

# NWS Winter Seasonal Outlook

2022-2023

Presenter: Rebecca Muesle - Meteorologist

Weather Forecast Office

Portland, OR

Tuesday, October 25

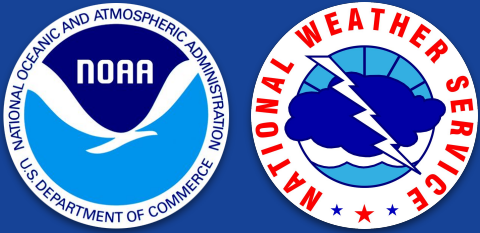




# Key Points

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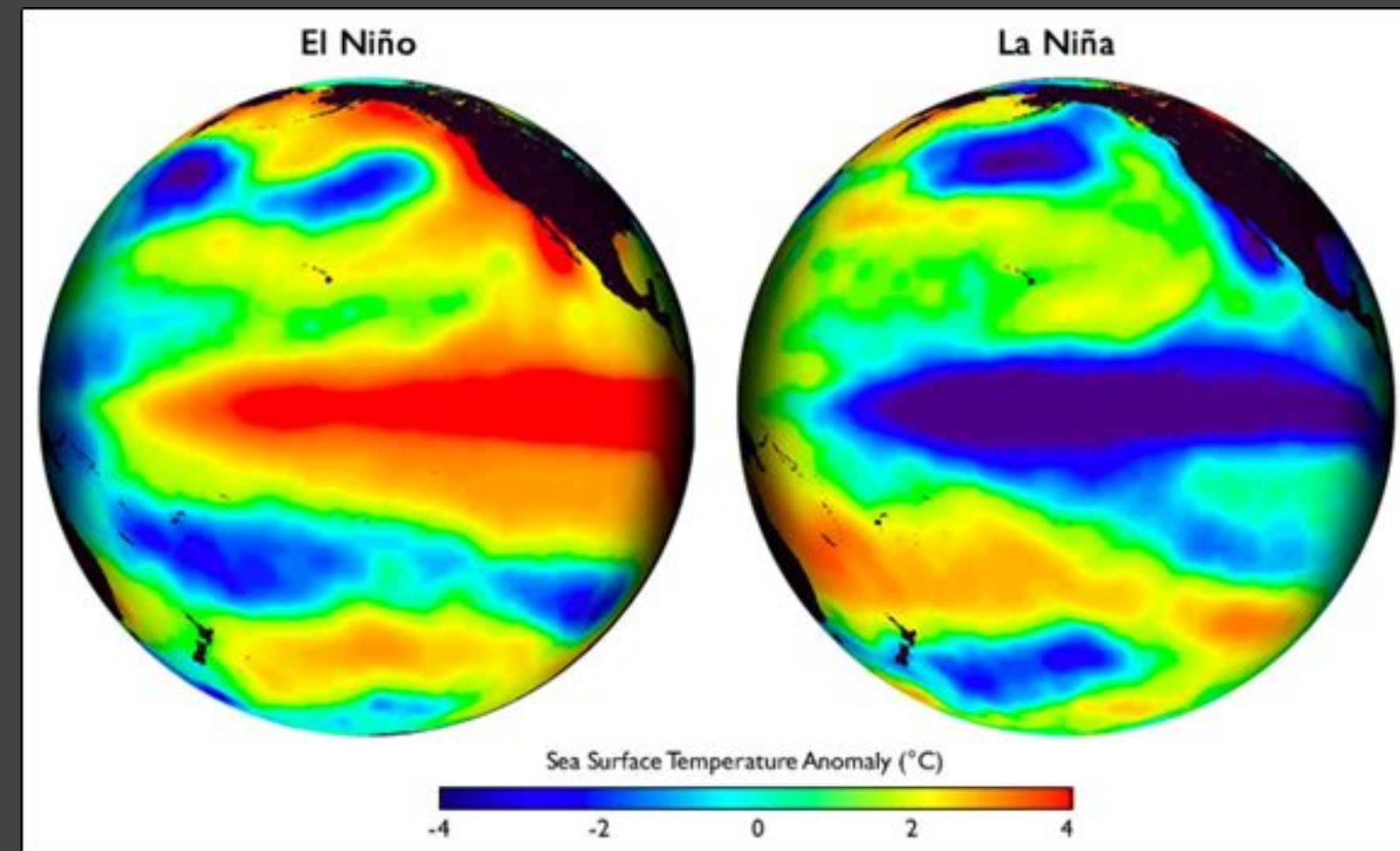
- La Niña conditions now and 80-90% likely to continue through mid-winter
- Third winter of La Niña
- NWS Climate Prediction Center (CPC) outlooks:
  - 1) Wetter than Normal Fall 2022
  - 2) Equal chances of wetter, drier or near normal precipitation DJF
  - 3) Greater chance for slightly cooler than normal DJF



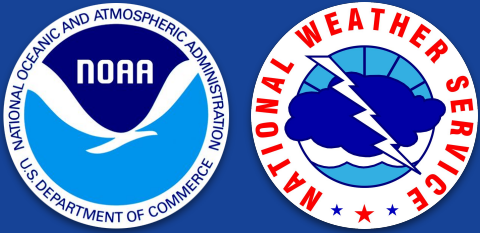
# Winter Season Outlook 2022/2023

## What is ENSO?

El Niño and the Southern Oscillation, commonly referred to as ENSO, is a periodic fluctuation in sea surface temperature (SST) and the overlying atmosphere across the equatorial Pacific Ocean



- ENSO has three possible stages:
  - ENSO-neutral (near-normal water temps across the equatorial Pacific)
  - **La Niña** (relatively **cool water** across the equatorial Pacific - **above right**)
  - **El Niño** (relatively **warm water** across the equatorial Pacific - **above left**)



# ENSO Status: **La Niña Advisory**

## La Niña Categories:

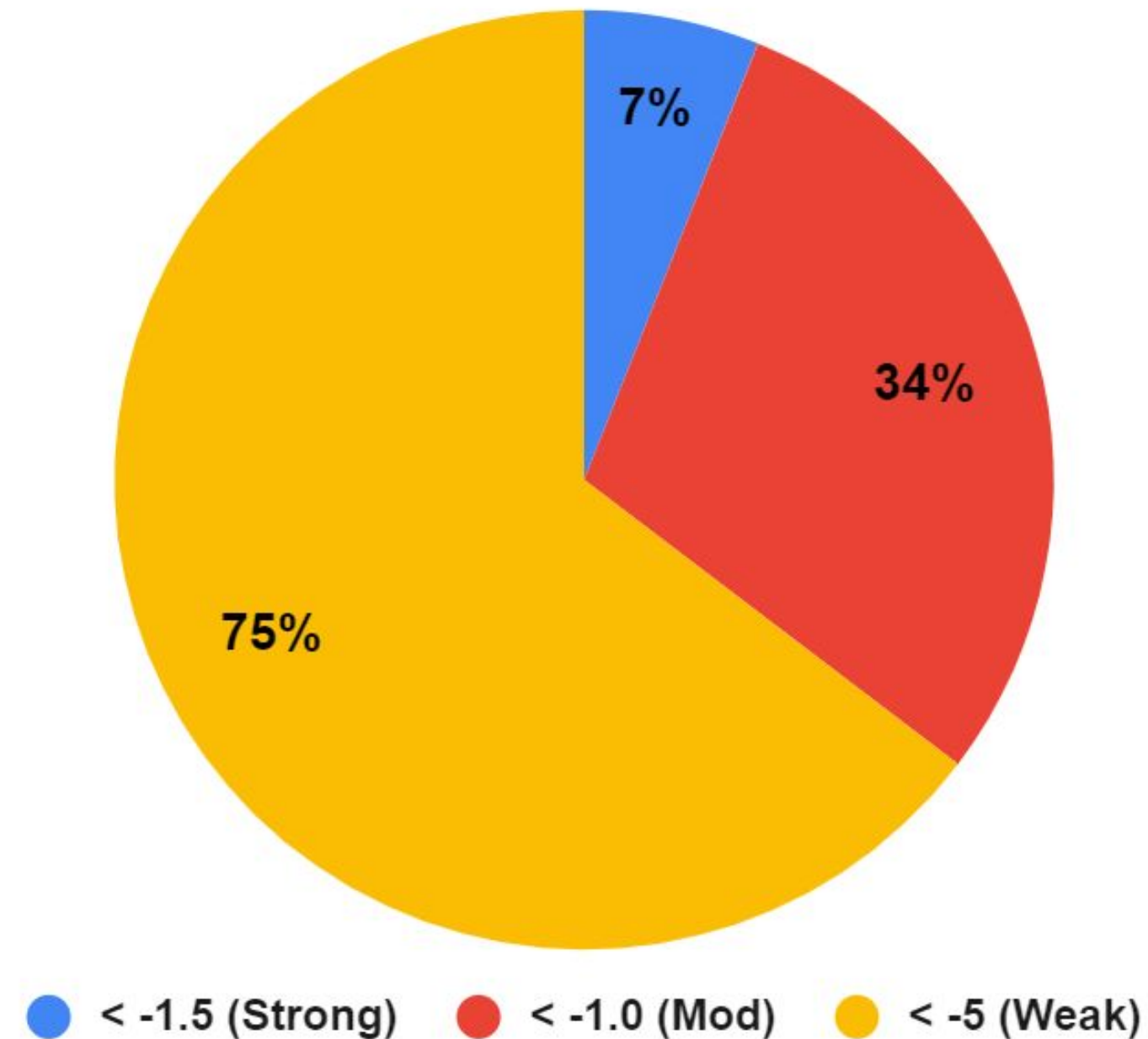
3 consecutive overlapping 3-mo periods with SST anomalies of the following categories:

- WEAK:** -0.5 to -0.9 °C
- MODERATE:** -1 to -1.4 °C
- STRONG:** -1.5 to -1.9 °C
- VERY STRONG:**  $\geq$  -2 °C

Best chance are for a **WEAK** La Niña for 2022/23 Winter (DJF).

However, a moderate La Nina is possible, especially in December, as La Niña is expected to weaken in Jan and Feb

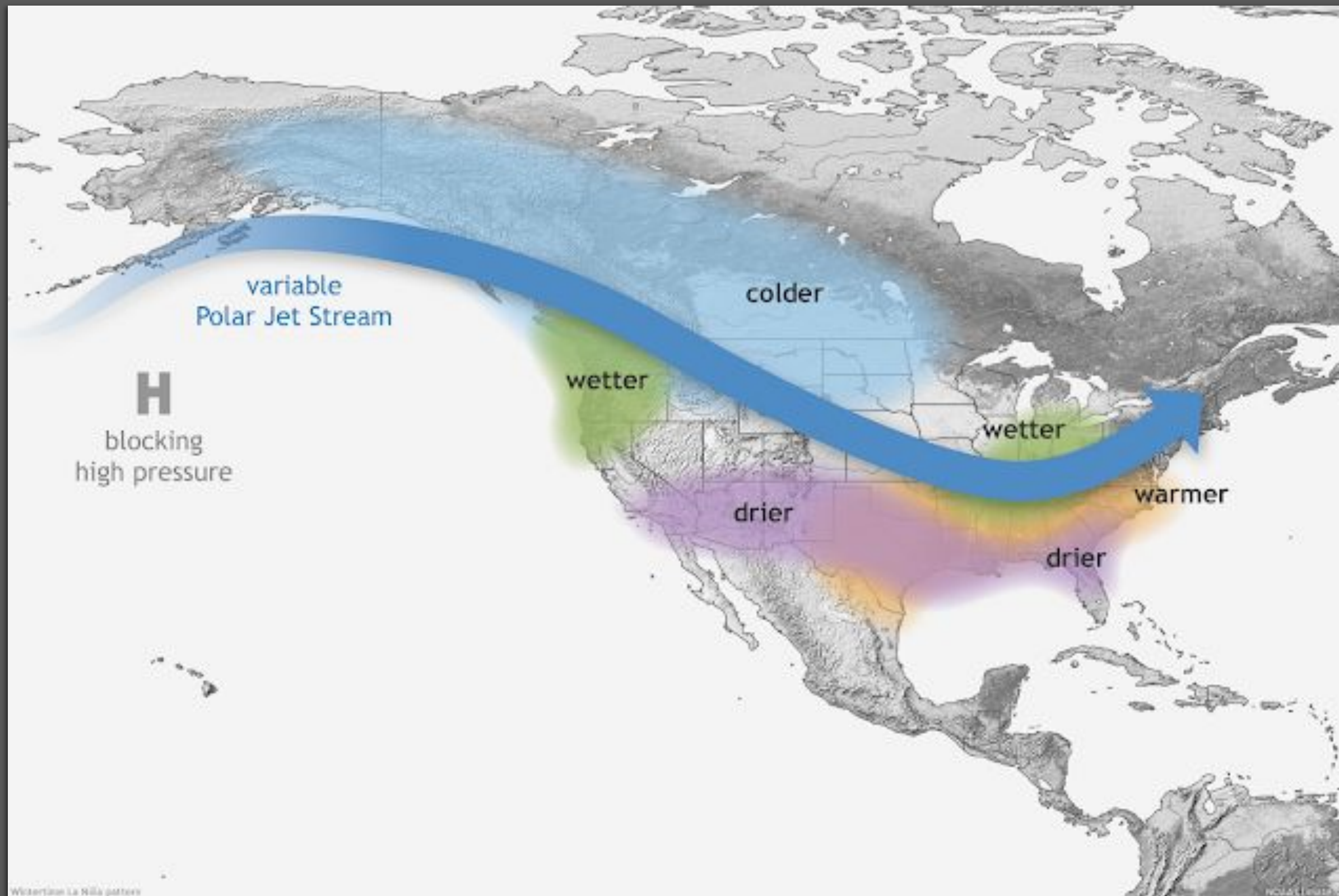
### Probability of Exceeding La Nina Category for 2022/23 Winter (DJF)





# ENSO Status: **La Niña Advisory**

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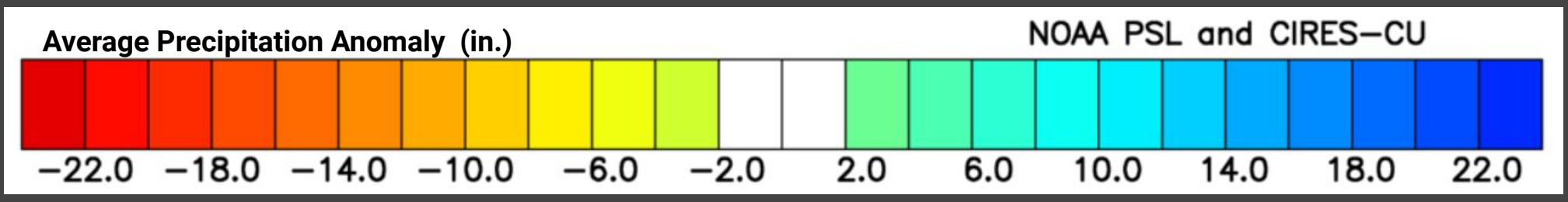
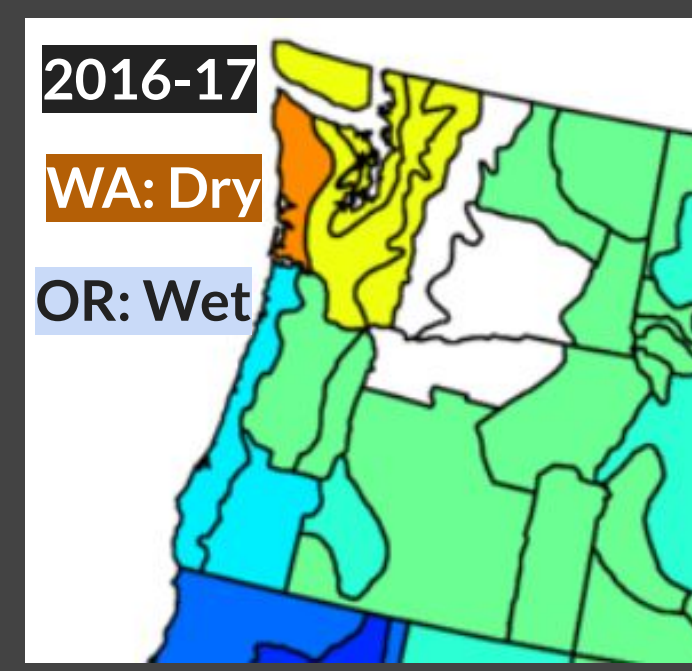
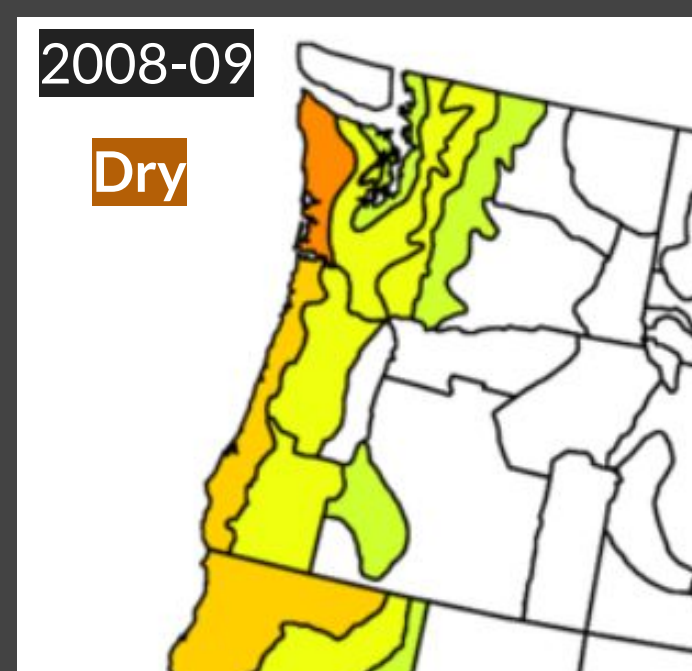
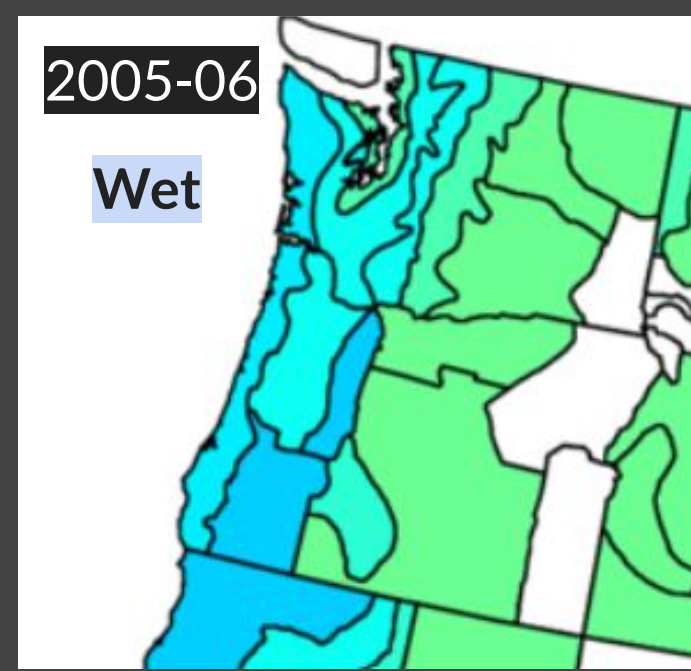
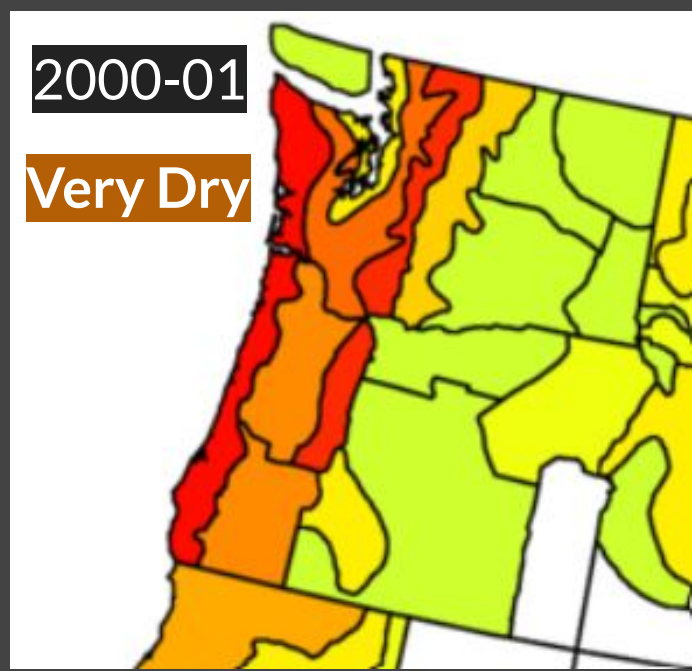
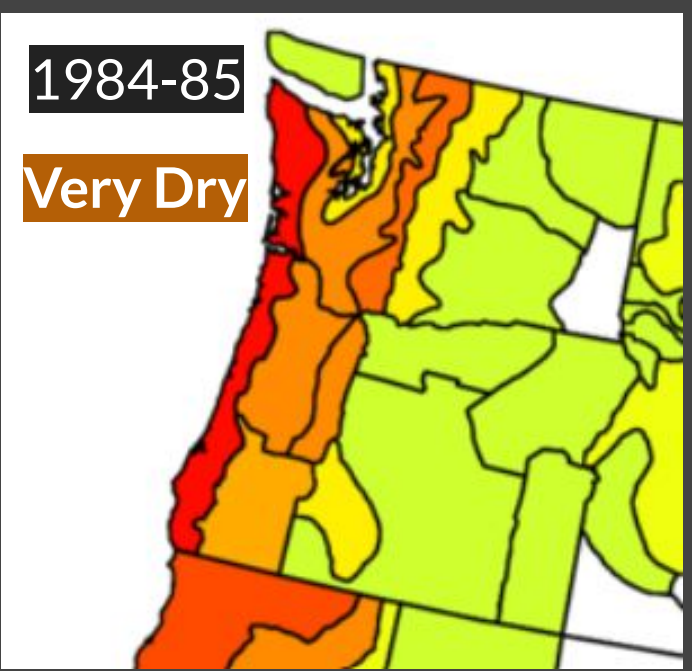
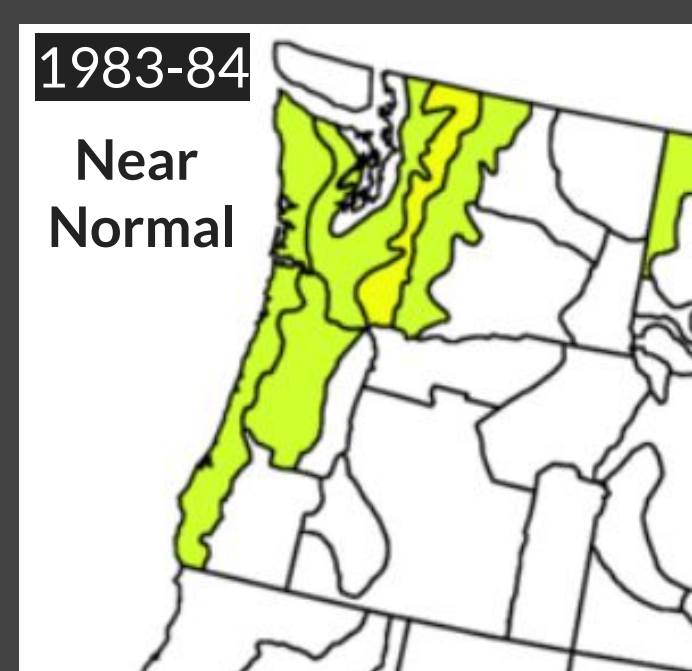
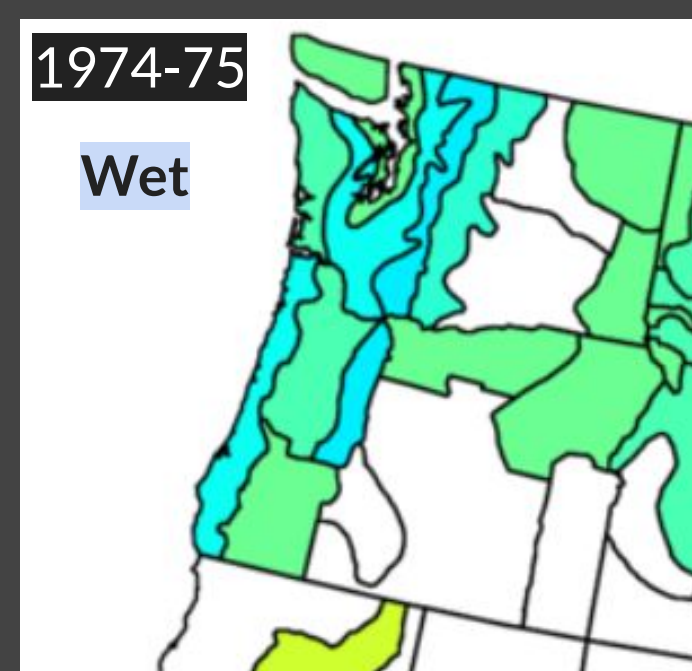
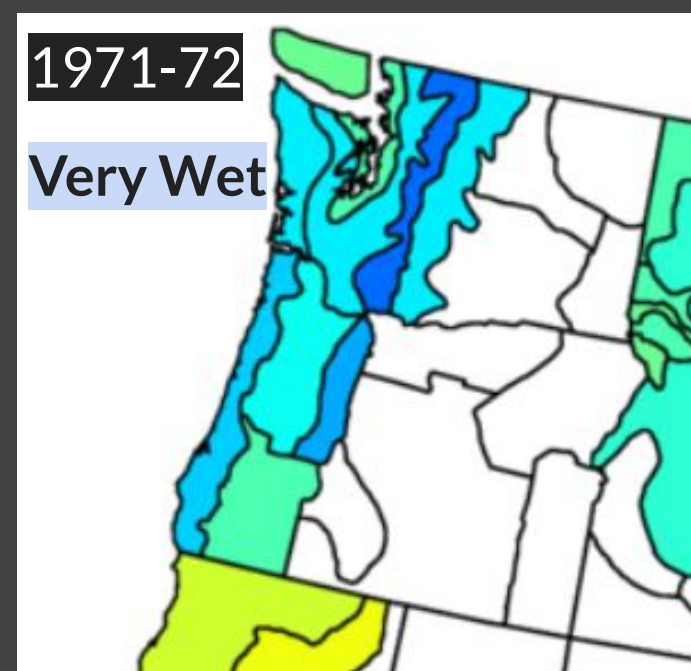
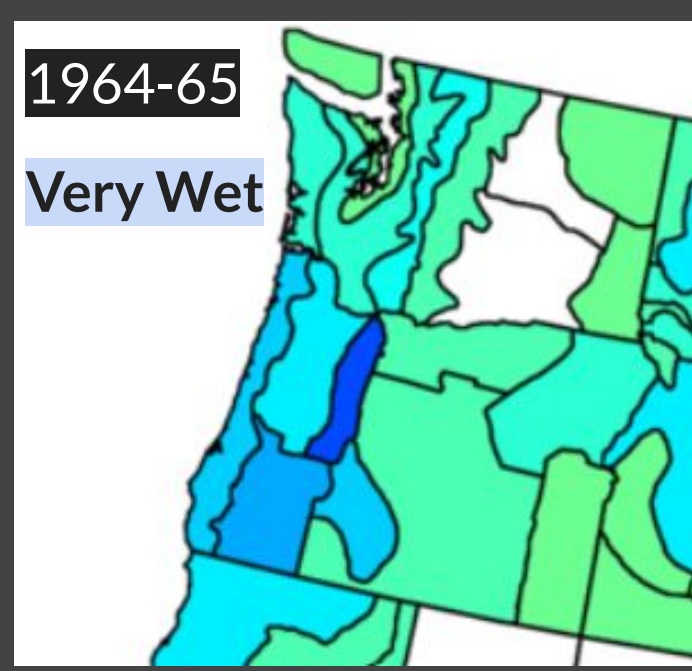
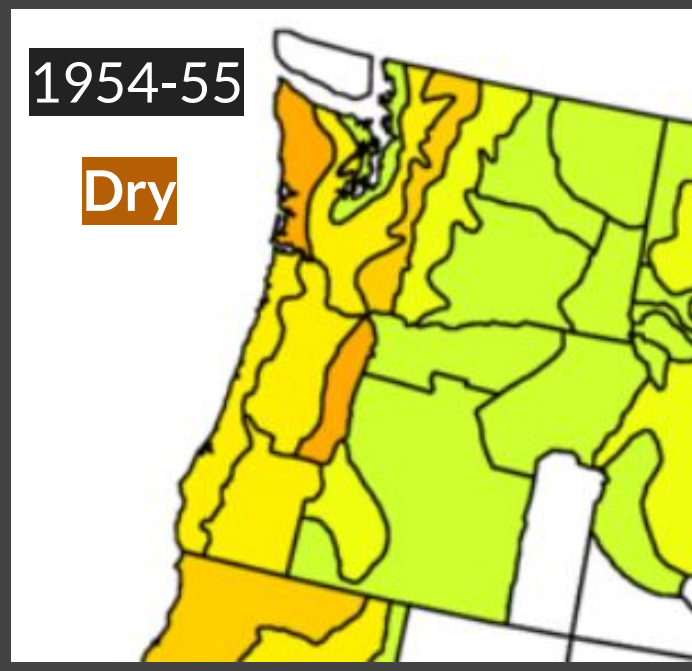


- Equatorial sea surface temperatures (SSTs) are below average across most of the Pacific Ocean.
- There is a **75% chance La Niña will continue** this winter.
- A **54% chance of transitioning to ENSO-Neutral Spring (FMA) 2023**
- Favors **wetter and cooler** than normal conditions for the PNW this winter.



# Winter (DJF) *Precipitation* History: **Weak La Niñas**

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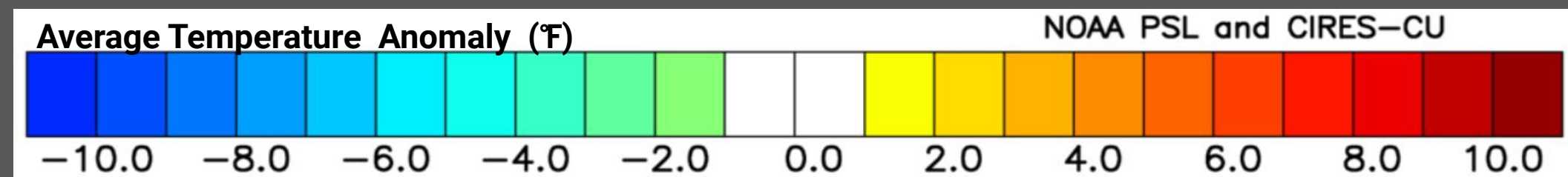
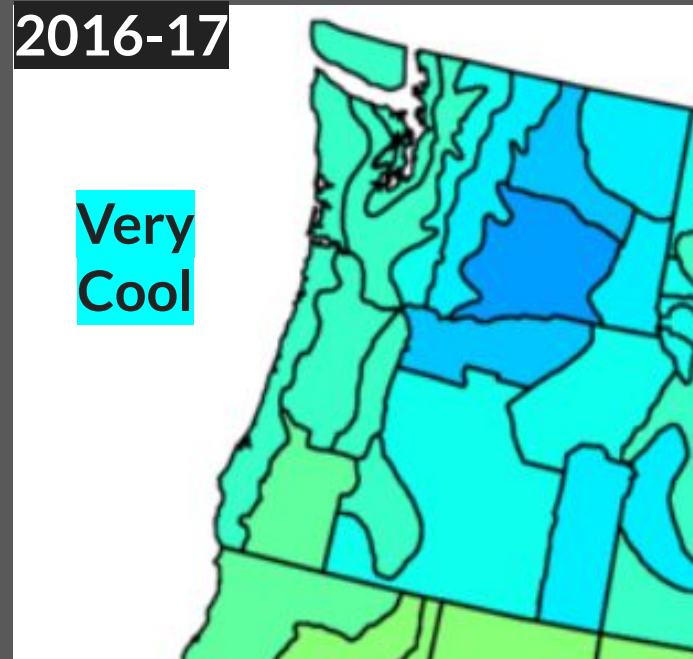
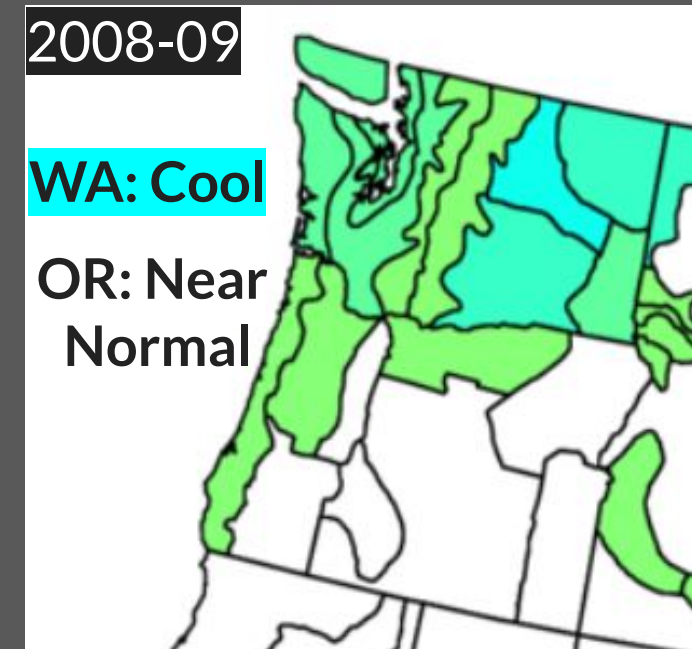
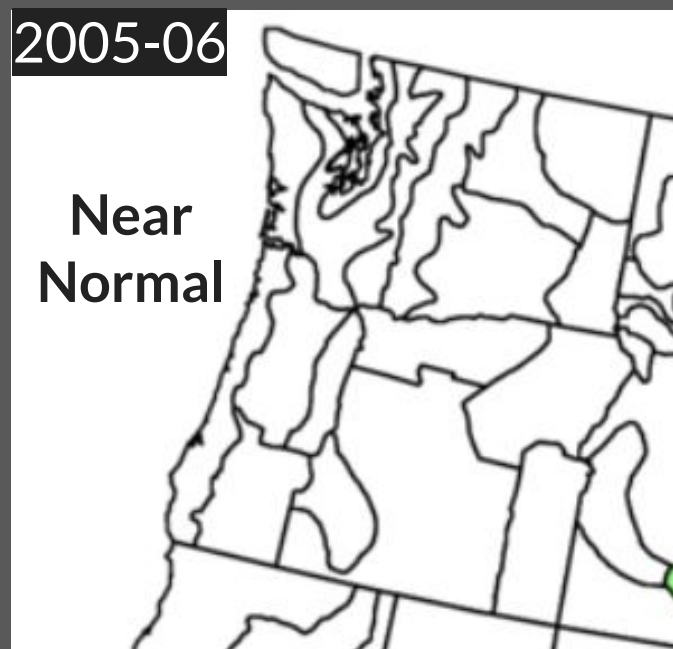
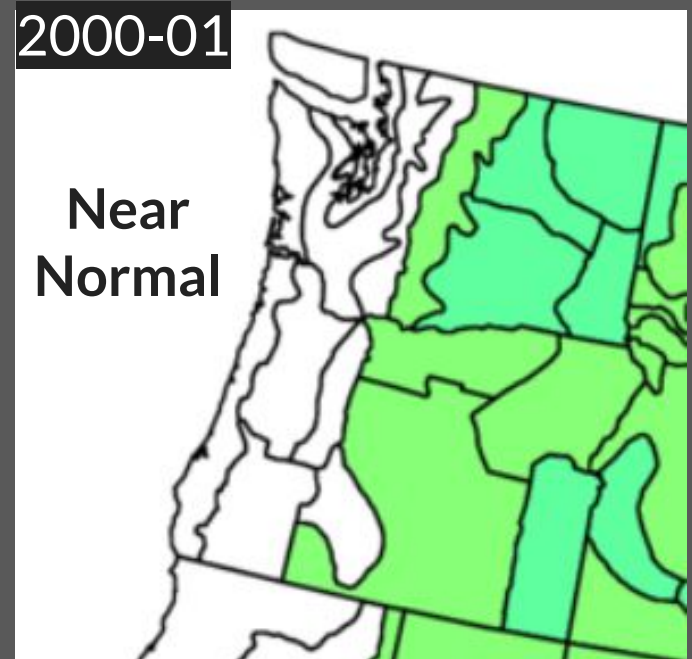
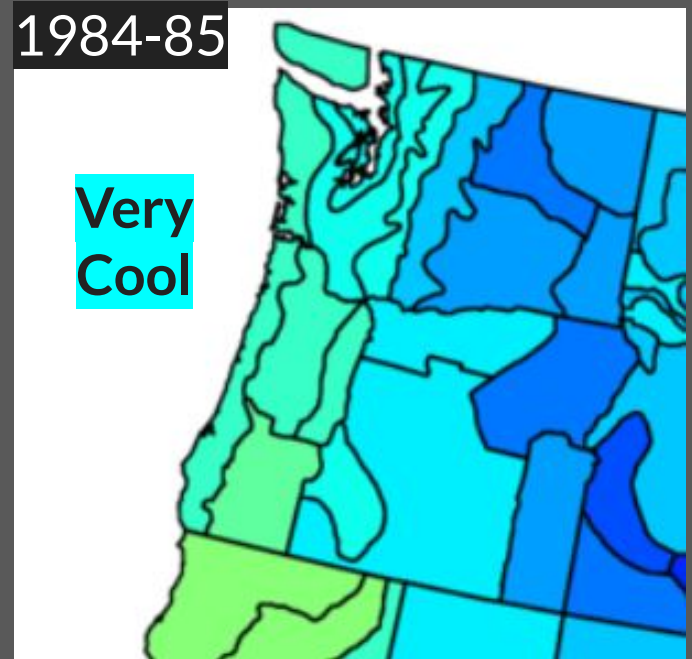
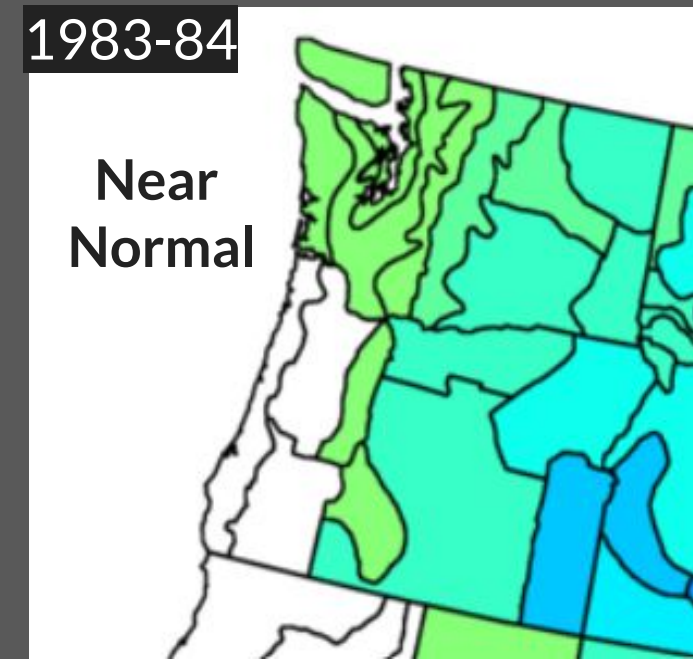
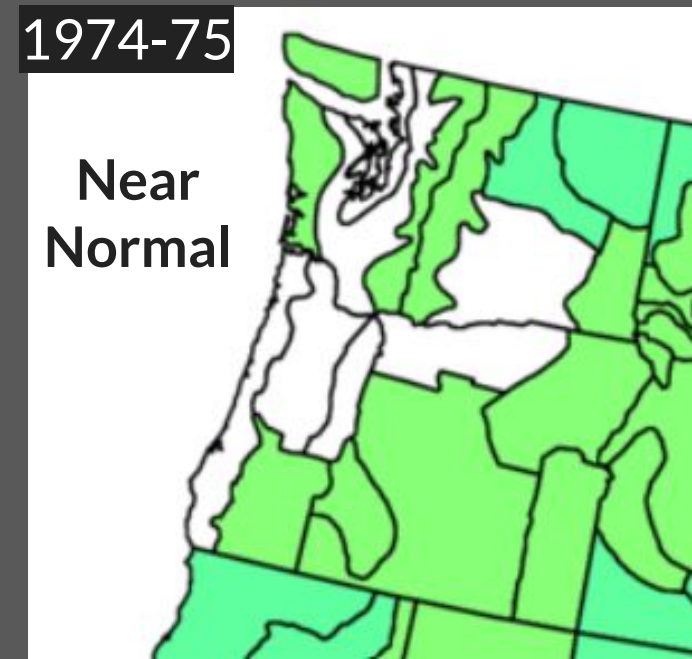
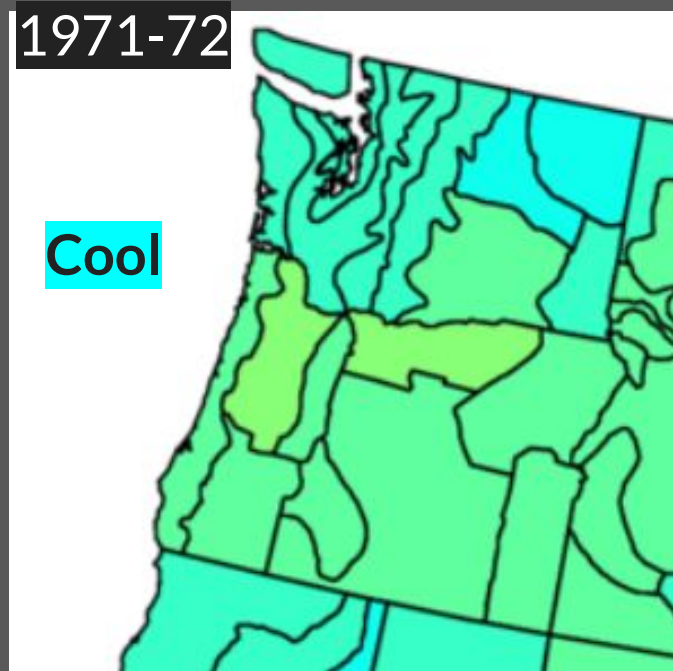
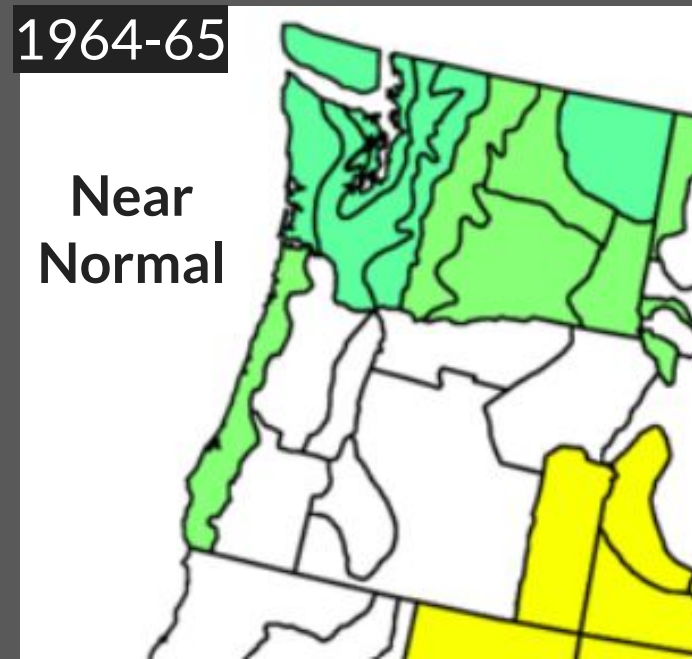
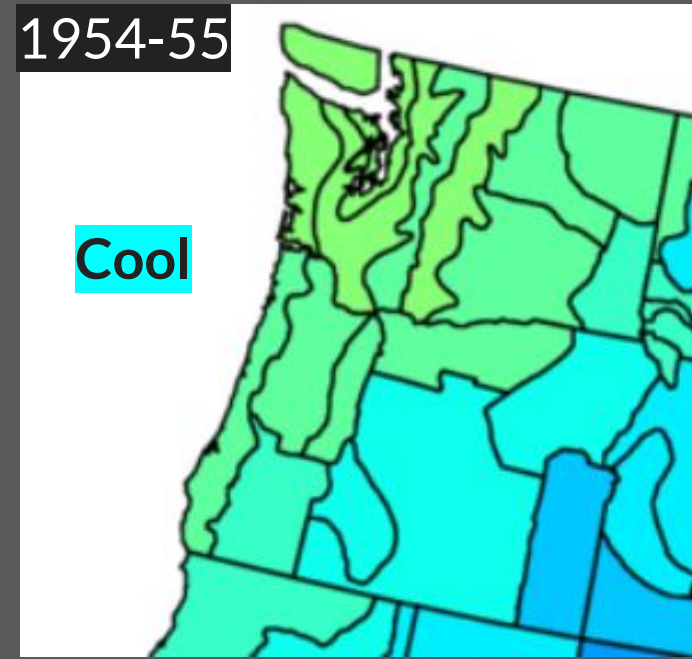


Weak La Nina: 5 consecutive overlapping 3-month periods with SST anomalies between -0.5 to -0.9 °C.



# Winter (DJF) Temperature History: **Weak La Niñas**

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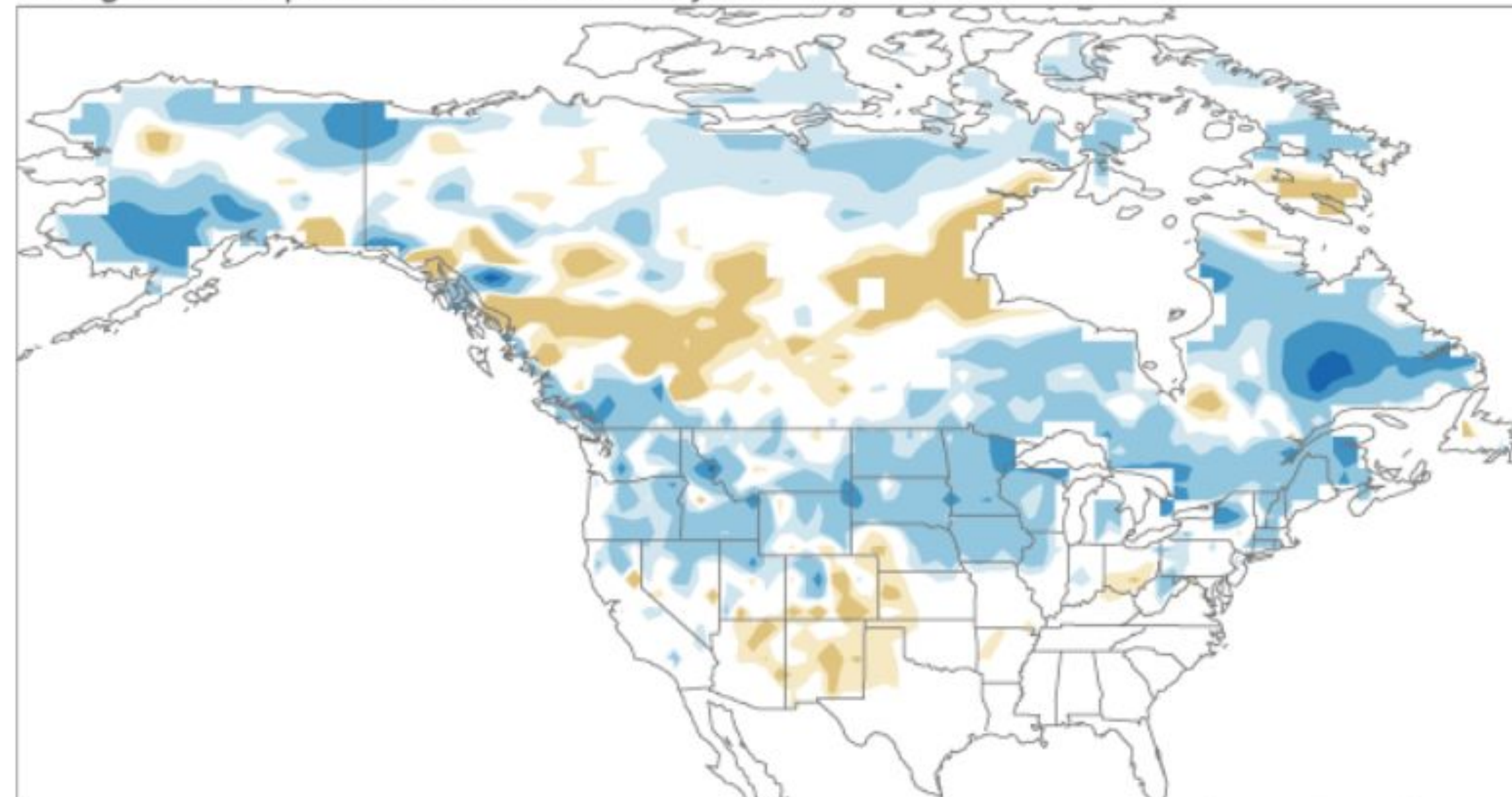
Weak La Nina: 5 consecutive overlapping 3-month periods with SST anomalies between -0.5 to -0.9 °C.



1950 - 2009 (missing two weak La Nina events).

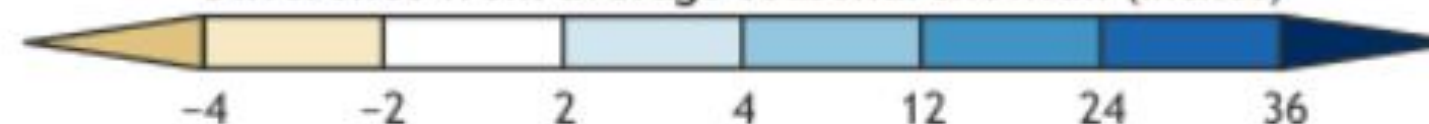
Shows 4 to 12 inches more snow than average for the OR and WA Cascades

Average snowfall patterns for weak La Niña years



October-April  
1950-51 to 2008-09

Difference from average seasonal snowfall (inches)



NOAA Climate.gov  
Data: Rutgers GSL

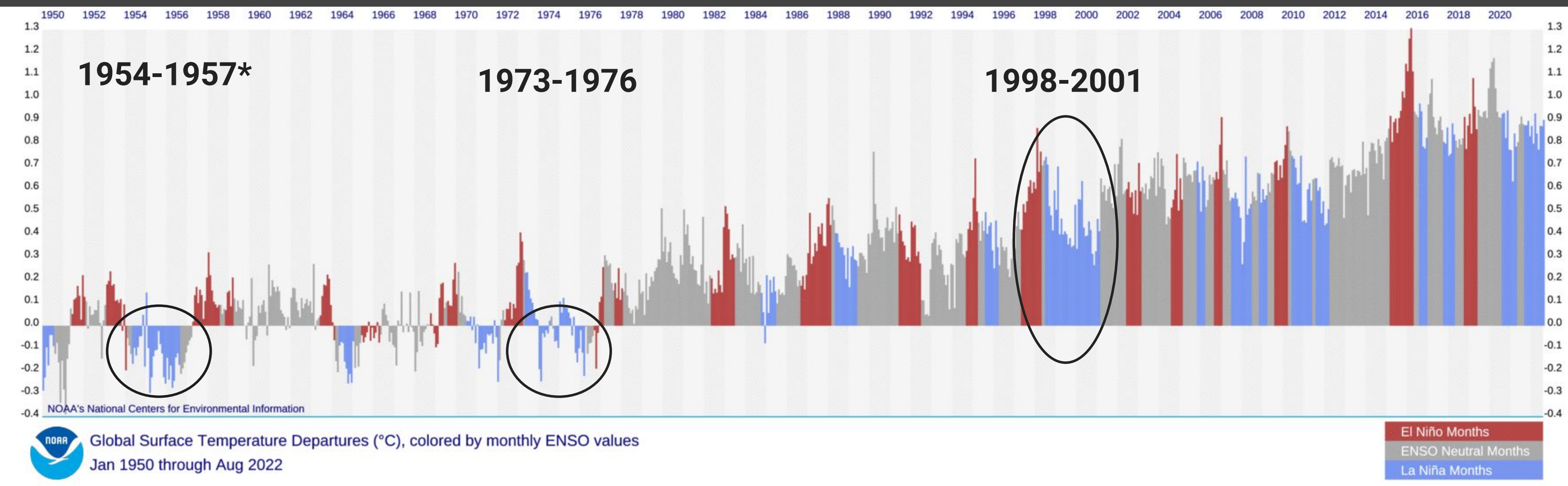
Snowfall departure from average for weaker La Niña winters (1950-2009). Blue shading shows where snowfall is greater than average and brown shows where snowfall is less than average. Climate.gov figure based on analysis at CPC using Rutgers gridded snow data.



# ENSO Status: 'Triple Dip' La Niña Advisory

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Monthly Global Temperature Departures (°C) since 1950.  
Blue shaded = La Nina Years, Red = El Nino Years.



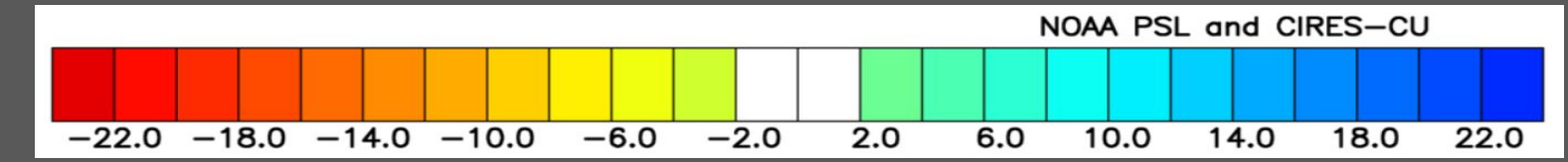
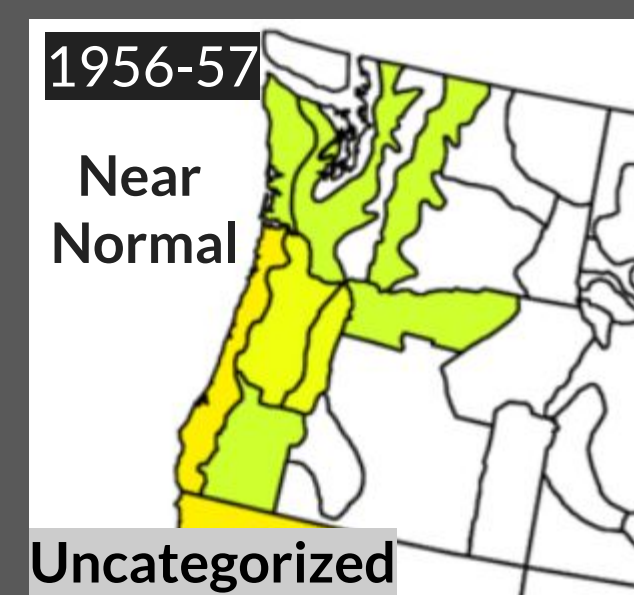
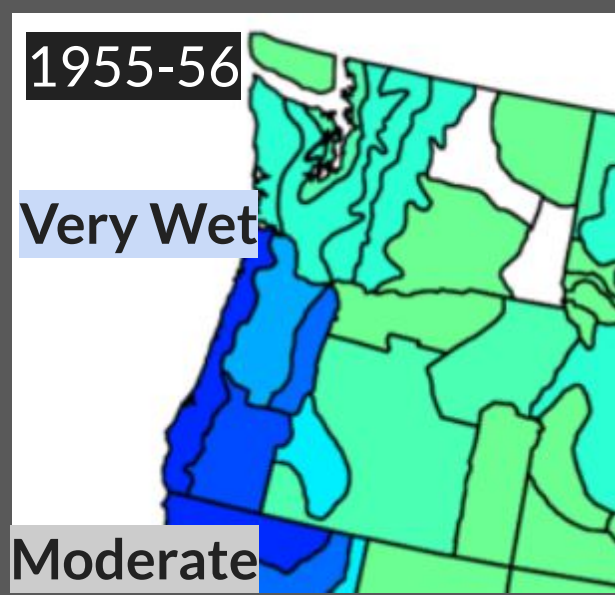
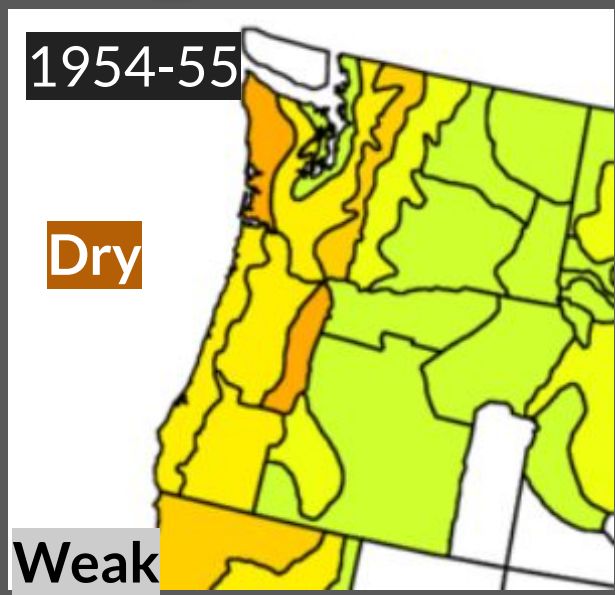
Three\* occurrences since 1950 - very small sample size

\* SST anomalies > -0.5 °C in Oct 1956

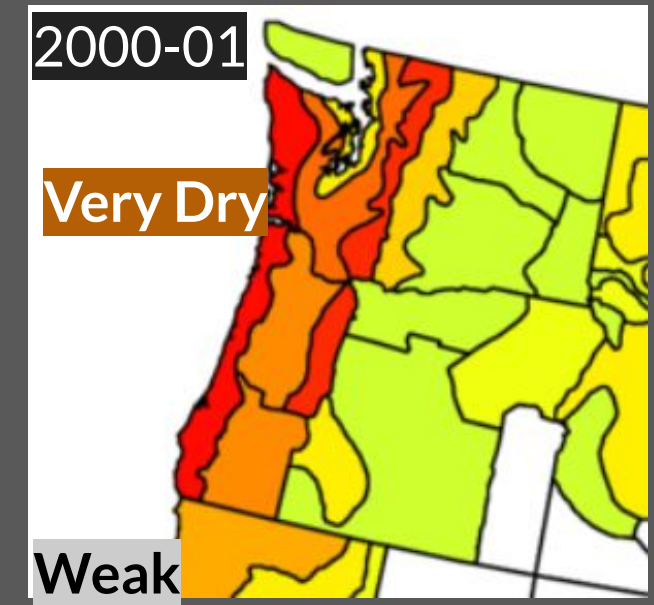
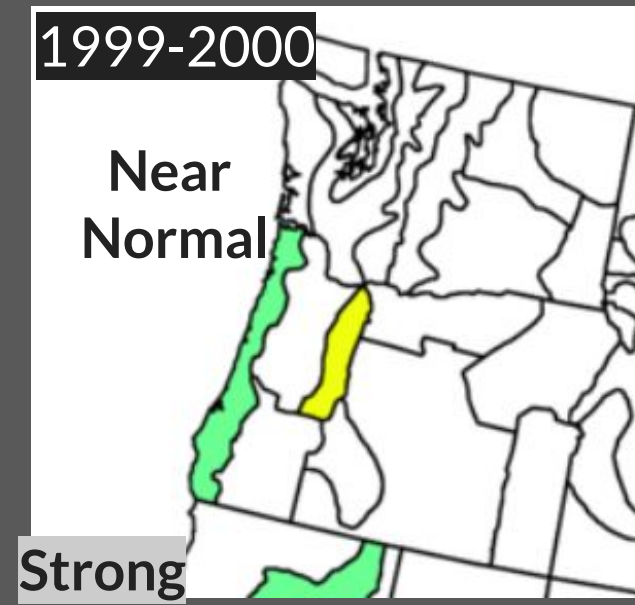
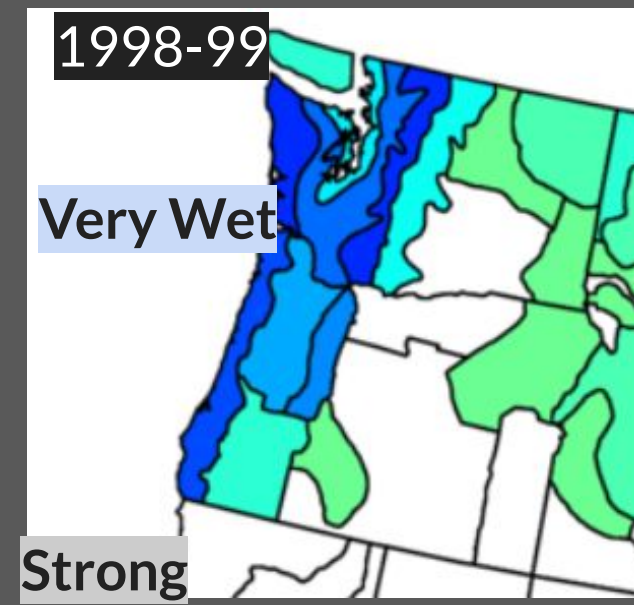
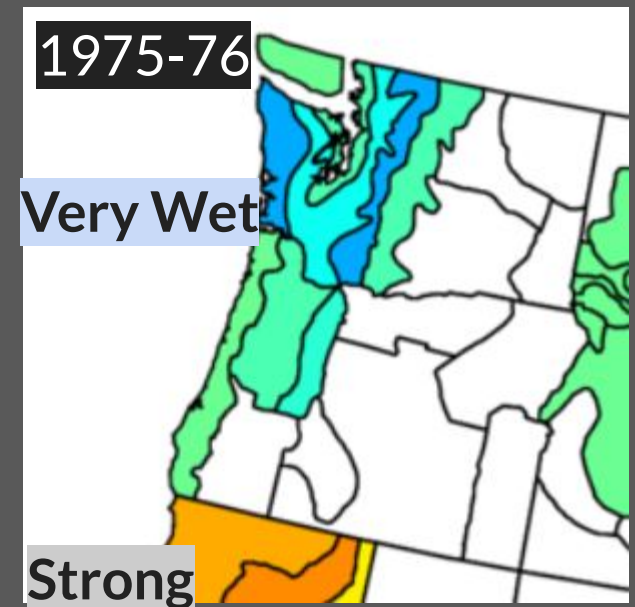
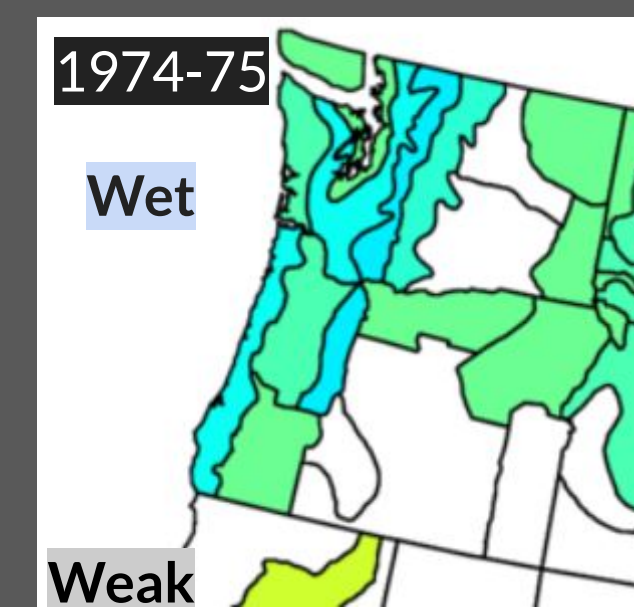
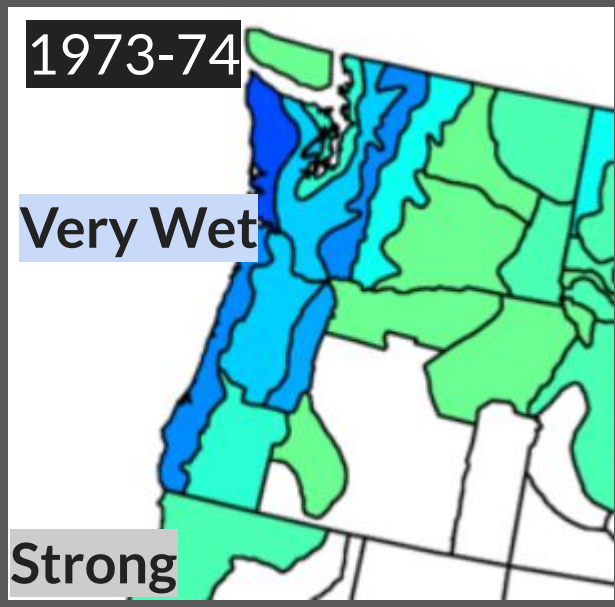


# Winter (DJF) Precipitation History: Triple Dip La Niñas

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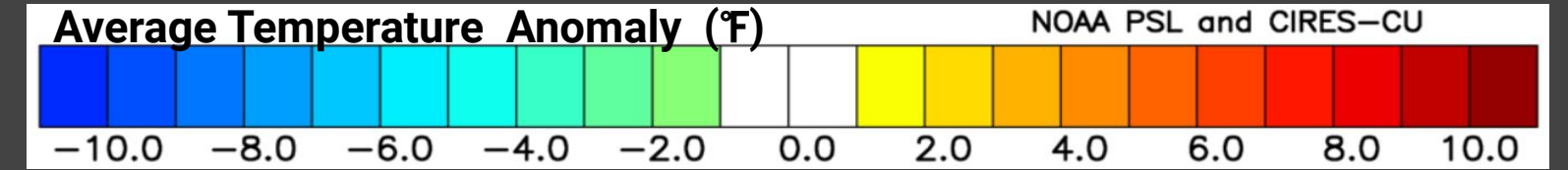
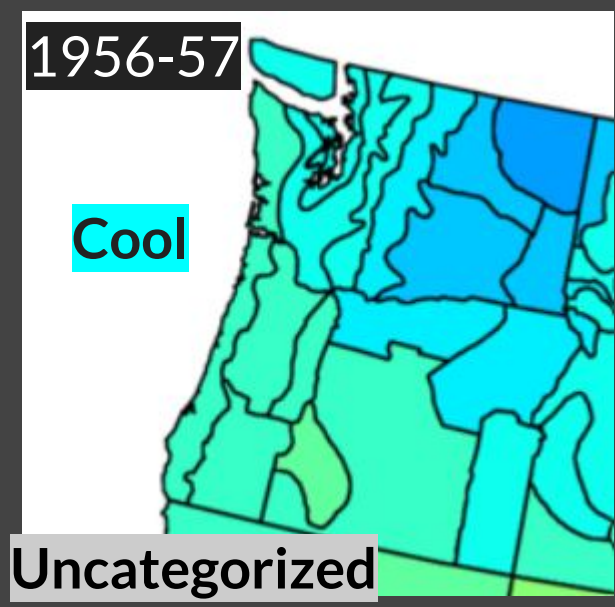
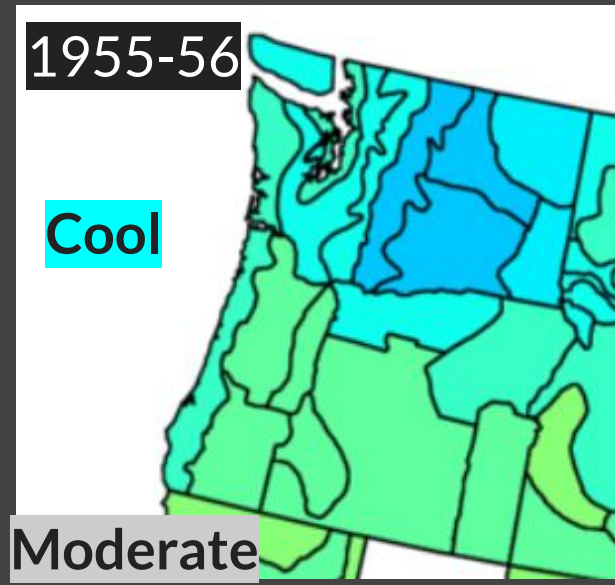
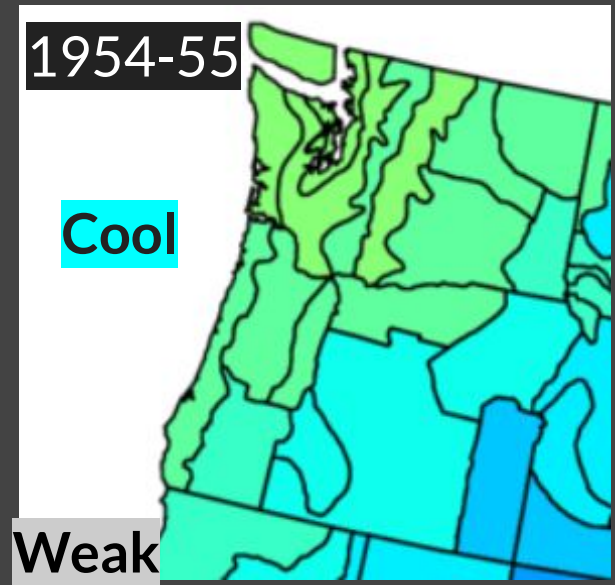
Type of La Niñas



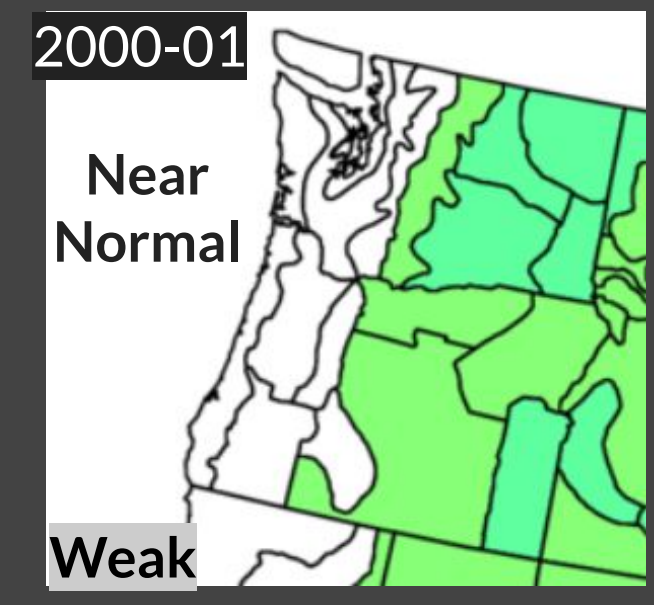
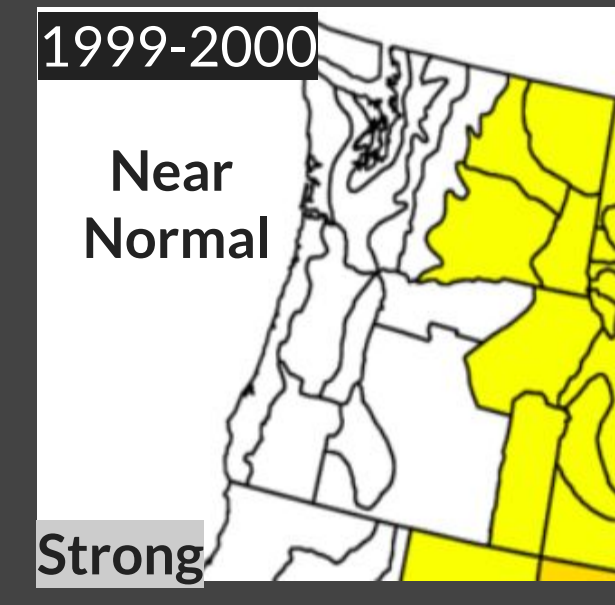
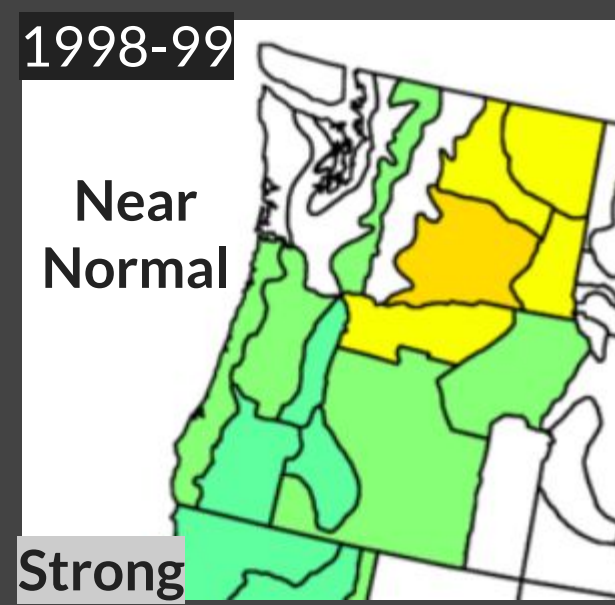
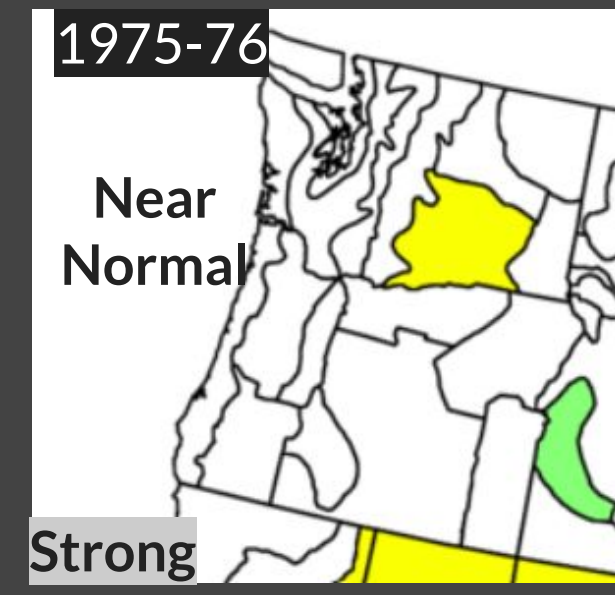
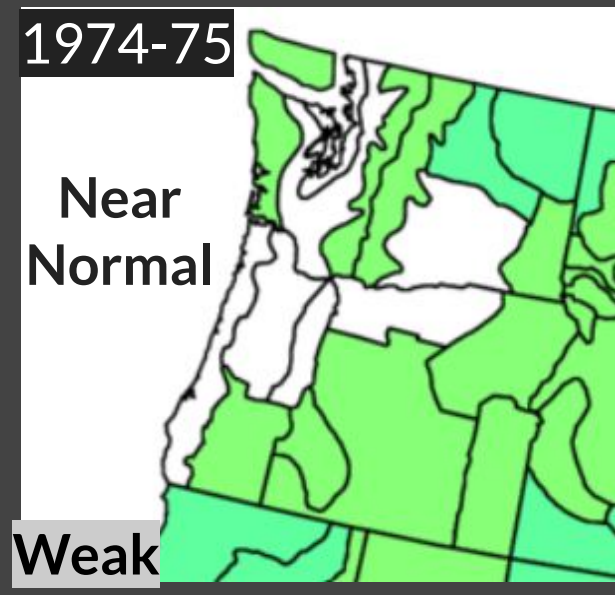
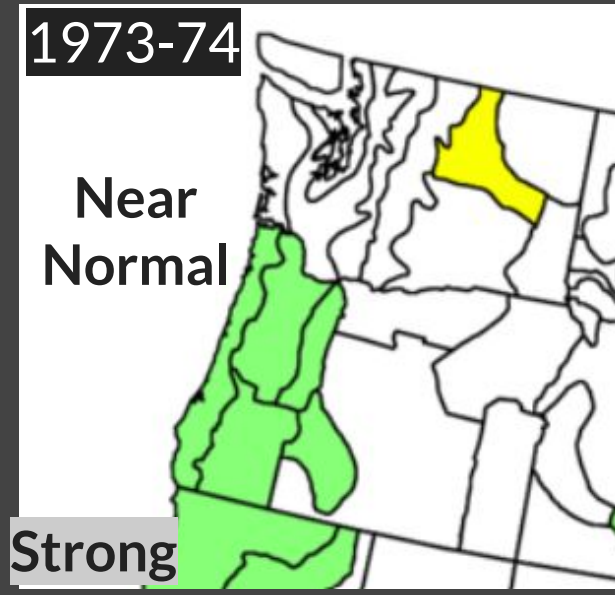


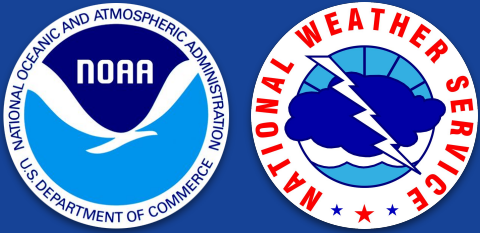
# Winter (DJF) Temperature History: Triple Dip La Niñas

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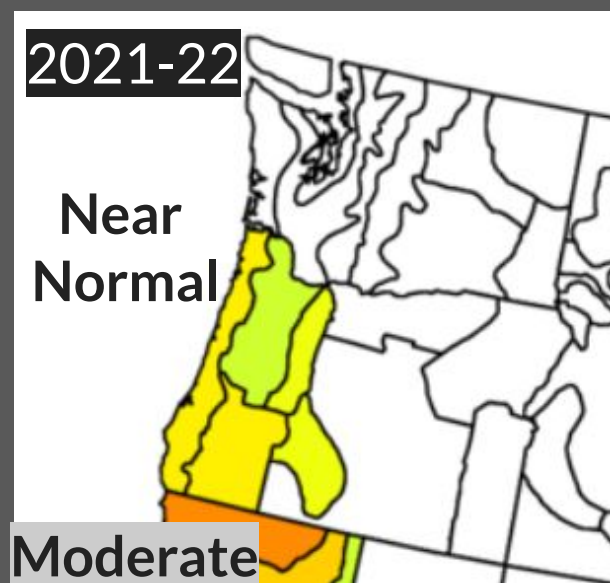
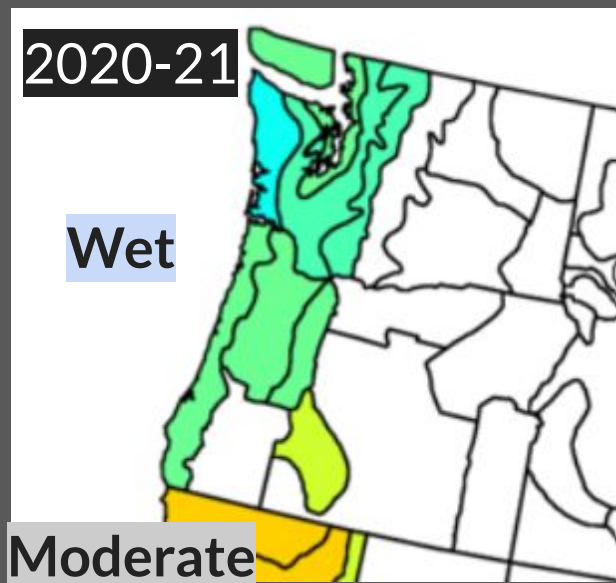
↑  
Type of La Niñas



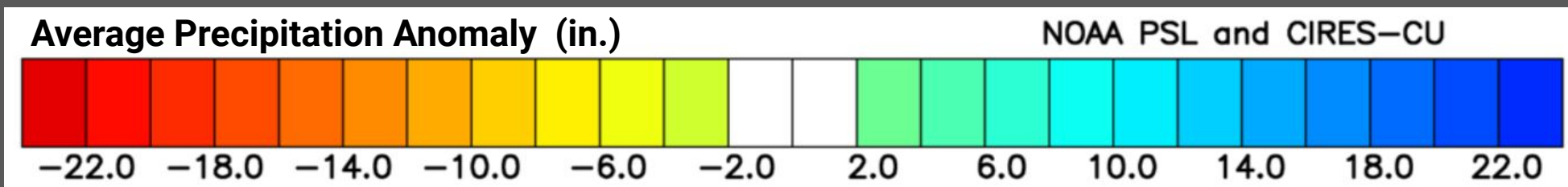


# Triple Dip La Niña: **in Progress**

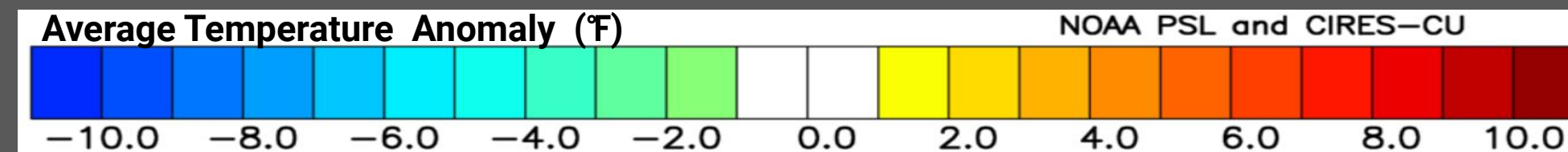
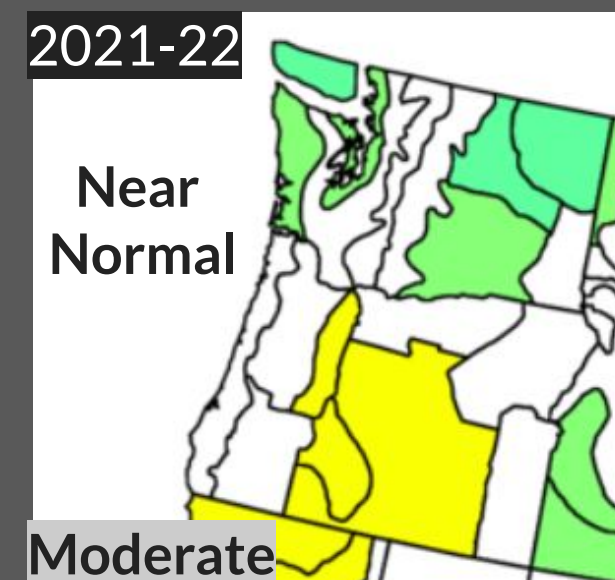
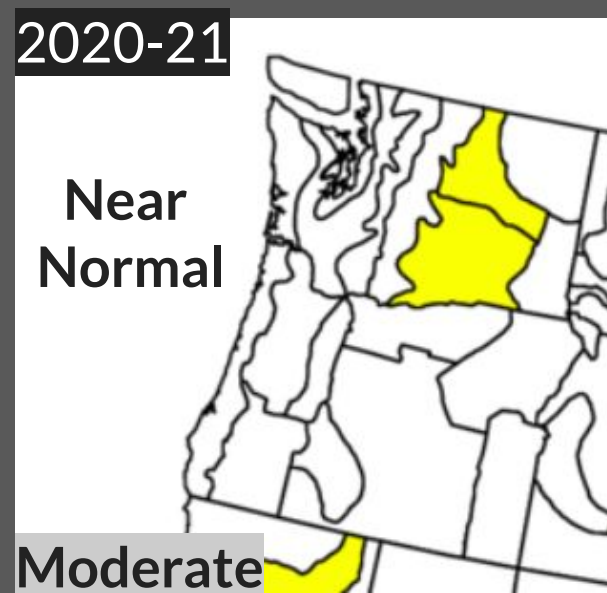
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Tuesday, October 25



← Winter (DJF) Precipitation



Winter (DJF) Temperature →



## Nov 2022

### Outlook Favors



Precipitation

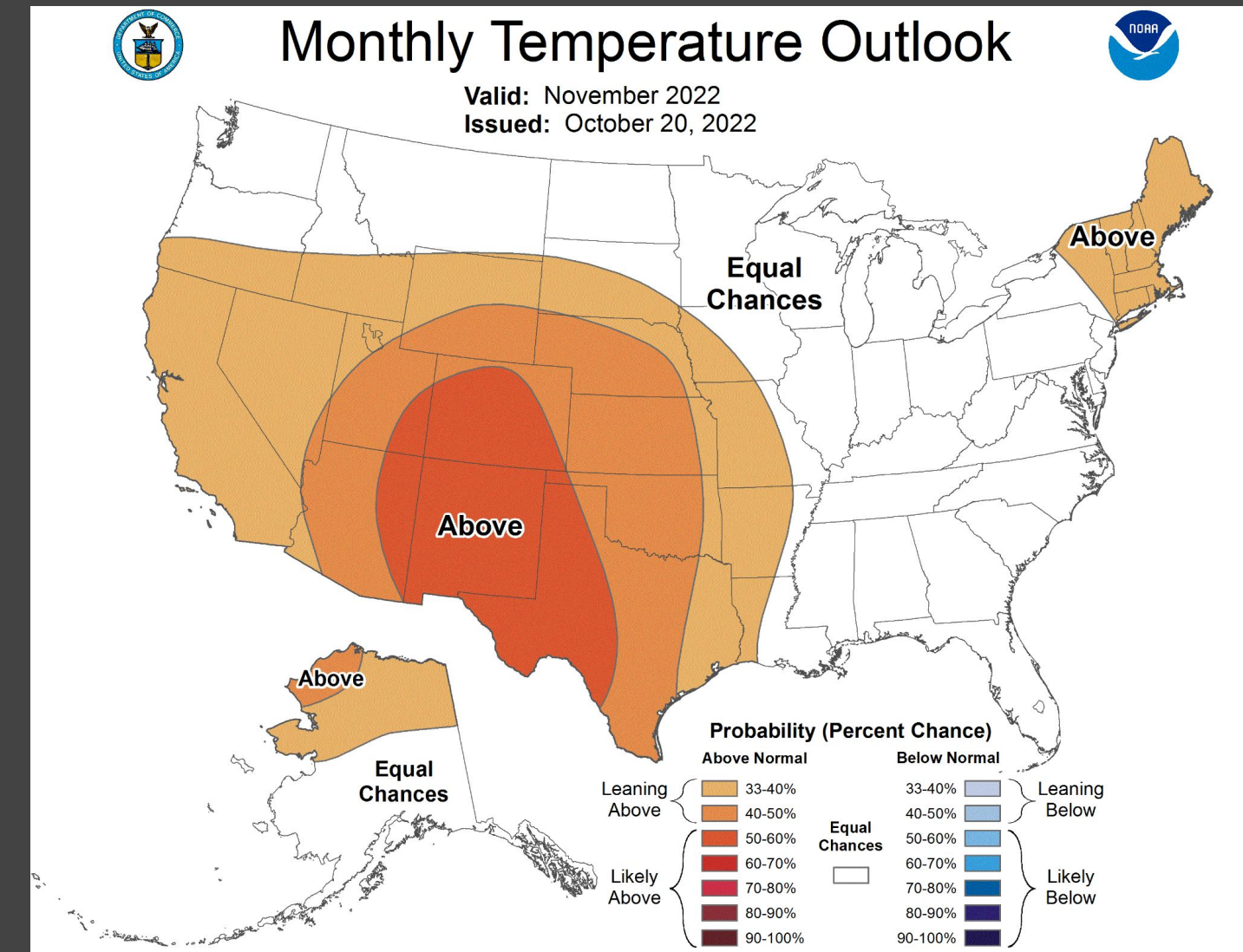
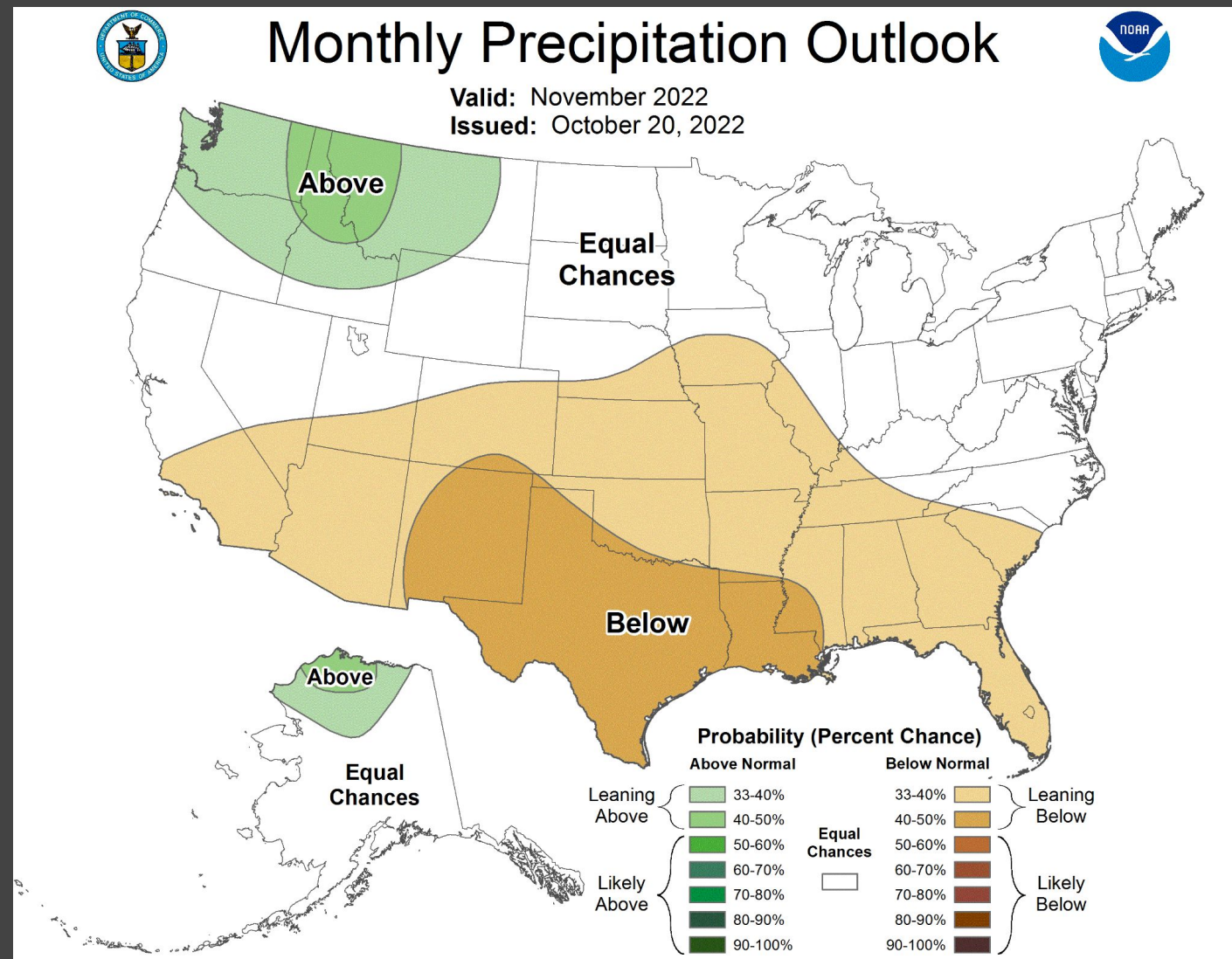
**North: Greater Chance for Above Normal**

**South: Equal Chances for Above, Near, or Below Normal**



Temperatures

**Equal Chances for Above, Near, or Below Normal**





# CPC Dec 2022 - Feb 2023: 3 Month Outlook

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Tuesday, October 25

## Dec-Feb

## Outlook Favors



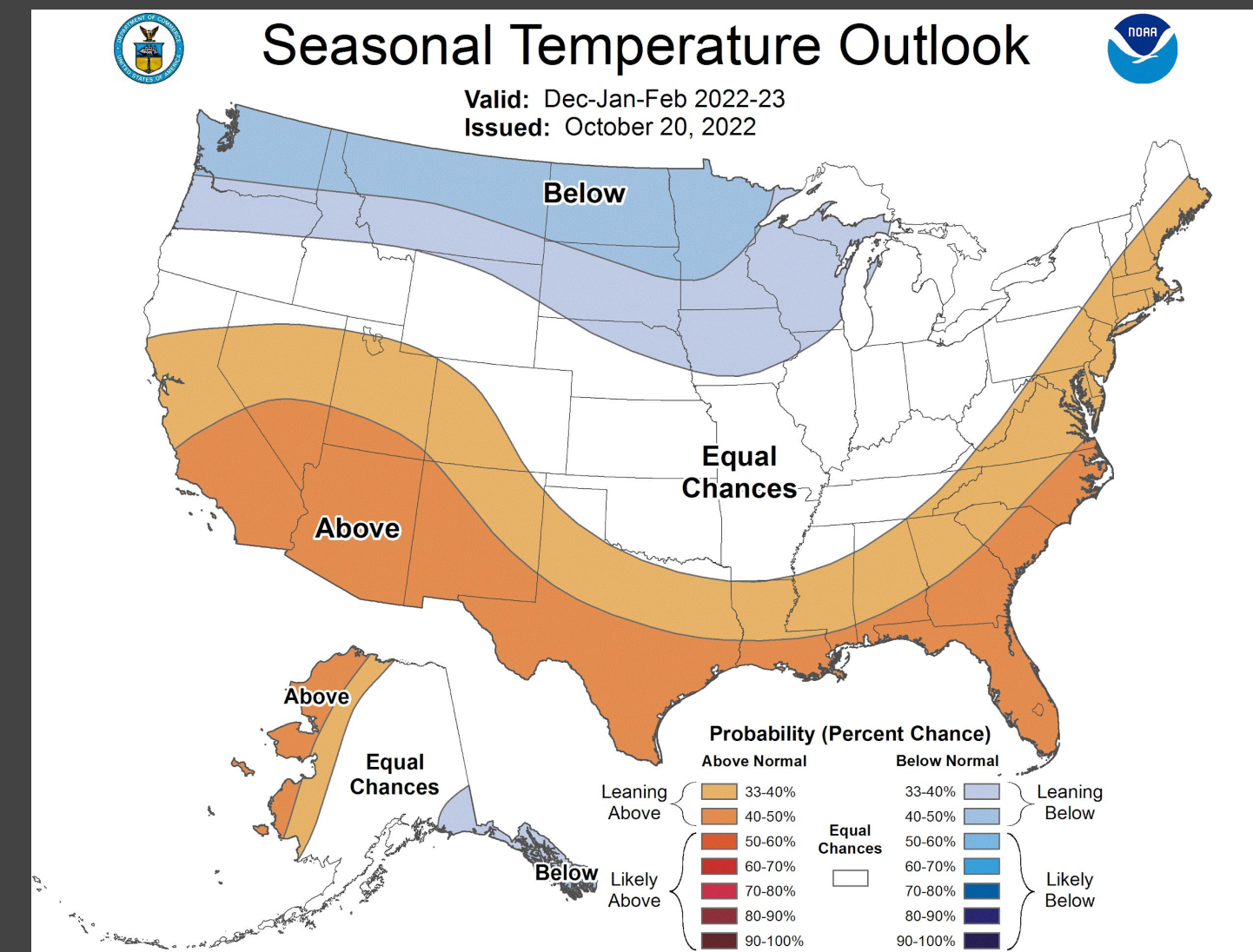
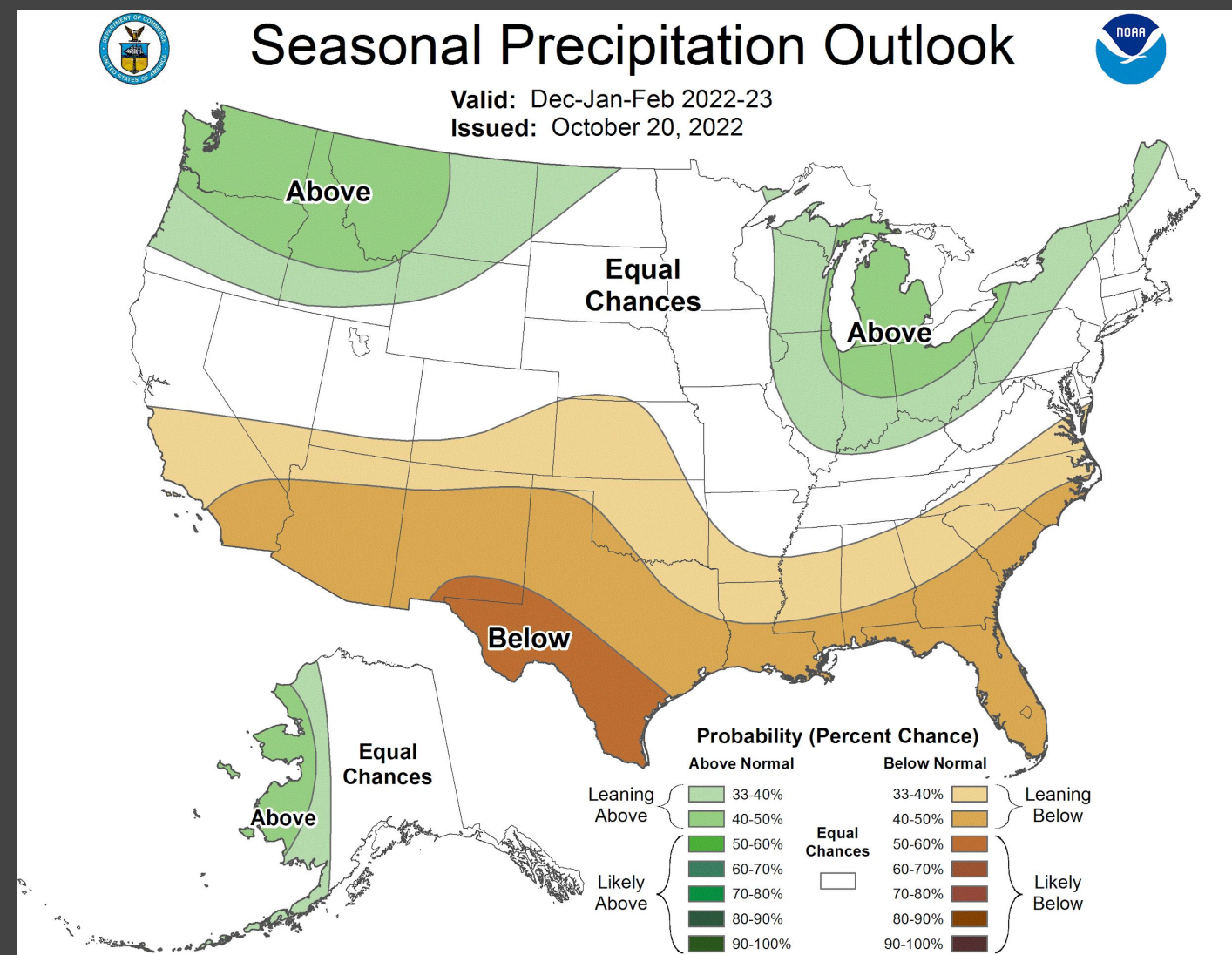
Precipitation

Greater Chances for Above Normal



Temperatures

Greater Chances for Below Normal



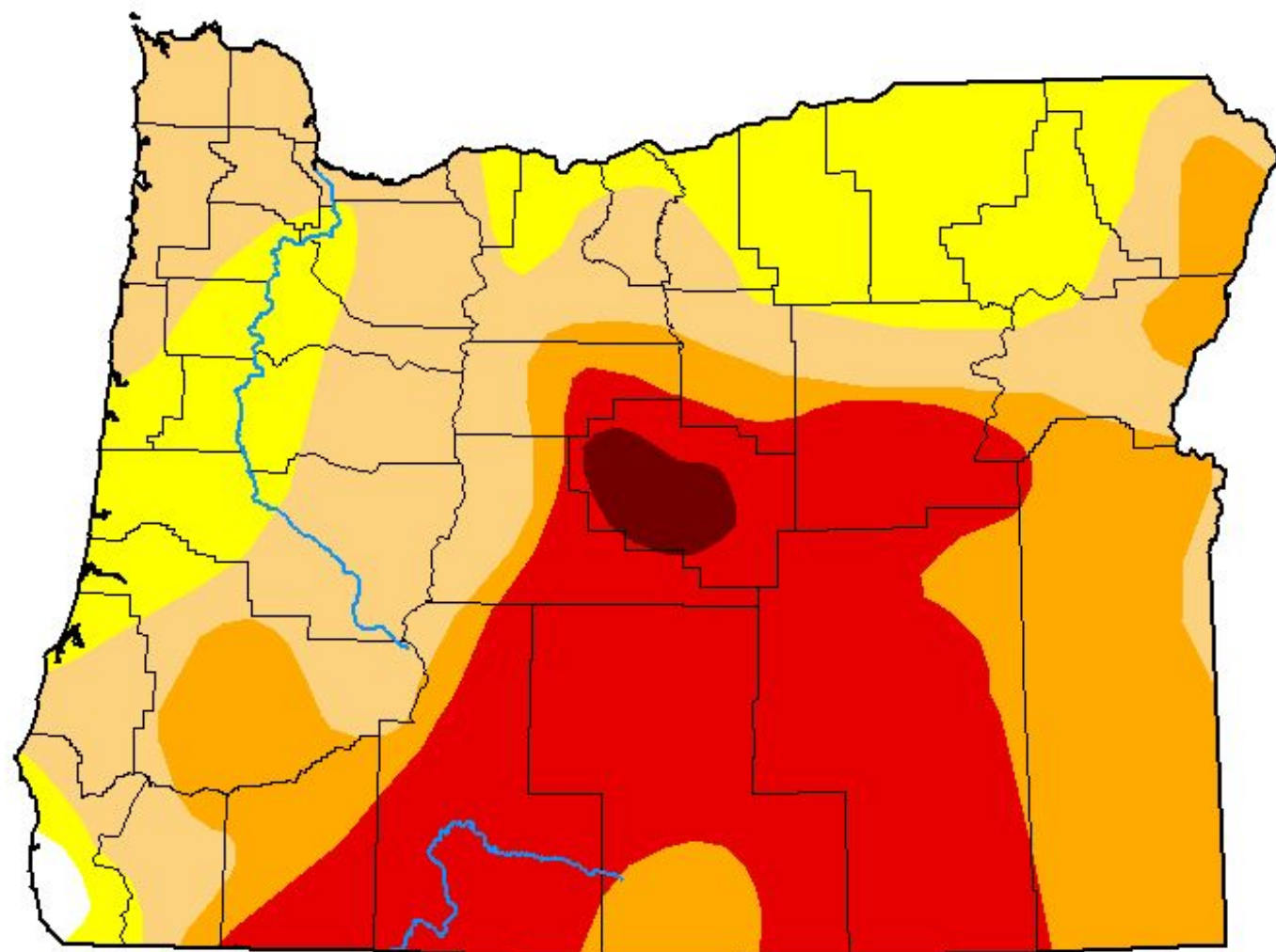


# Oregon Drought Monitor

Weather Forecast Office  
Portland, OR  
Tuesday, October 25

## U.S. Drought Monitor Oregon

**October 18, 2022**  
(Released Thursday, Oct. 20, 2022)  
Valid 8 a.m. EDT



### Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

### Author:

Adam Hartman  
NOAA/NWS/NCEP/CPC



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)



**D0 - Abnormally Dry**  
• Ski season is impacted

**100.0%**  
of OR



**D1 - Moderate Drought**  
• Some fields are left fallow  
• Water levels begin to decline; recreation and other uses are impacted

**100.0%**  
of OR



**D2 - Severe Drought**

- Pastures are brown; hay yields are down, and prices are up; producers are selling cattle
- Fire risk increases
- Marshes are drying up, little water is available for waterfowl and wildlife; bears are moving into urban areas

**96.5%**  
of OR



**D3 - Extreme Drought**

- Planting is delayed
- Wildfire activity is high
- Reservoirs and lakes are very low compared to normal; irrigation water is scarce

**72.1%**  
of OR



**D4 - Exceptional Drought**  
• Power generation is reduced

**26.6%**  
of OR



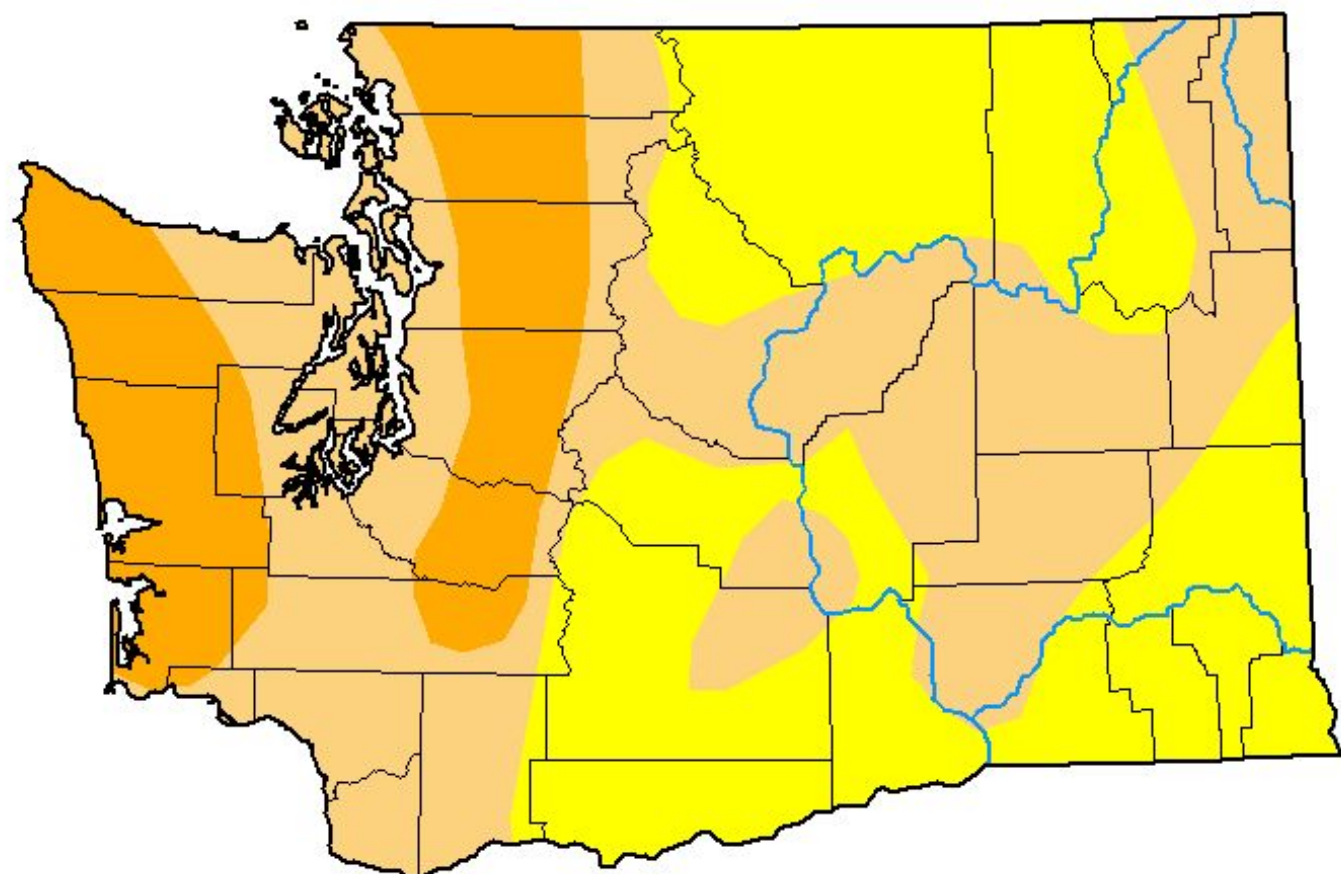


# Washington Drought Monitor

Weather Forecast Office  
Portland, OR  
Tuesday, October 25

## U.S. Drought Monitor Washington

**October 18, 2022**  
(Released Thursday, Oct. 20, 2022)  
Valid 8 a.m. EDT



### Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

### Author:

Adam Hartman  
NOAA/NWS/NCEP/CPC



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)



### D0 - Abnormally Dry

- Ski season is shortened; visitation is lower

**100.0%**  
of WA  
(D0-D4)



### D1 - Moderate Drought

- Fire danger increases
- Possible dust storms
- River flow is low

**38.4%**  
of WA  
(D1-D4)



### D2 - Severe Drought

- Wheat and corn are stunted; harvest is early
- Producers feed cows earlier; silage is harder to find
- Number of wildfires increases; grasses are brown

**0.0%**  
of WA  
(D2-D4)



### D3 - Extreme Drought

- Crop and hop yields are poor; wheat protein content is higher
- Unprecedented wildfires occur; call is issued for citizen volunteers to fight fires; firefighting funds are running out
- Tourism is reduced, and recreation is altered

**0.0%**  
of WA  
(D3-D4)



### D4 - Exceptional Drought

- Washington has experienced little or no exceptional (D4) drought, so there are no D4-level drought impacts recorded in the Drought Impact Reporter.

**0.0%**  
of WA  
(D4)



# CPC Oct - Dec 2022: Seasonal Drought Outlook

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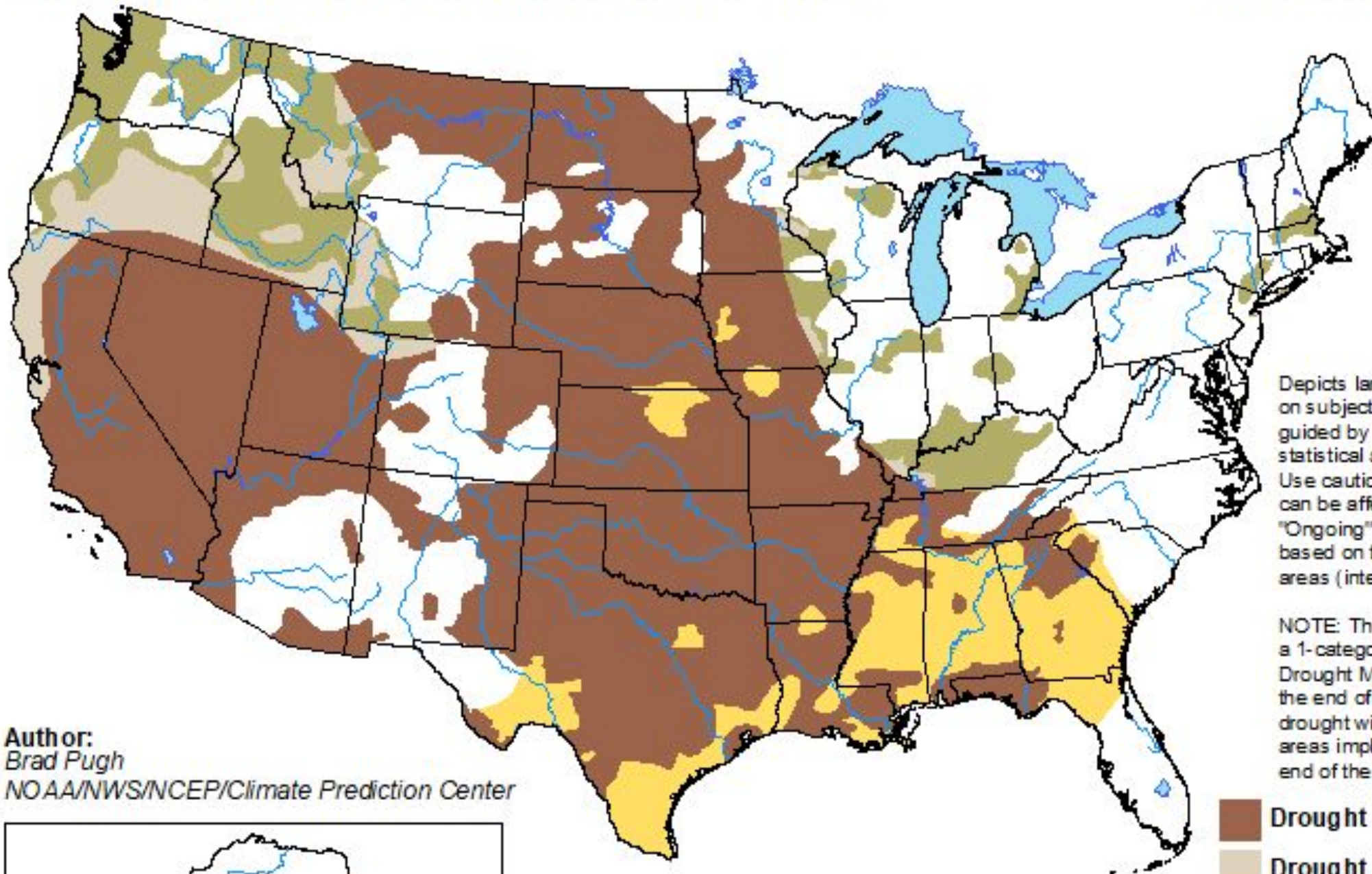
## Oct-Jan

## Outlook Favors

**Drought conditions improving or even ending across much of Oregon & Washington**

### U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for October 20, 2022 - January 31, 2023  
Released October 20, 2022

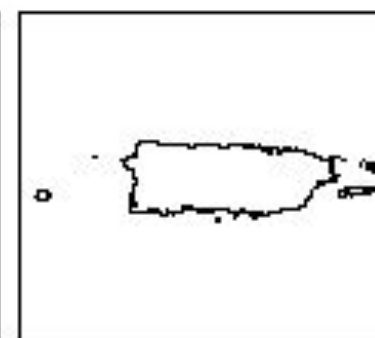
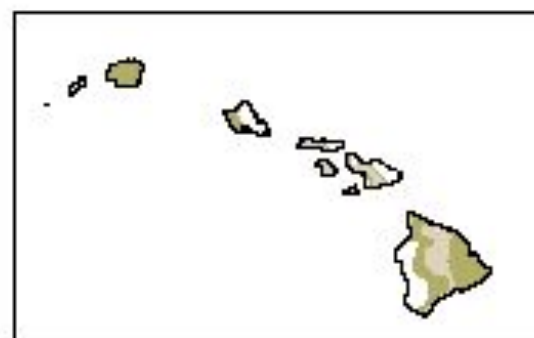


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely

Author:  
Brad Pugh  
NOAA/NWS/NCEP/Climate Prediction Center



<http://go.usa.gov/3eZ73>



NATIONAL WEATHER SERVICE  
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION



## Climate News

- 75% chance of La Niña during Northern Hemisphere winter (December-February) 2022-23, with 54% chance for ENSO-neutral in February-April 2023 (13 Oct 2022)
- NOAA still expects above-normal Atlantic hurricane season (4 Aug 2022)
- Updated Atlantic hurricane season outlook (4 Aug 2022)
- 47th Climate Diagnostics and Prediction Workshop Announcement (15 Apr 2022)

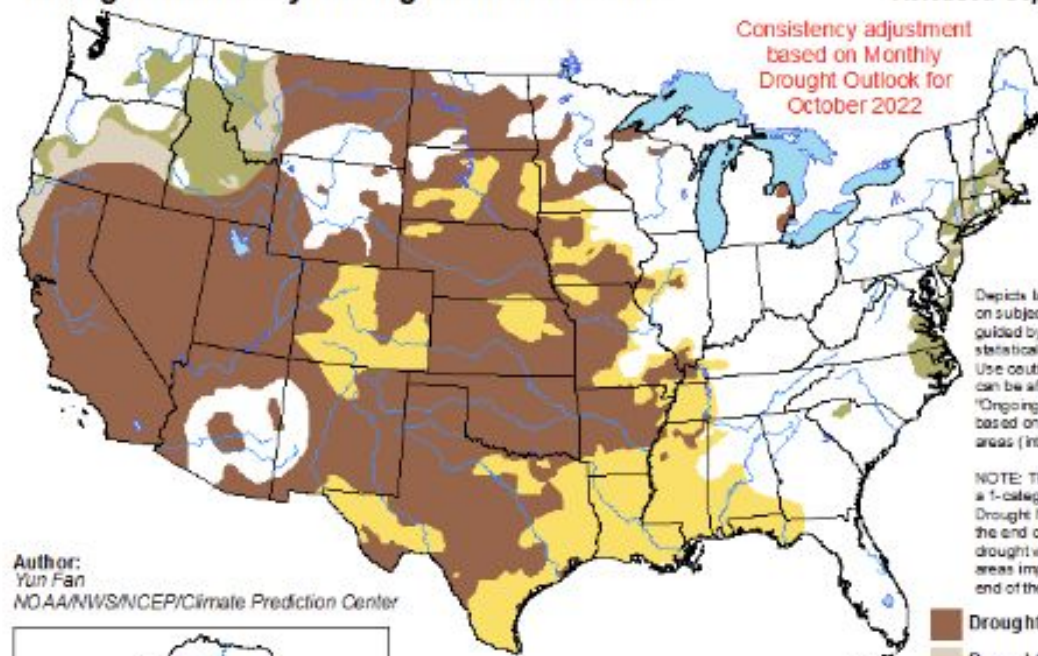
Click on product title to go to product page. Move cursor over product parameter name to display the graphic -- click to enlarge. Links to these same products are also available below.

6-10 Day Outlook (Interactive) Temperature      Precipitation	One Month Outlook (Interactive) Temperature      Precipitation
8-14 Day Outlook (Interactive) Temperature      Precipitation	Three Month Outlook (Interactive) Temperature      Precipitation
Week 3-4 Outlooks Temperature      Exp. Precipitation	8-14 Day U.S. Hazards Outlook Composite      Probabilistic: Temp      Precip      Snow      Wind
U.S. Drought Information Monitor      Monthly Outlook      Seasonal Outlook	Global Tropics Hazards Outlook Weeks 2 and 3

### U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for October 1 - December 31, 2022  
Released September 30, 2022

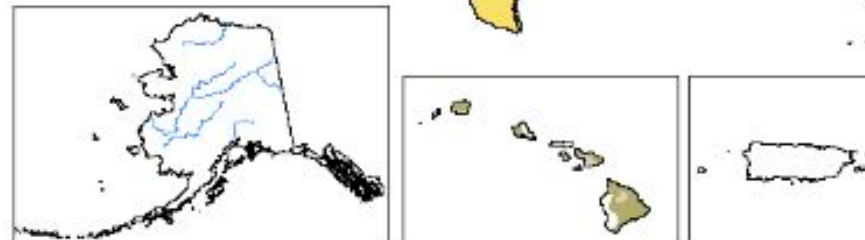
Consistency adjustment  
based on Monthly  
Drought Outlook for  
October 2022



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short-lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (inside of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:  
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NOAA/NWS/NCEP/Climate Prediction Center



- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely



<http://go.usa.gov/3eZ73>



# CPC Interactive Outlooks: 1 Month Outlook

Weather Forecast Office  
Portland, OR  
Tuesday, October 25

6-10 Day Outlook (Interactive) Temperature Precipitation | One Month Outlook (Interactive) Temperature Precipitation

INTERACTIVE DISPLAY - UPDATED: 30 SEP 2022

Lake Oswego, OR, USA (Clacka X) [Search Icon]

7 Day Forecast Lake Oswego, Oregon

Three Category Temperature Outlook  
Normal Maximum Temperature: **64**  
Normal Minimum Temperature: **44**

Above Normal	50%
Below Normal	17%
Near Normal	33%

Three Category Precipitation Outlook  
Normal Precipitation: **3.67**

Above Normal	33%
Below Normal	33%
Near Normal	34%

Monthly Outlook  
October 2022

Temperature Outlook Opacity: 60% Precipitation Outlook

Temperature: Below Normal, Above Normal

POWERED BY esri Esri, HERE, FAO, NOAA

type location in search window

Click Link

Can see the outlook forecast for all three categories at a particular location.

Also, the climatological normals



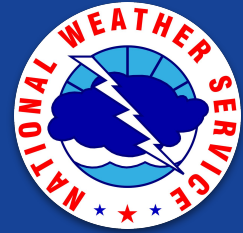
# Climate Prediction Expectation

Weather Forecast Office  
Portland, OR  
Tuesday, October 25

Climate predictions can have skill in predicting seasonal totals and averages. However, most impacts are associated with short-duration storm systems.



# NWS Updates



# NWS Marine Forecast Update: **Marine Zones**

Weather Forecast Office  
Portland, OR  
Tuesday, October 25

- New marine zone configurations were **implemented in September** with breakpoints at Cape Falcon, OR and Cape Foulweather, OR.
- Created 6 zones, excluding the Columbia River Bar, instead of the previous 4 zones.
- More precise and representative wording is used in the Coastal Waters Forecast to inform mariners of adverse conditions.

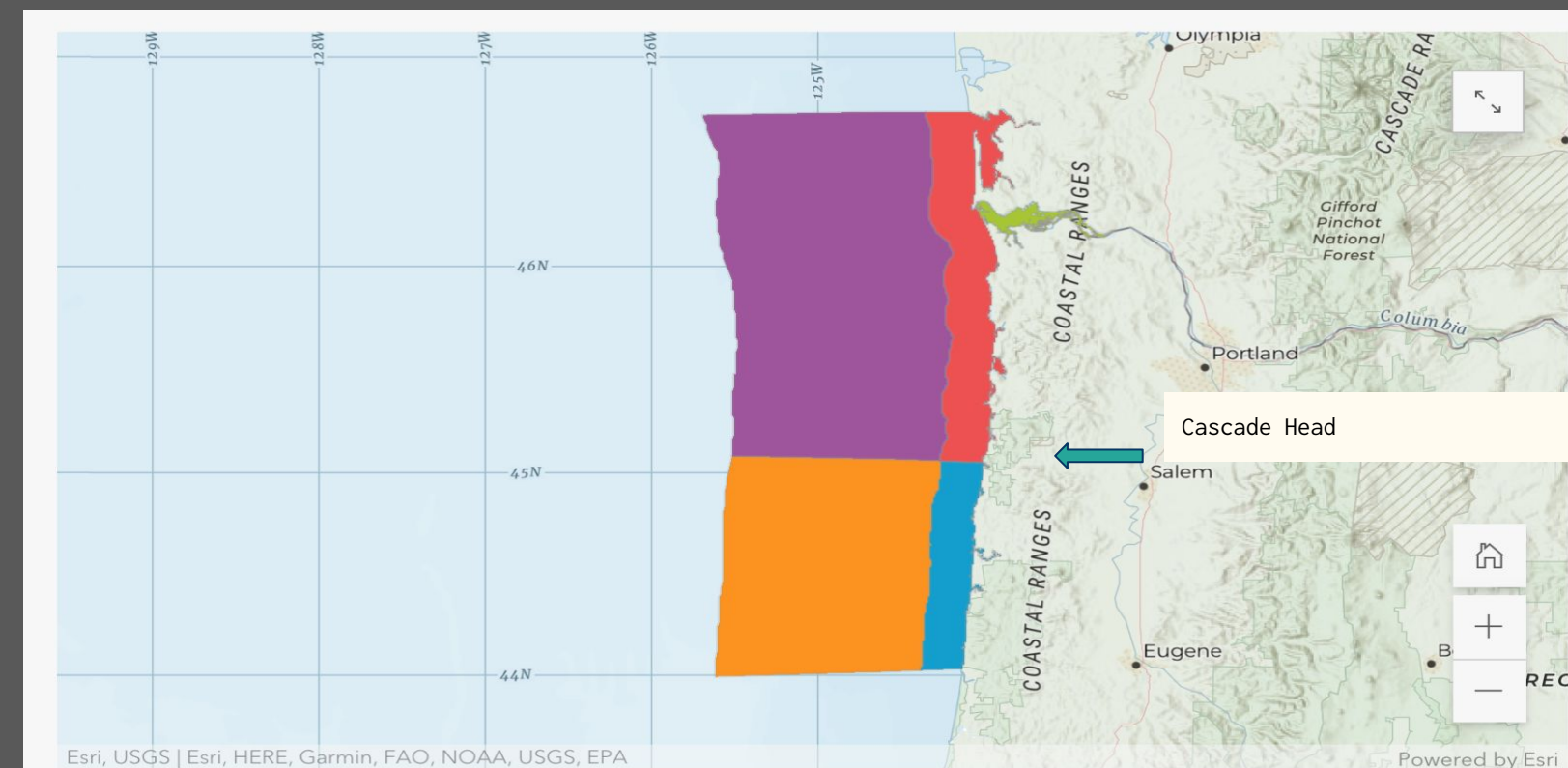


Figure 1: NWS Portland Current Marine Zone Configuration

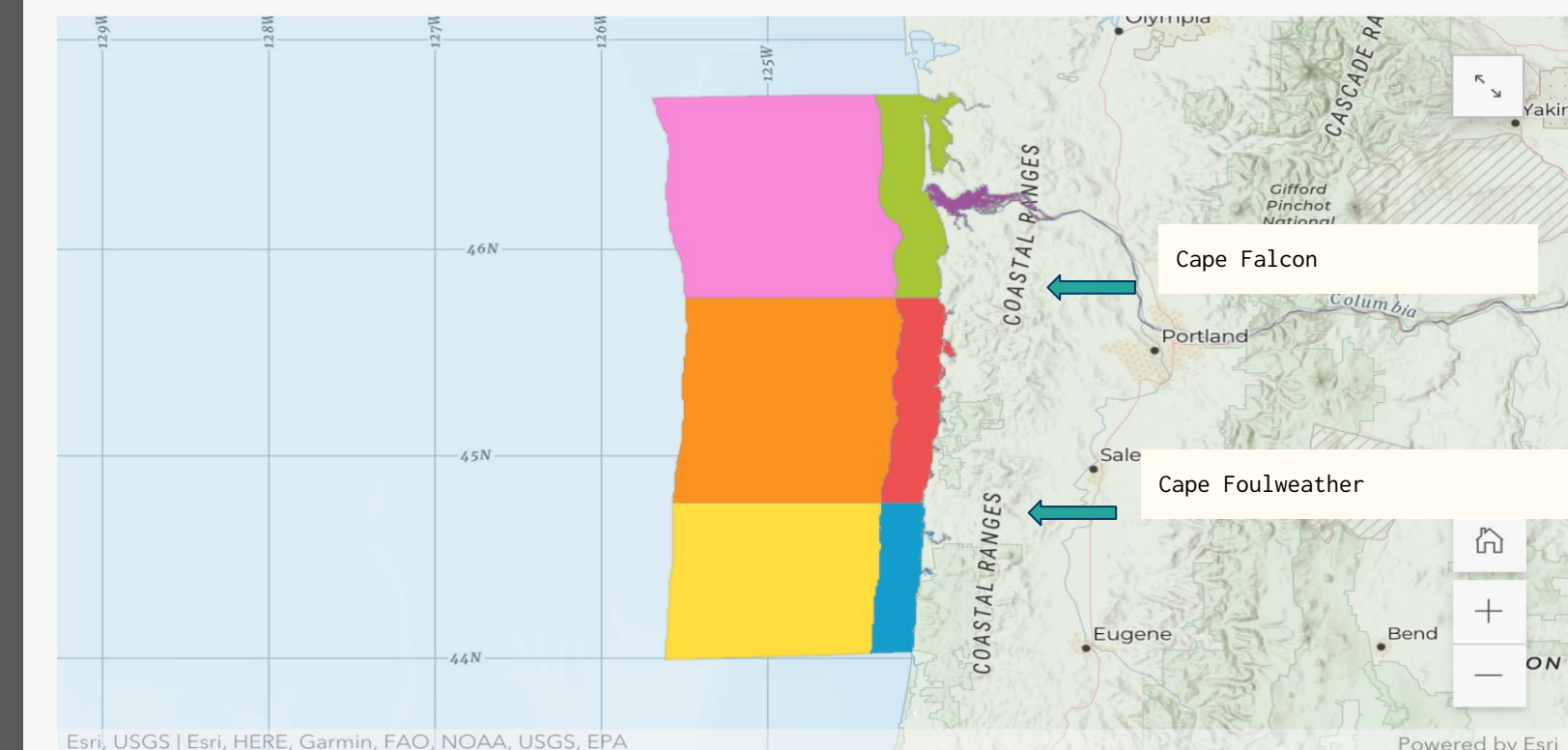


Figure 2: NWS Portland Proposed Marine Zone Configuration



# NWS Marine Forecast Update: **Marine Website**

Weather Forecast Office  
Portland, OR  
Tuesday, October 25

**Marine** Portland, OR  
Weather Forecast Office

[Weather.gov](#) > [Portland, OR](#) > Marine

Current Hazards | Current Conditions | Radar | Forecasts | Rivers and Lakes | Climate and Past Weather | Local Programs

Forecasts | Observations | Warnings & Advisories | Forecast Guidance | Education & Outreach

Coastal Waters Forecast | Coast Guard Bar Obs | Marine Histogram | Wave Forecast

<p><b>Coastal Waters Forecasts</b></p> <ul style="list-style-type: none"> <li>S Washington, N Oregon</li> <li>N Washington &amp; Puget Sound</li> <li>S Oregon</li> <li>N California</li> <li>Central California</li> <li>S California</li> <li>Extreme S California</li> <li>United States Marine Forecast</li> </ul>	<p><b>Surf, Misc. Forecasts, and Weather Transmitters</b></p> <ul style="list-style-type: none"> <li>Surf - Pacific, Clatsop, and Lincoln County</li> <li>Surf - Curry County southward</li> <li>Quicklook Forecast</li> <li>NOAA Radio Transmitter - Oregon</li> <li>NOAA Radio Transmitter - Washington</li> </ul>
<p><b>Offshore and High Seas Forecasts - OPC</b></p> <ul style="list-style-type: none"> <li>Washington/Oregon</li> <li>United States (Graphic interface)</li> <li>Pacific</li> <li>Pacific and Atlantic (Graphic interface)</li> <li>Current Sea State Maps</li> <li>Pacific Surface Analysis</li> <li>24-hour Wind &amp; Wave Forecast</li> </ul>	<p><b>Forecast Discussions</b></p> <ul style="list-style-type: none"> <li>Portland Forecast Discussion</li> <li>Seattle Forecast Discussion</li> <li>Medford Forecast Discussion</li> </ul>
<p><b>NOS Tide Predictions</b></p> <ul style="list-style-type: none"> <li>Toke Point - Willapa Bay, WA</li> <li>Astoria, OR</li> <li>Garibaldi, OR</li> <li>South Beach - Newport, OR</li> <li>NOS Tide Predictions Homepage</li> </ul>	<p><b>NOS Tidal Current Predictions</b></p> <ul style="list-style-type: none"> <li>Columbia River - Sand Island Tower (midchannel)</li> <li>Tillamook Bay Entrance</li> <li>Yaquina Bay Entrance</li> <li>Heceta Head</li> <li>NOS Current Predictions Homepage</li> </ul>

New website: <https://www.weather.gov/pqr/Marine>

Site Includes:

- **Forecasts** - Coastal Water Forecast, Surf, Discussions, Tides and Currents
- **Observations** - Buoys, wind stations, satellite, radar, and observed water levels.
- **Warnings and Advisories** - All current warning text products and hazard criteria.
- **Education and Outreach** - Safety messaging and Marine WRN Ambassador links.





# NWS Marine Forecast Update: **Experimental CWF**

Weather Forecast Office  
Portland, OR  
Tuesday, October 25

**Experimental  
through July  
23**

Output for  
Portland  
waters can be  
found [here](#)

PZZ251-182200- **Experimental**  
Coastal waters from Cape Shoalwater WA to Cape Falcon OR out  
10 NM-  
228 AM PDT Tue Oct 18 2022

.TODAY...NE winds to 5 kt, backing to N early this afternoon,  
then becoming NW 10 to 15 kt early. Seas 5 to 7 ft, occasionally  
to 9 ft. Wave Detail: W 6 ft at 14 seconds.  
.TONIGHT...N winds 10 to 15 kt. Seas 5 to 6 ft, occasionally to  
8 ft. Wave Detail: W 6 ft at 14 seconds and NW 2 ft at 8 seconds.  
.WED...N winds 10 to 15 kt. Seas 5 to 6 ft, occasionally to 8 ft,  
building to 7 to 9 ft, occasionally to 11 ft in the afternoon.  
Wave Detail: NW 8 ft at 16 seconds. Areas of dense fog in the  
morning. Patchy dense fog in the afternoon.  
.WED NIGHT...N winds 10 to 15 kt. Seas 9 to 11 ft, occasionally  
to 14 ft. Wave Detail: NW 10 ft at 15 seconds.  
.THU...N winds 5 to 10 kt. Seas 8 to 10 ft, occasionally to  
13 ft. Wave Detail: W 9 ft at 14 seconds. Patchy dense fog in the  
morning.  
.THU NIGHT...NW winds 10 to 15 kt, easing to 5 to 10 kt after  
midnight. Seas 8 to 9 ft, occasionally to 11 ft. Wave Detail: NW  
8 ft at 12 seconds. A chance of rain after midnight.  
.FRI...NW winds 10 kt, backing to S in the afternoon, then  
becoming W 20 kt. Seas around 8 ft, occasionally to 10 ft. Rain.  
.SAT...NW winds 20 kt, easing to 15 kt after midnight. Seas 14 to  
15 ft, occasionally to 19 ft. Numerous showers.

Directly from the Nearshore Wave  
Prediction System (NWPS) without  
forecaster input

- Swell and wind wave terminology is replaced with **‘Seas’**
- Further detail into the direction and wave periods.
- No changes to wind or weather descriptors proposed at this time.

PZZ251-182345- **Official**  
Coastal waters from Cape Shoalwater WA to Cape Falcon OR out  
10 NM-  
227 AM PDT Tue Oct 18 2022

.TODAY...E wind less than 10 kt, becoming N in the afternoon.  
Wind waves E 1 ft at 4 seconds, shifting to the N at 4 seconds  
in the afternoon. W swell 6 ft at 13 seconds.  
.TONIGHT...N wind 10 to 15 kt. Wind waves N 2 ft at 4 seconds.  
W swell 6 ft at 12 seconds.  
.WED...N wind 10 to 15 kt. Gusts to 20 kt in the afternoon.  
Wind waves N 3 ft at 5 seconds. W swell 5 ft at 12 seconds,  
building to 8 ft at 15 seconds in the afternoon. Areas of dense  
fog in the morning. Patchy dense fog in the afternoon.  
.WED NIGHT...N wind 10 to 15 kt with gusts to 20 kt. Wind waves  
N 3 ft at 5 seconds. W swell 10 ft at 14 seconds.  
.THU...N wind to 10 kt with gusts to 15 kt. Wind waves N 2 ft  
at 4 seconds. W swell 9 ft at 13 seconds. Patchy dense fog.  
.THU NIGHT...NW wind 10 to 15 kt, easing to 5 to 10 kt after  
midnight. Wind waves NW 3 ft at 4 seconds. NW swell 9 ft at  
11 seconds.  
.FRI...W wind 20 to 25 kt. Wind waves 6 ft. NW swell 8 ft.  
.SAT...NW wind 20 to 25 kt. Wind waves 6 ft. NW swell 15 ft.

The **new**  
proposed format  
removes “wind  
wave” and  
“swell”  
terminology.

[https://www.weather.gov/wrn/winter\\_safety](https://www.weather.gov/wrn/winter_safety)



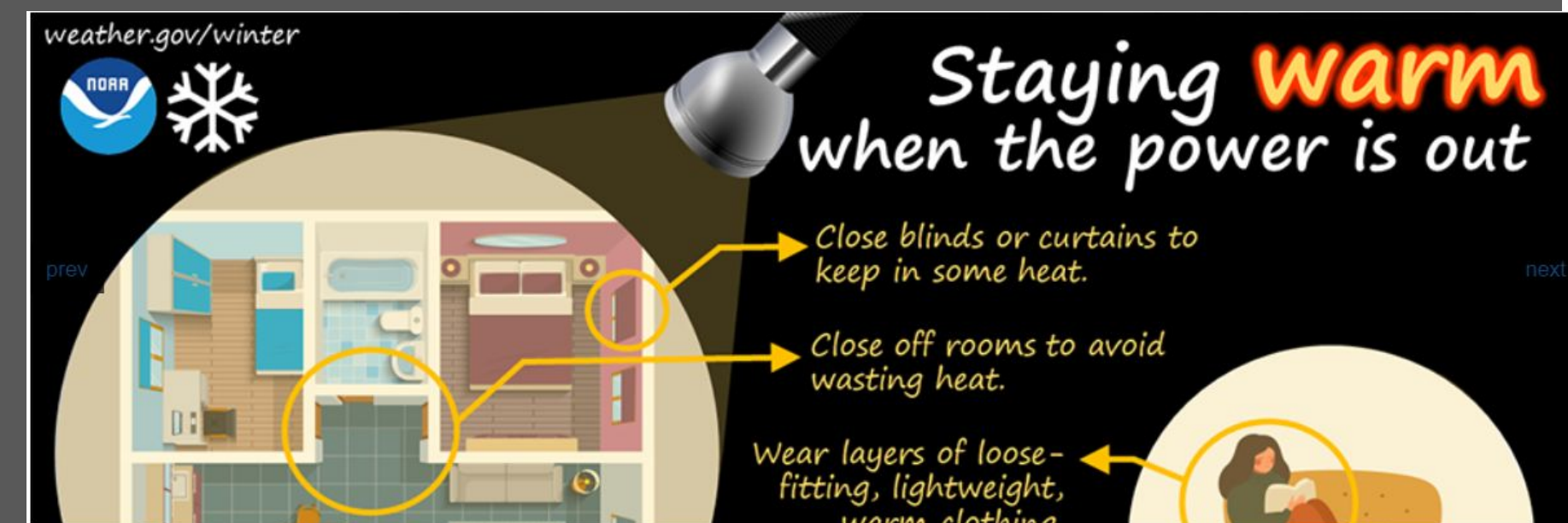
## Are you ready for ICE STORMS?

- Trim weak or damaged branches around your home
- Don't leave vehicle wipers raised



## FREEZING RAIN IS THE WORST

- ◆ Freezing rain is more dangerous than snow, as ice can form on pavement
- ◆ Watch out for falling branches and powerlines
- ◆ Don't drive if there is, or recently was, freezing rain



weather.gov/winter

## Staying **warm** when the power is out

- Close blinds or curtains to keep in some heat.
- Close off rooms to avoid wasting heat.
- Wear layers of loose-fitting, lightweight, warm clothing

<https://www.weather.gov/wrn/winter-graphics-SP>



**La Ciencia de la Sensación Térmica**

**SIN VIENTO**

98.6°F  
La temperatura promedio del cuerpo humano.

Bajo condiciones tranquilas, el cuerpo irradia calor, creando una capa de calor entre nuestra piel y el aire frío a nuestro alrededor.

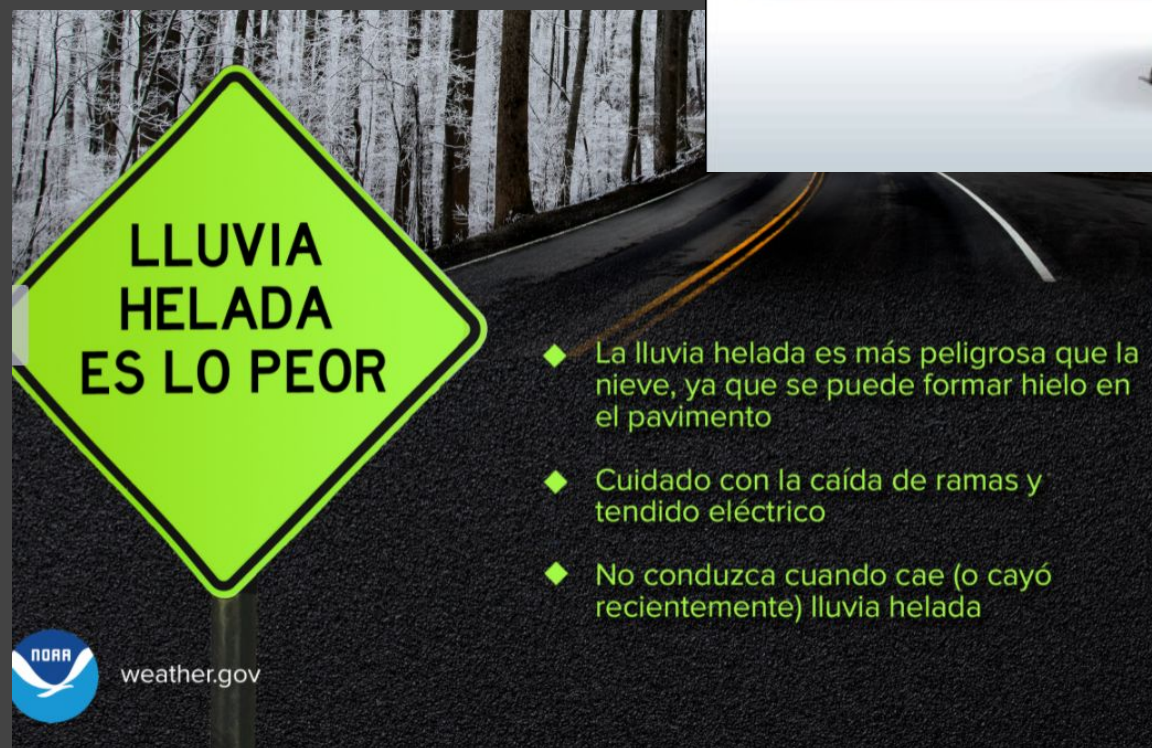
**CON VIENTO**

95°F  
Hipotermia comienza cuando nuestra temperatura corporal baja de dos a cuatro grados.

Pero cuando hay viento, el aire en movimiento rompe esa capa aislante. Esto acelera la pérdida de calor quitando el calor de nuestra piel.

Calor es removido de nuestros cuerpos.


weather.gov/winter



**LLUVIA HELADA ES LO PEOR**

- ◆ La lluvia helada es más peligrosa que la nieve, ya que se puede formar hielo en el pavimento
- ◆ Cuidado con la caída de ramas y tendido eléctrico
- ◆ No conduzca cuando cae (o cayó recientemente) lluvia helada

weather.gov



**¿Está listo para las TORMENTAS DE HIELO?**

- Puede ramas débiles o dañadas cerca de su vivienda
- No deje los limpiaparabrisas extendidos
- Tenga suficiente comida y medicamentos para una semana
- No estacione su auto debajo de árboles
- Mantenga su dispositivos cargados

weather.gov



# Weather Safety Resources - Deaf & Hard of Hearing

Weather Forecast Office  
Portland, OR  
Tuesday, October 25

<https://www.weather.gov/wrn/dhh-safety>



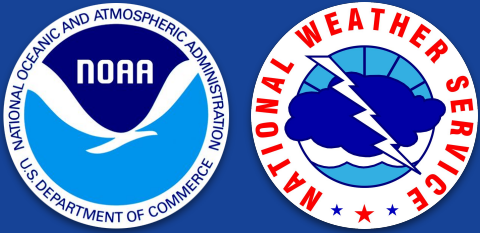
## NWR Alarm Features:

- Visual
- Vibrating
- Simple Text Readouts

## Available Adapters:

- Colorized warning lights
- Liquid Crystal Display
- Readout





# Get Involved - Partner Preparedness Initiatives

Weather Forecast Office  
Portland, OR  
Tuesday, October 25

## Working Toward a Weather-Ready Nation



Visit: [weather.gov/wrn](http://weather.gov/wrn)

