Solid Precipitation Protocol
Field Guide

Task
Measure the amount of new snow that has collected on your snowboard.

Measure the total depth of snow on the ground.

Obtain samples of new snow and snowpack for pH measurement.

Obtain samples of new snow and snowpack to determine the water equivalent.

Prepare the snowboard to collect more snow.

What You Need
- ❑ A meter stick (or a longer measurement pole if snow accumulates to more than a meter in depth
- ❑ Snowboard
- ❑ A straight-sided container
- ❑ The overflow tube from your rain gauge
- ❑ Two clean sampling jars with covers for the pH samples
- ❑ A container for the snowpack rain equivalent sample
- ❑ Something flat and clean to slide under inverted containers
- ❑ *Integrated 1-Day Data Sheet*
- ❑ Pen or pencil
- ❑ Labels for snow samples

In the Field
1. Insert the measuring stick vertically into the snow until it rests on the ground. Be careful not to mistake an ice layer or crusted snow for the ground. Read and record the depth of the snowpack.
2. Repeat the measurement in at least two more places where the snow is least affected by drifting.
3. Report all three of these numbers as the total snowfall. If the snowpack is so small that a depth cannot be read, record the letter “T” (for trace) for total snowpack.
4. After a new snow has fallen on earlier snow, gently insert the measuring stick vertically into the snow until it touches the snowboard. Read and record the depth of new snow. If no new snow has fallen, record 0.0 as the depth of new snow.
5. If there is new snow, take at least two more measurements at different spots on the snowboard.
6. Report these numbers as the depth of new snow. If the snowfall is so small that a depth cannot be read, record the letter “T” (for trace) for new snow. If the snow on the snowboard has been disturbed before you can take an accurate measurement, report “M” for missing.
7. Record the number of days since the last reading of snow on the snowboard.

Taking Samples for the Lab

8. After you have measured the depth of new snow on the snowboard and of the snowpack, take a straight-sided container (such as the overflow tube from the rain gauge), and hold it straight up and down over the snowpack, well away from the snowboard. Choose a place where the snow has not been disturbed. Push the container down until it almost touches the ground.
9. Slide something flat and clean under the container just above the ground and turn the container right side up. Be sure not to lose any snow.
10. Save this sample in a clean container, cover it, label it “snowpack pH”.
11. Take the overflow tube from the rain gauge, and hold it straight up and down over the snow away from the snowboard. Choose a place where the snow has not been disturbed. Push the tube down until it touches the ground.
12. Save this sample in your tube or another container, cover it, label it “snowpack rain equivalent”.
13. Hold a straight-sided container straight up and down over the snowboard. Push the container down until it almost touches the board’s surface.
14. Slide something flat and clean under the container just above the board and turn the container right side up.
15. Save this sample in a clean container, cover it, label it “new snow pH”.
16. Hold the overflow tube from your rain gauge straight up and down over the snowboard. Push the tube down until it touches the board’s surface. Slip something flat under the tube and turn it right side up OR hold the tube to the board and flip the board and tube over. Be sure not to lose any snow.
17. Save this sample in your overflow tube or another container, cover it, label it “new snow rain equivalent”, and take it inside with you.
18. Once you have taken your samples, place the snowboard on top of existing undisturbed snow. Push the snowboard gently into the snow so that its surface is even with the surface of the snow. Place a flag or other marker nearby to help you locate the snowboard after the next snowfall.
19. Take your labeled samples inside to melt and measure.