

# Gateway Observer



Volume 1, Issue 2

Winter, 2010

## Special points of interest:

- Winter Climate Outlook
- The Forecast within a Forecast!
- Winter Weather Safety Tips
- Open House a Great Success!
- Autumn Hydrologic Review and Drought Outlook
- Winter Weather Observing Tips, Tricks, and Pointers

## Public Service By Observers

*Karl Sieczynski*

Cooperative weather observers are public spirited citizens and, as a rule, do not mind sharing information about precipitation and other weather elements that they observe for the National Weather Service. We do not object to observers furnishing information about their observations to individuals in their communities. However, observers sometimes have unreasonable or excessive demands from the public. Several observers have asked what they should do with regard to furnishing precipitation measurements, temperatures, or other observation parameters to radio stations, newspapers, contracting companies, and individuals.

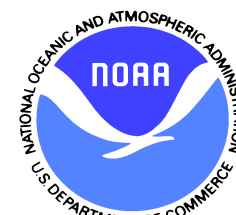
Observers may reply to private inquires for weather data if they wish, but usually are not obligated to do so as far as I am

concerned. The official duties of a cooperative observer consist of taking observations and making weather reports as requested by the National Weather Service. Other services, including replies to inquiries from persons and organizations outside the NWS, are left entirely to the discretion of the cooperative observer.

Should requests for data be received, which the observer does not have the time or desire to furnish, the request should be passed along to me. Either send an email or write a letter:

[karl.sieczynski@noaa.gov](mailto:karl.sieczynski@noaa.gov)

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## What Will We Weather This Winter?

*Julie Phillipson*

Winter across Missouri and Illinois can vary between warm and dry, to cold, blustery, and icy, and everything in between—sometimes within the course of a single week! In order to help understand what may be on tap this winter, the Climate Prediction Center (CPC) has issued their annual Winter Outlook, which covers the months of December, January and February (climatological winter).

Winter 2010 will be governed by a La Niña, which is the term used when anomalously cold sea surface temperatures persist across the central Pacific Ocean. Given the 1 to 2.5 de-

gree departure from average, the CPC was able to consider winters in the past with similar conditions, allowing for a good idea regarding what may be in store this winter. Currently, the CPC states that a “typical La Niña winter” is on the way. So, what does that mean for us?

### Temperatures

This winter, given the La Niña pattern, average temperatures across Missouri and Illinois should be above normal. There is a 33% chance for above normal temperatures across much of the area, with a 40% chance for above normal temperatures generally south of the Missouri River.

### Precipitation

Precipitation this winter also has a chance to be above normal for the area—33% for much of Missouri and Illinois, and up to 40% across portions of southern Illinois and southeastern Missouri. Will the precipitation be liquid or frozen? That depends on characteristics of each individual weather system.

It is important to keep in mind that the chances for above normal temperatures and precipitation are based on averages. So, bitterly cold days and dry spells are within the realm of possibilities. Only time will tell how this winter will pan out!

For more climate info: [www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)

## The Forecast Within A Forecast

Tom Spriggs

### *A look at the hourly weather graph on the web*

We are all familiar with the weather forecasts we hear on NOAA Weather Radio or local radio or television stations. Many times they will go something like this (see forecast to the right):

But in addition to this type of forecast, the National Weather Service also issues forecast data at a much higher level of precision than ever before. About 10 years ago, we transitioned from the older way of preparing forecasts, which meant many hours of hand typing each forecast and making sure they expressed the same message to our different users, to migrating to a single database from which to prepare our forecasts and generate them as well. While this has reduced our time spent on tasks such as typing and has allowed us to easily generate forecast products for our various users all with the same, consistent message, it has also added the challenge of forecasting at a higher level of precision than we have ever done. A fine example of this higher precision forecast is expressed through the Hourly Weather Graph product, which contains a breakdown of various weather parameters (such as Temperature, Relative Humidity, and Wind) hour-by-hour

**This Afternoon...** Showers and chance of thunderstorms. High in the lower 50s. Southeast wind around 15 mph with gusts to around 25 mph. Chance of rain near 100 percent.

**Tonight...** Mostly cloudy until early morning then becoming partly cloudy. Rain showers likely and chance of thunderstorms in the evening. Low in the mid 30s. South wind 10 to 15 mph in the evening shifting to the southwest after midnight. Chance of rain 60 percent.

**Tuesday...** Colder. Partly sunny early in the morning then becoming mostly cloudy. Chance of flurries. High in the upper 30s. Temperature steady or slowly falling in the afternoon. West wind around 15 mph with gusts to around 25 mph.

over the next seven days. So with this product you will be able to, at a glance, determine the wind forecast at 5 pm today, or the temperature forecast at 8 am next Saturday morning. I am sure many of you are already familiar with our webpage: [www.weather.gov/lx](http://www.weather.gov/lx). To get to the hourly forecast graph, first navigate to the point-and-click forecast by clicking your area of interest on the map (highlighted in red, at left).

Once the point-and-click forecast appears, you will be able to refine this location by clicking the red box on the map, about halfway down the page. When you have this location set, scroll down to the bottom of the page and click Hourly Weather Graph (highlighted in red below).

Once you get to the Hourly Weather Graph, you are first presented with a control panel at the top of the page. The control panel is where you can select what parameters to view, so as to unclutter the graph; view data farther into the future (the default is the current time); or select what probabilities there are for exceeding a certain amount of precipitation (rainfall or melted down snow). You can also hover your mouse cursor over a part of the graph and see the precise value for all parameters over any given moment in time. This output will appear at the bottom of the hourly weather graph, and will provide you with all the information needed for a certain time of day. (Examples of the control panel, menu, and output are shown on the following page.)

In summary, with the hourly weather graph you can tailor the forecast to the parameters you want to see and for the time periods you are most interested in. Several items appear on this product that do not appear on the standard public zone forecast, such as relative humidity, wind chill (except in extreme cases), dewpoints, and wind gusts (except in extreme cases). All parameters are in a higher, hour-by-hour resolution that you will not be able to get with the regular forecast. In addition, with the winter season just about upon us, you will also be able to see the hour-by-hour breakdown of what precipitation types (rain, snow, sleet, freezing rain) we are expecting and for how long, as well as specific amounts. Let me close with this thought: despite the most powerful computers in the world running our weather models and producing forecasts, the first step to an accurate forecast starts with you, our observers, in giving us accurate ground truth to work with. Keep up the fantastic work and we look forward to hearing from you frequently this year!

*Have any questions about navigating our webpage, or where to find something in particular? Feel free to contact us anytime!*

## The Forecast Within A Forecast (continued—graphics)

Point Forecast: Saint Louis MO  
38.64N 90.23W (Elev. 538 ft) Last Update: 11:59 am CST Nov 29, 2010

**Hourly Weather Forecast Graph**

[dashes/dots] | [b/w] | [hide menu]

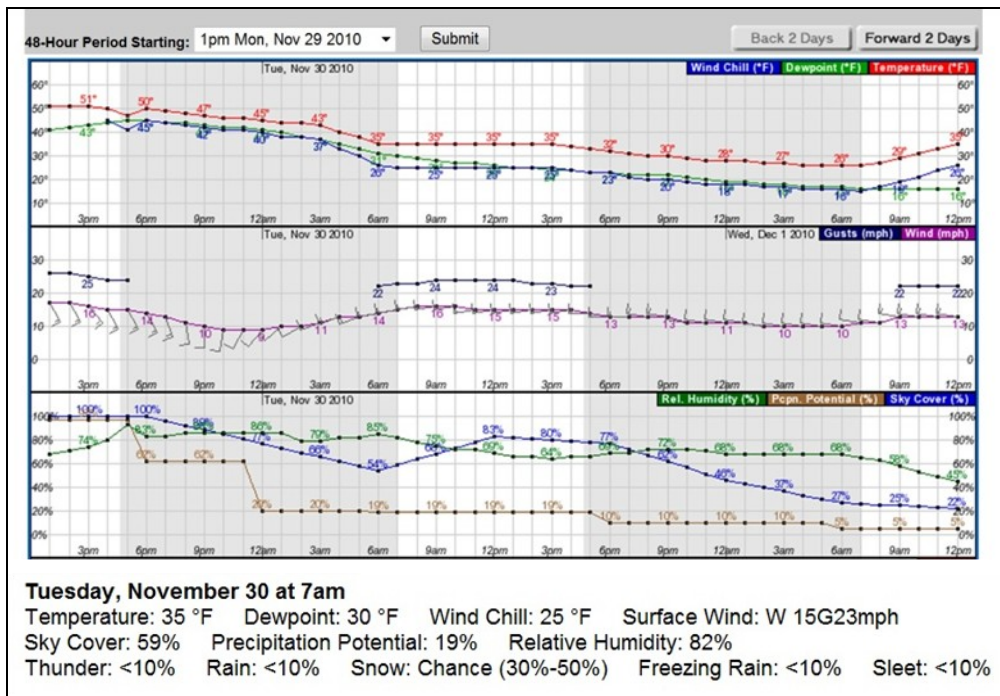
Weather Elements	Weather/Precipitation	Probabilistic Forecasts (Experimental)
<input checked="" type="checkbox"/> Temperature (°F)	<input checked="" type="checkbox"/> Thunder	Quantitative Precipitation 6-hr <a href="#">info</a>
<input checked="" type="checkbox"/> Dewpoint (°F)	<input checked="" type="checkbox"/> Rain	<input type="checkbox"/> 0.10 <input type="checkbox"/> 0.25 <input type="checkbox"/> 0.50 <input type="checkbox"/> 1.00
<input checked="" type="checkbox"/> Wind Chill (°F)	<input checked="" type="checkbox"/> Snow	
<input checked="" type="checkbox"/> Surface Wind mph	<input checked="" type="checkbox"/> Freezing Rain	
<input checked="" type="checkbox"/> Sky Coverage	<input checked="" type="checkbox"/> Sleet	
<input checked="" type="checkbox"/> Precipitation Potential		
<input checked="" type="checkbox"/> Relative Humidity		

48-Hour Period Starting: 1pm Mon, Nov 29 2010

Left: An example of the control panel for the Hourly Weather Graph. Here, you can select what parameters you would like to see, during the 48 hour time frame you're most interested in.

Right: An example of the Hourly Weather Graph for a 48 hour period. This graph depicts ambient, dewpoint, and wind-chill temperatures, winds and wind gusts, and percentages of relative humidity, precipitation potential, and sky cover.

Below the Hourly Weather Graph is the readout you would get if you were to select a particular hour. It provides the same information as the graph, but in a much more succinct and easy-to-read format.



## Winter Weather Safety Tips

During the winter, the weather can change drastically over a short period of time, so it is important to take safety precautions to ensure you won't be caught off-guard.

When faced with a winter storm, you want to be sure that you and your family have the appropriate provisions on hand, in case there are power outages or if roads remain impassable after the storm. Some of these provisions include non-perishable food items, batteries, medical supplies, and emergency heating supplies. When using emergency heating and

lighting equipment, it is important to use it according to manufacturer's instructions in order to prevent a fire or loss of life. Portable generators are great for extended power outages, but must be kept outdoors, since deadly carbon monoxide gas is emitted through the exhaust.

Winter weather safety precautions don't end at home. If you need to drive during a storm, it is beneficial to keep a winter weather kit in the trunk of your car, in case you become marooned. This kit should contain non-perishable food, extra

clothes and blankets, a battery-powered radio, a shovel, and sand. If you become stranded, tie a brightly colored cloth to your antenna to help others find you, and run the engine periodically for heat (but take special care to keep the exhaust pipe clear!).

Finally, try your best not to overexert yourself during the winter. Cold weather puts a strain on even the healthiest bodies, so be careful when shoveling snow, pushing a car, or working outdoors.

**Be smart, stay safe, and stay warm!**

Julie Phillipson



## Over 1000 Attend WFO St. Louis Open House

*Benjamin Sipprell*

On Saturday, October 16th, the National Weather Service Weather Forecast Office (NWS WFO) of Saint Louis held its traditional triennial Open House. With fantastic sunny weather and temperatures reaching into the 70s, over 1000 people attended the event. In addition to tours of the NWS facilities and operations, demonstrations and discussions were available on the grounds of the NWS WFO Saint Louis, including a discussion on Climate Change, demonstrations of observing programs and accompanying equipment, posters highlighting the latest research and intriguing points of the NWS, resource availability from local meteorology-accredited schools and university's, and finally, walk-throughs of Saint Charles Department of Emergency Management resources.



Above: A group heads inside for a tour. Over 40 tour groups passed through the office during the open house!

There were also raffles for numerous prizes including National Oceanographic Atmospheric Administration (NOAA) Weather Radios, posters, and rain gauges. In all over 50 prizes were

awarded to various attendees. The Open House was a huge success thanks in part to the staff members of the NWS WFO Saint Louis and volunteers who manned the numerous outdoor exhibits. Examples included the Community Collaborative Rain, Hail and Snow Network program (CoCoRaHS) and the Saint Charles Department of Emergency Management. Both stated at the conclusion of the event that the Open House had exceeded their expectations and they saw the biggest turnout ever for any event they've attended. The NWS WFO Saint Louis hopes to host the event again in another three years, so keep tuned to the NWS WFO Saint Louis webpage or this newsletter concerning a possible Open House for October 2013.

## Is the St. Louis Area Heading Into a Drought?

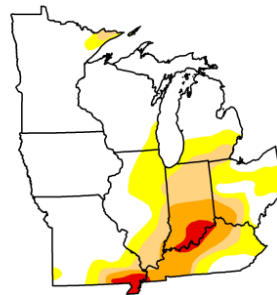
*Mark Fuchs*

After significant flooding across the St. Louis Hydrologic Service Area for each of the past 13 months through October, 2010, it may be difficult to understand how drought may even be possible. But in southern parts of Missouri and Illinois, drought has already become a stark reality. In Missouri Climate Division 6, which includes counties comprising the Missouri Bootheel and adjacent counties, 2010 has been a particularly dry year. For that area, every month except May has experienced below-average rainfall. The period June through October, was the driest June through October period in 60 years for that area. The persistent dryness has resulted in an extreme D3 drought classification (on a scale of 0 to 4) for most of this climate division on the November 9<sup>th</sup> U.S. Drought Monitor (Figure 1). This issuance pushes the abnormal dryness into all of St. Francois County, southern Iron County, and all of Reynolds County, Missouri, with moderate drought occurring in southern Reynolds County, Missouri. In Illinois, it was considered abnormally dry over southeastern Randolph County, most of Washington County, eastern Clinton County, southeastern Fayette County, and Marion County.

### U.S. Drought Monitor Midwest

November 16, 2010  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)						
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	D4
Current	66.4	33.6	18.8	9.5	2.2	0.0	
Last Week (11/09/2010 map)	70.3	29.7	18.4	9.5	2.2	0.0	
3 Months Ago (09/24/2010 map)	83.5	16.5	6.0	0.9	0.0	0.0	
Start of Calendar Year (01/05/2010 map)	88.7	11.3	3.5	0.8	0.0	0.0	
Start of Water Year (11/05/2010 map)	76.0	24.0	9.9	2.7	0.0	0.0	
One Year Ago (11/17/2009 map)	88.3	11.7	3.5	0.8	0.0	0.0	



**Intensity:**  
 D0 Abnormally Dry  
 D1 Drought - Moderate  
 D2 Drought - Severe  
 D3 Drought - Extreme  
 D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

<http://drought.unl.edu/dm>

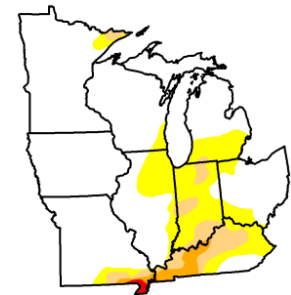


Released Thursday, November 18, 2010  
Author: M. Brewer, NOAA/NCDC

### U.S. Drought Monitor Midwest

November 30, 2010  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)						
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	D4
Current	74.5	25.5	8.3	2.3	0.4	0.0	
Last Week (11/23/2010 map)	66.4	33.6	18.8	9.5	2.2	0.0	
3 Months Ago (09/24/2010 map)	76.6	23.4	6.0	1.2	0.0	0.0	
Start of Calendar Year (01/05/2010 map)	88.7	11.3	3.5	0.8	0.0	0.0	
Start of Water Year (11/05/2010 map)	76.0	24.0	9.9	2.7	0.0	0.0	
One Year Ago (12/01/2009 map)	88.5	11.5	3.5	0.8	0.0	0.0	



**Intensity:**  
 D0 Abnormally Dry  
 D1 Drought - Moderate  
 D2 Drought - Severe  
 D3 Drought - Extreme  
 D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

<http://drought.unl.edu/dm>



Released Thursday, December 2, 2010  
Author: R. Tinker, CPC/NOAA

Figure 1: U.S. Drought Monitors for the Midwest United States valid November 16 and November 30, 2010 showing regional improvement.

(Continued on next page.....)

## Is the St. Louis Area Heading Into a Drought? (continued)

A dry fall season has made matters worse in the WFO St. Louis service area. In October, NWS cooperative observers indicated very dry conditions, particularly south of I-70. For the month, Warrenton and Washington, Missouri observers each reported just 0.17 inches, Mel Price Lock and Dam reported 0.20 inches, and Rosebud, Missouri reported 0.23 inches. Automated gages at stream gage sites reflected this trend at Mel Price pool at 0.16 inches, Big River near Richwoods, Missouri at 0.17 inches, St. Francis River at Mill Creek, Missouri at 0.19 inches, Meramec River near Steelville, Missouri at 0.20 and Coldwater Creek near Black Jack, Missouri at 0.21 inches. The lowest reports came from the CoCoRAHS network, where Steelville, Missouri 7.4 ESE reported 0.07 inches, while observers at Farmington, Missouri 7.5 SSE and California, Missouri 0.3 SW both reported just 0.14 inches. The dry weather has persisted into the first half of November, with cooperative observers at Warrenton, Washington, and at Weldon Spring reporting no rain through the 15<sup>th</sup>. Only 0.01 has been reported at Smartt Field in St. Charles and at water treatment plant 7 miles SSW of St. Charles through the 15<sup>th</sup>. Figure 1 indicates where the driest locations have been since the beginning of the year (left) and in late October and early November (right).

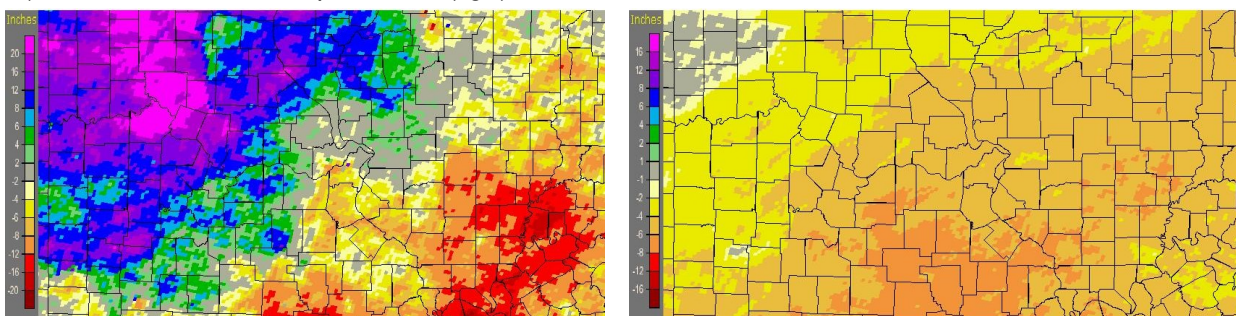


Figure 2: Rainfall departures from average since (left) January 1, 2010 and from (right) September 23 through November 22, 2010.

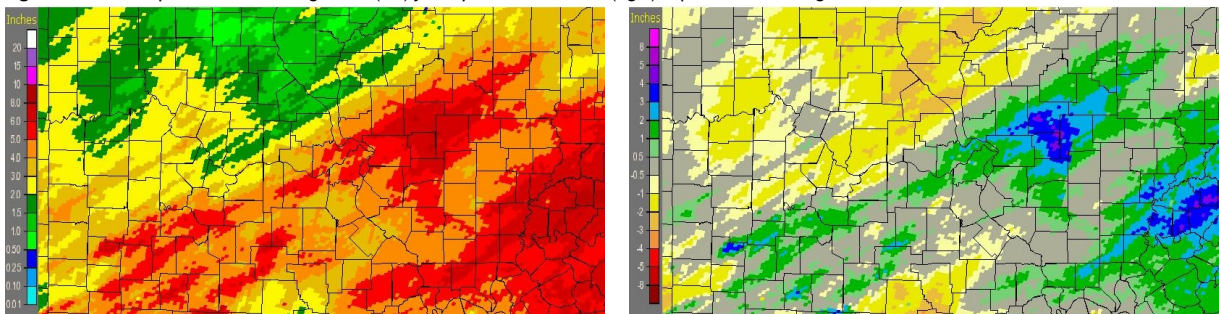


Figure 3: Monthly rainfall (left—red is highest amounts) and departure from average (right—greens and blues are above average) for November, 2010

While dry conditions have persisted through the middle of November, the latest extended precipitation outlooks provide reason for guarded optimism for the winter (Figure 2). Based on the current La Niña pattern, the outlook for December through February calls for above average chances of above average precipitation in the lower Ohio Valley, including southeastern Missouri and southern Illinois. The week of Thanksgiving proved to be a break in the dry pattern. Rain and thunderstorms on November 22<sup>nd</sup> generated between less than a tenth of an inch at Canton, Missouri, Hannibal, Missouri, and Salem, Illinois, up to at least an inch and a half at Warrenton, Missouri. The next rainfall event just before Thanksgiving put a real “dent” in any drought across eastern Missouri and southern Illinois, though northeast Missouri and west central Illinois had less rainfall to be thankful for. Rainfall amounts from that week ranged from just over a tenth of an inch at Edina and at Steffenville in northeast Missouri to around 5 inches at Washington, Missouri (5.05) and in the St. Charles, Missouri area, where St. Charles Elm Point (4.87), Smartt airfield (4.84) and the National Weather Service in Weldon Spring (4.80) reported the heaviest rainfall. In Illinois, Edwardsville (4.82), Vandalia (4.74), Patoka (4.63), and Iuka (4.51) reported the highest rainfall amounts Thanksgiving week. Up to another 1 to 2 inches of rain fell across southeast Missouri and southern Illinois on the 29<sup>th</sup> and 30<sup>th</sup>, with lesser amounts elsewhere.

So in summary, the answer to the question, “Is the St. Louis area heading into a drought?” is not definitive. Southern portions of the St. Louis service area have been close to drought conditions for a while. And with the recent dry weather of the past two months throughout eastern Missouri and southwestern Illinois, it had become quite dry in the metropolitan St. Louis area as well. But rainfall at the end of November along with a wet outlook for the next 90 days implies relief is well underway. If above average rainfall continues through the winter, the local area may be able to start next spring in a more favorable soil regime than where it was in mid-November. At least, that would defer the question of significant drought until the growing season.

## WINTER OBSERVING TIPS!

OBSERVERS WITH NON-RECORDING GAGES RECORD THREE MEASUREMENTS WHEN IT SNOWS

### ① WATER IN SNOW

Record in this column to inches and hundredths.

Melt contents of gage and measure like rain. If high winds have blown snow out of the gage, the outer container is used to obtain a substitute sample from the snow on the ground where the depth represents the amount that fell since yesterday's observation.

24 HOUR AMOUNTS		at obsn
Rain Melted Snow etc. (ins & hundredths)	Snow Sleet Hail (ins & tenths)	Snow Sleet Hail ice on gnd (inches)
.22	2.0	2
.35	3.0	5
T	T	4
0	0	2
T	T	T
0	0	0
.11	0.9	1
0	0	0

### ③ DEPTH OF SNOW ON THE GROUND AT OBSERVATION TIME

Record in this column to nearest inch—if less than 1/2 inch, record "T".

Any time there is snow on the ground at observation time record average depth on ground at observation time. Include old snow as well as newly fallen snow.

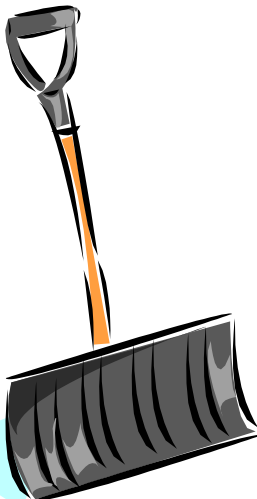
\*note that the amounts are entered as 2 and not 2.0

Please fill in blanks with zeroes. Do NOT use fractions.

### ② SNOWFALL SINCE YESTERDAY'S OBSERVATIONS

Record in this column to the nearest 0.1 inch.

Find some place where the freshly fallen snow is least drifted and is about average depth for the locality. Measure the depth of the snow which fell since yesterday's observation. Report an estimate if the snow melted before observation time.



### A few pointers...



If you cannot take the observation or will be out of town, please get someone—a friend, relative, or neighbor—to take the temperatures or measure the rain and snow. Some data is better than no data at all!



If no one can be found and you are only going to be gone for a weekend, for rainfall, go ahead and measure what is in the gage and record it on Monday, with a comment in the remark section stating that it is a weekend total. For temperatures, enter "M" for missing, and explain in the remarks section.



Use the letter "T" for traces of rain and snow, not "Tr" or "Trace".



When flurries occur with no accumulation, the proper measurements are: Snow Melt (or Water Equivalent) = T, Snow-fall = T.