NATIONAL WEATHER SERVICE

Seattle

2024 Winter Hazards Seminar

NATIONAL WEATHER SERVICE - SEATTLE, WA

NATIONAL WEATHER SERVICE

Seattle

Service Updates

National Weather Service - Seattle, WA

Public Forecast Zones

Effective: (HQ Delay) March 2025

Zone Use

- Issue most Watch/Warning/Advisory products including Extreme Temperatures, Wind, Winter, Tsunami, & Coastal Hazards
- DOES NOT affect Fire or Marine Hazards

Priority Considerations

- Hazard Climatology
- Removing Lewis County from tsunami & coastal hazards.
- Eliminating large “foothills” zone
- Removing communities under 1500 feet from mountain zones
- Better alignment with neighboring NWS offices (NWS Portland updates coming March 2024).

Other Considerations

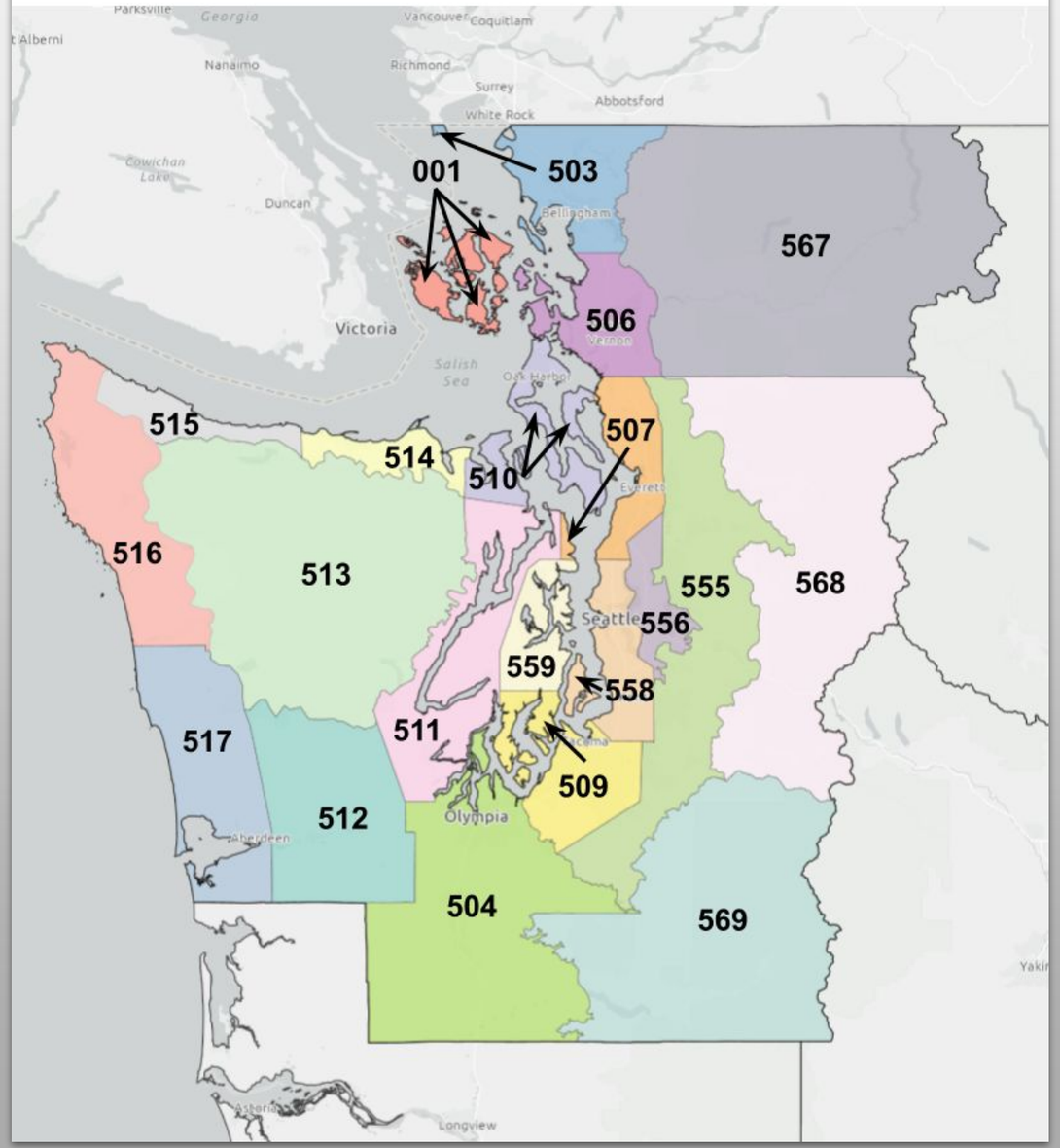
- City/County/Tribal boundaries
- Population Density
- Possible use for flood events

MORE INFORMATION

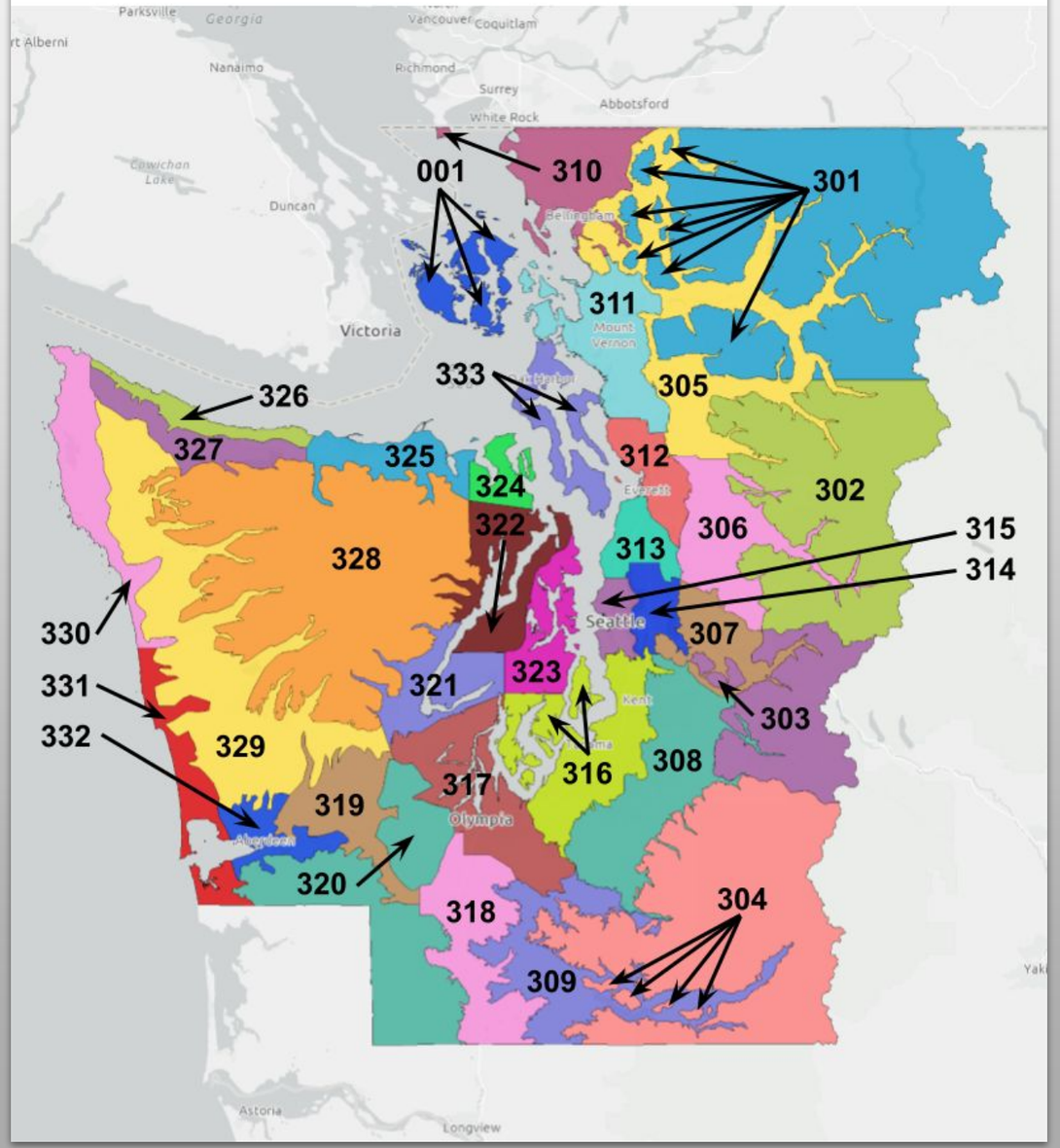
NATIONAL WEATHER SERVICE

Seattle

Current Public Forecast Zones
WFO Seattle, WA (SEW)



New Public Forecast Zones
WFO Seattle, WA (SEW)



NATIONAL WEATHER SERVICE

Seattle

Hazards Simplification

NATIONAL WEATHER SERVICE

Seattle

HazSimp 2024-2025

Upcoming (Minor) Changes

- **Heat**
  Effective ~ March 4, 2025

- **Freeze**
  Effective ~ October 1, 2024
  The scope of the NWS Frost/Freeze services is focused on vegetation and agriculture taking into account growing season, impacts, and precautionary/preparedness actions.

NATIONAL WEATHER SERVICE

Seattle

Cold Products

Effective ~Oct 1, 2024

New products are based on Apparent Temperature

Apparent Temperature:

- Ambient Temperature for wind <3 mph
- Otherwise Wind Chill

MORE INFORMATION

Current		Upcoming
Extreme Cold Watch (Alaska Only)	Consolidated to	Extreme Cold Watch
Wind Chill Watch		
Extreme Cold Warning (Alaska Only)	Consolidated to	Extreme Cold Warning
Wind Chill Warning		
Wind Chill Advisory	Replaced with	Cold Weather Advisory

NWS Windchill Chart

Wind (mph) \ Temperature (°F)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

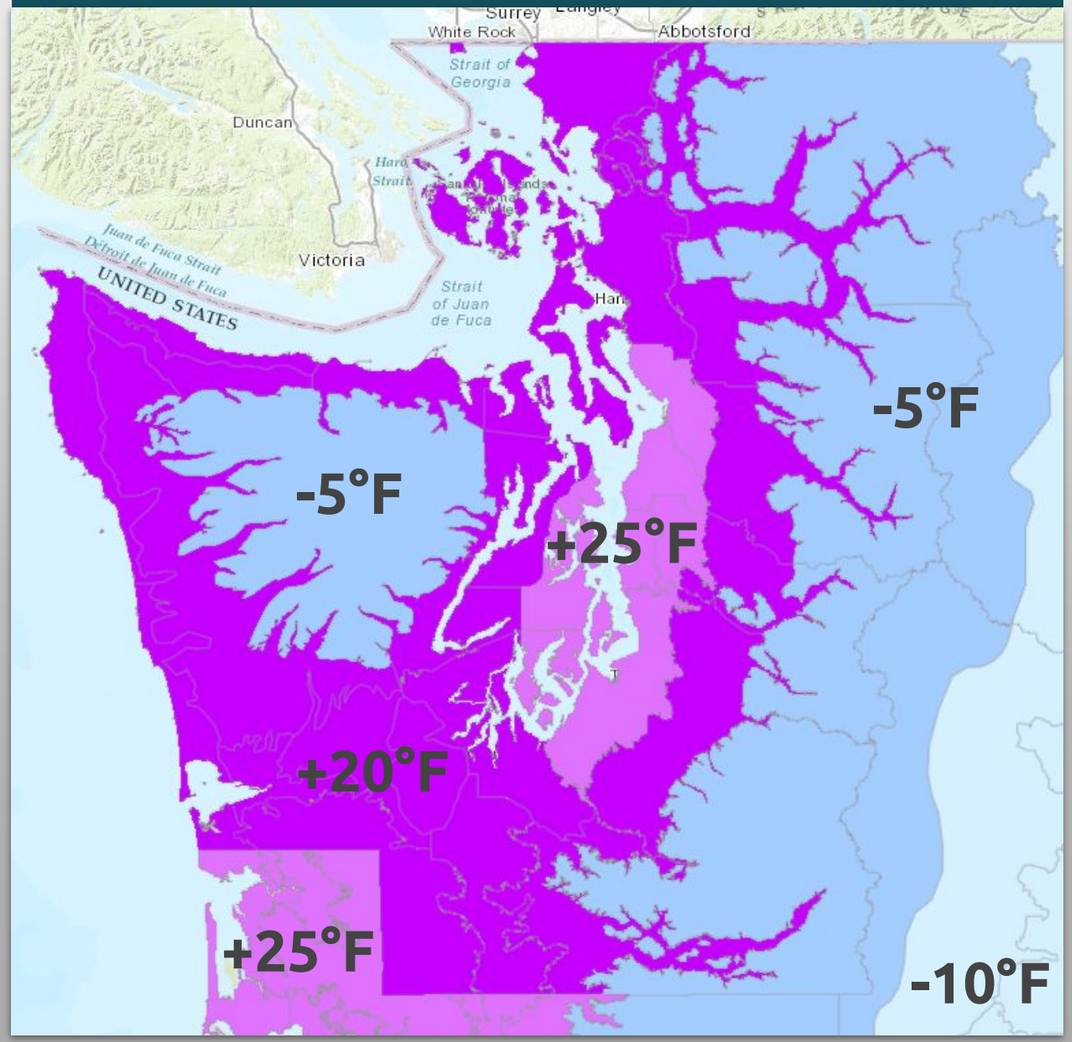
NATIONAL WEATHER SERVICE

Seattle

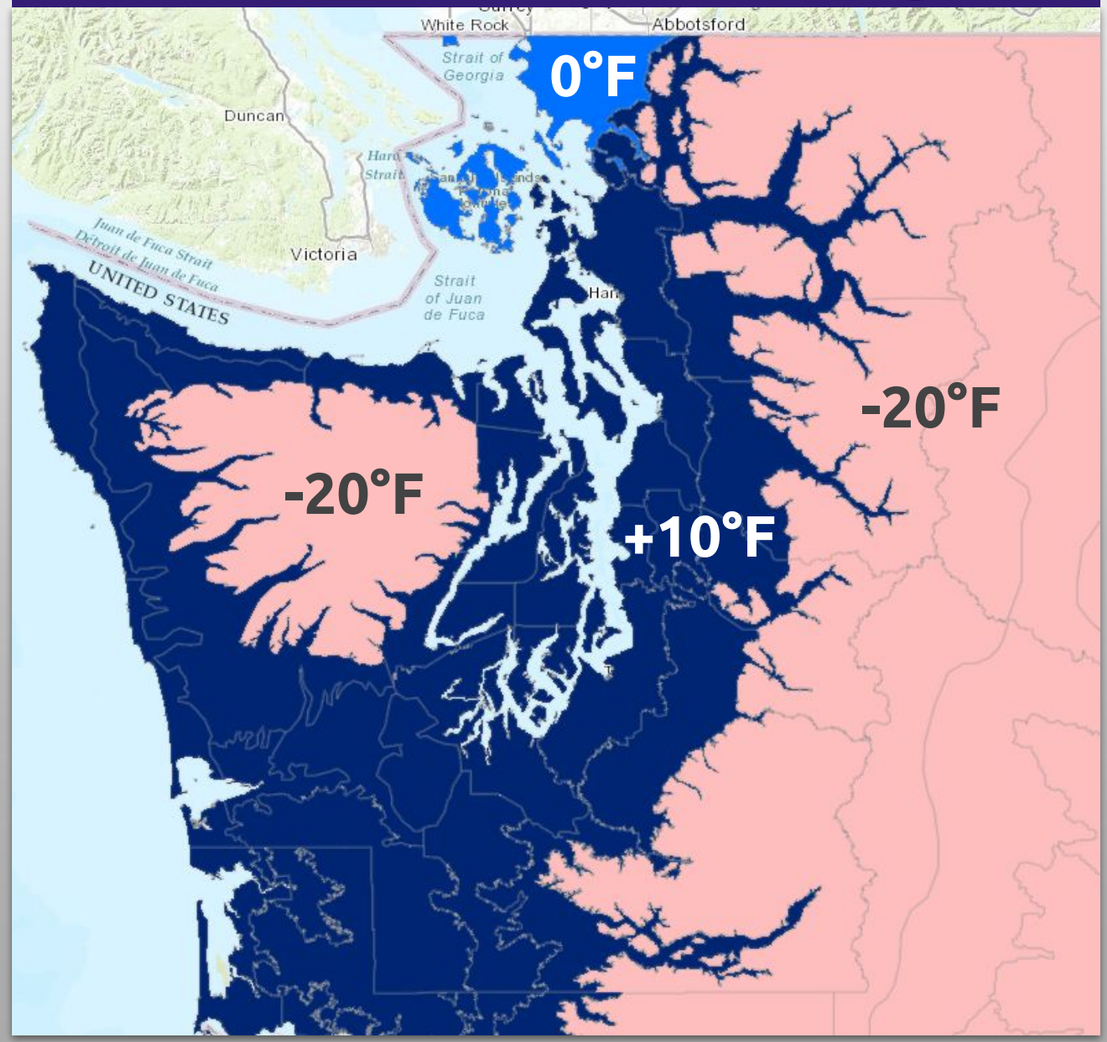
Cold Criteria - Apparent Temperature

These criteria are just a start. NWS Seattle has joined the UW School of Public Health, Public Health Seattle & King County, and NOAA's Global Systems Lab on an Extreme Cold Risk Communications project that we hope will lead towards significant refinements to cold risk communications in western WA and possibly the US in the future.

Cold Weather Advisory



Extreme Cold Warning



NATIONAL WEATHER SERVICE

Seattle

Extreme Cold Risk Project

These criteria on the previous slide are just a start.

Joint Extreme Cold Risk Project:

- UW Center for Disaster Resilient Communities
- Public Health Seattle & King County
- NOAA Global Systems Lab (GSL)
- NWS Seattle

Current project goals:

- Development of response guidance for public health agencies & partners
- Refinements to local NWS cold product criteria
- Development of support tools created by NOAA GSL
- Lead to future opportunities to expand approach and framework across the state or nationwide.

NATIONAL WEATHER SERVICE

Seattle

Alerting Criteria Changes

NATIONAL WEATHER SERVICE

Seattle

Alerting Criteria Changes

- Cold/Freeze Products
- Heat Products (2025)
- Upcoming Zone Changes
- NAWAS Procedures
- Lead Time Goals

Convective Hazard	VTEC	PIL	Dir	Target Lead Time / Duration	Criteria (including IMPACTS)	NAWAS	EAS/SAME/ TONE	WEA
Severe Weather Statement	SV.W TO.W	SVS	10-511	--	Used to update, correct, expire, or cancel a TOR or SVR. An SVS should be issued at least once during the valid time of a SVR or TOR.	See TOR/SVR. NAWAS needed for increase in severity category.		
Severe Thunderstorm Watch	SV.A	WCN	10-511	SPC-Driven	**Issued in coordination with SPC.** Observed and/or expected atmospheric conditions support the formation of severe thunderstorms.	YES MANUAL	YES Automatic	
Severe Thunderstorm Warning	SV.W	SVR	10-511	Duration: 30-60 min	Impact criteria: Thunderstorms that are forecast to produce signifcant tree or structrual damage, downed powerlines, flying debris, or threaten lives/property. Gusts >= 58 MPH OR Hail size >= 1" OR Potential tornado/landspout within thunderstorms that are also forecast to meet/exceed wind and/or hail criteria	YES MANUAL	YES Automatic	YES Automatic *Destructive Tag Only*
Tornado Watch	TO.A	SEL	10-511	SPC-Driven	**Issued in coordination with SPC.** When there is a forecast of multiple weak tornadoes or any tornado which could produce EF2 or greater damage. The forecast event minimum thresholds should be at least 2 hours over an area at least 8,000 square miles. Below these thresholds, SPC in collaboration with affected WFOs and their CWAs may issue for smaller areas and for shorter periods of time when conditions warrant.	YES MANUAL	YES Automatic	
Tornado Warning	TO.W	TOR	10-511	Duration: 15-45 min	Radar indication or reliable report of (developing) tornado	YES MANUAL	YES Automatic	YES Automatic

Downloadable PDF File

Also available under the Hazard Definitions tab here:
https://www.weather.gov/sew/briefing

Written instructions cannot address every operational situation. All NWS meteorologists exercise initiative and professional judgment to minimize risk to public safety and property in situations not explicitly covered by written instructions. Protection of life and property takes precedence in these decision making processes. As such, ***criteria for weather warnings are to be considered as guidance only, not strict thresholds****. Meteorologists may issue warnings and advisories based upon lower criteria if the event in question poses a significant threat to life due to timing or other circumstances.*

NATIONAL WEATHER SERVICE

Seattle

Hydrologic Service Updates

NATIONAL WEATHER SERVICE

Seattle

New & Updated Hydrologic Services

- National Water Prediction Service (NWPS)
  - **Primary tool for flood forecasts/information**
  - Replaced AHPS March 2024
  - NWS Seattle View (customizable)
  - NWPS Quick Start Guide

- NWS GIS Viewer "The Viewer"
  - Intended for power users
  - Water version: viewer.weather.noaa.gov/water

- NWS Flood Inundation Mapping (FIM)
  - FIM is an estimation tool to "put water on a map."
  - It provides the estimated extent of water inundation.
  - However, it is NOT a silver bullet.

2024 Stakeholders Meeting
Download Slides

View Recording
(includes chapter markers)

Hydrology/Flood Inundation Mapping Course
Download Slides

View Recording
(includes chapter markers)

NATIONAL WEATHER SERVICE

Seattle

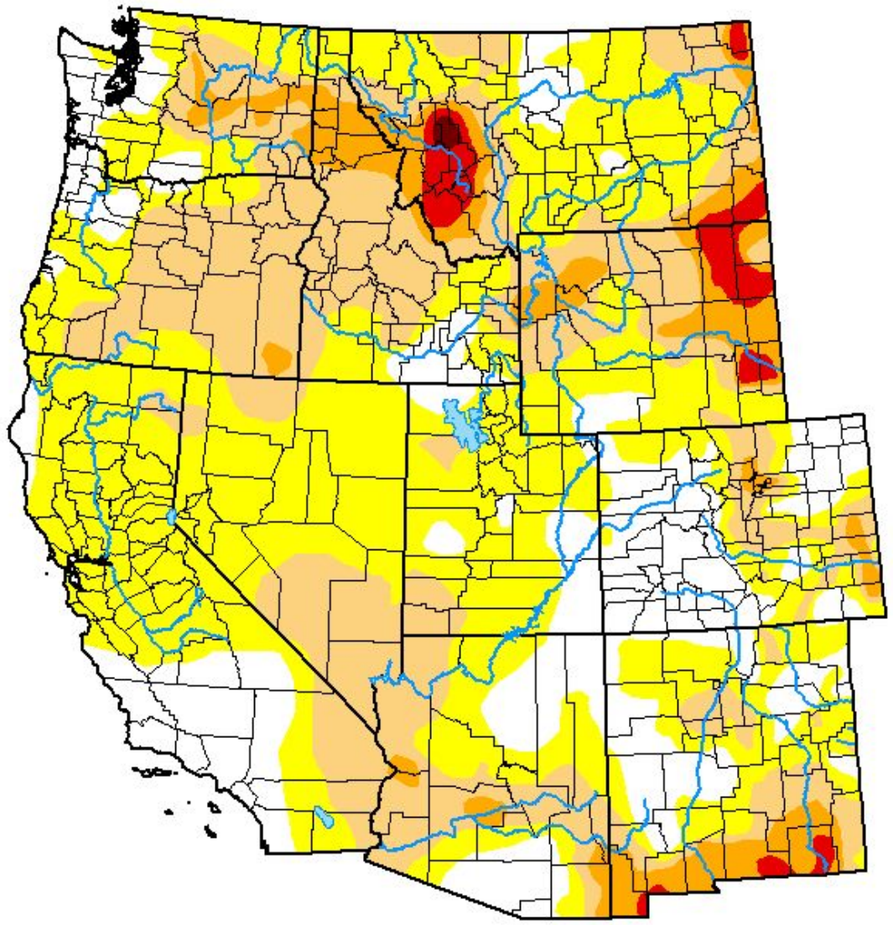
Winter 2024-2025 Outlook

West Current Drought Conditions

Weather Forecast Office
Seattle, WA
Friday, September 27

U.S. Drought Monitor

West



September 24, 2024

(Released Thursday, Sep. 26, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	20.16	79.84	36.37	9.15	2.14	0.11
Last Week *09-17-2024*	19.08	80.92	38.66	9.52	2.08	0.11
3 Months Ago *06-25-2024*	48.32	51.68	18.22	4.14	1.30	0.04
Start of Calendar Year *01-02-2024*	51.19	48.81	25.08	13.17	4.67	0.66
Start of Water Year *09-26-2023*	55.99	44.01	31.24	17.70	6.09	0.70
One Year Ago *09-26-2023*	55.99	44.01	31.24	17.70	6.09	0.70

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:

Brad Rippey
U.S. Department of Agriculture

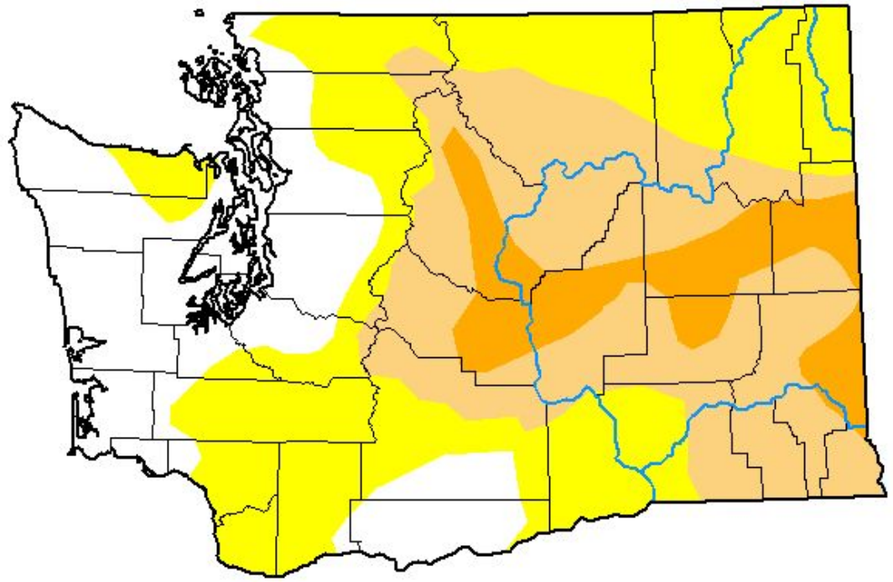
droughtmonitor.unl.edu

Washington Current Drought Conditions

Weather Forecast Office
Seattle, WA
Friday, September 27

U.S. Drought Monitor

Washington



September 24, 2024

(Released Thursday, Sep. 26, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	23.81	76.19	40.00	10.04	0.00	0.00
Last Week *09-17-2024*	23.81	76.19	40.00	10.04	0.00	0.00
3 Months Ago *06-25-2024*	30.78	69.22	26.15	3.41	0.00	0.00
Start of Calendar Year *01-02-2024*	42.19	57.81	19.59	1.43	0.00	0.00
Start of Water Year *09-26-2023*	5.67	94.33	75.46	43.13	9.82	0.00
One Year Ago *09-26-2023*	5.67	94.33	75.46	43.13	9.82	0.00

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:

Brad Rippey
U.S. Department of Agriculture

droughtmonitor.unl.edu

El Niño/La Niña Status & Outlook

Weather Forecast Office
Seattle, WA
Friday, September 27

El Niño/La Niña Status & Forecast

La Niña Watch

Favored Wintertime Effects in WA

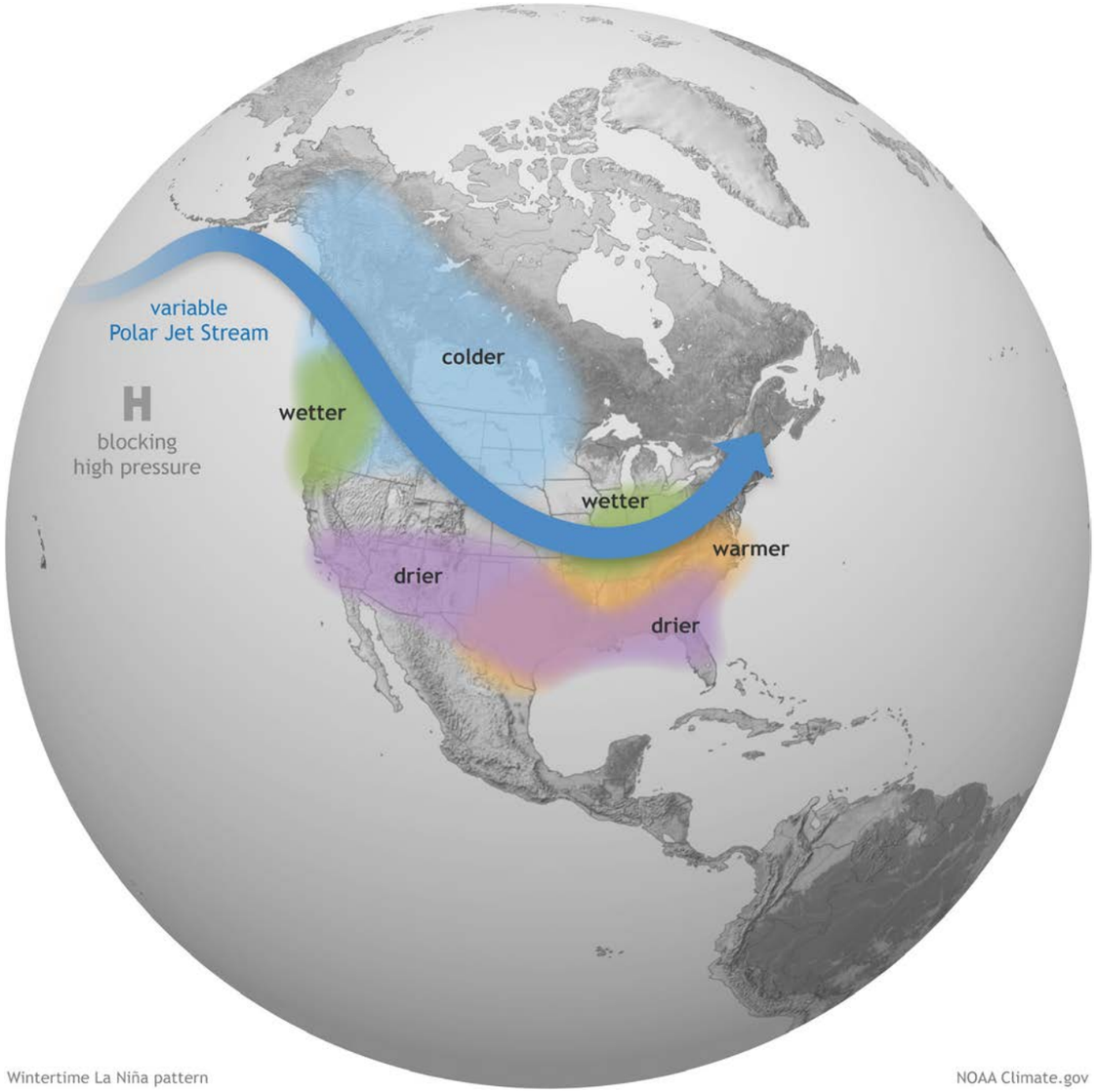
⚠️No two years are alike

Wetter than average	Cooler than average

La Niña conditions favored to develop this fall & winter

Chances for **La Niña** will gradually increase:

- **71%** Sep-Oct-Nov
- **82%** Nov-Dec-Jan



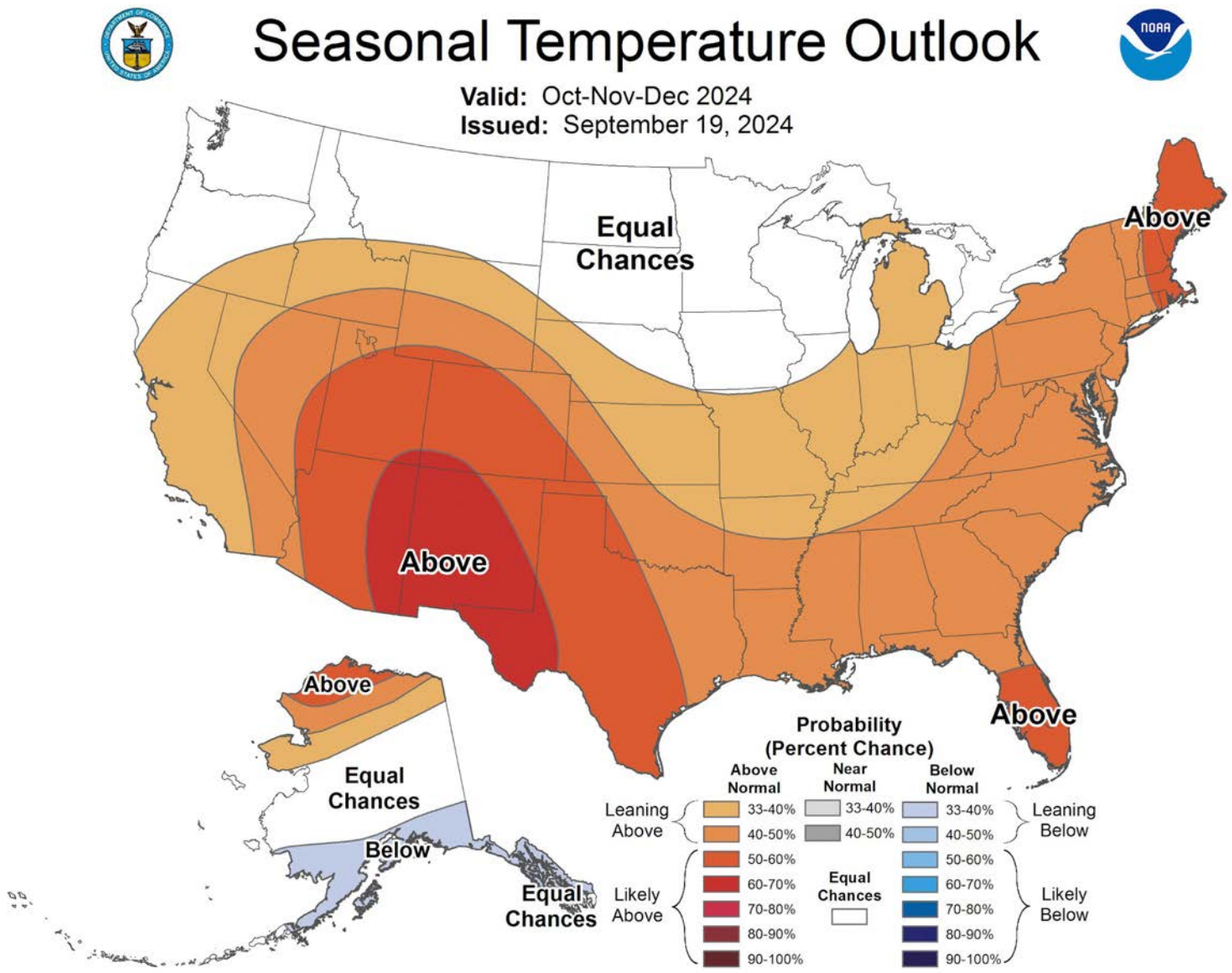
*Typical **La Niña** Deviations From Average*

3-Month Outlook: Oct-Nov-Dec

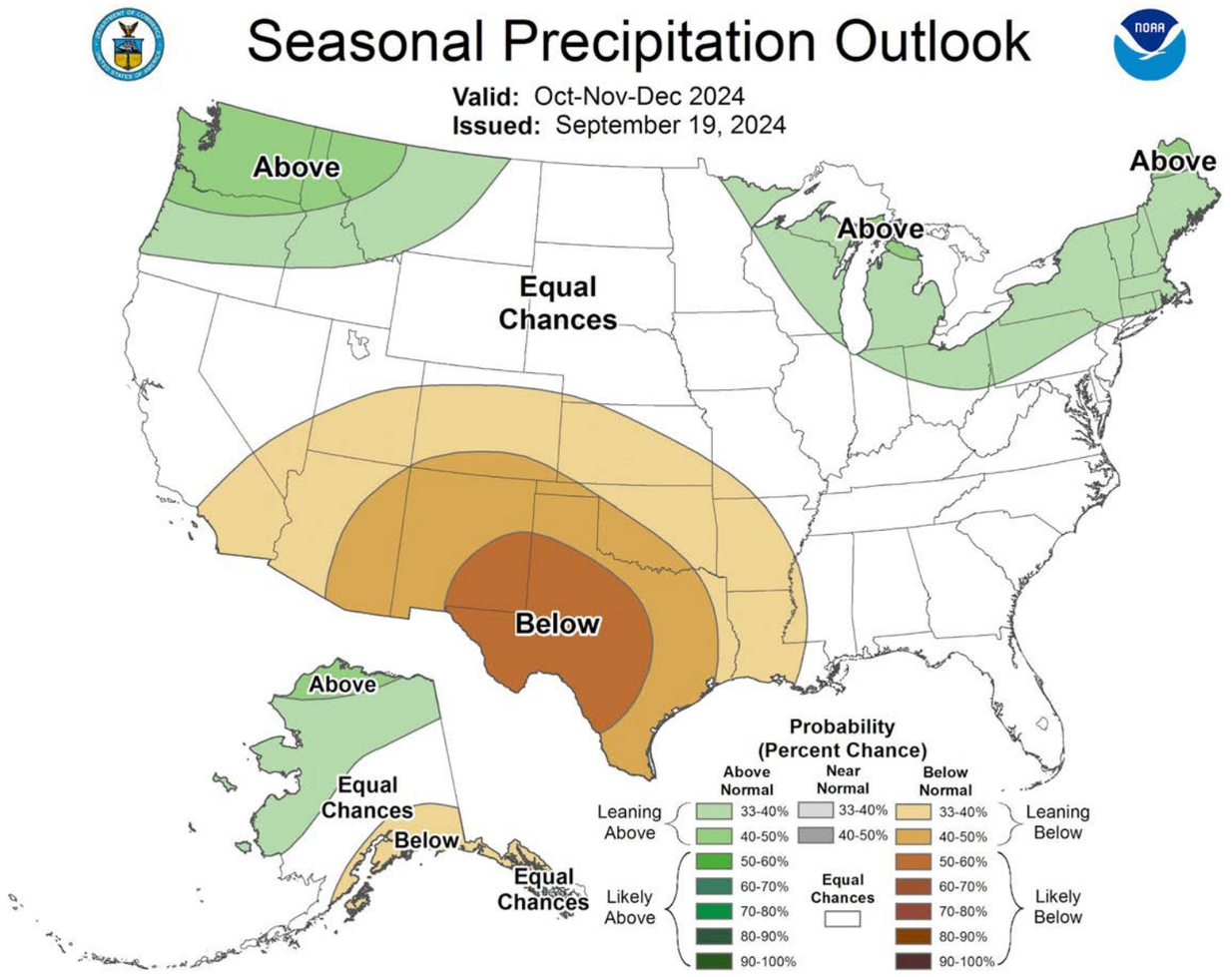
Weather Forecast Office
Seattle, WA
Friday, September 27

Outlook Favors

No Significant Temperature Signal



Above Normal Precipitation



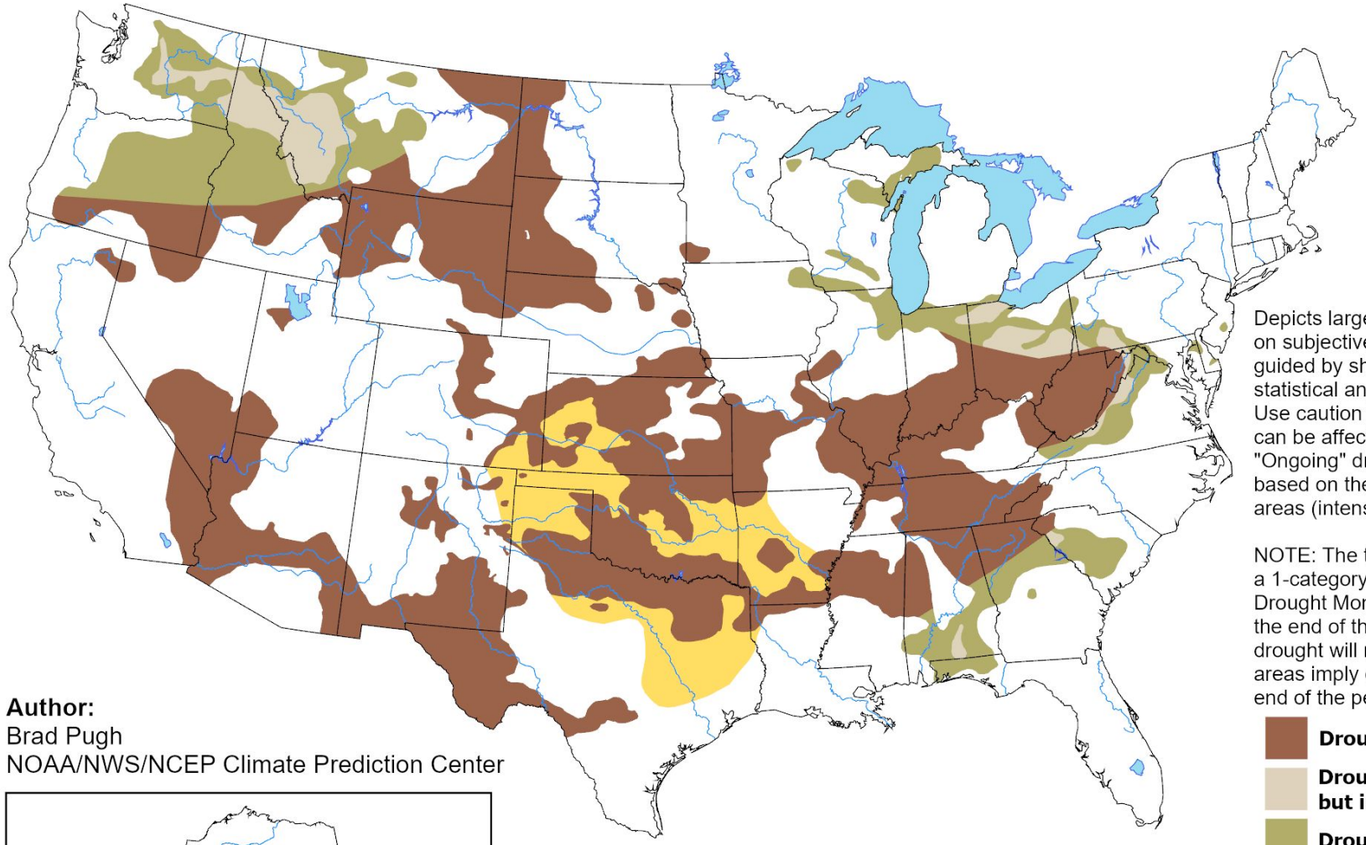
Seasonal Drought Outlook

Weather Forecast Office
Seattle, WA
Friday, September 27

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for September 19 - December 31, 2024
Released September 19, 2024

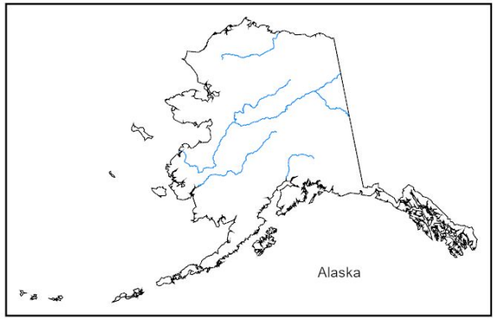


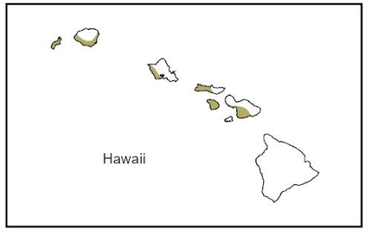
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

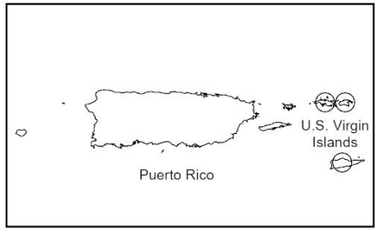
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- **Drought persists**
- **Drought remains, but improves**
- **Drought removal likely**
- **Drought development likely**
- **No drought**

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







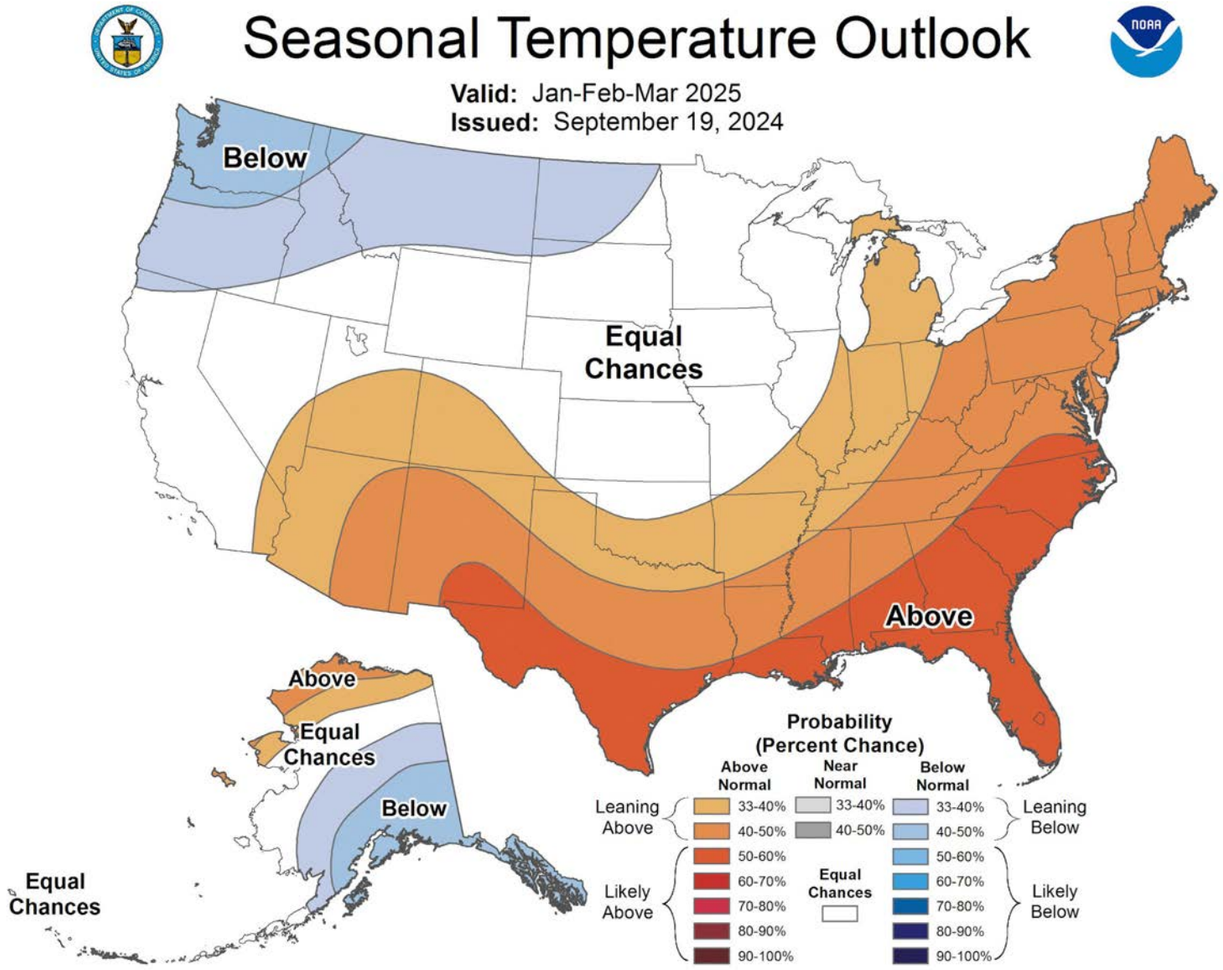
https://go.usa.gov/3eZ73

3-Month Outlook: Jan-Feb-Mar

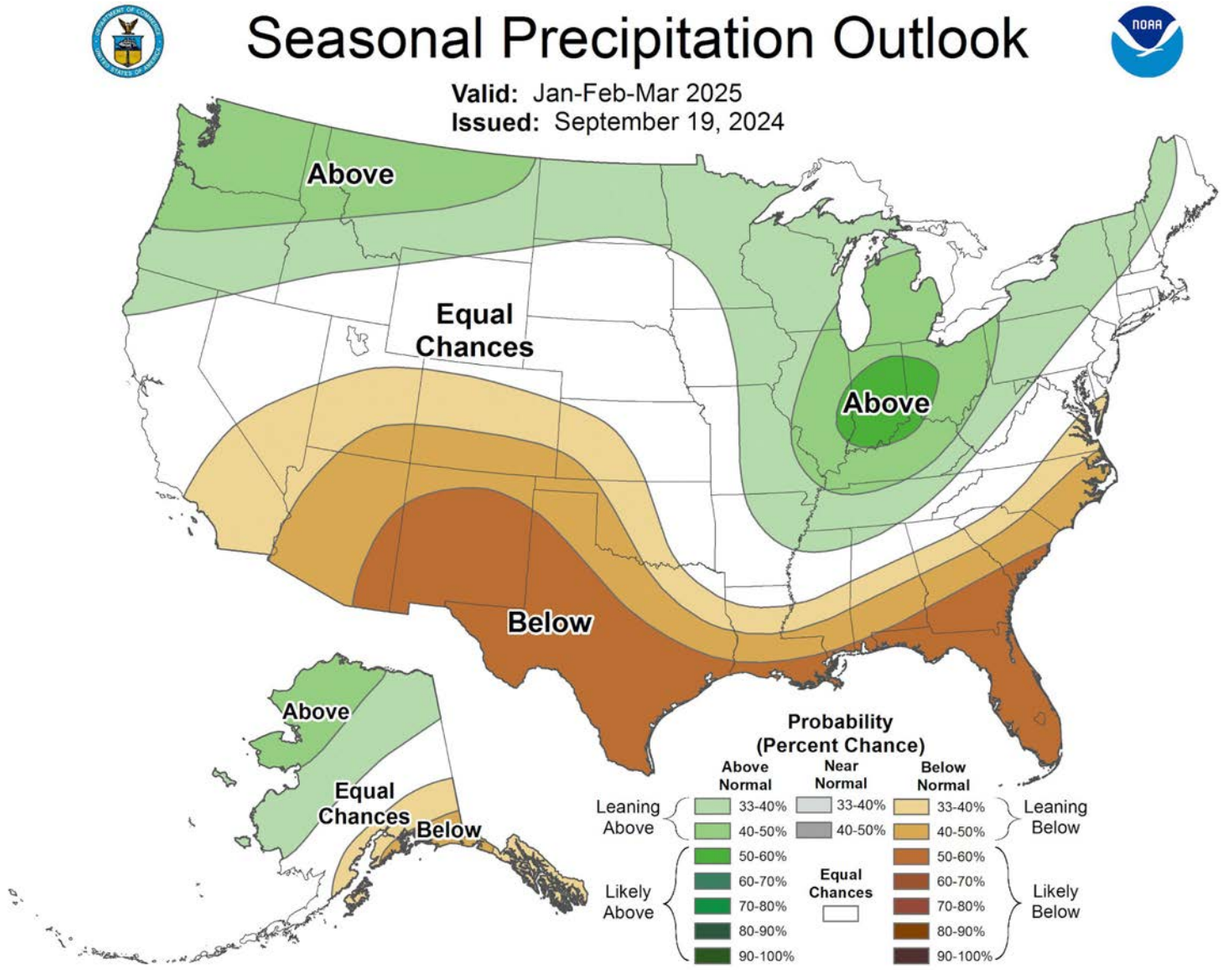
Weather Forecast Office
Seattle, WA
Friday, September 27

Outlook Favors

Below Normal Temperatures

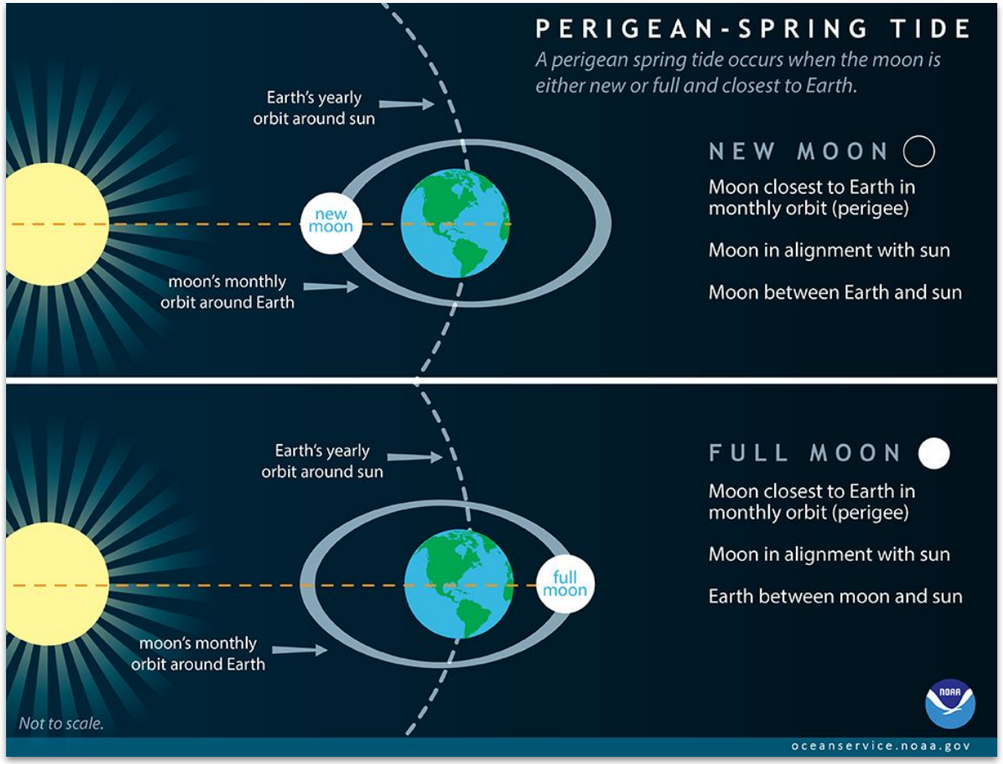


Above Normal Precipitation



Coastal Flood Outlook

Weather Forecast Office
Seattle, WA
Friday, September 27



Perigean-Spring Tide

Occurs when the moon is new or full (spring tide) AND when the moon is closest to earth in its orbit (perigee), resulting in a higher than average lunar gravitational force.

Typically, 6-8 tide cycles per year have a notable influence from this effect.

Impacts

Minor coastal/high tide flooding **can** occur with a perigean spring tide.

Major coastal flooding typically occurs in response to a strong onshore winds and low atmospheric pressure.

□ King Tide?

"King Tide" is an unofficial term that is loosely used to describe especially high astronomical tides.

Days of Concern

	Pacific Coast	Strait/Inner Coast
Oct	4	0
Nov	6 High Concern Nov 15-17	7 High Concern Nov 15-17
Dec	12 High Concern Dec 14-15	16 High Concern Dec 14-15
Jan	15	20
Feb	0	3
Mar	5	1
Apr	5	0

More Detailed Information in the Monthly High Tide Outlook

NATIONAL WEATHER SERVICE

Seattle

We Need Your Help!

Help us define & update thresholds.

Download & fill out the Coast Flood Event Log during events then return to nws.seattle@noaa.gov after the event.

Coastal Flood Event Log

Local Date & Time	Location & Impacts (overtopping, inundation, jetty damage, erosion, street flooding, structure flooding, water depth, debris, injuries, fatalities, building/infrastructure damage, etc.) TIMESTAMPED PHOTOS/VIDEOS REQUESTED AS AVAILABLE	Actions Taken (closures, water rescues, evacuations, pumping, sandbagging, etc.)

Download

weather.gov/media/sew/docs/CoastalFloodEventLog.pdf

Seasonal Outlook: Bottom Line

Weather Forecast Office
Seattle, WA
Friday, September 27

Washington Outlook
Winter 2024-2025

Rainfall/Flooding

- Slight favoring of above normal precipitation during the climatologically wettest & flood-prone time of year increases risk of flood events.
- The potential for significant flood events are predictable up to 5-10 days in advance. Stay informed through the season.

Snow/Ice

- Below normal temperatures & above normal precipitation during the core of the winter months increases the risk of snow/ice events.
- The potential for significant snow events are predictable up to 3-7 days in advance. Stay informed through the season.

Snowpack/Water Supply

- Above normal precipitation and below normal temperatures increases the likelihood of an above normal mountain snowpack this winter, resulting in drought improvement/removal.

Bottom Line

Climate predictions have skill in predicting **seasonal totals/averages**.

However, **most impacts are associated with short-duration storm systems.**

NATIONAL WEATHER SERVICE

Seattle

Thank You

On-Duty Meteorologists - 24/7 Support

NWSChat 2.0: @nwsseattle / #wfo-seattle-wa
Phone: 206-526-6857
Email: nws.seattle@noaa.gov

Non-Urgent Coordination

Reid Wolcott
Warning Coordination Meteorologist

NWSChat 2.0: @NWS - Seattle - Reid Wolcott
Phone: O: 206-526-6095 x223
C: 206-795-1519
Email: reid.wolcott@noaa.gov

Hydrologic Coordination

Brent Bower
Senior Service Hydrologist

NWSChat 2.0: @NWS - Seattle - Brent Bower
Phone: O: 206-526-6095 x228
C: 206-390-4309
Email: brent.bower@noaa.gov