

COCORAHS – 25 Years A Retrospective



YMCA of the Rockies – May 2017



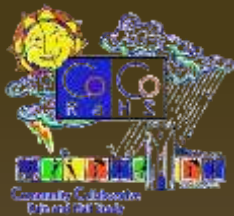
NATIONAL
MESONET



Colorado
State
University

CoCoRaHS over 25 years

Early Years



CoCoRaHS CANADA COMING SOON!



Expansion

- Five for CoCo Fundraising begins
- PRISM funding begins
- Now in 50 states
- WxTalk Webinars
- International Expansion
- ET measurements
- White House Vegetable Garden
- Mobile Apps
- Drought/Condition Monitoring
- Educational Animations
- 50 Million observations
- Interactive Mapping System
- Expansion to Guam
- Data Dashboard



New Logo



OVER 50 MILLION OBSERVATIONS
...submitted by CoCo observers! WOW! 50M



International and New Measurements

2018

2023



- Fort Collins Flood
- CoCoRaHS begins
- NSF Funding begins
- Website

1997

2004

2010

Pre-CoCoRaHS



THE VERY BEGINNING



EARLY VOLUNTEERS

THE FLOOD



THE ACTUAL BEGINNING

CoCoRaHS was born in response to the 1997 Fort Collins, Colorado Flood



STORM TOLL

Deaths - 5 confirmed
Injuries - 40
Missing - 16
Rescued - 160

Damages - Tens of millions of dollars at Colorado State University, \$1.5 million to \$2 million to city roads and bridges; \$1 million to city parks and trails; no estimate for private property.

Source: Emergency Officials
All information as of 1 a.m. today

Wednesday

FORT COLLINS
COLORADOAN

City death toll at 5; damage in millions



I thought I was dead a few times

CSU's book losses speak volumes



Rainfall breaks 20-year record

July 30th 1997



The flood pointed out:

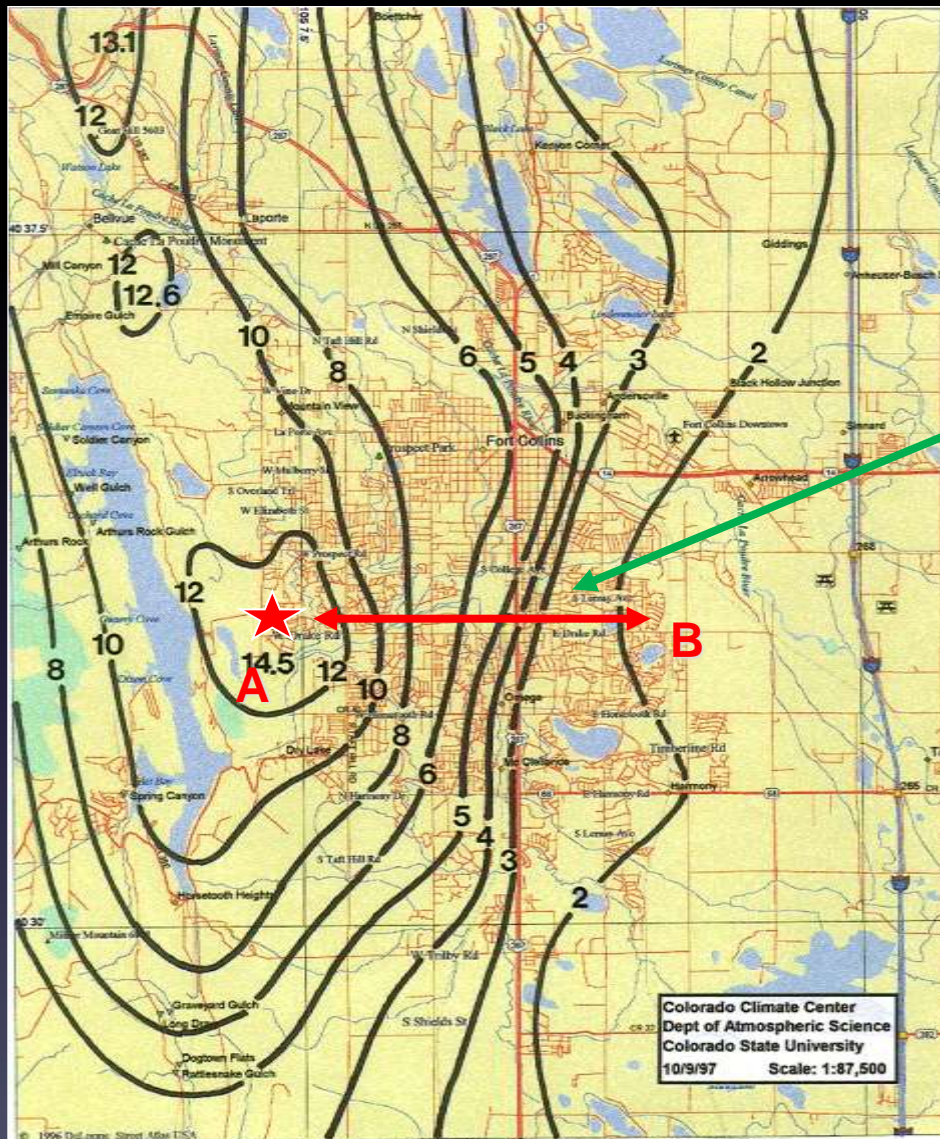


Figure 14. Rainfall (inches) for Fort Collins, Colorado, for 4:00 p.m. MDT July 27, 1997 through 11:00 p.m. MDT for July 28, 1997



1. The extreme local variations in rainfall possible from convective storms.
2. The important role individuals can play in measuring, mapping and reporting precipitation.

Distance between A and B = 5 miles

A = 14.5 inches

B = 2.0 inches

1998



A few dozen volunteers
in Northern Colorado

2005



2,000+ volunteer observers
in communities across six states.

Today



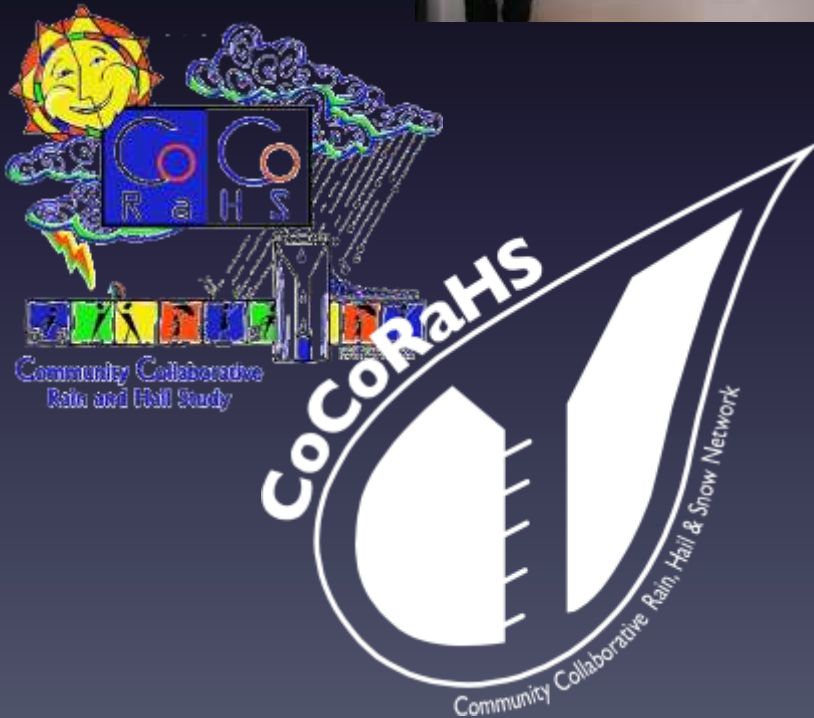
25,700+ volunteers in all
50 states, Canada, Puerto Rico,
the U.S. Virgin Islands,
the Bahamas and Guam

OVER 50 MILLION OBSERVATIONS

... submitted by CoCo observers! WOW!

50M
April 2020

Over 5 Million+
observations per year



5	0.01	T	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0



THE EARLY YEARS

The Beginning – Summer 1998

CoCo RaHS Weather Station Index
Summer 1998

Station Number: 352 *change to 2.3 for CO 6/4/98*

Station Name: FCL 2.3 NW *changed*
(descriptive name will be assigned by CoCo RaHS staff, e.g. FCL 3N, WEL 3.5SE, LOV 2NW)

Station Location
Street Address: 2232 Sun Rose Way
Fort Collins, Co 80521

Additional descriptive information (if necessary):

Latitude* _____ Longitude* _____ Elevation* _____
(* will be determined by CoCo RaHS staff)

Primary Observer: _____ (responsible for mail) _____ (required)

Assistant Observers: _____
Leah
E

Rain gauge will be read and emptied daily at: 7 a.m.
NOTE: Observation time of 7 a.m. is recommended by CoCo RaHS staff

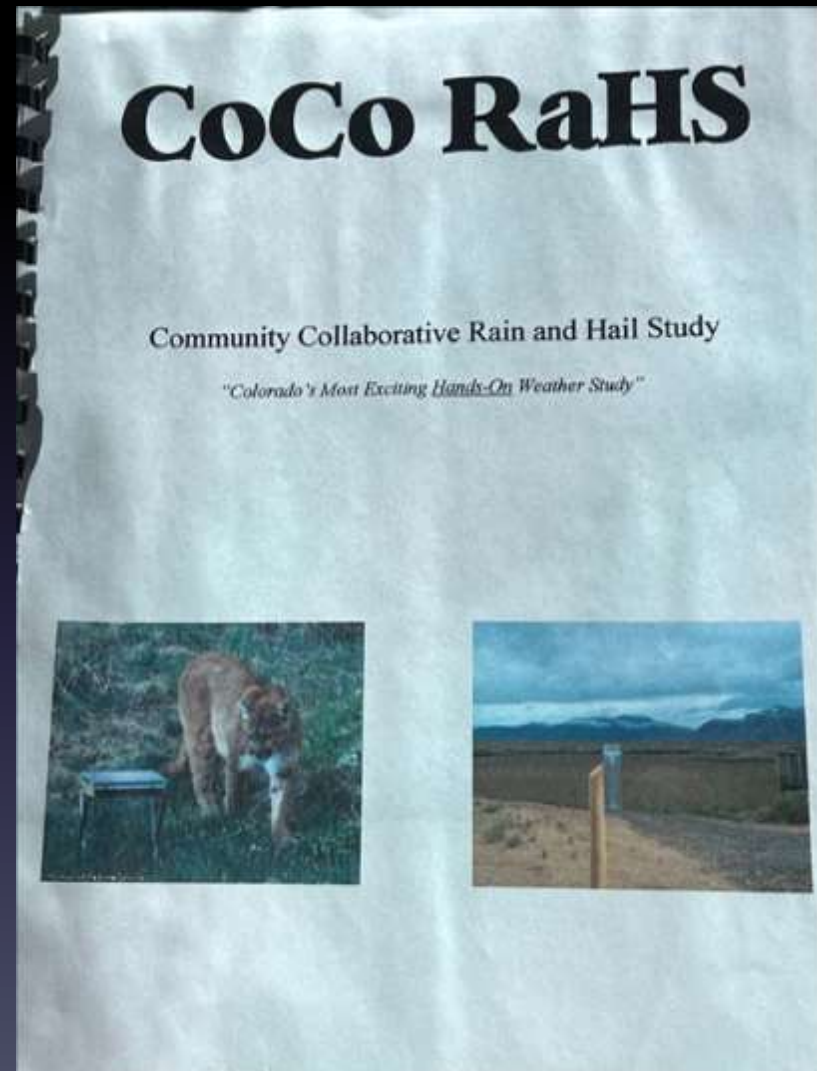
Type of Rain Gauge: 4" plastic

Provided by ☒ CoCo RaHS, ☐ owner, ☐ other

Hail Pad Stand provided by ☒ CoCo RaHS, ☐ owner, ☐ other

Effective date: 6/3/98

very good obsv - ongoing



Observation forms

All Weather Rain Gauge #40 Bellview

Name: State Square U.S. TIME: 7:00 SECTION: 47 NE

COUNTY: 357 TOWNSHIP: 2001

	Jan	Feb	Mar	Apr	May	June
1						
2					36	
3					600	
4					90	116
5					55	
6					0.03	
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Total						

Remarks: - Severe Weather - Storm Damage

1" snow drizzle all night until 11:00
5" fresh rain all day
stand rain in morning

Thunder storm in afternoon
2" snow
light rain in (day)

thunder lightning at 4:00
light rain begins at 4:00
Snow flurries in afternoon
2" S/N

1/2" + 1/4" milky white hail

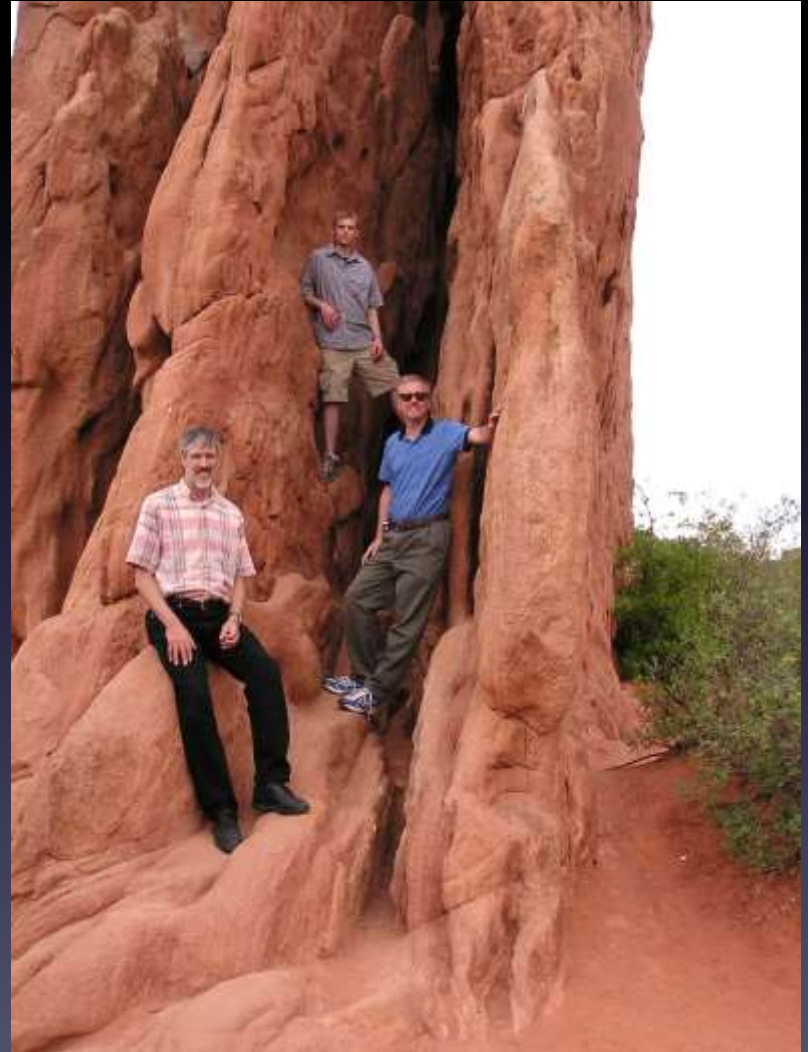
2" snow April 31 0.080000

5.55" Spring 2001

Instructions:
1. Try to record precipitation each day at the same time.
2. Record precipitation to the nearest 1/100 of an inch (.01, .01, .1, .1, etc.)
3. If precipitation is less than .01", record "T" for trace.
4. Use the remarks column to list any unusual or severe weather, (expt. Jan. 2 & 3) - each bracketed for 2 days

5	0.01	T	0.01	0.01	0.01	0.01
6	0.01	T	0.01	0.01	0.01	0.01
7	0.01	0.01	0.01	0.01	0.01	0.01
8	0.01	0.01	0.01	0.01	0.01	0.01
9	0.01	0.01	0.01	0.01	0.01	0.01
10	0.01	0.01	0.01	0.01	0.01	0.01
11	0.01	0.01	0.01	0.01	0.01	0.01
12	0.01	0.01	0.01	0.01	0.01	0.01
13	0.01	0.01	0.01	0.01	0.01	0.01
14	0.01	0.01	0.01	0.01	0.01	0.01
15	0.01	0.01	0.01	0.01	0.01	0.01
16	0.01	0.01	0.01	0.01	0.01	0.01
17	0.01	0.01	0.01	0.01	0.01	0.01
18	0.01	0.01	0.01	0.01	0.01	0.01
19	0.01	0.01	0.01	0.01	0.01	0.01
20	0.01	0.01	0.01	0.01	0.01	0.01
21	0.01	0.01	0.01	0.01	0.01	0.01
22	0.01	0.01	0.01	0.01	0.01	0.01
23	0.01	0.01	0.01	0.01	0.01	0.01
24	0.01	0.01	0.01	0.01	0.01	0.01
25	0.01	0.01	0.01	0.01	0.01	0.01
26	0.01	0.01	0.01	0.01	0.01	0.01
27	0.01	0.01	0.01	0.01	0.01	0.01
28	0.01	0.01	0.01	0.01	0.01	0.01
29	0.01	0.01	0.01	0.01	0.01	0.01
30	0.01	0.01	0.01	0.01	0.01	0.01
31	0.01	0.01	0.01	0.01	0.01	0.01
Total						

Things ramp up in late 2004 as we decide to go national with 2 years of NSF funding



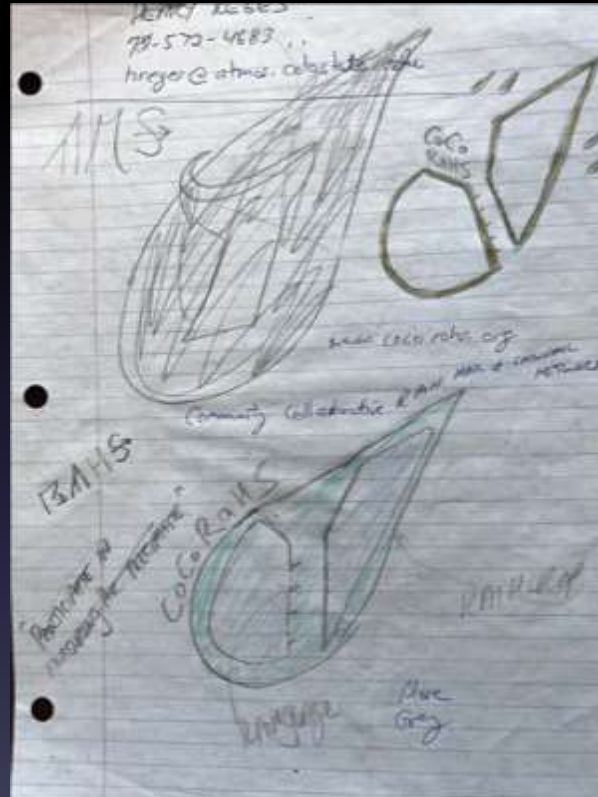
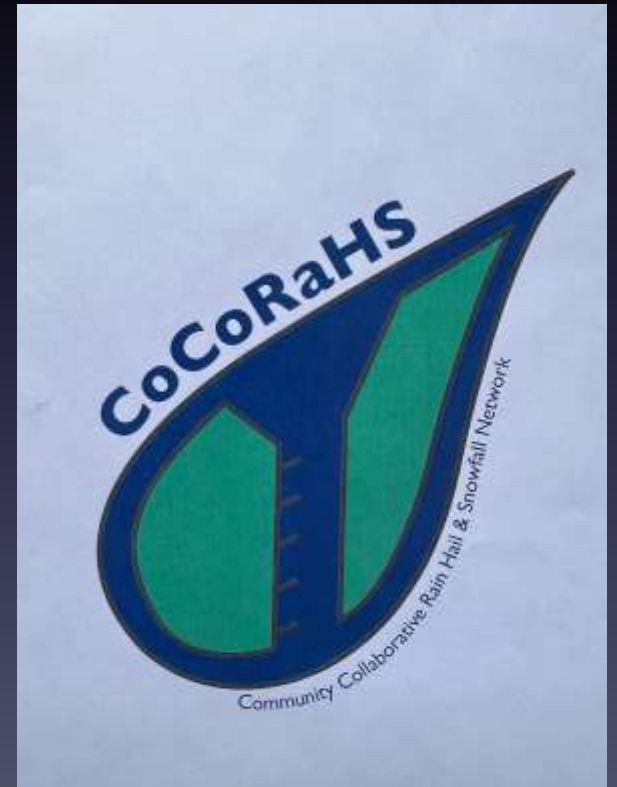
Name change

Colorado Rain and Hail Study (1998)

Community Collaborative Rain and Hail Study

Community Collaborative Rain , Hail and Snow Network
CoCoRaHS (2004)

New Logo - 2004



Henry's sketches

2005- 2009



COWS GIVING POWDERED MILK?

CoCoRaHS Drought Impacts

Report how drought is impacting you when you report your daily CoCoRaHS observation



CoCoRaHS March Madness 2008

March 1-31, 2008

HOW MANY NEW VOLUNTEERS CAN YOU RECRUIT IN YOUR STATE!



US EXPANSION

Youngsters with ambition



Nolan



Henry



Julian



Noah

A new website and maps

January 2005

CoCoRaHS - Community Collaborative Rain, Hail & Snow Network - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Home

Address http://www.cocorahs.org/default.asp

Google Search Web 12 blocked Options

CoCoRaHS COMMUNITY COLLABORATIVE RAIN, HAIL & SNOW NETWORK
"Because every drop counts"

Executive Home Status Your Data Maps My Data My Profile Admin Logout

Main Menu

- Home
- Join CoCoRaHS
- Contact Us
- In the Spotlight

Would you like your state to be a part of the CoCoRaHS Network? Contact us at info@cocorahs.org.

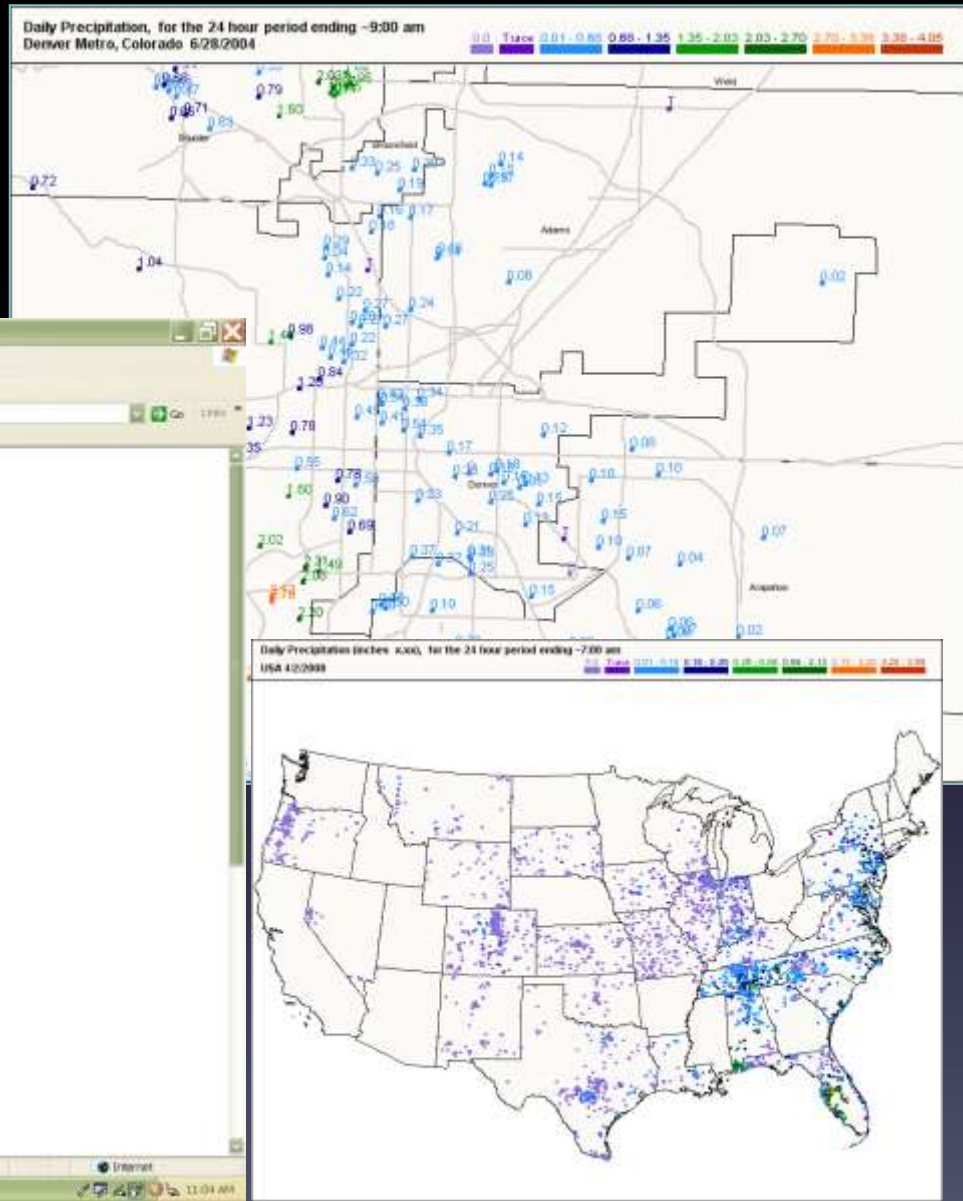

Map of the United States

Key: CoCoRaHS State Pending State

Welcome!

CoCoRaHS is a grassroots volunteer network of backyard weather observers of all ages who help scientists study the fascinating and very complex patterns of precipitation in the United States. The only requirements are an enthusiasm for watching and reporting weather conditions and a desire to learn more about the power and beauty of our natural world!

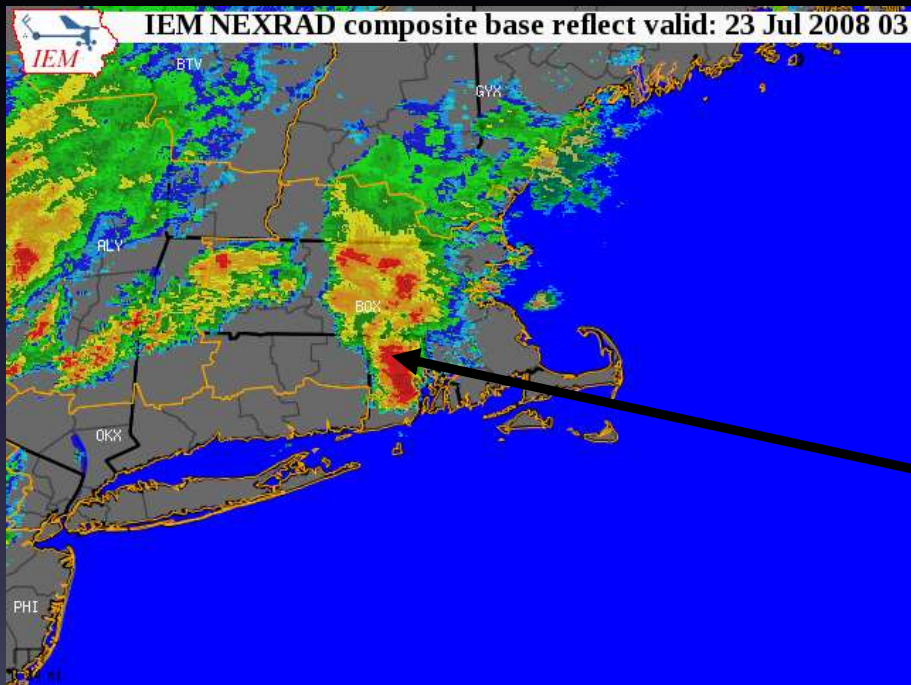
Our web page provides the ability for our observers to see their observations mapped out in "real time" as well as providing a wealth of



Addition of CoCoRaHS Significant Weather & Hail Reports

Advanced warning to the National Weather Service regarding potential flash flooding

Sends an immediate alarm to NWS AWIPS workstations



View Data : View Significant Weather Report

Significant Weather Report

Station Number:	RI-WS-1
Station Name:	Hope Valley 3.7 S
Date:	7/23/2008 3:15 PM
Submitted	7/23/2008 3:23 PM
Notes:	
Taken at Registered Location:	True
Precip Duration Minutes:	15
New Precip Amount:	1.00
Total Precip Amount:	NA
New Snow Depth:	NA
Total Snow Depth:	NA
Flooding:	No

July 23, 2008 – A CoCoRaHS observer in Hope Valley, RI provided an intense rainfall report which *led to the issuance of a timely Flash Flood Warning*. Life threatening urban flooding was reported in Warwick and Providence at the start of the evening rush hour, where several cars were stranded in more than 2 feet of water, requiring people to be rescued. Lead time would have been much less without the CoCoRaHS report. - Joe Dellicarpini, NWS Taunton, MA

The Snow Swatter invented 2005

After a visit to the Colorado Farm Show in January



Snow measurements emphasized

The Catch and “Farm Stories” begin January 2005

The Catch

DRY WEATHER AGAIN—SO COME TO THE FARM SHOW

FORT COLLINS, CO — Saturday, January 22, 2005

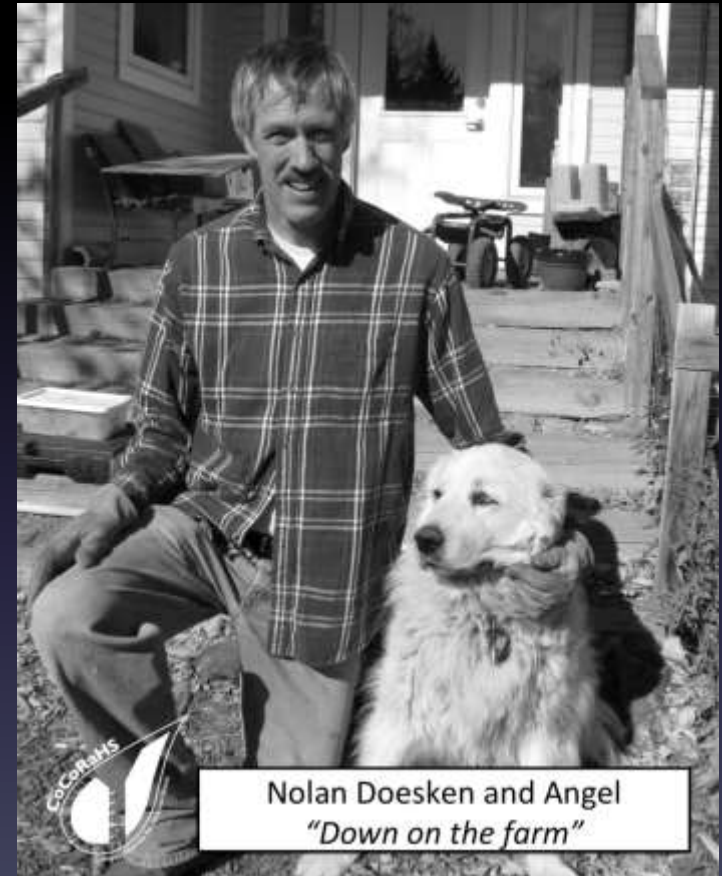
CoCoRaisins:

Recent weather update

What a week—four days in the 60s here in Fort Collins here in mid January and one was mightily close to 70. I guess this is what we call the "January Thaw". The ice had finally gotten good for skating on the local lakes, and now it's slush and open water again. Skiers report some slushy conditions on the slopes—especially down by the bases. It's a little early for spring, but the January thaw has felt pretty good this week.

Long range forecasts look like there will be a couple of opportunities for mountain snows before the end of the month. But for now enjoy the good roads and easy travel for I'm sure winter is far from over.

A few of you in SW Colorado sent some photos of what things looked like during and after your giant storm last week. We saw head-high and higher snows in a few areas—it was more like 10-15 feet deep down by Wolf Creek Pass. Very impressive.



A book deal by 2028?

Hail Pad Making Parties/Analysis



We ramped up our hail pad production and analysis and became one of the largest repositories of hail data in the United States.

HAIL PAD SATURDAY

May 8, 2010

9AM -
NOON



Ft.
Collins
Museum



Working with NASA on Hail



John Lane - NASA

Brochures developed



Getting the word out
in the mid 2000's

DATA ON THE WEB

Volunteer station data observations using the CoCoRaHS website or apps. Observations are immediately available to the public via maps and data analysis tools, and to data users via the CoCoRaHS Web API. Data users such as scientists, resource managers, decision makers and others have come to rely on the high density, high quality measurements provided by CoCoRaHS stations.

CoCoRaHS IS EDUCATIONAL

CoCoRaHS offers learning opportunities too. In addition to training materials, newsletters and the "Message of the Day", members also enjoy opportunities to attend Webinars featuring experts in weather, climatology and other pertinent disciplines. CoCoRaHS offers classroom resources for K-12 teachers. Students get to collect and submit real scientific data -- all while earning State and National Standards in science, math, geography and more!

JOIN CoCoRaHS TODAY!

CoCoRaHS is a practical, enjoyable and useful activity. If you have an interest in weather and would like to help your local community, as well as scientists and others involved in programs, then CoCoRaHS is for you. It only takes a few minutes a day and gives you the chance to participate in real weather events. You'll be around at what you learn as you become more aware of the variable weather that impacts you, your neighbors, your area and our entire country.

THANKS

CoCoRaHS is supported by many sponsors and collaborators. To view a full list please visit the CoCoRaHS Web page.

FOR MORE INFORMATION CONTACT:

www.cocorahs.org

CoCoRaHS
The Community Collaborative Rain, Hail & Snow Network

Help measure rain!

United States Expansion



Order of States Joining the CoCoRaHS Network

1. Colorado (1998)
2. Wyoming (2003)
3. Kansas (2004)
4. New Mexico (March 2005)
5. Texas (April 2005)
6. Maryland (October 2005)
7. Virginia (October 2005)
8. District of Columbia (October 2005)
9. Pennsylvania (October 2005)



CoCoRaHS
welcomes
California



CoCoRaHS
Coming to Florida
October 1st



CoCoRaHS
WELCOMES
CONNECTICUT



COCORAHHS
MINNESOTA
DECEMBER 2009

Oregon begins Dec 2007

Thanks to the late George Taylor, Oregon jumped out to the quickest start of any state!

This well-timed article came out on the day of a heavy winter rain in Oregon and over 200 new observers signed up that day.

gazettetimes.com

Corvallis Gazette-Times

Print Page Wednesday, December 19, 2007
Last modified Monday, December 17, 2007 9:58 PM PST

Top Story

Rain doesn't fall the same on all
By KYLE ODEGARD
Gazette-Times reporter

Corvallis resident Len Maki is among 352 Oregonians who keep detailed records for the Community Collaborative Rain, Hail and Snow Network

Len Maki always has been fascinated by weather. Since he moved to Corvallis in 2000, he's kept detailed rain records from his house near Martin Luther King Jr. Park.

CASEY CAMPBELL/Gazette-Times
Len Maki shows the rain gauge that hangs off his back porch that he uses to measure rainfall, which he reports online.

"It's more curiosity than anything else," said the 78-year-old retired nuclear engineer. "We have amazing differences in microclimates here."

So far in December, the gauge hanging off Maki's back porch has recorded about 6.5 inches of precipitation. The National Weather Service monitoring station at the Hyslop Research Farm, about 10 miles away, gathered only 4.33 inches, said George Taylor, who manages the Oregon Climate Service at Oregon State University.

"You don't have to be very far from the hills to have the rain [total] drop off," Maki said.

Less than a month ago, he joined a network of weather buffs who will pinpoint the variations in Oregon rainfall. At 7 every morning, Maki heads outside to check the precipitation gauge. He then reports his data online.

"We're up to 352 people, which is pretty cool," Taylor said. The Oregon Climate Service at OSU is coordinating the statewide project, which includes 14 volunteers in Benton County. About 110 are signed up in Lane County alone.

The effort in Oregon is part of the "Community Collaborative Rain, Hail and Snow Network," which now is in 26 states. Washington and California will start similar projects in 2008.

Taylor said that other states "can't believe how quickly people are signing up in Oregon. I can't believe it, either."

Precipitation maps created by the project could help ranchers and farmers, engineers, meteorologists, hydrologists, outdoor enthusiasts and more, he said.

"There are a number of administrative rules — in some cases requirements — that are based on the amount of precipitation that falls. There are also strategies that growers use that are dependent on a certain amount of rain. From an agricultural standpoint, it's very important," Taylor said.

Before, there weren't enough recording stations to create an accurate map. "In a state like Oregon, with dramatically different land features and proximity to the ocean, this is especially problematic," Taylor said.

Weather researchers also are excited about using the rain, hail and snow network to learn more about huge weather events, such as the recent storms and flooding that hit northwest Oregon earlier this month.

Oregon has 250 weather stations administered by the National Weather Service. With the volunteers, that's more than doubled.

1 of 2 12/19/2007 12:12 PM

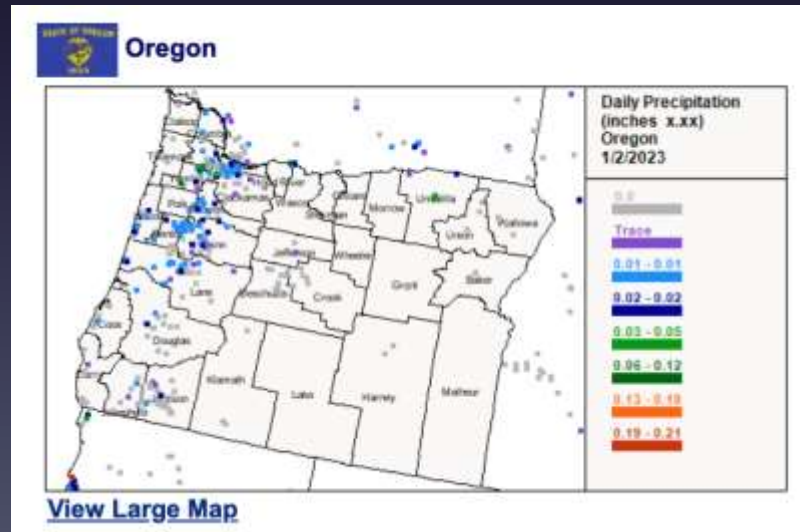
Print Version : Corvallis Gazette-Times : http://www.gazettetimes.com/articles/2007/12/18/news/top_story/raaa0...

"Not everybody will be as dedicated as Len Maki, but we'll take what we can get," Taylor said.

Those interested in becoming volunteers should contact Taylor at taylor@coos.oregonstate.edu or Cadee Hale hale@coos.oregonstate.edu. The Oregon Climate Service also can be reached at 737-5705.

For more information on the project, see www.coosrihs.org.

Kyle Odegard covers Corvallis, Oregon, State University. He can be contacted at kyle.odegard@osunews.com or 548-0523.



CoCoRaHS Funding

2007 the beginning of CoCoRaHS Fundraising



Front

Back



Local Picnics for Volunteers



CoCoRaHS State Newsletters

Begin around 2007

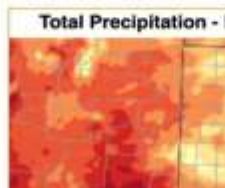


Welcome to The Texas CoCoRaHS Observer Newsletter. The purpose of this newsletter is to keep observers informed of the latest news, events, training, and happenings related to the CoCoRaHS program here in Texas, as well as news about the latest weather patterns affecting each region of Texas seasonally.

Inside this issue
West Texas Summary
by Jenny DeBerry



Texas Weather Summary Spring, 2022
John Nielsen-Gammon, Texas State Climatologist
Figure from the NIDM group, Oregon State University, generated using SC-ACS



Community Collaborative Rain, Hail & Snow Network
Southern New England
August 2022
Summer thunderstorms make precipitation variable. Rain on one side of town, but not the other. Having as many as you helps capture the variability that summer brings.
This group continues to stand out. Look at the map of Condition Monitoring Reports and see this cluster of reports on our area. Significant Weather Reports continues to be a strong point of ours. Between tropical cyclones named Henri and Ida in Year 2021, and our typical array of snow events, our area leads the network in the past 12 months. And the Rules of the Snow, those unique observers who report snow fall and snowpack with every report, are a strong concentration in our area.
Drought assessments continue. The Drought Meetings will continue until they are rained out! When it comes to assessing drought, having all of you report as frequently as you, leaves little doubt!
Plenty included about your station totals.
We lead off, as we always do, with our version of "The Grand List". Our first stations have crossed 5,000 Daily Reports.
Let's get into it.
Southern New England CoCoRaHS Page 1 August 2022 Newsletter



CoCoRaHS FLORIDA
A Community Collaborative Rain, Hail & Snow Network
Newsletter Winter 2018
Spring is springing.
February, spring has sprung a bit early here in Florida. Record-high temperatures have been recorded across the state this week. It appears that next week will be a little cooler, but March also brings some rain. This suggests that next week will be a little cooler, but March also brings some rain. This suggests that next week will be a little cooler, but March also brings some rain.
This newsletter also includes a few reminders about observational practices, a summary of our CoCoRaHS observations, a listing of your observational comments that caught our eye, and information about current conditions and the outlook for spring.
We hope you enjoy this newsletter, and don't be too shy to drop us a line via email.
Very truly,
John Nielsen-Gammon
Texas State Climatologist
jng@climate.texas.gov



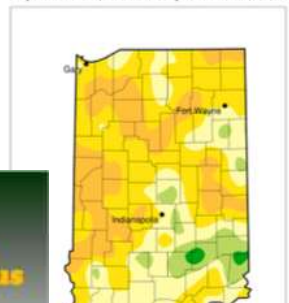
September 2022 Statistics

Total observers reporting	546
Observers with no missing reports	335
Percent of total	61
Average Daily Reports per Day	434
Max # of Daily Reports and Day	463 / 19
Significant Weather Reports	8
Condition Monitoring Reports	48
E-T Reports	204

It was certainly a dry month across Indiana, so we really appreciate all the zeroes you put in over the last few weeks. As our seasonal observers plan to take their break for the cooler months, we'd like to encourage those observers sticking around to continue to enter zeroes on days with no precipitation when you can.

September 2022 Precipitation in Indiana
September precipitation was quite dry across Indiana with only 2.22 inches of rain - 1.07 inches below the 1991-2020 normal. This caused abnormally dry conditions (as categorized by the U.S. Drought Monitor) to spread across the state causing stressed vegetation, low soil moisture, and low stream and lake levels. The map shown illustrates the percentage of the 1991-2020 normal precipitation for September 2022 indicating where the monthly precipitation was above or below normal. Of the CoCoRaHS observers who provided data every day, the greatest precipitation total for the month was 6.09 inches at NOBLESVILLE 3.8 SSE (Hamilton County), whereas the lowest monthly precipitation total was only 0.75 inches at MILLTOWN 6.1 SW (Crawford County). Of those with complete monthly records, the maximum 1-day total was 4.10 inches on September 11th at CARMEL 2.8 NNW (Hamilton County).

Accumulated Precipitation (in): Percent of 1991-2020 Normals
September 01, 2022 to September 30, 2022



California Cumulonimbus
March Madness 2022
by Alexandra Cuccinelli
CoCoRaHS March Madness is in full swing, and continues through the end of March. During CoCoRaHS March Madness, states try to win the CoCoRaHS cup by receiving the most one observer in their state during the month of March each year.
As of March 20, Minnesota is making the competition with 142 volunteer sign-ups in March so far. They built the top sign in the per capita count as well.
CURRENT STANDINGS - March 20, 2022
Traditional Count Top Five
Per Capita Count Top Five

Rank	State	Count
1	Minnesota	142
2	Illinois	121
3	North Carolina	111
4	Mississippi	101
5	Texas	91

Rank	State	Count
1	Minnesota	142
2	Illinois	121
3	North Carolina	111
4	Mississippi	101
5	Texas	91



WELCOME TO THE ALASKA COCORAHNS NEWSLETTER
This newsletter will discuss Spring and Summer 22 updates from the Alaska Community Collaborative Rain, Hail and Snow Network.
Thank you for submitting your daily precipitation reports! This newsletter is prepared to inform you of the information about weather events in Alaska, and to talk about current events and opportunities.

It would also like to thank the CoCoRaHS Commission for the support of the Alaska Community Collaborative Rain, Hail and Snow Network.
CoCoRaHS Alaska

CoCoRaHS March Madness Begins in 2008

CoCoRaHS March Madness 2008
March 1–31, 2008
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2009
March 1–31, 2009
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2010
March 1–31, 2010
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2011
March 1–31, 2011
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2012
March 1–31, 2012
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2013
March 1–31, 2013
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2014
March 1–31, 2014
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2015
March 1–31, 2015
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2016
March 1–31, 2016
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2017
March 1–31, 2017
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2018
March 1–31, 2018
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2019
March 1–31, 2019
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2020
March 1–31, 2020
How many new volunteers can you recruit in your state?

CoCoRaHS March Madness 2021
March 1–31, 2021
How many new volunteers can you recruit in your state?



CoCoRaHS March Madness 2023

March 1–31, 2023

How many new volunteers can you recruit in your state?



WERA CONFERENCE - 2009

Managing & Utilizing Precipitation Observations from Volunteer Networks



NEXT YEAR's CONFERENCE May 15 – 17 , 2024



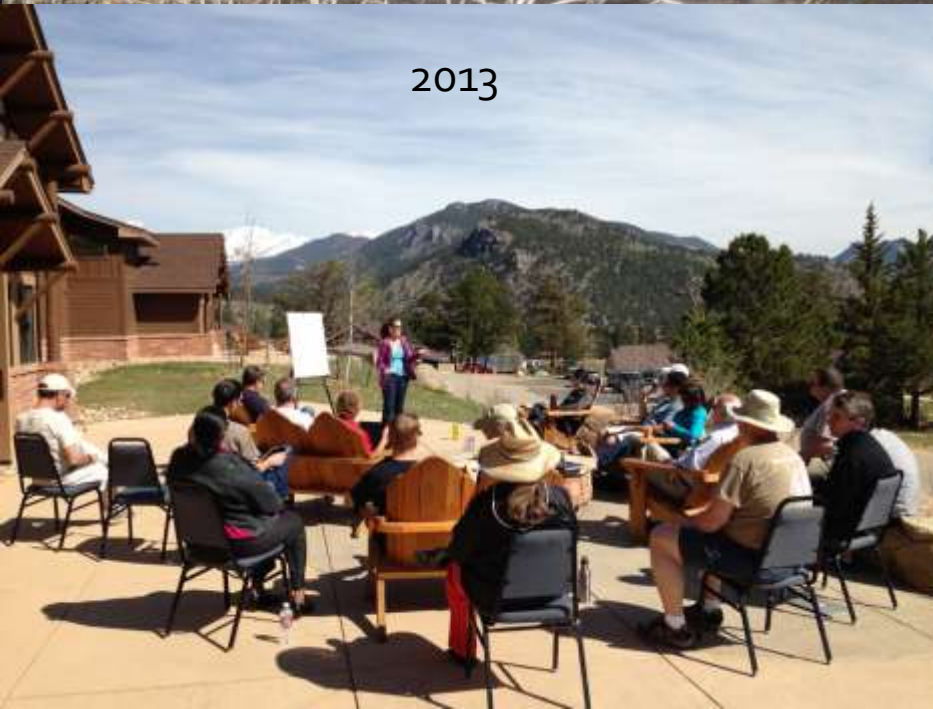
Photo: Estes Park, CO – May 19, 2017



2008



2009

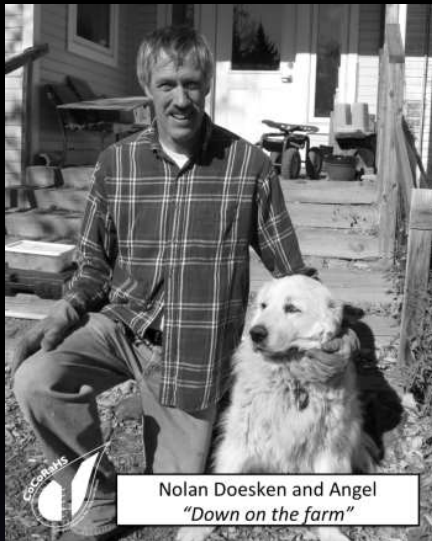


2013



2017

2010 - 2016



Nolan Doesken and Angel
"Down on the farm"



How to Measure Extreme
Rainfall

INTERNATIONAL AND NEW MEASUREMENTS



Monday, May 3rd

"Ten things you wanted to know about hail, but were afraid to ask." Don't be afraid, we have the answers.

Tuesday, May 4th

"Hail Yes or Hail No!" ... the climatology of hail in the United States. A look at hail across the country.

Wednesday, May 5th

CoCoRaHS Hail Reports ... What are they, how can I access them? How you can help report hail.

Thursday, May 6th

CoCoRaHS Hail Pads. How to make a hail pad ... its fun and easy to do.

Friday, May 7th

CoCoRaHS Hail Photo Day ... Have a great photo of hail, e-mail it to us today!

Saturday, May 8th

"CoCoRaHS National 'Put out your Hail Pad' Day"

Have a hail pad? ... join thousands around the country who will put out their hail pads today. It's that time of year!

Launch of CoCoRaHS Hail Week



Drought impact reporting begins 2010

COWS GIVING POWDERED MILK?

CoCoRaHS Drought Impacts

Report

COUGHIN' MORE OFTEN?

CoCoRaHS Drought Impacts

Report how drou

DRINKING WATER TASTE DUSTY?

CoCoRaHS Drought Impacts

Re

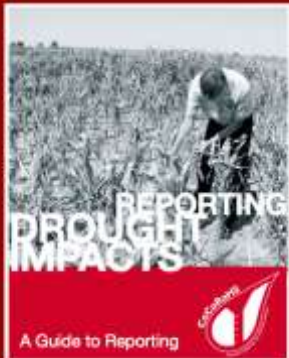
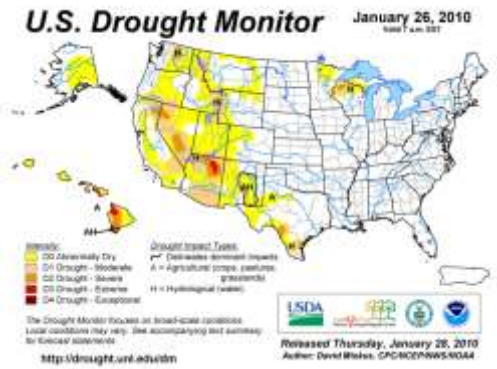
IS 'BROWN' THE NEW GREEN?

CoCoRaHS Drought Impacts

BOATING ACTIVITY HIT BOTTOM?

CoCoRaHS Drought Impacts

Report how drought is impacting your community with a "Drought Impact Report"



Drought Impacts

Report Your Drought Impacts
Beginning February 1, 2010



State Climate Series - 2010



New Mexico – Would you like it Red or Green?

By David DuBois, New Mexico State Climatologist

New Mexico has a climate for just about everyone. The state is a land of diverse climate regions with elevations ranging from the lowlands of the Chihuahuan Desert to the high elevation alpine peaks. Elevations range from 2,817 feet in the south along the Pecos River to the top of Wheeler Peak at 13,161 feet high in the Sangre de Cristo Mountains. The low deserts of the south can be hot in the summer but mild in the winter. Maximum temperatures can reach 110 F in the southeast part of the state while the higher elevation towns are in the 80s just an hour drive away. The weather station at Oroganadero holds the record for highest temperature of 116 F in July of 1934. Winter cold snaps can drop temperatures to below zero Fahrenheit in the mountains and in the teens or lower throughout the state. The official lowest temperature recorded is -50 F at Gavilan (Rio Arriba County) back in February of 1951.

The higher elevations receive the most precipitation with some locations in the Sangre de Cristo, San Juan, San Pedro, and Mogollon Mountains receive more than 45 inches per year. In general the central valley, south central and northwestern parts of the state are the driest. Much of this area receives less than 10 inches of annual precipitation with some stations recording less than 7 inches. For example the Newcomb Cooperative climate station in the northwest had an annual average of 5.97 inches of precipitation based on the years between 1971 and 1990.

Average annual snowfall ranges from less than an inch at the south to more than 100 inches at Northern Mountain stations. The Red River Cooperative station averaged 147 inches per year based on the data from 1906 to 2008. Snowfall may exceed 300 inches in the highest variable in the mountains with some parts receiving more than a location in New Mexico is exempt from snow but the lowlands accumulation.

Many locations receive most of their annual precipitation during moisture rich air masses from the eastern Pacific, Gulf of California ingredients for the monsoon. Thunderstorms in summer can be highly localized.

Severe weather in the form of tornados are most frequent from the Gulf of Mexico move inland and encroach the eastern part of the state occur in the summer from June to August.

The spring is the time for frequent wind storms. High winds are ridge tops where they occasionally can reach speeds of more than 90 miles per hour, similar to that in hurricanes.

For more information on New Mexico
<http://weather.nmsu.edu/>



The Southern Regional Climate Center

As we continue our "State Climates" series, we move to the third region of the country and look at the states of the Southern Regional Climate Center, one of six regional climate centers in the United States.

The Southern Regional Climate Center (SRCC) was established in 1991 at Louisiana State University (LSU) as the last of six Regional Climate Centers providing regional climate services in the U.S. The SRCC consists of six states that include Oklahoma, Texas, Arkansas, Louisiana, Mississippi, and Tennessee. Our region is characterized by a highly variable rainfall regime that varies from the dry steppes of western Texas and Oklahoma, averaging as low as 10" per year, to the semitropical region of the Central Gulf Coast of Louisiana and Mississippi that averages of 60" per year. Our service support for sectors and industries is also diverse and includes areas such as transportation, construction, risk management, agriculture, and water resource management. Government agencies at local, state, and national levels are an especially important service sector at the SRCC. We provide climate information that supports planning, policy, and management decisions, and we monitor changing climate conditions that impact regional decisions. We also support emergency managers with tropical-storm and hurricane events in the Gulf of Mexico by providing planning and exercise support. During declared emergencies we provide operational information support as storms approach the coast and as storm recovery operations occur within impacted areas.

In addition to service provision and monitoring activities, the SRCC also maintains an active role in the development of leading-edge information technology. We develop and improve products for the Applied Climate Information System (ACIS), investigate and adopt new technologies for interactive graphical

al characteristics of climate
ring and tracking system that
progress of error corrections that
data-collection systems.
ering with a NOAA Regional
acts Planning Program, to help
tion.

cus on the third region of our
isit: <http://www.srcc.lsu.edu>



NOAA'S REGIONAL CLIMATE CENTERS

Master Gardeners, Master Naturalists, Conservation Districts



The expansion of our observer base

Outreach at Weather Festivals



Not only at AMS, but NWA and others around the country

San Antonio, New Orleans, Phoenix, Atlanta, Seattle, Austin . . .

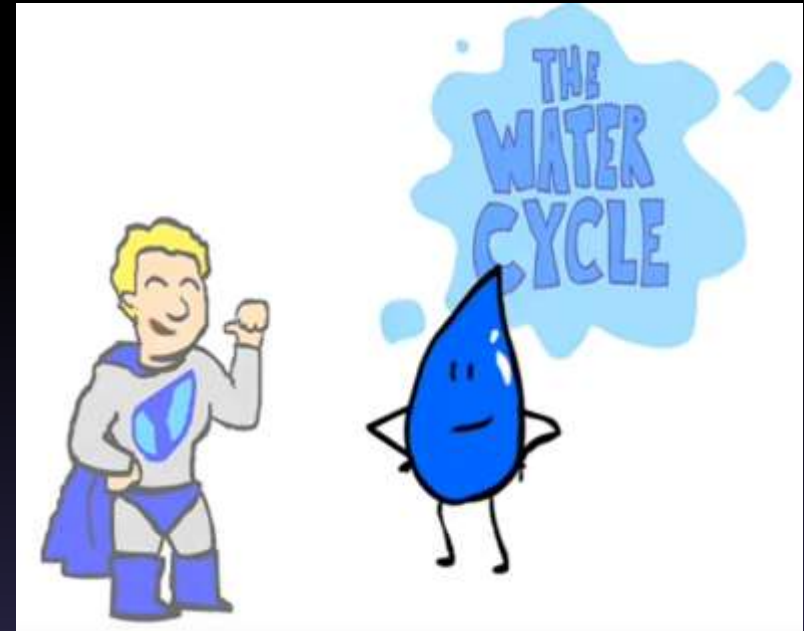


Collaboration increases with State Climate office's and Universities



CoCoRaHS Animations

Early 2010's



Training Animations ▶ Play all

CoCoRaHS Training Videos



Getting Started with CoCoRaHS - The Basics of...

CoCoRaHS HQ
84K views • 8 years ago



Measuring Hail

CoCoRaHS HQ
12K views • 7 years ago



How to Measure Extreme Rainfall

CoCoRaHS HQ
33K views • 9 years ago



Setting up for Measuring Snow

CoCoRaHS HQ
19K views • 10 years ago



Daily Precipitation When It Snows

CoCoRaHS HQ
13K views • 10 years ago

Reference Et₀ 2011

Measuring Reference Evapotranspiration ET₀ "The 'up' side of the water cycle"

CoCoRaHS COMMUNITY COLLABORATIVE RAIN, HAIL & SNOW NETWORK
"Because every drop counts"

Home | Countries | States | View Data | Maps | My Data | My Account | Admin | Logout

Reference Evapotranspiration

Main Menu

- Home
- About Us
- Join CoCoRaHS
- Get Involved
- Donate

Resources

- RAGL Help
- Education
- Training Materials
- Videos
- Condition Monitoring
- Knowledge Base
- Volunteer Opportunities
- Mail List
- Donation/Shop
- Help/Feedback
- Privacy Policy
- The CoCoRaHS Manual of the Day
- CoCoRaHS News
- Press Group
- State Newsletters
- Master Gardener Guide
- State Climate Reports
- March Madness
- My Data

Measuring Reference Evapotranspiration ET₀
"The 'up' side of the water cycle"

MEASURING REFERENCE EVAPOTRANSPIRATION (ET₀)
How to do it and why it matters

View the ET₀ guide via:
[pdf](#)

HTML (coming soon)

ET (evapotranspiration) is the water evaporated from the ground back to the atmosphere both as transpiration from the leaves of plants and also as direct evaporation from open water and soil.

Reference Evapotranspiration is defined as "the ET from an extensive surface of clipped grass (ET_g) or alfalfa (ET_a) that is well-watered, and fully shades the ground." (Kimberly RAE Carter, Univ. of Idaho)

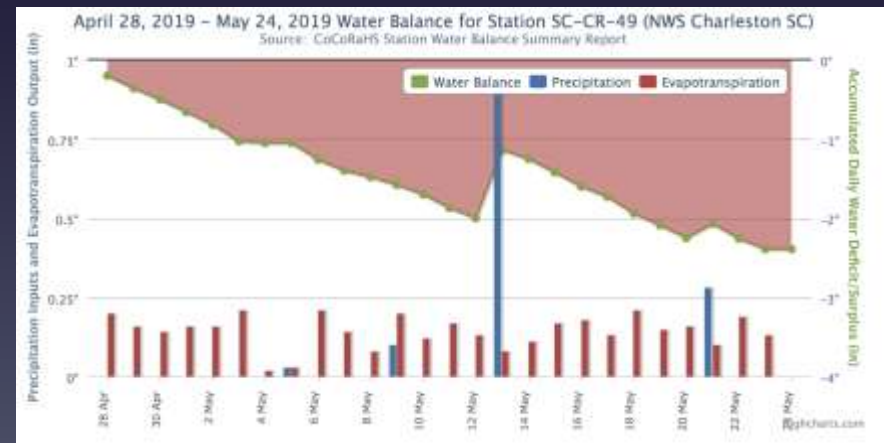
Help CoCoRaHS measure ET₀! We know how much water comes from the sky (precipitation) since many of us measure it. Knowing how much water is leaving the soil and returning to the atmosphere is just as important. It matters for agriculture, lawn care, weather prediction, hydrology and much more, so we should try to measure it.

Interested in becoming a ET₀ observer?



Water balance

Evapotranspiration for 14-day Period: 10/12/2022 - 10/26/2022



CoCoRaHS at Major League Baseball 2011



Target Field, Minneapolis, MN

CoCoRaHS Rain Gauge Calendars



CoCoRaHS WxTalk Webinars launched 2011



Webinar #86 - Thursday, June 29, 2023

The 420,002,023rd Year of Biomass Burning on Earth

Tim Brown

Director, Western Regional Climate Center
Desert Research Institute
Reno, NV



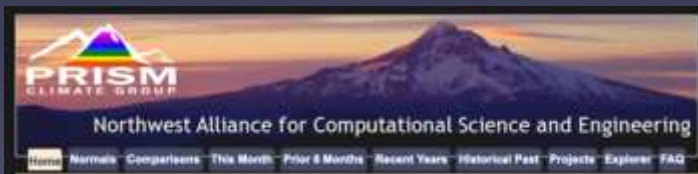
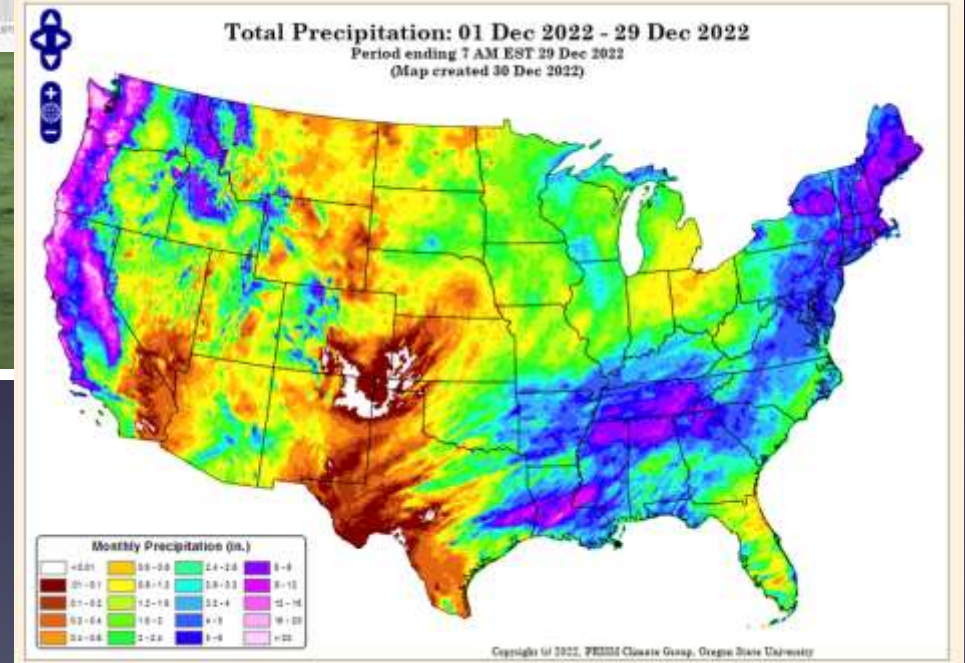
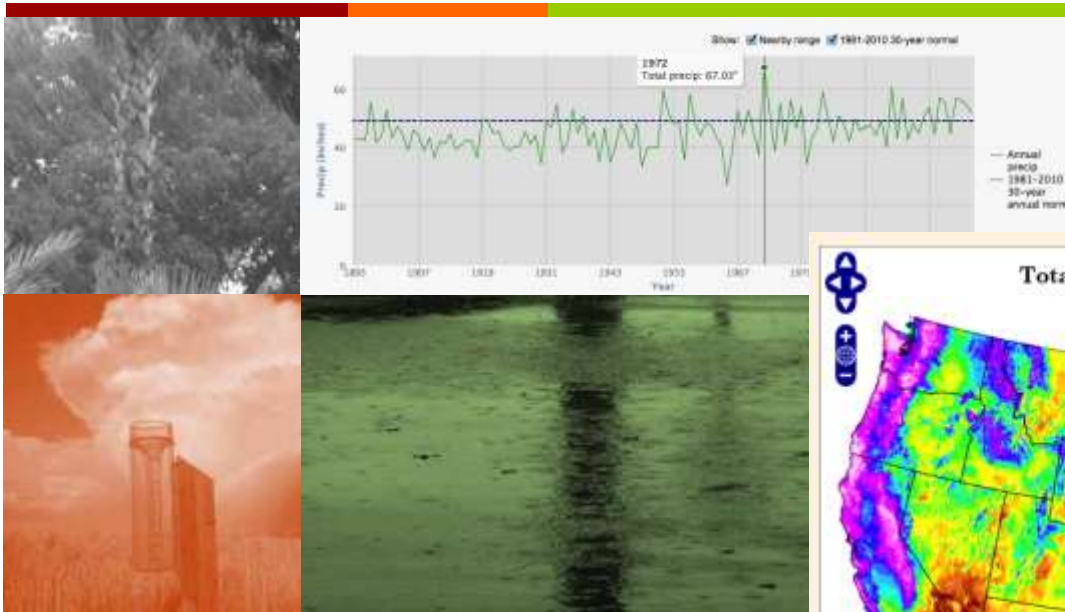
([biography](#))



Now in our 12th Season

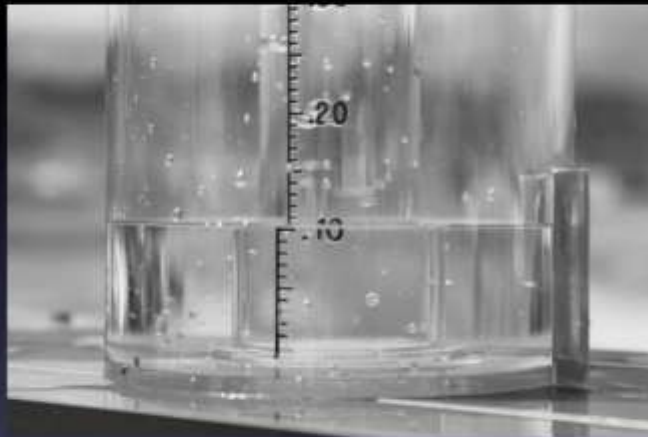
Collaboration with PRISM

Early 2010's



CAMPAIGN to let observers know that their observations are used, that they make a difference

Who uses CoCoRaHS Observations?



1. Weather Forecasters
2. Hydrologists
3. Water management
4. Researchers
5. Agriculture
6. Climatologists
7. Insurance Industry
8. Engineering
9. Recreation
10. Many others

*"CoCoRaHS is **CRITICAL** (my emphasis) to hazardous weather operations at the NWS Austin-San Antonio Weather Forecast Office. We utilize the daily precipitation reports to produce maps such as the one attached, which are used extensively by the media (directly shown on TV broadcasts), our emergency management partners (for briefing officials and planning search and recovery operations), and the general public."*

Jon Zeitler – NWS Austin-San Antonio Weather Forecast Office

Field Photo Weekends start in 2012



Field Photo Weekends - Documenting Visual Landscape Impacts over Time

The collage consists of several landscape photographs. On the left, there is a photo of a dirt path leading to a pond, with a small 'Field Photo Weekends' logo overlaid. In the center, there is a photo of a dry, cracked earth. On the right, there is a photo of a green field under a blue sky, with a small 'Field Photo Weekends' logo overlaid. Below the collage, there is a small 'Field Photo Weekends' logo with the text "May 17 - 20th".

Monday, 26 June 2017, Presentation 1.2
[AMS 23rd Conference on Applied Climatology](#)
Henry Reges et al, CoCoRaHS/Colorado State Univ., Fort Collins, CO

The bottom of the slide features a row of logos. From left to right, they are: the Colorado State University logo, the "I SEE CHANGE" logo, the SCIPP logo, and a circular logo for the "Colorado Climate Observing Network".

By 2012 coordination grows to over 267 volunteer
state/regional coordinators



Current CoCoRaHS Headquarters Team



International Stage begins 2013



The addition of Canada, Puerto Rico, the U.S. Virgin Islands and the Bahamas
Recognition by the World Meteorological Organization (WMO), Commission for
Environmental Cooperation, Caribbean Outlook Forum, National Hurricane Center

Expansion to Canada, Puerto Rico, the U.S. Virgin Islands and the Bahamas 2011 - 2016



White House Vegetable Garden - 2015

A CoCoRaHS rain gauge was installed at the White House Vegetable garden in 2015.

The observation was taken daily by the U.S. National Parks Administration. This promoted Citizen Science and provided a key observation point in the District of Columbia, which helped fill in a gap in a data sparse part of the District.

Unfortunately, the gauge was removed by the next administration and has yet to return. ☹️



PBS – The Crowd in the Cloud

2015

The
Crowd
& The
Cloud

SERIES TRAILER



**ROCKY
MOUNTAIN**



The Mobile App – Mid 2010's



Verizon 2:23 PM 87%

Logout Precip Report Details

CoCoRaHS CO-LR-610
Fort Collins 3.5 SW

Precipitation Report

Observation Date 2015-05-13

Observation Time 07:00

Rain/Melted Snow 0.00

☐ Trace Precip More Details

☐ Metric Units (mm/cm)

Submit

CoCoRaHS Observer

Username sjwoodr

Password *****

☒ Remember Me

Login

CoCoRaHS Observer

Precipitation Report

SC-CR-64
Mount Pleasant 5.5 NNE

Observation Date 7/16/2012

Observation Time 7:00 AM

Rain/Melted Snow 0.00

Click To Specify Snow & Flooding Info

optional notes

Submit

CoCoRaHS Observer

Report History

SC-CR-64
Mount Pleasant 5.5 NNE

DATE	TIME	PRECIP
6/27/2012	7:00 AM	Trace
6/26/2012	7:00 AM	0.33"
6/25/2012	7:00 AM	0.08"
6/24/2012	7:00 AM	0.00"
6/23/2012	7:00 AM	0.00"
6/22/2012	7:00 AM	0.00"
6/21/2012	7:00 AM	0.00"

CoCoRaHS Observer

New Snow

Accumulation NA

Melted Core NA

Total Snow & Ice

Depth Total NA

Melted Core NA

Flooding Info

No flooding occurred

Return

CoCoRaHS School Outreach



- It only takes a few minutes a day
- Students collect measurements and report data
- Compare data with other schools

COLLABORATE!!!



The CoCoRaHS "Make It Rain" Game



CoCoRaHS for Schools

CoCoRaHS!!!

www.cocorahs.org

Questions? Contact: education@cocorahs.org

Visits to NWS and State Climate Offices to support coordinators



Begins in 2015

2017 - 2023



NEARING 25

CoCoRaHS Watershed Mapping Tool - 2017

CoCoRaHS Watershed Mapping

Search: Iowa City, IA

Watershed

- CEAR RIVER (0708020608)
- CLARE CREEK (0708020981)
- CORALVILLE RESERVOIR/CORAL RIVER (0708020810)
- ENGLISH RIVER (0708020908)
- NORTH ENGLISH RIVER (0708020904)
- OLD MANS CREEK (0708020602)
- RAPID CREEK-KOJA RIVER (0708020907)
- ROCK CREEK (0708020603)
- ROCK RUN CREEK-CEAR RIVER (0708020604)
- SUGAR CREEK (0708020606)
- WAPSINONOC CREEK (0708020607)

Watershed Maps

CoCoRaHS Watershed Mapping

Search: Fort Collins

Watershed Details

Outlet Big Thompson River

The Outlet Big Thompson River watershed spans parts of Colorado. It has a total area of 13,000 acres or 238 square miles.

Accumulated Precipitation for September 2017: 1.89 in.

There are 262 CoCoRaHS stations in this watershed.

Search for CoCoRaHS Stations

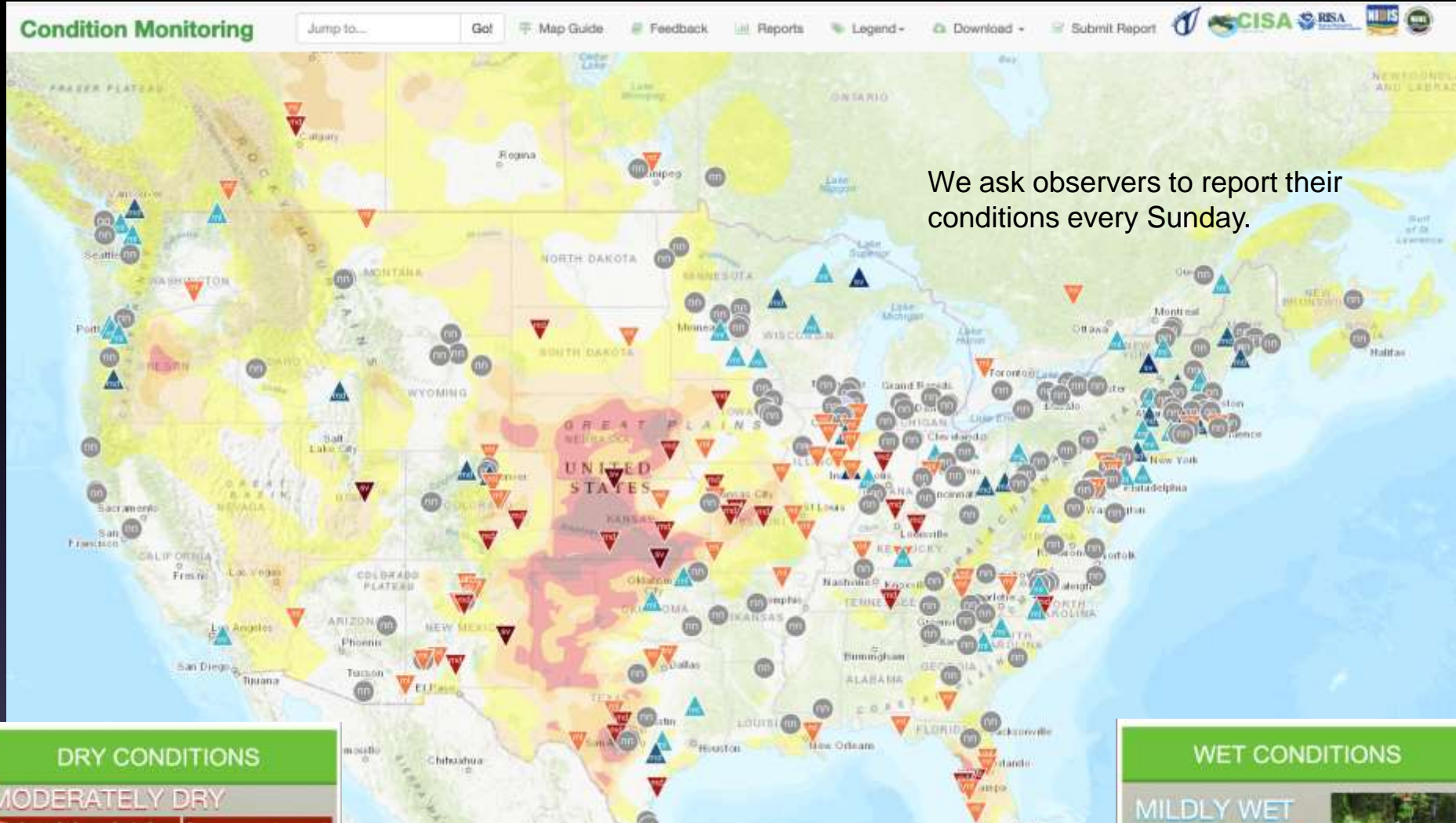
Station	Precipitation
05-0344	1.89"
05-0719	1.91"

* At least one value for the given station was estimated using a nearest neighbor with available precipitation.

PRECIPITATION REPORT

<https://cocorahs.erasms.com/>

Condition Monitoring 2017-18



DRY CONDITIONS

MODERATELY DRY

Plants may be brown due to dry conditions.

Streams, reservoirs, or well water levels may be low.

Voluntary water use restrictions may be in place.

Water shortages may be present.

Plants, crops, or pastures may be stressed.

Soil is dry.



Condition Scale Bar

[More information on the scale bar](#)

[Clear Scale Bar](#)

Severely Dry

Moderately Dry

Mildly Dry

Near Normal

Mildly Wet

Moderately Wet

Severely Wet



WET CONDITIONS

MILDLY WET

Local plants, crops, or pastures are healthy, recovering from dry conditions or draining from wet conditions.

Soil moisture is above normal.



KS-FO-3	Dodge City 2.5 NW	Ford	6469
KS-DC-1	Norcatatur 3.1 WSW	Decatur	6443
KS-DC-2	Norcatatur 4.4 S	Decatur	6434
KS-RL-1	Manhattan 0.5 NE	Riley	6366
KS-PR-2	Preston 3.2 WNW	Pratt	6354
KS-SH-16	Goodland 10.3 WNW	Sherman	6325
KS-NS-6	Arnold 4.8 NNW	Ness	6248
KS-EL-6	Hays 1.7 NW	Ellis	6188
KS-EL-1	Hays 2.7 ENE	Ellis	6138
KS-GY-4	CIMARRON 7 SE	Gray	6128
KS-JO-6	Olathe 3.3 ENE	Johnson	6123
KS-SH-14	Goodland 13.2 SW	Sherman	6064
KS-DC-3	Traer 2.5 NNW	Decatur	6039
KS-SG-2	Maize 5.7 S	Sedgwick	5966
KS-SG-3	Maize 3.4 SSW	Sedgwick	5951
KS-NS-5	Utica 5.9 SSW	Ness	5928
KS-LY-2	Emporia 0.9 W	Lyon	5909
KS-SN-5	Topeka 8.5 E	Shawnee	5890
KS-SH-4	Goodland 0.5 ENE	Sherman	5860
KS-BA-6	Coats 6.6 WSW	Barber	5825
KS-CA-7	Minneola 4.1 SSE	Clark	5825
KS-NT-3	Norton 0.4 N	Norton	5822
KS-OS-4	Osage City 5.2 SW	Osage	5807
KS-CD-1	Jamestown 2.4 NW	Cloud	5784
KS-PT-1	Onaga 2.1 NW	Pottawatomie	5775
KS-HM-5	Syracuse 7.2 WSW	Hamilton	5770
KS-RN-19	Plevna 1.4 NE	Reno	5750
KS-RN-7	Andale 6.4 WSW	Reno	5749
KS-TH-18	Colby 0.6 NNW	Thomas	5728
KS-RN-11	South Hutchinson 10.	Reno	5726
KS-KM-2	Penalosa 0.4 N	Kingman	5723
KS-CR-3	McCune 1.6 NW	Crawford	5702
KS-BA-4	Medicine Lodge 0.4 V	Barber	5695
KS-SH-21	Goodland 12.1 NW	Sherman	5684
KS-ME-2	MEADE 12 NW	Meade	5669
KS-FO-13	Dodge City 1.9 N	Ford	5642
KS-KW-2	Mullinville 12.5 S	Kiowa	5636
KS-WS-5	Washington 7.3 NNE	Washington	5605
KS-CM-3	Coldwater 6.7 NW	Comanche	5602
KS-SF-2	Stafford 5.9 ESE	Stafford	5566
KS-TH-17	Colby 1.3 NE	Thomas	5566
KS-RN-30	Arlington 5.5 SSE	Reno	5537
KS-PR-4	Preston 1.2 SE	Pratt	5508

Many long-term
observers with
over 5,000
CoCoRaHS
observations
(over 13 years!)

Celebrating their dedication!!

Observer appreciation certificates

Southern New England CoCoRaHS

For outstanding reporting in Water Year 2017:

Over 80% of Days Covered

Observer name, XX-XX-yy, City



New Jersey CoCoRaHS

Certificate of Appreciation

is hereby granted to:

Carol Smith
NJ-AT-19

For Outstanding Service in 2015 as a Volunteer Weather Observer

Dr. David A. Robinson
NJ State Climatologist

Mr. Mathieu R. Gerbush
NJ Assistant State Climatologist

NATIONAL WEATHER SERVICE

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast for "City, ST" or ZIP code
Go
Location Help

MY FORECAST
2 Miles NW Louisville
KY

News Headlines

- 24 Hour Precipitation ending at 7 am Wednesday April 19th
- Allen County CoCoRaHS Observers Recognized

Allen County CoCoRaHS Observers Recognized

Louisville, KY
Weather Forecast Office

Current Hazards Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather Local Programs

Allen County, KY CoCoRaHS Observers Recognized

NWS Louisville Warning Coordination Meteorologist Joe Sullivan recently presented two Allen County, Kentucky CoCoRaHS observers with plaques to recognize their years of uninterrupted dedication to the program. Few, if any - NWS meteorologists can match the "perfect attendance" records of these two observers as they each tallied up approximately 300" of precipitation.

David Calvert, the NWS Cooperative Observer for Scottsville (and Allen County CoCoRaHS Coordinator), arranged for recognition of the efforts of Junior Davasher, who has not missed a daily report since signing up with CoCoRaHS in December 2007, and John Holder, whose commitment to the cause began in August 2010. During the presentation of the awards at a Scottsville Rotary Club luncheon, Calvert mentioned that Davasher was so conscientious about reporting that on at one occasion, when he was too ill to leave his home to check his rain gauge, he had a family member bring in to him so that he could verify the rainfall. How Thel's devotion!



NWS Louisville WCM Joe Sullivan and Henry (Junior) Davasher

State Precipitation Records and CoCoRaHS

CAPITAL WEATHER GANG

This Baltimore suburb's seven feet of rain sets a new state record for Maryland in 2018



By Ian L. Williams

March 26, 2019 at 2:01 pm EDT



Last week, the National Oceanographic and Atmospheric Administration's [State Climate Extremes Committee](#) met and voted in favor of declaring Catonsville's seven feet of rain a new Maryland state record for annual precipitation.

The measurement was made by volunteer weather observer Tom Atkins, a participant in the [CoCoRaHS](#) network. CoCoRaHS stands for Community Collaborative Rain, Hail & Snow Network and is composed of thousands of citizen scientists who gather precipitation data, many in their backyards.

Maryland

- LOCATION: Catonsville 1.2 NW (MD-BL-39)
- YEAR: Calendar Year 2018
- PRECIPITATION TOTAL: 84.56

New Jersey

LOCATION: West Milford Twp 3.2 NE (NJ-PS-16)

- YEAR: Calendar Year 2011
- PRECIPITATION TOTAL: 90.65"

Kansas

Location: Farlington 0.8 NNE (Farlington, KS)

- Date: 1 January – 31 December 2019
- Value: 75.33 inches

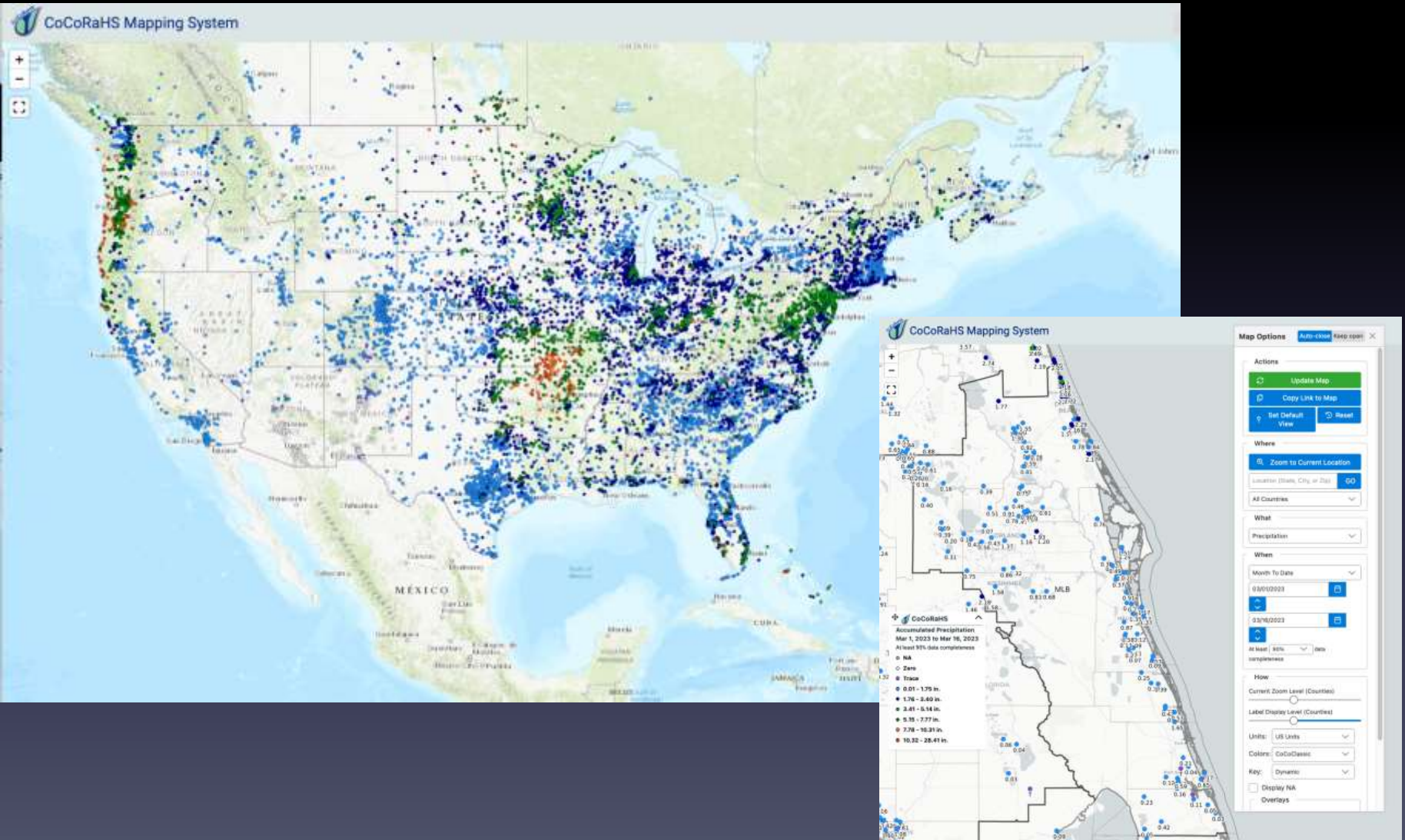
Delaware

Location: Greenwood 2.9 SE

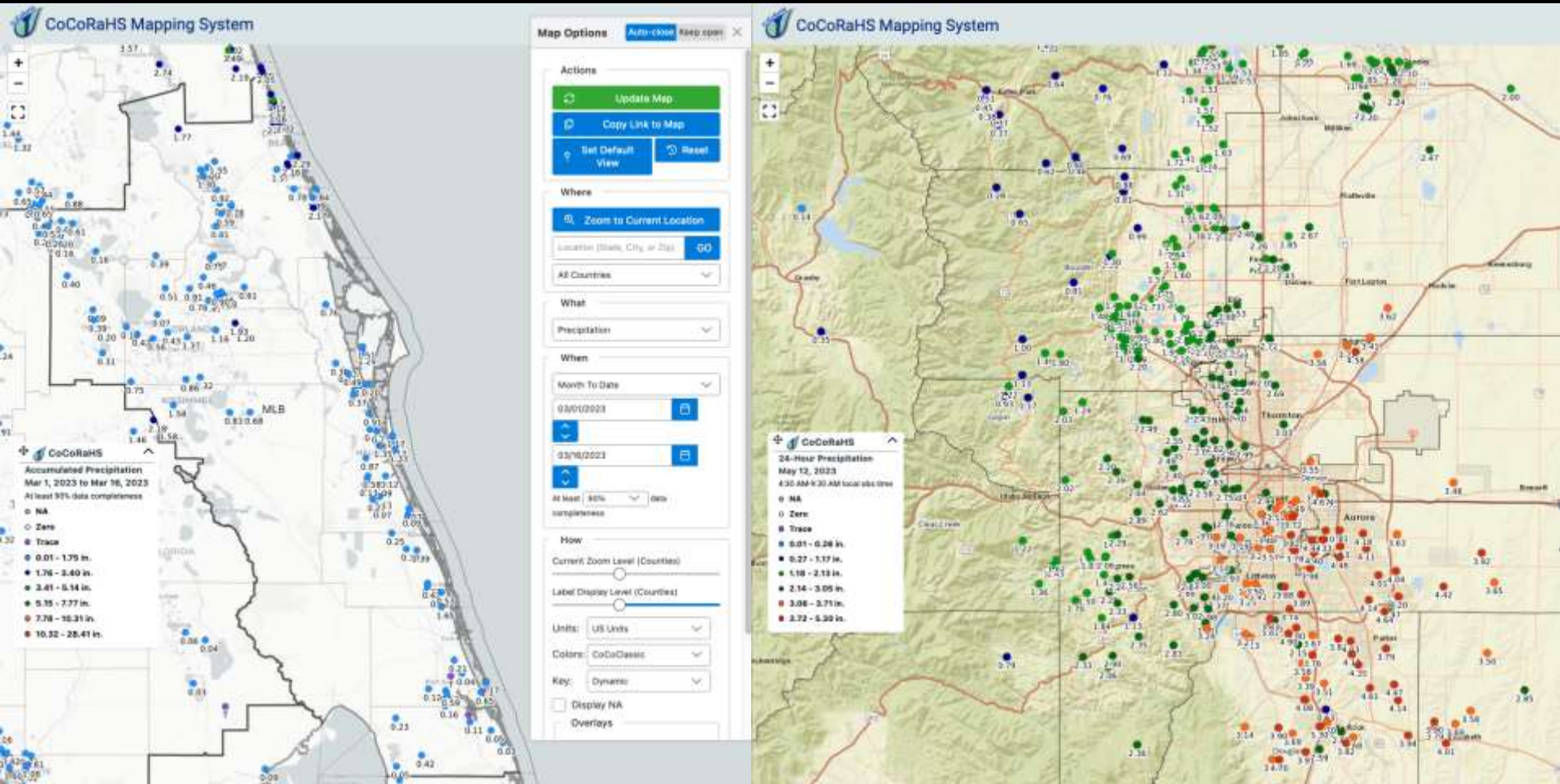
- Site Type: CoCoRaHS Observer
- Daily Snow Depth Record: 28 inches
- Date: February 7, 2010

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL ENVIRONMENTAL SATELLITE DATA
AND INFORMATION SERVICE
NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION
151 PATTON AVE ROOM 120
ASHEVILLE NC 28801-5001

Interactive Mapping System debuts in August 2020



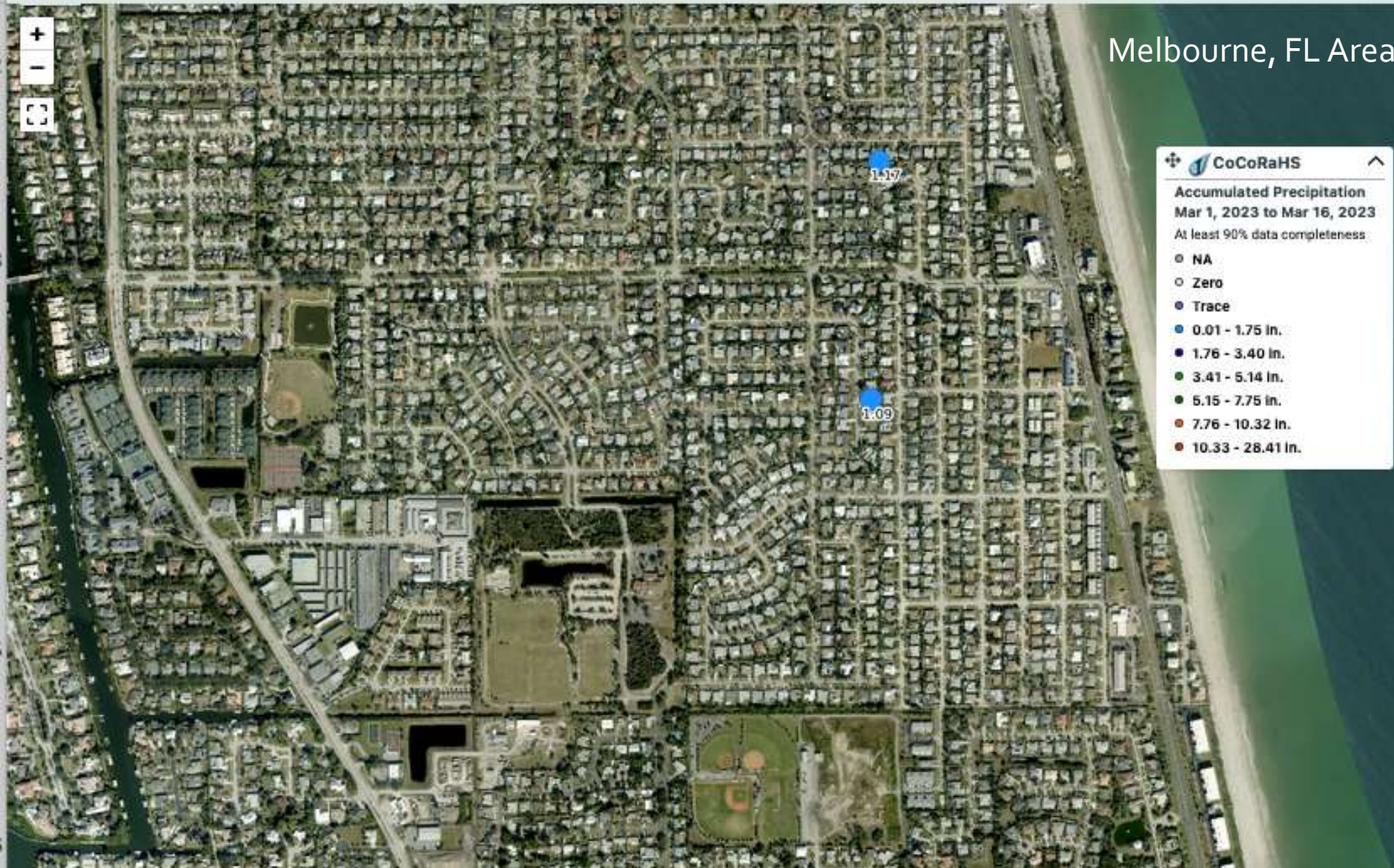
Dynamic Indeed!!



Drill down to the town/city level

 CoCoRaHS Mapping System

Melbourne, FL Area



A close-up photograph of a robin perched on the rim of a clear plastic tube. The robin has a bright orange-red breast, a dark grey head, and a yellow beak. The tube has a white label with a logo and some text. The background is a blurred green landscape with a white building in the distance.

Really zooming in!

Ice Accretion Pilot - 2022

Measuring Ice Accretion



Ice Accretion Pilot Training Guide

New!

Report impacts

Submit photos

Install and document a dowel
before an ice event



Category	Descriptions of Impacts
0	No ice or a trace
1	Enough to be annoying/need scraping off your car. Looks pretty on bushes, shrubs. Dangerous to walk or drive.
2	Shrubs and other non-native shrubbery weighed down, trees manage ok
3	Small tree branches start to bend
4	Small and medium branches bend, a few small branches may fail
5	Birch trees are starting to bend, minor branch damage to weak trees
6	Birch trees sag moderately, small and large limbs start to break, ~5-10% branch loss
7	Birch trees bent nearly completely, ~10-20% branch loss on small and large limbs
8	Moderate to significant tree damage, most trees have some damage

Credit: Jason Shafer, Northern Vermont University-Lyndon



Measure and report ice accretion on branches or other flat objects

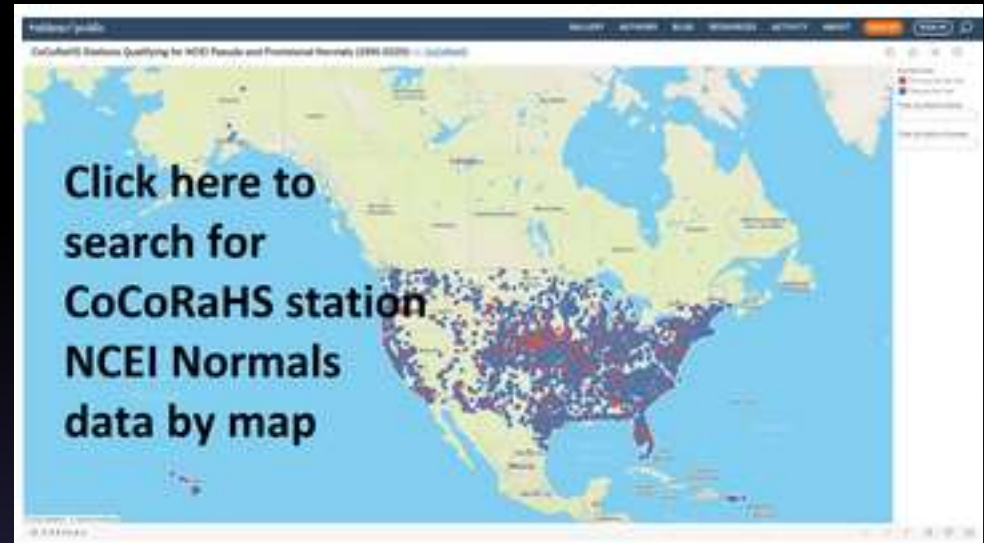
Continuing collaboration with NCEI

PSEUDO and Provisional NORMALS

State: [All States]	Station Name	Normals Type	Start Year	End Year	View Normals
AL-BV	lope 2.3 N	Pseudo	2007	2020	View
AL-BV	line 1.2 NNW				View
AL-BV	line 0.4 SW				View
AL-BV	y 7.4 SW				View
AL-BV	y 0.5 ESE				View
AL-BV	lope 3.7 NNW				View
AL-BV	y 0.4 SSW				View
AL-BV	y 2.0 SSW				View
AL-BV	lope 1.5 WSW				View
AL-BV	Minette 10.9 N				View
AL-BV	Minette 7.0 N				View
AL-BV	gville 5.3 WNW				View
AL-BV	gville 1.3 NW				View
AL-BL-13	Onicola 7.5 ESE				View
AL-BL-21	Arab 7.0 S				View
AL-CE-1	Merlona 6.9 SSE				View
AL-CK-3	Grove Hill 6.1 SW				View
AL-CT-1	Tusculum 6.9 SW				View
AL-CT-4	Muscle Shoals 1.3 SSW				View
AL-CT-5	Sheffield 1.3 ENE				View
AL-CT-14	Muscle Shoals 9.7 NNE				View
AL-OM-3	Cullman 4.4 E				View
AL-OM-4	Hanceville 1.6 E				View
AL-OM-6	Cullman 7.5 SW	Pseudo	2007	2020	View
AL-DS-1	Seima 1.5 WSW	Pseudo	2008	2020	View
AL-DK-8	Sylvania 3.4 ESE	Pseudo	2007	2020	View
AL-DK-9	Fort Payne 1.4 WSW	Provisional	2008	2020	View

Click here to
search for
CoCoRaHS
station NCEI
Normals data
by list

A total of **5448 CoCoRaHS stations** qualified for **1991-2020 climate normals**, 4688 for Pseudo-normals and 760 for Provisional normals.



CoCoRaHS data
archived daily in
NOAA/NCEI's
GHCN-D (Global
Historical Climate
Network)

After 100 observations

Examples of Publications using CoCoRaHS Data

Publications Using CoCoRaHS Data

These peer reviewed publications are instances where CoCoRaHS data contributed to the research and were cited in the bibliography:

2022

Joseph, Naveen et al., 2022: [Evaluating the impact of turbidity, precipitation, and land use on nutrient levels and atrazine concentrations in Illinois surface water as determined by citizen scientists](#), The Science of the total environment, 158081. 16 Aug. 2022.

Elmore, K. L., Allen, J. T., & Gerard, A. E., 2022 : [Sub-Severe and Severe Hail](#), American Meteorological Society, Weather and Forecasting, 37(8), 1357-1369.

2021

Spaccio, Jessica, Arthur DeGaetano, and Nolan Doesken, 2021: [COVID-19 Stay-at-Home Orders Result in a Decrease in the Number of Missing Daily Precipitation Observations](#), Bulletin of the American Meteorological Society 102, 3 (2021): 207-209

2020

Goble, Peter E., Nolan J. Doesken, Imke Durre, Russ S. Schumacher, Abigail Stewart, and Julian Turner, 2020: [Strength in Numbers: Daily Precipitation Extremes over CONUS](#), Bulletin of the American Meteorological Society 101, 8 (2020): E679-E682

2019

Smith, Kelly Helm, 2019: [Drought Impacts: Detecting Deviation from Expectation across Space and Time](#). ETD collection for University of Nebraska - Lincoln. October, 2019, AAI27547805.

Spring 2023



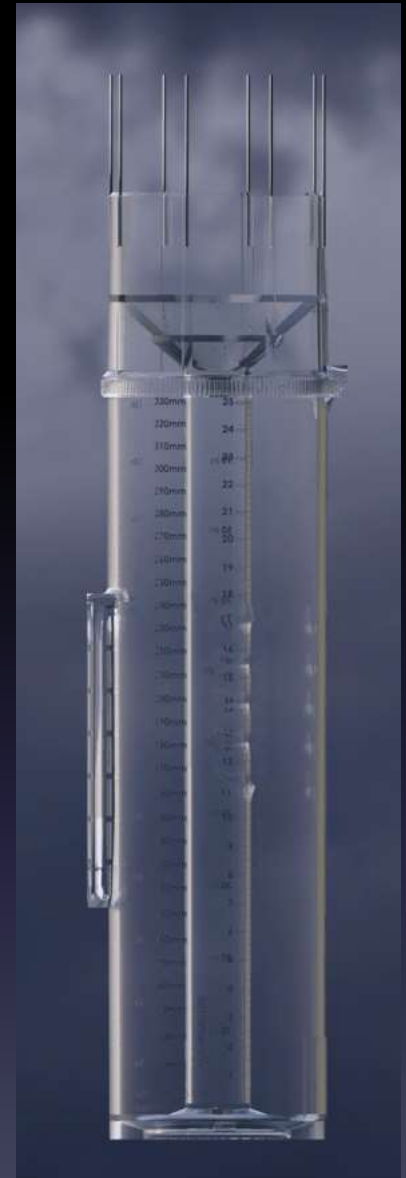
CLIMALYTIC™
INSTRUMENTS, LLC



TROPO Precipitation Gauge

What's Included

- Handle
- Mounting Bracket
- Bird Deterrent Rods (x8)
- Cap
- Inner Tube
- Outer Tube
- Cable Ties (x2)
- Wood Screws (x2)
- Adhesive Strip
- Instruction Manual



<https://climalytic.com/tropo>

The next generation 4-inch all-weather professional precipitation gauge that meets the accuracy and specification requirements of CoCoRaHS.

CoCoRaHS Data Dashboard

Customized for your individual station




CoCoRaHS Data Explorer

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[About](#)

[Feedback](#)

Viewing Station: CA-SN-98 : Cazadero 5.6 W  Oct 7, 2012 | Mar 9, 2023 [3,563 Observations](#)

[Station Overview](#) [Climatology](#) [Precip Summary](#) [Year-Over-Year](#) [Precip Calendar](#) [Precip Distribution](#) [Obs Calendar](#) [Data Tables](#)

Precipitation Normals Comparison

NOAA



Month-To-Date



Actual precipitation 2.89"
Normal 8.08"
Departure from Normal $\downarrow -5.19'$: 36% of Normal
9 of 31 days covered by obs

Year-To-Date



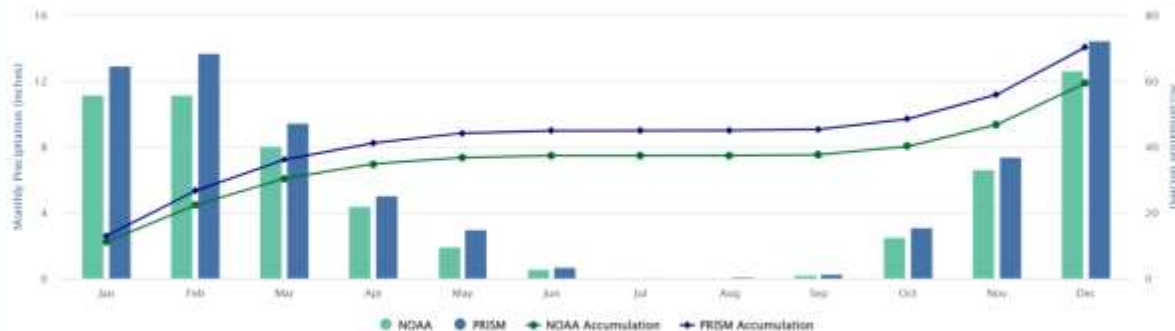
Actual precipitation 31.25"
Normal 30.42"
Departure from Normal $\uparrow 0.79'$: 103% of Normal
68 of 68 days covered by obs

Water Year-To-Date



Actual precipitation 52.56"
Normal 52.22"
Departure from Normal $\uparrow 0.34'$: 101% of Normal
160 of 160 days covered by obs

Monthly Precipitation Normals



Month	NOAA Normals	PRISM Normals	Diff
Jan	11.10	12.96	-1.78
Feb	11.16	13.70	-2.54
Mar	8.08	9.48	-1.40
Apr	4.43	5.04	-0.61
May	1.92	3.01	-1.09
Jun	0.56	0.89	-0.33
Jul	0.03	0.05	-0.02
Aug	0.06	0.09	-0.03
Sep	0.22	0.11	-0.09
Oct	2.52	2.14	-0.62
Nov	6.62	7.42	-0.80
Dec	12.66	14.47	-1.81
	59.44	70.36	-10.92

Beyond 2023





Colorado Observer



That's
0.58", but I
drank some!

THANK YOU

For more information visit: www.cocorahs.org
or contact: henry.reges@colostate.edu