NJ Community Collaborative Rain, Hail and Snow Network

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School of Environmental & Biological Sciences
Rutgers University

November 18, 2009



"Because every drop counts!"

Office of the NJ State Climatologist

Our mission: Monitor Understand Inform



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Current Conditions Current Forecasts Climate Information

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ONJSC

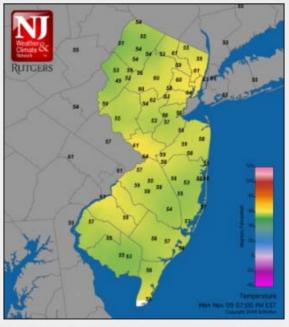
Outreach About ONJSC Research Staff

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Copyright and Data Disclaimer Information

Latest from the NJWxNet



Latest temperatures across NJ appear in the above map. Click on the map or here, the New Jersey Weather and Climate Network for much more information.

Interested in becoming a volunteer weather observer? Click the banner below for more information.



CoCoRaHS Welcomes New Jersey

Frequently Updated Climate Data

Monthly and Annual Statewide (1895-Present)

Monthly Station

Monthly Maps

Winter 2009-2010 Snow Event Totals

Latest News



Snow at higher elevations in Vernon, NJ, October 16, 2009 Photo courtesy of Nick Stefano

Cool, Wet and Briefly White: October 2009 Overview

Dr. David A. Robinson NJ State Climatologist November 5, 2009

Being a transition month, some October days provide lingering summer warmth, while others may bring early reminders of the winter ahead. Stretches of dry weather

http://climate.rutgers.edu/stateclim

What Is CoCoRaHS??

"CoCoRaHS is a grassroots, non-profit, community-based, high-density precipitation network



made up of volunteers of all backgrounds and ages . . .









... who take daily measurements of "just precipitation" right in their own backyards"

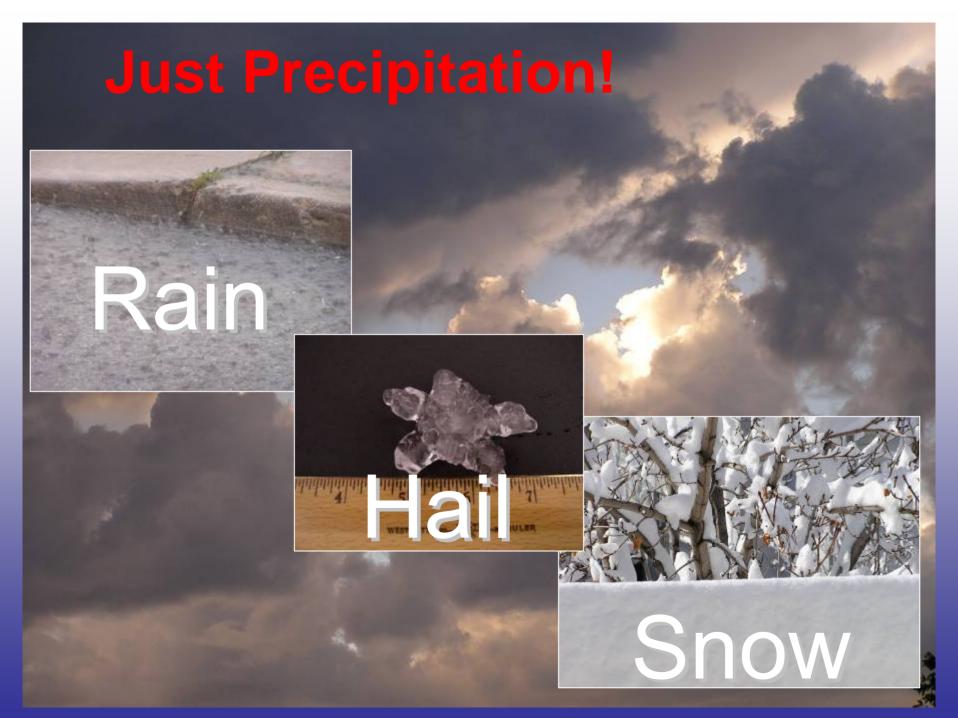








ORalls



Once trained, our volunteers collect data using low-cost measurement tools



Training is important to assure accurate, high quality data



4-inch diameter high-capacity rain gauges



Snow-measuring ruler and snow board



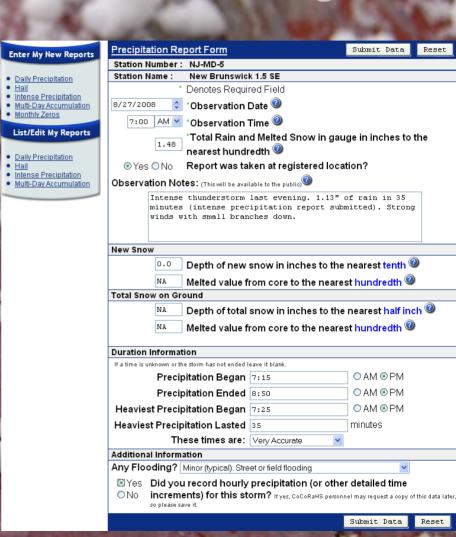
Volunteers report their daily observations on our interactive website: www.cocorahs.org

Things to

Rain

.COM

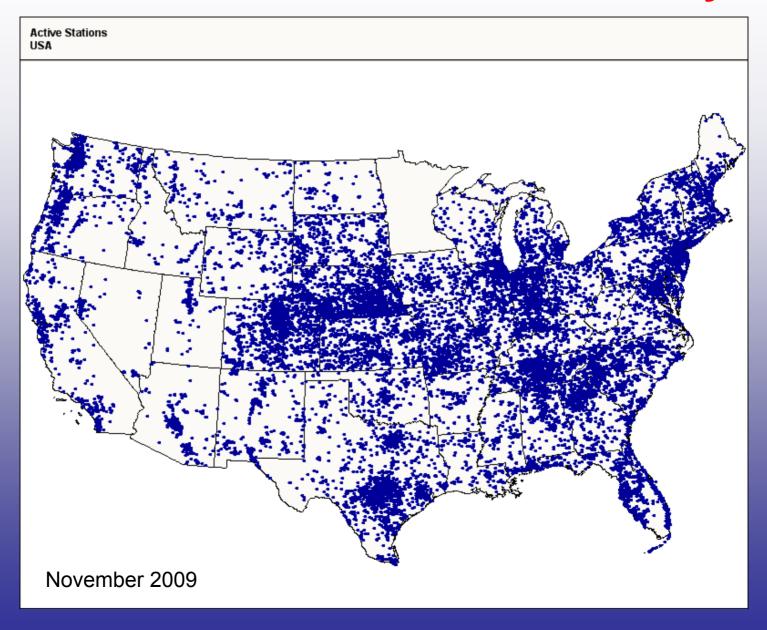




Reset

Reset

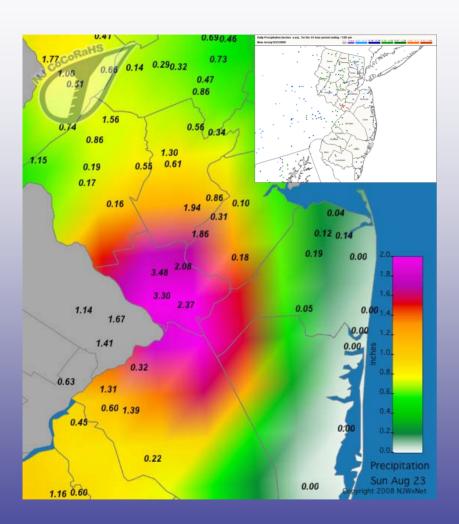
CoCoRaHS around the country



CoCoRaHS's main focus is to provide:



quality precipitation data...



		Station		Total		Total	L		
<u>Date</u>	<u>Time</u>	Number	Station Name				State	County	View
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8/23/2009		NJ-MC-5	Lawrence Twp 1.0 NNW	3.48	NA	NA	NJ	Mercer	۵,
8/23/2009		NJ-MC-9	Lawrence Twp 1.8 SSW	3.45	NA	NA		Mercer	۵,
8/23/2009		NJ-MC-1	Pennington 0.6 ENE	3.36	NA	NA		Mercer	۵,
8/23/2009		NJ-MC-12	Lawrence Twp 3.0 S	3.30	NA	NA	NJ	Mercer	۵,
8/23/2009	7:00 AM	NJ-MC-2	Hamilton Twp 2.3 NE	3.23	NA	NA	NJ	Mercer	<u></u>
8/23/2009	7:00 AM	NJ-MC-15	Lawrence Twp 1.8 SSW	3.19	NA	NA	NJ	Mercer	<u></u>
8/23/2009	7:00 AM	NJ-MC-16	Washington Twp 1.7 WSW	2.52	NA	NA	NJ	Mercer	<u></u>
8/23/2009	6:00 AM	NJ-MC-4	Hamilton Twp 2.2 NE	2.37	NA	NA	NJ	Mercer	٥,
8/23/2009	8:45 AM	NJ-GL-5	Franklin Twp 4.4 SE	2.10	NA	NA	NJ	Gloucester	<u></u>
8/23/2009	8:00 AM	NJ-MC-3	Princeton Twp 2.2 SSE	2.08	NA	NA	NJ	Mercer	۵,
8/23/2009	7:00 AM	NJ-SS-18	Wantage Twp 2.9 WNW	2.04	NA	NA	NJ	Sussex	<u></u>
8/23/2009	7:00 AM	NJ-SM-1	Hillsborough Twp 4.7 ESE	1.94	NA	NA	NJ	Somerset	<u></u>
8/23/2009	8:00 AM	NJ-MD-9	South Brunswick Twp 3.1 NW	1.86	NA	NA	NJ	Middlesex	<u></u>
8/23/2009	6:30 AM	NJ-WR-18	Knowlton Twp 3.2 SSE	1.77	NA	NA	NJ	Warren	۵,
8/23/2009	8:00 AM	NJ-SM-13	Somerville 0.2 ENE	1.73	NA	NA	NJ	Somerset	<u></u>
8/23/2009	7:00 AM	NJ-MC-11	Ewing Twp 1.6 SE	1.65	NA	NA	NJ	Mercer	٥,
8/23/2009	8:00 AM	NJ-HN-1	Califon 0.6 NW	1.56	NA	NA	NJ	Hunterdon	<u></u>
8/23/2009	6:30 AM	NJ-BG-3	Tenafly 1.3 W	1.48	NA	NA	NJ	Bergen	<u></u>
8/23/2009	6:00 AM	NJ-WR-16	Knowlton Twp 5.2 SSE	1.43	NA	NA	NJ	Warren	<u></u>
8/23/2009	7:00 AM	NJ-UN-7	Westfield 1.0 NE	1.41	NA	NA	NJ	Union	<u></u>
8/23/2009	7:00 AM	NJ-BT-4	Mount Laurel Twp 2.5 ENE	1.39	NA	NA	NJ	Burlington	<u></u>
8/23/2009	7:00 AM	NJ-CD-2	Vineland 3.5 NW	1.31	NA	NA	NJ	Cumberland	۵,
8/23/2009	8:00 AM	NJ-BT-9	Delran Twp 1.1 ENE	1.31	NA	NA	NJ	Burlington	<u></u>
8/23/2009	7:00 AM	NJ-SM-5	Bridgewater Twp 3.3 NW	1.30	NA	NA	NJ	Somerset	<u></u>
8/23/2009	7:00 AM	NJ-GL-6	Franklin Twp 2.7 W	1.29	NA	NA	NJ	Gloucester	<u></u>
8/23/2009	8:00 AM	NJ-WR-10	Hackettstown 2.8 WNW	1.29	NA	NA	NJ	Warren	0
8/23/2009	8:00 AM	NJ-CD-3	Bridgeton 1.5 NNW	1.24	NA	NA	NJ	Cumberland	<u></u>
8/23/2009	7:00 AM	NJ-SS-20	Wantage Twp 1.5 SE	1.22	NA	NA	NJ	Sussex	۵,
8/23/2009	6:00 AM	NJ-GL-4	Mantua Twp 1.5 E	1.16	NA	NA	NJ	Gloucester	۵,
8/23/2009	6:00 AM	NJ-HN-12	Holland Twp 2.6 NNE	1.15	NA	NA	NJ	Hunterdon	۵,
8/23/2009	7:10 AM	NJ-CD-1	Bridgeton 3.3 N	1.06	NA	NA	NJ	Cumberland	۵,
8/23/2009	6:00 AM	NJ-SM-11	Bedminster Twp 2.9 ESE	1.02	NA	NA	NJ	Somerset	۵,

Daily precipitation maps: Rainfall, Hail and Snowfall Daily data in tabular form

. . as well as educational opportunities







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Rain

- Weather Radar
- Measuring Rain



\Lambda Hail

- Overview
- Hail Facts
- Hail Figures
- CoCoRaHS & Hail
- Hail Pad Examples
- Measuring Hail



- Overview
- Measuring Snow



My Data Entry: View Daily Precipitation Report

The Colonia III

March Collabet For

CONTROL OF THE PARTY.

The Databal B Kee Green

Don't longet to remove the funnel and inner tobe from your nam gauge if freezing weather is expected.

We realize that many of you have had to reenter your login information to get into our system recently. Appearently the server configuration changed which assed a change in our cookies, which caused your saved login information to be lost. We apologide for the inconvenience and would like to thank procyone for the bationce.

Now would be a good time to print out and save your login information in case. this ever happens again. You can always have your user name and password sent to your e-mail address by clicking on the "Find your local into" link on the

(ii) Confirmation

. The Daily Precipitation Report was saved.

tation Number: CO-LR-610 Station Name: Fort Coding 2.6 SM Observation Date 1/27/2006 7:30 AM Submitted 1/27/2006 9:43 AM



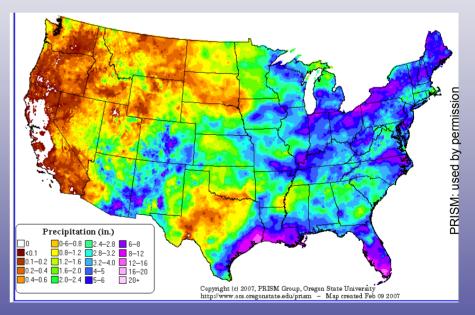
"Helping to provide the public with a better understanding of weather"

Why CoCoRaHS??





1) Precipitation is important and highly variable



2) Data sources are few and rain gauges are far apart



5) Storm reports can save lives





Precipitation is very important

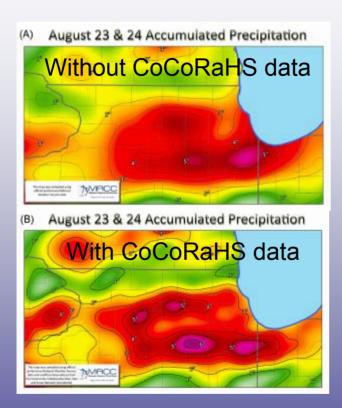




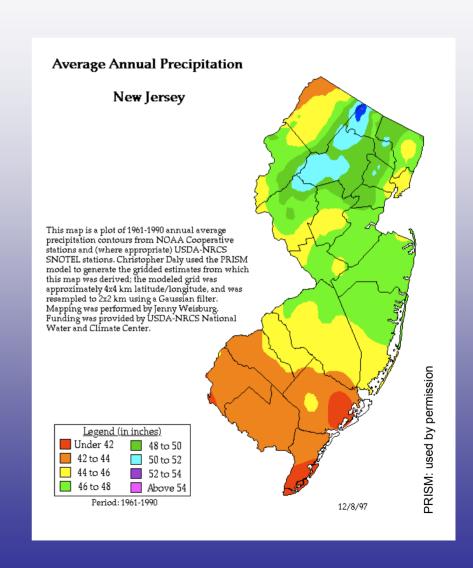




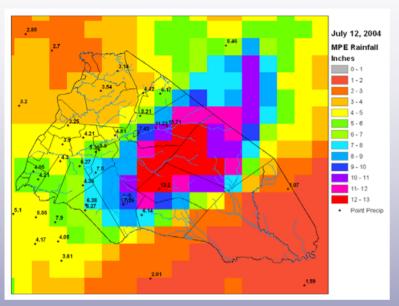
Data sources are few in some places and rain gauges can even be far apart in New Jersey



With more observers it's like taking a photo with more pixels . . . the end result is a much clearer picture



Monitoring our precious water resources!







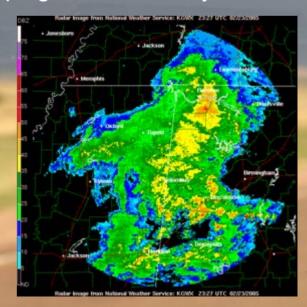
Spruce Run Reservoir, March 2002

CoCoRaHS data are used by many

- National Weather Service
- Other Meteorologists
- Hydrologists
- Emergency Managers
- City Utilities
 - -Water supply
 - -Water conservation
 - -Storm water
- Insurance adjusters
- USDA—Crop production
- Engineers
- Scientists studying storms
- Mosquito control
- Farm Service Agency
- Ranchers and Farmers
- Outdoor & Recreation

- Teachers and Students
 - Geoscience education tool
 - Taking measurements
 - Analyzing data
 - Organizing results
 - Conducting research
 - Helping the community





Who Sponsors CoCoRaHS?

New Jersey Agricultural Experiment Station (Rutgers Univ.)

The National Oceanic and Atmospheric Administration

Colorado State University and other universities

USDA, BLM, Cooperative Extension

US Bureau of Reclamation

National Weather Service Local Offices

Individual Contributors

As well as many others

SECTION ONE: Observer Information

In this section we will:

a) Explain what we will need from you before you become an observer

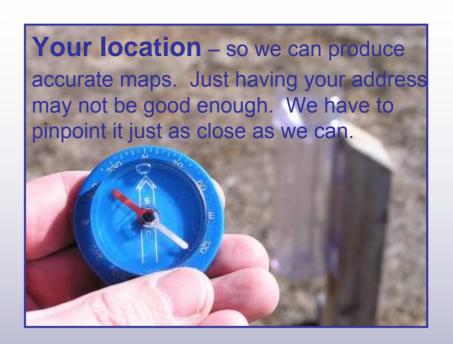


a) What <u>we will need from you</u> before you can participate as an observer:





A completed application form (on-line or paper)





Your commitment to collect accurate scientific data

Your willingness to receive CoCoRaHS e-mails

(spam blocking off)



nicocorahs@climate.rutgers.edu info@cocorahs.org cocorahsqc@msn.com nolan@atmos.colostate.edu

b) What <u>you will need</u> before you can participate as an observer







A sincere desire to help study and learn about storms



A unique station number and name

(we will assign you one)









A CoCoRaHS "4-inch" rain gauge installed in a good location

#5

A username and password to enter data



Computer with an internet connection



The ability to gather accurate data and transmit it in a timely fashion

Snow Me.

SECTION TWO:

Setting Up Equipment and Observing Precipitation

In this section we will:





c) Introduce snow measuring tools and what gets reported

I have an automated weather station with a rain gauge. Can I use that instead of the CoCoRaHS gauge?

Answer: In order to accurately compare CoCoRaHS reports, all observers <u>must</u> use the 4 inch CoCoRaHS gauge. Automated rain gauges tend to underestimate a heavy rainfall and do not accurately measure water equivalent of snow. You are welcome to place the automated gauge beside the 4 inch gauge to compare measurements, <u>but report what falls in the 4 inch gauge</u>





a) Placement of your rain gauge



Location! Location!





Places <u>not</u> to place your gauge

Under trees or any structure

Although convenient, the deck is still too close to the house





The #1 all time worst place to put your rain gauge is to leave it in the box!

Level and Bevel

Make sure your gauge is level and place the gauge top approx. 5 feet off the ground





Bevel the top of the post to reduce rain splashing into the gauge

b) Measuring Rainfall



& Snow Network

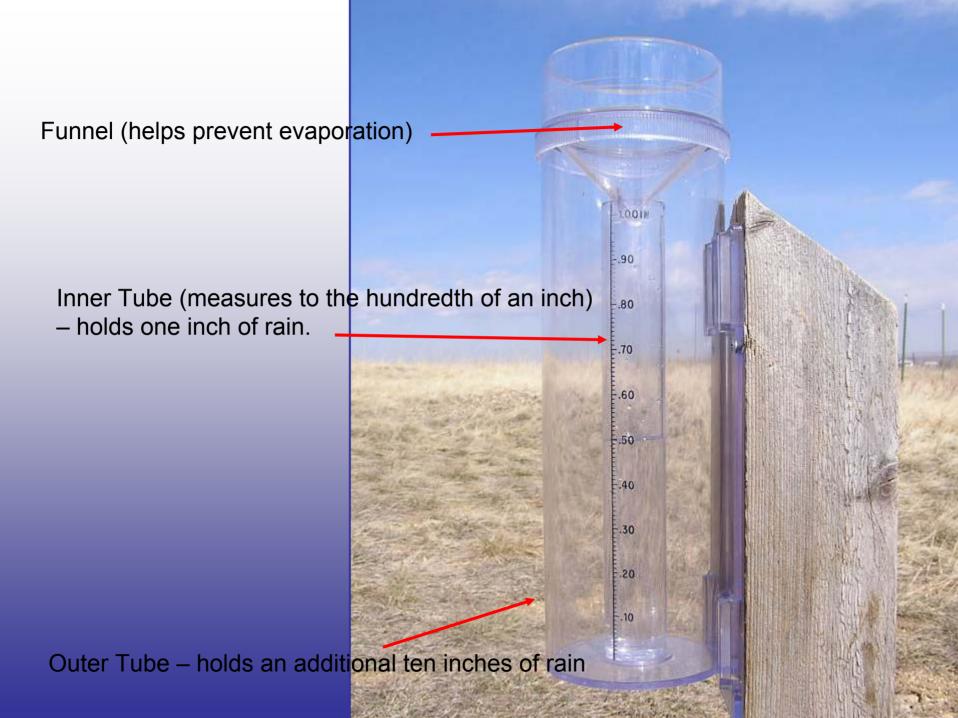
When should we read our gauges?



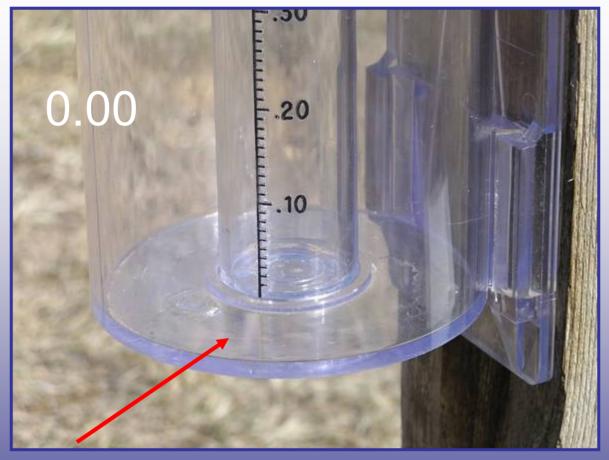
Reading your rain gauge

 Reading the rain gauge is easy but accuracy & consistency are important





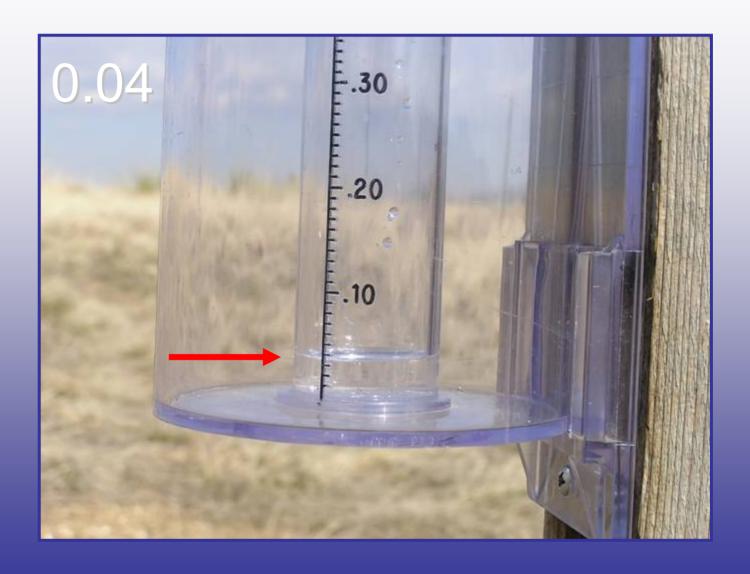
Your most common observation



... will be <u>zero</u>, (0.00), nada, nothing, zilch! Anything less than 0.01" is recorded as a "T" for Trace

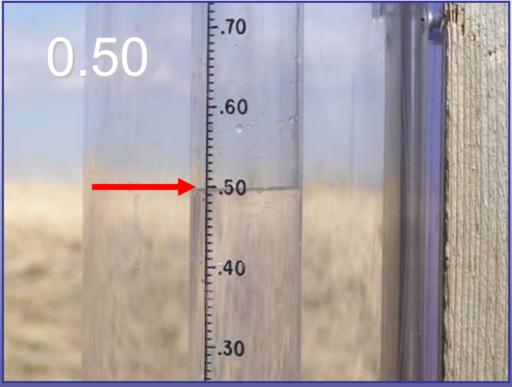
It is important to know that it did NOT rain. Please report zeros!

Between "T" and "one tenth" of an inch



A nice soaking rain





Water! Water! Everywhere!





When more than an inch of rain falls the precipitation will overflow into the outer cylinder. The whole gauge has a capacity to hold 11 inches.

To measure greater than one inch...





Pour out the first inch from the inner tube and write it down.

Now pour the remaining water into the funnel & measure using the inner tube.



Continue until all of the water has been measured.

Make sure you keep track of your amounts along the way.



c) Tools for measuring Snow

- Snowfall measurement is typically more difficult than rainfall
- Snowfall measurement takes a little more time

Accurate and timely snowfall measurements can be <u>extremely</u> important to the local National Weather Service office, public works departments, media outlets, climatologists, and other scientists

Tools of the Trade

- Precipitation Gauge
- Snow board
 - A 24"x16"piece of ½ or ¾"plywood painted white
- Yardstick or snow stick

Four Snow Measurements

- 1. The depth of new snow
- 2. Liquid water equivalent of new snow
- 3. The total depth of new snow <u>and</u> old snow and ice at observation time
- 4. Snow Water Equivalent (SWE) of total snow on the ground (optional)

SECTION THREE: Reporting Observations

In this section we will introduce you to the website and show you how to record your observations



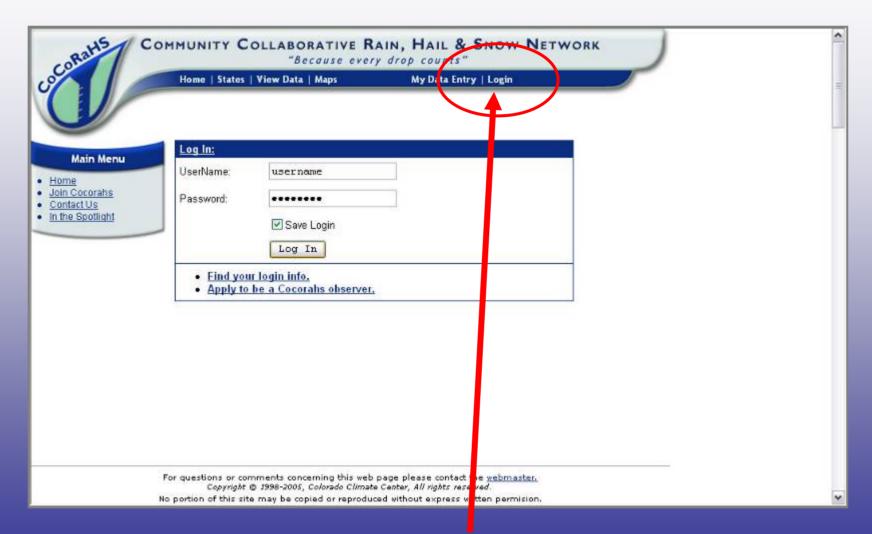
The CoCoRaHS Website

www.cocorahs.org



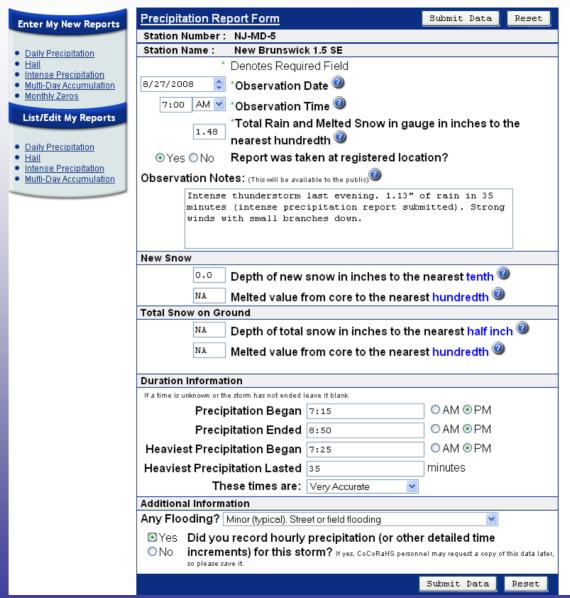
Our website is informative and easy to use. Here's how to begin →

Log in to CoCoRaHS

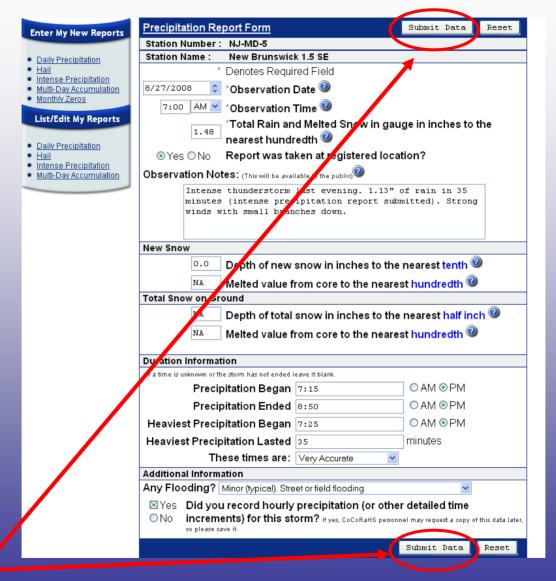


First, click to log in

Recording your Daily Precipitation

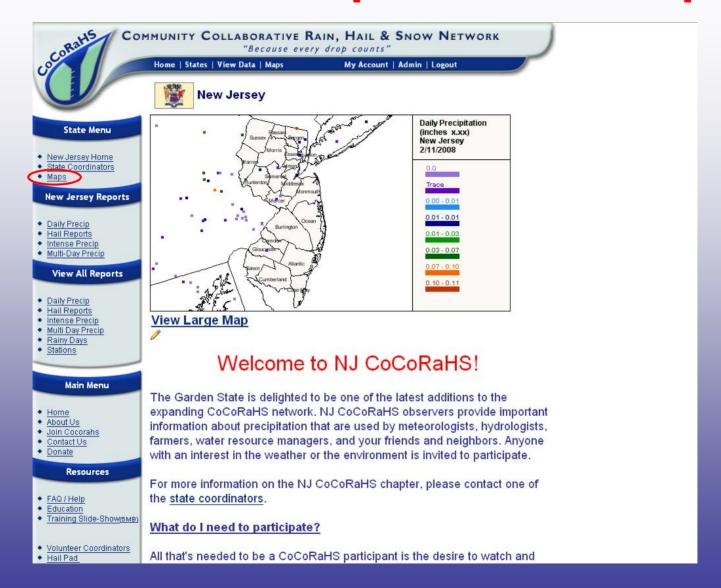


Submit your Report



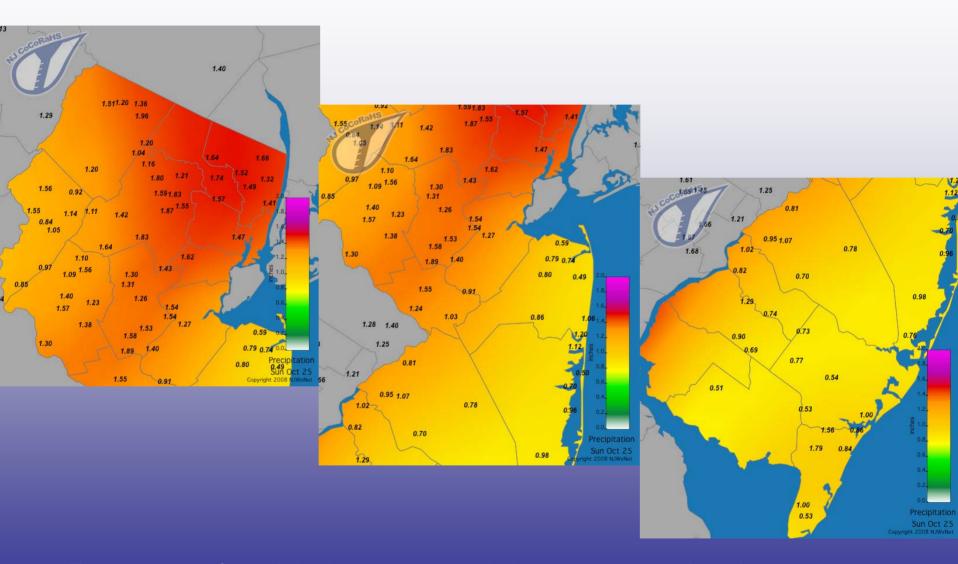
Click "Submit" and your data is recorded on our site

To See Your Report on the Map



Go to your state page and then click the "maps" link

Your Report on our Daily Map



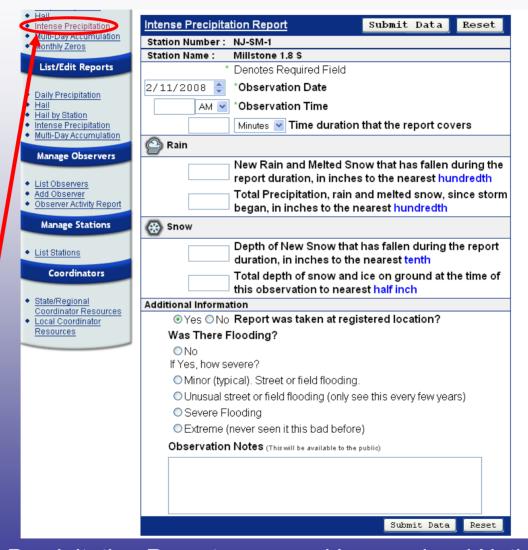
The amount of precipitation you entered shows up at your location on the map

Hail Report

Home States View	w Data Maps	My Dat	a My Account Ad
My Data Entry	: Hail Report F	orm	
Hail Report For	<u>m</u>		Submit Data
Station: NJ-MD	-5 : New Brunswick 1	1.5 SE ▼	
*	Denotes Require	ed Field	
11/4/2009	*Date of Hail S	torm 🗿	
PM ▼	Time Hail Storr	n Began 🔞	
	Report was tak		
Size of hailstone	•		
Smallest:	Not Selected	*	
Average:	Not Selected	•	
Largest:	Not Selected		
Hail Lasted			
Minutes	This time is acc	urate within	Select Accuracy 🔻
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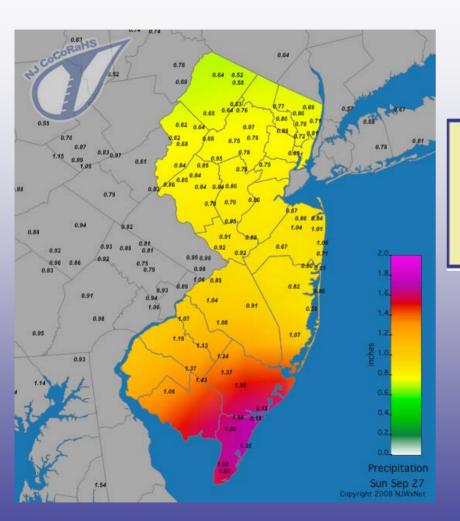
Hail Reports are immediately relayed to your local National Weather Service office for use in issuing severe weather warnings

Intense Precipitation Report



Intense Precipitation Reports are used by your local National Weather Service office to warn of flooding situations

Become a CoCoRaHS observer!





CoCoRaHS Welcomes New Jersey

register at: http://cocorahs.org



