



Weather and Climate

Denali Fall 2013 Weather Summary

Was Fall 2013 Normal?

Overall it was a warm, wet fall -- the average for Sep., Oct., & Nov. was 3.8° F degrees warmer than the 1981-2010 normal.

October 2013 was the third warmest October on record (1925 and 1938 were warmer).

The precipitation total for the 3 month period was 5.97 inches, or 184% of normal. It fell as rain in September and October, and changed to snow in November.

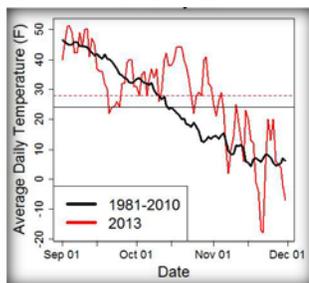
October snowfall total was 11% of normal; November snowfall was 163% of normal.

September temperatures started out above normal, but by the end of the first week they dropped well below normal and stayed there until the last few days of the month. The average monthly temperature was 1.9° F colder than normal. The total precipitation for September was 2.15 inches, 126% of normal. The 3.2 inches of snow that fell during the month was 68% of normal.

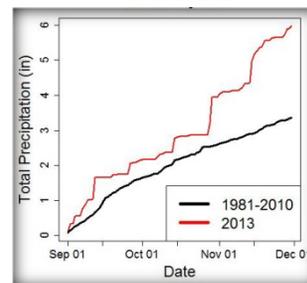
October 2013 was one of the warmest on record (1925 at 39.5° F and 1938 at 34.9° F were warmer). The warm temperatures were widespread, making it the warmest on record for the state of Alaska. At Denali Park, the average temperature for the month was 34.7° F, an impressive +11.8° F warmer than the 1981-2010 normal period! Because of the warm temperatures, precipitation fell as rain rather than snow. There were only 2 days with measurable snow in October. The precipitation total for the month was 1.79 inches, normal is 0.78 inches. The total snowfall was 1.1 inches; on average we would expect ~9.9 inches of snow in October.

November cooled off a bit, but the average monthly temperature of 10.3° F was still warmer than the normal of 8.9° F. There were 21 days in November with measurable snow. A total of 21.5 inches of snow fell during the month; normal snowfall in November is 13.2 inches. On November 30th there was 13 inches of snow on the ground at park headquarters.

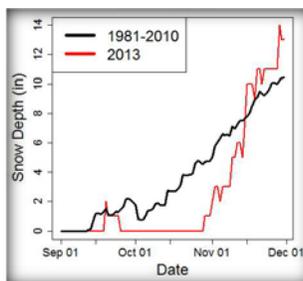
Denali Park HQ – Average Air Temperatures



Denali Park HQ – Cumulative Precipitation



Denali Park HQ – Snow Depth



Denali Fall 2013 Weather Summary

Denali Park HQ Weather Records:
 Climate Normal Period 1981 – 2010
 Climate Record Period 1925 – 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	38.4	40.4	-1.9	61 / Sep 4,5	10 / Sep 20
October	34.7	22.9	+11.8	51 / Oct 4	13 / Oct 24
November	10.3	8.9	+1.4	36 / Nov 4, 23	-27 / Nov 21

Fall Season Temperature Departure from Normal: +3.8°F

Precipitation

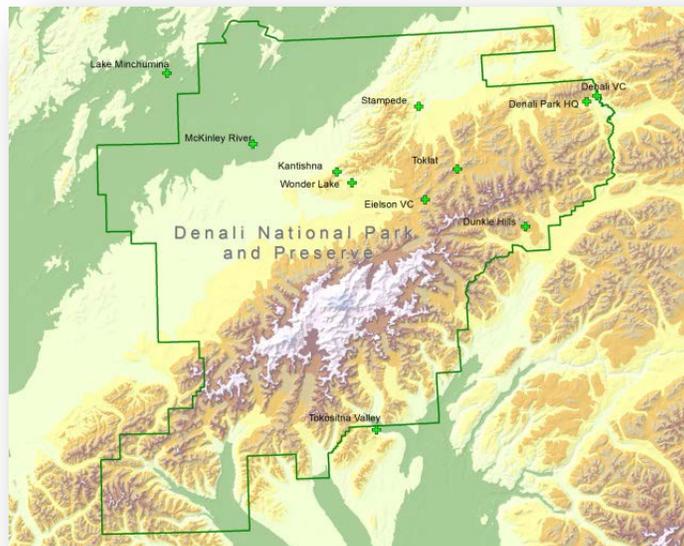
Fall 2013	Total Monthly Precip in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 –hr. total in. / Date	# Days with >=0.01 in. rain or snow
September	2.15	1.70	+0.45	0.61 / Sep 12	14
October	1.79	0.78	+1.01	0.72 / Oct 29	13
November	2.03	0.75	+1.28	0.60 / Nov 14	20

Fall Season Departure from Normal: +0.78 inches

Snowfall

Fall 2013	Total Monthly Snowfall in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 –hr. snowfall total in. / Date	Cumulative snowfall total from July 1 in.	Normal Snowfall Total from July 1 - in.
September	3.2	4.7	-1.5	2.4 / Sep 19	3.2	4.7
October	1.1	9.9	-8.8	1.0 / Oct 29	4.3	14.6
November	21.5	13.2	+8.3	3.7 / Nov 15	25.8	27.8

There are additional NPS climate stations in Denali that complement the long-term record available from the National Weather Service station at Park headquarters. These additional sites provide critical data on a park-wide scale that help characterize the climate gradients and patterns affecting resources in Denali National Park and Preserve.



Denali Fall 2013 Weather Summary

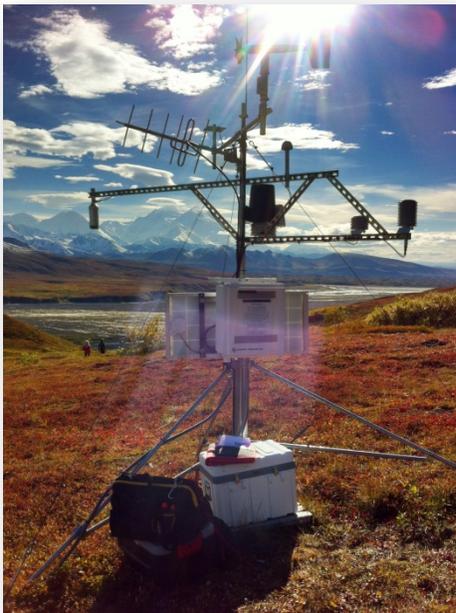
Denali Remote Automated Weather Station (RAWS) summaries – Fall 2013:

Site	Elev. Ft.	Average Temp °F			Fall Avg Temp °F	Extremes °F		Peak Wind mph	High T – Low T °F *	Snow Depth on Nov 30
		Sep	Oct	Nov		High	Low			
Denali VC	1650	40.3	36.4	10.6	29.1	64	-39	28	103	**
Toklat	2920	36.5	33.6	13.8	28.0	58	-25	35	83	7
Eielson VC	3653	35.9	34.4	15.7	28.7	57	-9	41	66	16
Wonder Lake	2050	37.0	30.8	11.1	26.3	63	-22	53	85	**
Stampede	1800	37.3	31.1	8.8	25.7	64	-38	16	102	10
Kantishna	1550	37.9	31.6	11.7	27.1	59	-36	**	95	11
Dunkle Hills	2651	37.5	31.7	11.3	26.8	55	-26	33	81	31
Tokositna Valley	850	42.7	36.5	16.5	31.9	62	-16	**	78	19

* Difference between the high and low temperature for the season; **Snow /wind not measured.

Interesting notes from RAWS stations:

- October was warm park-wide! October temperatures at the RAWS sites were on average ~ 5 degrees colder than the September temperatures in 2013; in 2012 October temperatures were on average ~ 18 degrees colder than September temperatures.
- On November 13 a strong storm barreled in from the Bering Sea, bringing wind and rain to the interior — a wind gust of 53 mph was recorded at Wonder Lake.
- Stampede airstrip was the cool spot for the fall. It also had one of the largest temperature spreads between the September high temperature and the November low temperature.



Climate station near Eielson Visitor Center

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

Connecting Further

New paper published [Recent sea ice increase and temperature decrease in the Bering Sea area, AK](#)

[Central Alaska Network](#) climate monitoring vital sign

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 Denali National Park and Preserve.

For more information contact:

Pam Sousanes or Ken Hill

Central Alaska Network

pam_sousanes@nps.gov; kenneth_hill@nps.gov

907.455.0677

907.455.0678