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 **Welcome Back to the North Coast Observer!**  
by Scott Carroll

Welcome back to *The North Coast Observer*, the online newsletter of the National Weather Service (NWS) in Eureka, California! We proudly serve northwest California including the counties of Del Norte, Humboldt, Mendocino, and Trinity and the adjacent coastal waters out to 60 nautical miles.

This web-based newsletter will be posted on a seasonal basis (around the tenth of March, June, September, and December). Links to the newsletter will be available on our website as well as on Twitter and Facebook. As always, we welcome your input as to how we can serve you better. If there is a topic that you would like to see featured in a future edition of *The North Coast Observer*, [let us hear from you!](#)

**Follow Us on Social Media!**

Website	<a href="http://weather.gov/eureka">weather.gov/eureka</a>
Facebook	<a href="https://facebook.com/nwseureka">facebook.com/nwseureka</a>
Twitter	<a href="https://twitter.com/nwseureka">twitter.com/nwseureka</a>
YouTube	<a href="https://youtube.com/NWSEureka">youtube.com/NWSEureka</a>

 **NWS Eureka Staff Members Visit the GACC**  
by Ricky Lam



In September, several National Weather Service Eureka staff members travelled to Redding for a site visit to at the Northern California Geographic Area Coordination Center (GACC). The GACC provides leadership and support for wildland fire emergencies along with other area emergency incidents. The GACC weather unit acts as the local meteorological consultant for the center. They coordinate with NWS forecast offices including Medford, Sacramento, Reno, Monterey, and Eureka in order to provide weather information to personnel on site. We were able to learn about the daily operation of the weather unit and meet the three staff members working there. We also went on a tour of the GACC facility and got to meet some of the smoke jumpers stationed on site. Overall, this trip allowed us to learn more about our partner and ways to improve our partnership.

 **Upcoming Events**

Date	Event
Dec 1	Meteorological winter begins
Dec 2-3	SKYWARN Recognition Day
Dec 20	Astronomical winter begins at 6:45pm
Feb 9	Birthday of the National Weather Service
Mar 1	Growing season begins (zones 101, 103, 109, 110, 111, 112, 113)
Mar 1	Meteorological spring begins





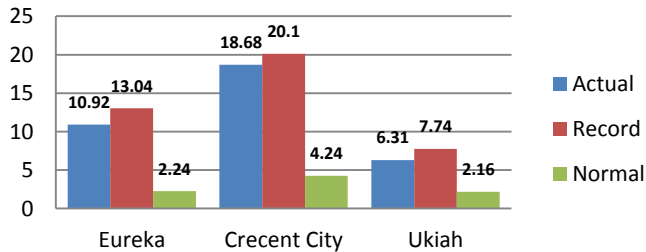
September

High pressure was positioned over the west coast for much of the month. Temperatures stayed within a few degrees of normal. The notable exceptions were on the 25<sup>th</sup> and 26<sup>th</sup>, when offshore flow allowed temperatures to reach the middle 70s along the coast. Crescent City dropped to 43 degrees on the 12<sup>th</sup>, tying the record low for the date set in 1984. Rainfall was virtually non-existent for the month. This is a fairly rare occurrence along the Redwood Coast. In the past 120 years in Eureka, only 4 years have seen a trace of rain for all of September, and only 10 years have had 0.01" or less.

October

The big story for October was rainfall. The month was the second wettest October on record for Eureka with 10.92" (wettest was in 1950 with 13.04") and Crescent City with 18.68" (wettest was also in 1950 with 20.10"). October was the fifth wettest on record for Ukiah.

Monthly Rainfall (inches)



There were four record setting calendar day rainfall events at both Eureka and Crescent City during the month:

Date	Eureka		Crescent City	
	Amount	Previous Record	Amount	Previous Record
13 <sup>th</sup>	1.71"	1.09" in 2009	5.19"	1.34" in 2009
16 <sup>th</sup>	1.25"	0.99" in 1914	2.99"	1.92" in 1969
17 <sup>th</sup>	1.32"	0.92" in 1920	-	-
20 <sup>th</sup>	-	-	2.27"	1.87" in 1991
27 <sup>th</sup>	1.97"	1.58" in 1950	1.79"	1.59" in 1999

November

Two record high temperatures were set during the month: 72°F on the 7<sup>th</sup> which broke the previous record of 70°F set in 1987 and 70°F on the 8<sup>th</sup> which broke the previous record of 69°F also set in 1987. Eureka registered rainfall on 21 days during November which brought above normal rainfall for the month. Crescent City broke one rainfall record for the month: 2.27" on the 20<sup>th</sup> (beating the previous record of 1.87" set in 1991). Ukiah also broke one rainfall record in November: 1.72" on the 19<sup>th</sup> (narrowly edging by the previous record of 1.71" set in 1946).

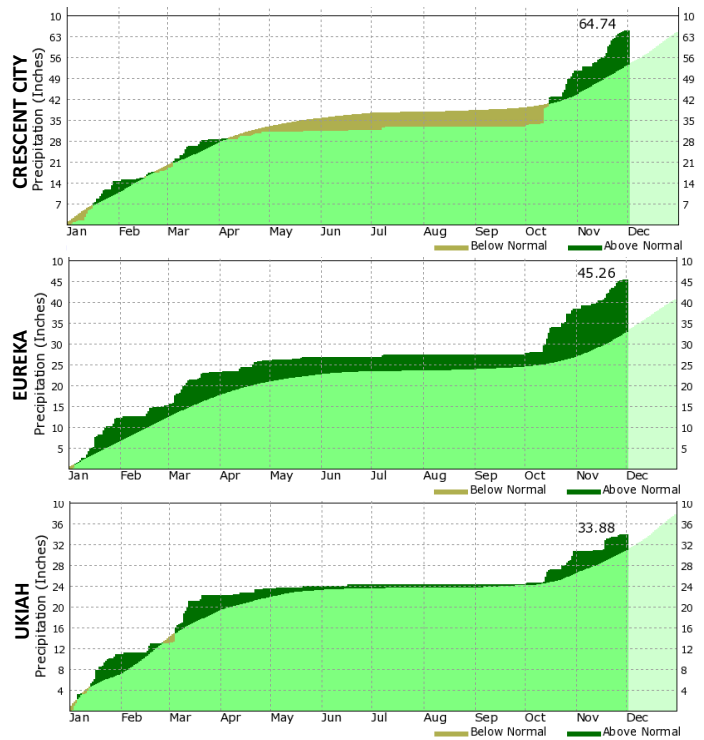


Fall Monthly Climate Comparison

	Crescent City			Eureka			Ukiah		
	Ave Hi	Ave Lo	Rain	Ave Hi	Ave Lo	Rain	Ave Hi	Ave Lo	Rain
Sep	63.9	50.1	Trace	63.2	50.6	0.01	88.9	50.4	0.00
Oct	61.4	51.2	18.68	63.6	50.7	10.92	70.7	48.3	6.31
Nov	59.1	47.8	13.28	61.8	46.7	6.98	64.1	42.4	3.26

temperatures in °F, rainfall in inches

Water Year-to-Date Comparison [click images for links](#)



data through December 1st

Winter Outlook (Dec '16-Feb '17) [click images for links](#)

The Climate Prediction Center's winter outlook for NW California is calling for good chances of above normal temperatures (fig. 1) and nearly equal chances for above or below normal precipitation (fig. 2).

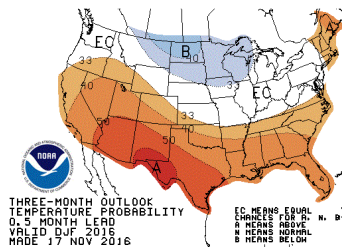


Figure 1

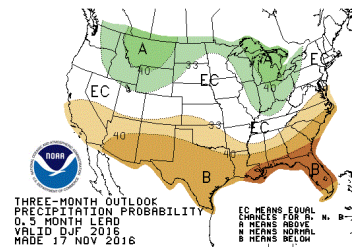


Figure 2



## SKYWARN Recognition Day – December 2-3

by Scott Carroll



Jim Armstrong (KW6JIM), president of the Humboldt Amateur Radio Club (right), and Steve Isherwood (KK6MPV)

SKYWARN Recognition Day was developed in 1999 by the National Weather Service and the American Radio Relay League. It celebrates the contributions that SKYWARN volunteers make to the NWS mission, the protection of life and property. Amateur radio operators comprise a large percentage of the SKYWARN volunteers across the country. The amateur radio operators also provide vital communication between the NWS and emergency management if normal communications become inoperative. During the SKYWARN Special Event, operators will visit NWS offices and attempt to contact other radio operators around the world. The event is held annually on the first Saturday of December (universal time).

NWS Eureka operates under the Humboldt Amateur Radio Club call sign W6ZZK. During the Special Event, local ham radio operators broadcasted on the following bands: 80, 40, 20, 15, 10, and 2 meters for a period of about 14 hours from the afternoon of December 2<sup>nd</sup> through the afternoon of the 3<sup>rd</sup>. They made contact with 38 separate radio operators across the country including 16 National Weather Service offices. The farthest station contacted was the NWS office in Fairbanks, Alaska.

For more information on SKYWARN Recognition Day, go to [weather.gov/mtr/hamradio/](http://weather.gov/mtr/hamradio/).

For more information on the Humboldt Amateur Radio Club, visit their website at [humboldt-arc.org](http://humboldt-arc.org).



## Winter is a Killer: Simple Steps to Stay Safe

NWS Public Information Statement



On average, weather-related vehicle crashes kill 6,253 people and injure more than 480,000 people each year, according to the Department of Transportation. Most of these accidents occur when the roadways are wet, snowy, or icy. When the weather takes a turn for the worse this winter, take precautions if you have to be out on the roadways. Whether there is a coating of snow or ice on the roadways, or the asphalt just looks wet, **SLOW DOWN!** If the temperature is near freezing, drive like you're on ice - *you may be!*

While dangerous road conditions are one of the most deadly hazards during winter, it's not the only threat you may encounter. Other winter hazards include brutal cold, heavy snow and ice, dangerous flooding, extreme wind, and treacherous fog. Nobody knows more about these weather hazards than the National Weather Service. Here is what we recommend you do this winter:

### Know Your Risk

Check [weather.gov](http://weather.gov) every morning before you leave home. It may be sunny in the morning but snowing in the afternoon. Be prepared.

### Take Action!

Prepare for an emergency. Write a [family communications plan](#) so that everyone in your life knows how to stay in touch. Also, assemble an [emergency supplies kit](#) for your home. Make sure you have 72 hours of food, water and other necessary supplies in your kit. During a snow emergency, stay off the roads to allow emergency crews uninterrupted access to treat the roads, and if you must travel, allow extra time. Follow [weather.gov](http://weather.gov) to get the latest forecast information and expected conditions.

### Be A Force of Nature

*You're an inspiration!* Let people know that you have an emergency supplies kit and family communications plan - doing so will inspire others to action. Share your preparedness story on social media. Help the National Weather Service build a [Weather-Ready Nation](#).



### How to Measure Snow

by Karleisa Rogacheski & Reg Kennedy

Now that we are officially transitioning into winter, here is a brief refresher course on how to properly measure new snowfall. Snowfall data is extremely useful data to local NWS offices, public works departments, media outlets, climatologists, and other scientists. You should measure snow every time there is a new snowfall event. Your measurement should be taken as soon as possible to prevent settling, drifting, and snow melt. If you are a CoCoRaHS observer, this will often not occur at your usual reporting time.

#### Measuring Snow Depth

Find a location where the snow appears to be near its average depth. This may be difficult if the snow has drifted. Look for a flat, somewhat open area away from buildings and trees. Measure the depth with a sturdy measuring stick, such as a ruler or a yardstick. Measure the depth at several locations and use an average depth if drifting has occurred. When snow has fallen between observation times and has been melting, measure its greatest depth on the ground while it is snowing, or estimate the greatest depth. Additionally, you should consider the snow cover on your land when you're measuring it. If more than half your yard is bare but there is a minor accumulation elsewhere, your official report should be a trace. If all snow melted as it fell, enter a trace for the snowfall. Snow depth is reported in whole inches.

#### Measuring new snow falling on top of old snow

When fresh snow has fallen on old snow, it is necessary to measure the depth of the new snow (tenths of inches) in addition to the total depth of all snow (whole inches). Snow boards (see image in table below) provide the best method of taking measurements in this case. If you do not have a snow board, and if the old snow has settled or partially melted enough to develop a crust or to be noticeably denser than the new snow, it may be possible to insert the ruler until it meets the greater resistance of the crust of old snow, and to use this depth as the amount of new snow having fallen. Sometimes pollution or partial melting will give the old snow a darker color than the new. If so, cut a vertical core through the snow down to the ground. Measure the new (whitest) snow depth to the nearest tenth inch, and the total snow depth to the nearest inch.

For an in depth tutorial on how to measure snowfall, snow depth, and water equivalent prepared by CoCoRaHS, click [here](#). For step by step instructions, see table below...

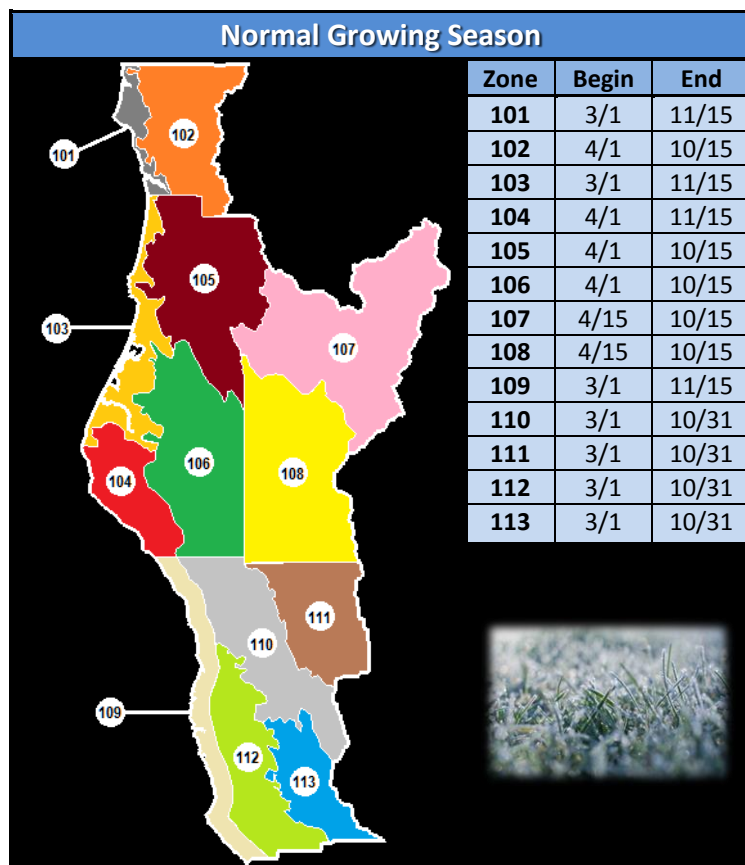


### NWS Eureka Frost/Freeze Program

by Scott Carroll

Meteorological winter has arrived in Northwest California! With the change of season comes the threat of frost and freezing temperatures. NWS Eureka issues advisories for frost as well as watches and warnings for freezes (low temperatures at or below 32°F for at least 2 straight hours) and hard freezes (low temperatures at or below 29°F for at least 2 straight hours). These products are issued for all areas below 3,000 feet in elevation.

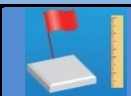
Be aware that NWS Eureka ends frost/freeze product issuance once the growing season is over for a particular zone. Ending the growing season for a zone requires a freeze to have occurred across 50% of valley locations in the zone, and the current date must be past the end date for the zone's normal growing season (listed in the table below). A zone may also be cleared if the season runs long and/or multiple close events have occurred if it is deemed that the products are no longer needed through consultation with the county agriculture commissioners. NWS Eureka will issue a [Public Information Statement \(SFOPNSEKA\)](#) to notify the public that frost/freeze products have been discontinued until the beginning of the next year's growing season. There is one exception to this policy: hard freeze warnings are issued for the coastal zones all year.





## How to Measure Snow (continued)

by Karleisa Rogacheski & Reg Kennedy

Step	Instructions
1 <b>Supplies</b>	<ul style="list-style-type: none"> <li>➤ ruler or yard stick</li> <li>➤ 2'x2' white board</li> <li>➤ small flag</li> </ul> 
2 <b>Planning</b>	Find an open area away from tall objects but sheltered from wind
3 <b>Set-up</b>	<ul style="list-style-type: none"> <li>➤ set up before snow begins</li> <li>➤ put board out &amp; mark with flag</li> </ul>
4 <b>Measuring Snow</b>	<ul style="list-style-type: none"> <li>➤ record total to the nearest 1/10"</li> <li>➤ measure once daily at same time</li> <li>➤ wipe off board &amp; place on top of snow after measuring</li> </ul>
5 <b>When Snow Stops</b>	Measure as soon as snow stops to avoid lower totals due to melting, settling, and drifting
6 <b>Reporting</b>	Send us your report via our website or social media!



## Observer's Corner: Ways to Participate

by Scott Carroll

Ever wondered if there was a way to help the NWS by reporting conditions at your location? There is a multitude of ways that you can help us. Which of these methods you choose depends on your desired level of involvement and your resources. Below is a list of all of the ways you can join our team. The levels of commitment range from easy (green) to very involved (red). Whatever your level of commitment, we welcome any information you can provide!

Program <i>[info link]</i>	Commitment Level	Where Does Your Info Go?
<a href="#">NWS Cooperative Program</a>	<ul style="list-style-type: none"> <li>➤ Official NWS climate network</li> <li>➤ Limit number of sites</li> <li>➤ Long term commitment</li> <li>➤ Daily readings entered via website or phone</li> </ul>	<ul style="list-style-type: none"> <li>➤ <a href="#">NCDC database</a></li> <li>➤ <a href="#">Regional temp &amp; precip summary</a></li> </ul>
<a href="#">Citizen Weather Observer Program</a>	<ul style="list-style-type: none"> <li>➤ Purchase &amp; install web-enabled weather station</li> <li>➤ Keep station on &amp; connected to internet</li> <li>➤ Install in home, business, or school</li> </ul>	<ul style="list-style-type: none"> <li>➤ <a href="#">MADIS database</a></li> <li>➤ Local NWS database</li> <li>➤ Additional optional online databases</li> </ul>
<a href="#">CoCoRaHS Rainfall Network</a>	<ul style="list-style-type: none"> <li>➤ Purchase <a href="#">standard 4" diameter rain gauge</a></li> <li>➤ Enter data daily via web</li> </ul>	<ul style="list-style-type: none"> <li>➤ <a href="#">CoCoRaHS page</a></li> <li>➤ <a href="#">Local CoCoRaHS precip summary</a></li> </ul>
<a href="#">Skywarn Storm Spotter</a>	<ul style="list-style-type: none"> <li>➤ Attend spotter training class</li> <li>➤ Report significant weather by phone or web form</li> </ul>	<ul style="list-style-type: none"> <li>➤ <a href="#">Local storm reports</a></li> </ul>
<a href="#">Online Storm Report</a>	<ul style="list-style-type: none"> <li>➤ Report significant weather by web form</li> </ul>	<ul style="list-style-type: none"> <li>➤ <a href="#">SPC database</a></li> </ul>
<a href="#">Twitter/Facebook</a>	<ul style="list-style-type: none"> <li>➤ Send brief significant weather report or photo via social media</li> </ul>	<ul style="list-style-type: none"> <li>➤ NWS <a href="#">Twitter</a> &amp; <a href="#">Facebook</a> pages</li> </ul>
<a href="#">mPING</a>	<ul style="list-style-type: none"> <li>➤ Download app for your mobile device</li> <li>➤ Report current weather at your location</li> </ul>	<ul style="list-style-type: none"> <li>➤ <a href="#">mPING page</a></li> <li>➤ NWS database</li> </ul>



## Night Sky Corner













by Scott Carroll

The long nights of winter in the northern hemisphere bring more opportunities to get out below the stars and view the night sky. However, with winter come conditions which challenge even the casual astronomical observer. Winter brings periodic storm systems and the associated clouds and precipitation. The timing of these features makes night sky planning tricky. Valley fog becomes more prevalent, especially when skies clear after recent precipitation. Colder temperatures make it more important to dress warmly when venturing outside. A good source of sky cover forecasts is our [graphical forecast](#). Sky cover and other forecast elements can also be displayed by selecting a point-and-click forecast from the area map on our [homepage](#), then clicking the **Hourly Weather Forecast** graph (near the bottom right part of the page). For example, here are links to the [Berry Summit](#) and [Kneeland](#) forecast graphs.

On Monday, August 21, 2017, a total solar eclipse will occur. While the path of totality will pass north of the local area (across northern Oregon), a partial eclipse (about 90% obscuration) will be visible from Northwest California during the mid to late morning. More climatological information eclipse viewing will be provided in the 2017 spring and summer editions of the North Coast Observer. For more technical information about the upcoming eclipse, visit the [NASA Eclipse Website](#) and the [Wikipedia page](#).



## Night Sky Calendar

Moon Phases					
December	January	February			
 7 <sup>th</sup>	 5 <sup>th</sup>	 3 <sup>rd</sup>			
 13 <sup>th</sup>	 12 <sup>th</sup>	 10 <sup>th</sup>			
 20 <sup>th</sup>	 19 <sup>th</sup>	 18 <sup>th</sup>			
 28 <sup>th</sup>	 27 <sup>th</sup>	 26 <sup>th</sup>			

Date	Event
Dec 13-14	Geminid meteor shower maximum
Jan 2-3	Quadrantid meteor shower maximum
Feb 10	Penumbral lunar eclipse

moon phase and event information courtesy of NASA





## Get to Know the Humboldt Bay Bar Forecast

by Kathleen Lewis

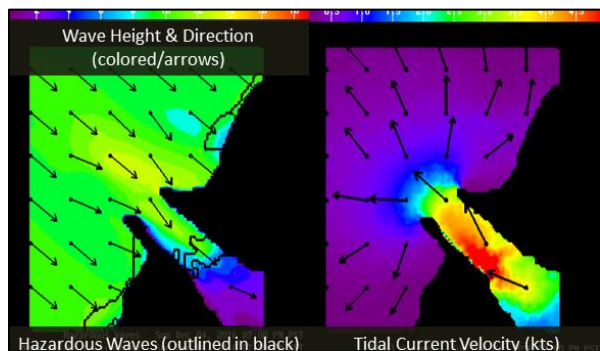


The Humboldt Bay Bar Forecast is a tool designed to help mariners make a safe passage through the harbor entrance. When conditions are right, breaking waves in the bar can catch mariners off guard, potentially causing damage from crashing waves or, in severe cases, causing boats to capsize.

Using the bathymetry of the Humboldt Bay harbor entrance, the bar forecast determines when and where hazardous waves may be breaking based on wave model data and tidal current data. The forecast comes in a 2-day textual format and in an interactive 5-day graphical format (*example below*). Both versions can be found on the [Eureka Marine Page](#).

It is important to remember that the bar forecast will not always identify hazards when they occur outside of the jetties because of rapid bar formation at the tip of the south jetty and because of complex interactions between tidal current and general ocean current. Therefore, do not assume that the lack of hazard delineation in the forecast means waves are not hazardous on the water.

The bar forecast alone will not ensure a safe transit through the harbor entrance. Instead, the forecast is best used in conjunction with the bar webcam, buoy observations, and the Coastal Waters Forecast. All of this information is also available on the [Eureka Marine Page](#). If you have any questions about the bar forecast or when conditions are favorable for a safe passage, do not hesitate to contact us at the Eureka Weather Forecast Office. [Learn more](#) about the Humboldt Bay Bar Forecast.



## Sand Bag Training in Hoopa

by Ricky Lam, Kathleen Lewis, Karleisa Rogacheski



Staff from the National Weather Service in Eureka visited the Tribal California Conservation Corps (TCCC) in Hoopa to provide a training exercise on sand-bagging. The training began with a presentation on high impact weather events which included best practices on how to prepare for these hazardous weather events. Participants learned about hail, high winds, thunderstorms, tornadoes, flooding, extreme temperatures, and beach hazards.

The second half of the training focused on showing participants how to fill and use sandbags to construct a wall against standing and moving flood waters. Participants stood in an assembly line to fill, transfer, and lay down the sandbags. For this exercise, a linear wall was built to protect vehicles and structures from standing waters. The TCCC also learned how to protect objects from moving waters which is done by laying sandbags in a pyramid shape. The TCCC members are now prepared for high impact weather events and are better prepared to serve communities if they get deployed on future flood effort missions.



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