National Weather Service - Medford, Oregon

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The Crater Chronicle

Summer began on June 20th at 2:43 pm PDT.

Inside This Issue

NWS Medford Teams Up with Partners and Media to Talk Fire Weather

Brad Schaaf, *Meteorologist*

Last September, many forecasters at the NWS Medford office, their families, or friends were left feeling upended when they evacuated their homes due to the Almeda and South Obenchain fires. It was painfully clear that we needed to change our personal and professional mindsets in the wake of the wildfire crisis.

After weather disasters, the NWS focuses on ways we can help communities become more resilient. One of the most well known examples of this was an assessment competed after Hurricane Sandy made landfall in New Jersey. These assessments help the weather service to determine what works, and what needs improving so we can better serve the communities we live in. Our situation was no different.

Over the last several months, our IDSS team began a complex internal review. After gathering feedback from partners, we learned that emergency managers and fire chiefs regularly sent our Red Flag Warnings to their communities via their reverse 911 programs. They asked us for more actionable information for the public, so they can focus on that messaging. In response, we began drafting new precautionary and preparedness call-to-action statements for our fire weather watches and red flag warnings.

This process started by looking at the evolution of how the NWS messages high impact weather events. In particular, the best place to start was with tornadoes. In the 1970s, a tornado outbreak in the southeast United States that killed 314 people. The high death toll at the time was credited to the fact that people only had a few minutes of lead time to get to safety, and that forecasting severe weather was a difficult science. Over the next 40 years, the entire weather enterprise focused on bettering the meteorology. Then in 2011, a similar tornado outbreak occurred in the southeast United States once again. Severe weather was in the forecast four days in advance, and when tornadoes occurred, the average warning gave people over 15 minutes to find safety. Still, 316 people lost their lives. This prompted the NWS to address what went wrong. This time, we reached out to social scientists and learned that our messages did little to spark action. Thus, the NWS has moved to messaging that is more directed to and meaningful for the general public, emphasizing the life-threatening nature of storms when it comes to Tornadoes and other severe weather.

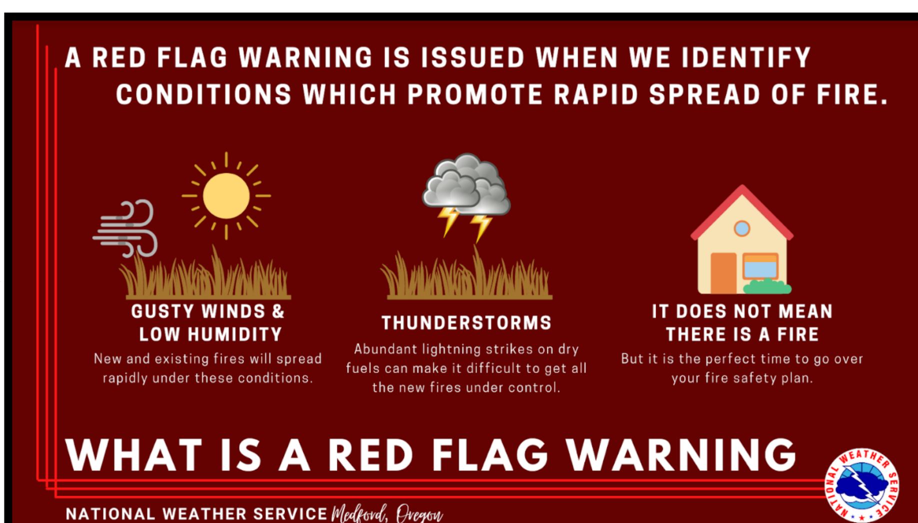
Following in those footsteps, our team got together to determine how best to message weather conditions that could allow fires to grow rapidly. We wanted to empower people to take action before a wildfire starts, and be ready just in case things take a turn for the worse.

In late April, we met with several partners which included emergency managers from both the city and county levels; fire district chiefs; public information officers; the northern California and Pacific Northwest Geographic Interagency Coordination Centers; and the Portland, Pendleton, Eureka, Reno, and San Diego forecast offices to gather feedback on our proposed changes. Each of our partners were enthusiastic about the project and provided helpful feedback to improve our call-to-action statements.

The other part of this effort was realizing that we can do more *now* to help people prepare for disasters. We knew that both the states of Oregon and California designate the month of May as Wildfire Safety Awareness month. These efforts to educate people about things they can do right now to help stop the spread of wildfires and protect their homes and families. This is an effort that we both appreciated and could amplify, so our team collaborated with local emergency managers, fire agencies, and local media to hold a comprehensive Wildfire Awareness Week in late May.

The main focus was on preparing your property and your family. But we also wanted to educate people on how certain weather conditions can lead to rapidly spreading fires. Additional plans for this project include community webinars integrating with our partners and the media. Additionally, we plan on producing videos that show people how to test their plans, and to work with other WFOs within Western Region to increase our presence in the fire resiliency conversation.

While you're here, we highly recommend that you sign up for your County's local Reverse 911 program. These programs will send alerts to your phone or e-mail based on the locations for which you want alerts. It's free, and a great way to receive alerts, even in the middle of the night. Go to www.weather.gov/medford/wildfire to find links to your county sign-up form.



Collective Website for Fire Related Safety Information:

Shad Keene, *Lead Meteorologist*

To complement NWS Medford's Wildfire Safety campaign, we created a website that links to a myriad of wildfire safety and fire weather-related information. This information can be hard to find, so we tried to curate a list of the most useful and important sites ahead of and during wildfire season. Check it out! The information on the collective includes:

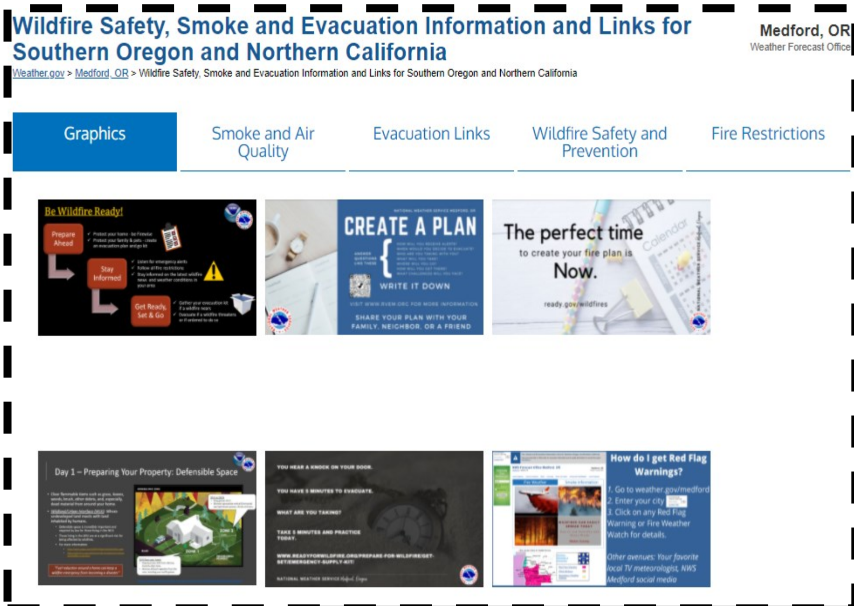
⇒ Graphics:
- Smoke Safety
- What's a Red Flag Warning?
- Evacuation Preparedness
- Wildfire Prevention

⇒ Smoke and Air Quality:
- Links to air quality maps that span California and Oregon
- Links to area "Smoke Blogs" that provide discussions about ongoing wildfire smoke impacts

⇒ Evacuation Links:
- Links to citizen alert sign up pages for each of the 9 counties in our forecast area
- Links to evacuation mapping websites

⇒ Wildfire Safety and Prevention:
- Link to partner agency wildfire safety and prevention campaigns
- Wildfire prevention graphic that NWS Medford worked with USFS to create

⇒ Fire Restrictions:
- Collection of current fire restriction sites across forests in our forecast area



https://www.weather.gov/mfr/wildfire

Summer: The Most Wonderful Time of the Year

Christine Riley, *Meteorologist-In-Charge*

As a lifelong swimmer, summer is most definitely my favorite time of year. This is the time of year I am able to get out of the pool and into the outdoors! Growing up in Three Rivers California, nestled in the foothills of Sequoia National Park, my sister and I welcomed the triple digit temperatures because we knew it meant the river would be warm enough to swim in. The same goes for the Medford area! Being new to the region I joined the local Masters swim team and started exploring the area, one lake at a time. Last summer I had the opportunity to swim in Squaw Lakes, Applegate Lake, and Lake of the Woods. Swimming in these lakes last year was the perfect way to meet new people during the pandemic and create the sense of community I craved after moving here in March of 2020.

Early June saw a host of record breaking daytime high temperature records across the area, which meant one thing to me, warming lake temperatures! There is nothing better for my mood than swimming two miles in a freezing lake and then warming up in the hot sun! I'm looking forward to exploring new lakes this year, visiting some of my favorites from last year, and once again being immersed in my favorite activity, lake swimming!

Happy after a 1.5 mile swim in Squaw Lakes, September 2020

“Know Before You Go” when Visiting Area Beaches, Lakes or Rivers!

Connie Clarstrom, *Lead Meterologist*

Are you planning a trip to area beaches, lakes or rivers? This summer, plan ahead and check the forecast before you go and practice good water and beach safety during your visit! Remember these safety tips when recreating in and near the water:

Know Before You Go: Check the latest weather and beach forecast. Check the latest 7-day weather forecast, surf and marine forecasts, and river level forecasts on NWS Medford and for the forecast tides visit NOAA Tides and Currents. During hazardous beach conditions, high surf advisories or warnings and beach hazard statements are also issued.

Know How to Swim BEFORE You Venture In: Swimming in a pool is NOT the same as swimming at a surf beach with crashing waves, winds, and dangerous currents, or swimming in rivers or lakes which may have cold water temperatures and swift currents. Cold water and currents can quickly exhaust your energy and strength. You should be a strong swimmer before you go into the ocean, rivers or lakes. According to the U.S. Lifesaving Association, learning how to swim is the best defense against drowning.

Practice good Water Safety when Visiting area Waterways and the Ocean:

- Always wear a U.S. Coast Guard approved life jacket.
- Dress for the water temperature not the air temperature.
- Stay hydrated. Keep plenty of water and non-alcoholic beverages on hand.
- Protect against sunburn by wearing hats, sunglasses and protective clothing, and frequently applying sunscreen of SPF 30 or higher.

Image Courtesy of the Oregon State Marine Board

- Don't drink alcohol. Avoid alcoholic beverages before or during swimming, boating or engaging in other water-related activities. Never drink alcohol while supervising children around water.
- Stay aware of wave conditions and beach hazards. Never turn your back on the ocean. Pacific Northwest beaches can be hazardous year round. Watch the **NOAA Ocean Today: Wave Safe Pacfic Northwest video** to learn more about staying safe at area beaches.
- Follow all rules and regulations. Read and follow any safety signs posted at the entrance.

For more information and tips visit the NWS Beach Safety and Red Cross Water Safety websites.

Heat Safety

Dan Weygand, *Meteorologist*

The Heat Index is a measure of how hot it really feels when relative humidity is factored in with the actual air temperature. While dangerous conditions are more frequently experienced in many other, more humid parts of the country, potential harm from summertime heat in southern Oregon and northern California should be taken seriously.

In fact, heat waves in our region are more often accompanied by sunny skies, and breezy afternoon and evening winds. Since heat index values were devised for shady, light wind conditions, exposure to full sunshine can increase heat index values by up to 15°F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous.

To find the Heat Index value, look to the chart pictured below and find where the air temperature value (listed on the left) intersects with the relative humidity value (listed across the top). As an example, if the air temperature is 100°F and the relative humidity is 40%, the heat index--how hot it feels--is 109°F. The red area indicates extreme danger.

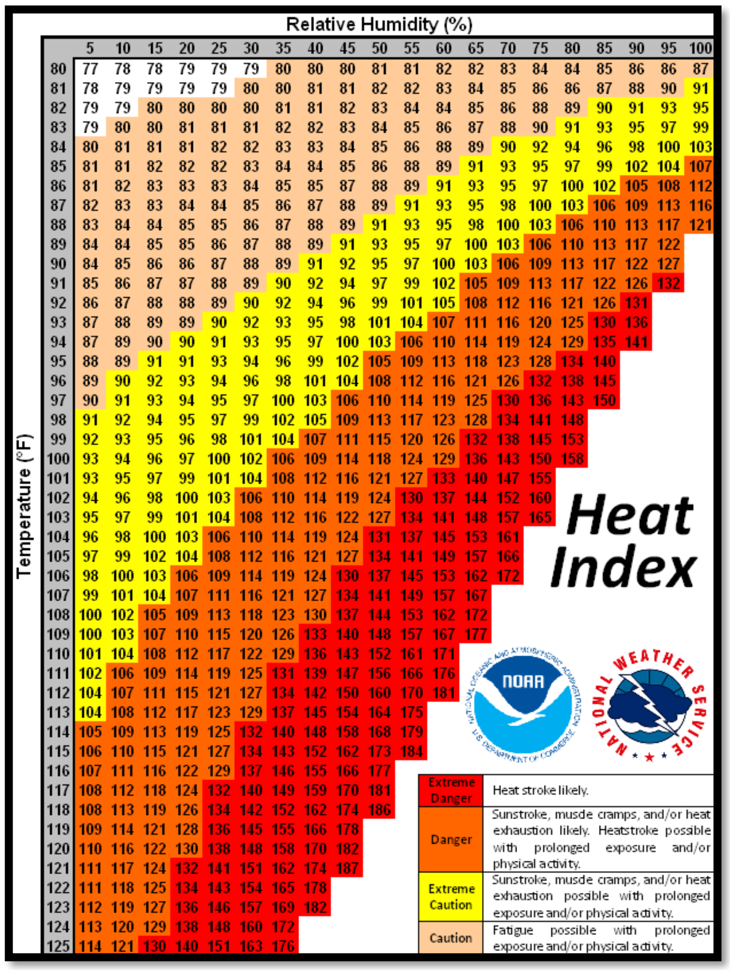
Who is Most Vulnerable?

Everyone is at risk from the dangers of extreme heat. But, age and certain conditions make the body less able to regulate temperature. Those that are more vulnerable are newborns, children (especially those under age 4), the elderly, and those that are pregnant or have a chronic illness. Pets also may be more at risk.

What can you do?

- Check in on those at risk more frequently.
- Never leave anyone alone in a closed car, not even for just a 'little while.'
- Drink plenty of water, even if not thirsty
- Wear loose-fitting, moisture-wicking, light-colored clothing.
- Use air conditioners and stay in the shade.

If someone has been affected by the heat, what are the signs of trouble?...and what should you do?



Relative Humidity (%)

Temperature (°F)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
80	77	78	78	79	79	79	80	80	80	81	81	82	82	83	84	84	85	86	86	87
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86	81	82	83	83	83	84	85	85	87	88	89	91	93	95	97	100	102	105	108	112
87	82	83	83	84	84	85	86	87	88	89	91	93	95	98	100	103	106	109	113	116
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89	84	84	85	85	86	87	88	89	91	93	95	97	100	103	106	110	113	117	122	
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92	86	87	88	88	89	90	92	94	96	99	101	105	108	112	116	121	126	131		
93	87	88	89	89	90	92	93	95	98	101	104	107	111	116	120	125	130	136		
94	87	89	90	90	91	93	95	97	100	103	106	110	114	119	124	129	135	141		
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100	93	94	96	97	100	102	106	109	114	118	124	129	136	143	150	158				
101	93	95	97	99	101	104	108	112	116	121	127	133	140	147	155					
102	94	96	98	100	103	106	110	114	119	124	130	137	144	152	160					
103	95	97	99	101	104	108	112	116	122	127	134	141	148	157	165					
104	96	98	100	103	106	110	114	119	124	131	137	145	153	161						
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107	99	101	104	107	111	116	121	127	134	141	149	157	167							
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109	100	103	107	110	115	120	126	133	140	148	157	167	177							
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111	102	106	109	114	119	125	131	139	147	156	166	176								
112	104	107	111	115	121	127	134	142	150	160	170	181								
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115	106	110	115	121	127	134	143	152	162	173	184									
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117	108	112	118	124	132	140	149	159	170	181										
118	108	113	119	126	134	142	152	162	174	186										
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120	110	116	122	130	138	148	158	170	182											
121	111	117	124	132	141	151	162	174	187											
122	111	118	125	134	143	154	165	178												
123	112	119	127	136	146	157	169	182												
124	113	120	129	138	148	160	172													
125	114	121	130	140	151	163	176													

Heat Index

Extreme Danger	Heat stroke likely.
Danger	Sunstroke, musde cramps, and/or heat exhaustion likely. Heatstroke possible with prolonged exposure and/or physical activity.
Extreme Caution	Sunstroke, musde cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.
Caution	Fatigue possible with prolonged exposure and/or physical activity.

Heat Cramps

Heat cramps may be the first sign of heat-related illness, and may lead to heat exhaustion or stroke.

Symptoms: Painful muscle cramps and spasms usually in legs and abdomen and Heavy sweating.

First Aid: Apply firm pressure on cramping muscles or gently massage to relieve spasm. Give sips of water unless the person complains of nausea, then stop giving water.

Seek immediate medical attention if cramps last longer than 1 hour.

Heat Exhaustion

Symptoms: Heavy sweating, Weakness or tiredness, cool, pale, clammy skin; fast, weak pulse, muscle cramps, dizziness, nausea or vomiting, headache, fainting,

First Aid: Move the person to a cooler environment, preferably a well air conditioned room. Loosen clothing. Apply cool, wet cloths or have the person sit in a cool bath. Offer sips of water. Seek immediate medical attention if the person vomits, symptoms worsen or last longer than 1 hour.

Heat Stroke

Symptoms: Throbbing headache, confusion, nausea, dizziness, body temperature above 103°F, hot, red, dry or damp skin, rapid and strong pulse, fainting, loss of consciousness.

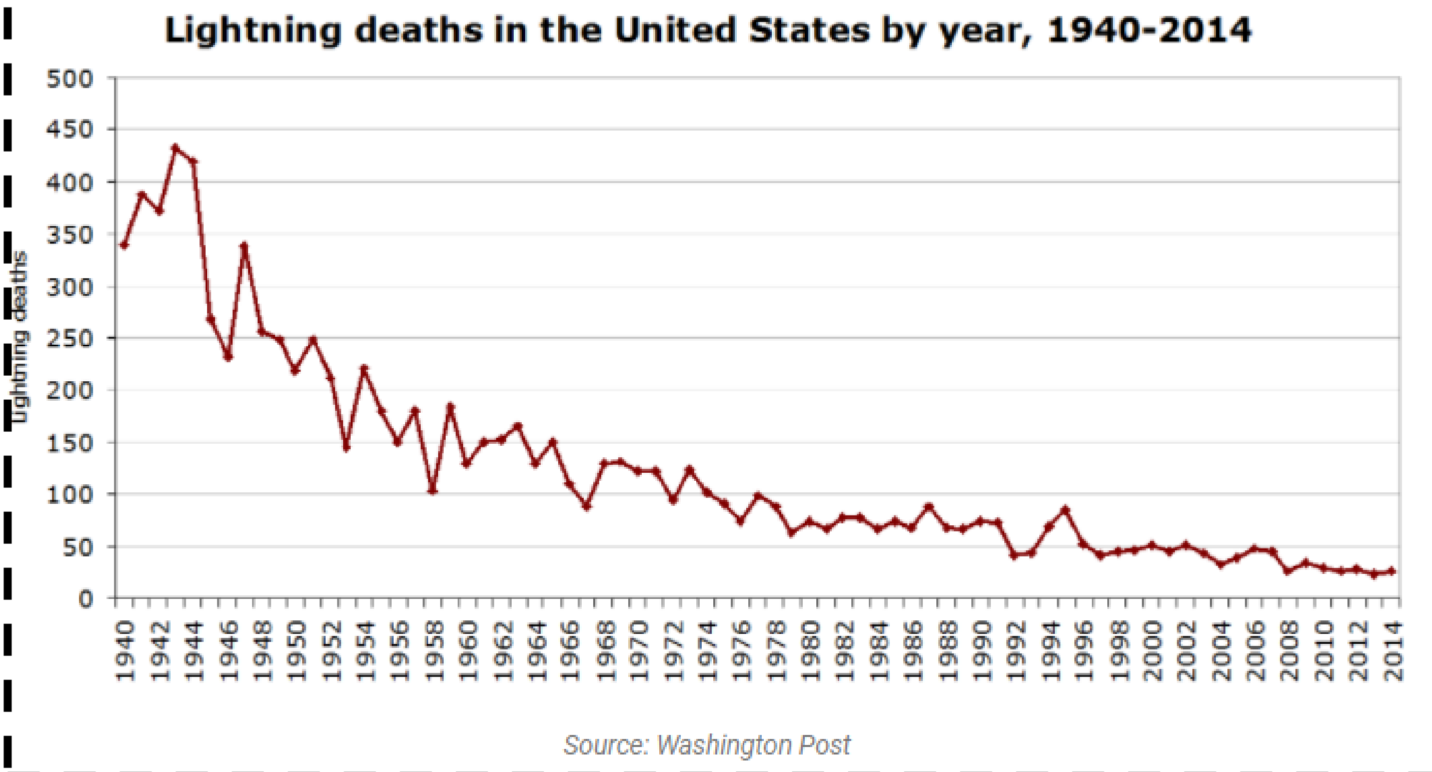
First Aid: Call 911 or get the victim to a hospital immediately. Heat stroke is a severe medical emergency. Delay can be fatal. Move the victim to a cooler, preferably air-conditioned, environment. Reduce body temperature with cool, wet cloths or a bath. Use a fan if heat index temperatures are below the high 90s. A fan can make you hotter at higher temperatures. Do NOT give fluids.

Thunderstorm Safety

Ryan Sandler, *Warning Coordination Meteorologist*

In the Pacific Northwest, when we talk about thunderstorm safety, we are mainly talking about lightning safety. We do experience severe storms with damaging winds, large hail, and even tornadoes but these are rare while lightning strikes are much more common. The NWS has an excellent lightning safety page at https://www.weather.gov/safety/lightning

Lightning safety education has been very effective over the years across the United States. The graph below shows the decrease in lightning deaths since 1940. Weather forecasting and public awareness have greatly lowered lightning deaths along with advances in technology which have reduced the number of people working outdoors.



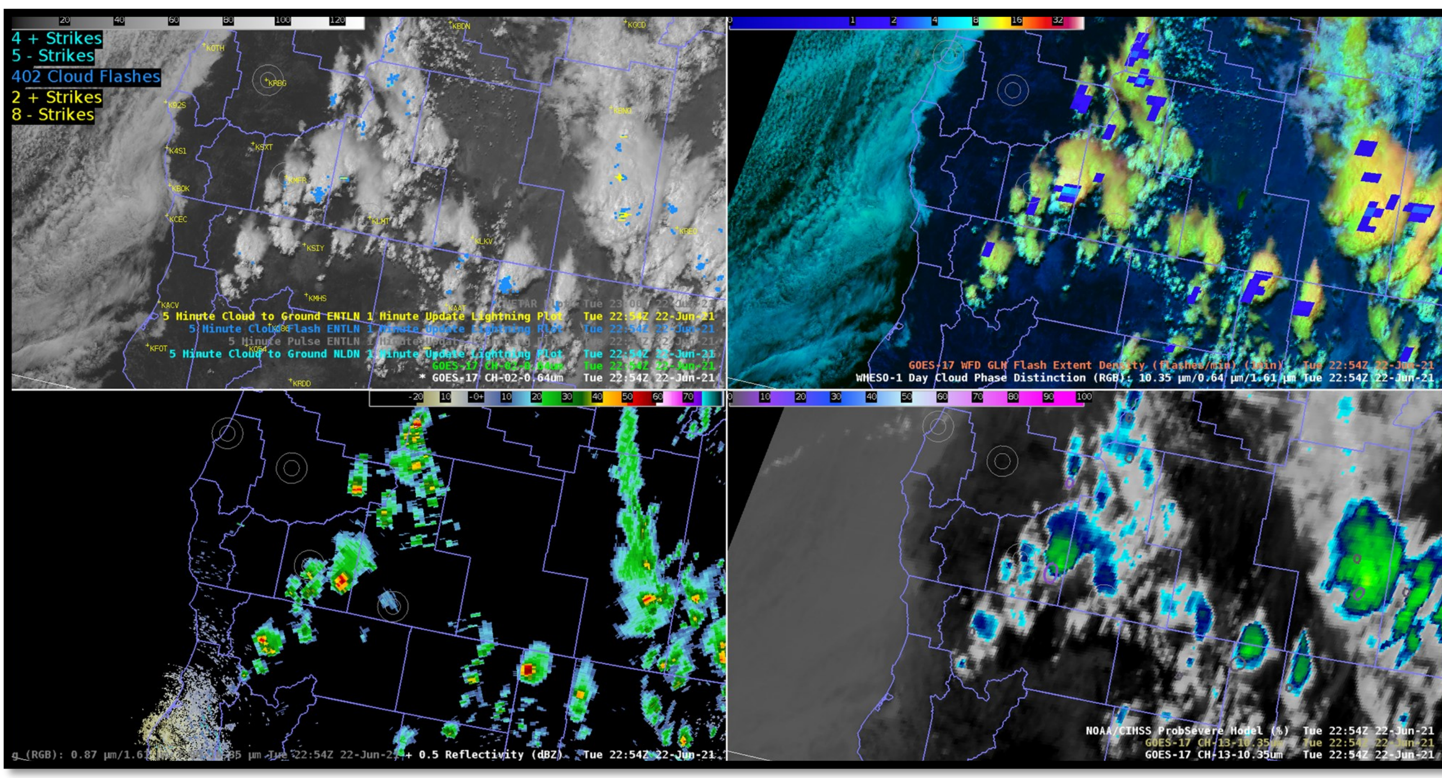
All of the lightning safety information boils down to one catchy saying: ***"When Thunder Roars, Go Indoors!"***. When outside you are unsafe; whether it's in a tent, a baseball dugout, or under a park shelter. If you are caught outside in a thunderstorm and your car is nearby then being inside your car is the safest place for you. If lightning were to strike your car, the electricity would be conducted through the car's metal body and into the ground. Your car's electrical components may become fried, but you will survive, albeit shaken up.

What can you do if caught outside in a thunderstorm with no shelter or car nearby? You will want to get away from trees because these taller objects are more likely to be struck by lightning. If trees are nearby, lightning could strike them and "jump" from the trees into your body. Lightning could also go through a tree into the ground and then up into your body. It's actually better to be away from trees in an open field with your feet touching. When your feet are together you minimize the chance of a nearby strike's electrical current traveling through the ground and into your body. I'll leave you with one last thought. Do more males or females die from lightning? The answer is...males, and it's not even close. Over the past 20 years, nearly 80% of lightning victims have been males. I'll let you ponder why this is the case.

Thunderstorm Operations when the Radar is Down

Misty Firmin, *Meteorologist*

Our radar, KMAX, on top of Mt Ashland just went through a period of major equipment upgrades to extend it's life into at least the 2030s. During each step of this plan, the radar had to be down for an extended period of time (1 to 2 weeks each), during which the radar was unusable because it was in pieces. These updates were planned months in advance, and care was taken to choose a time when the radar was least likely to be needed. However, mother nature has a mind of it's own and likes to bring thunderstorms to the area when the radar is literally in pieces. This happened once in September 2020 when there were multiple fires burning locally and again in June of this year during the last upgrade. During these events, we heard many concerns from members of the community about being without radar during a thunderstorm event. We understand the concern. However, while being without radar during a thunderstorm event certainly throws a wrench in the gears, please know we are fully capable of monitoring and warning for severe thunderstorms without it. Radar is just one of the many tools we have in our toolbox to evaluate thunderstorms. While it may certainly be the most valuable, there are many other tools out there that allow us to estimate storm severity in the absence of radar data. Each of which we use frequently, even when radar data is available. The 4-panel image shown below highlights some of those tools and includes: lightning detection from both ground networks (top left) and satellite based networks (top right), reflectivity from surrounding radars (bottom left), and CIMSS ProbSevere (bottom right). Three of the four panels include satellite imagery that tells us various details of the cloud development that clue us in to how a storm is evolving.



Did you know that the radar does NOT detect lightning? That's right. Lightning is detected through ground detection networks, and our newest round of satellites in space are also capable of detecting lightning as well. So even when radar data is available, we use a completely different source of information to tell us which showers have lightning associated with them. In the top two panels, both ground based (left) and satellite based (right) lightning detection are displayed. The ground based system helps us determine which strikes are within the cloud (blue dots) vs cloud to ground strikes (blue/yellow pluses or minus symbols). While the amount of lightning doesn't determine the severity of a thunderstorm, research has shown that significant "jumps" in lightning activity tend to occur shortly before a thunderstorm does become severe. So we use the GOES-W Geostationary Lightning Mapper (GLM) data to monitor the "Flash Extent Density", which is fancy speak for the number of flashes within a specified area over a period of time. When we see the lighter blues and yellows/oranges start to appear, indicating an increase in the number of flashes, this raises our attention to an intensifying storm.

Surrounding radars from the Eureka, Portland, Pendleton, and Sacramento forecast offices can still provide a glimpse inside storms over the area. We just have to remember that those radars are telling us what is going on in the upper portions of the storm rather than what's occurring in the lower portions. This is an important difference to note because what is occurring aloft isn't always indicative of what is or will happen on the ground. For instance, looking at the higher reflectivities (yellows/reds), shown in the bottom left panel, you might think there would be heavy rain occurring under those cells. However, considering the surrounding radars are sampling the upper portions of the storm, they could just be indicating a hail core high up in the storm instead of heavy rain at the surface. We would have an idea on which it was by knowing what the freezing level is (determined by looking at atmospheric soundings), and knowing what height the radar beam is sampling the storm. If the freezing level is at or below the radar beam height, then it could very well be just a hail core.

Another tool to clue us in is CIMMS ProbSevere. This is a collection of models that use radar observations, satellite data, lightning observations, and short term model guidance to provide the probability of severe wind and hail as well as the probability of tornadoes. While this doesn't provide a definite yes/no answer to whether a storm is severe or not, it certainly does boost confidence in either direction.

Of all the tools available to us when the radar is down, our newest satellites are by far the most valuable. GOES-W is capable of providing 1 minute imagery, which combined with it's various channels, can provide rapid updates on the details of evolving thunderstorms. Visible and infrared imagery are a few classic channels that we continue to use to evaluate cloud structures. Visible imagery (top left) allows for details of the cloud tops to be seen from above and can allow us to see overshooting cloud tops, a good indicator of a strong updraft in a storm. Infrared imagery (bottom right) provides us with information on the temperatures of the clouds. Greens and yellows on the infrared channel indicate cooler cloud tops which in turn indicate that the clouds are higher up in the atmosphere. This gives us an idea of which cells are relatively taller than the others, thus telling us which ones have the stronger updrafts. A trend of cooling cloud tops as time progresses indicates a strengthening storm. One of the newer channels is displayed in the upper right panel, the "Day Cloud Phase Distinction" channel. This channel is one of many that applies a RGB color curve to the differences in specific cloud properties to highlight relevant aspects. This specific color curve highlights the properties of ice and can tell us which stage a thunderstorm is in. When we see cumulus transitioning from light shades to bolder green and yellow shades, this indicates vertical development and increasing cloud ice seen with strengthening storms. Signs of updrafts and overshooting tops help to evaluate how a storm is evolving.

Hopefully this puts your mind at ease some about our thunderstorm operations when the radar is down. As I told the person who told me it was "downright criminal" to have the radar down during a thunderstorm event, this has happened (unplanned!) in the Plains during tornado outbreaks, and warnings were issued appropriately and in a timely manner. This is because every NWS meteorologist is trained to warn without the use of radar in the event the radar breaks unexpectedly during a thunderstorm event.

More Information/Details:

Service Life Extension Program: https://www.roc.noaa.gov/WSR88D/Engineering/CurrentProjects/SLEP.aspx

Geostationary Lightning Mapper: https://www.goes-r.gov/education/docs/Factsheet_GLM.pdf

CIMMS ProbSevere: https://cimss.ssec.wisc.edu/satellite-blog/archives/category/probsevere

RGB Satellite channels: https://www.goes-r.gov/featureStories/satelliteImageryRGBs.html

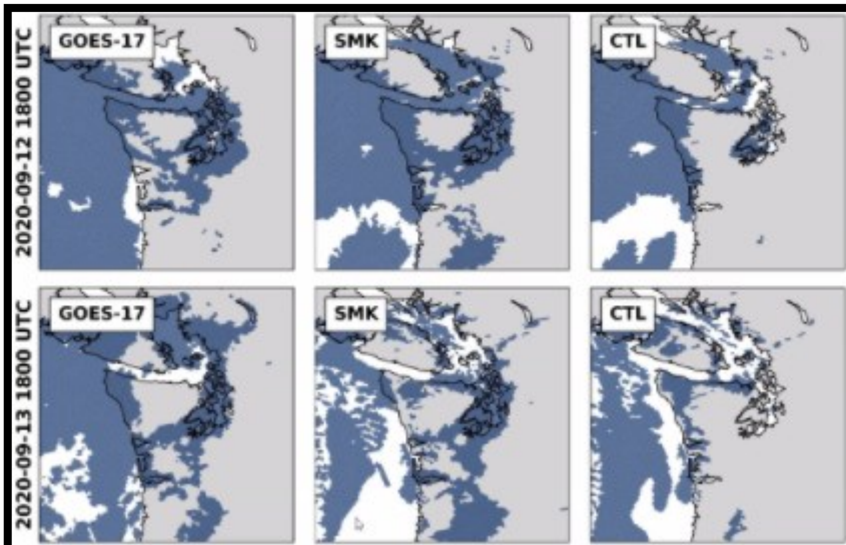
Lightning Detection (ground): https://www.vaisala.com/en/products/national-lightning-detection-network-nldn

Lightning Makes Fires, Fires Make Smoke, Smoke Makes the Model a Little Less Realistic

Miles Bliss, *Meteorologist*

The title says it all, smoke causes a model's output to be less representative of real conditions. To have a model resolve the impacts of smoke is an ongoing challenge and results in a forecaster having more ability to add value to the forecast.

Some of what makes resolving smoke difficult is getting it into the model. That is, that smoke is not regularly occurring. Smoke is input into models mainly from satellite observations, where the extent of the smoke can be known, but the density of the smoke cover is not necessarily well observed. The intensity and the fuels the fire is burning will have a substantial impact on the smoke's characteristics. These changes in smoke emissions make it difficult to just assign a single value, or two values in an attempt to parameterize it. And doing so may decrease the accuracy of the model, and thus decrease its usefulness.



Goes-17 is a satellite observation of cloud cover. SMK is model output when it is able to resolve the effects of smoke. CTL is the control solution, where smoke is not resolved by the model. This graphic was taken from a presentation at the 2021 Pacific Northwest Workshop, The Influence of Wildfire Smoke on Cloud Microphysics during the September 2020 Pacific Northwest Wildfires, by Conrick et al.

Where smoke most impacts a forecast is in the change to solar radiation. The greater the concentration of smoke, the greater the scattering of the solar radiation there is, which would lead to a greater reduction in air temperature.

Besides temperatures, smoke also affects cloud formation. Smoke acts as a cloud condensation nuclei, where water vapor can condense onto and form liquid droplets. The greater the amount of smoke, the more numerous the cloud droplets and the smaller they are. This changes the cloud's properties and rain processes so that clouds end up lasting longer under smoky conditions than in 'clean', non-smoky conditions.

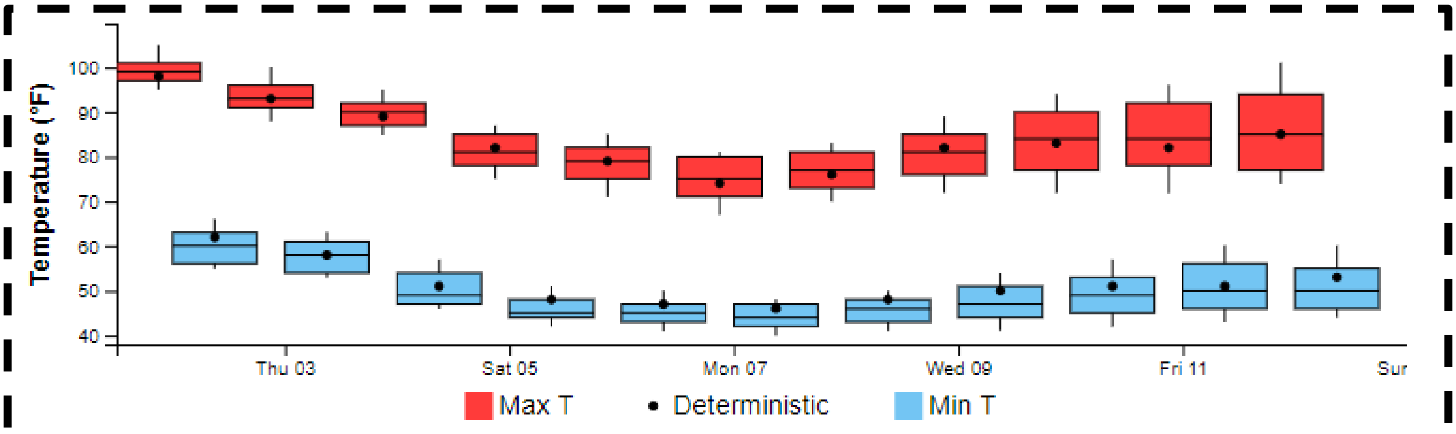
Having a model resolve the impact of smoke is difficult and the work to achieve this is still ongoing. When a model does not resolve smoke, model output temperatures are often too warm, cloud cover does not develop quickly enough and is too quick to dissipate it, and can affect cloud droplet and rain droplet formation. As meteorologists, we will continue to apply our knowledge of the effects of smoke and edit the forecast to make predictions more accurate when it is present.

Probabilistic Forecasts - What are they and why are they important?

Mike Stavish, *Science Operations Officer*

The majority of forecasts issued by the National Weather Service today are still "deterministic." This means that forecast elements, for example high temperature and wind speed, are provided as a single forecast value at a single time, or even a range of values due to expected variability. In reality, all forecasts contain uncertainty and those deterministic forecasts are just educated guesses of the "right," single outcome within a range of possible outcomes.

Forecasts rely heavily upon the principles of numerical weather prediction applied in forecast "models." These very sophisticated computer programs employ the laws of physics and chemistry to produce forecasts of weather, beginning with an initial condition. This condition is an analyzed state of the atmosphere constructed by a process called data assimilation, using a plethora of observations, including surface observations (like the ones taken at most large airports), observations by ship and aircraft, ocean buoys, radar and satellites. It's impossible to produce an exact replica of the initial state of the atmosphere because there simply are not enough observations, and so some assumptions must be made in the initial condition analysis. Since forecast models rely on the accuracy of the initial condition in order to produce accurate forecasts, there are pitfalls to the imperfect analysis. Small errors in this early stage of a model forecast can lead to large errors down the road in time. Forecast error always increases with time nonetheless.



Example of output from the NBM. This is showing the range of temperatures at a specific location during the forecast period. The box and whiskers plot indicate the temperatures at the first and third quartile, the median, as well as the lowest and highest value possible.

Weather scientists have ways to produce improved and more informative forecasts than a simple "deterministic" model can provide. One way is to look at past forecasts and correlate them with analyses to identify systematic biases, or errors. These biases can be intelligently corrected and this helps a lot. However, another way to produce a potentially more meaningful forecast is to look at an array of forecasts and identify averages, similar modes and the spread of outcomes within a spectrum of possible solutions. This latter method is known as ensemble forecasting.

Ensemble forecasting provides information based on a broad spectrum of solutions. A single model may start with slightly varied initial conditions in order to produce an array of possible outcomes, or multiple individual models may be considered together as a group. This method provides a path to informing a variety of weather customers with an intelligent estimation of probabilistic outcome of a specified weather event. This can be quite useful in planning and preparation. Let's take an example: forecasters see a winter storm coming between 72 and 96 hours down the road. Instead of telling the Department of Transportation to expect 4 to 8 inches of snow on the mountain pass, they may break down what the calibrated ensemble forecast is indicating by stating that there is "a 75 percent chance for 2 inches and a 20 percent chance for 12 inches, with the most likely amount near 6 inches." Another example could be the low temperature forecast provided to the agricultural community. We might say that the most likely low temperature tonight will be 35, but there is an 80 percent chance it will fall below 37 and a 30 percent chance it will fall as low as 31. Information framed in this manner has been shown to be more useful to many people. In the snow example, the road crews may be directed to increase or decrease staffing accordingly. Certain resources may be mobilized, and based on experience, the road department might be able to make more informed decisions that are more cost-effective with public safety measures in mind. In the latter example, growers may take certain precautions to prevent freeze damage if they see that the threat of temperatures falling below freezing exceeds a certain threshold.

The National Weather Service is currently operating a sophisticated ensemble called the National Blend of Models (NBM) that utilizes many ensemble and deterministic model solutions. The NBM, or the "Blend" is being improved over time and the aim is for weather offices to use it as a first guess, or a starting point, in the forecast process in order to help facilitate consistency among offices. Also, in addition to the NBM providing multiple insights on probabilistic outcomes, it can also enable forecasters to afford more time to effectively communicate the forecast to our stakeholders, develop innovative new messaging techniques, or also dedicate more time to local projects and/or training. How we reshape our customary means in the forecast process is being led largely by employing many new advanced ensemble modeling techniques, and the overall aim is rooted in working smarter to

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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, hydro-meteorological technicians, and administrative assistants.