



The North Coast Observer

In this issue...

- [Marine Kiosk Gets a Facelift](#)
- [Off-Season Flood Preparedness](#)
- [Where Have all the Clouds Gone?](#)
- [Fire Extinguisher Training at Eureka](#)
- [Eureka Barometer Goes Digital](#)

Regular Features...

- [Climate Page: Summer Wrap-up & Fall Outlook](#)
- [Astronomy Corner](#)

Welcome Back!

By Scott Carroll

Welcome back to The North Coast Observer, the online newsletter of the National Weather Service (NWS) in Eureka, California. NWS Eureka serves northwest California including the counties of Del Norte, Humboldt, Mendocino, and Trinity.

In this newsletter, you will find weather-related articles of local interest, as well as features such as a summary of the past season's weather conditions, an outlook for the next season, upcoming events and activities, and night sky highlights for the coming season. In addition, you will learn more about what your local NWS office does on a daily basis and how we work to provide you with forecasts and warnings for the northwest California area.

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!](#)



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| | |
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Marine Kiosk Gets a Facelift

By Scott Carroll



The National Weather Service in Eureka has maintained a marine weather kiosk at the Woodley Island Marina for several years. The kiosk employs a touch screen to allow the user to access a variety of weather data, including marine forecast, satellite and radar imagery, model data, buoy observations, and tide predictions.

Over the summer, we've been updating the marine kiosk. This has included improving the interface, fixing links, expanding the buoy observation map, and including NOAA Weather Radio information.

We will continue to improve the kiosk interface as we go into the fall season, with the goal of making this tool a one-stop shop for mariners venturing out of the marina. If you visit the marina, even if it's only for a bite to eat or to sightsee, stop by and give the kiosk a try!



Upcoming Fall Events

| Date | Event |
|------------------|---|
| September | National Preparedness Month |
| Sep 1 | Meteorological autumn begins |
| Sep 22 | Astronomical autumn begins at 12:49 AM |
| Oct 15 | Growing season ends (zones 102, 105-108) |
| Oct 19 | Great ShakeOut earthquake drill |
| Oct 20-26 | Flood Preparedness Week |
| Oct 31 | Growing season ends (zones 110-113) |
| Nov 3 | Daylight Saving Time ends at 2:00 AM |
| Nov 15 | Growing season ends (zones 101, 103, 104, 109) |
| Dec 1 | Meteorological winter begins |

Off-Season Flood Preparedness

by Kathleen Lewis

The weather may have been dry this summer, but we had flooding on the brain! Employees at the National Weather Service in Eureka took advantage of the dry summer months to address flood preparedness for our office as well as the community.

There are many different phases to preparedness, but one approach we took was to have our forecasters take turns stepping away from the weather desk to head out into the field and better understand geographic and community based flood vulnerabilities of the region. A few, but not all, of these activities included: river gage and dam visits, a flood workshop for tribal nations, a flood exercise, and multiple meetings with other agencies to discuss emergency actions for potential dam failures.

Collaborating with community members and emergency response agencies help forecasters, the folks who issue flood warnings for your neighborhood, better understand how weather information is used during times of emergency. This is crucial for the NWS to effectively disseminate information on flood hazards to keep our communities safe.



Thanks to the many agencies that are working together to keep northwest California communities safe!



Cape Van Horn Dam on the Eel River

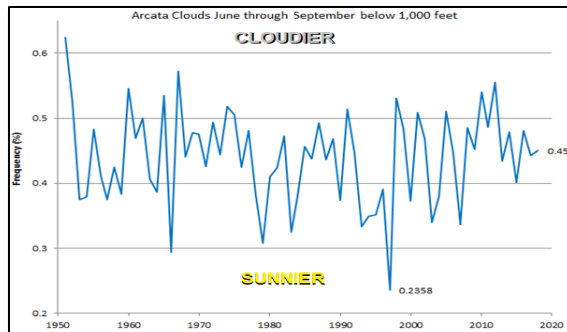


Scott Dam on the Eel River with Lake Pillsbury on the left

Where Have all the Clouds Gone?

by Matthew Kidwell & Scott Carroll

Warm and sunny? That's not how summers in Eureka are often described, but residents of Eureka experienced one of the warmest and sunniest summers in recent memory this summer. This August, we saw only around 32% of hours with clouds at the McKinleyville airport. This is significantly less than the last three years and slightly less than in 2015 (which saw 43%). This is below the normal for the summer, but not below some of the sunniest years, which include 1997 and 1983 (Johnstone & Dawson, 2010). See graph below for details.



Temperatures for the meteorological summer (June through August) in Eureka were the 4th warmest since measurements began in 1887. The month of August was the warmest on record. These temperatures are determined by averaging the maximum and minimum temperatures for each day and then taking the average of these daily values for the entire time period in question. See the tables below for details.

| Eureka Temperatures & Clouds | | | | |
|------------------------------|-------------|----------|-------------|----------|
| Year | June-August | | August Only | |
| | Cloud Cover | Ave Temp | Cloud Cover | Ave Temp |
| 2019 | 37% | 59.4 | 32% | 61.9 |
| 2018 | 50% | 57.3 | 66% | 58.5 |
| 2017 | 51% | 57.9 | 57% | 59.1 |
| 2016 | 50% | 57.4 | 66% | 56.9 |
| 2015 | 45% | 59.8 | 43% | 61.5 |
| 2014 | 53% | 58.0 | 72% | 59.1 |

| Eureka Highest Average Temperatures | | | | | |
|-------------------------------------|------|----------|-------------|------|----------|
| June-August | | | August Only | | |
| Rank | Year | Ave Temp | Rank | Year | Ave Temp |
| 1 | 1983 | 60.1 | 1 | 2019 | 61.9 |
| 2 | 2015 | 59.8 | - | 1983 | 61.9 |
| - | 2004 | 59.8 | 3 | 2015 | 61.5 |
| 4 | 1997 | 59.6 | 4 | 1997 | 61.4 |
| 5 | 1990 | 59.5 | - | 1994 | 61.4 |
| 6 | 2019 | 59.4 | 6 | 2003 | 61.1 |
| | | | - | 2004 | 61.1 |

The warmer temperatures were likely due to some combination of less cloud cover, less upwelling along the coast (due to lighter winds), and less onshore wind bringing cooler air inland.

June Most areas saw dry weather for much of the month. A few thunderstorms brought some rain to the inland areas. Most of the rain in Weaverville fell in one thunderstorm on the 2nd. Temperatures were generally above normal. Coastal areas saw a period of hot weather from the 9th through the 12th. High pressure aloft moved offshore and light winds at the surface help Eureka to set a high temperature record of 85°F (a full 16 degrees above the previous record high for the date). This high tied the record for the month as well. Crescent City and Fort Bragg saw temperatures in the 80s as well. Late in the month, an upper level trough moved over the area and temperatures were below normal, but little to no rain was reported.

July Most areas remained dry this month, except for coastal areas receiving several rounds of drizzle and a few thunderstorms over the interior. A very weak system on the 9th brought Crescent City all of its reported rain. Temperatures were generally above normal along the coast with interior locations remaining near normal. Temperatures did not vary much day to day.

August Northwest California saw periods of high pressure punctuated by weak troughs moving through the area. Much of the month saw weak wind flow at the coast. This, coupled with below normal cloud cover, allowed temperatures to warm 3 to 4 degrees above normal. These temperatures were some of the warmest temperatures ever recorded in August on the coast. Eureka tied with 1983 for the warmest average August temperature on record, while Fort Bragg saw its 5th warmest August on record. In addition to this, Eureka set 5 daily high temperature records. Inland areas averaged a couple degrees above normal. Most areas saw near normal rainfall, which is less than half an inch at each site. One of the more notable troughs on the 9th and 10th brought much of the monthly rainfall to the area. Thunderstorms were reported on the 9th and 10th in Fort Bragg, Ukiah, and Weaverville.

| Summer Record Events | | | | |
|----------------------|---------------|----------|-------|-----------------|
| Date | Location | Record | Value | Previous Record |
| Jun 11 | Crescent City | Max Temp | 84 | 81 in 1936 |
| Jun 11 | Eureka | Max Temp | 85† | 69 in 1936 |
| Jun 12 | Eureka | Max Temp | 78 | 68 in 1999 |
| Jun 23 | Eureka | Min Temp | 45* | 45 in 1920 |
| Jul 10 | Eureka | Max Temp | 71 | 70 in 2005 |
| Jul 15 | Eureka | Max Temp | 70* | 70 in 2004 |
| Aug 2 | Eureka | Max Temp | 70 | 69 in 1993 |
| Aug 9 | Eureka | Max Temp | 71* | 71 in 2004 |
| Aug 9 | Eureka | Rainfall | .11" | .02" in 1933 |
| Aug 10 | Crescent City | Rainfall | .47" | .25" in 1922 |
| Aug 13 | Eureka | Max Temp | 71 | 70 in 2003 |
| Aug 21 | Eureka | Max Temp | 78 | 73 in 1971 |
| Aug 31 | Eureka | Max Temp | 73 | 72 in 1997 |

*tied record †tied monthly record

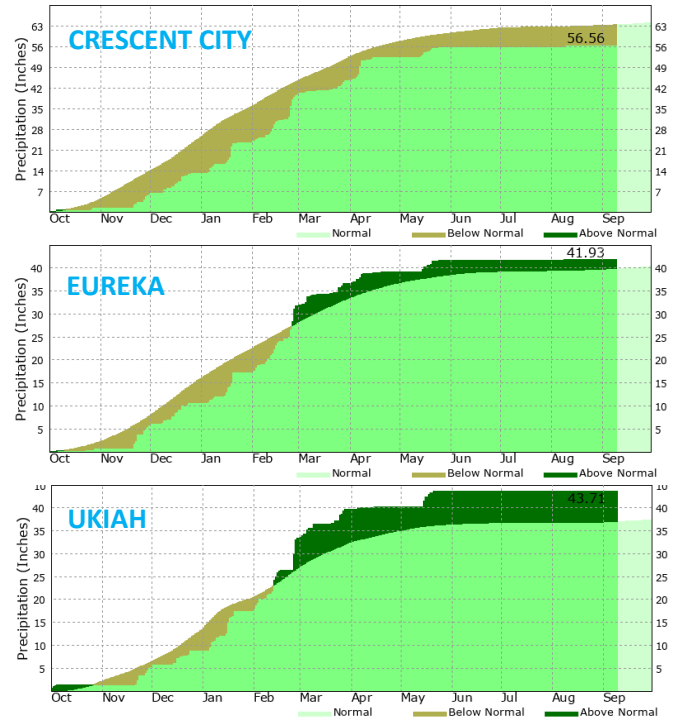
Summer 2019 Monthly Climate Comparison

| | Crescent City | | | Eureka | | | Ukiah | | |
|-----|---------------|--------|------------|--------|--------|------------|--------|--------|------------|
| | Ave Hi | Ave Lo | Total Rain | Ave Hi | Ave Lo | Total Rain | Ave Hi | Ave Lo | Total Rain |
| Jun | 62.3 | 49.9 | Trace | 62.7 | 49.1 | Trace | 90.2 | 53.9 | None |
| Jul | 63.7 | 52.6 | 0.03 | 65.6 | 55.2 | Trace | 92.3 | 57.3 | None |
| Aug | 66.0 | 53.9 | 0.64 | 68.7 | 55.1 | 0.18 | 94.6 | 58.5 | 0.07 |

temperatures in °F, rainfall in inches

Water Year-to-Date Precipitation Comparison

[click images for links](#)



data through September 8th

Fall Outlook (September-November)

[click images for links](#)

The Climate Prediction Center's fall outlook for northwest California is calling for better than even chances of above normal temperatures (*figure 1 below*). Even chances of above and below normal precipitation are forecast (*figure 2 below*).

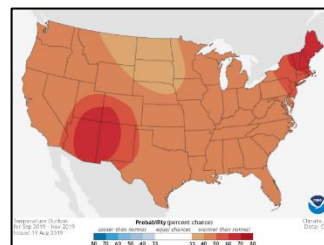


Figure 1 – Temperature Outlook

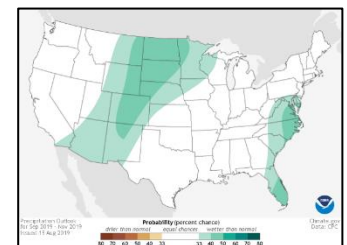


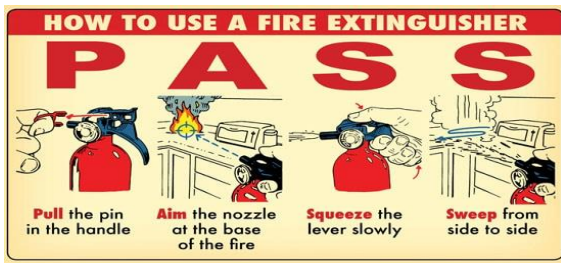
Figure 2 – Precipitation Outlook

Fire Extinguisher Training at Eureka

By William Iwasko

At NWS Eureka, we like to keep our disaster preparedness skills up. Recently, the entire staff had a chance to learn about the different types of fire extinguishers and practice using one of the extinguishers on a small, controlled fire. This was a great experience, especially for those staff members who have never used a fire extinguisher before.

If you ever need to use a fire extinguisher, the main thing to remember is **PASS: Pull, Aim, Squeeze, and Sweep**. First, pull the pin out of the fire. Next, stand approximately 10 feet from the small fire, and aim the nozzle at the base of the fire. Squeeze the handle so that the extinguisher begins to spray, and sweep the nozzle left to right across the base of the flames.



If you would like to bolster your disaster preparedness skills, there is a great community organization called the **Community Emergency Response Team (CERT)** that has several chapters within northwest California. Once you complete the CERT course, you will have gained knowledge and skills in fire safety, basic first aid, light search and rescue, disaster psychology, and terrorism. After a large event, you can use the skills that you have learned to help treat yourself, family, and neighbors before other emergency personnel arrive on the scene. Normally, the course is scheduled a few times a year. However, it depends on budgets and available staff to hold the courses. To look for training in your area or for more details on CERT visit:

- [Humboldt County CERT](#)
- [Del Norte County CERT](#)
- [Mendocino County CERT](#)



Administrative Assistant Debbie Richie receives fire extinguisher training

Eureka Barometer Goes Digital

by Scott Carroll



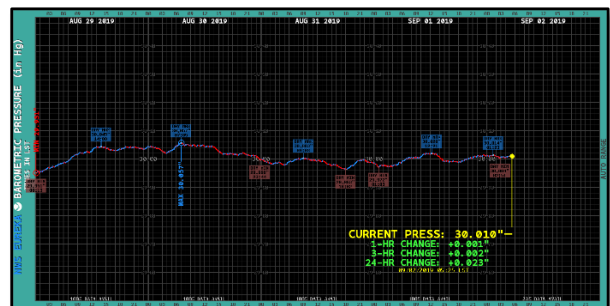
NWS Eureka has taken weather observations since 1886, including measurements of atmospheric pressure. Early pressure readings were taken using a **mercury barometer (left)**. A mercury barometer measures pressure on a container (cistern) of mercury. The force of the air pressure pushes the mercury up into a glass tube, allowing for normal fluctuations to be measured in inches versus feet, which would be necessary with a less dense liquid like water. Due to the effects of temperature on the mercury barometer measurements, along with the dangers of a mercury spill, the mercury barometer was ultimately retired.

More recently, pressure measurements have been recorded on an **aneroid barometer (right)** and a **barograph (below left)**. An aneroid barometer uses a single evacuated diaphragm (or a series of diaphragms) linked to a dial indicator to display pressure changes. A barograph is an aneroid barometer diaphragm



assembly which is attached to an arm with a pen on the end. A piece of graph paper is attached to a metal drum, and the drum rotates beneath the pen. This allows for a graph of pressure versus time (**barogram**) to be generated.

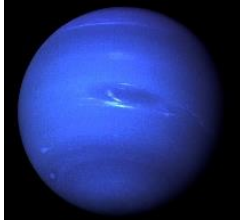
Over the past couple of decades, weather service offices have been equipped with a digital barometer (**right**), which uses a pressure transducer to convert atmospheric pressure into an electrical signal. This piece of equipment includes an output which can be connected to a personal computer. NWS Eureka has created a method of accessing this data and displaying it real-time on an electronic barogram (**below**). This allows us to move to paper-free data storage, as well as incorporating the barogram into future social media posts.



Astronomy Corner

by Scott Carroll

Several meteor showers reach their peak in the fall. The Orionid shower peak around October 21st, around the time of the last quarter moon. The Leonid shower will peak around November 17th, again around the time of the last quarter moon. The last quarter moon rises around midnight, and the best time to watch meteor showers is between midnight and dawn. The best time to view the planet Uranus (*right*) will be in late October, when the planet is at opposition (near its closest point to earth and overhead around midnight). Uranus is best seen with a telescope or binoculars.



The crescent moon and Jupiter will appear close in the southwest sky on October 3rd. A very thin crescent moon and Venus will appear close together on October 29th around the time of sunset low in the southwest sky. Mercury and Venus will be very close together in the sky on October 30th, visible very low in the southwest sky shortly after sunset. As we transition from October to November, a crescent moon can be seen in the southwest sky in the proximity of both Jupiter and Saturn after sunset. Late in November, several conjunctions of a thinning crescent moon will occur with Mars, Jupiter, Venus, and Saturn (*see calendar below*).



On the morning of November 11, Mercury will transit the sun. Telescopes with special filters are needed to see this event. ***Under no circumstances should you stare at the sun!***

| Fall Moon Phases | | | | | |
|------------------|------------------|---------|------------------|----------|------------------|
| September | | October | | November | |
| ☾ | 5 th | ☾ | 5 th | ☾ | 4 th |
| ☉ | 13 th | ☉ | 13 th | ☉ | 12 th |
| ☾ | 21 st | ☾ | 21 st | ☾ | 19 th |
| ● | 28 th | ● | 27 th | ● | 26 th |

| Fall Night Sky Calendar | |
|-------------------------|--|
| Date | Event |
| Sep 5 | Moon-Jupiter conjunction |
| Sep 8 | Moon-Saturn conjunction |
| Sep 9 | Neptune opposition |
| Oct 3 | Moon-Jupiter conjunction |
| Oct 5 | Moon-Saturn conjunction |
| Oct 21 | Orionid meteor shower maximum |
| Oct 28 | Uranus opposition |
| Oct 29 | Moon-Venus conjunction |
| Oct 30 | Mercury-Venus conjunction |
| Oct 31 | Moon-Jupiter conjunction |
| Nov 1 | Moon-Saturn conjunction |
| Nov 5 | S Taurid meteor shower maximum |
| Nov 11 | Mercury inferior conjunction |
| Nov 12 | N Taurid meteor shower maximum |
| Nov 17 | Leonid meteor shower maximum |
| Nov 24 | Moon-Mars conjunction Venus-Jupiter conjunction |
| Nov 28 | Moon-Jupiter conjunction Moon-Venus conjunction |
| Nov 29 | Moon-Saturn conjunction |

Images, moon phases, and event information courtesy of NASA

Rainy Season Preparation Checklist

- ✓ Clean and repair gutters around your house. ***Watch out for insects and other small animals!***
- ✓ Sweep up debris from around storm drains near your house.
- ✓ Locate and repair any roof damage. Water damage inside your house can be indicative of roof damage outside. Moss on the edges of shingles can allow rain and wind to get beneath the shingles during inclement weather. ***Be careful up there!***
- ✓ Trim any branches that may make contact with your house.
- ✓ Look for water accumulation around the foundation of your home, and direct it away by re-grading or using trenches.

Did You Know?

We're always looking for volunteer rainfall observers!

Click [here](#) to join the CoCoRaHs network & get started before the rainy season begins!



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