VOLUME XI
ISSUE 1, WINTER 2017-2018

Sage Winds

NATIONAL WEATHER SERVICE BOISE

SPRING Spotter Checklist

When should you call us?

HAIL: pea size or larger.

SNOW: 1" per hour or greater OR storm total 4"+ OR snow causing road closures.

REDUCED VISIBILITY: for any reason.

WIND: Greater than 40 mph or damage.

HEAVY RAIN: ½"+ in 1 hour

FREEZING RAIN: Any amount.

FLOODING: Any water where it shouldn't be, or overflowing river.

TORNADO or **FUNNEL CLOUD**

ANY WEATHER RELATED DAMAGE, DEATH, OR INJURY

How to contact us:

1-800-882-1428

@NWSBoise

facebook.com/NWSBoise

boise.weather@noaa.gov

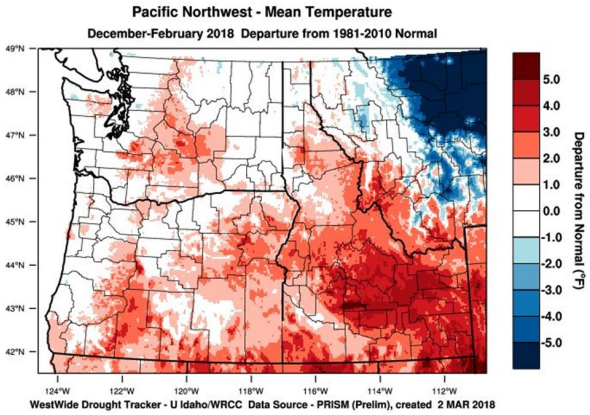
Report current precipitation type in your area.

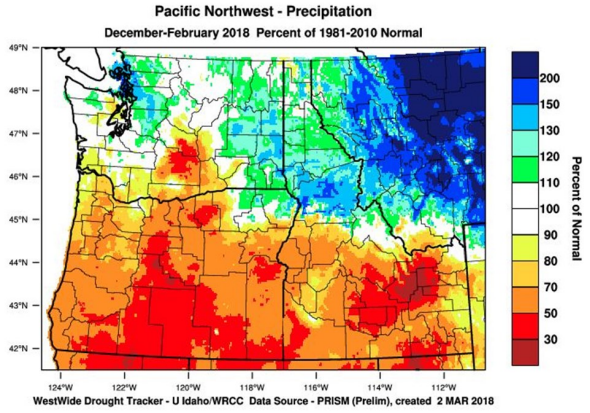
If you own a smartphone or tablet download the free **mPING** app in the App Store or Google Play.

Season in Review

Joel Tannenholz

Overall, winter 2017-18 was warmer and drier than normal.





December

The month started out fairly mild under west-southwest flow aloft ahead of an upper level low pressure trough. The trough crossed the region on the 3rd, bringing the largest one-day precipitation of the month at many locations, mainly as rain at lower elevations.

As this system exited to the east, an upper level high pressure ridge built offshore and expanded inland. During early winter, this is an almost certain recipe for a temperature inversion.

By the 5th, the inversion had become established under the ridge. Valley locations were below freezing from the 7th through the 15th, and averaged colder than normal for the month, while areas above the inversion averaged warmer than normal.

On the 16th, an upper level trough destabilized the atmosphere enough to briefly break the inversion. Temperatures continued to warm as the upper level flow shifted into the west and southwest ahead of yet another upper level trough.

By the 21st the trough had moved east of our area. It was followed by moist northwest flow aloft and a cold front which brought moderate amounts of snow.

A combination of modified Arctic air, overnight clearing, fresh snow cover, and calm winds enabled temperatures in the lower valleys to fall into the single digits above and below zero by sunrise on the 24th.

More snow was on the way. It started on Christmas Eve as a warm front approached from the west. By Christmas Morning from 3 to 5 inches of new snow had fallen in the Treasure Valley.

Warming continued at higher elevations, ensuring that cold air would remain trapped in the valleys for a few more days.

On the 30th a cold front passed through the area. It was felt as a warm front in the valleys, as colder air aloft behind the front destabilized the air and broke the inversion.

On the 31st strong high pressure provided mostly clear skies. Although a shallow inversion had formed overnight, the sun warmed the surface enough during the day to mix the air, and temperatures rose above freezing.

Seasonal Temperature Extremes

Location	Coldest	Warmest
Boise	8°F Dec 24 9°F Feb 20	61°F Feb 3
Baker City	-8°F Dec 24 -4°F Feb 27	61°F Feb 8
Burns	0°F Dec 17 -1°F Feb 20, 27	60°F Feb 8
Jerome	1°F Dec 18, 19 8°F Feb 28	60°F Feb 8
McCall	-14°F Dec 24 -18°F Feb 20	46°F Feb 7
Mountain Home	2°F Dec 24 8°F Feb 20, 25	67°F Feb 8
Ontario	9°F Dec 26 9°F Feb 20	65°F Feb 3
Rome	4°F Dec 7 -6°F Feb 27	65°F Feb 2, 8
Twin Falls	-1°F Dec 24 0°F Feb 20	62°F Feb 8

January

January 2018 was exceptionally mild. It was even warmer than the normal February at some locations.

The unusually mild temperatures resulted from a combination of a progressive pattern and a persistent warm upper level high pressure ridge over the western U.S.

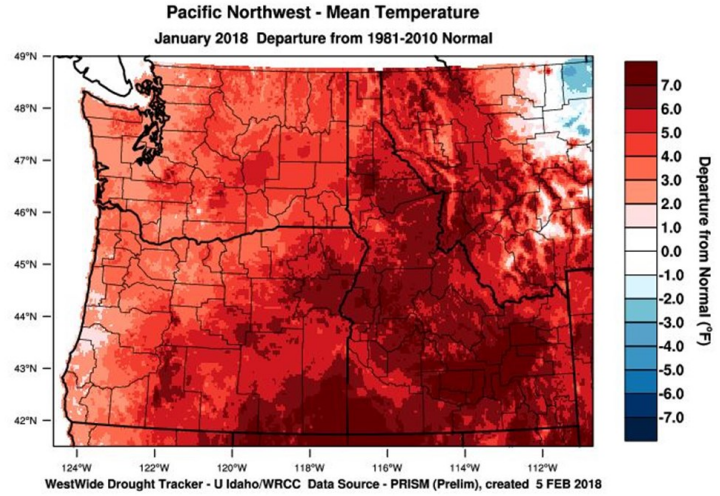
Westerly flow aloft brought mild moist Pacific weather systems inland across the northern Intermountain Region, temporarily displacing the ridge, which always managed to rebuild. The active pattern hindered the formation of temperature inversions and blocked invasions of cold air from western Canada.

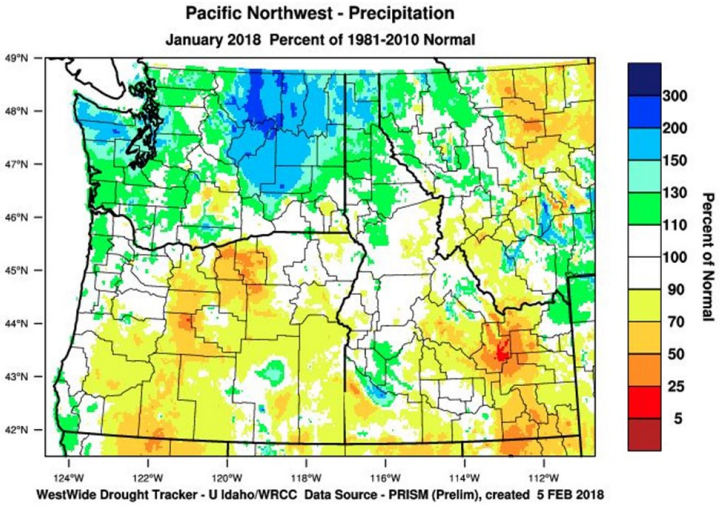
Pacific cold fronts on the 9th and 19th, and the upper level low pressure troughs which followed, brought moderate amounts of precipitation, mainly in the form of rain at lower elevations.

On the 30th the last cold front of the month brought gusty winds but little or no precipitation.

Lower elevations were nearly snow-free.

A few spots were wetter than average, including the normally rain-shadowed area between the Owyhee Mountains and the Snake River. But the Owyhee Mountains had only around 50 percent of normal precipitation, and other ranges, including Steens Mountain and the Trout Creek Mountains in southeast Oregon, also had less than normal snowfall.





February

February 2018 can be described as three seasons in one month.

It began with early spring. The 1st through the 9th were very much like late March. Many locations experienced the mildest temperatures of the winter during this period, with highs in the 60s common in the valleys.

Temperatures from the 10th through the 18th were near normal for late winter.

It was back to winter from the 19th through the 28th, but it was actually even colder than a normal December. Burns, McCall, and Rome recorded their coldest temperatures of the season during this period, and Ontario's low of 9 on February 20 tied with December 26.

When these extremes were averaged together, the average for the entire month was deceptively close to normal. Only the Fairfield area was warmer than normal.

A warm upper level high pressure ridge off the coast was responsible for the spring-like weather from the 1st through the 9th. It also kept most of the precipitation associated with Pacific weather systems east of our area.

The ridge gradually shifted west, allowing northwest flow aloft to transport cooler but not unseasonably cold air into the Intermountain Region from the 10th through the 18th. One weather system embedded in the flow brought moderate precipitation on the 14th.

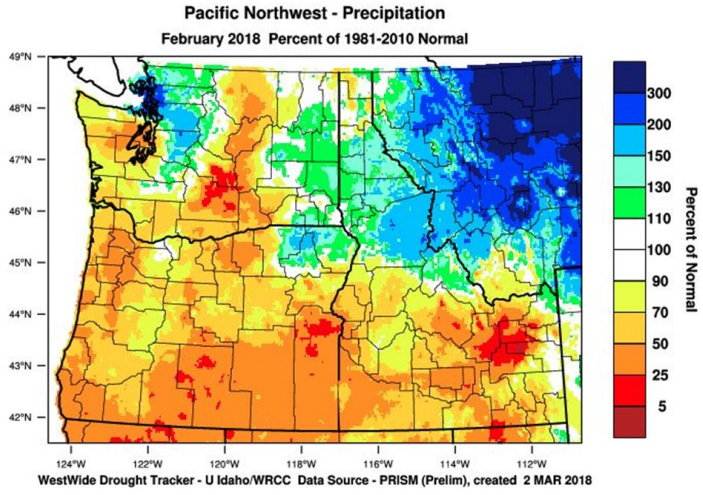
The ridge continued to drift west as a very cold upper level trough deepened over western Canada. Strong northerly flow on the west side of an upper level low over Hudson`s Bay pushed the trough south of the border. The cold front ahead of the trough passed through on the 17th, followed by gusty northwest winds.

Temperatures initially were not unseasonably cold, but by the 19th modified Arctic air had begun to filter in from the north, while the true Arctic front was hung up in the central Idaho mountains.

Although the coldest air stayed well to our north and east, clear skies, light winds, and very dry air allowed temperatures to drop below 10 above at many valley locations by sunrise on the 20th, even without snow cover.

The cold pattern persisted through the end of the month, with a deep upper level trough anchored over the western U.S. and western Canada. Temperatures remained unseasonably cold, and weather disturbances moving into the trough from Alaska brought periods of snow.

February is normally the driest winter month at many locations in the northern Intermountain Region. This February was no exception. All of southeast Oregon and southwest Idaho were drier than average, and some spots in northern Malheur County received less than 25 percent of their normal February precipitation.



SPACE WEATHER

The sun is the main source of space weather. Eruptions of plasma and magnetic field structures from the Sun's atmosphere, called coronal mass ejections (CMEs), and sudden bursts of radiation, called solar flares, can cause space weather effects at or near Earth.

1. BUILD an emergency supply kit for your home to prepapre for the potential loss of electricity.
2. During a solar event, FOLLOW energy conservation measures to minimize use of electricity.
3. After a solar event, LISTEN to the instructions given by local emergency management officials.

weather.gov/safety

Do you have a personal weather station?

If you have a personal weather station that is connected to the internet, you can choose to have your data ingested into weather models to improve future weather forecasts. The program is called the Citizens Weather Observer Program (CWOP). To have your weather station data included sign up for a DW number at wxqa.com. There are many resources available to get your weather station data online.

How You Receive
Wireless Emergency Alerts (WEAs)

National Weather Service
Issues a warning for a specific location due to an imminent weather or water threat.

Warnings that trigger WEAs
Tsunami Warnings
Tornado Warnings
Flash Flood Warning
Hurricane Warning
Typhoon Warning
Dust Storm Warning
Extreme Wind Warning

Integrated Public Alert and Warning System (IPAWS)
The alerts from authenticated public safety officials, such as the NWS, are sent through FEMA's Integrated Public Alert and Warning System.

Mobile Networks
IPAWS pushes the alerts to over 100 participating wireless carriers.

Your Mobile Device
Cell towers push the alerts to mobile devices in the affected area.

What WEAs Look Like
The alerts appear like SMS text messages, but they are not. They are accompanied by a unique attention signal and vibration.

Who Gets WEAs
Alerts are broadcast only from cell towers whose coverage areas are closest to the threatened area. Phones that are locked on to cell towers broadcasting the WEA will receive the message.

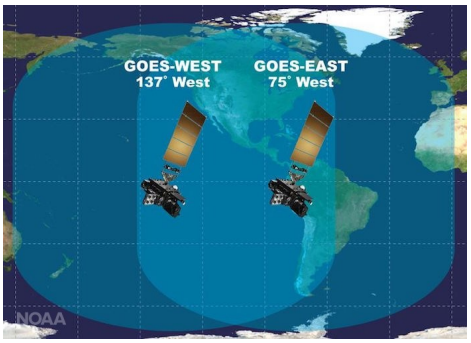
www.nws.noaa.gov/com/weatherreadynation/wea.html

Five Reasons GOES-S will be a game changer for weather forecasts across the West

NOAA

On March 12, GOES-S executed its final liquid apogee engine burn, placing the satellite in geostationary orbit 22,236 miles away. GOES-S is now GOES-17! The satellite will be called GOES-17 for the remainder of its lifespan. GOES satellites are designated a letter prior to launch and renamed with a number once they achieve geostationary orbit. The first imagery from the satellite is expected in mid-May.

GOES-17 will undergo a six-month on-orbit checkout of its instruments and systems, followed by operational handover procedures. The satellite move to its operational location at 137 degrees west longitude in late 2018 and become NOAA's GOES West.



This graphic shows coverage of the Western Hemisphere by GOES-East and GOES-West.

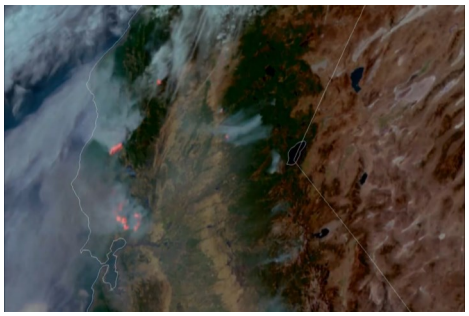
GOES-17 will provide faster, more accurate, and more detailed data in near real-time to track storm systems, lightning, wildfires, coastal fog, and other hazards that affect the western U.S., Hawaii and Alaska. An operational GOES-17 will give the Western Hemisphere two next-generation geostationary satellites. Together, GOES-16 and GOES-17 will keep an eye on weather and environmental hazards from the west coast of Africa all the way to New Zealand. Here are five reasons why GOES-S will be a game-changer for weather forecasts:

1. Better, faster data means more reliable forecasts

You may not realize it when you check your favorite weather website or smartphone app for a forecast in, say, San Francisco or Las Vegas, but weather forecasts in the western U.S. are overdue for an upgrade. A reliable forecast - whether it's for sunny skies, or a serious hazard such as flash floods or tropical cyclones - requires accurate and timely data, and that's where weather satellites like GOES-S come into play.

Our ability to see weather forming over the Pacific Ocean has been hampered by a lack of high-quality data. Data coverage is sparse over the northeastern Pacific, where many weather systems that affect the continental U.S. are born. The improved technology aboard GOES-S will provide valuable new data about upper level wind conditions. This data then gets fed into computer models used by forecasters at the National Weather Service.

Like GOES-16 (now NOAA's GOES East satellite), GOES-S will collect three times more data at four times better resolution, and scan the Earth five times faster than previous geostationary satellites over western North America, providing far more information to the models used to make those five-day forecasts we're so familiar with.



GOES-16 GeoColor and fire temperature RGB (red-green-blue) imagery of the wildfires raging in California on October 9, 2017. (Credit: CIRA)

2. Tracking Wildfires

The arid climate of the western United States makes the region especially vulnerable to wildfires. In 2017, several catastrophic wildfires in California burned more than one million acres of land across the state.

Thanks to high-resolution imagery from GOES-16, including red-green-blue thermal infrared imagery used to detect fire hot spots, forecasters at the National Weather Service were able to locate fires more quickly, and coordinate warnings with local emergency managers that helped save lives. In some cases, satellite imagery helped detect fires before 911 calls began to come in. GOES-S will provide a "second set of eyes" over the western U.S., and provide new wildfire monitoring capabilities where it is currently lacking, especially in Alaska.

3. Monitoring 'Atmospheric Rivers' and Pacific Tropical Cyclones

If you live on the West Coast, you may have heard the term "atmospheric river" or the "pineapple express." Like rivers in the sky, these narrow conveyor belts of moisture transport huge amounts of water vapor from the subtropics to the west coast of the continental U.S. Strong atmospheric rivers can deliver enormous amounts of rain and high-elevation snow in California and the Pacific Northwest, especially during the winter months.

GOES-S will be equipped with an infrared channel that helps forecasters monitor cloud top temperatures, which are used to predict rainfall intensity and the potential for flash flooding or thunderstorms. The Advanced Baseline Imager on GOES-S will have three water vapor bands, two more than GOES-15, NOAA's current geostationary satellite over the Pacific. These additional channels will provide high resolution imagery of atmospheric water vapor, allowing forecasters to track the movement of major storms and pinpoint areas that will receive the heaviest precipitation.

GOES-S will also have the capability of collecting one-minute imagery over tropical cyclones, which can help forecasters better locate a storm's center of circulation. In addition, the satellite's Geostationary Lightning Mapper (GLM) will provide forecasters with near real-time data on a storm's lightning activity, helping them identify the most convectively active portions of the storm.

4. Fog Detection

You don't have to live on the West Coast to know that coastal fog is a hallmark weather event in places like San Francisco and parts of the Pacific Northwest. Not only will GOES-S provide high-resolution, real-time imagery of fog conditions, but the satellite's rapid scanning capabilities will also help forecasters predict when fog will clear.

If you're a frequent flyer, you've probably run into a few travel headaches because fog or low stratus clouds grounded your flight.

Luckily, NOAA's GOES satellites can help mitigate flight delays. In March 2017, data and imagery from GOES-16 helped air traffic controllers at San Francisco International Airport lift a ground delay due to fog. Forecasters were able to use the satellite's high-resolution imagery to predict when the fog would start to erode, a decision that freed up 32 flights, prevented more than 20 hours of flight delays, and saved the airlines nearly $100,000. Fog monitoring from GOES -S will also improve forecasts used by the maritime sector, such the fishing and commercial shipping industries.

5. Special mention: A major upgrade for Alaska

GOES-S will boost weather prediction all across the western U.S., but the new satellite will be especially valuable to Alaska. That's because NOAA's current geostationary satellites lack sufficient resolution in regions near the Arctic. GOES-S, however, will provide a significantly clearer view of the Last Frontier - all the way to Alaska's North Slope, and allow for applications such as tracking sea ice.

This vast new coverage will revolutionize forecasting in Alaska. For example, thanks to combinable image channels on GOES-S (known as "multispectral imagery"), forecasters will be able to distinguish between clouds, snow-covered ground, and sea ice around Alaska's coasts. This will improve aviation and shipping forecasts, since current GOES visible satellite imagery can't easily differentiate clouds and snow - a particular challenge during Alaska's long, dark winter months.

Like its sister satellite, GOES-16, GOES-S will be able to detect hazards often experienced in Alaska, such as wildfires and volcanic ash. Monitoring wildfires using satellite data and imagery will save property and lives, while volcanic ash detection will make air travel significantly safer in a state where flying is the only mode of transport in many remote areas.

Want to know more about GOES-S? Stay tuned for the latest updates here.

Meet and Greet

Aviva Braun

The National Weather Service (NWS) could not achieve its mission or goals without the work and leadership provided by its Electronic Technician (ET) staff members. The NWS office in Boise, Idaho has 4 staff members in the ET shop; they have been tasked with the crucial work of making sure that forecasters are able to work with functional machines, be it their computers, the phone system, the many weather stations we have around the region, or the RADAR (RAdio Detection And Ranging). The RADAR is of utmost importance during high impact weather events; it allows forecasters to see inside the storms and interpret what each storm is capable of producing. This could range anywhere from large hail, to strong winds, to heavy rainfall, to tornadoes! To get a better idea of what NWS ET staff do, we sat down with one of Boise's Electronic Technicians, George Buckwold.

NWS: WFO Boise usually has 4 ET staff members and we're down one right now. Tell me, how did you choose this career path and how your department is doing without its fourth.

George: I started off in the military at 19 and stayed in the military until I retired at 43. One of the last projects that I was involved in was the WSR-88D NEXRAD (the RADAR system) program for the Air Force; therefore, it was a logical step to move right into the NWS. I was stationed at Keesler AFB in Biloxi, MS, on the other end of the country and I really wanted to get back to this area, so I started calling them here and bugging them, and here I am! As far as not having our full staff here, it's been running pretty smoothly. Our staff works really well together as a team and we just handle it as it comes our way. Sometimes the day gets rather long, more than it would be normally, but things have been working okay.

NWS: Your department handles quite a few things around the office – what are some examples?

George: Well, we take care of all of the computers in the office, in addition to all of the equipment we have for the upper air system. We also service the RADAR and the ASOSs (NWS weather stations located at the regional airports) within our forecast area. Just about anything that happens around here, we are going to have our fingers in it. I even replaced a heel on a lady's shoe once! It's just whatever comes along – if you ask, we will try!

NWS: I've noticed! I've never been let down by this department. So, one of main pieces of equipment that your department maintains is the RADAR, like you said. What exactly is a RADAR and what does it do?

George: RADAR stands for RAdio Detection And Ranging. It sends out transmitted RF (Radio Frequency System) signal pulses and they bounce off of whatever is out there. The signal comes back and is received. The signal data is then massaged so that our forecasters can interpret the data and understand what is going on within each storm in the region. The trick to the system is the software, where all of the massaging is occurring; that's where all of the magic takes place.

NWS: Where is the local RADAR?

George: The RADAR is located just south of the airport on Pleasant Valley Rd, just about a mile north of the prison and just across the road from the BLM wild horse corral. It's where the main RADAR is, and then the inside portion of the RADAR, the Radar Product Generator (RPG), the machinery which helps it run, is located here at the NWS office. The two ends talk to each other and then the forecaster's computers connect into the RPG to aid in storm interrogation.

NWS: Recently, a major upgrade was made to the RADAR. Can you tell me what was changed / upgraded? And what will these changes do to help our local forecasters?

George: There have been a number of recent upgrades to it as part of a modernization program. The RADAR itself has been out since 1988 and a number of changes have been made to make it current and make it better in some cases. The latest one, just a few weeks ago, was mainly a wiring project, replacing a bunch of old wiring in the transmitter, which did clear up some problems we were having. The one before that was a major one where Travis Mayer (Electronics Systems Analyst at NWS Boise) and I had to go out and replace the actual modulator at the transmitter. This is the piece of equipment that sends out the high voltage pulses that the RADAR then receives and then sends over to the RPG to be read by our forecasters. That was a biggie! We have had a few minor problems with the velocity data since then, but overall, it was a success! Anyway, it has been interesting to watch the modernization process all of these years and each upgrade is meant to make the system more reliable for the future and for our forecasters.

The Treasure Valley radar installed in November 1993. The radar is located a few miles south of the Boise Airport.

NWS: How often are upgrades made? Do we know when the next upgrade will be or the future of the instrument?

George: I don't know when the next upgrade will be. Right now, as the technologies develop, we work to install and upgrade the WSR-88D system as it is. The last system was developed in 1957, the WSR-57, which was completely decommissioned by 1996, when the WSR-88D came along. I assume at some point that we will move to a newer system, though I'm not sure if that will happen during my career.

NWS: Tell me, when was the WSR-88D first installed in the Treasure Valley?

George: That was in November 1993.

NWS: Where you here? What was that like?

George: Yes, I was here. I had just started in August of that year. It was interesting seeing them put it together. I had participated quite extensively in the planning for the one installed where I had been stationed in Mississippi, but I'd left before the RADAR had become active. It was fun seeing the whole install process happen here. It went operational by Thanksgiving of that year.

NWS: That must have been quite a process! RADARs come in three standard colors – green, brown, and white. What color is ours and why have the varying colors?

George: The colors are supposed to help the RADAR blend in with its local environment. This doesn't always happen as well as we'd like though. The one here isn't so bad; it's brown, meant to blend in with the high desert environment we have here in southern Idaho. It looks like a brown soccer ball out there.

NWS: Can you share a funny or interesting RADAR story?

George: Oh gee whiz! Well, there is a pit just off the base of the RADAR and people were able to shoot down there at one point – old habits die hard and the RADAR has been shot at a handful of times. We patch the holes created in the radome, the outside fiberglass shell of the machine. The actual instrument took a hit once on its metal frame; there was a dent, but we were able to fix that as well. Oh, here's a good one: we once had a pretty big owl up there. It used to sit up at the top of the step, right below the dome itself by the door. It made a nest and quite a mess as well since it was eating mostly whistle pigs! He got to be a bit of a hazard because he didn't think he had to move and it became a problem; scaring him away wasn't working. We finally caused enough problems for it that it moved its nest, but that took a while!

NWS: Ha ha! That's a fantastic story! Well, that's all I have for you George. Thank you for sitting down with me and sharing.

George: Thank you!

Interested in measuring precipitation? Join the CoCoRaHS observing network.

Join CoCoRaHS Today!

CoCoRaHS is a practical, enjoyable and useful activity. If you have an interest in weather and would like to help your local community, as well as scientists and others interested in precipitation, then CoCoRaHS is for you. It only takes a few minutes a day and gives you the chance to participate in real hands-on science. You'll be amazed at what you learn as you become more aware of the variable weather that impacts you, your neighbors, your state and our entire country.

Data on the web

Volunteers submit their observations using the CoCoRaHS website or apps. Observations are immediately available to the public via maps and data analysis tools, and to data users via the CoCoRaHS Web API. Data users such as scientists, resource manages, decision makers and others have come to rely on the high density, high quality measurements provided by CoCoRaHS observers.

CoCoRaHS is Educational

CoCoRaHS offers learning opportunities too. In addition to training materials, newsletters and the 'Message of the Day', members also enjoy opportunities to attend Webinars featuring experts in weather, climatology and other pertinent disciplines. CoCoRaHS offers classroom resources for K-12 teachers. Students get to collect and submit real scientific data – all while meeting State and National Standards in science, math, geography and more!

What is CoCoRaHS?

The Community Collaborative Rain, Hail and Snow Network, is a non-profit, community based, network of volunteers who measure and report rain, hail and snow in their backyards.

A brief History

CoCoRaHS came about as a result of a devastating flash flood that hit Fort Collins, Colorado in July 1997. A very localized storm dumped over a foot of rain in several hours while other portions of the city had only modest rainfall. The ensuing flood caught many by surprise, caused $200 million in damages, and resulted in five deaths. CoCoRaHS was born in 1998 with the intent of doing a better job of mapping and reporting intense storms. CoCoRaHS became a nationwide volunteer network in 2010 and is now international with observers helping provide critical precipitation observations, benefiting their country's needs.

Volunteers of all ages welcome!

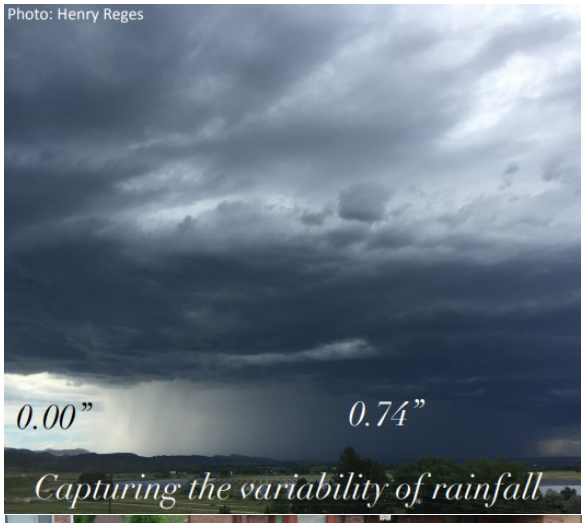
Individuals and family volunteers of all ages and all walks of life are the foundation of the CoCoRaHS network, Anyone can help. It only takes a few minutes to check the rain gauge and report your observations.

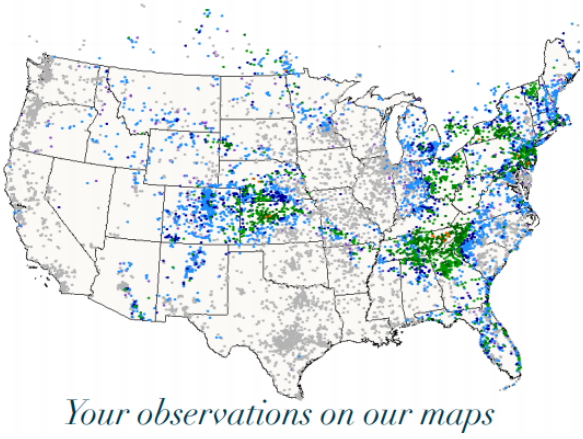
Training: "the Key to our success"

It is important that all CoCoRaHS precipitation reports be accurate and consistant. Training is provided on how to install gauges, properly measure precipitation and transmit reports. CoCoRaHS precipitation reports are accurate and very useful.

Why is there so much interest in rain, hail and snow?

Precipitation is essential for life. It varies greatly with topography, storm type and season. It really is true that it may pour on one side of the street and be dry on the other. A portion of a field may be pounded by hail while others nearby receive no damage. Snowfall may pile up in one neighborhood and only dust another. Rain, hail and snow are fairly easy to measure, and the data collected are very important. Meteorologists, hydrologists, engineers, builders, farmers . . . you name it, everyone seems to care about rain, hail and snow. That's why we ask, "How much fell in your backyard?"





There are limited observations across southwest Idaho and southeast Oregon, compared to the rest of the country, so we would love to have your observations. To learn more about the CoCoRaHS program and to see where your fellow observers have recorded rain amounts, visit http://www.cocorahs.org/.

Invite your neighbors, relatives and friends by sending them this "Join" link:

http://www.cocorahs.org/application.aspx

National Weather Service Boise Staff

Meteorologist In Charge

Michael Cantin

Science Operations Officer

Tim Barker

Warning Coordination Meteorologist

Jay Breidenbach

Service Hydrologist

Troy Lindquist

Information Technology Officer

Jason Baker

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George Buckwold
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Observing Program Leader

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Administrative Support

Kelly Jardine

Senior Meteorologists

Katy Branham
Les Colin
Dave Groenert
Stephen Parker
Bill Wojcik

Meteorologists

Korri Anderson
Elizabeth Padian
Josh Smith
Joel Tannenholz

Fire Weather Meteorologists

Chuck Redman

Hydrometeorlogical Technician

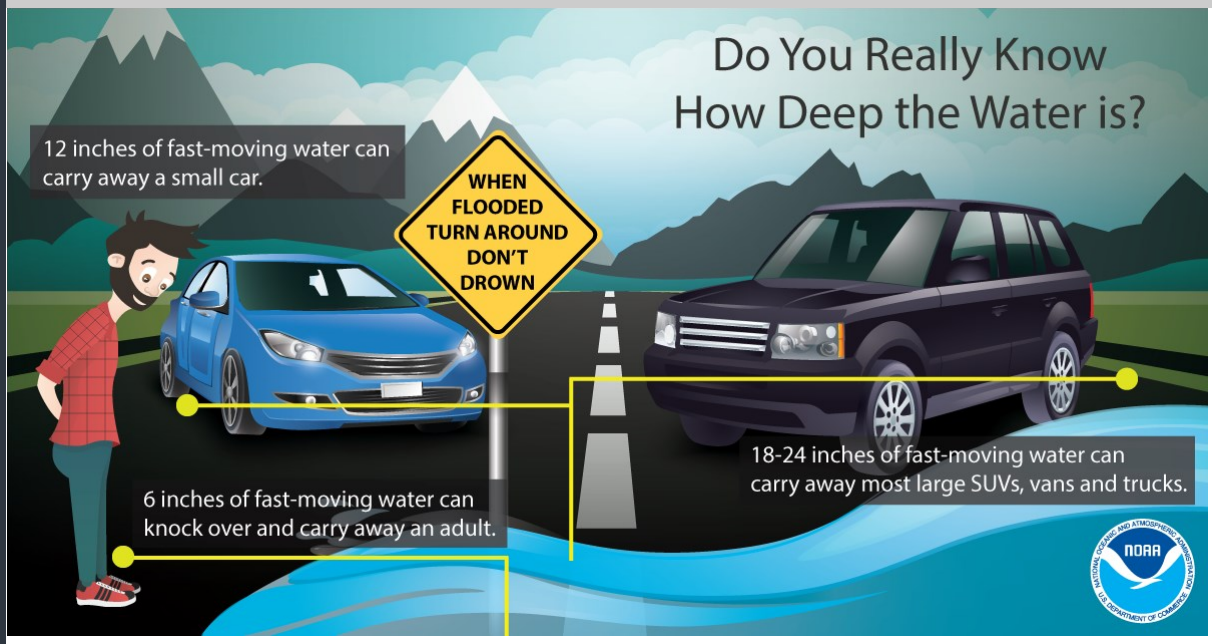
Wasyl Hewko

Meteorologist Interns

Aviva Braun
Jessica Caubre

Want to help NOAA weather scientists with research?

If you own a smartphone or tablet download the free **mPING** app in the App Store or Google Play.

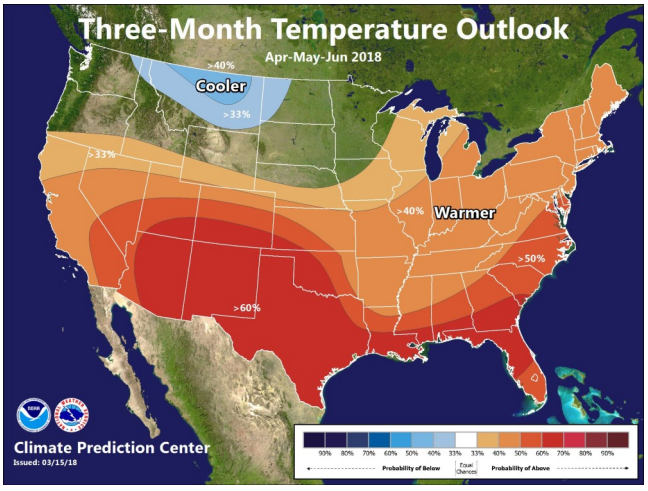


Spring Outlook

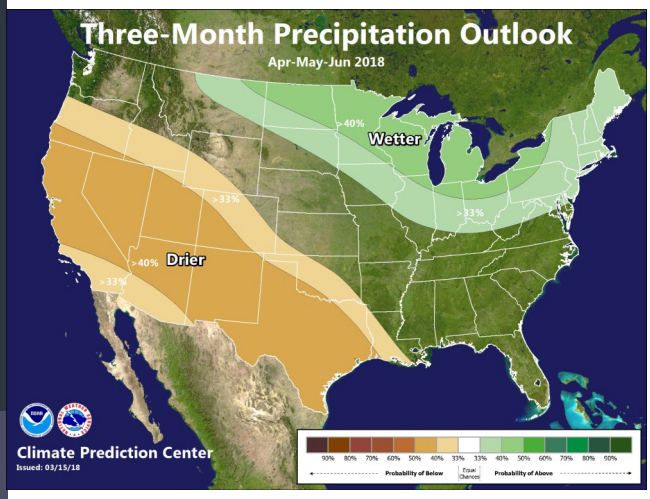
The following graphics show the official three-month outlook for the spring of 2018 (Apr-May-Jun) from the Climate Prediction Center, part of the NWS. The country's temperature outlook is for a better chance of above-normal temperatures across much of the nation with the exception being in Montana, where a better chance of cooler than normal conditions exists.

As for the country's precipitation outlook, there are better chances for above-normal amounts from the Upper Midwest to the Great Lakes region, with below-normal amounts expected the southwestern United States.

For southeast Oregon and southwest Idaho, these charts indicate a better chance for above normal temperatures, with a better chance of below-normal precipitation.



We still remain in weak La Nina, but conditions are trending toward ENSO neutral by summer 2018. ENSO neutral to El Nino conditions are probable going into the later part of 2018 into 2019.



CPC/IRI Early-Month Official ENSO Forecast Probabilities

Season	La Niña	Neutral	El Niño
Spring 2018	47%	52%	1%
Summer 2018	15%	62%	23%
Fall 2018	14%	45%	41%
Winter 2019	13%	39%	48%

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SPRING is HERE!

Friendly reminders on keeping you and your family safe

Springtime weather to start preparing for:

- **Flooding**: Snow melt combined with rainfall can create sheet flooding, but some thunderstorms can produce heavy rainfall in a short period of time and create flash flooding. Both of these scenarios can threaten life and property.
- **Thunderstorms**: Hail, lightning, gusty winds, and flooding are all possible with thunderstorms, and can be dangerous. If you hear thunder, it is time to go indoors.

SPOTTERS! When do we want to hear from you?

- Hail is occurring – note the size in diameter. Use familiar items such as the size of a pea, quarter, etc.
- Heavy rainfall that is causing flooding of any kind.
- ANY property damage caused by wind, hail or rain.
- Funnel Cloud or Tornado

Questions? Comments? Suggestions?

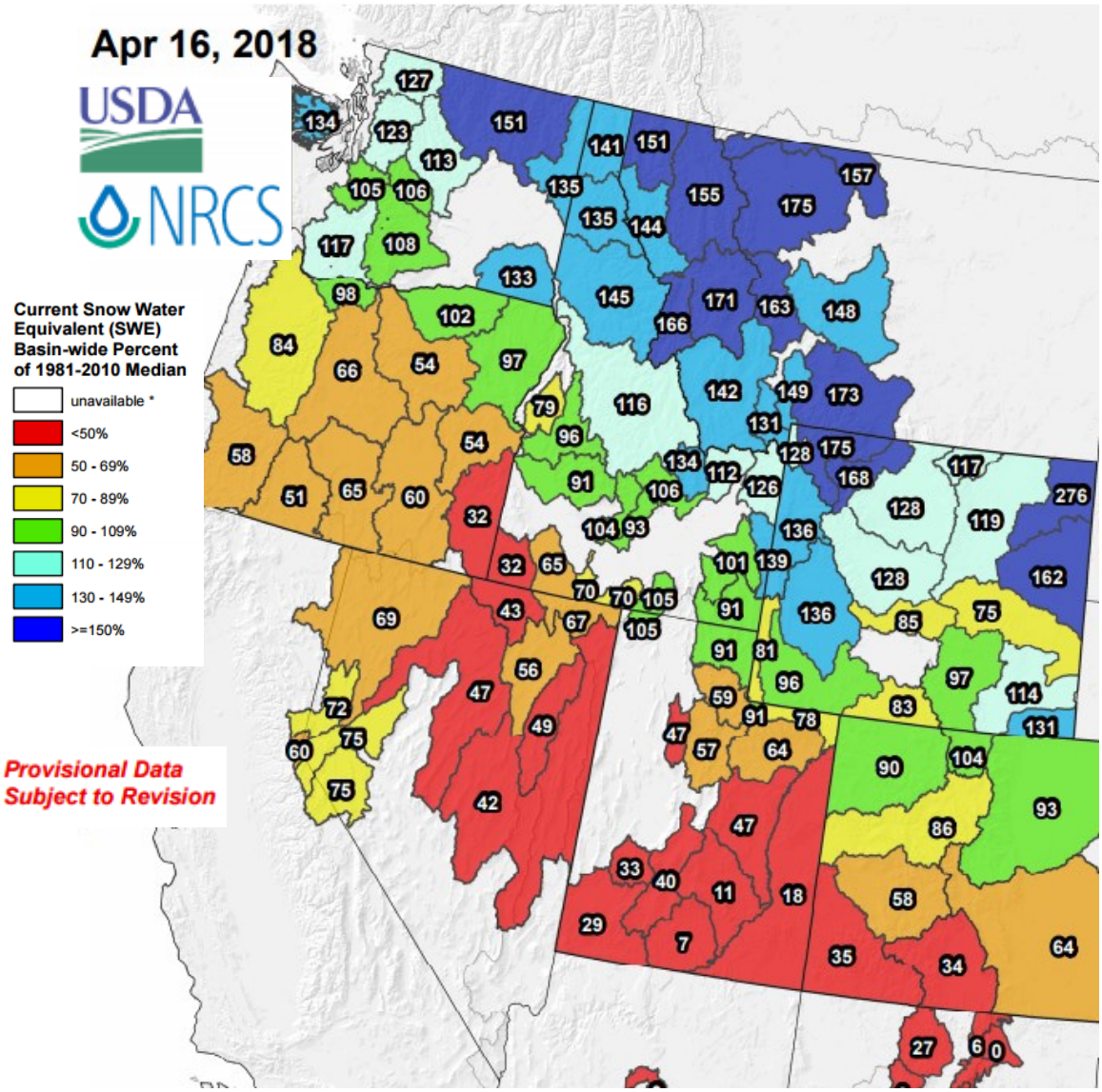
Email:

boi.spotter@noaa.gov

Spring Snowpack and Flood Outlook

The potential for spring flooding due to snowmelt in 2018 is well above average across most of northern and eastern Idaho and Montana. Meanwhile, the spring flood potential is slightly below average for southwest Idaho and southeast Oregon.

The storm track over much of the winter brought above normal precipitation values to much of the region. However, it was a tale of two cities on the northern end (cooler) and the southern end of the storm track. Cooler conditions on the northern portion of the storm track led to above normal snow values across Washington, northern Idaho, and western Montana, while the southern end of the storm track brought warmer conditions to Oregon, southwest Idaho, Nevada and Utah, leading to a below normal snow pack. The following graphic illustrates the amount of snow pack compared to normal for mid April.



WATCH/WARNING/ADVISORY What is the Difference?

WATCH – Conditions are **favorable for a severe weather event** in the near future. **Be Prepared!**

WARNING – Weather is occurring or imminent and is **threatening life or property**. **Take Action!**

ADVISORY – Weather that will cause a **significant inconvenience**, and if caution is not taken, may be threatening to life or property. **Be Aware!**