



Prairie State Precip

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The latest 30-day outlook from the Climate Prediction Center indicates the warm, dry conditions are likely to persist through August. If that is the case then we will see the impacts of this drought continue to increase.

Drought Intensifies Across Illinois

The July 31 U.S. Drought Monitor depicts the entire state of Illinois in drought, with 71 percent of the state in Severe to Exceptional drought. A number of Illinois CoCoRaHS observers have been regularly reporting drought impacts. You can read these on the main CoCoRaHS web site by clicking on **View Data** on the top line menu, then **Drought Impacts** in the first section of the Reports menu on the left hand side. There has been rain falling, and the nature of showers and thunderstorms in weather regimes such as the one we've had this summer brings about large variations in rainfall amounts. When winds a weak aloft showers and thunderstorms move slowly if at all, and one location may get two inches of rain while two miles away there's only thunder and not a drop. Many of the showers and thunderstorms are not organized, that is, they pop in a somewhat random fashion. Thunderstorms that organize into long lines and bring rain to large portions of the state usually develop ahead of strong cold front.

The latest 30-day outlook from the Climate Prediction Center indicates the warm, dry conditions are likely to persist through August. If that is the case then we will see the impacts of this drought continue to increase. For more information on drought, visit the web site of the National Drought Mitigation Center [<http://drought.unl.edu/>] and the National Integrated Drought Information System (NIDIS) [<http://www.drought.gov>]

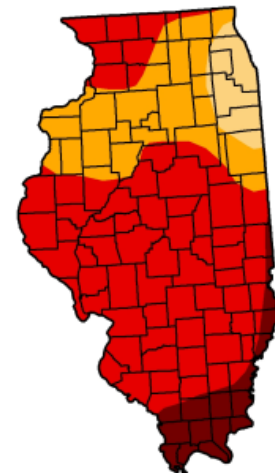
U.S. Drought Monitor Illinois

July 31, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	93.93	71.29	8.39
Last Week (07/24/2012 map)	0.00	100.00	100.00	95.07	70.80	7.10
3 Months Ago (05/01/2012 map)	52.54	47.46	9.52	0.00	0.00	0.00
Start of Calendar Year (12/27/2011 map)	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	45.76	54.24	30.76	14.68	0.00	0.00
One Year Ago (07/26/2011 map)	94.82	5.18	0.00	0.00	0.00	0.00

Intensity:

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



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

<http://droughtmonitor.unl.edu>



Released Thursday, August 2, 2012
Mark Svoboda, National Drought Mitigation Center

Update on Illinois CoCoRaHS Stats

Most of the participation records set last year are being shattered this summer. Here is the latest update on the participation numbers through the end of July.

Highest Number of Daily Reports	482	July 19, 2012
Highest 7-Day Average	434	Week ending July 20, 2012
Highest Average Daily Reports per Day for a Month	427	July 2012
Total Observers Reporting in a Month (at least one report)	569	July 2012
Highest Total Reports in a Month (Daily + Multi-Day)	13,435	July 2012
Highest Number of Zero Reports	421	July 17, 2012

How Much Water is One Inch of Rain?

*Bill Morris, Hydrologist
NWS Chicago/Romeoville IL
IL-GY-1*

Once inch of rain for one acre is the equivalent of 27,154 gallons of water!

As CoCoRaHS observers, each morning we take our daily trek out our yards to check our rain gauges. We measure our precipitation to the nearest hundredth of an inch and dutifully enter the data on the CoCoRaHS web page. Have you ever wondered how much water one inch of rain actually represents? You may be surprised!

The yard in my rural subdivision is roughly one acre in size. Once inch of rain for one acre is the equivalent of 27,154 gallons of water! Even a mere 0.25 inch of rain is the equivalent of nearly 6,800 gallons of water over that same acre of land. For me, this helps to reinforce my belief of just how beneficial a nice soaking rain is in replenishing soil moisture. It can be difficult (and expensive) to match this with supplemental backyard watering.



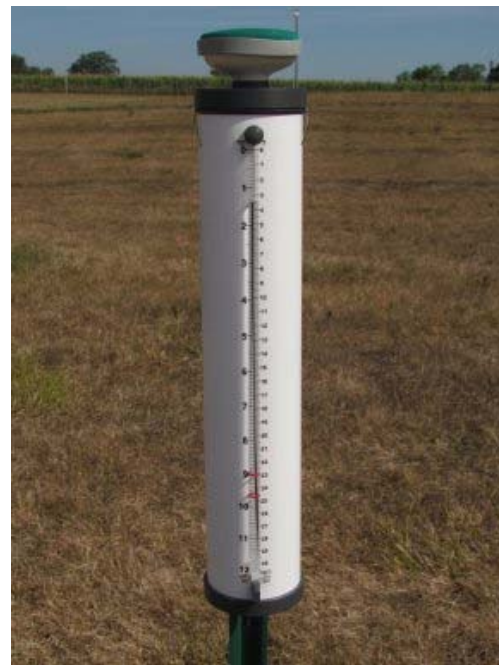
ET—The “Up” Side of the Water Cycle

If you Google “ET” or “E-T” the first several results returned are for the 1982 movie *E.T. – The Extra-Terrestrial*, about a boy who befriends an extra-terrestrial stranded on Earth. The “ET” that is the subject of this article isn’t about visitors from outer space, but it may be a concept that is a little “alien” to many people.

ET stands for evapotranspiration, the process in which water vapor moves back into the atmosphere. Evapotranspiration is the sum of evaporation from ground surfaces and the transpiration of water to the atmosphere from plant leaves. ET is a function of temperature, wind speed, relative humidity, and solar radiation. Transpiration occurs when the roots of a plant draw moisture from the soil where it moves up through the plant to be released as water vapor from the leaves. Studies show that transpiration accounts for about 10 percent of the moisture in the atmosphere. An acre of corn can transpire about 3,000 to 4,000 gallons of water per day into the atmosphere. The transpiration from agricultural crops is often significant enough contribute to the higher dew point temperatures that create muggy conditions during the summer. Conversely, the reduction in transpiration, such as what we are experiencing in the current drought, reduces the return of moisture to the atmosphere which in turn inhibits the development of showers and thunderstorms.

CoCoRaHS observers measure what falls out of the atmosphere, precipitation. Since earlier this year, however, a number of CoCoRaHS observers have been measuring evapotranspiration, or what is going back into the atmosphere, the other side of the water cycle. Evapotranspiration measurements actually began in mid-2011 with a few volunteers as a pilot project. This spring the opportunity to make ET measurements was opened up to the observers at large. At present there are about 75 observers making ET measurements across the country along with their rainfall (or in many cases, lack of rainfall) measurements. There are nine observers in Illinois making ET measurements, the most in any one state. ET observations in Illinois are being made in Champaign, Cook, DuPage, Grundy, LaSalle, Will, and Winnebago Counties. ET does not vary to the same extent as precipitation, so multiple

measurements in the same general area are usually not needed, unlike precipitation.



The measurements are made using a special ET gauge, called an atmometer. The gauge consists of a water reservoir with a cap consisting of a ceramic evaporator surface with a green fabric cover. In our case the fabric simulates evaporation over turf, so the gauge needs to be sited in a sunny, exposed area and preferably over grass. We are measuring “reference ET” which is defined as “*the ET from an extensive surface of clipped grass... that is well-watered, and fully shades the ground.*” This reference ET is referred to as ET_0 . Another cover is available

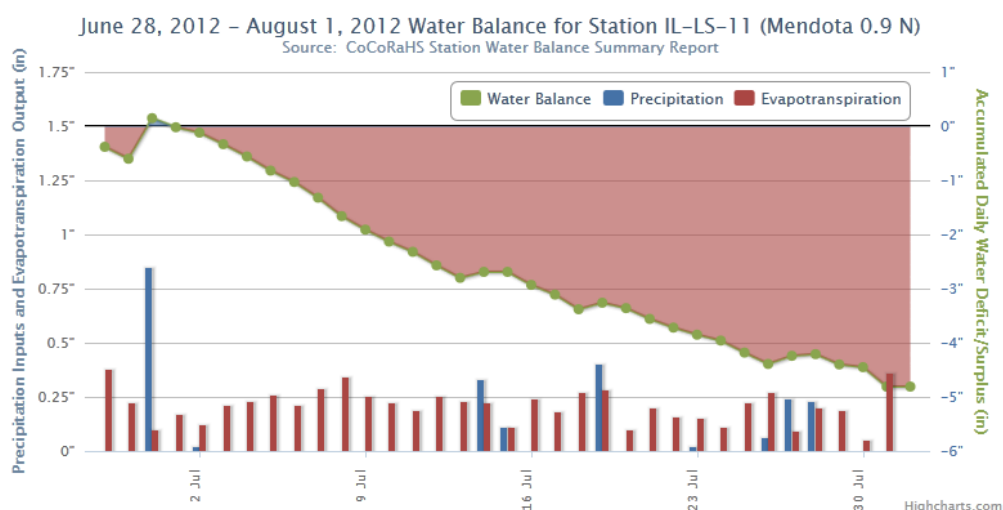


An acre of corn can transpire about 3,000 to 4,000 gallons of water per day into the atmosphere.

ET (continued)

which simulates evaporation over alfalfa (ET_1). The cap is connected to a supply tube which extends the length of the reservoir. There is a sight tube on the exterior of the gauge which measures the water level in the gauge. The difference in water level from one observation to the next represents the evapotranspiration.

The measurement of both precipitation and evapotranspiration allows us to calculate an atmospheric water balance. Recently CoCoRaHS introduced water balance charts on the web site. This plots precipitation, ET, and the accumulated difference over time.



The measuring of ET is relatively easy but there is a commitment of time and money. The ET gauges cost about \$215, and there is a little more to setting up and maintaining them. However, the ET measurements are very useful and more importantly fill a big data need. Most estimates of ET are calculated, and the deployment of these gauges to CoCoRaHS observers represents the first organized effort to measure ET other than in automated, specialized networks.

Here are some comments from a few of our Illinois ET observers about their participation in the ET measurement program.

I have a personal (not quite professional) interest in agriculture, vegetables and fruits. Although I normally wait to see plant response to lack of water before acting, the ET will be a good secondary indicator. My professional interest is in aerospace environmental control systems with a special interest in psychrometry (humidity) and this parallels that interest.

Michael Andres, IL-WN-2

As a hydrologist, I understand the importance of evapotranspiration in the hydrologic cycle. Unfortunately, actual measurements of ET are becoming increasingly more difficult to come by, so CoCoRaHS reports will fill an important gap in data collection. As a backyard weather enthusiast, I have an automated weather station in addition to my CoCoRaHS rain gauge. My weather station calculates a daily ET from measurements of wind, temperature, and solar radiation. I have always been interested in obtaining an instrument to compare the calculated values to the actual measurements. Finally, as a gardener I'm curious to know how much moisture is being lost from the yard and garden, especially during our current dry spell.

Bill Morris, IL-GY-1

...actual measurements of ET are becoming increasingly more difficult to come by, so CoCoRaHS reports will fill an important gap in data collection.

ET (continued)

The obvious factors that affect transpiration are temperature, humidity, sunlight and wind. But I was amazed that our sunny 90 degree plus days and steady 30 MPH winds pushed transpiration over 0.25 inches per day. I was under the false impression that 1 inch of rain a week was generous. Obviously, 2 inches per week may be generous and 1 inch per week won't always keep up.

Bill Rowe, IL-CK-143

For more information on evapotranspiration and the CoCoRaHS measurement program, visit the CoCoRaHS web site (www.cocorahs.org) and select Evapotranspiration in the Resources menu of the left side of the page.

Rain Gauge Maintenance

Use a long-handled bottle brush or a tightly rolled sheet of newspaper to wipe out the bottom of the inner measuring tube.

Most of our rain gauges have been collecting more dust than rain this season, so you may not be checking the condition of your rain gauge very often. Even when it's not raining regularly the gauge should be cleaned periodically. Dust and dirt will collect in the bottom of the measuring tube, and with a little moisture you may start to see a bit of algae growing. Birds may use your rain gauge as a perch and will leave souvenirs of their visit. These can clog the funnel and generally cause a mess. So, it's a good idea to take advantage of dry weather to give your rain gauge a cleaning. The rain gauge can be washed with dishwashing detergent for general surface dirt. The inner measuring tube requires a bit more effort to clean. If there is a lot of gunk in the bottom of the tube, pour a little bit of household bleach into the tube and let it stand for several minutes. Then, use a long-handled bottle brush or a tightly rolled sheet of newspaper to wipe out the bottom of the tube. Rinse it well and you should have a nice clean inner measuring tube!

One other problem that has been occurring this summer with the dry weather is the ground shrinking around mounting posts in the ground. It's a good idea to check the stability of your mounting post to make sure it is plumb and your rain gauge level.



Mike Betourne, IL-KK-23 says the ground has shrunk so much around his rain gauge mounting post that he was able to lift it out of the ground. It is 26 inches deep in the ground and there was hardly any moisture at the bottom of the hole. The post on which his weather instruments are mounted (far right) is also loose in the ground.



"I like knowing that my data is useful to NWS forecasters and that it helps give an "on the ground" perspective to match to what they see on radar."

Casey Mayfield, Sangamon County Coordinator



Casey Mayfield is one of our "charter" CoCoRaHS

observers, coming on board in December of 2006. She has been the Sangamon County Coordinator since April 2007.

How did you find out about CoCoRaHS and when did you get started?

I first read about CoCoRaHS in my local newspaper and I thought it sounded interesting and fun. I had previously considered volunteering as a Co-Op reporter, but I was concerned that I didn't have enough time to be a reliable reporter; CoCoRaHS' time commitment matched what I was able to commit too. I volunteered shortly after Illinois came online with CoCoRaHS. My first daily report was submitted in December 2006!

What about the program do you enjoy the most?

I really enjoy reporting Significant Weather, specifically hail and significant rainfall. I like knowing that my data is useful to NWS forecasters and that it helps give an "on

the ground" perspective to match to what they see on radar. I also enjoy reporting SWE (snow water equivalent), because I appreciate how important that information can be to the hydrology folks when flooding conditions exist.

Why did you decide to volunteer as coordinator?

I decided to volunteer as a Coordinator because I thought I could serve as an effective resource for general Q&A about CoCoRaHS and help guide local volunteers as they joined the program. I really wanted to be more active in recruiting new volunteers, but my work schedule is demanding and I haven't had the time to spend on recruitment as much as I would like.

Tell us a little more about yourself.

I'm married and a dog mom to two very energetic Labradors. I work in a senior management role for a publicly held biometric security company, specifically working in the area dealing with national security programs

and fingerprint based biometric programs. I enjoy photography, fishing and boating, gardening, and cooking. My husband and I are breweriana collectors and I'm an avid social media person, managing multiple Twitter and Facebook feeds for hobby organizations in the breweriana arena.



**Community Collaborative
Rain, Hail, and Snow Network**

www.cocorahs.org

Illinois web page
<http://www.cocorahs.org/state.aspx?state=il>

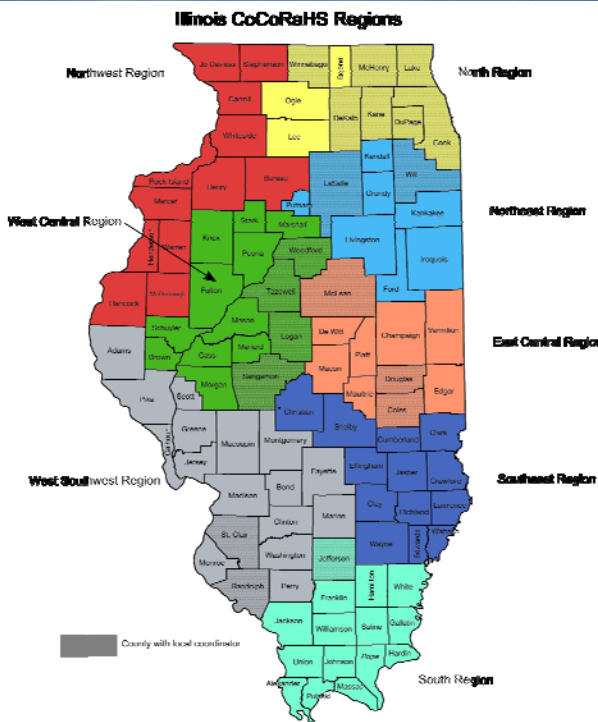
"Because Every Drop Counts!"

Illinois State Coordinator

Steve Hilberg
hberg@illinois.edu

**We're on
Facebook!**

**Join the group
Illinois CoCoRaHS**



Region

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