Weather and Climate

Katmai - Fall 2014 Weather Summary

Cape Douglas vicinity/NPS

King Salmon weather

Fall (September through November) was significantly warmer and slightly drier than average in King Salmon. The average temperature for September was 50.9 °F compared to a 30-year average (also known as a "climate normal") of 47.6 °F. It was the ninth warmest September since record keeping began in 1917. Almost three and a half inches (3.37 in) of precipitation fell in September—just above the 30-year average.

October's temperatures were slightly cooler than average, but it was a very dry month. The average temperature for October was 32.0 °F compared to a 30-year average of 33.5°F. Less than one half-inch (0.38 in) of precipitation fell in October compared to a 30-year average of 2.08 in. It was the 4th driest month since record keeping began. This year the first snow fall (of 0.2 in) occurred on October 20.

The average temperature for November was 36.5 °F compared to a 30-year average (normal) of 22.9 °F. Eight daily high temperature records were set in November. Temperatures of 48 to 51 °F were observed on all but two days between November 11th and 20th. This was the warmest November since record keeping began in 1917!

Almost two and a half inches (2.43 in) of precipitation fell in November compared to the 30-year average of 1.39 inches.

The all-time November high temperature is 56 °F and was set on November 1, 1986. The wettest November was in 2002 when King Salmon was doused with 3.89 inches of precipitation.

Daily temperature for fall 2014 are shown compared to record temperatures and average conditions in Figure 1. A similar graph showing daily accumulation of precipitation is shown in Figure 2. Monthly temperature and precipitation summaries—including the hottest, coldest, and wettest dates—can be found in Tables 1 and 2.

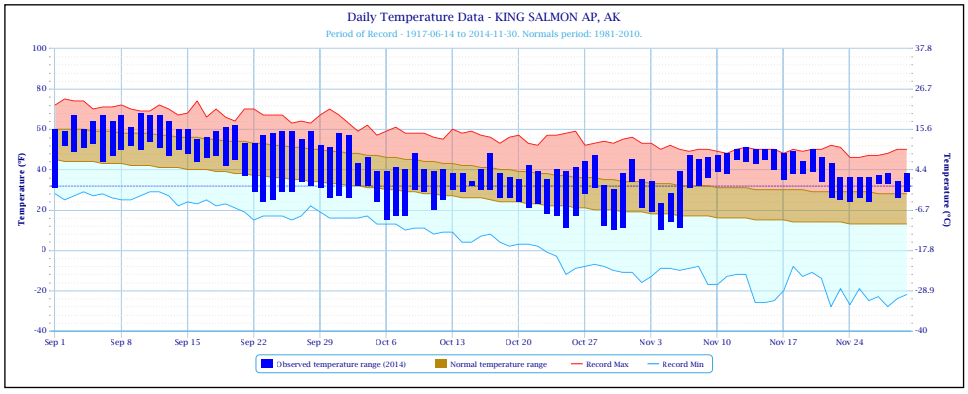

Figure 1. Fall 2014 daily temperatures at King Salmon showing record maximum (red), record minimum (blue), normal (brown), and 2014 observed range (blue bars).

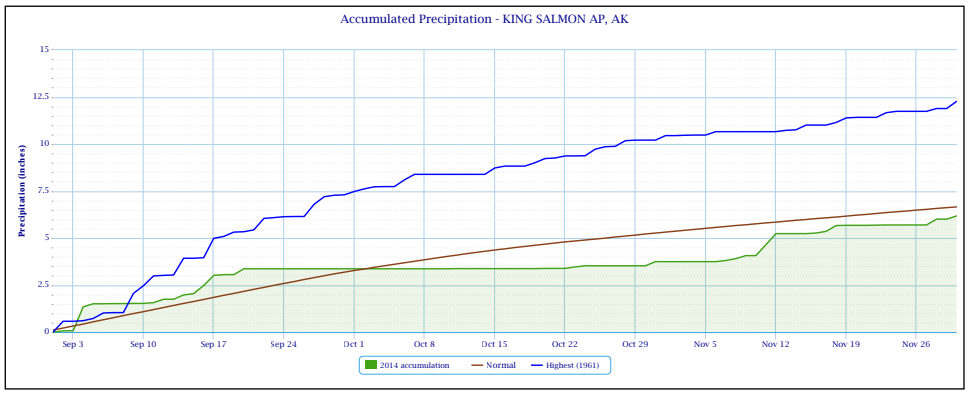

Figure 2. Fall 2014 precipitation at King Salmon (green) compared to normal (brown line) and the wettest fall of 1961 (blue).

Table 1. Temperature summary for King Salmon for fall 2014.

Fall 2014	Average monthly temp (°F)	30-year average 1981-2010 climate normal (°F)	Departure from normal (°F)	Monthly high (°F / date)	Monthly low (°F / date)
September	50.9	47.6	+3.3	68 / Sep 10	24 / Sep 23
October	32.0	33.5	-1.5	58 / Oct 1	10 / Oct 30
November	36.5	22.9	+13.6	51 / Nov 13	10 / Nov 4

Fall season temperature departure from Normal: +5.3 °F

Table 2. Precipitation summary for King Salmon for fall 2014.

Fall 2014	Total monthly precipitation (inches)	30-year average 1981-2010 climate normal (inches)	Departure from normal (inches)	Greatest 24-Hr Total (inches / date)	Days with >=0.01 inches water
September	3.37	3.19	0.18	1.27 / Sep 4	15
October	0.38	2.08	-1.70	0.22 / Oct 31	5
November	2.43	1.39	+1.04	0.59 / Nov 12	13

Fall season precipitation departure from Normal: -0.48 inches (93% of Normal)

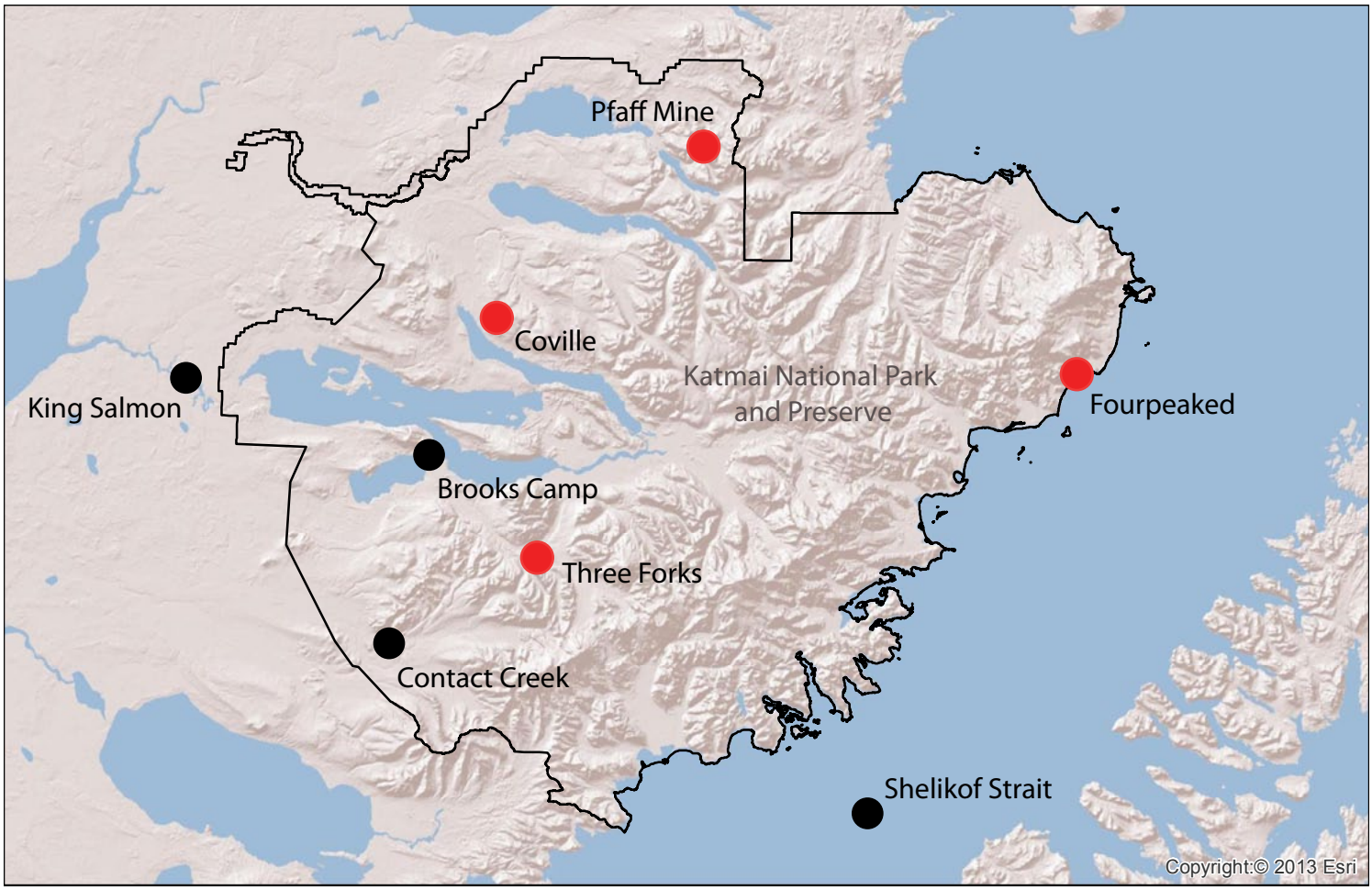

Figure 3. Selected climate stations in or near Katmai National Park and Preserve. Stations operated by the Southwest Alaska Network are shown in red and stations operated by other organizations are shown in black.

Table 3. Summary of weather statistics from selected climate stations in or near Katmai National Park and Preserve. Asterisk (*) indicates stations operated by the Southwest Alaska Network. All data are preliminary and subject to review. Data that are not available or suspect are indicated with "n/a". Contact Creek is the only station capable of measuring both liquid and solid precipitation (rain and snow).

Site	Elev. (feet)	Average temperature (°F)			Rainfall (inches)			Wind max (mph)
		Sep	Oct	Nov	Sep	Oct	Nov	
Contact Creek	657	48.7	30.5	36.4	4.31	0.25	2.96	47
Coville*	1567	46.9	28.8	34.9	2.19	0.08	1.60	60
Fourpeaked*	1074	49.9	37.2	36.8	n/a	n/a	n/a	103
Pfaff Mine*	2018	45.3	27.4	32.1	2.07	0.05	n/a	82
Three Forks*	1358	49.1	30.7	35.8	1.00	0.07	0.64	56
Shelikof Strait	0	53.6	43.6	n/a	n/a	n/a	n/a	55

Interesting notes from NPS climate stations

The Southwest Alaska Network operates four climate stations in Katmai National Park and Preserve (Figure 3 and 4).

During six years of operation:

• Fall 2014 was the warmest and fall 2012 was the coolest.

• Although it is only 451 feet higher in elevation, Pfaff Mine is consistently colder than Coville during fall months.

• October 2014 was the driest fall month and September 2012 was the wettest fall month

During first full year of operation:

• The wind at Three Forks usually blows from the southeast or northeast. Winds are calm (<1.3 mph) only about 1% of the time. Maximum wind gust was 72 mph.

• At Three Forks, the maximum temperature was 74 °F and the minimum temperature was -19 °F.

Climate monitoring updates

Three Forks climate station

The climate monitoring station at Three Forks has been in operation since September 2013. It provides near-realtime data from a location at the end of the Valley Road. Observations can be viewed at:
www.raws.dri.edu/cgi-bin/wea_daysum.pl?akATHF

Phenocams

Phenology cameras have been added to some climate stations. These cameras capture several images per day and the images are downloaded once a year. The images are used to help quantify snow and growing seasons. The image below (Figure 5) shows a greenness curve for tundra adjacent to the Coville climate station during 2011-2013. Green-up ($Gcc^{90} > 0.35$) has occurred slightly earlier each year over this short time frame.

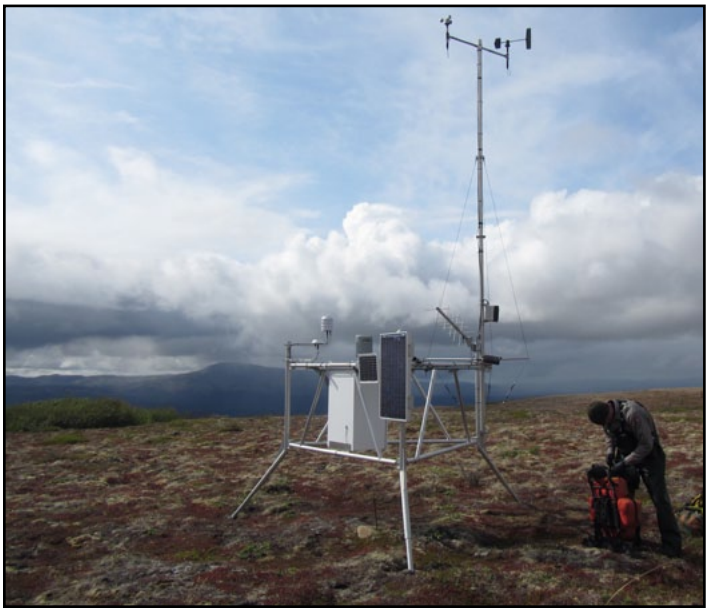

Figure 4. Climate monitoring station at Coville.

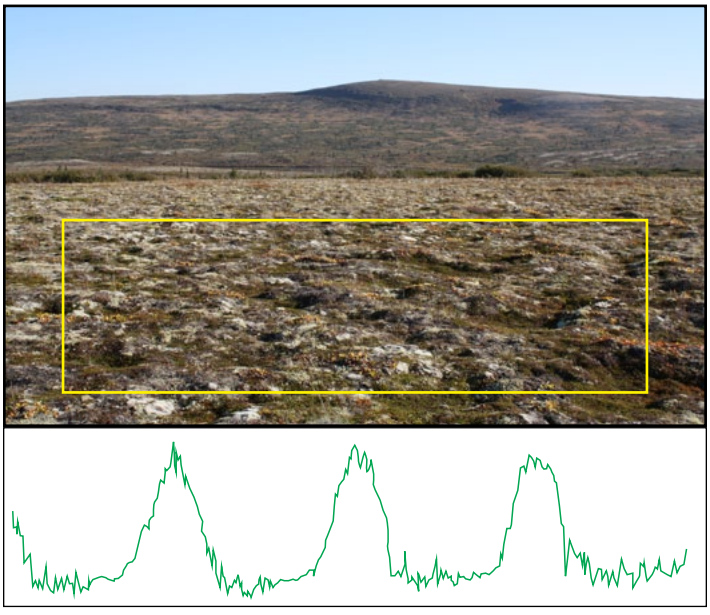

Figure 5. Above: Phenocam image from Coville. Below: Plot shows greenness curve for tundra in yellow box over three years.

King Salmon fall temperature trend

The average fall temperature for 2014 was 39.7 °F making this fall the 3rd warmest fall since 1949—the time period for which the most reliable climatological data are available.

Average fall temperature is calculated by taking the average of all daily values for September, October, and November. Only data for seasons with five or fewer days are included. Fall temperatures show significant variability with a range between 27.9 °F in 1956 and 42.0 °F in 2002.

There is a slight increase in fall temperatures of 0.15 °F per decade based on a simple linear regression. The 10-year moving average shows the warmest period in the mid-to late 2000s.

Connecting further

• Access near-real time data from the Western Regional Climate Center and MesoWest

• Read climate monitoring reports and other documents from the Southwest Alaska Network

• See a map of projected temperature and precipitation changes for Katmai National Park and Preserve

• Check the National Weather Service point weather forecast for Brooks Camp

• Find climate-related information from the Alaska Climate Research Center

• Explore NOAA's Climate.gov

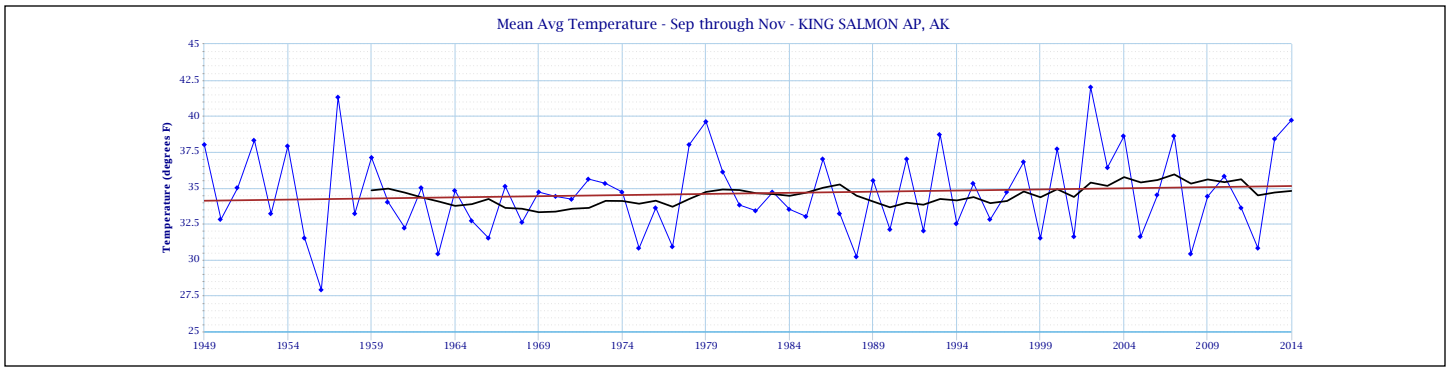

Figure 6. Average fall (September, October, November) temperatures at King Salmon between 1949-2014. The black line is a 10-year moving average. The brown line is a simple linear regression.

More information

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Unnamed lake near Kulik Lake/NPS