

Alaska Statewide Climate Summary

September 2015

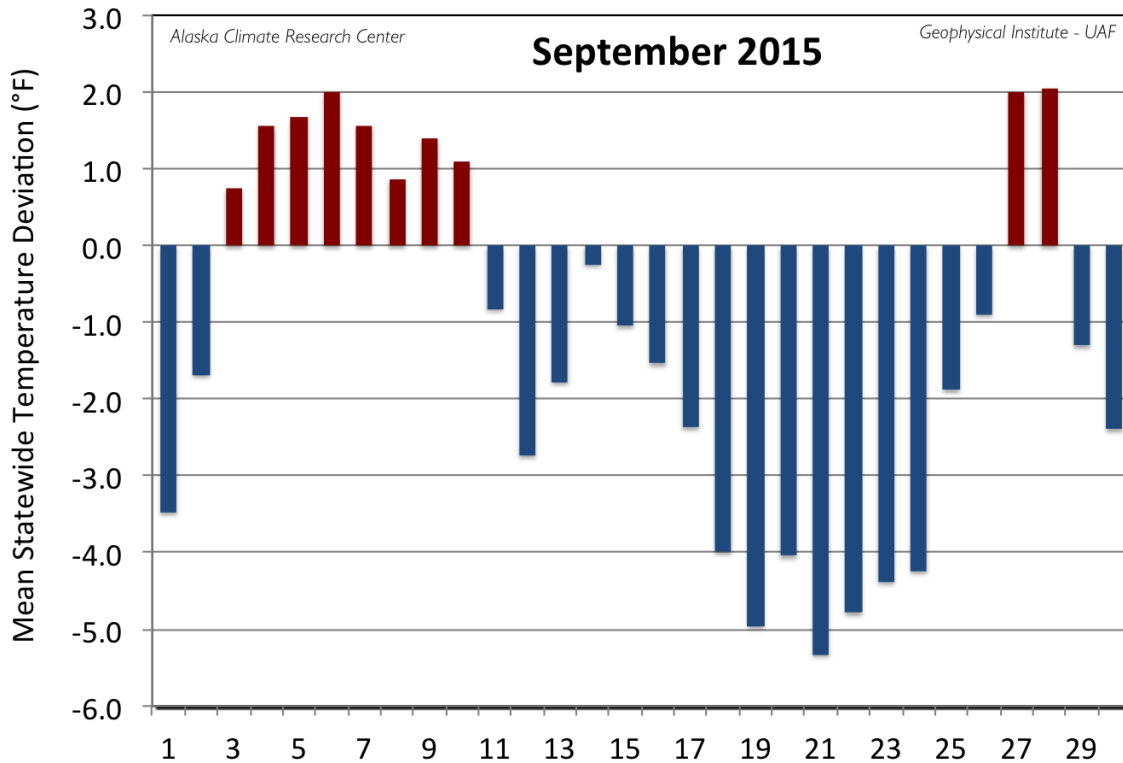
Temperature

September broke the trend where, on a monthly basis, statewide temperatures have been above normal since July 2014 with a below average month: The monthly mean temperature of all First Order Stations was 44.3°F, 1.3°F below the normal of 45.6°F. This is 3.5°F below the September 2014 mean of 47.8°F. Temperatures were below normal for 16 of the 19 First Order Stations. Calculating the mean daily temperatures of the First Order Stations (see Figure), 20 days of the month were below the 30-year normal. Temperatures started the month with two days colder than normal, followed by eight days of above normal temperatures. Temperatures stayed below normal for the rest of the month, with the exception of the 27th and 28th. The peak warm deviation, a minimal 2.1°F, occurred on the 28th, while the coldest deviation of -5.3°F occurred on the 21st. Bettles held the greatest negative deviation from normal at 3.9°F below its long-term mean of 40.6°F. Stations following Bettles with negative deviations equal to or exceeding 2.0°F were Talkeetna (-3.2°F), Nome (-2.8°F), Delta Junction (-2.6°F), Fairbanks (-2.5°F) and Anchorage (-2.2°F). St. Paul Island had the greatest positive deviation at 1.7°F.

Station	Temperature		
	Observed (°F)	Normal (°F)	Delta (°F)
Anchorage	46.4	48.6	-2.2
Annette	53.0	53.8	-0.8
Barrow	31.1	32.1	-1.0
Bethel	44.0	45.6	-1.6
Bettles	36.7	40.6	-3.9
Cold Bay	48.6	48.1	0.5
Delta Junction	41.3	43.9	-2.6
Fairbanks	42.4	44.9	-2.5

Gulkana	42.6	43.3	-0.7
Homer	46.2	48.1	-1.9
Juneau	49.2	50.0	-0.8
King Salmon	46.8	47.6	-0.8
Kodiak	50.3	49.4	0.9
Kotzebue	40.8	42.3	-1.5
McGrath	43.6	44.6	-1.0
Nome	40.0	42.8	-2.8
St. Paul Island	47.0	45.3	1.7
Talkeetna	44.3	47.5	-3.2
Yakutat	47.7	48.4	-0.7

The highest temperature of the First Order Stations was 69°F reported at Fairbanks on the 3rd of the month. Annette held the spot for the highest mean temperature for the month at 53.0°F. The coldest temperature was 10°F at Bettles on the 30th, while Barrow reported the lowest September mean temperature at 31.1°F.



Daily mean temperature deviation from the normal temperature for the mean of the first order stations for September 2015.

There were a limited number of temperature record events in September, and for the first time in many months the number of low events outnumbered the high events. Kodiak experienced both a new high, and a new low.

Date	Temperature Records				
	Station	Element	New Record	Old Record	Year of old Record
09/01/15	Bethel	Low Temperature	31	32	1936
09/01/15	King Salmon	Low Temperature	26	28	1980
09/02/15	Annette	Low Temperature	43	45	1999
09/02/15	Yakutat	Low Temperature	32	32	1994

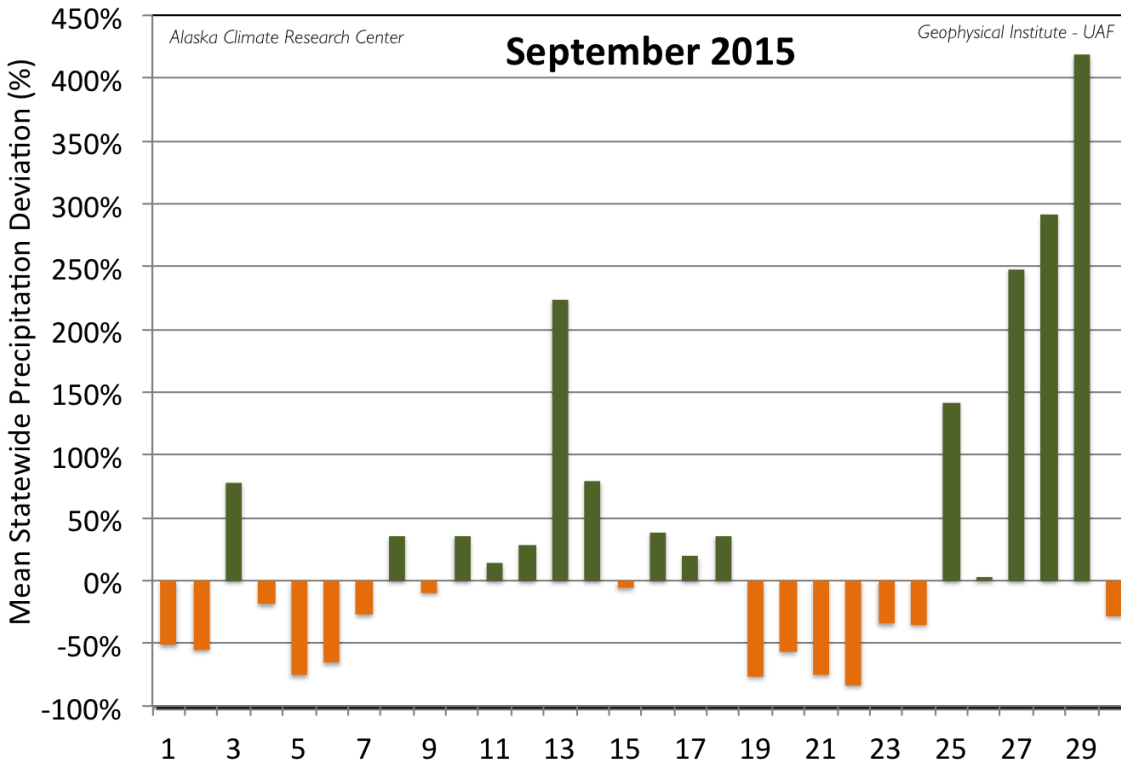
09/13/15	Delta Junction	Low Temperature	24	27	1954
09/22/15	Nome	Low Temperature	18	20	1992
09/24/15	Kodiak	Low Temperature	29	30	1992
09/25/15	Kodiak	High Temperature	60	60	2014
09/27/15	Kodiak	High Temperature	64	62	1970

Precipitation

September was notably wetter than normal, with the overall precipitation calculated as 28% above normal; this calculation was based on the mean of the deviations in percentage of the First Order Stations. Twelve of the First Order Stations and 15 days of the month reported above normal values. There were no days during the month without any measureable precipitation at all of the 19 First Order Stations. This is also wetter than September 2014, which had a precipitation total 4% above normal. The greatest daily deviation of 419% occurred on the 29th, driven by very heavy rain and snow experienced across much of the state. On a monthly basis, Fairbanks had the greatest positive deviation from normal, with a total of 3.74", or 240% above the expected amount of 1.10". The only other stations with precipitation greater than 100% above normal were Anchorage (158%), Talkeetna (110%) and Bethel (107%). The leading station with a lower than normal precipitation amount was Kodiak with just 29% of normal. Other stations with less than half of their normal precipitation are Kotzebue (38%) and Gulkana (45%).

Station	Precipitation				
	Observed (in)	Normal (in)	Delta (in)	Delta (%)	(%)
Anchorage	7.71	2.99	4.72	158%	258%
Annette	11.36	9.79	1.57	16%	116%
Barrow	0.45	0.72	-0.27	-38%	63%
Bethel	5.70	2.75	2.95	107%	207%
Bettles	3.20	1.91	1.29	68%	168%

Cold Bay	3.94	4.73	-0.79	-17%	83%
Delta Junction	0.62	1.03	-0.41	-40%	60%
Fairbanks	3.74	1.10	2.64	240%	340%
Gulkana	0.71	1.58	-0.87	-55%	45%
Homer	5.42	3.31	2.11	64%	164%
Juneau	11.51	8.64	2.87	33%	133%
King Salmon	3.25	3.19	0.06	2%	102%
Kodiak	2.16	7.35	-5.19	-71%	29%
Kotzebue	0.60	1.58	-0.98	-62%	38%
McGrath	2.83	2.49	0.34	14%	114%
Nome	1.49	2.45	-0.96	-39%	61%
St. Paul Island	4.21	2.99	1.22	41%	141%
Talkeetna	9.07	4.32	4.75	110%	210%
Yakutat	21.46	21.11	0.35	2%	102%



Daily mean precipitation deviation from the normal for the first order stations for September 2015.

The maximum monthly precipitation total reported for a First Order Station was 21.46" at Yakutat, while Yakutat also reported the highest daily total of 3.77" on the 29th, a new record for that specific day. Fairbanks reported the highest total snowfall at 20.9", the second highest September total on record for Fairbanks. Fairbanks also reported the highest one-day snowfall at 11.2" on the 29th, a new daily record, as well as the highest snow depth at 11", also on the 29th. It should be noted that September is early in the winter season, and most stations have little, if any, snowfall, and seldom have established a snowpack.

There were an extensive number of daily precipitation records, and nearly half were set during the very wet last four days of the month. September was also unusual in that there were more the three times as many new precipitation records as temperature records.

It was the wettest September on record for Anchorage with 7.71" of precipitation, breaking the old 2004 record of 7.61". Assisting Anchorage to break that record were four daily precipitation records. The daily record of 1.56" set on the 29th is a record for any day in September for Anchorage, surpassing the old record of 1.41" from September 19th, 2012. It was also the fourth snowiest September for Anchorage, and 600% above normal.

Using the climate record since 1929 it was also the wettest September in Fairbanks at 3.74", breaking the 1960 record of 3.05". It was the second snowiest September after the 24.4" from 1992. Factoring in these totals were two new daily snowfall records as well as two new daily precipitation water-equivalent records. The record snowfall on the 29th of 11.2" was a new daily record for any day in September for Fairbanks. It broke the 7.8" record from the 13th of September 1992, additionally the two-day storm total of 13.5" from the 29th and 30th broke the old two-day record of 12.9" set on the 13th and 14th of 1992. For the month, the snowfall was 1061% above normal for Fairbanks.

Juneau continued its wet year where all months this year, with the exception of May, have had above normal precipitation amounts. This makes 2015 the wettest stretch from January to September with 63.31", 3.55" above the 59.76" record from 1992 for this time period. The normal for this period is just 41.81". This September was the 4th wettest on record for Juneau as well as Sitka.

Date	Precipitation Records				
	Station	Element	New Record	Old Record	Year of old Record
09/03/15	Bethel	Precipitation	0.89	0.44	2001
09/03/15	Homer	Precipitation	0.52	0.40	1993
09/08/15	Anchorage	Precipitation	1.19	0.92	1990
09/10/15	Port Alexander	Precipitation	4.05	3.80	1991
09/10/15	Sitka	Precipitation	4.37	2.79	1991
09/11/15	Craig	Precipitation	2.00	0.99	2009
09/13/15	Bettles	Precipitation	0.00	0.00	1992
09/13/15	Fairbanks	Precipitation	0.55	0.49	1992
09/13/15	St. Paul	Precipitation	0.87	0.61	1994
09/15/15	Anchorage	Precipitation	0.94	0.61	1962

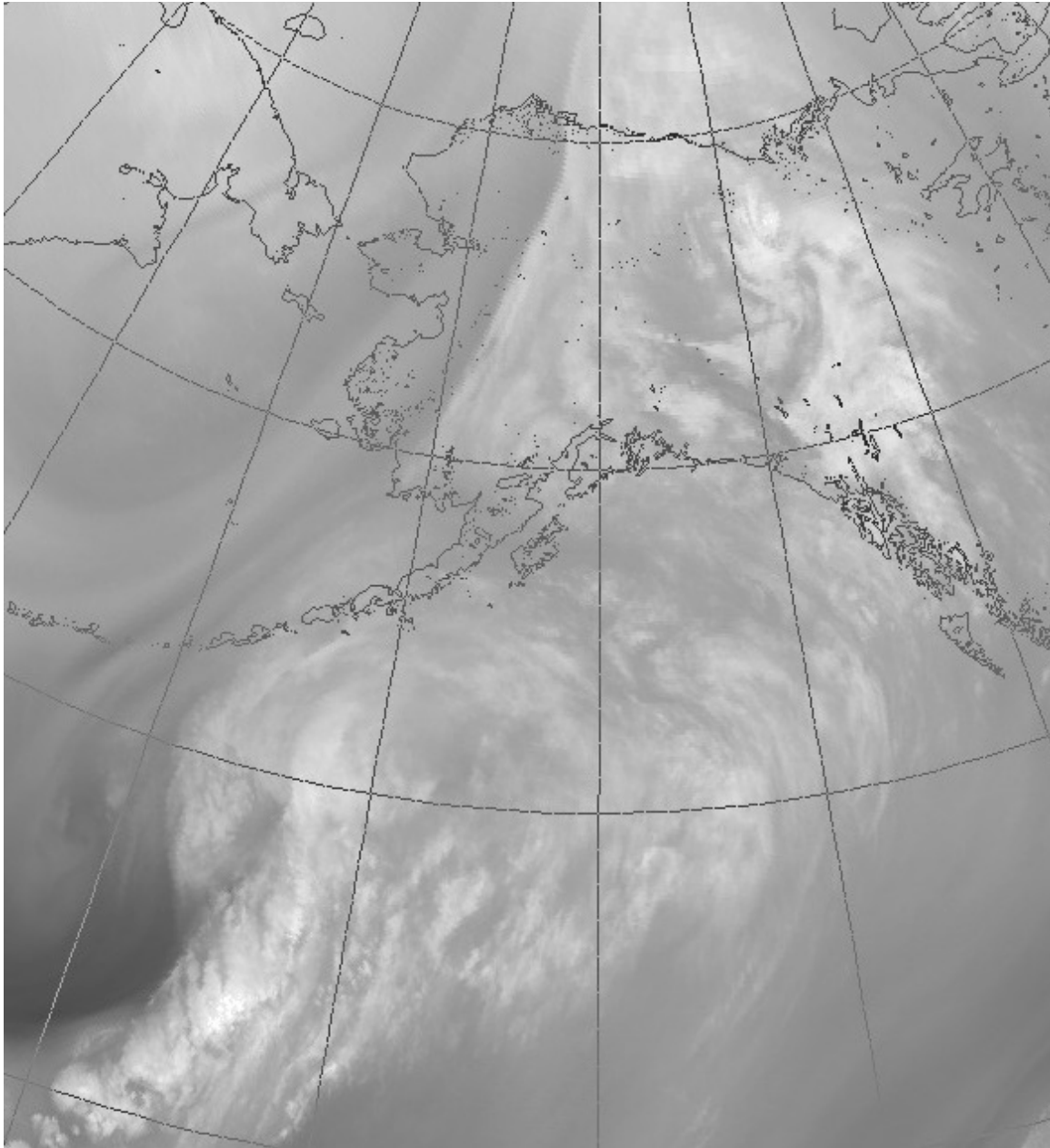
09/18/15	Bettles	Precipitation	0.43	0.41	1982
09/18/15	Bettles	Snowfall	5.8	5.5	1968
09/25/15	Bettles	Precipitation	0.50	0.43	1977
09/25/15	Fairbanks	Snowfall	6.7	0.8	1996
09/27/15	Anchorage	Precipitation	0.72	0.71	1979
09/27/15	Bethel	Precipitation	1.63	0.93	1960
09/27/15	McGrath	Precipitation	0.97	0.92	1985
09/28/15	Homer	Precipitation	0.50	0.50	2003
09/28/15	Talkeetna	Precipitation	2.24	2.04	1960
09/29/15	Anchorage	Precipitation	1.56	1.21	1961
09/29/15	Delta Junction	Precipitation	0.33	0.28	2006
09/29/15	Eagle	Snowfall	7.0	0.7	1968
09/29/15	Fairbanks	Snowfall	11.1	7.0	1972
09/29/15	Fairbanks	Precipitation	0.74	0.50	1954
09/29/15	Homer	Precipitation	1.20	0.77	2004
09/29/15	Juneau	Precipitation	1.62	1.52	1970
09/29/15	Kenai	Precipitation	1.08	0.94	1959
09/29/15	Sitka	Precipitation	2.93	2.71	1972
09/29/15	Yakutat	Precipitation	3.77	2.92	1982

Newsworthy Events

September started off with frost warnings for Anchorage and other areas in the Southcentral region as well as for Fairbanks and other Interiors areas on the 1st. Sandy Beach road from Thorne Bay to Coffman Cove was closed on the 2nd after more than six inches of rain in the area damaged the road. The high water from August along the Chena River near Fairbanks continued for several days into September. On the 5th warnings were issued for rising water levels in the lower Kenai River at Soldotna and Kenai after the glacier dammed lake above Skilak Lake released its water. On the 6th, the fire crews started to leave the last staffed fire – the Twin Creeks Fire on Kodiak Island. The last crewmembers left on the 11th. That brought to a close the second highest wildfire season on record with a total of 768 fires and 5.2 millions acres burned, only surpassed by summer 2004, when 6.3 million acres burned. More than 3,000 fire fighters were working various fires across the state earlier in the summer.

Wet, windy weather was forecasted for Southeastern areas on the 8th, followed by flooding warnings on the 9th and 10th. High wind advisories were issued for the 9th for areas in the north of the Alaska Range, and for high surf warnings for Saint Lawrence Island. The next day the wind warnings were issued for the western Brooks Range. Fairbanks received its first trace of snow of the season on the 12th, about nine days early, with some nearby areas measuring up to 1".

Gale warnings were issued on the 13th for the northern Gulf Coast, while Denali Park was expected to get heavy rain and snow. The summer season ended at Denali on the 14th. The storm system moved north on the 14th with winter weather advisories issued for the southeastern Brooks Range for up to nine inches of snow for higher elevations. Another storm was forecasted for the northern and central panhandle on the 16th. This storm came on top of the already water saturated surface and by the end of the storm a number of creeks were at bankfull. Fresh snow was reported at Bettles on the 19th and at the Eielson Visitors Center (more than 10") in Denali Park on the 20th, and up to 18" was expected in other parts of the park. The 21st was the last day lottery winners could drive the park road. Travel advisors were issued for snow and freezing rain for the Parks Highway near the park entrance on the 22nd.



This water vapor satellite image from the National Weather Service for the 28th of September shows the weather pattern the resulted in heavy snow and rainfall along high winds and some coastal flooding across much of Alaska.

The 22nd also saw high surf and strong wind warnings for areas around the Chukchi Sea issued with a strong low-pressure system that had moved into the Arctic areas. Winter weather advisories were issued for the middle Tanana Valley, including Fairbanks, and areas of the Alaska and Brooks Ranges on the 25th for significant snow, gusting winds and blowing snow over the summits. Up to nine inches was reported in areas around Fairbanks. High wind warnings were issued for the passes along the Parks Highway on the 27th, while a winter advisory was issued for areas near the southern Brooks Range for up to eight inches of snow. The next day coastal flood watches were in place for areas around Yakutat for a combination of high tides and strong onshore winds.

The weather event of the month started with winter storm warnings and travel advisories for Interior roads being issued on the 28th for heavy snow starting the next day. The storm impacted much of the mainland of Alaska with record snowfall in some areas. The snow, followed, by rain, generated roving power outages in the Fairbanks area due to laden trees being knocked down or bending onto power lines. The outages continued past the end of the month. Up to 21,000 houses were without power at the peak of the outages. Busses were delayed due to the road conditions, while some roads were snarled due to snow and lack of traffic lights. The power outages also affected a number of cell towers. Schools were canceled on the 30th in the Fairbanks area. College hills near Fairbanks reported the highest storm total of 16.5". Anchorage also received its first snowfall of the season on the 29th with 0.3", and then 2.5" more fell the next day causing a number of power outages.

Heavy rains and high winds were also experienced from Yakutat to the northern panhandle areas on the 28th and 29th. Peak gusts of up to 96 mph were recorded on Sheep Mountain, and 73 mph at Cape Spencer. Finally, high winds blew ash from the 1912 eruption of Novarupta Volcano on the Alaska Peninsula into the Kodiak area on the 30th.

This information consists of preliminary climatological data compiled by the Alaska Climate Research Center, Geophysical Institute, University of Alaska Fairbanks. For more information on weather and climatology, contact the center at 907-474-7885 or visit the center web site at <http://akclimate.org>. Please report any errors to webmaster@akclimate.org. This summary is based on the 19 first order stations in Alaska operated by the National Weather Service. Extreme events of other stations are also mentioned.