Winter 2012-2013
Volume 9, Issue 2

National Weather Service Quad Cities IA/IL

Weather Home Companion

Inside This Issue:

The 2012 Drought	1
What Does Hurricane Sandy Have in Common With Us?	1
Summer 2012: By the Numbers	3
Seasonal Variation in Rivers	4
Snow Measuring Refresher	5
119 Years of Observations in Keosauqua	6
COOP Observer Length of Service Awards	8
New COOP Observers	9

Weather Home Companion is a semiannual publication of the National Weather Service office in the Quad Cities.

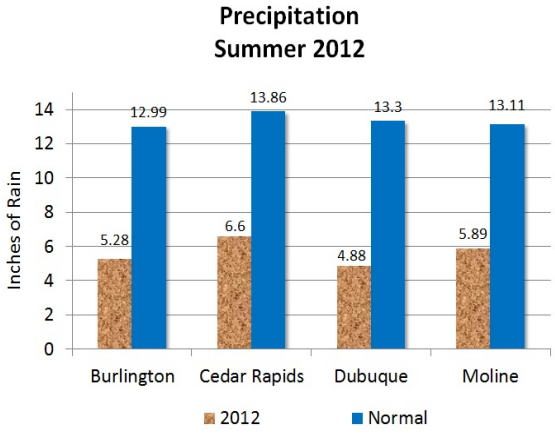
The 2012 Drought

Ray Wolf

Drought is frequently described as the "creeping disaster" because unlike a winter snowstorm or a summer severe weather event, drought develops slowly over time with little advance fanfare. Drought is defined as a persistent, abnormal moisture deficiency having adverse impacts on vegetation (crops), animals and people. It is an extreme deviation from the climatic average, but it is a normal, though infrequently occurring part of our Midwest climate.

Drought is evaluated using a number of meteorological and climato-

(Continued on page 2)



Precipitation totals for the summer months of June, July and August compared to normal.

What Does Hurricane Sandy Have in Common With Us?

Steve Kuhl

Hurricane Sandy may go down as the most destructive storm in east coast history. The damage inflicted on New York City and other major cities along the east coast was unprecedented. Sadly, over one hundred lives were lost and property damage is estimated to be over $60 billion. This historic storm left 9 million customers without power, completely destroyed homes and businesses, caused major inland flooding and dumped wet snow up to 3 feet deep in the mountains of West Virginia and Kentucky, causing seven deaths.

So the question is: *What does Hurricane Sandy have in common with us?* The answer is **preparedness**! Some people were prepared for the hurricane with weather disas-

(Continued on page 4)

The 2012 Drought

(Continued from page 1)

logical indices. These indices are related to quantitative measures of the shortfall in precipitation over various time periods such as 30-days, 60-days, a season or even a year. Some factor in crop water needs and soil moisture. In addition to these measures, we look at river levels and compare them to what is normal for the time of year. Finally, a couple of indices estimate the potential for fire in natural areas and along roadsides, since hot, dry and windy weather characteristic of droughts will increase the wildfire danger.

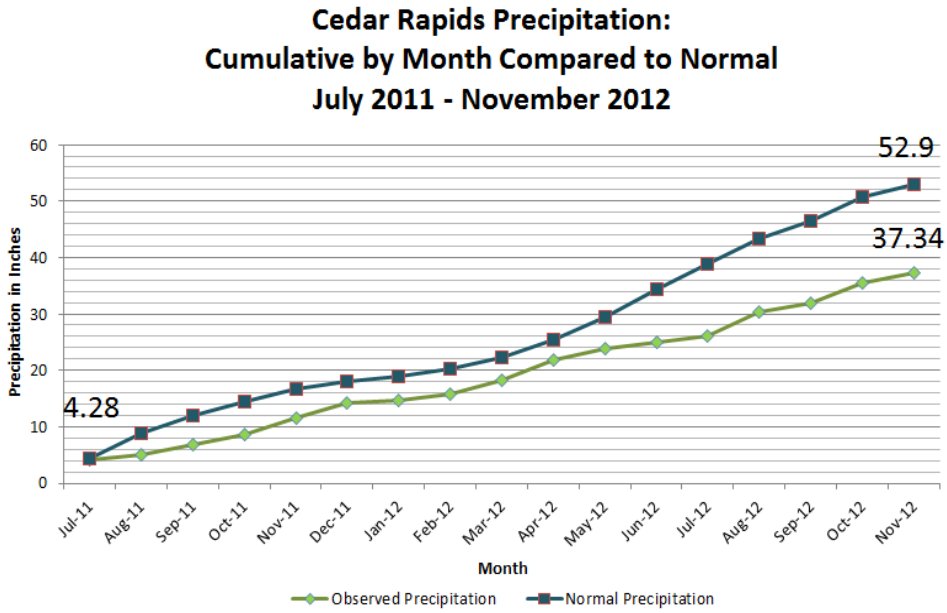


Chart depicting precipitation at Cedar Rapids from July 2011 through November 2012. The green (bottom) line shows the cumulative precipitation from July onward, compared to normal (top, blue line). The precipitation deficit that began in August 2011 continued through the winter and spring of 2012, then worsened considerably in the summer of 2012, as seen by the diverging lines.

For societal and environmental impacts, we gather information from federal, state and local government agencies such as the USDA and state extension specialists for crop and livestock impacts, U.S. Army Corps of Engineers for river transportation impacts, and the state departments of natural resources for water supply, water quality and land management (e.g., burn bans) impacts.

These factors are combined to determine the significance of drought conditions. This information is passed on each week to a national drought specialist who collates the data from across the country to produce the U.S. Drought Monitor. The Drought Monitor ranks the degree of drought on a scale of 1-moderate, 2-severe, 3-extreme and 4-exceptional. The higher the number, the more serious are the impacts and rarer is the occurrence.

The drought of 2012 actually began with a dry fall and early winter in 2011. Soil moisture reserves did not get entirely replenished, and rivers started the spring season generally lower than normal. Next, we experienced the warmest March on record which initiated plant growth in our yards, pastures and natural areas. Some rainfall in April and early May proved temporarily helpful, but then conditions turned dry after crops were planted by the latter half of May. Drier than normal weather continued in the summer, then the heat hit in July. Several locations measured multiple days with temperatures at or above 100 degrees. In recent years, it has not been unusual to go an entire summer without ever hitting 100 degrees. At its peak this past summer, the drought in our area was rated severe to extreme, or D2-D3.

Corn is particularly sensitive to extreme heat and dryness in July when the crop is pollinating. A lack of moisture and/or extreme heat will hinder pollination and thus directly decrease yields. Soybeans are a little more resilient to dry weather and depend on rainfall especially in August, which was sufficient this year in most areas to help make a decent crop. The variability in yields was rather amazing as some areas, especially just south of the Quad Cities, were fortunate enough to catch a few more thunderstorms than elsewhere. Other factors relating to how agronomic practices such as planting date and tillage interacted with the drought also impacted yields.

(Continued on page 3)

The 2012 Drought

(Continued from page 2)

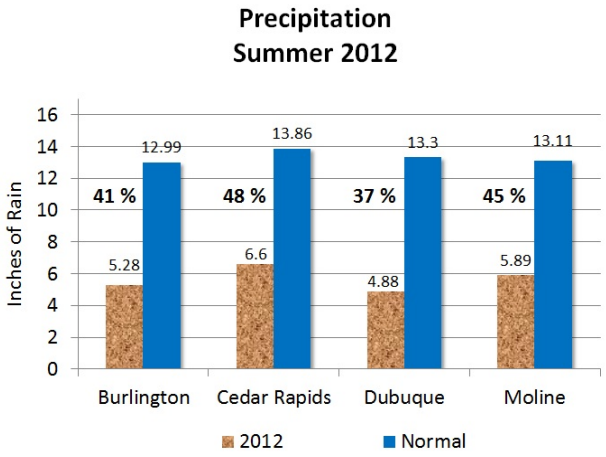
So a natural question is 'When will the drought end?' or 'What will it take to end this drought?'. First, we will need to shift into a weather pattern with more frequent precipitation events before soils freeze this winter. And both soil moisture supplies and river levels would need to reach closer to normal values. Any areas experiencing groundwater shortages would need to see those aquifers recharged. At that point, our impacts would be mitigated and our precipitation values would likely have accumulated to near or above normal values. But because of these varying impacts, it is difficult to assign a single number for a precipitation accumulation as ending the drought. Much like we "creep" into a serious drought, we also usually "creep" out of a serious drought.

If you experience or know of a drought impact, you can help the drought assessment process by reporting your information to the Drought Impact Reporter on the web at http://droughtreporter.unl.edu/. These reports help us determine to the scope and degree of impacts and are cataloged in a database for future use. For more information on the current status of drought conditions in our area, check our web page at http://www.crh.noaa.gov/dvn/?n=drought .

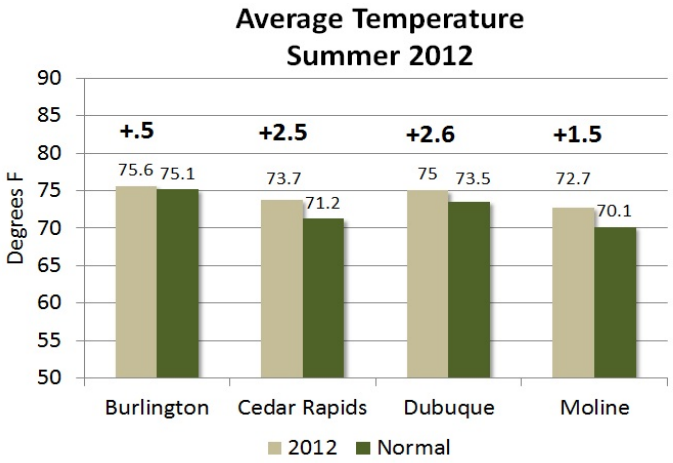
Summer 2012: By The Numbers

David Sheets

Tim Gross



Rainfall totals for the summer months of June, July and August compared to 30 year averages. The percent of normal are shown above the precipitation columns.



Average temperatures for the summer months of June, July and August compared to 30 year normal values. The departures above normal are indicted in bold near the top

Historical Rankings:

Burlington: 5th driest[1]
Cedar Rapids: 5th driest[2]
Dubuque: 8th driest[3]
Moline: 5th driest[3]

[1] Based on 105 years of data
[2] Based on 56 years of data
[3] Based on 139 years of data

New Daily Records:

July 7: High of 100 in Cedar Rapids tied record (last set 1936)

July 18: High of 100 in Moline tied record (last set in 1966)

August 4: Calendar day rainfall of 1.79 in Dubuque set new record (old record: 1.48, 1968)

August 8: High of 97 in Moline tied record (last set in 1984)

August 17: Low of 52 in Burlington set record (old record 53 set in 1899)

August 18: Low of 47 in Burlington set record (old record 49 set in 1977)

What Does Hurricane Sandy have in Common With Iowa?

(Continued from page 1)

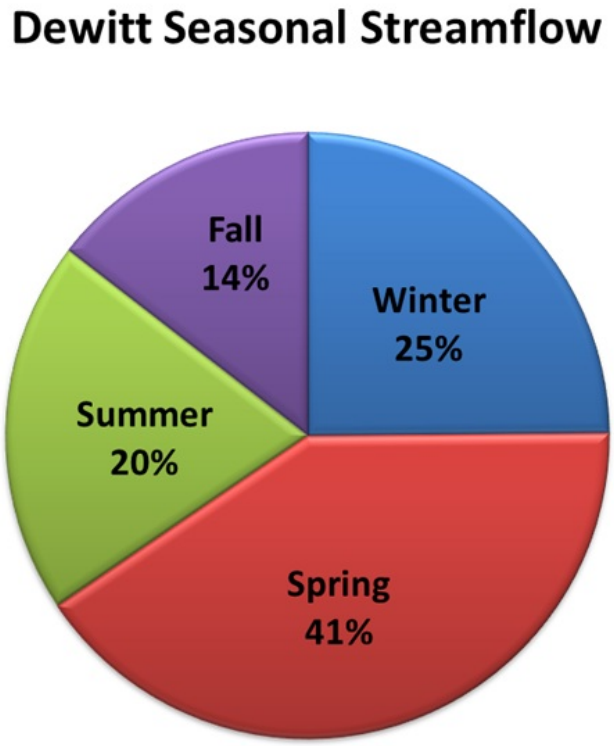
ter plans and kits, but most were not. Although the National Hurricane Center provided accurate warnings of the damage that would occur, many people did not heed the warnings to evacuate. Some of these people perished. Disasters can strike anywhere at any time. Remember the Groundhog Day blizzard, the Parkersburg, and Galva tornadoes? That is why it's important for every business and family to have a weather emergency plan and disaster kit. Instructions on how to make a plan and build a kit is available on the FEMA "Ready" website at: http://www.ready.gov/build-a-kit Your Quad Cities NWS will continue to provide you with the very best severe weather warnings possible. However, we can only do so much to keep you safe. We work in a partnership with you. It's up to you to be prepared and heed warnings before a disaster strikes.

Seasonal Variations in Rivers

Maren Stoflet

Various agencies operate streamgages on area rivers and streams and keep records of past streamflows. (Streamflow is the volume of water that passes by a river location during a particular period of time.) A pattern of variation in streamflow by month and season can often be seen in data from a streamgaging location with a significant period of record. Each river or stream has its own unique patterns, depending on how it reacts to such things as seasonal variations in weather conditions, precipitation, evaporation, and snowmelt.

Within the Quad Cities NWS forecast area, most area rivers and streams average the highest streamflow during spring (April-June) in response to snowmelt and heavy rain from spring storms. The season with the second highest streamflow is often winter (January-March) which includes the start of the snowmelt season. The season with the lowest streamflow is typically fall (October-December,) which corresponds to lesser precipitation totals. The second lowest streamflow is typically summer (July-September,) when influencing factors include increased evaporation and use of precipitation by vegetation.



The above pie chart shows an example using monthly mean streamflow data from October 1934 through March 2012, for the Wapsipinicon River near De Witt, Iowa. (Data courtesy of the U.S. Geological Survey) This chart shows that 41 percent of the yearly streamflow occurred in the spring months (April-June,) and only 15 percent of the yearly streamflow occurred during the fall (October-December.)

Snow Measuring Refresher

Thomas Olsen

The first week of September, we experienced temperatures in the low 90S. By the third week of September we saw our first frost. The "S" word, snow, will soon follow. To prepare for winter, this is an excellent time to do a leak test on your standard rain gauge and inner tube. Pour water into these gauges and check to see if any water leaks out. It is best to place the gauges on a dry surface while checking for leaks. If you note leaks, let us know so we can get a replacement out to you. It is getting close to that time of year when *snow* is the predominant form of precipitation!

Don't forget to remove your funnel and inner tube when snow is expected. Let the snow fall directly into your 8 inch rain gauge. When it is time for your observation, if snow has fallen during the past 24 hours, bring the gauge inside, melt the contents, then pour the liquid into the inner tube and measure its contents for water equivalent. If it happens to be snowing during your observation, some of you may have an extra standard rain gauge to swap out to not miss any of the snow.

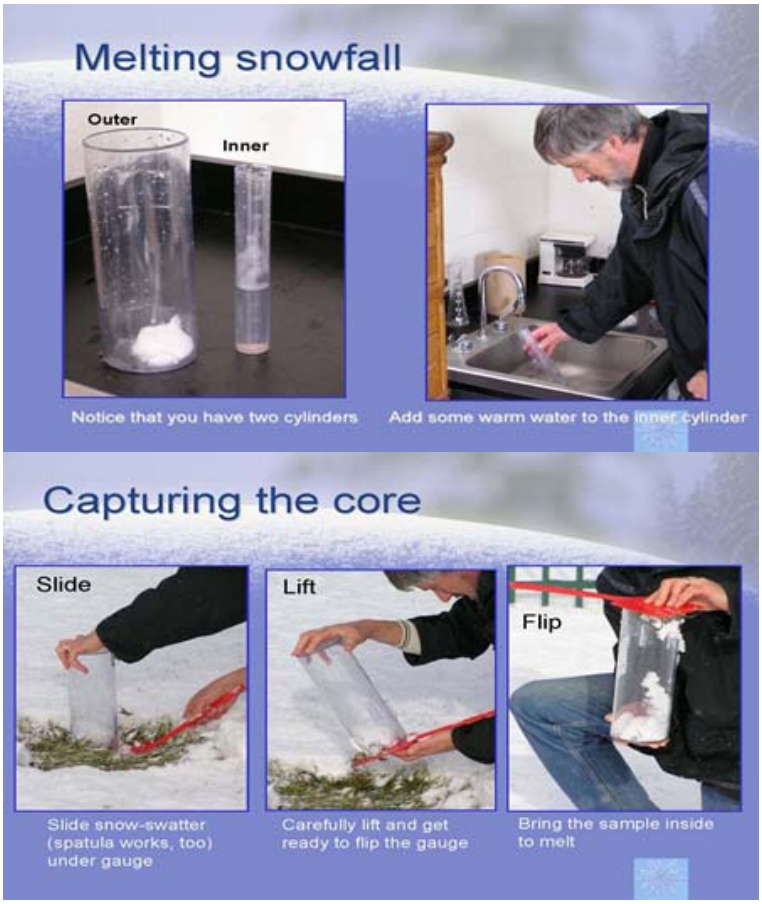
Included on the right (and next page) are some tips to keep in mind when measuring snow. After years of taking weather observations, you know what to do, but a little refresher training never hurt. You can also review how to take snow measurements on the following web site:

http://www.cocorahs.org/media/video/measuringsnow

Here is an example of a snow observation. It is Tuesday, November 27th and it has snowed during the past 24 hours. You are a 7 am observer. You note that **2.3 inches** of new snow fell. After melting the snow in your rain gauge, you measure a water equivalent of **0.17** inches. The snow has settled and the snow depth on the ground is **.6** inch. On your B91 form for Tuesday, November 27th you will note the following in the precipitation fields:

Rain melted (water equivalent): **.17**
Snow fall: **2.3**
Snow on Ground (depth): **1**
Snow Core Water Equivalent: ***not required because snow depth is less than 2 inches***

Some Reminders:



Rainfall or melted precipitation (Snow Core Sample) is measured in hundredths: Example: **0.23**

Snow Measuring Refresher

Snow fall is measured in tenths: Example: 4.7

Snow depth is measured to the nearest inch:

Example: 5

End of the Month

Please make sure all applicable B91 blocks are filled in and the form is signed in the lower right hand corner. If you have been mailing the B-91s or other weather forms, forward the original to our office by the 15th of the following month (or sooner if you can). We need to have your B91s (and other monthly forms) consolidated, quality controlled, and inputted into the online WXCoder website by the 25th of the month. If you are interested in inputting your weather data into WXCoder directly, please contact our office. The fewer forms we have to mail, the more we can save on time and money. Thanks for helping us keep your data timely and flowing!

SNOW QUIZ:

If precipitation falls as freezing rain and at the end of the day, the depth of clear ice on your snow board or other measurement surface has reached 1.0", what should you report as your daily snowfall?

a) 0.0
b) T
c) 1.0"
d) 10.0"
e) none of these choices.

The answer can be found on page 9.

119 Years of Observations in Keosauqua, Iowa: The Tradition Continues

Thomas Olsen

Mike Rippy Retires after Four Years of Service

Mike first started in February of 2008 volunteering as a trained spotter for the Quad Cities NWS. He then took over COOP observing duties from Carl Hohl in August of 2008. Mike was a member of the Volunteer Fire Department in Keosauqua, Iowa. He is one of the many civilian volunteers who helped continue the tradition of providing daily weather observations since January of 1893 (see form on next page). Mr. Rippy has retired from his COOP observer duties due to health issues.

Thank you Mike for your dedication to serving your community and our nation!

(Continued on page 7)

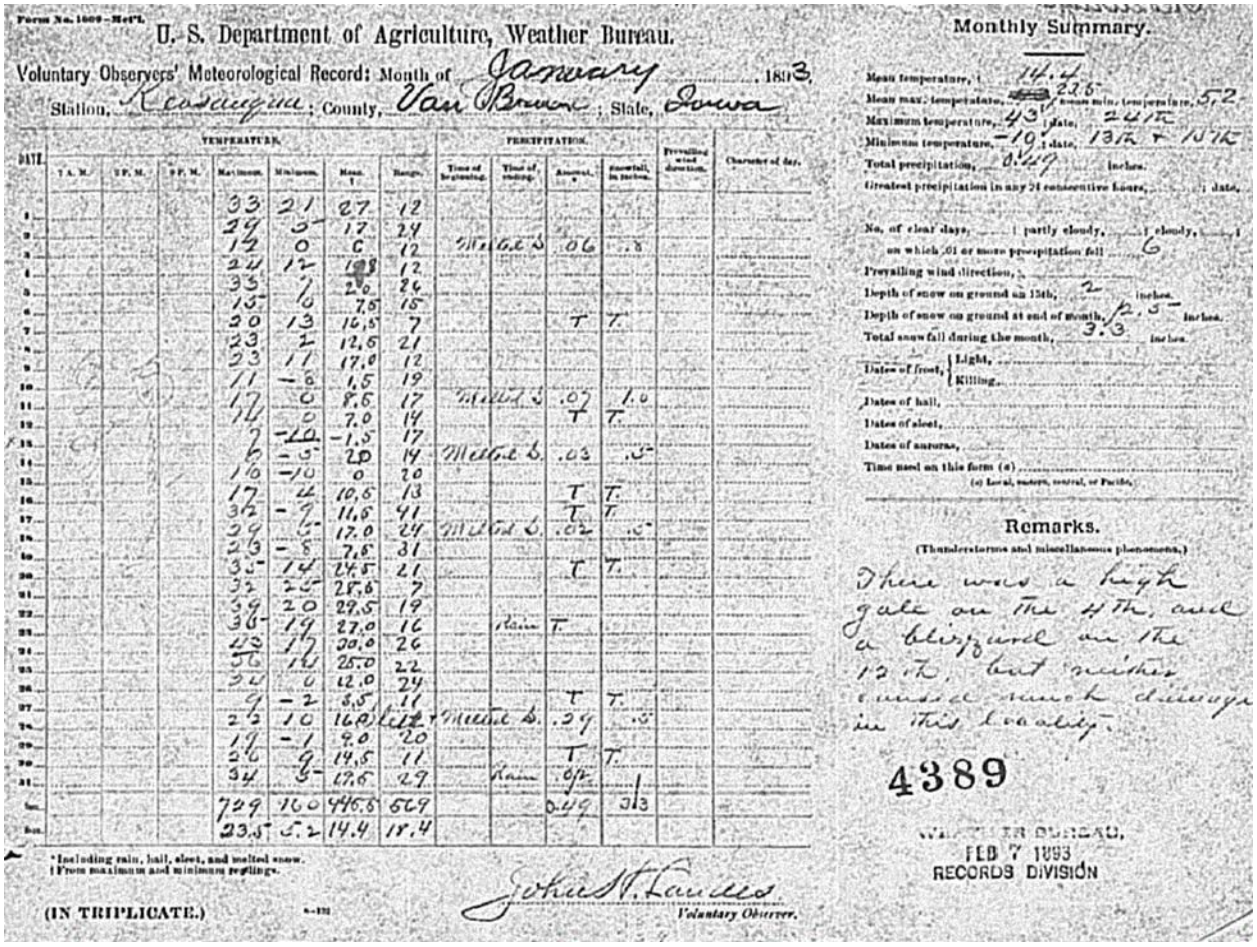
119 Years of Observations in Keosauqua, Iowa: The Tradition Continues

(Continued from page 6)

The volunteer tradition continues in Keosauqua, as new COOP Observers **Chase Murphy** (left) and his mom **Wendi Dixon** (center), assume duties as COOP observers.

Pictured far right is Tim Gross, Meteorologist Intern from the Quad Cities NWS office. Tim and Tom Olsen (not pictured) installed the weather equipment.

Chase and Wendi took over duties on August 17th, 2012. Thanks to Mike, Chase and Wendi, there was no gap in weather data. (Photo taken by Tom Olsen)



U. S. Department of Agriculture, Weather Bureau.

Voluntary Observers' Meteorological Record: Month of January 1893

Station, Keosauqua; County, Van Buren; State, Iowa

Monthly Summary.

Mean temperature, 14.4

Mean max. temperature, 23.5 ; mean min. temperature, 5.2

Maximum temperature, 43 ; date, 24th

Minimum temperature, -10 ; date, 13th & 15th

Total precipitation, 0.49 inches.

Greatest precipitation in any 24 consecutive hours, ; date,

No. of clear days, ; partly cloudy, ; cloudy, ; on which .01 or more precipitation fell 6

Prevailing wind direction,

Depth of snow on ground on 15th, 2 inches.

Depth of snow on ground at end of month, 2.5 inches.

Total snow fall during the month, 3.3 inches.

Dates of frost, { Light, Killing,

Dates of hail,

Dates of sleet,

Dates of auroras,

Time used on this form (a)

(a) Local, eastern, central, or Pacific.

Remarks.

(Thunderstorms and miscellaneous phenomena.)

There was a high gale on the 4th, and a blizzard on the 12th, but neither could much damage in this locality.

4389

WEATHER BUREAU. FEB 7 1893 RECORDS DIVISION

(IN TRIPLICATE.)

Copy of the first official Weather Bureau Voluntary Observer's Meteorological Record for the Site at Keosauqua, dated January 1893. Copy furnished by the National Climatic Data Center (NCDC).

COOP Observer Length of Service Awards

Thomas Olsen

35 Years

Mr. and Mrs. Netolicky have been taking rainfall and snowfall observations starting February of 1977.

Thank you for volunteering your time and energy to the COOP Observing Program.

Enjoy your retirement. We appreciate your service.

Robert and Agnes Netolicky of Walford, Iowa, were presented a 35 year Length of Service Award.

Marilyn Starkey (right), of Oakland Mills, Iowa, was presented a 30 year length of Service Award by Terry Simmons, (left). Terry is the Data Acquisition Program Manager at the NWS Quad Cities.

30 Years

Marilyn has been taking observations since November of 1981. Marilyn decided to hang-up the rain stick and to spend more time with other projects.

Congratulations and thank you for your dedication to serving your community and nation!

New COOP Observers

Thomas Olsen

- Larry and Mary Schutte assumed primary duties from Edward Schutte in February of 2011
- David Fransioli started May of 2011
- Roy and Susan Carter started July of 2011 (previously a COCORAHS observer)
- Norman and Jan Raferty started October of 2011
- Wendi Dixon and her son Chase Murphy started August of 2012 and replaced Mike Rippy (see story on page 8)

Snow Quiz Answer from Page 6:

a). 0.0 Freezing rain is liquid precipitation that freezes on contact with the ground. It is not a form of "frozen precipitation".

NWS Quad Cities
9050 Harrison Street
Davenport, IA 52806
Phone: (563) 386-3976

On the web:
http://weather.gov/quadcities

Editor: **David Sheets**
david.sheets@noaa.gov
Contributors:
Tim Gross, Meteorologist Intern
Steve Kuhl, Meteorologist-in-Charge
Thomas Olsen, Hydro-Meteorological Technician
David Sheets, Meteorologist
Maren Stoflet, Hydrology Program Manager
Ray Wolf, Science and Operations Officer