



# Jet Stream Jargon

*National Weather Service  
Billings, Montana*

*October 2019 Fall Issue*



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## *From the Desk of the Meteorologist in Charge*

### **Changes Coming to our Coop Program**

As they say, one of the certainties of life is change. At the end of December, one of our long time staff members, Vickie Stephenson will be retiring after 20+ years with our office. For the last number of years, Vickie has been involved in both our Cooperative Weather Observer program and coordinating our CoCoRaHS observers. As Vickie prepares to move onto the next chapter of her life, Kurt Hooley (Forecaster) will be taking over the bulk of both of these program areas with assistance from our Administrative Support Assistant Linda Brennan.

For our Coop Observers and CoCoRaHS observers, it is likely you'll be interacting with Kurt and/or Linda as they increasingly take over these two program areas to help us smoothly transition these programs. Kurt and Linda are very customer-focused and will be able to assist you with any of your Coop or CoCoRaHS questions or issues.

### **Gratitude & Teamwork**

I wanted to take a few lines to express the gratitude of our entire staff to all of you that help us validate current or past weather (severe or otherwise) and also that help us spread our messages via social media (Facebook/Twitter). I am thoroughly humbled by the unsolicited rave reviews of our services, social media interactions and support that I receive when I interact with the people we serve. I personally take pride that we have assembled a team of customer-service minded individuals committed to our mission of the protection of lives and property. Thanks for saying "Thanks!"

*Keith W. Meier*



The National Weather Service office in Billings would like to thank our Cooperative Weather Observers for the service and dedication to excellence that they provide every day across Southeast Montana and Northeast Wyoming.

It has been a very busy summer, with hail damage to equipment, and station relocations. I would like to publicly welcome our new COOP Observers who have volunteered to become part of our weather history. Thank you to Jeff of Dayton, WY, Lynn & Karen of Springdale, Mary of Biddle, & Wes & Kari of Hysham. Also a big thank you to those who tirelessly maintained these stations for many years before stepping down.

This year, our COOP Observer in Melville, MT, Perry Anderson, was presented with the John Campanius Holm Award. Each year a maximum of 25 observers across the country are selected for this prestigious award. Congratulations to Perry for first being nominated by the Billings office, and then being selected as one of this year's recipients. Perry, and wife Annie, came to our office on Sept 19, 2019 to receive his award from our Regional Director.

I will be leaving Federal service on Dec 31<sup>st</sup>, and as a long time staff member here in Billings, 20+ years, I have had the pleasure of working with all of you for many years now. As I move on to the next chapter in my life, please know that you have all made a significant impact on me in my NOAA career! I have enjoyed every minute spent with you and I will miss you. Please know that you will be in good hands with future program managers.



Pictured left to right are Dr. Grant Cooper, NWS Western Regional Director, Perry Anderson, Annie Anderson, (COOP Observers) & Keith Meier, NWS Billings Meteorologist in Charge.



***Happy Fall Everyone!***

Summer has come and gone by very quickly. **It is time again to remove your tubes and funnels from your rain gauges to prepare for winter snow. Please leave your cylinders outside for the winter to catch your snow, so that you can melt the snow for your precipitation reports.** Remember the CoCoRaHS website <http://cocorahs.org> has a wealth of information regarding snow in the Resources section. There are a lot of short animated videos on how to measure snowfall and snow depth, and how to report the snow water equivalent.

**HELP WANTED: Weather Spotters across SE Montana & Sheridan County, Wyoming!**

We are looking for Precipitation observers to fill in some major gaps across our area. Sign up and join the fun! You would be reporting your precipitation (rain, hail, & snow), electronically, to the National Weather Service! The data received from you will be used by many important agencies and individuals alike, including Emergency Managers, outdoor & recreationalists, city utilities, insurance adjusters, farmers and ranchers, just to name a few. So if you would like to make your mark on our nation's climate history, read below and see how YOU can join!

CoCoRaHS program's network can be found at [www.cocorahs.org](http://www.cocorahs.org), where you can learn all about the program, its origin, and its importance to our nation's climate. If you are interested in joining us, please feel free to open the web page, review the short training videos and click on "**Join CoCoRaHS**" under the Main Menu.

If you are currently a CoCoRaHS Observer, please spread the word to the people you know! Our MT State Climatologist acquired a minimal supply of rain gauges for the program from a new sponsor, Arysta LifeScience. Gauges are available to observers who are serious about the program. WE NEED YOU...THANK YOU! Feel free to contact us at the phone/email listed below, if you have any questions at all.

***Farewell and Thank you all!***

Our MIC mentioned on page one that I will be retiring from Federal service on Dec 31<sup>st</sup>. I would like to take this opportunity to thank you all for your hard work and dedication to the program throughout my tenure as your coordinator. I will miss everyone, but am excited to be moving on to the next chapter!

Kurt Hooley has graciously accepted the task as the local coordinator of the program here in Billings. Tom Frieders will still be Kurt's co-coordinator. Both of them can be reached at the contact information below:

Tom Frieders - [tom.frieders@noaa.gov](mailto:tom.frieders@noaa.gov)  
Office - (406) 652-0851

Kurt Hooley - [kurt.hooley@noaa.gov](mailto:kurt.hooley@noaa.gov)  
Office - (406) 652-0851



## A Recap of Meteorological Summer (June – August)

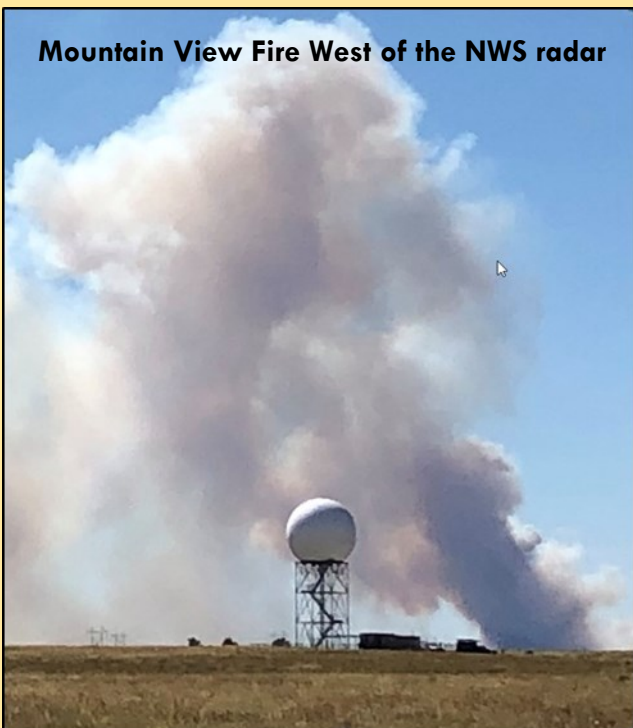
The summer of 2019 was wetter and slightly cooler than normal across most of the region, with an above normal thunderstorm season, and a very quiet fire season.

Our office issued a total of 183 Severe Thunderstorm Warnings in 2019, which is slightly more than in 2018, and the most in any season since 2013. The first severe storm of the season occurred on May 13<sup>th</sup>, with a 61 mph wind gust, nickel size hail and minor street flooding in Miles City. During the evening of May 26<sup>th</sup>, a stationary thunderstorm produced very heavy rain over a rural area S/SE of Billings, leading to substantial flash flooding on Fly and Woody Creeks. On June 27<sup>th</sup> a tornado was observed west of Judith Gap, and no damage was reported. Perhaps the most memorable severe thunderstorms of the summer were late season storms that produced large hail in the Billings metro area, on August 11<sup>th</sup> and August 22<sup>nd</sup>. Many homes and vehicles were damaged by wind driven hail.

Here is a summary of June – August statistics at our four main climate stations:

	Avg. Temp (°F)	Departure from Normal	Ranking	Total Precipitation (inches)	Departure from Normal	Ranking	Year Period of Record Began
<b>Billings</b>	71.7	+ 2.0	9 <sup>th</sup> warmest	6.21	+ 2.02	15 <sup>th</sup> wettest	1934
<b>Livingston</b>	64.1	- 0.8	25 <sup>th</sup> coolest	5.50	+ 0.53	26 <sup>th</sup> wettest	1948
<b>Miles City</b>	69.2	- 2.3	12 <sup>th</sup> coolest	5.70	+ 0.64	35 <sup>th</sup> wettest	1937
<b>Sheridan</b>	66.6	- 0.8	51 <sup>st</sup> coolest	3.37	- 0.65	46 <sup>th</sup> driest	1907

The wet conditions that persisted through the summer resulted in a very quiet fire season. The most significant wildfire in our area was the Mountain View Fire northwest of Billings near Lipp Road and Buffalo Trail Road. This fire was discovered on August 28<sup>th</sup>, spread rapidly due to hot and dry conditions, and burned a total of 2800 acres before it was contained a few days later.



**Mountain View Fire West of the NWS radar**



**May 27 Flooding on Woody Creek**

*Photo courtesy of Rhett Gibson*



**Aug 11 Hail in Billings**

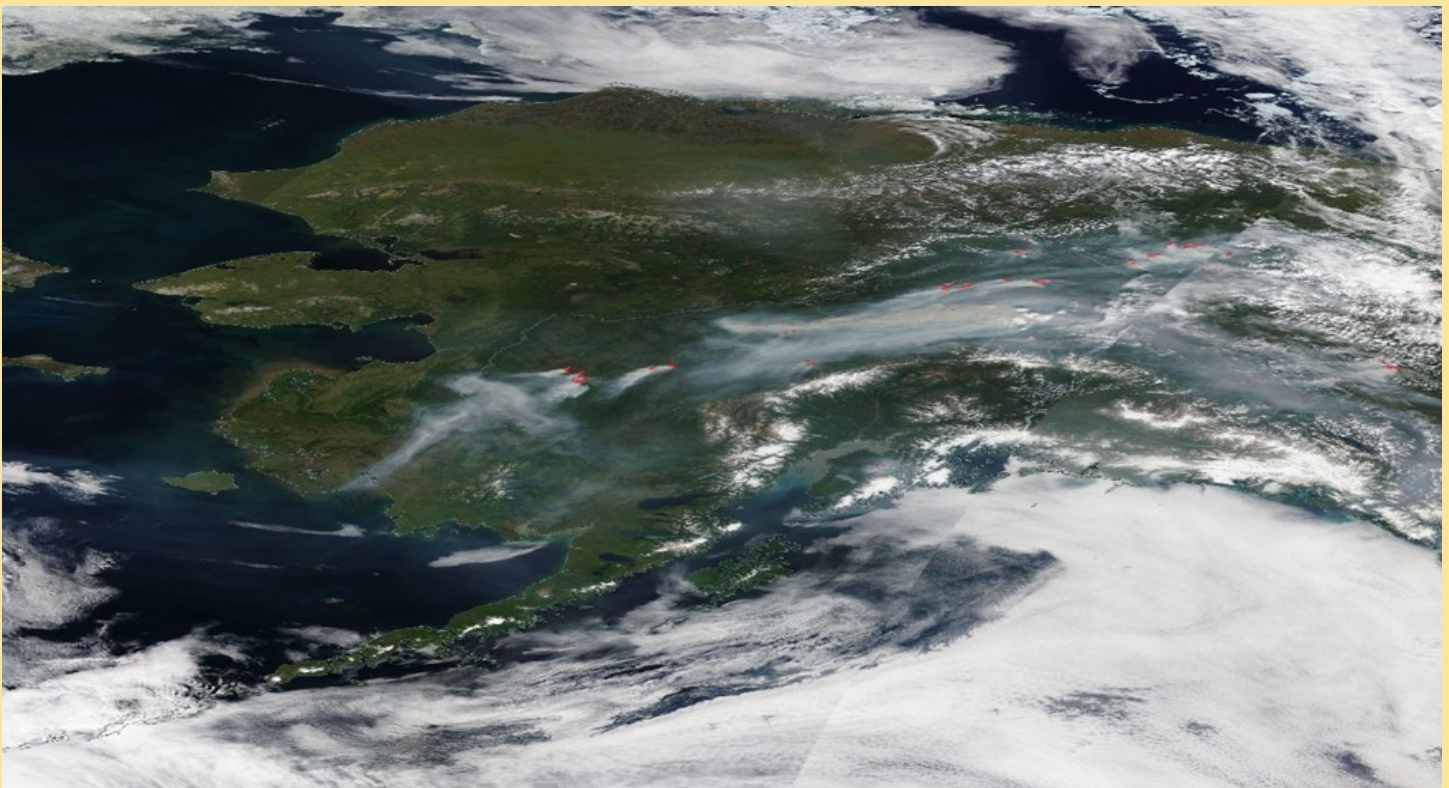
*Photo courtesy of Stacie Smelser*



### Where's the Smoke?

Smoke from wildfires is something that we know all too well living in the Northern Rockies. You may or may not have noticed the lack of smoke in the air for most of the summer and into the fall. Much of the western US has seen a below normal fire season, thanks in part to a wetter than normal winter, spring and summer. While fire activity has been lower across the lower 48, this has definitely not been the case in Alaska. Persistent high pressure brought warm and dry conditions to Alaska during the winter, with the same conditions continuing through the summer. Every year Alaska has a fire season, but usually rains arrive in late July bringing most of their fire activity to an end. However, this year they experienced their driest August on record, with Anchorage only receiving 0.04 inches when the normal precipitation for August is 3.25 inches. Numerous lightning and human-caused fires have burned 2.59 million acres so far this fire season in Alaska, with the average acreage burned through September 10<sup>th</sup> being 1.79 million acres. The largest fire was the Chalkyitsik Complex in eastern Alaska at over 505,000 acres burned so far.

While we are nearing the end of our peak fire season, it is important to be fire aware all year long.

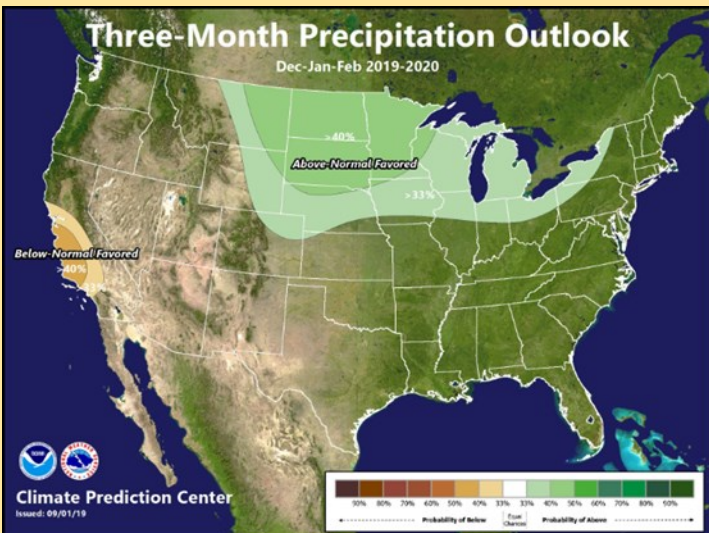
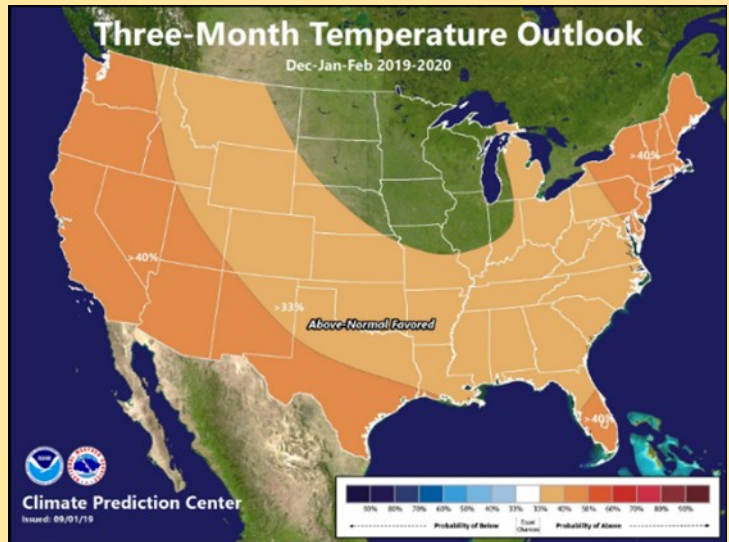


**July 7, 2019 TERRA MODIS satellite imagery and fire detections over Alaska. The red dots indicate fire detection.**



Seasonal Outlooks are created once per month by the Climate Prediction Center in College Park, Maryland. These long range outlooks are impossible to predict with precision, so general probabilities (relative to normal) over a 3-month period with regard to temperatures and precipitation are created. The outlooks say nothing about individual cold snaps or snow storms (you can have major snow storms in an otherwise warm & dry winter), but rather how temperatures and precipitation will fare over the entire 3-month period. To interpret CPC's graphics, consider them as "weighted odds." The temperature outlook map below shows a lot of orange color across the country. This does not mean it will be warmer than normal where the map is colored orange, but rather the chance of it being warmer than normal is a bit higher than it being near or cooler than normal. The higher the probability, the more confidence in that prediction. The areas that are not shaded show no confidence in any kind of hedge. In these cases, there are equal chances of above, near or below normal conditions.

The official December - January - February outlook shows slightly increased probabilities for warmer and wetter than normal conditions in our region over the entire 3-month period. Whether it is a cold/snowy or warm/dry winter overall, our climatology on the eastern slopes of the mountains is for rapid shifts in weather - so as always, be prepared for extremes during the upcoming winter! If you are interested in learning more about climate outlooks, please see the Climate Prediction Center website at <https://www.cpc.ncep.noaa.gov>.



## Fall Tables

### Fall Normals

Meteorological fall is considered the months of September, October and November. Here are the normal temperatures and precipitation for Billings, Miles City and Sheridan for the fall season. Normals are 30-year averages calculated from 1981 to 2010. All temperatures are in degrees Fahrenheit and all precipitation amounts are in inches.

Billings					
Date	High	Low	Average	Precipitation	Snowfall
9/1 - 9/30	73.1	47.5	60.3	1.30	1.1
10/1 - 10/31	59.4	37.1	48.2	1.18	4.1
11/1 - 11/30	45.3	26.3	35.8	0.63	6.5
9/1 - 11/30	59.3	37.0	48.2	3.11	11.7

Miles City				
Date	High	Low	Average	Precipitation
9/1 - 9/30	74.2	46.1	60.1	1.08
10/1 - 10/31	59.2	33.8	46.5	0.92
11/1 - 11/30	43.2	20.9	32.0	0.39
9/1 - 11/30	59.3	34.7	47.0	2.39

Sheridan				
Date	High	Low	Average	Precipitation
9/1 - 9/30	74.2	41.6	57.9	1.43
10/1 - 10/31	60.1	30.9	45.5	1.41
11/1 - 11/30	45.9	19.4	32.7	0.71
9/1 - 11/30	59.9	31.5	45.7	3.55



## Winter Tables

### Winter Normals

Meteorological winter is considered the months of December, January and February. Here are the normal temperatures and precipitation for Billings, Miles City and Sheridan for the winter season. Normals are 30 year averages calculated from 1981 to 2010. All temperatures are in degrees Fahrenheit and all precipitation amounts are in inches.

Billings					
Date	High	Low	Average	Precipitation	Snowfall
12/1-12/31	35.2	17.8	26.5	0.50	8.2
1/1-1/31	36.4	17.8	27.1	0.48	8.4
2/1-2/28	40.2	20.6	30.4	0.48	6.2
12/1-2/28	37.2	18.7	28.0	1.46	22.8

Miles City				
Date	High	Low	Average	Precipitation
12/1-12/31	30.9	9.7	20.3	0.29
1/1-1/31	30.0	8.9	19.5	0.32
2/1-2/28	35.5	13.2	24.4	0.23
12/1-2/28	32.4	11.5	22.0	0.84

Sheridan				
Date	High	Low	Average	Precipitation
12/1-12/31	35.2	10.6	22.9	0.56
1/1-1/31	36.2	11.4	23.8	0.56
2/1-2/28	39.0	14.2	26.6	0.54
12/1-2/28	36.7	12.9	24.8	1.66

### Average Frost and Freeze Dates

The following are the normal first frost, freeze and hard freeze dates for Billings, Miles City and Sheridan. The frost temperature is based on 36 degrees Fahrenheit, the freezing temperature is based on 32 degrees Fahrenheit and the hard freeze temperature is based on 28 degrees Fahrenheit. The normal dates are based on a 30 year average from 1981 to 2010. The earliest frost, freeze and hard freeze dates are based on a period of record. Recordkeeping began for the Billings Airport in 1934, the Miles City Airport in 1937 and at the Sheridan Airport in 1907.

City	Normal First Frost	Earliest Frost on Record	Normal First Freeze	Earliest Freeze on Record	Normal First Hard Freeze	Earliest Hard Freeze on Record
Billings	Sep 24	Aug 24	Oct 4	Sep 4	Oct 11	Sep 11
Miles City	Sep 21	Aug 22	Sep 29	Sep 2	Oct 7	Sep 11
Sheridan	Sep 11	Jul 2	Sep 20	Aug 17	Oct 3	Aug 25



### **New Forecast Zone Configuration**

In order to provide better service to our community, the National Weather Service in Billings, Montana will make changes to public zone names and boundaries. In Montana and Wyoming, most long-fused watches, warnings and advisories issued by the NWS (such as Winter Storm Warnings, Wind Advisories) are issued in areas called “zones”. Our current configuration was created in the mid-1990’s using broad-brushed climate areas and has not significantly changed since that time. Over the years, NWS Billings meteorologists have found that our zones do not adequately reflect important local differences in weather impacts due to geography. This sometimes results in “over-warning” within the current large and broad-based zone configuration. Here is what you need to know...

- What - changes to forecast zone names and boundaries, increasing the number from 26 to 31 zones
- Where - Southern Montana and North Central Wyoming
- Why - improve and fine-tune weather related warnings and advisories
- How - changes based on climatological data, known weather and hydrology impacts and forecaster experience
- When - new zones become effective October 10, 2019 at 1200 pm MDT

Here is a quick overview of the changes...

- Bighorn Canyon- Popular recreation area with drastic terrain differences and wind issues is now separate from the rest of Big Horn County.
- Northeastern & Southwestern Yellowstone County - Separates portions of Yellowstone County to fix issues due to shape of county and differences in weather impacts/climatology.
- Northern & Southeastern Carbon County - Separates portions of Carbon County which have very different weather impacts/climatology between areas north and south of Bridger.
- Melville Foothills - Intense upslope snow on east side of Crazy Mountains that does not impact other portions of Sweet Grass County.
- Pryors/Northern Bighorn Mountains - Separates Pryors from Bighorn County in Montana, and combines them with northern Bighorn Mountains zones.
- Story, WY now part of Northern Bighorn Mountains Zone - Story was in the same zone as Sheridan, but often receives much more snow. This will now differentiate Story’s forecast from Sheridan.

Full details and maps of the new zone configurations can be found at the following link:  
<https://www.weather.gov/byz/NewPublicZones2019>

### How Do You Stay Informed?

Let's face it, weather impacts everyone, every day. From the snow plow driver who needs to know when the period of heaviest snow accumulation will be for impacts on the roads, to the contractor who needs to time his/her concrete pour between rain showers, to a mom or dad wanting to know how to dress their child for school. All of these scenarios have a need for weather information, for various reasons, but all need timely and accurate information to fit their purposes. Everyone, at some point, can benefit from staying informed on the ever changing weather that southern Montana and northern Wyoming brings. How do you stay informed? Do you get the complete weather "story" from TV, radio, newspaper or social media? We at the National Weather Service realize that weather is very impactful and we strive to tell the complete "weather story" for every event and season. Our forecasters task themselves to describe the weather "story" of the day in such a way that will help each individual, regardless of need, make the best decision for their life impacts. To that end, our office monitors the forecast 24 hours a day, 7 days a week, 365 days a year, and updates the forecast "story" to aid in life decisions. Social media can be a great source for weather updates, as can TV, and radio, but we want to direct your attention to our Web page as the main source of weather information. Moreover, as weather systems of impact approach the region, our forecasters will generate graphics that will attempt to describe the upcoming weather in a "story" that breaks down some of the most impactful aspects of the weather ahead. These stories will vary from a risk of severe thunderstorms, to locations for accumulating snowfall, to a dramatic change in the weather pattern expected. These "stories" will be placed front and center on our main web page for all to see, so as to grab attention. We have the ability to put as many as five weather "stories" up, that the user can easily tab through, to describe a complex weather situation. These stories will describe the weather situation in easy to understand terminology, with a clear and concise message. Make sure to check out our home page (and bookmark it!) at [weather.gov/billings](http://weather.gov/billings) for the latest weather stories.

### Severe Thunderstorms Possible Today

Monitor NOAA Weather Radio for potential warnings!

**Timing:**  
Afternoon & Evening

**Tornado Potential**

High  
Medium  
Low  
Very Low

**Maximum Hail Size**

Up to Softball  
Up to Baseball  
Up to Golf Ball  
Up to Quarter

**Maximum Wind Speed**

80+ mph  
60-80 mph  
Up to 60 mph

No Severe Thunderstorms Expected
Isolated Severe Thunderstorms Possible
Scattered Severe Thunderstorms Possible
Numerous Severe Thunderstorms Possible

NATIONAL WEATHER SERVICE Billings, MT [weather.gov/billings](http://weather.gov/billings) 11:27 AM Sunday, August 11, 2019

## Pattern Change

### Tomorrow through Saturday

- Showers and thunderstorms.
- Tomorrow – Stronger storms with localized heavy rainfall.
  - Strong and gusty winds along the MT/WY border
- High temps in the mid 80s, cooling to the low to high 70s Saturday.

### Sunday into Next Week

- Anticipating a change to a wet weather pattern.
- Areas of rain.
- Cooler. High temps in the mid 60s to low 70s.
- Snow possible in the highest elevations. Recreationists use caution.

Billings, MT [weather.gov/billings](http://weather.gov/billings) 1:39 PM Thursday, September 8, 2019



Public interaction continues to drastically change, as the use of smartphones and social media platforms becomes a staple in this day and age. Yes, the National Weather Service is still what you call “old school” because we use email and landlines (yes, landlines!), but most of our communication with the public is now through social media platforms such as Facebook and Twitter. The best part with social media is that it’s not just a one way street where we communicate with our followers, our followers can communicate with us and we have the ability to respond quickly! There are many limitations to our instruments, and oftentimes, our followers are our eyes in the sky, to verify that what is occurring on the ground matches what we are seeing on radar.

One of the most significant storms of the summer occurred on August 11 between Big Timber and Billings. On this day, we posted the Storm Prediction Center’s updated outlook at 11:58 AM followed by a Severe Thunderstorm Watch at 12:45 PM and a Tornado Watch at 2:00 PM on Facebook. Within those three posts, we received 148 comments ranging from questions about timing and severity, to tagging friends and family to make sure they were also aware. We did our best to answer each question during this busy day. The first warning was issued at 4:54 PM as the storm moved towards Big Timber, at which time, pictures began “pouring” in from our followers. We received the first 1” hail report at 5:27 PM in Big Timber. These pictures, along with spotter reports, were very helpful to the radar operator as they verified the severity of the storm on radar as it trekked east towards Laurel and Billings. Based on the reports, another warning was issued at 6:27 PM which provided the Billings area with a 45 minute heads up on the incoming storm. We received hundreds of pictures and reports of large hail, wind damage, and flooded streets from Molt through Billings to Shepherd. One of our followers even sent in a 3” hail picture from Central Billings!



Photo Credit to Cindie Fitch  
Tennis Ball Hail in Huntley, MT  
August 11, 2019



Photo Credit to Erin Marr  
1<sup>st</sup> Place Winner Spring Photo Contest

We not only want to keep the public informed about incoming weather, but interact with our followers as well. We began a quarterly photo contest back in November that became quite popular as people could send weather pictures they have collected over the years. Who else better to send weather pictures to than the people who do weather for a living! Throughout four photo contests (one for each season), we received over 250 photos from various locations in southeast Montana and Sheridan County. We confined the area of submissions to our forecast area (From Bozeman Pass east to the ND border, MT/WY border up to Musselshell/Rosebud Counties along with Sheridan County). Rather than a quarterly contest, we will be shifting to a semi-annual contest sometime in the next few months. Stay tuned to Facebook and we will let you know when that will begin!

The National Weather Service is running 24/7 to make sure that when weather threatens our part of the country, we are here to provide you with up-to-date information. If you don’t follow us on Facebook and Twitter, we encourage you to do so.

## Partnerships in Emergency Response

NOAA's National Weather Service Weather-Ready Nation Initiative is about readying local communities for extreme weather, water and climate events. In the National Weather Service (NWS), we do this by building working relationships with local, state, tribal and other federal agencies in emergency response.

One example of working closely with local government is through involvement in community response exercises and drills. On September 25, 2019, our Billings NWS Office helped design an exercise for Yellowstone County, simulating a significant heavy rainfall event and flood across the region. Representatives from Disaster and Emergency Services, Law Enforcement, Fire, Hospitals, Amateur Radio, and other City/County Officials joined us for the exercise. The group had some great dialog during the exercise on how best the County (including Billings and Laurel) can continue to move forward in efforts to best mitigate the impacts of such an event to our local communities.

Every county has a Local Emergency Planning Committee (LEPC) that coordinates emergency preparedness and exercises such as this.



NWS Billings Meteorologist Todd Chambers briefs exercise participants on a simulated heavy rainfall event.

Regardless of whether you're someone seeing our website for the first time, or a regular, looking for a quick, daily forecast, our website can be a daunting place to find that information. There's a surprisingly large amount of information contained through the variety of links on our webpage, from past rain amounts at a specific location, to weather safety tips, and of course a quick check on what today's highs will be. Nevertheless, here is your one stop shop for all basic weather information given from [weather.gov/billings](http://weather.gov/billings).

**Safety** - Learn how to prepare for severe and hazardous weather, and what to do if it is occurring.

**Local Forecast** - Enter in an address or nearby town to receive current conditions and a 7-day forecast.

**News Headlines** - Highlights anything from weather summaries of recent, impactful events to showcasing new weather technology.

**Climate and Past Weather** - Anything from past weather information at a specific location, to the general climatology of a given area at any time during the year.

**Weather Stories** - Graphics containing relevant and important information before, during, and after high impact weather events.

**Alerts Map** - Contains all watches, warnings, and advisories issued across Montana and surrounding states.

**Radar** - Shows radar for SE Montana like you'd see on TV, so you can also follow the storms your selves!

**Forecast Discussion** - Read our thoughts on the forecast to get more in-depth information than just high and low temperatures.



# Prepare Before Your Next Trip—It Could Save Your Life!



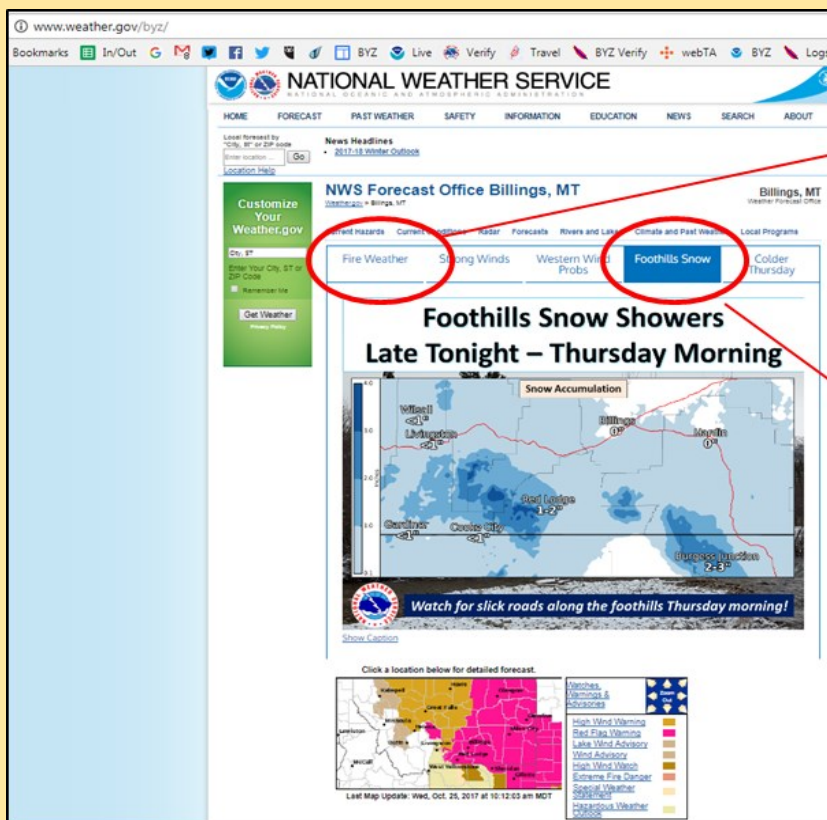
**Now:**

- Pack an emergency supply kit
- Winterize your vehicle

**Just Before Your Trip:**

- Stay mobile; fully charged cell phone
- Check current road conditions; follow the Department of Transportation
- Check the forecast!

Checking the forecast is as easy as monitoring the [NWS webpage](http://www.weather.gov) on a daily basis. Bookmark it today! On our front page, we will feature a **Weather Story** whenever hazardous weather could be an impact over the week ahead. Check it before venturing out. Multiple hazards, could mean multiple tabs and multiple stories. Clicking on each tab will give you details on each hazard.



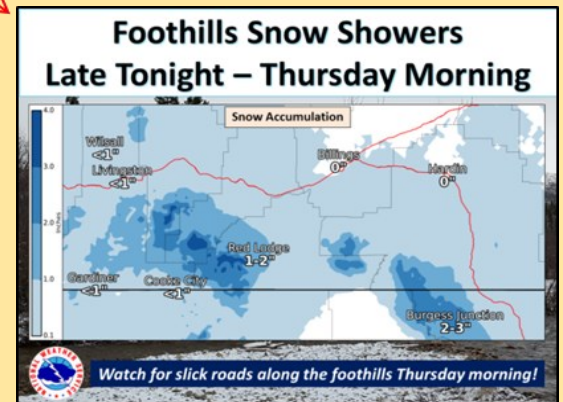
**Critical Fire Weather Conditions TODAY**

**What to Expect**

- Humidity: 7 to 15 percent.
- Temperatures: 70s to near 80.
- Winds: Increasing through the day; strongest in the afternoon & evening. West winds shifting NW as cold front arrives this evening. Gusts 30 to 50 mph, and up to 60 mph along the western foothills.

**What: Red Flag Warning**  
**When: Today through this evening**  
**Where: Plains of central and eastern Montana, western Dakotas, NE Wyoming**

**Rapid Fire Growth Possible**



NWS Billings Webpage with sample Weather Stories

<http://weather.gov/billings>

Look for Weather-Ready Tips on Social Media



**Weather-Ready Wednesday**  
*Prepare Your Car for Emergencies*

**BUILDING AN EMERGENCY SUPPLY KIT FOR YOUR CAR**

**WHY?**  
BECAUSE YOU NEVER KNOW WHEN YOU WILL ENCOUNTER WINTER WEATHER OR AN EMERGENCY ROAD CLOSURE.

**AMERICA'S PrepareAthon!**  
BE SMART. TAKE PART. PREPARE.

- CELL PHONE CHARGER
- FIRST AID KIT
- JUMPER CABLES
- TIRE CHAINS OR SNOW TIRES
- FLARES
- WATER, SNACKS
- FLASHLIGHT
- BOOTS, MITTENS, WARM CLOTHES
- BLANKET
- TOW ROPE
- FULL TANK OF GAS
- BAG OF SAND OR CAT LITTER
- SHOVEL, ICE SCRAPER, SNOW BRUSH

weather.gov

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[facebook.com/](https://facebook.com/)



**Follow us on twitter**  
[twitter.com/](https://twitter.com/)



### **Winter Preparedness**

Winter Weather Information & Safety

<http://www.nws.noaa.gov/om/winter/index.shtml>

Red Cross Winter Storm Safety Checklist (Downloadable PDF)

[https://www.redcross.org/content/dam/redcross/atg/Chapters/Division\\_1\\_-\\_Media/Denver/Denver\\_-\\_PDFs/EmergencyPreparednessChecklist.pdf](https://www.redcross.org/content/dam/redcross/atg/Chapters/Division_1_-_Media/Denver/Denver_-_PDFs/EmergencyPreparednessChecklist.pdf)

### **Education**

JetStream — An Online School for Weather

<https://www.weather.gov/jetstream/>

Local Climate Records

<https://w2.weather.gov/climate/index.php?wfo=byz>

### **Kids!**

SciJinks. It's all about weather!

<https://scijinks.gov/>

Learn Science and Safety with Owlie Skywarn!

<http://www.weather.gov/owlie/>

***Happy Fall To You All!***

***Have A Safe And Happy Holiday Season!***

