



Bering Land Bridge N Pres. • Cape Krusenstern NM
Gates of the Arctic NP & Pres. • Kobuk Valley NP • Noatak N Pres.

Fall 2024

Weather & Climate Summary Western Arctic Parklands Fall 2024

Arctic Autumn – Fall colors in Noatak National Preserve. NPS Photo

Kotzebue Fall Weather 2024

Overall, the reported fall season temperatures from the Kotzebue automated weather station at the airport were near normal (Table 1, Figure 2). Very warm, above-freezing temperatures were ushered in by the impactful storm in mid-October. Cooler than normal temperatures dominated November 9-18 before another warm-up November 19-25. Although at this point the official temperature readings still stand, a potential cold bias presumably due to sensor malfunction may have affected data prior to mid-October.

We also looked at the temperature departures for the fall season for the Western Arctic Parklands using the ERA5 data which integrates large volumes of data to provide a consistent and spatially rich temperature map. In Figure 1 the darker yellow shading indicates that fall season temperatures in the WEAR parks were 0.5 to 2.5°F warmer than the 1991-2020 normal, while Kotzebue was in the near normal range (grey shading).

The fall season was drier than normal with only 1.54 inches of total precipitation for the season (Table 2, Figure 3). This was the driest fall since 1981 and the 12th driest on record. The Kelly site near the ranger station and the Red Dog Mine station both reported more than 2.5 times more fall precipitation than Kotzebue with 4.30 inches and 4.11 inches respectively.

Table 1. Kotzebue average monthly temperatures compared to the 1991-2020 normal.

Fall 2024	Average Monthly Temp (°F)	1991-2020 Normal (°F)	Departure from Normal (°F)
September	41.3*	43.1	-1.8*
October	27.6*	26.9	0.7*
November	10.6	10.8	-0.2

Fall temperature departure from normal: -0.4*°F. (*Preliminary data subject to change. Kotzebue; sensor potentially reading 1-2 degrees cooler in September/October)

Table 2. Kotzebue monthly precipitation totals compared to normal

Fall 2024	Total Monthly Precip. (in.)	1991-2020 Normal (in.)	Departure from Normal (in.)
September	0.66	1.42	-0.76
October	0.39	1.07	-0.68
November	0.49	0.82	-0.33

Fall precipitation departure from normal: -1.77 in. (47% of normal)

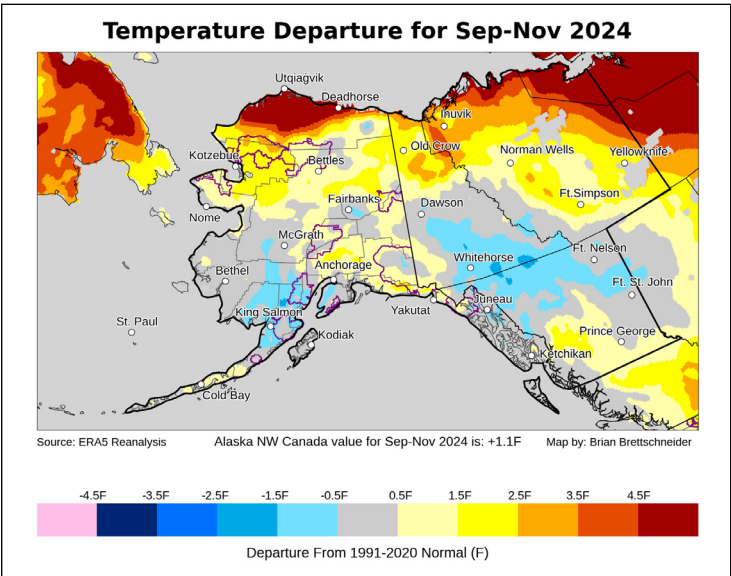


Figure 1. 2024 average fall season temperature departure for Alaska. Map courtesy of Brian Brettschneider using ERA5 reanalysis data. Darker yellow shading indicates warmer than normal conditions.



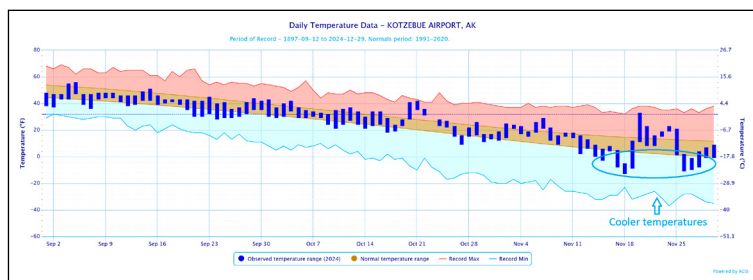


Figure 2. Fall 2024 daily temperatures at Kotzebue showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars). Data from: <http://xmacis.rcc-acis.org/>

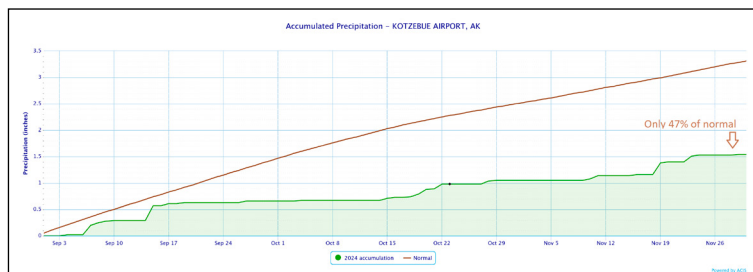


Figure 3. Fall 2024 accumulated precipitation at Kotzebue (green) compared to normal (brown line). Data from: <http://xmacis.rcc-acis.org/>

Water Year (Oct. 1 - Sep 30) Precipitation Wrap Up

The end of September brings the end of the water year which we use to calculate annual precipitation to capture the entire winter season. It was the 7th wettest year on record in Kotzebue. Total annual precipitation was 135% of normal with 15.28 inches for the water year with records back to 1943 (including years with <15 days missing). The three wettest months, in order, were April (236% of normal), July (204% of normal), and August (201% of normal). It was a wet year statewide, particularly in northwest Alaska (Figure 4).

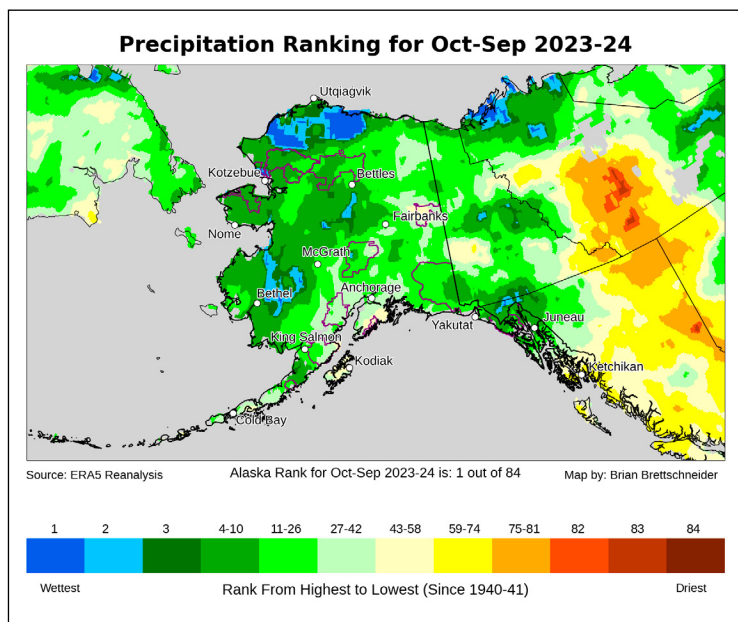


Figure 4. Statewide precipitation ranking for the 2024 water year October 2023 – September 2024 (back to 1940). Map courtesy of Brian Brettschneider using ERA5 reanalysis data. Dark blues/greens on map indicates wetter years.

High Impact Flooding in Kotzebue

Overall, the fall season was drier than normal, but there was one impactful storm that disrupted the Kotzebue community. A powerful fall storm pounded the western coast of Alaska with high winds and strong surf on October 22. According to the National Weather Service the water levels around Kotzebue were 2 to 5 feet above the normal high tide line bringing storm surges 30 feet further inland. Winds were gusting above 50 mph. Elders in the community noted that it was the most devastating flood in living memory. The storm surge enveloped the community damaging homes, scattering personal property, and forcing the closure of the airport due to runway and terminal flooding (Figure 5). Much of the community was without power or water for several days.



Figure 5. Storm photos captured by NPS district ranger Joe Dallemolle on October 22. Looking south towards the main airport runway (top) and flood waters inundating homes and vehicles in Kotzebue (bottom).

More Information

Pam.Sousanes@nps.gov; ph 907-455-0677

Kenneth.Hill@nps.gov; ph 907-455-0678

<https://www.nps.gov/im/arcn/climate.htm>

Data disclaimer: Please note that the near-real time data used to generate these reports is subject to change. QA/QC data from the NPS ARCN climate stations are available at [NPS Data Store](https://www.nps.gov/im/arcn/climate.htm)