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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... [let us hear from you!](#) Have a happy and safe summer!

**Follow Us on Social Media!**

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Facebook	<a href="https://facebook.com/nwseureka">facebook.com/nwseureka</a>
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YouTube	<a href="https://youtube.com/NWSEureka">youtube.com/NWSEureka</a>

**NWS Eureka Trains with Del Norte County**  
*by Richard Lam & Karleisa Rogachski*



NWS Eureka continues to build relationships with our deep core partners. In April, we worked with Humboldt County to complete a tabletop exercise that simulated catastrophic flooding on three of their main stem rivers. For the month of May, we worked closely with Del Norte County to complete Incident Command System (ICS) section training and a tabletop exercise based on extreme wind damage. Del Norte County is arguably the most prepared county in California. In fact, every county employee is required to be trained in ICS and be prepared to work in the county Emergency Operations Center (EOC) during disasters.

There were roughly 40 participants for both the training and exercise in Del Norte County on a state, local, and county level. NWS Eureka was fortunate enough to send 5 meteorologists to the training sessions and tabletop exercise to cultivate our strong relationship with county employees and expand our knowledge about ICS. Del Norte County expressed their gratitude and explained how much they depend on our forecasts to make impact based decisions.

Up next, WFO Eureka will be working with Humboldt and Mendocino counties on some more tabletop exercises before sending one of our own to participate at the FEMA Emergency Management Institute in Maryland with the Del Norte County emergency management community.

Upcoming Events	
Date	Event
June	<b>Ready✓</b> <a href="#">Pet Preparedness Month</a>
Jun 1	Meteorological summer begins
Jun 1-7	<b>Ready✓</b> <a href="#">CPR &amp; AED Awareness Week</a>
Jun 20	Astronomical summer begins at 9:24pm
July	<b>Ready✓</b> <a href="#">Parks &amp; Recreation Month</a>
Aug 1	<b>Ready✓</b> <a href="#">National Night Out</a>
Sep 1	Meteorological autumn begins



The Climate Page

by Matthew Kidwell & Scott Carroll

Spring 2017 Summary

The wet winter continued into the spring this year, with near to above normal rainfall continuing into March and April. In May, the rainfall came to rather a dramatic end for the summer with rainfall amounts ending up below normal. Temperatures were generally above normal for the period with the largest deviations from normal across the interior in May. A few records were broken during the spring...

Spring Record Events				
Date	Location	Record	Value	Previous Record
Apr 6	Ukiah	Rainfall	1.60"	1.09" in 1978
Apr 19	Crescent City	Rainfall	1.87"	1.86" in 1965
May 3	Ukiah	Max Temp	95	95 in 2013
May 22	Ukiah	Max Temp	97	96 in 1952

March

The above normal rainfall continued in the north, but, farther south, the rainfall was below normal. This was mainly due to a number of with weak systems moving into the Pacific Northwest with rainfall amounts tapering off quickly to the south and east. Eureka reported 19 days with measurable rain and 150% of the normal rainfall. Temperatures continued to be above normal across the area.

April

April saw well above normal rainfall with numerous weather systems moving across the area. Rainfall amounts ranged from 145 to 180% of normal. Most areas didn't see a particularly large amount on any given day, but, rather, numerous days with moderate amounts. All these weather systems and their associated clouds kept temperatures above normal at night and, across inland areas, below normal during the day.

May

High pressure was the dominant weather feature for the month with a few weak weather systems moving through. These systems, although fairly dry, were strong enough to bring a roller coaster of temperatures to the inland areas. Highs in Weaverville and Ukiah ranged from the upper 60s to the upper 90s within the same week. Meanwhile, at the coast, Eureka only saw high temperatures range from 54 to 63 degrees through the entire month with the marine layer in place. Overall, high temperatures were well above normal for the inland areas and slightly above normal at the coast. The few weak systems that made it into the area generally stayed to the north, keeping rainfall below normal across the area.

The Climate Page (continued)

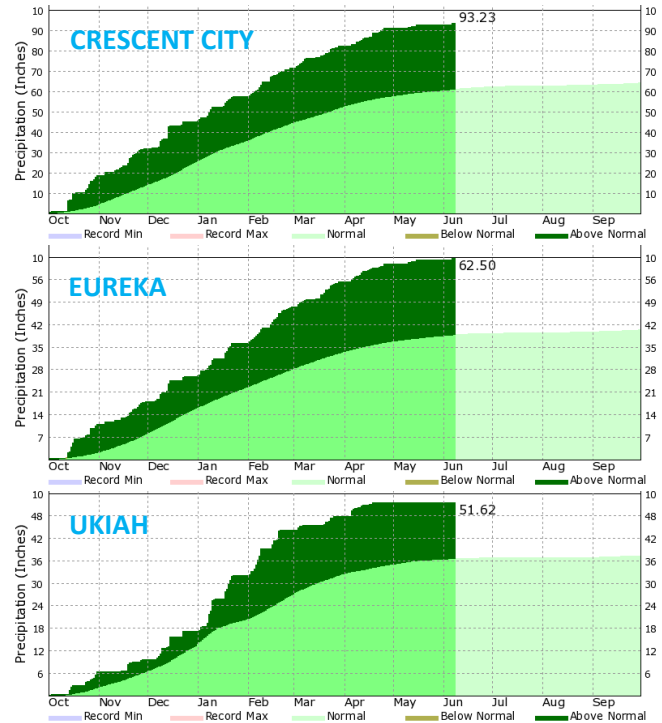
by Matthew Kidwell & Scott Carroll

Spring 2017 Monthly Climate Comparison

	Crescent City			Eureka			Ukiah		
	Ave Hi	Ave Lo	Total Rain	Ave Hi	Ave Lo	Total Rain	Ave Hi	Ave Lo	Total Rain
Mar	55.2	44.7	10.50	56.9	44.9	7.97	65.6	42.7	3.55
Apr	56.0	45.3	8.76	58.9	45.2	5.46	67.3	43.4	3.74
May	57.7	46.9	1.80	58.4	48.2	1.31	80.8	48.9	0.01

temperatures in °F, rainfall in inches

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



data through June 7th

Summer Outlook (June-August) [click images for links](#)

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

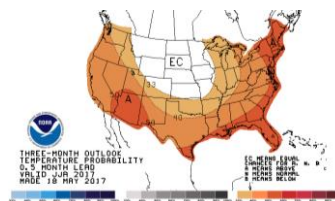


Figure 1

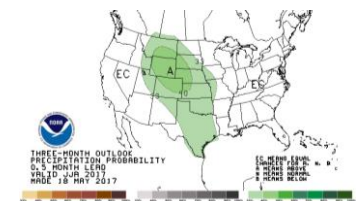


Figure 2





One of the Wettest Seasons on Record

by Reg Kennedy

This is a followup to the 2016-17 winter rainfall article in the spring edition of our newsletter and covers the period October 2016 through May 31, 2017.

As all of you know by now, this was one of the wettest winters on record for many locations in northwest California. Besides areas of flooding, there were numerous rock and mudslides that temporarily closed area roads and, once opened, limited many to "one-way" or "one-lane controlled" traffic. All the ongoing repairs will add to traveling times this summer.

An interesting side note: as of June 6<sup>th</sup>, the entire country was out of extreme or exceptional drought conditions! And, our entire forecast area is completely out of drought!

The Winter in Pictures



Shelter Cove Road, 12/16/16 [courtesy Humboldt County OES]



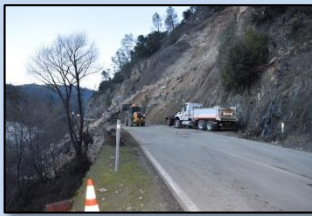
Highway 175 bridge across the Russian River in Hopland closed due to flooding, 1/10/17



Fernbridge, 1/10/17 [courtesy Bryan Lee, Humboldt County OES]



Rockslide fully closed Highway 101 north of Leggett, 3/10/17 [courtesy Caltrans District 1]



Work underway at the slide west of Junction City, 12/17/16 [courtesy Amy Gittelson, The Trinity Journal]

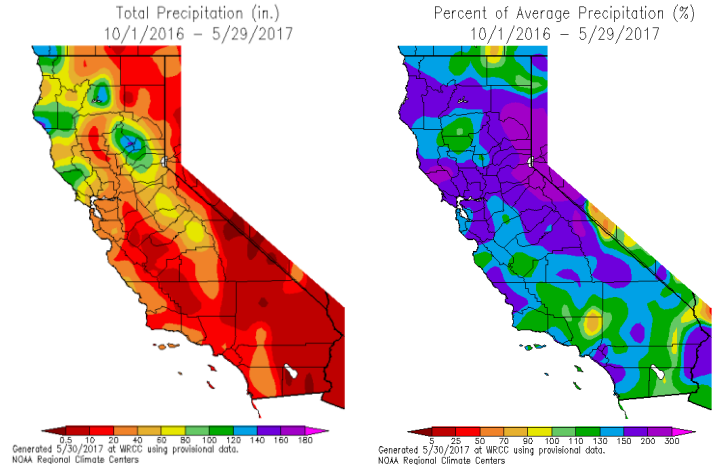


Eel River flooding near Rio Dell, 1/10/17 [courtesy Bryan Lee, Humboldt County OES]

One of the Wettest Seasons on Record (continued)

by Reg Kennedy

Total Precipitation and Percent of Average (October 2016-May 2017)



What About Next Winter?

Currently, the state of the atmosphere and ocean connection is what is known as ENSO-neutral. Earlier this year, the climate models were forecasting an El Niño event for the coming winter. Now, the models have backed off this outlook and are indicating the chance of an El Niño event is about equal to the chance that neutral conditions will continue: both have a likelihood just shy of 50% through the fall. See the May ENSO blog on climate.gov for a non-technical summary on ENSO.

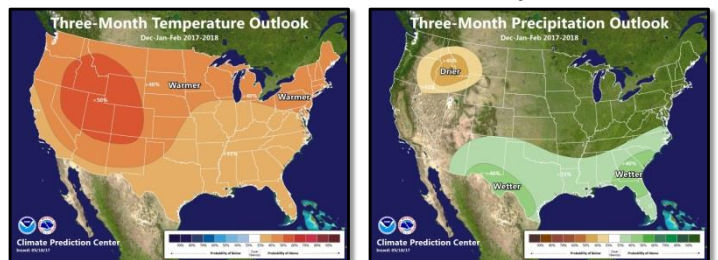
The temperature and precipitation outlook for the three month period of December 2017 through February 2018, issued May 18, 2017, calls for:

NW California Winter 2017-18 Outlook

	Temperature	Precipitation
Above Normal	35-40%	33%
Normal	33%	34%
Below Normal	27-32%	33%

chances of occurrence

Winter 2017-18 Outlook Maps



## Summer Car Heat Danger – Even at the Coast!

by Scott Carroll

You might think that there are fewer weather threats in our area during the summertime. However, one potential danger that may be overlooked is hot vehicles and their threat to people and pets. Even at the coast, where maximum temperatures rarely get above 70, the temperature inside your car can rise nearly 20 degrees in 10 minutes and 30 degrees in 20 minutes (see table below). If taking your child with you, remember to always **check the backseat!** If you don't plan to take your pets out of the car with you, leave them at home instead.

Est. Vehicle Interior Air Temperature vs. Elapsed Time						
Elapsed Time	Outside Air Temperature (°F)					
	70	75	80	85	90	95
10 minutes	89	94	99	104	109	114
20 minutes	99	104	109	114	119	124
30 minutes	104	109	114	119	124	129
40 minutes	108	113	118	123	128	133
50 minutes	111	116	121	126	131	136
60 minutes	113	118	123	128	133	138
>1 hour	115	120	125	130	135	140

From Jan Null, CCM (Dept. of Geosciences, San Francisco State University)



(click above images for more information)

## Tsunami Warning Center Consolidates Website

from NOAA Weather Ready Nation News



NOAA's tsunami warning capabilities have greatly improved since the 2004 Indian Ocean tsunami, and efforts continue to further enhance tsunami warning center operations to better meet the needs of our domestic and international partners. As part of this ongoing work, the National Weather Service's (NWS) National Tsunami Warning Center (NTWC) and Pacific Tsunami Warning Center (PTWC), in collaboration with the NWS's Tsunami Service Program, have made a fundamental change in how they provide information.

In March, the centers completed the transition of all warning center products to Tsunami.gov, which is now the official website for both warning centers. The site is intended as a one-stop shop for NWS operational tsunami products and related information and represents one of the most significant steps toward consistent operations and messaging taken by the NWS to date. The design of the new site is based largely on the previous NTWC site, which has been updated and modified to include PTWC products and information. Tsunami.gov introduces a new cross-center level of sophistication that allows for tsunami products to be consistently coded and more easily rendered. It resides on a National Centers for Environmental Prediction server.

U.S. tsunami warning center product users are encouraged to change all links and bookmarks to <http://tsunami.gov/> to maintain functionality and ensure continuity of product delivery. The original PTWC site will continue to operate in parallel for six months to ensure the new site is operating as anticipated. The warning centers and the service program will continue to work together to update the site over time to enhance usability and accessibility to information and respond to user feedback.



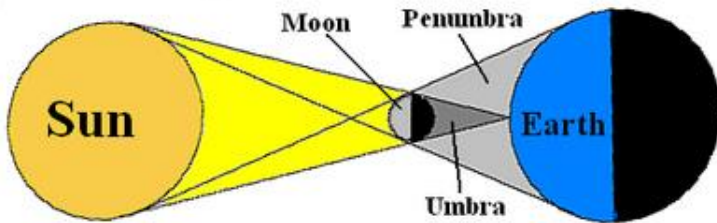
## Night Sky Corner

by Scott Carroll

### August 21<sup>st</sup> Solar Eclipse

While technically not the night sky, 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 will be visible from Northwest California during the mid to late morning. The eclipse will begin around **9:01 AM** and end around **11:36 AM** with the maximum eclipse around **10:15 AM** and a duration of about 2 hours and 34 minutes. The total obscuration (shadow coverage) will range from 91% at Crescent City to 81% at Ukiah and Fort Bragg.

The following graphic shows the relative positions of the sun, earth, and moon during a solar eclipse. The umbra is the area of totality, while the penumbra is the area that experiences a partial eclipse.



The next image shows the path of totality (thick blue line) along with lines of equal obscuration in percent (thin blue lines) and the time of maximum eclipse in UTC (gray lines).

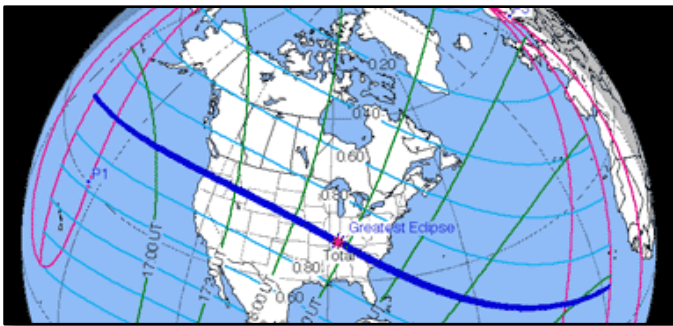


Image courtesy of NASA

During mid to late August, the chance of measurable precipitation on a given day is around 11% at Eureka compared to 5% at Redding. Normal and record temperatures for August 21 at both locations are as follows:

	Eureka	Redding
Normal Max Temperature	65	96
Normal Min Temperature	53	62
Highest Max Temperature	73	107
Lowest Max Temperature	53	72

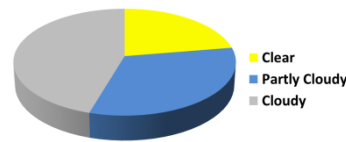
## Night Sky Corner (continued)

by Scott Carroll

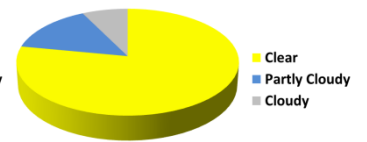
### August 21<sup>st</sup> Solar Eclipse (continued)

When choosing your observing location, it helps to know the cloud and weather climatology for both coastal and inland locations. A good comparison is to look at average conditions in Eureka (coastal) versus Redding (inland). On average, Eureka sees cloudy days about 45% of the time around the date of the eclipse compared to 7% of the time in Redding. Eureka sees clear skies about 22% of the time versus 78% of the time in Redding. During mid to late August, coastal clouds (and occasionally fog) may, at times, extend inland up adjacent river valleys. The chance of dense fog is 21% at Eureka and near 0% at Redding. The low clouds and fog typically occur during the night and early morning hours but may linger much of the day along the coast. See the pie charts below for the breakdown for cloud cover:

Cloud Cover Frequency (Coast)



Cloud Cover Frequency (Inland)



Always remember, **never look directly at the sun!** For more technical information about the upcoming eclipse, visit the [NASA Eclipse Website](#) and the [Wikipedia page](#).

### Other Summer Events

Summer Moon Phases					
June		July		August	
	1 <sup>st</sup>		8 <sup>th</sup>		7 <sup>th</sup>
	9 <sup>th</sup>		16 <sup>th</sup>		14 <sup>th</sup>
	17 <sup>th</sup>		23 <sup>rd</sup>		21 <sup>st</sup>
	23 <sup>rd</sup>		30 <sup>th</sup>		29 <sup>th</sup>
	30 <sup>th</sup>				

Summer Night Sky Calendar	
Date	Event
Jun 15	Saturn opposition
Jun 20	Summer solstice
Jul 26	Mars conjunction
Aug 12	Perseid meteor shower maximum
Aug 21	Total solar eclipse
Aug 26	Mercury inferior conjunction

moon phase and event information courtesy of NASA

## NWS Eureka Hosts Interagency Training

by Karleisa Rogacheski



NWS Eureka hosted a training session on conflict resolution with partners from Samoa Fire. An easy to understand presentation and group exercise was developed by Meteorologist Intern Karleisa Rogacheski along with General Forecaster Richard Lam and Meteorologist-in-Charge Troy Nicolini. Members from both agencies shared examples and solutions to different conflict scenarios while interacting in group activities. Everyone agreed that knowing the proper methods to deal with conflict is important at work and in our daily lives. The training was a booming success, and we look forward to working with more agencies on various training in the future.

## Eureka Forecaster Finishes Boston Marathon

by Richard Lam

On April 17, four NWS employees, including our own Senior Forecaster Matthew Kidwell, joined over 27,000 runners in the running of the 121<sup>st</sup> Boston Marathon. It was a sunny and very warm day for a marathon with temperatures in the low to mid 70s for the duration of the race. The ideal temperature for running a marathon is typically around 50°F. The race started in the town of Hopkinton and headed east toward downtown Boston. There was a healthy westerly tailwind of 10 to 20 mph through the day. Despite the tough running condition, the NWS runners persevered and finished the race along with 26,000+ marathoners. Matthew's time was 3:07:36. Congratulations, Matthew!







Matthew (right) and Karen Kidwell showcasing the Boston Marathon finisher gear post-race.  
*[courtesy Karen Kidwell]*

## Observer's Corner: Summer Thunderstorms

by Scott Carroll

With the return of summer, the focus of weather observing shifts to thunderstorms, particularly across the interior. Ground truth is very important to the forecast and warning process. It not only helps us verify the products that we issue, but it also gives us vital information to include in our warnings and local storm reports. The following are some guidelines to the type of reports we need followed by different methods for getting the information to us.

WHAT to Report to Us	
	<ul style="list-style-type: none"> <li>➤ tornado</li> <li>➤ waterspout</li> <li>➤ funnel cloud</li> <li>➤ cloud rotation</li> </ul>
	<ul style="list-style-type: none"> <li>➤ any size hail (1" diameter is severe)</li> </ul>
	<ul style="list-style-type: none"> <li>➤ wind damage (trees, powerlines, structures)</li> </ul>
	<ul style="list-style-type: none"> <li>➤ flooding</li> <li>➤ heavy rainfall totals</li> </ul>
<p><b>WHAT?</b> – type of weather observed  <b>WHEN?</b> – start &amp; duration of event  <b>WHERE?</b> – location of event                      Also report your phone number or email address in case we need to contact you.</p>	

HOW to Report to Us	
Online Storm Report Form	<a href="#">click here &amp; bookmark</a>
Facebook	NWSEureka
Twitter	@NWSEureka
mPING App	iOS & Android



**Editor-in-Chief**  
[Scott E. Carroll](#)

**Editors**  
Kathleen Lewis  
Karleisa Rogacheski

**Contributing Writers**  
Scott Carroll  
Reg Kennedy  
Matthew Kidwell  
Richard Lam  
Karleisa Rogacheski

**Meteorologist-in-Charge**  
[Troy Nicolini](#)