



Quarterly Weather & Climate Summary Bering Land Bridge National Preserve Winter 2015

Nome Winter Weather

December was warmer and drier than normal in Nome. The average temperature for December was 15.5° F compared to a normal of 9.5° F. Maximum daily temperatures were above freezing December 28-30 during a warm, wet storm with mixed rain/snow and wind gusts up to 44 mph. Only 0.54 inches of precipitation was recorded in December which is 50% of normal. Monthly snowfall was even farther below normal with 5.1 inches in December, compared to an expected total of 14.5 inches.

Warm, dry conditions continued into January. The average temperature for the month was 9.2° F compared to a normal monthly mean of 5.2° F. January 6-16 was exceptionally warm, with maximum daily temperatures at or above freezing 7 out of 11 days. Cold air settled over Nome from January 22-29 and temperatures were mostly below 0° F. Monthly precipitation totaled 0.71 inches, all from storms in the first two weeks of the month. January ended up at 75% of normal for precipitation and 82% of normal for snowfall.

It was the eighth warmest February since 1907. The first two weeks of the month were near normal, and the last two weeks of the month were well above normal with record highs February 21-22. The average temperature of 15.7° F for the month was 8.3° F warmer than normal. Rain was recorded on 5 days in February. Precipitation (water equivalent) was exactly normal at 0.93 inches, but snowfall was 2.0 inches below the expected value of 12.2 inches.

The average winter temperature at Nome was 13.5° F which is 6.1° F warmer than the 1981-2010 normal and 7.6° F warmer than the long term average since 1907 (see Figure 5). The total winter precipitation was 2.95 inches, 74% of normal (Figures 1 and 2; Table 1, 2, and 3).

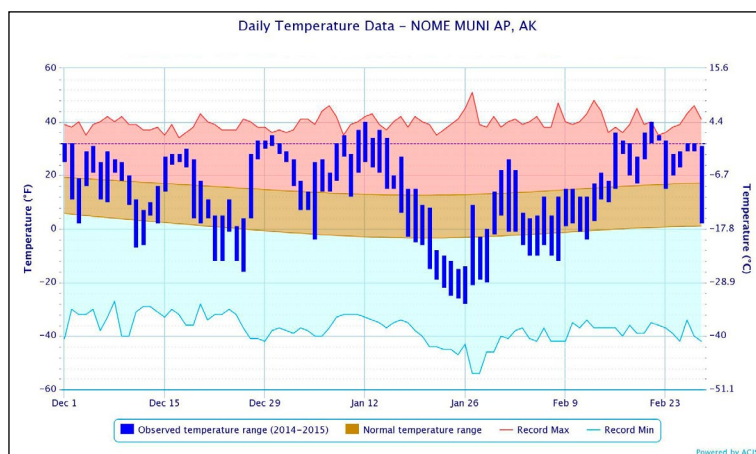


Figure 1. Winter 2014-2015 daily temperatures at Nome showing **record maximum** (red), **record minimum** (blue), **normal** (brown) and **2015 observed** range (blue bars).

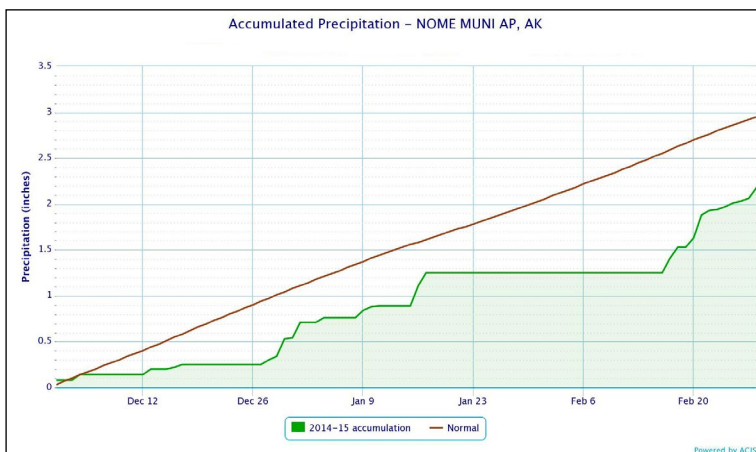


Figure 2. Winter **2014-2015** accumulated precipitation at Nome (green) compared to **normal** (brown line).

Table 1. Temperature: Winter 2014-2015 average monthly temperatures compared to the 1981-2010 normal.

Winter 2014-2015	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
December	15.5	9.5	+6.0	35 / Dec. 30	-16 / Dec. 26
January	9.2	5.2	+4.0	40 / Jan. 12	-28 / Jan. 26
February	15.7	7.4	+8.3	40 / Feb. 21	-12 / Feb. 8

Winter Season Temperature Departure from Normal: +6.1°F

Table 2. Precipitation: Winter 2014-2015 monthly precipitation totals compared to normal.

Winter 2014-2015	Total Monthly Precip. in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 -hr. total in. / Date	# Days with ≥ 0.01 in. water
December	0.54	1.08	-0.54	0.19 / Dec. 30	9
January	0.71	0.94	-0.23	0.22 / Jan. 16	7
February	0.93	0.93	0.00	0.25 / Feb. 21	11

Winter Season Precipitation Departure from Normal: -0.77 inches (74% of normal)

Table 3. Snowfall: Winter 2014-2015 monthly snowfall totals compared to normal.

Winter 2014-2015	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.
December	5.1	14.5	-9.4	0.9 / Dec 13	22.7
January	10.4	12.7	-2.3	3.9 / Jan. 16	33.1
February	10.2	12.2	-2.0	1.8 / Feb. 17	43.3

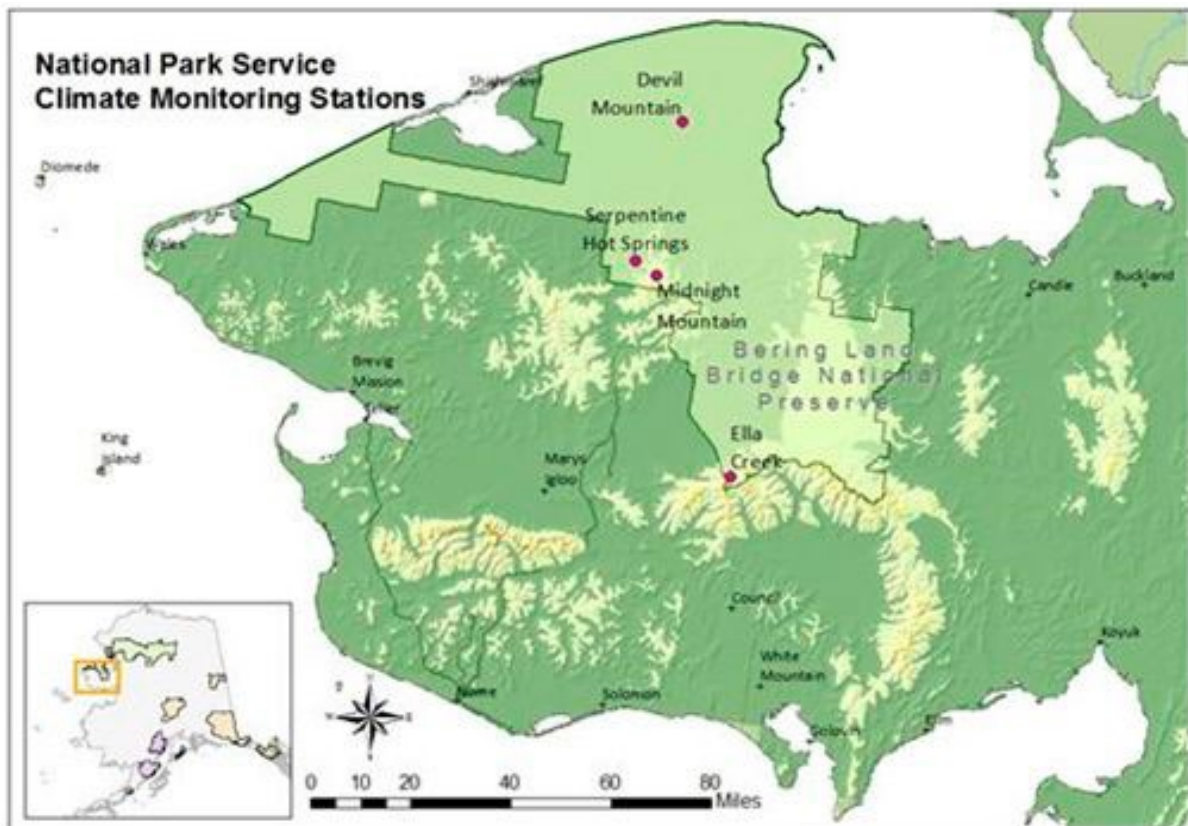


Figure 3. NPS Climate stations in Bering Land Bridge National Preserve.

Table 4. Summary of weather statistics from the Bering Land Bridge climate stations. All data are preliminary and subject to review.
*Snow depth measurements may not be representative of surrounding terrain due to complex topography and wind redistribution.

Site	Elev. (ft)	Average Temp °F			Extreme High (°F)	Extreme Low (°F)	Average Temp. Winter Season (°F)	Feb. 28 Snow Depth (inches)	Peak Wind (mph)	No. of days Tmax >32
		Dec	Jan	Feb						
Devil Mtn	285	M	5.2	7.6	34	-24	--	5.5	44	4+
Ella Creek	2260	9.2	9.4	13.3	37	-24	10.6	19	M	11
Hoodoo Hill	1495	5.7	4.5	8.6	34	-26	6.3	--	57	4
Quartz Creek	321	8.6	4.0	M	37	-34	--	--	42	7+
Serpentine	518	9.1	6.5	6.2	39	-30	7.3	1.4	42	10

Interesting Notes from the RAWS Stations

- The high elevation Ella Creek (2260 feet) was the warmest station on average for the winter season (10.6° F).
 - Maximum daily temperatures were above freezing 10 times at Serpentine this winter (December through February). Last year, the freezing threshold was exceeded on 26 days.
 - The lowest temperature recorded for the winter season
- was -34° F at Quartz Creek on January 25.
 - Snow depth under the sensor at the Serpentine station was less than 2 inches for most of the winter. A storm on March 3 increased the snow depth up to about 5 inches.

Climate Monitoring in Bering Land Bridge National Park and Preserve

We now have additional NPS climate stations in Bering Land Bridge that complement the long-term record from the National Weather Service station in Nome. The new NPS stations will provide critical data for the Seward Peninsula which will help characterize the climate gradients and patterns affecting resources in Bering Land Bridge National Preserve. Table 4 summarizes the winter data for the new sites.

We have added phenology cameras to some of the climate

stations (Figure 4). These cameras 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.

There was very little snow on the ground in mid-winter in the interior Seward Peninsula last year. Figure 4 shows selected images captured from the Serpentine camera in 2013-2014



Figure 4. Selected images from Serpentine Hot Springs time lapse camera from August 2013 – April 2014.

Nome Winter Temperature Trend

The average winter temperature for 2015 was 13.5° F which is 6.1° F warmer than the 1981-2010 normal and 7.6° F warmer than the long-term record beginning in 1907. 2015 was the eighth warmest winter on record.

We calculate the average winter temperature by simply taking the average of December, January, and February monthly temperatures. Average winter temperatures show great variability with a range between -4.0° F in 1976 and 19.6° F in 2001.

There is a statistically significant trend in winter temperatures based on a simple linear regression ($p > 0.05$). The overall trend is +0.3° F per decade. (Figure 5)

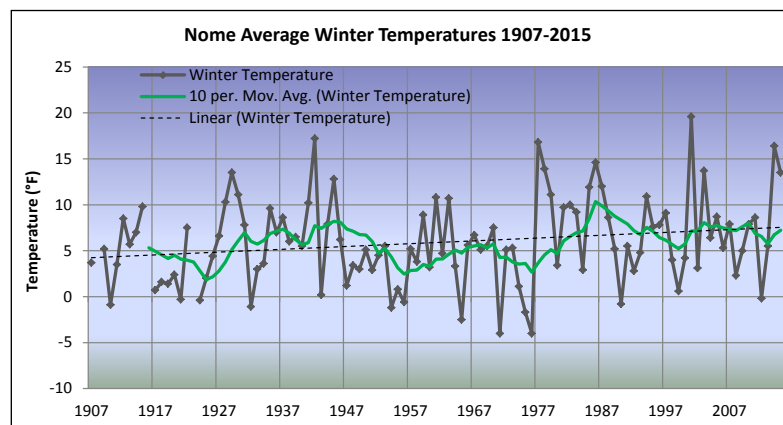


Figure 5. Average winter temperatures (December, January, February) at Nome since 1907. The green line is a 10-year moving average. The dashed line is a simple linear regression.



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 [Arctic 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

- [Maps](#) of projected temperature and precipitation changes for Bering Land Bridge National Preserve

More Information

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