CoCoRaHS Condition Monitoring

CISA
A NOAA RISA TEAM
NIDIS
RISA
Regional Integrated Sciences and Assessments
CoCoRaHS

CISA – Carolinas Integrated Sciences & Assessments

- CISA works with a variety of stakeholders across North and South Carolina to incorporate climate information into water, public health, and coastal management and related decision-making processes.
- Efforts include working to improve drought planning and preparedness, supporting coastal climate adaptation, and assessing climate-related impacts to public health in the region.

Today's Presentations

Photo credit: CoCoRaHS

- **Introduction to CoCoRaHS**
- Condition Monitoring
- Submitting Your Reports
- Suggested Observation Guidelines

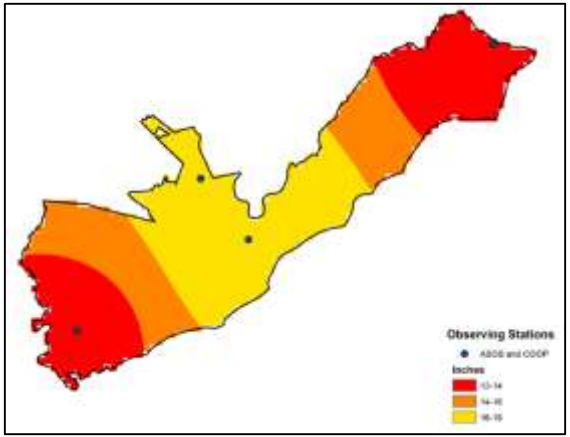
What is CoCoRaHS

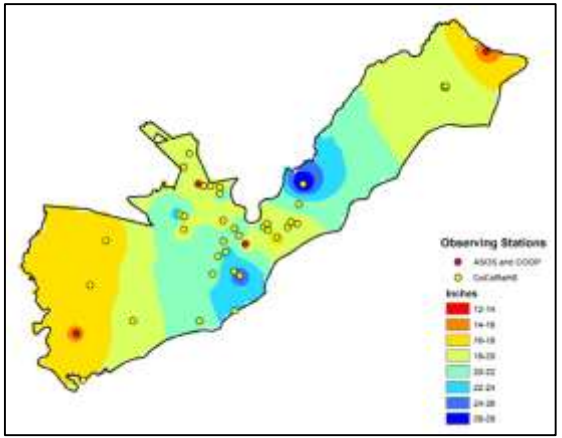
The Community Collaborative Rain, Hail and Snow Network

- Community-based network of volunteers working together to monitor weather and climate.
- Nation-wide, citizen scientist in all 50 states
- Founded at the Colorado Climate Center at Colorado State University in 1998

What is Citizen Science?

- Citizen science is local people helping to do scientific research
- Utilize local knowledge to improve the process of scientific reasearch





October 2015 Heavy Rainfall and Flooding Event:
Charleston County, SC rainfall totals are pictured without (left) and with CoCoRaHS station measurements. The additional data provided by CoCoRaHS observers gives us a much better picture of where the heaviest rainfall fell.
Source: SC State Climate Office

Who uses CoCoRaHS data?

- CoCoRaHS is used by a wide variety of oranizations and individuals

- National Weather Service, National Drought Monitor, State Climate Offices, USDA

- Meterologist, hydrologist, emergency managers, city utilities, engineers, farmers, teachers, students, etc.

Who can participate?

- This is a community citizen science project. Anyone can contribute!

- Anyone with an enthusiasm for watching and reporting weather conditions

- Anyone with a desire to learn more about how weather can effect and impact our lives

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Weekly Condition Monitoring

To understand the impacts of drought on plants, animals, and people, it is very helpful to monitor conditions regularly, whether the weather is wet or dry. This allows us to see how a drought year differs from a normal year, and we learn how different plants and animals respond to the onset, intensification, and recovery of drought.

Regular condition monitoring can also help identify expected seasonal changes versus changes caused by unseasonally wet or dry conditions.

This type of monitoring can also help to identify long-term or cumulative effects of drought.

Weekly Condition Monitoring

Observer responsibilities

- Enter your daily precipitation measurements on the CoCoRaHS website
- Note how precipitation affects conditions in your area
- Summarize and submit observations on a weekly basis using the online CoCoRaHS Condition Monitoring report form

Weekly Condition Monitoring

Benefits of volunteering

- Your consistent reporting contibutes to a more complete scientific understanding of weather and climate in your area
- Improve your personal understanding of weather and climate
- Participate in an enthusiatic network of like-minded citizen scientists

Weekly Condition Monitoring

Observe → **Report**

Photo credits: CoCoRaHS, Pat Momich, Melinda Ball

Weekly Condition Monitoring

Connecting weather and climate with the environment

- Your knowledge about the local environment and how weather influences it can reveal much more than can be learned from recording daily rainfall alone.

- **Please report *no change* in conditions as well. This is a valid data point just like reporting zeros on days with no precipitation.**

Sample Condition Monitoring Reports

Wake County, NC, September 2, 2016 –
While we have had a LOT of rain this year, the last month was NOT – was actually quite hot and dry. The grass in the yard is dry, yellowed, and brittle; the plants are drooping; and some tree leaves are already falling (that might just be semi-typical, not sure). Folks who irrigate yards have been doing so. Ironic that when the rest of the country was in drought, we were drowning in rain, and now other parts of the country are flooded and we have dried out. We did get a fifth-inch of rain last night, and Hurricane Hermine is coming in, expected to dump several inches in a few hours this p.m.

DRY CONDITIONS

WET CONDITIONS

Richland County, SC, October 31, 2015 –
Our station had 19.38" in October, almost 16" of which fell in the first six days. We've had 1.55" during the last five days of the month. Our neighborhood has plenty of springs, but they only appear when it's really wet. The neighborhood has "bled" all month, although only the most persistent springs are still active. We have on French drain that turns when it's really wet and it's still going strong, but it's drawing water from a foot or more under the surface.

Beaufort County, SC, September 5, 2016 –
Finally, T.S. Hermine gave us some much needed rain! 4.84" and we also received another .75" on top of that! All of the vegetation is loving it, but our lagoon levels are still down. July and August saw over a 7" deficit for 2 months. We still need more rain. The rest of this week appears dry with temps in the low 90's and not as much humidity. Evapotranspiration will be high.

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Each Day: Submit a CoCoRaHS Precipitation Report

My Data Entry : Daily Precipitation Report Form

Precipitation Report Form — Submit Data — Reset

Station Number : SC-RC-51

Station Name : Columbia 6.6 SE

* Denotes Required Field

10/4/2016 *Observation Date

7:00 AM *Observation Time

0.00 in. *Rain and Melted Snow to the nearest hundredth inch that has fallen in the gauge during the past 24 hours, or T for trace, or NA for unknown.

Observation Notes: (This will be available to the public)

New Snowfall

NA in. Accumulation of new snow in inches to the nearest tenth

NA in. Melted value from core to the nearest hundredth

Total Snow and Ice on Ground at Observation Time

NA in. Depth of total snow and ice (new and old) in inches to the nearest half inch

NA in. Melted value from core to the nearest hundredth

Duration Information

If a time is unknown or the storm has not ended leave it blank.

Precipitation Began ○AM ○PM

Precipitation Ended ○AM ○PM

Heaviest Precipitation Began ○AM ○PM

Heaviest Precipitation Lasted minutes

These times are: Select Time Accuracy

Additional Information

Any Flooding? Select a Flooding Value

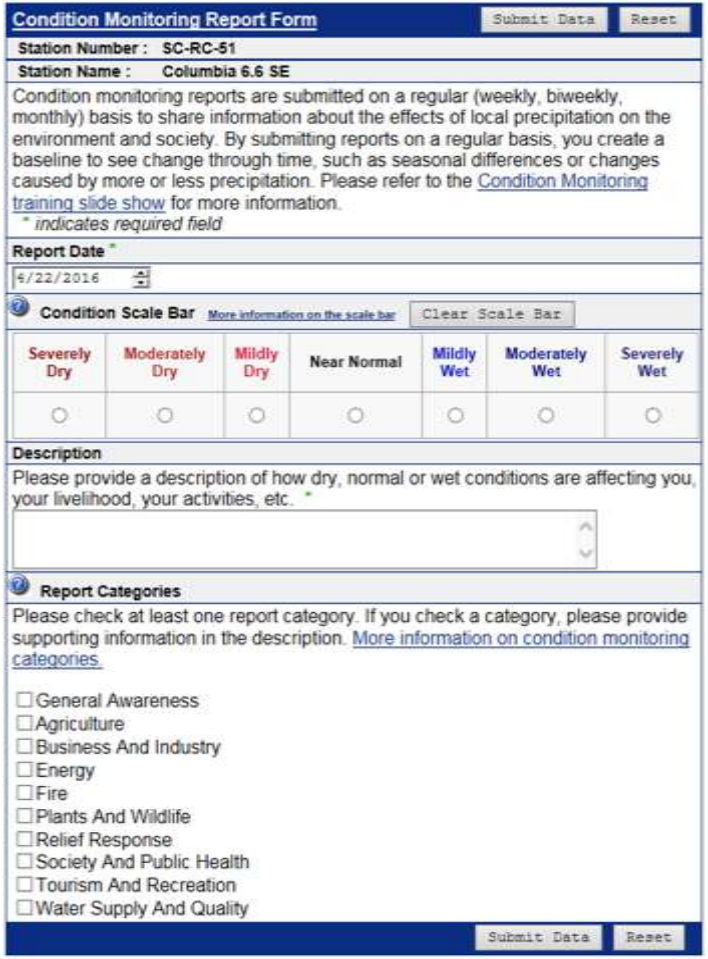
○Yes ○No Did you record hourly precipitation (or other detailed time increments) for this storm? If yes, CoCoRaHS personnel may request a copy of this data later, so please save it.

Submit Data — Reset

1. Enter “Observation Date”
2. Enter “Observation Time”
3. Enter the amount of rain or snow you measured in your rain gauge
4. Enter any additional observation notes about the rain or snow you received

Feel free to include the additional data points such as when the rainfall began and ended as you are able or would like.

Once a Week: Submit a CoCoRaHS Condition Monitoring Report



Condition Monitoring Report Form Submit Data Reset

Station Number : SC-RC-51

Station Name : Columbia 6.6 SE

Condition monitoring reports are submitted on a regular (weekly, biweekly, monthly) basis to share information about the effects of local precipitation on the environment and society. By submitting reports on a regular basis, you create a baseline to see change through time, such as seasonal differences or changes caused by more or less precipitation. Please refer to the Condition Monitoring training slide show for more information.

* *indicates required field*

Report Date *

4/22/2016

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
○	○	○	○	○	○	○

Description

Please provide a description of how dry, normal or wet conditions are affecting you, your livelihood, your activities, etc. *

Report Categories

Please check at least one report category. If you check a category, please provide supporting information in the description. More information on condition monitoring categories

- ☐ General Awareness
- ☐ Agriculture
- ☐ Business And Industry
- ☐ Energy
- ☐ Fire
- ☐ Plants And Wildlife
- ☐ Relief Response
- ☐ Society And Public Health
- ☐ Tourism And Recreation
- ☐ Water Supply And Quality

Submit Data Reset

1. Enter "Report Date"
2. Select from Condition Monitoring Scale Bar
3. Write Condition Monitoring Report
4. Review Impact Categories

1. Condition Monitoring Observation Date

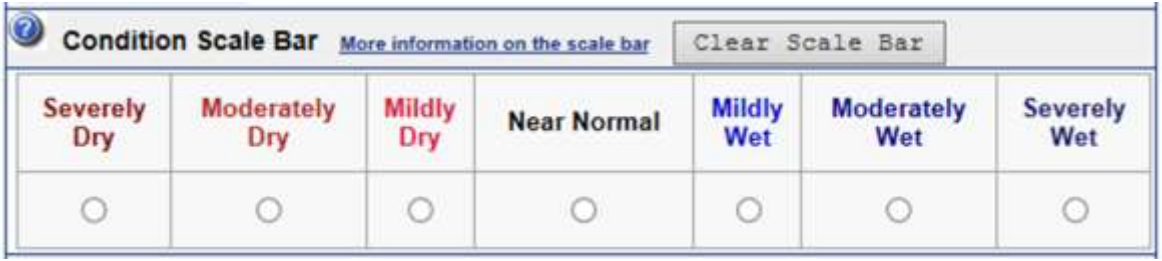
1. Enter "Report Date"
2. Select from Condition Monitoring Scale Bar
3. Write Condition Monitoring Report
4. Review Impact Categories

- Enter the date when you are submitting your report in the "Observation Date" field

2. The Condition Monitoring Scale Bar

1. Enter "Report Date"
2. Select from Condition Monitoring Scale Bar
3. Write Condition Monitoring Report
4. Review Impact Categories

- The condition scale bar will be used to provide a standardized form of condition reporting. You can select from one of the 7 categories representing a range of dry, wet, or normal conditions.
- There is a link to additional guidance to help you select from the different categories.



3. Description of Conditions

1. Enter "Report Date"
2. Select from Condition Monitoring Scale Bar
3. Write Condition Monitoring Report
4. Review Impact Categories

- Type a brief description of the conditions you have observed in the comment box.

Description

Please provide a description of how dry, normal or wet conditions are affecting you, your livelihood, your activities, etc. *

4. Impact Categories

1. Enter "Report Date"
2. Select from Condition Monitoring Scale Bar
3. Write Condition Monitoring Report
4. Review Impact Categories

- Select the impact categories that correspond to the information you provided in your description of conditions
- Check out the link for "more information on condition monitoring categories" for ideas on different things you might observe.

Report Categories

Please check at least one report category. If you check a category, please provide supporting information in the description. More information on condition monitoring categories.

- ☐ General Awareness
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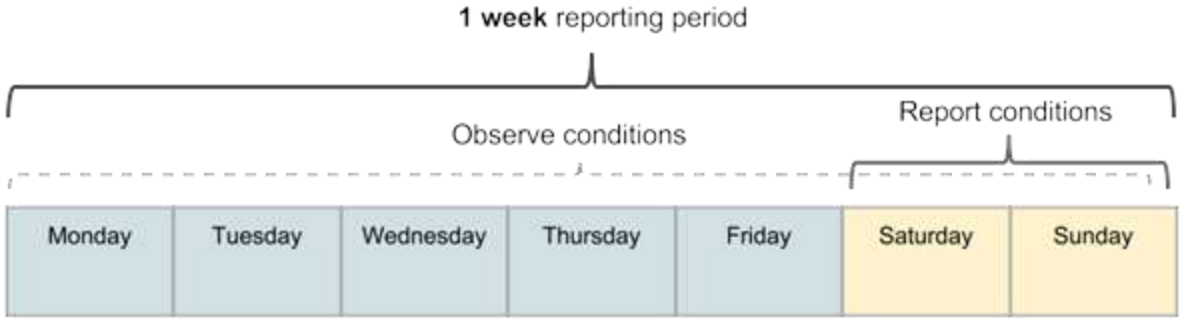
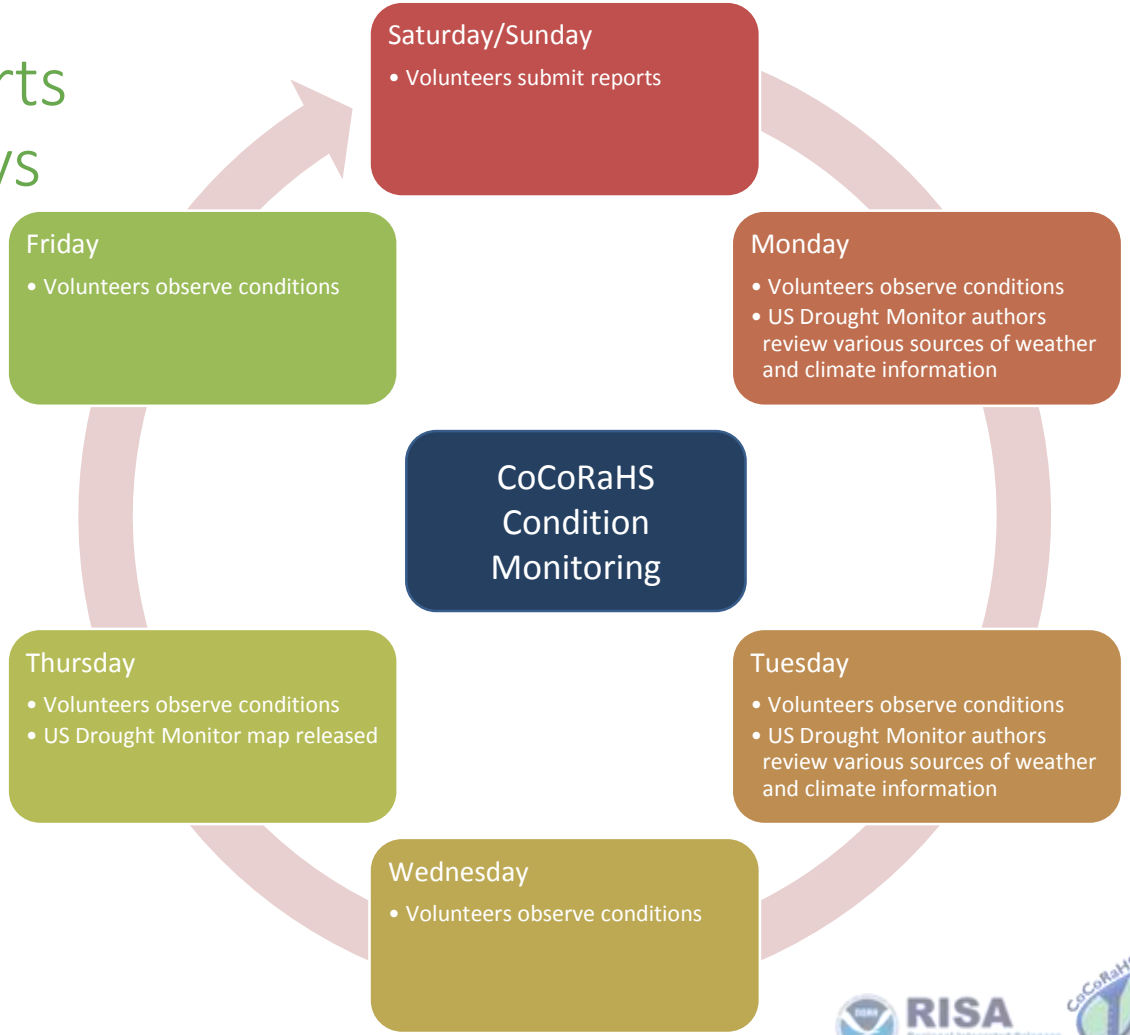
Request to submit reports on Saturdays or Sundays

- To improve reporting consistency we ask that you report conditions for a one week reporting period. We also ask that you submit reports on either Saturday or Sunday.



Request to submit reports on Saturdays or Sundays

- This will ensure that up-to-date information is available to US Drought Monitor authors, who review the information at the beginning of week in order to publish the Drought Monitor map on Thursdays. Having all observers submit condition monitoring reports on a weekly basis will also make condition reports more reliable and timely, thus more useful in scientific research.



Observation Guidance

- ☐ General Awareness
- ☐ Agriculture
- ☐ Business And Industry
- ☐ Energy
- ☐ Fire
- ☐ Plants And Wildlife
- ☐ Relief Response
- ☐ Society And Public Health
- ☐ Tourism And Recreation
- ☐ Water Supply And Quality

When writing reports you can use the report categories as a guide:

Were there Agricultural impacts this week?

Was Business And Industry affected?

Did you notice any Public Health impacts?

Was there Fire?

Observation Guidance

If possible, consistently report from specific locations:

- Report on specific bodies of water
- Report on specific plant life
- Report on specific businesses

Note the differences between your last report and the current conditions.

Photo credit: Chris Lumpp

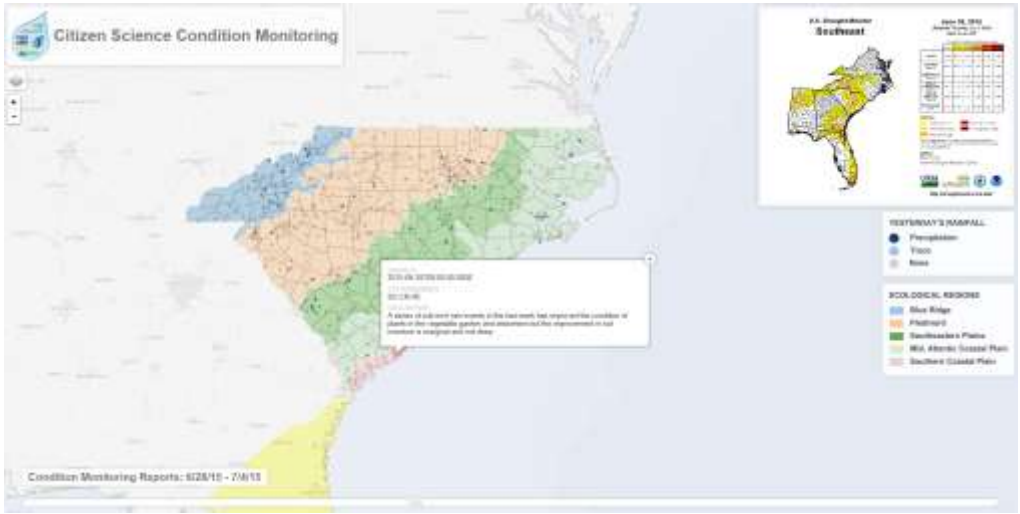
More Sample Reports

Madison County, NC – March 8, 2015 This has been a week of extremes – from a high of 73° to a low of 18° with a covering of snow and ice. The good news is that ***definite signs of spring*** are finally appearing. Song sparrows are starting to sing. Crocuses are blooming. And, best of all, ***wood frogs have returned to our pond and laid eggs.*** This is late. According to my records over 10 years, the average date for wood frogs coming to the pond is February 18.

Buncombe County, NC – November 30, 2015 We continue in the all or nothing weather pattern. 6" rain, a week of unseasonably warm and dry, 2" 15 days warm and dry and a quick 2 day cool down, and now 2+ precip again. ***In between the rain it has been alarming how quickly the streams and creeks go back to below normal levels***. Birds are emptying the feeders quickly, and I am still seeing snakes, groundhogs and one bear sighting. We ate our thanksgiving dinner on the porch. sunsets and sunrises have been spectacular. ***Tourists*** are enjoying the warm dry spells for hiking and shopping. ***Farmers*** are shaking their heads! ***Most everyone has a sniffle*** - seasonal whiplash

Condition Monitoring Web Map

- Available for NC and SC reports as part of a pilot testing program
- Users can view an observer's report content by clicking on a station location
- Many map layers available – National Weather Service forecast offices, US Climate division, counties, watersheds, US Drought Monitor map
- Temporal analysis – The time slider allows you to see change over time
- Available at www.cisa.sc.edu/map.



Cuckoo for CoCoRaHS

Regional CoCoRaHS Blog:

- Stay up to date with current events and news
- Find the quarterly newsletter
- See what other observers are reporting

http://carolinascocorahs.blogspot.com/

How Your Observations Are Used

- The CISA research team will provide information to the agencies and organizations who already utilize your precipitation measurements about condition monitoring reports so they are able to utilize them over the course of your 1-year project commitment.

- We will share feedback we receive from these decision makers with you to let you know how your information is used and any suggestions these groups might have to improve the process.

- We welcome your comments and suggestions as well! cisa@sc.edu

Interested in participating?

- First,
  - Sign up to be a CoCoRaHS Observer! www.cocorahs.org
  - Don't forget to order your OFFICIAL CoCoRaHS rain gauge (about $30)
  - Check out the CoCoRaHS Training Slideshows to learn about where to set up your gauge, how to enter your daily precipitation measurements, how to report your precipitation measurements if you are out of town for a few days, and many other helpful hints.

- Complete the Volunteer Information Form – find this form at www.cisa.sc.edu/CoCoRaHS.html.
  - E-mail your completed form to afarris@sc.edu
  - OR mail it to:

    CISA c/o USC Geography Department 709 Bull Street Columbia, SC 29201

- The CISA research team will correspond with you via e-mail to share the monthly newsletter, project news, and information about quarterly observer conference calls.

- Complete 3 online volunteers feedback surveys over the course of the 1-year project commitment period.

Questions & Discussion

Thank you for funding, support, and participation from

- CoCoRaHS
- National Drought Mitigation Center
- National Integrated Drought Information System
- Regional Integrated Sciences & Assessments

And an especially big thanks to all CoCoRaHS citizen scientists!