



Weather and Climate

Yukon-Charley Rivers Fall 2014 Weather Summary



NPS photo by Josh Spice

Eagle Fall Weather 2014

In Eagle, September was dry with temperatures near normal. The average monthly temperature of 41.5° F was 0.3° F cooler than normal. Measureable precipitation only occurred on seven days for a monthly total of 0.74 inches, 57% of normal. A trace of snow was recorded on the 22nd and 29th. Normally, 1.3 inches of snow is expected in September

October temperatures were near normal with precipitation totals on the wet side. The average temperature was 23.2° F compared to a normal value of 23.0° F. Precipitation totaled 1.29 inches, 136% of normal. Minimum temperatures fell below freezing each day of the month. The monthly maximum was 44° F on the 3rd, and the monthly minimum was -1° F on the 27th. 12.5 inches of snow fell in October, compared to an expected normal of 11.1 inches.

Like much of the state, November was warm and dry. The average monthly temperature was 9.8° F, 6.8° F warmer than normal. Measureable precipitation was only recorded on two days for a total of 0.07 inches. Only 1953 (0.05 inches) and 1983 (trace) have been drier in the period of record. 15.1 inches of snow had fallen in Eagle for the snow season as of the end of November.

Overall, the average fall temperature at Eagle was 24.8° F which is 2.2° F warmer than the 1981-2010 normal and 1.6° F warmer than the long-term average (1949-2014) (Figure 5). The dry November contributed to fall 2014 coming in as the 8th driest fall since 1949 (see Figures 1 and 2; Table 1, 2, and 3).

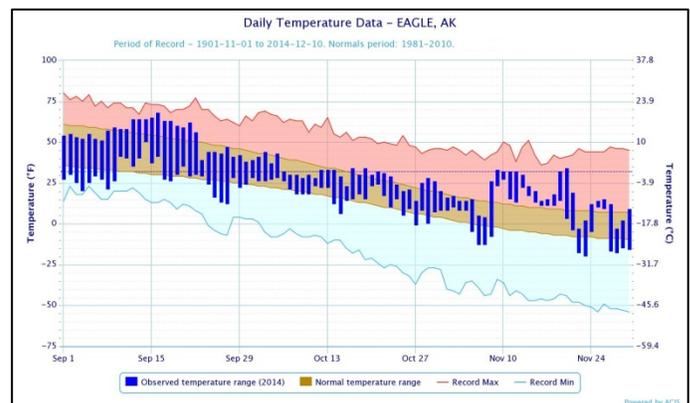


Figure 1. Fall 2014 daily temperatures at Eagle showing record maximum (red), record minimum (blue), 1981-2010 normal (brown band) and 2014 observed range (blue bars).

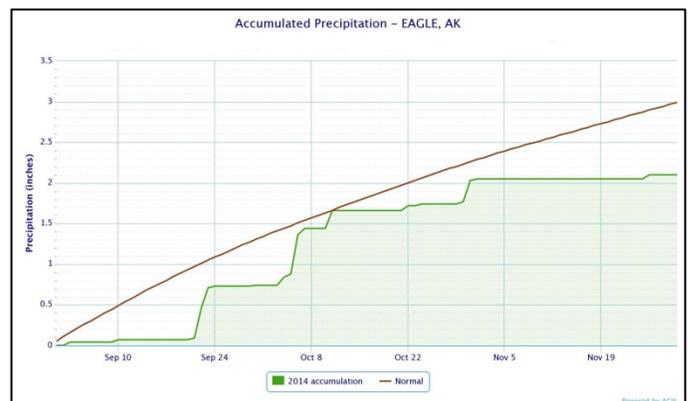


Figure 2. Fall 2014 precipitation at Eagle (green) compared to normal (brown).

Table 1. Temperature: Fall 2014 average monthly temperatures compared to the 1981-2010 normal.

Fall 2014	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
September	41.5	41.8	-0.3	68 / Sep 16	12 / Sep 27
October	23.2	23.0	+0.2	44 / Oct 3	-1 / Oct 27
November	9.8	3.0	+6.8	34 / Nov 20	-20 / Nov 23

Fall Season Temperature Departure from Normal: +2.2°F

Table 2. Precipitation: Fall 2014 monthly precipitation totals compared to normal.

Fall 2014	Total Monthly Precip. in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 hr. total in. / Date	# Days with ≥ 0.01 in. water
September	0.74	1.31	-0.57	0.37 / Sep 22	7
October	1.29	0.95	+0.34	0.48 / Oct 6	9
November	0.07	0.73	-0.66	0.05 / Nov 26	2

Fall Season Precipitation Departure from Normal: -0.89 inches (70% of normal)

Table 3. Snowfall: Fall 2014 monthly snowfall totals compared to normal.

Fall 2014	Total Monthly Snowfall in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 -hr. snowfall total in. / Date	Cumulative snowfall since 1-July in.
September	Trace	1.3	-1.3	Trace / Sep 22	Trace
October	12.5	11.1	+1.4	4.0 / Oct 6	12.5
November	2.6	12.1	-9.5	1.0 / Nov 26	15.1

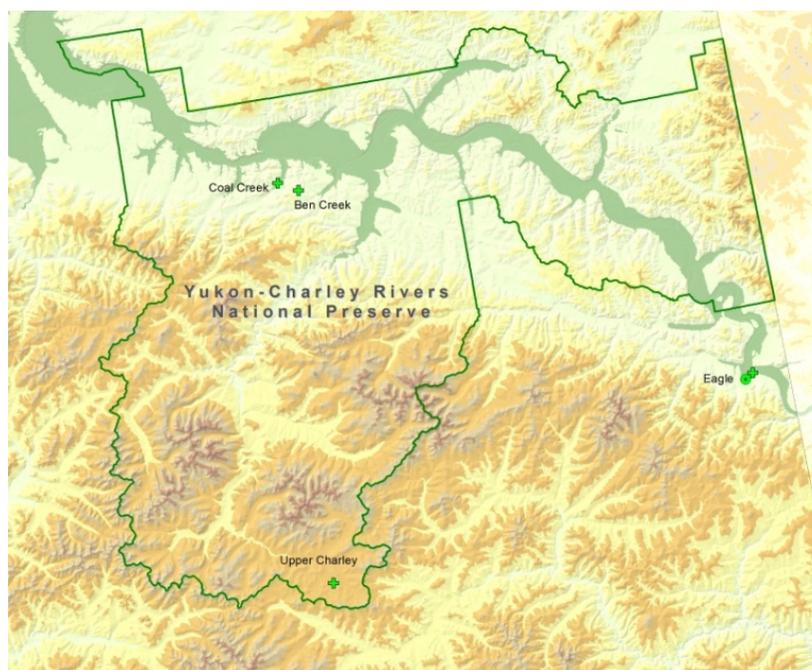


Figure 3. NPS Climate stations in Yukon-Charley Rivers National Park and Preserve.

Table 4. Summary of weather statistics from the YUCH climate stations. All data are preliminary and subject to review.

Site	Elev. (ft)	Average Temp °F			Extreme High (°F)	Extreme Low (°F)	Peak Wind (mph)	September Rain (inches)	Average Temperature Fall Season (°F)
		Sept.	Oct.	Nov.					
Ben Creek	1850	41.9	19.7	7.1	69	-16	27	0.52	22.9
Coal Creek	870	40.4	21.5	4.5	71	-29	12	0.26	22.1
Upper Charley	3654	37.3	20.0	11.0	60	-7	22	0.26	22.8

Interesting notes from RAWS stations:

- On average since 2005, Upper Charley (3654 ft) is 3.6° F warmer than Coal Creek (870 ft) in the month of November. However, in 2014, this difference was 6.5° F. Both stations were warmer in November compared to the recent 10-year mean. This pattern is consistent with the prolonged, warm, strong inversions that affected much of the interior in November.

- The low temperature of -29° F at Coal Creek on November 27 was among the coldest measurements in the state for the day.

Eagle Fall Temperature Trend

The average fall temperature for 2014 was 24.8° F, which is 2.2° F warmer than the 1981-2010 normal and 1.6° F degrees warmer than the long-term average (1949-2014). We calculate the average fall temperature by simply taking the average of September, October, and November monthly temperatures. Average fall temperatures show tremendous variability with a range between 16.3° F in 2012 and 33.7° F in 2004. There is no statistically significant trend trend in fall temperatures since 1949 based on a simple linear regression (Figure 5).

Climate Monitoring in Yukon-Charley Rivers National Park and Preserve

The NPS climate stations Yukon-Charley Rivers are approaching the 10-year mark for climate monitoring. The stations complement long-term records available from the National Weather Service station in Eagle. The Upper Charley station is providing critical high elevation data which helps characterize climate gradients and patterns affecting resources in Yukon-Charley Rivers National Preserve. Table 4 summarizes the fall weather data for NPS sites.

We have added a phenology camera to the Upper Charley climate station. The camera capture images four times per day; the images are downloaded once a year. The images are used to help quantify the snow season, green-up period, and other basic phenologic information (Figure 4).

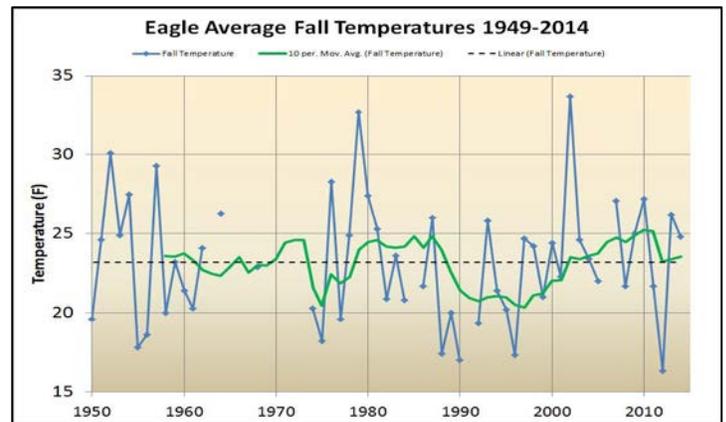


Figure 5. Average fall (Sept., Oct., Nov.) temperatures in Eagle since 1949. The green line shows a 10-year moving average. The dotted line shows a simple linear regression.



Figure 4. Select images from Upper Charley phenology camera (Fall 2013).

Connecting Further

- New paper published – [Consistency and Lack Thereof in Pacific Decadal Oscillation Impacts on North American Winter Climate](#)
- Previous weather summaries and other climate monitoring documents on the [Central Alaska Network web portal](#)
- Access near real-time data from [Western Regional Climate Center](#) and [MesoWest](#)
- Statewide summary of weather highlights in the latest [Alaska Climate Dispatch](#) from the Alaska Center for Climate Assessment and Policy
- [Map](#) of projected temperature and precipitation changes for Yukon-Charley Rivers National Park and Preserve.

More Information

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