The North Coast Observer
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The North Coast Observer

In this issue…

Regular Features…

From all of us here at the National Weather Service in Eureka, we hope you and your family have a happy and safe holiday season and a great 2020!

Berry Summit photo courtesy Jonathan Beck

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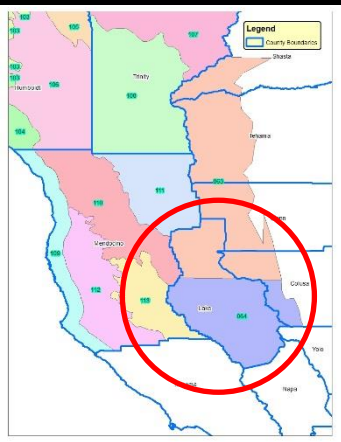
NWS Eureka to Begin Serving Lake County in March 2020!

by Ryan Aylward

On March 3rd, Lake County will become part of the NWS Eureka forecast service area after previously being part of the NWS Sacramento office's area of responsibility for the last 20 or more years. This change is occurring at the request of Lake County Emergency Management and has been coordinated with Lake County emergency response partners. This transition is a natural fit, as Lake County has often been closely aligned with Mendocino County in many ways. Both counties have similar weather patterns, share an EAS plan, and are within CalTrans District 1 and CalOES Coastal Region.

Current Zones	Proposed Zones
	

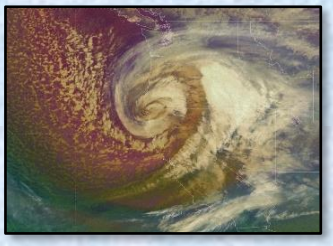
Since the NWS Eureka office already services Mendocino County, it is a logical fit to transition forecast services for Lake County to the NWS Eureka forecast office. We look forward to working closely with everyone in Lake County!

Upcoming Winter Events	
Date	**Event**
Dec 1	Meteorological winter begins
Dec 21	Winter solstice at 8:19 PM
Feb 9	Birthday of the National Weather Service
Mar 1	Meteorological spring begins Growing season *begins (zones 101, 103, 109-113)*

Coastal Bomb Cyclone

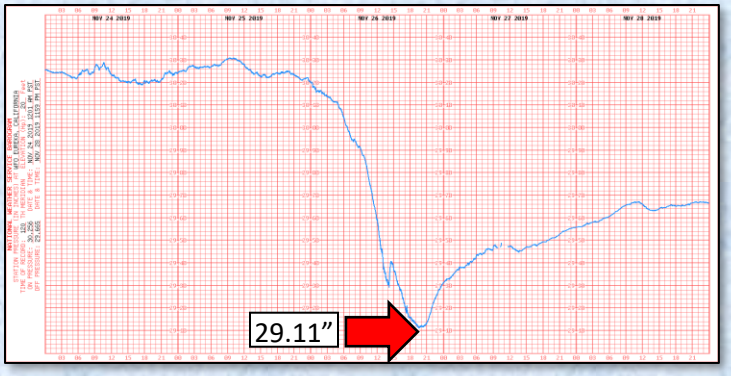
November 26, 2019

by Scott Carroll

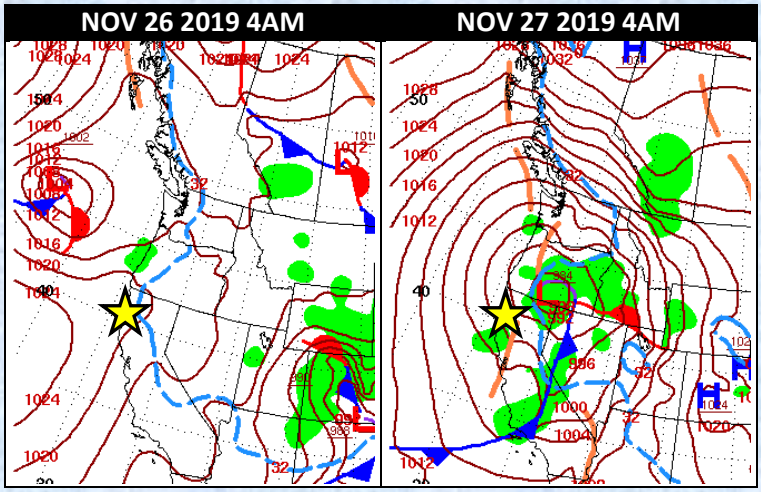


On November 26th, a rapidly deepening low pressure system moved ashore along the Redwood Coast. This storm brought strong, gusty winds to the area. A wind gust to 69 mph was recorded at Crescent City, with reports of damage throughout the area. Winds were even stronger at higher elevations. The storm also brought heavy rains and mountain snows to the area.

The low pressure center moved almost directly over Crescent City during the evening (see surface analysis below). The barometric pressure dropped to 28.75 inches (975.6 millibars) at Crescent City, which set an all-time low pressure record for the entire state of California. The pressure at NWS Eureka (on Woodley Island in Eureka) dropped to 29.11 inches (985.8 millibars) at around 7:30 PM. Our digital barometer recorded the event *(below)*!



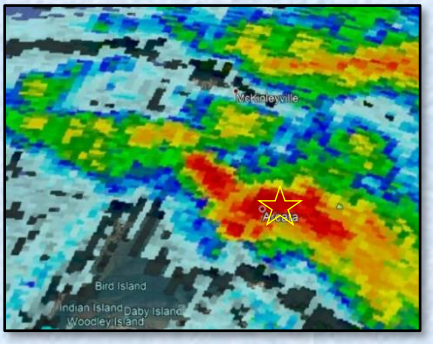
As you can see by the surface analyses below, the low pressure center rapidly intensified over the eastern Pacific before making landfall. Eureka is indicated by the yellow star. A “bomb cyclone” is defined as an area of low pressure that rapidly deepens 0.70 inches (24 millibars) in 24 hours. Typically, the lower the pressure in a storm system, the more inclement the weather. This is especially true of the wind speeds associated with the storm. The closeness of the isobars (lines of equal pressure) on the maps below is an indicator of a tight pressure gradient, and, thus, strong winds.



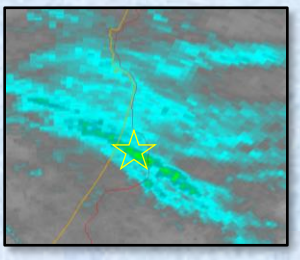
Locally Heavy Rain in Arcata

September 18, 2019

by Matthew Kidwell & Scott Carroll

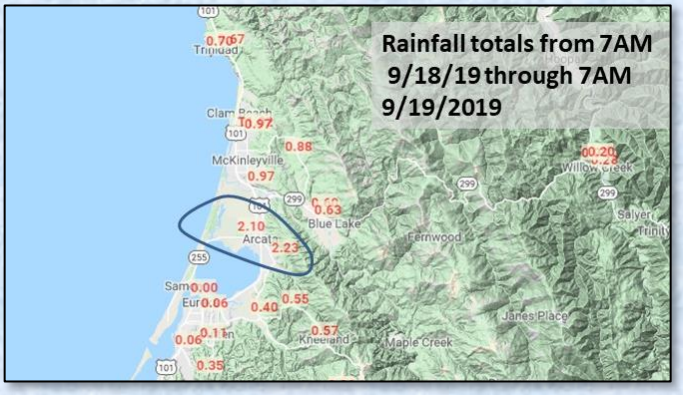


On September 18th, showers and a few thunderstorms were reported up and down the north coast. Rainfall amounts varied widely, ranging from around an inch in the northern part of the Humboldt County to only a trace or a few hundredths in the Eel River Valley. There was one storm that moved slowly over the Arcata and Bayside areas *(image above)*. The star in each image indicates the location of Arcata. This highly localized area saw over 2 inches of rain in just a couple of hours, while locations just a few miles away saw less than a half an inch.



Due to this very heavy rain that fell in a short period of time *(see storm total rainfall image to the left)*, there was significant flooding in that area. This caused street flooding in Arcata with drains unable to handle the water. This water also flowed into some businesses near the center of Arcata.

This storm was particularly well recorded thanks to the density of rain gauges in the area *(image below)*. The two highest reports were both volunteer observers reporting on the **CoCoRaHS** network. Surrounding these reports, other volunteer observers less than a mile away reported much less rain. These observations were still very important in showing how localized the storm was in Arcata.



For information on joining the CoCoRaHS precipitation reporting network, or any of the other ways you can participate in providing observations, see “Wondering How You Can Help Your Local NWS Office?” in this edition of the North Coast Observer!

Fall Weather Summary

by Matthew Kidwell

SEPTEMBER

Interior areas saw some large temperature swings throughout the month. For example, high temperatures in Ukiah ranged from 65 to 104°F. This was due to a series of weather systems moving through the area with strong high pressure between them. Coastal temperatures were significantly above normal for much of the month. Late in the month, a cold weather system combined with much cooler ocean temperatures finally brought coastal temperatures below normal. Rainfall for the month varied widely due to its convective nature. Most areas ended the month above normal, with the exception of southern Mendocino County. On the 17th and 18th, some very heavy showers brought local amounts of over 2 inches in some locations on the Humboldt and Del Norte County coasts.

OCTOBER

High pressure generally dominated the area for the month. This brought warm sunny afternoons with above normal temperatures across the area. On the 24th, strong offshore flow brought high temperatures into the 80s along the coast, setting a daily high temperature record in Eureka. The clear skies also brought chilly nights, with most areas averaging 2 to 4°F below normal overnight. Several low temperature records were set as well. A couple of weather systems did manage to break down the high pressure ridge, bringing rain to some areas between the 16th and 20th of the month. However, this rain didn't make it very far to the south and east.

NOVEMBER

The month was dominated by a high pressure ridge through the 25th of the month. This brought mainly dry weather for this period, although one or two weak systems managed to break down the ridge and bring a small amount of rain. This high pressure also brought above normal high temperatures to the inland areas. However, the clear skies allowed temperatures to cool overnight, and low temperatures ended the month below normal. This high pressure brought a variety of weather to the coastal areas. On days with offshore flow, the coast saw clear skies, above normal afternoon temperatures, and chilly nights. On other days, the coast experienced dense fog, which kept temperatures below normal during the day and near or above normal at night. The pattern changed dramatically late in the month, and a very strong early season winter storm impacted the area followed by a second one several days later, bringing most of the precipitation for the month. However, the rainfall was still only 20 to 50 percent of normal. These storms brought significant snow to the interior, with inland valleys seeing over a foot in some locations. The higher terrain saw much higher amounts with over three feet reported in some locations.

Fall Climate & Winter Outlook

by Scott Carroll

Fall 2019 Monthly Climate Comparison

	Crescent City			Eureka			Ukiah		
	Ave Hi	Ave Lo	Total Precip	Ave Hi	Ave Lo	Total Precip	Ave Hi	Ave Lo	Total Precip
Sep	64.8	53.7	2.89	67.3	53.9	1.92	85.7	52.5	0.31
Oct	61.6	44.7	2.51	62.3	43.5	1.51	81.2	41.3	0.05
Nov	55.1	41.3	1.66	55.0	42.1	1.75	71.7	38.7	1.58

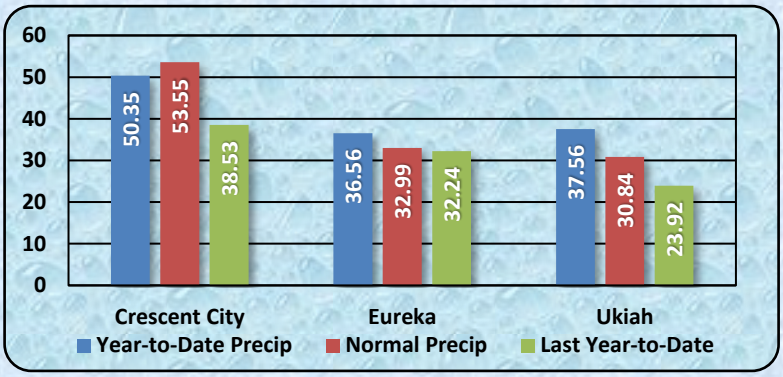
temperatures in °F, rainfall in inches

Fall Record Events

Date	Location	Record	Value	Previous Record
Sep 15	Eureka	Max Temp	76	74 in 1909
Sep 25	Ukiah	Max Temp	104*	104 in 2009
Oct 2	Eureka	Min Temp	40*	40 in 2002
Oct 10	Eureka	Min Temp	37	38 in 1924
Oct 12	Crescent City	Min Temp	35*	35 in 1928
Oct 24	Eureka	Max Temp	81	76 in 2017
Nov 1	Eureka	Min Temp	35*	35 in 2003
Nov 5	Ukiah	Max Temp	85*	85 in 2012
Nov 6	Ukiah	Max Temp	85*	85 in 1931
Nov 28	Eureka	Min Temp	30*	30 in 2015

*tied record

Year-to-Date Precipitation Comparison



rainfall in inches, data through Dec 4th

Winter Outlook (December-February)

click images for links

The Climate Prediction Center's winter 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, with slightly better than even chances for below normal precipitation over the extreme southern portion of the area *(figure 2 below)*.

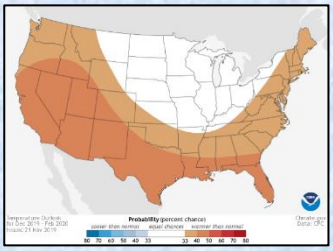


Figure 1 – Temperature Outlook

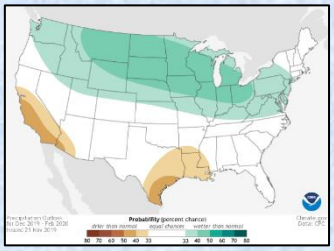


Figure 2 – Precipitation Outlook

Wondering How You Can Help Your Local NWS Office?

Here Are Some Ways You Can Keep Us Informed While Helping Us Improve Our Forecasts & Warnings…

Ever wonder if there was a way to help the National Weather Service by reporting conditions at your location? There are 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 the ways you can join our team. The levels of commitment range from easy (green) to very involved (red). **We are particularly interested in filling in our reporting network across Trinity county and the interior areas of Del Norte, Humboldt, and Mendocino counties.**

Whatever your level of commitment, we welcome any information you can provide!

Program	Commitment Level HARD ▪▪▪ EASY	Where Does Your Info Go?
NWS Cooperative Program	➢ Official NWS climate network ➢ Limited number of sites ➢ Long term commitment ➢ Daily readings entered via website or phone	➢ NCDC database ➢ Regional Temp & Precip Summary
Citizen Weather Observer Program	➢ Purchase & install web-enabled weather station ➢ Keep station on & connected to internet ➢ Install in home, business, or school	➢ MADIS database ➢ Local NWS database ➢ Additional optional online databases
CoCoRaHS Rainfall Network	➢ Purchase standard 4" diameter rain gauge ➢ Enter data daily via web or phone app	➢ CoCoRaHS page ➢ Local CoCoRaHS precip summary
Skywarn Storm Spotter	➢ Attend spotter training class ➢ Report significant weather by phone or web form???	➢ Local storm reports ➢ SPC database
Online Storm Report	➢ Report significant weather by web form	
Twitter/Facebook	➢ Send brief significant weather report or photo via social media	➢ NWS Twitter & Facebook pages
mPING	➢ Download app for your mobile phone ➢ Report current weather at your location	➢ mPING page ➢ NWS database

Astronomy Corner

by Scott Carroll

Several meteor showers reach their peak in the winter. The Geminid shower peaks around December 14th. Unfortunately, this is just a few days after the full moon, which will affect viewing. The Ursid meteor shower will peak around December 22nd. This is just before the new moon, which should provide ideal viewing conditions (assuming the weather cooperates). The Quadrantid meteor shower peaks on January 4th, which is during the first quarter moon. The best time to watch meteor showers is between midnight and dawn.

The crescent moon and Mars will appear close in the east southeast sky on the mornings of December 22nd and 23rd. A thin crescent moon and Venus will appear very close in the southwest sky on the morning of December 28th. A crescent moon and Mars will once again appear very close on January 20th in the southeastern sky toward morning. On January 22nd, Jupiter and a very thin crescent moon will be visible low in the southeastern sky just before sunrise. A thin crescent moon and Venus will be very close toward the west-southwest on the evening of January 27th. In mid-February, several conjunctions of a thinning crescent moon will occur with Mars, Jupiter, and Saturn *(see calendar below)*. On February 27th, a crescent moon and Venus will be visible in the evening western sky.

Winter Moon Phases

December		January		February	
☽	3rd	☽	2nd	☽	1st
●	11th	●	10th	●	8th
☾	18th	☾	17th	☾	15th
●	25th	●	24th	●	23rd

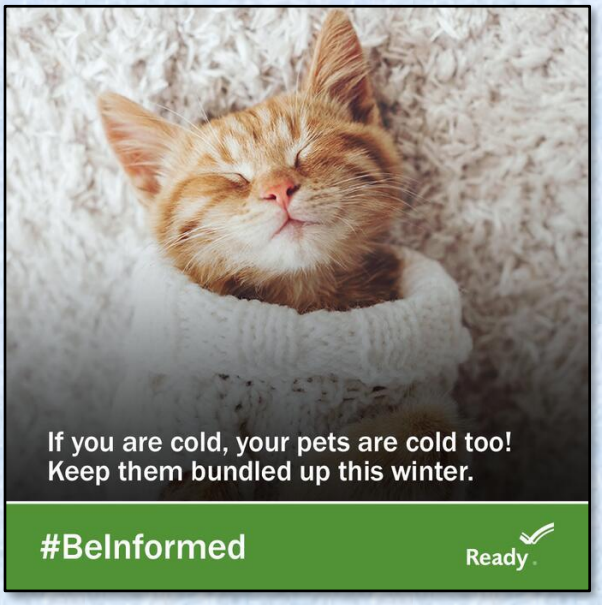
Winter Night Sky Calendar

Date	Event
Dec 11	Venus-Saturn conjunction
Dec 14	Geminid meteor shower maximum
Dec 22	Moon-Mars conjunction Ursid meteor shower maximum
Dec 28	Moon-Venus conjunction
Jan 4	Quadrantid meteor shower maximum
Jan 20	Moon-Mars conjunction
Jan 22	Moon-Jupiter conjunction
Jan 27	Moon-Venus conjunction
Feb 18	Moon-Mars conjunction
Feb 19	Moon-Jupiter conjunction
Feb 20	Moon-Saturn conjunction
Feb 27	Moon-Venus conjunction

Moon phases and event information courtesy of NASA

Winter Weather Safety

National Weather Service Public Information



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