

## **SNOW MEASUREMENT REMINDERS**

FORT COLLINS, CO — Saturday, February 11, 2006

CoCoRaHS folks:

Yesterday's e-mail prompted a number of snow-related questions. We have many newcomers to the network that have little experience measuring snow. As the snowstorm bears down on our eastern states this afternoon, and a new storm may be taking aim on parts of the western states next week, here are a few snow measurement tips and reminders. All you pros who have been doing these measurements for years can delete this message.

The measurement of snow consists of three independent measurements:

- 1) the melted water content of snow and ice plus any rain that may have fallen during the past 24 hours
- 2) snowfall -- the depth of new snow that has accumulated since the last observation, and
- 3) the total depth of both new and old snow remaining on the ground at 7 AM or other time of observation.

Precipitation includes rain AND the melted content of any snow that has fallen in the past 24-hours -- typically measured from what has collected in your gauge, but can also be measured (if it all fell as snow) by taking a core sample of the new snow on the ground. Remember, if you are in an open wind-swept area your gauge may not catch all the moisture from wind-driven snow. Core samples are highly recommended in these situations, but it can always be interesting to check to see if what landed in your gauge is the same, more, or less than what accumulated on the ground.

If you have the luxury of having two of the 4-inch diameter clear plastic "all-weather" gauges, it makes snow measurement much easier. You can simply bring one gauge inside to begin melting and set your other gauge out to begin collecting your next days measurement.

Depth of New Snow is the accumulation of snow, measured to the nearest 0.1 (one-tenth) inch if practical, that has occurred since your last observation. Keep in mind that this only includes snow that is accumulating. If snow falls but melts on contact with the ground, you only report T (trace). This measurement should be ideally taken on a snow measurement board or other representative surface. If snow accumulation is uneven, then an average of several measurements may be required.

If snow accumulates and then settles or melts prior to your daily observation, then please try to report the amount of snow that had accumulated prior to melting or settling. It is a good idea to go out as soon as the storm is ending to take your measurement of New Snow.

If snow falls as a series of showers or squalls, it is OK to go out and measure after each shower ends -- but no more frequently than once every 6 hours. For example, if it snows 2" in the morning, melts in the afternoon, and then snows 2" more that evening, you should report 4.0" as your daily amount of "New Snow"

**Some common mistakes to avoid:**

-- Please do not report the depth of new snow as "Total Rain and melted snow"

-- Please do not report "0.00" for "Total Rain and melted snow" when precipitation has fallen as snow

-- Do not leave your funnel and inner tube outdoors when snow is expected. Catch the snow only in the large outer cylinder of your gauge.

-- Remember, the outer cylinder holds 12" of snow, but the snow often sticks to the edge or collects unevenly. If a large snow is expected, you may want to empty and measure the content of the gauge when only 6-8" of snow has fallen to make sure the cylinder does not fill and flow over the top before you do your measurement.

The Total Depth of snow on the ground is the average depth of all new and old snow remaining on the ground at 7 AM or other standard observing time. This measurement can be rounded to the nearest whole inch (National Weather Service regulations). However, if you can confidently and assuredly measure the total depth more "Accurately" then go ahead.

Remember, snow melts and settles unevenly. The Total Depth is your best estimate based on an average of several measurements or a measurement from one location that you feel best represents what you are experiencing.

This is enough for now. We can get into more detail later if we must. Do your best with this storm, and always remember to check and compare your data before transmitting it to CoCoRaHS. Then check and compare to stations around you using the mapping features of CoCoRaHS. Also, check to make sure that the ratio of inches of new snow compared to inches of precipitation (water content) is reasonable. A very wet snow may have a ratio of 10" of snow to 1" or more of water. A dry snow may only have 0.50" or less of water in 10" of snow. Make sure your ratios are sensible and appropriate.

Instructions and examples are contained on the CoCoRaHS website. Or if you have a question that our materials do not address clearly, please contact me at:

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Happy measuring!

*Nolan*