Weather and Climate

Gates of the Arctic Fall 2013 Weather Summary

Fall Records for Bettles

Warmest October on record: 31.2° F.

Record High Temps:
Oct 17: 44° F
Oct 18: 44° F
Oct 19: 43° F
Oct 20: 42° F
Oct 27: 35° F

Record Low *Max* Temps:
Sep 18 and 19: 34° F; 33° F
Sep 22 and 23: 31° F; 28° F

Record High *Min* Temps:
Oct 16-19: 32, 38, 38, & 33° F, respectively.
Oct 27-28: 27, 31, & 32° F, respectively.

Record High Daily Precip. Totals:
Oct 17: 0.35 in.
Oct 28: 0.56 in.
Nov. 4: 0.35 in.
Nov 13: 0.48 in.

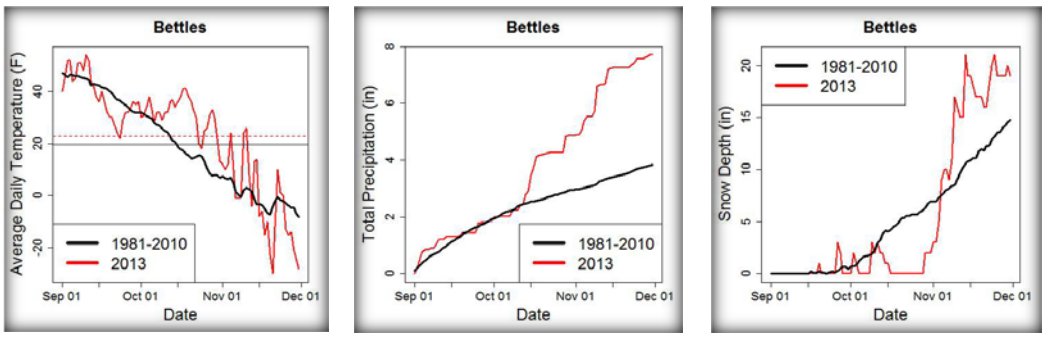
Record Daily Snowfall Totals:
Oct 1: 2.7 in.
Nov 13: 6.9 in.

In Bettles, the first few days of September were warmer than normal. After that temperatures dropped and were considerably colder than normal for most of the month, with an average monthly temperature of 39.0° F, which is -1.6° F colder than normal. The snow started falling on September 18 and a total of 7.5 inches fell during the month. It was still warm enough to melt all of the snow — there was no snow on the ground on September 30. The monthly precipitation total was just below normal at 1.84 inches.

In October an unusual pressure pattern in the North Pacific Ocean and Bering Sea pumped warm and moist air from the mid-latitudes into Alaska, making it the warmest October on record for the state and for Bettles. The average monthly temperature for Bettles was 31.2° F, a whopping 12.3 degrees warmer than normal! There were 5 new record highs for the month and many record high *minimum* temperatures (very warm nights). The precipitation total for the month was 291% of normal at 3.03 inches, much of this fell as rain due to the warm temperatures. The total snowfall for the month was 12.5 inches, which is just at normal. The first day of persistent snowpack for the year was October 29.

It cooled down in November and the snow started to accumulate. The average monthly temperature for November was -3.8° F, which is -3.0° F colder than normal. The monthly snowfall total was a whopping 37.4 inches; ~ 22 inches more than normal. By the end of November there was 19 inches of snow on the ground and the total snowfall for the season (starting on July 1) was close to 60 inches, almost double the normal of 31.0 inches.

Bettles – Average air temperature, cumulative precipitation, and snow depth 2013 (red) compared to normal (black).



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Bettles Weather Records:
Climate Normal Period 1981 – 2010
Climate Record Period 1944 – 2013

Temperature

Fall 2013	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
September	39	40.6	**-1.6**	63/ Sep 10	17 / Sep 23
October	31.2*	18.9	**+12.3**	47 / Oct 4	7 / Oct 24
November	-3.8	-0.9	**-3.0**	36 / Nov 10	-36 / Nov 19, 20

* warmest on record. Fall Season Temperature Departure from Normal: +2.6°F

Precipitation

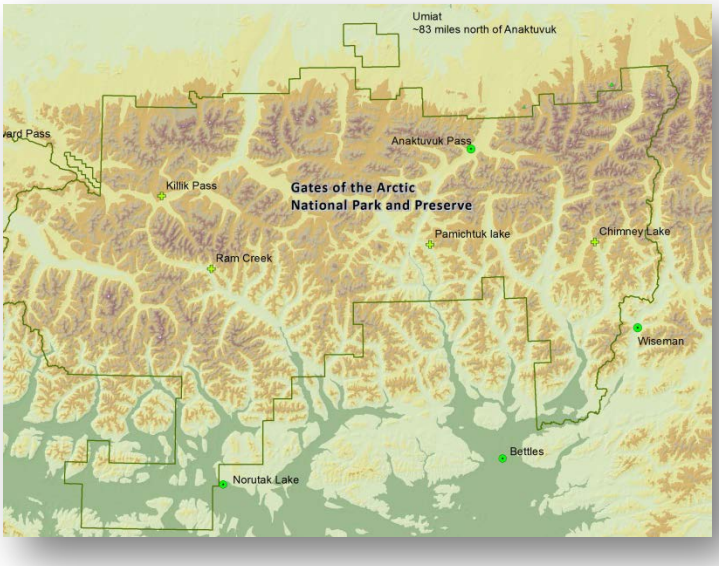
Fall 2013	Total Monthly Precip. in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 –hr. total in. / Date	# Days with >=0.01 in. water
September	1.84	1.91	**-0.07**	0.33 / Sep 3,25	18
October	3.03	1.04	**+1.99**	0.56 / Oct 28	20
November	2.83	0.91	**+1.92**	0.92 / Nov 9	18

Fall Season Departure from Normal: +1.28 inches

Snowfall

Fall 2013	Total Monthly Snowfall in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 –hr. snowfall total in. / Date	2013-2014 Cumulative since 1-July in.	Normal Snowfall from July 1 in.
September	7.5	2.5	**+5.0**	2.8 / Sep 25	7.5	2.5
October	12.4	12.4	**0**	2.7 / Oct 1,8,28	19.9	14.9
November	37.8	16.1	**+21.7**	8.8 / Nov 9	57.7	31.0

As part of the climate monitoring vital sign, we now have additional NPS climate stations in Gates of the Arctic National Park and Preserve that complement the existing National Weather Service station at Bettles. The new NPS stations will provide critical data on high elevation sites in the Arctic and will help characterize the climate gradients and patterns affecting resources in the park. Data from Anaktuvuk Pass, Coldfoot, and Umiat are also summarized.



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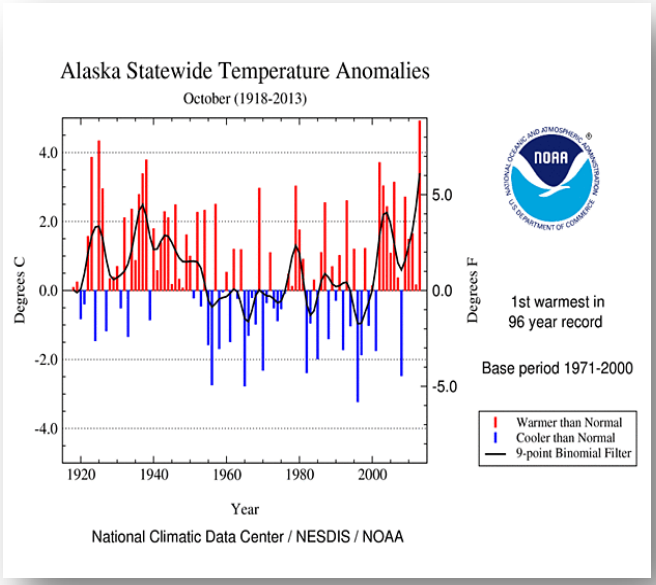
Gates of the Arctic weather summaries Fall 2013:

Site	Elev. Ft.	Average Temp °F Sep	Oct	Nov	Fall Avg Temp °F	Extremes °F High	Low	Peak Wind mph	High T – Low T °F *
Umiat	267	32.9	20.4	-1.2	17.4	67	-37	48	85
Coldfoot	1040	38.0	31.8	-1.7	22.7	62	-42	**	104
Anaktuvuk Pass	2103	30.5	26.5	1.8	19.6	52	-26	32	58
Chimney Lake	3100	29.9	25.2	4.4	19.8	48	-14	49	62
Killik Pass	4355	25.5	22.5	2.4	16.8	45	-22	47	67
Norutak Lake	800	36.9	32.3	-2.7	22.1	61	-34	32	95

* Difference between the high and low temperature for the season; **wind not measured. Ram Creek not transmitting real-time data.

Interesting notes from RAWS stations:

- As the daylight hours decrease in the fall, the lower elevation sites start to become considerably cooler than higher elevation sites.
- October temperatures for all of these sites, on average, would be about 10 -15 degrees cooler in a "normal" year.
- High winds were evident throughout much of Alaska in mid-November including the heart of the Brooks Range.
- Killik Pass was the cold spot this fall with the lowest fall average temp of any site in the area.



Warmest October on record in Alaska

Connecting Further

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

Check out the Dec-Jan-Feb weather outlook from the NOAA Climate Prediction Center

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 Gates of the Arctic National Park and Preserve.

Please Note: The summarized data are preliminary and have not undergone final quality control. Therefore, these data are subject to revision.

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