

Volunteer Precipitation Observations



Figure 1. Rain gauge held by Ward Smith, with son Jacob (7 years old), Concord, NC

Precipitation (rain, hail, snow) is an ideal weather element for volunteers to measure. Because precipitation is so incredibly variable -- from place to place, storm to storm and year to year -- there is no limit to how many volunteers are needed. Every storm is interesting and important. Lack of precipitation is equally important. It doesn't take much time to measure and report, but the small effort of many individuals results in valuable information for your local community as well as the nation. Furthermore, through the discipline of daily measurements, volunteers learn first hand about the nature of their own weather and climate. Sure, there are already expensive weather observing networks across the country. But the observations from local volunteers fill in the many gaps and give a higher resolution picture of how much rain or snow truly fell.



Figure 2. 4" diameter rain gauge, Fort Collins, CO

Some important things to convey to citizens when taking precipitation observations:



1) **Gauges.** It is important to choose good equipment and understand strengths and weaknesses. There is no perfect rain gauge at any price. The high capacity four-inch plastic rain gauge (see photo) and the standard 8-inch gauge tend to give excellent results over broad ranges of conditions. Electronic gauges are convenient and great for reporting instantaneous rainfall rates, but they may not be as good for monthly or seasonal totals. For measuring snow, you will want to obtain a snow board and a ruler scaled to read to the tenth of an inch.

Figure 3. Another 4" diameter rain gauge, also taken in Fort Collins, CO

2) **The siting of your equipment.** Where you put your gauge matters. It will affect the "catch" or amount of precipitation which lands in your gauge. You will want to avoid trees and buildings if at all possible. In windy areas you will want to mount your gauge closer to the ground. Solid fences can cause wind patterns that compromise rain gauge readings. You will also want to make sure that your gauge is level. Keeping your equipment away from sprinklers and animals is also important.

3) **Taking your observation.** It is important that you take an accurate observation. This may take some practice but is easily learned. If you are taking the observation as part of a reporting network, make sure to check your gauge at the same time as others for consistency.

4) **Reporting your observation.** If you are part of a backyard weather network, be sure to make a timely report of your observation. More and more reporting is now done over the Internet, although some networks still collect data by phone or written reports. Watch for decimal and rounding off errors. If there is a place for comments, your weather descriptions, such as when rain began or ended, provide helpful additional information.

5) **Enjoying the process.** One of the keys to weather observing is enjoyment and satisfaction. We tend to learn more and stay with a task longer when it's something that we enjoy and know is beneficial to others. With the CoCoRaHS network (Community Collaborative Rain, Hail and Snow network), we emphasize this and encourage our observers regardless of age to participate as long as they are having fun. When it is no longer enjoyable, the quality of the data may deteriorate.

These simple suggestions can be applied to other types of observations as well. For more information on precipitation observing networks, visit the following web sites:

CoCoRaHS – www.cocorahs.org (includes training slide shows and other instructional materials)

NWS Cooperative Observer Program - <http://www.nws.noaa.gov/om/coop/>

Hydrometeorological Networks in the US - <http://www.ofps.ucar.edu/gapp/networks/>

Citizen Weather Observer Program - <http://www.wxqa.com/>

MNGage (HIDEN) - <http://climate.umn.edu/HIDENsityEdit/HIDENweb.htm>

NERain - <http://dnrdata.dnr.ne.gov/NeRAIN/index.asp>

Cooperative Huntsville-Area Rainfall Measurements (CHARM) -

<http://weather.msfc.nasa.gov/charm>

Rainlog - <http://rainlog.org/usprn/html/main/maps.jsp>

Oklahoma Mesonet - <http://www.mesonet.org/>

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