



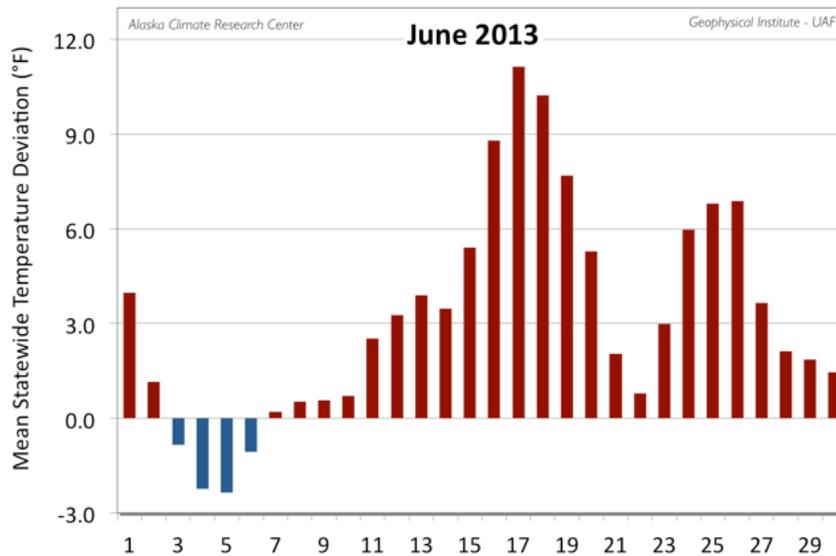
## The Alaska Climate Research Center

### June 2013 Statewide Summary

#### Temperature

Temperatures started off the month mixed for the first week, then stayed above normal, often significantly above normal, for the rest of the month. The mean temperature of all first order stations for June was 55.2°F, 3.3°F above the long-term mean of 51.8°F. Nineteen of the 20 First Order Stations reported positive deviations, with Interior stations reporting the most extreme deviations from their expected temperatures. Fairbanks topped the list with a significant positive deviation of 6.4°F. Following Fairbanks were Delta Junction (5.6°F), Kotzebue (5.1°F), and Gulkana (5.0°F). Saint Paul, with -1.2°F, was the only station with a negative deviation. Anchorage had seventeen days with a maximum temperature at or above 70°F, breaking the record of thirteen days from June of 1936. June was the fourth warmest on record for Anchorage. Fairbanks had the third warmest June on record, with sixteen days where the temperature hit 80°F or warmer, breaking the previous record of fifteen days from 1957. Juneau had the second warmest June since 1943. King Salmon also had the second warmest June on record. Details for each station can be reviewed in the table below.

Station	Temperature		
	Observed (°F)	Normal (°F)	Delta (°F)
Anchorage	58.8	55.2	3.6
Annette	57.6	55.1	2.5
Barrow	39.0	35.6	3.4
Bethel	55.4	52.5	2.9
Bettles	61.0	58.5	2.5
Cold Bay	47.8	46.3	1.5
Delta Junction	63.2	57.6	5.6
Fairbanks	66.8	60.4	6.4
Gulkana	59.4	54.4	5.0
Homer	53.1	50.6	2.5
Juneau	57.9	54.6	3.3
King Salmon	55.3	51.5	3.8
Kodiak	53.8	49.7	4.1
Kotzebue	50.8	45.7	5.1
McGrath	62.0	57.4	4.6
Nome	49.1	47.8	1.3
St. Paul Island	41.2	42.4	-1.2
Talkeetna	60.6	57.0	3.6
Valdez	57.2	53.2	4.0
Yakutat	53.4	50.8	2.6



Daily mean temperature deviation from the normal temperature for the mean of the 20 first order stations for June 2013.

June brought numerous new record temperature events that reflected the overall trend for the month, with no new record lows reported. McGrath was again on a tear in June, continuing the trend of four new record highs in May with five more in June. The record high of 94°F on the 17<sup>th</sup> was also a new all time high for McGrath, topping the old record of 90°F set on June 15<sup>th</sup>, 1969. McGrath also set seven new high minimum records in June (not shown). Valdez topped McGrath with a total of seven new record daily high temperatures, and six new high minimum records (also not shown). In addition, the record high of 90°F on the 17<sup>th</sup> was a new all time high for Valdez, breaking the old record of 87°F from June 25<sup>th</sup> 1953. The 17<sup>th</sup> also saw a number of other all time high records set: Talkeetna hit 96°F, topping the 91°F record set on June 14<sup>th</sup> 1969 and June 26<sup>th</sup> 1953. Cordova reached 90°F, breaking the 89°F record from June 16<sup>th</sup> 1995. Nome tied its all time high from July 31<sup>st</sup> 1977 on the 19<sup>th</sup> with a high of 86°F. That same 86°F is a new June high for Nome. The minimum temperature at Fairbanks of 70°F on the 25<sup>th</sup> was the warmest minimum daily temperature on record.

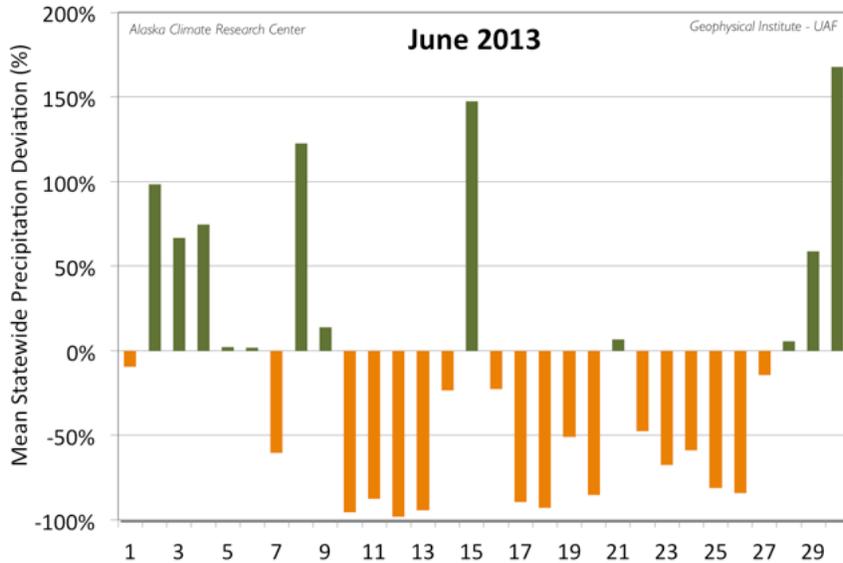
Date	Temperature Records				
	Station	Element	New Record	Old Record	Year of old Record
06/01/13	McGrath	High Temperature	83	82	1958
06/08/13	Kodiak	High Temperature	73	67	1992
06/09/13	Valdez	High Temperature	69	69	1992
06/12/13	Valdez	High Temperature	74	72	1999
06/13/13	Cold Bay	High Temperature	59	59	1964
06/13/13	Kotzebue	High Temperature	74	72	1986
06/15/13	Haines Airport	High Temperature	86	85	1936
06/15/13	Juneau	High Temperature	83	83	1969
06/15/13	King Salmon	High Temperature	79	72	2007
06/15/13	Yakutat	High Temperature	74	69	1999
06/16/13	Annette	High Temperature	85	85	1969
06/16/13	Delta Junction	High Temperature	84	84	1969
06/16/13	Gustavus	High Temperature	85	67	2007
06/16/13	Haines Airport	High Temperature	86	80	2002
06/16/13	Juneau	High Temperature	85	82	1948
06/16/13	Ketchikan	High Temperature	85	85	1950
06/16/13	Kodiak	High Temperature	73	73	2007
06/16/13	McGrath	High Temperature	90	85	1986
06/16/13	Northway	High Temperature	85	84	1969
06/16/13	Port Alexander	High Temperature	80	72	1950
06/16/13	Tanana Airport	High Temperature	89	84	1986

06/16/13	Valdez	High Temperature	83	77	1969
06/16/13	Yakutat	High Temperature	85	82	1948
06/17/13	Cordova	High Temperature	90	73	1944
06/17/13	Galena	High Temperature	87	86	1948
06/17/13	Kodiak	High Temperature	79	78	1958
06/17/13	McGrath	High Temperature	94	84	1948
06/17/13	Nome	High Temperature	84	77	2005
06/17/13	Skagway Airport	High Temperature	86	83	1948
06/17/13	Skagway Power	High Temperature	85	82	2002
06/17/13	Talkeetna	High Temperature	96	85	1962
06/17/13	Tanana Airport	High Temperature	85	85	1948
06/17/13	Valdez	High Temperature	90	75	1997
06/17/13	Yakutat	High Temperature	74	73	1967
06/18/13	Anchorage	High Temperature	81	77	1959
06/18/13	Bethel	High Temperature	88	78	1976
06/18/13	King Salmon	High Temperature	81	80	1962
06/18/13	Kodiak	High Temperature	73	72	1989
06/18/13	McGrath	High Temperature	91	84	1984
06/18/13	Tanana Airport	High Temperature	87	86	1967
06/18/13	Valdez	High Temperature	82	76	1959
06/19/13	Kotzebue	High Temperature	85	72	1991
06/19/13	Nome	High Temperature	86	75	1982
06/19/13	Tanana Airport	High Temperature	86	83	2004
06/19/13	Valdez	High Temperature	71	71	2004
06/20/13	Barrow	High Temperature	62	60	1991
06/24/13	Haines Airport	High Temperature	85	79	2004
06/24/13	Sitka	High Temperature	73	68	1983
06/24/13	Yakutat	High Temperature	74	67	1983
06/25/13	Delta Junction	High Temperature	90	86	1983
06/25/13	Fairbanks	High Temperature	92	91	1983
06/25/13	Valdez	High Temperature	79	75	2004
06/26/13	Delta Junction	High Temperature	90	86	1983
06/26/13	Kodiak	High Temperature	81	78	1953
06/26/13	McGrath	High Temperature	83	83	1951
06/26/13	Tanana Airport	High Temperature	89	86	1971

## Precipitation

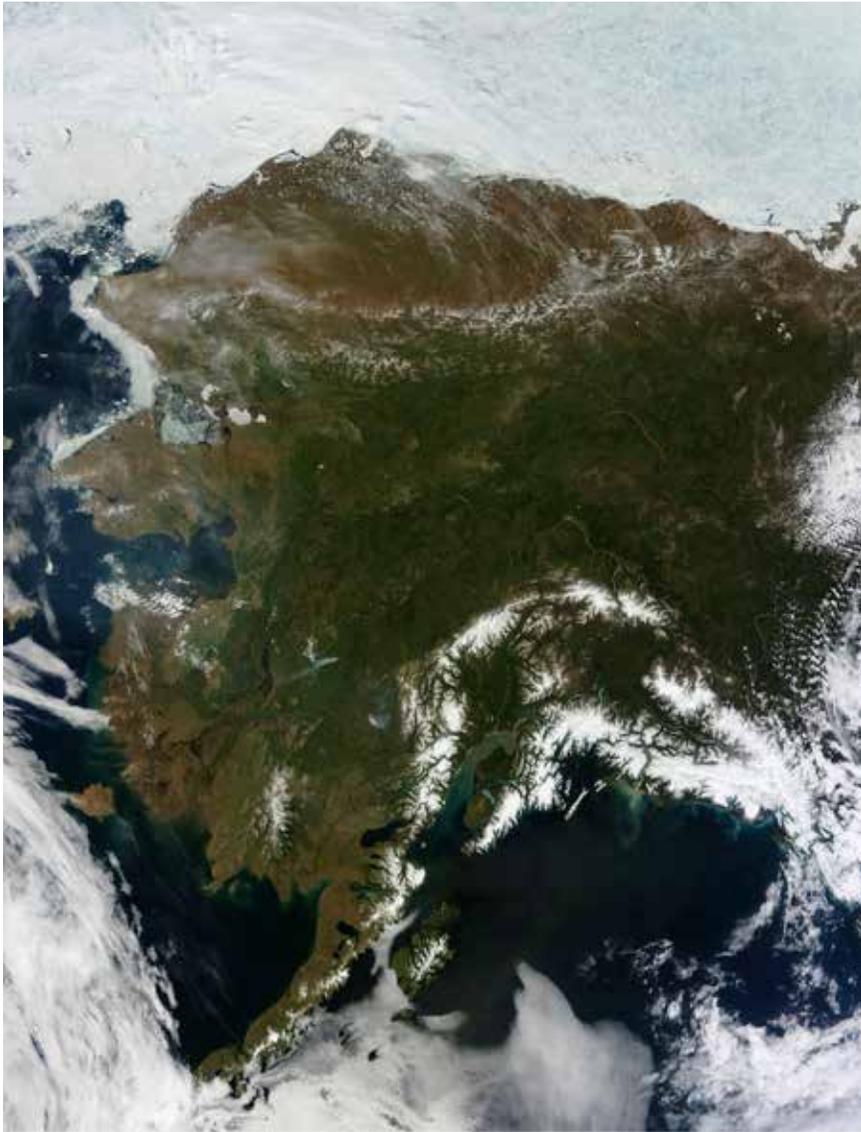
Unsurprisingly, June precipitation was lighter than normal with fifteen of the 20 stations reporting below average totals. The mean value of all 20 stations was calculated to 14% below normal. Gulkana reported the greatest negative deviation with just 19% of the expected value. Rounding out the stations with less than half of normal totals were: Bettles (30%), Fairbanks (31%), Talkeetna (35%) and Anchorage (47%). Topping the stations with heavier than normal precipitation was Nome with 158% above normal. Next came: Barrow (141%) and Kotzebue (57%). Only two stations experienced snowfall in June: Barrow with 0.3", only 43% of normal, and Nome with 0.1", 33% of normal. Precipitation details are presented in the following table.

Station	Precipitation				
	Observed (in)	Normal (in)	Delta (in)	Delta (%)	(%)
Anchorage	0.46	0.97	-0.51	-53%	47%
Annette	3.98	4.88	-0.90	-18%	82%
Barrow	0.77	0.32	0.45	141%	241%
Bethel	1.61	1.72	-0.11	-6%	94%
Bettles	0.42	1.40	-0.98	-70%	30%
Cold Bay	2.82	2.72	0.10	4%	104%
Delta Junction	1.28	2.31	-1.03	-45%	55%
Fairbanks	0.43	1.37	-0.94	-69%	31%
Gulkana	0.26	1.40	-1.14	-81%	19%
Homer	0.49	0.82	-0.33	-40%	60%
Juneau	3.19	3.24	-0.05	-2%	98%
King Salmon	1.05	1.65	-0.60	-36%	64%
Kodiak	4.11	5.91	-1.80	-30%	70%
Kotzebue	0.91	0.58	0.33	57%	157%
McGrath	0.86	1.52	-0.66	-43%	57%
Nome	2.53	0.98	1.55	158%	258%
St. Paul Island	1.55	1.35	0.20	15%	115%
Talkeetna	0.68	1.92	-1.24	-65%	35%
Valdez	1.55	2.75	-1.20	-44%	56%
Yakutat	3.38	6.39	-3.01	-47%	53%



*Daily mean precipitation deviation from the normal for the 20 first order stations for June 2013.*

The low number of precipitation records in June correlated with the generally sunny weather. Juneau started the month with 0.85" of rain on the 5<sup>th</sup>, topping the 1993 record of 0.78". On the 15<sup>th</sup> Nome received 0.68", just breaking the 1994 record of 0.60". Cold Bay's total of 0.73" on the 21<sup>st</sup> broke the old record of 0.46" that had been in place since 1951. Valdez's new precipitation record of 1.16" on the 28<sup>th</sup>, more than doubled the 1991 record of 0.56". Finally, on the 30<sup>th</sup>, King Salmon received a total of 0.75", also more than doubled the old record of 0.35" from 1982.



*This satellite image from NASA's Terra satellite shows rare, nearly cloud-free view of large portions of the state on Wednesday, June 17<sup>th</sup>, 2013. This image demonstrates the extent of the high-pressure system that dominated the weather in June, and drove a number of high temperature records on the 17<sup>th</sup>.*

## **Newsworthy Events**

The short transition from spring to summer was evident in Tok as the spring run off resulted in flooding of local roads and low lying areas at the start of the month. The water affected about a dozen homes before receding. At the same time, lightning started what was at that time the state's largest wildfire, named Bitter Creek, 60 miles from Tok. Fighting efforts continued until the 11<sup>th</sup> when most staff left, and total area burned was estimated at 2,200 acres and came within a mile and half of the Alaska Highway. Smaller fires also started in Delta Junction, and Healy. Seasonal run off affected the Richardson Highway all the way to the middle of the month. Rabbit Creek in Anchorage saw a surge of water on the 14<sup>th</sup> from a suspected ice dam break. After substantial rain fell in the Salcha river basin on the 4<sup>th</sup> and 5<sup>th</sup>, flood warnings were issued. The rain helped dampen Interior fires. The heat wave that hit the state about mid month created ideal conditions for wildfires, especially in the Interior. Fires started near Harding Lake and North Pole on the 17<sup>th</sup>. A large fire near Lime Village threatened the town and fire crews were working hard protecting structures, and it would eventually make it to within a half mile of the village. The Kaouti fire started near Two Rivers community on the Chena Hot Springs Road also started on the 17<sup>th</sup>, and was fought vigorously, so while no evacuations were issued, and no structures were lost, the road was temporarily closed from mile thirteen to sixteen. The fire topped out at 120 acres, and ended up being battled for two weeks. The Skinny Road fire at about mile 324 of the Parks Highway popped up on the 25<sup>th</sup>, resulting in the closing of the highway on the 26<sup>th</sup>, and frequent delays after that time. About 120 fires were burning across the state at the end of the month.

The Denali Highway was finally opened to through traffic on the 5<sup>th</sup>, several weeks later than normal. The longer than normal winter was blamed for a substantial die off of fish in Quartz Lake. In a reversal, warm water and lack of oxygen was blamed for the death of hundreds of fish at Ballaine Lake near Fairbanks at the end of the month. A mosquito boom across the Interior resulted in a shortage of repellent in Fairbanks, while the hot weather drained the stores of any type of fan or air conditioners. The dry conditions resulted in the City of North Pole banning firework sales, and local Interior officials pleaded with the public to refrain from their use. Woodcutting was curtailed across the Interior as well. The dry conditions had the City of Anchorage pulling a fire truck out of retirement as well as instituting a burn ban. Thunderstorms were noted at Barrow in 13<sup>th</sup>.

*This information consists of preliminary climatological data compiled by the Alaska Climate Research Center, Geophysical Institute, University of Alaska Fairbanks. This summary is based on the 20 first order stations in Alaska operated by the National Weather Service. Extreme events of other stations are also mentioned. It should be noted that the new climate normals for the time period of 1981-2010 are applied for the calculations of the deviations, and they can be slightly different from the old normals (1971-2000), which were in use up until end of July 2011.*

P.O Box 757320 Fairbanks, Alaska 99775-7320

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## The Alaska Climate Research Center

July 2013 Statewide Summary

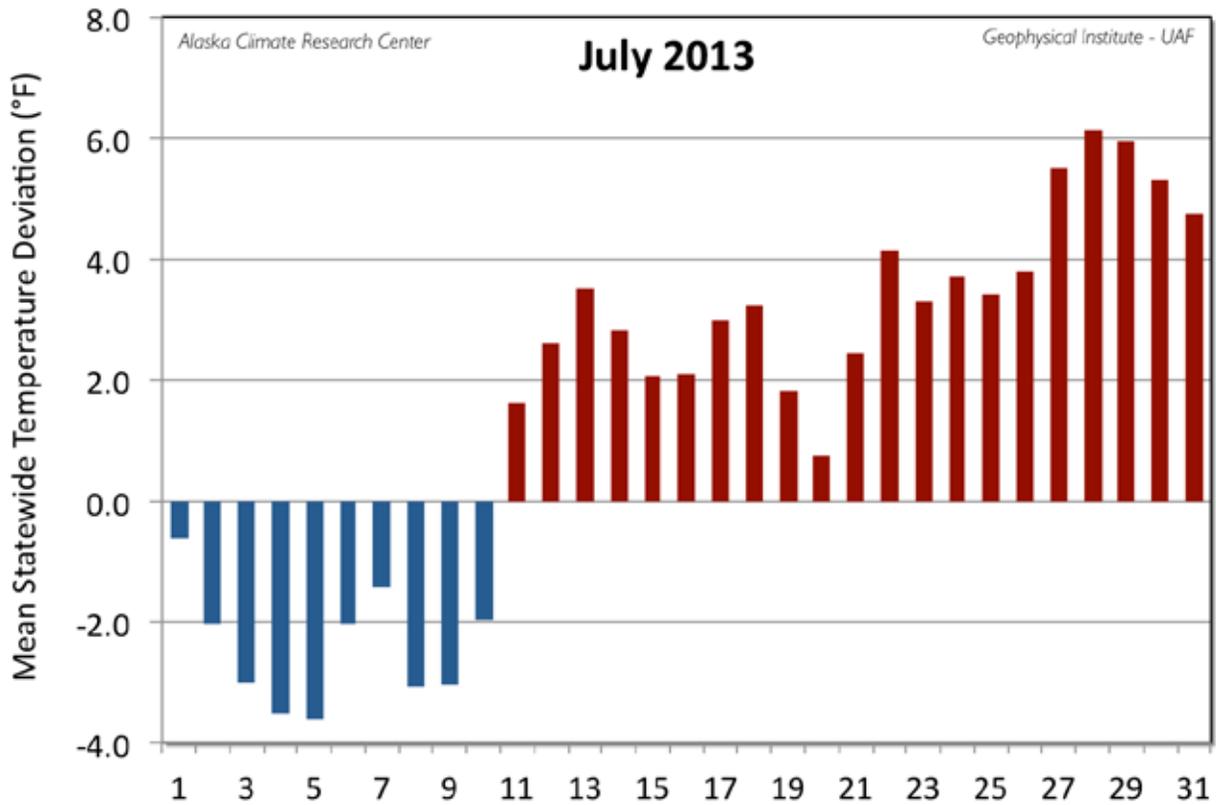
# *Alaska Statewide Climate Summary*

July 2013

### **Temperature**

Temperatures started off the month below normal for the first ten days, then stayed above normal, often significantly, for the rest of the month. The mean temperature of all first order stations for June was 57.2°F, 1.7°F above the long-term mean of 55.5°F. Sixteen of the 20 First Order Stations reported positive deviations, with Southcentral and Arctic stations reporting the most extreme deviations from their expected temperatures. Barrow, Valdez and Kodiak topped the list with the same positive deviation of 3.5°F; following stations were: Gulkana (3.1°F) and Cold Bay (3.0°F). Below normal temperatures were reported for Bettles (-0.8°F), Nome (-0.6°F) and St. Paul Island (-0.2°F), while McGrath measured with 60.0°F exactly the long-term value. Anchorage had a total of 19 days in July had temperatures of 70°F or higher, tying the previous record set in 1977. In addition, there were 15 consecutive days with temperatures at least 70°F, breaking the old record of twelve days from 1953. Fairbanks saw nine days where the temperature hit at least 80°F, bringing the total to 30 days for the summer, and tying the record set in 2004.

Station	Temperature		
	Observed (°F)	Normal (°F)	Delta (°F)
Anchorage	61.5	58.8	2.7
Annette	60.4	58.6	1.8
Barrow	44.4	40.9	3.5
Bethel	56.6	56.1	0.5
Bettles	58.9	59.7	-0.8
Cold Bay	53.9	50.9	3.0
Delta Junction	62.1	60.2	1.9
Fairbanks	64.3	62.5	1.8
Gulkana	60.7	57.6	3.1
Homer	56.5	54.6	1.9
Juneau	57.6	56.9	0.7
King Salmon	57.7	55.5	2.2
Kodiak	58.0	54.5	3.5
Kotzebue	56.5	54.6	1.9
McGrath	60.0	60.0	0.0
Nome	51.6	52.2	-0.6
St. Paul Island	47.0	47.2	-0.2
Talkeetna	62.1	60.1	2.0
Valdez	58.9	55.4	3.5
Yakutat	55.2	54.3	0.9



*Daily mean temperature deviation from the normal temperature for the mean of the 20 first order stations for July 2013.*

July brought a fair number new daily record temperature events that reflected the overall trend for the month, with only four new record lows reported, and all during the first week of the month with two each at King Salmon and Bettles. Record high temperatures outnumbered lows more than five to one. King Salmon set two new lows at the beginning of the month then went on to set or match four record highs. The new daily record low of 31°F on the 5<sup>th</sup> is also a new monthly low for King Salmon for July.

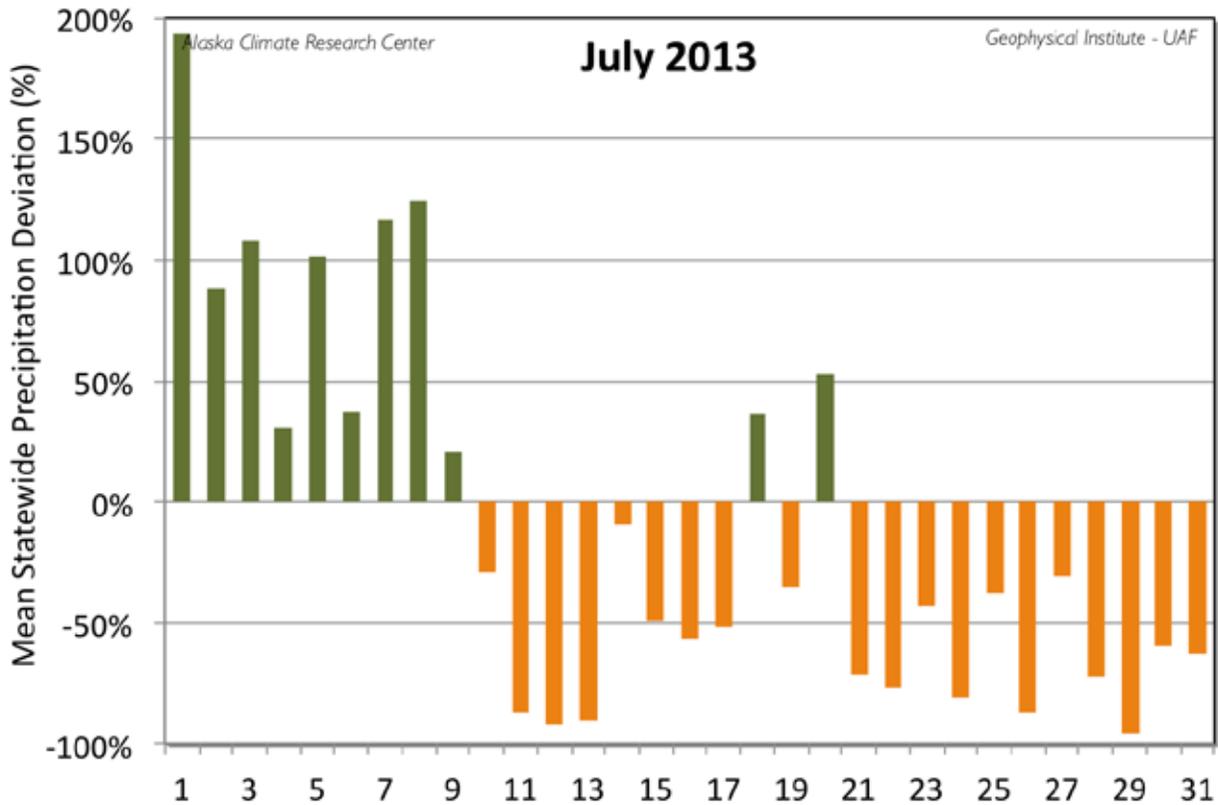
Date	Temperature Records				
	Station	Element	New Record	Old Record	Year of old Record
07/04/13	Bettles	Low Temperature	39	39	2001
07/04/13	King Salmon	Low Temperature	37	38	1981
07/05/13	King Salmon	Low Temperature	31	35	1981
07/06/13	Bettles	Low Temperature	40	40	1976
07/13/13	King Salmon	High Temperature	81	80	2003
07/13/13	Kotzebue	High Temperature	78	78	2009
07/16/13	Annette	High Temperature	84	80	1958
07/21/13	Valdez	High Temperature	82	72	1964
07/22/13	King Salmon	High Temperature	79	77	1980
07/22/13	St. Paul	High Temperature	64	61	1993
07/22/13	Valdez	High Temperature	77	73	2005
07/23/13	Homer	High Temperature	73	73	1955
07/24/13	Homer	High Temperature	72	70	1933
07/24/13	Kodiak	High Temperature	73	73	1982
07/24/13	St. Paul	High Temperature	62	61	2005
07/24/13	Valdez	High Temperature	77	76	2005
07/25/13	King Salmon	High Temperature	80	80	1953
07/25/13	St. Paul	High Temperature	59	58	2005
07/26/13	Bethel	High Temperature	80	79	1953
07/26/13	Homer	High Temperature	55	55	2004
07/26/13	King Salmon	High Temperature	82	79	1987
07/28/13	Delta Junction	High Temperature	85	83	1953
07/28/13	McGrath	High Temperature	85	83	1953
07/29/13	Bethel	High Temperature	75	75	1963
07/30/13	Gulkana	High Temperature	84	84	1953
07/31/13	McGrath	High Temperature	83	81	1972

## Precipitation

July precipitation was lighter than normal with sixteen of the 20 stations reporting below average totals. The mean value of all 20 stations was calculated to 19% below normal. June's deviation has been similar at 14% below normal. Kodiak reported the greatest negative deviation with just 22% of the expected value. Rounding out the stations with less than half of normal totals were Fairbanks (47%) and Talkeetna (49%). The two the stations with

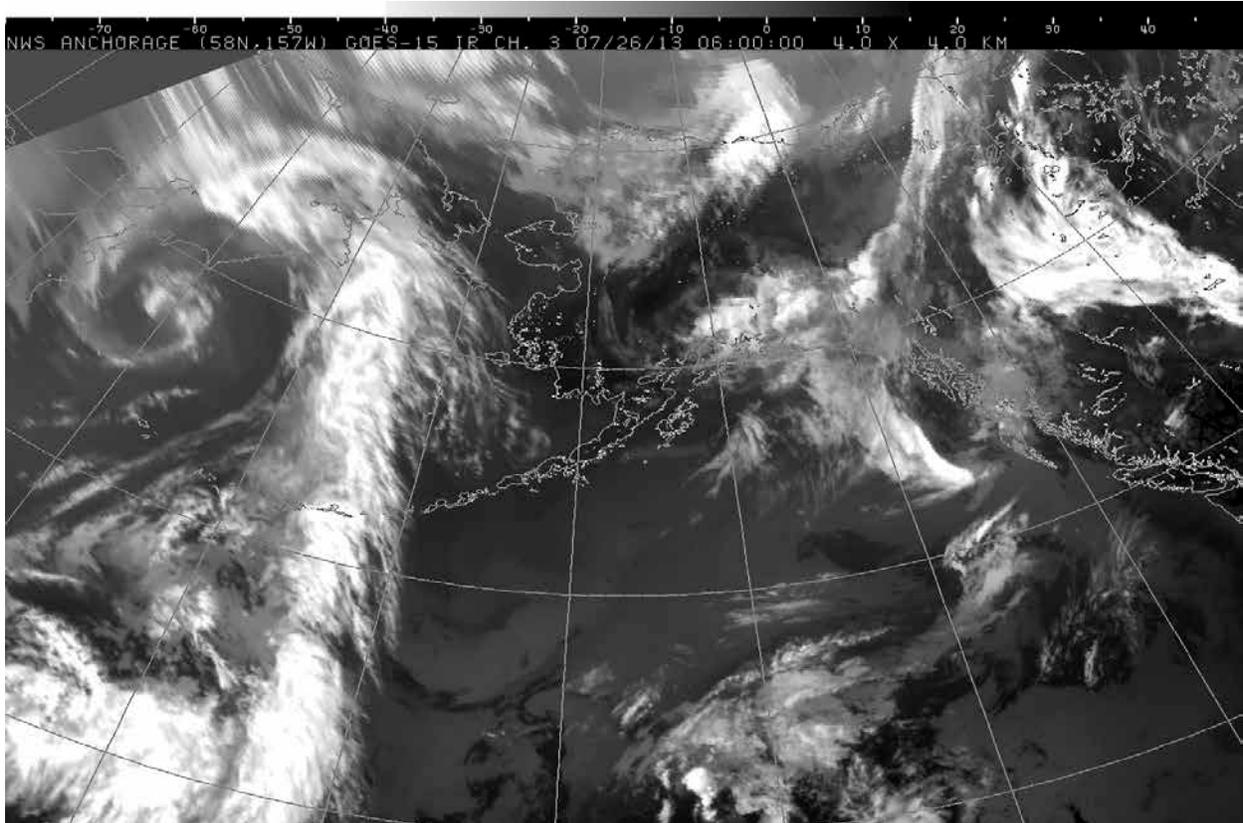
heavier than normal precipitation were Barrow with 71% above normal, and Cold Bay (49%). Precipitation details are presented in the following table.

Station	Precipitation				
	Observed (in)	Normal (in)	Delta (in)	Delta (%)	(%)
Anchorage	1.10	1.83	-0.73	-40%	60%
Annette	3.60	4.65	-1.05	-23%	77%
Barrow	1.68	0.98	0.70	71%	171%
Bethel	2.29	2.36	-0.07	-3%	97%
Bettles	1.51	2.36	-0.85	-36%	64%
Cold Bay	3.70	2.48	1.22	49%	149%
Delta Junction	1.54	2.68	-1.14	-43%	57%
Fairbanks	1.01	2.16	-1.15	-53%	47%
Gulkana	1.23	1.81	-0.58	-32%	68%
Homer	0.86	1.55	-0.69	-45%	55%
Juneau	4.45	4.60	-0.15	-3%	97%
King Salmon	1.30	2.30	-1.00	-43%	57%
Kodiak	1.06	4.93	-3.87	-78%	22%
Kotzebue	1.28	1.45	-0.17	-12%	88%
McGrath	1.92	2.38	-0.46	-19%	81%
Nome	2.12	2.11	0.01	0%	100%
St. Paul Island	1.62	1.85	-0.23	-12%	88%
Talkeetna	1.66	3.39	-1.73	-51%	49%
Valdez	4.09	4.04	0.05	1%	101%
Yakutat	6.51	7.88	-1.37	-17%	83%



*Daily mean precipitation deviation from the normal for the 20 first order stations for July 2013.*

Like June, the nice weather in July resulted in a low number of precipitation records. Specifically, there were just three to report, and all in the first week of the month, correlating with the precipitation trend represented in the above figure. On the 2<sup>nd</sup>, Valdez received a total of 0.63", topping the 2005 record of 0.45". Barrow totaled 0.41" on the 3<sup>rd</sup>, breaking the 0.36" record set back in 1958. Finally, on the 7<sup>th</sup>, Yakutat got hit with 2.46", breaking the old record of 1.91" from 1998. Kodiak had the third driest July since 1948.



*This infrared satellite image from the National Weather Service from on Friday, July 25<sup>th</sup>, 2013 demonstrates the 'omega block' that set up over the eastern Bering Sea during the second half of the month affecting the Southcentral portions of Alaska with nice weather.*

### **Newsworthy Events**

One of the big weather related news item for July was the Stuart Creek 2 fire, located east of Fairbanks. This fire, started on June 25<sup>th</sup> on military training grounds, ended up the month at over 85,000 acres. The fire generated an evacuation watch on the 2<sup>nd</sup> for residents of portion of Chena Hot Springs Road as well as closure of recreation trails, campgrounds and cabins in the area. The fire quieted some on the 4<sup>th</sup> and 5<sup>th</sup>, with cooler weather and some light rain, but grew quickly on the 6<sup>th</sup> and 7<sup>th</sup> and prompted evacuation orders to be issued. The orders were lifted on the 8<sup>th</sup>. The fire was 71% contained at the end of the month, as far as it could be given that a portion of the fire is located in hazardous areas on military training grounds. In other fire related news, the Skinny Road fire west of Fairbanks was in mop-up mode by July 6<sup>th</sup>, but smoke could still occasionally be seen throughout the month. A number of other fires were fought across the state in July. There were 20 record fires just in Denali National Park at the start of the month. The Moon Lake fire complex near Tok and Tanacross was also actively fought by fire crews.

The summer weather thus far has been somewhat similar to 2004, with dry conditions and above normal temperatures. 2004 was the worst fire season (6.4 million acres burned) since good observations exist for Alaska (since 1955). Luckily, at the end of the month, we are only somewhat above the normal area burned (about 1 million acres) so far, however, August could add to this. Nevertheless, June and July are the two months where most of the acreage is burned, based on historical data. One possible reason for the dissimilar acreage burned, is the less than normal thunderstorm strikes for the temperature conditions that have been observed.

The fairly heavy rainfall (up to two inches) across the Interior on the 8<sup>th</sup> prompted flood warnings to be issued on small streams feeding the upper Chena, Chatanika and Salcha rivers. Anchorage Fire Department lifted the burn ban from June on July 2<sup>nd</sup>, but then reinstated it on the 23<sup>rd</sup> in response to the warm, dry weather. The City of Kenai issued water restrictions at the end of the month due to low levels in the reservoir generated by the nice summer.

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Statewide August 2013

## *Alaska Statewide Climate Summary*

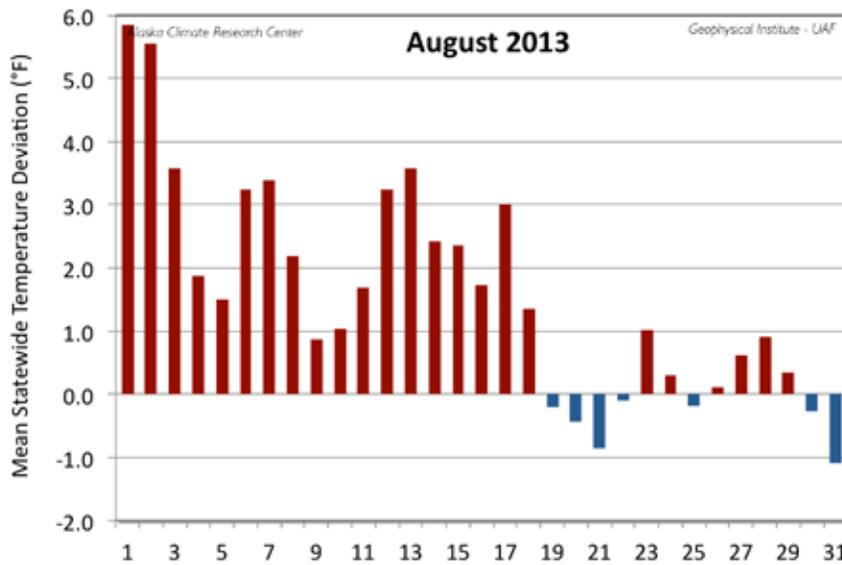
August 2013

### **Temperature**

Temperatures started off the month continuing the warm trend from July. The first of the month had the greatest positive deviation, and then temperatures trended to cool from that point until the first negative deviation was recorded on the 19<sup>th</sup>. Temperatures were mixed from that point on to the end of the month. The mean temperature of all first order stations for August was 54.9°F, 1.6°F above the long-term mean of 53.3°F. All 20 First Order Stations reported positive deviations, with Fairbanks topping the list with the positive deviation of 3.3°F. Following Fairbanks were: Delta Junction (3.1°F), Nome (2.9°F), and Homer (2.8°F).

Anchorage had a total of two days in August that recorded temperatures of 70°F or higher, bringing the summer total to 41, topping the record of 40 from 2004. In Valdez the 70°F mark was reached three times in August, bringing the summer total to 30. Fairbanks saw six days where the temperature hit at least 80°F, bringing the total to 36 days for the summer, and breaking the record of 30 set in 2004. In addition, Fairbanks had two more days with the max at or above 85°F for a summer total of 14, breaking the old record of ten from 1990 and 1986. Eagle also experienced a nice summer with a total of eleven days at or above 85°F, and 24 days that reached at least 80°F.

Station	Temperature		
	Observed (°F)	Normal (°F)	Delta (°F)
Anchorage	57.4	56.7	0.7
Annette	60.0	58.9	1.1
Barrow	39.6	39.0	0.6
Bethel	54.5	53.5	1.0
Bettles	52.9	52.5	0.4
Cold Bay	53.9	52.1	1.8
Delta Junction	57.9	54.8	3.1
Fairbanks	59.4	56.1	3.3
Gulkana	55.7	53.5	2.2
Homer	56.7	53.9	2.8
Juneau	57.9	55.9	2.0
King Salmon	55.8	54.6	1.2
Kodiak	56.1	55.2	0.9
Kotzebue	54.0	51.7	2.3
McGrath	56.6	54.6	2.0
Nome	53.0	50.1	2.9
St. Paul Island	48.9	48.8	0.1
Talkeetna	57.1	56.7	0.4
Valdez	55.2	53.7	1.5
Yakutat	56.1	53.8	2.3



Daily mean temperature deviation from the normal temperature for the mean of the 20 first order stations for August 2013.

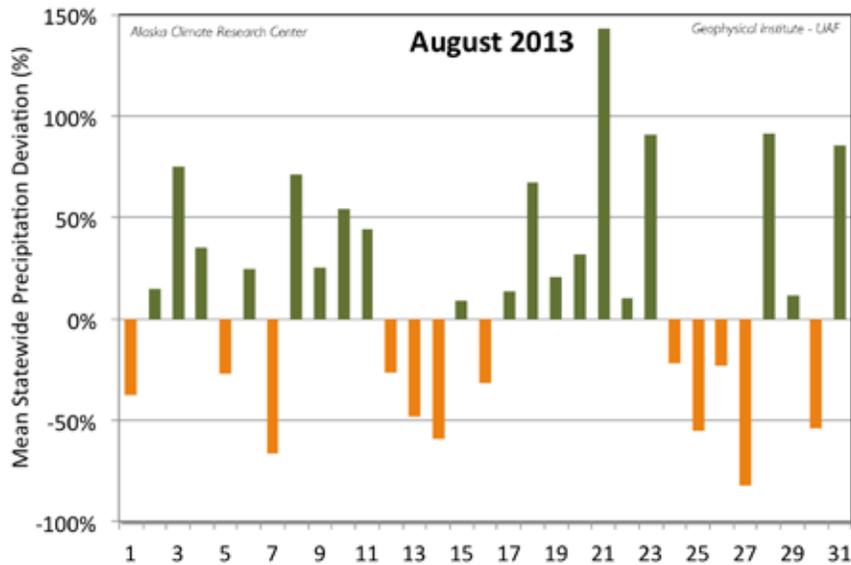
August brought a few new daily record temperature events that reflected the overall trend for the month, with only four new record highs reported; all during the first week of the month. Record low temperatures also numbered just four. Bettles set one new high at the beginning of the month, and then went on to set two new low records at the end of the month. The new daily record low of 15°F on the 31<sup>st</sup> is also a new monthly low for Bettles for August, breaking the old record of 22°F from 1974.

Date	Temperature Records				
	Station	Element	New Record	Old Record	Year of old Record
08/01/13	Petersburg	High Temperature	83	76	1971
08/05/13	St. Paul	High Temperature	57	57	1982
08/07/13	Bettles	High Temperature	83	82	1966
08/07/13	Fairbanks	High Temperature	85	83	1968
08/08/13	Kodiak	Low Temperature	40	41	1974
08/25/13	Delta Junction	Low Temperature	30	31	1993
08/26/13	Bettles	Low Temperature	28	29	1996
08/31/13	Bettles	Low Temperature	15	23	1968

## Precipitation

August precipitation was mixed, both temporally and spatially, with twelve of the 20 stations reporting above average totals. The mean value of all 20 stations was calculated to 12% above normal. August is the only month this summer with a positive precipitation deviation. Kodiak reported the greatest positive deviation with 104% above of the expected value. Rounding out the stations with greater than normal totals were King Salmon (82%), Cold Bay (76%), and Anchorage (67%). The two the stations with lowest precipitation below normal were Kotzebue with 31% of normal, and Bettles (39%). Barrow was the only station reporting snowfall in August with a total of 1.1", 0.2" above normal. Precipitation details are presented in the following table.

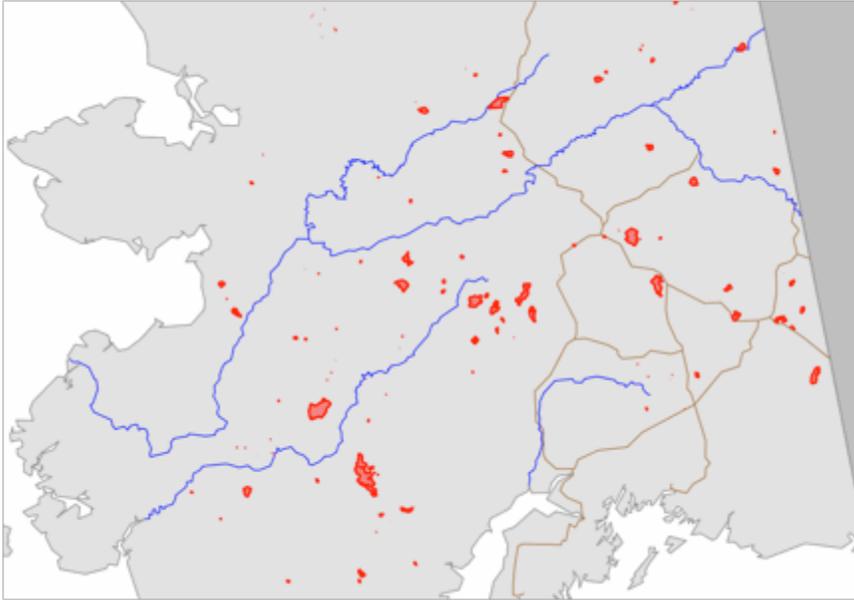
Station	Precipitation				
	Observed (in)	Normal (in)	Delta (in)	Delta (%)	(%)
Anchorage	5.42	3.25	2.17	67%	167%
Annette	4.71	6.96	-2.25	-32%	68%
Barrow	1.35	1.05	0.30	29%	129%
Bethel	3.28	3.25	0.03	1%	101%
Bettles	1.03	2.64	-1.61	-61%	39%
Cold Bay	6.49	3.68	2.81	76%	176%
Delta Junction	1.48	1.89	-0.41	-22%	78%
Fairbanks	2.02	1.88	0.14	7%	107%
Gulkana	1.89	1.80	0.09	5%	105%
Homer	3.39	2.34	1.05	45%	145%
Juneau	4.90	5.73	-0.83	-14%	86%
King Salmon	5.38	2.95	2.43	82%	182%
Kodiak	9.29	4.56	4.73	104%	204%
Kotzebue	0.67	2.18	-1.51	-69%	31%
McGrath	2.59	2.80	-0.21	-7%	93%
Nome	4.21	3.22	0.99	31%	131%
St. Paul Island	3.68	3.07	0.61	20%	120%
Talkeetna	4.99	5.11	-0.12	-2%	98%
Valdez	8.50	7.30	1.20	16%	116%
Yakutat	9.55	14.07	-4.52	-32%	68%



Daily mean precipitation deviation from the normal for the 20 first order stations for August 2013.

Mixed precipitation in August resulted in a few new records that were scattered throughout the month, and concentrated in southern coastal stations, with the exception of Fairbanks. Details are presented in the following table.

Date	Precipitation Records				
	Station	Element	New Record	Old Record	Year of old Record
08/03/13	Valdez	Precipitation	0.89	0.63	2000
08/08/13	King Salmon	Precipitation	0.99	0.54	1974
08/10/13	Valdez	Precipitation	1.98	1.35	1990
08/11/13	Anchorage	Precipitation	1.23	0.82	1991
08/18/13	Juneau	Precipitation	1.18	0.94	1970
08/21/13	King Salmon	Precipitation	0.93	0.67	1973
08/23/13	Fairbanks	Precipitation	0.68	0.50	2003
08/26/13	Cold Bay	Precipitation	1.20	0.86	1981



*Map displaying the fire perimeters in Alaska from summer of 2013. Data courtesy of Alaska Interagency Coordination Center (<http://fire.ak.blm.gov/>)*

### **Newsworthy Events**

The continuing warm dry weather at the start of the month encouraged the wildfires scattered throughout the state, especially in the Interior. The 3<sup>rd</sup> saw the historic Gold Dredge No 3 destroyed by fire, as well as a small wildfire start at mile 47 of the Steese Highway, that was quickly contained. Despite the increased danger, firewood cutting was allowed to resume in the Fairbanks area on the 3<sup>rd</sup>. The burn ban from July in Anchorage was lifted on the 8<sup>th</sup> due to the substantial rain during the proceeding week. As the dry conditions continued in the Interior, wildfires were stirred up and smoke was advected into the Fairbanks area during the second week of August. Conditions were so bad that a warning was issued for extreme fire danger in the Interior on the 9<sup>th</sup>. The 11<sup>th</sup> saw a new fire erupt 24 miles east of the Stuart Creek 2 fire near Fairbanks and was fought aggressively.. The Tabert Lake fire in the Copper River Basin jumped to 1,200 acres on the 15<sup>th</sup> and was also fought with firefighters and airplanes to protect private property. By the 20<sup>th</sup>, cooler, wetter, weather in the Interior had dampened the fire activity, and by the 26<sup>th</sup> firefighters were moving out of Alaska to the Lower 48 to assist with fighting efforts there. The 20<sup>th</sup> also saw the fireworks ban lifted in the Fairbanks Borough. It is interesting to note that the fire season was “good” as far as the weather conditions were concerned. The climate conditions had far above normal summer temperatures similar to 2004, however,

while in 2004 6.4 million acres burned, this summer season only 1.3 million acres burned, which is still above the long term mean of near 1 million.

Total rainfall of 2.88" on the 9<sup>th</sup> and 10<sup>th</sup> in Valdez caused the Lowe river to cover part of the Richardson Highway between miles six and seven. Wet weather prompted flood warnings for small streams in the Anchorage area on the 19<sup>th</sup>. Then the heavy rains in the Interior on the 20<sup>th</sup> hit Atigun Pass on the Dalton Highway as a blizzard. The first freezing temperatures were noted in the Fairbanks area on the 25<sup>th</sup> and 26<sup>th</sup>, but the Fairbank's Airport only had a low of 34°F on the 25<sup>th</sup>. The dry summer may have resulted in a bumper berry crop in the Fairbanks area, but negatively impacted hay production. The hay crop was estimated to be about less than half of normal for Fairbanks, Delta Junction and Palmer areas.

*This information consists of preliminary climatological data compiled by the Alaska Climate Research Center, Geophysical Institute, University of Alaska Fairbanks. This summary is based on the 20 first order stations in Alaska operated by the National Weather Service. Extreme events of other stations are also mentioned. It should be noted that the new climate normals for the time period of 1981-2010 are applied for the calculations of the deviations, and they can be slightly different from the old normals (1971-2000), which were in use up until end of August 2011.*

P.O Box 757320 Fairbanks, Alaska 99775-7320

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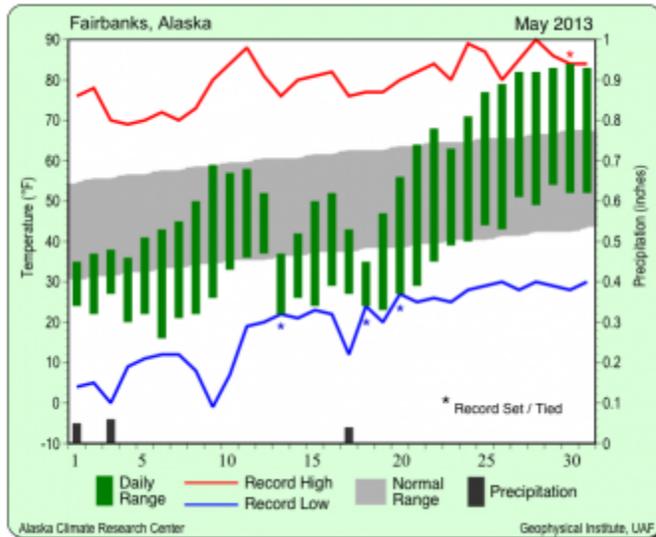


## MONTHLY SUMMARIES FAIRBANKS 2013

<http://akclimate.org/city->

[archive?field\\_year\\_list\\_value=2013&field\\_month\\_value=5&field\\_city\\_value=Fairbanks&=Apply](http://akclimate.org/city-archive?field_year_list_value=2013&field_month_value=5&field_city_value=Fairbanks&=Apply)

### Fairbanks May 2013

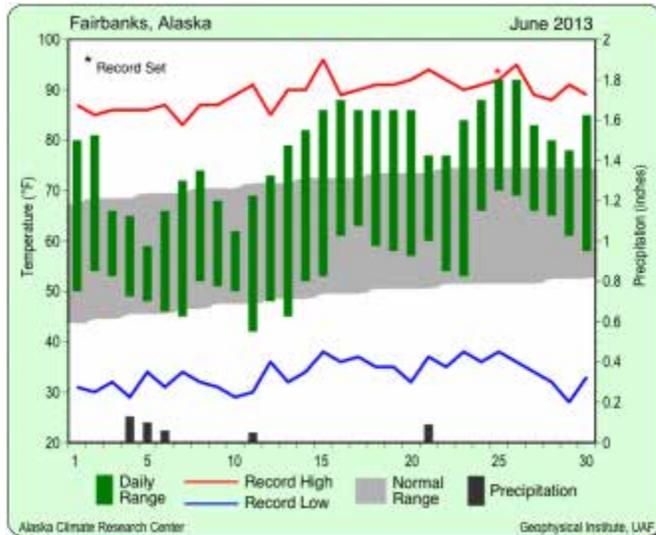


For **Fairbanks** May was overall **colder than normal**, with **below normal temperatures until the last 1/3 of the month**. The average temperature was 44.3°F, a hefty -5.1°F below the long-term mean of 49.4°F. **The highest temperature for the month was recorded on the 30<sup>th</sup>, a warm 84°F, which tied the highest temperature for this day with over a century of observations.** The minimum temperature occurred on the 6<sup>th</sup>, with a chilly 16°F. Further, two record low minimum temperature for May were broken, on the 18<sup>th</sup> 24°F was recorded, 3 degrees cooler than the old record set in 1943, and on the 20<sup>th</sup> the observed low of 27°F broke the old record set in 1964 by 1°F.

Precipitation in May was a mere 0.15", or 25% of the normal amount. The 2.0" of snowfall in May, however, was over double the normal amount of 0.9". 1.7" of the snowfall fell on the first three days of May. The mean wind speed was 5.4mph, while the max wind speed was 27mph on the 13<sup>th</sup>, blowing from a westerly direction.

**Dec Comments:** Extremes – very cold first 2/3, very hot last part of month. Very dry - cold air first 2/3 of month also means dry air. Followed by record temps – again dry. Overwinter duff drying at sfc fast.

## Fairbanks June 2013

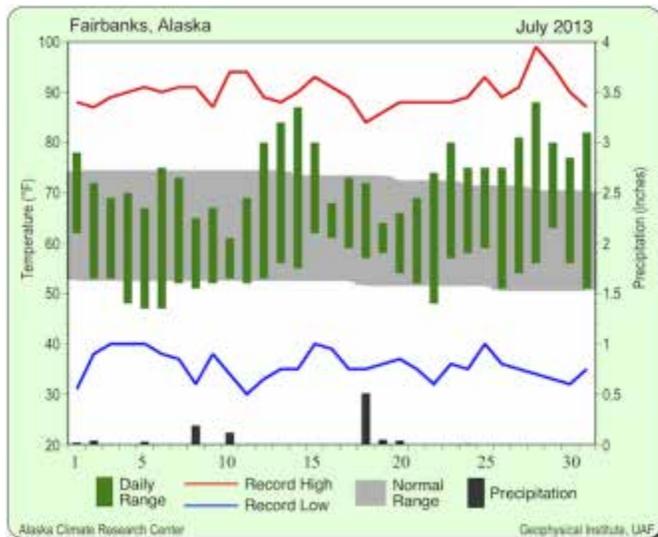


June in **Fairbanks** was warmer than normal, with a monthly mean of 66.8°F, or 6.4°F above the long-term mean of 60.4°F for the month. Only four days had a negative deviation from normal. The highest temperature occurred on the 25<sup>th</sup> and 26<sup>th</sup>, a sweltering 92°F was observed both days, setting a new daily maximum record on the 25<sup>th</sup>, one degree warmer than in 1983. In addition, the minimum temperature of 70°F on the 25<sup>th</sup> was the warmest minimum daily temperature on record for any day in Fairbanks. The coldest temperature for the month was 42°F on the 11<sup>th</sup>. In terms of the average temperature, June 2013 was the third warmest on record (108 years). Additionally, the minimum and maximum mean temperatures for the month were also the third warmest on record. June also saw sixteen days where the temperature hit 80°F or warmer, breaking the previous record of fifteen days from 1957.

Precipitation, however, was lighter than normal; 0.43" fell, just 31% of the expected amount of 1.37", making it the tenth driest in the last 101 years. The average wind speed was 5.8 mph, with the highest wind speed recorded on the 5<sup>th</sup>, at 36 mph from a westerly direction.

**Dec Comments:** Very hot and dry

## Fairbanks July 2013

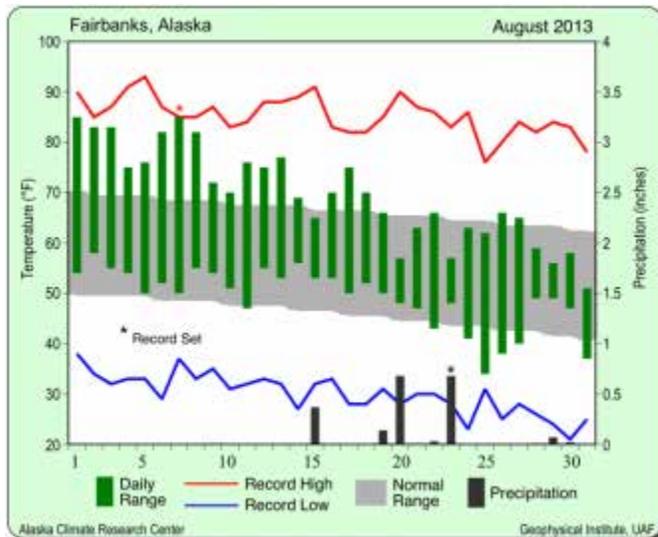


July in **Fairbanks** was warmer than normal, with a monthly mean of 64.3°F, or 1.8°F above the long-term mean of 62.5°F for the month, and 2.5°F cooler than June. The highest temperature was on the 28<sup>th</sup>, a hot 88°F, while the coldest temperature for the month of 47°F was observed on the 5<sup>th</sup> and 6<sup>th</sup>. In terms of the average temperature, July 2013 was the 14<sup>th</sup> warmest on record (108 years). July saw nine days where the temperature hit 80°F or warmer, bringing the total to 30 days for the summer, and tying the record set in the summer of 2004.

Like June, July's precipitation was lighter than normal, with 1.01", just 47% of the expected amount of 2.16", making it the 17<sup>th</sup> driest July in the last 101 years. The 0.51" that fell on the 18<sup>th</sup> was slightly more than half the monthly total. The average wind speed was 5.2 mph, with the highest wind speed recorded on the 1<sup>st</sup>, at 31 mph, from a westerly direction.

**Dec Comments:** Hot and dry with precip only 47% normal.

## Fairbanks August 2013

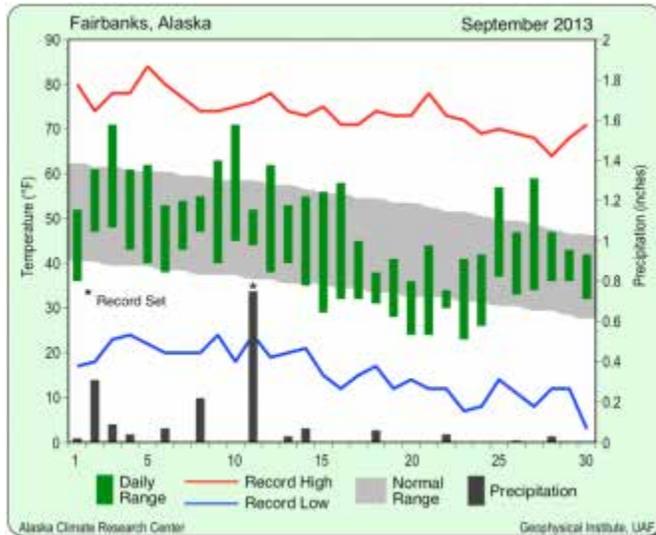


August in **Fairbanks** was warmer than normal, with a monthly mean of 59.4°F, or 3.3°F above the long-term mean of 56.1°F for the month. The highest temperature was 85°F on the 1<sup>st</sup> and 7<sup>th</sup>, and the high on the 7<sup>th</sup> is a new daily record, breaking the 1968 record of 83°F. The coldest temperature for the month of 34°F was observed on the 25<sup>th</sup>. Temperatures were above normal for the first 19 days, and then tended below normal till the end of the month. In terms of the average temperature, August 2013 was the 11<sup>th</sup> warmest on record (107 years). August saw six days where the temperature hit 80°F or warmer, bringing the total to 36 days for the summer, and breaking the record of 30 set in the summer of 2004.

August was the only month this summer where precipitation was above normal, with 2.02", just 7% above of the expected amount of 1.88". The 0.68" that fell on the 23<sup>rd</sup> was a new daily record, breaking the 0.50" record from 2003. The average wind speed was 4.0 mph, with the highest wind speed recorded on the 29<sup>th</sup> at 26 mph, from a westerly direction.

**Dec Comments:** Warm. Precip just 7% above average. IMPORTANT: WHEN did precip fall? Towards end of month? No smoke issues after approx.. 14<sup>th</sup>.

## Fairbanks September 2013



**Fairbanks** was 1.1°F below its long-term mean, with a temperature of 43.8°F for September. The warmest temperature for the month was recorded at 71°F on the 10<sup>th</sup>, but three days afterward, a cold spell occurred lasting nine days. On the 23<sup>rd</sup> a temperature of 23°F was recorded, the coldest temperature this month.

Precipitation in Fairbanks was 1.74", 158% of the normal amount of 1.10". On the 11<sup>th</sup>, 0.75" of rainfall, breaking the previous record for that day set in 1991. The first snowfall of the season was observed on the 18<sup>th</sup> September, with 0.6". This consisted of the majority of the snowfall for the month. The mean wind speed was a low 4.1 mph, while the highest wind gust was 33mph, blowing from a southwesterly direction on the 3<sup>rd</sup>.