

# *Climalytic Snow Board*

## *Installation and Snow Measurement Guide*

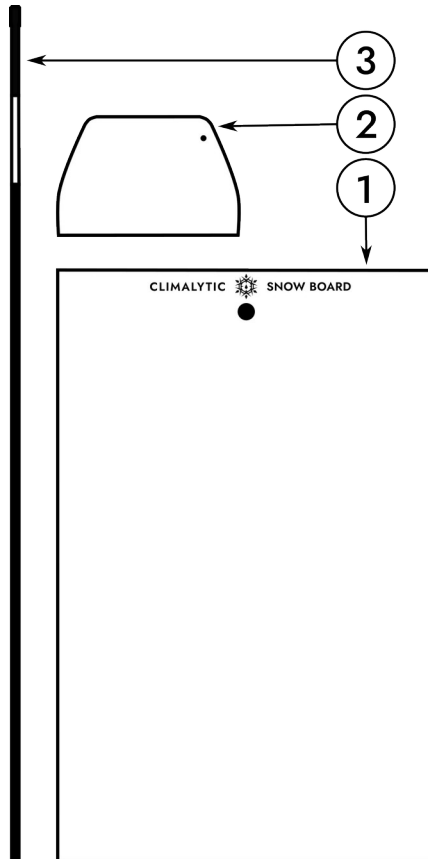


### ***Accurate, Consistent and Easy Snowfall Measurements***

#### Included in the box:

- White snow board 16" x 24" x 0.5" (40.6 cm x 61.0 cm x 1.2 cm)
- Fiberglass snow marker stake 5/16" x 36" (8 mm x 91.4 cm)
- Snow scraper 4.3" x 3.7" x 0.08" (11 cm x 9.4 cm x 0.2 cm)

Tools required: None.



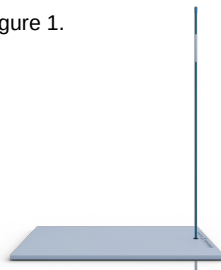
REFERENCE	PART NUMBER	DESCRIPTION	QTY
1	04-001-01-00	White PVC snow board	1
2	04-002-01-00	Snow scraper	1
3	04-003-01-00	Snow marker stake	1

# SNOW BOARD INSTALLATION

**Step 1** Determining the location to place the Snow Board is important to ensure the highest quality measurements. In open areas, strive to position the snow board at a location twice as far from obstacles as they are high. In developed areas, strive to have the snow board as far from obstacles as they are high. It is also important to find a location that does not experience chronic drifting or other disruption (e.g. foot traffic, shoveling, plowing, etc.) For consistency, place the snow board near your rain/snow gauge.

**Step 2** Once a good location has been determined, place the snow board on the ground and anchor it to the ground by extending the marker pole through the grommet and into the ground (Figure 1). The snow marker stake serves two purposes: (1) To help identify the location of the snow board and (2) to secure the snow board to the ground. **CAUTION: Handle the fiberglass snow stake with care; gloves highly recommended to avoid splinters.**

Figure 1.



## SNOW/PRECIPITATION MEASUREMENT GUIDE

The following guide requires: (1) TROPO all-weather, dual-cylinder precipitation gauge, or similar, (2) Climalytic snow ruler, (3) Climalytic snow board, and (4) optionally the Climalytic digital scale. A precipitation observation form (Figure 2) is also handy and will be referred to throughout this guide. All of these items are available from <https://measuresnow.com>.

### PRECIPITATION OBSERVATION FORM

Station id	Station Name/Location	State or Province	Hour of observation time and time zone	Model of Precipitation Gauge		
Date or Date Range	Gauge Catch	Fresh Snowfall	Snow Water Equivalent (SWE) of Fresh Snowfall	Snowpack Depth	Snow Water Equivalent (SWE) of Snowpack	Observation Notes And Precipitation Characteristics
MM/DD/YY	Liquid-equivalent (nearest .01" / .1 mm)	New Snow (nearest .1" / .5 cm)	New SWE (nearest .01" / .1 mm)	Total snow & ice on the ground (nearest 1" / 1 cm)	Total SWE on the ground (nearest .01" or .1 mm)	
A	B	C	D	E	F	G

Figure 2: Climalytic precipitation observation form (available from [store.climalytic.com](https://store.climalytic.com)).

### Step 3 - DRY WEIGHT (optional)

Before a snow storm, use a scale to measure, in grams, the weight of your dry TROPO outer tube; see Figure 3. We recommend the Climalytic Digital Scale available at [store.climalytic.com](https://store.climalytic.com). Write down this weight somewhere safe and handy for future reference. Also, be sure to remove the cap/funnel from the TROPO to allow snow to freely accumulate inside the outer tube.

Figure 3.



#### Step 4 - GAUGE CATCH

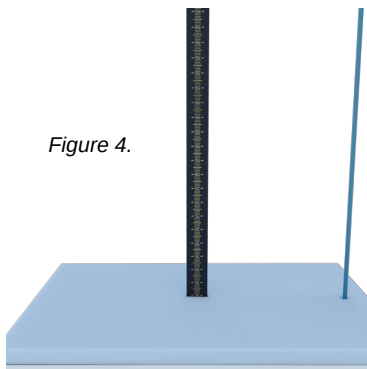
Determine the water equivalent of any ice, snow, sleet, rain, etc. that naturally collected in the outer tube of the TROPO gauge using one of the options in Step 8. This is the “gauge catch” (**column B, Figure 2**).

*NOTE: **Never** measure or report the depth of snow inside the outer tube of the gauge; this is not an accurate, representative or useful measurement.*

#### Step 5 - FRESH SNOWFALL DEPTH

During your regular daily observation time, or as soon as you observe the maximum fresh snowfall depth during the past 24 hours, measure the new snow depth on the snow board with a ruler. Figure 4. Read the snow depth to the nearest tenth of an inch (or .5 cm). If the snow board is drifted in or otherwise not representative of the fresh snowfall, make 4 or 5 measurements away from the snowboard and **average** them for a representative fresh snowfall depth. Enter this in **column C, Figure 2**.

Figure 4.

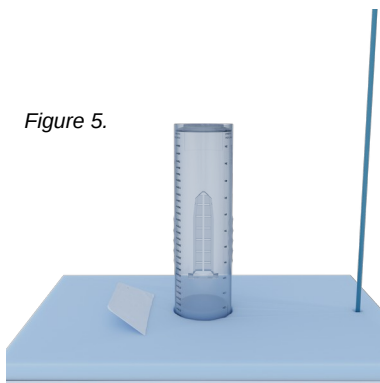


**IMPORTANT:** If snow falls, but never accumulates, then report a Trace of fresh snow, as well as the gauge catch from Step 4. Remember, the 24-hr snowfall is the **maximum** accumulation of new snow and ice in the past 24 hours, prior to any melting or settling. Measure new snowfall as soon as possible after it ends, before settling and melting occur.

#### Step 6 - SNOW CORE

Capture a core by inverting the outer cylinder of the TROPO gauge and pushing straight down into the snow where you measured the snowdepth in step 5. Use the provided snow scraper to slide under the cylinder to trap the snow inside the cylinder as you revert the cylinder. Figure 5. If the snow depth determined in Step 5 is NOT from the snow board, take a core sample from a location with the snow depth determined in step 4.

Figure 5.



#### Step 7 - CLEAR AND REPOSITION SNOW BOARD

Clear the snow off the snowboard with the provided snow scraper. **If necessary**, re-position the snow board so the surface is roughly level with the snow on the ground. In deep snow conditions, this means placing the snowboard atop the snowpack. Only clear the snow board once a day.

## Step 8 - SNOW WATER EQUIVALENT (optional)

There are three ways to determine the snow water equivalent (SWE) of the snow core (collected in Step 6) or frozen precipitation collected in the outer tube. Use one of the following methods and enter the value as new SWE (column D, Figure 2).

### Option 1 - Scale (preferred)

Using a high-precision scale, measure the weight, in grams, of the TROPO outer tube containing the core sample (taken in Step 6) or the “gauge catch” (Step 4). Subtract the weight of the dry outer tube (from Step 3) to determine the weight of the water content in grams. Divide this water content weight by 206 to determine the snow water equivalent (SWE) in inches, or divide by 8.1 for the SWE in millimeters.

#### Option 1 Example

Dry weight of gauge:

**512g** (this varies; measure your gauge)

Weight of gauge filled with snow:

**592g**

Weight of snow:

$592\text{g} - 512\text{g} = \mathbf{80\text{g}}$

Snow Water Equivalent:

$80\text{g}/206 = \mathbf{0.39\text{ inches}}$

or

$80\text{g}/8.1 = \mathbf{9.9\text{ mm}}$

### Option 2 - Slow melt

Bring the core sample indoors and cover the TROPO outer tube to prevent evaporation loss. Allow the core sample to melt naturally inside the outer tube. Once melted, decant the water into the TROPO inner tube to measure the SWE.

### Option 2 - Fast melt

To expedite the melting process, measure a small amount of warm (not hot!) water using the TROPO inner tube, then pour it onto the core sample in the outer tube. Once melted, use the inner tube to accurately measure the water by decanting it from the outer tube. Then, **remember to subtract the amount of added warm water from the total measurement to determine the SWE.**

**IMPORTANT:** If you feel the SWE from the snow core is **more representative** of the actual precipitation versus the “gauge catch” due to high winds, then report this amount as your “gauge catch” and make a note in the comments (column G, Figure 2) section. Include the melted amount from the snow that actually fell in the gauge in your comments.

**PRO TIP:** Regardless of the option used, it is **handy having an extra outer tube** for swapping out the mounted gauge with snow/ice in it, while mounting a clean dry gauge for collecting new snow/ice. This is especially true when snow/ice is falling at the observation time.

## Step 9 - SNOWPACK DEPTH AND SWE (optional)

Steps 1-7 address the measurement of fresh snowfall, but the same procedure is followed for determining the depth and SWE for all snow on the ground. The snowpack depth is reported to the nearest inch or cm and entered into **column E, Figure 2**; SWE is reported to nearest .01” or .1 mm.

## PARTS AND SUPPORT

Visit [climalytic.com](http://climalytic.com) for installation and operation videos, maintenance suggestions, tips and FAQ's. Please call, text, email or visit [climalytic.com/contact](http://climalytic.com/contact) with any questions!

Visit [store.climalytic.com](http://store.climalytic.com) for replacement/extra parts as well as other premium weather instruments and accessories.



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