



# Wyoming CoCoRaHS

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## A Brief History of CoCoRaHS and the Wyoming Water Resources Data System

On the evening of July 27th, 1997, heavy rains dropped several inches of precipitation in the Fort Collins area. The next night another round of even more intense rain began falling which ultimately caused damaging and fatal flooding for the city. Five people lost their lives.

CoCoRaHS was born of that event and, the next year, the network began operating locally in the Fort Collins area. The usefulness of this network was quickly realized and it expanded within the state of Colorado. We at the Water Resources Data System (WRDS) and State Climate Office (SCO) recognized the importance of a near real-time, dense precipitation network and efforts began to make CoCoRaHS go interstate. We officially (or rather "unofficially" since I do not recall any fanfare!) launched CoCoRaHS in Wyoming on July 1st, 2003 and I have been proud to watch it grow from the initial handful of observers to the network we have today.

Long before CoCoRaHS, though, the Water Resources Data System has been providing data to its users. WRDS has been in existence since 1966 and, in 1968, began digitizing surface water data (streamflow records) in support of the original water planning effort that was established by the 1967 State Legislature. Now, more than 45 years later, WRDS is still working to support Water Planning efforts in Wyoming.

In addition to streamflow records, in 1973 WRDS staff began digitizing water quality information and, by the 1980s, this had expanded to well levels and historical climate data. WRDS has been providing streamflow, water quality, well level, historical temperature, precipitation, wind, humidity, etc data ever since. When I started working at WRDS two decades ago, we provided these data on an individual basis, ie, someone would have to actively request the information and then we would provide what they needed.

Now, thanks to the web, most of our providing is done passively. We place the information online and people retrieve it as they need, we may never know who they are or why they need it, but it is there for them to access.

One of WRDS' main roles is to provide technical support to the Wyoming Water Development Office (WDO). WRDS works closely with planning staff at the WDO on projects such as the State Water Plan (<http://waterplan.state.wy.us>). This support ranges from hosting and maintenance of the websites associated with the WDO to conducting Irrigation and Water Rates Surveys and providing digital versions online of all the WDO's Project reports.

Additionally, the WRDS Library maintains a collection of (among numerous other documents) all of the WDO's project reports and has been working for the last several years to make these available online. These documents, along with UW water resources theses and a host of other documents associated with Wyoming's water, may be found at <http://library.wrds.uwyo.edu>

WRDS/SCO are regularly tasked with custom data request related to hydrologic and climatic data for the state. To accommodate these request, WRDS/SCO have created several online data sources that allow users to view data related to snowpack levels, historic precipitation and temperature data, and online mapping systems that combine these into a single "one-stop shop" for data. And with the designation of a nationally-recognized state climate office, WRDS has additional access to data from the National Oceanic and Atmospheric Administration (NOAA), the National Weather Service (NWS), and Regional Climate Centers. This comprehensive access to climate data allows WRDS to assist its stakeholders in retrieving hydrologic and climatic data they may not otherwise have access too.

## Wyoming CoCoRaHS 1st Quarter 2014

- ◆ Most observations in a day:  
187 Reports on January  
27th and March 11th
- ◆ Greatest Amount: 2.09" on  
Mar 18th in Sheridan
- ◆ Six days with no  
precipitation statewide
- ◆ Nine days with a trace or  
less statewide
- ◆ 15,204 daily reports  
submitted
- ◆ 254 active observers



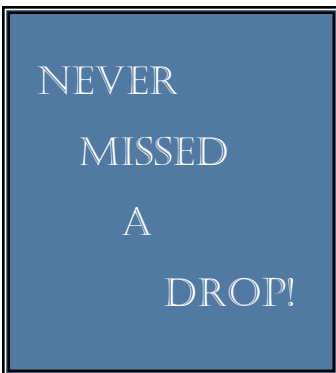
## More Goals

During the winter months, many stations stop reporting. There are many reasons for this, one of those being that sometimes people are away for the winter. I know this because I occasionally receive emails from observers "down south" kidding me that they are enjoying 70s or higher temperatures while we're below zero and dealing with snow. Interestingly I don't think I received one of those emails this winter—going south for the winter wasn't necessarily an improvement this year! Another reason for the drop

off in reports is that measuring snow is usually more difficult than just observing rainfall. We, in fact, tell observers that if they are not comfortable measuring snow or if conditions are dangerous to err on the side of caution. Your observations are important but you, as an observer, are much more important! Once early spring starts, the number of observations per day starts to go up and this is the case with many states. Wyoming observations currently make up about

1.7% to 1.8% of the total coming in for the entire country. As I tell people, this is an incredible performance coming from the least populous state! I'd like for us to improve on that, though. I'd like to see Wyoming turning in a full 2% of the reports (since we make up 2% of the states) I'm pretty confident that we can do it, too. All it takes is a few more reports coming in and we have the observers to do it, too. If you're only reporting a few days of the month, please consider entering a few more. Hint:

entering a zero when there has been no precipitation is the easiest report that can be made since the 0.00 is prefilled in the box. I will continue to try to recruit new volunteers but if you don't normally report every day, try to enter just one extra day. Last year we were able to turn in 200+ reports for 65 days out of 365. Let's see if we can make 200 look like a low day! Some perspective: 10 years ago as we were coming to the end of our first full year in the network, there was an average of about 5 of us reporting per day. And now? Just under 170!



## Stations reporting every day 01 Jan thru 31 Mar 2014

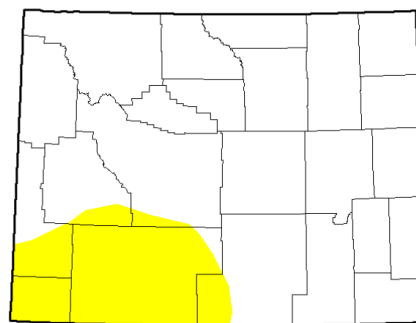
- |          |           |           |          |
|----------|-----------|-----------|----------|
| WY-AB-8  | WY-GS-16  | WY-LM-113 | WY-PT-14 |
| WY-AB-40 | WY-GS-20  | WY-LM-121 | WY-PT-23 |
| WY-CM-9  | WY-LM-5   | WY-LM-124 | WY-SH-10 |
| WY-CM-20 | WY-LM-22  | WY-LM-129 | WY-SH-14 |
| WY-CV-11 | WY-LM-23  | WY-LM-138 | WY-SH-29 |
| WY-CV-12 | WY-LM-36  | WY-NT-24  | WY-SH-30 |
| WY-CK-6  | WY-LM-59  | WY-PK-7   | WY-SW-1  |
| WY-CK-18 | WY-LM-103 | WY-PK-8   | WY-SW-19 |
| WY-FM-21 | WY-LM-107 | WY-PK-11  | WY-TT-1  |
| WY-GS-7  | WY-LM-112 | WY-PK-18  |          |

## Drought in Wyoming

The improvement in conditions that was initiated last September with the widespread soaking rains has continued with the numerous snow storms that the state has received over the last few months. At the end of the 1st quarter of 2014, there were no parts of Wyoming that were in Drought. 17% of the state was what we would call D0 or Abnormally Dry and this was confined to the southwest part of the state. Contrast this with the conditions at the start of 2014 when over 50% of the state was considered Abnormally Dry and over 6% was in D1 or Moderate Drought.

Keeping the state in this condition will depend upon many parameters, not the least of which is how the precipitation continues as move deeper into spring and as the summer months unfold.

### U.S. Drought Monitor Wyoming



April 1, 2014  
(Released Thursday, Apr. 3, 2014)  
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	83.00	17.00	0.00	0.00	0.00	0.00
Last Week 3/23/2014	83.00	17.00	0.00	0.00	0.00	0.00
3 Months Ago 12/15/2013	45.84	54.16	6.18	0.00	0.00	0.00
Start of Calendar Year 1/1/2014	45.84	54.16	6.18	0.00	0.00	0.00
Start of Water Year 10/1/2013	15.72	84.28	57.27	22.14	2.85	0.00
One Year Ago 4/2/2013	0.00	100.00	93.56	83.69	54.87	10.10

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

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

**Author:**  
David Simeral  
Western Regional Climate Center



<http://droughtmonitor.unl.edu/>

## 59 New Observers Joined in 1st Quarter 2014

### Welcome!

WY-AB-93	WY-AB-108	WY-AB-123	WY-GS-36
WY-AB-94	WY-AB-109	WY-AB-124	WY-LM-160
WY-AB-95	WY-AB-110	WY-CR-18	WY-LM-161
WY-AB-96	WY-AB-111	WY-CR-19	WY-LM-162
WY-AB-97	WY-AB-112	WY-CR-20	WY-LM-163
WY-AB-98	WY-AB-113	WY-FM-38	WY-LM-164
WY-AB-99	WY-AB-114	WY-FM-39	WY-LN-22
WY-AB-100	WY-AB-115	WY-GS-28	WY-NT-69
WY-AB-101	WY-AB-116	WY-GS-29	WY-SH-33
WY-AB-102	WY-AB-117	WY-GS-30	WY-SH-34
WY-AB-103	WY-AB-118	WY-GS-31	WY-SH-35
WY-AB-104	WY-AB-119	WY-GS-32	WY-SH-36
WY-AB-105	WY-AB-120	WY-GS-33	WY-SH-37
WY-AB-106	WY-AB-121	WY-GS-34	WY-SL-10
WY-AB-107	WY-AB-122	WY-GS-35	

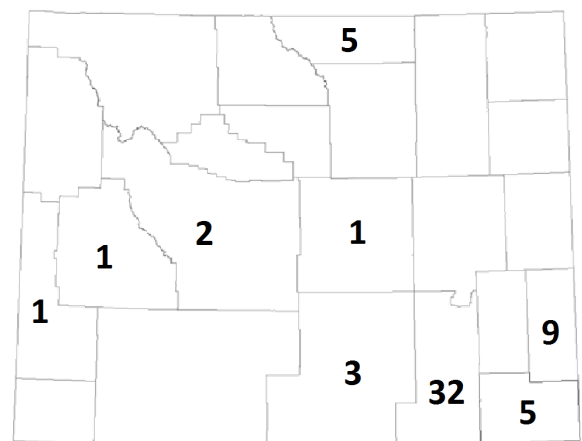
In the first quarter of 2014 we had 59 new stations join CoCoRaHS and I would like to extend a welcome to them and my thanks for taking part in this important program. At the same time, I like to express my appreciation to all the observers that we have in Wyoming, whether you joined a month ago or ten years ago.

So far 23 of those 59 who signed up the last quarter have made their first report. If you haven't been able to report yet and there is something you still need (such as your login etc) please let me know. If you haven't received a gauge or if you are a long-time observer and your gauge is falling apart, let me know and I can get you the parts you need.

If you have stopped reporting for

any reason, let me know what you need to get started again. Your observations are important, no matter where you are and no matter if there is another observer even just a few blocks away. The rain at YOUR location can be quite different and we'd like to know how much there has been.

New Observers Joining in the 1st Quarter of 2014

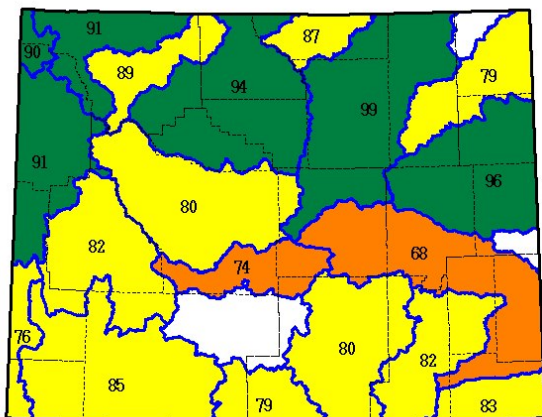


## Snow!

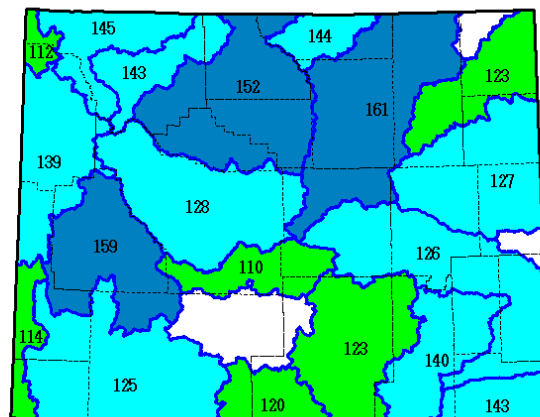
### Good Snowpack

The two maps below show the snowpack conditions near the end of the 1st quarter of 2013 (left) and of 2014 (right) Every basin in the state is higher than it was this time last year and most of the basins are significantly higher. The Lower North Platte on March 28th, for example, was 58% higher this year than last. This high snowpack brings the potential of flooding and areas like Worland have already seen flooding resulting from ice jams. The runoff can also destabilize slopes resulting in landslides. Higher flows in creeks and rivers are also expected. Hopefully the now will come off gradually providing Wyoming with a good supply of water into the summer.

SWE % of Median as of Thursday, 28 March 2013



SWE % of Median as of Friday, 28 March 2014



\* Data may not provide a valid measure of conditions

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## State Coordinator

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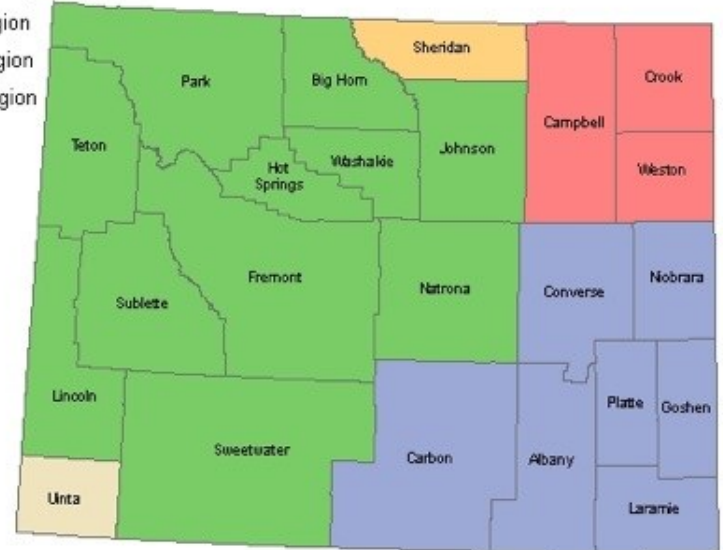
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<http://www.wrds.uwyo.edu>

## Wyoming Regions

- West-Central Region
- North-Central Region
- Northeast Region
- Southeast Region
- Southwest Region

## Wyoming CoCoRaHS Regions



## Wyoming Regional Coordinators

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### West-Central

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## We Need You!



What? Spring is  
around the corner?  
Where? Where?

Everyone is waiting for Spring!  
Photo by Tony Bergantino

If you are not a CoCoRaHS observer and would like to take part joining is simple.

Just go to <http://cocorahs.org> and click on the **Join CoCoRaHS** link on the left side of the page.

Participation requires only a few minutes a day, an internet connection, and an interest in measuring and reporting rainfall.

Your observations will appear each day on a map and you can see how much you received compared to your neighbors, neighboring counties, and neighboring states.

Meanwhile, your data are used by various entities throughout the

country such as the National Weather Service, the National Drought Mitigation Center, researchers, and those who are just curious about how much rain fell where.

CoCoRaHS helps to fill in holes in places where there are no observers for other networks. CoCoRaHS is a high-density network which allows us to see the variations in precipitation across the country **and** across town.

If you are interested in joining or have any questions, please contact Tony Bergantino at:

[antonius@uwyo.edu](mailto:antonius@uwyo.edu)