

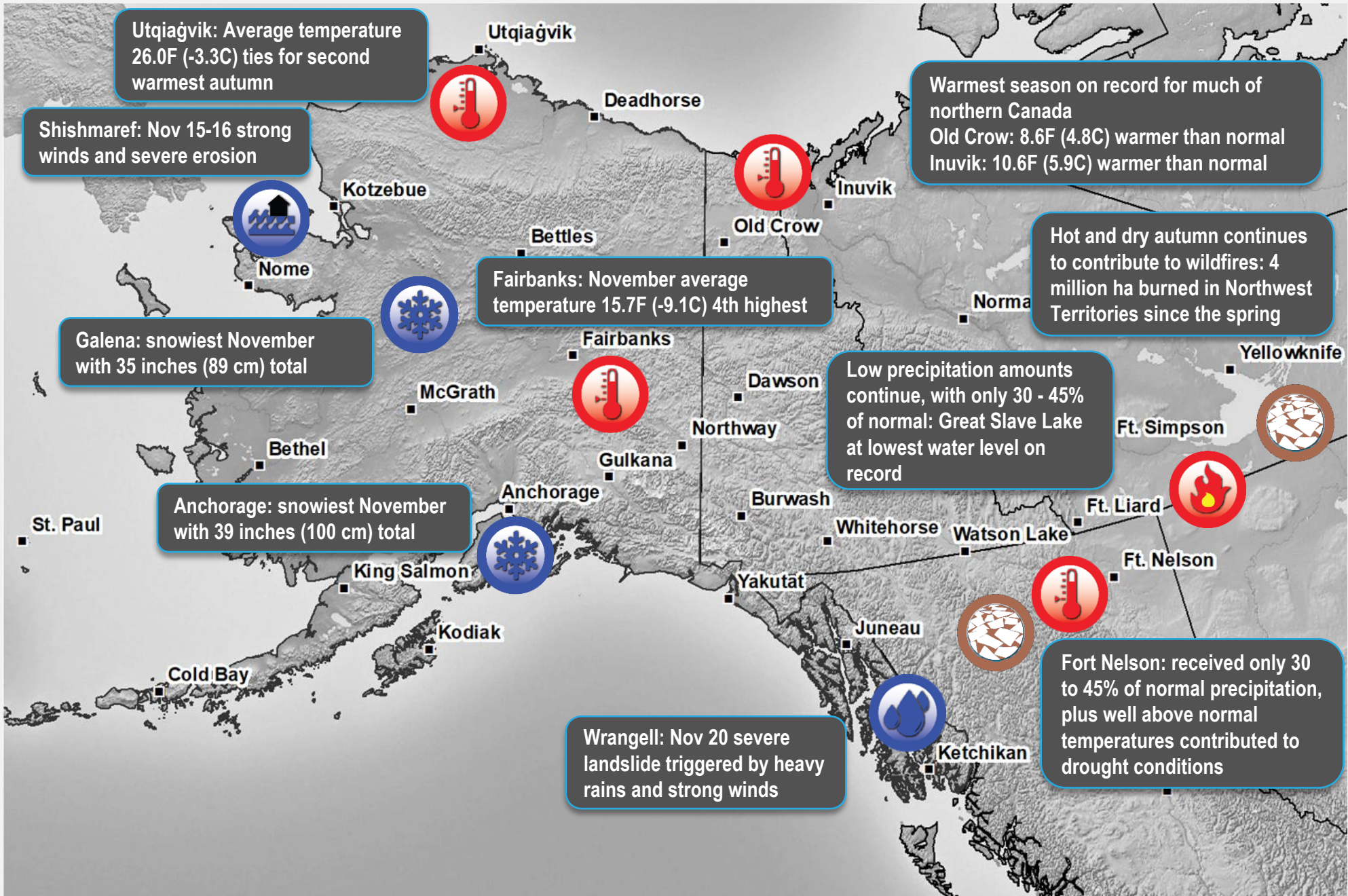
# ALASKA and NORTHWESTERN CANADA

Weather and Climate Highlights and Impacts, September 2023 to November 2023  
Climate Outlook, January 2024 to March 2024



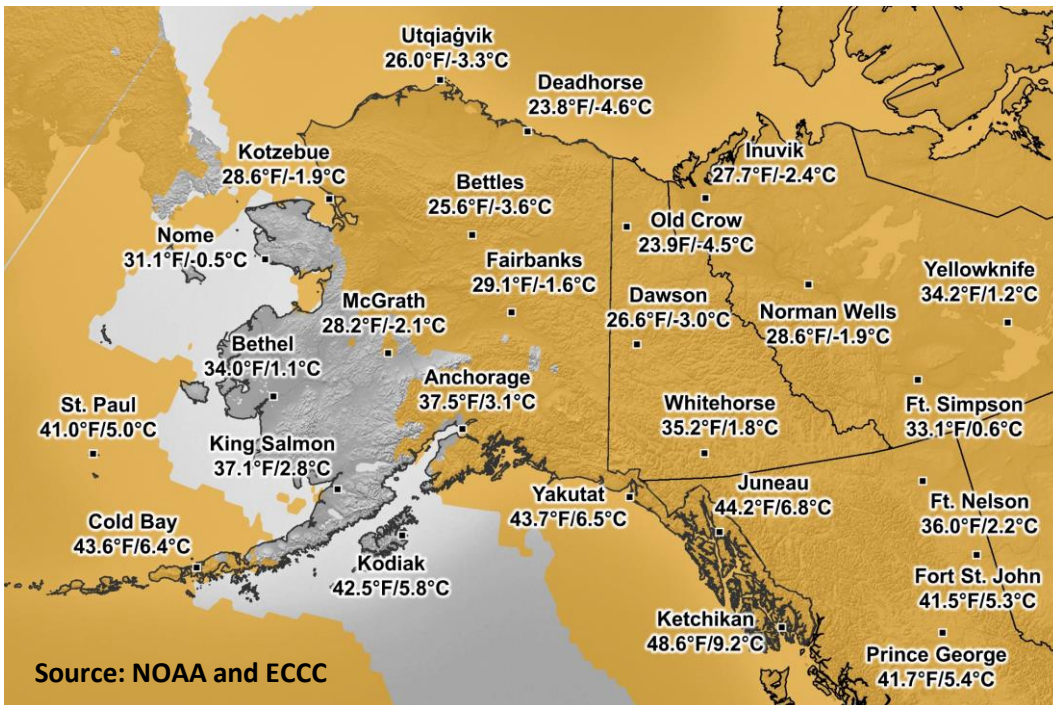
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Sept to Nov 2023 Temp Averages (°F/°C) & Anomalies - **Below** / **Above** / **Normal**



Fatal Alaska Landslide Associated with Sustained Rain



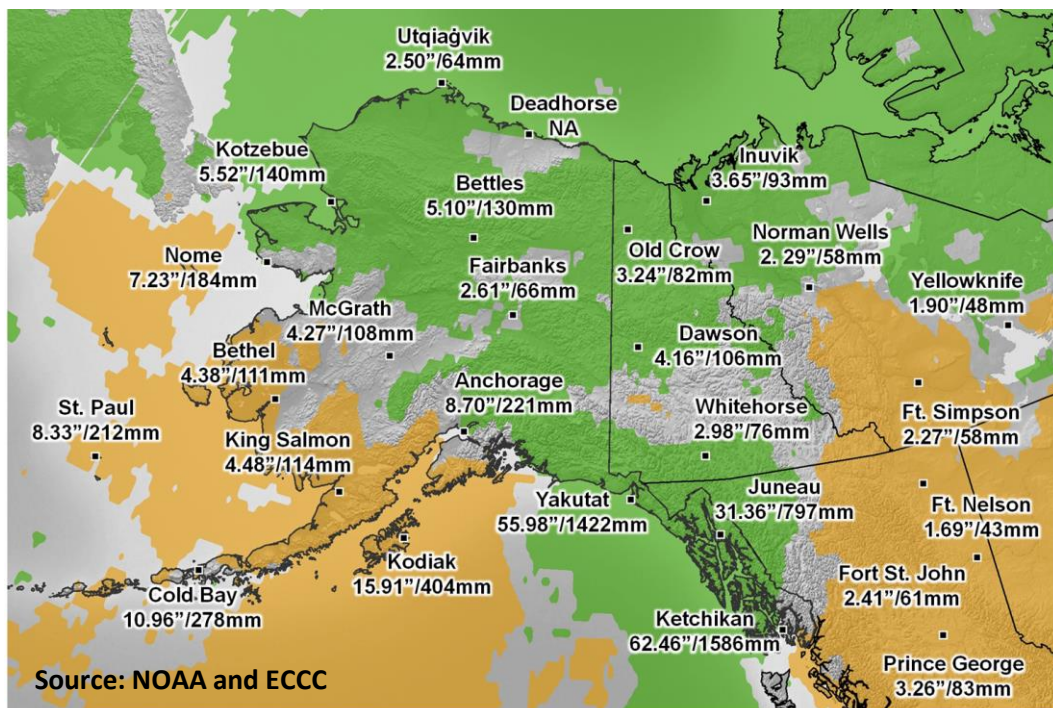
Landslide outside Wrangell in Southeast Alaska  
Photo credit: Alaska Department of Transportation and Public Facilities

On November 20, a landslide occurred in a residential area along the Zimovia Highway, just outside the city of Wrangell in Southeast Alaska. The remains of five people have been found, with a sixth still missing, and three homes were destroyed by the nearly mile long flow of debris. Access to another 70 or so homes was blocked for a week.

The detailed causes of the event are still under investigation, due to the sparse meteorological observations in the area, but rain and high winds were known factors. The amount of rain the day of the event—3 inches (7.6 cm)—was not unusual for the area but occurred after an extended period of rain, which resulted in saturated soils. Other communities in Southeast Alaska, including Haines and Sitka, have also experienced fatal landslides in recent years (2020 and 2015, respectively), both associated with heavy rainfall.

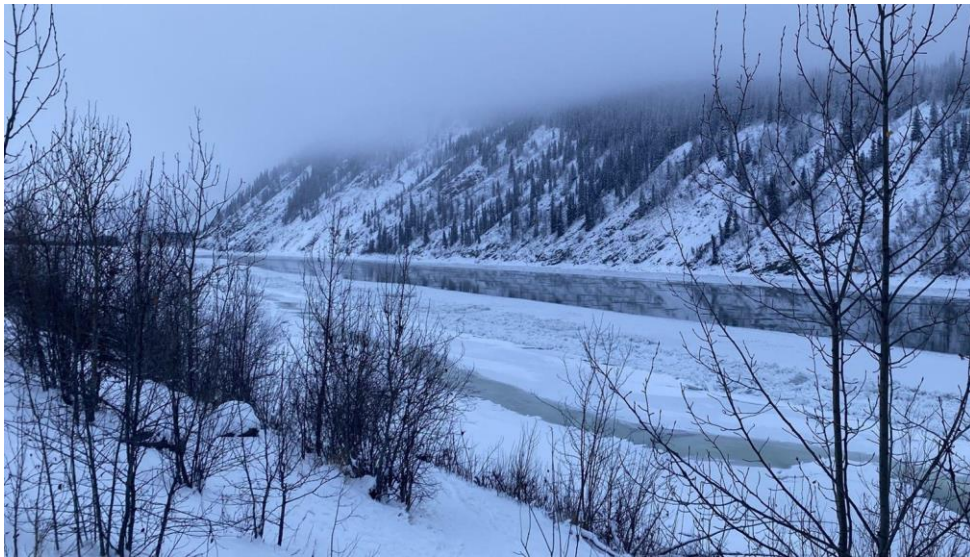
Extreme precipitation, especially in the form of the narrow, concentrated bands known as atmospheric rivers, along Alaska’s Southcentral and Southeast regions, is impactful, both when it falls as rain on saturated soils and also as snow loads on both urban infrastructure and avalanche-prone corridors.

Sept to Nov 2023 Precipitation Totals (inches/mm) & Anomalies - **Dry** / **Wet** / **Normal**





## Late November open water on the Tágà Shāw (Yukon River) at Dawson



Open water on the Yukon River (Tágà Shāw) near Dawson  
Photo credit: Alison Fung, Yukon Government

Dawson was warm this season, with temperatures averaging 26.6°F (-3.0°C). All of the Yukon weather stations recorded above normal temperatures this autumn. The ice cover in the Tágà Shāw (Yukon River) near Dawson started forming during the night of November 20 – 21, which is later than usual. However, a large open water area remained in front of town, as it did in 2013, and from 2016 to 2018. The absence of a bank-to-bank ice cover at Dawson is problematic, as it significantly delays the preparation of an ice bridge connecting the community with West Dawson.

According to Benoit Turcotte from the Yukon University, this freeze-up pattern is likely influenced to some extent by climate change, but not only through warmer temperatures, as some people may believe. In fact, the record-high flow in the Tr'ondëk (Klondike River) in May 2023 probably played a role by carrying a significant amount of sediment from placer mining areas to the Tr'ondëk delta, therefore choking the Tágà Shāw channel and promoting the formation of a freeze-up jam at that location, rather than at a more common, downstream location.

## Snowfall event +183 cm snow in 20 hours



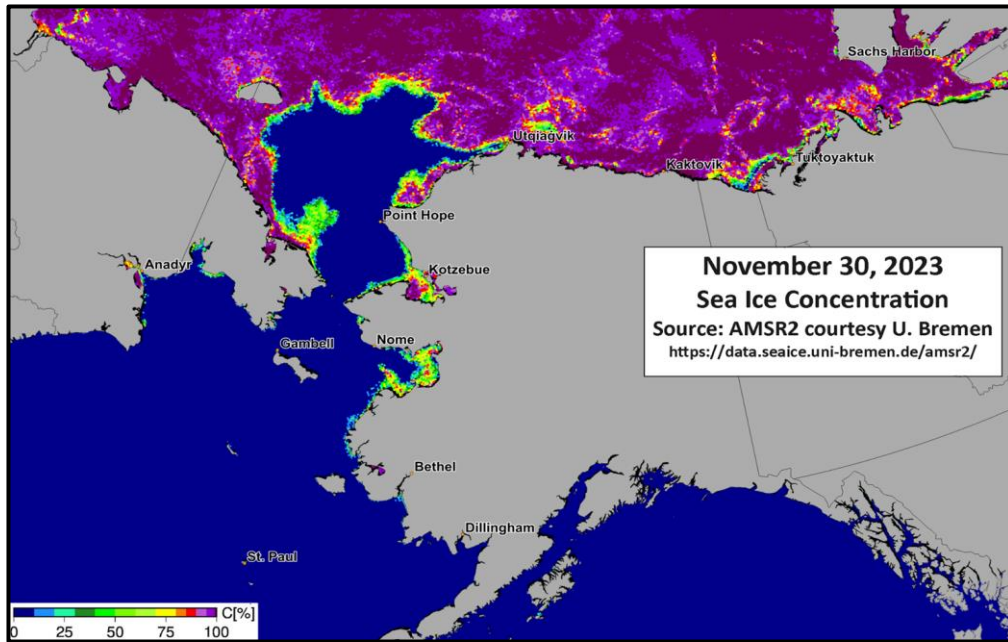
November 2023 snowfall in southern Alaska. Photo credit: B. Brettschneider, NWS

In December 2022, Anchorage, Alaska, experienced its wettest cold season month in over 100 years of record keeping, marking a once per century event. Only 11 months later, the event was nearly repeated at Anchorage. November 2023 was the snowiest November on record and the second wettest cold season month in the city's recorded history. Three storms in nine days brought 37.9" (96.3 cm) of snow to Alaska's largest city. On November 5 – 6, 8.1" (20.6 cm) of wet snow established the winter season snow pack. On Nov 8 – 10, a highly impactful 20.8" (52.8 cm) of snow fell on the city. This was an uncommonly wet snow for Anchorage. Finally, on Nov 13, another 8.7" (22.1 cm) of snow fell.

The December 2022 snowfalls were very disruptive for Anchorage. Schools were closed for a week, and transportation was impacted for nearly 6 weeks. In November 2023, a near repeat of similar impacts occurred. The Anchorage School District was closed for three days (students did "remote learning"). Snow plowing could not keep up with the new snowfall, leading to snow/ice packed roads which were difficult to maneuver. Local businesses suffered losses due to lack of road access. For the second season in a row, Anchorage was nearly shut down due to the heavy snow.



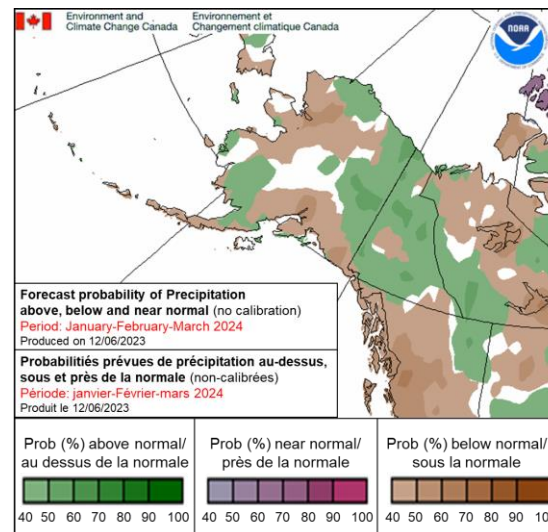
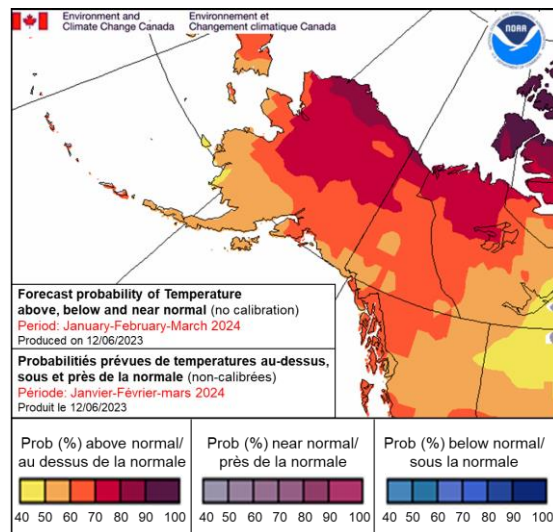
# Sea Ice Concentration Conditions 30 Nov 2023 in the Bering, Chukchi and Beaufort Seas



Sea ice development was delayed across the region this autumn, with the Beaufort Sea minimum ice extent at the end of August, and the Alaskan minimum at the end of September. In the fourth week of September, there was no ice within 250 miles (400 km) of the Alaskan coast. With the ice edge further north than usual and a lack of sea ice in the region, the Beaufort and Chukchi Seas were warmer than normal, and sea ice developed in the Beaufort 2 – 3 weeks later than normal.

October saw slow ice growth in Alaska, with ice development beginning in earnest along the Alaskan and Yukon coasts by the end of the month. Ice formation continued through the first weeks of November, extending towards the Beaufort Sea ice pack, with the Beaufort beginning to close off by mid-November. Sea ice off the Chukchi coast was expanding around the same period. Repeated stormy weather limited sea ice formation in the southern Chukchi and northern Bering Seas earlier in November. The Beaufort was completely covered by the end of November, with the ice edge moving southwards over the Chukchi. Kotzebue Sound, on the north shore of the Seward peninsula reaching towards Russia, experienced its latest development of sea ice since 2017.

## Temperature Outlook: Jan to Mar 2024 Precipitation Outlook: Jan to Mar 2024



Above normal temperatures are very likely to continue through January to March, with the highest probabilities along the north coasts of Alaska and northwest Canada. These high probabilities of significantly above normal temperatures continue inland through much of the interior of the far north of Alaska, as well as the north coast of the Northwest Territories, with lower probabilities westward towards the Aleutian peninsula and southeast across northern Canada.

The precipitation forecast for much of the region is quite mixed, with moderate probabilities of above and below normal precipitation amounts across the region. Much of south-coastal Alaska, along with nearly all of northern British Columbia are forecast to receive below normal amounts, along with a wide swath of the Northwest Territories, from Inuvik across Great Bear and Great Slave Lake. The north coast of Alaska and the Yukon have above normal probabilities of precipitation, as do eastern Alaska, the Yukon, and western Northwest Territories.

Content and graphics prepared by NOAA's National Weather Service and National Center for Environmental Information; the Alaska Center for Climate Assessment and Policy at the University of Alaska; and Environment and Climate Change Canada, as well as our regional partners: Alaska Climate Research Center, Alaska Climate Science Center, National Snow and Ice Data Center, and Scenarios Network for Alaska + Arctic Planning.

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