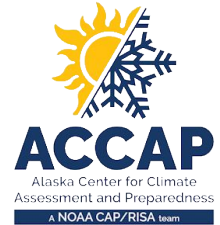
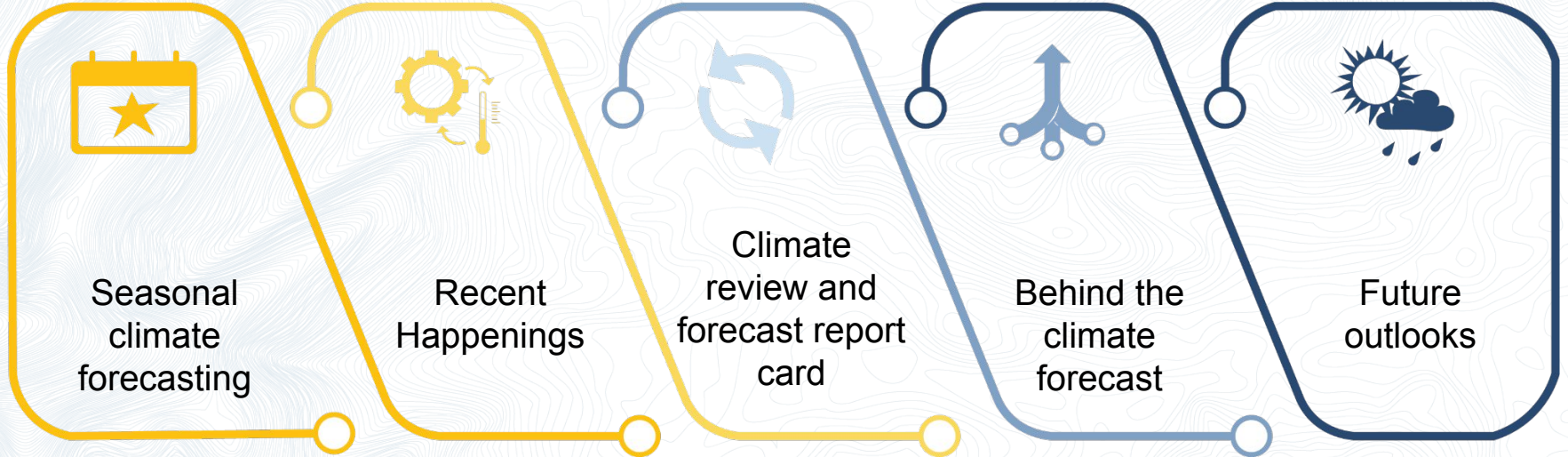




Alaska climate outlook briefing October 2025

Rick Thoman
ACCAP Climate Specialist
October 17, 2025





Seasonal
climate
forecasting

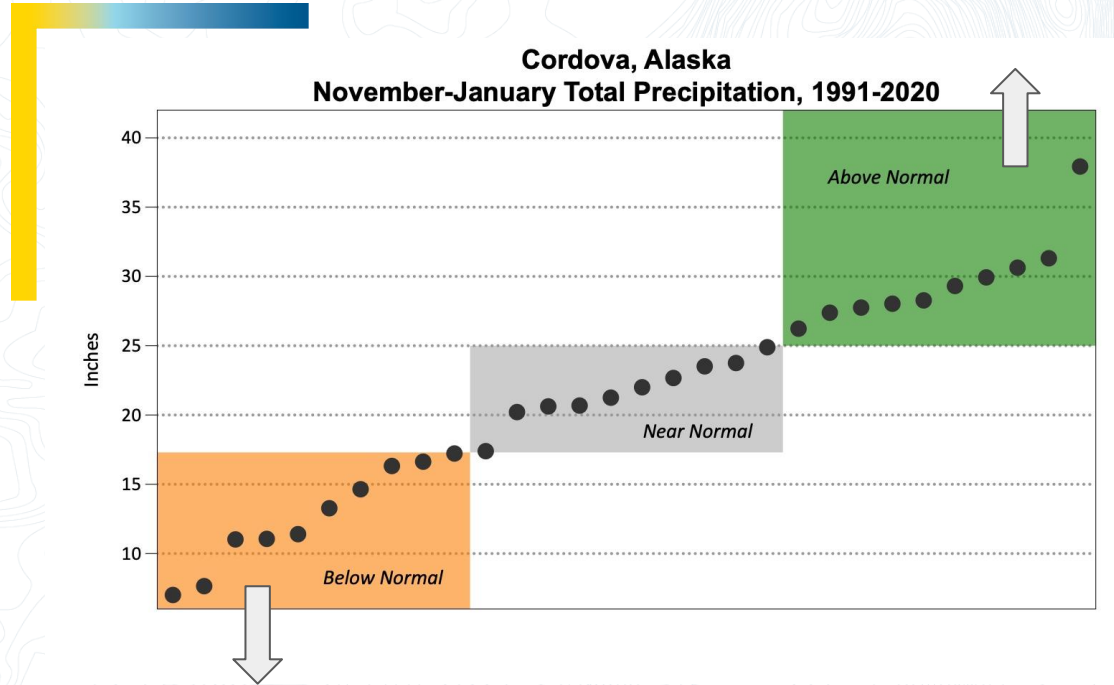


NOAA Center for Weather and Climate Prediction

Climate Prediction Center (CPC) ➤
primary NOAA/NWS forecast responsibility
for two weeks to a year in the future

The basics

- Relation to long-term normal (1991-2020)
- 3 categories
- Probabilistic
- Temperature
 - Centered on average
- Precipitation
 - Centered on median > can significantly differ from “normal”
- Normals temperature and precip ranges for selected Alaska places at ACCAP climate graphics





Recent Happenings

- Ex-typhoon Halong Oct 11-13, 2025
 - Catastrophic storm surge flooding on Kuskokwim coast/lower Kusko River
 - Damaging winds Norton Sound and western Interior
- Very mild early autumn: mainland Alaska many areas top 5 mildest first half of October
- Southeast: below normal rainfall since late September
- Below average snow cover early October



Kipnuk, Alaska

October 12, 2025

Photo credit: U.S. Coast Guard

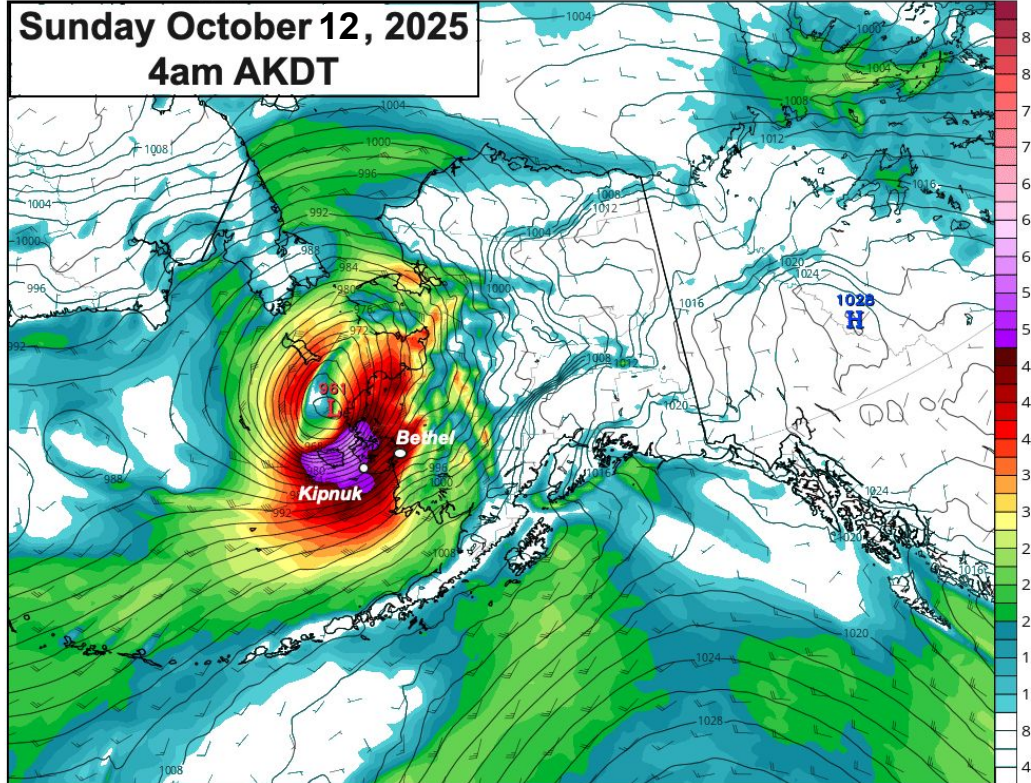
Ex-typhoon Halong

GFS MSLP (mb) & 10m Wind Speed (kt)

Init: 12z Oct 12 2025 [Analysis] valid at 12z Sun, Oct 12 2025

TROPICALTIDBITS.COM

Sunday October 12, 2025
4am AKDT



Rapid intensification in the southern Bering Sea

Extreme winds onto the Kusko delta

Strongest autumn storm to pass between St. Lawrence Island Yukon delta since Oct 1987

Third ex-typhoon since 2022 to move the Bering Sea and into the Arctic



Climate Review

- What happened?
- How did climate outlooks perform?



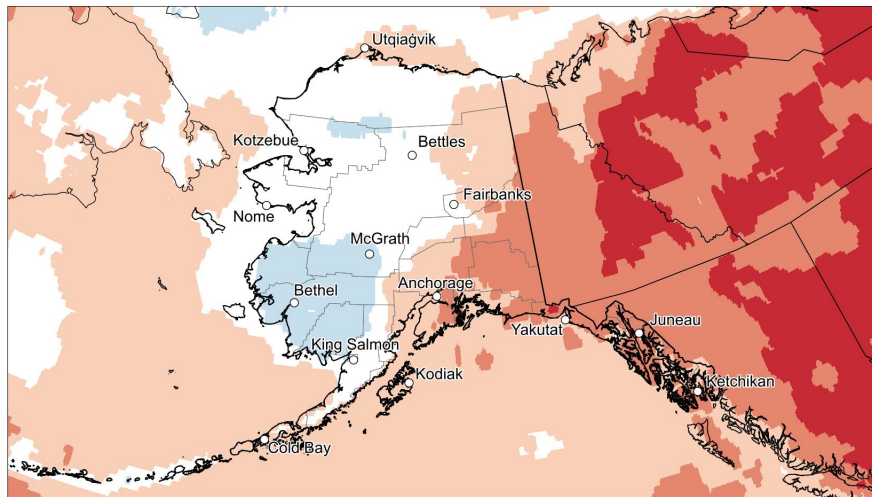
Bethel, Alaska

October 12, 2025

Photo credit: Mary Cait Dolan / KYUK

Model- based regional analysis > Average temperatures

Temperature Classification for Sep 2025



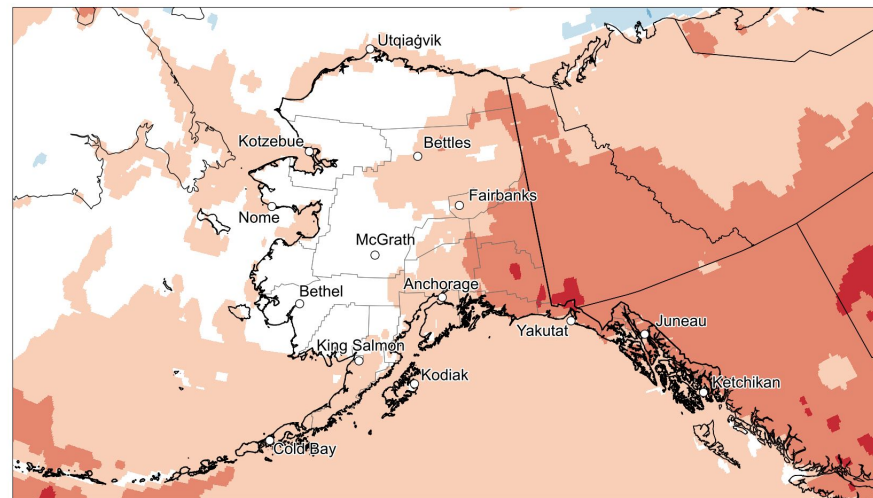
Source: ERA5 Reanalysis

Map by: Brian Brettschneider

Record Much Below Below Near Normal Above Much Above Record

Compared to 1991-2020 Base Period (Records Since 1950)

Temperature Classification for Jul-Sep 2025



Source: ERA5 Reanalysis

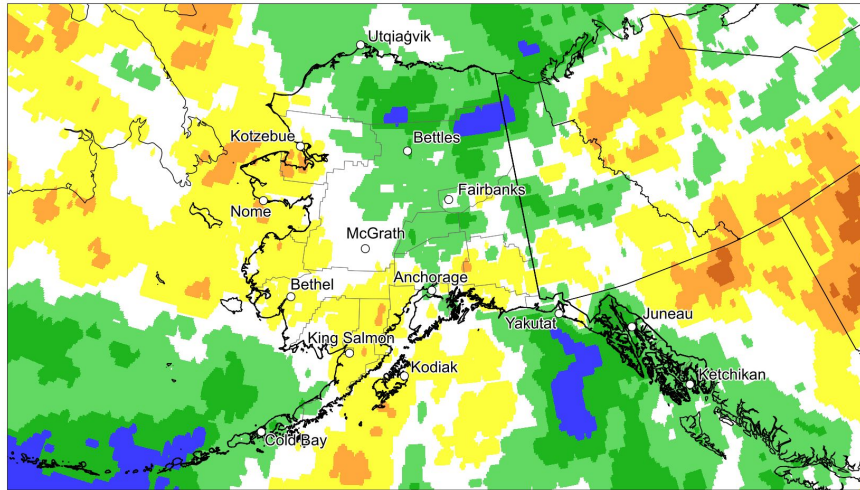
Map by: Brian Brettschneider

Record Much Below Below Near Normal Above Much Above Record

Compared to 1991-2020 Base Period (Records Since 1950)

Model- based regional analysis > Total precipitation

Precipitation Classification for Sep 2025



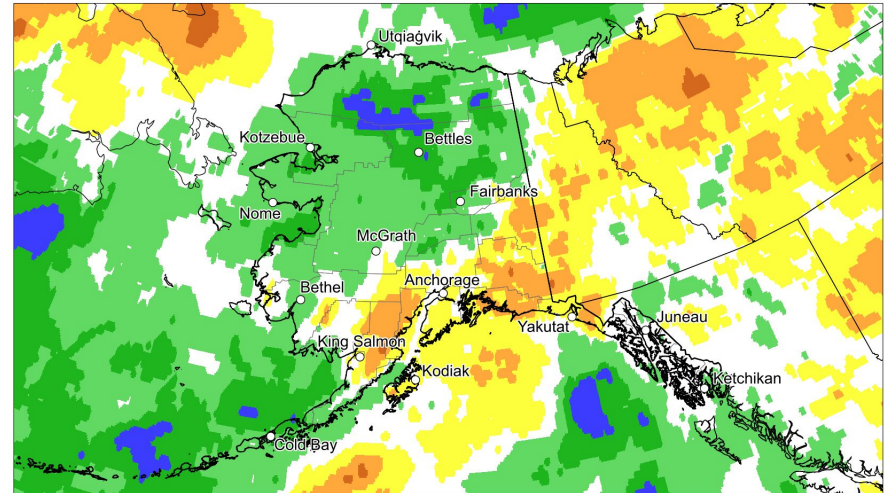
Source: ERA5 Reanalysis

Map by: Brian Brettschneider



Compared to 1991-2020 Base Period (Records Since 1950)

Precipitation Classification for Jul-Sep 2025



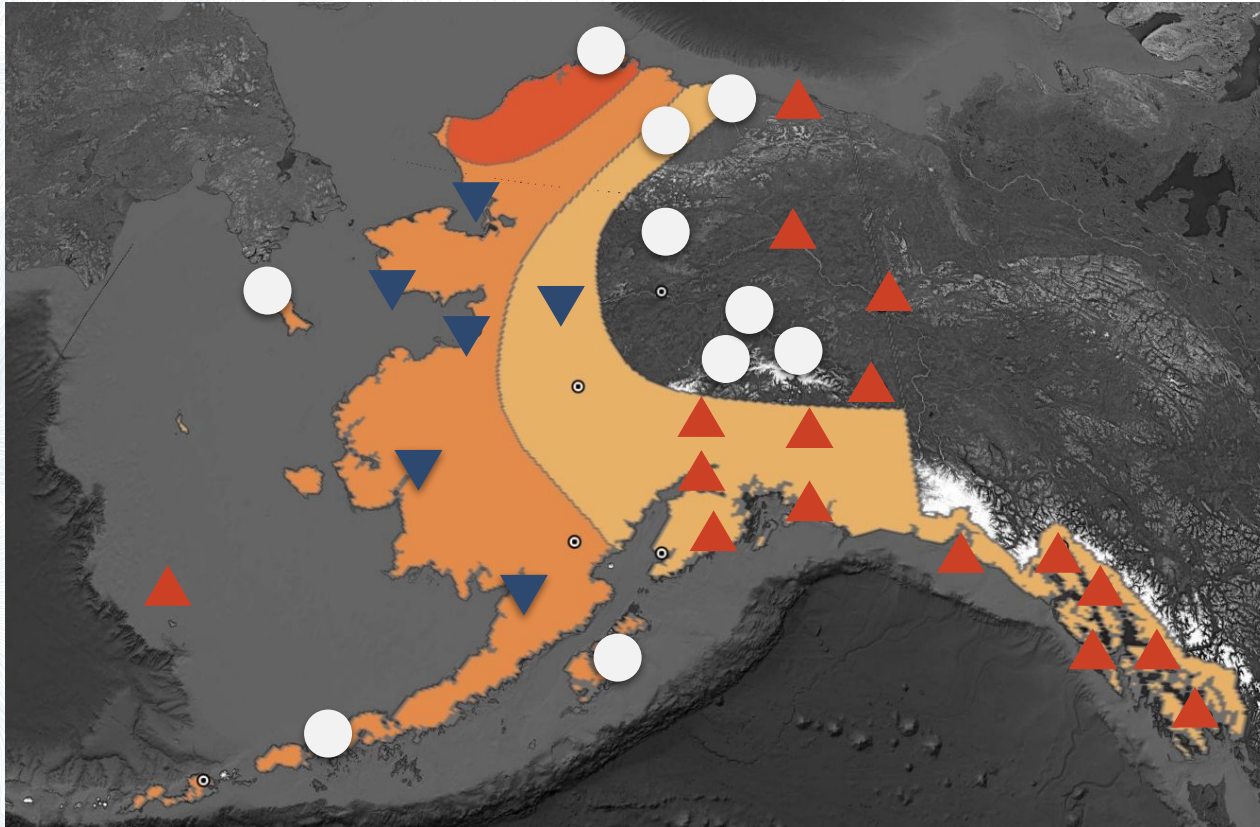
Source: ERA5 Reanalysis

Map by: Brian Brettschneider



Compared to 1991-2020 Base Period (Records Since 1950)

September 2025 temperature > CPC outlook and observed



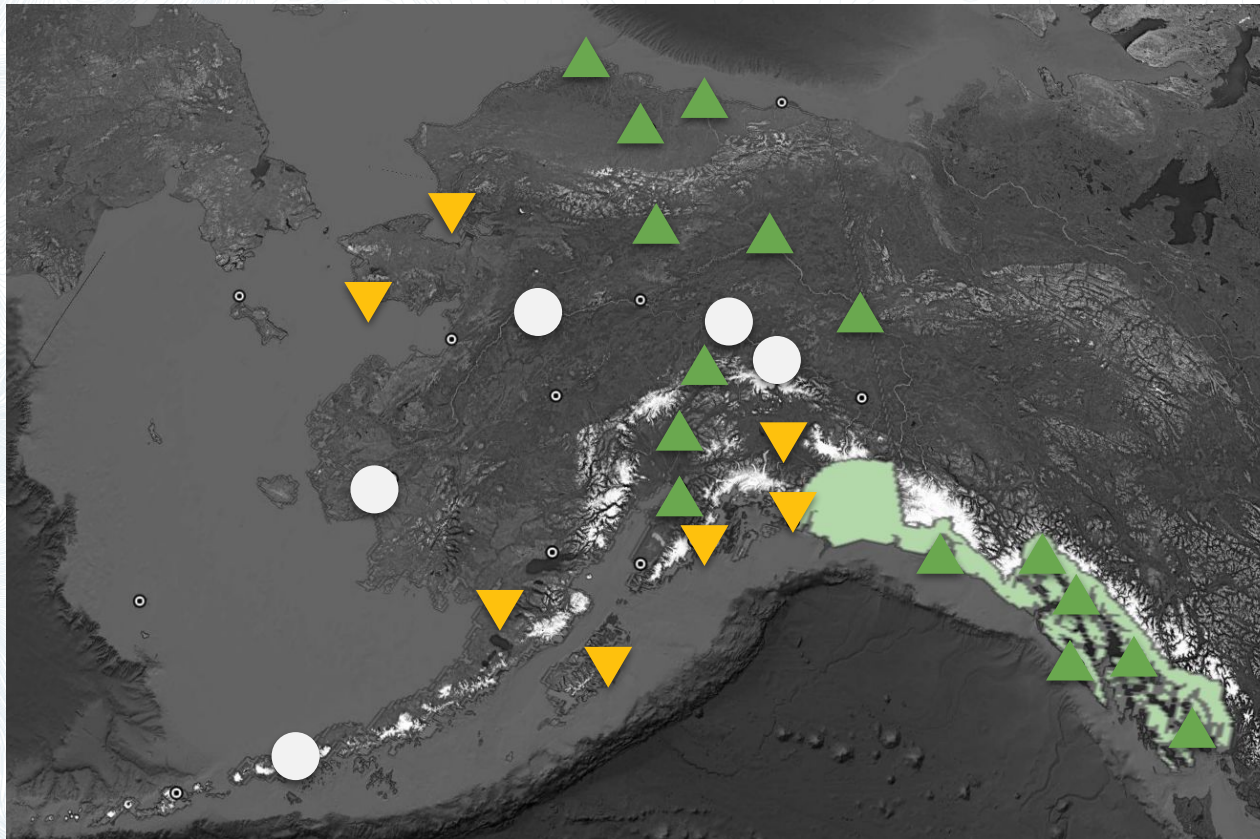
Non-EC skill
score: +25

Percent
correct: 50%

Mid-month
outlook

- ▲ Above normal
- Near normal
- ▼ Below normal

September 2025 precipitation > CPC outlook and observed



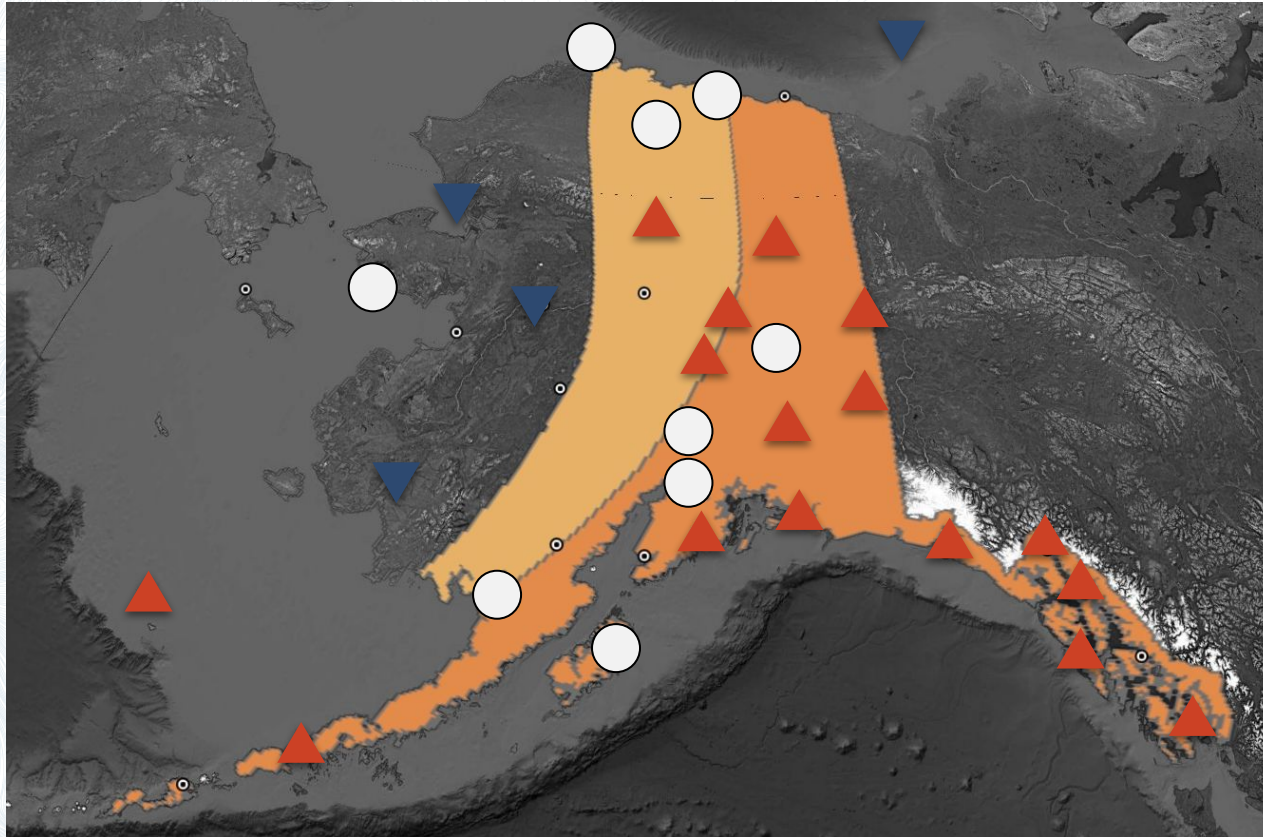
Non-EC skill
score: +79

Percent
correct: 86%

Mid-month
outlook

- ▲ Above normal
- Near normal
- ▼ Below normal

July-September 2025 temperature > CPC outlook & observed

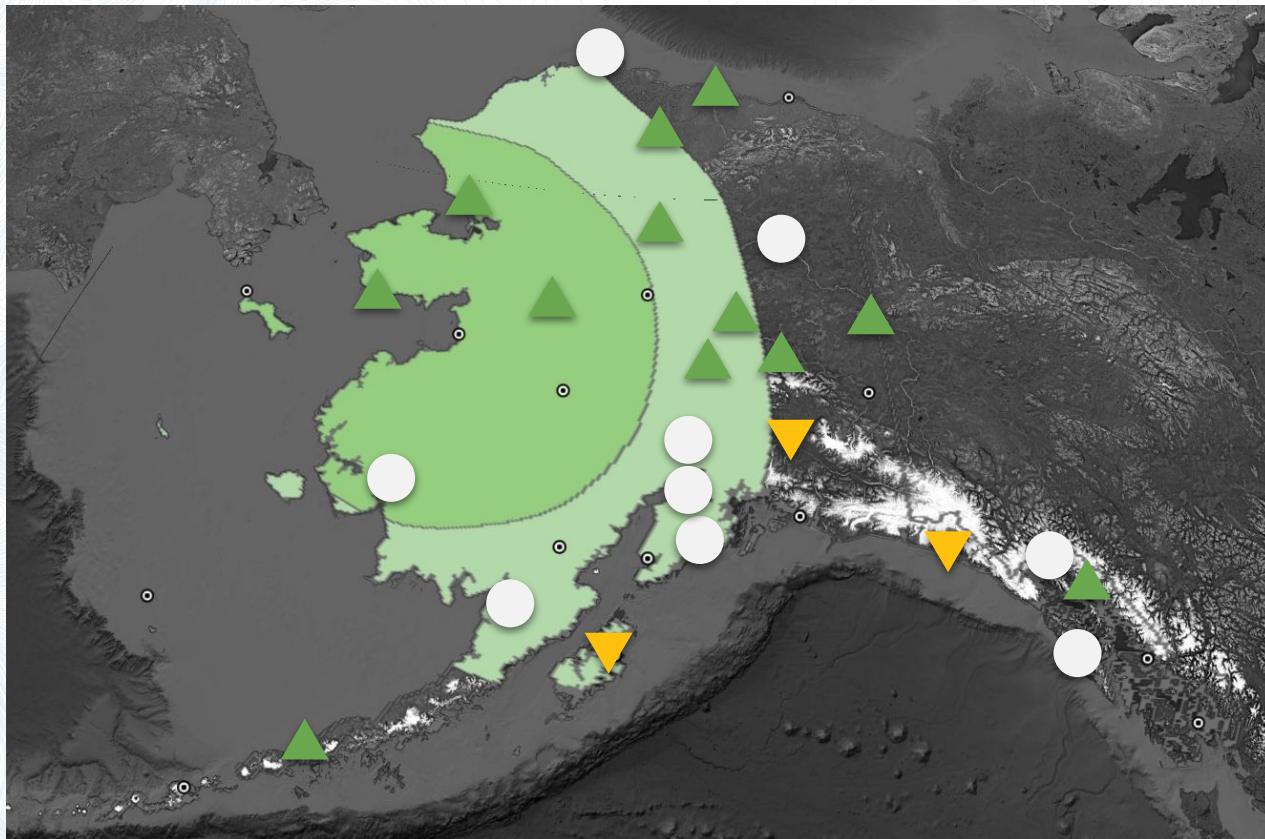


Non-EC skill
score: +50

Percent
correct: 67%

- ▲ Above normal
- Near normal
- ▼ Below normal

July-September 2025 precipitation > CPC outlook & observed

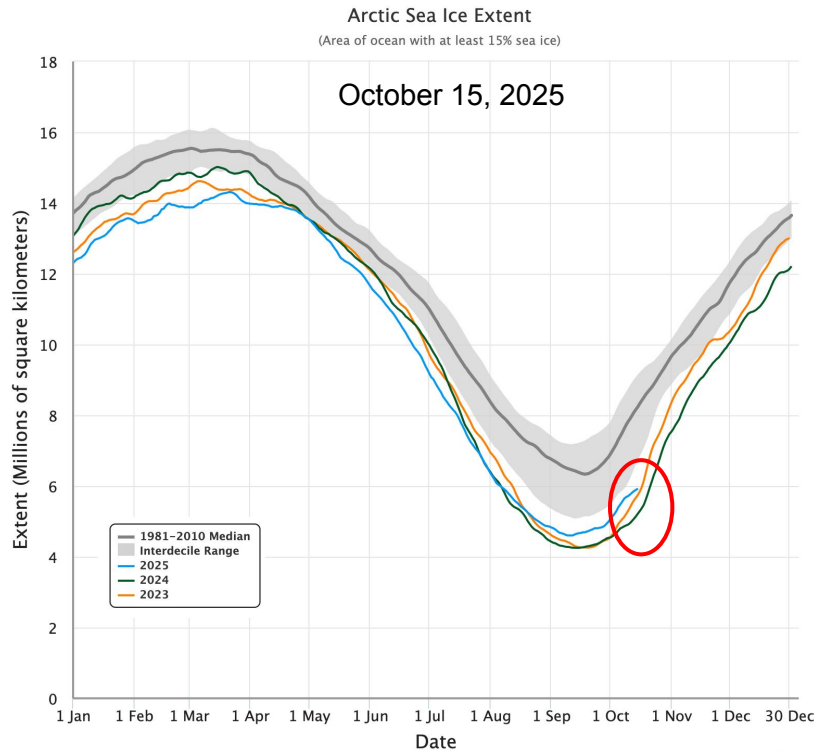


Non-EC skill
score: +30

Percent
correct: 54%

- ▲ Above normal
- Near normal
- ▼ Below normal

Arctic wide sea ice



National Snow and Ice Data Center, Boulder, CO

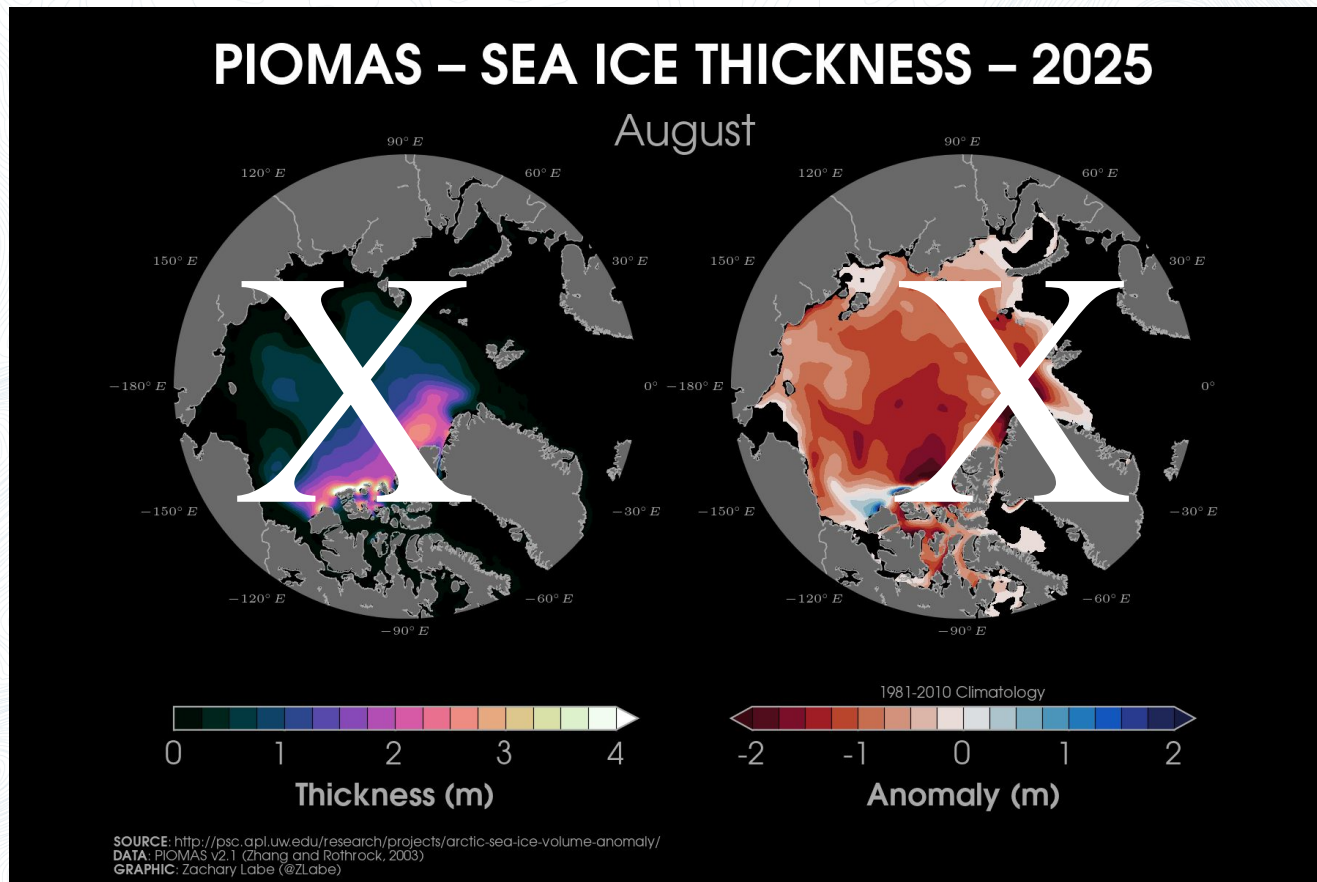
Sea Ice Extent, 15 Oct 2025



National Snow and Ice Data Center, University of Colorado Boulder

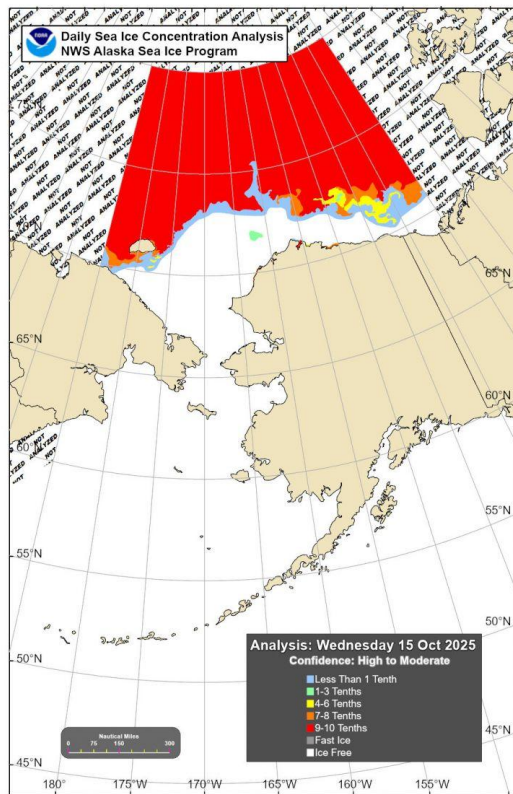
Arctic sea ice thickness

Sources:
Data from U.
Wa./PIOMAS data
Graphics by Z. Labe

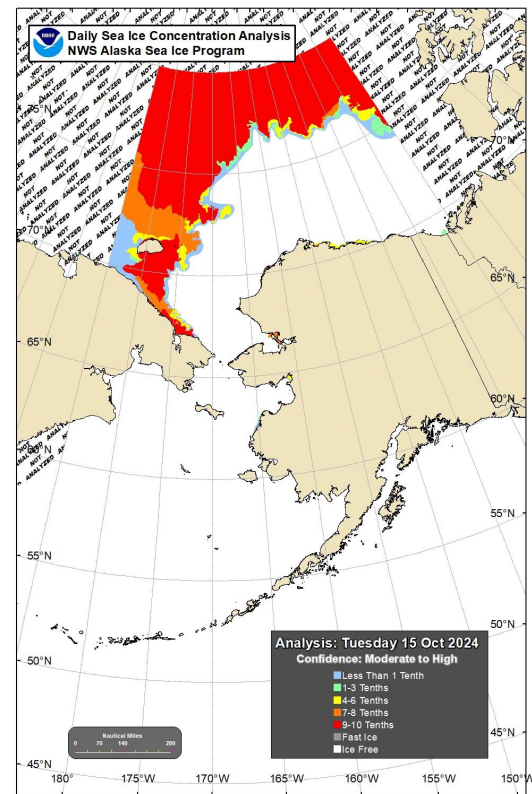


Mid-October sea ice comparison

October 15, 2025



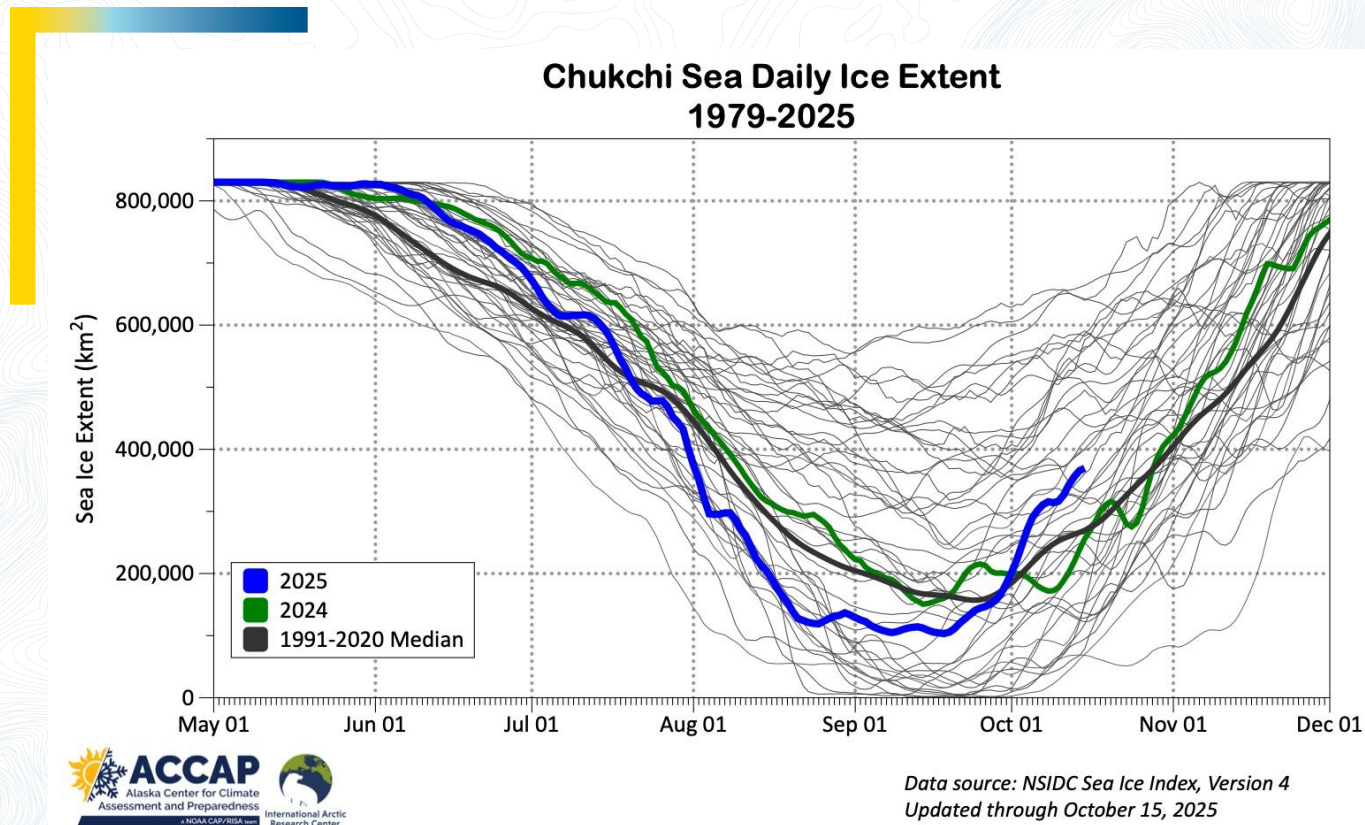
October 15, 2024



Source: National Weather Service
Alaska Region Sea Ice Program

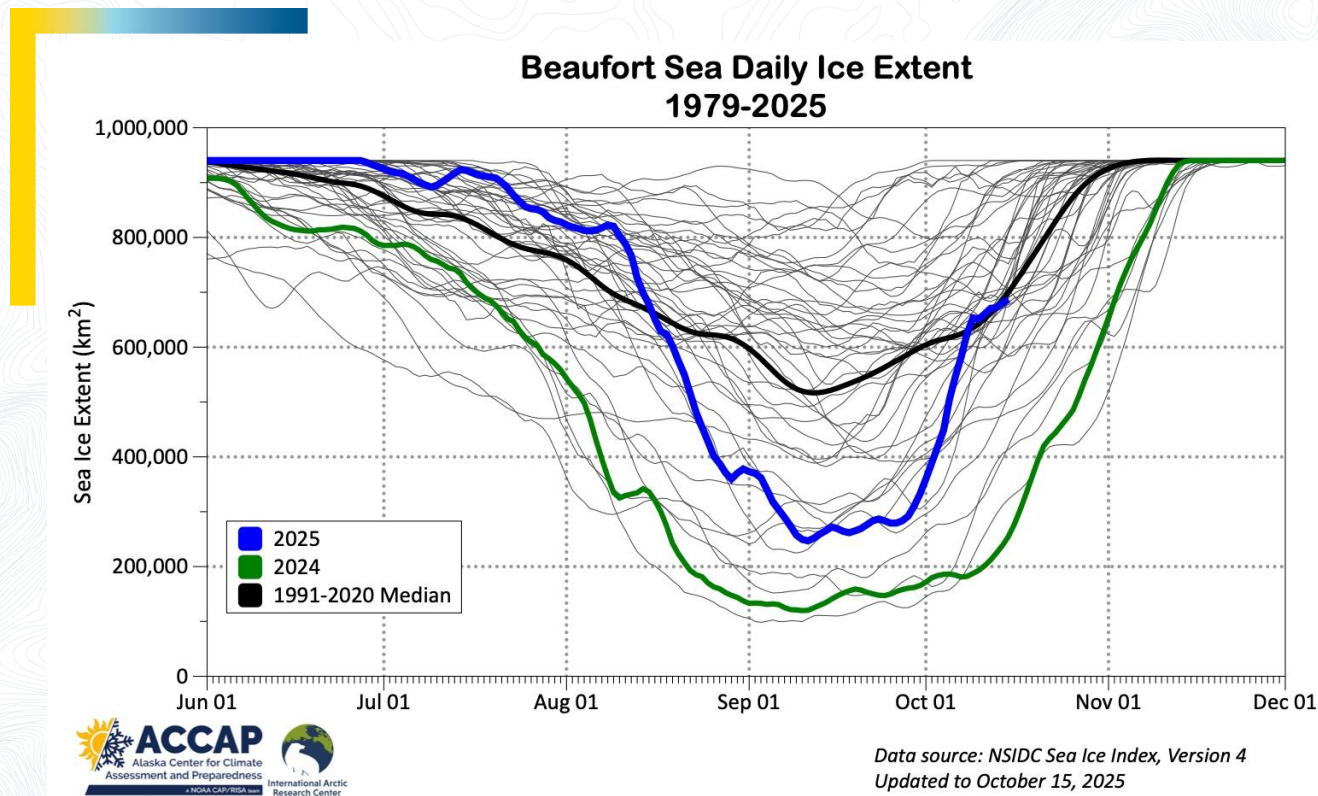
Sea ice extent through the season

Sources:
Data NSIDC Sea Ice Index,
Version 4.

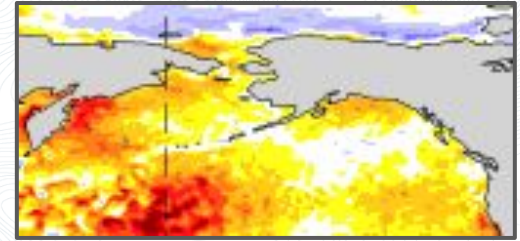
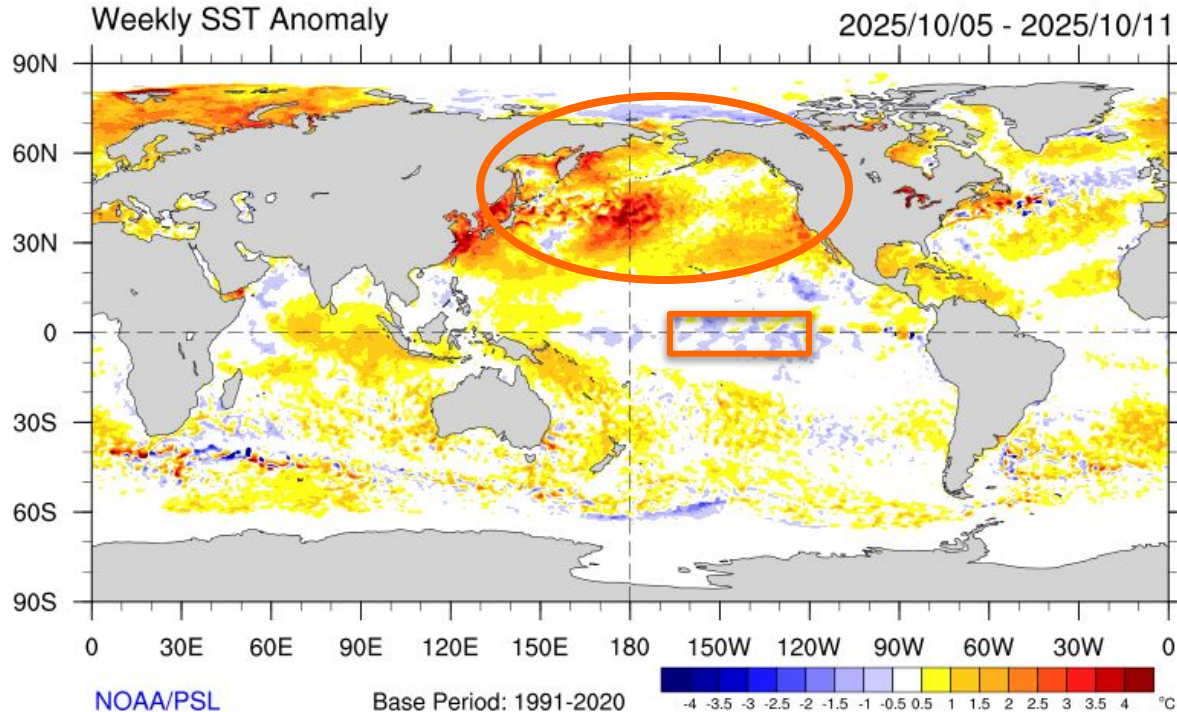


Sea ice extent through the season

Sources:
Data NSIDC Sea Ice Index,
Version 4.



Global sea surface temperature departure from normal

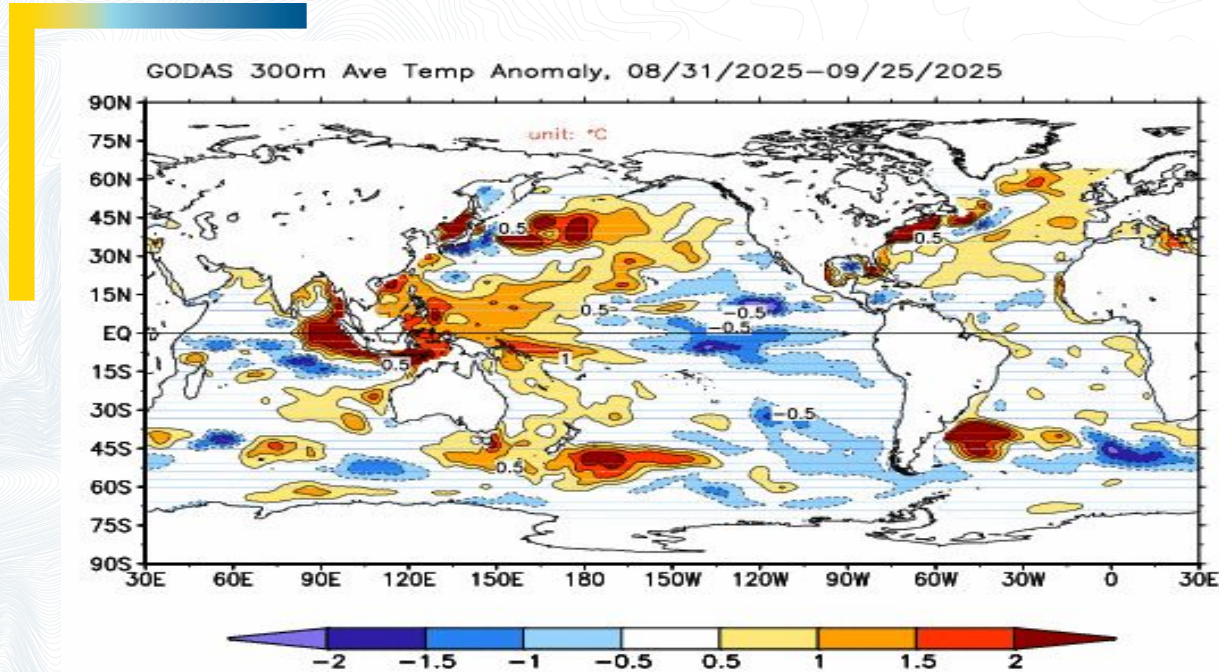


ONI for **Jul-Sep**: -0.3

PDO for **Sep 2025**: -1.3

Sources: ONI from CPC
PDO Index from WCS

Upper ocean heat departure from average



Little change near Alaska

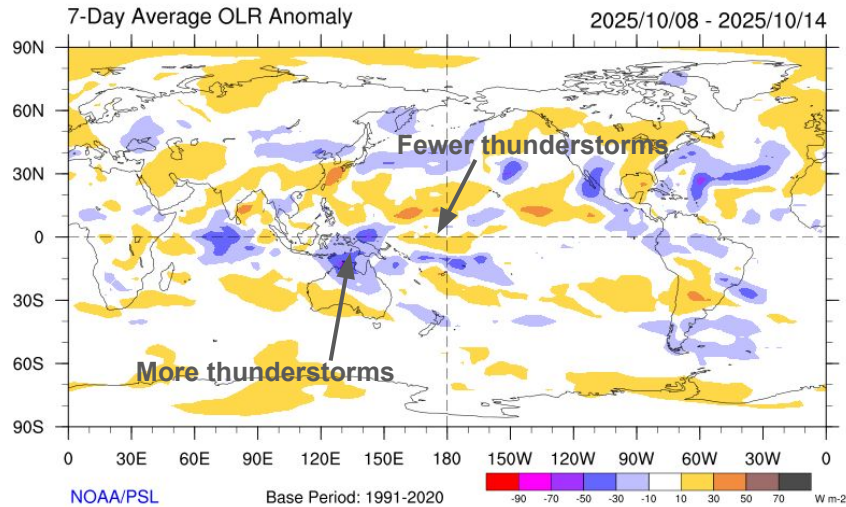
Source: NOAA/CPC

Upper 300 meters of the ocean

Tropical Pacific atmosphere

Jul-Sep Oceanic
Niño Index: -0.3

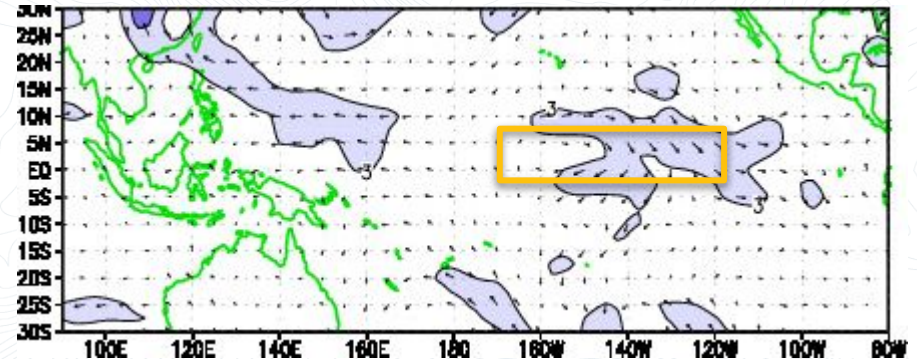
Deep tropical convection
Via “outgoing longwave radiation”



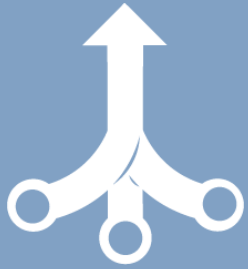
Enhanced trade winds
Niño Region 3.4



Trade winds
850 mb wind difference from average
September 14-October 13, 2025



Behind the
climate
forecast



El Niño/La Niña (ENSO) ➤ expert evaluation

Statistical models ➤ using the past

- Temperature and Precipitation

Dynamical models ➤ All physics, all the time

- Sea surface temperatures
- Sea Ice
- Temperature and Precipitation

CPC Niño 3.4 forecasts > experts

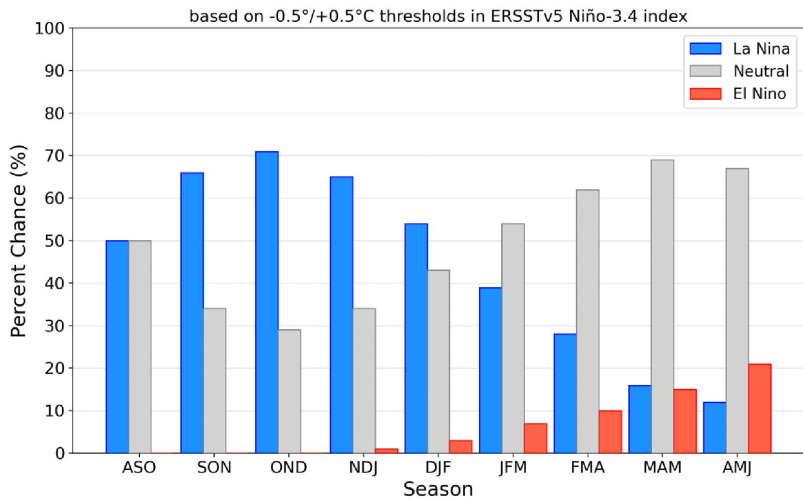
September 2025

October 2025

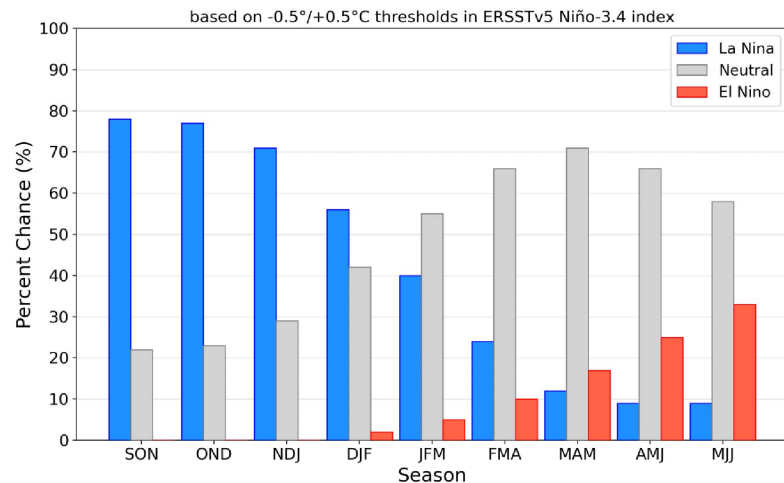
ENSO Alert System Status:

La Niña Advisory

Official NOAA CPC ENSO Probabilities (issued September 2025)



Official NOAA CPC ENSO Probabilities (issued October 2025)



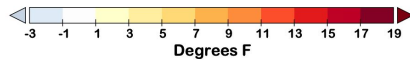
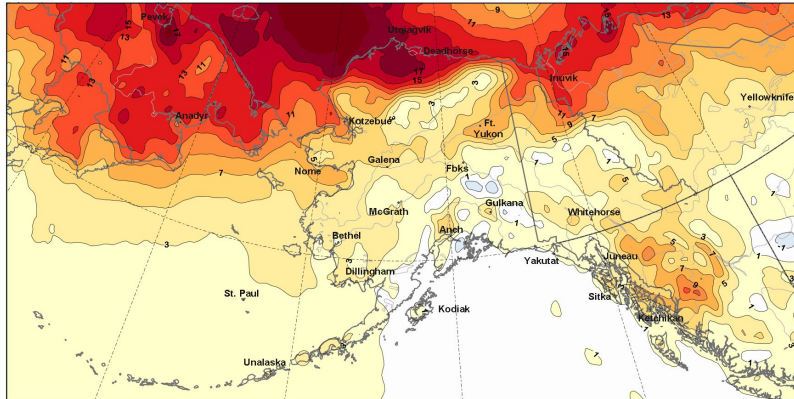
**Statistical
guidance** ➤
using the past
to predict the
future

- Long term trends
- Optimum climate normals: Alaska trends the past 15 years

November half century trends

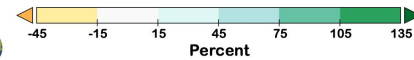
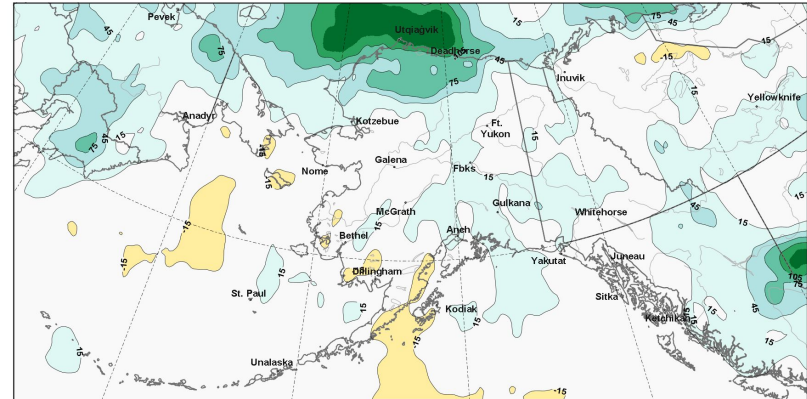
Temperatures

Change in November Average Temperature
1975-2024



Precipitation

Percent Change in November Average Precipitation
1975-2024

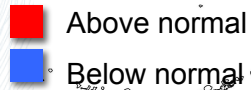


Change in the average
over 50 years

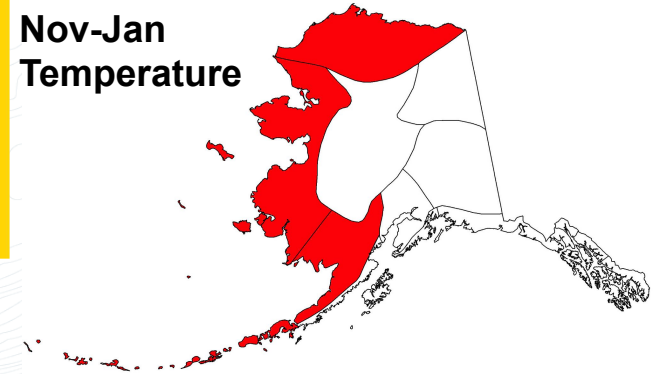
2010-11 to 2024-25 trends

Past 15 years compared
to 1991-2020

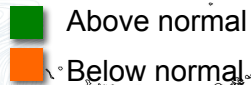
November Temperature



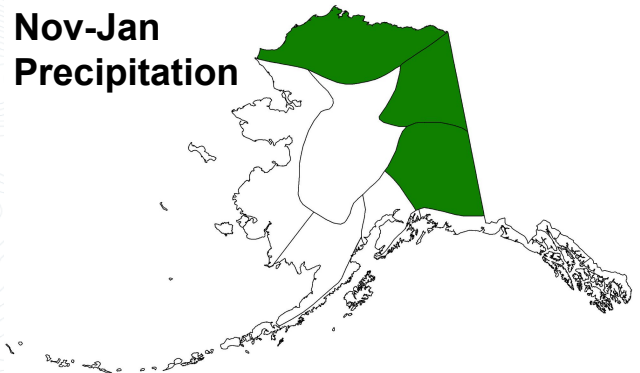
Nov-Jan Temperature



November Precipitation



Nov-Jan Precipitation

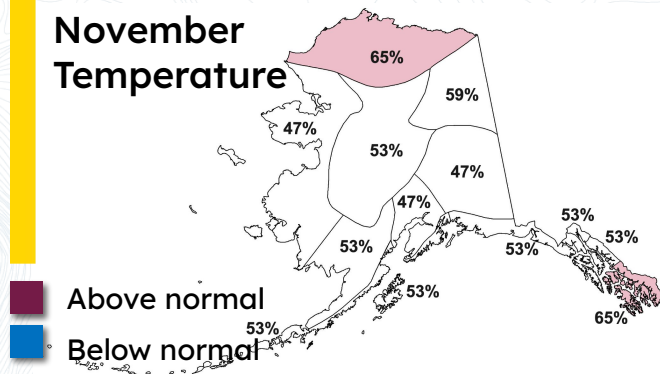


17 La Niña since 1976

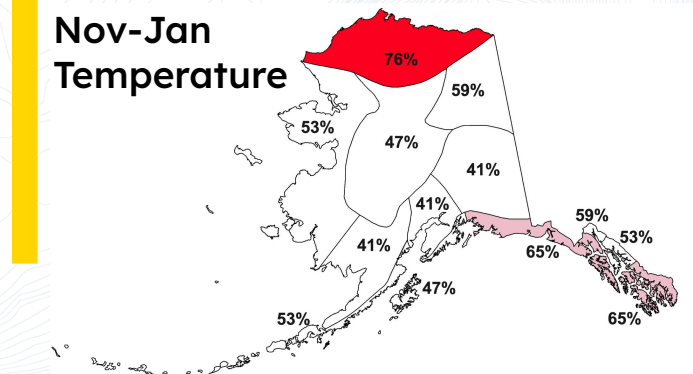
1983, 1984, 1988, 1995, 1998, 1999, 2000, 2005, 2007, 2009, 2010, 2011, 2016, 2017, 2020, 2021, 2022

Percent years above average

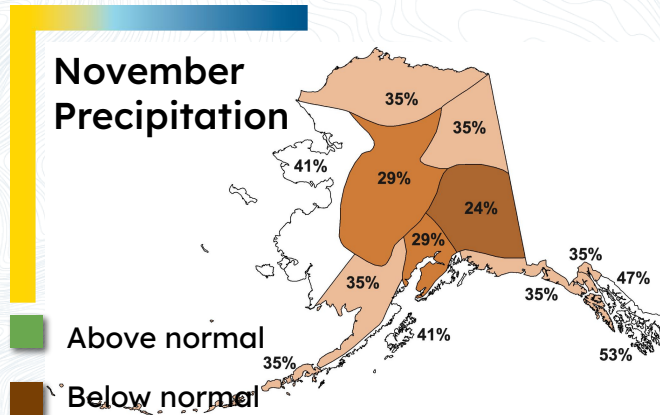
November Temperature



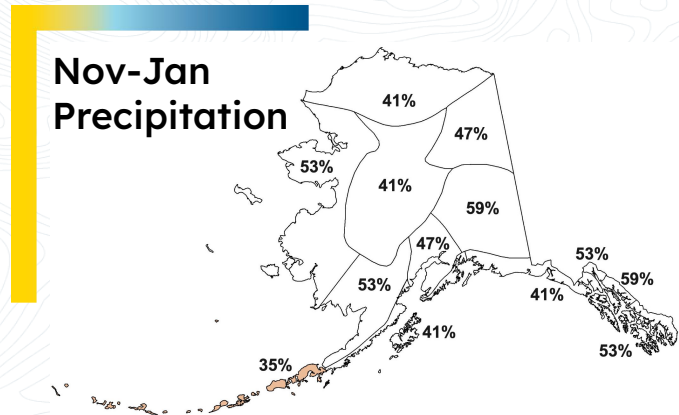
Nov-Jan Temperature



November Precipitation



Nov-Jan Precipitation



Dynamic model forecasts

Current suite of Dynamic Climate Models

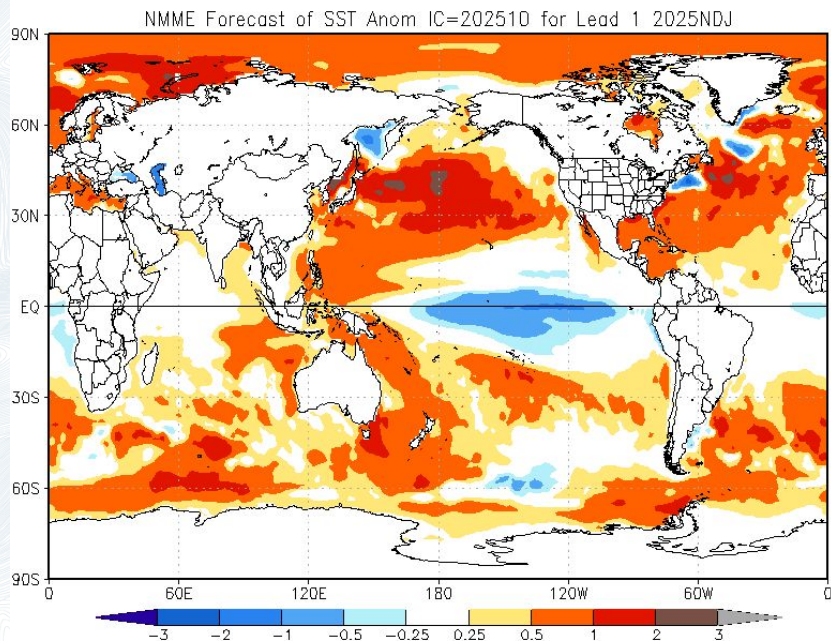
- CPC Experimental Sea Ice Ensemble
- World Climate Service Multi-Model Ensemble
- North American Multi-Model Ensemble (NMME)

What's being forecasted

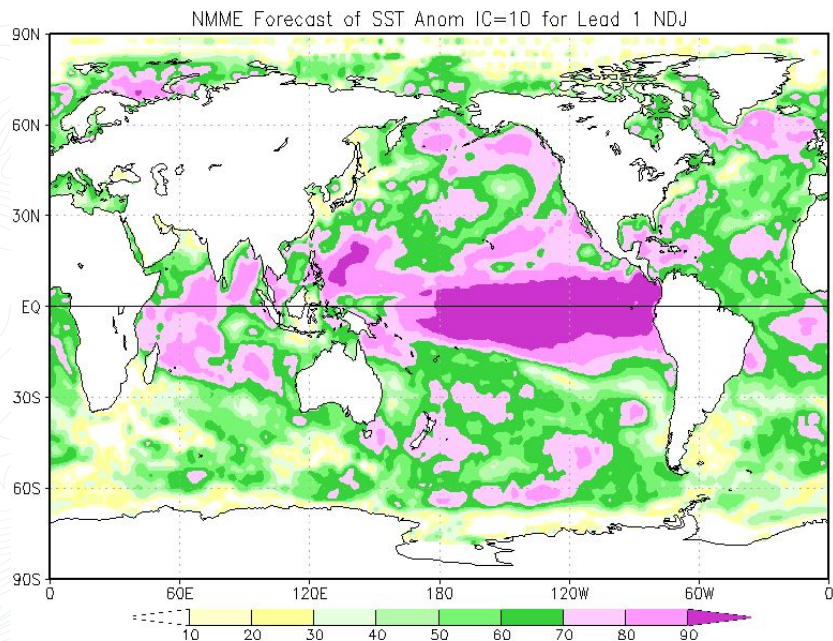
- Sea surface temperatures relative to normal
- Sea ice forecast
- Temperature and precip relative to normal

November 2025-January 2026 sea surface temperature ➤ NMME

Forecast
departure from normal



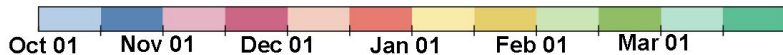
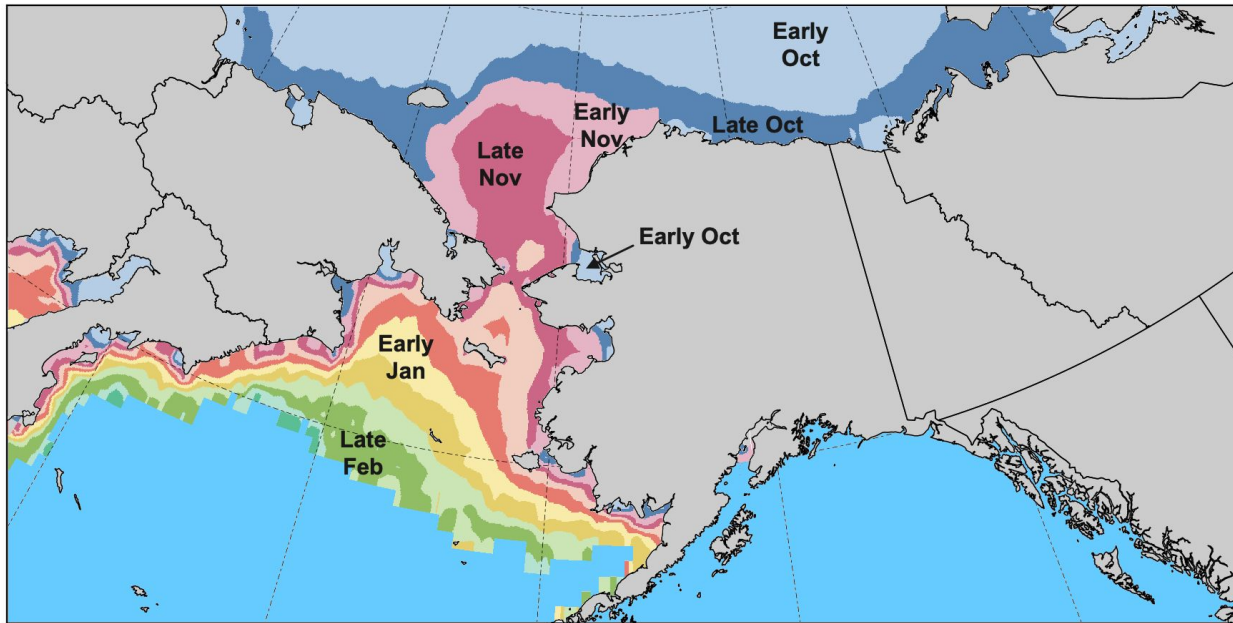
Skill
of the forecast



Experimental sea ice forecast > CPC

Date of first sea ice concentration 15 percent or higher

Fall/Winter 2025-26



The 20-models average of first date with ice concentration 15 percent or higher
From data though late September

November 2025 calibrated probability forecast ➤ NMME

Forecast from →



Temperature

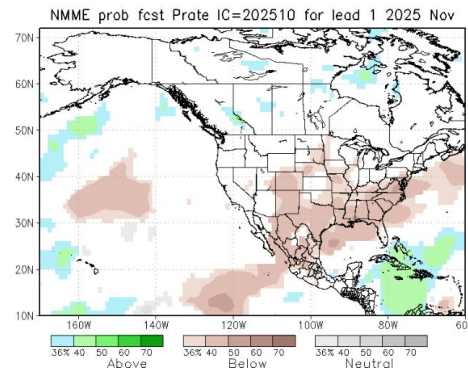
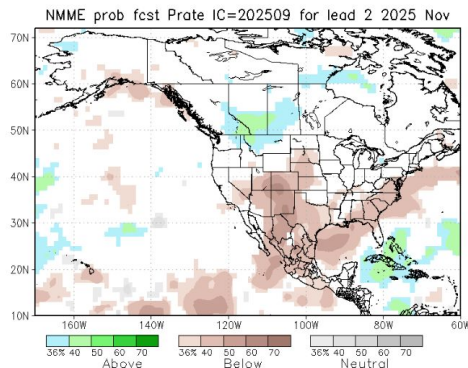
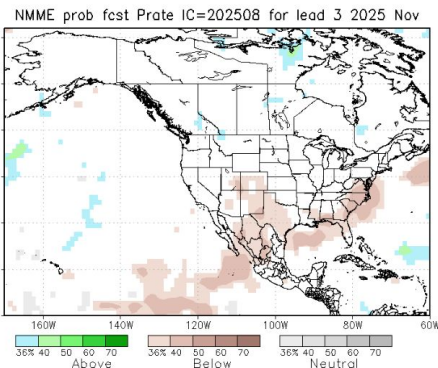
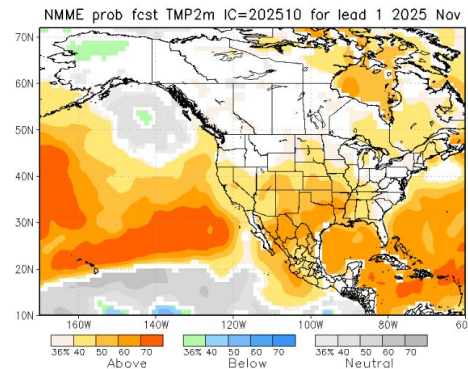
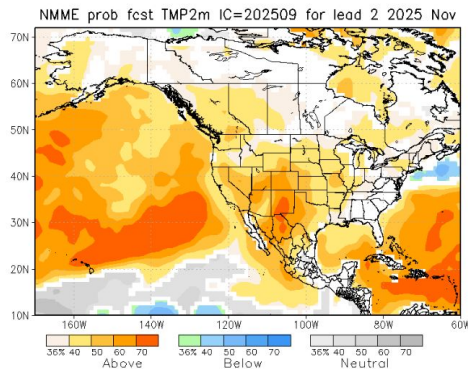
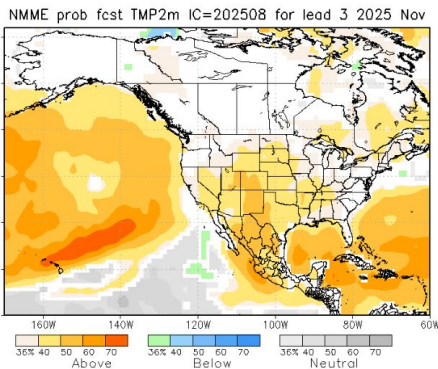


Precipitation

August

September

October

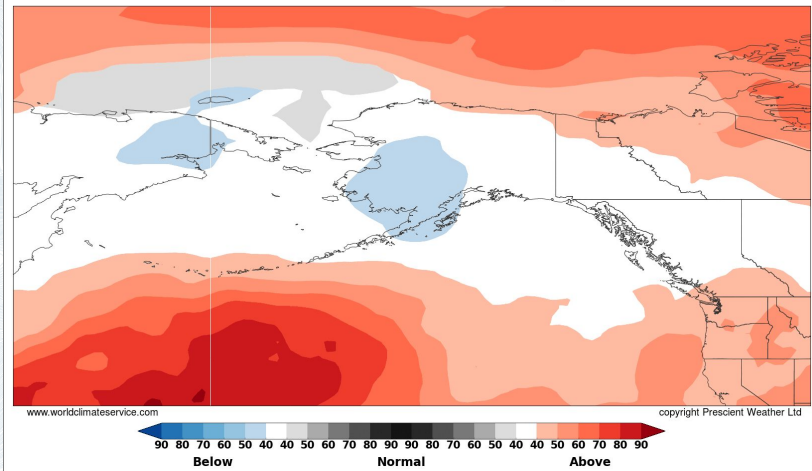


November 2025 outlooks > World Climate Service

Temperature



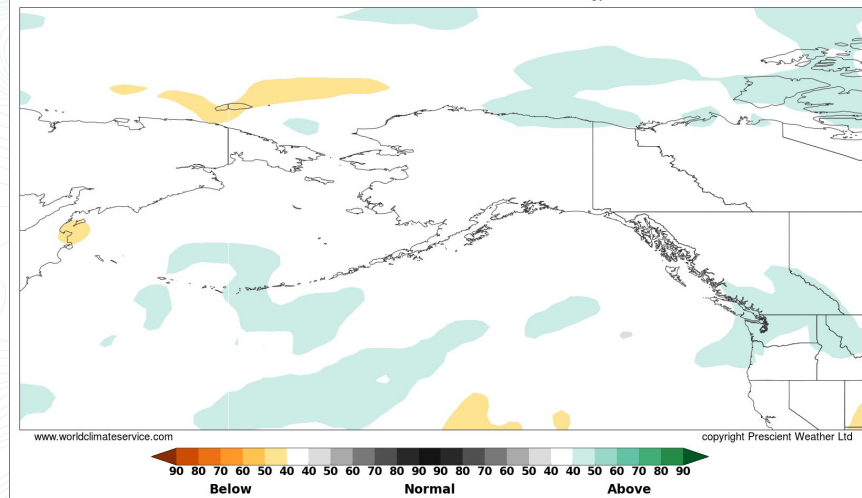
Multi-Model T2m Probability Above/Normal/Below
Forecast Valid November 2025
Initialized October 2025 1991-2020 Climatology



Precipitation



Multi-Model Precipitation Probability Above/Normal/Below
Forecast Valid November 2025
Initialized October 2025 1991-2020 Climatology



Bias Corrected, Skill Weighted CFS + ECMWF

November 2025-January 2026 calibrated probability forecast ➤ NMME

Forecast from →



Temperature

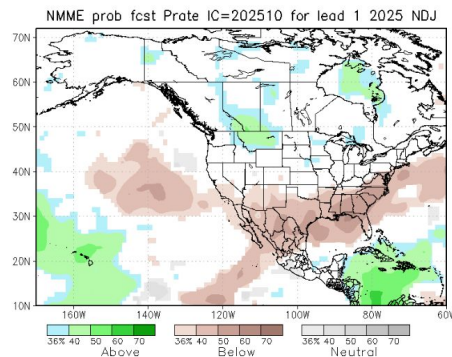
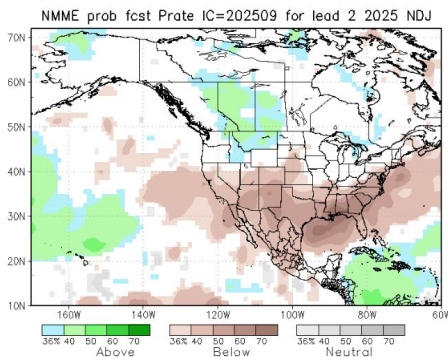
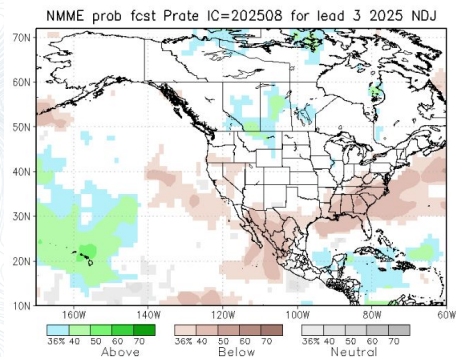
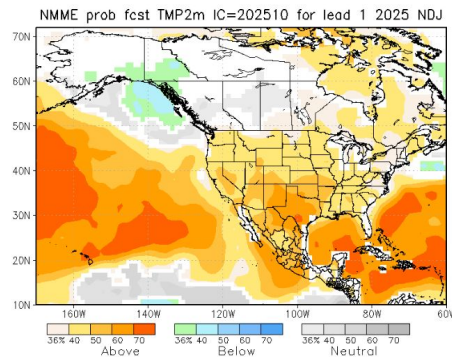
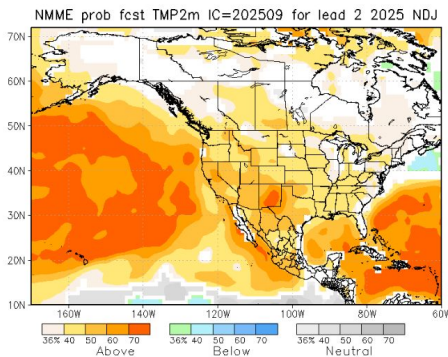
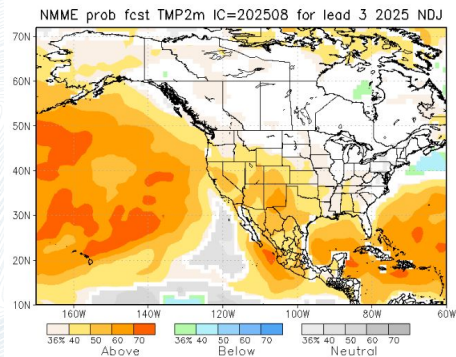


Precipitation

July

August

September

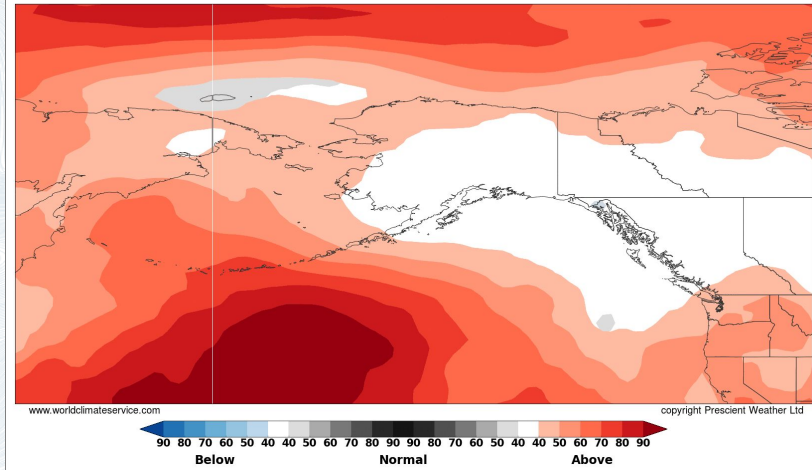


November 2025-January 2026 outlooks ➤ World Climate Service

Temperature



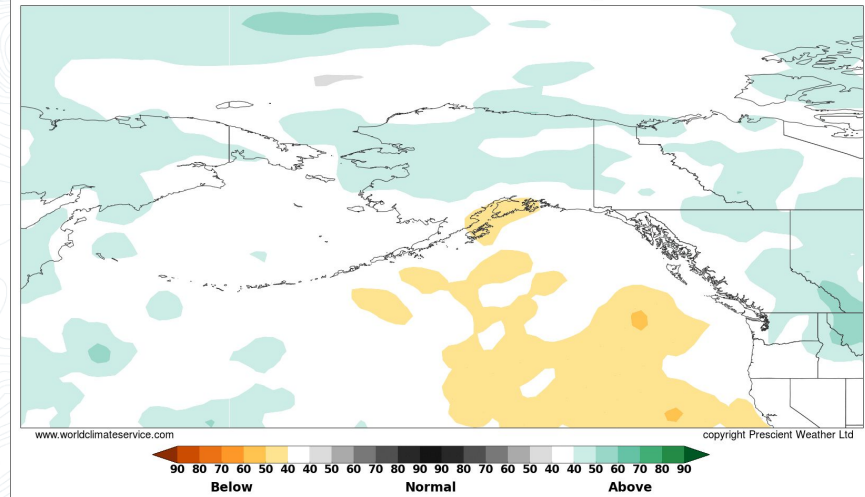
Multi-Model T2m Probability Above/Normal/Below
Forecast Valid Nov 2025 - Jan 2026
Initialized October 2025 1991-2020 Climatology



Precipitation

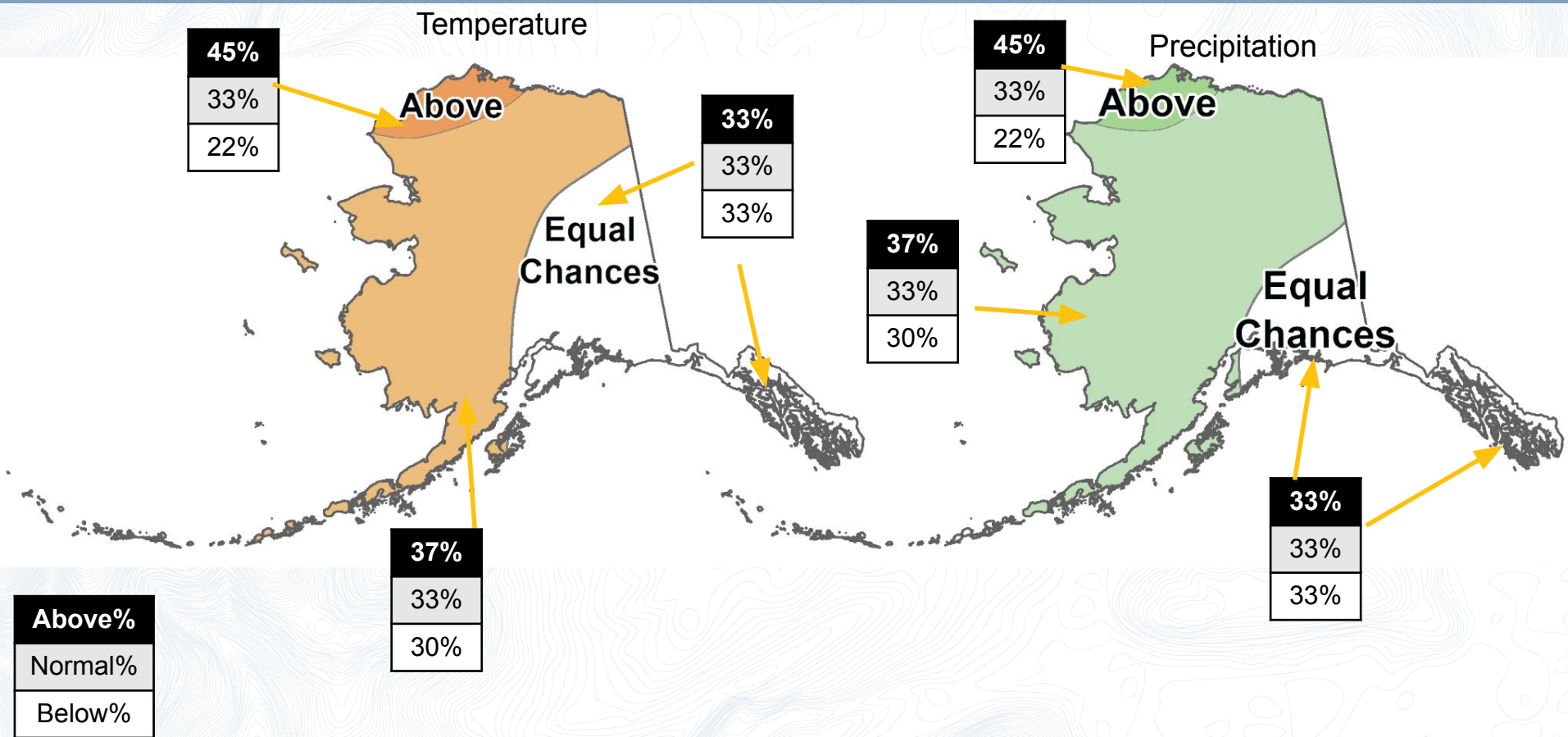


Multi-Model Precipitation Probability Above/Normal/Below
Forecast Valid Nov 2025 - Jan 2026
Initialized October 2025 1991-2020 Climatology



Bias Corrected, Skill Weighted CFS + ECMWF

November 2025-January 2026 outlooks from **September**



Future
outlook



And the answer is...

CPC November 2025 outlooks

Temperature

Precipitation

45%
33%
22%

37%
33%
30%

37%
33%
30%

33%
33%
33%

33%
33%
33%

45%
33%
22%

Above%
Normal%
Below%

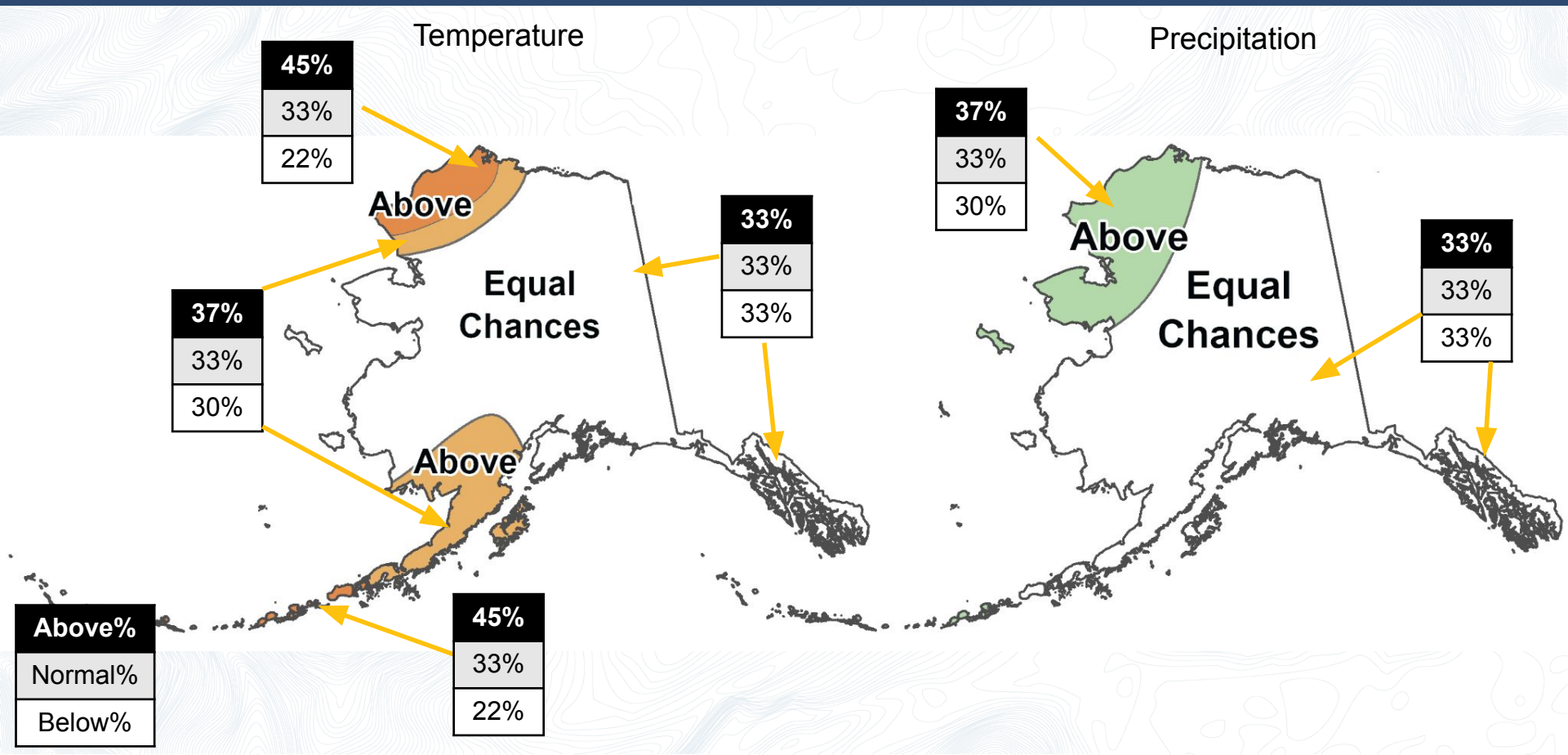
Above

Equal Chances

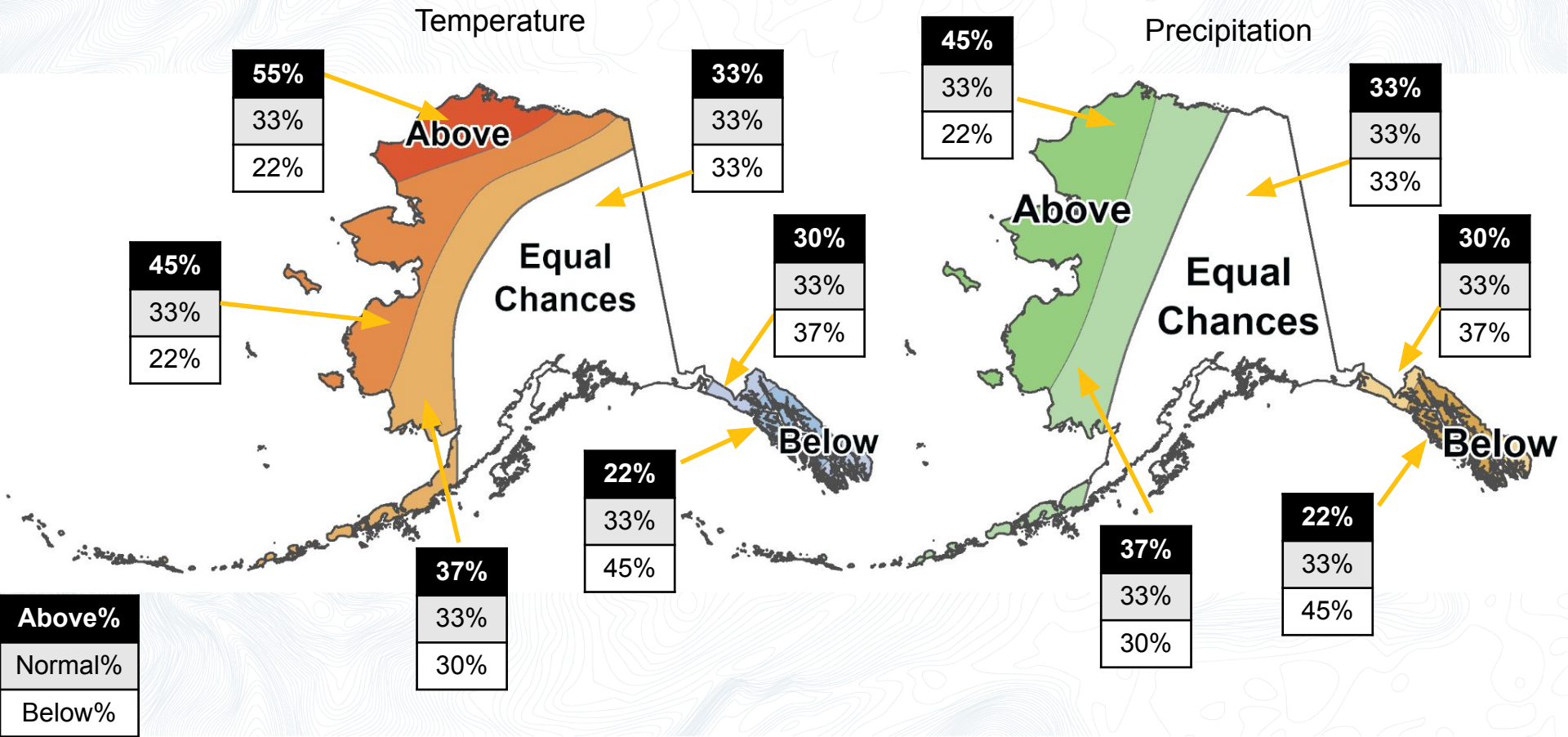
Above

Above

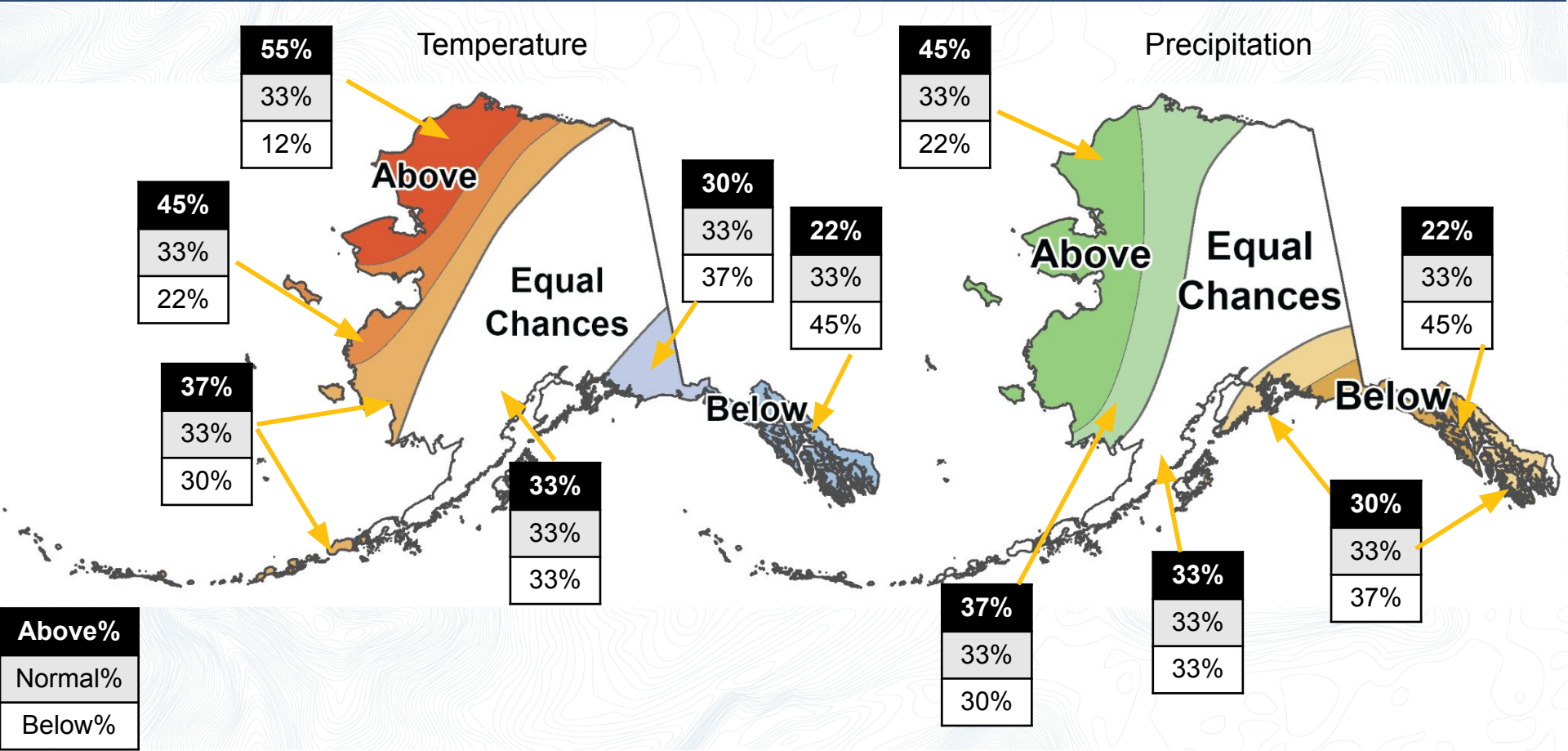
Equal Chances



CPC November 2025-January 2026 outlooks



CPC Winter 2025-26 outlook

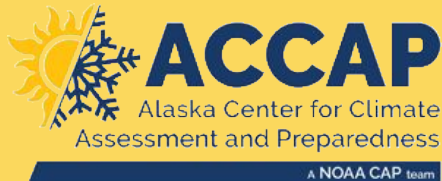


Upcoming ACCAP webinars

Upcoming ACCAP webinars accap.uaf.edu/events

- November 13 ▶ Ex-Typhoon Halong: the weather and climate story
- November 21 ▶ NWS Monthly Climate Outlook Briefing

Email Rick Thoman rthoman@alaska.edu



ACCAP is housed at the International Arctic
Research Center on the University of Alaska
Fairbanks Troth Yeddha' Campus