reports does increase and goes beyond just being mentioned in this monthly newsletter. Your reports for a complete month play a key part in your own state's statement of precipitation.

More observers crossed the 3000 Daily Report threshold. Given about 30 days in a month, this threshold comes after 100 months of reporting or 8 years. Going forward, we are going to recognize observers who cross these multiples of 1000 reports.

For those using the mobile app for reporting, be sure you have the latest update to the app that includes Multi-Day reporting.

Litchfield County is CT's largest county and is our Map of the Month.

We close this edition with our colorful collection of Gauge Photos that we recently received from you. Thank you one and all for Gauge Photos.

## **3000 Daily Reports**

Congratulations to 5 Massachusetts observers who have submitted over 3000 Daily Reports.

Those observers are

MA-NF-1 Norwood 1.3 NW  
MA-BR-3 Norton 1.8 NNE  
MA-BA-3 Falmouth 3.0 E  
MA-ES-3 Haverhill 3.6 WNW  
MA-BR-8 Dighton 1.1 WSW

Going forward, we are going take a section of the newsletter to mention those that recently crossed these multiples of 1000 Daily Reports.

## **Multi-Day Reporting on the App**

It was quickly mentioned in last month's newsletter. For those that use the mobile app to report and if you haven't done so already, please update your app on Apple or Android. The feature for Multi-Day Reporting is now available.

First Day of Accumulation should be one day after your last report. In this case, if the last report is July 4, the First Day of Accumulation should be July 5.

With the app, there is a History function. Please use it to see where missing reports may be.



The screenshot shows the 'Multi-Day Precipitation' screen of the CoCoRaHS app. The interface is blue with white text and input fields. At the top, there is a hamburger menu icon and the title 'Multi-Day Precipitation'. Below the title is the CoCoRaHS logo and the text 'Multi-Day Precipitation'. The main form contains several fields: 'First Day of Accumulation' (2017-07-05), 'Date Emptied' (2017-07-05), 'Observation Time' (07:00), 'Precipitation (in)' (empty), 'Depth of Snow on Ground (in)' (empty), and 'Core Precipitation (in)' (empty). At the bottom, there is a note: 'T for Trace or NA for unknown'.

## **Detail and Summary for June 2017**

From the National Weather Service (NWS) Climate sites for June 2017.

Location	Station ID	June 2017 Precip	Jun departure from normal	Apr-May-Jun Precip	3 month departure from normal	Jan-Jun Precip	6 month departure from normal
Pittsfield MA	PSF	4.00"	-0.40"	14.09"	1.62"	22.78"	1.34"
Bridgeport CT	BDR	2.40"	-1.21"	12.71"	1.17"	22.24"	0.76"
Hartford CT	BDL	3.61"	-0.74"	11.97"	-0.45"	21.88"	-0.28"
Worcester MA	ORH	4.33"	0.14"	15.05"	2.56"	25.41"	1.98"
Providence RI	PVD	4.26"	0.62"	18.25"	6.70"	29.28"	5.57"
Boston MA	BOS	4.85"	1.17"	14.03"	3.12"	25.68"	3.84"

Wetter than normal in April and May slowed down in June to a slightly normal pace. Drier than normal in southwest CT. Wetter than normal in New London and Providence.

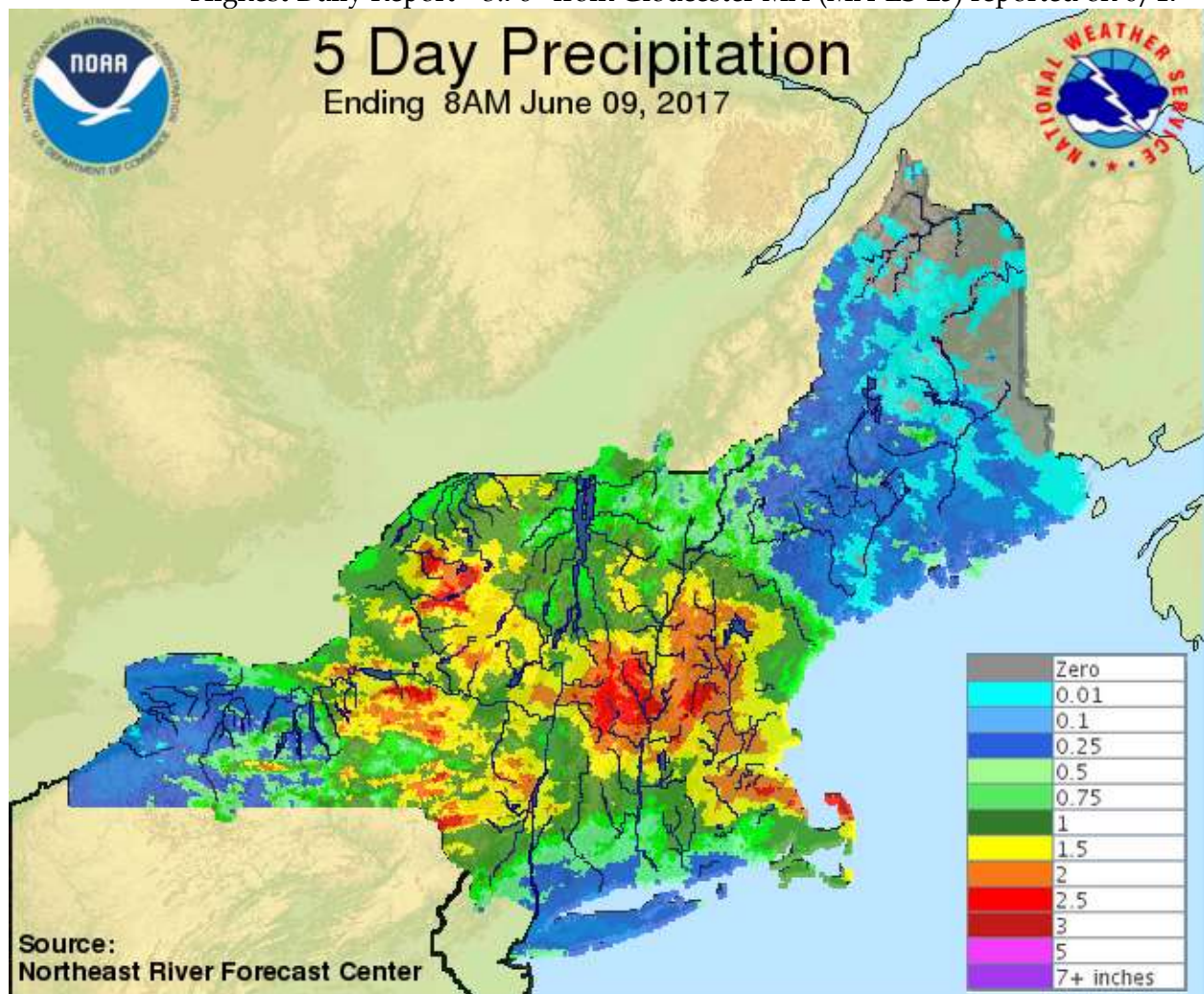
Soft spring rains have given way to downpours during June with thunder and one hail event. For the 1<sup>st</sup> of June, the Falmouth area of Cape Cod gets 1" of rain. A widespread 0.25" of rain for the 5<sup>th</sup> of June. Eastern MA and Colebrook CT get 1" of rain for June 6<sup>th</sup>. Franklin and Hampshire Counties receive an inch of rain for June 7<sup>th</sup>. Eastern portions of Cape Cod get 0.50" for June 9<sup>th</sup>. Cambridge MA and Somerville MA get 0.50" for June 14<sup>th</sup>. A line of 1" rain for June 17<sup>th</sup> from New London CT to the north shore of MA with 3.76" in Gloucester MA. Severe Thunderstorm Watches and Warnings in the western portions for June 20<sup>th</sup> resulted in 1" rain from Darien CT to Wilbraham MA. New London CT to Washington County RI get 1" rain for June 25<sup>th</sup>. Hampshire and Franklin Counties get 0.50" for June 26<sup>th</sup>. And we end with another 1" of rain from Manchester CT through Worcester MA and into the north shore of MA for June 28<sup>th</sup>. This last event generated all of our Hail Reports for the month.

You captured the variability that these downpours bring.

Take in this next section of your reports with appreciation of your efforts.

## From your reports for June 2017

Observers reporting	315
Reported all 30 days	134
Completed by Multi-Day Reports	37
Missing 1 or 2 reports	54
Daily Reports	7533
Zero Reports	3841
Non-Zero Reports	3692
Daily Comments	1223
Multi-Day Reports	154
Condition Monitoring Reports	23
Significant Weather Reports	25
Hail Reports	10
Snowfall Reports	3427
Snow Depth Reports	1159
Highest Daily Report	3.76" from Gloucester MA (MA-ES-25) reported on 6/17



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

Watershed	Watershed Name	Station	Station Name	Precip
01060003	Piscataqua-Salmon Falls			
0106000310	Hampton River - Frontal Atlantic Ocean	MA-ES-1	Salisbury 3.7 NW	5.33"
01070004	Nashua			
0107000401	North Nashua River	MA-WR-44	Westminster 0.6 WSW	3.57"
0107000401	North Nashua River	MA-WR-52	Fitchburg 2.3 N	2.78"
0107000401	North Nashua River	MA-WR-22	Fitchburg 2.0 NNE	3.33"
0107000401	North Nashua River	MA-WR-13	Leominster 1.5 S	3.59"
0107000402	Headwaters Nashua River	MA-WR-56	Sterling 4.3 NW	4.63"
0107000402	Headwaters Nashua River	MA-MD-25	Ayer 0.1 SW	4.58"
0107000403	Squannacook River	MA-MD-47	West Townsend 0.5 W	3.15"
01070005	Concord			
0107000501	Sudbury River	MA-MD-90	Marlborough 0.1 SW	4.60"
0107000501	Sudbury River	MA-MD-89	Sudbury 3.6 W	5.28"
0107000501	Sudbury River	MA-MD-88	Wayland 2.1 SSE	4.78"
0107000502	Concord River	MA-WR-28	Berlin 1.3 WSW	4.99"
0107000502	Concord River	MA-WR-18	Northborough 0.6 SSE	5.64"
0107000502	Concord River	MA-WR-42	Northborough 2.3 N	5.54"
0107000502	Concord River	MA-MD-61	Stow 2.3 NW	4.68"
0107000502	Concord River	MA-MD-12	Acton 1.3 SW	4.84"
0107000502	Concord River	MA-MD-51	Maynard 0.7 ESE	5.86"
0107000502	Concord River	MA-MD-91	Westford 2.8 SSE	5.37"
0107000502	Concord River	MA-MD-62	Chelmsford 1.2 E	5.32"
0107000502	Concord River	MA-MD-34	Chelmsford 2.0 ENE	5.20"
01070006	Merrimack River			
0107000611	Spicket River	MA-ES-38	Methuen 1.6 NNE	4.52"
0107000613	Shawsheen River	MA-MD-52	Lexington 0.6 SW	4.96"
0107000613	Shawsheen River	MA-MD-96	Lexington 0.3 NE	4.29"
0107000614	Powwow River - Merrimack River	MA-ES-3	Haverhill 3.6 WNW	3.93"
0107000614	Powwow River - Merrimack River	MA-ES-20	Haverhill 0.7 N	5.28"
0107000614	Powwow River - Merrimack River	MA-ES-27	Amesbury 1.2 ENE	5.47"
01080201	Middle Connecticut			
0108020106	Manhan River - Connecticut River	MA-HS-2	Westhampton 1.8 SW	3.71"
0108020106	Manhan River - Connecticut River	MA-HS-8	Williamsburg 1.2 WSW	4.74"
0108020106	Manhan River - Connecticut River	MA-HS-26	Easthampton 0.5 SW	3.79"

0108020106	Manhan River - Connecticut River	MA-HS-12	Northampton 0.4 S	3.75"
0108020106	Manhan River - Connecticut River	MA-FR-12	Sunderland 1.3 SE	5.03"
0108020107	Batchelor Brook - Connecticut River	MA-HD-13	Springfield 4.1 W	4.86"
01080202	Miller			
01080203	Deerfield			
0108020305	Lower Deerfield River	MA-FR-17	Buckland 1.8 ESE	6.16"
0108020305	Lower Deerfield River	MA-FR-13	Conway 2.9 NW	5.05"
0108020305	Lower Deerfield River	MA-FR-25	Conway 2.7 NW	4.82"
0108020305	Lower Deerfield River	MA-FR-10	Conway 0.9 SW	4.58"
01080204	Chicopee			
0108020402	Ware River	MA-WR-54	Barre 1.4 NNE	4.24"
01080205	Lower Connecticut			
0108020501	Mill River - Connecticut River	CT-HR-5	Enfield 1.5 SE	3.52"
0108020503	Park River	CT-HR-39	Farmington 1.6 SW	3.35"
0108020503	Park River	CT-HR-49	West Hartford 1.1 W	3.50"
0108020503	Park River	CT-HR-11	West Hartford 2.7 SSE	2.94"
0108020503	Park River	CT-HR-19	Newington 0.8 ENE	3.99"
0108020504	Hockanum River	CT-TL-16	Vernon 3.5 NNE	3.88"
0108020505	Roaring Brook - Connecticut River	CT-HR-6	Wethersfield 1.2 WSW	3.94"
0108020505	Roaring Brook - Connecticut River	CT-HR-50	Hartford 1.5 S	3.70"
0108020505	Roaring Brook - Connecticut River	CT-HR-22	East Hartford 1.3 E	3.77"
0108020506	Mattabesset River	CT-HR-15	Southington 3.0 E	3.95"
0108020507	Higganum Creek - Connecticut River	CT-MD-2	Portland 0.9 S	2.67"
01080206	Westfield			
0108020601	Headwaters Westfield River	MA-HS-14	Plainfield 2.4 ESE	5.58"
0108020603	Outlet Westfield River	MA-HD-17	Southwick 2.5 WSW	4.79"
01080207	Farmington			
0108020701	Still River	CT-LT-15	Colebrook 1.0 NE	4.67"
0108020702	West Branch Farmington River	MA-BE-4	Becket 5.6 SSW	4.28"
0108020702	West Branch Farmington River	CT-LT-18	New Hartford Center 1.5 N	3.64"
0108020704	Headwaters Farmington River	CT-LT-9	New Hartford Center 3.2 SW	3.64"
0108020704	Headwaters Farmington River	CT-HR-24	Collinsville 0.9 NW	3.24"
0108020705	Salmon Brook	CT-HR-8	North Granby 1.3 ENE	4.65"
01090001	Charles			
0109000102	Ipswich River	MA-MD-85	Wilmington 2.2 WNW	5.91"
0109000102	Ipswich River	MA-MD-45	Wilmington 1.5 NE	6.94"
0109000102	Ipswich River	MA-ES-12	Boxford 2.4 S	5.35"
0109000102	Ipswich River	MA-ES-2	Beverly 2.8 NW	5.14"
0109000103	Essex River - Frontal Atlantic Ocean	MA-ES-41	Danvers 0.8 ESE	5.09"
0109000104	Saugus River - Frontal Broad Sound	MA-ES-40	Lynn 1.3 NNW	5.02"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-54	Belmont 0.3 SE	4.47"

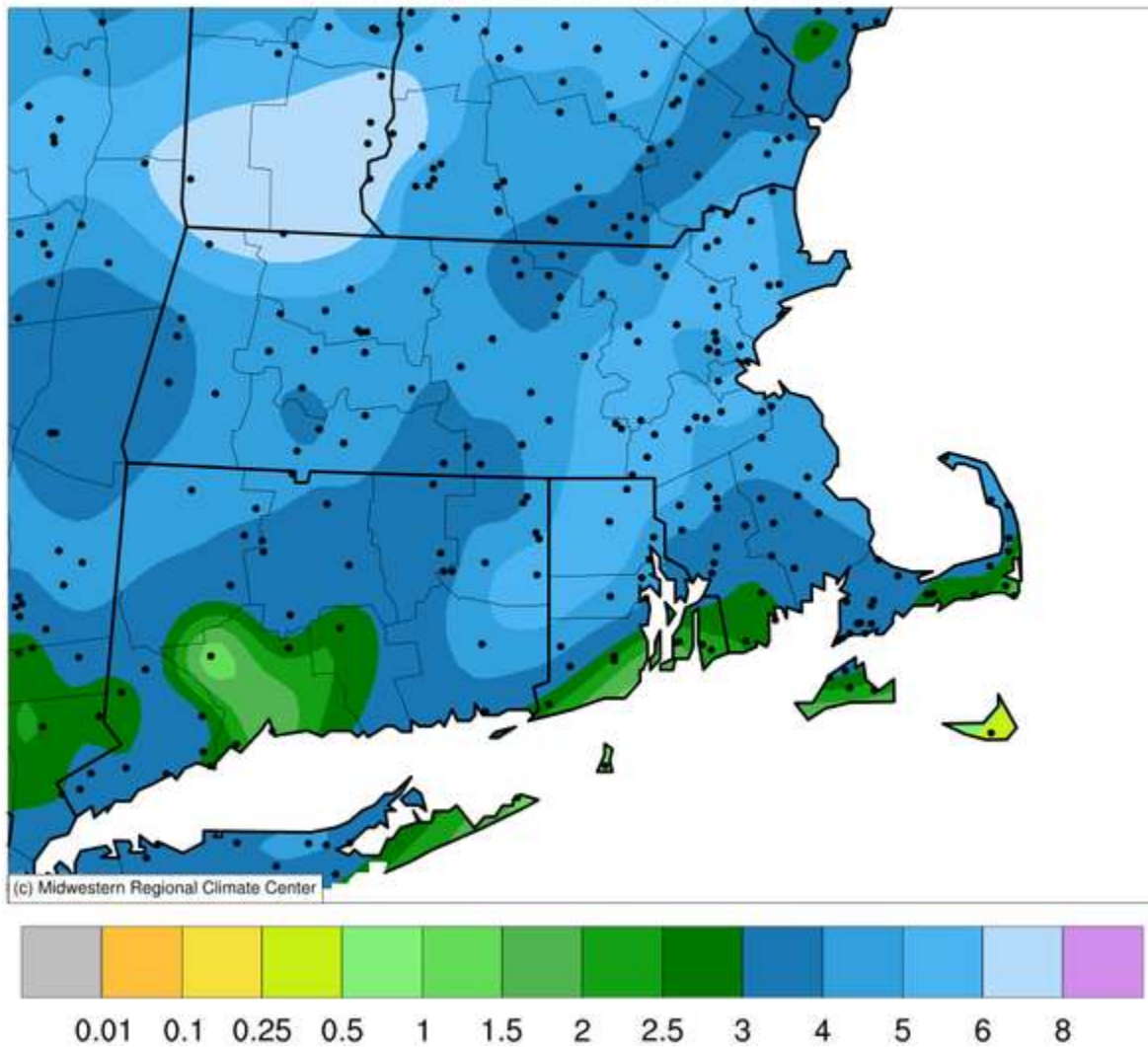
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-7	Winchester 0.7 SE	4.64"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-44	Medford 1.2 W	4.44"
0109000105	Mystic River - Frontal Boston Harbor	MA-MD-11	Cambridge 0.9 NNW	5.00"
0109000105	Mystic River - Frontal Boston Harbor	MA-SF-10	Chelsea 0.8 N	4.91"
0109000106	Upper Charles River	MA-WR-1	Milford 2.3 NNW	5.41"
0109000106	Upper Charles River	MA-NF-11	Millis 2.0 SW	5.59"
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-71	Newton 2.2 NNW	3.57"
0109000107	Lower Charles River - Frontal Boston Harbor	MA-MD-74	Somerville 0.7 SSE	3.46"
0109000108	Neponset River - Frontal Boston Harbor	MA-NF-1	Norwood 1.3 NW	5.31"
0109000109	Whitmans Pond - Frontal Boston Harbor	MA-NF-32	Quincy 1.8 WSW	4.62"
01090002	Cape Cod			
0109000201	North River - Frontal Massachusetts Bay	MA-PL-5	Kingston 3.3 WNW	4.48"
0109000201	North River - Frontal Massachusetts Bay	MA-PL-30	Duxbury 3.7 W	4.76"
0109000202	Cape Cod	MA-BA-8	Falmouth 1.8 WSW	4.49"
0109000202	Cape Cod	MA-BA-2	Falmouth 3.1 NNW	3.57"
0109000202	Cape Cod	MA-BA-14	North Falmouth 0.5 ENE	3.35"
0109000202	Cape Cod	MA-BA-50	Falmouth 5.4 NNE	3.21"
0109000202	Cape Cod	MA-BA-17	East Falmouth 1.2 WNW	4.04"
0109000202	Cape Cod	MA-BA-19	East Falmouth 0.7 NW	4.53"
0109000202	Cape Cod	MA-BA-3	Falmouth 3.0 E	3.80"
0109000202	Cape Cod	MA-BA-18	Waquoit 0.6 SSW	4.70"
0109000202	Cape Cod	MA-BA-45	Sandwich 0.9 NNE	3.85"
0109000202	Cape Cod	MA-BA-10	East Sandwich 2.3 SE	4.58"
0109000202	Cape Cod	MA-BA-59	Barnstable 3.6 W	3.60"
0109000202	Cape Cod	MA-BA-22	Yarmouth 0.9 NNW	2.85"
0109000202	Cape Cod	MA-BA-33	Brewster 1.5 ESE	3.32"
0109000202	Cape Cod	MA-BA-51	Orleans 3.0 S	3.56"
0109000202	Cape Cod	MA-BA-12	Orleans 1.1 E	3.68"
0109000202	Cape Cod	MA-BA-7	Wellfleet 3.0 E	4.61"
0109000202	Cape Cod	MA-BA-30	Eastham 0.6 SW	3.97"
0109000203	Mattapoissett River - Frontal Buzzards Bay	MA-PL-19	Rochester 1.2 NNW	3.73"
0109000205	Sakonnet Point - Frontal Rhode Island Sound	RI-NW-5	Little Compton 1.7 NW	2.28"
0109000205	Sakonnet Point - Frontal Rhode Island Sound	RI-NW-7	Little Compton 0.6 E	2.31"
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-5	West Tisbury 2.9 N	3.81"
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-9	West Tisbury 0.4 S	2.99"
0109000206	Elizabeth Islands - Marthas Vineyard	MA-DK-2	Vineyard Haven 0.8 WSW	3.74"
0109000207	Nantucket Island	MA-NT-1	Nantucket 3.8 WNW	1.85"
01090003	Blackstone			
0109000301	Upper Blackstone River	MA-WR-41	Auburn 2.6 SW	4.60"
0109000301	Upper Blackstone River	MA-WR-32	Auburn 1.9 ESE	4.75"
0109000302	Lower Blackstone River	RI-PR-50	Harrisville 1.2 SSE	4.66"

0109000302	Lower Blackstone River	MA-NF-26	Bellingham 2.4 S	4.82"
01090004	Narragansett			
0109000401	Upper Taunton River	MA-BR-30	Taunton 3.9 N	4.26"
0109000401	Upper Taunton River	MA-NF-31	Stoughton 1.2 E	5.94"
0109000401	Upper Taunton River	MA-PL-15	Abington 1.2 NNE	4.73"
0109000401	Upper Taunton River	MA-PL-23	Pembroke 2.8 SW	4.03"
0109000402	Middle Taunton River	MA-PL-17	Plympton 0.9 NNE	3.26"
0109000403	Threemile River	MA-NF-19	Foxborough 1.8 SSW	4.90"
0109000403	Threemile River	MA-BR-33	Taunton 2.4 W	3.54"
0109000404	Ten Mile River	MA-BR-17	North Attleboro 0.8 E	6.22"
0109000404	Ten Mile River	MA-BR-23	Attleboro 0.9 ENE	5.62"
0109000405	Wonnasquatucket River-Moshassuck River	RI-PR-33	Greenville 0.7 NNW	6.31"
0109000405	Woonasquatucket River-Moshassuck River	RI-PR-51	North Smithfield 0.6 S	6.14"
0109000406	Pawtuxet River	RI-PR-17	Cranston 4.1 E	4.94"
0109000407	Palmer River	MA-BR-2	Rehoboth 2.1 N	4.44"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-3	Norton 1.8 NNE	4.86"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-16	Somerset 0.4 SSE	3.69"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-19	Somerset 2.0 NNE	4.81"
0109000408	Lower Taunton River - Frontal Mount Hope Bay	MA-BR-8	Dighton 1.1 WSW	4.59"
0109000409	Narragansett Bay	RI-KN-2	East Greenwich 2.3 ESE	4.95"
0109000409	Narragansett Bay	RI-PR-32	Providence 2.3 NE	4.95"
0109000409	Narragansett Bay	RI-BR-5	Barrington 1.3 WNW	4.96"
0109000409	Narragansett Bay	RI-NW-4	Middletown 1.1 SW	1.10"
0109000409	Narragansett Bay	RI-NW-16	Portsmouth 1.3 S	2.59"
01090005	Pawcatuck-Wood			
0109000501	Wood River	RI-WS-25	Rockville 0.4 E	4.72"
0109000501	Wood River	RI-WS-1	Hope Valley 3.7 S	3.42"
0109000502	Upper Pawcatuck River	RI-WS-32	Kingston 6.9 NNW	4.35"
0109000502	Upper Pawcatuck River	RI-WS-37	Kingston 2.4 SW	2.35"
0109000503	Lower Pawcatuck River	RI-WS-35	Westerly 1.0 SW	3.37"
0109000504	Frontal Block Island Sound	RI-WS-36	Charlestown 3.0 WSW	2.40"
01100001	Quinebaug			
0110000101	Upper Quinebaug River	MA-HD-16	Wales 0.4 SSW	3.85"
0110000103	Fivemile River	CT-WN-6	Dayville 2.0 ENE	4.38"
0110000103	Fivemile River	CT-WN-4	East Killingly 1.3 SW	4.72"
0110000104	Middle Quinebaug River	CT-WN-14	Dayville 0.7 W	3.99"
0110000105	Mossup River	CT-WN-8	Moosup 1.7 NE	6.18"
0110000106	Pachaug River	CT-NL-21	Griswold 0.9 N	5.72"
01100002	Shetucket			
0110000201	Willimantic River	CT-TL-18	Hebron 5.3 NW	4.10"
0110000201	Willimantic River	CT-TL-2	Staffordville 0.4 NNW	3.46"

0110000202	Natchaug River	CT-TL-4	Mansfield Center 1.9 SW	3.66"
0110000203	Shetucket River	CT-WN-11	Scotland 2.3 SSW	4.66"
0110000203	Shetucket River	CT-NL-10	Norwich 2.5 NNE	5.14"
0110000203	Shetucket River	CT-NL-28	Lisbon 2.0 SW	4.85"
01100003	Thames			
0110000302	Thames River-Frontal New London Harbor	CT-NL-17	Waterford 2.2 N	4.68"
0110000302	Thames River-Frontal New London Harbor	CT-NL-6	New London 1.0 NNW	4.91"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-22	Central Waterford 2.7 SSW	4.54"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-24	Stonington 1.4 NNW	3.62"
0110000303	Mystic River - Frontal Fishers Island Sound	CT-NL-18	Stonington 0.5 NNE	3.35"
01100004	Quinnipiac			
0110000401	Quinnipiac River	CT-NH-30	Cheshire Village 2.2 SE	2.57"
0110000402	Hammonasset River - Frontal Long Island Sound	CT-MD-11	Westbrook Center 1.5 NE	3.72"
0110000403	Mill River - Frontal Long Island Sound	CT-NH-16	Milford 1.8 E	3.03"
0110000403	Mill River - Frontal Long Island Sound	CT-NH-39	West Haven 0.8 W	2.32"
0110000403	Mill River - Frontal Long Island Sound	CT-NH-29	Hamden 3.0 WSW	2.73"
01100005	Housatonic			
0110000501	Headwaters Housatonic River	MA-BE-3	Stockbridge .2 NNE	3.37"
0110000501	Headwaters Housatonic River	MA-BE-10	Pittsfield 2.0 NNW	3.47"
0110000501	Headwaters Housatonic River	MA-BE-5	Tyringham 1.5 WNW	4.80"
0110000504	Macedonia Brook - Housatonic River	CT-LT-20	Warren 2.4 WNW	3.62"
0110000508	Still River - Housatonic River	CT-FR-43	Bethel 0.5 E	2.98"
0110000508	Still River - Housatonic River	CT-FR-41	Bethel 3.5 NNE	3.68"
0110000508	Still River - Housatonic River	CT-FR-9	Brookfield 3.3 SSE	3.84"
0110000510	Eightmile Brook - Housatonic River	CT-FR-44	Newtown 4.3 E	3.80"
0110000512	Outlet Naugatuck River	CT-NH-22	Prospect 0.5 SW	2.98"
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-42	Monroe 0.1 SE	3.10"
0110000513	Housatonic River - Frontal Long Island Sound	CT-FR-23	Shelton 1.3 W	3.89"
01100006	Saugatuck			
0110000601	Saugatuck River - Frontal Long Island Sound	CT-FR-31	Newtown 4.6 SSW	3.44"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-29	Ridgefield 1.9 SSE	3.08"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-3	New Canaan 1.9 ENE	2.90"
0110000602	Norwalk River - Frontal Norwalk Harbor	CT-FR-25	Norwalk 2.9 NNW	3.18"
0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-20	Westport 2.5 ENE	3.61"
0110000603	Pequonnock River - Frontal Long Island Sound	CT-FR-32	Monroe 0.8 W	3.23"
0110000604	Mianus River-Rippowam River	CT-FR-50	Darien 2.8 NW	3.08"

## Accumulated Precipitation (in)

June 01, 2017 to June 30, 2017



### Map of the Month – Litchfield County CT

Connecticut's largest county in land area is among the mountains and rivers in the northwest corner of the state. Within the 920 square miles of land and 180,000 residents are peaks of over 2,000 ft elevation in Salisbury, farms, village greens, vineyards, quarries of marble and lime, Lime Rock race track, lakes and waterfalls, antiques in Woodbury and Kent is home to a marvelous collection of antique machinery. In the center of the county and at 1300 feet elevation, Goshen is the town above all others in Connecticut.

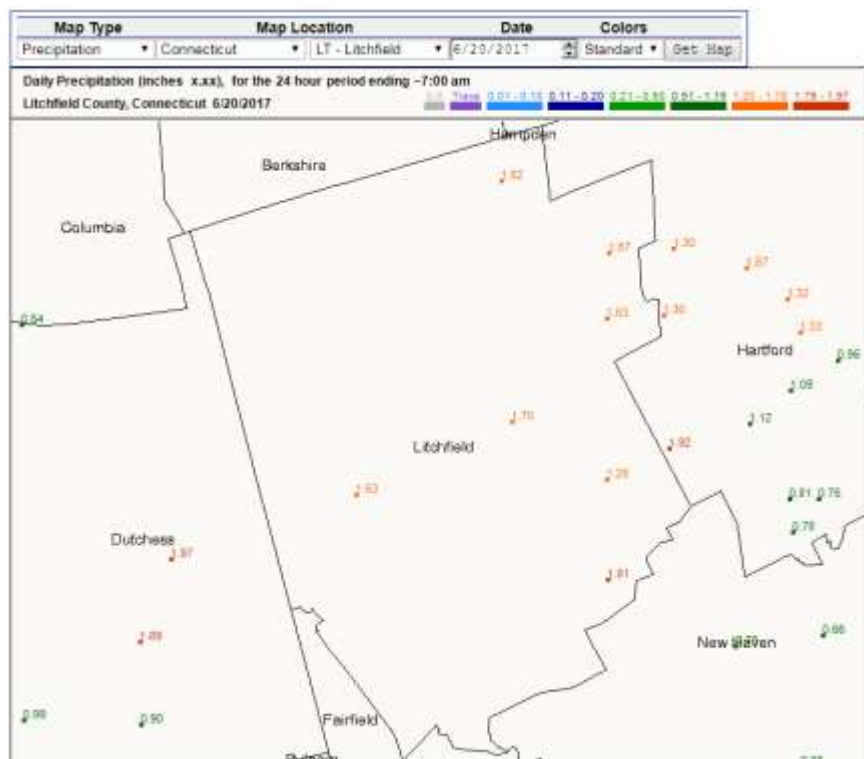
The Housatonic River to the west generates a small amount of hydroelectric power in Falls Village, South Kent and New Milford. Among the fly fisherman in the river, campers and hikers, canoes and kayaks are two picturesque wooden covered bridges in West Cornwall and South Kent.

The Naugatuck River has seen factories harness its water power during the Industrial Revolution with clock makers, brass and copper mills, and the ravages of flooding in August of 1955 from Hurricanes Connie and Diane.

The Farmington River comes through the northeast part of the county. Barkhamsted Reservoir straddles the county line with Hartford County, and

provides drinking water to the municipalities near the city of Hartford.

Among all of these mountains and rivers, lakes and waterfalls, we always need more observers. If you know of someone who might be interested in measuring and mapping precipitation, ask them to join CoCoRaHS.



From the Drought Monitor.

Despite our wet April and May, just one month with a 2" or 3" rainfall deficit and the D0 classification can return. Every drop counts and zeros do too!

## U.S. Drought Monitor New England Watershed



**July 4, 2017**

(Released Thursday, Jul. 6, 2017)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0	D1	D2	D3	D4
Current	98.08	1.92	0.00	0.00	0.00	0.00
Last Week 06-27-2017	98.08	1.92	0.00	0.00	0.00	0.00
3 Months Ago 04-04-2017	53.75	26.71	15.97	3.57	0.00	0.00
Start of Calendar Year 01-01-2017	14.54	11.89	49.23	19.61	4.63	0.00
Start of Water Year 09-27-2016	26.77	14.45	18.64	25.58	14.58	0.00
One Year Ago 07-05-2016	27.24	47.13	19.48	5.16	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

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

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

# **The Importance of CoCoRaHS Reports for Drought Management**

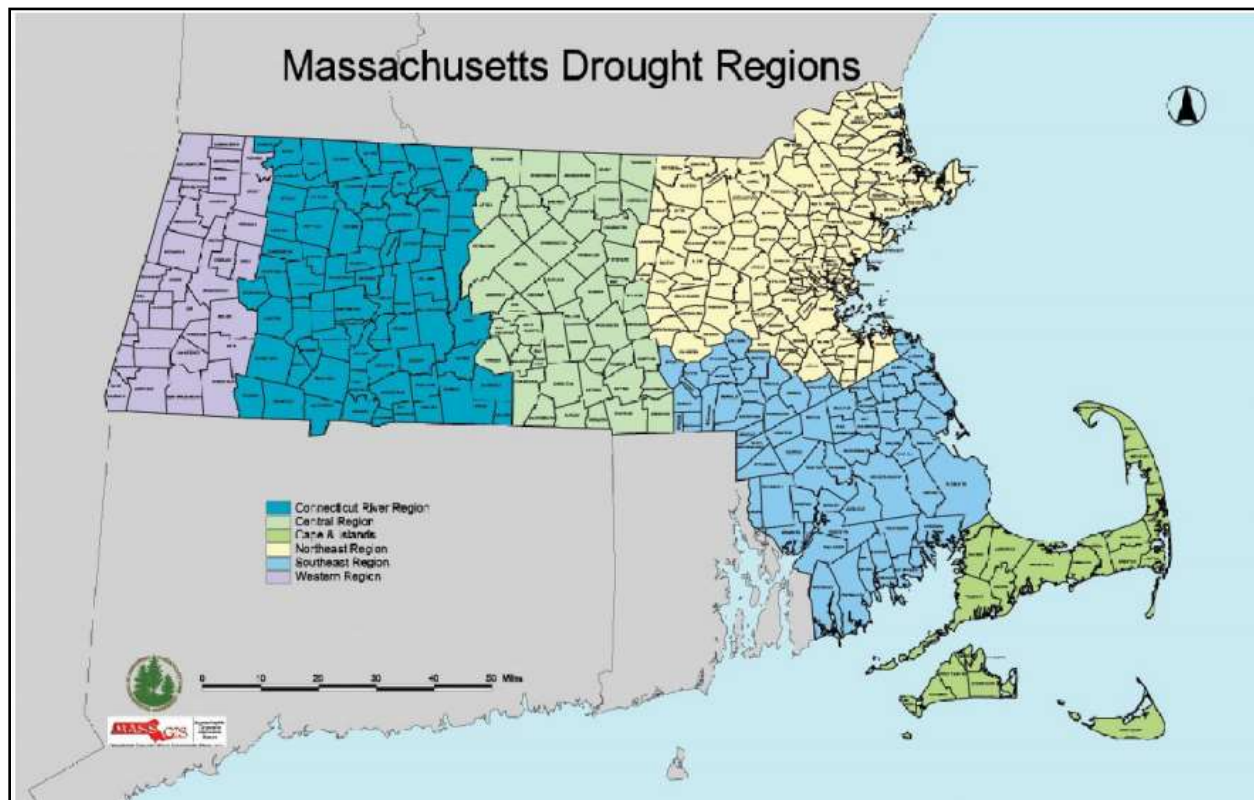
By Joe DelliCarpini – Science & Operations Officer, NWS Taunton MA

The drought which began last summer and persisted into the winter came to an end this spring thanks to a wetter weather pattern. Nicole Belk and Alan Dunham from NWS Taunton provided monthly updates and attended drought meetings in Connecticut, Massachusetts, and Rhode Island in order to assist state officials with drought declarations.

Your rainfall and snowfall observations were critical in helping to provide the most accurate picture of monthly precipitation. Having more complete stations from our observers gives a more complete depiction of precipitation each month. That's why it's always a good idea to check your reports toward the end of each month so you can fill in any missing days. If you've been away for a few days, you can send a Multi-Day report when you return (just make sure the start and end dates are correct).

As you may know, there are more than 25 airports in southern New England which have automated weather sensors that report precipitation totals. While they are useful for real-time precipitation, they cannot capture the detail of rainfall and snowfall that the hundreds of CoCoRaHS observers can. These automated systems have limitations, such as underreporting precipitation during snow or heavy rainfall.

Each month, Nicole and Alan gather precipitation data from automated NWS observation sites, Cooperative observers, and CoCoRaHS. They were extremely pleased with the number of CoCoRaHS observers who submitted complete reports for the month, including zeros, either daily or through multi-day reports. All of the reports were combined in a spreadsheet to help generate totals for the various drought regions for Massachusetts and Rhode Island. For Connecticut, it is as simple as by county



MAP OF DROUGHT REGIONS IN MASSACHUSETTS. MONTHLY PRECIPITATION TOTALS ARE CALCULATED FOR EACH REGION TO HELP WITH DROUGHT ASSESSMENT.

**Connecticut Precipitation**  
**National Weather Service Offices**  
**Taunton MA, Albany NY, Upton NY**  
Preliminary Precipitation Data (inches) by County  
Precipitation Data Through May 2017  
*Includes CoCoRaHS data*

CT 1 Month May 2017	Rainfall	Departure	Percent	Normal
Litchfield	5.56	1.15	126	4.41
Hartford	4.86	0.44	110	4.42
Tolland	4.59	0.49	112	4.10
Windham	6.01	1.99	150	4.02
Fairfield	6.05	1.67	138	4.39
New Haven	5.11	0.87	121	4.24
Middlesex	5.10	0.88	121	4.22
New London	5.93	2.17	158	3.76

CONNECTICUT PRECIPITATION FIGURES BY COUNTY



RHODE ISLAND DROUGHT REGIONS

**Rhode Island Precipitation**  
**National Weather Service Taunton, MA**  
 Preliminary Precipitation Data (inches) by Drought Region  
 Past 12 to 36 months ending May 2017  
**Includes CoCoRaHS Data**

RI 1 month May 2017	Rainfall	Departure	Percent	Normal
Northwest	6.23	2.31	159	3.92
Northeast	5.89	2.11	156	3.78
Central West	6.57	2.82	175	3.75
Central East	6.58	3.03	185	3.55
Eastern	5.77	2.13	159	3.64
Southern	6.36	2.41	161	3.95
New Shoreham	6.40	2.45	162	3.95

RHODE ISLAND PRECIPITATION FIGURES BY DROUGHT REGION

A written summary of precipitation and temperature for the month is then sent to water resource officials in each of the three states. Initially, the summaries are used as part of the decision to determine if a meeting is necessary. If a meeting is scheduled, Nicole or Alan prepare a more in-depth briefing to give in person.

## April 2017 Hydrologic Conditions in Massachusetts

Massachusetts



### SUMMARY OF CONDITIONS

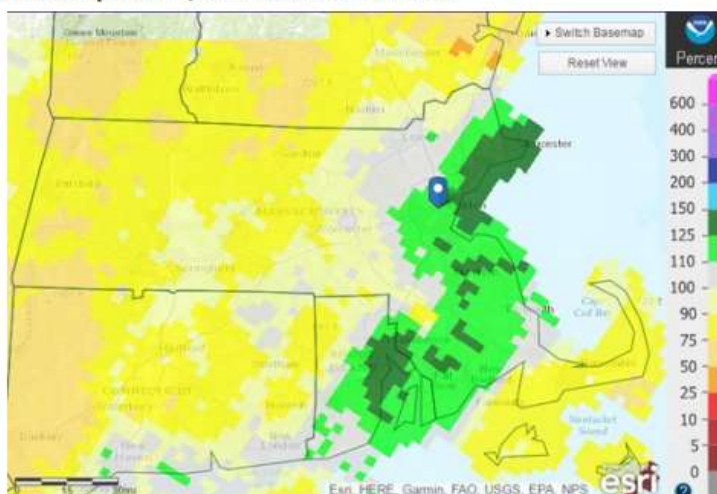
- Precipitation for the month was one to three inches above normal in all regions except the West, which was below normal.
- Average monthly streamflows were normal in all regions.
- Groundwater levels made significant recoveries after last month's stagnation. Only the CT River Valley and Cape & Islands have more than 1 well still below normal.
- Reservoirs are mostly normal, except for the Quabbin, Cambridge, and the Cape.
- NOAA projects above normal precipitation and equal chances for below normal, normal or above normal temperatures for May.
- Appendix I provides values of indices not presented in the main report. Appendix II provides a description of the indices from the Drought Management Plan.

### PRECIPITATION

Region	Estimated Rainfall (inches)	Departure from Average April (inches)	MA Drought Plan Levels	
			Standardized Precipitation Index (SPI)	Percent of Normal Index
Western	3.24	-0.27	Normal	Normal
CT River Valley	4.56	1.00	Advisory (12 mo)	Normal
Central	4.93	1.11	Advisory (12 mo)	Normal
Northeast	6.52	2.91	Normal	Normal
Southeast	7.17	3.27	Normal	Normal
Cape Cod & Islands	6.39	2.36	Normal	Normal

### April 2017 Precipitation, as Percent of Normal

Map from National Weather Service's Quantitative Precipitation Estimates.  
<http://water.weather.gov/precip/>



### SUMMARY OF CONDITIONS FROM THE APRIL 2017 MEETING IN MASSACHUSETTS

August 2016 brought mainly below normal rainfall to southern New England. A portion of the region inclusive of central MA, north Central CT and far northwest RI had normal to above normal rainfall, with totals ranging from 3.5 to locally over 5.5 inches. Two CoCoRaHS sites in northeast CT had higher totals for the month- East Killingly reported 8.95 inches, and Dayville reported 8.87 inches. Much of the Connecticut River Valley Region of MA, and northeast to central RI, had 3 to 4 inches of rainfall, which was 0.25 inch to 1.5 inches below normal. Much of eastern MA as well as Nantucket and southern RI had only 1 to 3 inches of rain, which was 1 to 3 inches below normal. The driest portion of southern New England was the Cape and Martha's Vineyard, with only around an inch of rainfall for the month. This was close to 3 inches below normal. Maps 3 and 4 show the larger-scale picture of rainfall and rain departure from normal for August.

<i>Location</i>	<i>August 2016 Rainfall (Inches)</i>	<i>Rainfall Departure (Inches)</i>	<i>Temperature Departure from Normal (Degrees F)</i>	<i>Ranking Warmest August on Record (Preliminary)</i>
<b>Boston</b>	1.72	-1.63	+4.3	#1 Warmest
<b>Worcester</b>	3.96	+0.25	+3.4	5 <sup>th</sup> Warmest
<b>Providence</b>	2.71	-0.89	+3.7	2 <sup>nd</sup> Warmest
<b>Hartford</b>	4.19	+0.26	+3.9	2 <sup>nd</sup> Warmest

Table 1. August rainfall and temperature departure from normal at major climate sites within southern New England.

<i>Location</i>	<i>Summer 2016 Rainfall (Inches)</i>	<i>Rainfall Departure (Inches)</i>	<i>Ranking Driest Summer on Record (Preliminary)</i>	<i>Temperature Departure from Normal (Degrees F)</i>	<i>Ranking Warmest Summer on Record (Preliminary)</i>
<b>Boston</b>	3.92	-6.54	#1 Driest	+2.6	5 <sup>th</sup> Warmest
<b>Worcester</b>	7.68	-4.45	NA	+2.1	NA
<b>Providence</b>	7.71	-2.82	NA	+2.4	3 <sup>rd</sup> Warmest
<b>Hartford</b>	8.40	-4.06	NA	+2.5	3 <sup>rd</sup> Warmest

Table 2. Meteorological Summer rainfall and temperature departure from normal at major climate sites within southern New England.  
NA= Not Applicable (Not in top 10).

#### PRECIPITATION AND TEMPERATURE SUMMARY FROM AUGUST 2016

At the drought meetings, water resource officials from various state and federal agencies meet to review the indices in the state's drought management plan and to come up with a recommendation (Drought Advisory, Drought Watch, Drought Emergency, etc.) This not only includes a review of precipitation and temperature but streamflow, groundwater levels, and reservoir levels. In addition to providing a press release announcing any action, information is also posted on each state's web site for the public.

As you can see, your CoCoRaHS reports are important! Your precipitation reports are valued all year round, regardless of drought or flooding conditions. Automated rainfall networks are useful, but they cannot stand up to what you observe and report with the 4-inch manual rain gauge! Try to submit complete monthly reports. Each month, there are dozens of folks who are only missing 1 or 2 reports. Having no missing reports means the monthly precipitation reports will describe a more complete picture of what has fallen across the area.

## ***Gauge Photos***



MA-WR-32



MA-PL-19



MA-MD-18



CT-FR-25



MA-BA-50



CT-HR-52



CT-HR-52



CT-NL-7



MA-MD-83



MA-MD-51



CT-FR-44

ON THIS DAY THIS PHOTO WAS TAKEN, I MEASURED 2.54", A RECORD FOR MY STATION!

## **Wrap up**

The downpours we had in June will likely occur throughout July and August. To help better understand these downpours is the topic of our next Weather Talk Webinar slated for Thursday July 13 at 1PM eastern time, titled “Mesoscale Convective Systems”. Registration is available through the website. Recorded webinars are available on the CoCoRaHS YouTube channel.

This July 28 will mark the 20<sup>th</sup> year since the Spring Creek Flood in Fort Collins Colorado.

Daylight will decrease through July, but the dew points will increase. If you are new to the crew, know what to do about dew when you see dew on the gauge at your morning observation. Check for confirming cues of wet pavement, cloud cover, larger droplets on the funnel, or passing showers before reporting that small amount of liquid found in your inner cylinder. If you have your doubts or uncertainties about what fell from the sky or from dew, write them out in a Comment.

It sure beats measuring in the dark and in the cold. Enjoy the summer temperatures and daylight.

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