



VOLUME
XI
ISSUE 3, SUMMER 2018

Sage Winds

NATIONAL WEATHER SERVICE BOISE

AUTUMN Spotter Checklist

When should you call us?

SNOWFALL: 1" or greater.

HAIL: Pea size or larger.

REDUCED VISIBILITY: from fog, blowing dust, rain, snow.

WIND: 40 mph+ or damage.

HEAVY RAIN: ½" or greater.

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

TORNADO or FUNNEL CLOUD.

TRAVEL PROBLEMS due to severe or hazardous weather.

ANY WEATHER RELATED DAMAGE, DEATH, OR INJURY.

How to contact us:

1-800-882-1428

@NWSBoise

/NWSBoise

boise.weather@noaa.gov

Spotter Field Guide

Season in Review

Joel Tannenholz

Temperatures for the season averaged above normal, and much above normal in the Boise Mountains, southern Malheur County, and the Snake River Canyon north of Weiser.

Most of southeast Oregon and southwest Idaho had below normal precipitation, but parts of Owyhee and Twin Falls counties were much drier than normal.

Also of note was the lack of severe weather. Although a few thunderstorms did generate brief locally strong gusty winds, there were no reports of damage.

June

June was a month of changeable temperatures, owing to a procession of upper level troughs and ridges from the North Pacific. For the entire month, temperatures averaged close to normal, with the exception of slight positive departures in the central Idaho mountains and southern portions of Malheur and southern Twin Falls counties.

Except for a few anomalously wet spots, precipitation was near or below normal.

It doesn't show up well on the precipitation percentile map, but Boise, Jerome, McCall, Mountain Home, Ontario, and Twin Falls received only a third to a half of their normal June rainfalls.

On the 14th an upper level trough from the Gulf of Alaska stalled over the northwest states. Cooler air from western Canada aided its intensification, and the trough gained even more strength as it entrained moist air from east of the Rockies. The result was scattered showers and thunderstorms which dampened a few rain gauges. The only significant rainfall report came from Rome, where a total of 1.09 inches fell on the 17th and 18th.

By the 20th a very warm upper level high pressure ridge centered over Arizona covered the Desert Southwest and most of the Intermountain Region. Monsoon moisture circulating around the ridge fed isolated thunderstorms, most of which produced little or no rain. Exceptions were Baker City and Burns, which measured .35 inch each on the 20th. A few spots in Baker County reported over an inch of rain, most of which fell in one hour that evening. A mesonet gauge 8 miles east of Unity Dam measured 1.50 inches of rain.

July

July was hot and dry, with smoky skies during the latter half of the month.

The very warm ridge which became the dominant feature for much of the western U.S. in late June grew even stronger in July.

As is typical of this time of year, the storm track had shifted north of the Canadian border, so Pacific weather systems moved inland too far north to bring us precipitation and cooler air.

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The Science of Thunderstorms, CoCoRAHS **P.3**

September: National Preparedness Month,

Valley Fog, First Date for Measurable Snow **P.4**

Temperatures were above normal or much above normal across the region, with episodes of triple digit highs at lower elevations.

Precipitation was below normal or much below normal, and it was the driest July on record in the Boise Mountains and the Snake River Canyon north of Weiser.

During much of July, westerly and southwesterly flow around the northern periphery of the ridge deflected monsoon moisture east before it could advance very far across Nevada's northern border. The flow shifted to more southerly on the 16th, feeding in enough moisture for isolated thunderstorms. These produced more wind than rain, which mostly evaporated in the hot dry air.

The ridge expanded further north during the last week of July, bringing the hottest weather of the month. But August would see even higher temperatures.

Location	High	Dates	Note
Boise	110°F	10 th	New record for date
Baker City	109°F	10 th	All-time record
Burns	103°F	10 th	New record for date
Jerome	102°F	9 th , 10 th	
McCall	98°F	9 th	
Mt. Home	108°F	10 th	Tied record for date
Ontario	105°F	9 th , 10 th	
Rome	106°F	9 th , 10 th	
Twin Falls	101°F	10 th	

August

The heat persisted through the first three weeks of August, with the year's hottest temperatures on the 9th and 10th.

On the 20th a Pacific cold front crossed our area, heralding a pattern change which ended the siege of hot weather that began on July 4. The northern Intermountain Region remained under a shallow upper level trough for the rest of the month, keeping temperatures relatively cool.

Precipitation was below or much below normal, and it was the driest August on record for most of Harney County, eastern Owyhee County, and portions of the Snake River Valley.

Continued on next page...

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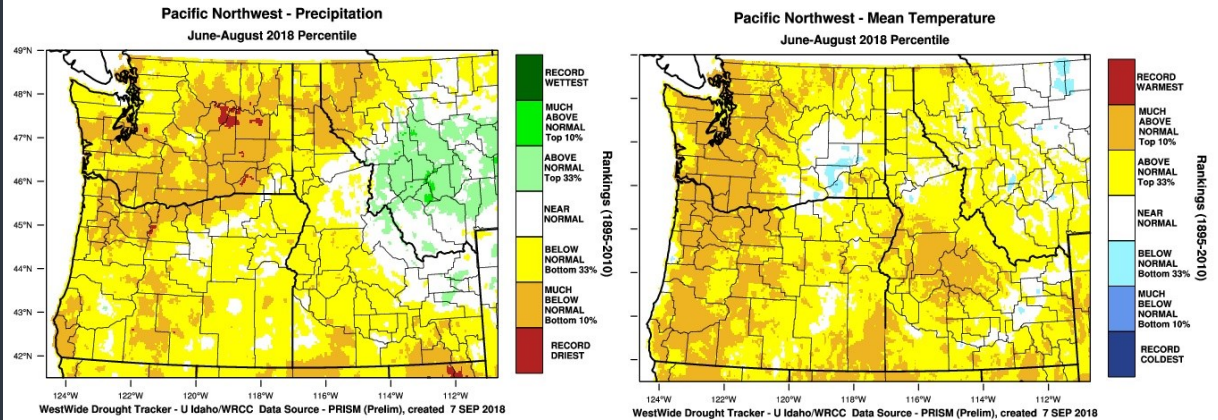
Meteorologist Interns

Jessica Caubre

Anna Lindeman

July and August are normally the driest months of the year in southwest Idaho and southeast Oregon, and years with little or no measurable rain during these months are not uncommon.

The smoke began to clear across much of our area on the 25th, when upper level winds shifted into the northwest, bringing cleaner air from off the British Columbia coast.



Fall 2018 Outlook

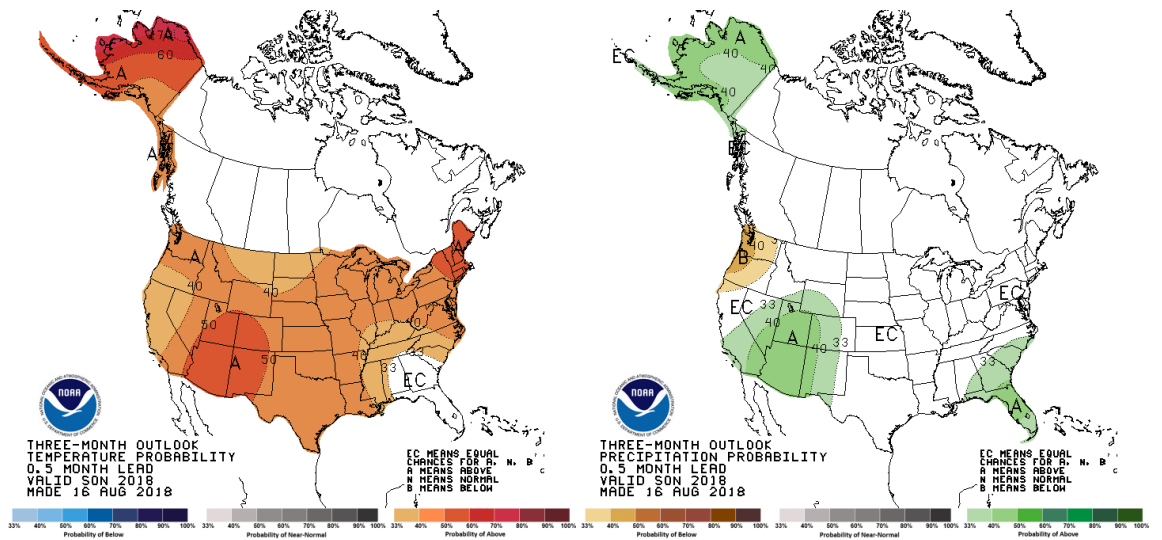
Stephen Parker

One of the strongest impacts on global weather is whether or not we are in El Nino or La Nina conditions. At the present time, we are in what is called "neutral" conditions, which means that neither one is present. There is a 60% chance of going into El Nino conditions this fall, and that rises to 70% this coming winter. If this occurs, we will likely fall into a typical El Nino pattern, which gives us greater chances of above-normal temperatures and below-normal precipitation.

The following graphics show the official three-month outlook for the fall of 2018 (Sep-Oct-Nov). The country's temperature outlook is for a better chance of above-normal temperatures, especially in the Four-Corners region, northern Alaska, and New England. The exception is in the far Southeast, where above-normal is not favored.

The country's precipitation outlook is for equal chances of above- and below-normal in most areas, with an area of better chances for above-normal amounts in the Southwest, far Southeast, and Alaska. The Pacific Northwest coast has better chances for below normal precipitation.

For southeast Oregon and southwest Idaho, these charts indicate an approximately 40% better chance of above-normal temperatures and an equal chance of both below-normal and above-normal precipitation.



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.

Interested in measuring precipitation and snow?

If you have an interest in weather and would like to help your local community, as well as scientists and others interested in precipitation, join the Community Collaborative Rain, Hail and Snow Network (CoCoRAHS). It only takes a few minutes a day and gives you the chance to participate in real hands-on science.

www.cocorahs.org



All Ages Welcome



Photo: Henry Reges

Capturing the variability in rainfall.

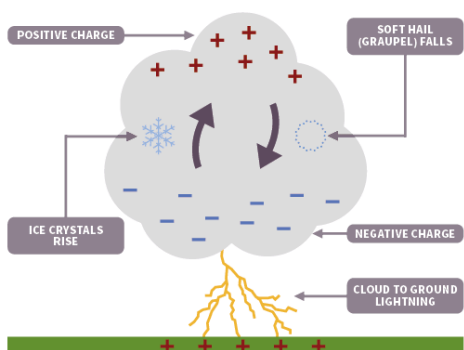
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THE SCIENCE OF THUNDERSTORMS

LIGHTNING

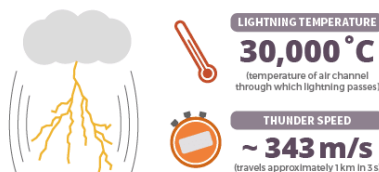
Air updrafts in storm clouds carry small water droplets and ice crystals up, while denser soft hail falls. When they collide, ice crystals become positively charged and soft hail becomes negatively charged. Consequently, the cloud's top becomes positively charged, with its base becoming negatively charged.



The cloud's negatively charged base repels electrons on the ground. Cloud-to-ground lightning is one type of lightning - others also result from the charge difference in clouds.



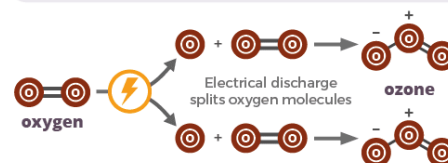
THUNDER



Lightning causes rapid heating and expansion of nearby air, followed by cooling and contraction. This creates a sonic shock wave - thunder.

LIGHTNING CHEMISTRY

Lightning strikes can split diatomic oxygen in the air into individual oxygen atoms. These combine with other oxygen molecules to form ozone, giving rise to the 'pre-rain' smell.



Lightning ionises air molecules in its path. The blue-violet colour of lightning is a consequence of light emissions from excited nitrogen and hydrogen atoms.



At the high temperatures lightning generates, nitrogen and oxygen combine to form nitrogen oxides. These dissolve in rain and form nitrates, important for plant growth.



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**CoCoRAHS
observers needed!**

Calling all weather enthusiasts in southeastern Oregon and southern Idaho! We need more weather observers interested in taking daily measurements of precipitation or snowfall.

If you would like to participate in CoCoRaHS, please contact us at: boise.weather@noaa.gov or visit <http://www.cocorahs.org/>

It's hard to believe, but it's time to brush off the snow board and snow stick. Snow measurement time is right around the corner!

**BE PREPARED!
Fall Safety Tips**

Make sure you and your family are prepared for an emergency, whether it be flash flooding, wildfires, floods, winds, winter storms or power outages. Here is a simple list of what you can do to prepare for an emergency:

- Prepare a **Disaster Supply Kit** with a week's worth of food and water.
- Create a **Family Emergency Plan**, so you know how to communicate to others.
- Obtain a **NOAA Weather Radio**.
- Check **weather.gov** every morning before you leave home to make sure you are prepared for what the weather might bring.
- Inspire others to **take action** by showing your friends and family how you are prepared. You can tell them over the phone or in person, or tweet, or post about it.

Visit www.ready.gov for more information.

**Questions? Comments?
Suggestions?**

Email:
boi.spotter@noaa.gov

**Disasters
Happen**

PREPARE NOW **LEARN HOW**

NATIONAL PREPAREDNESS MONTH 2018

ready.gov/september



First Date for Measurable Snow?

	Earliest	Average	Latest
Boise	Oct 10 (2008)	Nov 22	Dec 31 (1958)
Burns	Sep 29 (1971)	Nov 7	Jan 1 (1977)
Baker City	Oct 7 (1961)	Nov 13	Dec 29 (1958)
McCall	Sep 24 (1958)	Nov 1	Dec 7 (1976)
Twin Falls	Sep 17 (1965)	Nov 14	Dec 21 (2002)

