ALASKA and NORTHWESTERN CANADA
Weather and Climate Highlights and Impacts, Sep - Nov 2019; Climate Outlook Jan - Mar 2020

UTQIAQVIK: Warmest autumn of record, 2.8°F (1.6°C) warmer than previous warmest in 2016

BETTLES: 29.3” (72.1cm) snow Nov 26-28, highest 3-day total of record

OLD CROW: 28 Nov 2019 highest daily maximum temperature on record since 1951 of 26.4°F (-3.1°C)

TOK: (NW of Northway) 36.1” (91.7cm) snow, highest autumn total in 31 years

WATSON LAKE: 17 Nov 2019 greatest one day precipitation on this day on record since 1938 of 0.32 inches (8.1mm)

BETHEL: Autumn precip 178% of normal and highest since 1924

ANCHORAGE: Warmest autumn of record just ahead of 2018

PRINCE GEORGE: 17 Nov 2019 highest daily maximum temperature on record since 1912 of 53.4°F (11.9°C)

KETCHIKAN: First autumn with above normal rainfall since 2015, with short-term drought impacts largely ameliorated
There was very little sea ice this autumn at Utqiagvik and record low sea ice extent in the Chukchi Sea. Strong west winds on November 28 produced minor coastal flooding that closed roads.
Southern Alaska Autumn 2019 Drought Conditions

Autumn 2019 began with drought or abnormal dryness in southern Alaska, stretching from the Alaska Peninsula in the west to the Panhandle in the east, as shown in the image above. The repeated autumn storms brought a range of near normal to much above normal precipitation to southwest and southcentral Alaska. While this largely put an end to the drought conditions at low elevations, it was warm enough on the Kenai Peninsula that the mountain snowpack was well below normal at the end of November.

Southeast Alaska also received significant rainfall during what is typically the wettest time of year, which greatly helped to ease drought impacts by largely refilling many reservoirs used for water supply and electric power production. The rain was frequent but generally not excessive during the autumn, although minor flooding was reported in the Ketchikan area on November 13. However, overall dry conditions have been in place for a couple years, and ecosystem services (e.g. fish flows) sensitive to long term precipitation will require more rain and higher elevation snows to return to normal.

Antecedent Dry conditions, Low water and Low Hydro Generation

Mayo Lake surface water elevation in 2019 (black line) and historical levels.

A dry, hotter than normal, Spring and Summer in central Yukon created the preconditions that led to low lake water Levels persisting through the fall months in Mayo, Yukon in 2019. The low water level will likely prevent electricity generation capacity unless precipitation raises the lake level above the minimum for generation.
Sea ice coverage around Alaska was exceptionally low this autumn. The westernmost Beaufort Sea did not become entirely ice covered until the second week of November, and, overall, this was the second to latest ice-over date for the Beaufort Sea in the 41-year satellite record. The Chukchi Sea annual minimum ice extent was reached on September 17 but only slowly increased thereafter, as open water persisted very far north until late in October. Overall, the daily average sea ice extent for autumn was only 23 percent of the 1981-2010 average. Bering Sea ice was minimal through October. November saw more ice development near the Alaska coast than in 2017 or 2018 but was still only about half of the 30-year average. Since freeze-up began in September, the general ice growth lagged significantly relative to the Canadian Ice Service’s 30 year ice climatology (1981-2010). Overall, ice growth was between 3 and 5 weeks later than normal, mostly over the southern and western portion of the Beaufort Sea. By early December, almost the entire region was expected to be covered by ice; however, this year the ice coverage was about 6-7 weeks later than normal, albeit by about 6% below the normal 97% ice coverage for December 2nd.

A combined Canada-USA forecast model is used to provide a temperature and a precipitation outlook for January to March 2020. The temperature outlook map for January through March 2020 shows that Alaska and northwest Canada have a 40 to 100% chance of above average temperature (yellow to brown colors), with the highest probabilities found in the northern coastal parts of Alaska, including the Aleutian Islands northern Canada. Exceptions are Central Yukon and most of central and southern Northwest Territories (NT) where near normal or slightly below normal temperatures are probable. The precipitation outlook map for January through March 2020 shows that the majority of SW Alaska, northern BC and SE Yukon, along with most of central NT, have a 40 to 70% chance of above normal precipitation (green areas). Northwest Alaska and part of W Central & SE Yukon will likely have near normal precipitation (white areas) with some AK, Yukon and NT areas having a 40-50% chance of below normal precipitation (brown areas).