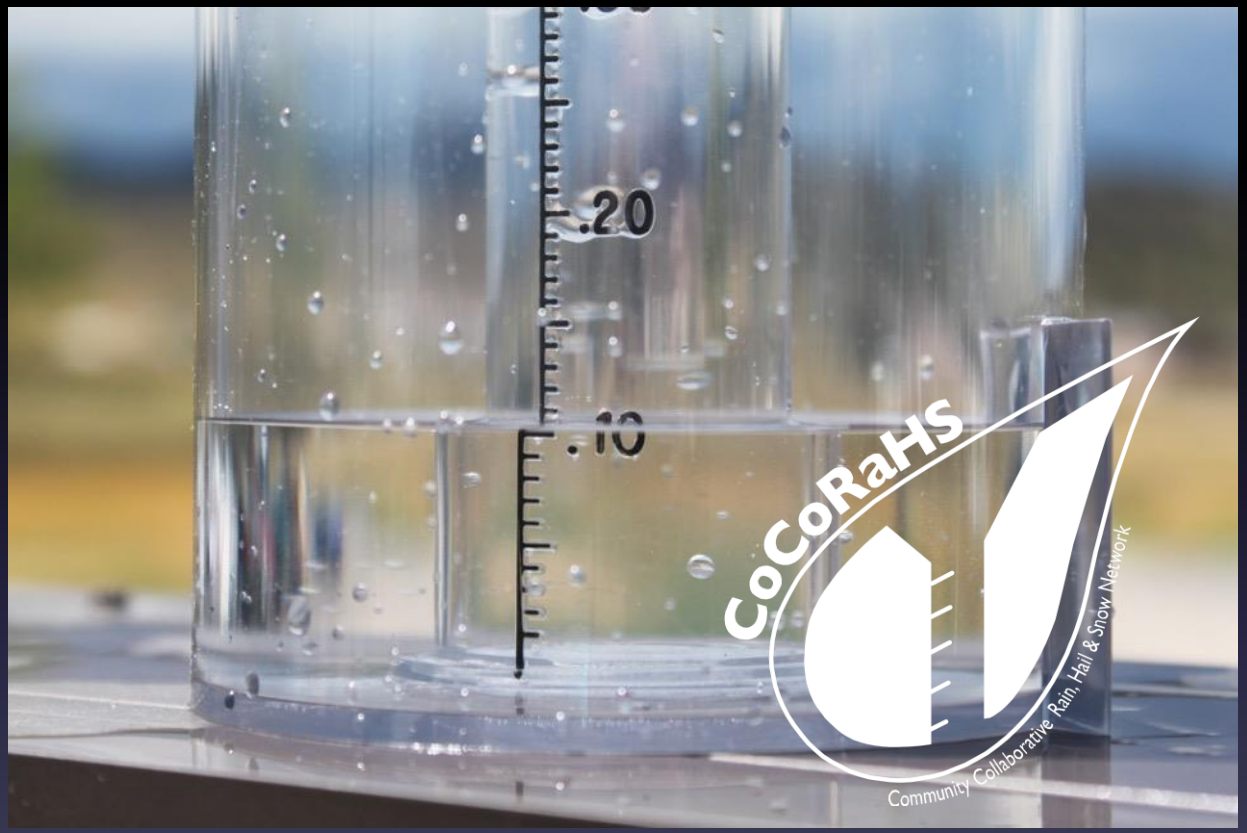
COCORAHS – CONSIDERATIONS FOR A SUCCESSFUL VOLUNTEER NETWORK



Use of Volunteer Networks to Address Information Gaps
Mexico City, Mexico
25 September 2019

Henry Reges
CoCoRaHS
Colorado State Univ.
Fort Collins, Colorado

Volunteer

"a person who performs a service willingly and without pay."

- Webster's Dictionary

What makes a good volunteer observing network?

Several Ingredients

Creating, maintaining and coordinating a volunteer network in a succinct manner will go a long way to sustaining it over the long run.

A strong volunteer observing network can complement existing observing systems or provide important data in the absence of one.

There are several key ingredients that can make the network successful and provide a cost efficient way to generate meteorological observations.

Strong Partnerships

Identify partners that are interested in the data and can apply it locally. **Engage Local leaders**.

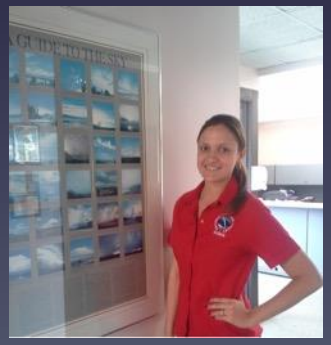
Ideal partnerships with a Met Service might include:

- Local municipalities and rural water management
- Agricultural interests
- Emergency Managers
- Universities and local schools
- Forest Services / land management
- Hostels or resorts in remote areas
- Others

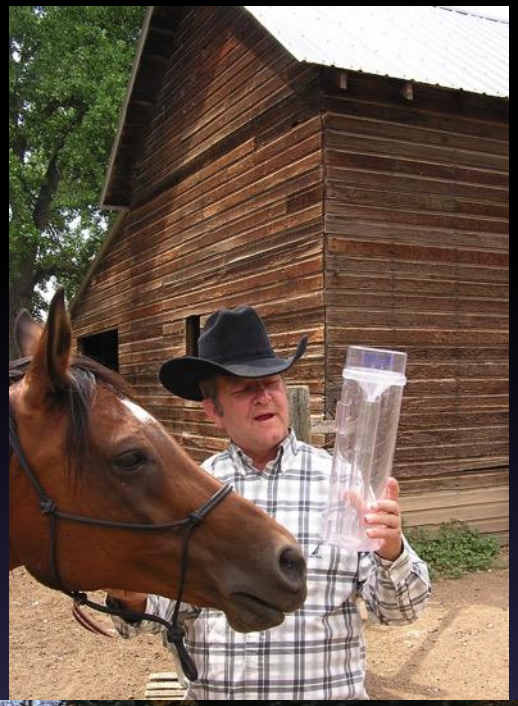
+ Reliable Local Coordinators

Recruiting coordinators from amongst these partnerships is a good way to build the network. By breaking down the coordinating tasks by regions and communities you can leverage the knowledge of local contacts.

They will know where to recruit observers from, where observations are needed, as well as possibly having a helpful knowledge of local weather patterns.



+ Enthusiastic Observers



+ a system to manage the data

Having a robust computer infrastructure is very important to handle the incoming information, combined with an easy to use website where data can be displayed and exported are key.

Being able to properly store and describe (Metadata), provides a high potential for geospatial analysis for climate monitoring and extremes analysis and other climate services.

+ good detailed training of observers

Spring Training Sessions 2015 - Open To All

Spring Training Sessions are being planned for **Manitoba**, **Ontario** & **Saskatchewan**, **during MAY,** so check back soon to find a training session near you OR ***Ask Your Local Manitoba, Ontario or Saskatchewan, Provincial Coordinator via email***!

Saskatoon, Saskatchewan Training Session Wednesday May 13th 5-6pm
@ Western Producers Offices, Saskatoon, SK - please use front door
ALL ARE WELCOME - Please contact Aj, your Provincial Coordinator as below

Everyone knows what they are doing and why they are doing it.

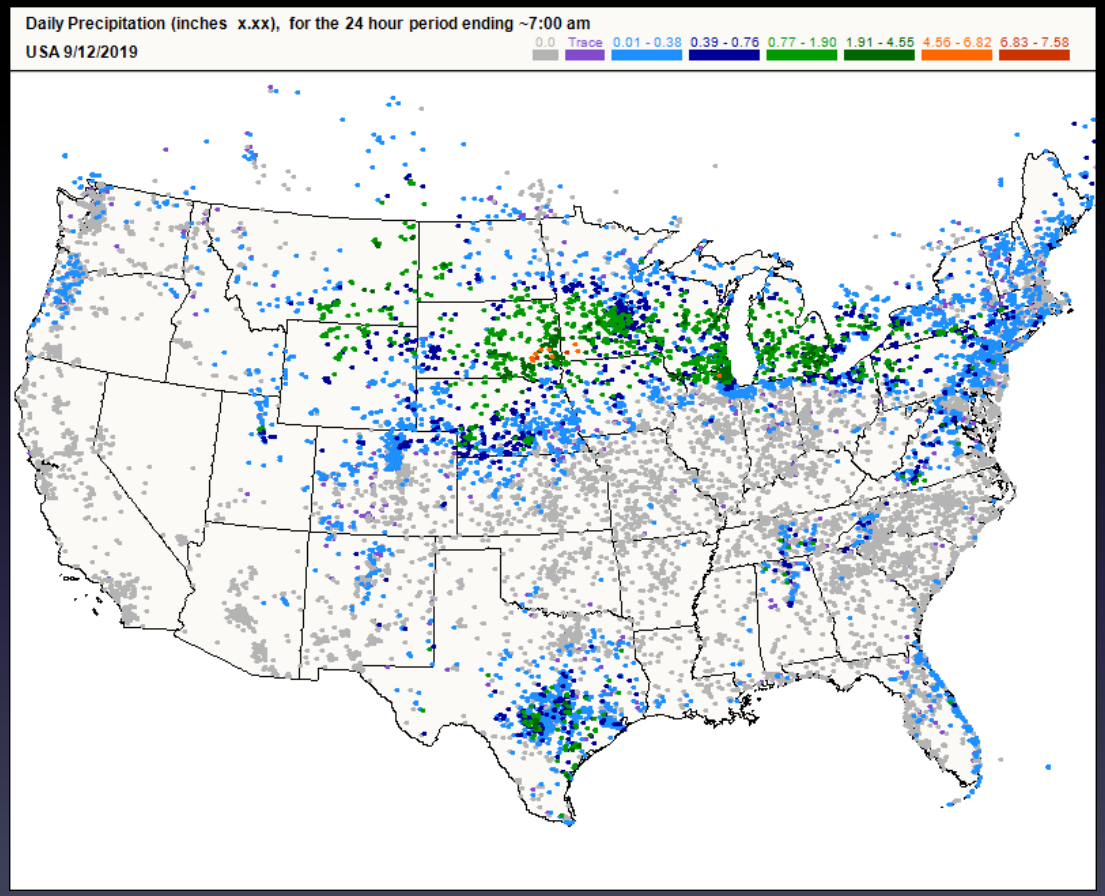
+ Simple, easy-to-handle low cost equipment

(the maintenance is not in the equipment, but in the volunteers)

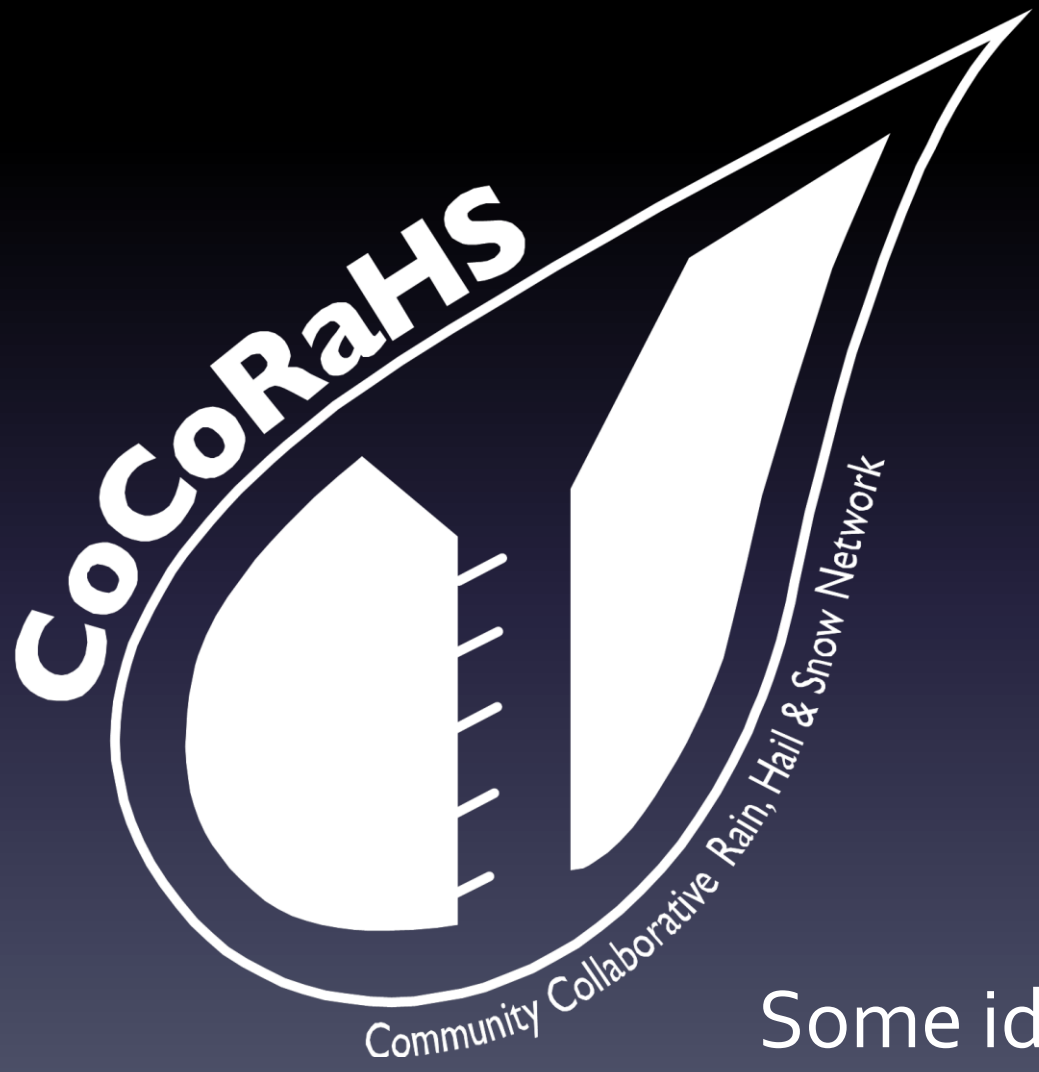
+ an easy way to transmit observations

With a computer or mobile device you can quickly and easily transmit your observation to the Internet.

= an increase in the spatial density of observations, thereby providing in-situ data on highly-variable atmospheric variables, such as (convective) precipitation, including rain, hail, snow etc.



Additional in-situ data can help complement national and sub-national capacities to prepare for and respond to extreme events .



Some ideas from CoCoRaHS

CoCoRaHS's basic requirements for observers

- Obtain a 4" diameter plastic rain gauge (all observers use same gauge)
- Sign up on-line. Station name and location (assigned)
- A means of communication for transmitting the data: mobile phone, computer
- View the training materials or attend a training session
- Be reliable, do your best to take observations on a daily basis (multiday if missed)
- Report zero when no precipitation has fallen (zero's are important!)
- Have fun and enjoy what you are doing!

Rigorous Quality Control of Data

Rigorous QC by a dedicated team of local volunteers has assured high quality of our precipitation data. This continues to make it of considerable value to a wide variety of users. … good training helps as well.

How do we motivate our volunteers to continue collecting data?

- low cost to participate, simple tools, not burdensome (five minutes a day), open to everyone.

- make the process easy and fun, feedback on their observations (map), easy and informative website.

- part of something bigger than themselves - for the common good of the nation. Observes identify with network.

  "I'm CoCoRaHS observer CO-LR-610"

- the data is really used, not just sitting in a book on a shelf – tell the observers who uses it. Their observation can make a difference.

- feedback and encouragement from headquarters and those in the field

The Catch

NOLAN DOESKEN'S MONTHLY COCORAHS E-MAIL MESSAGE

CoCoRaHS -- National "Rain Gauge Week" is Coming!

Fort Collins, Colorado -- August 29, 2019

Dear Rain Gauge Watchers:

Welcome newcomers, old-timers and everyone in between. It is time for our late August CoCoRaHS update. Here where I live in northern Colorado we have transitioned from a cool, wet and gloriously green spring and early summer to baking dry heat with penetrating sunshine. Thunderheads that dotted our afternoon and evening skies — threatening but rarely delivering rain

Volume 2, Issue 2
Summer 2014

The Montana Meso

Welcome Message

CoCoRaHS: Why Join? How Do I Sign Up?

Community Collaborative Rain, Hail & Snow Network

Southern New England

September 2019

We begin National Rain Gauge Week. It is our network's time to shine, and to shine with reports of precipitation and zeros alike. Our quest is to submit 15,000 Daily Reports in a day, and to do that, we need everyone to report.

With this National Rain Gauge Week, it would be quite the accomplishment to break 10,000 Daily Reports in a 30-day month of September. Another record to break is our single day total of 366 Daily Reports.

CoCoRaHS Puerto Rico

¡Reciban un cordial saludo, y una vez más, Gracias!

Gracias por formar parte de la familia CoCoRaHS Puerto Rico, sus observaciones son de gran importancia. Incluso, ¡si es cero lluvia!

Sus datos son utilizados en la documentación de la sequía al igual que en la toma de decisiones.

Nuevamente, Gracias

¿Qué debemos esperar?
Condiciones de sequía persistiendo a través del Este de Puerto Rico.

U.S. Seasonal Drought Outlook

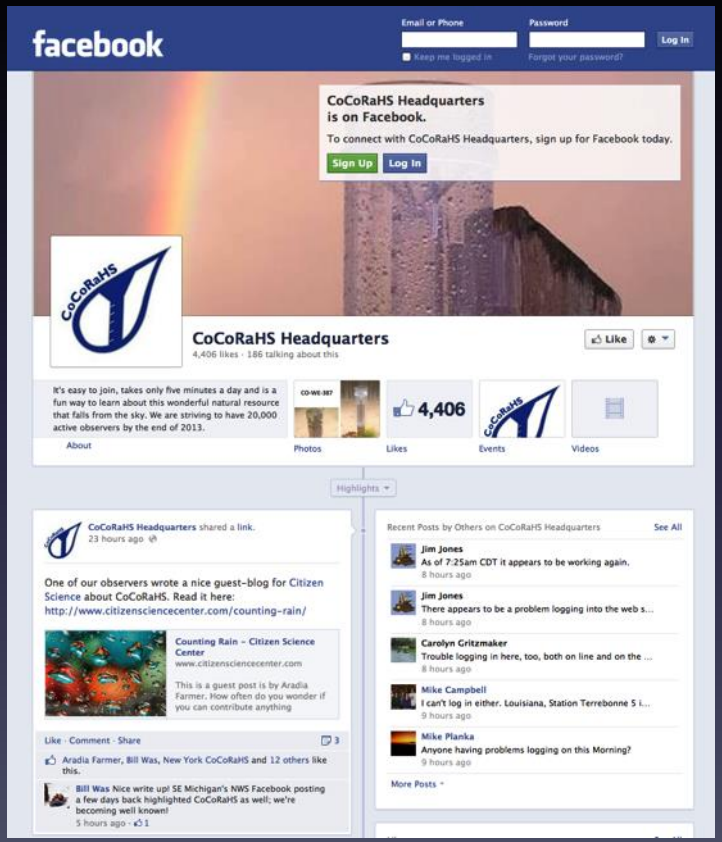
Desea reactivar su estación? Contáctenos

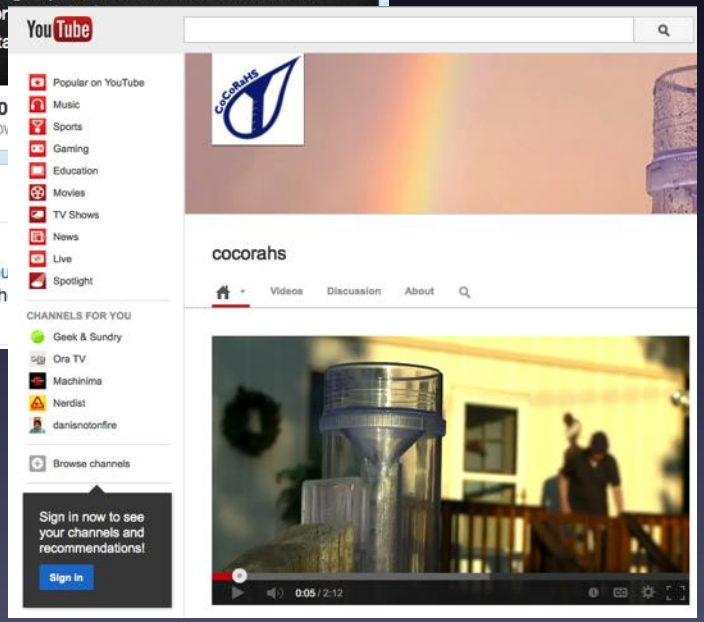
La coordinación a nivel isla ha cambiado temporalmente, solo habrá un coordinador a nivel isla. Para más información visite http://www.cocorahs.org/state.aspx?state=pr

Email messages and regional newsletters to encourage volunteers

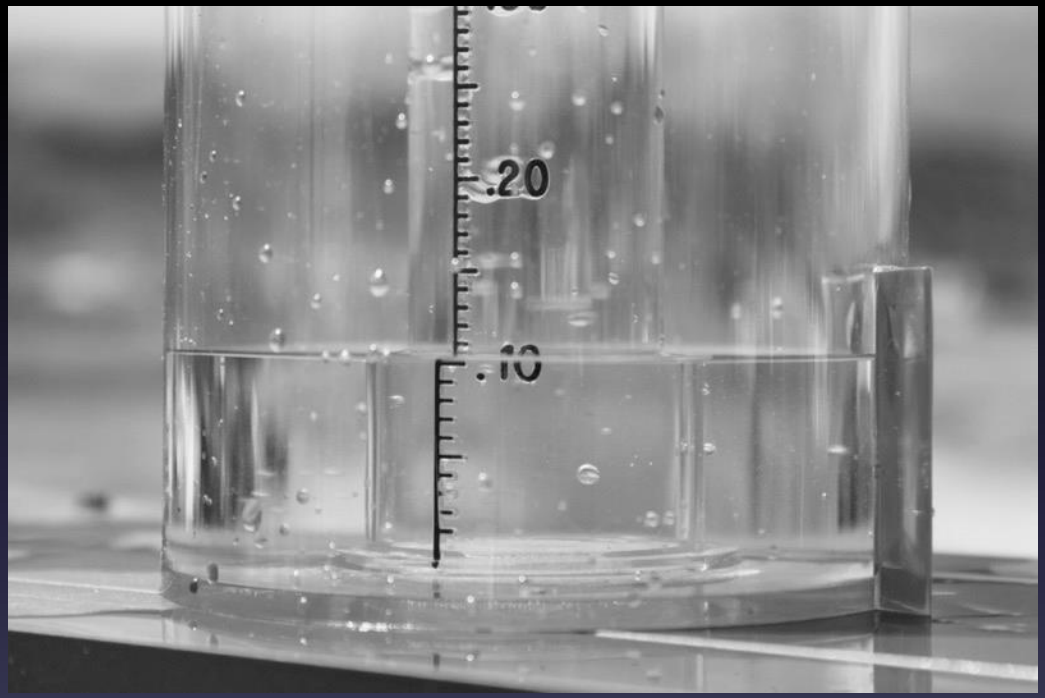
A close connection is kept with observers. "They feel like family!"

Social media to connect observers to each other





Who uses CoCoRaHS Observations?

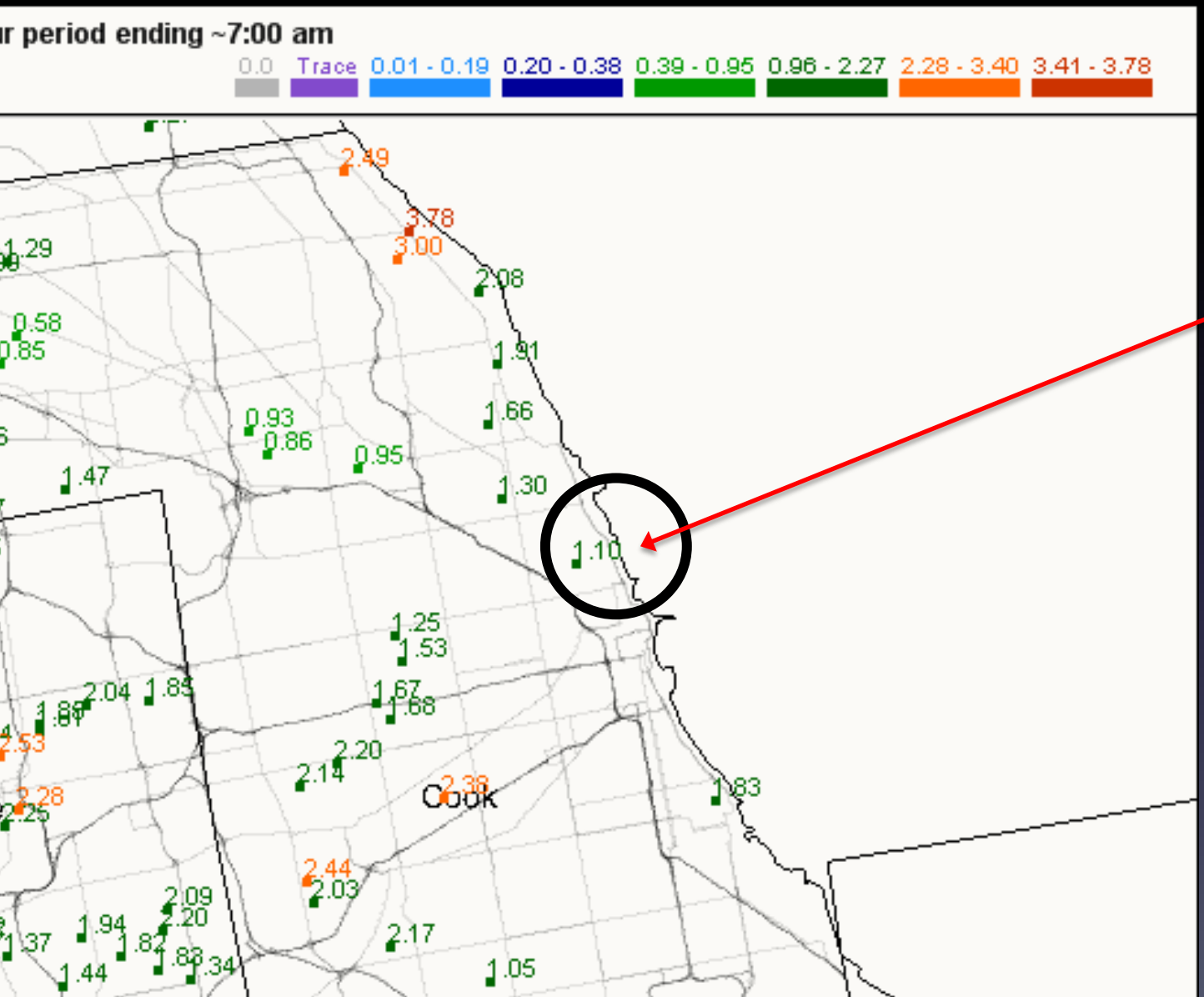


1. Weather Forecasters
2. Hydrologists
3. Water management
4. Researchers
5. Agriculture
6. Climatologists
7. Insurance Industry
8. Engineering
9. Recreation
10. Many others

*"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."*

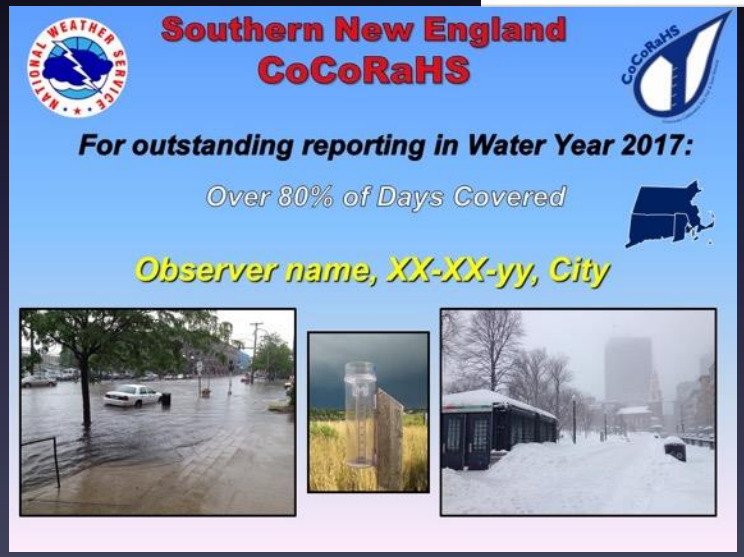
Jon Zeitler – *NWS Austin-San Antonio Weather Forecast Office*

Observers love to see their observations on our maps

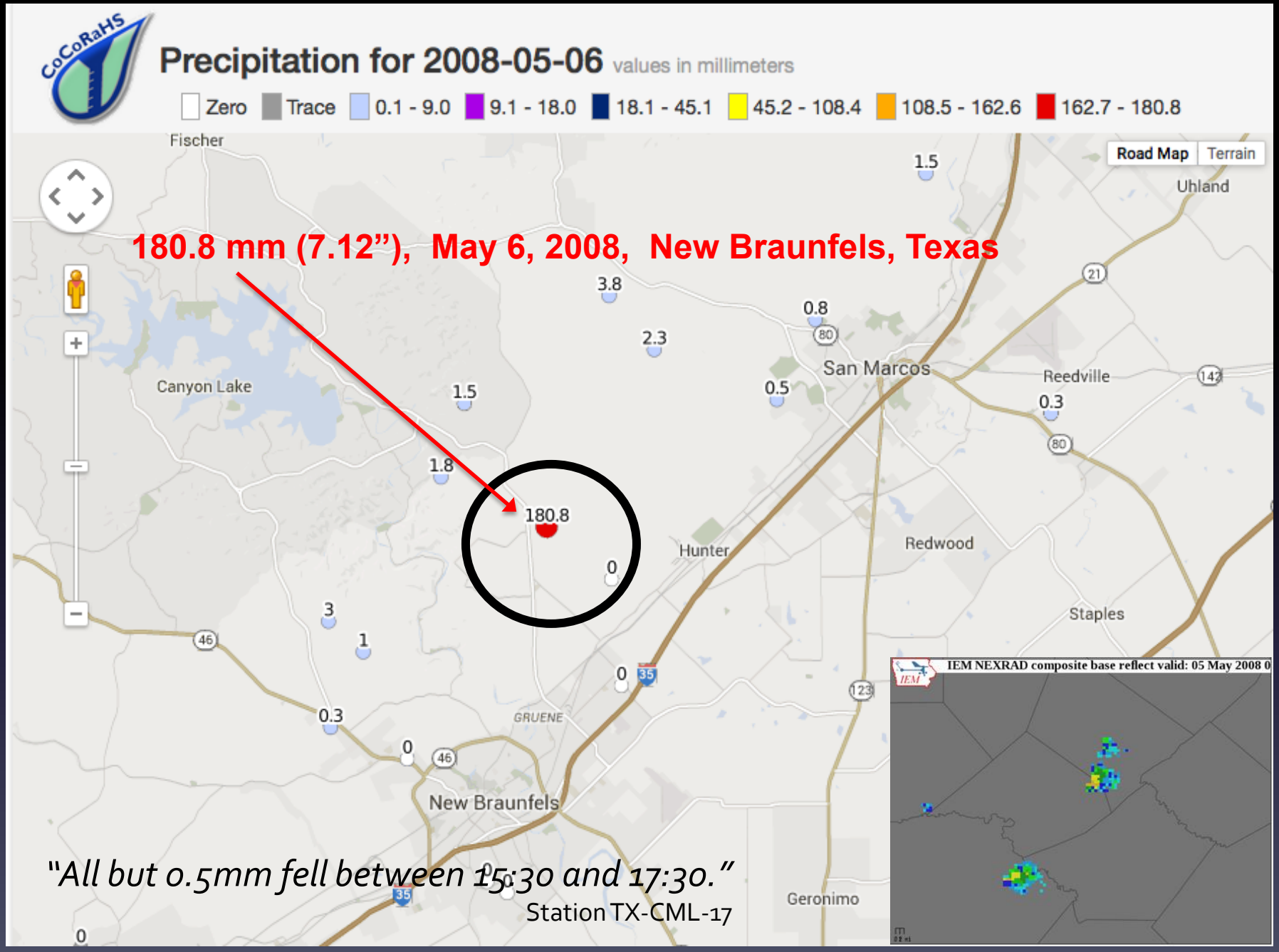


Look that's me!!

Once a year send an Observer Appreciation Certificate



Volunteers really like these!



Let folks know that their observation can make a difference[22]

Benefits of a volunteer network

Benefits may start small and grow over time

- Cost savings compared to automated station (maintenance)
- Multiplying observations from areas where data are sparse.
- Data immediately available for use by TV/radio broadcasters benefiting general public and raises NMHS visibility in communities.
- Observers learn about precipitation patterns in their immediate location.
- Database of stored metadata and records
- Collaborations established between agencies and observers

Possible challenges for volunteer network

- May be difficult to recruit volunteers in some locations (cultural)
- Cost of individuals purchasing a gauge, or if given one getting them to report. Gauge cost approximately $32.00 US plus shipping with a discount for larger orders.
- Keeping volunteers motivated to take observations
- In some places precipitation data is not freely shared – economics
- Lack of leadership infrastructure – need coordinated team to sustain the network.
- CoCoRaHS start-up costs may be difficult for some countries, as well as annual network fees.

WMO Article

Creating a volunteer observing network

Interview with Nolan Doesken[1] and Henry Reges[2]

Volunteers play an important role in providing climate information. Their observations are critical to track local climate variations and impacts and to monitor changes in climate over time. Volunteers also play an important role in sensitizing the general public about weather and climate issues, serving as informal climate "ambassadors."

This year the United Nations celebrates the tenth anniversary of the International Year of Volunteers, paying tribute to the volunteers around the world who take an active part in improving the welfare of their communities.

Thomas Peterson, President of the WMO Commission for Climatology inspired these leaders of a volunteer network to share their experiences with the WMO *Bulletin*, in order to encourage an exchange of experiences among professionals interested in fostering volunteer networks on climate issues.

Q. Why did you create a volunteer network?

The Community Collaborative Rain, Hail and Snow Network (CoCoRaHS, www.cocorahs.org) began in 1998 by the staff of the Colorado Climate Center at Colorado State University, USA, following a devastating local flash flood in 1997.

The storm caught many by surprise. Our region is normally semi-arid, but 300-370 mm of rain fell in one day in parts of Fort Collins, Colorado, much of it in less than five hours. Several people died from the resulting flood, and damage to the city of Fort Collins and our university campus exceeded US$ 200 million.

Radar, satellite and lightning detection systems underestimated the rainfall. Surface weather stations were too far apart to detect the local storm centre. In response to this local storm, a community project was started to equip interested individuals, schools and businesses with a basic rain gauge to collect rain or snow. A Website was developed to provide training materials, data entry forms and the ability for participants and users to immediately access and view rain, hail and snow data. Volunteer data collection began in 1998.

Soon, scientists and participating volunteers noted fascinating local variations in precipitation. The network spread, and has now expanded to all of the country. It is considered informal and is not an "official" federal climate observing system. Yet the accuracy of the data compares favourably to official weather station networks. Government agencies, private businesses, university scientists, educators and many others use the precipitation data for weather analysis, climate monitoring, hydrological prediction and warning, as well as for many business, research and education applications.

Q. In an era where we have sophisticated satellites, weather radar and other monitoring systems, why do we need volunteers to monitor the climate?

With the technology available today, one might be tempted to think that weather stations are less important now – especially volunteer neighbourhood measurements from low-cost plastic rain gauges. But

[1] Nolan Doesken, State Climatologist, Colorado Climate Center, Colorado State University, USA, and CoCoRaHS founder.
[2] Henry Reges, CoCoRaHS National Coordinator, Colorado Climate Center, Colorado State University, USA

Ten lessons we learned

For those who want to begin or expand volunteer programmes, what recommendations do you have? Are there quick wins, or hard lessons that you can share?

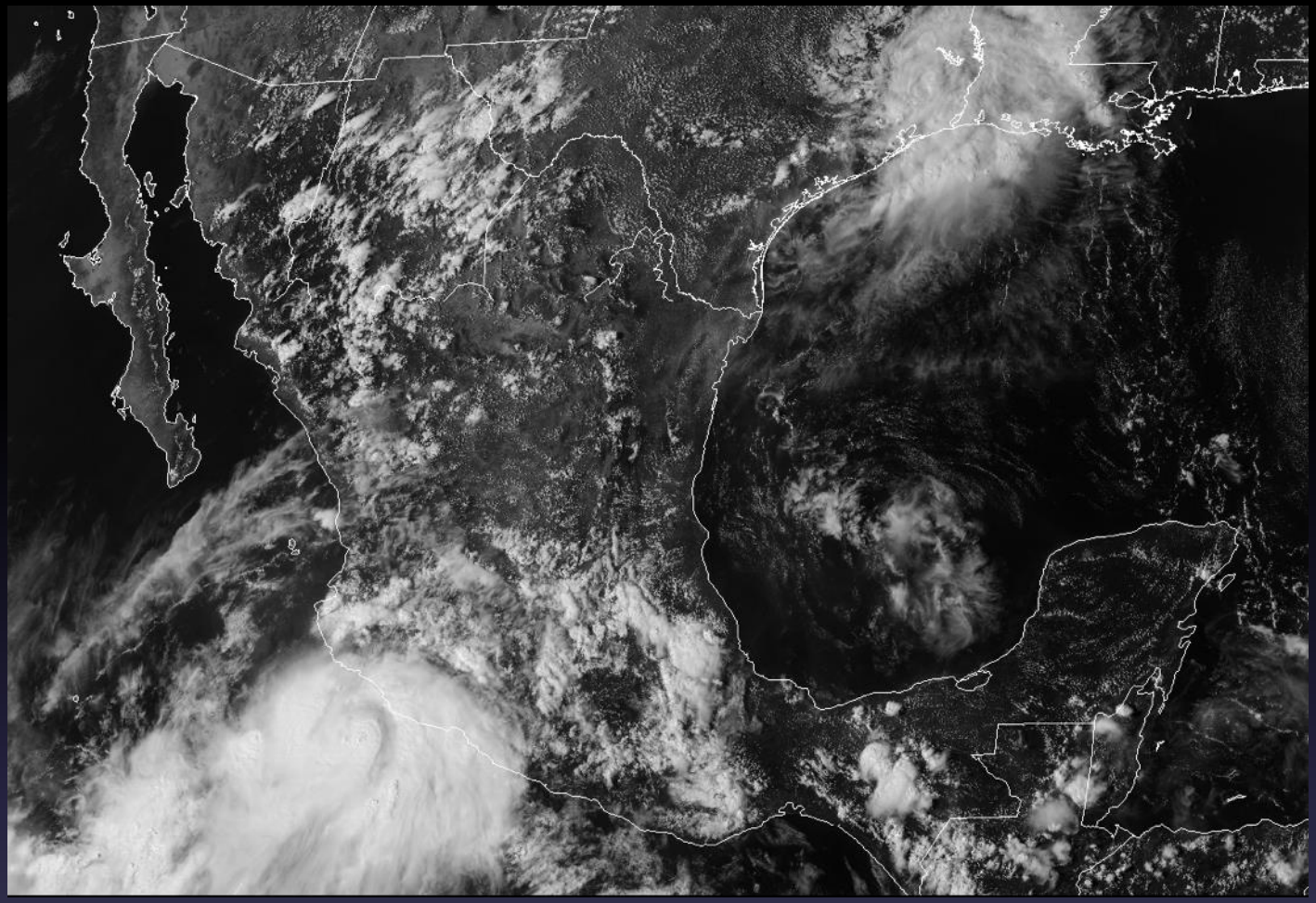
We learned several useful lessons over the thirteen years since we first started this volunteer observing network.

1. **Precipitation measurement is a good place to start.** Precipitation is relevant nearly everywhere and impacts nearly everyone. The measurement is "relatively" easy for volunteers and the equipment is inexpensive.
2. **Solid infrastructure is essential.** This includes a system for collecting, archiving and displaying volunteer data. It also includes enough staff or volunteers to get started.
3. **Partners with a vested interest in the process, the people and the data make a huge difference.** Include local water utilities, agricultural extension services, university researchers, official climatologists and weather service personnel across the country. These partners can provide human and financial resources that help greatly.
4. **Keep things simple.** Logistics need to be considered. Even for a "simple" project it is a significant challenge to pay for and distribute rain gauges. In our case, most volunteers purchase their own gauge, or local sponsors support and distribute gauges in a particular region. A small number of commercial vendors distribute gauges at a reduced cost. Giving someone a rain gauge doesn't guarantee they will use it.
5. **Set goals and share them with your volunteer community.** They may help you meet them. What coverage do you need and with how many stations? In our experience, at least one station every three to five km^2 is ideal, but that just won't be realistic in many areas. Another way to set goals is to look at the official surface observing system. It is a good goal to match or exceed the existing number of gauges from official surface networks.
6. **Participation should be rewarding.** Give them an important identity. Our volunteers have their own station names and their own dots on the maps. Our volunteers have their own station names and their own dots on the maps. Having their own place where they can see their data gives them an important identity.
7. **Provide training and positive feedback.** This includes clear, understandable instructions, ideally provided by local people who give face-to-face instruction and then follow up.
8. **Engage local leaders.** Strong local leadership on a volunteer basis by climate, water and university professionals is a key to fuel expansion and sustain the network. A national organization needs strong local leaders to keep volunteers engaged.
9. **Be open to ideas from volunteers and their communities.** Give your volunteer leaders reasonable autonomy since they know their communities best. Stay in touch with them regularly so that there are open channels for ideas. Some desire to be connected to the larger community. E-mail and Web-based communication has worked for us, but we realize this may not work the same way everywhere. Social networking is becoming popular. Take advantage of available communications technologies and use what works best.
10. **Patient, persistent, enthusiastic leadership helps.** Working with volunteers takes time. It took several years until our project reached a critical mass and then began growing quickly. There will be some unexpected outcomes and some quick wins. We found, for example, that older adults were our most committed volunteers, and our project helped many of them to use the Internet better. We also did not expect the data to be so incredibly useful and of such high quality.

Why not join us?

CoCoRaHS or networks like it, have the potential to help fill-in the missing gaps of observations in many countries at an **economical** cost compared to expensive automated stations which require continual maintenance.

We believe that a well-coordinated, volunteer network using **simple** collection devices can yield great benefits for many countries.



We already have the training, infrastructure and experience . . . Why reinvent the wheel? Further discussions are most welcomed if you care to learn about how to start CoCoRaHS in your country.

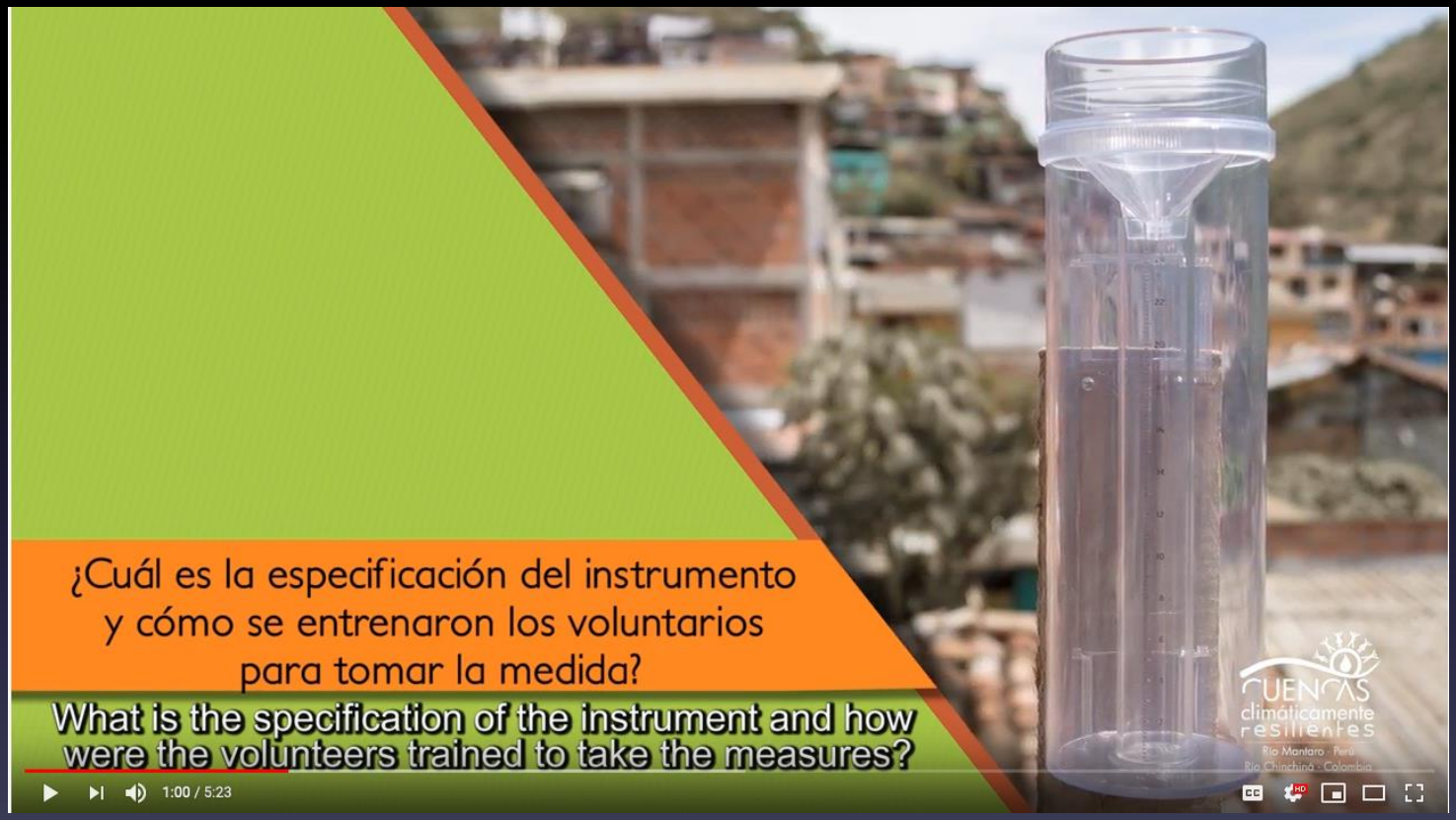
Another network for consideration

Volunclima

Climate Volunteers Network-CIIFEN

USAID FROM THE AMERICAN PEOPLE
CIIFEN
CORPOCALDAS
CUENCAS climáticamente resilientes
Río Mantaro - Perú
Río Chinchiná - Colombia
VIVO CUENCA

View the five minute video on YouTube



https://youtu.be/nrWZ6yVIoPE

THANK YOU

For more information visit: www.cocorahs.org

or contact: hreges@atmos.colostate.edu