NATIONAL WEATHER SERVICE - MEDFORD, OREGON

Summer 2017
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THE CRATER CHRONICLE

Evolving the National Weather Service

John Lovegrove, *Meteorologist—In—Charge*

The National Weather Service has begun an evolution process to allow us to better respond to changing risks to the nation. The population of the nation is growing and moving. Infrastructure is aging and becoming strained. The climate is changing. All of these risks require the NWS to adapt so that we can continue to provide services needed by our partner agencies and the public.

Summer began on June 20th at 9:24 pm PDT.

Several years ago, the NWS began shifting away from simply sending forecasts out for distribution to adding decision support services for key decision makers in communities. These decision support services, or DSS, require NWS forecasters to understand the needs and decision points of our core partners so that they are better informed about impending impactful weather. Our core partners include, but are not limited to: departments of transportation, emergency services, land management agencies, fire departments, and more. Our goal is to provide better, more consistent DSS across the country in order to build a Weather-Ready Nation. A "Weather-Ready Nation" is one that is ready, responsive and resilient to extreme weather, water and climate events.

These expanding services do take up forecaster's time. In order to find this needed time, ideas were gathered from the employees and an outside contractor to streamline our current procedures. All of the ideas generated were distilled down to seven main ones that will eventually be tested. We will start the testing with three of the seven. First, we will use a National Blend of Models to give a starting point for all offices in generating the forecast grids of the National Digital Forecast Database. This is hoped to streamline the collaboration process and make a more consistent, accurate national forecast. Second, will be the testing of auto-launchers that will automate the process of sending weather balloons into the atmosphere. Finally, we will change the hiring and training process for forecasters to give increased flexibility at the local office level to better serve our core partners and general public.

Over the next few years, these proposals will be thoroughly tested. A significant part of this testing will be engaging with our partners and the public. With this feedback, the proposals will be refined and tested again. We will finally implement these changes that will ensure the NWS is Second to None in the world.

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Weather-Ready Nation
National Oceanic and Atmospheric Administration

Cooperative Program Awards

By the end of this year, five cooperative observation stations will have reached significant length-of-service milestones. Congratulations to the following observers and organizations, and thank you for your continued service to our agency and your fellow citizens. Representatives from the Medford forecast office will visit and present each recipient with their award certificate over the coming months.

Name/Organization	Station	Length of Service	Begin Date
Nathan Andersen	Myrtle Creek 7NE, OR	10 yrs	9/26/2007
Alan E. Parks	The Poplars, OR	35 yrs	10/01/1982
Oregon State Highway Dept.	Adel, OR	50 yrs	10/01/1967
USFS Ranger Station	Paisley, OR	50 yrs	3/01/1967
USFS Work Center	Oak Knoll, CA	75 yrs	4/01/1942

WFO Medford's First Tornado Warning in 12 years

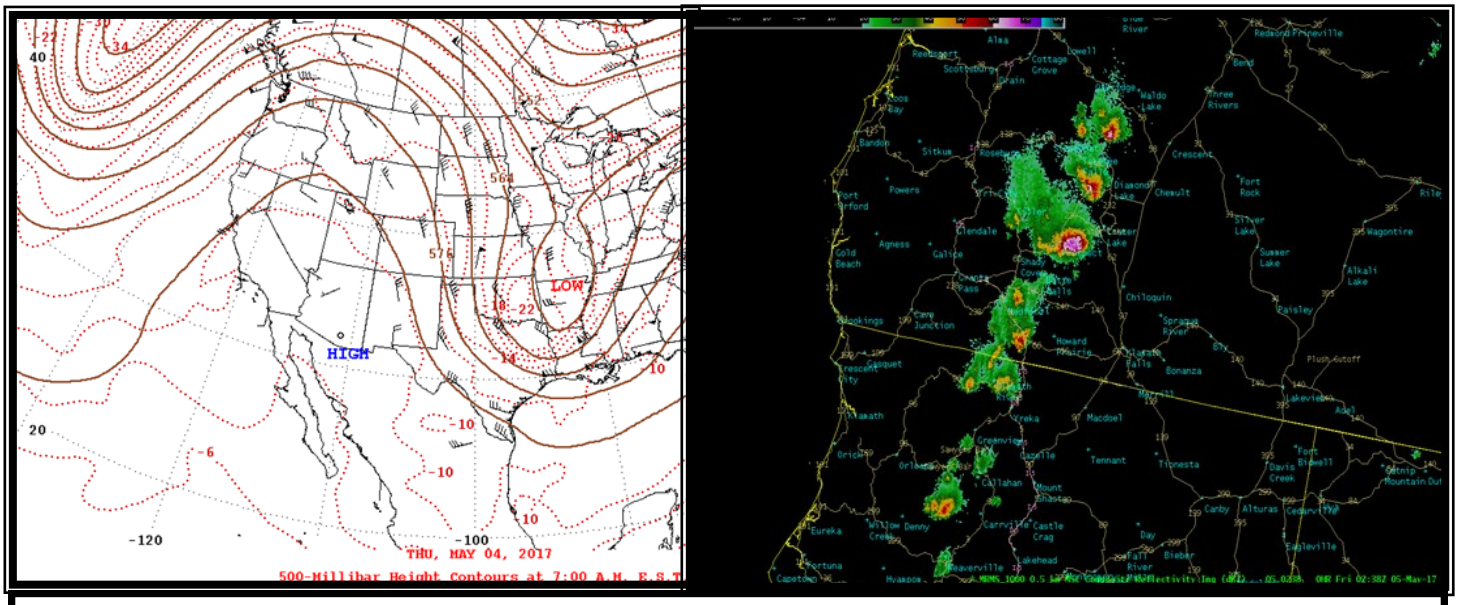
Mike Stavish, Science and Operations Officer

Tornadoes are a rare occurrence in Oregon. Why is this? While the answer can be fairly complex, a simplified version can be revealed by examining just a few important ingredients for tornadic thunderstorm development - instability, vertical wind shear (change in wind direction and/or speed with height) and a strong enough trigger mechanism to set storms in motion. The right amount of these ingredients, and having them come together at the same time, just isn't that common in Oregon and all are needed for ideal tornadic conditions. On rare occasions however, we do experience days with high levels of wind shear and instability acting together with a strong enough trigger. Such a case happened on May 4th of this year.

Preceded by a period of warm high pressure, this day was characterized by a ridge moving to the east with the approach of a large upper trough over the eastern Pacific. The atmosphere became quite unstable as the day progressed with increasing jet stream winds generating favorable wind shear.

As the afternoon progressed, a strong line of thunderstorms developed extending from northern California across southern Oregon. The image from the KMAX WSR-88D Doppler radar on top of Mt. Ashland showed the storms. The severe supercell storm that eventually exhibited tornadic characteristics can be seen with the white and pink colors just southwest of Crater Lake.

Let's move on to some of the WSR-88D radar signatures that developed this day. The 88D has evolved into a highly advanced machine



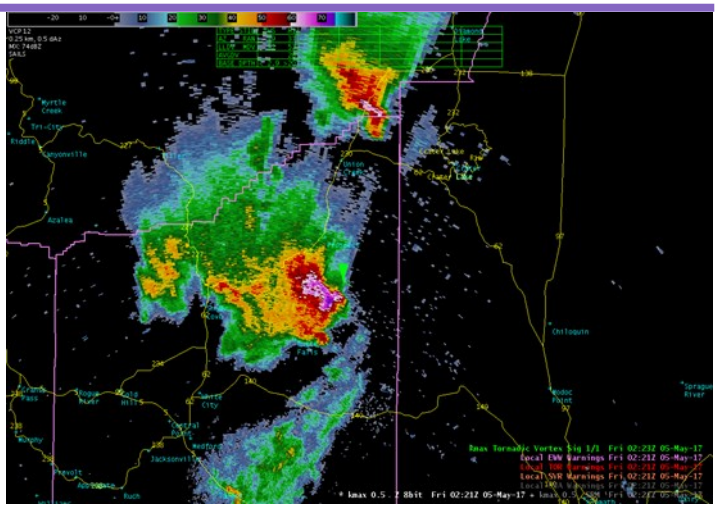
LEFT: Upper atmospheric flow pattern 5 am PDT, May 4th 2017 showing an approaching upper trough over the eastern Pacific.

RIGHT: KMAX WSR-88D Doppler radar reflectivity image at 738 pm PDT showing the line of storms that had developed and the strong supercell southwest of Crater Lake.

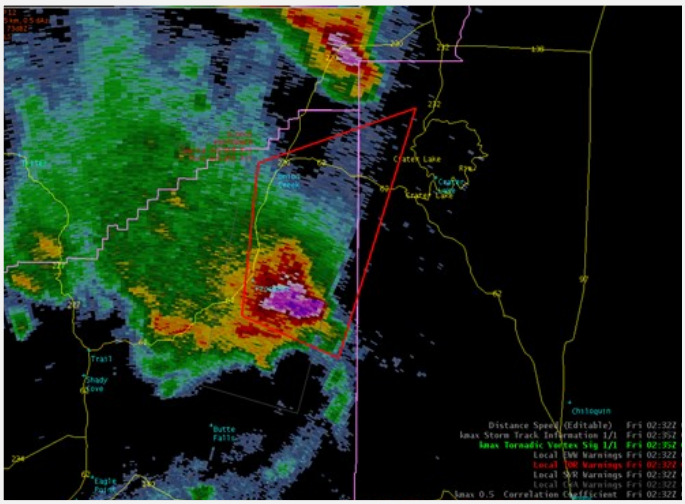
that provides forecasters with an enormous amount of data about winds and precipitation. Advanced computer processing makes the meteorologist's job just a little easier in managing the complex variety of information gathered. One radar product of interest on this day was the TVS, or Tornado Vortex Signature. It is generated by radar analysis of rotating winds within the storm to indicate where the radar believes a tornado is possible. Conditions were favorable this day that warranted paying close attention to these signatures and rotating winds within the supercell thunderstorm.

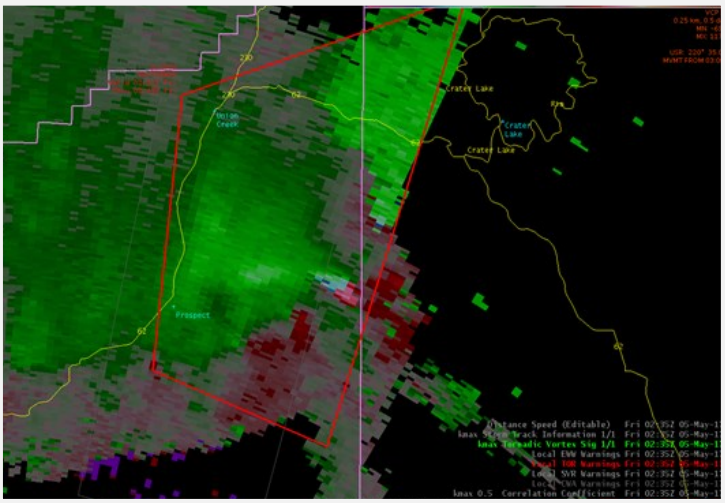
At 7:21 pm PDT the radar showed the first of three TVS signatures identified within the supercell that moved through northeast Jackson County (pictured right). A severe thunderstorm warning was initially issued for the storm owing largely to the very high reflectivity values indicating the potential for large hail and damaging winds.

At 7:31 pm PDT after considering other important data indicating storm rotation (shown below), the team decided to upgrade the severe thunderstorm warning to a tornado warning.



KMAX 88D 0.5 degree reflectivity valid at 721 pm PDT showing the massive supercell north of Butte Falls and Prospect. The tornadic vortex signature (TVS) is indicated by the upside down green triangle.

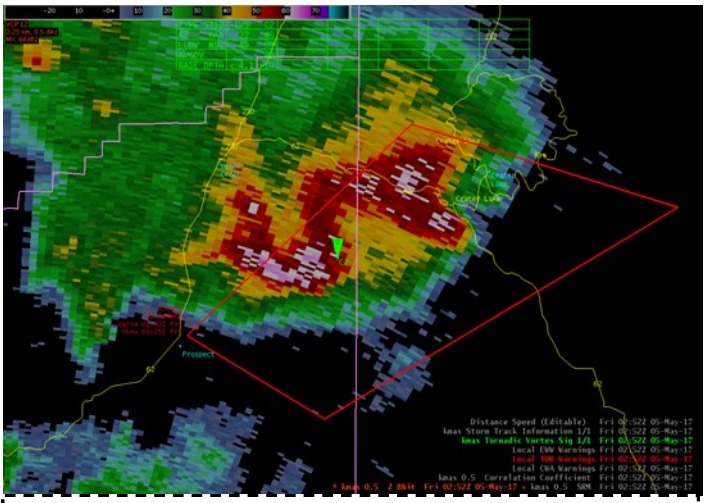




Left: Radar reflectivity at 7:32 pm PDT, just after initial tornado warning was issued (shown by red polygon).

Right: Radar storm relative velocity at 7:35 pm PDT. A tornadic signature is seen as the blue/pink couplet east of Prospect.

Within 10 minutes, as the storm moved and evolved rapidly to the northeast at 35 to 55 mph, another tornado warning was issued at 7:40 pm PDT to include additional areas to the north and east, including Crater Lake National Park.



Radar reflectivity at 7:52 pm PDT, 12 minutes after 2nd tornado warning was issued. Also shown is the 2nd TVS identified by the radar (the upside down green triangle)

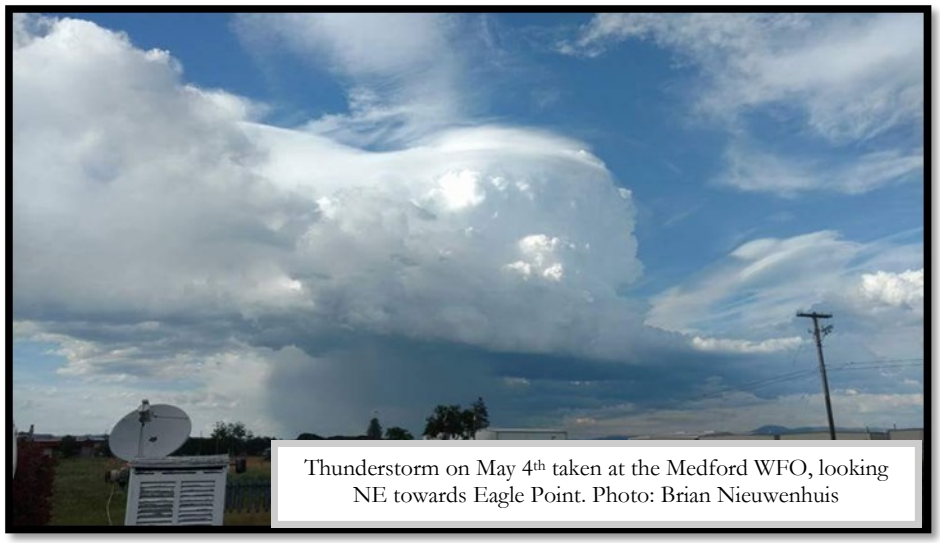
The tornado warnings were issued chiefly based on radar signatures and favorable environmental conditions. No tornado reports were received during the warnings. In the days following the event, a team of meteorologists from the weather office embarked on an investigation to find evidence of tornado damage. Due to the remote location of the storm, the main item we looked for was tree damage. A team traveled the area by vehicle and did locate some tree damage, but it was indiscernible if the damage was caused by a tornado. However, evidence of large hail was discovered. See the following article for more details on the severe weather damage survey.

In the end, the event was challenging as the storm moved through remote mountainous terrain where observations from the ground were not available to assist in the warning decision. Radar, satellite, model data and environmental conditions were the main decision tools available to the forecaster that ultimately lead to the decision to issue the tornado warnings. Using the agency mission of preserving public safety as a guide, the team made the right decision.

Severe Thunderstorm Damage Survey: In Search of Jackson County's First Tornado

Brian Nieuwenhuis, *Meteorologist*

On the afternoon and evening of May 4th, an outbreak of severe thunderstorms occurred over southwestern Oregon. Unfortunately, many of these storms occurred over the wilderness along the western foothills of the Cascades. This included several severe storms, and even a storm cell that prompted the second tornado warning ever issued by the Medford office, and what would have been the first tornado recorded in Jackson County, Oregon. With no spotters and very few people in the area to confirm the warnings, Meteorologist Brian Nieuwenhuis and Hydrologist Spencer Higginson set out on a damage survey the next day.



Thunderstorm on May 4th taken at the Medford WFO, looking NE towards Eagle Point. Photo: Brian Nieuwenhuis

Hailstones and their craters within the snowpack. Photos: Brian Nieuwenhuis

Limited by the wilderness, lack of roads, and deep snowpack, the two were unable to make their way to the suspected tornado's path. They did, however, find a curious phenomenon, as a surprise lay hidden in areas of snow along the roads. Hail stones had embedded themselves into the snow the previous evening, where they were insulated from most of the effects of heavy rain and above-freezing temperatures. The hail had formed little craters, and, while rain and warm ambient air had melted away the exposed half of the stones, near perfect hemispheres were preserved for almost a full 24 hours before being found. Not only were the interior rings of the hailstones easily seen, they could also be measured to confirm the severe thunderstorm warnings. The largest hail found in the snowbanks was just under 1 and ¾ inches, but most were between 1 and 1 ½ inches. While the snow possibly prevented the confirmation of a tornado, it did provide the means to measure the size of the hail across an unpopulated area, and thereby confirm several severe thunderstorm warnings.

In an attempt to bypass the snowbound roads, Meteorologist Marc Spilde and Ryan Sandler (WCM) performed an aerial helicopter damage survey on May 9th, primarily looking for tornado damage. The Jackson County Sheriff's department provided this opportunity through Brim Aviation. After transecting the area of interest for over an hour, there was no obvious recent tree-top damage or downed trees observed.

Left: Approximate path (blue line) of survey flight to search for tornado damage. Right: Meteorologist Marc Spilde (left), WCM Ryan Sandler (right), and Ryan with Brim Aviation (center) just before flight.

New Lightning Detection by Satellite - The Global Lightning Mapper

Mike Stavish, *Science and Operations Officer*

This summer, forecasters and researchers across the country will begin making use of an amazing new real-time lightning dataset provided by the new U.S. geostationary satellite, GOES-16 (formerly GOES-R before reaching orbit). The instrument on the spacecraft to measure lightning is called the Geostationary Lightning Mapper, or GLM.

Scientists prepare the GLM instrument on the GOES-R satellite prior to launch.

The GLM is the first operational lightning mapper to fly in geostationary orbit and will measure total lightning, both in-cloud and cloud-to-ground, to aid in forecasting intensifying storms and severe weather events. It works by detecting light from the cloud tops that is emitted by lightning. This may sound simple, but the data processing is fairly intense. GLM will detect and map total lightning activity continuously over the Americas and adjacent ocean regions with a variable spatial resolution of about 10 kilometers. The data will be sent from the satellite to earth every 20 seconds. It will also collect information such as the frequency, location and extent of lightning discharges to identify intensifying storms, which are often accompanied by increased lightning activity.

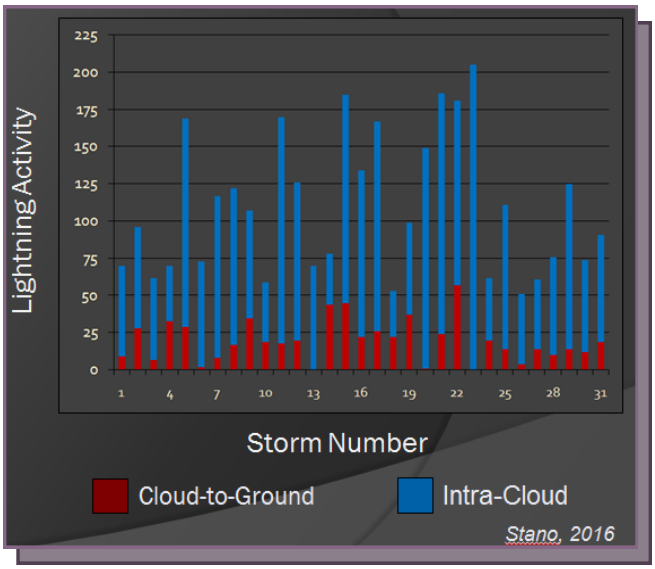
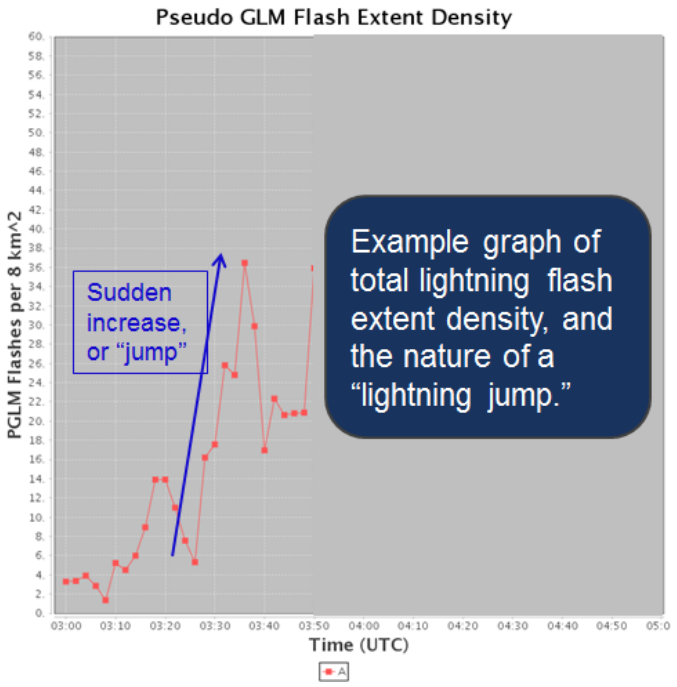


Chart showing ration of in-cloud strokes vs. cloud-to-ground.

What the forecasters will see on their workstations will be products such as a plan view loop of lightning activity occurring every minute. Before GLM, forecasters have been using lightning data from the National Lightning Detection Network, or NLDN, and also from Earth Networks, or ENI. Only the ENI data provided in-cloud lightning measurements. In-cloud lightning is a highly revealing indicator of storm intensity, and actually accounts for the great majority of lightning within storms. The GLM will enable forecasters to better understand this storm trait.

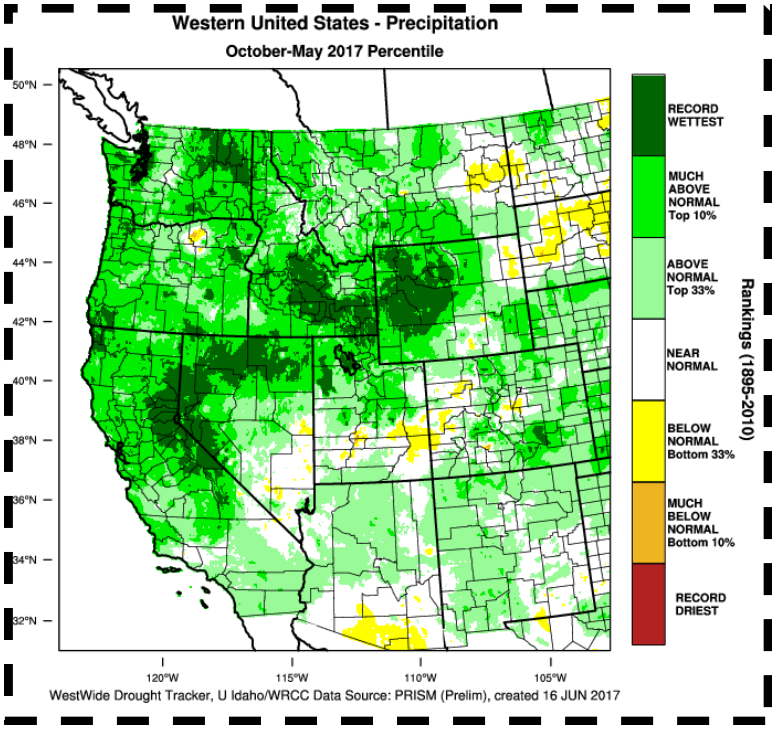


Total lightning can be very useful in monitoring trends in storm intensity. The amount of electric discharge activity within thunderstorms is correlated very well to storm updraft strength - the stronger the storm updraft, the more likely it is to produce severe weather. By monitoring lightning in new ways, such as watching for "lightning jumps", or sudden significant increases in lightning activity, forecasters will gain important situational awareness and lead time in making decisions about severe weather probabilities and lightning safety. Data from the GOES-16 GLM instrument is expected to reach forecaster workstations in July of 2017.

2017 Fire Season Outlook

Brett Lutz, *Forecaster*

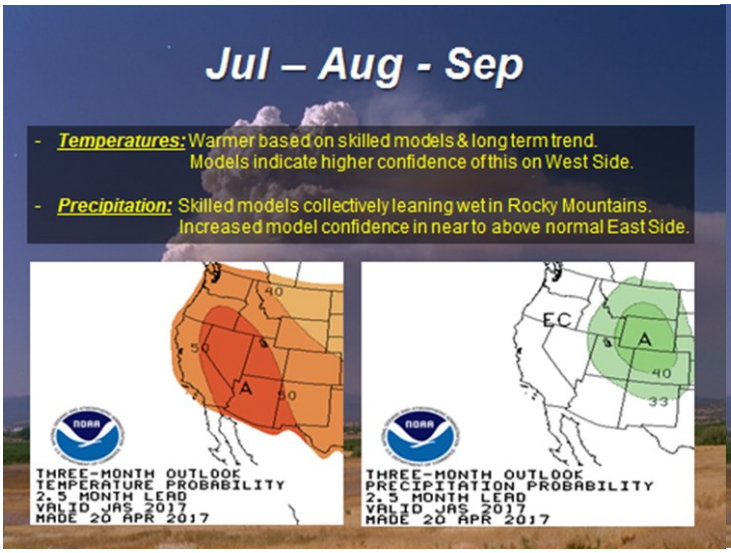
Very wet conditions and strong mountain snow pack during this water year that began on October 1st have provided plenty of water for area reservoirs, water tables, and vegetation. This water has also caused significant plant growth this spring setting the stage for significant grass and brush fire potential in un-mowed areas once the summer dry season takes hold. Higher elevation areas are expected to be buffered by lingering moisture from snow-pack and strong new growth. Altogether, we're expecting an average fire season this year, beginning later than has been observed in recent years.

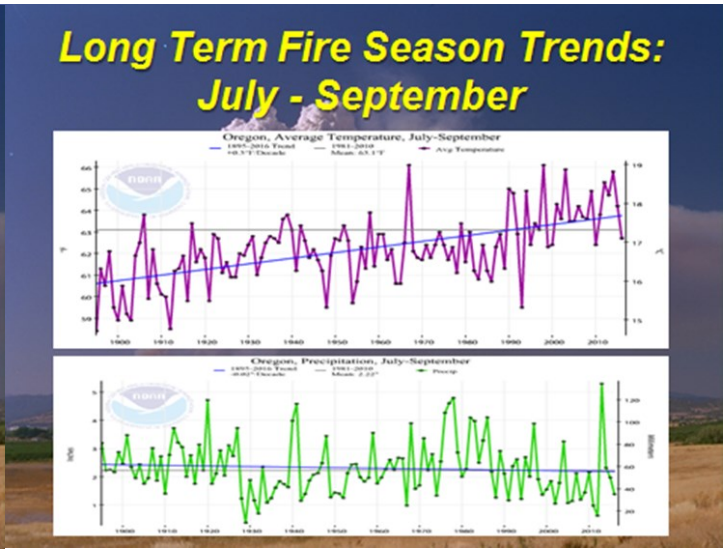


More specifically, grass and brush areas, especially in lower elevation populated valley areas, are the primary fire concern for this 2017 fire season. While some fires of this type, under 100 acres, have already been observed, we expect the grass and brush fire problem to become an increasing concern through the summer. Grass and brush can dry and become wet much faster than heavier, thicker fuels do, with most of them being designated as 1 to 10 hour fuels. So, they become particularly receptive to fire during heat waves, and equally moisten up during periods of significant or sustained rainfall and high humidity. For mid and upper elevation forested areas, it's more likely to take until late July or even August for these areas to be much of a fire concern. Even so, most large wildfires in our forests start from lightning occurring in July and August and can burn until the fall rains come.

In addition to dry fuels, the primary drivers of wildfires are lightning and human caused ignitions. On Oregon Department of Forestry land, which surrounds many of the more populated communities of southwestern Oregon, more than 60% of fires are human caused whereas approximately 70% of all fires on National Forest Service land are lightning caused. Predicting ignitions is not easy, but there are particular times of increased concern for fire starts such as the late afternoon and early evening hours, holiday weekends (particularly the 4th of July), this year's upcoming solar eclipse, and extraordinarily hot and dry summer days when conditions are exceptionally dry. As for lightning, the possibility of it increases at the peak and shortly after the peak of heat waves. There currently does not appear to be any skill in predicting lightning on seasonal time scales. That said, there is a theory out there among firefighters and fire weather forecasters that abundant wetness going into the summer from the preceding wet season usually means at or above normal lightning across southwestern Oregon and northern California.

Overall, chances for above normal temperatures this summer as compared to the 1981-2010 averages are increased due to an observed long term warming trend. For precipitation this summer, there are no strong signals indicating it to be one way or another except that the analog years of 2006 and 1974 were near to below normal for precipitation for July through September statewide for Oregon and California.





But It's a Dry Heat

Ryan Sandler, *Warning Coordination Meteorologist*

I grew up in New England and spent most of my life coping with summer heat and humidity. I even spent a few summers in my youth working inside a greenhouse which made the summer heat even worse. After those early life experiences I am convinced that air conditioning is one of the top 10 greatest inventions.

More recently, I have spent the past eighteen summers in Medford where the average high temperature reaches a toasty 93 degrees in late July. If we only looked at high temperatures then we would think summers were hotter in Medford than in Atlanta, Georgia where the average late July high temperature is 89 degrees.

Our overarching goal is for a Weather-Ready Nation and being prepared for heat contributes to this goal. Heat may not grab the headlines like a tornado or hurricane but it is the #1 weather related killer across the United States.

To understand why Atlanta's summers are much more uncomfortable we would want to look at low temperatures. In Medford, the average late July low temperature is a cool 59 degrees compared to a mild 71 degrees in Atlanta. The average low temperature is important because it is a good approximation for humidity levels. High humidity traps heat and keeps it warmer at night. In late July there is normally ***twice*** the amount of moisture in the air in Atlanta compared to Medford. The relative dry heat felt in Medford is also experienced across the rest of southern Oregon and northern California, with the exception of the coast, where the cool ocean breeze is a natural air conditioner much of the time.

Even though it's usually a dry heat in our region we still have to be careful on very hot days during the sunny afternoon hours. The National Weather Service has a great website on summer safety at http://www.weather.gov/wrn/summer-safety

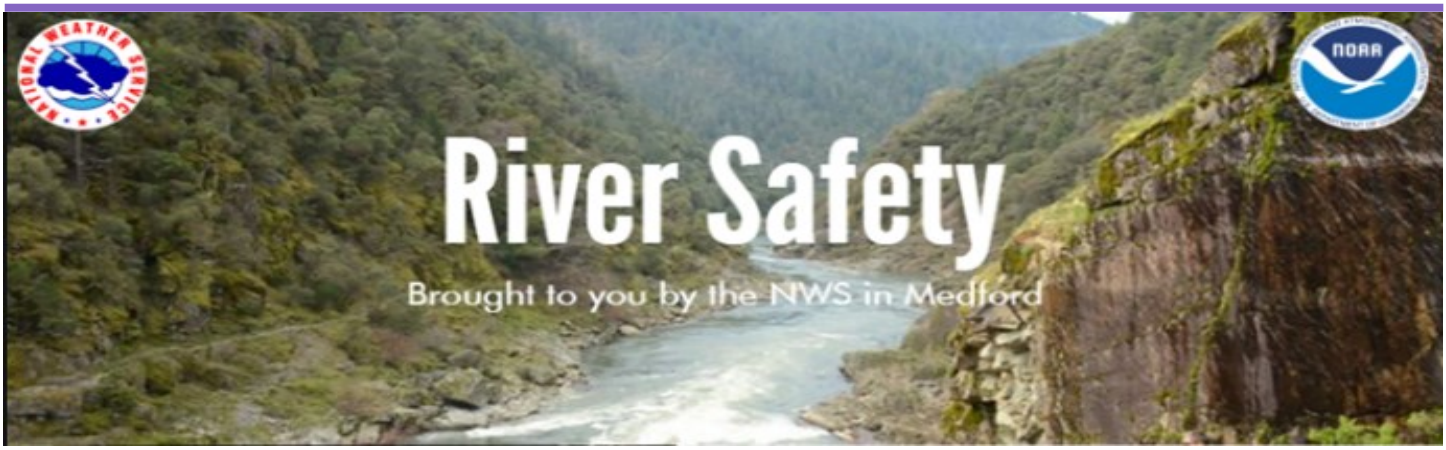
Beginning this summer, our office will issue heat watches and excessive heat warnings which are in addition to the heat advisories we have been issuing for a number of years. These watches, warnings, and advisories will be based on our new HeatRisk formula.

HeatRisk takes into account:

1) How significantly above normal high and low temperatures are in a 24 hour period.
2) The time of year (early season versus typical summer heat).
3) The duration of unusual heat expected.
4) If temperatures pose an elevated risk for heat complications.
5) If overnight lows and humidity allow temporary respite or enhancement of the heat wave.

The HeatRisk webpage can be found at https://www.wrh.noaa.gov/wrh/heatrisk/. On this webpage the heat risk potential is forecast for the next seven days and you can zoom to your area of concern. Our heat watches, warnings, and advisories will be based on the HeatRisk color categories seen below. We may issue a heat advisory if your area gets well into the orange category, and a heat watch and excessive heat warning if the HeatRisk category reaches well into the red or magenta colors.

Category	Level	Meaning
Green	0	No Elevated Risk
Yellow	1	Low Risk for those extremely sensitive to heat, especially those without effective cooling and/or adequate hydration
Orange	2	Moderate Risk for those who are sensitive to heat, especially those without effective cooling and/or adequate hydration
Red	3	High Risk for much of the population, especially those who are heat sensitive and those without effective cooling and/or adequate hydration
Magenta	4	Very High Risk for entire population due to long duration heat, with little to no relief overnight



Cold Water Kills – Respect the Water

Spencer Higgingson, *Service Hydrologist*

Summer is finally here and with it comes the warm/hot temperatures. Sounds like the perfect opportunity to take the kids out to the river to cool off…but is it? Every year people lose their lives in the rivers and it is entirely avoidable. So how can we enjoy our rivers and remain safe?

River temperatures are influenced by the hot weather but maybe not as much as you think. This time of year, the water in the river consists almost entirely of snowmelt. The snow melts and the water enters the ground where it warms very little before finally making it to the river. That makes for some very cold water.

Flowing water is dangerous because it is powerful and also because it is not our natural environment. Even strong swimmers can get into trouble in moving water. When that water is very cold, the danger increases precipitously. Cold water can lead to serious trouble and even death in two ways; heat loss and cold shock.

Heat loss occurs when you've been exposed to cold water for too long. The body is stripped of heat 20-30 times faster in water than in the air. Even brief exposure will begin to impact the body. Heat loss leads to hypothermia and a decrease in control of muscles and breathing. Heat loss occurs more quickly in those with lower body fat so even our young, strong youth are at high risk. Even very strong swimmers can get into trouble quickly in cold water. It has less to do with abilities and more to do with heat loss. Once you lose that muscle control, the ability to self-rescue is gone.

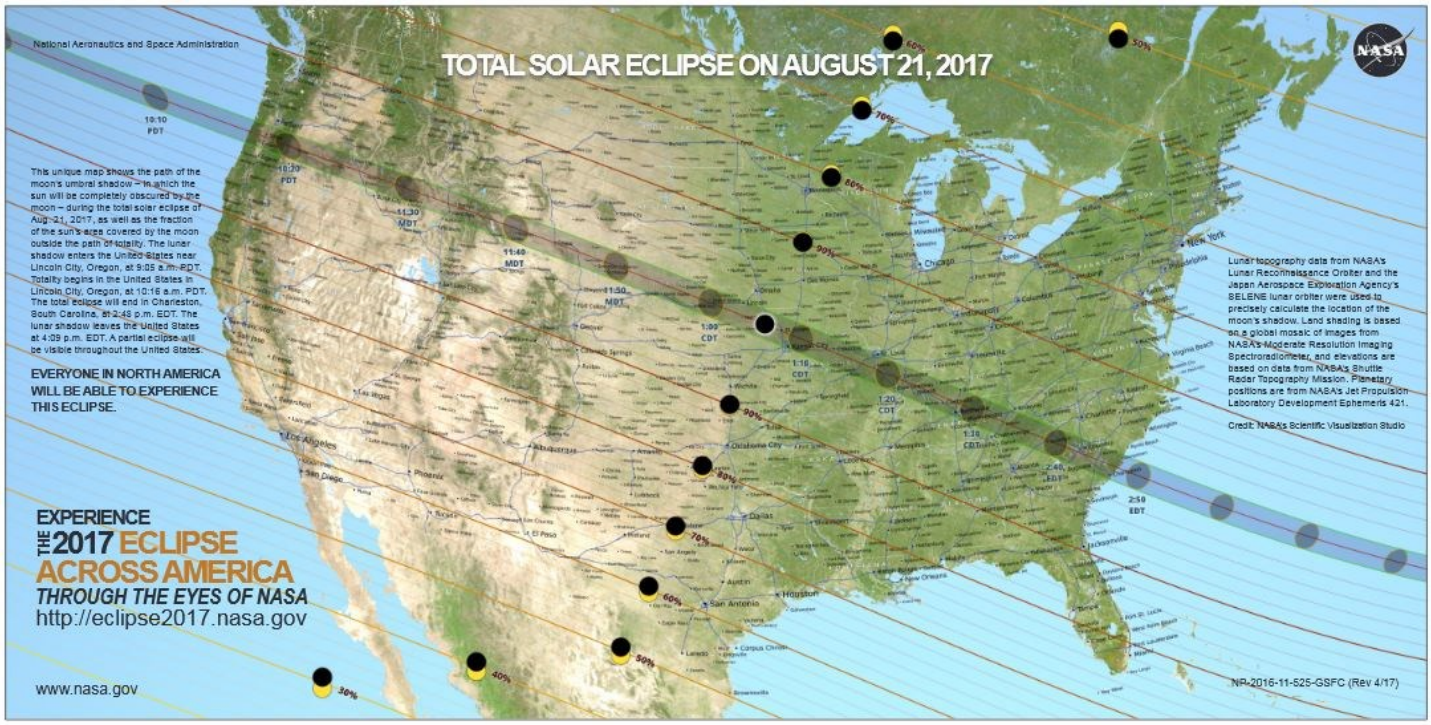
Cold shock is experienced when the sudden exposure to cold water causes sudden gasps and rapid, uncontrolled breathing. Several things can happen when experiencing cold shock. There is the potential for inadvertently inhaling water during the initial gasp. If this occurs the situation is immediately dire. The rapid, uncontrolled breathing can cause hyperventilation which leads to muscle weakness and faintness causing you to not think clearly. Combine this with the panic and self-rescue is extremely difficult.

Anytime water temperatures are below 70 degrees there is a significant increase in the danger. Anything below 60 degrees is immediately life threatening.

There are ways to stay safe while enjoying the rivers. To prevent cold shock, acclimate to the cold water by entering the water slowly instead of jumping straight in. This will help to maintain normal breathing. To prevent heat loss, consider only wading in shallow water and limit the amount of time in the water. If you do go into the water, avoid areas with strong currents and stay in areas where you can touch the bottom and exit the water easily. Exit the water at the first hint of decreased muscle or breathing control. The most important thing to remember when recreating in the water is to wear a life jacket. If you experience cold shock, heat loss, or any other problem causing you to not be able to self-rescue, the life jacket will keep you alive until help arrives. Compare that life jacket to a seat belt. You rarely have a need for the seat belt but the one time you do, you'll be glad you were wearing it. Have a great summer and stay safe!

Eclipse 2017

Misty Firmin, *Meteorologist*

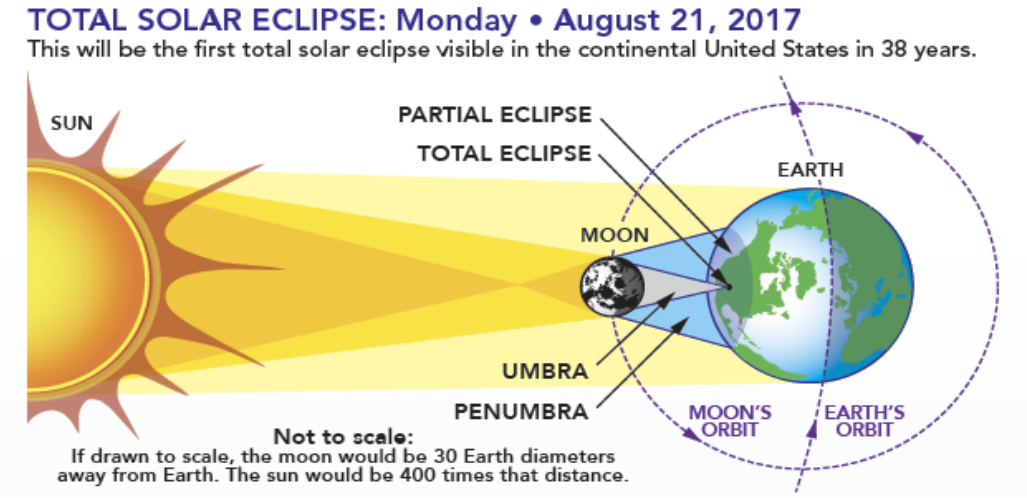


On August 21st, a total solar eclipse will move across the United States starting at the coast of Oregon and exiting off the coast of South Carolina. All of those in North America will be lucky enough to see at least a partial eclipse, weather depending of course. However, those lucky enough to be in the path of totality will get the rare treat of seeing the sun's corona once the sun is fully eclipsed. Only in the path of totality will the moon completely cover the sun, making the brighter stars and planets visible during the day. How does an eclipse work? What's the best way to view the solar eclipse without damaging your eyes? Where can you go to find out the weather for the eclipse? Read on for these answers…

What is an eclipse?

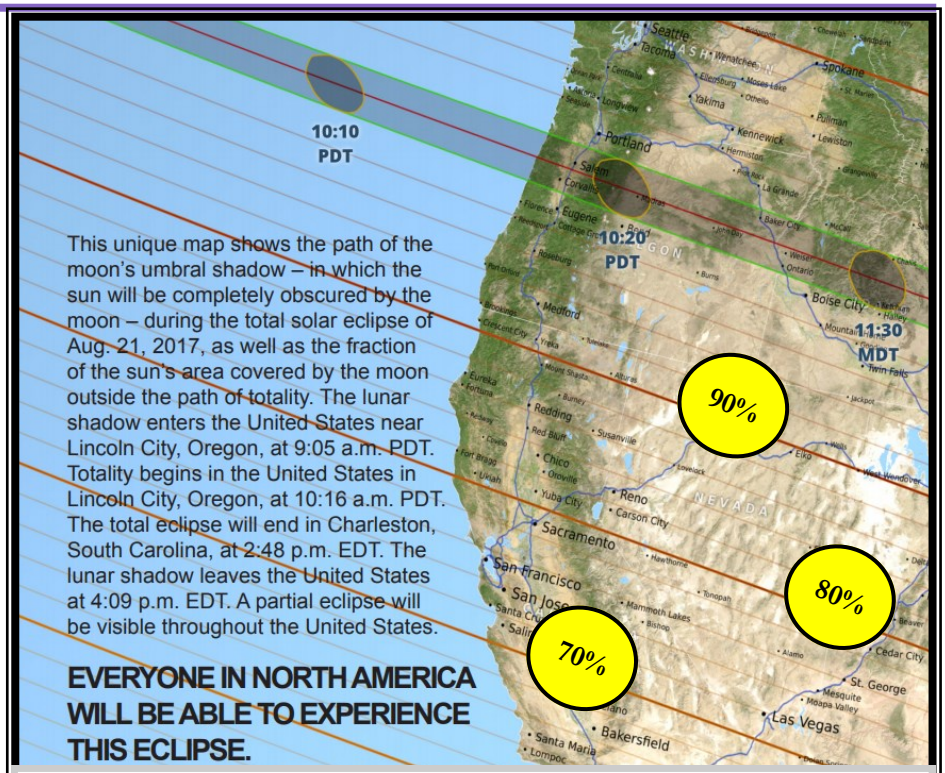
Whenever the sun, moon, and Earth align an eclipse occurs. This can either be a solar or lunar eclipse, depending on the order of these celestial bodies. If the Earth moves between the sun and the moon, the Earth casts a shadow on the moon resulting in a lunar eclipse. On the other hand, when the moon moves between the Earth and sun at the correct angle, like what will happen on August 21st, the moon casts a shadow on the Earth, causing a solar eclipse.

When a solar eclipse occurs, there can be three different types of eclipses depending on either the alignment of these celestial bodies or the position of the moon on its elliptical path. The alignment of the Earth, sun and moon will determine if there is a partial or a total eclipse. A partial eclipse occurs either when the celestial bodies do not align correctly or if you are outside the narrow path of a total eclipse. If they



Depiction of alignment of the sun, earth, and moon that leads to a solar eclipse. Image: https://eclipse2017.nasa.gov/how-eclipses-work

are perfectly aligned, a total eclipse is possible, dependent on the moon's position on its elliptical path. At different times during its orbit, the moon is closer or further away from the Earth because the orbital path is not a perfect circle. When the moon is farther away from the Earth it will appear smaller and the relative size will not cover the sun completely, creating an annular eclipse. It's named annular for the ring of the sun that is still visible during this type of eclipse. On the other hand, when the moon is close enough to the earth, it will appear to completely cover the sun, resulting in a total eclipse. This is the kind of eclipse that will occur on August 21st. The downside is that the path of totality is a (relatively) narrow path of about 70 miles. Those outside this path will only get to view a partial eclipse. Although our forecast area is outside the total eclipse path, the partial eclipse will still be around 88-98% complete, with the percentage decreasing as you head further south.



Zoomed in version of map on first page of this article to show the coverage of the partial eclipse for our forecast area. Image: NASA

Safety & Viewing tips:

NEVER LOOK DIRECTLY AT THE SUN!! – The only time it is safe to look at the sun with the naked eye is during the brief time of totality (about 2 minutes), when the moon is completely blocking the sun, which only happens in the path of totality. If you are outside the path of totality, or trying to see the sun before it is completely eclipsed, you NEED a safe way to do so. Fortunately, there are a few different, inexpensive ways to make this happen. You can search the web for some simple home made ways to see the solar eclipse. NASA provides an in depth look at safety precautions during the eclipse as well as some DIY eclipse viewing projects. Please remember that polarized sunglasses are NOT safe to view the eclipse. Also, do NOT use unfiltered camera, binoculars, or telescopes to view the eclipse. These devices concentrate the sunlight, causing extreme damage to your eyes. You're essentially holding a magnifying glass to your eye, creating the same effect as burning grass using a magnifying glass.

What will the weather be like for the day:

Of course the awe of this event will be highly dependent on the weather. If there are clouds covering the sky, how will you see the eclipse?! It will still get noticeably darker during the eclipse, even with cloud cover, but you won't get to see the details if those pesky

Eclipse 2017 *cont.*

clouds are hanging around. While it's difficult to pinpoint the exact weather months in advance, we can look at climatology to tell us where you'd have a better chance of clear skies and unobstructed eclipse views. So if you're wondering what the skies *typically* entail on August 21st, check out the National Centers for Environmental Information website. They provide cloud cover climatology for select locations across the US and while this shouldn't be considered a forecast per say, it does provide you with the average conditions for that date. Based on these averages, they give a probability of clear sky conditions based on historical data. One thing to note is that just because there is a high probability of clear skies based on climatology, that doesn't mean that it will be clear on that date for this year. Climate is the personality, weather is the daily mood and some days are just better than others. Another thing to take into account is that August 21st is in the heart of fire season and it's not out of the possibility for thick smoke to obscure the sky that day.

Medford Weather Forecast Office: As we get closer to the event, weather offices will be able to provide a more detailed forecast within 7 days of the event. If you're venturing north or northeast to be in the path of totality, you can check with either the Portland or Pendleton forecast offices for details in their areas.

Resources:

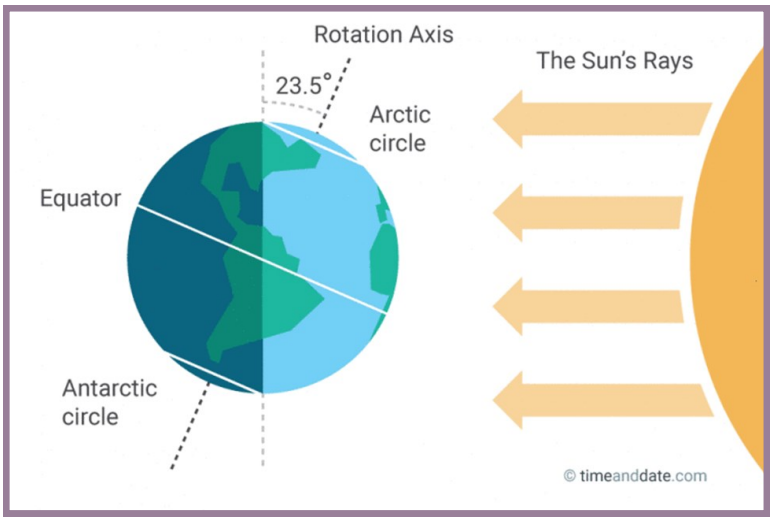
NASA: https://eclipse2017.nasa.gov/. This site has a plethora of information, and is the main source of information and graphics provided in this article. For more on safety tips, projects, events, or the science behind this astronomical event, check out NASA's page!

Eclipse Megamovie 2017: Google and Berkley teamed up to make this really neat site that will allow you to see a simulated version of what the eclipse should look like based on location. Simply type your town of interest in the box and hit play!

Summer Meteor Showers

Delta Aquarids—This meteor shower typically runs from mid July through mid August and is caused by debris from the comets Marsden and Kracht. This year, the show will peak somewhere between July 27th through 30th and the waxing crescent moon shouldn't interfere since it'll set before the midnight hour. The meteors will radiate from the constellation Aquarius and you should expect an average of 20 meteors during the peak of this shower. If weather allows, look to the southeast after midnight and enjoy the show!

Perseids—Debris from this shower is produced by the comet Swift-Tuttle and is probably the better meteor shower of the summer. During the peak of this shower, you could see up to 60 meteors per hour! The Perseids also run from mid July to mid-late August, but peaks on the nights of August 11th-12th and 12th-13th. The radiant point for the Perseids is the constellation Perseus. Unfortunately, this year a waning gibbous moon will hinder the ability to see all but the brightest of meteors. If you still want to give it a shot, get away from those city lights, grab a friend and look to the north and northeast for Perseus to deliver some shooting stars!



Summer Solstice

The summer solstice, the astronomical start of summer, fell on June 20th this year at 9:24 p.m. PDT. The word solstice comes from the Latin word "solstitium" which means sun-stopping. The summer solstice marks the time when the Northern Hemisphere has completely tilted toward the sun. The sun's rays are most intense on the northern Hemisphere and the position of the sun in the sky is at its farthest point north of the equator. After the summer solstice, the earth begins to tilt away from the sun until we reach the fall equinox and the beginning of fall. The summer solstice also marks the longest day of the year. On this day, there will be over 15 hours of daylight in southwest Oregon and northern California! Compare this to the winter solstice on December 21st when there are only 9 hours of daylight.

National Weather Service - Medford, Oregon

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Our Vision

Professionals focusing on science, teamwork, and customer service to design and deliver the best decision-support information to our community.

Our Mission

Our team at the National Weather Service Office in Medford strives to deliver the best observational, forecast, and warning information through exceptional customer service, extensive training and education, maintaining quality electronic systems, and relying upon an outstanding team of weather spotters and cooperative observers. We do this within the overall mission of the NWS to build a Weather-Ready Nation:

To provide weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.

Our Values

Trust, Integrity, Professionalism, Service, Teamwork, Ingenuity, Expertise, and Enthusiasm.

About Us

The Weather Forecast Office in Medford, Oregon, is one of more than 120 field offices of the National Weather Service, an agency under the National Oceanic and Atmospheric Administration and the United States Department of Commerce. The Weather Forecast Office in Medford serves 7 counties in southwestern Oregon and 2 counties in northern California, providing weather and water information to more than a half-million citizens. We are also responsible for the coastal waters of the Pacific Ocean from Florence, Oregon, to Point St. George, California, extending 60 miles offshore. The office is staffed 24 hours a day, 7 days a week, and 365 days a year by a team of 26 meteorologists, hydrologists, electronic technicians, hydrometeorological technicians, and administrative assistants, under the direction of Meteorologist-In-Charge John Lovegrove.