



Weather and Climate

Lake Clark - Fall 2014 Weather Summary



Lower Twin Lake/NPS

Port Alsworth weather

This summary relies on weather observations from both the Climate Reference Network (CRN) station “Port Alsworth 1SW” located behind park headquarters and the National Weather Service station “Port Alsworth”—located at the Farm Lodge—that has a valuable and long-term record. Unfortunately, records from Port Alsworth are sometimes missing in national climate databases. Average monthly temperatures at Port Alsworth 1SW are about 3 °F cooler than at Port Alsworth.

Fall in Port Alsworth was warmer and drier than average. The average temperature for September was 51.1 °F (Port Alsworth) compared to a 30-year average of 47.4 °F. It was the fourth warmest September since record keeping began. Three quarters of an inch (0.75 in-Port Alsworth) of precipitation fell in September, well below the 30-year average.

The average temperature for October was 33.7 °F (Port Alsworth) compared to a 30-year average of 34.5 °F. Precipitation (0.81 in-Port Alsworth) was again below the 30-year average.

The average temperature for November was 34.3 °F (Port Alsworth 1SW). Seven daily high temperature records were set in November. Temperatures of 51 to 52 °F (Port Alsworth 1SW) were observed between November 11th and 18th. This will likely prove to be one of the warmest (1st to 3rd warmest) Novembers since record keeping began in 1960. Only 0.80 inches of precipitation fell (Port Alsworth 1SW).

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.

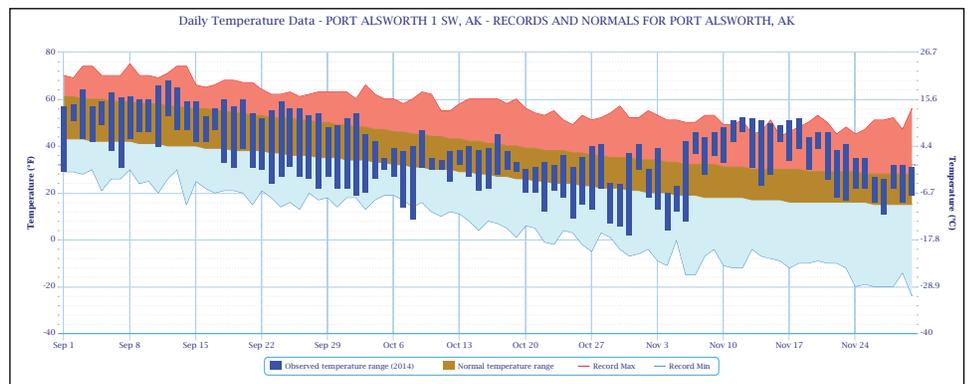


Figure 1. Fall 2014 daily temperatures at Port Alsworth 1SW (CRN station) and Port Alsworth (Farm Lodge). Record maximum (red), record minimum (blue), and normal (brown) temperatures are shown for Port Alsworth and 2014 observed range (blue bars) are shown for Port Alsworth 1SW.

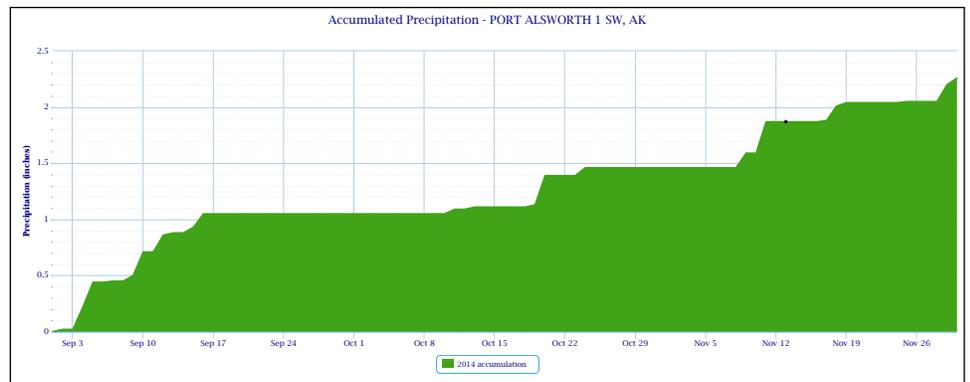


Figure 2. Fall 2014 precipitation at Port Alsworth 1SW (green).

Table 1. Temperature summary for Port Alsworth 15W (CRN station) for fall 2014. 30-year average (climate normal) is for Port Alsworth (Farm Lodge) and may not accurately represent conditions at Port Alsworth 15W.

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	47.7	47.4	+0.3	68 / Sep 12	23 / Sep 28 & 30
October	29.8	34.5	-4.7	54 / Oct 2	2 / Oct 31
November	34.3	23.8	+10.5	52 / Nov 18	4 / Nov 4

Fall season temperature departure from Normal: Warmer than normal—probably by more than +2.0 °F °F

Table 2. Precipitation summary for Port Alsworth 15W (CRN station) for fall 2014. 30-year average (climate normal) is for Port Alsworth (Farm Lodge) and may not accurately represent conditions at Port Alsworth 15W.

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	1.05	2.21	-1.16	0.22 / Sep 5	10
October	0.40	1.50	-1.10	0.26 / Oct 20	5
November	0.80	1.46	-0.66	0.28 / Nov 11	8

Fall season precipitation departure from Normal: Drier than normal—approximately -2.92 inches (44% of Normal)

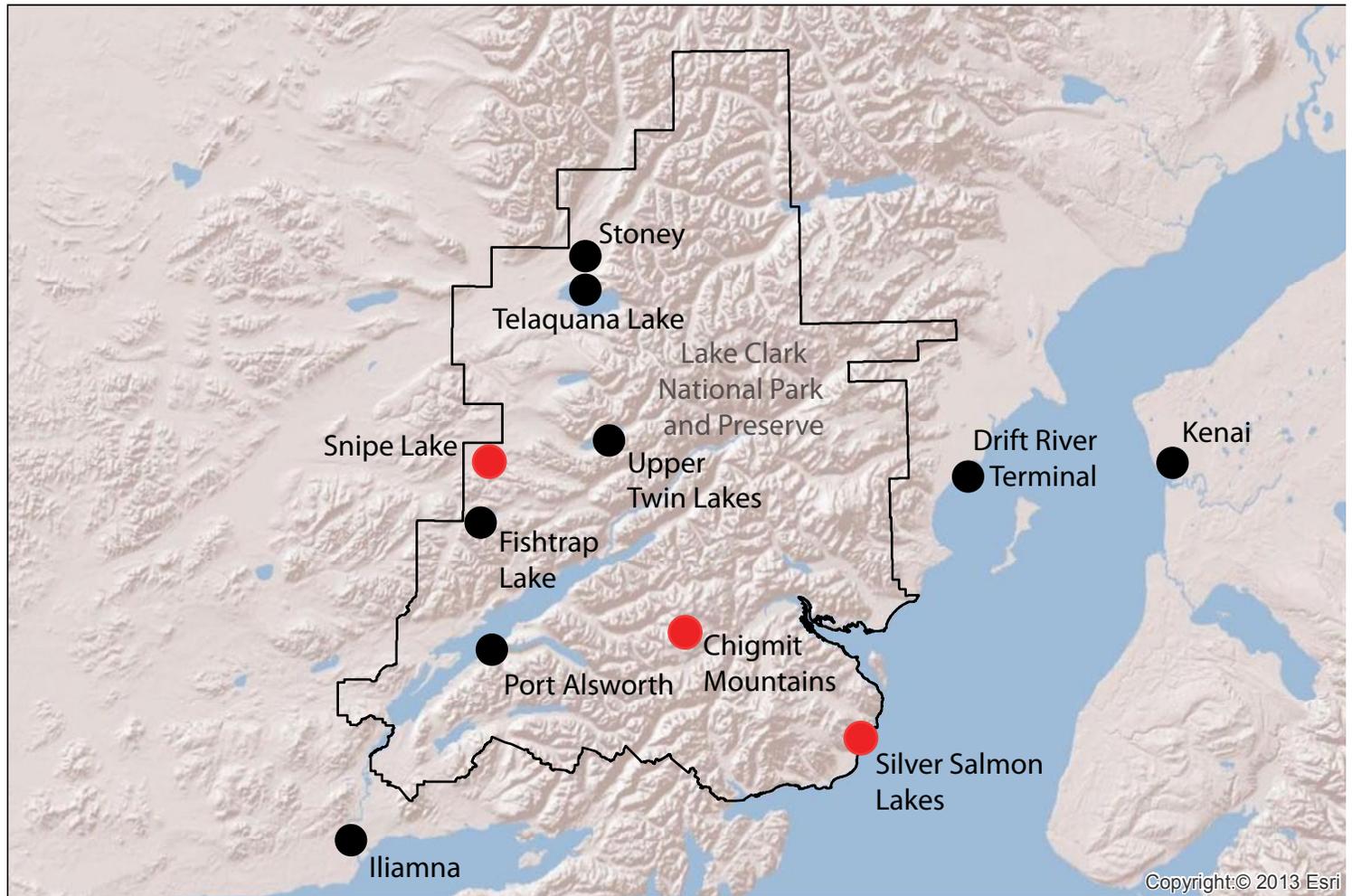


Figure 3. Selected climate stations in or near Lake Clark National Park and Preserve. Stations operated by the Southwest Alaska Network are shown in red and stations operated by other organizations are shown in black.

Table 3. Summary of weather statistics from selected climate stations in or near Lake Clark 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". Iliamna Airport and Telaquana are the only stations 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	
Chigmit Mtns*	4658	34.9	21.0	21.5	9.39	n/a	n/a	81
Drift River	53	51.1	38.2	n/a	n/a	n/a	n/a	22
Iliamna Airport	183	50.7	33.5	37.0	3.32	0.21	1.52	n/a
Silver Salmon*	23	50.2	37.7	38.4	10.16	1.27	6.99	52
Snipe Lake*	2315	43.6	24.3	31.5	1.84	n/a	n/a	66
Telaquana	1250	n/a	26.8	31.4	n/a	0.5	1.0	n/a

Interesting notes from NPS climate stations

The Southwest Alaska Network operates three climate stations in Lake Clark National Park and Preserve (Figure 3 and 4).

- Average monthly temperatures at Chigmit Mountain are only above freezing four months of the year—June, July, August, and September.
- The magnitude of the warm November 2014 conditions was more apparent at Snipe Lake and Silver Salmon than at Chigmit Mountains.
- At Snipe Lake, the difference between November 2014 average daily high temperature and October 2014 average daily low temperature was +18 °F.
- The wind at Silver Salmon usually blows from the north, but when the wind does blow from the south it is pretty strong. The maximum wind gust was 58 mph.
- At Silver Salmon, the maximum temperature observed since the station started (July 2013) was 78 °F and the minimum temperature was -2 °F.



Figure 4. Climate monitoring station in the Chigmit Mountains.

Climate monitoring updates

Telaquana SNOTEL station

A snowpack monitoring—or “SNOTEL” short for SNOWpack TELEmetry—station was set up at Telaquana Lake in July 2014. It provides near-realtime data including temperature, snow depth, snow water content, and accumulated precipitation. Observations can be viewed at:

www.ambcs.org/cgi-bin/siteCurrent.cgi?site=TELAQUANA

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 and grasses adjacent to the Snipe Lake climate station during 2011-2012. Green-up ($Gcc^{90} > 0.34$) occurred slightly earlier in 2012 than in 2011.

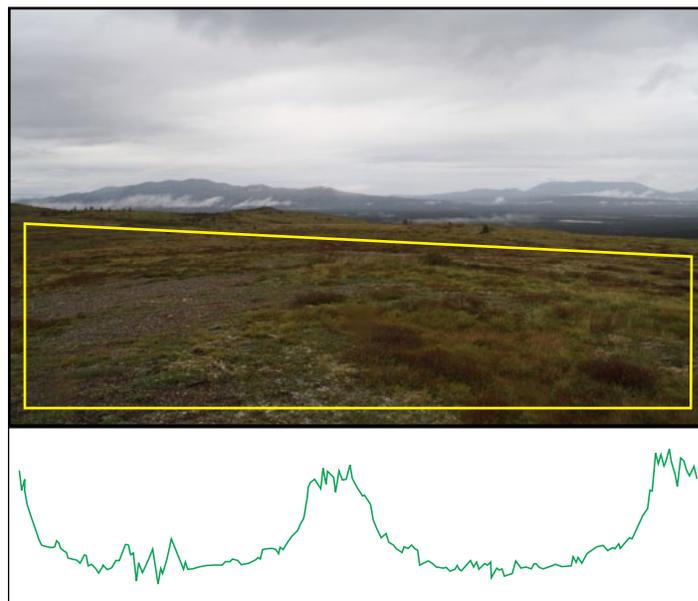


Figure 5. Above: Phenocam image from Snipe Lake. Below: Plot shows greenness curve for tundra in yellow box over two years.

Port Alsworth fall temperature trend

The average fall temperature for 2014 was 37.3 °F at Port Alsworth 1SW—the Climate Reference Network station behind park headquarters. Average monthly temperatures at this climate station are about 3 °F colder than at Port Alsworth (Farm Lodge). Nonetheless, it is likely that this fall will prove to be about the 3rd or 4th warmest fall since 1960—when continuous record keeping began.

In the graph below, average fall temperatures were calculated by taking the average of all daily values for September, October, and November. Only data for seasons with five or fewer missing days are included. Average fall temperatures show significant variability with a range between 30.4 °F in 2008 and 43.2 °F in 2002.

There is a slight increase in fall temperatures of 0.26°F per decade based on a simple linear regression. The 10-year moving average shows the warmest period during the first decade of the 21st century.

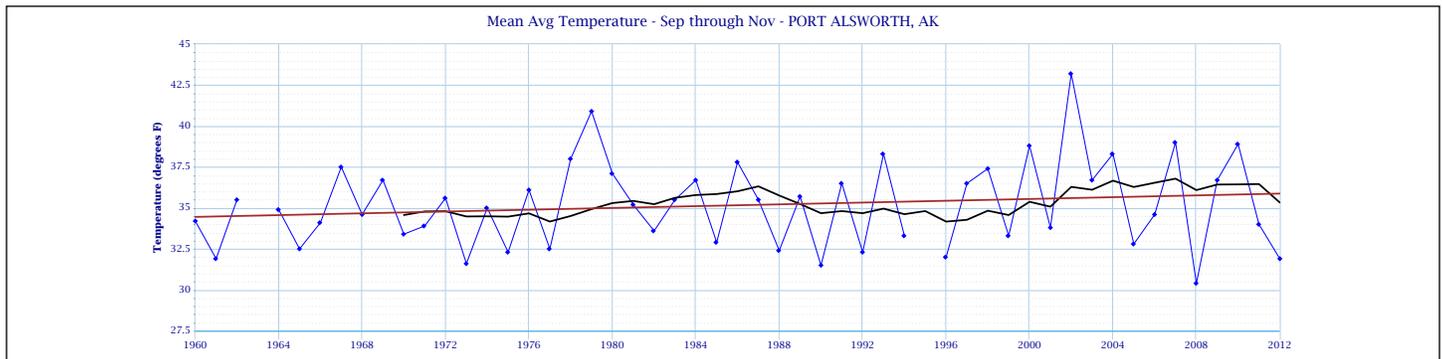


Figure 6. Average fall (September, October, November) temperatures at Port Alsworth (Farm Lodge) between 1960-2012. The black line is a 10-year moving average. The brown line is a simple linear regression.

More information

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Chulitna Bay/NPS

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 Lake Clark National Park and Preserve
- Check the National Weather Service point [weather forecast](#) for Port Alsworth
- Find climate-related information from the [Alaska Climate Research Center](#)
- Explore NOAA's [Climate.gov](#)